# ADVISORY CIRCULAR

*By Steve Sachs*

Last May the FAA published AC 23-27. The circular makes part substitution much easier for pre 1960 aircraft. The 1960 date is the original Type Data Certification date, not the date of the production of the aircraft. If you have a 1985 Champ, you can use this because the original TDC A-759 was 1945.

The replacement must be at least equal to the original part. The AC allows the owner to substitute parts if 6 conditions are considered

1. Does replacing the part affect the interchangeability with future repairs?

2. Does the part interfere with mating parts?

3. Will safety be compromised?

4. Does the replacement have a detrimental effect on the overall product quality?

5. Is the part dissimilar to other installation? (I really do not know what this means) and

6. Does the replacement require special installations, inspections or operating procedures?
If all questions are answered no, you may use this circular.

A few good examples are wheel bearings, drive belts and lexan for side windows. The AC also gives you the authority to use 4130 steel in place of mild steel. All standard replacement parts must have a government approved specification. ASTM, SAE, and NAS are examples. This would be a SAE J636 specification for drive belts or an ANSI specification for bearings. Most NAPA parts will have specifications on the package and only require a log book entry to use. Any Mil Spec, AN or any other Government Specification is acceptable. This AC does NOT allow you to use Home Depot hardware. The bar code is NOT an approved specification

The circular also allows you to use original equipment or PMA parts on " your certified engine even if that engine is not the model approved for use on your aircraft model , and if the part is identical to (used on multiple engine models) the part for your engine model, or is listed as an approved substitute part by the engine manufacturer, then you may install the alternate part, and document the installation with only a log book entry"

Here is the best news. The AC allows you to use previously approved 337' s as approved data. This is block 3 approval from the FAA. You must have all supporting data attached. If it is good for one, it is good for another! More great news, you do not have to get any approval from your FSDO. Just attach the prior approved 337 and supporting data to your 337 and send to the FAA in OKC. The prior approved data is acceptable data for parts substitution . How many times have we asked our local FSDO to approve Cleveland brakes for a Piper J-3 Cub? What about that neat fuel shut off valve you saw on a Stearman that does not leak and is easy to rotate and cost $ 6.00? If you can find one previously approved, use it. We do not have to reinvent the wheel.

I helped get a Boeing Stearman back flying and in Standard Category. It had been a crop duster. I used AC 23-27 to get the 27" wheels legal and a Pratt 450 hp engine approved (prior 337' s). We got the Hooker Seat Belt and shoulder Harness approved (TSO, a government standard). A stainless steel /Teflon rotating fuel valve was approved (a prior 337). All these items could have approved with a lot of work, but with AC 23-27, several

items only required a log book entry and the rest were simple 337' s with no FSDO involvement. The DAR said more people should use the AC, but it would cost him a lot of money if they all did

Nashville FSDO hosts an annual IA seminar. FAA Inspector Bruce Bolton gave a talk on the circular. He asked you to please read the circular and use it. To use the circular, " you must follow the guidance in its entirety." There is much more information in the circular. It is easy to read and this is a great tool to keep the vintage aircraft flying. My thanks to the FAA.

(1) "Group 2 Memo" and ATC aircraft (both as approved by the Department of Commerce), and approvals issued per CAR 3, CAR 4, CAR 4a, CAR 8, and Aeronautics Bulletin 7; or

(2) TCs issued under 14 CFR part 23 where the aircraft was certificated before January 1, 1960, and meet the criteria in paragraph 7(a).

c. This AC limits discussion to the following conditions as they relate to function:

(1) You may use the substitute part/material on secondary structures. Examples of these would include fuselage formers and stringers (typically on steel tube fabric covered aircraft), side windows, material on fabric covered aircraft, and wheel bearings. These substitutions may be a minor repair or alteration, and as such can be documented by logbook entry. Also refer to section 13 "DOCUMENTING SUBSTITUTION" of this AC.

(2) You may substitute parts where a direct substitute for a part/material can be found under manufacturer part number, military specification, or other recognized standard, such as the SAE.

(3) When a direct substitution is not available, you may establish the replacement part/material as at least equal to the original part/material per standards such as military specifications and SAE (for example, the substitution of 4130 steel for milder steel). In these cases, substitutions should be consistent with information already available in maintenance documents (Civil Aeronautic Manual (CAM) 18, AC 43-13, etc.).

(4) You may use previously approved (per STC or field approval) part/material substitutions on like-type aircraft. If the part/material is installed with previously approved parts or material, PMA, technical standard order (TSO), NAS etc., and if it is completed in a similar manner consistent with a previous field approval or STC, you may use those approvals as the basis for approval on your aircraft. However, if you want to use a previous field approval or STC as the basis for approval on your aircraft, you must have all the previous field approval or STC data, including any instructions for continued airworthiness, or develop any missing data through support from an appropriately authorized DER or ACO approval and permission from the STC holder (14 CFR parts 21 and 91, §§ 21.120 and 91.403(d)).

## 8. DEFINITIONS

a. Major Repair. 14 CFR part 1, § 1.1 General definitions, defines a *Major repair* as one of the following:

(1) A repair that, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or

(2) A repair that is not done according to accepted practices or cannot be done by elementary operations.