



ENGINEERING ORDER

EO. No: A320HC52-004/14 R0

Date: 08/19/2014

Rev. Date: 08/19/2014

Pag 1 of 18

SUBJECT: ATA 52 - DOORS - LH NOSE LANDING GEAR DOOR - EROSION - PERMANENT REPAIR

REFERENCES:

SEE PAGE 2

COMPLIANCE

PRIORITY: 1

STATUS: ACT

ACTN: TERMINATING

SUMMARY: This EO is to repair an erosion on LH landing Gear Door.

ENG. ASSESSMENT:

SEE PAGE 2

WARRANTY: YES NO

EFFECTIVITY:

SEE PAGE 2

DUE DATE: Before next flight

REPEAT: NA

EFFECT ON WEIGHT & BALANCE: YES NO

LBS:

LB-IN:

N/A

N/A

SPECIAL REQUIREMENTS:

<input checked="" type="checkbox"/> Materials	<input type="checkbox"/> Special Tools	<input checked="" type="checkbox"/> NDT Equipment	<input type="checkbox"/> Feedback	<input type="checkbox"/> Other
Comments: NONE		Deferred Due Date: _____ BY: _____ DATE: _____ BY: _____ DATE: _____		- - - -

REVISION RECORD:

Rev. 00 - 8/19/2014
== ORIGINAL ISSUE ==

Specific Regulatory Agency Approval

Major Form Minor STC RAS Permanent Not Required

Engineers	Engineering Chiefs	Engineering Manager
 C. Diaz 08/28/2014	 M. Davis Aug 28, 14	 B. Brown 08/28/2014



ENGINEERING ORDER

EO. No: A320HC52-004/14 R0	Date: 08/19/2014
Rev. Date: 08/19/2014	Pag 2 of 18

EFFECTIVITY:			
AIRCRAFT MODEL / COMPONENT	P/N	S/N	REMARKS
NOSE LANDING GEAR DOOR LH	D5281016500000	FB 10298	Currently installed on A/C N681TA MSN: 3577

REFERENCES:	COMPLIANCE
/A/ Aeroman message No. AEM-14-04866/000	NONE
/B/ Airbus message Ref. 80002665/006	FCW
/C/ Aeroman message No. 80002665/007	NONE
/D/ Airbus RDAS 80002665/003/2014 Issue A	FCW

ENG. ASSESSMENT:	<p>During major check at AEROMAN (SAL), corrosion was found on Landing Gear Door LH. Damage was found out of limits of SRM.</p> <p>AIB was contacted as per Ref. /A/ and /C/ to request permanent repair. Repair guidelines were provided per Ref. /B/.</p> <p>This EO is classified as minor and permanent as per Ref. /D/.</p>
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ENGINEERING ORDER

EO. No: A320HC52-004/14 R0	Date: 08/19/2014
Rev. Date: 08/19/2014	Pag 3 of 18

DISTRIBUTION LIST (Planning will distribute all copies)	
Technical Records	<input checked="" type="checkbox"/>
Stockroom	<input type="checkbox"/>
Reliability	<input type="checkbox"/>
Line Maintenance	<input type="checkbox"/>
Hangar Maintenance	<input checked="" type="checkbox"/>
Flight Operations	<input type="checkbox"/>
Quality Control	<input type="checkbox"/>
Quality Assurance	<input type="checkbox"/>
Technical Publicactions	<input type="checkbox"/>
Warranty	<input type="checkbox"/>
Other	<input type="checkbox"/>
Comments: NONE	

PUBLICATIONS AFFECTED	
Chapter	Publications
NA	NONE

SUPPORT DOCUMENTATION		
DOCUMENT NUMBER	DOCUMENT TYPE	TITLE
12-34-24 PB 201	AMM	AIRCRAFT ELECTRICALLY GROUNDED
51-10-03	NTM	INSPECTION OF CFRP AND GFRP COMPOSITE COMPONENTS - HONEYCOMB SANDWICH PARTS - GENERAL
51-10-06	NTM	ACCIDENTAL DAMAGE - GENERAL NDT PROCEDURE FOR THE INSPECTION OF CARBON FIBER MONOLITHIC STRUCTURE
51-10-09	NTM	GENERAL PROCEDURE FOR DETAILED VISUAL INSPECTION FOR CARBON FIBRE STRUCTURES
51-75-12	SRM	REPAIR OF PAINT COATINGS
51-90-00	NTM	VISUAL TESTING
52-82-00 Figure 203	SRM	NOSE GEAR DOORS - Repair Principle for Damage to the Bronze Mesh of the Outer Skin of Nose Landing Gear Doors
52-82-00 PAR. 5.S.	SRM	REPAIR - NOSE GEAR DOORS - Repair Principle for Damage to Edge of Nose Landing Gear Doors

LABOR ESTIMATE:			
SKILLS:	CREW:	MAN-HRS:	ELAPSED:
NDT	1	2	2
STRH	1	10	10
INS	1	2	0
TOTAL:	3	14	12



ENGINEERING ORDER

EO. No: A320HC52-004/14 R0	Date: 08/19/2014
Rev. Date: 08/19/2014	Pag 4 of 18

PARTS AND MATERIALS (Per Unit)

PART NUMBER	DESCRIPTION	QTY	UNIT	P.O./M.R.	REMARKS
NONE			NA		REFER TO INSTRUCTIONS

TOOLS

PART NUMBER	DESCRIPTION	QTY	P.O.	REMARKS
NONE				REFER TO INSTRUCTIONS



ENGINEERING ORDER

E.O. No: A320HC52-004/14	DATE: 08/19/2014
Rev. No: 0	PAGE: 5 of 18

SUBJECT: ATA 52 - DOORS - LH NOSE LANDING GEAR DOOR - EROSION - PERMANENT REPAIR
FREQUENCY: NA
TAIL:
STATION:
DATE:

MECHANIC	Q.C.	INSTRUCTIONS
XXX	XXX	<u>ACCOMPLISHMENT INSTRUCTIONS</u>
		<p><u>IMPORTANT:</u> PLEASE READ THIS INFORMATION CAREFULLY BEFORE PROCEEDING WITH STEP BY STEP INSTRUCTIONS.</p> <p><u>WARNING:</u> MAKE SURE THAT YOU OBEY ALL THE WARNING AND ALL THE CAUTIONS INCLUDED IN THE REFERENCE PROCEDURES.</p>
XXX	XXX	A. <u>JOB SET UP</u>
		1. Make sure that the Aircraft is electrically grounded (refer to AMM task 12-34-24 page block 201)
XXX		2. Make sure that damages are as reported on Ref. /A/. Any discrepancy? YES () NO () If YES, contact engineering department. If NO, continue with next step.
XXX	XXX	B. <u>REPAIR INSTRUCTIONS</u>
XXX		1. Perform a DVI IAW NTM 51-90-00 and IAW NTM 51-10-09 to eroded areas of NLG door panel to make sure no additional damages are present. Any finding? YES () NO () If YES, contact Engineering Department. If NO, continue with the next step.
XXX		2. Perform a Tap test inspection on eroded area of NLG panel IAW NTM 51-10-03 to make sure no delamination evidences exists. Any finding? YES () NO () If YES, contact Engineering Department. If NO, continue with the next step.



GRUPO TACA

ENGINEERING ORDER

E.O. No: A320HC52-004/14	DATE: 08/19/2014
Rev. No: 0	PAGE: 6 of 18

SUBJECT: ATA 52 - DOORS - LH NOSE LANDING GEAR DOOR - EROSION - PERMANENT REPAIR
FREQUENCY: NA
TAIL:
STATION:
DATE:

MECHANIC	Q.C.	INSTRUCTIONS
NDT	XXX	<p>3. Perform an Ultrasonic Inspection on monolithic area of NLG panel IAW NTM 51-10-06 to make sure no damages.</p> <p>Any finding?</p> <p>YES () NO ()</p> <p>If YES, contact Engineering Department.</p> <p>If NO, continue with the next step.</p>
XXX		<p>4. Confirm that there is no skydrol contamination on the reported damaged NLG door panel.</p> <p>Any finding?</p> <p>YES () NO ()</p> <p>If YES, contact Engineering Department.</p> <p>If NO, continue with the next step.</p>
		<p>5. Remove the erosion damage to NLG panel and repair following A320 SRM 52-82-00 Paragraph 5.S with following provisions:</p>
		<p>5.1. Locate and record the position of the original fastener holes using an acrylic template. Retain this information for further use. Also, note the location of the Drain Hole for NLG panel.</p>
		<p>5.2. Include all fitting fasteners within the repair.</p> <p>NOTE: The splicing plies cannot be performed between fitting row fasteners.</p>
XXX		<p>5.3. Perform a DVI IAW 51-90-00 in order to confirm if the internal skin plies are damaged?</p> <p>Any finding?</p> <p>YES () NO ()</p> <p>If YES, contact Engineering Department.</p> <p>If NO, do not cut them out and continue with the next step.</p>



GRUPO TACA

ENGINEERING ORDER

E.O. No: A320HC52-004/14	DATE: 08/19/2014
Rev. No: 0	PAGE: 7 of 18

SUBJECT: ATA 52 - DOORS - LH NOSE LANDING GEAR DOOR - EROSION - PERMANENT REPAIR
FREQUENCY: NA
TAIL:
STATION:
DATE:

MECHANIC	Q.C.	INSTRUCTIONS
XXX		5.4. Perform a DVI IAW 51-90-00 in order to confirm if the honeycomb is damaged? Any finding? YES () NO () If YES, contact Engineering Department. If NO, do not repair it and continue with the next step.
		5.5. Repair the bronze mesh following A320 SRM 52-82-00 Figure 203.
XXX	XXX	C. <u>CLOSE UP</u>
		1. Restore surface protection IAW A320 SRM 51-21-11 and A320 SRM 51-75-12.
		2. Make sure the work area is clean and clear of tools or items.
XXX	XXX	End of this E.O.
XXX	XXX	<i>The following step is for documentation purposes only and is not related to the actual tasks performed on the subject aircraft.</i>
XXX	XXX	TECHNICAL RECORDS: Insert a copy of this Engineering Order in the records of the subject aircraft and component. Name: _____ Title: _____ Date: _____ Signature: _____

 Customer Services	DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.	Dossier Reference : 80002665
		Creation date dossier : 16-AUG-2014

Airline:	TAI TACA INTERNATIONAL AIRLINES SA	A/C Type:	A320
MSN:	03577	Reg. Number:	N681TA
P/N:	SEE REF. /A/	Current FC:	9097
S/N:	SEE REF. /A/	Current FH:	23622

Damages:

ATA : 52-82-11	Cause: Environmental attack	Type : Erosion
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Messages :

Airbus Reference : 80002665/001 **Requestor Reference :** REF. /A/: AEM-14-04866/000

Title : DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.

From : AEROMAN/ALEX RIVERA

To : SEOE2_Repair Support Region 2

Submitted date : 16-AUG-2014 01:20 (UTC+1)

Final Answer : N

Urgency : Regular

Requested Answer : 19-AUG-2014 23:59 (UTC+1) **Planned Answer :**


Message :

REF. /A/: AEM-14-04866/000

During major check at AEROMAN (SAL), LH and RH NLG doors of subject A/C were found with erosion damages on their fwd edges as shown in figure 1 of this report (Ref. /A/: AEM-14-04866/000). These damaged areas are out of repairable limits of A320 SRM 52-82-11.

AEROMAN on behalf of TAI kindly proposes to AIRBUS the following repair plan as permanent solution:

1. Perform a DVI IAW NTM 51-90-00 and IAW NTM 51-10-09 to eroded areas of both NLG door panels to make sure no additional damages are present (Already done, nil findings).
2. Perform a Tap test inspection on eroded areas of both NLG panels IAW NTM 51-10-03 to make sure no delamination evidences exists (Already done, nil findings).
3. Perform an Ultrasonic Inspection on monolithic areas of both NLG panels IAW NTM 51-10-06 to make sure no damages.(Already done, nil findings).
4. Remove the erosion damages to both NLG panels and repair following A320 SRM 52-82-00 Paragraph 5.S with following provisions:
 - a) Locate and record the position of the original fastener holes using an acrylic template. Retain this information for further use. Also, note the location of the Drain Hole for both NLG panels.
 - b) Include all fitting fasteners within the repair due to the splicing plies cannot be performed between fitting row fasteners. Figure 2 of this report (Ref. /A/: AEM-14-04866/000) shows repair layout proposed to be accomplished as above described.
 - c) If the internal skin plies are not damaged do not cut them out.
 - d) If the honeycomb is not damaged do not repair it.
5. Repair the bronze mesh following A320 SRM 52-82-00 Figure 203.

 Customer Services	DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.	Dossier Reference : 80002665
		Creation date dossier : 16-AUG-2014

6. Restore the surface protection and paint finish following A320 SRM 51- 75-12.

IMPORTANT NOTES TO BE TAKEN INTO ACCOUNT FOR THE REPAIR ABOVE DESCRIBED:

- a) It is confirmed that there is no skydrol contamination on the reported damaged NLG door panels.
- b) Figure 2 (Ref. /A/: AEM-14-04866/000) of this report shows Repair Layout Proposal for both NLG door panels. AEROMAN would provide final dimensions of repaired areas to AIRBUS at the time of requesting RDAS for this subject.
- c) This repair proposal is based on assessment provided by AIRBUS by means of RMT 70548196 to AEROMAN for another operator on May of 2014.
- d) It is also confirmed that F/H and F/C of both NLG doors are the same of the A/C (23,622FH and 9,097FC). Figure 1 (Ref. /A/: AEM-14-04866/000) of this report shows respective P/N and S/N of both NLG door panels.

ACTION:

AEROMAN on behalf of TAI kindly requests from AIRBUS the following:

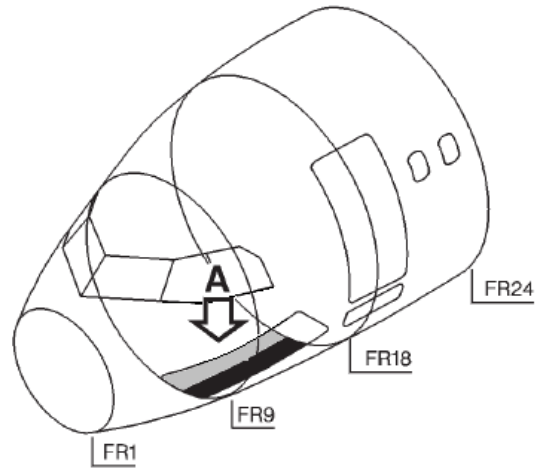
1. Please provide us a statement of structural compliance with repair plan above described and following repair layout as shown in figure 2 of this report.
2. If item 1 is not feasible, please provide us a permanent repair plan.
3. a response for August 19, 2014 will be appreciated.
4. RDAS after successful repair embodiment.

Best Regards.

AEM-14-04866/000

DOORS – LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.

IAW A320 SRM 52-82-11
FIG 1 ITEM 1B PANEL P/N:
D52810111002 (LH SIDE)
D52810111003 (RH SIDE)



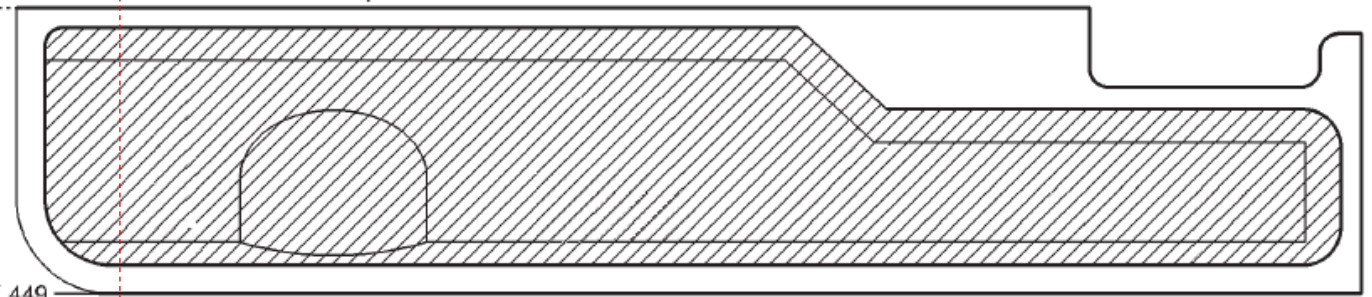
LH DOOR SHOWN
RH DOOR SYMMETRICAL



1

C_L

Y 449



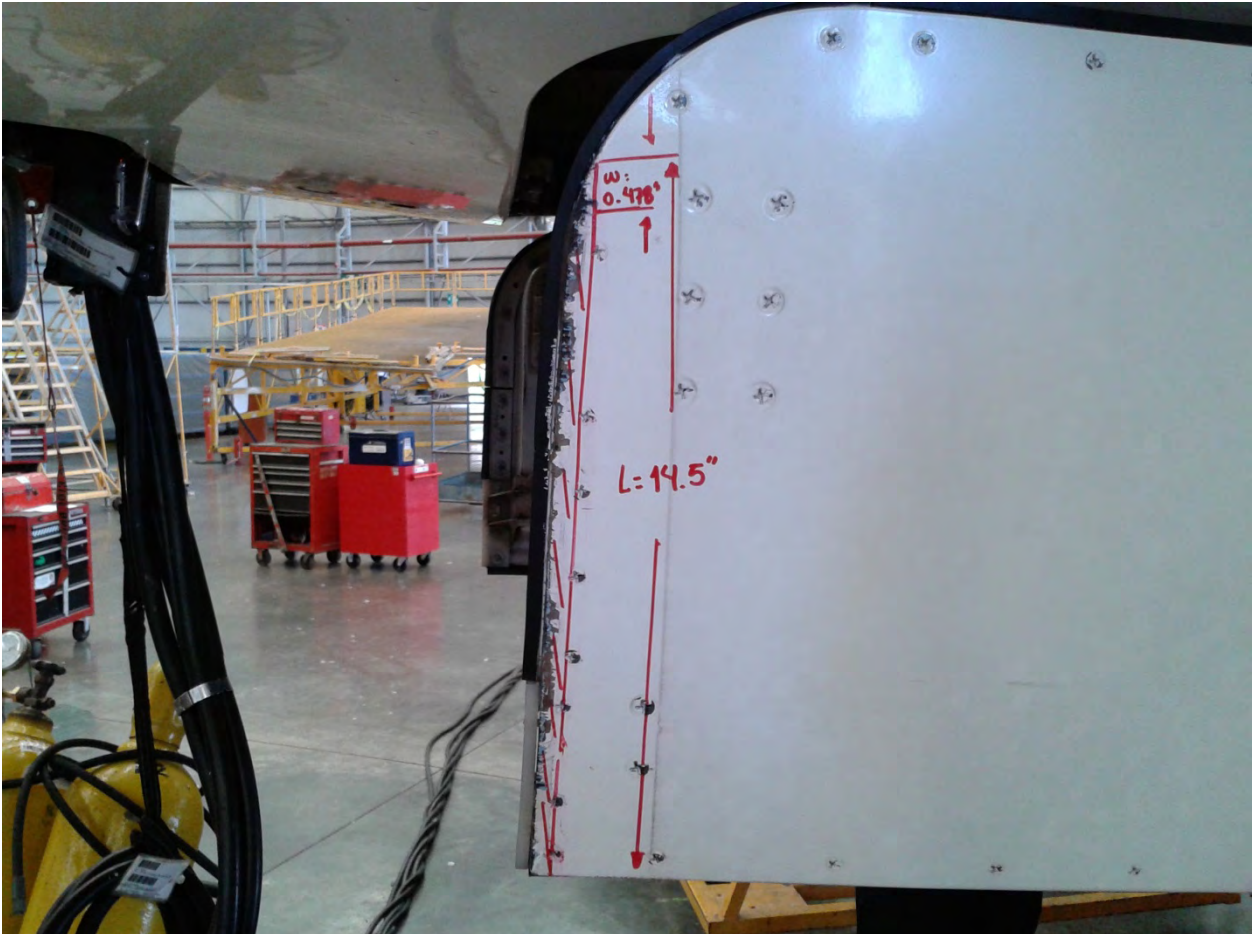
REFER TO **DETAIL A** FOR
DAMAGED AREA LOCATION
AND DIMENSIONS ON LH
NLG DOOR PANEL.

REFER TO **DETAIL B** FOR
DAMAGED AREA LOCATION
AND DIMENSIONS ON RH
NLG DOOR PANEL.

FIGURE 1 SHEET 1 OF 3

AEM-14-04866/000

**DETAIL A. ERODED AREA
LOCATION AND DIMENSIONS
ON LH NLG DOOR PANEL.**



ERODED AREA:

Length = 14.5 inch.

Width = 0.478 inch.

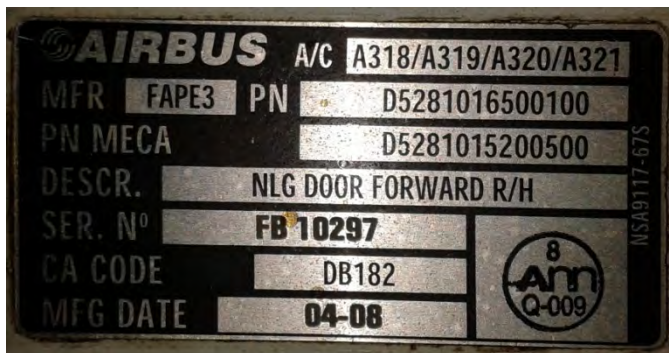
Depth = 4 Plies.

No Skydrol Contamination



AEM-14-04866/000

**DETAIL B. ERODED AREA
LOCATION AND DIMENSIONS
ON RH NLG DOOR PANEL.**



ERODED AREA:

Length = 14.25 inch.

Width = 0.386 inch.

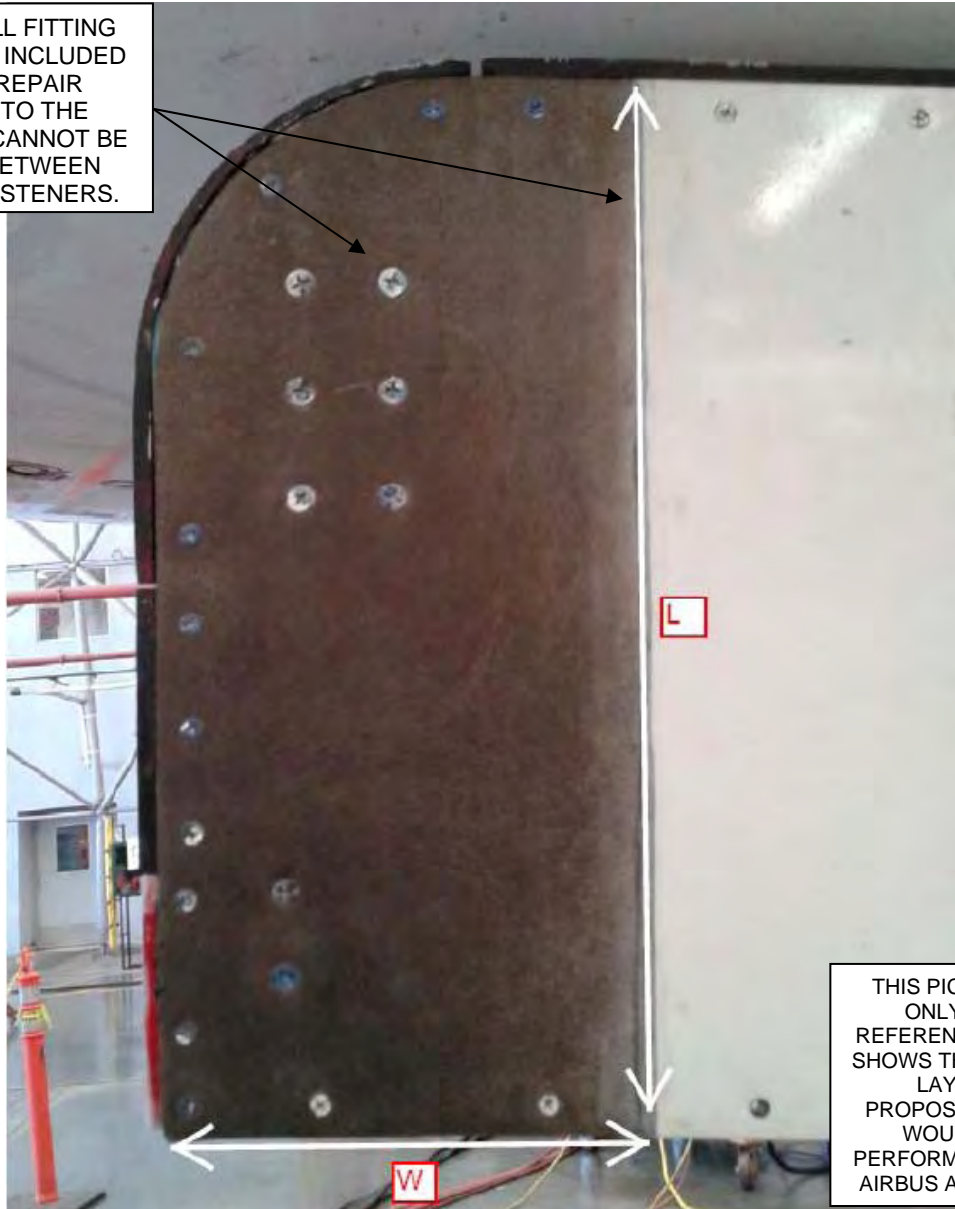
Depth = 4 Plies.

No Skydrol Contamination

AEM-14-04866/000

**FINAL REPAIR LAYOUT PROPOSED
FOR LH AND RH NLG DOOR PANELS.**

NOTICE THAT ALL FITTING FASTENERS ARE INCLUDED WITHIN THIS REPAIR LAYOUT, DUE TO THE SPLICING PLIES CANNOT BE PERFORMED BETWEEN FITTING ROW FASTENERS.



THIS PICTURE IS ONLY FOR REFERENCE AND IT SHOWS THE REPAIR LAYOUT PROPOSED, THAT WOULD BE PERFORMED AFTER AIRBUS APPROVAL

LENGTH AND WIDTH OF REPAIRED AREA TO BE PROVIDED ON RDAS REQUEST MESSAGE, WHEN REPAIR IS TO BE ACCOMPLISHED.

FIGURE 2 SHEET 1 OF 1

	DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.	Dossier Reference : 80002665
		Creation date dossier : 16-AUG-2014

Airline:	TAI TACA INTERNATIONAL AIRLINES SA	A/C Type:	A320
MSN:	03577	Reg. Number:	N681TA
P/N:	SEE REF. /A/	Current FC:	9097
S/N:	SEE REF. /A/	Current FH:	23622

Damages:

ATA : 52-82-11	Cause: Environmental attack	Type : Erosion
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Messages :

Airbus Reference : 80002665/006 **Requestor Reference :** REF. /A/: AEM-14-04866/000

Title : Repair acceptance
From : SEOE_Repair Support Wichita/JEFFREY HENDRICKS
To : AEROMAN/ALEX RIVERA
Submitted date : 19-AUG-2014 16:42 (UTC+1)
Final Answer : N


Urgency :
Requested Answer : **Planned Answer :**

Message :
Dear Alex,

We find your proposed repair acceptable.
For RDAS issuance confirm completion of the repair and provide a PICTURE of the completed repair with DIMENSIONS.

Please see below for a listing of the required repair steps for you to compare against your proposal:

1. Perform a DVI IAW NTM 51-90-00 and IAW NTM 51-10-09 to eroded areas of both NLG door panels to make sure no additional damages are present (ALREADY DONE, Nil findings).
2. Perform a Tap test inspection on eroded areas of both NLG panels IAW NTM 51-10-03 to make sure no delamination evidences exists (ALREADY DONE, Nil findings).
3. Perform an Ultrasonic Inspection on monolithic areas of both NLG panels IAW NTM 51-10-06 to make sure no damages (ALREADY DONE, Nil findings).
4. It is confirmed that there is no skydrol contamination on the reported damaged NLG door panels.
5. Remove the erosion damages to both NLG panels and repair following A320 SRM 52-82-00 Paragraph S.S with following provisions:
6. Locate and record the position of the original fastener holes using an acrylic template. Retain this information for further use. Also, note the location of the Drain Hole for both NLG panels.
7. Include all fitting fasteners within the repair due to the splicing plies cannot be

 Customer Services	DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.	<i>Dossier Reference :</i> 80002665
		<i>Creation date dossier :</i> 16-AUG-2014

performed between fitting row fasteners.

8. If the internal skin plies are not damaged do not cut them out.

9. If the honeycomb is not damaged do not repair it.

10. Repair the bronze mesh following A320 SRM 52-82-00 Figure 203.

11. Restore the surface protection and paint finish following A320 SRM 51- 75-12.

Best regards,
JEFFREY HENDRICKS
1 316 299 0154

 AIRBUS Customer Services	DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.	Dossier Reference : 80002665
		Creation date dossier : 16-AUG-2014

Airline:	TAI TACA INTERNATIONAL AIRLINES SA	A/C Type:	A320
MSN:	03577	Reg. Number:	N681TA
P/N:	SEE REF. /A/	Current FC:	9097
S/N:	SEE REF. /A/	Current FH:	23622

Damages:

ATA : 52-82-11	Cause: Environmental attack	Type : Erosion
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Messages :

Airbus Reference : 80002665/007 **Requestor Reference :**
Title : New Message
From : AEROMAN/MANUEL DURAN
To : SEOE_Repair Support Wichita/JEFFREY HENDRICKS
Submitted date : 26-AUG-2014 22:59 (UTC+1)
Final Answer : N
Urgency : Regular
Requested Answer : 28-AUG-2014 23:00 **Planned Answer :**
 (UTC+1)

Message :
 REF. /A/: 80002665/001 (AEM-14- 04866/000)
 REF. /B/: 80002665/006


Hello Airbus Team:
 Please find attached our feedback for RDAS

The repair has finished following ref. /A/ and ref./B/ instructions without deviations.
 Please note the following:
 Ref./B/ has a typo . Step 5 should said: Paragraph 5.S

Also, find attached the requested pictures.
 Be informed that the FH and FC of both doors are the same as the airplane.
 NLG DOOR FWD R/H P/N: D5281016500100 ; S/N: FB 10297.
 NLG DOOR FWD L/H P/N: D5281016500000 ; S/N: FB 10298.

REQUIRED ACTION:
 AEM on behalf of TAI kindly request from Airbus the following:

Please process the relevant RDAS

 AIRBUS Customer Services	DOORS # LH AND RH NOSE LANDING GEAR DOORS - EROSION - REPAIR.	Dossier Reference : 80002665
		Creation date dossier : 16-AUG-2014

- An answer on or before August 28, 2014 at 23:00 hrs Toulouse time would be highly appreciated.

Best Regards,



Repair Design Approval Sheet

1. RDAS Ref: 80002665/003/2014		2. RDAS issue: A	3. Page 1 of 1
4. A/C Type: -----	5. MSN: ---	6. ATA: 52-82-11	7. FC: 9097 FH: 23622
8. P/N: D5281016500000	9. S/N: FB 10298		

10. Title:LH FWD NOSE LANDING GEAR DOORS - EROSION

11. Damage Description:

During major check, erosion was found on LH FWD NLG Door.

12. Repair Description:

All NDT inspection (DVI, Tap test and US) performed with nil findings.
Repair was performed as per SRM 52-82-00 paragraph 5.S.

Repair references :

AEM-14-04866/000, 80002665/007

13. Regulations involved in addition to Certification Basis:

FAR Part26 Subpart E

14. Part 21A.449 Instructions for Continued Airworthiness

Inspection areas : see details in Box 12

Threshold (or Inspection Starting Point) * :

Interval :

Method of Inspection :

* If not otherwise specified, threshold is from time of repair embodiment

ALS Part 2 inspection tasks adversely affected

YES

15. Part 21A.443 Limitations

Repair Life Limitation** :

Repair Structural Modification Point (SMP) :

Other Limitation :

* If not otherwise specified, limitation is from time of repair embodiment

ALS Part 1 & Part 4 limitations adversely affected

YES

** If no repair category is indicated in Box 17, life limitation may be further extended after detailed analysis

16. Part 21A.435 Classification

MAJOR
 MINOR

17. Repair Category

A Permanent repair with no additional requirements
B Permanent repair with inspection required
C Temporary or life limited repair

The technical information described above is approved under the authority of EASA approved Design Organisation Number EASA 21J031 and per EASA rules Part 21 Subpart M. This approved data is based on the information provided by the requester to Airbus. Airbus disclaims any and all responsibilities for incorrect or inaccurate information provided by the requester (including modification and Supplemental Type Certificate status). If this structural repair affects the compliance to a mandatory requirement, it is the operators' responsibility to obtain the necessary approval from its National Aviation Authority.

18. Designated Airworthiness Engineer Approval

Name : JANE LI

Date : 27/08/2014

Signature

and stamp :

**APPROVED UNDER EASA
DESIGN ORGANISATION APPROVAL
No : EASA.21J.031
STAMP n°. 298**