Aeronca Aircraft Conversions

Author: John Propst Technical Advisor: Bill Pancake

Abstract – This article outlines several methods commonly used for converting Aeronca aircraft. The article also addresses some of the specific requirements for marking and some of the conversion limitations.

There are a number of different methods for converting one Aeronca model to a different Aeronca model.

Probably the most well known are the Aeronca Service Letters (SL).

SL 7 covers the conversion of a 15AC to a S15AC (Seaplane Conversion)
SL 8 …..11CC to a S11CC (Seaplane Conversion)
SL9 …...7DC to a S7DC (Seaplane Conversion)
SL13…..7AC to a 7BCM with a C 85-8 engine
SL14…..7AC to a 7DC with C 85-8 engine
SL15…..7AC to a 7CCM with a C 90-8 engine
SL16…..7CCM to a S7CCM (Seaplane Conversion)
SL17…..11AC to a 11BC with a C 85-8 engine
SL23…..11BC to a S11BC (Seaplane Conversion)
SL29…..7EC to a S7EC (Seaplane Conversion)
SL56…..7AC to a 7EC with a C 90-8 or a C 90-12 engine
SL60…..7EC to a 7GC with an O-290 D2B engine

Conversion from one model to another using an Aeronca Service Letter can be documented with a standard FAA 337 and log book entry. It is important that the conversion be performed exactly as described in the Service Letter with no additions, deletions, or deviations. On conversions involving engine changes, the make and model of engine installed must be exactly as described in the service letter. Deviation from even one requirement of the Service Letter could violate the conversion. For example Service Letters 13 and 14 includes the installation of a Teledyne Continental Motor (TCM) C85-8 engine but does not cover the installation of a C85-12 engine. Other methods that address the installation of a C85-12 engine are described below. It should be noted that deviations from specific requirements within a Service Letter may be implemented through a Field Approval for the specific deviation. Typically a Field Approval would not be issued if the deviation was already covered by an existing STC. As an example, if a Service Letter conversion specified the use of Hanlon Wilson exhaust, one might consider obtaining a Field Approval for the use of a Cessna exhaust with the Service Letter conversion.

According to the requirements of the Service Letters, conversions other than seaplane conversions, requires stamping the aircraft nameplate with the <u>new</u> aircraft model designation followed by the letters CONV. For example a 7AC aircraft nameplate for a SL 13 conversion would be marked with the model

designation 7BCM CONV. Seaplane conversions in accordance with Service Letters do not have requirements for restamping aircraft nameplates.

However, the FAA later issued Order 8130.2 with a paragraph indicating that for aircraft model changes, the original aircraft nameplate should not be stamped and instead a duplicate nameplate with the new model designation should be mounted next to the original aircraft nameplate (see extraction below). The current revision of this order is Order 8130.2G, revised 8/31/2010. Therefore there is a Service Letter/STC nameplate stamping requirement that is in conflict with an FAA order. One FSDO has indicated that if the order was in effect at the time of the conversion then the requirements of the order would take precedent over the requirements of the SL/STC. We would suggest that if you are contemplating converting your aircraft, you discuss this potential conflict with your I/A and FSDO before you modify your original aircraft nameplate.

FAA Order 8130.2G
8/31/2010
Title of Order: Airworthiness Certification of Aircraft and Related Products

The following Chapter 2, Section 2, Paragraph 217 related to aircraft model change was extracted from the FAA order listed above. The order can be downloaded from the FAA.gov web site by searching on the order number 8130.2G.

217. AIRCRAFT MODEL CHANGE.
a. When an aircraft has been modified to conform to another model of the same make, the aircraft registration, airworthiness certificate, and aircraft ID plate must reflect the new model designation.
b. In addition to the existing ID plate, a new fireproof plate with the new model designation must be attached as close as physically possible to the original ID plate without obscuring it.
c. To maintain an accurate and continuous operating history for the aircraft, the original ID plate must not be altered in any manner.
d. The normal procedures, including any applicable inspections, apply when processing Form 8130-6. The amended airworthiness certificate will be identified with a capital "A" preceding the current date of the certificate being issued. If ownership of the aircraft has not changed, an application for aircraft registration, reflecting the new model designation, need not be submitted. AFS-750 will issue an amended registration certificate.

There are other documents that cover the conversion of Aeronca aircraft.
The Lasher STC SA232SO covers the change out of an Aeronca 7AC engine from a TCM model A65-8 to a TCM model C85-12 or C85-12F or the change of the Aeronca 7BCM engine from a TCM model C85-8 to a TCM model C85-12 or C85-12F. [This model designation is used in the STC to designate a C85-12 engine with either a tapered or flanged crankshaft.]

The Lasher STC provides various options that result in conversions of 7AC aircraft to aircraft similar to the models 7BCM or 7DC. The Lasher STC has an option for increasing the gross weight to 1300 lbs. provided the requirements of

the STC are followed. Among other things, the gross weight increase requires the addition of a larger tail fin and airframe braces.

The Lasher STC has requirements for restamping the aircraft nameplate that differs from the guidance and philosophy used in the service letters. The Lasher STC requires that the aircraft nameplate be restamped as 7AC CONV no matter which conversion options are selected, i.e. ALL aircraft converted under the Lasher STC should be designated as a 7AC CONV.

Coleman Wagner has two STC's for installing either a Lycoming O-235 engine or a Continental O-200 engine in Chiefs and Champs.

1. STC SA3-372 covers the engine installation in 7AC and 7AC Conv model aircraft.
2. STC SA57RM covers the engine installation in 11AC, S11AC, 11BC, S11BC, 11CC, and S11CC model aircraft.

Like the Lasher STC, the Wagner STC's have specific nameplate stamping requirements, and like the Lasher STC and conversion letters, the requirements are in conflict with the FAA Order 8136.

There are also a number of either seldom used or no longer active STC's related to Aeronca aircraft conversions. The Aeronca.com website has a link listing a number of STC's for Aeronca Champs. The FAA website has a searchable STC database. The FAA site is located at:

http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSTC.nsf/MainFrame?OpenFrameSet

There are a number of different fields that you can search on including aircraft make. If you search under American Champion Aircraft Corporation you will find most of the STC's related to Chiefs and Champs. If you need more information on what conversion options might be available for a specific model aircraft, the FAA website should be able to provide up to date information.

One last point is that Don Sword at "*Don's Dream Machines*" has an STC #SEO192AT that permits him to convert Continental -12 engines to -8 engines for C-75, 85, 90, and O-200 engines. Application of this STC would permit modifying a -12 to a -8 engine to comply with requirements in some Aeronca Service Letters that specify the use of -8 engines. Of course, when an engine is converted from a -12 to a -8, one cannot later add a starter or alternator. You should contact Don if you need additional information about his conversions. It should also be noted that a -12 engine cannot be "converted" to a -8 engine merely by installing the starter and generator cover plates on the back of the accessory case. Continental Service Bulletin M75-6 does cover the conversion of one engine model to another, but a cover plate conversion is not included under this service bulletin.

It is important to remember that all inspection, maintenance, alterations, and documentation should be done in accordance with Part 43 of the Federal Aviation Regulations (FAR).