United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SA4964NM

This certificate, issued to **Rosen Sunvisor Systems**
86365 College View Road
Eugene, OR 97405

*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. SA4964NM for list of approved airplane
Model: models and applicable airworthiness regulations

Description of the Type Design Change: Installation of an NSA sunvisor system for the pilot and copilot in accordance with FAA approved Rosen Drawings as listed on the FAA AML of this STC, or later FAA approved revisions.

Limitations and Conditions: Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined that the interrelationship between this change and any 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 AML SA4964NM, dated October 5, 1990, or later FAA approved revision, shall 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: March 30, 1990
Date of issuance: October 5, 1990
Date reissued: March 24, 2003
Date amended: March 24, 2003

By direction of the Administrator

(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.

FAA FORM 8110-2(10-68)

FAA APPROVED MODEL LIST (AML) SA4964NM
FOR
INSTALLATION OF ROSEN SUNVISOR SYSTEMS NSA SUNVISOR SYSTEM

ISSUE DATE: October 5, 1990

ITEM	AIRPLANE MAKE	AIRPLANE MODEL	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED DRAWING LIST		AML AMENDED DATE
					NUMBER	REVISION NO. AND DATE	
1.	Cessna	177, 177A, 177B	A13CE	FAR 23, dated 2/1/65	RCS-00 A-DL	Revision NC, 3/90	3/24/03
2.	Cessna	177RG	A20CE	FAR 23, dated 2/1/65	RCS-00 A-DL	Revision NC, 3/90	3/24/03

FAA APPROVED: _____

Acting Manager, Seattle Aircraft Certification Office

REISSUED: March 24, 2003
AMENDED: March 24, 2003

Rosen®
SUNVISOR SYSTEMS

Cessna 177 Cardinal Sunvisor System

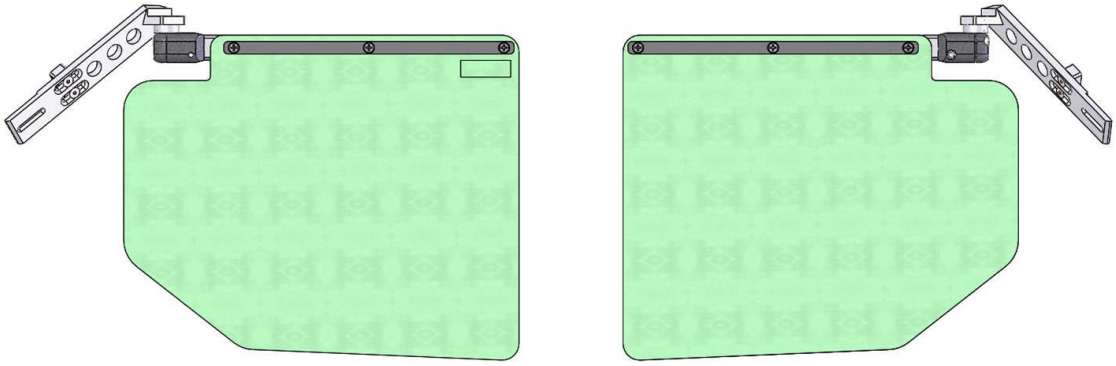
Date	Revision	Approved
8-17-23	P	SYS

Drawing List
RCS-00 A-DL **Doc. #9050-0118-019**

Kit 1180005-x						
-0	-1	-2	Drawing	Replaces	Description	Rev.
1	1	1	1180005	R1180000-005 1180400-009 1180400-010 RCS-300-5, -5P, -5C	Complete Assembly	E
	1		1180100-008	R1180100-008	Mounting Assembly, Pilot	E
		1	1180100-009	R1180100-009	Mounting Assembly, Co-Pilot	E
2	1	1	1180106	R1180106-001 R1180106-002	Mounting Bracket	H
2	1	1	1180107	R1180107	Swivel Mount	G
2	1	1	1180108	R1180108	Mount Adjust	E
2	1	1	1160202		Duke Style Swivel	J
2	1	1	1020001	R1020001	Original Block	P
2	1	1	1010000-5		Complete Slide Assembly	F
2	1	1	1010001-5		Female Slide, Universal	M
2	1	1	1010002-3		Male Slide, Universal	T
2	1	1	1180301-001	R1180301-001 RCS-200-1	Lens	F
2	1	1	1010003		Lens Strip	G
				Kits		
	1	1	**R1010000-KIT-5**		**Universal Slide with Lens Strip Kit**	A
	1	1	1010000-5		Complete Slide Assembly	F
	1	1	1010003		Lens Strip	G
	3	3	MS24693-C48BP		#8-32 X .375 Flat Head Phillips SS Black Patch Screw	
			R1180301-001		**Lens Kit**	F
			9051-0118-019		Cessna 177 Cardinal PMM	G

Cardinal 177 Sunvisor System

Rosen Part Number R1180005-0



Product Maintenance Manual
with Illustrated Parts List
and Instructions for Continued Airworthiness

Manual Number
Rosen 9051-0118-019
Revision G

August 16, 2023

Rosen Sunvisor Systems LLC
86365 College View Road
Eugene, Oregon 97405 USA

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This ICA must be followed when the R1180005 Sunvisor system is installed in accordance with Supplemental Type Certificate, (STC) No. SA4964NM, dated October 5, 1990, amended March 24, 2003.

The information contained in this document supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this manual, consult the basic aircraft ICA or Maintenance Manual.

STATEMENT OF Rev E CERTIFICATION

This manual complies with Federal Aviation Association (FAA) Airworthiness Requirements Part 23 .

FAA Acceptance: _____

The above certification does not apply to revisions or amendments made after the date of initial certification by other Approved Organizations. Revisions or amendments made by other Approved Organizations must be separately certified and recorded on separate record sheets

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Record of Revisions

Rev	Description	Date	Approved
E	Update to CMM/IPC format. Correct typos	9/19/14	GH
F	Update to PMM/IPC Format. Add hole drilling instructions and details	1/12/23	GH
G	Correct from 5/32 to 3/32 hex key	8/16/23	SYS

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Introduction

1. General

a. This Rosen Product Maintenance Manual provides use, maintenance and supplemental airworthiness instructions for the cockpit Sunvisor system used on the Cessna Cardinal (Cessna model 177) aircraft.

b. Rosen reserves the right to revise this document for changed procedures, improved parts or changes to the system or components.

c. All technical support, spare sales, repairs or modifications are to be directed directly to Rosen Sunvisor Systems LLC. RSS must be contacted for future revision of this document as it is possible this does not contain the latest revisions.

2. Revision Service

Current revision status and revisions to this document may be obtained from Rosen Sunvisor Systems' website: www.rosenvisor.com. We recommend that you periodically check to make sure you are using the most current version.

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Fault Isolation

1. General

a. This section identifies Probable Causes and Corrections for possible faults.

Problem	Probable Cause	Corrective Action
Visor does not extend on arm	Tension Thumb knob too tight	Loosen knob and slide using knob
Lens does not rotate smoothly on vertical axis	Vertical pivot tension incorrectly set	Re-tension vertical pivot
Lens does not rotate smoothly on horizontal axis	Horizontal pivot tension incorrectly set	Re-tension horizontal pivot

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Product Description

1. **General**
   a. The Rosen Sunvisor System consists of two visor assemblies which have been designed to improve pilot comfort during standard cockpit operations. The visor assemblies are fastened to the airframe in the same mounting positions as the factory installed visors.

Installation Instructions

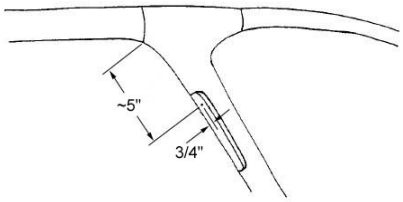
This is an FAA STC'd Installation requiring a log book entry upon completion.

Hardware (included):

(4) MS16996-14BP	#10-32x1 Socket Head Cap Screw
(4) AS-10	#10-32 Black Washer
(4) A10K80	#10-32 Rivnut (for cockpits without handle grips)
(1) 3/32 Allen Key	
(1) 9/64 Allen Key	

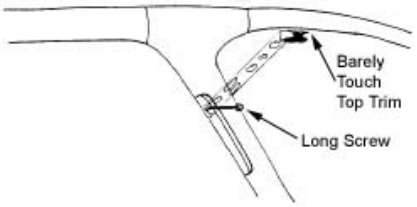
Installation should take approximately 4 to 6 hours.

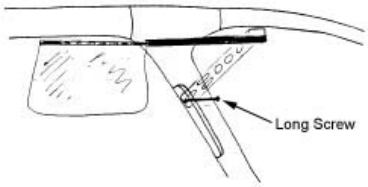
- Remove the old auto style visors by pulling them outboard.
- Most Cardinals have hand grips on the door posts and your unit is designed to pick up the top #10 fastener from this grip. Aircraft without this handgrip will need to install an A10K80 rivnut (provided). Figures to the right illustrate the handgrip and location for rivnut if needed.



Aircraft with Handgrips

1. First, remove the small metal cover over the handgrip screws. This can be done using a small common screwdriver and prying or popping them off.
2. Remove the two #10 screws that secure the handgrip.
3. Take the Pilot's NSA visor and using the long #10 screw provided (MS16996-14B), put it through the slot in the bottom of the bracket and temporarily install it in the top handgrip screw hole as shown. The top of the arm should barely touch the top trim.
4. Position the visor towards the rear of the aircraft and extend the sliding arm. The top of the visor should be parallel to the top of the door frame with the door open. Use a pencil to mark either side of the bracket on the door frame liner.





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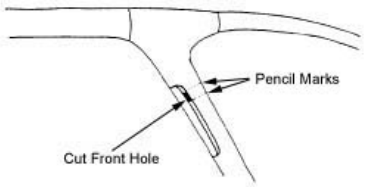
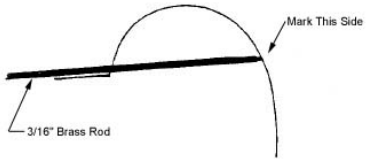
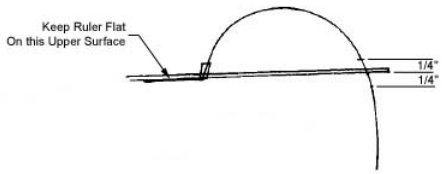
5. Rotate the visor to the front. The visor arm should just fit under the center overhead console while the bracket is still between the pencil marks. The flat surface of the bracket should be parallel with the flat surface of the door post where the screw is attached.
6. Check your marks very carefully by going through the above steps several times to assure a perfect fit.
7. The trim pieces should be marked as shown.
8. Remove the top royalite trim piece that runs around the top of the pilot's window.

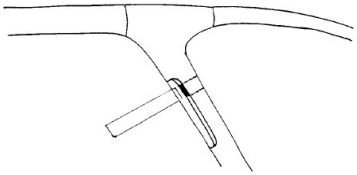


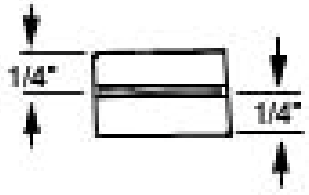
9. Remove the royalite trim piece that covers the door post. Be aware that the royalite may be very brittle from sitting in the sun and extreme care should be used when removing and installing it. If it has been cracked, or gets a small crack, you may want to consider using duct tape on the back side as reinforcement. We have seen this done on different Cessna trim pieces with good results.
10. Use a 3/16" drill or smaller to drill through the trim between the marks as shown.
11. Trim the hole so the ¼" by 1" bracket will pass through the hole.
12. Using a long wood pencil, aligned with the pencil marks and flush with the flat surface on the front side, mark the opposite side of the Royalite as shown.



13. The pencil should have left marks that you can see from the other side. Drill through these and square out a small slot with a file.
14. Slide a 1" rule through the slot and align it with the pencil marks. Enlarge the back hole as necessary until the rule slides through as shown.







15. Because of the blocking plate that is on the back of the bracket, the back hole in the royalite will need to be approximately 1/2" by 1". It is important to use the rule on the flat surface so that the back hole can be proportioned correctly and in the right plane. The figure shows a view if you could look from the back side of the royalite with the rule protruding. Again take your time and make sure the trim is cut correctly.
16. When the pilot's visor bracket with the backing bar can slide into the trim with the slots you have just cut, re-install the top piece of trim that runs around the top of the window and into the center control.

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17. Now mount the visor and bracket without the door post trim. You may need to cut a small piece of the insulation to get the bracket to fit tight against the door post. This will allow you to adjust the backing bar to the contour of the door post and keep the bracket from turning.

18. Adjust the bracket so the top just barely hits the top trim and the extended visor is parallel to the top of the door frame (door open) when it is rotated and extended to the rear. Tighten the backing bar against the door post with the hex key provided.

19. Your Pilot side mounting bracket is now in place. Remove the visor arm and mounting block from the vertical mounting post.

20. Remove the overhead trim piece.

21. Now slip the visor bracket through the slots in the door post trim and carefully re-install the door post trim. Align the small trim screw holes and then install the bottom handgrip fastener and install the MS16996-14B screw provided in the top location.

22. Check to insure the top of the visor bracket is not hitting the windscreen. If it does loosen the visor bracket and reposition it to provide clearance and retighten.

23. Replace the top trim piece and erase any pencil marks that might be left on the trim.

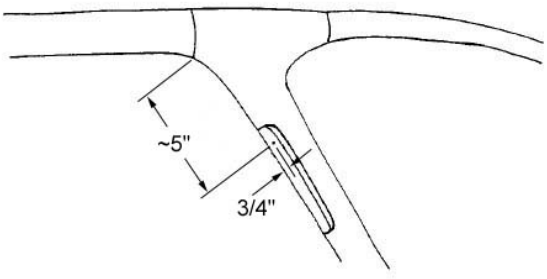
24. Replace the visor arm assembly and retaining screw and tension to provide tension that is free but not loose.

25. Repeat for the co-pilot's side.

26. Place the FAA STC and AML (if appropriate) in the Aircraft Maintenance Log and make an installation entry.

Aircraft without Handgrips

1. This installation is easier in that no special work on the trim needs to be done, but Rivnuts need to be installed in the door post to secure the bracket. (This is the same type of Rivnut and location Cessna uses for the hand grip installation.)



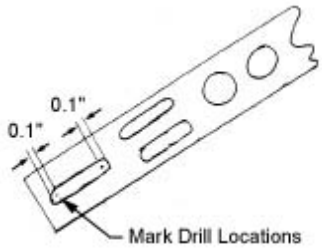
2. Use a pencil to mark the approximate location for the fastener as shown.

3. Hold the bracket of the pilots visor assembly against the door post so you can see the mark in the slot and angle the bracket so that it just hits the overhead trim.

4. Holding the bracket stationary swivel the visor to the rear and make sure the unit is parallel and in line with the door line (door open).

5. As with the handgrip instructions, pencil mark the outside of the bracket on the trim.

6. When swiveled forward the visor should just miss the center overhead console.



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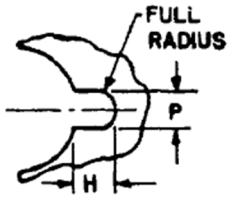
7. When the front and side criteria are met, make a pencil mark in the center of the bottom bracket slot.
8. Adjust the blocking plate so that it rides on the side of the door post.
9. Mark the front and rear of the bracket bottom slot then make a mark 0.1" in from either end as shown.

Note: There are control cables and wires located in the doorpost channel. Exercise care in these next operations and verify proper function of all system after completion.

10. When you are sure of the bracket location and your slot marks are centered and correct, drill a 1/8" hole through the trim and door post. ***Use a Drill Stop set for 1/8 inch penetration. DO NOT DRILL INTO THE AIRFRAME CAVITY.*** It is okay to not penetrate the metal framework as long as the drill has marked the location.
11. Remove the door post trim (you may need to remove the front overhead trim piece as well).
12. Use a ¼ inch drill with a Drill Stop set to 1/8-inch penetration into the larked location in the frame metal.
13. Make a small notch for the locking tab on the Rivnut. Both 'P' and 'H' should be ~1/16 inch.
14. Install the A10K80 Rivnuts, with the key engaging the notch, into the 1/4" holes using appropriate tooling.



15. Enlarge the 1/8-inch hole in the trim to ½ inch to accommodate the head of the installed Rivnut.
16. Re-install the trim
17. Using the #10-32 Socket head cap screws provided install the pilot's visor.
18. Repeat for the co-pilot's side.
19. Place the FAA STC and AML (if appropriate) in the Aircraft Maintenance Log and make an installation entry.

Removal

a. Reverse installation procedure.

Weight and Balance

Because operators calculate Weight and Balance differently the actual station number must be determined by the installer's calculations.

With the visor located in the stow position (in forward position and folded up) this system adds 1.06 lbs. located at the mount point of the visor. When the original visors are removed, they must be weighed and removed from the calculation.

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Repair

1. **General**
   a. All components that do not meet the requirements for continued use must be replaced.

Instructions for Continued Airworthiness

(**On the ground only)**

- Periodically clean the lenses with a soft cloth, mild soap and water or Rosen Cleaner, Polisher and Protectant. Do not use abrasives on the lens.
- Periodically adjust the pivot tensions on the visor assemblies.
- Periodically clean slide with a no residue alcohol based cleaner and inspect for wear and damage.

Airworthiness Limitations

The Airworthiness Limitations Section is FAA approved and specifies maintenance required under §43.16 and §91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no airworthiness limitations associated with this installation.

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Illustrations and IPC

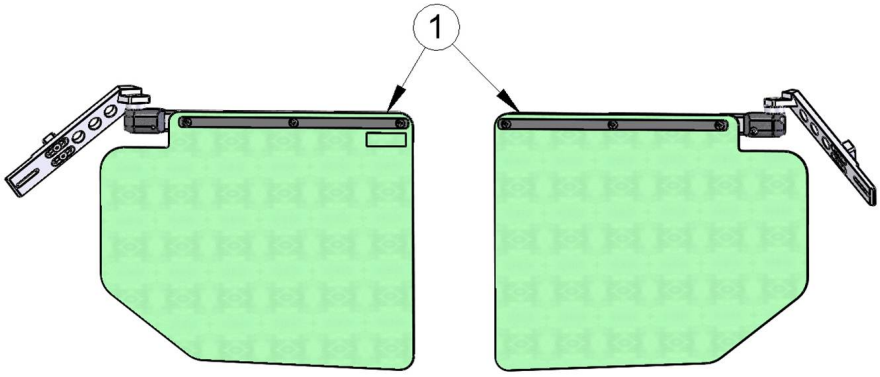

Fig 1

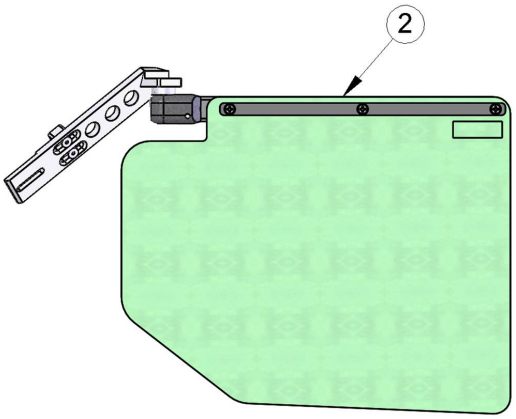

Fig 2

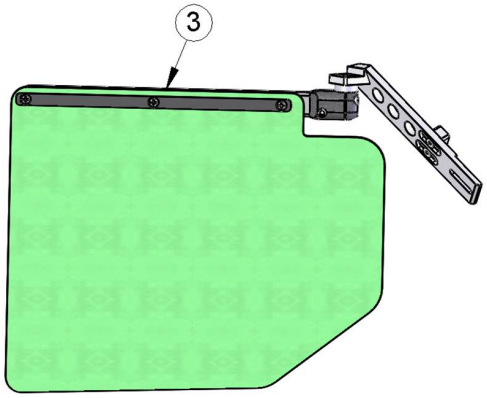

Fig 3

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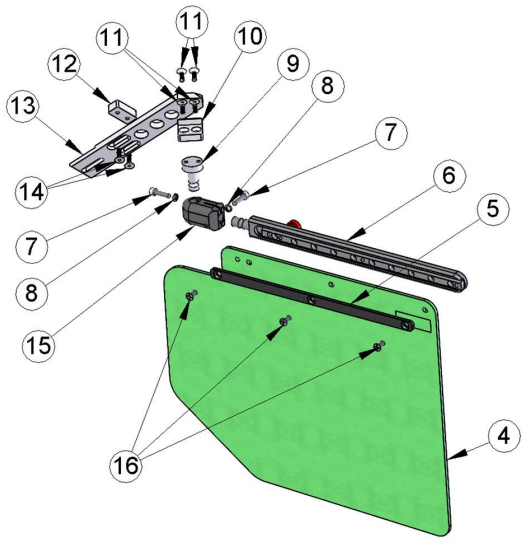

Fig 4

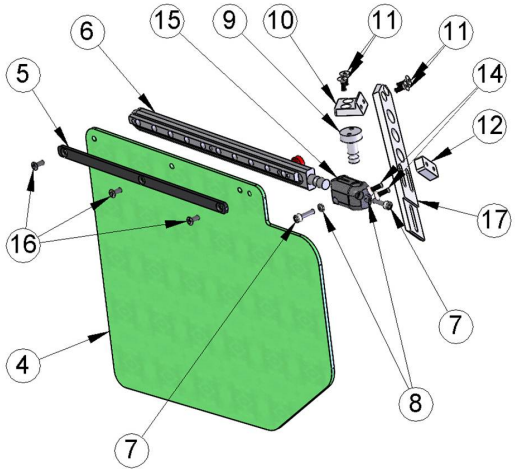

Fig 5

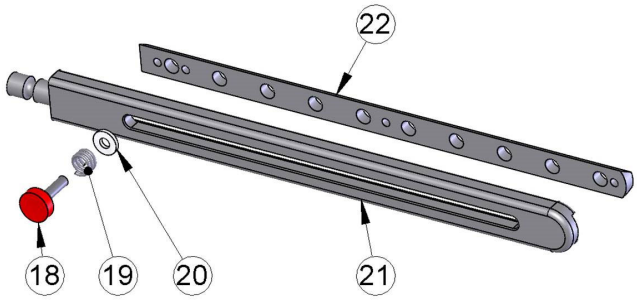

Fig 6

Parts List

Fig. No	Fig. Item	Part Number	Description	Reference	Eff	QTY
1	1	R1180005-0	Complete Assembly Cessna 177			1
2	2	1180005-1	Complete Assembly, Pilot Side			1
3	3	1180005-2	Complete Assembly, Copilot Side			1
4	4,5	1180301-001	Lens			2
5	4,5	1010003	Lens Strip			2
6	4,5	1010000-5	Slide Assembly – Universal			2
7	4,5	MS16995-27B	Scr #8-32 X .625 HEX SHCS SST BLK			4
8	4,5	8HCLW	Wshr #8 Lock High Collar Stl Blk			4
9	4,5	1160202	Swivel, Duke Style			2
10	4,5	1180107	Swivel Mount			2
11	4,5	832X716FSHCSSBP	Scr #8-32 X 437 Flh Hx Sh 82 Sst Blk P			8
12	4,5	1180108	Mount Adjust			2
13	4	1180106-001	Mounting Bracket Pilot			1
14	4,5	MS24671-14BP	Scr #8-32 X .50 Flh Scs 82 Sst Blk P			4
15	4,5	1020001	Block, Original			2
16	4,5	7YH905	Scr #8-32 X .375 Flh Phil 100 Sst Blk P			6
17	5	1180106-002	Mounting Bracket Copilot			1
18	6	99-701	½ Dia Knurled Red Knob #8-32 x 7.5			2
19	6	B-19679	Compression Spring			2
20	6	90295A110	Nylon Washer .06 X .405 OD – .175 ID			2
21	6	1010001-5	Female Slide - Universal			2
22	6	1010002-3	Male Slide - Universal			2
23		MS16996-14B	Scr #10-32 X 1.00 Shcs Ss Blk – Not Shown			4
24		AS-10	Washer #10 Backup Blk – Not Shown			4
25		A10K80	Rivnut #10-32 – Not Shown			4
26		Magnalube-G	PTFE/Petroleum Grease – Not Shown			AR

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