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MVA-206C10M&O
Installation and Instructions
for Continued Airworthiness for
Door Steward[™]
Cessna 206/207 - Utility Door
In Accordance with STC SA01120SE

Contents

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Approved for Release David L. Paradis

SECTION A

Installation Instructions for Cessna Model 206 and 207 Forward Utility Door Only. See MVA-200C10M&O for main cabin door(s).

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 form has been provided 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) 980-3366, email info@mtnviewaviation.com. Please contact Mtn View Aviation for any in service problems or difficulties with this product.

B. Description of the Product.

The *Door Steward*[™] 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. 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 door from unexpected closings by providing resistance to wind gusts. In addition, the gas spring is extremely simple and reliable. The weight of each door installation is ½ Lb. 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. 90° drill motor, #30 hi-speed drill.
3. 1/8" Clecos and Cleco Pliers
4. Hand Riveter or suitable equivalent
5. Dremel or equivalent

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.

Door Bracket Installation

Note

Both attach brackets P/N 206C102 supplied in the kit have 4 #30 holes. The bracket which will be used on the door needs to have one of the end holes drilled out to 3/16 inch to accommodate the bolt which secured the slide lock to the door



Picture 1. Hole enlarged in one of the brackets

3. Remove the forward door slide lock. Place the bracket over the slide lock attach point and secure with the slide lock bolt, the 3 #30 holes toward the center of the door. The plastic will need to be slotted the length of the bracket, mark a line on the plastic. Remove the bracket.
4. Remove the small sheet metal screws securing the plastic trim around the window. Use a small block of wood to hold the plastic out far enough to gain access to the door structure frame where the slide lock attached. Use a dremel, or equivalent, to cut a small slot along the line just wide enough to allow the plastic to slide over the bracket.



Picture 2. Slotting Plastic with Dremel Picture 3. Drilling #30 holes.

5. With the plastic still held out far enough to have access to the door frame reinstall the bracket with the bolt. Using a 90° drill motor drill out the 3 #30 holes, be sure to keep your alignment using #30 cleco's. Remove the bracket and debur the holes. Reinstall the bracket with the bolt and a cleco.
6. You will now need to lower the flaps to have enough room to operate a hand pull riveter, make sure the door open flap safety switch is operational, an assistant may be helpful. Hold the door in the full open position, 90° to the fuselage, very carefully lower the flaps. Install the 3 cherry max rivets CR3213-4-2. Raise the flaps. Remove the bolt, put the plastic trim back in place and reinstall the bolt securing the plastic over the top of the bracket. Install the ball stud P/N MVA-9004-01 with washer and lock nut.



Picture 4. Riveting Bracket in Place. Picture 5. Complete Door Bracket

Airframe Bracket Installation

7. Place the remaining bracket under the top forward door sill with the ball stud attach hole inboard, measure aft from the center of the slide lock attach hole 1.125" and mark the sill. This is to be the most forward end of the bracket. Insure the bracket is no closer than 1.125" as the gas spring could bottom out. The holes in the bracket may line up with an existing sill rivet. You can move the bracket aft slightly to align with an existing sill rivet, but do not move forward past the line you have marked.



Picture 6. Distance from slide attach hole Picture 7. Airframe bracket installed

8. Drill attachment holes with a #30 drill and secure with cleco's. It may be helpful to use a drill stop. Remove the bracket and debur the holes drilled in the airframe.
9. Cleco the airframe bracket in place. Install the bracket with cherry max rivets CR3213-4-2 and install the ball stud P/N MVA-9004-01 with washer and locknut.
10. Inspect the installation for security and proper installation of the rivets.
11. Install the rod end of the gas spring on the airframe bracket and install the tube 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.

NOTE:

The gas spring is filled with nitrogen and has a small amount of oil for dampening. The oil also acts as a lubricant for the seal so the spring needs to be installed with the tube end up allowing the oil to keep the seal lubricated.



Picture 8. Completed, closed

Picture 9. Completed, open

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 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.
3. 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. 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, Instructions for Continued Airworthiness and SECTION C, Parts List, in the aircraft maintenance records.
3. Complete the FAA Form 337, Major Repair and Alteration using the included form in SECTION D.
4. Complete the logbook entry in accordance with CFR 14 Part 43, Maintenance, Preventive Maintenance, Rebuilding and Alteration.

END

SECTION B

Instructions for Continued Airworthiness

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) 980-3366, email info@mtnviewaviation.com. Please contact Mtn View Aviation for any in service problems or difficulties with this product.

Airworthiness Limitations

There are **no mandatory** replacement times, structural inspection intervals or related structural inspection procedures.

ATA Chapter 05 Time Limits/Maintenance Checks

05-00 General

The *Door Steward*[™] 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 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*[™] 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 wind gusts and prop wash. In addition, the gas spring is extremely simple and reliable. The weight of each door installation is ½ Lb. The original door hold open arm is replaced by the *Door Steward*[™]. 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 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.

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. 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. Replacement of a loose or worn ball stud in either the airframe or door bracket.

Remove the ¼-20 self locking nut and remove the ball stud. Inspect the bracket for security of attachment to the associated structure. Install a new P/N MVA9004, ¼-20 threaded ball stud. Install washer and MVA9005-4 ¼-20 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.

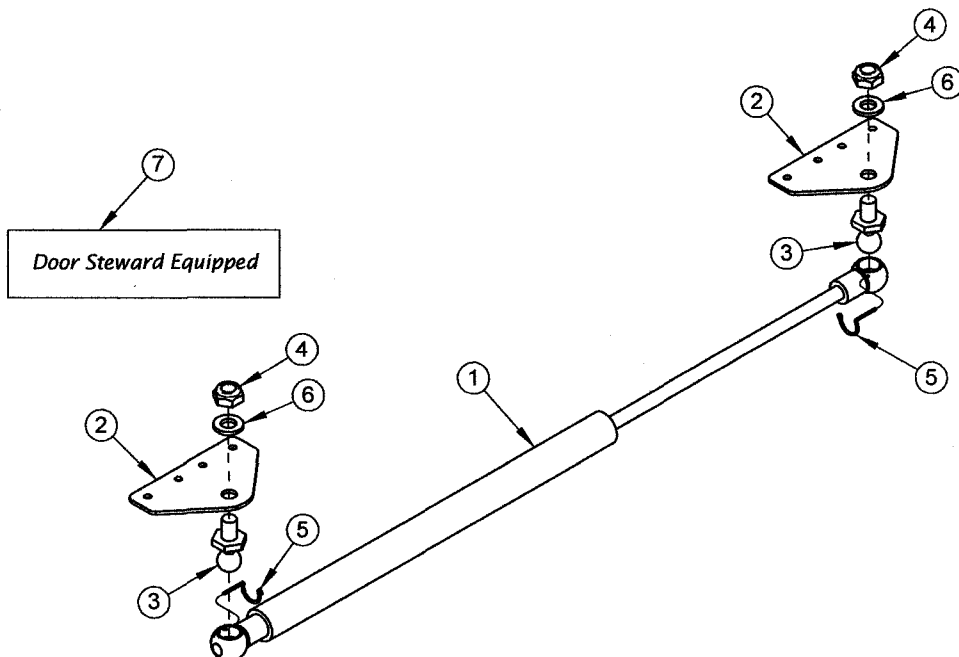
4. Defective gas spring.

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 206C10 Installation

Item No.	Part Number	Description	Qty Reqd
	206C10	Installation Assembly	Ref.
1	. 201C101-1	Gas Spring Assembly	1
	.. 201C101-002	Gas Spring, Chrome or Nitrided Rod	1
	.. MVA-9001	End Fitting, All Steel	2
	.. MVA-200	Identification Label	1
2	. 206C102-2	Bracket	2
3	. MVA-9004-01	Ball Stud, 10mm, 1/4-20 Threads	2
4	. MVA-9005-4	Locknut, Thin, 1/4-20	2
5	. MVA-9002-01	Safety Clip	2
6	. AN960-416L	Washer, Thin	2
7	. MVA201	Decal, Door Steward Equipped	1
	. AN3-4A	Bolt	1
	. AN960-10	Washer	1
	. CR3213 4-2	Rivets, Blind	7



SECTION D

SAMPLE FAA FORM 337



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
	Serial No.	Nationality and Registration Mark
2. Owner	Name (As shown on registration certificate)	Address (As shown on registration certificate)

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					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
	<input checked="" type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Manufacturer	

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	Signature of Authorized Individual
------	------------------------------------

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		Certificate or Designation No.	Signature of Authorized Individual	

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.)

Aircraft Reg.# _____ Aircraft Total Time _____ Date _____

Installed the Door Steward door assist gas spring modification in accordance with STC# SA01120SE, instructions MVA-206C10M&O, on the fwd cargo door. Weight change negligible. Item added to the aircraft equipment list.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

The are NO MANDATORY replacement items, structural inspection intervals or related structural inspection procedures.

ATA Chapter 05 Time Limits/Maintenance Checks

05-00 General

The *Door Steward*™ 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 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.

..... *NOTHING FOLLOWS*

Additional Sheets Are Attached