

United States of America
Department of Transportation — Federal Aviation Administration
Supplemental Type Certificate

8016913

Number SA2100CE

This certificate, issued to Petersen Aviation, Inc
Minden, Nebraska

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 4a of the Civil Air Regulations.

Original Product — Type Certificate Number: A-768
Make: Cessna
Model: 120, 140

Description of Type Design Change: Operation of airplane on unleaded automotive gasoline, 87 minimum antiknock index and leaded automotive gasoline, 88 minimum antiknock index (RON + MON)/2 per ASTM Specification D-439. Intermixing with aviation gasoline also approved. DATA REQUIRED: 1) Petersen Drawing Number 7659 dated April 18, 1985, or later "FAA Approved" revision. 2) Airplane Flight Manual Supplement dated August 10, 1984, or later "FAA Approved" revision.

Limitations and Conditions: Limited to those airplanes equipped with gravity fuel feed to the carburetor and Continental C-85-() or C-90 engines modified in accordance with STC SE2030CE or SE2031CE. This approval should not be extended to other specific airplanes of this model on which other previously approved modifications are incorporated, unless it is determined that the interrelationship between this change and any of these other previously approved modifications will introduce no adverse effect upon the airworthiness of that airplane.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: April 27, 1984

Date of issuance: April 26, 1985

Date reissued:

Date amended:

By direction of the Administrator

Robert A. Gambrill, Jr., Manager
Wichita Aircraft Certification Office

(Title)



Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.
This certificate may be transferred in accordance with FAR 21.47.

United States of America
Department of Transportation—Federal Aviation Administration
Supplemental Type Certificate

8016913

Number SE2030CE

This certificate, issued to Petersen Aviation, Inc.
Minden, Nebraska

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 13 of the Civil Air Regulations.

Original Product—Type Certificate Number: E 233 & 213
Make: Continental
Model: A75-3, -6, -6J, -8, -8F, -8J, -8FJ, -9, -9J, C-75-8, 8F, 8FH, -8FHJ, -8FJ, -8J, -12, -12F, -12FH, -12FHJ, -12FJ, -12J, -12B, -12BF, -12BFH, -15, -15F, C85-8, -8F, -8FHJ, -8FJ, -8J, -12, -12F, -12FH, 12FHJ, -12FJ, -12J, 14F, -15, -15F

Description of Type Design Change:

Add the following approved fuel: unleaded automotive gasoline, 87 minimum antiknock index and leaded automotive gasoline, 88 minimum antiknock index (RON + MON)/2 per ASTM Specification D-439. Intermixing with aviation gasoline also approved. DATA REQUIRED: 1. A copy of this certificate. 2. Petersen Drawing List C 75/85 dated September 25, 1984, or later "FAA Approved" revision.

Limitations and Conditions:

This approval should not be extended to other specific engines of this model that incorporate any other previously approved modification, unless it is determined that the interrelationship between this change and any other previously approved modification will introduce no adverse effect on the airworthiness of the engine. Specific approval must be obtained for each model aircraft to insure compatibility with its fuel system.
This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: August 27, 1984

Date reissued:

Date of issuance: November 21, 1984

Date amended: October 7, 1985

By direction of the Administrator



(Signature)
Robert A. Gambrill, Jr., Manager
Wichita Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.
This certificate may be transferred in accordance with FAR 21.47.

Petersen Aviation, Inc.

Auto Fuel STC's

Minden, Nebraska
Phone [REDACTED]



Your auto fuel STC is enclosed. Thank you for ordering.

Please read through all the paperwork carefully to insure that the information on your STC is correct. Check to make certain that the serial numbers match those of your airplane.

Check also the final paragraph on the airframe STC to make certain that the engine model number called for is the model number of your engine. For example: the Cessna 172 with the O-320 requires the E2D engine. If you have an O-320 with a model number other than the E2D, but one that is listed on the Engine STC then you must take the paperwork to your local FAA office to obtain field approval. Other aircraft may require different model number engines, or may not specify a model number at all.

An IA mechanic or Certified Repair Station must install these STC's, make a log book entry and send in FAA Form 337. The paperwork in the clear report folder then becomes a permanent part of your aircraft paperwork.

Should you eventually exchange engines, send us the old engine paperwork, the new engine serial number, and include a check for \$35.00. We will then revise our computer records and send you new paperwork to reflect the engine change. The red number on your STC paperwork is used by us to look up your file. Please refer to it or your "N" number when requesting information regarding your paperwork.

Not all airplanes require Flight Manual Supplements. Some airplanes require Flight Manual Supplements only for certain serial numbers; this is why we request your airplane serial number. If a Flight Manual Supplement is not included with your paperwork, it is because your serial number does not indicate that it is required.

Avoid fuel containing alcohol. Alcohol is corrosive and can damage the fuel system. Run the alcohol test (instructions enclosed on a separate card) on all the fuel you intend to use. We recommend using fuel produced by any of the major refiners. Avoid cut-rate stations.

Lead content of fuel (per gallon)

100LL = 2 grams

80/87 = 1/2 gram

Regular mogas = 1/10 gram maximum

Unleaded mogas = .001 gram

The EPA has ruled that the lead content of regular auto fuel must not exceed 1/10 gram of lead per gallon. The specifications allow the refiners to eliminate it altogether if they wish. Because of this, it is possible to obtain regular auto fuel which contains no lead at all.

When you overhaul your engine use avgas for the first 25 hours, to insure adequate lead during the break-in period.

Radial engines must use leaded fuel at all times. A mixture of 25% 100LL and 75% unleaded auto fuel would yield a lead content equivalent to 80/87 octane avgas.

Flat engines should have lead provided either as suggested above for radials, or by using a tank full of 100LL approximately every 75 hours.

100LL and auto fuel are absorbed by composite materials at identical rates. According to Facet Service Bulletin # A1-84A, all composite floats are supposed to be removed and replaced with metal floats upon the next overhaul or immediately if any of the following occur: 1) Flooding carburetor, 2) Rough engine at low throttle settings, 3) Inconsistent engine shutdown. One or more of these symptoms are supposed to develop prior to a float failure. These warnings can however be quite subtle, so we recommend that you change your float now rather than wait for a symptom to appear. Other symptoms can be: fuel flowing from the cowlings following engine shutdown, and/or a progressively richer running mixture. How do you tell if your carburetor has a metal float? According to the same Facet Service Bulletin the carburetor should have a metal float if: 1) It has an MF stamped or etched on the lower portion of the Marvel Shebler name plate. 2) It has a Facet Aerospace name plate. We have the redesigned metal floats available for \$120.00.

We are frequently asked about vapor lock. Under the right conditions vapor lock can occur with either avgas or autogas. Due to its higher volatility auto fuel has more potential for vapor lock. Vapor lock is a product of the fuel delivery system. The situation most conducive to the formation of vapor lock is using winter blend fuel during hot weather. Spring is the time of year when this combination of circumstances is most likely to be encountered. Caution should be exercised when flying with winter grade gasoline during warm days in the spring. Before take off conduct a full power run up to ensure normal fuel pressure and that full power is being developed. Avgas is blended with a Reid Vapor Pressure of 7 year around. Auto fuel, however, is blended with a RVP of up to 15 during the winter in northern states and as low as 9 during the summer. There is nothing wrong with using winter blend fuel in the winter. Storing fuel purchased between October and March, and then using it in your airplane during operations in an O.A.T. exceeding 75 is, however, not recommended. This is another reason for purchasing your fuel from someone who has a high turnover rate to insure that you are obtaining fresh fuel.

The most obvious way to avoid the vapor lock problem is to use Avgas on hot days. A mixture of Avgas and auto fuel will lower the RVP considerably, and would be another alternative. Perhaps the best method is to obtain and use a Hodges Volatility Tester which enables the pilot to test for the fuel's ability to cause vapor lock. Please see the enclosed brochure which discusses this tester. Other checks which can be done to help to avoid vapor lock include checking the condition of all fuel system hoses, and fittings. Be sure the hoses have not collapsed, or that the hoses are not allowing air to enter the fuel system. Fittings must be very tight to prevent air from entering the fuel system. Any unnecessary bends or elbows in the fuel system increase turbulence and increase the possibility of vapor lock. Also check to be sure that fuel system lines cannot shift in flight and come into contact with hot spots within the engine compartment. Some pilots choose to add fire sleeve to insulate fuel lines. Vent position and condition should also be checked.

Tests conducted at the FAA Tech Center have indicated that carburetor icing can develop sooner when using auto fuel than when using avgas. Total carburetor ice accumulation and rate with auto fuel was no worse than with avgas. Existing standard cockpit instrumentation is adequate to detect carb ice formation with auto fuel or avgas. Aircraft/engine performance changes will provide warning indications with sufficient time to correct deteriorating conditions prior to engine stoppage.

If you have any questions regarding your auto fuel STC please do not hesitate to call.

Thank you.



U.S. Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020

For FAA Use Only

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make Cessna	Model 140
	Serial No. 10205	Nationality and Registration Mark N73000
2. Owner	Name (As shown on registration certificate) Herrmann Henry D.	Address (As shown on registration certificate) Lakin, Ks.

3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in Item 1 above)				X
POWERPLANT	Continental	C-85-12	23455-6-12		X
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement

A. Agency's Name and Address Arlie L. Aeschliman Syracuse, Ks.	B. Kind of Agency ☒ U.S. Certificated Mechanic ☐ Foreign Certificated Mechanic ☐ Certificated Repair Station ☐ Manufacturer	C. Certificate No. [REDACTED]
--	--	---

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date 2-5-91	Signature of Authorized Individual [REDACTED]
-----------------------	---

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY	FAA Flt. Standards Inspector	Manufacturer	☒ Inspection Authorization	Other (Specify)
	FAA Designee	Repair Station	Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection 2-5-91		Certificate or Designation No. [REDACTED]	Signature of Authorized Individual [REDACTED]	

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Engine modified to use auto fuel in accordance with STC SE2030CE

Airframe modified to use auto fuel in accordance with STC SA2100CE

-----END-----

FEDERAL AVIATION AGENCY	
MAJOR REPAIR AND ALTERATION	
(Airframe, Powerplant, Propeller, or Aircraft)	
INSTRUCTIONS: Print or type all entries. Instructions and disposition of this form. See FAR 43.9, FAR 43.11, and FAR 43.13.	MAKE
AIRCRAFT	SERIAL NO. C-55504
2. OWNER	NAME (As shown on the repair order) Michael