



The Leader In Recreational Aviation

Supplemental Type Certificate for the use of Auto Fuel or
82 UL Avgas in accordance with STC SA01944CH and
STC SE01943CH

The Experimental Aircraft Association, Inc. authorizes the installation of STC
SA01944CH and STC SE01943CH on the following aircraft:

Make: CESSNA

Model: 177

Aircraft S/N: 177-00512

Registration No.: N3212T

Registered Owner: CHARLES H MOUNT JR

Once installed on the above aircraft this authorization shall remain with the aircraft upon
transfer of ownership. These STCs may not be transferred to other aircraft without
written permission from the Experimental Aircraft Association, Inc.

Date: 7 JANUARY 2008

**THIS AIRCRAFT IS APPROVED TO USE THE
FOLLOWING UNLEADED GASOLINES:**

Automotive Gasoline 87 MIN. AKI
Per ASTM Spec. D-4814

OR 82 UL Aviation Gasoline
Per ASTM Spec. D-6227 (Color Purple)

DO NOT USE AUTOMOTIVE GASOLINE CONTAINING ALCOHOL



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INSTRUCTIONS FOR INSTALLING SUPPLEMENTAL TYPE CERTIFICATES FOR THE USE OF AUTOMOBILE GASOLINE OR 82UL AVGAS IN APPROVED AIRCRAFT

The enclosed Supplemental Type Certificates, approved by the FAA for both your engine and your airframe, are the result of several years of research and hundreds of hours of flight engineering tests by the EAA Aviation Foundation, Inc.

As you know, the unleaded automobile fuel, which you purchase for your aircraft, must comply with ASTM specification D-439 or D-4814. While fuel meeting these specifications is widely available and, in fact, required by the laws of all states, it must be noted that it is the responsibility of the pilot in command to insure that the fuel meets the specifications. We recommend you use gasoline from known and reliable suppliers, and especially to observe precautions against fueling your airplane with contaminated fuel. **Do not use gasoline that contains alcohol.** The 82UL avgas must comply with ASTM specification D-6227 (color purple).

In order to apply these STC's to your aircraft you and your mechanic must take the following steps:

1. Determine that the enclosed FAA Approved Flight Manual Supplement has a raised EAA STC seal in the lower left corner of the document. If it does not have this seal, it is not a valid document and should not be processed.
2. Verify that your aircraft and engine are listed by make and specific model on the Approved Models List (AML) provided with the STC's.
3. Verify that there are no other STC's or other modifications (alterations) to the aircraft or engine that would have an adverse affect on the use of this STC.
4. You have been provided one placard for each fuel tank inlet. Remove the backing from the placard and place it adjacent to the fuel inlet. The area must be clean for good adhesion.
5. Place the FAA Approved Flight Manual Supplement in the aircraft. It must be in the aircraft and available to the pilot anytime the aircraft is being operated on unleaded auto fuel or 82UL avgas.

Note: Be sure that the gallon capacity of each tank is labeled as required. This can be done for your specific aircraft by an additional single placard if the old placard reading is not satisfactory.

6. The aircraft must be inspected by an A&P mechanic with Inspection Authorization for compliance with the Supplemental Type Certificate and an appropriate entry must be made in the aircraft log engine records. These STC's constitute a major alteration in accordance with FAR Part 43, Appendix A. Two FAA 337 forms, one for the aircraft and one for the engine, must be completed and submitted to the FAA by an IA.

You may now operate your aircraft using unleaded automotive fuel that meets ASTM specification D-439 or D-4814; or 82UL avgas meeting ASTM specification D-6227. Do not use gasoline that contains alcohol. Oxygenated fuels that contain ethers are approved for use under this STC. It is most important when using either avgas or autogas to insure that fuel in the aircraft is not contaminated with water or dirt. There is greater risk of this if you must fuel your airplane using portable cans. The FAA Advisory Circular AC 20-43C and EAA Field Information No. 303 contains information on fuel contamination. Be particularly cautious if you are operating with bladder fuel cells since ripples can form in the bottom of these cells under normal operations with either avgas or autogas and cause water to be trapped in the tank. This water can enter the rest of the fuel system during flight.

Review the Field Information sheets accompanying your STC's. Pay particular attention to Field Information No. 304 regarding vapor lock. Volatility is the only significant variant from avgas, which under extreme conditions requires extra care and attention.

If you have any questions or problems pertaining to the use of auto fuel, please call us at (920)426-4843 or email stc@eaa.org. More information can be found on our website www.eaa.org.

FAA
APPROVED
[Signature]
MAR 05 2004
Pages 1 and 2
CHICAGO AIRCRAFT
CERTIFICATION OFFICE
CENTRAL REGION



The Leader In Recreational Aviation

EXPERIMENTAL AIRCRAFT ASSOCIATION, INC.

SERVICE BULLETIN

Bulletin No. 2000-1

Revision No. 1

Date: March 1, 2000

Revised: January 20, 2005

SUBJECT: INSTALLATION OF REVISED FUEL PLACARDS

APPLICABILITY: This Service Bulletin applies to all aircraft previously modified in accordance with automotive fuel Supplemental Type Certificates (STCs) supplied by EAA Aviation Foundation or Experimental Aircraft Association, Inc. See attached list of aircraft models approved under EAA automotive gasoline STCs. This revision supersedes Service Bulletin 2000-1, dated March 1, 2000. Revision reflects change of ownership of STCs from EAA Aviation Foundation to Experimental Aircraft Association, Inc. and previous EAA Foundation consolidation of Autofuel STCs into two STCs specified as SA01944CH and SE01943CH.

REASON: A new aviation fuel known as 82UL has been approved in the United States. Due to the possibility of 82 UL having a higher volatility than previous aviation fuels and because of other differences from previous aviation fuels, it has been determined that some method of airframe re-certification was needed. Since, among many other things, volatility testing was conducted as an integral part of automotive gasoline STC testing and 82UL has a lower volatility requirement than automotive gasoline, the FAA has approved the use of 82UL aviation gasoline in aircraft which hold an Automotive Gasoline STC.

However, 82UL is not suitable for every airplane which utilizes an automotive gasoline STC. The octane of 82UL is more than adequate for use in engines that were originally rated on 80/87 or lower octane fuel. EAA STCs only cover engines that were certificated to 80/87 grade or lower gasoline. However, STCs issued for some higher compression engines require the use of 91 octane at a minimum. Airplanes so equipped are NOT ELIGIBLE for the use of 82UL. Installation of revised fuel placards is intended to clarify the minimum fuel octane requirement of each airplane modified to use automotive fuel and prevent the introduction of 82 UL into higher compression engines.

COMPLIANCE: No later than August 1, 2000, replace previously installed fuel placards with revised fuel placards which specifically state:

**THIS AIRCRAFT IS APPROVED TO USE THE
FOLLOWING UNLEADED GASOLINES:**

Automotive Gasoline 87 Min. AKI
Per ASTM Spec. D-4814

82 UL Aviation Gasoline
Per ASTM Spec. D-6227 (Color Purple)

DO NOT USE AUTOMOTIVE GASOLINE CONTAINING ALCOHOL

AVAILABILITY: Revised placards are available from the Experimental Aircraft Association, Inc. (920) 426-4843 or STC@eaa.org.

WEIGHT & BALANCE: No change to weight and balance.

INSTRUCTIONS: Remove and replace existing fuel placards with revised placards in accordance with this Service Bulletin.

AIRFRAME MODELS APPROVED

Revised 4/5/07

AERONCA INC. Bellanca Champion, Trytek Wagner, B&B Aviation, Citabria	Most models, 7 and 11 series. *7KCAB
ARCTIC AIRCRAFT CO. INC. Interstate	S-1A, *S-1B1, S-1132
BEECHCRAFT INC. Bonanza	35, A-35, B-35, C-35, D-35, E-35, F-35, G-35, 35R
CESSNA	120, 140, 140A, 150, 150A-H, 150 J-M, A-150K-M, 170, 170A, 170B, 172, 172A-E, 172E (T-41A), 172G, H, P-172, 172I, K, L, M, 175, 175A, B, C, 177, 180 180A-H, 180J, 182, 182A-P, 305A (0-1A), 305B, 305E (TO-1D, O-1D, O-1F), CP-55, CP-65, CS-65
COMMONWEALTH, INC. Skyranger, Rearwin	175, 180, 185
ERCOUPE, INC. Airco Skyranger and Rearwin	415C, D, E, G, 415-CD, F-1, F-1A, A-2, A-2A, M10
FUNK	B-85C
GRUMMAN, INC. Gulfstream American	AA-1, -1A, -1B, -1C, AA-5, -5A
LUSCOMBE, INC. Temco	8 Series, 11A
MAULE	M-4, Most Models
MOONEY	M-1 8C, -18C55, -18L, -18LA
PIPER	E-2, J-2, J-3 (Most Models), J-4 (Most Models), J-5 (Most Models), PA-11 (Most Models), PA-12 (Most Models), PA-14, *PA-15, PA-16, PA-17, PA-18 (All Models), PA-19 (All Models), PA-20 (All Models), PA22 (Most Models), PA-28-140, -150, -151
PORTERFIELD, INC. Rankin & Northwest	305C (O-1E), 305D (O-1G), 305E
STINSON	*108 Series, HW-75 10
SUPERIOR AIRCRAFT CO, INC.	LCA, *LFA, Culver, Cadet
TAYLORCRAFT	A, BC (Most Models)
VARGA	2000C, 2150, 2150A, 2180 (Some Models)
NOTE: * Airframe Approvals Only	** Requires Engine Modification

EAA STC for the use of Auto Fuel or 82 UL Avgas

Instructions for Continued Airworthiness

Introduction: This document provides instructions for maintaining an aircraft this is operated on auto fuel or 82 UL avgas under STC SA01944CH and STC SE01943CH. It is the owner/operators responsibility to ensure that the most recent revisions to the AFM Supplement or Field Information Bulletins are obtained and adhered to. The most recent revisions can be obtained by calling EAA at (920) 426-4843 or emailing stc@eaa.org.

Basic Operation: Basic operation of the aircraft remains the same. See FAA Approved Flight Manual Supplement.

Airworthiness Limitations: Remains the same.

Maintenance: Keep fuel tanks full whenever possible. Water condenses on the walls of partially filled tanks and enters the fuel system. Filter all fuel entering the tank. Drain fuel sumps regularly. Periodically inspect and clean all fuel strainers (screens) and occasionally flush the carburetor bowl as recommended by the aircraft manufacturer. The best insurance against fuel problems is to practice good housekeeping in your routine maintenance and be constantly alert.

Inspection: Refer to FAA Approved Flight Manual Supplement, Section II – Procedures, (A)(1) Preflight Inspection.

Troubleshooting: Remains the same.

Revisions: Should a revision to this ICA become necessary, a letter will be submitted to the Chicago ACO with a copy of the revised ICA.

REVISED SPECIAL AIRWORTHINESS INFORMATION BULLETIN

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460



U.S. Department
of Transportation
**Federal Aviation
Administration**

No. CE-00-191
April 5, 2000

SAIB's are posted on the internet at <http://av-info.faa.gov>

This is issued for informational purposes only and any recommendation for corrective action is not mandatory.

Introduction:

The purpose of this Special Airworthiness Information Bulletin (SAIB) is to *clarify text* as noted below and alert registered owners/operators of airplanes FAA approved for the use of high-octane automobile gasoline (**autogas**). *All other information provided remains the same.*

The FAA Small Airplane and Engine and Propeller Directorates have approved the use of 82UL gasoline (fuels meeting ASTM specification D6227) as an alternative to autogas (fuels meeting ASTM specifications D439 and D4814). Aviation 82UL gasoline has not been approved as an alternative to leaded grade 80/87 aviation gasoline.

Aviation 82UL gasoline **may not be used** as a substitute fuel on airplanes requiring autogas with an aviation lean {motor method (MON)} octane rating **greater than 82** or an antiknock index {(RON+MON)/2} **greater than 87**. Using this fuel on those higher performance engines originally approved for use with higher-octane fuels **could result in engine detonation and associated destructive damage.**

Aviation 82UL gasoline is **only approved** for use in airplanes incorporating supplemental type certificates (STC) approving the use of autogas with an aviation lean octane rating of **82 or less** or an antiknock index of **87 or less**. The minimum octane requirement unique to any airplane (and engine) approved for autogas is placarded.

Background:

Numerous STCs and several airplane and engine type certificates (TCs) have been issued approving the use of unleaded autogas. Airplanes and engines approved for autogas use have met the FAA certification requirements for engine detonation, engine cooling, fuel flow, hot fuel testing, fuel system compatibility, vapor lock, and performance.

Many of these approvals are for *regular* grade unleaded autogas in lieu of Grade 80/87 aviation gasoline. However, some of these approvals are for *premium* grade autogas in lieu of 91/96 or 100LL (100/130) aviation gasoline. Gasolines meeting the specification 82UL are intended for airplanes using lower-compression, lower-performance engines that were originally approved for use with Grade 80/87 aviation gasoline.

Aviation 82UL gasoline is produced from autogas stocks, but is more tightly controlled and does not allow many of the additives. Use of this fuel on higher performance engines originally approved for use with higher-octane fuels could result in engine detonation and associated

destructive damage. Therefore, 82UL gasoline may not be used as a substitute fuel for autogas approvals on airplanes that require fuels with an octane rating greater than 82, or an antiknock index greater than 87.

Recommendation:

The FAA highly recommends installing placards stating the use of 82UL is or is not approved on those airplanes that specify unleaded autogas as an approved fuel. Please contact the STC/TC holder directly for further information regarding the use of 82UL gasoline.

A majority of FAA STC approvals for autogas have been issued to either the Experimental Aircraft Association (EAA) or Petersen Aviation, Inc. Placards and instructions may be obtained for those STC's as follows:

EAA Service Bulletin: 2000-1 dated March 1, 2000

Petersen Aviation Service P-2000-1 dated February 15,
Bulletin: 2000

For Further Information Contact:

Scott Sedgwick, Aerospace Engineer; FAA Aircraft Certification Service, Small Airplane Directorate, 901 Locust Street, Rm 301, Kansas City, Missouri, 64106; telephone: (816) 329-4132; facsimile: (816) 329-4090; email: scott.sedgwick@faa.gov



U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

Subject: **INFORMATION:** Approval of Ethyl-Tertiary-Butyl-Ether (ETBE) Oxygenate Additive for use in Autogas Supplemental Type Certificates (STCs)

Date: DEC 1 1995

From: Manager, Small Airplane Directorate, ACE-100
Manager, Engine and Propeller Directorate, ANE-100

Reply to
Attn. of: Alpiser
(816) 426-6934


To: See Distribution

Methyl-Tertiary-Butyl-Ether (MTBE) oxygenate additive was approved for use in aircraft with autogas STCs on December 14, 1992. Advisory Circular (AC) 23.1521-1B was subsequently issued on March 2, 1995, permitting the use of MTBE additive. MTBE is used as a blending agent by the oil companies to increase the antiknock index of gasoline, and to meet Environmental Protection Agency (EPA) standards.

Ethyl-Tertiary-Butyl-Ether (ETBE) oxygenate additive is also being used by the oil companies to increase the antiknock index of gasoline and to meet EPA standards. Research tests, conducted at the FAA Technical Center, with autogas blended with ETBE have not shown any safety related problems. Material compatibility and performance data supplied by the Experimental Aircraft Association and Petersen Aviation, the main holders of autogas STCs, also have not shown any safety related problems with autogas blended with ETBE. FAA service difficulty reports do not reveal any material compatibility or safety issues with ETBE additive. Accordingly, the FAA has determined that autogas blended with ETBE can be used safely in aircraft.

Autogas blended with ETBE is approved for use in aircraft that are approved for the use of autogas by STCs.


Michael Gallagher


Jay J. Pardee

10/23/95
Date

11/21/95
Date