United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

Number SA02425AK

This certificate issued to

Aero Twin, Inc.
2403 Merrill Field Drive
Anchorage, AK 99501

certifies that the change in the type design for the following product with the limitations and conditions thereto as specified hereon meets the airworthiness requirements of Part 23 of the Federal Aviation Regulations

Original Product – Type Certificate Number: A37CE
Make: Cessna Aircraft Company
Model: 208 and 208B

Description of Type Design Change:

Installation of Deice Cycler in accordance with Aero Twin, Inc. Master Data List, document number DT8-MDL, dated January 31, 2014, or later FAA approved revisions.

Limitations and Conditions:

1. The compatibility of this design change with previously approved modifications must be determined by the installer.
2. If the holder agrees to permit another person to use this Certificate to alter the product, the holder shall give the other person written evidence of that permission.
3. Aircraft Flight Manual Supplement, document number DT8-AFMS, Original Issue, dated January 31, 2014, or later FAA approved revision is required to be carried on the aircraft as part of this modification.
4. For Instruction for Continued Airworthiness, refer to Aero Twin, Inc. Installation Instructions and Instructions for Continued Airworthiness, document number DT8-ICA, dated December 31, 2012, or latter FAA accepted revisions.

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: November 23, 2011
Date of issuance: January 31, 2014

Date reissued:
Date amended:

By direction of the Administrator

(Signature)

August A. Asay
Manager, Anchorage Aircraft Certification Office

(Title)

Aero Twin, Inc.
2403 Merrill Field Drive
Anchorage, Alaska 99501
(907) 274-6166

FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
for
CESSNA MODEL 208 & 208B

Aero Twin, Inc. De-Ice Cycler Kit No. DT8-100

Doc. No. DT8-AFMS

Registration No. _____

Serial No. _____

This Supplement must be attached to the Cessna Aircraft Company Pilot's Operating Handbook and FAA Approved Flight Manual for Cessna Model 208 or 208B when the airplane has Aero Twin, Inc.'s De-Ice Cycler (Kit No. DT8-100) in accordance with Supplemental Type Certificate (STC) No. SA02425AK.

The information contained herein supplements or supersedes the information of the basic Pilot's Operating Handbook and FAA Approved Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this Supplement, consult the basic Pilot's Operating Handbook and FAA Approved Flight Manual.

FAA Approved: _____
Manager, Aircraft Certification Office
Anchorage, Alaska

Date: JAN 31 2014

REVISIONS

Changes and/or additions to this supplement will be covered by revisions published by Aero Twin, Inc. These revisions are available on Aero Twin, Inc.'s website, www.aerotwin.com. Owners should check the website periodically for current revisions.

NOTE

It is the responsibility of the owner/operator to maintain this handbook in a current status.

A revision bar will extend the full length of new or revised text and/or illustrations added on new or presently existing pages. This bar will be located adjacent to the applicable revised area on the outer margin of the page.

LOG OF REVISIONS

REVISIONS NO.	REVISIONS DATE	PAGES REVISED AND DESCRIPTION OF REVISIONS	APPROVAL SIGNATURE
--		Original Issue	

Aero Twin, Inc.
2403 Merrill Field Drive
Anchorage, Alaska 99501
(907) 274-6166

SECTION 1
GENERAL

Aero Twin, Inc. De-Ice Cycler: This airplane is modified to incorporate Aero Twin, Inc.'s P/N DT8-100 de-ice cycler. The cycler is added to the aircraft pneumatic de-ice system to allow for automatic repeated operation on either a one (1) or three (3) minute cycle. The system adds an amber DE-ICE CYC INOP warning annunciator to the annunciator panel, and a BOOT CYCLE SEL switch in the vicinity of the existing BOOT PRESSURE switch. This switch is used to select the automatic cycle duration, or to bypass the cycler.

SECTION 2
LIMITATIONS

All aircraft limitations are unchanged by the addition of the de-ice cycler kit DT8-100 except the following:

Boot Pressure switch must be OFF during takeoff and landing.

CAUTION

ACTIVATION OF THE DE-ICE BOOTS MAY RESULT IN AN INCREASE IN STALL SPEED BY AS MUCH AS 10-15 KIAS. LEAVING THE DE-ICE CYCLER SWITCH ON DURING TAKEOFF OR LANDING MAY RESULT IN UNEXPECTED ACTIVATION OF THE DE-ICE BOOTS WHILE AT SLOW SPEEDS AND LOW ALTITUDES, AND AN UNRECOVERABLE STALL.

SECTION 3
EMERGENCY PROCEDURES

DE-ICE CYCLER MALFUNCTION (Amber DE-ICE CYC INOP Annunciator Illuminated):

NOTE

The illumination of DE-ICE CYC INOP Annunciator indicates that the DE-ICE PRESSURE Annunciator has not illuminated for 3.5 minutes while the system is activated.

NOTE

At the selected one minute or three minute interval, the de-ice pressure annunciator should illuminate 3 times, approximately 3 seconds each time, during the 18-second cycle.

1. DE-ICE BOOT Circuit Breaker -- PUSHED IN.
2. Suction Gage -- CHECK.

If instrument vacuum is below normal and/or there is an audible leak in the forward cabin or left wing root area, expect a broken engine bleed air line and:

3. **Exit icing conditions as soon as possible using available non-vacuum powered instruments for attitude information.**

If instrument pressure is normal:

3. BOOT PRESSURE switch -- AUTO.
4. BOOT CYCLE SEL switch -- Select different interval.
5. DE-ICE PRESSURE annunciator -- Observe (should illuminate 3 times in 18 seconds, normally).

If DE-ICE PRESSURE annunciator illuminates normally (AUTO Mode):

6. BOOT CYCLE SEL switch --
   a) Select properly functioning interval.
   b) Select BYPASS/RESET as necessary to shed excessive ice accumulation, then return to properly functioning interval.

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If DE-ICE PRESSURE annunciator does not illuminate normally (AUTO Mode):

6. BOOT PRESSURE switch -- AUTO.
7. BOOT CYCLE SEL switch -- Hold BYPASS/RESET and release.
8. DE-ICE PRESSURE annunciator -- Observe (should illuminate 3 times in 18 seconds, normally.)

If DE-ICE PRESSURE annunciator illuminates (AUTO Mode), expect De-Ice Cycler malfunction:

9. BOOT CYCLE SEL switch -- BYPASS/RESET and release (continue as required to shed ice.)

If DE-ICE PRESSURE annunciator does not illuminate normally (AUTO Mode):

9. BOOT PRESSURE Switch -- MANUAL and HOLD for approximately 9 seconds.
10. Leading Edges -- VISUALLY OBSERVE for simultaneous inflation of all visible leading edge boots.
11. DE_ICE PRESSURE Annunciator -- OBSERVE (should illuminate within 6 seconds after activating BOOT PRESSURE Switch to MANUAL position).

If DE-ICE PRESSURE annunciator illuminates (MANUAL Mode):

12. BOOT PRESSURE Switch -- MANUAL and release (continue as required to shed ice.)
13. Exit icing conditions as soon as practical.

If DE-ICE PRESSURE annunciator does not illuminate or any of the leading edge boots do not inflate:

12. Exit icing conditions as soon as possible.

13. Maintain a minimum speed of 120 KIAS with flaps up (110 KIAS if climbing) or higher. If unable to maintain this airspeed in level flight, allow altitude to decrease to maintain airspeed or extend flaps to 10° and maintain airspeed of 105 KIAS or higher (95 KIAS if climbing).
14. If there are unshed ice accumulations along the wing, wing strut, and stabilizer leading edges during an approach and landing, follow the Normal Procedures under Section 4 of the Cessna icing supplement.

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WARNING

IN HEAVY ICING CONDITIONS, IT MAY NOT BE POSSIBLE TO MAINTAIN ALTITUDE OR PROPER GLIDE PATH ON APPROACH; IN THIS CASE, IT IS IMPERATIVE THAT A SAFE AIRSPEED BE MAINTAINED. THE AURAL STALL WARNING HORN MAY NOT FUCTION.

SECTION 4
NORMAL PROCEDURES

All procedures are unchanged by the addition of the de-ice cycler kit DT8-100 except the following:

BEFORE TAKEOFF:

1. BOOT PRESSURE Switch -- AUTO:
    a. BOOT CYCLE SEL Switch -- 1 MIN and 3 MIN. Visually check inflation and deflation cycle of stabilizer, wing inboard, main landing gear, wing outboard and wing strut deicing boots.
    b. BOOT CYCLE SEL Switch-- BYPASS/RESET and release. Visually check inflation and deflation cycle of stabilizer, wing inboard, main landing gear, wing outboard and wing strut deicing boots.
2. DE-ICE PRESSURE Annunciator -- CHECK ON within 3 seconds and OFF after 18 seconds with approximate 2-second OFF period after 6 and 12 seconds.
3. Boots -- CHECK VISUALLY FOR COMPLETE DEFLATION to the vacuum hold-down condition.
4. BOOT PRESSURE Switch -- MANUAL and HOLD. Visually check inflation of all visible boots and illumination of DE-ICE PRESSURE annunciator within 6 seconds.

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TAKEOFF:

1. BOOT PRESSURE Switch – OFF.

WARNING

DO NOT USE DE-ICE CYCLER DURING TAKEOFF AS THIS MAY RESULT IN UNEXPECTED BOOT INFLATION, CAUSING AN INCREASE IN STALL SPEED OF AS MUCH AS 10-15 KIAS.

NOTE

In rime and clear ice conditions, best results are obtained by activating the De-Ice Cycler at the first sign of icing.

IN FLIGHT:

At first sign of ice accretion:

1. BOOT PRESSURE Switch -- AUTO.
2. BOOT CYCLE SEL Switch – 3 MIN or 1 MIN as required to ensure ice buildup does not exceed 3/8 inch thick.
3. BOOT CYCLE SEL Switch – BYPASS/RESET as required to remove ice if high rates of airspeed decay are experienced or airspeed approaches minimum airspeed for icing.

LANDING:

1. BOOT PRESSURE Switch – OFF.

WARNING

DO NOT USE DE-ICE CYCLER DURING LANDING AS THIS MAY RESULT IN UNEXPECTED BOOT INFLATION, CAUSING AN INCREASE IN STALL SPEED OF AS MUCH AS 10-15 KIAS.

SECTION 5
PERFORMANCE
UNCHANGED

SECTION 6
WEIGHT AND BALANCE / EQUIPMENT LIST
UNCHANGED

SECTION 7
AIRPLANE & SYSTEMS DESCRIPTION

De-Ice Cycler: Aero Twin, Inc. De-Ice Cycler has been installed on this aircraft (See Figure 7.1). The De-Ice Cycler helps to reduce pilot workload by automatically cycling the de-ice boots at either one minute or three minute intervals. Recent studies in industry and by the FAA have shown that cycling de-ice systems at the first sign of icing and then repeating at one to three minute intervals is the best means for removing ice using a pneumatic system.

The BOOT PRESSURE Switch has been changed by the De-Ice Cycler installation. The AUTO position is no longer momentary, and must be manually returned to the OFF position during the Boot Pressure Switch systems check. A BOOT CYCLE SEL Switch has been added directly below the BOOT PRESSURE Switch to allow the selection of either a one minute or three minute cycle, or to bypass the cycler system completely. A DE-ICE CYC PWR indicator has been installed to the left of the BOOT CYC SEL switch to indicate that electrical power is being supplied to the De-Ice Cycler System.

An amber DE-ICE CYC INOP Annunciator is included to indicate a malfunction in the De-Ice Cycler system. The illumination of DE-ICE CYC INOP Annunciator indicates that the DE-ICE PRESSURE Annunciator has not illuminated for 3.5 minutes while the system is activated. The pilot must still be mindful of the DE-ICE PRESSURE Annunciator. Each time the De-Ice Cycler activates the Cessna De-Ice Timer (in either the 1 MIN, 3 MIN, or BYPASS/RESET position), the DE-ICE PRESSURE Annunciator should illuminate 3 times in 18 seconds. Any other illumination pattern indicates a malfunction of the De-Ice Timer.

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To use the de-ice cycler, place the Boot Press switch in the AUTO position and select a timer duration (1 MIN or 3 MIN) on the BOOT CYCLE SEL Switch. Switching the BOOT CYCLE SEL Switch between 1 MIN and 3 MIN immediately begins a new cycle and resets the DE-ICE CYC INOP Annunciator. The de-ice boots may also be cycled on-demand using the BYPASS/RESET position of the BOOT CYCLE SEL switch with the BOOT PRESSURE Switch in the AUTO position. The BYPASS/RESET position bypasses the De-Ice Cycler and provides power directly to the original De-Ice Boot Timer.

The operation of the MANUAL position of the BOOT PRESSURE Switch remains unchanged.

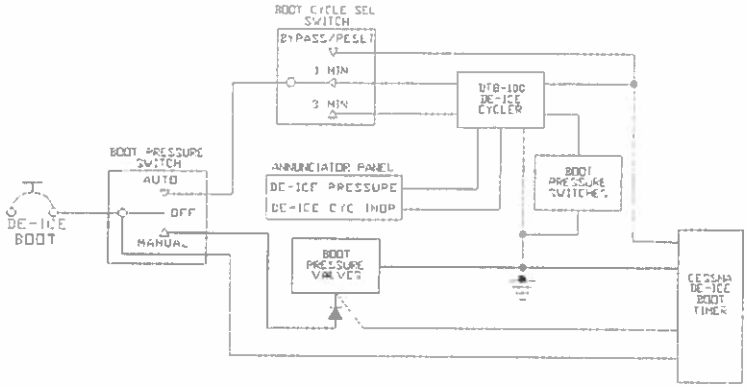

Figure 7.1 -- Simplified Wiring Diagram of DT8-100 Installation

SECTION 8
HANDLING, SERVICE & MAINTENANCE

INSPECTION PERIODS: FAA required inspection and maintenance schedules for the Aero Twin, Inc. De-Ice Cycler are described in the FAA approved Airworthiness Limitations section of the Instructions for Continued Airworthiness for the cycler, Document Number DT8-ICA. That document must be maintained with the basic aircraft maintenance manuals.

SECTION 9
SUPPLEMENTS

This Airplane Flight Manual Supplement must be included in the airplane with the basic Cessna Pilot's Operating Handbook and FAA Approved Flight Manual when Aero Twin, Inc.'s De-Ice Cycler is installed in accordance with this STC.

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