



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 1958)

<b>1. Aircraft</b>	Make <b>Cessna</b>	Model <b>A185F</b>
	Serial No. <b>18502213</b>	Nationality and Registration Mark <b>N3946Q</b>
<b>2. Owner</b>	Name (As shown on registration certificate) <b>Mennen, Paul</b>	Address (As shown on registration certificate) <b>1452 Owen Sound Dr. Sunnyvale, CA 94087</b>

**3. For FAA Use Only**

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

**6. Conformity Statement**

<b>A. Agency's Name and Address</b> Brian Stout 13395 Foothill Ave. San Martin. CA 95046	<b>B. Kind of Agency</b> <input checked="" type="checkbox"/> U.S. Certified Mechanic <input type="checkbox"/> Foreign Certified Mechanic <input type="checkbox"/> Certified Repair Station <input type="checkbox"/> Manufacturer	<b>C. Certificate No.</b> A & P 2100211
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**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.

<b>Date</b> June 29, 2005	<b>Signature of Authorized Individual</b> 
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**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

<b>BY</b>	<input type="checkbox"/> FAA Fit Standards Inspector	<input type="checkbox"/> Manufacturer	<input checked="" type="checkbox"/> Inspection Authorization	Other (Specify)
	<input type="checkbox"/> FAA Designee	<input type="checkbox"/> Repair Station	<input type="checkbox"/> Person Approved by Transport Canada Airworthiness Group	

<b>Date of Approval or Rejection</b> June 29, 2005	<b>Certificate or Designation No.</b> 2100211	<b>Signature of Authorized Individual</b> 
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## 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.)

Installed Door Steward gas spring door assist alteration on left and right cabin doors

in accordance with STC SA01120SE and AP Enterprises, LLC installation and

maintenance instructions MVA-200C10M&O.

Instructions for continued air worthiness added to the aircraft documents.

Weight and balance change negligible.

-----END-----

Additional Sheets Are Attached

# Supplemental Type Certificate

Number SA01120SE

*This certificate, issued to*

AP Enterprises, LLC  
DBA Mountain View Aviation  
P.O. Box 31  
Hubbard, OR 97032

*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 \* of the \* Regulations.*

*Original Product—Type Certificate Number:*

\*See attached FAA Approved Model List (AML)

*Make:*

No. SA01120SE for list of approved airplane

*Model:*

models and applicable airworthiness regulations.

*Description of the Type Design Change:* Installation of Door Steward in accordance with drawings listed on Approved Model List SA01120SE, dated September 9, 2002, or later FAA approved revision.

*Limitations and Conditions:* Approval of this change in type design applies to the airplane models listed on the AML only. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this certificate and FAA Approved Model List (AML) No. SA01120SE must be maintained as part of the permanent records for the modified aircraft.

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.

*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:* June 17, 2002

*Date reissued:*

*Date of issuance:* September 9, 2002

*Date amended:*



*By direction of the Administrator*

*[Handwritten Signature]*

Acting Manager, Seattle 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.



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**  
*April 12, 2004*

RECEIVED APR 15 2004

**Transport Airplane Directorate  
Aircraft Certification Service**

1601 Lind Avenue S.W.  
Renton, Washington 98055-4056

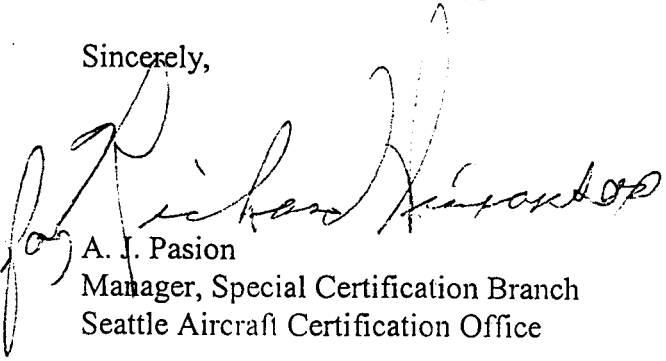
In Reply  
Refer To: 150S-GA-04-14

Mr. David L. Paradis  
President  
DBA Mountain View Aviation  
PO Box 31  
Hubbard, OR 97032

Dear Mr. Paradis:

In reply to your electronic data submittal dated March 12, 2004, requesting revision approval of Mountain View Aviation Installation Instructions. We hereby approve Mountain View Aviation Installation Instructions MVA-200C10M&O, Revision B, dated March 1, 2004, as applicable to Supplemental Type Certificate (STC) SA01120SE.

Sincerely,

  
A. J. Pasion  
Manager, Special Certification Branch  
Seattle Aircraft Certification Office

DBA MOUNTAIN VIEW AVIATION  
FOR  
INSTALLATION OF DOOR STEWARD

ISSUE DATE: September 9, 2002

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED DRAWING*		AML AMDT DATE
					NUMBER	DATE	
1.	CESSNA	170, 170A, 170B	A-799	CAR 3 and TCDS A-799	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	
2.	CESSNA	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S	3A12	CAR 3 and TCDS 3A12	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	
3.	CESSNA	175, 175A, 175B, 175C, P172D, R172E, R172F, 172G, R172H, 172J, R172K, 172RG	3A17	CAR 3 and TCDS 3A17	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	
4.	CESSNA	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR 3 and TCDS 5A6	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	
5	CESSNA	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, R182, T182, TR182, T182T	3A13	CAR 3 and TCDS 3A13	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	
6	CESSNA	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3 and TCDS 3A24	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	

Superseded by FAA Approved  
 Revision B, Dated March 1, 2004

DBA MOUNTAIN VIEW AVIATION  
FOR  
INSTALLATION OF DOOR STEWARD

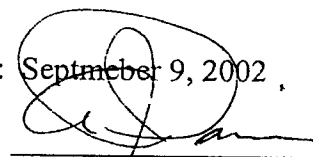
ISSUE DATE: September 9, 2002

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED DRAWING		AML AMDT DATE
					NUMBER	DATE	
7.	CESSNA	206, P206, P206A, P206B, P206C, P206D, P206E, U206, U206A, 206H, U206B, U206C, U206D, U206E, U206F, U206G, TP206A, TP206B, TP206C, T206H, TP206D, TP206E, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G	A4CE	CAR 3 and TCDS A4CE	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	
8.	CESSNA	210, 210A, 210B, 210C, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N, 210R, T210R, 210-5 (205), 210-5A (205A)	3A21	CAR 3 and TCDS 3A21	Installation Instructions: MVA200C10M&O	Rev. New, dated May 31, 2002	

Superseded by FAA Approved Revision B Dated March 1, 2004

Dated: ~~September~~ 9, 2002

FAA Approved:



Acting Manager, Seattle Aircraft  
Certification Office



**A P ENTERPRISES, LLC, dba  
Mtn View Aviation**

**WARRANTY**

1. *Door Steward*<sup>™</sup> are warranted, for a period of 24 months after the date of shipment to the original retail Buyer ("Buyer"), to be free of any defects in materials and workmanship. The 24-month warranty period shall not be extended by any repair or replacements of product pursuant to this Warranty.
2. Subject to the terms and conditions of this Warranty, Mtn View Aviation ("Mtn View") will repair or replace, at its option, the *Door Steward*<sup>™</sup> Kit or components that are found to be defective or nonconforming, provided that the Buyer gives prompt written notice of the defect or nonconformity within the warranty period. Buyer shall make the Kit or component available for inspection by a Mtn View representative, or, at Mtn View's option, return the Kit or component to Mtn View Aviation.
3. Mtn View shall be responsible for the expense of shipping, repair and replacement of a Kit or component found to be defective or nonconforming during the warranty period.
4. This Warranty does not apply in cases of abuse, mishandling, improper installation, improper maintenance or unauthorized repair. This Warranty is in lieu of all other warranties or obligations express or implied. Mtn View expressly disclaims all implied warranties of merchantability and fitness for a particular purpose. Buyer's exclusive remedy for breach of warranty is repair or replacement of the Kit or component as provided herein. Dealers are not authorized to modify this Warranty in any part, and Mtn View will not be responsible for promises not contained in this Warranty.
5. In no event will Mtn View, its officers, directors, employees, or affiliates be liable for any direct, indirect, special, incidental, or consequential damages of any kind (including, but not limited to, the product, or arising out of any legal theory, whether contract, negligence, strict tort liability, or infringement.) In no event shall Mtn View be liable to Buyer for any claim, whether based upon contract, negligence, strict tort liability, or any other legal theory, arising out of or relating to the product sold, in an amount exceeding the purchase price of the subject product, even if Mtn View has been advised of the possibility of damages. Any action by Buyer against Mtn View, its officers, directors, its employees or affiliates, arising out of or relating to the subject product, shall be brought within two years from shipment of the subject product to Buyer.

**For more details or to obtain service through this Warranty, please contact Mtn View Aviation at 1-800-837-0271 or 1-503-981-4550, Monday through Friday, 8 AM to 5 PM (Pacific Standard Time), or by writing to Mtn View Aviation at PO Box 31, Hubbard, OR 97032 or [info@mtviewaviation.com](mailto:info@mtviewaviation.com) with a detailed description of the defect. Do not return any parts unless specifically instructed to do so by Mtn View Aviation.**



### STC PERMISSION STATEMENT

The below named person or company has been granted permission from Mtn View Aviation to alter the listed product make, model and serial number in accordance with

#### Supplemental Type Certificate SA01120SE.

Name PAUL MENNEW

A/C Make CESSNA

A/C Model A185F

A/C Serial Number 18502213

A/C Registration Number N13946Q

Authorizing Signature  Date 6/6/05  
Mtn View Aviation

No other aircraft than the listed aircraft above may be modified. Contact Mtn View Aviation if additional aircraft are to be modified. Unauthorized use of this STC to modify other aircraft may result in prosecution under Federal Law.





# Mtn View Aviation

Date

6/6/2005

## Invoice

Invoice #	30620
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**Paul Mennen**  
**1452 Owen Sound Drive**  
**Sunnyvale, CA 94087**

Ship To

**Paul Mennen**  
**1452 Owen Sound Drive**  
**Sunnyvale, CA 94087**

A/C Model	C185F
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A/C Reg. No.	N3946Q
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A/C Serial No.	18502213
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P.O. No.	website order
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Terms	Prepaid
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Quantity	Description	Price Each	Amount
1	200C101 Left-hand Kit, One price for both	299.00	299.00
1	200C102 Right-hand Kit		
1	USPS Priority Mail	4.55	4.55
1	VISA xxxx xxxx xxxx 3981, exp 05/09	-303.55	-303.55

*THANKS FOR  
your ORDER!*

MTN VIEW AVIATION  
 535 S PACIFIC HWY  
 WOODBURN, OR. 97071  
 503-981-4550

Phone Order

ID: 0010540000911584751000  
 06/06/05 14:25:12  
 AVS Code: Y

VISA

XXXXXXXXXXXX3981M

Appr Code: 135978 Inv#: 000001

Total: \$ 303.55

<b>Total</b>	<b>\$0.00</b>
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Customer Copy  
THANK YOU!

**v Aviation** PO Box 31, Hubbard, OR 97032  
**503-981-4550 or 1-800-837-0271 Fax 503-982-6494**



*Mtn View Aviation*

An AP Enterprises, LLC Company

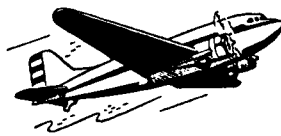
PO Box 31

Hubbard, OR 97032

MVA-200C10M&O  
Installation and Maintenance Instructions for  
*Door Steward*<sup>™</sup>  
In Accordance with STC SA01120SE

Contents

- Section A .      Installation Instructions
- Section B.      Maintenance, Inspection & Repair
- Section C.      Part Listing
- Section D.      Sample FAA Form 337



**Mtn View Aviation**  
An AP Enterprises, LLC Company  
PO Box 31  
Hubbard, OR 97032

Addendum to  
MVA-200C10M&O, Installation and Maintenance Instructions for

***Door Steward***<sup>™</sup>

In Accordance with STC SA01120SE

**For Cessna Models 210G and higher (with no wing strut)**

Section A. Installation Instructions

Cessna Models 210G and higher introduced the cantilevered wing with no wing strut. Many of these aircraft have factory door restraints that allow for the cabin doors to open nearly 90 degrees to the airframe. The ***Door Steward***<sup>™</sup> gas spring modification will work with these model aircraft, but it takes more time and care in fitting the brackets and the end result may not be the near 90 degree opening angle. Additionally, many of these model aircraft have interior door panels that extend to the very bottom of the door rather than being a flat panel recessed into the door. The extension of the interior panel to the very bottom of the door will require modifying the door panel to allow mounting the door bracket to the flat portion at the bottom of the door. Additionally the thickness of the material on the interior panels can interfere with the gas spring achieving a full open position.

The gas spring supplied with the kits has a stroke of 5.5". When mounted on Cessna aircraft models with a wing strut, there is ample stroke but with the cantilever wing Model 210s that have near 90 degree door openings, a full open position will utilize essentially the entire 5.5" stroke. You must use caution in locating the door bracket on the door as you could find that when you attempt to close the door the gas spring will bottom out, prohibiting full closure.

If you have any questions or concerns regarding the installation on the Cessna models 210G and higher, please contact us.

David L. Paradis  
Mtn View Aviation  
1-800-837-0271  
davep@oregonsbest.com

*Phone (503) 981-4550*  
*Fax (503) 981-3262*

## SECTION A

### Installation Instructions

#### A. Introduction.

Insure that the intended aircraft is included in the eligibility of the STC. Installation to be accomplished by an FAA licensed Airframe Mechanic and inspected by an FAA licensed Airframe and Powerplant Mechanic with Inspection Authorization or by an FAA Part 145 Repair Station. Review all of the installation instructions before beginning the installation process. Pay particular attention to "NOTES". Inventory the kit prior to beginning to insure it is complete. Upon completion of the installation, an FAA Form 337, Major Repair and Alteration form will need to be completed and submitted to the FAA. A sample of the completed form is included in SECTION D. For questions, comments or problems with this installation please contact Mtn View Aviation, PO Box 31, Hubbard, OR 97032, Ph. (503) 981-4550, Fax (503) 982-6494, email [info@mtviewaviation.com](mailto:info@mtviewaviation.com). Please contact Mtn View Aviation for any in service problems or difficulties with this product.

#### B. Description of the Product.

The *Door Steward*<sup>™</sup> is a product improvement installation that greatly improves the operation of the aircraft doors. The installation consists of a gas spring attached to brackets mounted on the door and the airframe. When the door is unlatched the gas spring gently but firmly opens the door to the full open position. The gas spring while in the open position protects the aircraft and occupants from unexpected openings and closings by providing resistance to considerably higher wind gusts and prop wash than the original stops. In addition, the gas spring is extremely simple and reliable. The weight of each door installation is ½ Lb. The original door stops can either be removed or left on the door as long as they are operating properly and not interfering with the *Door Steward*<sup>™</sup>. Closing the door compresses the gas spring. The gas spring can easily be removed from its brackets to facilitate removal of the aircraft door, replacement of a defective gas spring or to conduct other maintenance.

#### C. Tools and Equipment Requirements.

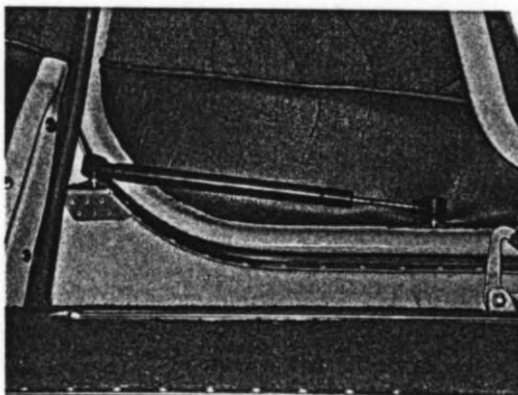
1. Screwdriver, as required for interior removal.
2. Drill Motor, #30 hi-speed drill and drill stop.
3. 1/8" Clecos and Cleco Pliers
4. Cherrymax G-27 Hand Riveter or suitable equivalent
5. Deburring tool(s) and Hand files

#### D. Installation Steps.

1. Refer to the Aircraft Manufacturer's Maintenance Instructions for information regarding standard practices, precautions and notes.
2. It is the installer's responsibility to insure that this approved installation does not interfere or conflict with any other installed equipment or options previously installed on the aircraft.
3. Remove any installed door sill covers in the area where the airframe brackets will be installed. This will be the area on the forward lower door sill where it transitions from a horizontal sill to a vertical sill. If the area has carpeting installed, it will need to be pulled back or removed. It can later be reinstalled over and around the bracket.
4. On some aircraft, the aircraft data plate may be located close to where the left hand airframe bracket mounts. The data plate may need to be relocated slightly downward.
5. Remove or loosen any interior door panels to expose the area of the door where the door bracket will be installed. On most installations where there is an interior door panel, the door bracket will be located to extend out from the door at the very bottom of the door panel, thus eliminating any need to modify the existing interior door panel.
6. Locate the airframe bracket assembly, P/N 200C101-11, LH or P/N 200C101-12, R/H onto the lower door sill and adjacent structure so that the ball stud on the bracket will be slightly higher than the intended location of the ball stud on the door bracket. The airframe bracket may need to be bent slightly to insure the bracket conforms as close as possible on both surfaces.

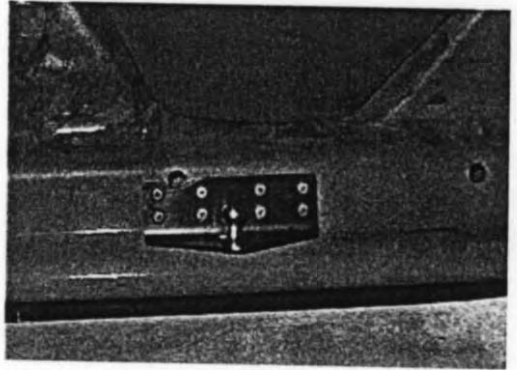
#### NOTE:

The completed installation must have the tube end of the gas spring slightly higher than the rod end so that seal lubrication is maintained on the end seal. If the gas spring is installed level, the end seal may not maintain lubrication and could result in a gradual loss of pressure in the gas spring. (Refer to picture)



(Note the airframe attach point is slightly higher than the door attach point.)

7. If the intended location of the airframe bracket covers an existing universal head rivet in the sill seam, remove the existing rivet so the portion of the bracket that extends over the sill lays flat. It is preferable to utilize all three holes in the sill portion of the bracket, but if there is a conflict or a problem with that portion laying flat on the sill, or lying across a large radius area of the sill, insure that at least two of the three attachment holes are utilized in the sill area. Insure the bracket conforms flat against both surfaces.
8. Using the airframe bracket as a template, locate and drill attachment holes with a #30 drill. It may be helpful to use a drill stop.
9. Debur the holes drilled in the airframe.
10. Install the airframe bracket using the provided rivets.
11. Inspect the installation for security and proper installation of the rivets.
12. If the sill had a sill cover previously removed, it will be necessary to modify it to fit back in place around this bracket. Modify as needed and reinstall any sill cover. Modify as required and reinstall any carpeting earlier removed.
13. Temporarily install the tube end of the gas spring onto the mounted airframe bracket and install the rod end onto the uninstalled door bracket, P/N 200C101-10.
14. With the gas spring fully extended and the aircraft door at the desired full open position, mark the location of the door bracket on the door. Insure it is located low enough so the bottom of the bracket will just clear the bottom of any interior door panel.
15. Remove the door bracket from the rod end of the gas spring and review the marked location. If there are interior panel attachment holes that the intended location blocks, you can either attempt to move the door bracket slightly or modify the bracket to allow access to the interior panel attachment hole. The interior attachment hole near the door bracket can also be abandoned as the gas spring and other attachment holes near the bracket will retain the interior panel in this area.

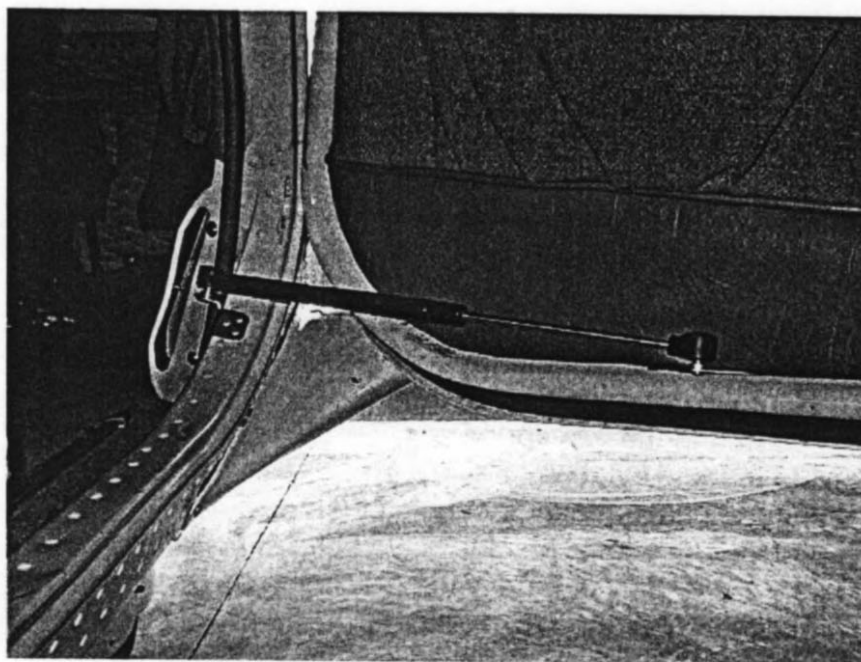


**NOTE:**

If the door bracket is located toward the airframe bracket, the gas spring will try to extend the door further than the fully open position used to mark the door bracket. If you intend to retain the original aircraft door stops, this is not a problem. If using the *Door Steward*<sup>TM</sup> to limit the door opening, insure it will not contact or damage any other structure such as the wing strut. Also the gas spring maybe put in a bind up against the door if located too close

to the airframe bracket. Double check your intended location of the door bracket while attached to the gas spring to insure none of these problems will occur.

16. If satisfied with the door bracket location, use the door bracket as a template and drill all holes with a #30 drill. Only drill through the inner door panel. It may be helpful to use a drill stop.
17. Debur the holes drilled in the door.
18. Attach the door bracket using the provided rivets.
19. Inspect the installed bracket for security and proper installation of the rivets.
20. Reinstall the interior door panel.
21. Install the tube end of the gas spring on the airframe bracket and install the rod end of the gas spring on the door bracket. Insure any locking devices or safety clips are installed to securely lock the gas spring in place.



#### E. Post Installation Inspection and Operation.

1. Operate the door through several opening and closings to insure smooth and proper operation. Close and latch the door and inspect the interior of the aircraft. Insure the gas spring is not going to hinder or interfere with the operation of the seats, seat belts or any other feature.
2. Open the door. Insure that in the open position the gas spring does not cause the door any unintended contact with other structure. It is normal for the airframe bracket to deflect slightly when the door comes to the full open position.

3. Inspect that in the open position that the gas spring is not significantly hindering entry and exit from the aircraft. The gas spring should be located parallel and very close to the open door.
4. If all inspections are satisfactory, proceed to the final steps.

## F. Final Steps.

1. Install the supplied *Door Steward™ Equipped* decal to the exterior of the aircraft near the door latch assembly of the door(s) altered. The purpose of this decal will be to provide an indication that when the door latch is opened; the door will want to push open on its own.
2. Install the following SECTION B, Maintenance, Inspection & Repair Instructions and SECTION C, Parts List, in the aircraft maintenance records.
3. Complete the FAA Form 337, Major Repair and Alteration using the included sample in SECTION D, as a guide.
4. Complete the logbook entry in accordance with CFR 14 Part 43, Maintenance, Preventive Maintenance, Rebuilding and Alteration.

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END



## SECTION B

### Maintenance, Inspection & Repair Instructions

For questions, comments or problems with this installation please contact Mtn View Aviation, PO Box 31, Hubbard, OR 97032, Ph. (503) 981-4550, Fax (503) 982-6494, email [info@mtnviewaviation.com](mailto:info@mtnviewaviation.com). Please contact Mtn View Aviation for any in service problems or difficulties with this product.

#### ATA Chapter 05      Time Limits/Maintenance Checks

05-00      General

The *Door Steward*<sup>™</sup> installation should be inspected during scheduled airframe periodic inspections that cover the door and door frame areas.

05-20      Scheduled Maintenance

Inspection of the installation will consist of the following:

1. Security of attachment of both airframe and door brackets to the associated structure.
2. Security of the gas spring attachment to the ball studs.
3. Security of the riveted ball stud to the airframe and door brackets.
4. Smooth operation of the gas spring. Inspect for evidence of end seal leakage or loss of gas spring pressure.

#### ATA Chapter 52      Doors

52-00      General

The *Door Steward*<sup>™</sup> is a product improvement installation that greatly improves the operation of the aircraft doors. The installation consists of a gas spring attached to brackets mounted on the door and the airframe. When the door is unlatched the gas spring gently but firmly opens the door to the full open position. The gas spring while in the open position protects the aircraft and occupants from unexpected openings and closings by providing resistance to considerably higher wind gusts and prop wash than the original stops. In addition, the gas spring is extremely simple and reliable. The weight of each door installation is ½ Lb. The original door stops can either be removed or left on the door as long as they are operating properly and not interfering with the *Door Steward*<sup>™</sup>. Closing the door compresses the gas spring. The gas spring can easily be removed from its brackets to facilitate removal of the

aircraft door, replacement of a defective gas spring or to conduct other maintenance.

1. Removal of the gas spring from attachment ball studs

On the composite end fittings use a #1 common screwdriver, pry up the locking devices on the end fitting approximately 5/16". On the all steel end fittings a safety clip may be installed as a secondary retention device. The safety clip must be removed before attempting to remove the gas spring. Grip the gas spring at the end fitting and pull it directly up off of the ball stud. Repeat for the opposite end.

2. Installation of the gas spring onto the attachment ball studs.

On the original composite end fitting insure the locking devices are at least 5/16" up out of the end fittings. The composite end fitting that utilizes a spring steel capture device can simply be pushed onto the ball stud. The all steel end fitting can be pushed onto the ball stud providing the safety clip is not installed. Push the end fittings onto the ball studs. Fully depress the locking devices into the end fittings to securely lock the composite end fittings onto the ball studs. The all steel end fittings come fitted with an internal circlip to capture the ball stud. Install the optional safety clip on the all steel end fittings, if so desired. The optional safety clip for the all steel end fittings provides a secondary positive retention to ensure the gas springs cannot come up off the ball stud.

3. Repair of a loose riveted ball stud in either the airframe or door bracket.

Using a Dremel or similar grinding tool remove the riveted end of the ball stud. Remove the ball stud. Inspect the bracket for security of attachment to the associated structure. Enlarge the ball stud attachment hole to 5/16" (0.3125"). Debur and slightly chamfer the hole. Install P/N 200C103-1, threaded ball stud. Install washer and self-locking nut. Torque the nut to 80 in. lbs. Inspect the installation for proper seating of the ball stud in the hole and for full engagement of the nut on the stud.

4. Defective gas spring.

A gas spring which has lost pressure is not repairable. Replace defective gas spring with a new one with the same part number as removed. Gas spring end fittings which are damaged or worn can be replaced with new. Refer to the Parts List in SECTION C for the correct part number.

## SECTION C

### Parts List for 200C10 Installation

Item No.	Part Number	Description	Qty Reqd
	200C101	Installation Assembly, LH	Ref.
	200C102	Installation Assembly, RH	Ref.
1	. 200C101-1	Gas Spring Assembly	1
	.. 200C101-002	Gas Spring, Chrome Rod	1
	.. 200C101-005	End Fitting, All Composite	2
	.. 200C101-006	End Fitting, All Steel, Alternate*	Alt
	... SC-1006	Spring Clip, Option used with -006	1
1A	. 200C101-1A	Gas Spring Assembly, Alternate	Alt
	.. 200C101-002A	Gas Spring, Nitrided Rod	1
	.. 200C101-005A	End Fitting, Composite	2
	.. MVA-200	Identification Label	1
2	. 200C101-10	Bracket Assembly, Door	1
3	. 200C101-11	Bracket Assembly, Airframe, LH	1
	. 200C101-12	Bracket Assembly, Airframe, RH	1
4	. 200C101-007	Threaded Ball Stud, Repair	AR
5	. CR3213 4-2	Rivets, Blind	17
6	.MVA-201	Decal, Door Steward Equipped	1

\*Note: Preferred end fitting

