

# Champion Aircraft Corporation

OSCEOLA, WISCONSIN

## SERVICE LETTER NO. 56

### CONVERSION - CHAMPION MODEL 7AC TO 7EC

PREPARED BY: Roy Andrie DATE: 4/10/63  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED BY: L. G. NELSON DATE: 4/10/63

#### REVISIONS

LET	BY	DATE	REVISIONS	PAGES AFFECTED

PREPARED BY TCB  
CHECKED BY \_\_\_\_\_  
APPROVED BY LGN

CHAMPION AIRCRAFT CORPORATION

PAGE 1  
REPORT S.L. #56  
SECTION \_\_\_\_\_

.0 FOREWORD

This Service Letter outlines the necessary changes required to convert a Model 7AC to a Model 7EC using a carburetor type engine.

.1 GENERAL

The Model 7EC aircraft differs from the Model 7AC by an increased gross weight, higher horsepower engine, improved landing gear, addition of an electrical system (optional), revised fuel system, certain structural changes in the fuselage, changes in control surface movements and an increased speed.

1. The basic wing structure of the Model 7AC is identical to the 7EC except for the addition of a wing tip bow brace 2-10001. (Ref. Champion Dwg. 7-774).
2. Control surfaces are identical.
3. Fuselage on the 7AC differs from the 7EC in the sizes of various members in the fuselage as called out in the Section under fuselage changes.
4. The landing gear on the 7EC has been strengthened over the 7AC by using an improved axle and oleo as called out under landing gear changes. No change is required in the tailwheel ass'y.
5. The change in horsepower is taken care of under engine changes.

PREPARED BY <u>RT</u>	CHAMPION AIRCRAFT CORPORATION	PAGE <u>2</u>
CHECKED BY _____		REPORT <u>S.L. #56</u>
APPROVED BY <u>LGN</u>		SECTION _____

6. Control Surface movements are taken care of under section changes in control surface rigging.
7. A new weight and balance section provides for the changes in gross weight and C.G. limits.
8. Placards required are covered in the section under Instrument Markings and Placard Changes.
9. The necessary fuel changes are covered in the Section under fuel system changes.

## .2 DESCRIPTION OF CHANGES

The following sections list the required changes, parts and/or Kits required to convert the aircraft.

### .20 ENGINE CHANGES

#### .200 ENGINE

The Continental A-65-8F or A-65-8 engine is replaced with a Continental C90-8F or C90-12F engine. Champion Aircraft Kit 206 provides the necessary parts and instructions to install the 90 H.P. engine.

#### .201 BAFFLES

Champion Aircraft Kit 207 provides the necessary parts and instructions to install baffles on the 90 H.P. engine.

PREPARED BY TCB  
CHECKED BY \_\_\_\_\_  
APPROVED BY LGW

CHAMPION AIRCRAFT CORPORATION

PAGE 3  
REPORT S.L. #56  
SECTION \_\_\_\_\_

.202 MUFFLERS AND CABIN HEATER

Champion Aircraft Kit #129 provides the necessary parts and instructions to install mufflers and cabin heater on the 90 H.P. engine.

.203 COWLING

The engine cowling is replaced with the following items:

<u>Part No.</u>	<u>Item</u>	<u>No. Req'd</u>
7-1068	Cowling - Engine Upper	1
7-1069	Cowling - Engine Lower	1
7-1081	Nose Bowl	1
7-1057	Installation Drawing	1
AN526-1032R8	Screw	23
AN960-10L	Washer	23

Installation of the above items shall conform to Drawing 7-1057.

.204 MISCELLANEOUS

The wraparound is replaced with one of the following:

7-509-1 Wraparound Ass'y - Used with the 13 gallon nose tank installation.

7-509-4 Wraparound Ass'y - Used with the wing tanks installation and existing low Instrument Panel.

7-509-5 Wraparound Ass'y - Used with the wing tanks installation and 7-1103 Radio Instrument Panel installation or 7-1120 Radio - Instrument Panel Installation.

PREPARED BY ROB  
CHECKED BY \_\_\_\_\_  
APPROVED BY LSN

CHAMPION AIRCRAFT CORPORATION

PAGE 4  
REPORT S.L. #56  
SECTION \_\_\_\_\_

The firewall is replaced with Part No. 4-861.  
Installation of the wraparound and firewall shall  
conform to Drawing 7-1055.

<u>Part No.</u>	<u>Item</u>	<u>No. Req'd</u>
7-509- (See above for correct part no.)	Wraparound	1
4-861	Firewall	1
7-1055	Drawing	1

A propeller spinner is available as an optional  
item. The following parts and instructions are included:

<u>Part No.</u>	<u>Item</u>	<u>No. Req'd</u>
1-8001	Washer	8
3-1070	Bulkhead	1
3-1071	Backplate	1
4-1029	Spinner	1
4-1028	Installation Drawing	1
AN526-1032-10	Screw	8

Installation of above items shall conform to  
Drawing 4-1028.

.21 FUEL SYSTEM CHANGES

The fuel system must be modified by one of two  
ways:

1. The addition of a 5.5 gallon auxillary wing  
tank installed in the right wing (Note: A  
optional 5.5 gallon wing tank, Champion

PREPARED BY TS  
CHECKED BY \_\_\_\_\_  
APPROVED BY UGA

CHAMPION AIRCRAFT CORPORATION

PAGE 5  
REPORT S.L. #56  
SECTION \_\_\_\_\_

Aircraft Kit #169, may also be installed in the left along with the right hand tank) Champion Aircraft Kit #163 provides the necessary parts and instructions to modify the aircraft in this manner.

2. The installation of two 13 gallon fuel tanks, one in each wing. (Note: The 13 Gallon nose tank is removed in this modification).

Champion Aircraft Kit #192 provides the necessary parts and instructions to modify the aircraft in this manner.

#### .22 ELECTRICAL SYSTEM

A complete electrical system is available as an optional item. A - 12 Series engine must be used for this installation. Champion Aircraft Kit #170 provides the necessary parts and instructions to install the electrical system. In addition to the parts required in Kit #170, the following is also needed: 4-878 Rear Floorboard 1 req'd.

#### .23 INSTRUMENT PANEL

The original 5-150 instrument panel may be retained. Placard 1-10011 or 1-2929 and 1-1786 must be installed on the instrument panel in clear view of pilot.

PREPARED BY RB  
CHECKED BY \_\_\_\_\_  
APPROVED BY LGN

CHAMPION AIRCRAFT CORPORATION

PAGE 6  
REPORT S.L. #56  
SECTION \_\_\_\_\_

.230 OPTIONAL INSTRUMENT PANELS

Two optional instrument panels are available. Kit #192 must also be installed in the aircraft when installing either of these panels.

1. Champion Aircraft Kit #208 provides the necessary parts and instructions to install the "low" 7-1120 radio instrument panel in the aircraft.
2. Champion Aircraft Kit #209 provides the necessary parts and instructions to install the "high" 7-1103 radio - instrument panel in the aircraft.

.231 INSTRUMENT MARKING CHANGES

In all cases irregardless of the instrument panel installed the instruments must be marked in the following manner.

1. Airspeed: Red line @ 135 MPH, yellow arc 100 MPH to 135 MPH, green arc 48 MPH to 100 MPH.
2. Tachometer: Red line @ 2475 RPM, green arc 1800 RPM to 2475 RPM.
3. Oil Pressure Gauge: Maximum and minimum red radial lines at 40 PSI and 10 PSI with green arc between limits.
4. Oil Temperature: Maximum and minimum red radial lines at 225 degrees and 100 degrees F. with green arc between limits.

PREPARED BY RA  
CHECKED BY \_\_\_\_\_  
APPROVED BY LGN

CHAMPION AIRCRAFT CORPORATION

PAGE 7  
REPORT S.L. #56  
SECTION \_\_\_\_\_

.24 LANDING GEAR CHANGES

The complete main landing gear is removed and a new improved gear installed. Champion Aircraft Kit #210 provides the necessary parts and instructions to install the gear. Note: The original wheel and brake ass'y may be retained if desired. Tires must be 4 - ply however.

.240 BRAKE SYSTEM CHANGES

The mechanical brake system may be retained or hydraulic brakes installed. Champion Aircraft Kit #189 A provides the necessary parts and instructions to install hydraulic brakes in the aircraft.

.25 WING CHANGES

The only required wing change is that of the addition of a 2-10001 brace at the wing tip. The following parts are required.

<u>Part No.</u>	<u>Item</u>	<u>No. Req'd</u>
2-10001	Brace	1
AN3-12A	Bolt	1
AN970-3	Washer	1
AN365-1032	Nut	1
AN960-10	Washer	1
AN526-832-16	Screw	1
AN340-8	Nut	1
AN936-38	Washer	1
7-774	Drawing	1

PREPARED BY <u>RL</u>	CHAMPION AIRCRAFT CORPORATION	PAGE <u>8</u>
CHECKED BY _____		REPORT <u>S.L. #56</u>
APPROVED BY <u>LGN</u>		SECTION _____

Installation of these parts shall conform to Drawing 7-774.

An optional fiberglass wing tip is available. Champion Kit #196 provides the necessary parts and instructions to install on the aircraft.

## .26 FUSELAGE CHANGES

The following tubes must be removed from the fuselage frame and replaced by the new tubes listed. Note: as an example 7-450-5 & 7-1050-5 are corresponding tubes, that is they are both found at the same location. Prior to removal of members in the fuselage frame the structure must be placed in a suitable jig to maintain proper alignment. It is recommended that the frame be held at the tailwheel fitting pad on the tailpost, landing gear front fittings and wing strut fittings.

<u>Tubes To Be Removed</u>	<u>Tubes To Be Installed</u>
7-450-5	7-1050-5
7-450-6 & -7	7-1050-6 & -7
7-450-9	7-1050-9
7-450-19	7-1050-19
7-450-20L	7-1050-20L
7-450-20R	7-1050-20R
7-450-26	7-1050-26
7-450-27	7-1050-27
7-450-36	7-1050-36
7-450-43	7-1050-43

PREPARED BY   *RL*  

CHAMPION AIRCRAFT CORPORATION

PAGE   9  REPORT   S.L. #56  SECTION           CHECKED BY           APPROVED BY   *LGN*  Tubes To Be Removed

7-450-62

7-450-63

3-444-4

Tubes To Be Installed

7-1050-62

7-1050-63

3-1050-4

Two finger gussets Part No. 1-3500 are to be added on each side of the fuselage at Station 20 as per Drawing 7-1050. Dorsal fin Part No. 7-792 is to be added as per Champion Kit #178. Additional fittings must be added to the fuselage frame if optional instrument panel is desired. (Ref. .231) Installation of these fittings shall be per drawing 3-1096.

.27 CONTROL SURFACE RIGGING CHANGES

Control surface movements must be changed to conform to the following values. Angular travel is shown in degrees for all surfaces and is the angle that the chord line of the control surfaces makes with the chord line of the fixed surface or the surface to which the control surface is attached.

.270 ELEVATOR

$\pm 2^\circ$                        $\pm 2^\circ$

Travel: Up  $24^\circ$  degrees, Down  $24^\circ$  degrees.

Cable Tension: 45 to 55 lbs.

Adjustment: By means of the two elevator stop bolts on the elevator horn and rigging of the cable turnbuckles just aft of the rear stick. ADJUST CABLE TENSION WITH ELEVATORS IN DOWN POSITION.

.271 ELEVATOR TAB

Travel: Up  $17\frac{1}{2}$  degrees, Down 37.5 degrees. (+2° -0°)

Cable Tension: 15 to 20 lbs.

Adjustment: By means of the two turnbuckles on trim tab cable just forward of the trim tab horn.

.272 RUDDER

Travel: 25degrees Left, 25 degrees Right. (+0° -2°)

Cable Tension: Not applicable.

Adjustment: By filing the rudder stop lugs located on vertical fin tube.

.273 AILERONS

Travel:  $27\frac{1}{2}$  degrees Up, 19 degrees Down. (+0° -2°)

Cable Tension: 15 to 22 lbs.

Adjustment: By means of the aileron push - pull rod located at the inboard end of each aileron and the control cable turnbuckles located in cabin enclosure.  
CABLE TENSIONS SET WITH AILERON & ELEVATORS IN NEUTRAL POSITION.

.28 WEIGHT AND BALANCE CHANGES

1. After completion aircraft must be reweighed and a new empty weight, C.G. and usefull load determined.

PREPARED BY RS  
CHECKED BY \_\_\_\_\_  
APPROVED BY LGN

CHAMPION AIRCRAFT CORPORATION

PAGE 11  
REPORT S.L. #56  
SECTION \_\_\_\_\_

2. A new equipment list, weight statement and operations card must be installed in the aircraft.
3. The maximum weight for the converted aircraft is 1450 lbs. and C.G. range is:

Forward Limit (+10.2) @ 1190 lbs.

Straight Line to (+15.0) 1450 lbs.

Rear Limit (+19.2) @ 1450 lbs.

The following items are required:

<u>Item</u>	<u>No. Req'd</u>
Pages 1 & 2 Weight & Balance Sheets	1 EA.
Operations Limitations Card	1

.29 MISCELLANEOUS OTHER CHANGES

1. The nameplate in the airplane must be restamped with proper Model designation and the letters "CONV" indicating it has been converted. Do not change airplane serial no. or alter it in any way.  
Example: Model <sup>EC</sup> 7~~XX~~ CONV
2. Install 1-854-4 Placard in baggage compartment.
3. A 7EC Parts & Service Manual is included for your convenience.

The following items are req'd.

<u>Part No.</u>	<u>Item</u>	<u>No. Req'd.</u>
1-854-4	Placard	1
	7EC Parts & Service Manual	1

CHAMPION AIRCRAFT CORPORATION  
Osceola, Wisconsin

MASTER PARTS LIST FOR SERVICE LETTER # 56

1. The following Service Kits are required, or are optional as noted:

<u>Kit No.</u>	<u>Title</u>	<u>No. Req'd.</u>
206	90 H.P. Engine Installation	1
207	90 H.P. Baffle Installation	1
129	Mufflers & Cabin Heater Installation	1
*163	R.H. Wing Tank Installation	1
*169(Optional)	L.H. Wing Tank Installation	1
*192(Optional)	26Gallons wing Tanks Installation	1
170(Optional)	Electrical System Installation	1
208(Optional)	"Low" Radio Instrument Panel Installation	1
209(Optional)	"High" Radio Instrument Panel Installation	1
210	Main Landing Gear Installation	1
189A (Optional)	Hydraulic Brake Installation	1
196(Optional)	Fiberglass Wing Tip Installation	1
178	Dorsal Fin Installation	1

\*Kit # 192 replaces both Kits 163 & 169

2. The following Drawings in addition to drawings included with the kits are required or are optional as noted.

<u>Drawing No.</u>	<u>Title</u>	<u>No. Req'd.</u>
7-774	Wing Frame Ass'y	1
7-1057	Installation - Engine Cowling	1
7-1055	Installation - Fuselage Covering	1
4-1028 (Optional)	Installation - Propeller Spinner	1
7-1050	Fuselage Frame Ass'y	1
3-1096 (Optional)	Installation - Instrument Panel Fittings	1

## CHAMPION AIRCRAFT CORPORATION

Oscoda, Wisconsin

~~(MASTER PARTS LIST FOR SERVICE LETTER NO. 50)~~

3. The following parts and hardware is required in addition to items provided with the Kits, or is optional as noted.

<u>Part No.</u>	<u>Title</u>	<u>No. Req'd.</u>
7-1068	Cowling - Engine Upper	1
7-1069	Cowling - Engine Lower	1
7-1081	Nose Bowl	1
ANS26-1032RB	SCREW	23
AN960-10L	Washer	23
4-861	Firewall	1
7-509-(See Section .204 of Service Letter #56 for correct No.)	Wraparound	1
1-8801(Optional)	Washer	8
3-1070(Optional)	Bulkhead	1
3-1071(Optional)	Backplate	1
4-1029(Optional)	Spinner	1
AN526-1032-10(Optional)	Screw	8
4-878(Optional)	Rear Floorboard	1
*1-10011	Placard	1
*1-2929(For <sup>ALT.</sup> 1-10011 Both Req'd)	Placard	1
*1-1786(For <sup>ALT.</sup> 1-10011 Both Req'd)	Placard	1
2-10001	Brace	1
AN3-12A	Bolt	1
AN970-3	Washer	1
AN365-1032	Nut	1
AN960-10	Washer	1
AN526-832-16	Screw	1
AN340-8	Nut	1

Both  
Req'd

CHAMPION AIRCRAFT CORPORATION  
Osceola, Wisconsin  
(MASTER PARTS LIST FOR SERVICE LETTER NO. 57)

<u>Part No.</u>	<u>Title</u>	<u>No. Req'd.</u>
1-854-4	Placard	1
7-1050-5	Tube	1
7-1050-6	Tube	1
7-1050-7	Tube	1
7-1050-19	Tube	1
7-1050-20L	Tube	1
7-1050-20R	Tube	1
7-1050-26	Tube	1
7-1050-27	Tube	1
7-1050-36	Tube	1
7-1050-43	Tube	1
7-1050-62	Tube	1
7-1050-63	Tube	1
3-1050-4	Tube	1
1-3500	Gusset	2

\* No placards required if Kits # 208 or # 209 are ordered

4. Miscellaneous Other Items Required

<u>Title</u>	<u>No. Req'd.</u>
Pages 1 & 2 of Weight & Balance Sheets	1 ea
Operations Limitations Card	1
7EC Parts & Service Manual	1