

Pilot's Operating Handbook

American Champion – 7EC Champ

This manual has been prepared to inform the pilot of systems and features incorporated in the Model 7EC aircraft. The enclosed operating procedures and performance data are provided so that maximum utilization can be obtained with the utmost safety, economy and serviceability.

This manual does NOT replace the FAA approved placards and operating limits in a specific aircraft. If a difference exists between this manual and the FAA approved placards / operating limitations, the FAA approved placards and operating limitations shall be the authority.

This manual is provided to the 7EC "Champ" Owner for Flight and Operating procedures. It includes a copy of the aircraft Type Certificate as well as specifications and performance data. The 7EC Champ is designed and assembled so that proper care and maintenance will assure long life to the aircraft.

ATTENTION

When taxiing downwind with the Model 7EC, it is advisable in strong and gusty winds to taxi slowly with the stick well forward. Use particular care when turning from a downwind to a cross wind position. When a quartering tail wind is experienced, keep the aileron nearest the direction from which the wind is blowing in a DOWN position. With a quartering tail wind, always keep the stick directly away from the wind direction. Always face directly into the wind when "running up" the engine. Facing the wind tends to eliminate torque-quartering effects and aids engine cooling at high RPM.

GENERAL DESCRIPTION

The "Champ" is a two place, tandem, high wing monoplane. Basic fuselage construction is welded tubing with fabric covering. The wings are composed of two wooden spars with aluminum ribs and fabric covering. The wing leading edges are covered with aluminum sheet to provide a more efficient airfoil. Power is provided by a 95 hp engine and fixed pitch propeller. Engine vibrations are dampened by rubber mount bushings.

Basically the Champ is a conventional three control aircraft. The wheel type dual control system provides smooth and non-fatiguing control. Brake pedals are provided for the front and rear occupants. A trim tab on the left elevator compensates for load differences and provides for hands-off flight. The trim tab control is located above and between the two occupants. Engine controls are readily accessible from either seat. Concealment of cabin control cables provide greater cabin comfort. A large baggage compartment is located behind the rear seat to accommodate luggage and other items.

The "No Bounce" Oleo Landing gear is incorporated in the Champ. Much of the shock is absorbed in the oleo, thereby lessening fatigue in the rest of the airframe and wing structure. Ease in ground handling is assured with steer-able leaf spring tail wheel and positive-acting hydraulic brakes. Tie-down rings are incorporated at the strut wing attachment point for security in the event storage space is not available.

CABIN

Plexiglas windows are used throughout, assuring a minimum of discoloration due to exposure. When cleaning, all grit and foreign particles should be flushed off with clean water. Final cleaning should be done with a soft cloth and any recommended type of Plexiglas cleaner. **Never use dirty, oily rags to clean Plexiglas.** Rapid changes in temperature should be avoided, such as moving from a warm hangar to extreme cold, which will cause rapid contraction and breakage. Allowing fifteen minutes after Plexiglas has cooled is recommended before starting engine. Vibration increases possibility of breakage during cooling.

Instruments and controls are functionally grouped. The primary group center panel is sloped to provide better visibility of instruments. Oil temperature, oil pressure, tachometer, altimeter and airspeed instruments are standard. The carburetor heat control, switch, cabin heater control, throttle, mixture control, push/pull main fuel shut-off are mounted in a lower sub-instrument panel.

Fuel is stored in two wing tanks and the fuel valve is on the left side of the cabin directly below the instrument panel.

CAUTION: Checking for water in the sediment bowl should be done daily. Operating in cold weather and storing in a warm hangar with an unfilled fuel tank or operating in a climate where high humidity is prevalent are most probably causes for condensation and the presence of water in the system.

For cold weather starting, three slow movements of the primer pump as the propeller is turning over will force fuel directly into the induction system assuring quick, positive starting.

CAUTION: Be sure fuel vent lines to the tanks are not plugged. There is a vent for each tank in the wing outboard of the tank.

7EC Champ Specifications

Engine:

Continental

C-90-12F

Type Certification No.	E-252
Cylinder Bore	4 1/16
Stroke	3 7/8
Displacement	201 ci
Rated HP (sea level)	90 hp
Maximum RPM	2700
Recommended Cruise RPM	2425
Minimum Octane	73
Oil pressure - cruise	30-60
- Minimum	10
Oil Capacity	4.5 qt
Max Oil Temp (at 100 F outside temp)	220

Airframe

Length	21' 8"
Height	7'
Height Level	8' 8"
Wing Span	35' 2'
Aspect Ratio	7.25
Wing Chord	60"
Stabilizer Span	10' 2"
Wheel Tread	70"
Wheel Base	16'
Stabilizer Incidence	-5 degrees
Wing Dihedral	+2 degrees
Wing Incidence	+1 degree
Fin Offset	1" Left of Centerline
Cabin Width	36"
Cabin Height (floor to ceiling)	45"
Cabin Height (seat to ceiling)	35"

Weights

Empty Weight	880
Gross Weight	1450
Useful Load	630
Wing Loading	8.5
Power Loading	16.1 lbs
Baggage	50 lbs.

Performance

Cruising Speed	112 mph
Maximum Speed	129 mph
Landing Speed	40 mph
Rate of Climb	700 fpm
Fuel Capacity	26 gal
Range	450 miles
Fuel Consumption	5 gph
Oil Temperature	75 min. 220 max.
Oil Pressure	30 – 40 cruise
Propeller Limits	Max 2475 rpm Cruise 2300 rpm

OTHER SPEEDS (MPH)

Best Angle of Climb	50
Best Rate of Climb (0-5000ft)	68
Best Glide	67
Best MPG	60
Stall	40
Maneuver	80
Never Exceed	128

Preflight Inspection

1. Cabin

- Cabin Door - CHECK condition, security
- Door Latch, Open with slight inward pressure on door and move latch to down position, Close with slight pressure on door and move latch into locked-horizontal position
- Flight Controls - CHECK freedom of movement
- Trim tab - check for slight nose up position
- Magneto - OFF
- Fuel quantity Gauges - CHECK quantity
- Make a note of tach time and fuel quantity to determine endurance range
- Main Fuel Shut-off Valve - OPEN
- Primer Closed and Locked
- Seat Belts - CHECK condition, secure belt and harness if not in use
- Emergency Locator Transmitter - ARMED

2. Right Wing

- Wing leading edge and tip free of damage
- Aileron - CHECK condition, freedom of movement, security, hinges secure
- Wing Tip - CHECK condition
- Inspect the front and rear lift struts for straightness, dents and other damage.
- CHECK strut drain holes to ensure that they are not plugged and the struts do not contain water.
- If either of the above conditions is found, contact an authorized aircraft mechanic to determine aircraft airworthiness.
- Tie-down - REMOVE

3. Right Main Gear

- Chocks - REMOVE
- Tires - CHECK condition, inflation
- Brakes - CHECK condition, clips install, hub clean, cable tight
- Oleo undamaged, no leak, exposed strut similar on both gear

- Gear attach bolts secure no looseness
4. Fuselage (Right Side)
- Right Fuel tank - CHECK quantity, color, cap secure, vents free
5. Empennage
- Horizontal Stabilizer and Brace Wires - CHECK condition, security
 - Vertical Stabilizer - CHECK condition
 - Elevator, and Rudder - CHECK condition, freedom of movement, security, hinges lubricated and free safe
 - Elevator Trim tab – check cable and pulley condition
 - Rudder Trim tab – check for proper bend angle
 - Tail Wheel - CHECK condition, inflation, security, lubrication, pivot bolt vertical alignment, main spring bolts and clamp secure, return springs secure
6. Fuselage (Left Side)
- Left fuel tank – CHECK quantity, color, cap secure, vents free
7. Left Wing
- Wing leading edge and tip free of damage
 - Aileron - CHECK condition, freedom of movement, security, hinges secure
 - Wing Tip - CHECK condition
 - Inspect the front and rear lift struts for straightness, dents and other damage.
 - CHECK strut drain holes to ensure that they are not plugged and the struts do not contain water.
 - If either of the above conditions is found, contact an authorized aircraft mechanic to determine aircraft airworthiness.
 - Tie-down - REMOVE
8. Left Main Gear
- Chocks - REMOVE
 - Tires - CHECK condition, inflation
 - Brakes - CHECK condition, clips install, hub clean, cable tight
 - Oleo undamaged, no leak, exposed strut length similar on both gear
 - Gear attach bolts secure no looseness
9. Nose Section
- Windshield - CHECK condition, cleanliness
 - Oil - CHECK quantity level 3-1/2 Qts. Minimum, dip stick secure
 - Fuel - DRAIN gascolator, CHECK for leakage
 - Engine Compartment - CHECK condition, leakage, etc.

- Muffler pipes secure and tight
- Cowling and Access Panel - CHECK condition, security
- Propeller and Spinner - CHECK condition, security
- Air Filter - CHECK condition.

ENGINE PRE START

1. Mags Off
2. Fuel Shut-Off Valve - OPEN
3. Prime (2 shots) or Not as required, then lock primer
4. Brakes check
5. Carb heat OFF
6. Throttle Cracked
7. Set Brakes or Tie down tail
8. Pull Prop through eight blades
9. Set prop to just prior to impulse firing

BEFORE STARTING (also see notes and warnings below)

1. Adjust seat
2. Brakes applied
3. Throttle Cracked ¼ or less
4. Carburetor Heat COLD (IN)
5. Visually Clear area, shout clear to warn others
6. Mags switch on both
7. Pull prop through with McDowell Starter
8. Check Oil pressure 20 lbs with 20 sec or shut down with mags off
9. Seat Belts/Shoulder Harness - FASTENED
10. Altimeter set to field elevation
11. Compass indication correct
12. Fuel gauge indication correct.
13. Controls free
14. Brakes - SET
15. Cabin Door – CLOSED Pull door closed slowly and position door handle to horizontal with door pulled tight shut, check latch secure with some pressure to try to push door open (windows open as desired)

WARNING

Do not attempt to turn over and/or start the engine by hand unless you have had proper instruction and experience. If pulling the propeller through by hand is necessary, be sure the

master and magnetos are in the OFF position and the throttle closed. Have a pilot at the controls and chock/tie down the aircraft. When pulling the propeller through by hand, treat it as if the ignition switch is turned on. A loose or broken ground wire on either magneto could cause the engine to fire.

CAUTION

Do not over-prime or excessively pump the throttle (carburetor accelerator pump) due to the resulting fire hazard.

The use of the fuel primer will vary with each engine and temperature condition. If the engine is warm, little or no prime is required. During cold weather conditions, 4 to 6 priming strokes may be required.

During cold weather operation (below 20 degrees F) it is recommended that the engine be preheated by directing warm air through the opening in the bottom or front of the engine cowl. This practice will prolong the service life of the engine and starter.

In very cold weather, it is important to use the proper viscosity engine oil and to run the engine sufficiently long to bring the engine oil to the normal operating temperature.

During ground operation, the mixture should be FULL RICH and the carburetor/alternate air COLD to ensure good engine cooling and filtered air. Prolonged idle below 1000 RPM is not recommended due to plug fouling and insufficient cooling air when the aircraft is not in motion.

BEFORE TAXI

1. Controls free
2. Clear area
3. Oil temp increasing
4. Oil pressure 30 psi minimum
5. Seat Adjusted and Belts secure
6. Test Brakes after shot roll under low power
7. Check wind and use proper control positions for safe taxi

RUNUP

1. Head into wind
2. Oil pressure 30 psi minimum
3. Oil temp 100 deg minimum
4. Brakes secure
5. Control stick full aft
6. Throttle 1700 RPM
7. Left mag (100 RPM drop max)
8. Right mag (100 RPM drop max)
9. Mags switch BOTH
10. Carb heat (75 RPM minimum drop)
11. Static RPM 2150 minimum

- 12. Idle RPM 800 maximum
- 13. Controls free

Take-Off - Normal

- 1. Controls - CHECK Free and Correct
- 2. Instruments - CHECK
- 3. Trim - SET for take-off
- 4. Main Fuel Valve - OPEN (IN)
- 5. Aux Fuel Valve - CLOSED
- 6. Altimeter - CHECK
- 7. Windows and Doors - CLOSED AND LATCHED
- 8. Seat Belts/Harness - FASTENED
- 9. CLEAR RUNWAY and TRAFFIC PATTERN
- 10. Take Off
- 11. Establish Climb Speed

Best Angle	50 MPH
Best Rate 0-5000 ft	68 MPH
Best Rate 5-10000 ft	58 MPH
Max Range MGP	60 MPH

Cruise (Gross Weight, Sea Level)

- o Throttle - Set as Desired
- o Trim - Set for level flight
- o Get on Step for best cruise
- o Airspeeds

Level flight or climb	95 MPH
Glide or dive	128 MPH
Maneuver	80 MPH
Stall	40 MPH
Glide	67 MPH
Most Miles Per Gal.	69 MPH
Most Flight Time per Gal.	48 MPH
Landing	44 MPH

Aircraft landing characteristics are conventional. Either wheel landings or full stalls (3 point) are permissible. During gusty wind conditions, increase airspeed approximately 5 MPH above normal, and perform a wheel landing.

Full stall (3 point) landings are recommended for soft or rough fields.

Crosswind approaches can best be accomplished by using the wing down, top rudder method followed by either a full stall or wheel landing technique. Keep the lower wing into the wind after touchdown. Do not drop the tail until airspeed is well below flying speed.

CAUTION

The use of wheel brakes is not recommended until after the tail wheel is in contact with the ground. For maximum braking, the control stick should be FULL AFT.

Descent should be made with enough power to maintain cylinder and oil temperatures in the green arc. If possible, avoid windmilling the engine with the propeller by reducing airspeed or increasing power.

Landing

- Brakes - CHECK firm, parking brake OFF
- Approach Speed - 60 - 70 MPH
- Landing 50, touch down at 40

Shutdown

- Brakes (Cool) SET
- Engine - AT IDLE RPM
- Magneto Switches OFF
- Fuel Valve Off
- Carb Heat (cold)
- Intercom and Headsets Off
- Throttle Closed
- Doors and Windows Closed
- Check for Oil leaks or and damage
- Tie Down or Hangar

EMERGENCY

1. Maintain level flight
2. Select landing site into wind
3. Turn on ELT
4. Check Seat Belts
5. Best glide 55 MPH
6. Fuel selector ON
7. Carb heat ON

8. Master switch ON
9. Primer locked
10. Attempt restart
11. Fly the airplane
12. Notify 121.5 of your location on the radio if turned on and available
13. When no Engine start is possible close fuel valve and throttle lock primer
14. Come in high at low speed and slip to a landing once assured