

# N53RD

## 1981 Cessna Citation I

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# Damage History Entries

**MSN: 500-0415**



*Prepared by the worldwide aviation specialists at RidgeAire, Inc.*



US 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

**DAK FSDU** **DDP**

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 civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

|             |  |  |
|-------------|--|--|
| 1. Aircraft | Make<br>Cessna   | Model<br>500   |
|             | Serial No.<br>500-0415   | Nationality and Registration Mark<br>N53RD   |
| 2. Owner    | Name (As shown on registration certificate)<br>STG Realty Ventures, Inc. | Address (As shown on registration certificate)<br>1260 N. Dutton Ave.<br>Suite 270<br>Santa Rosa, CA 95401 |

**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. |
| Corey Wheeler<br>6455 Sequoia St.<br>Rohnert Park, CA 94928 | <input checked="" type="checkbox"/> U.S. Certificated Mechanic | 563064190          |
|   | <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<br>April 20, 2007 | Signature of Authorized Individual<br> |
|------------------------|--|

**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 Fit. Standards Inspector | Manufacturer                                | <input checked="" type="checkbox"/> Inspection Authorization | Other (Specify) |
|   | FAA Designee                 | Repair Station                              | Person Approved by Transport Canada Airworthiness Group      |                 |
| Date of Approval or Rejection<br>April 20, 2007 |                              | Certificate or Designation No.<br>560390131 | Signature of Authorized Individual<br>                       |                 |

### 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.)*

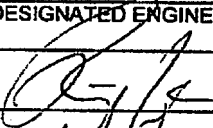
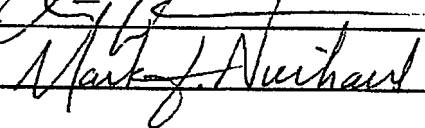
Repaired damaged right lower wing skin as per attached FAA Form 8110-3, dated April 17, 2007 and Cessna Structures Report No. S-501-0280/01RD dated April 17, 2007

No weight and balance change.

13 pages attached.

END

☐ Additional Sheets Are Attached

|  |   |  |   |
|--|---|--|---|
| U.S. DEPARTMENT OF TRANSPORTATION<br>FEDERAL AVIATION ADMINISTRATION<br><b>STATEMENT OF COMPLIANCE WITH THE FEDERAL AVIATION REGULATIONS</b>   |   |  | DATE<br>April 23, 2007  |
| <b>AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION</b>   |   |  |   |
| MAKE<br><br>Cessna   | MODEL NO.<br><br>501  | TYPE (Airplane, Radio, Helicopter, etc.)<br><br>Airplane           | NAME OF APPLICANT<br>Cessna Aircraft Company<br>Wichita, Kansas |
| <b>LIST OF DATA</b>  |   |  |   |
| IDENTIFICATION   | TITLE   |  |   |
| <u>REPAIR DEFINITION</u><br>S-501-0280/01RD      A   | REPAIR OF DAMAGE ON THE LOWER RH WING SKIN<br><br><br>Notes:<br>1. FAA Project No.: None<br>2. Approval is for design only, not installation. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "APPLICABLE REGULATIONS".<br>3. Reference Repair Definition File Folder 501-0280/01 in Structures Group Files.<br>4. Compatibility of this data with the aircraft configuration must be determined by the installer. |  |   |
| PURPOSE OF DATA: To provide for repair of puncture damage to the RH lower wing skin (P/N 5522551-6) on aircraft Model 501-0280 (unit 0415), Registration Number N53RD.   |   |  |   |
| APPLICABLE REQUIREMENTS (List specific sections)   |   |  |   |
| <u>DERY-830749-CE</u><br>14 CFR    23.301      23.603<br>23.303      23.605<br>23.305      23.609<br>23.307      23.613  |   | <u>DERY-230284-CE</u><br>23.627<br>23.572(a)(2)...thru Amend 23-16 |   |
| CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered _____ have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations. |   |  |   |
| (X) (We) Therefore <input type="checkbox"/> Recommend approval of these data<br><input checked="" type="checkbox"/> Approve these data   |   |  |   |
| SIGNATURES OF DESIGNATED ENGINEERING REPRESENTATIVES   |   | DESIGNATION NUMBER(S)  | CLASSIFICATION(S)   |
| R. J. Lamberger   |   | DERY-830749-CE   | Structures<br>14 CFR Parts 23 & 25                              |
| M. J. Nienhaus    |   | DERY-230284-CE   | Structures<br>14 CFR Parts 23 & 25                              |
|  |   |  |   |



CESSNA AIRCRAFT COMPANY  
P. O. BOX 7704  
WICHITA, KANSAS 67277-7704

STRUCTURES

MODEL NO: 501      REPORT NO: S-501-0280/01RD

REPAIR DEFINITION

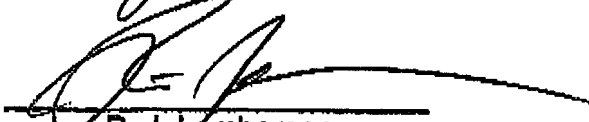
REPAIR OF DAMAGE ON THE LOWER RH WING SKIN

REPORT DATE: April 17, 2007

PREPARED BY:   
R. M. Wade

CHECKED BY:   
R. J. Lamberger

CHECKED BY:   
M. J. Nienhaus

APPROVED BY:   
R. J. Lamberger

Cessna Aircraft Company  
P. O. Box 7704  
Wichita, KS 67277

Page i  
Report S-501-0280/01RD  
Aircraft 501-0280 (Unit 0415)

REVISIONS

| LETTER | DATE      | DESCRIPTION                                     | BY  | APPROVED        |
|--------|-----------|---|-----|-----------------|
| N/C    | 17APL2007 | Original release, ECR 099005.                   | RMW | See cover page. |
| A      | 23APL2007 | Revised Section 1.0 to reflect correct A/C data | RMW | RJC             |
|        |           |   |     |                 |

## 1.0 AIRCRAFT DATA

Serial Number: 501-0280

Unit Number: 0415

A/W Date: 11/30/1977

6638 Hrs / 6849 Ldgs

Reg. No.: N53RD

Date of Occurrence: On or about 01/15/2007

Owner/Operator: STG Realty Ventures

Repair Facility: Sonoma Jet Center

A

## SPECIAL NOTES

- This Repair Definition covers only the damage defined in this document and it is the responsibility of the repair facility to assure that the defined damage agrees with the actual damage.
- All nondestructive inspections (NDI) specified in the Repair Definition must be performed by a qualified facility and meet the requirements defined in the Cessna Model 500 Series Nondestructive Testing Manual, Part 1 – General.

The repair described in the report satisfies applicable strength and fatigue, fail safe, and/or damage tolerance requirements. This repair also satisfies applicable lightning strike requirements. Structural substantiation and back-up data for this repair are contained in Engineering's Repair Definition File Folder 501-0280/01.

The structural repairs designed herein for this aircraft do not affect the original structural inspection criteria (procedures or timing) as published in the Cessna Model 500/501 Maintenance Manual.

The repair definition contained within this document has been found to comply to the following regulations:

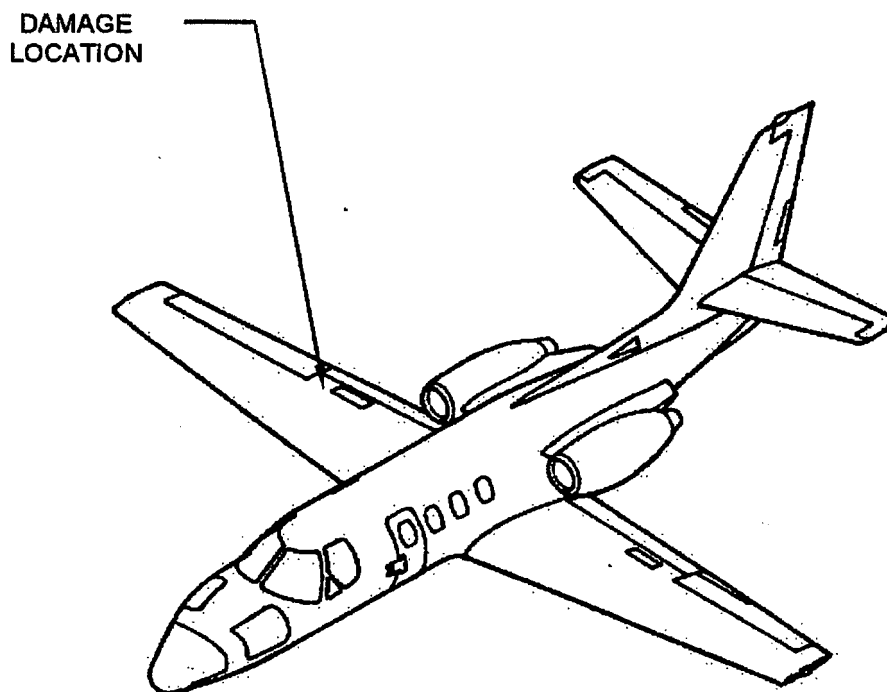
14 CFR 23.301, 23.303, 23.305, 23.307, 23.603, 23.605, 23.609, 23.613, 23.627  
23.572(a)(2) as amended by amendments 23-1 through 23-16.

## 2.0 DAMAGE DESCRIPTION

The RH wing SKIN (P/N 5522551-6) was punctured outboard of WS91, the puncture was between the aft spar and the stringer immediately forward. The puncture was approximately 4 inches in diameter. There was also damage to the Rib Cap (P/N5522620-50).

Figure 2.1 is a sketch showing the general location of the damage. Figure 2.2 is a photograph of the damage provided by the repair facility.

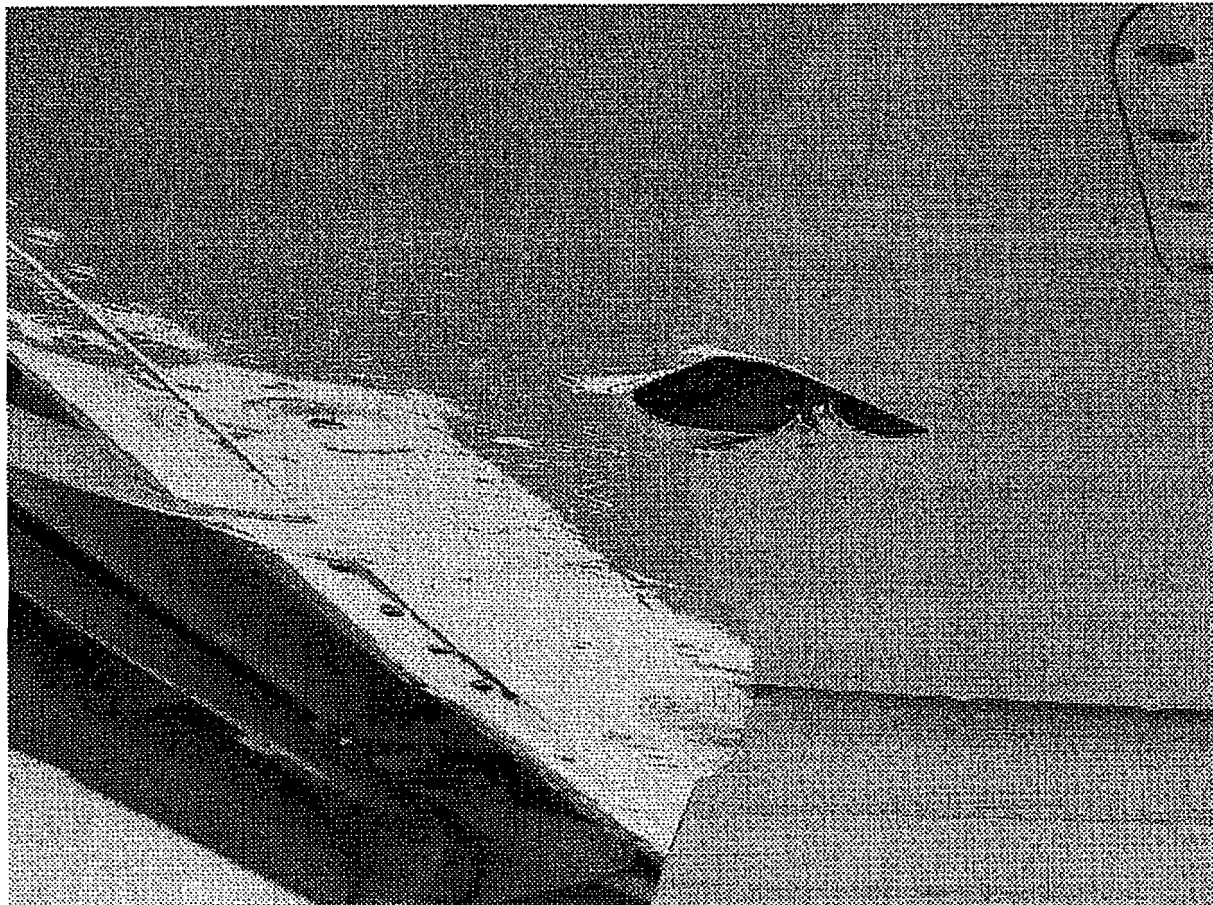
FIGURE 2.1:  
GENERAL AIRCRAFT DAMAGE LOCATION



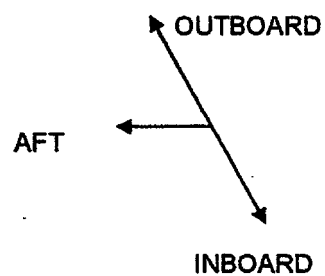
MODEL 500/501 AIRCRAFT



FIGURE 2.2:  
DAMAGE PHOTOGRAPH



(VIEW LOOKING INBOARD AT DAMAGE IN THE LOWER RH WING SKIN (P/N 5522551-6))



### 3.0 REPAIR DEFINITION

The repair will consist of trimming out the damaged components and installing a doubler and rib splice. Read entire repair definition prior to beginning the repair and contact Cessna Customer Service if the repair can not be installed as described.

Repair per the following instructions:

#### 3.1 REMOVAL OF DAMAGE

- Place a stainless steel shim between the wing skin and sub-structure to protect the sub-structure during the skin trimming operation. Trim as shown in Figure 3.1. Trim only the Lower Skin. Break all sharp edges using 0.03"-0.06" minimum radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal", all bare areas.

#### 3.2 FABRICATION OF REPAIR PARTS

- Fabricate the -2 Repair Doubler from 0.040 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.1. Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal"

**NOTE:** Fabricate the Repair Doubler larger than required and trim prior to installation. Actual geometry of the Repair Doubler may vary slightly to accommodate 4D to 8D fastener spacing, 2D minimum edge distance and number of fasteners as shown in Figure 3.1.

- Fabricate the -3 Repair Doubler from 0.040 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.1. Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal"
- Fabricate the -4 Repair Filler from 0.020 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.1. Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal"
- Fabricate the -5 Repair Filler from 0.040 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.1. Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and

epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal" Max gap of 0.03 inch between -5 Filler and Skin trim.

- Fabricate the -6 Repair Filler from 0.063 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.1. Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal". The -6 Filler is under the joggled portion of the Rib Segment common to the stringer. Roughly a 1.25 inch X 1.25 square, trim to fit.
- Fabricate the -7 Rib Segment from a new Rib Cap (P/N 5522620-50) or 0.050 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.2. The Rib Segment should emulate the pattern and bend radius of the segment removed from the Rib Cap (P/N 5522620-50). Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal". If fabricated from the T3 material, perform a Surface Eddy Current inspection for cracks along the bend radius of the rib segment. Surface eddy current inspect per Model 500 Series Nondestructive Testing Manual, Part 6 "Eddy Current".
- Fabricate the -8 Splice from 0.050 inch 2024-T3 Al Sheet Per QQ-A-250/5 per Figure 3.2. Break all sharp edges to 0.03 to 0.06 inch radius. Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal"
- Fabricate conical washers (or purchase S3962 repair washers) to fit each of the pre-existing countersinks (for the area directly under the -2 Doubler). Clean, chem. film and epoxy prime per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal".

### **3.3 INSTALLATION OF REPAIR PARTS**

- Install a conical washer in each preexisting countersink wet with B-2 Sealant per Model 500 Maintenance Manual Chapter 51-10-02, "Protective Treatment Of Metal".
- Install the Repair Doublers and Fillers as shown in Figures 3.1 & 3.2. Install blue print size and type fasteners common to the wing skin, in the damaged area, use B/P spacing. Use XLZ4 fasteners in the new fastener locations. Pay close attention

to underlying structure while laying out the pattern. There must be a minimum of three rows of fasteners in the forward/aft direction from the damage area.

The -2 Doubler is installed common to the external skin surface.

The -3 Doubler & -4 Filler are installed internally.

**NOTE:** Fay surface seal all mating surfaces per Model 500 Maintenance Manual, Chapter 20-32-00, "Fuel, Weather, Pressure and High-Temperature Sealing - Maintenance Practices". It is acceptable to apply a generous amount of sealant in the effected area.

**NOTE:** Install fasteners wet with Type I, Class B sealant per Model 500 Series Structural Repair Manual, Chapter 51-10-02, "Protective Treatment Of Metal".

**NOTE:** Fastener substitution is allowed, as required, per Model 500 Series - Structural Repair Manual, Chapter 51.

- If while reforming the skins back to contour, the skin becomes debonded to the underlying stringer, continue the staggered fastener pattern in the stringer for the duration of the debond area.

### 3.4 GENERAL

- Perform fuel leak test per Model 500/501 Citation/Citation I Maintenance Manual - Chapter 28, Section 28-10-00 "Fuel Storage - Maintenance Practice".
- Pre-assembly operations such as fitting, filing, drilling, dimpling and deburring shall be completed prior to cleaning.
- Fasteners are not to have an edge distance (ED) of less than less than 2D to the nearest part edge. The distance between fasteners is not to be less than 4D and not more than 8D. This note applies in all cases except where specifically noted in this report.
  - E. D. = edge distance, measured from the center of hole to edge of part.
  - 2D = two times the hole diameter, 4D = four times the hole diameter, etc.

- Unless indicated otherwise below, all repairs and modification to the airplane are to conform to the Cessna Model 500/501 Maintenance Manual. This repair is authorized for the stated Serial Numbered airplane only.
- This repair is for an unmodified airplane. Any non-Cessna modification that affects the aircraft gross weight, original design, or performance may invalidate published Continued Airworthiness requirements (i.e., inspection techniques and/or interval). Contact the STC Holder or originator of the modification for revised inspection criteria.
- If this Repair Definition Report (RD) is provided in support of a non-USA registered aircraft, acceptance of these findings is at the discretion of the civil aviation authority of the State of Registry. Compatibility of this data with the aircraft configuration must be determined by the installer.
- Prior to fastener removal, note the size, type, and location of any fasteners to be removed. This will facilitate later installation of similar fasteners (or oversized, as required, and as permitted by the Model 500/501 Maintenance Manual or SRM).
- Seal all parts on installation, using the sealants specified in the Maintenance Manual, for each location. If no sealant or procedure is specified, Seal as instructed in the Maintenance Manual, using MIL-S-8802 Class B2 sealant on Assembly. Drive all fasteners wet with sealant.
- Break all edges, clean, chem. film and epoxy prime all bare aluminum surfaces and abrasive clean and epoxy prime all stainless steel surfaces per the applicable Model 500/501 Service Documentation.

Figure 3.1

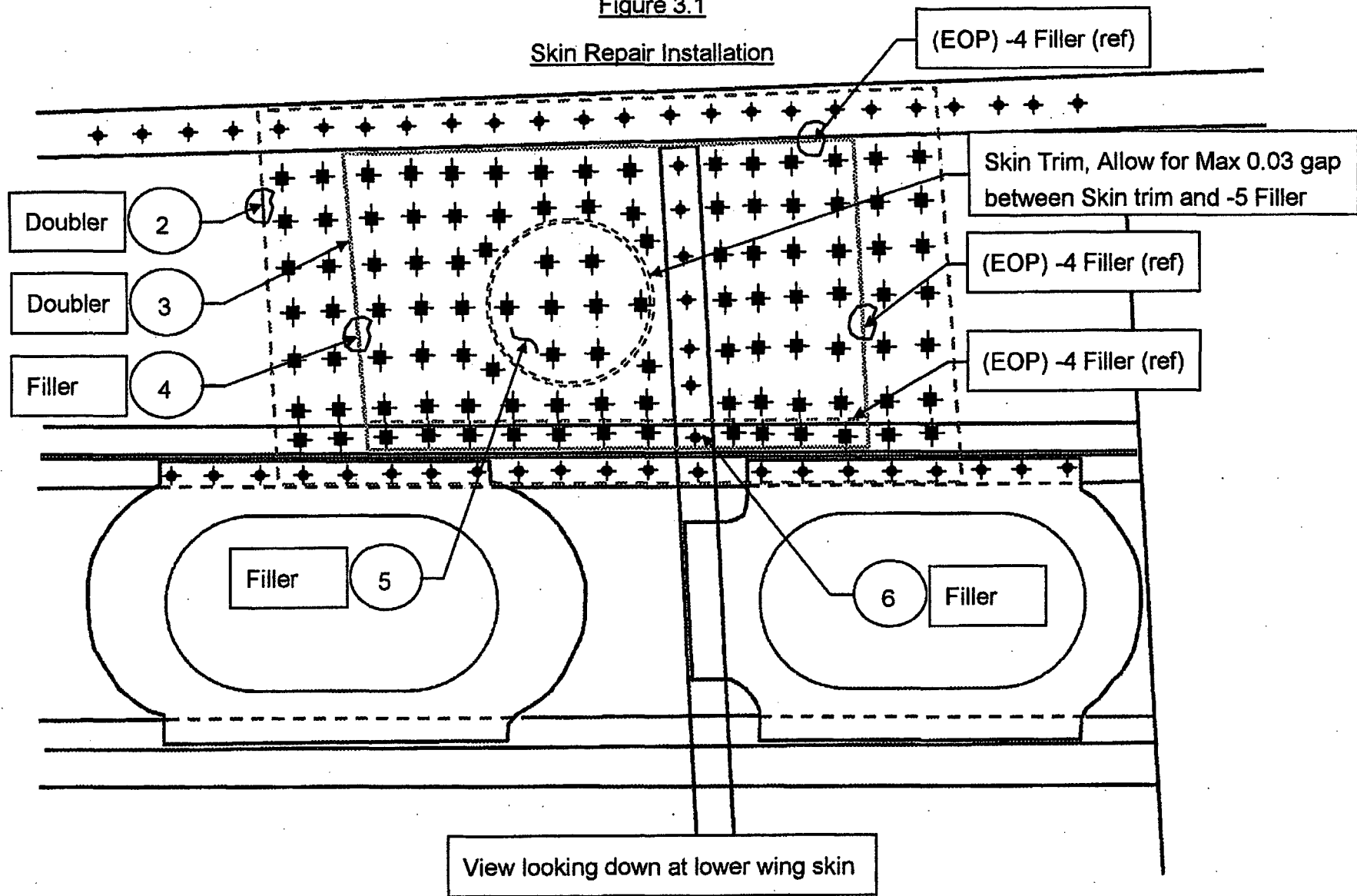


Figure 3.2

Rib Cap Repair Installation

