



U.S. Department of Transportation  
Federal Aviation Administration

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

Form Approved  
OMB No. 2120-0020  
2/28/2011

Electronic Tracking Number

For FAA Use Only

**INSTRUCTIONS:** Print or type all entries. See Title CFR §43.9, Part 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. §44701). Failure to report can result in a civil penalty for each such violation (49 U.S.C. §46301(a)).

<b>1. Aircraft</b>	Nationality and Registration Mark N3964Q	Serial No. 18502213
	Make CESSNA	Model A185F <span style="float: right;">Series</span>
<b>2. Owner</b>	Name (As shown on registration certificate) MENNEN PAUL	Address (As shown on registration certificate) Address 1452 OWEN SOUND DR
		City <u>SUNNYVALE</u> State <u>CA</u> Zip <u>94087</u> Country <u>USA</u>

### 3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type _____ Manufacturer _____		

### 6. Conformity Statement

<b>A. Agency's Name and Address</b>		<b>B. Kind of Agency</b>	
Name <u>KEVIN R. CATT</u>	Address <u>1585 MOFFETT ST</u> City <u>SALINAS</u> State <u>CA</u> Zip <u>93905</u> Country <u>USA</u>	<input checked="" type="checkbox"/> U.S. Certificated Mechanic	Manufacturer
		<input type="checkbox"/> Foreign Certificated Mechanic	C. Certificate No.
		<input type="checkbox"/> Certificated Repair Station	3462865
		<input type="checkbox"/> Certificated Maintenance Organization	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 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.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual  06-19-20013
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### 7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is  APPROVED  REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Person Approved by Canadian Department of Transport
	FAA Designee	Repair Station	<input checked="" type="checkbox"/> Inspection Authorization	Other (Specify)
Certificate or Designation No. 3462865		Signature/Date of Authorized Individual  06-19-2013		

# 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.)

N3946Q

Nationality and Registration Mark

06-19-2013

Date

REMOVED WINDSHIELD AND CESSNA WINDSHIELD CENTER STRIP AND INSTALLED A NEW GREAT LAKES AERO PRODUCTS, INC. WINDSHIELD P/N W/G-2073 AS PER GREAT LAKES AERO PRODUCTS, INC. STC NUMBER SA472GL AND GREAT LAKES AERO PRODUCTS, INC. INSTALLATION INSTRUCTIONS A-4 (6-29-2002) FOR CESSNA WINDSHIELD AND THE ELIMINATION OF THE CENTER STRIP. RELOCATED COMPASS TO TOP OF INSTRUMENT PANEL. NO CHANGE IN WEIGHT AND BALANCE. FOUND INSTALLATION TO BE COMPATIBLE WITH ALL OTHER AIRCRAFT SYSTEMS.

Additional Sheets Are Attached

Department of Transportation — Federal Aviation Administration  
**Supplemental Type Certificate**

*Number* SA472GL

*This certificate, issued to* Great Lakes Aero Products  
 2412 Davison Road  
 Flint, Michigan 48506

*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 3\* of the Civil Air Regulations. \*(See T. C. Data Sheet No. JA24 for complete certification basis.)*

*Original Product — Type Certificate Number* 3A24  
*Make:* Cessna  
*Model:* 185, 185A, 185B, 185C, 185D, 185E and 185F

*Description of Type Design Change:*  
 Installation of the Great Lakes Aero Products windshield part numbers W-2073, W/T-2073, and W/G-2073 on the Cessna 185, 185A, 185B, 185C, 185D, 185E, and 185F in accordance with Great Lakes Aero Products installation instructions A-4 revised October, 1980 or later approved revisions.

*Limitations and Conditions.*

The approval of this change in type design applies basically to the Cessna 185, 185A, 185B, 185C, 185D, 185E, and 185F series only. Compatibility of this modification with other previously approved modifications must be determined by the installer.

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

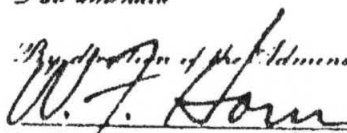
*Date of application:* October 16, 1980

*Date received* June 26, 1984

*Date of issuance:* November 17, 1980

*Date amended*



*By*   
 W. F. HORN (Signature)

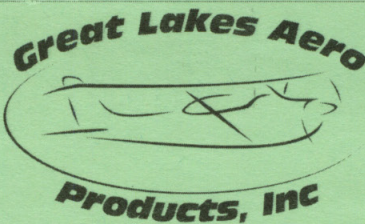
Manager, Chicago Aircraft Cert. Office, ACE-115C  
 Central Region

(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

915 Kearsley Park Blvd.  
Flint, MI 48503



(810) 235-1402  
www.glapinc.com

## INSTALLATION INSTRUCTIONS A-4 for CESSNA Windshield and the ELIMINATION of the CENTER STRIP

Cessna Model Numbers	Part # W-, W/T- or W/G-	STC Number	Serial Numbers	Weight and balance	
				Weight #	Moment in. #
170, A & B	2055	SA210GL	all serial numbers	+ 3.8	+ 65
172 & A	2055	SA211GL	28000 thru 17247746	+ 3.8	+ 65
172 B & C	2056	SA211GL	17247747 thru 17249544	+ 3.8	+ 65
175, A, B, & C	2056	SA212GL	All serial numbers	+ 3.8	+ 65
180	2072	SA471GL	30000 thru 31261	+ 3.8	+ 65
180	2072	SA471GL	31261 thru 50355	No change	No change
180	2073	SA471GL	50356 & up	No change	No change
182	2072	SA301GL	33000 thru 51556	No change	No change
182	2073	SA301GL	51557 thru 53598	No change	No change
182	2071	SA301GL	53559 thru 18255844	+4.4	+ 75
185	2073	SA472GL	0001 & up	No change	No change
205	2065	SA393GL	All serial numbers	+4.4	+ 75
206, & U206,	2065	SA392GL	0001 thru U0437	+4.4	+ 75
P 206	2065	SA392GL	P 0001 thru 0160	+4.4	+ 75
210	2065	SA393GL	57841 thru 58715	+4.4	+ 75

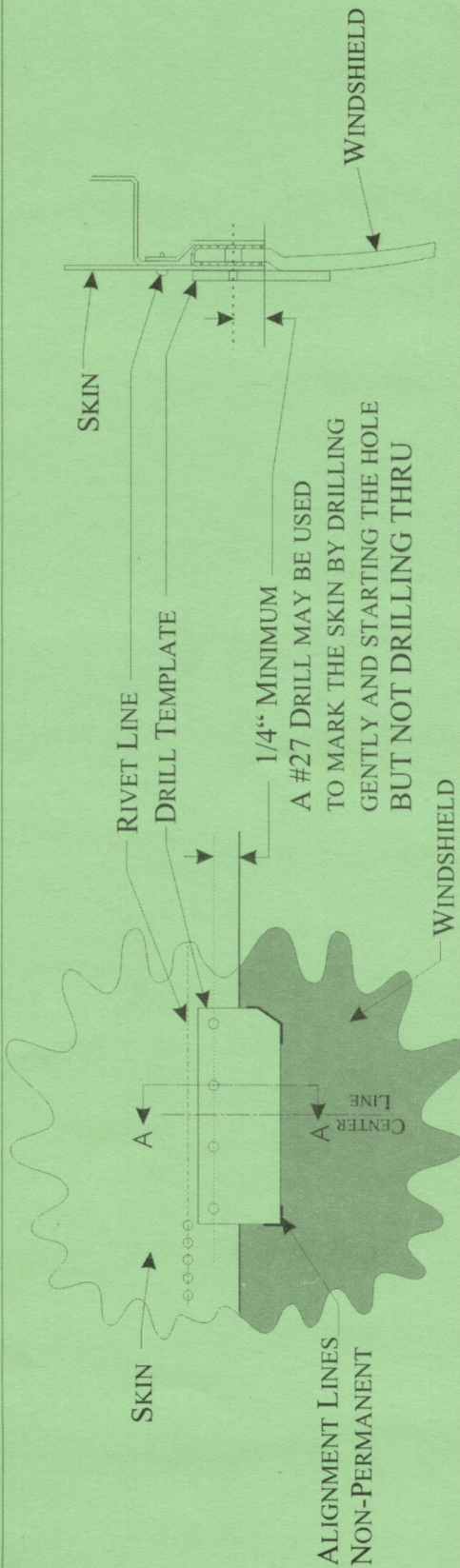
**Materials:**

1. 1 Windshield as noted above
2. 4 felt strips (1pc M-1001-2 46.5", 2 pcs M-1001-1 18.5", 1 pc M-1001-1 76.5")
3. 4 elastomer Bushings ( M-1001-1 )
4. 4 pcs, AN-526-632R10 screws
5. 4 pcs, AN-364-632 nuts
6. Sealant - optional - not supplied
7. Miscellaneous hardware ( rivets, etc. ) - not supplied

**Instructions (removal of Cessna Windshield Center strip)**

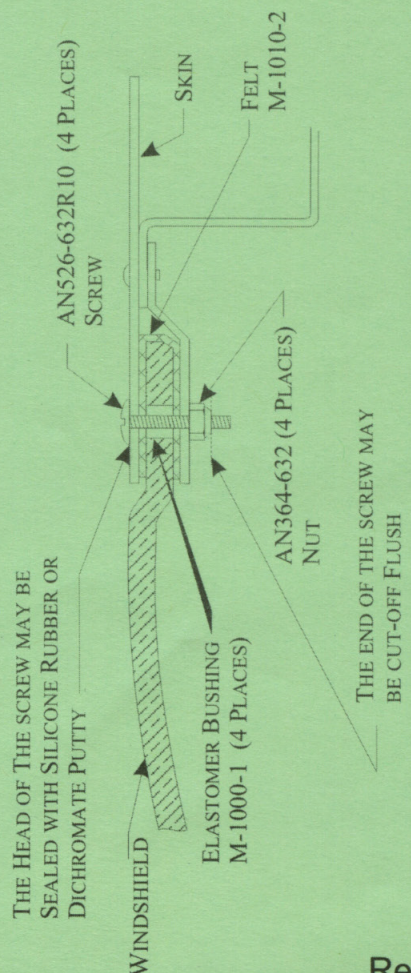
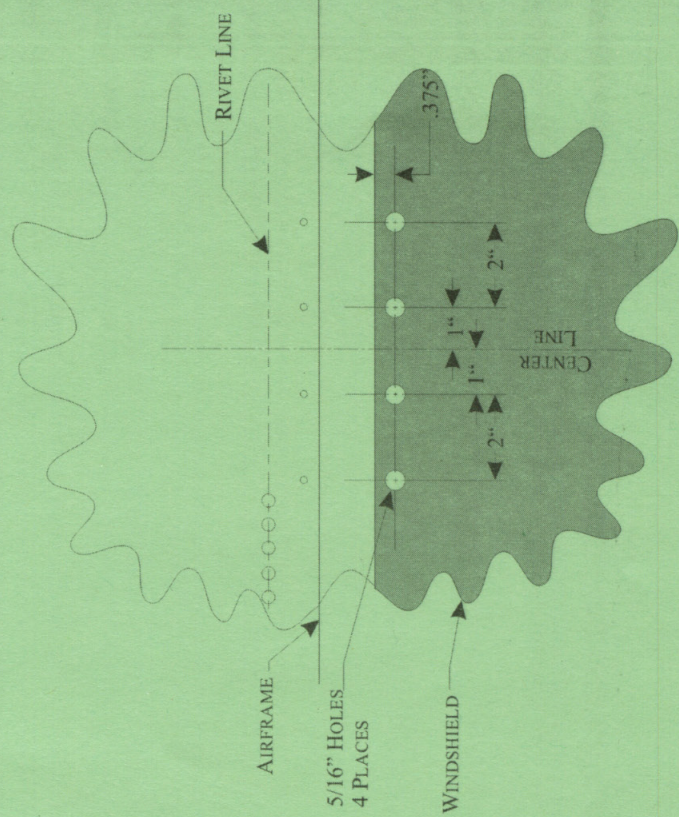
1. Remove center strip ( both inner and outer)
2. Remove lower fairing and wing root fairings
3. remove old windshield by sliding the windshield forward out of the top and side channels
4. Clean channels and mounting surfaces that will contact the windshield. straighten and repair as required. any nicks or distorted metal that will contact the windshield.
5. Place the new windshield in position and check the fit of the windshield - trim if required. See trimming instructions.
6. Again Place the windshield in position and temporarily attach the lower fairing and wing fairings so that the windshield is held in the exact final position.
7. Remove the protective paper from the double stick tape in the drill template and carefully locate the template on the top of the windshield and over the top of the upper channel, aligning the template with the marks on the windshield. Check the edge distance of the holes to the edge of the skin- it should be at least 1/4 inch. Mark the hole locations carefully. A No. 27 drill may be used to start the hole in the skin and thus leaving a mark. It is important that this step be done very carefully as the alignment of the holes depends on it.
8. Remove the template and the windshield and finish drilling (with a No. 27 drill) the 4 holes thru the outer and inner walls of the top channel as marked. Remove any burrs and chips that the drilling created.
9. Install the 4 bushings in the holes and attach the self-adhesive felt strips in the windshield. Cut small holes thru the felt to allow the screws to go through the 4 bushings.
10. Place the windshield in position and install the 4 screws and nuts. Tighten the screws lightly, they should be only finger tight and should not distort the metal skin. **Over-tightening** can cause crazing and premature failure of the windshield.
11. Reinstall the lower fairing and wing root fairings. (Note: sealant may be used in addition to the felt to help prevent leakage.)
12. Fill the holes remaining from the center strip attachment points using the screws and nuts (AN-526 and AN 364) or rivets.
13. Touch up or paint as needed.
14. Relocate compass as desired. A C-2400L4P compass may be located on top of the instrument panel or a standard compass in the instrument panel.
15. New Weight and balance information (see above)
16. Fill out 337 form

NOTE: Some models have the outside air temperature gauge through the center strip of the windshield - this can be moved to the wing root air vent as is common in other Cessna models.



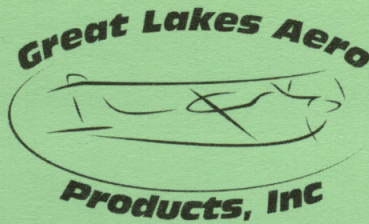
TOP VIEW

SECTION "AA"



SECTION OF ASSEMBLY

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## SUGGESTIONS FOR TRIMMING ACRYLIC WINDSHIELDS AND WINDOWS

1. Acrylic Windshields are tough - BUT THEY ARE NOT UNBREAKABLE - use care in handling and working
2. A Band saw is the most common way to trim the edges of aircraft Windshields. Use a blade with at least 24 teeth per inch and a high speed - about the same speed as is used for wood.

### **DO NOT use reciprocating saws, such as saber saws!!!**

3. A high speed router may be used for trimming, however, a fixture guide or a very steady hand is required to use this method.
4. To remove smaller amounts from the edge, generally 1/8 inch or less, a hand held disk sander may be used. A medium grit paper, and very light pressure on the disk sander produces good results. A belt sander may be used.
5. Hand tools, such as files, hand saws, sandpaper may be used. Be careful, any binding of saws or files may cause breakage.
6. Before installing the Windshield, carefully smooth the edges to remove notches. Acrylics are notch sensitive
7. Any drilling must be done with drills that are especially sharpened for the purpose. See drawing
8. Installation should be done in accordance with aircraft manufactures recommended procedure and/or normally accepted aircraft maintenance practice

**NOTE: We do not recommend the use of covers on Windshields as they may cause crazing**

For more detailed information you may also visit on-line:

<http://av-info.faa.gov/dst/43-13/>  
The FAA has more information for the fabrication of acrylic

