

CHAPTER

52

DOORS



**737-800
STRUCTURAL REPAIR MANUAL**

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1	Nov 10/2004	52-00-01 REPAIR 5		1	Jul 10/2004
2	Nov 10/2004	201	Nov 10/2007	2	Mar 10/2004
3	Nov 10/2004	202	Nov 10/2006	3	Mar 10/2004
4	Nov 10/2004	203	Nov 10/2007	4	Mar 10/2004
5	Jul 10/2008	204	Nov 01/2003	52-10-01 ALLOWABLE DAMAGE 1	
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52-00-00 GENERAL		206	Nov 10/2004	102	Nov 01/2003
1	Nov 01/2003	52-00-01 REPAIR 6		103	Nov 10/2007
2	Nov 01/2003	201	Nov 10/2006	104	Mar 10/2007
52-00-01 REPAIR 1		202	Nov 10/2007	105	Mar 10/2007
201	Nov 10/2006	203	Nov 10/2006	106	Nov 01/2003
202	Nov 10/2007	204	Nov 10/2007	107	Nov 01/2003
203	Nov 10/2007	205	Nov 10/2006	108	Nov 01/2003
204	Nov 01/2003	206	Nov 10/2006	109	Nov 01/2003
205	Nov 01/2003	207	Nov 10/2006	110	Nov 01/2003
206	BLANK	208	BLANK	111	Nov 01/2003
52-00-01 REPAIR 2		52-00-01 REPAIR 7		112	Nov 01/2003
201	Nov 10/2007	201	Nov 10/2006	113	Nov 01/2003
202	Nov 10/2007	202	Nov 10/2007	114	Nov 01/2003
203	Nov 01/2003	203	Nov 10/2007	52-10-01 ALLOWABLE DAMAGE 2	
204	Nov 10/2004	204	Nov 01/2003	101	Nov 01/2003
205	Nov 10/2004	205	Nov 01/2003	102	Nov 01/2003
206	BLANK	206	Nov 10/2004	103	Nov 10/2007
52-00-01 REPAIR 3		52-10-01 IDENTIFICATION 1		104	Jul 10/2004
201	Nov 10/2007	1	Jul 10/2004	105	Jul 10/2004
202	Nov 10/2006	2	Mar 10/2004	106	Jul 10/2004
203	Nov 10/2007	3	Nov 10/2006	107	Nov 10/2004
204	Nov 01/2003	4	Mar 10/2004	108	Jul 10/2004
205	Nov 01/2003	52-10-01 IDENTIFICATION 2		109	Jul 10/2004
206	Nov 01/2003	1	Jul 10/2004	110	Nov 10/2004
207	Nov 10/2004	2	Mar 10/2004	111	Nov 10/2004
208	BLANK	3	Nov 10/2006	112	Nov 10/2004
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201	Nov 10/2007	52-10-01 IDENTIFICATION 3		114	Nov 01/2003
202	Nov 10/2007	1	Jul 10/2004	115	Nov 10/2004
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102	Nov 01/2003	202	Nov 01/2003	109	Nov 01/2003
103	Nov 10/2007	203	Mar 10/2007	110	Nov 01/2003
104	Jul 10/2004	204	BLANK	111	Nov 01/2003
105	Jul 10/2004	52-10-01 REPAIR 4		112	Nov 01/2003
106	Nov 10/2004	201	Nov 01/2003	52-10-02 ALLOWABLE DAMAGE 2	
107	Jul 10/2004	202	Nov 01/2003	101	Nov 01/2003
108	Jul 10/2004	203	Mar 10/2007	102	Nov 01/2003
109	Nov 10/2004	204	BLANK	103	Nov 10/2007
110	Nov 10/2004	52-10-02 IDENTIFICATION 1		104	Nov 10/2007
111	Nov 10/2004	1	Jul 10/2004	105	Nov 10/2007
112	Nov 01/2003	2	Mar 10/2004	106	Nov 10/2004
113	Nov 01/2003	3	Nov 01/2003	107	Nov 10/2004
114	Nov 10/2004	4	BLANK	108	Nov 10/2004
52-10-01 ALLOWABLE DAMAGE 4		52-10-02 IDENTIFICATION 2		109	Nov 10/2004
101	Nov 01/2003	1	Mar 10/2004	110	BLANK
102	Nov 01/2003	2	Mar 10/2004	52-10-02 ALLOWABLE DAMAGE 3	
103	Nov 10/2007	3	Mar 10/2004	101	Nov 01/2003
104	Jul 10/2004	4	Nov 01/2003	102	Nov 01/2003
105	Jul 10/2004	52-10-02 IDENTIFICATION 3		103	Nov 01/2003
106	Nov 10/2004	1	Mar 10/2004	104	Nov 10/2007
107	Jul 10/2004	2	Mar 10/2004	105	Nov 10/2007
108	Jul 10/2004	3	Mar 10/2004	106	Nov 10/2007
109	Nov 10/2004	4	Nov 01/2003	107	Nov 10/2004
110	Nov 10/2004	5	Nov 01/2003	108	Nov 10/2004
111	Nov 10/2004	6	BLANK	109	Nov 10/2004
112	Nov 01/2003	52-10-02 IDENTIFICATION 4		110	Nov 10/2004
113	Nov 01/2003	1	Mar 10/2004	111	Nov 01/2003
114	Nov 10/2004	2	Mar 10/2004	112	Nov 01/2003
52-10-01 REPAIR 1		3	Mar 10/2004	113	Nov 10/2004
201	Nov 01/2003	4	Mar 10/2004	114	Nov 10/2004
202	Nov 01/2003	52-10-02 ALLOWABLE DAMAGE 1		115	Nov 10/2004
203	Nov 10/2006	101	Nov 01/2003	116	BLANK
204	BLANK	102	Nov 01/2003	52-10-02 ALLOWABLE DAMAGE 4	
52-10-01 REPAIR 2		103	Jul 10/2004	101	Nov 01/2003
201	Nov 01/2003	104	Jul 10/2004	102	Nov 01/2003
202	Nov 01/2003	105	Jul 10/2004	103	Jul 10/2004
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106	Nov 10/2004	3	Mar 10/2004	106	Nov 01/2003
107	Nov 10/2004	4	Nov 01/2003	107	Nov 01/2003
108	Nov 10/2004	52-10-90 IDENTIFICATION 4		108	Nov 01/2003
109	Nov 10/2004	1	Mar 10/2004	109	Nov 01/2003
110	BLANK	2	Mar 10/2004	110	Nov 01/2003
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201	Nov 01/2003	4	Nov 01/2003	52-20-02 REPAIR 1	
202	Nov 01/2003	52-20-01 IDENTIFICATION 1		201	Nov 01/2003
203	Nov 10/2006	1	Jul 10/2004	202	Mar 10/2007
204	BLANK	2	Nov 01/2003	203	Nov 01/2003
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202	Nov 01/2003	102	Nov 01/2003	1	Jul 10/2004
203	Mar 10/2007	103	Nov 10/2007	2	Mar 10/2004
204	BLANK	104	Mar 10/2007	3	Nov 10/2006
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201	Nov 01/2003	106	Nov 01/2003	5	Mar 10/2004
202	Mar 10/2007	107	Nov 01/2003	6	Mar 10/2004
203	Nov 01/2003	108	Nov 01/2003	7	Nov 10/2006
204	Nov 01/2003	109	Nov 01/2003	8	Mar 10/2004
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201	Nov 01/2003	52-20-01 REPAIR 1		10	BLANK
202	Nov 01/2003	201	Nov 01/2003	52-30-01 ALLOWABLE DAMAGE 1	
203	Mar 10/2007	202	Nov 01/2003	101	Nov 01/2003
204	BLANK	203	Nov 10/2006	102	Nov 01/2003
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1	Mar 10/2004	52-20-02 IDENTIFICATION 1		104	Nov 10/2007
2	Mar 10/2004	1	Mar 10/2004	105	Nov 01/2003
3	Mar 10/2004	2	Mar 10/2004	106	Mar 10/2007
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52-10-90 IDENTIFICATION 2		4	Nov 01/2003	108	Nov 10/2004
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2	Mar 10/2004	6	BLANK	110	Nov 01/2003
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4	Nov 01/2003	101	Nov 01/2003	112	Nov 10/2004
52-10-90 IDENTIFICATION 3		102	Nov 01/2003	113	Nov 10/2004
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202	Nov 01/2003	52-40-01 IDENTIFICATION 2		106	Nov 01/2003
203	Nov 01/2003	1	Jul 10/2004	107	Nov 01/2003
204	Mar 10/2007	2	Nov 01/2003	108	BLANK
52-30-02 IDENTIFICATION 1		52-40-01 IDENTIFICATION 3		52-40-01 ALLOWABLE DAMAGE 3	
1	Jul 10/2004	1	Jul 10/2004	101	Nov 10/2007
2	Mar 10/2004	2	Nov 01/2003	102	Nov 01/2003
3	Mar 10/2004	52-40-01 IDENTIFICATION 4		103	Nov 01/2003
4	Mar 10/2004	1	Jul 10/2004	104	Nov 10/2007
5	Nov 01/2003	2	Nov 01/2003	105	Jul 10/2004
6	BLANK	52-40-01 IDENTIFICATION 5		106	Nov 01/2003
52-30-02 ALLOWABLE DAMAGE 1		1	Jul 10/2004	107	Nov 01/2003
101	Nov 01/2003	2	Nov 01/2003	108	Nov 01/2003
102	Nov 01/2003	52-40-01 IDENTIFICATION 6		52-40-01 ALLOWABLE DAMAGE 4	
103	Nov 01/2003	1	Jul 10/2004	101	Nov 10/2007
104	Jul 10/2004	2	Mar 10/2004	102	Nov 01/2003
105	Jul 10/2004	3	Mar 10/2004	103	Nov 01/2003
106	Nov 10/2004	4	Nov 01/2003	104	Nov 10/2007
107	Nov 10/2004	5	Nov 01/2003	105	Nov 01/2003
108	Nov 10/2004	6	BLANK	106	Nov 01/2003
109	Nov 10/2004	52-40-01 IDENTIFICATION 7		107	Nov 01/2003
110	BLANK	1	Jul 10/2004	108	BLANK
52-30-02 REPAIR 1		2	Mar 10/2004	52-40-01 ALLOWABLE DAMAGE 5	
201	Nov 01/2003	3	Nov 01/2003	101	Nov 10/2007
202	Nov 01/2003	4	BLANK	102	Nov 01/2003
203	Nov 01/2003	52-40-01 ALLOWABLE DAMAGE 1		103	Nov 10/2007
204	Mar 10/2007	101	Nov 01/2003	104	Nov 01/2003
52-30-90 IDENTIFICATION 1		102	Nov 01/2003	105	Nov 01/2003
1	Mar 10/2004	103	Nov 10/2007	106	Nov 01/2003
2	Mar 10/2004	104	Nov 10/2007	52-40-01 ALLOWABLE DAMAGE 6	
3	Mar 10/2004	105	Nov 01/2003	101	Nov 01/2003
4	Mar 10/2004	106	Nov 01/2003	102	Nov 01/2003
5	Mar 10/2004	107	Nov 01/2003	103	Jul 10/2005
6	Nov 01/2003	108	BLANK	104	Nov 10/2007
52-40-00 GENERAL		52-40-01 ALLOWABLE DAMAGE 2		105	Nov 10/2007
1	Nov 01/2003	101	Nov 10/2007	106	Nov 01/2003
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110	BLANK	2	Nov 10/2006	102	Nov 01/2003
52-40-01 ALLOWABLE DAMAGE 7		3	Nov 10/2006	103	Jul 10/2004
101	Nov 10/2007	4	BLANK	104	Nov 01/2003
102	Nov 01/2003	52-40-02 IDENTIFICATION 2		105	Nov 01/2003
103	Nov 01/2003	1	Jul 10/2004	106	BLANK
104	Nov 10/2007	2	Mar 10/2004	52-41-01 IDENTIFICATION 1	
105	Nov 01/2003	3	Nov 01/2003	1	Mar 10/2004
106	Nov 01/2003	4	BLANK	2	Nov 01/2003
107	Nov 01/2003	52-40-02 ALLOWABLE DAMAGE 1		52-41-01 IDENTIFICATION 2	
108	BLANK	101	Nov 01/2003	1	Mar 10/2004
52-40-01 REPAIR 1		102	Nov 01/2003	2	Nov 10/2004
201	Nov 01/2003	103	Jul 10/2004	52-41-01 ALLOWABLE DAMAGE 1	
202	Nov 01/2003	104	Nov 01/2003	101	Nov 01/2003
203	Mar 10/2007	105	Nov 01/2003	102	Nov 01/2003
204	BLANK	106	Nov 01/2003	103	Nov 10/2007
52-40-01 REPAIR 2		107	Nov 01/2003	104	Nov 01/2003
201	Nov 01/2003	108	Nov 01/2003	105	Nov 01/2003
202	BLANK	52-40-02 ALLOWABLE DAMAGE 2		106	Nov 10/2004
52-40-01 REPAIR 3		101	Nov 01/2003	107	Nov 10/2004
201	Nov 01/2003	102	Nov 01/2003	108	Nov 01/2003
202	BLANK	103	Jul 10/2004	109	Nov 01/2003
52-40-01 REPAIR 4		104	Nov 01/2003	110	Nov 10/2004
201	Nov 01/2003	105	Nov 01/2003	52-41-01 ALLOWABLE DAMAGE 2	
202	BLANK	106	Nov 01/2003	101	Nov 01/2003
52-40-01 REPAIR 5		107	Nov 01/2003	102	Nov 01/2003
201	Nov 01/2003	108	BLANK	103	Nov 10/2007
202	BLANK	52-40-02 REPAIR 1		104	Jul 10/2004
52-40-01 REPAIR 6		201	Mar 10/2007	105	Jul 10/2004
201	Nov 01/2003	202	BLANK	106	Nov 10/2004
202	Nov 01/2003	52-40-02 REPAIR 2		107	Nov 01/2003
203	Nov 01/2003	201	Nov 10/2006	108	Nov 01/2003
204	Jul 10/2005	202	BLANK	109	Nov 01/2003
205	Jul 10/2005	52-40-90 IDENTIFICATION 1		110	Nov 01/2003
206	Nov 01/2003	1	Jul 10/2004	111	Nov 10/2004
52-40-01 REPAIR 7		2	Mar 10/2004	112	Nov 10/2004
201	Nov 10/2006	3	Nov 10/2006	113	Nov 10/2004
202	BLANK	4	BLANK	114	Nov 10/2004

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201	Nov 01/2003	103	Nov 10/2007	201	Jul 10/2004
202	BLANK	104	Jul 10/2004	202	BLANK
52-41-01 REPAIR 2		105	Jul 10/2004	52-80-01 IDENTIFICATION 1	
201	Nov 01/2003	106	Nov 01/2003	1	Jul 10/2004
202	BLANK	107	Nov 01/2003	2	Mar 10/2004
52-41-02 IDENTIFICATION 1		108	Nov 01/2003	3	Mar 10/2004
1	Mar 10/2004	109	Nov 01/2003	4	Mar 10/2004
2	Nov 01/2003	110	Nov 01/2003	5	Nov 01/2003
52-41-02 IDENTIFICATION 2		52-60-01 ALLOWABLE DAMAGE 2		6	Nov 01/2003
1	Mar 10/2004	101	Nov 01/2003	52-80-01 ALLOWABLE DAMAGE 1	
2	Nov 01/2003	102	BLANK	101	Nov 01/2003
52-41-02 ALLOWABLE DAMAGE 1		52-60-01 REPAIR 1		102	Nov 10/2007
101	Nov 01/2003	201	Nov 01/2003	103	Nov 10/2007
102	Nov 01/2003	202	Nov 01/2003	104	Nov 01/2003
103	Jul 10/2004	203	Nov 10/2006	105	Nov 10/2007
104	Nov 10/2004	204	BLANK	106	Nov 01/2003
105	Nov 10/2004	52-60-01 REPAIR 2		107	Nov 01/2003
106	Nov 10/2004	201	Nov 01/2003	108	Nov 10/2007
52-41-02 ALLOWABLE DAMAGE 2		202	BLANK	109	Nov 01/2003
101	Nov 01/2003	52-60-02 IDENTIFICATION 1		110	Nov 01/2003
102	Nov 01/2003	1	Mar 10/2004	52-80-01 REPAIR 1	
103	Jul 10/2004	2	Nov 01/2003	201	Nov 01/2003
104	Jul 10/2004	52-60-02 ALLOWABLE DAMAGE 1		202	Jul 10/2005
105	Nov 10/2004	101	Nov 01/2003	203	Nov 01/2003
106	Nov 10/2004	102	Nov 01/2003	204	Jul 10/2005
107	Nov 10/2004	103	Jul 10/2004	205	Jul 10/2005
108	Nov 10/2004	104	Nov 01/2003	206	Nov 01/2003
52-41-02 REPAIR 1		105	Nov 01/2003	207	Nov 01/2003
201	Nov 10/2006	106	Nov 01/2003	208	Nov 01/2003
202	BLANK	107	Nov 01/2003	52-80-02 IDENTIFICATION 1	
52-41-02 REPAIR 2		108	Nov 01/2003	1	Nov 10/2006
201	Mar 10/2007	52-60-02 ALLOWABLE DAMAGE 2		2	Nov 10/2006
202	BLANK	101	Jul 10/2004	3	Nov 10/2006
52-60-01 IDENTIFICATION 1		102	BLANK	4	Nov 10/2006
1	Mar 10/2004	52-60-02 REPAIR 1		5	Nov 10/2006
2	Nov 01/2003	201	Mar 10/2007	6	Nov 10/2006
52-60-01 ALLOWABLE DAMAGE 1		202	BLANK	7	Nov 10/2006
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102	Nov 01/2003			9	Nov 10/2006

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11	Nov 10/2006	52-80-90 IDENTIFICATION 1			
12	Nov 10/2006	1	Mar 10/2004		
52-80-02 ALLOWABLE DAMAGE 1		2	Mar 10/2004		
101	Nov 10/2006	3	Mar 10/2004		
102	Nov 10/2006	4	Mar 10/2004		
103	Nov 10/2006	52-80-90 IDENTIFICATION 2			
104	Nov 10/2006	1	Jul 10/2004		
105	Nov 10/2006	2	Nov 10/2006		
106	Nov 10/2006	3	Nov 01/2003		
107	Nov 10/2006	4	BLANK		
108	Nov 10/2006	52-80-90 ALLOWABLE DAMAGE 1			
109	Nov 10/2006	101	Nov 01/2003		
110	Nov 10/2007	102	Nov 01/2003		
111	Nov 10/2006	103	Nov 01/2003		
112	Nov 10/2006	104	Nov 01/2003		
113	Nov 10/2006	105	Nov 01/2003		
114	Nov 10/2006	106	Jul 10/2004		
52-80-02 REPAIR 1		107	Jul 10/2005		
201	Nov 10/2006	108	Nov 10/2007		
202	BLANK	109	Nov 01/2003		
52-80-02 REPAIR 2		110	Nov 01/2003		
201	Jul 10/2008	111	Nov 01/2003		
202	Jul 10/2008	112	Nov 01/2003		
203	Jul 10/2008	113	Nov 01/2003		
204	Jul 10/2008	114	Nov 01/2003		
205	Jul 10/2008	115	Nov 01/2003		
206	Jul 10/2008	116	BLANK		
207	Jul 10/2008				
208	Jul 10/2008				
209	Jul 10/2008				
210	Jul 10/2008				
211	Jul 10/2008				
212	Jul 10/2008				
213	Jul 10/2008				
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ALLOWABLE DAMAGE 3 - External Power Access Door Skin	
ALLOWABLE DAMAGE 4 - Lavatory Service Access Door Skin	
ALLOWABLE DAMAGE 5 - Water Service Access Door Skin	
ALLOWABLE DAMAGE 6 - Tailcone Access Door Skin	
ALLOWABLE DAMAGE 7 - Tailcone System Access Door Skin	
REPAIR 1 - Access and Blowout Door Skin	
REPAIR 2 - APU Access Door Skin	
REPAIR 3 - External Power Access Door Skin	
REPAIR 4 - Lavatory Service Access Door Skin	

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CHAPTER 52
DOORS

CHAPTER
SECTION
SUBJECT

SUBJECT

REPAIR 5 - Water Service Access Door Skin

REPAIR 6 - Tailcone Access Door Skin

REPAIR 7 - Tailcone System Access Door Skin

SERVICE DOOR STRUCTURE

52-40-02

IDENTIFICATION 1 - Access and Blowout Door Structure

IDENTIFICATION 2 - APU Access Door Structure

ALLOWABLE DAMAGE 1 - Access and Blowout Door Structure

ALLOWABLE DAMAGE 2 - APU Access Door Structure

REPAIR 1 - Access and Blowout Door Structure

REPAIR 2 - APU Access Door Structure

SERVICE DOOR ATTACHMENT FITTINGS

52-40-90

IDENTIFICATION 1 - Section 48 Access and Blowout Door Fitting

ALLOWABLE DAMAGE 1 - Section 48 Access and Blowout Door Fitting

EQUIPMENT ACCESS DOOR SKIN

52-41-01

IDENTIFICATION 1 - Forward Access Door Skin

IDENTIFICATION 2 - Equipment Access Door Skin

ALLOWABLE DAMAGE 1 - Forward Access Door Skin

ALLOWABLE DAMAGE 2 - Equipment Access Door Skin

REPAIR 1 - Forward Access Door Skin

REPAIR 2 - Equipment Access Door Skin

EQUIPMENT ACCESS DOOR STRUCTURE

52-41-02

IDENTIFICATION 1 - Equipment Access Door Structure

IDENTIFICATION 2 - Forward Access Door Structure

ALLOWABLE DAMAGE 1 - Equipment Access Door Structure

ALLOWABLE DAMAGE 2 - Forward Access Door Structure

REPAIR 1 - Equipment Access Door Structure

REPAIR 2 - Forward Access Door Structure

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CHAPTER 52
DOORS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>
<u>FORWARD AIRSTAIR DOOR SKIN</u>	52-60-01
IDENTIFICATION 1 - Forward Airstair Door Skin	
ALLOWABLE DAMAGE 1 - Forward Airstair Door Skin	
ALLOWABLE DAMAGE 2 - Deleted	
REPAIR 1 - Forward Airstair Door Skin	
REPAIR 2 - Deleted	
<u>FORWARD AIRSTAIR DOOR STRUCTURE</u>	52-60-02
IDENTIFICATION 1 - Forward Airstair Door Structure	
ALLOWABLE DAMAGE 1 - Forward Airstair Door Structure	
ALLOWABLE DAMAGE 2 - Deleted	
REPAIR 1 - Forward Airstair Door Structure	
REPAIR 2 - Deleted	
<u>NOSE LANDING GEAR DOORS</u>	52-80-01
IDENTIFICATION 1 - Nose Landing Gear Door Skin	
ALLOWABLE DAMAGE 1 - Nose Landing Gear Door Skin	
REPAIR 1 - Nose Landing Gear Door Skin	
<u>LANDING GEAR DOOR STRUCTURE</u>	52-80-02
IDENTIFICATION 1 - Main Landing Gear Door Structure	
ALLOWABLE DAMAGE 1 - Main Landing Gear Door Structure	
REPAIR 1 - Main Landing Gear Door Structure	
REPAIR 2 - Main Landing Gear Door Crack Repair - Center Door	
<u>NOSE LANDING GEAR DOOR ATTACHMENT FITTINGS</u>	52-80-90
IDENTIFICATION 1 - Main Landing Gear Door Fittings	
IDENTIFICATION 2 - Nose Landing Gear Door Fittings	
ALLOWABLE DAMAGE 1 - Main Landing Gear Door Fittings	

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GENERAL - DOORS

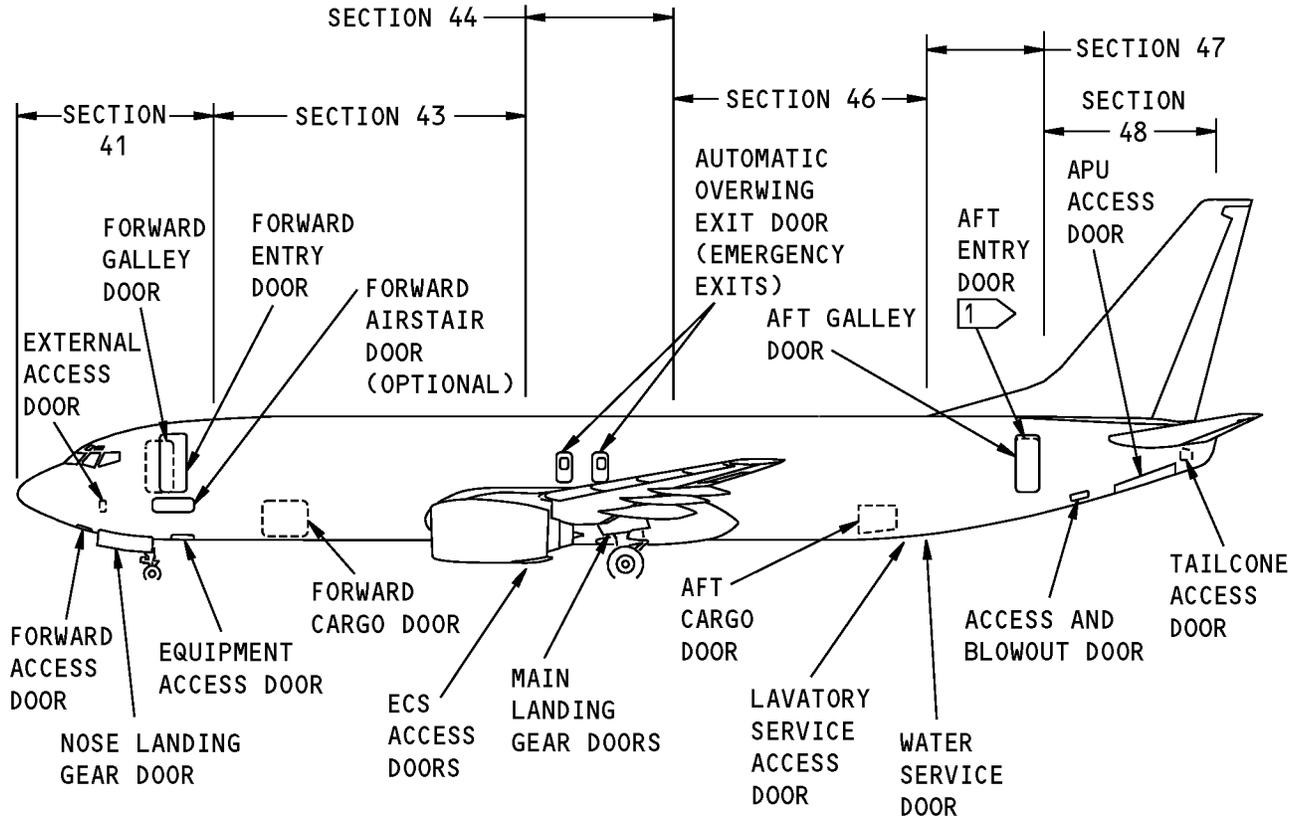
1. References

<u>Reference</u>	<u>Title</u>
52-80-01	NOSE LANDING GEAR DOORS
52-80-02	LANDING GEAR DOOR STRUCTURE

2. General

- A. The door location diagram gives you the reference system to find the main entry doors (LH and RH side), automatic overwing exit door (emergency exit), forward and aft cargo doors, service and access doors (forward access door, equipment access door, external/power receptacle door, toilet and water service doors, ground air conditioning access door, access and blowout doors, auxiliary power unit access door, tailcone access door) and the landing gear doors. Refer to Door Location Diagram, Figure 1/GENERAL, Figure 1/52-40-00, GENERAL, 52-80-01, and 52-80-02.
- B. All of the major structural components are located and identified by the use of detailed illustrations with related material lists.
- C. The allowable damage to the doors is given in each specified door subject that follows in this chapter.
- D. The permitted repairs with illustrations are given in this chapter.

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STRUCTURAL REPAIR MANUAL**



NOTES

1 THE AFT ENTRY DOOR WITH AN AIRSTAIRS IS A CUSTOMER OPTION.

**Door Location Diagram
Figure 1**



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REPAIR 1 - ALUMINUM DOOR SKIN - TYPICAL SMALL HOLE EXTERNAL TIME-LIMITED REPAIR

1. Applicability

A. Repair 1 is applicable to damage that:

- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
- (2) Is in an area of constant thickness of the skin
- (3) Can be drilled out to a maximum of 1.00 inch in diameter
- (4) Agrees with the conditions that follow after the damage has been removed:
 - (a) The center of the hole specified in Paragraph 4.B./REPAIR 1 must be a minimum of 2 hole diameters or "X" inches, that which is larger, away from:

NOTE: The distance "X" is related to the initial outer skin thickness. Refer to Table 201/REPAIR 1.

- 1) An edge
- 2) A chem-milled radius or a machined step
- 3) A fastener location
- 4) A skin cutout
- 5) An edge of an adjacent door skin repair.

Table 201:

INITIAL OUTER SKIN THICKNESS (INCHES)	DISTANCE "X" (INCHES)
0.040	2.00
0.063	2.25
0.071	2.25
0.125	2.50

2. General

- A. For airplanes that have completed Service Bulletin 737-21-1149 Repair 1 gives instructions for a Category C repair. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL to find the definitions of the different types of repairs.
- B. For airplanes that have not completed Service Bulletin 737-21-1149 Repair 1 gives instructions for a time-limited repair. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL to find the definitions of the different types of repairs.
- C. You can do Repair 1 if you do as follows:
 - (1) For airplanes that have completed Service Bulletin 737-21-1149 replace Repair 1 with a Category A or Category B repair at or before 4000 flight cycles or at the subsequent C-check, that which occurs first.
 - (2) For airplanes that have not completed Service Bulletin 737-21-1149 replace Repair 1 with a permanent or interim repair at or before 2500 flight hours or at the subsequent C-check, that which occurs first.
- D. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.



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3. References

Reference	Title
51-00-06, GENERAL P/B GENERAL	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts to get access to the damaged area.
- B. Drill out the damage. Make the diameter of the hole 0.03 inch (0.76 mm) larger than the length of the damage, up to a maximum of 1.00 inch (25.4 mm) in diameter as shown in Layout of the Repair Parts, Figure 201/REPAIR 1. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- C. Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
- D. Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- E. Be careful not to damage structure that is under the skin when you cut out the damaged area.
- F. Make the repair parts.
 - (1) Refer to Table 202/REPAIR 1 for the material and the thickness of the repair parts.

Table 202:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3, 2024-T4, or 2024-T42 sheet that is two times thicker than the skin that was removed
[2]	Doubler	1	Use 2024-T3, 2024-T4, or 2024-T42 clad sheet that is two times thicker than the skin that was removed
[3]	Filler	1	Use 2024-T3, 2024-T4, or 2024-T42 sheet that has the same thickness as the skin that was removed

- G. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 1.
- H. Drill the necessary fastener hole. Refer to 51-40-05 for the fastener hole dimensions.
- I. Disassemble the repair parts.
- J. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the door skin.

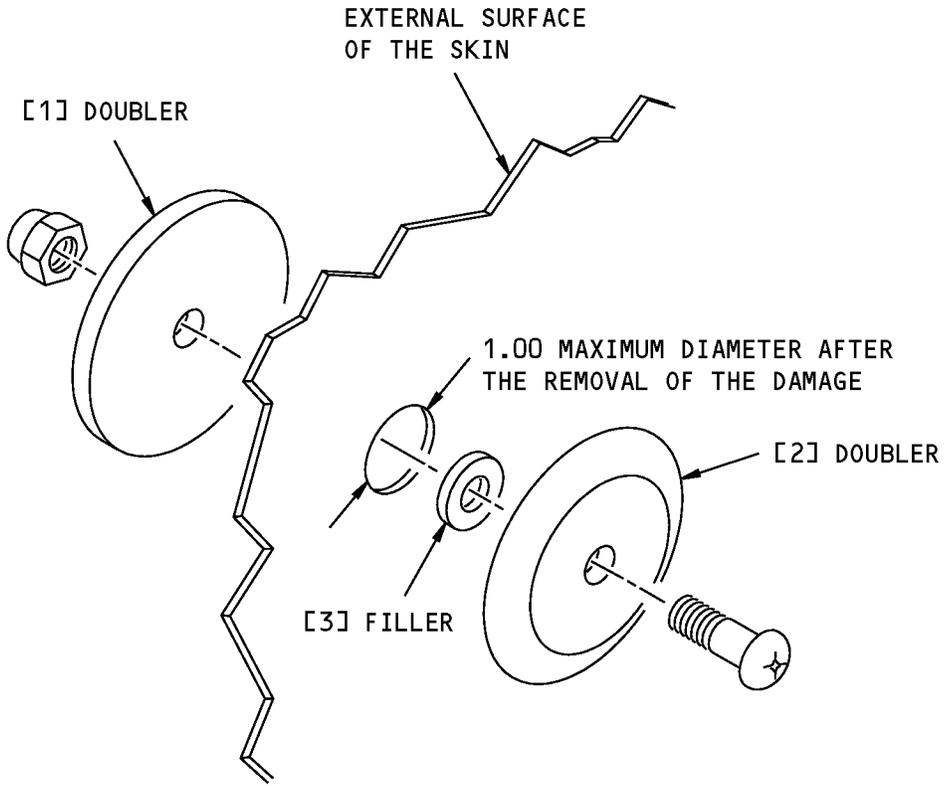


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- K. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01.
- L. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to:
 - (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Doubler
 - (3) The surfaces of the part [3] Filler
 - (4) The bare surfaces of the skin.
- M. If you do the Option 2 repair, install a BACN10JP4A nutplate with BACR15BA3AD() (or MS20426AD3-()) countersink rivets to the part [2] Doubler as shown in Layout of the Repair Parts, Figure 201/REPAIR 1. Refer to 51-40-02, 51-40-03, and 51-40-05.
- N. Install the repair parts.
 - (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Install the fasteners (pan head screw) wet with sealant. Refer to 51-40-02.
- O. Fill the gap between the part [3] Filler and the skin with BMS 5-95 sealant. Refer to 51-20-05.
- P. Apply a layer of BMS 3-23, corrosion inhibiting compound to all the internal structure in the repair area.
- Q. Install the parts that were removed before you made the repair.
- R. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

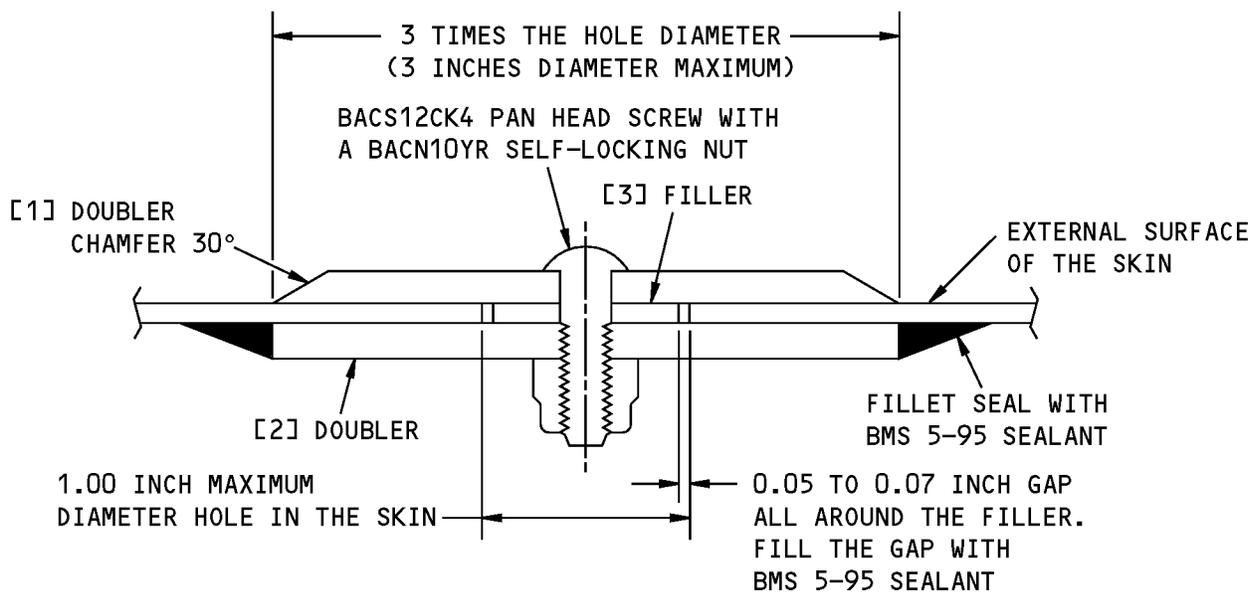
**737-800
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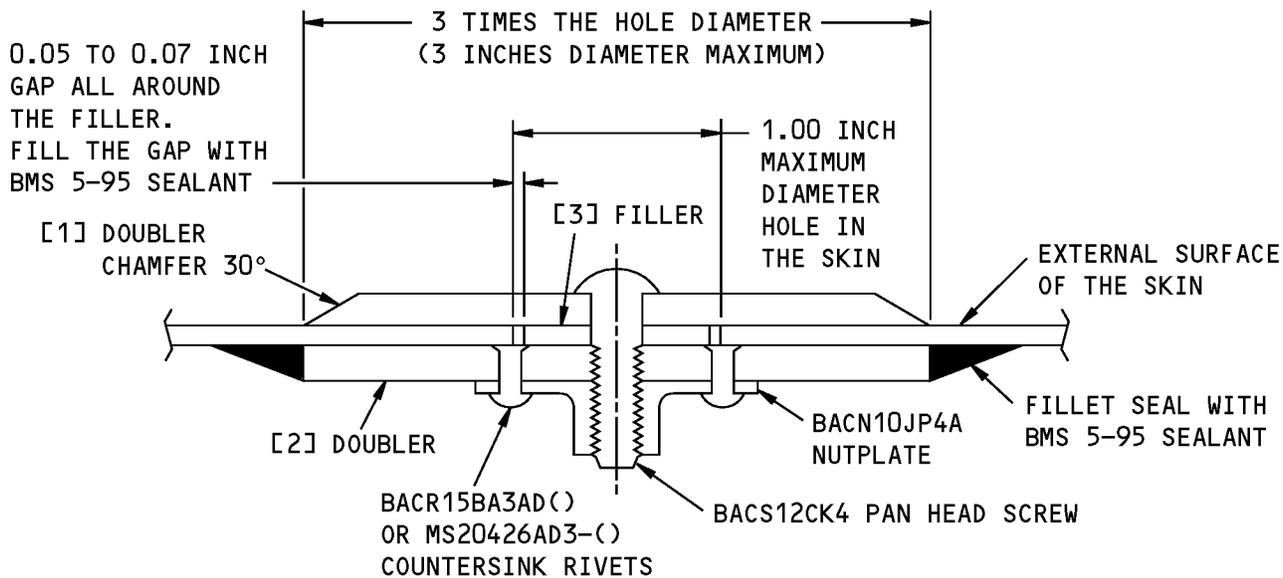
OPTION 1 IS SHOWN

**Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)**

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OPTION 1



OPTION 2

NOTE: MAKE SURE THAT THE PART [2] DOUBLER DOES NOT TOUCH A CHEM-MILLED RADIUS.

Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)



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REPAIR 2 - ALUMINUM DOOR SKIN - EXTERNAL REPAIR AT A BEAM

1. Applicability

- A. Repair 2 is applicable to damage that:
- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch (1.02 mm)
 - (2) Is in an area where the door skin attaches to a beam
 - (3) Is less than 5.00 inches (127.00 mm) in length.
 - (4) Is in an area away from a skin cutout.

2. General

- A. Repair 2 gives instructions for permanent repairs for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Repair 2 gives instructions for Category B repairs for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane. Refer to 51-10-01.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03, GENERAL	Fastener Substitution
51-40-05, GENERAL	Fastener Hole Sizes
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 2. Refer to 51-10-02 for the procedure to remove the damage.
- (1) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.



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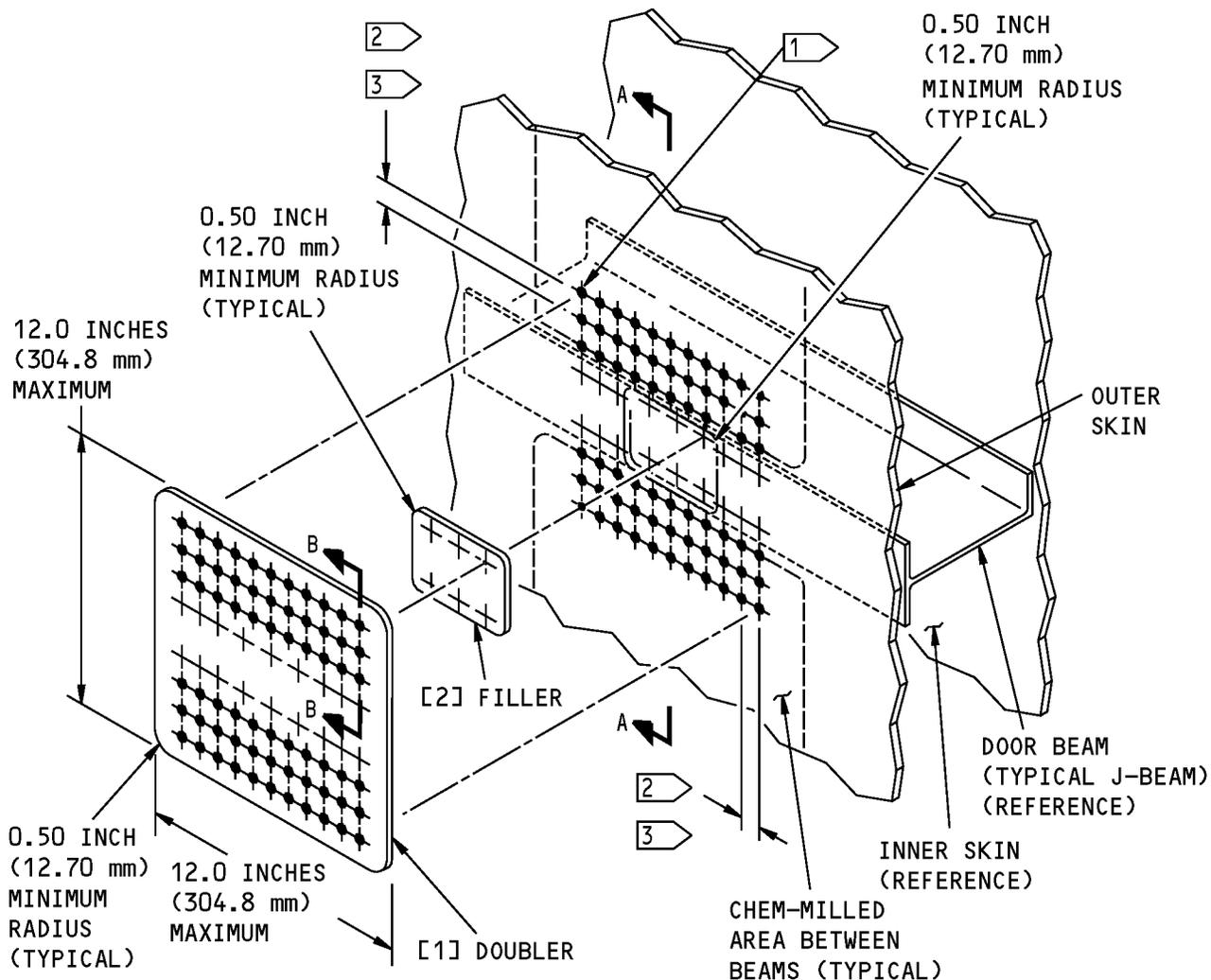
- D. Put the skin that is around the damage back to the initial contour. Refer to 51-10-01.
- E. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 2 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 2 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 clad sheet that is one standard aluminum sheet metal gage thicker than the initial skin that was removed
[2]	Filler	1	Use 2024-T3 clad sheet that has the same thickness as the initial skin that was removed

- F. Assemble the repair parts.
- G. Drill and, as applicable, countersink the necessary fastener holes. Refer to 51-40-08.
 - NOTE:** Make sure that the fastener holes do not touch a chem-milled radius of the skin.
 - (1) For thicknesses of the part [1] Doubler that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the part [1] Doubler.
- H. Disassemble the repair parts.
- I. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- J. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- K. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to the repair parts and the bare surfaces of the skin.
- L. Install the repair parts
 - NOTE:** If the part [1] Doubler makes an overlap with existing countersinks, you must install repair washers. Refer to 51-40-08.
 - (1) Apply BMS 5-95 sealant to the mating surfaces of the part [1] Doubler, the part [2] Filler, and the skin as given in 51-20-05.
 - (2) Install the rivets without sealant.
 - (3) Fill the gap between the part [2] Filler and the skin with BMS 5-95 sealant.
- M. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- N. Install the parts that were removed before you made the repair.
- O. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

STRUCTURAL REPAIR MANUAL



NOTES

REPAIR AT A BEAM

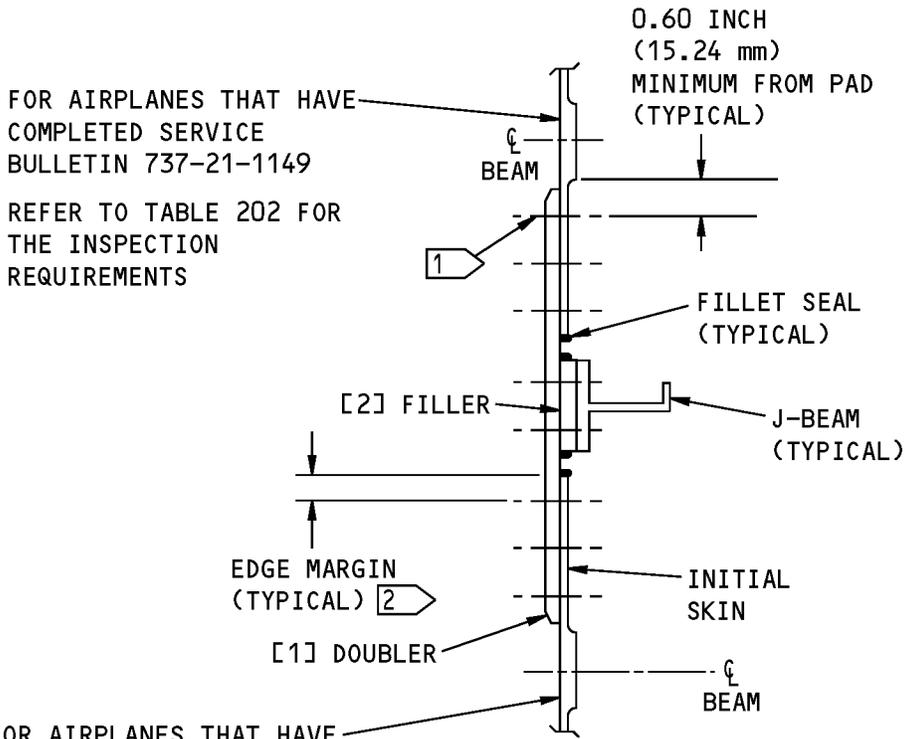
- 1 USE A MINIMUM OF THREE FASTENER ROWS BEYOND THE DAMAGE. DO NOT END THE LAST FASTENER ROW ON ANY INTERNAL STRUCTURAL PART. ADD FASTENER ROWS AS NECESSARY.
- 2 REFER TO SRM 51-40-06 FOR THE EDGE MARGIN.
- 3 MAINTAIN 4D - 6D FASTENER SPACING.

FASTENER SYMBOLS

- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND SIZE AS THE INITIAL FASTENER. IF AN OVERSIZE IS NECESSARY, INSTALL UP TO 1/32 INCH OVERSIZE.
- REPAIR FASTENER LOCATION.
 - FOR T LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
 - FOR T EQUAL TO 0.050 INCH BUT LESS THAN 0.063 INCH, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.
 - FOR T 0.063 INCH OR MORE, INSTALL A BACR15CE6D OR A BACR15GF6D RIVET.

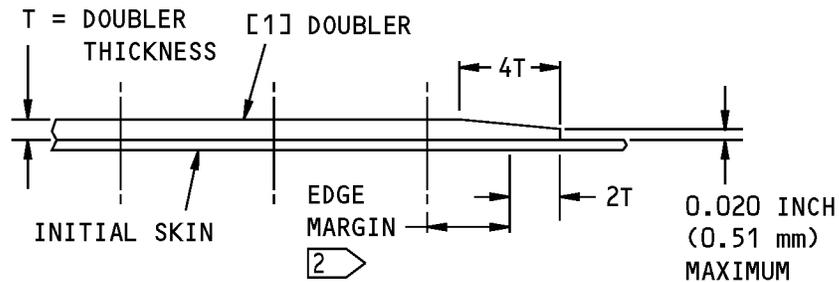
Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

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STRUCTURAL REPAIR MANUAL**



CHEM-MILLED SKIN

A-A



B-B

**Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)**



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5. Inspection Instructions

- A. Inspections as given below are applicable to airplanes that have completed Service Bulletin 737-21-1149. Inspections as given below are not applicable to airplanes that have not completed Service Bulletin 737-21-1149.
- B. Refer to Table 202 for the inspection requirements.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External Detailed Visual of skin around the repair	1,400 flight cycles	

NOTE: Refer to Figure 201, Sheet 2 for the inspection direction.



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REPAIR 3 - ALUMINUM DOOR SKIN - EXTERNAL REPAIR BETWEEN BEAMS

1. Applicability

A. Repair 3 is applicable to damage that:

- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
- (2) Is in an area of constant thickness of the skin
- (3) Is in an area where the door skin damage is between door beams
- (4) Is less than 5.00 inches (127 mm) in length as given in Paragraph 4.C./REPAIR 3
- (5) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.C./REPAIR 3 must be a minimum of 2.7 inches away from:
 - 1) An edge
 - 2) A skin cutout
 - 3) An edge of an adjacent door skin repair.
 - (b) The edge of the damage cut specified in Paragraph 4.C./REPAIR 3 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.
 - (c) All repair fasteners must have a 0.08 in. (0.20 cm) minimum distance from the edge of the hole tangent to a chem milled step.

2. General

- A. Repair 3 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs.
- B. Repair 3 gives the instructions for a permanent repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06, GENERAL P/B GENERAL	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection



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(Continued)

Reference	Title
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 3. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.00 inches (127 mm).
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut a minimum of 0.50 inch (12.7 mm).
 - (8) Put the skin around the damaged area to the initial contour. Refer to 51-10-01.
- D. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 3 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 3 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 clad sheet that is one standard aluminum sheet metal gage thicker than the initial skin

- E. Assemble the repair parts.
- F. Drill and, as applicable, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For thicknesses of the part [1] Doubler that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent a knife edge condition.
 - (2) For thicknesses of the part [1] Doubler that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the part [1] Doubler.
- G. Disassemble the repair parts.
- H. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- I. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- J. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02 to:
 - (1) The inner surface of the part [1] Doubler



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STRUCTURAL REPAIR MANUAL

(2) The bare surfaces of the skin.

K. Install the repair parts

NOTE: Where fasteners have been removed from initial fastener locations, install the same type and size as the initial fastener. If an oversize is necessary, install up to 1/32 inch oversize fasteners. Countersink depths must be less than 80 percent of the thickness of the part [1] Doubler.

NOTE: If the part [1] Doubler makes an overlap with existing countersinks, you must install repair washers. Refer to 51-40-08.

(1) Apply BMS 5-95 sealant to the mating surfaces of the part [1] Doubler and the skin as given in 51-20-05.

(2) Install the rivets without sealant.

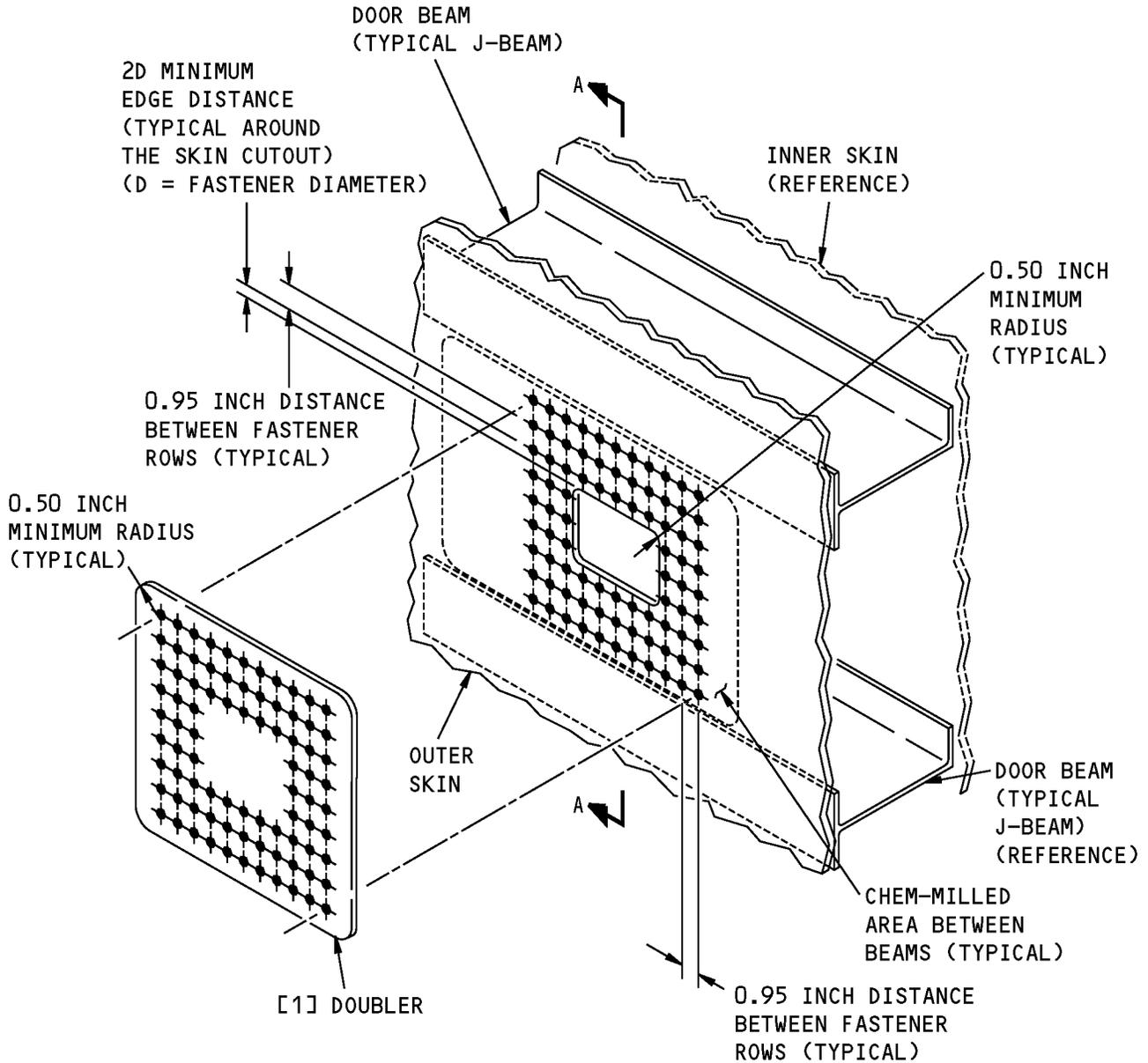
L. Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealing information.

M. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.

N. Install the parts that were removed before you made the repair.

O. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

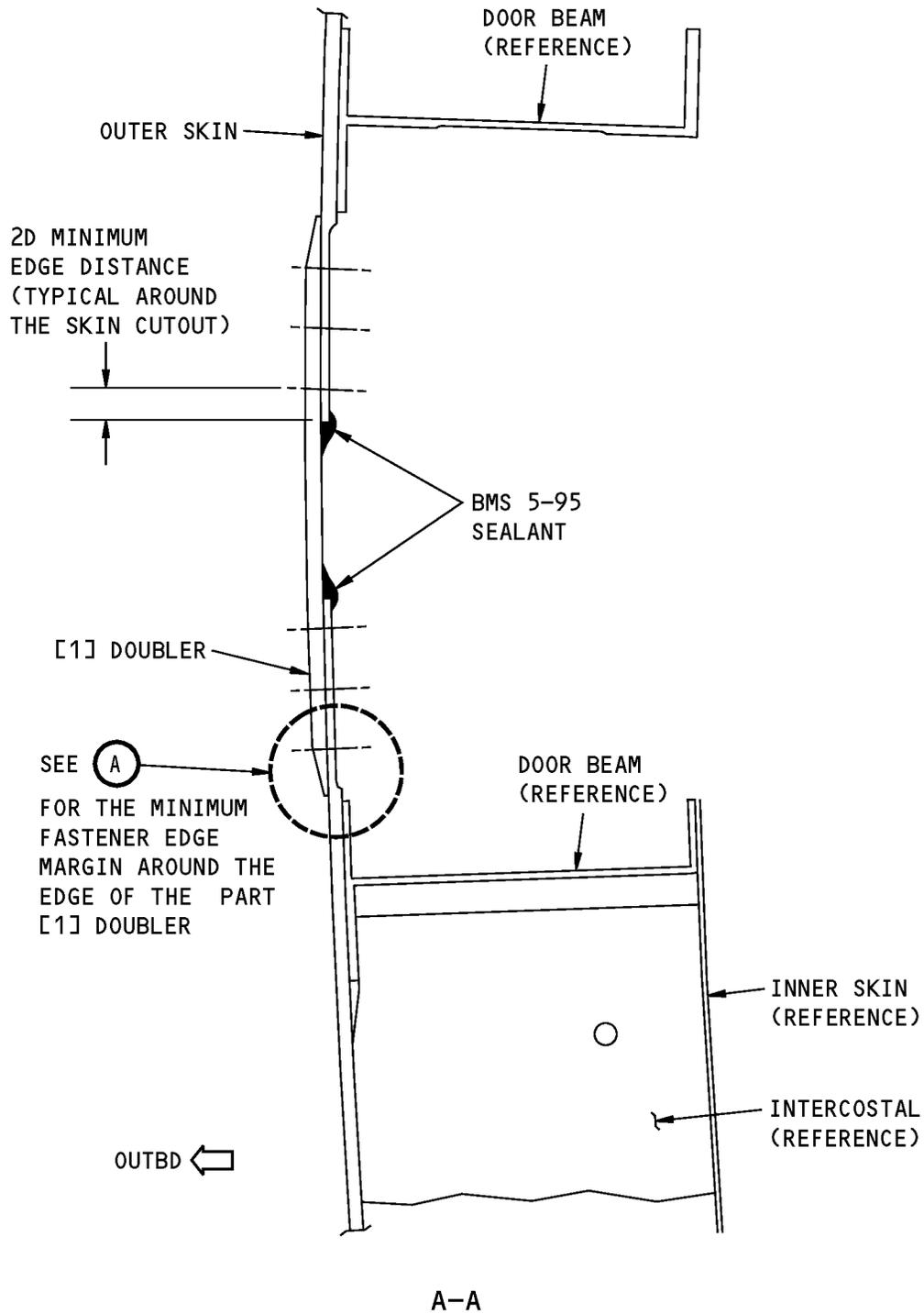
STRUCTURAL REPAIR MANUAL



REPAIR BETWEEN BEAMS

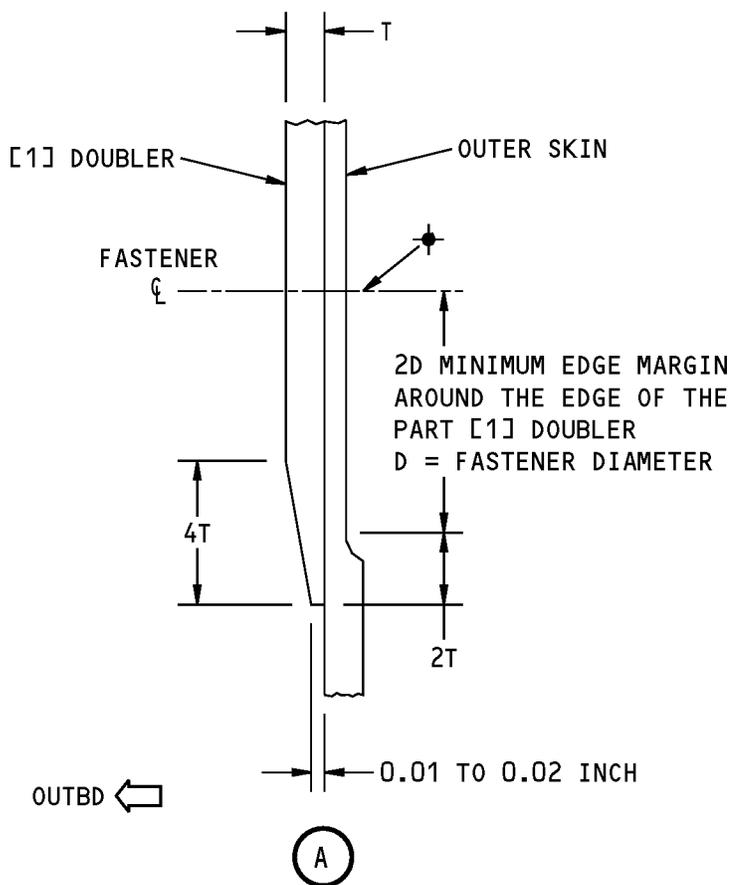
**Layout of the Repair Parts
Figure 201 (Sheet 1 of 3)**

STRUCTURAL REPAIR MANUAL



**Layout of the Repair Parts
Figure 201 (Sheet 2 of 3)**

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FASTENER SYMBOLS

✦ REPAIR FASTENER LOCATION.

- IF T IS LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
- IF T IS 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

**Layout of the Repair Parts
Figure 201 (Sheet 3 of 3)**



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5. Inspection Requirements

- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.:
- B. Inspections do not apply to airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of Skin around the repair	1400 flight cycles	



737-800 STRUCTURAL REPAIR MANUAL

REPAIR 4 - ALUMINUM DOOR SKIN - TYPICAL FLUSH REPAIR OF A SMALL HOLE

1. Applicability

- A. Repair 4 is applicable to damage that:
- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
 - (2) Is in an area of constant thickness of the skin

2. General

- A. Repair 4 gives the instructions for a permanent repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Repair 4 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts to get access to the damaged area.
- B. Drill out the damage. Make the diameter of the hole 0.03 inch (0.76 mm) larger than the length of the damage, up to a maximum of 1.00 inch (25.4 mm) in diameter as shown in Layout of the Repair Parts, Figure 201/REPAIR 4. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- C. Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
- D. Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- E. Make sure the final hole diameter has a surface finish smoothness of 63 microinches Ra or smoother. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- F. Make the repair parts. Refer to Table 201/REPAIR 4.



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STRUCTURAL REPAIR MANUAL**

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin. Refer to Table 203 for the outer diameter
[2]	Filler	1	Use 2024-T3 clad sheet that has the same thickness as the initial skin

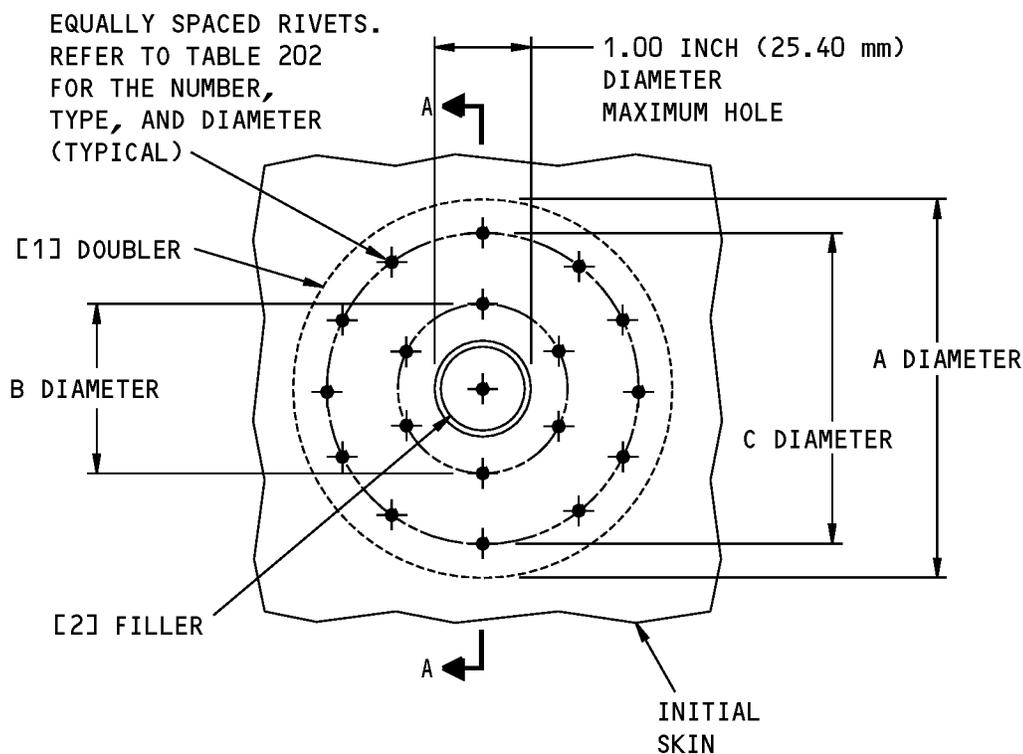
- G. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 4.
- H. Drill the necessary fastener holes. Refer to Table 202/REPAIR 4 for the fastener type, diameter, and spacing. Refer to 51-40-05 for the fastener hole dimensions.
 - (1) For thicknesses of the initial skin that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the initial skin.
- I. Disassemble the repair parts.
- J. Remove all the nicks, scratches, gouges, burrs, from the initial and the repair parts.
- K. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01.
- L. Apply one layer of BMS 10-11, Type I primer to the repair parts and the bare surfaces as of the skin. Refer to SOPM 20-41-02.
- M. Install the repair parts.
 - (1) Apply BMS 5-95 sealant between the mating surfaces of the repair [1] Doubler, the part [2] Filler, and the skin. Refer to 51-20-05.
 - (2) Install the rivets without sealant.
 - (3) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.

Table 202:

NUMBER, TYPE, AND DIAMETER OF THE REPAIR FASTENERS						
INITIAL SKIN THICKNESS (INCH)	OUTER DIAMETER OF PART [1] DOUBLER	DIAMETER OF THE FASTENER LOCATIONS		NUMBER OF FASTENERS		FASTENER TYPE AND DIAMETER
	A (INCH)	B (INCH)	C (INCH)	B DIA	C DIA	
0.040 but less than 0.050	3.80	1.70	3.10	7	14	BACR15FT5D
0.050 thru 0.060	4.30	1.80	3.50	6	13	BACR15CE5D or BACR15GF5D
0.063 thru 0.071	4.30	1.80	3.50	6	13	BACR15CE6D or BACR15GF6D
0.125	4.80	2.00	4.00	7	14	BACR15CE6D or BACR15GF6D

- N. Apply one layer of BMS 3-23, corrosion inhibiting compound to all the internal structure in the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- O. Install the parts that were removed before you made the repair.
- P. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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NOTES

- MAKE SURE THAT THE PART [1] DOUBLER DOES NOT TOUCH THE CHEM-MILLED RADIUS OR THE EDGE OF A PART.

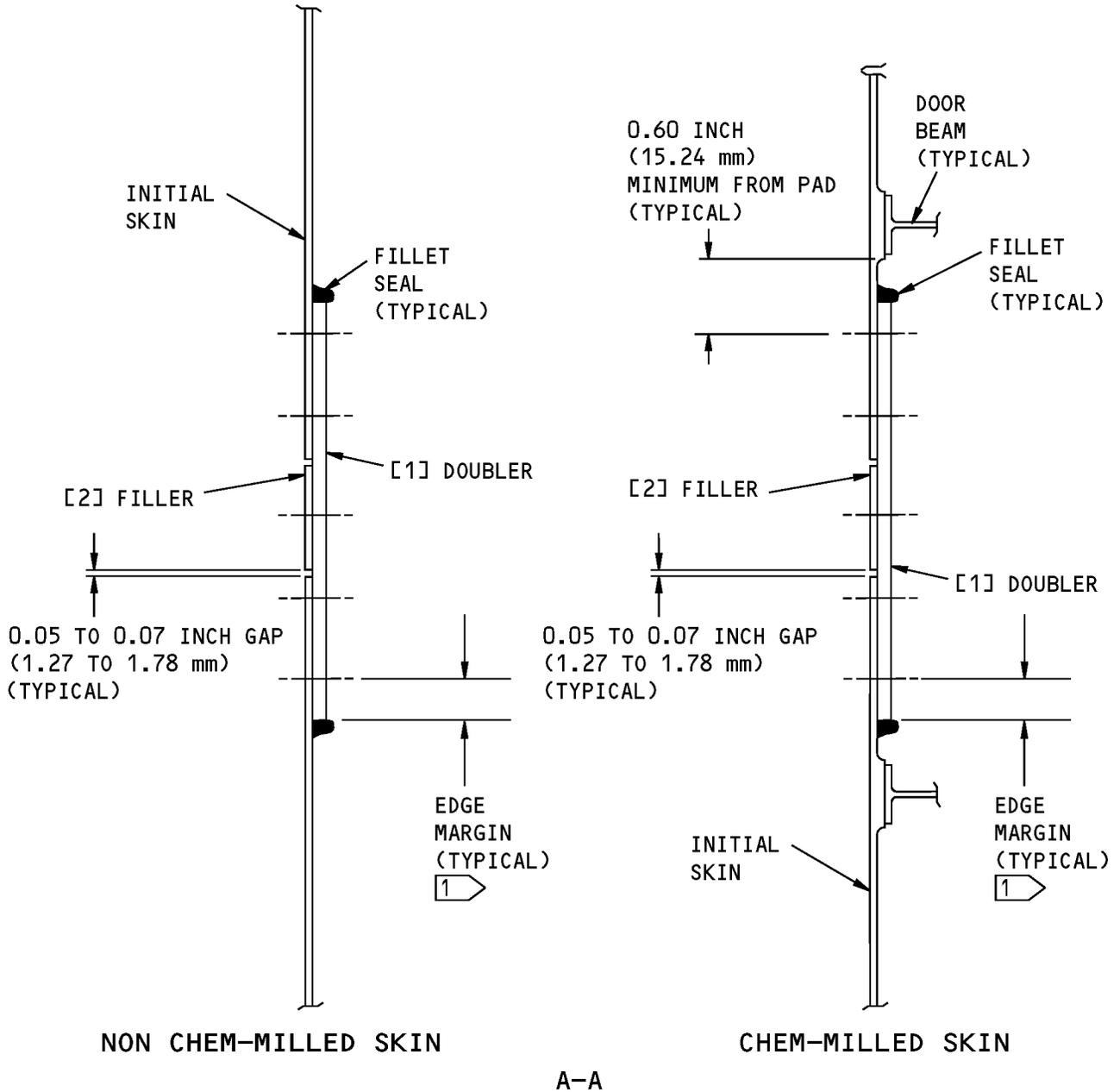
 REFER TO TABLE 202 TO FIND THE EDGE MARGIN.

FASTENER SYMBOLS

-  REPAIR FASTENER LOCATION. REFER TO TABLE 202 FOR THE TYPE AND DIAMETER.

**Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)**

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STRUCTURAL REPAIR MANUAL**



**Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)**



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STRUCTURAL REPAIR MANUAL

5. Inspection Requirements

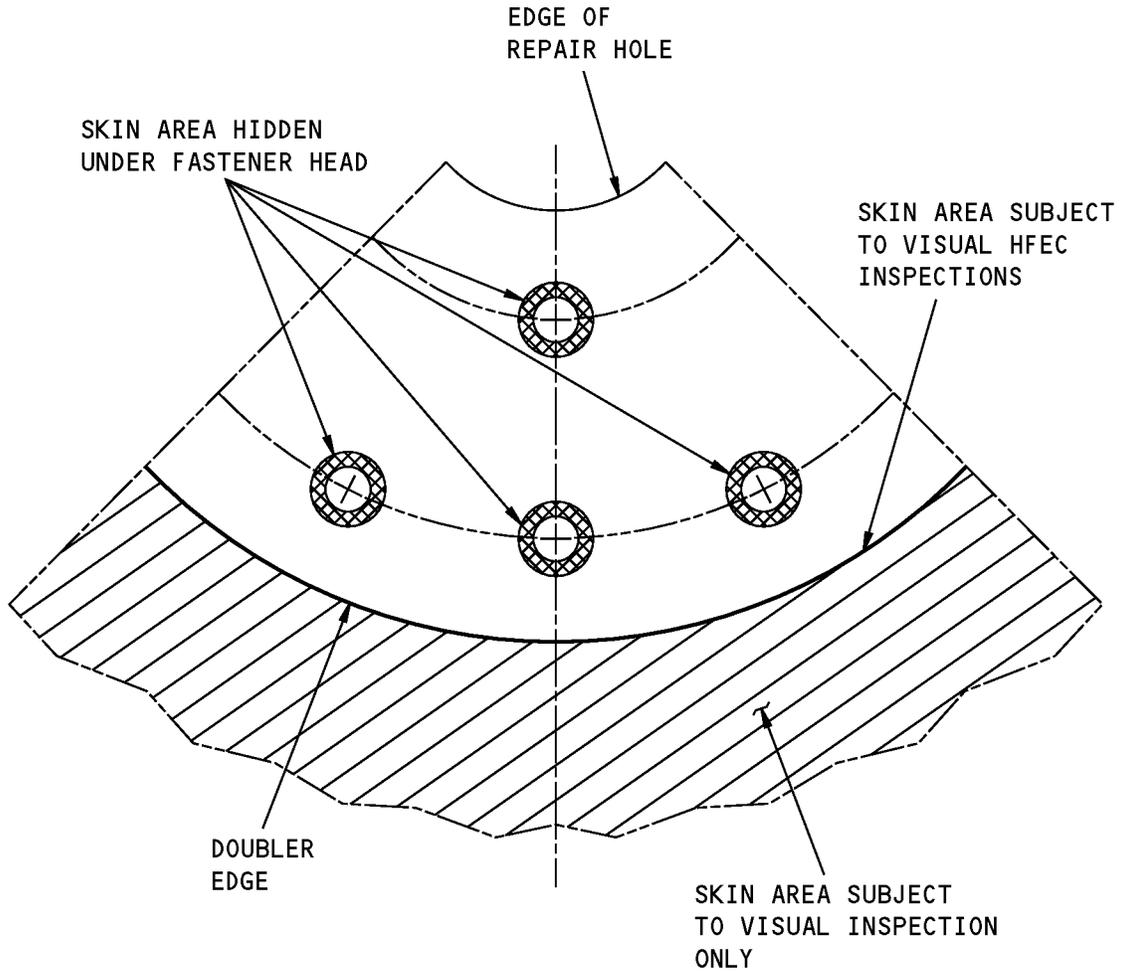
- A. The inspections as given below are applicable to airplanes that have completed Service Bulletin 737-21-1149. The inspections as given below are not applicable to airplanes that have not completed Service Bulletin 737-21-1149.
- B. Refer to Table 203 for the inspection requirements.

Table 203:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual inspection	3,000 flight cycles	
22,500 flight cycles	External HFEC inspection	18,000 flight cycles	NDT Part 6, 53-30-00, Fig 6

NOTE: Refer to Figure 202 for the inspection zones.

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NOTE: THIS SKIN INSECTION AREA IS APPLICABLE TO AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

**Skin Inspection Area
Figure 202**



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REPAIR 5 - ALUMINUM DOOR SKIN - FLUSH REPAIR BETWEEN BEAMS

1. Applicability

A. Repair 5 is applicable to damage that:

- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
- (2) Is in an area of constant thickness of the skin
- (3) Is in an area where the door skin damage is between door beams
- (4) Is less than 5.00 inches (127 mm) in length as given in Paragraph 4.B./REPAIR 5
- (5) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.B./REPAIR 5 must be a minimum of 2.1 inches (53 mm) away from:
 - 1) An edge
 - 2) A chem-milled radius or a machined step
 - 3) A skin cutout
 - 4) An edge of an adjacent door skin repair.
 - (b) The edge of the damage cut specified in Paragraph 4.B./REPAIR 5 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.

2. General

- A. Repair 5 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs. Refer to Paragraph 5 for the inspection requirements.
- B. Repair 5 gives the instructions for a permanent repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06, GENERAL P/B GENERAL	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection

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STRUCTURAL REPAIR MANUAL

(Continued)

Reference	Title
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 5. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.00 inches (127 mm).
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut a minimum of 0.50 inch (12.7 mm).
 - (8) Put the skin around the damaged area back to the initial contour. Refer to 51-10-01.
- C. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 5 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 5 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin
[2]	Filler	1	Use 2024-T3 clad sheet that is the same thickness as the initial skin

- D. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 5.
- E. Drill and, if necessary, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For door skin thicknesses that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent knife edge conditions.
 - (2) For door skin thicknesses that are 0.050 inch or more, the countersink depth must be less than 80 percent of the outer skin thickness.
- F. Disassemble the repair parts.
- G. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- H. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- I. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to:
 - (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Filler

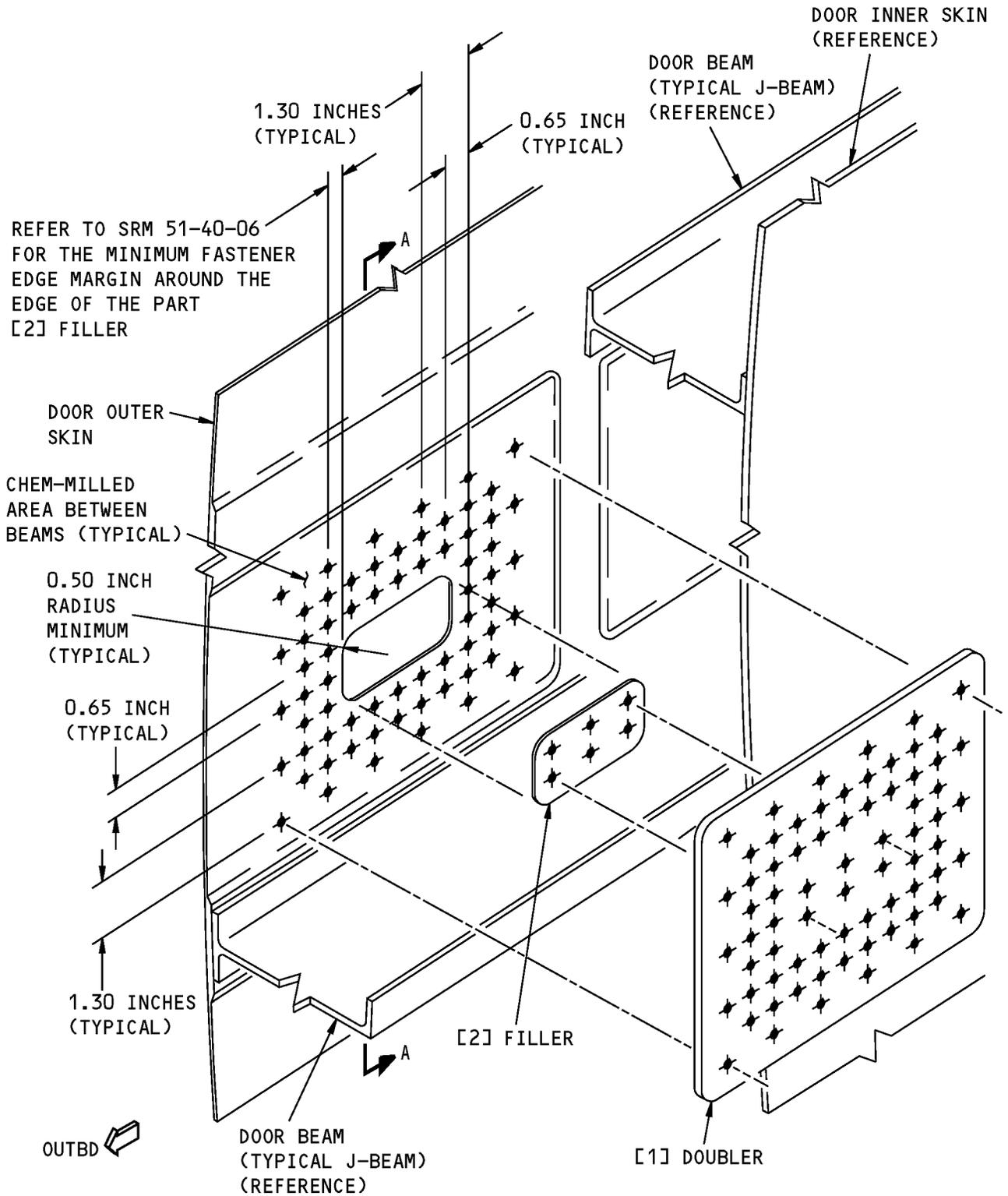


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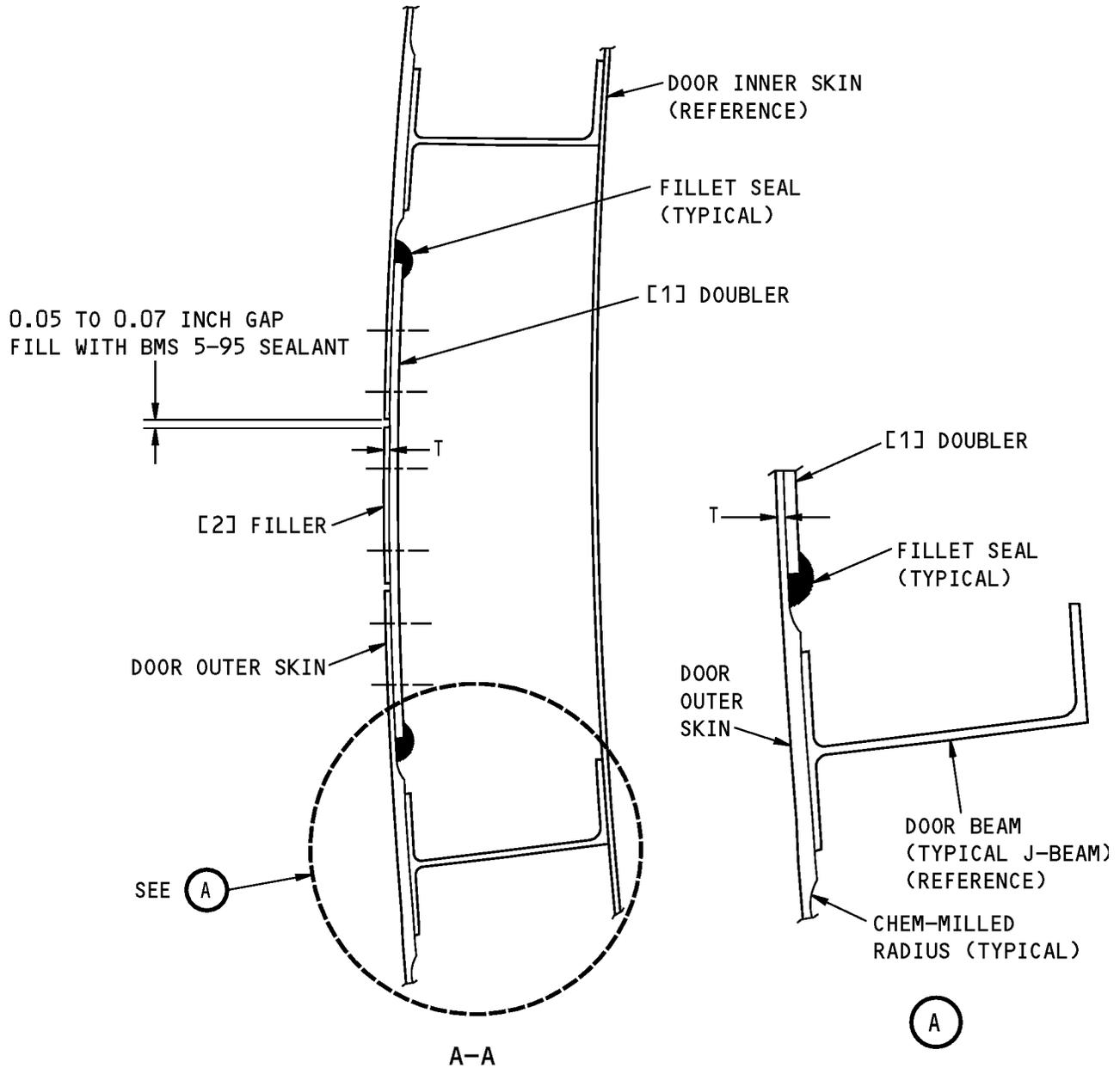
- (3) The bare surfaces of the skin.
- J. Install the repair parts.
 - (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (3) Install the rivets without sealant.
- K. Seal the repair area. Refer to 51-20-05.
 - (1) Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealant information.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (a) Make the sealant flush with the outer surfaces of the door skin and the part [2] Filler. Refer to 51-10-01 for the necessary aerodynamic smoothness.
- L. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- M. Install the parts that were removed before you made the repair.
- N. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

STRUCTURAL REPAIR MANUAL



**Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)**

STRUCTURAL REPAIR MANUAL



NOTE: MAKE SURE THE PART [1] DOUBLER DOES NOT TOUCH THE CHEM-MILLED RADIUS.

FASTENER SYMBOLS

- ✦ REPAIR FASTENER LOCATION:
 - FOR T IS LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
 - FOR T IS 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

**Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)**



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STRUCTURAL REPAIR MANUAL

5. Inspection Requirements

- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.
- B. Inspections do not apply to airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of skin around the repair	1400 flight cycles	



737-800 STRUCTURAL REPAIR MANUAL

REPAIR 6 - ALUMINUM DOOR SKIN - FLUSH REPAIR ACROSS A BEAM

1. Applicability

A. Repair 6 is applicable to damage that:

- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
- (2) Is in an area of constant thickness of the skin
- (3) Is in an area where the door skin damage is across a door beam
- (4) Is on the forward and aft entry doors
- (5) Is on the forward and aft galley doors
- (6) Is on the forward and aft cargo doors
- (7) Is less than 5.00 inches (127 mm) in length as given in Paragraph 4.C./REPAIR 6
- (8) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.C./REPAIR 6 must be a minimum of 2.1 inches away from:
 - 1) An edge
 - 2) A skin cutout
 - 3) An edge of an adjacent door skin repair.
 - (b) The edge of the damage cut specified in Paragraph 4.C./REPAIR 6 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.

B. Repair 6 is not applicable if:

- (1) The repair makes an intersection with intercostals or integrally machined beam stiffeners
- (2) The door beam flange is not damaged.

C. Use Repair 7 when:

- (1) The door beam flange is not damaged
- (2) The door beam flange damage is not more than the allowable damage limits.

2. General

- A. Repair 6 gives the instructions for a permanent repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs.
- B. Repair 6 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs. Refer to Paragraph 5 for the inspection requirements.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06, GENERAL P/B GENERAL	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE



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(Continued)

Reference	Title
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin and the beam flange as shown in Layout of the Repair Parts, Figure 201/REPAIR 6. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.00 inches (127 mm).
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin or adjacent to the beam flange when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut in the skin a minimum of 0.50 inch (12.7 mm).
 - (8) Make the corner radii of the cut in the beam flange a minimum of 0.125 inch (3.175 mm).
- D. Put the skin that is around the damage back to the initial contour. Refer to 51-10-01.
- E. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 6 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 6 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
PART NUMBER	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin
[2]	Filler	1	Use 2024-T3 clad sheet that has the thickness as the initial skin



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REPAIR MATERIAL			
PART NUMBER	PART	QUANTITY	MATERIAL
[3]	Angle	2	Use 2024-T3 sheet that has the same thickness as the initial flange of the door beam
[4]	Filler	A/R	Use 2024-T3 sheet that has the thickness required to fill the space between the part [1] Doubler and the chem-milled pockets in the door skin

- F. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 6.
- G. Drill and, if necessary, countersink the necessary fastener holes. Refer to 51-40-08.
- (1) For thicknesses of the door outer skin that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent knife edge conditions.
 - (2) For thicknesses of the door outer skin that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the door outer skin.
- H. Disassemble the repair parts.
- I. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts, the skin, and the beam.
- J. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- K. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to:
- (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Filler
 - (3) The surfaces of the part [3] Angles
 - (4) The surfaces of the part [4] Fillers
 - (5) The bare surfaces of the skin.
- L. Install the repair parts.
- NOTE:** When you install the repair angles use fillers when the gaps between the repair angles, the initial door beam flanges, and the repair doubler are greater than 0.005 inch. Use filler material made from 2024-T3 or 7075-T6 sheet.
- (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Install the rivets without sealant.
- M. Seal the repair area. Refer to 51-20-05.
- (1) Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealant information.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (a) Make the sealant flush with the outer surfaces of the door skin and the part [2] Filler. Refer to 51-10-01 for the necessary aerodynamic smoothness.
- N. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01 for information on corrosion inhibiting compounds.
- O. Install the parts that were removed before you made the repair.

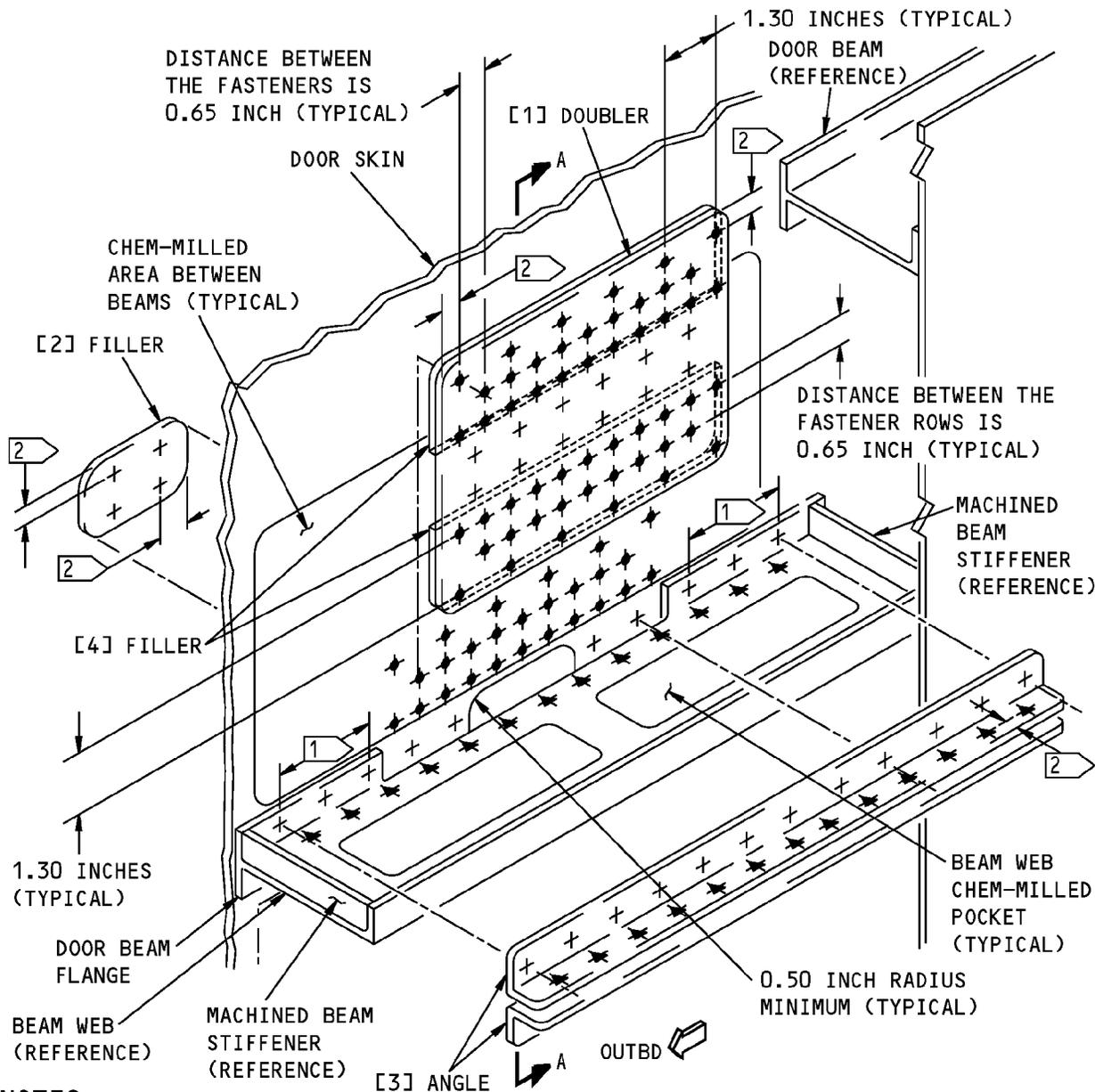


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- P. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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NOTES

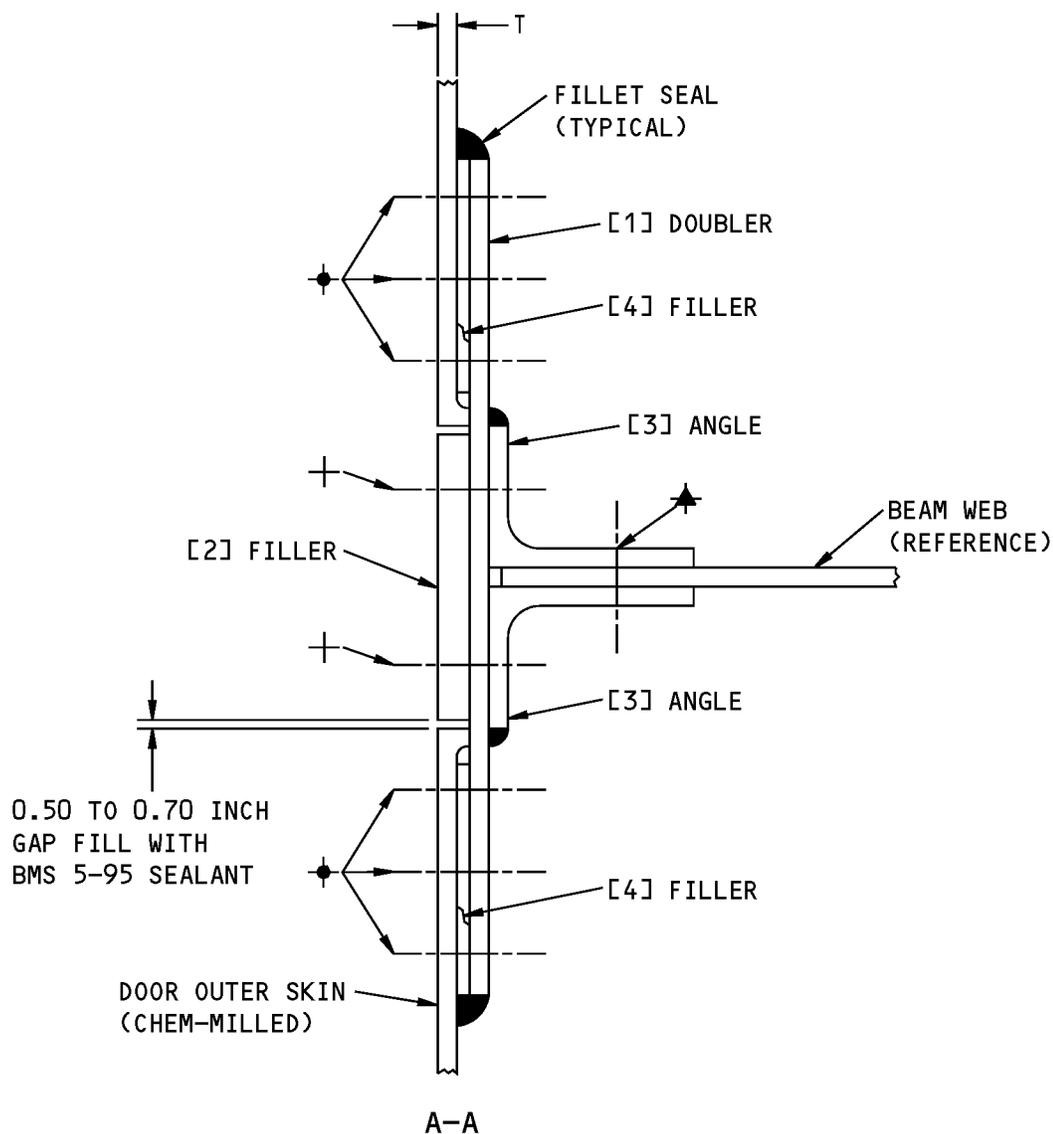
- THE FASTENERS MUST HAVE A MINIMUM SPACING OF 2D (D = DIAMETER OF THE INITIAL OR THE REPAIR FASTENER) FROM A CHEM-MILLED RADIUS.
- MAKE SURE THAT THE PART [4] FILLERS DO NOT TOUCH THE CHEM-MILLED RADIUS.

1 WHEN YOU INSTALL REPAIR ANGLES, USE A MINIMUM OF THREE FASTENERS ON EACH SIDE OF THE FLANGE CUTOUT.

2 EDGE MARGIN IS 2D (D = DIAMETER OF THE INITIAL OR THE REPAIR FASTENER) MINIMUM.

Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

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FASTENER SYMBOLS

- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND SIZE AS THE INITIAL FASTENER. IF AN OVERSIZE IS NECESSARY, INSTALL UP TO 1/32 INCH OVERSIZE. COUNTERSINK DEPTHS MUST BE LESS THAN 80% OF THE SKIN THICKNESS.
- ▲ REPAIR FASTENER LOCATION. INSTALL A BACR15FT6D RIVET.
- ◆ REPAIR FASTENER LOCATION.
 - FOR T IS LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
 - FOR T IS 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

**Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)**



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5. Inspection Requirements

- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.
- B. Inspections do not apply for airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of skin and the repair	1400 flight cycles	



737-800 STRUCTURAL REPAIR MANUAL

REPAIR 7 - ALUMINUM DOOR SKIN - ALTERNATIVE FLUSH REPAIR ACROSS A BEAM

1. Applicability

- A. Repair 7 is applicable to aluminum door skin damage that:
- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
 - (2) Is in an area of constant thickness of the skin
 - (3) Is in an area where the door skin damage is across a door beam
 - (4) Is on the forward and aft entry doors
 - (5) Is on the forward and aft galley doors
 - (6) Is on the forward and aft cargo doors
 - (7) Is less than 5.00 inches (127 mm) in length as given in Paragraph 4.C./REPAIR 7
 - (8) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.C./REPAIR 7 must be a minimum of 2.1 inches (53 mm) away from:
 - 1) An edge
 - 2) A skin cutout
 - 3) An edge of an adjacent door skin repair.
 - (b) The edge of the damage cut specified in Paragraph 4.C./REPAIR 7 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.
- B. Use Repair 7 when:
- (1) The door beam flange is not damaged
 - (2) The door beam flange damage is not more than the allowable damage limits.

2. General

- A. Repair 7 gives the instructions for a permanent repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06 for the definitions of the different types of repairs.
- B. Repair 7 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06 for the definitions of the different types of repairs. Refer to Paragraph 5 for the inspection requirements.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES

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(Continued)

Reference	Title
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 7. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.00 inches (127 mm).
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut a minimum of 0.50 inch (12.7 mm).
- D. Put the skin around the damaged area back to the initial contour. Refer to 51-10-01.
- E. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 7 for the material of the repair parts.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 7 for the layout of the repair parts.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.
 - (4) Put a 50:1 taper on the part [4] Tapered Fillers to give a 0.01 inch maximum gap between the door skin and the door beam flange.

Table 201:

REPAIR MATERIAL			
PART NUMBER	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin that was removed
[2]	Filler	1	Use 2024-T3 clad sheet that has the same thickness as the initial skin that was removed
[3]	Pocket Filler	2	Use 2024-T3 sheet that has the thickness required to fill the space between part [1] Doubler and the chem-milled pockets in the door skin that was removed
[4]	Tapered Filler (50:1 taper)	2	Use BACS40R or BAC 1534 stock material 4.0 x 1.50 inches

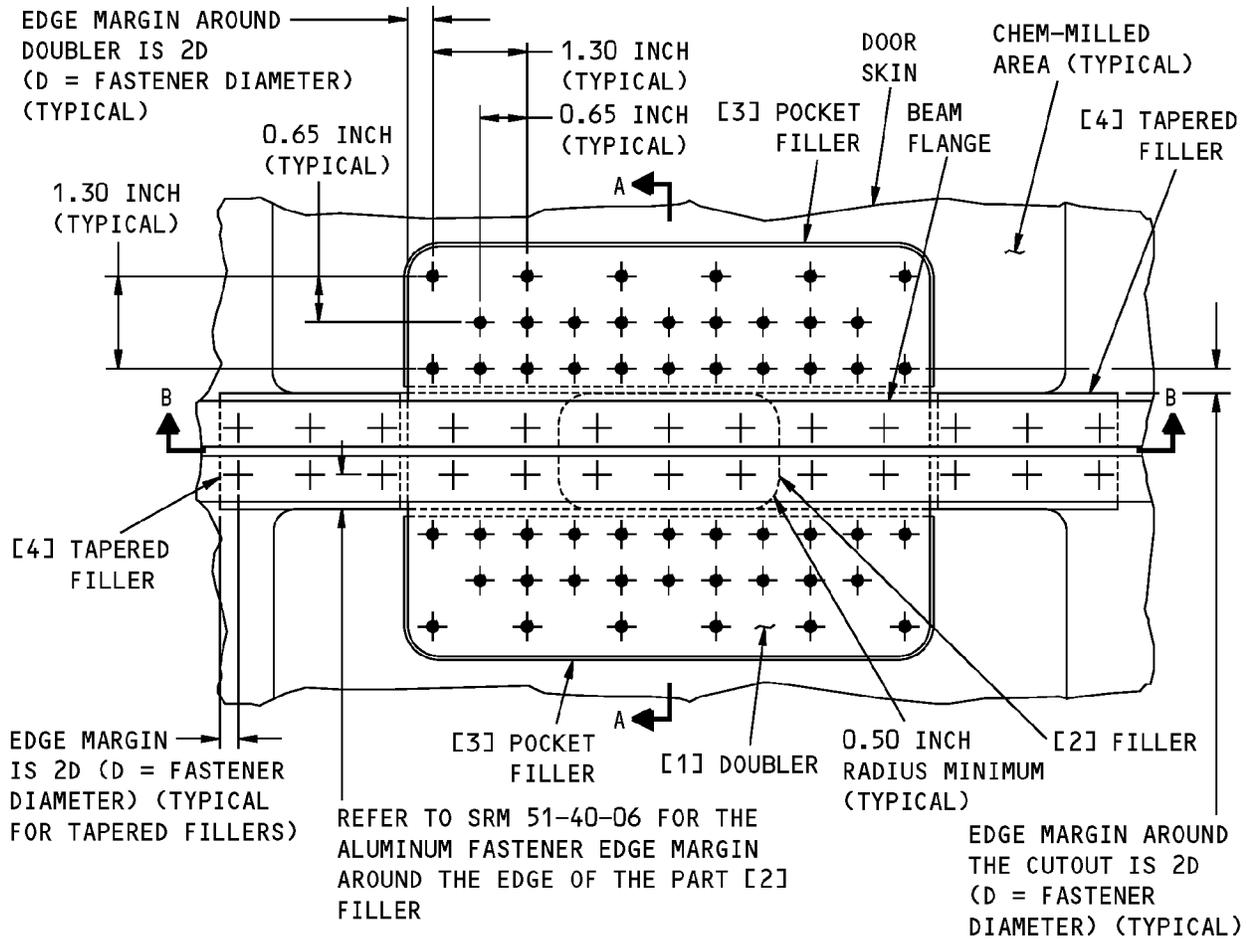


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- F. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 7.
- G. Drill and, if necessary, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For thicknesses of the door outer skin that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent a knife edge condition.
 - (2) For thicknesses of the door outer skin that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the door outer skin.
- H. Disassemble the repair parts.
- I. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- J. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- K. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02 to:
 - (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Filler
 - (3) The surfaces of the part [3] Pocket Fillers
 - (4) The surfaces of the part [4] Tapered Fillers
 - (5) The bare surfaces of the skin.
- L. Install the repair parts.
 - (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Install the rivets without sealant.
- M. Seal the repair area. Refer to 51-20-05.
 - (1) Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealant information.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (a) Make the sealant flush with the outer surfaces of the door skin and the part [2] Filler. Refer to 51-10-01 for the necessary aerodynamic smoothness.
- N. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01 for information on corrosion inhibiting compounds.
- O. Install the parts that were removed before you made the repair.
- P. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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VIEW IN THE OUTBOARD DIRECTION



NOTES

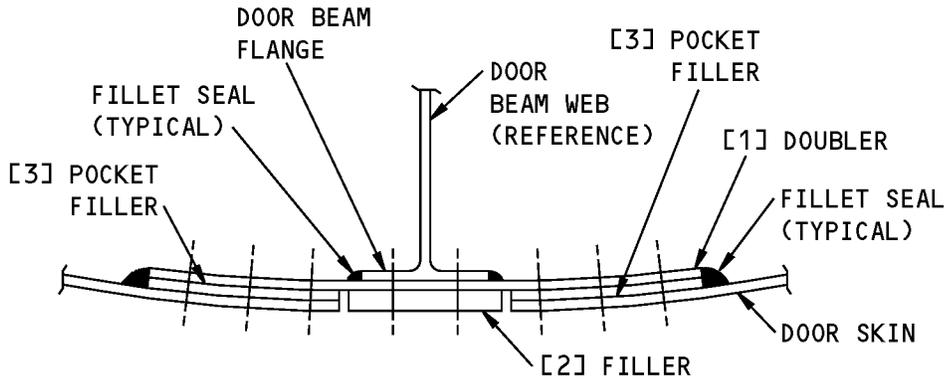
- FASTENERS MUST HAVE A MINIMUM SPACING OF 2D (D = FASTENER DIAMETER) FROM A CHEM-MILLED RADIUS.
- REPAIR PARTS MUST NOT TOUCH A CHEM-MILLED RADIUS.

FASTENER SYMBOLS

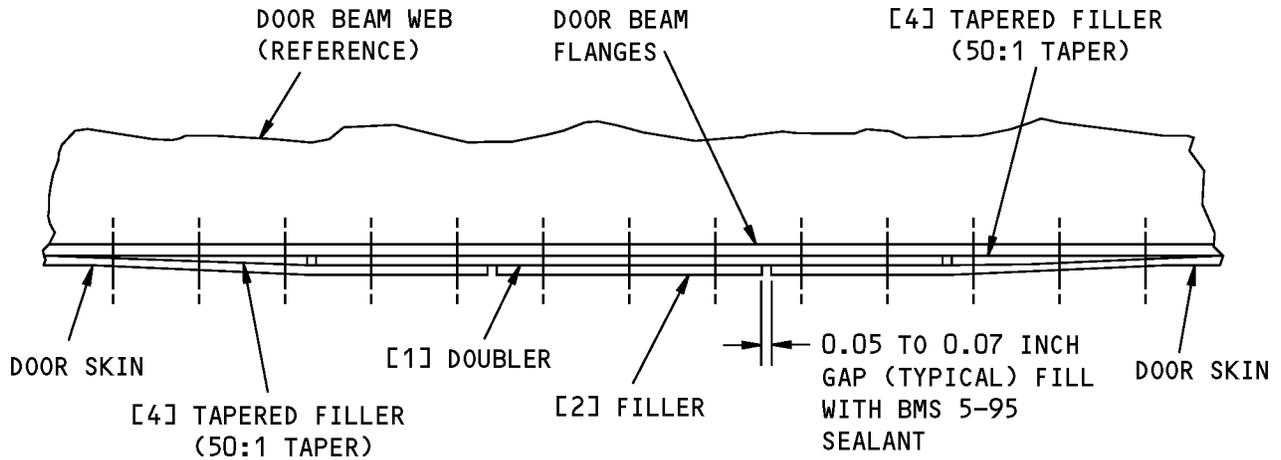
- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND SIZE AS THE INITIAL FASTENERS UP TO 1/32 OVERSIZE.
- ✦ REPAIR FASTENER LOCATION.
 - FOR SKIN THICKNESSES THAT ARE LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
 - FOR SKIN THICKNESSES THAT ARE 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

**Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)**

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(ROTATED 90° CW)
A-A



B-B

**Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)**



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5. Inspection Requirements

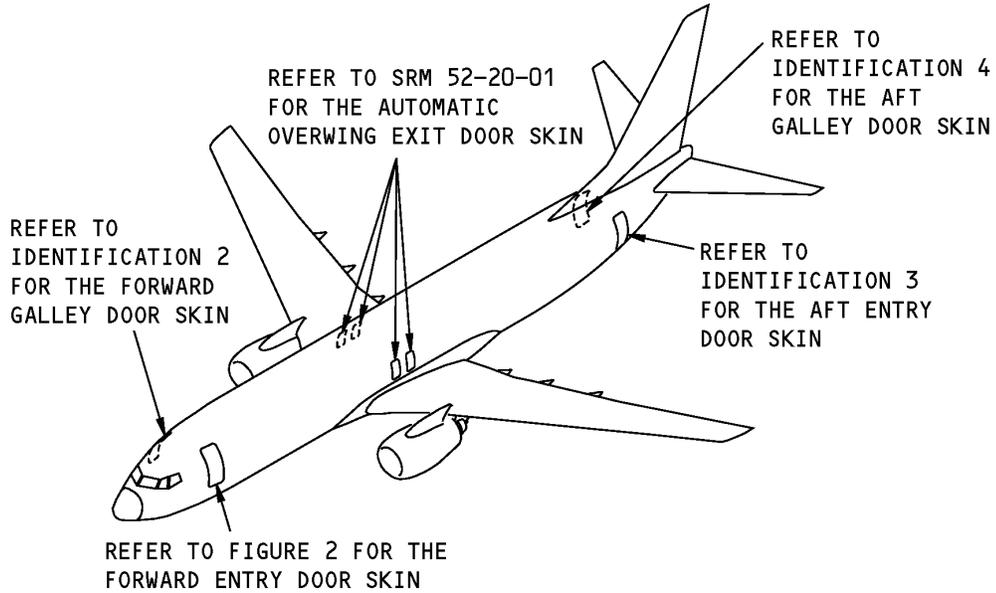
- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.
- B. Inspections do not apply for airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of skin around the repair	1400 flight cycles	

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IDENTIFICATION 1 - FORWARD ENTRY DOOR SKINS



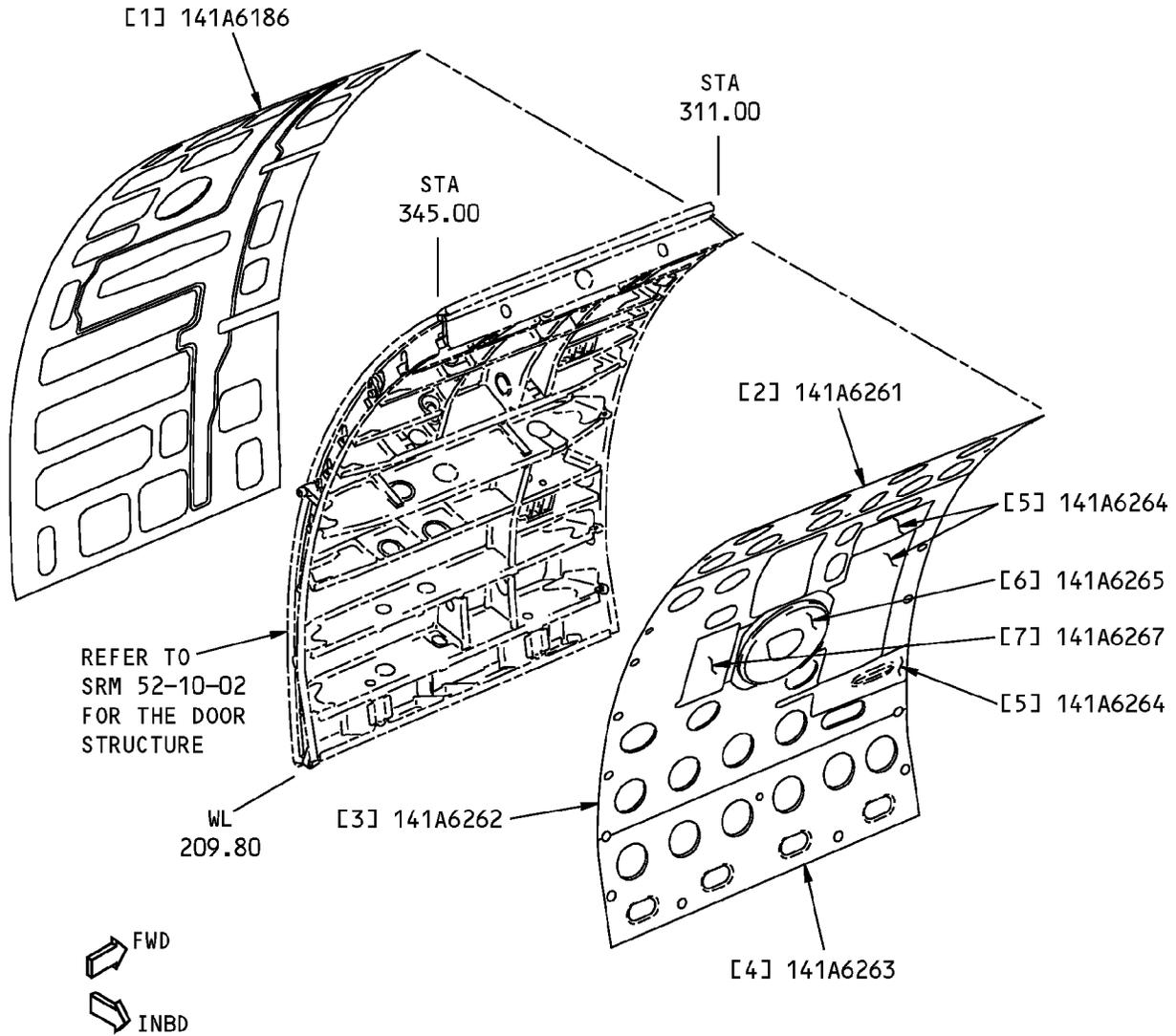
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Entry Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6100	Forward Entry Door - Assembly
141A6185	Forward Entry Door External Skin Installation
141A6260	Forward Entry Door Internal Skin Installation

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Entry Door Skin Identification
Figure 2**



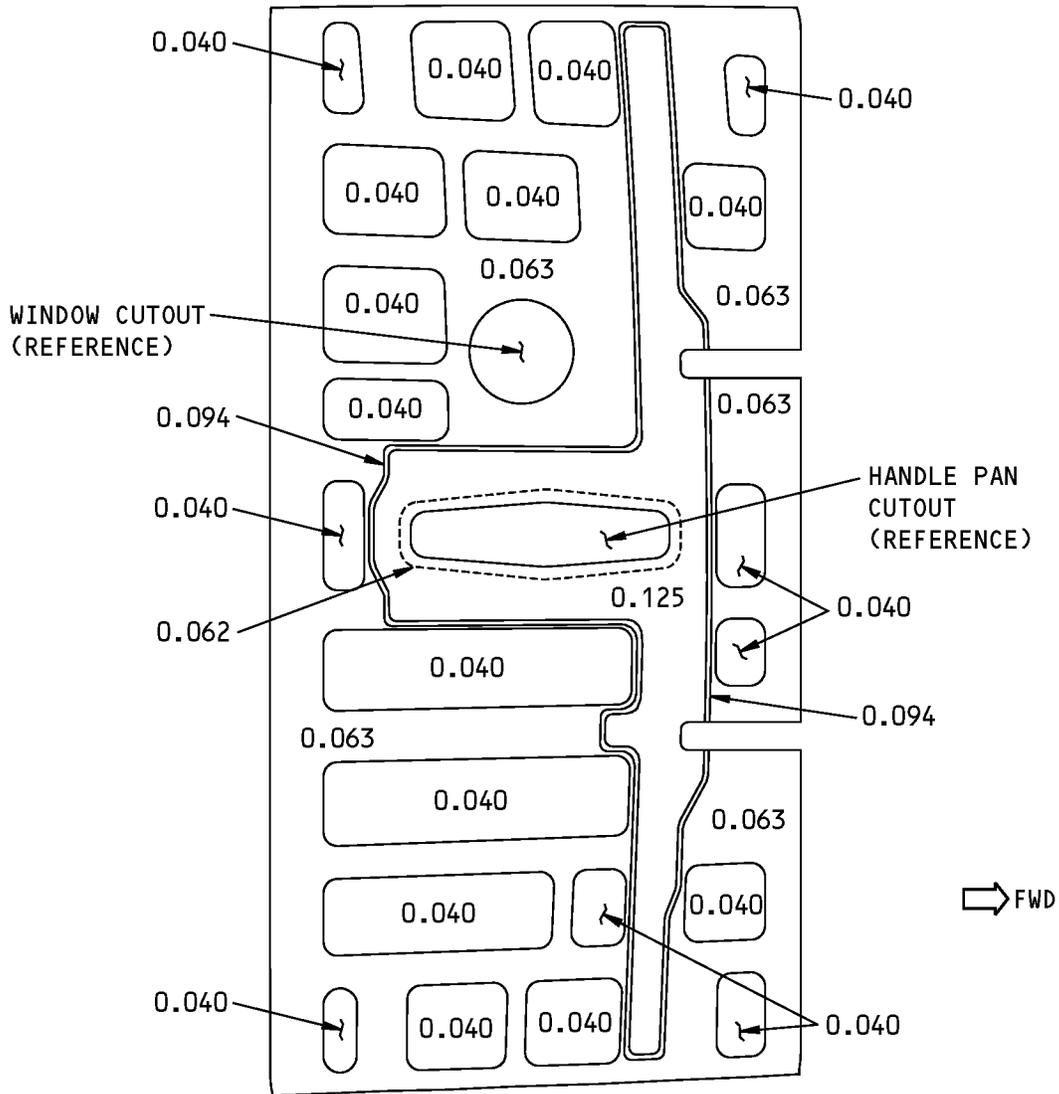
**737-800
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet. Refer to Figure 3 for the thicknesses of the chem-milled areas	
[2]	Internal Skin - Upper	0.050 (1.27)	7075-T6 clad sheet	
[3]	Internal Skin - Middle	0.032 (0.81)	2024-T3 clad sheet	
[4]	Internal Skin - Lower	0.050 (1.27)	7075-T6 clad sheet	
[5]	Access Panel	0.040 (1.02)	2024-T3 clad sheet	
[6]	Cam Cover	0.040 (1.02)	2024-T3 clad sheet	
[7]	Access Panel	0.040 (1.02)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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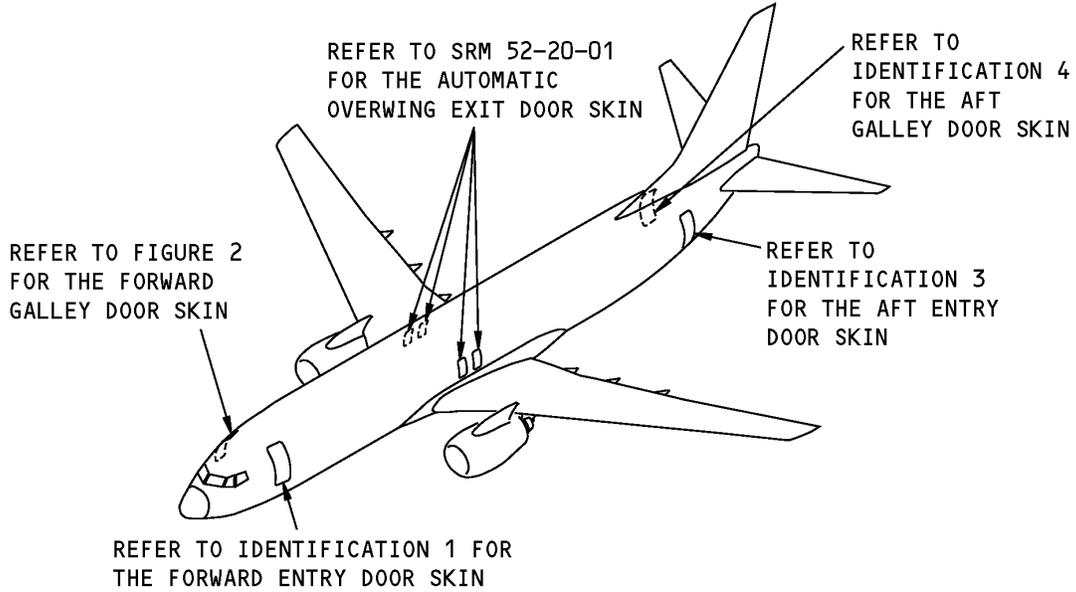
NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES.

**VIEW OF THE INNER SURFACE OF THE
FORWARD ENTRY DOOR OUTER SKIN**

**Chem-Milled areas of Figure 2, Item [1]
Figure 3**

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IDENTIFICATION 2 - FORWARD GALLEY DOOR SKINS



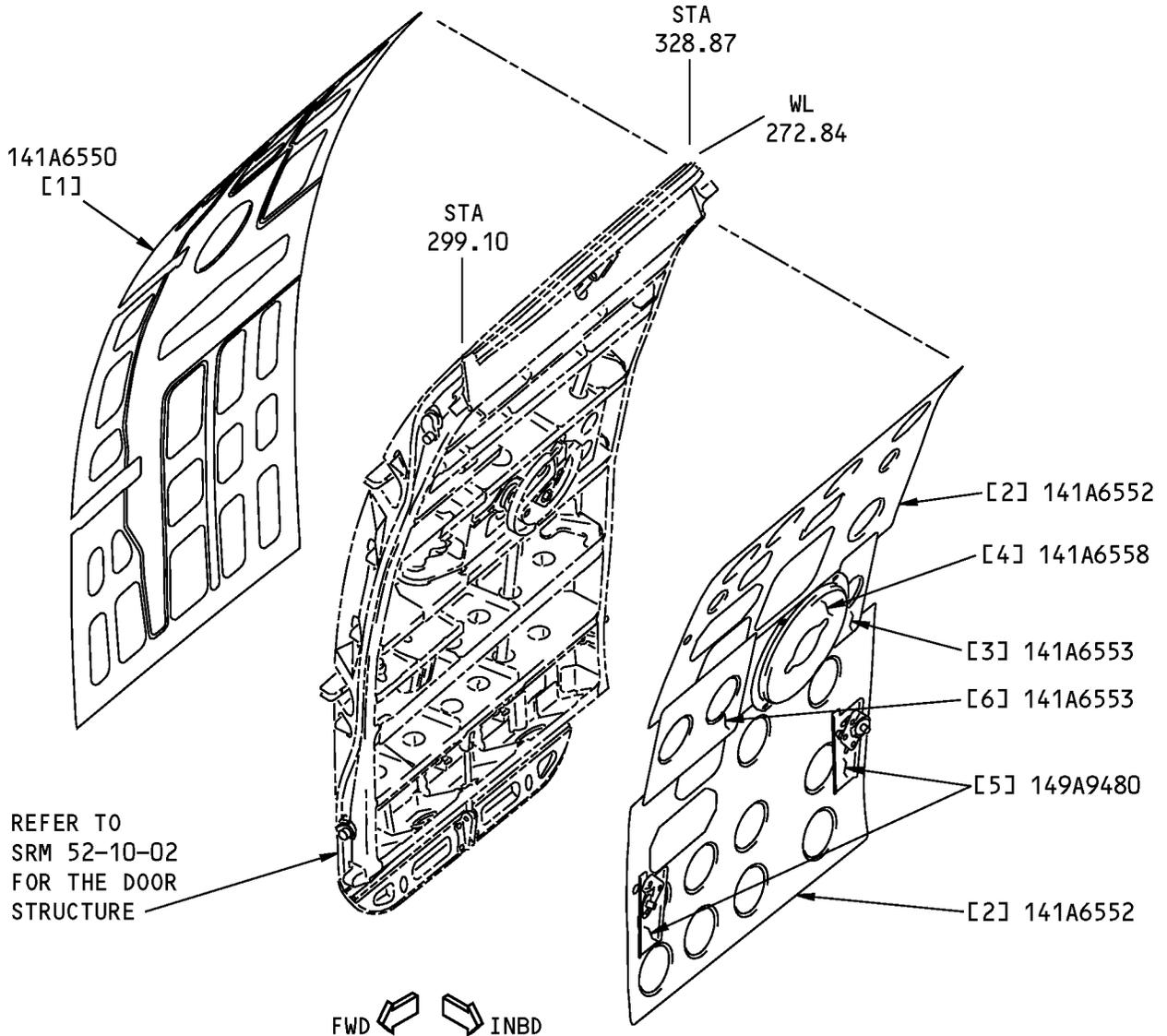
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Galley Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0030	Functional Collector - Forward Galley Door
141A6500	Door Installation - Forward Galley
141A6516	Door Assembly - Forward Galley

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Galley Door Skin Identification
Figure 2**



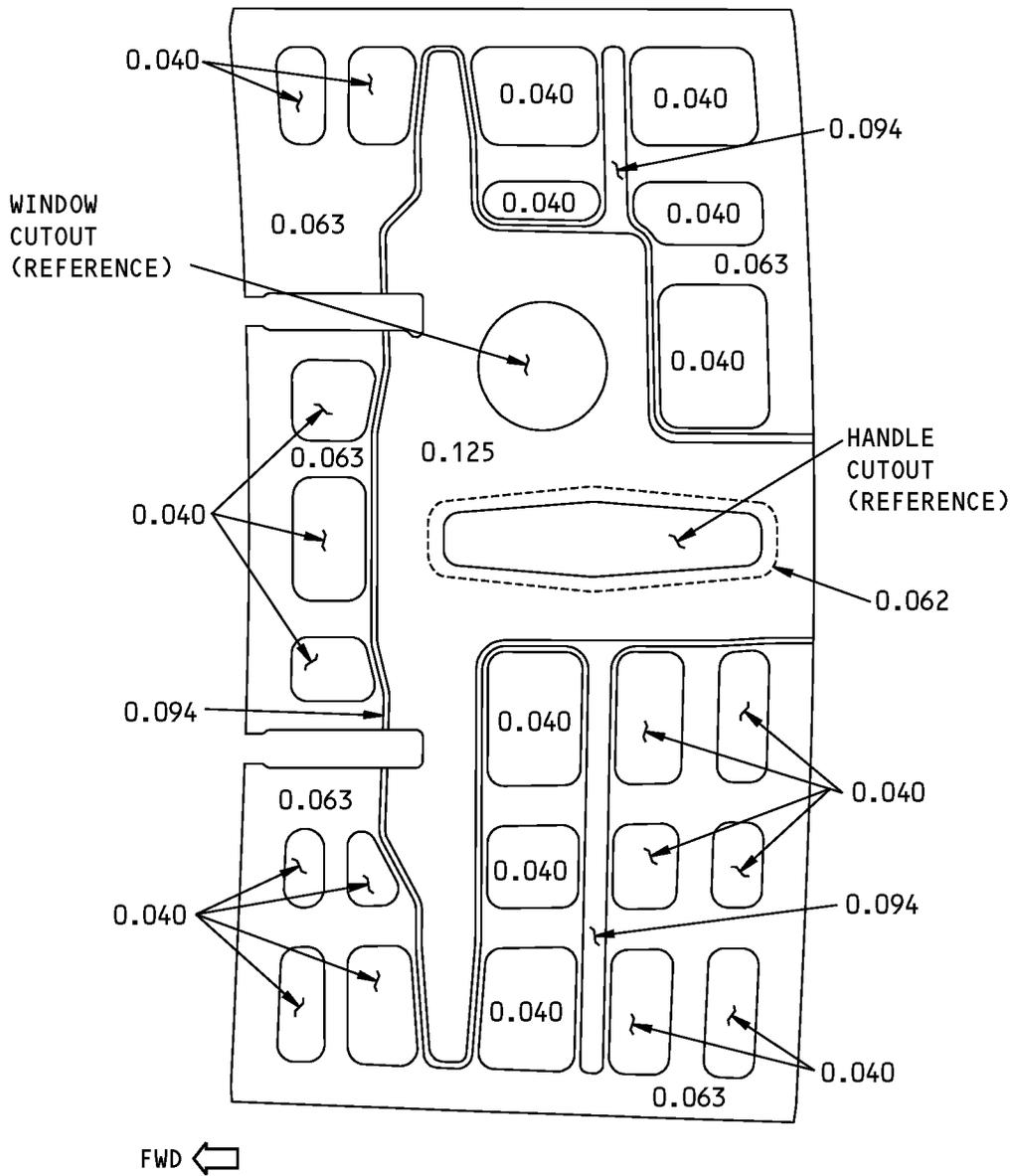
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet. Refer to Figure 3 for the chem-milled thicknesses for the different areas	
[2]	Internal Skin - Upper and Lower	0.040 (1.02)	7075-T62 clad sheet	
[3]	Coverplate	0.032 (0.81)	7075-T62 clad sheet	
[4]	Retainer	0.040 (1.02)	2024-T42 clad sheet	
[5]	Bracket Assembly			
	Bracket	0.071 (1.80)	2024-T42 clad sheet	
	Backplate	0.063 (1.60)	6013-T6 sheet	
[6]	Coverplate	0.032 (0.81)	7075-T62 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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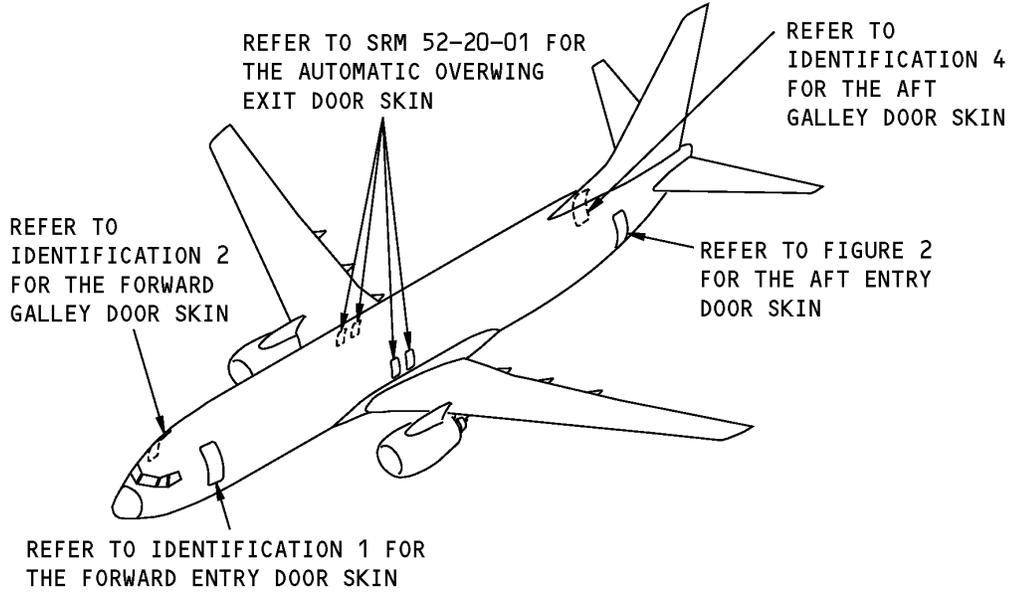
NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES.

**VIEW OF THE INNER SURFACE OF THE
FORWARD GALLEY DOOR OUTER SKIN**

**Chem-Milled Areas of Figure 2, Item [1]
Figure 3**

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IDENTIFICATION 3 - AFT ENTRY DOOR SKINS



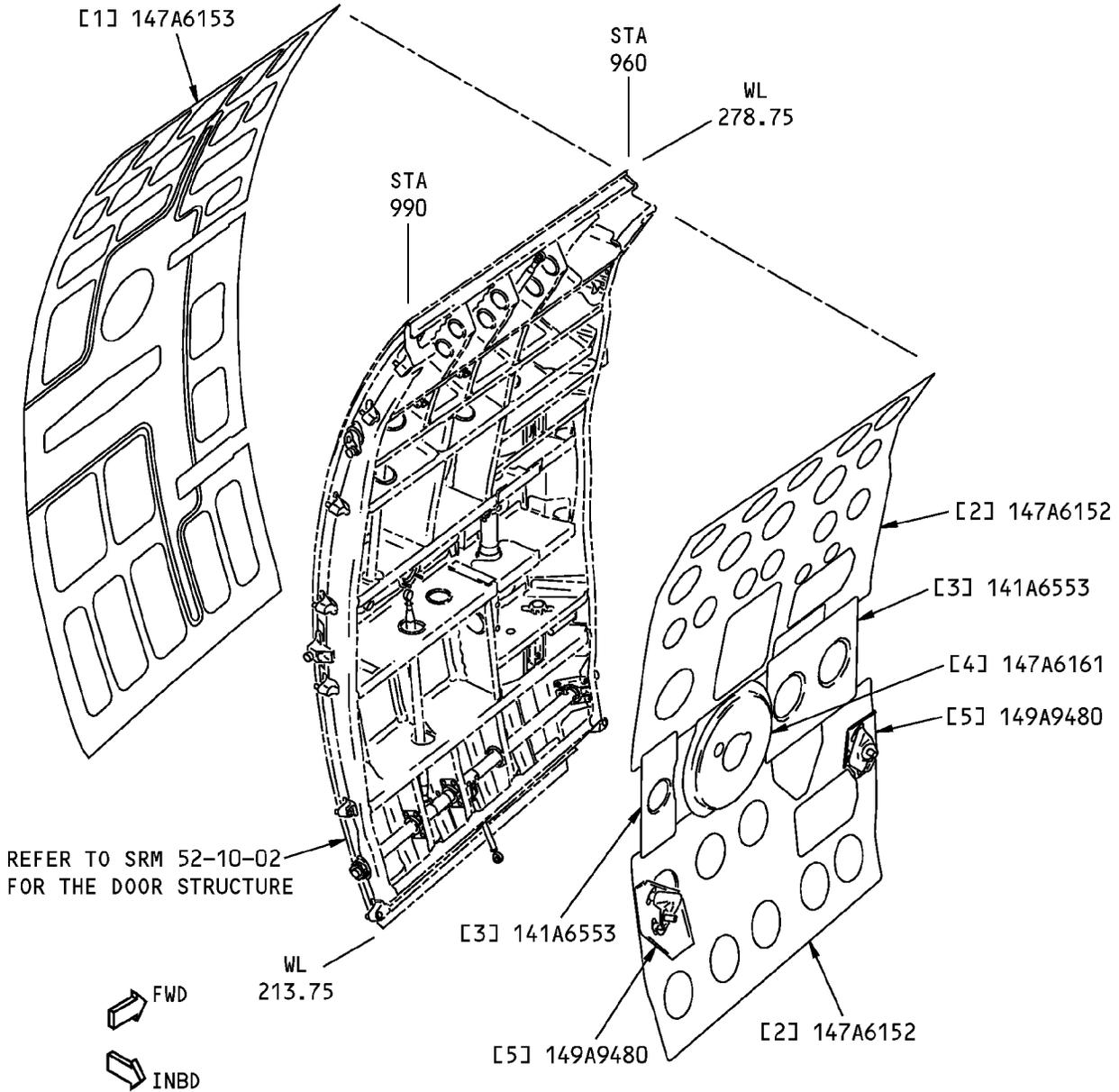
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Aft Entry Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0070	Functional Collector - Aft Entry Door
147A6100	Door Installation - Aft Entry
147A6116	Door Assembly - Aft Entry

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Aft Entry Door Skin Identification
Figure 2**



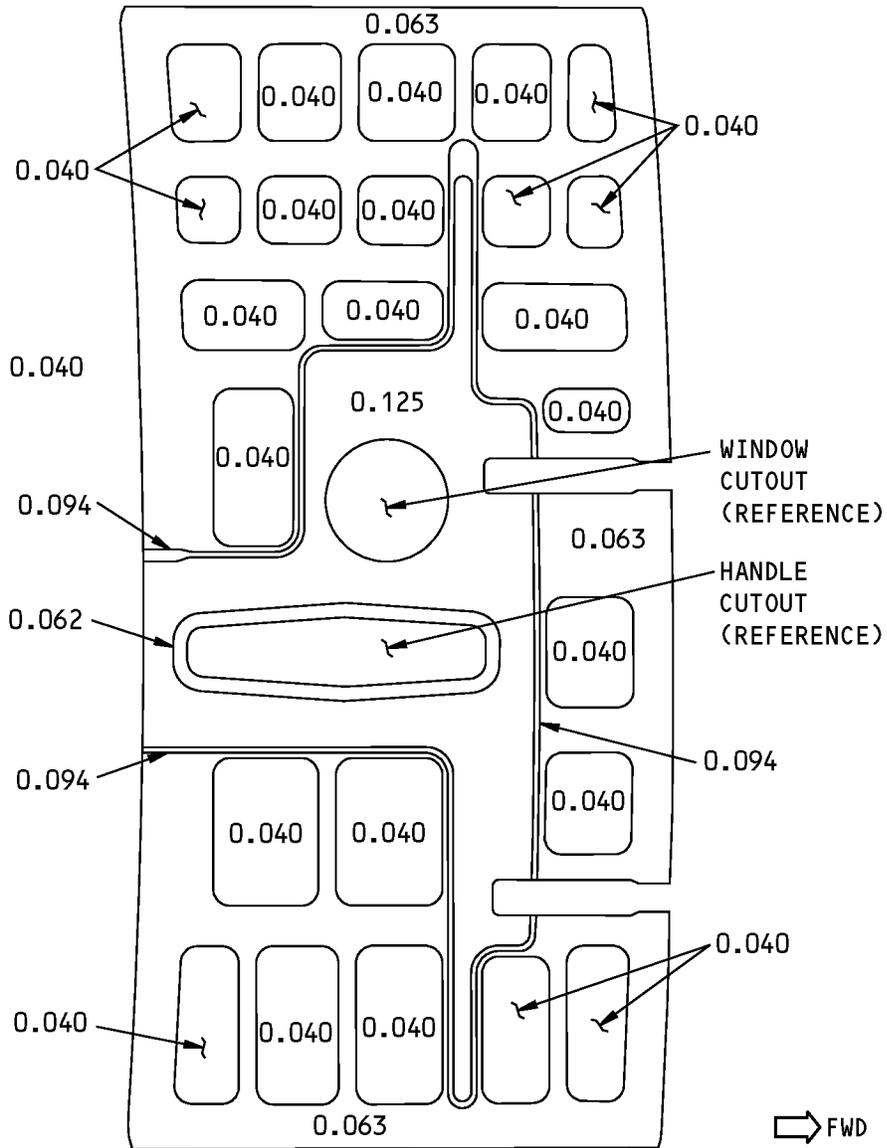
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet. Refer to Figure 3 for the chem-milled thicknesses of the different areas	
[2]	Internal Skin - Upper and Lower	0.040 (1.02)	7075-T62 clad sheet	
[3]	Coverplate	0.032 (0.81)	7075-T6 clad sheet	
[4]	Retainer	0.032 (0.81)	2024-T42 clad sheet	
[5]	Bracket Assembly			
	Bracket	0.071 (1.80)	2024-T6 clad sheet	
	Backplate	0.063 (1.60)	6013-T6 sheet as given in AMS 4347	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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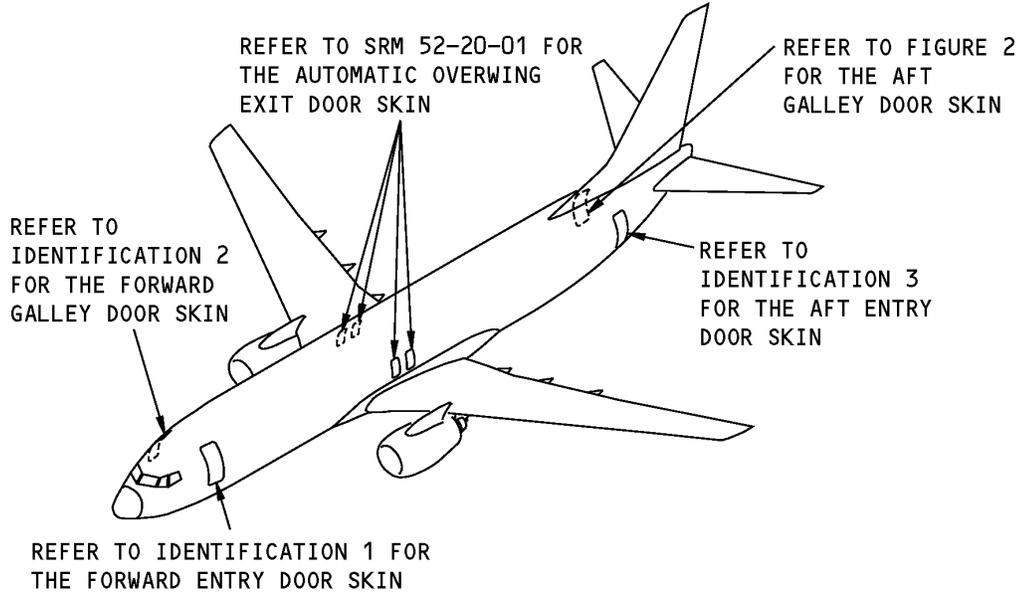
NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES.

**VIEW OF INNER SURFACE OF THE
AFT ENTRY DOOR OUTER SKIN**

**Chem-Milled Areas of Figure 2, Item [1]
Figure 3**

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IDENTIFICATION 4 - AFT GALLEY DOOR SKINS



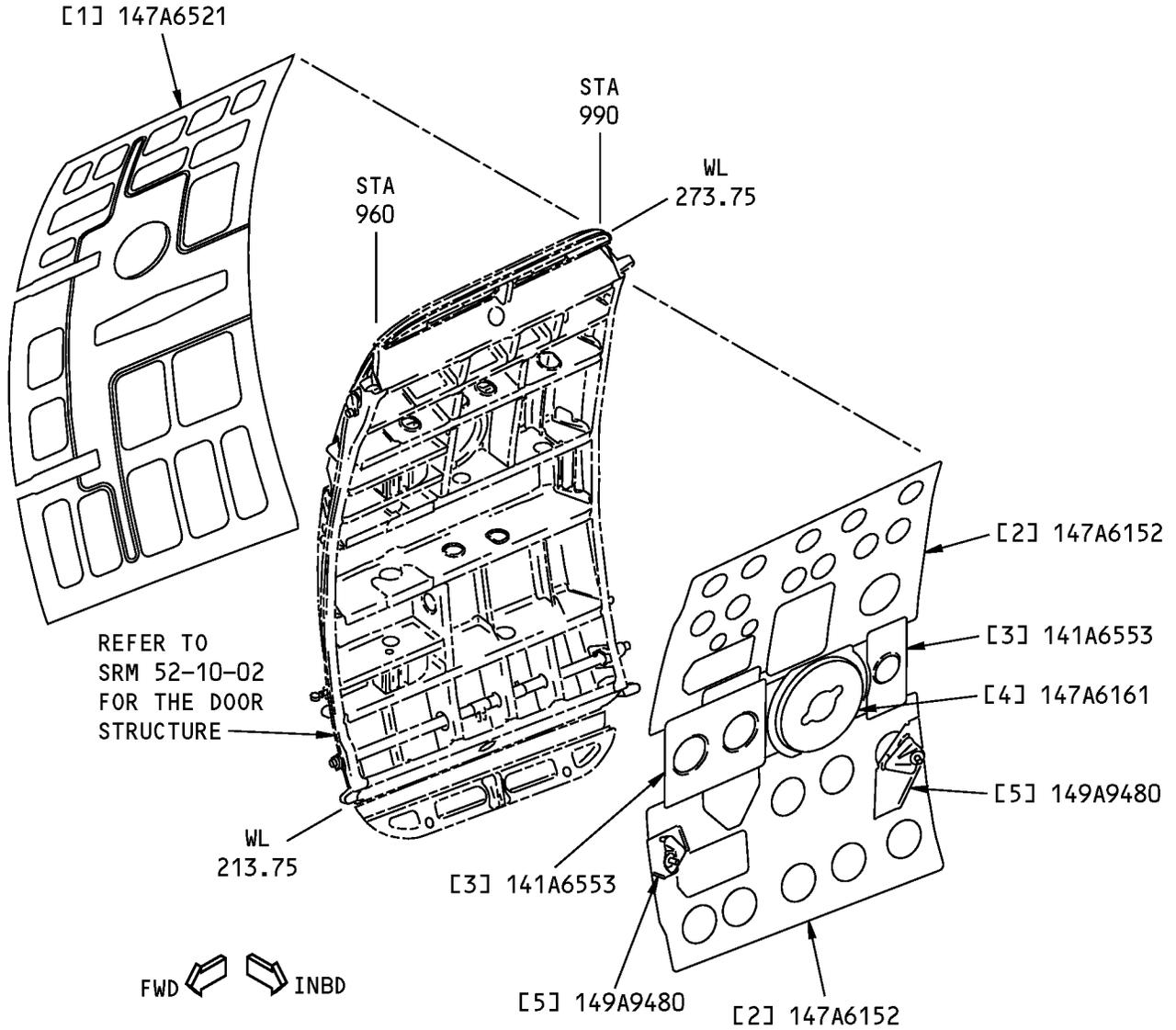
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Aft Galley Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6500	Door Installation - Aft Galley
147A6502	Door Assembly - Aft Galley

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Aft Galley Door Skin Identification
Figure 2**



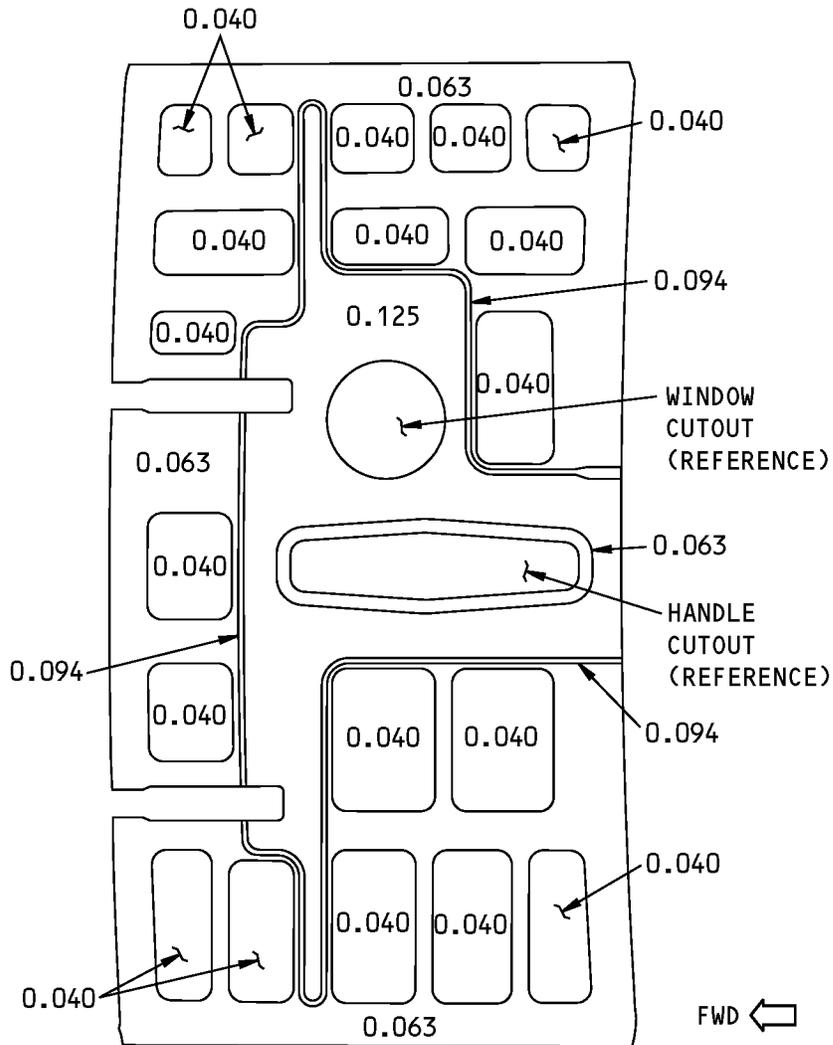
737-800
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet as given in QQ-A-250/5. Refer to Figure 3 for the chem-milled thicknesses of the different areas	
[2]	Inner Skin - Upper and Lower	0.040 (1.02)	7075-T62 clad sheet as given in QQ-A-250/13	
[3]	Coverplate	0.032 (0.81)	7075-T6 clad sheet as given in QQ-A-250/13	
[4]	Retainer	0.040 (1.02)	2024-T42 clad sheet QQ-A-250/5	
[5]	Bracket	0.063 (1.60)	6013-T4 sheet as given in AMS 4347	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES

**VIEW OF INNER SURFACE OF THE
AFT GALLEY DOOR OUTER SKIN**

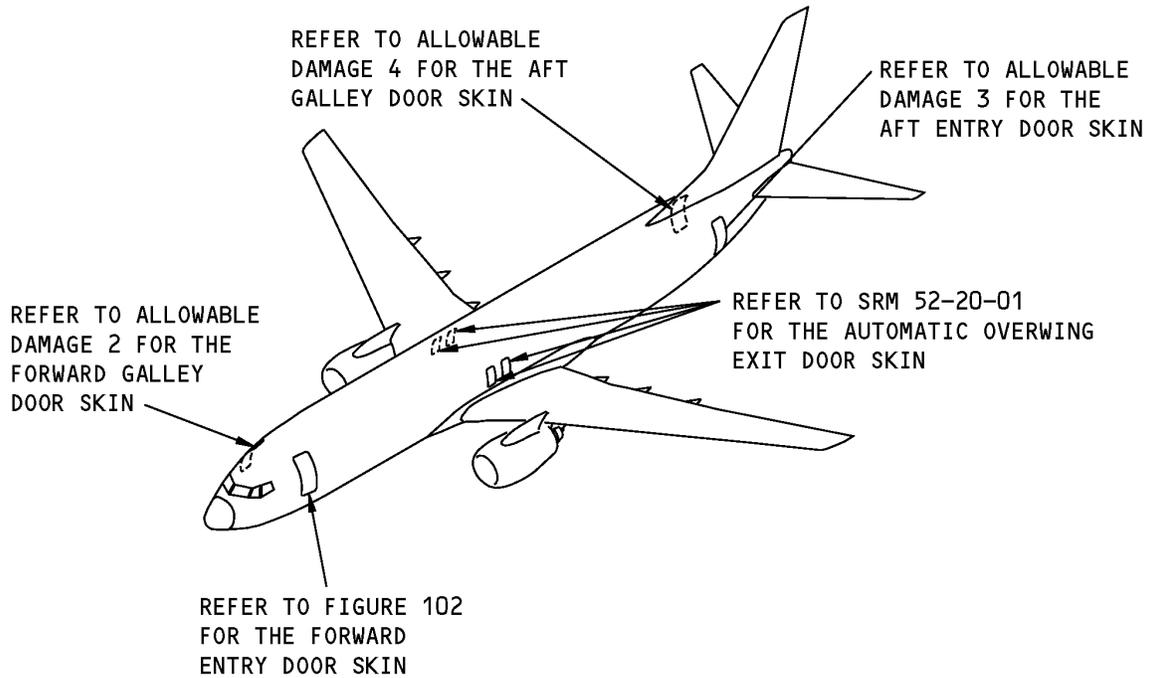
**Chem-Milled Areas of Figure 2, Item [1]
Figure 3**

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ALLOWABLE DAMAGE 1 - FORWARD ENTRY DOOR SKIN

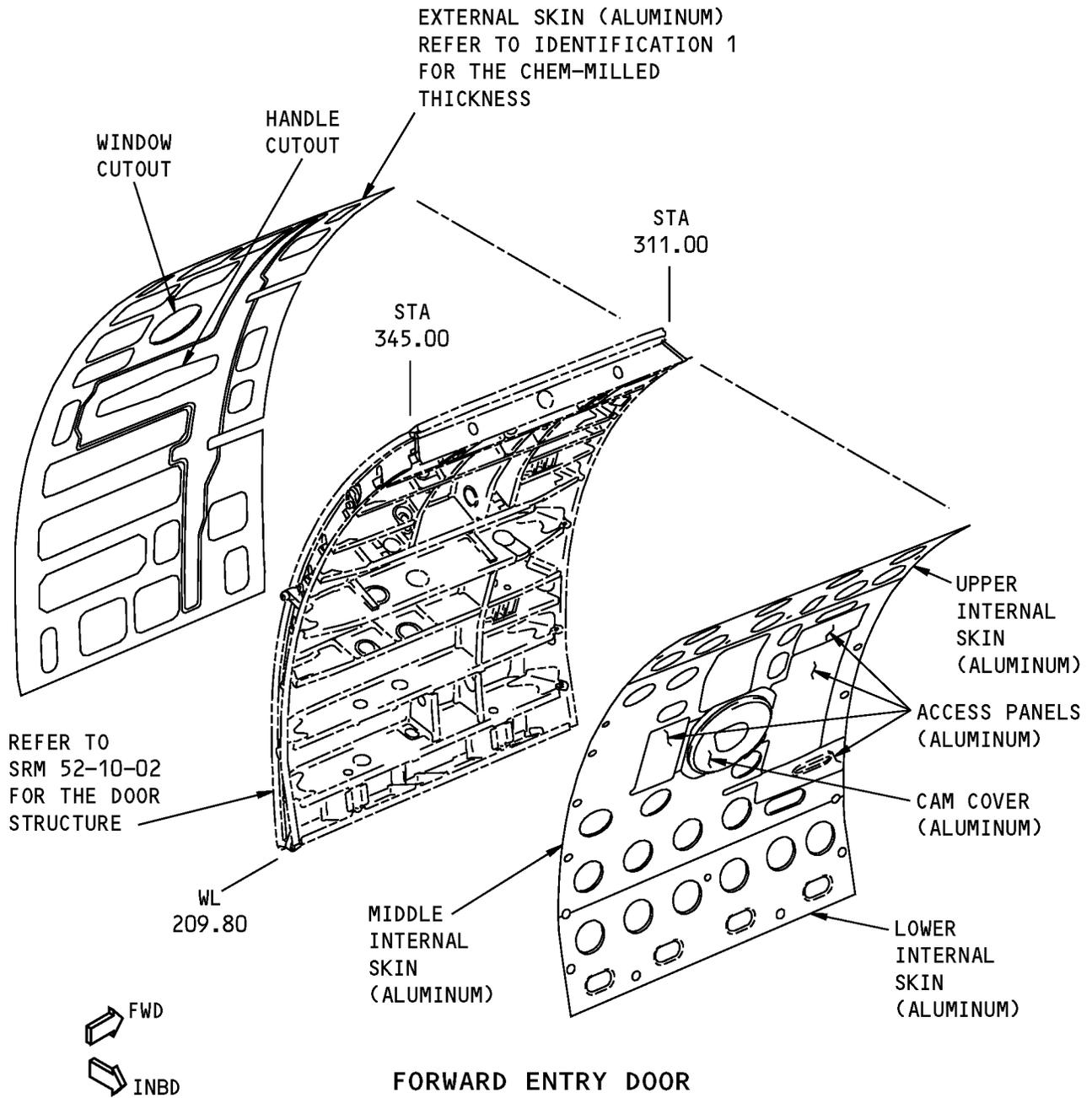
1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the forward entry door shown in Forward Entry Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Entry Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



**Forward Entry Door Skin Location
Figure 101**

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**Forward Entry Door Skin
Figure 102**



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2. General

- A. The forward entry door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. External Skin:



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- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.
- (2) Cracks:
 - (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- (3) Nicks, Scratches, Gouges and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Details A, B, C, D, and E .
 - (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- (4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F .
 - (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F, that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) There are no damaged fastener holes.
 - 3) There are no creases, gouges, or cracks near the dent.
 - 4) You do not fill the dent.
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- (5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1

 - (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter.
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 3) The damage is filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:

ALLOWABLE DAMAGE 1

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- 1) Remove the damage to a circular or oval shape.
- 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

B. Internal Skins, Access Panels, and Cam Cover:

(1) Cracks:

- (a) Remove the damage at an edge as shown in Figure 104/ALLOWABLE DAMAGE 1, Detail A, B, and C.
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover , Figure 104/ALLOWABLE DAMAGE 1, Details A, B, C, D, E and F .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

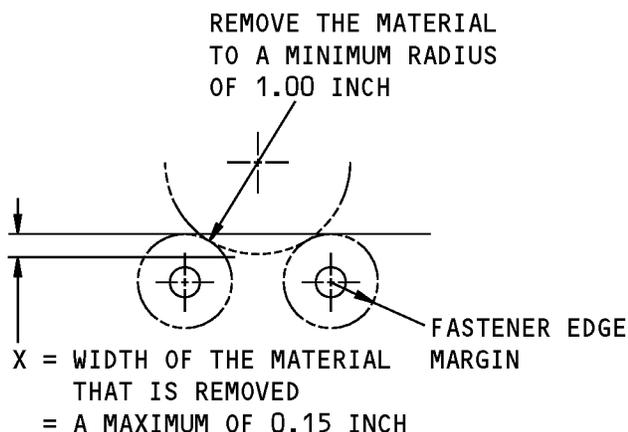
(3) Dents:

- (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover , Figure 104/ALLOWABLE DAMAGE 1, Detail G .

(4) Holes and Punctures:

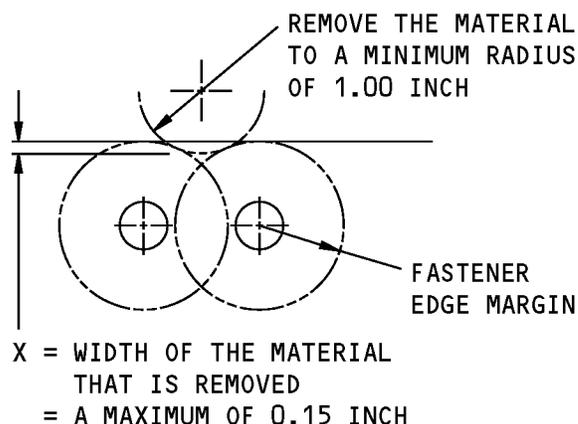
- (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter.
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.
 - 3) You remove the damage to a smooth circular or oval shape.

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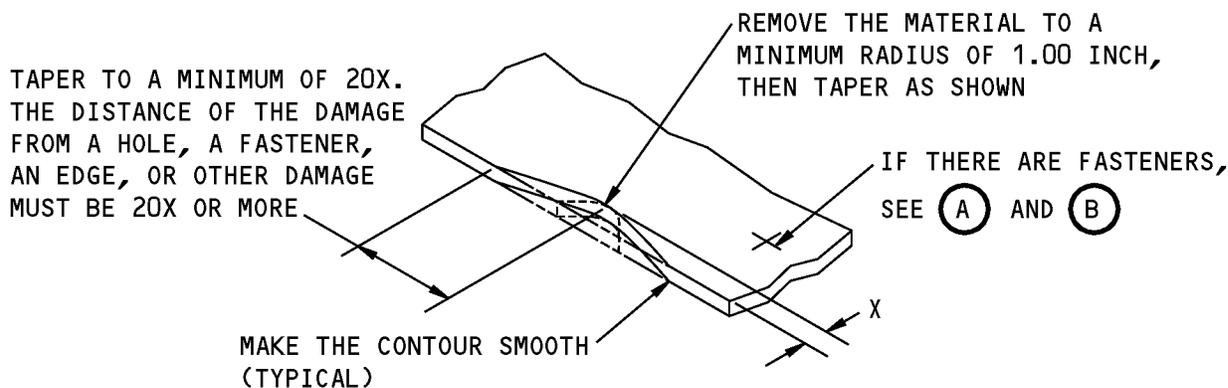
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



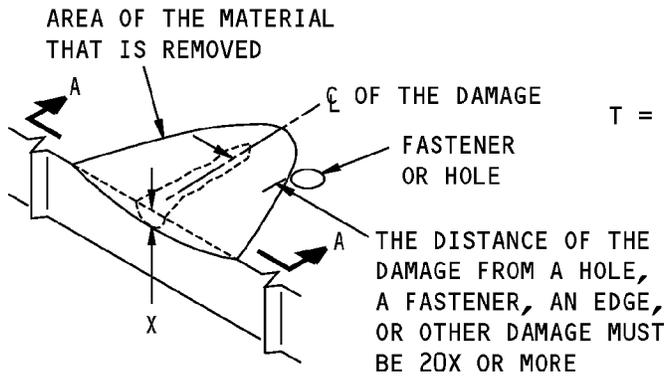
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)**

STRUCTURAL REPAIR MANUAL

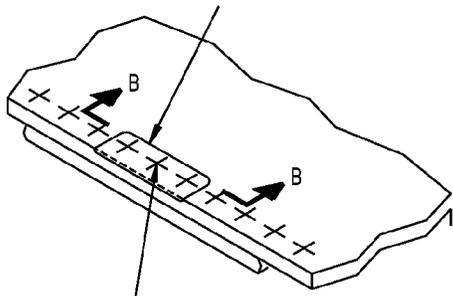


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



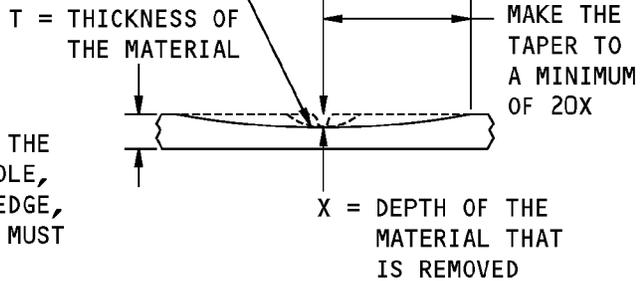
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

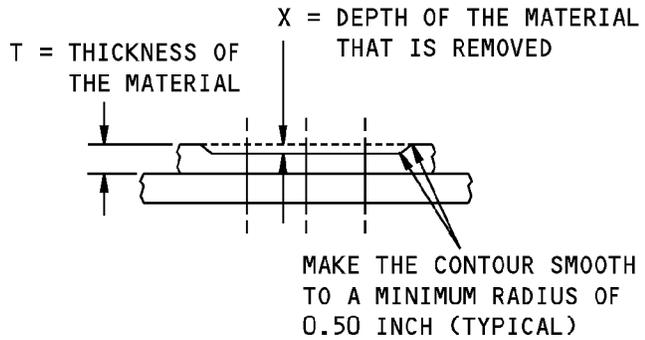


REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

A-A

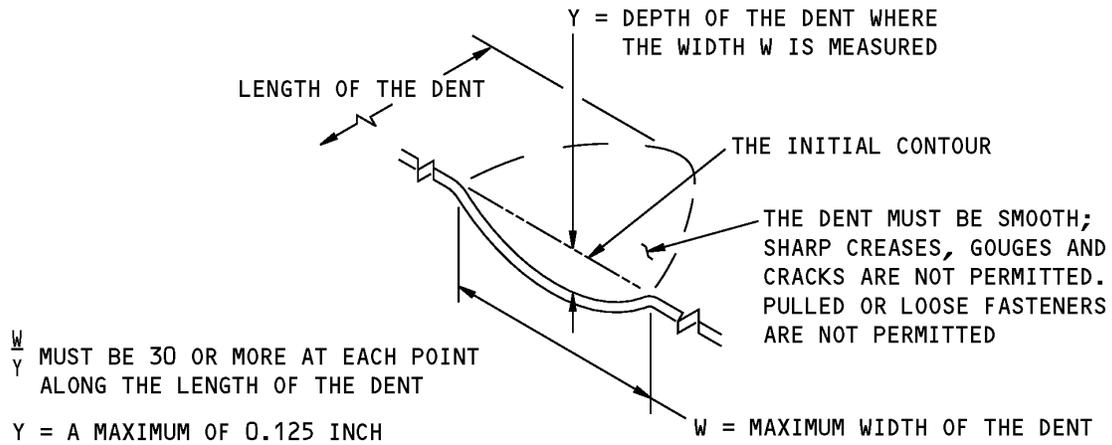


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

B-B

Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

737-800
STRUCTURAL REPAIR MANUAL

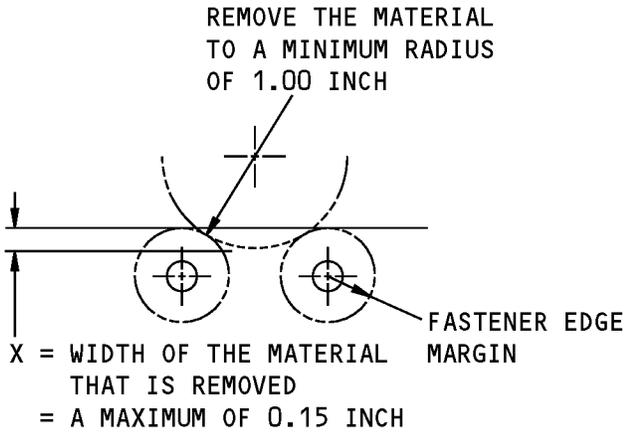


DENT THAT IS PERMITTED



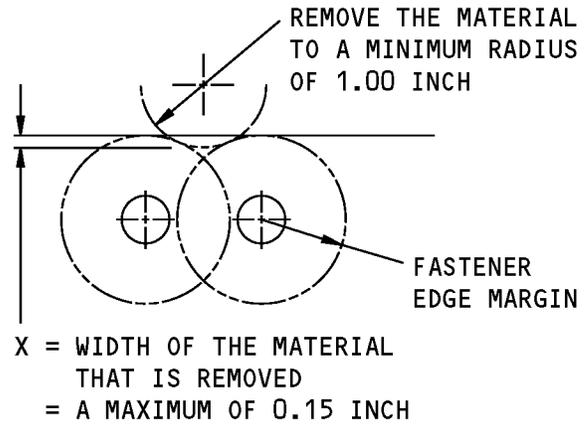
Allowable Damage Limits - External Skin
Figure 103 (Sheet 3 of 3)

STRUCTURAL REPAIR MANUAL



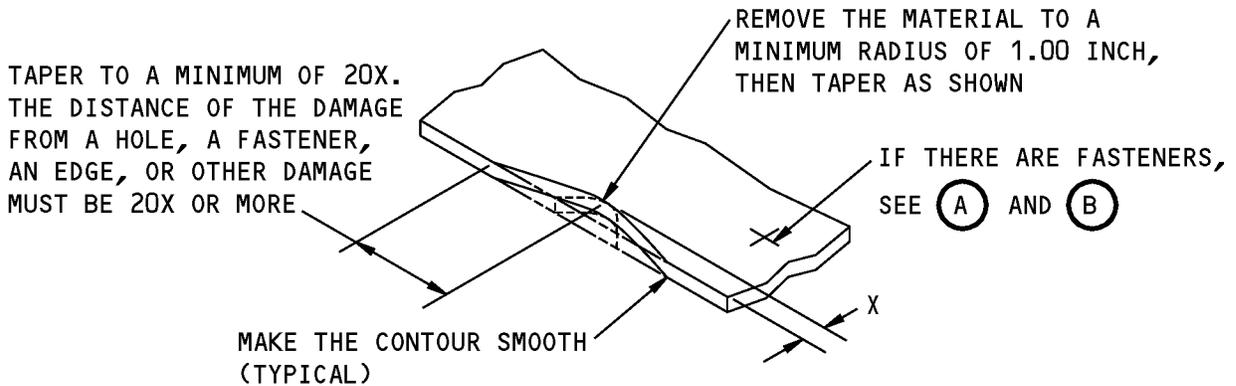
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



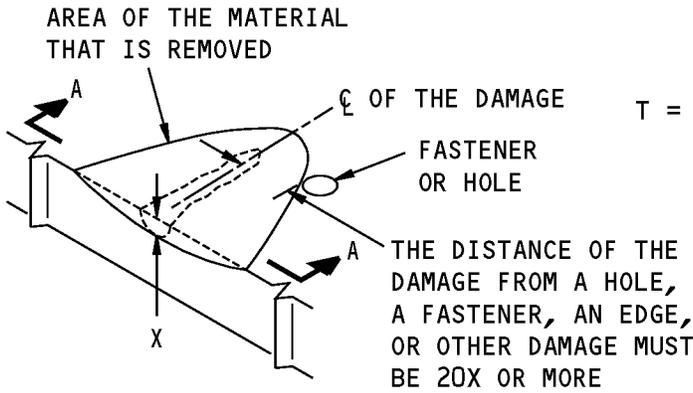
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

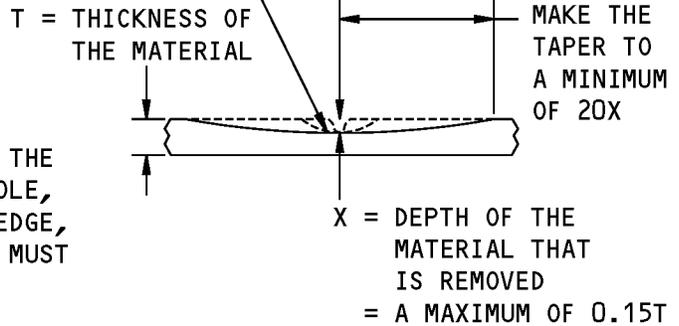
(C)

Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover
Figure 104 (Sheet 1 of 3)

STRUCTURAL REPAIR MANUAL



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

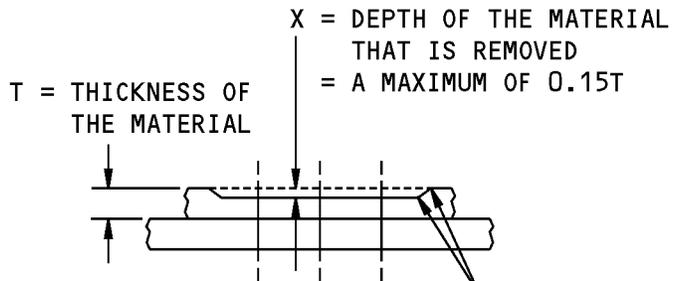
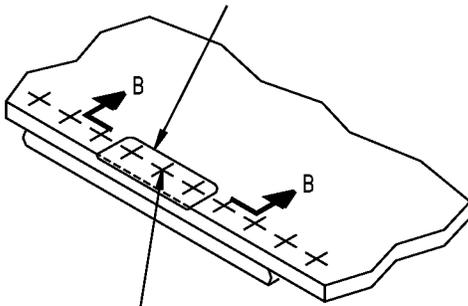


REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

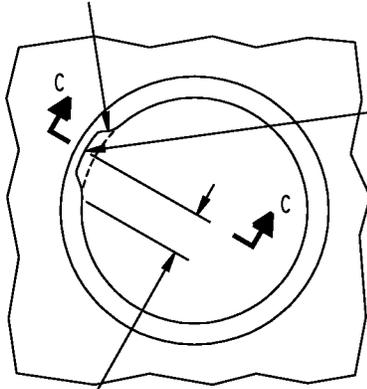
(E)

B-B

Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover
Figure 104 (Sheet 2 of 3)

STRUCTURAL REPAIR MANUAL

REMOVAL OF MATERIAL IS PERMITTED IN ONE LOCATION ONLY

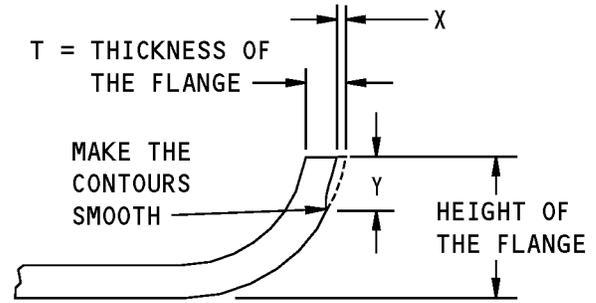


REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

TAPER TO A MINIMUM OF 20X

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A FLANGED HOLE

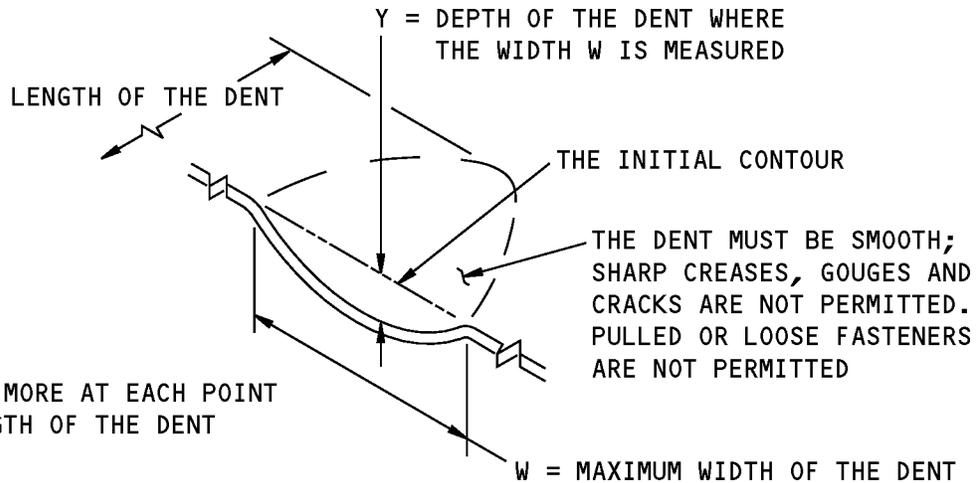
(F)



X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15T

Y = LENGTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 50 PERCENT OF THE FLANGE HEIGHT, OR 1.10 INCHES, THAT WHICH IS LESS

C-C



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

(G)

Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover
Figure 104 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks.
 - 2) Nicks, Scratches, Gouges, and Corrosion.
 - 3) Holes and Punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1.

Table 101:

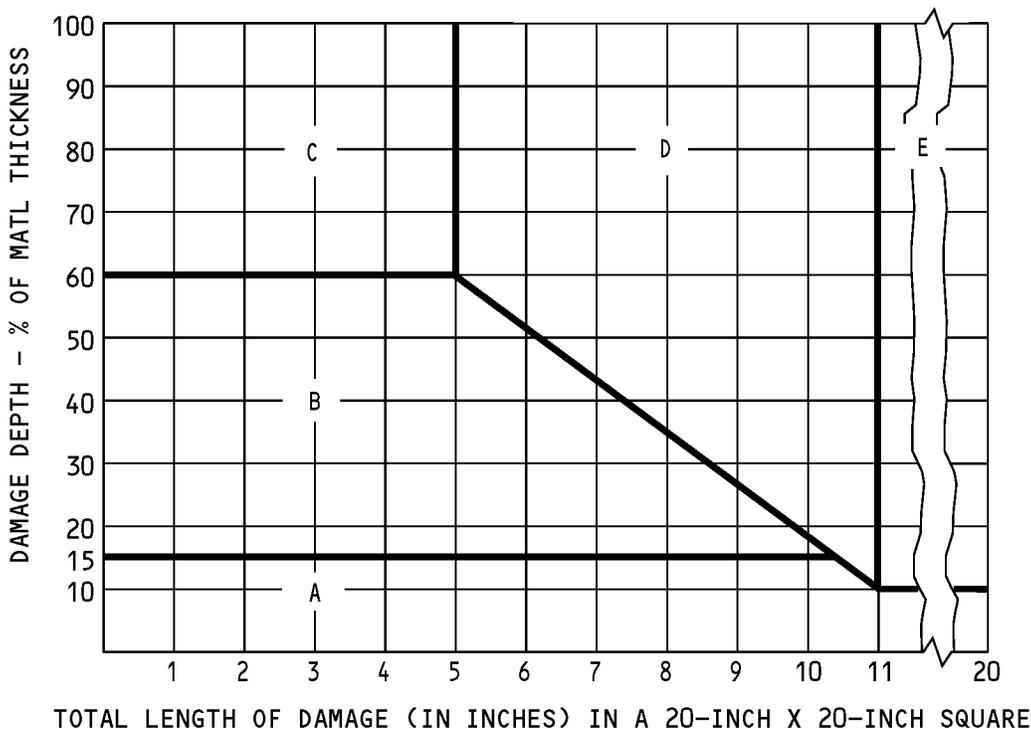
PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits



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STRUCTURAL REPAIR MANUAL**

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits.
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

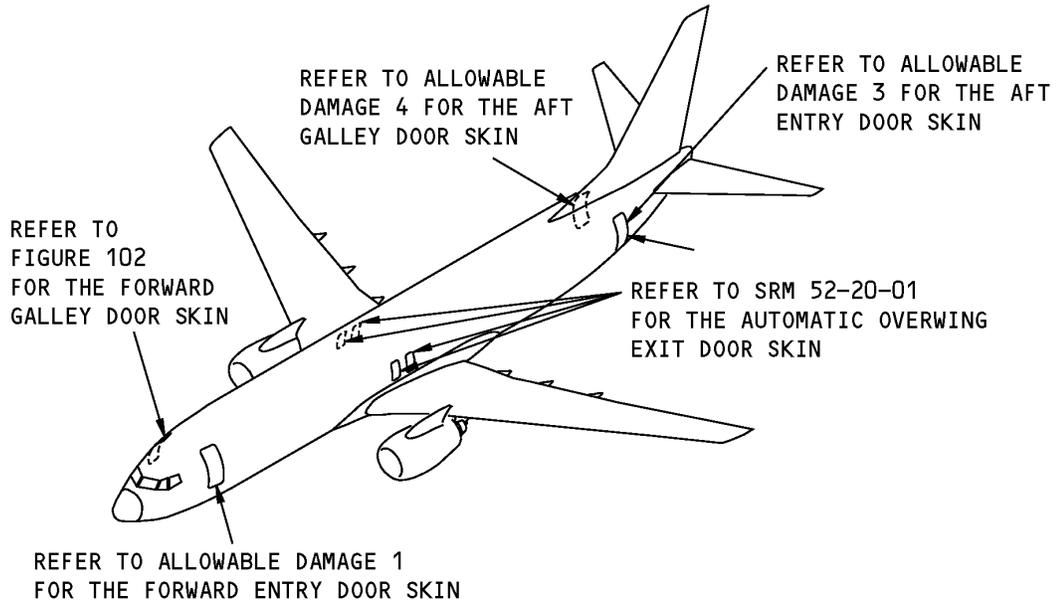
**Damage Limits for the Pressurized External Skin
Figure 105**

STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 2 - FORWARD GALLEY DOOR SKIN

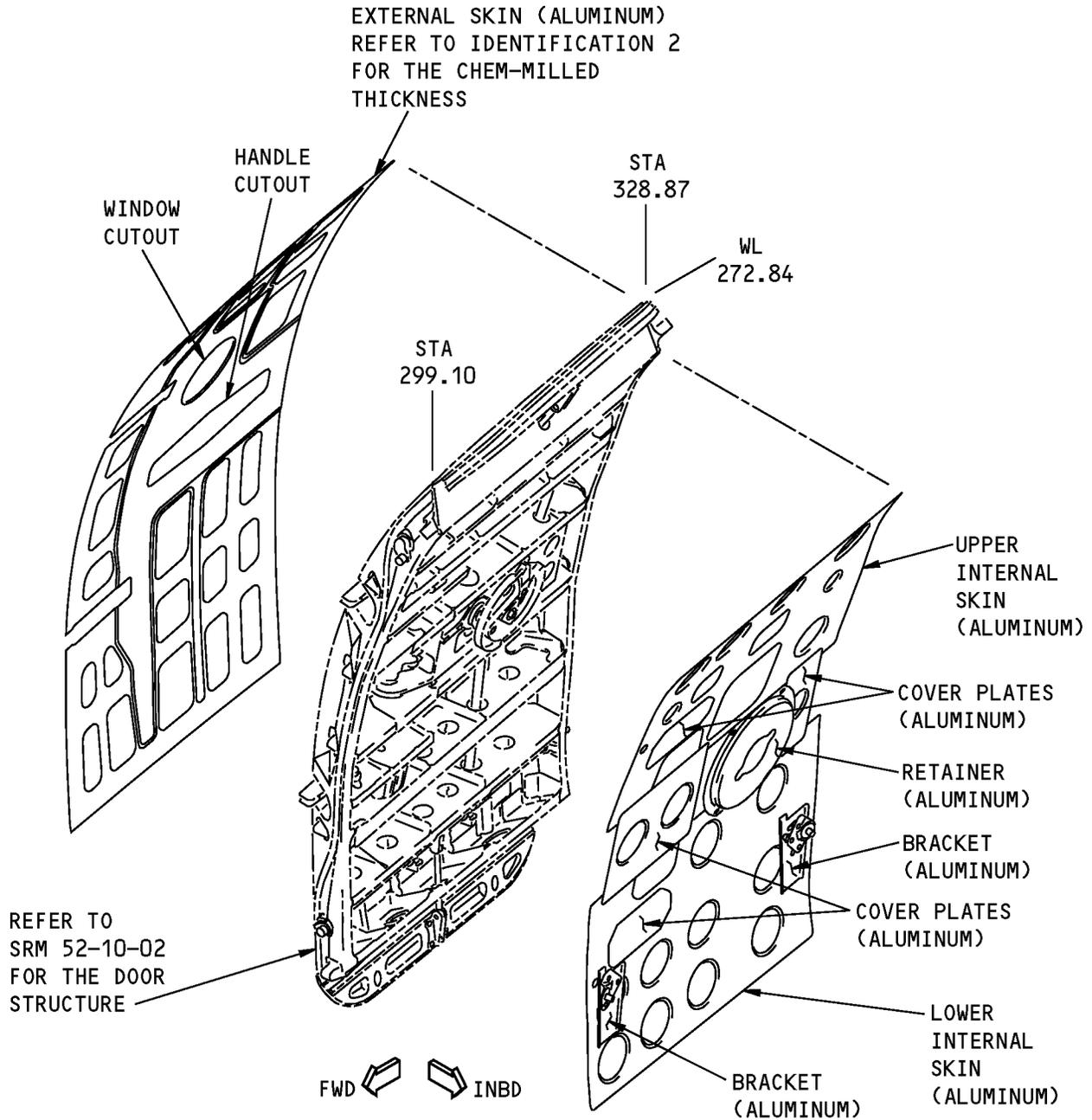
1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the forward galley door shown in Forward Galley Door Skin Location, Figure 101/ALLOWABLE DAMAGE 2 and Forward Galley Door Skin, Figure 102/ALLOWABLE DAMAGE 2.



**Forward Galley Door Skin Location
Figure 101**

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FORWARD GALLEY DOOR

**Forward Galley Door Skin
Figure 102**



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2. General

- A. The forward galley door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 2
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. External Skin:

ALLOWABLE DAMAGE 2

52-10-01

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- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 2 for the flight operation limits.
- (2) Cracks:
 - (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.
- (3) Nicks, Scratches, Gouges and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , and E .
 - (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.
- (4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F .
 - (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) There are no damaged fastener holes.
 - 3) There are no creases, gouges, or cracks near the dent.
 - 4) You do not fill the dent.
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- (5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 2 and Paragraph 5./ALLOWABLE DAMAGE 2

 - (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
 - 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:

ALLOWABLE DAMAGE 2

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- 1) Remove the damage to a circular or oval shape.
- 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.

B. Internal Skins, Bracket, Cover Plate, and Retainer:

(1) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

(a) Dents are permitted as follows:

- 1) Dents are permitted without filling or rework if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F .

(b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F , that cannot be repaired immediately is permitted if:

- 1) There are no loose or missing fasteners.
- 2) There are no damaged fastener holes.
- 3) There are no creases, gouges, or cracks near the dent.
- 4) You do not fill the dent.
- 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

(2) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 2 and Paragraph 5./ALLOWABLE DAMAGE 2

(a) Damage is permitted if:

- 1) It is a maximum of 0.25 inch in diameter.
- 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
- 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.

(b) If you find damage that is larger than 0.25 inch in diameter, do as follows:

- 1) Remove the damage to a circular or oval shape.
- 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.

(3) Dents:

- (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 2, Detail G .

(4) Holes and Punctures:

ALLOWABLE DAMAGE 2

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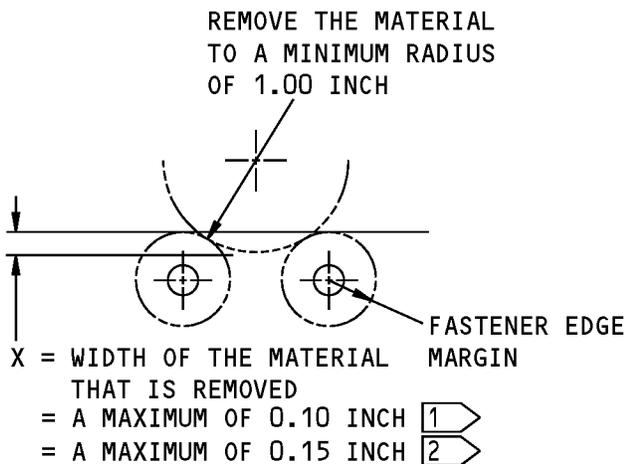


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STRUCTURAL REPAIR MANUAL

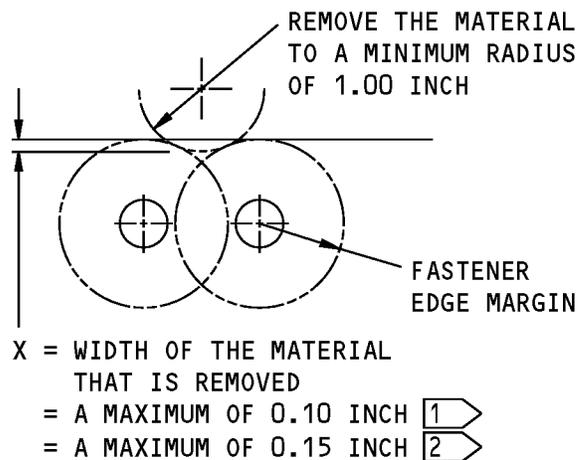
- (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

STRUCTURAL REPAIR MANUAL



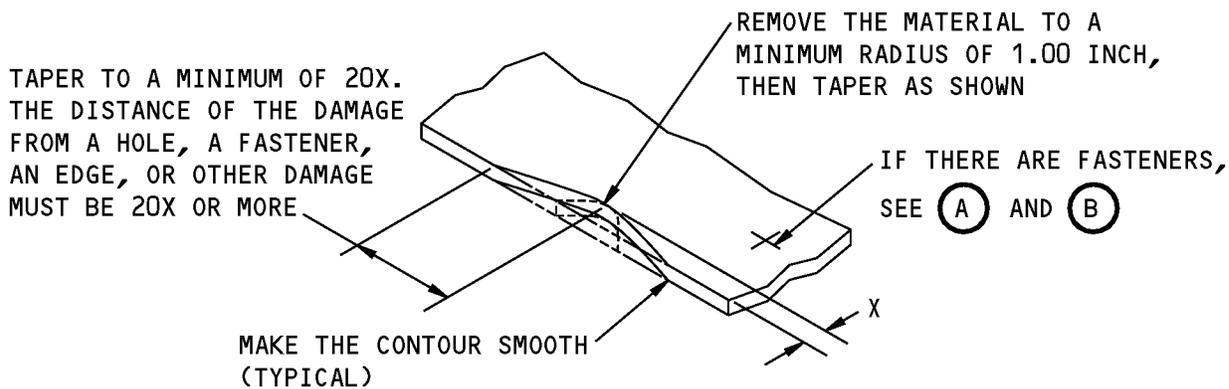
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH 1
 = A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

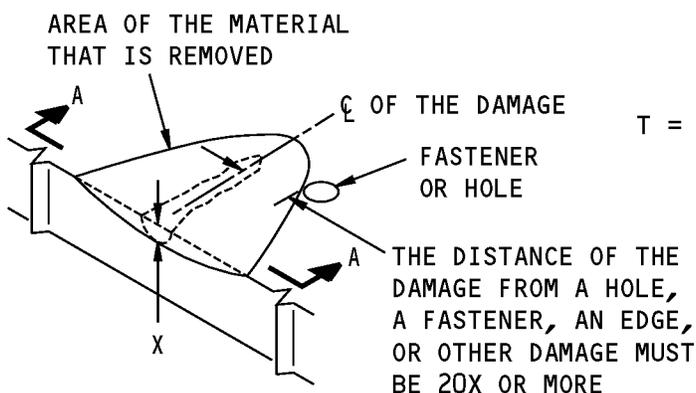
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)

STRUCTURAL REPAIR MANUAL

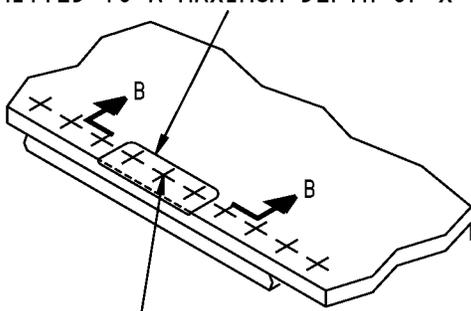


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

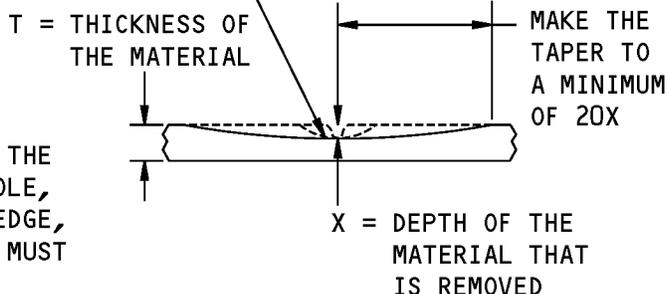
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



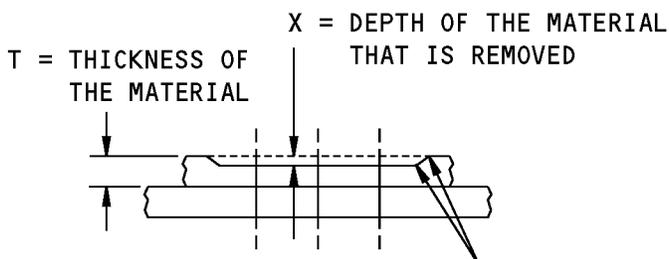
**Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)**

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

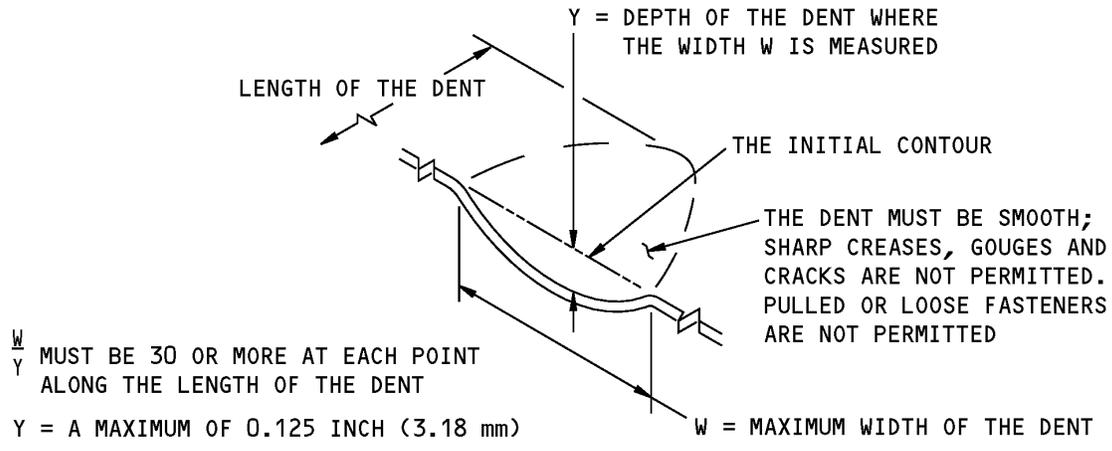
A-A



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.
B-B

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STRUCTURAL REPAIR MANUAL

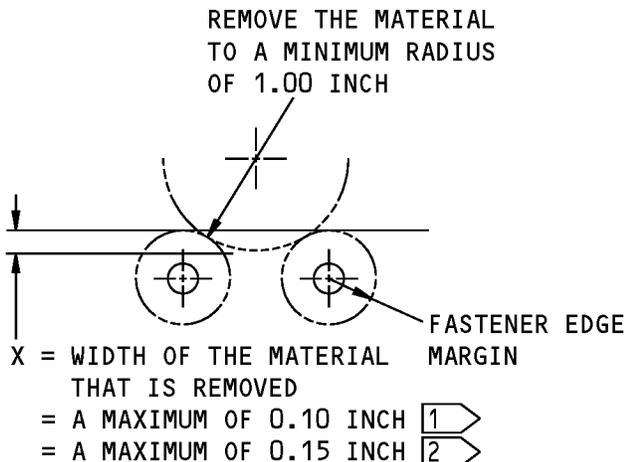


DENT THAT IS PERMITTED



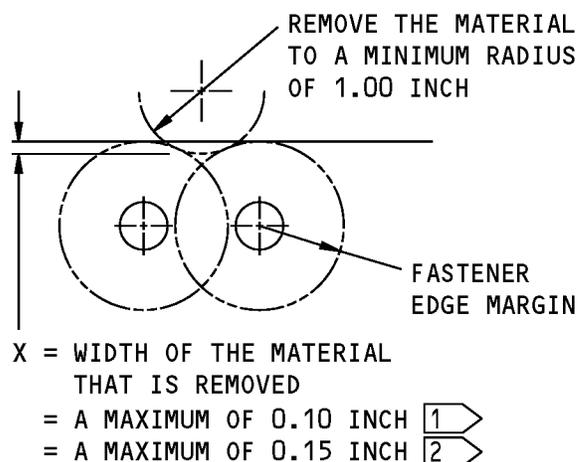
Allowable Damage Limits - External Skin
Figure 103 (Sheet 3 of 3)

STRUCTURAL REPAIR MANUAL



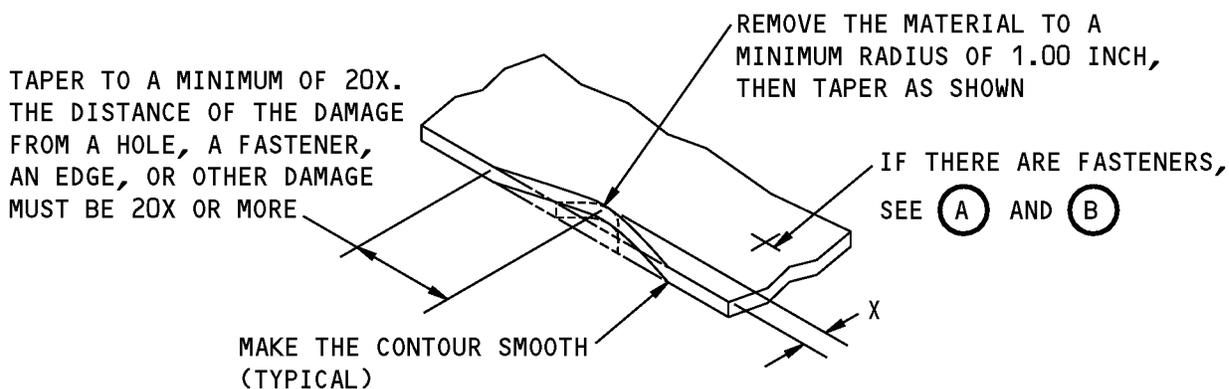
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH 1
 = A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

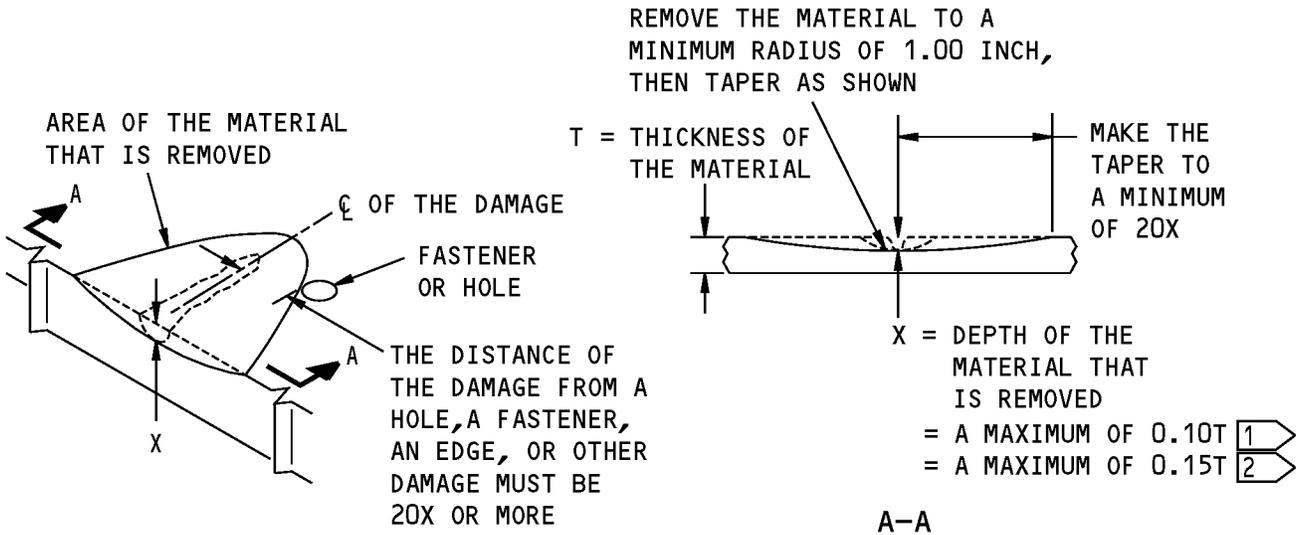
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
 Figure 104 (Sheet 1 of 3)

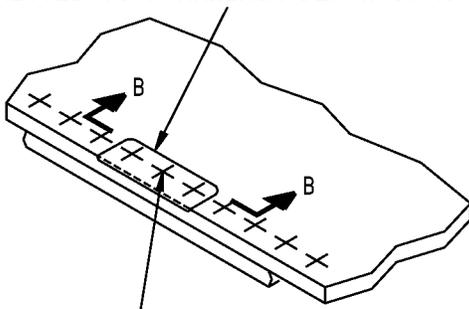
STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

D

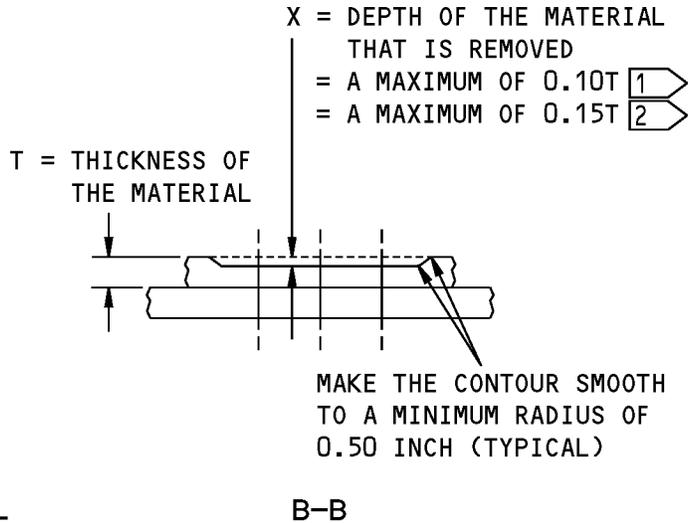
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

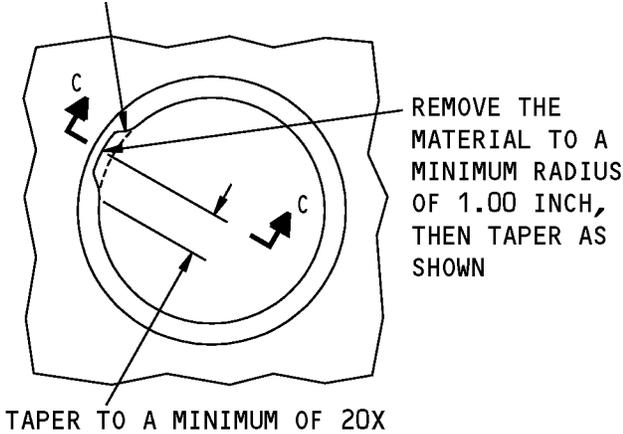
E



Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 2 of 3)

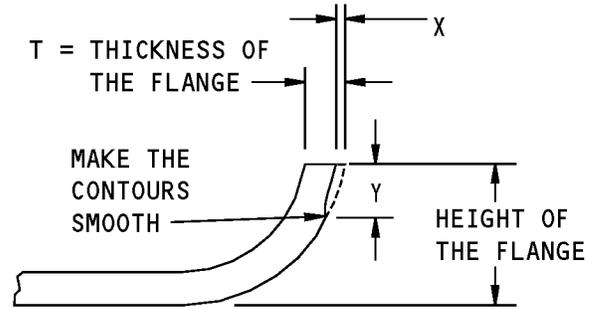
STRUCTURAL REPAIR MANUAL

REMOVAL OF MATERIAL IS PERMITTED IN ONE LOCATION ONLY



REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A FLANGED HOLE

(F)



X = DEPTH OF THE MATERIAL THAT IS REMOVED

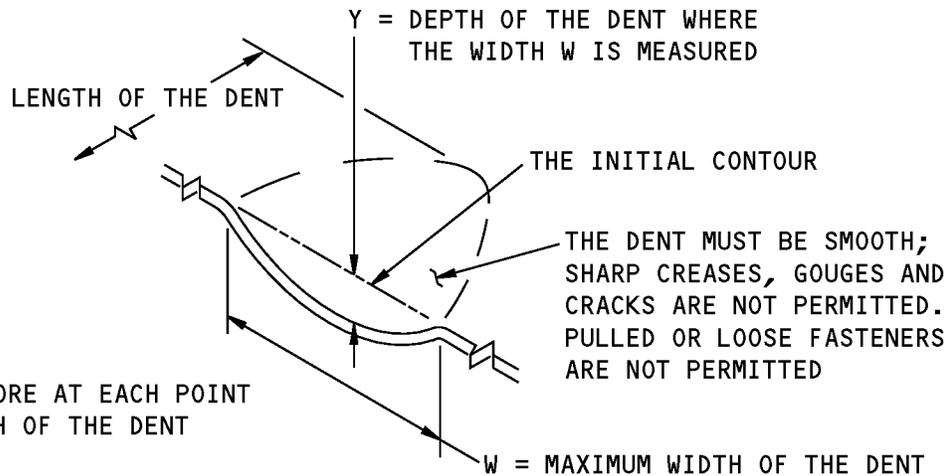
= A MAXIMUM OF 0.10T 1

= A MAXIMUM OF 0.15T 2

Y = LENGTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 50 PERCENT OF THE FLANGE HEIGHT, OR 1.10 INCHES, (2.79 mm) THAT WHICH IS LESS

C-C



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

(G)

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 3 of 3)



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5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage on the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 is applicable to:
 - 1) Cracks.
 - 2) Nicks, Scratches, Gouges, and Corrosion.
 - 3) Holes and Punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 2 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2.

Table 101:

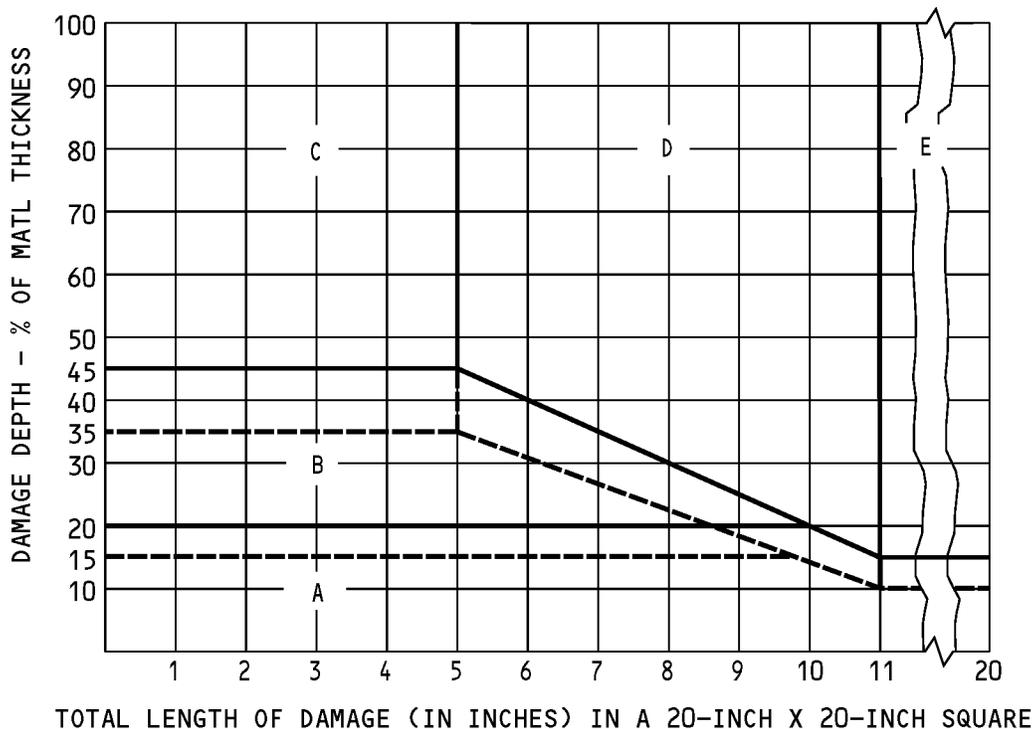
PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits



**737-800
STRUCTURAL REPAIR MANUAL**

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits.
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

----- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

———— FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

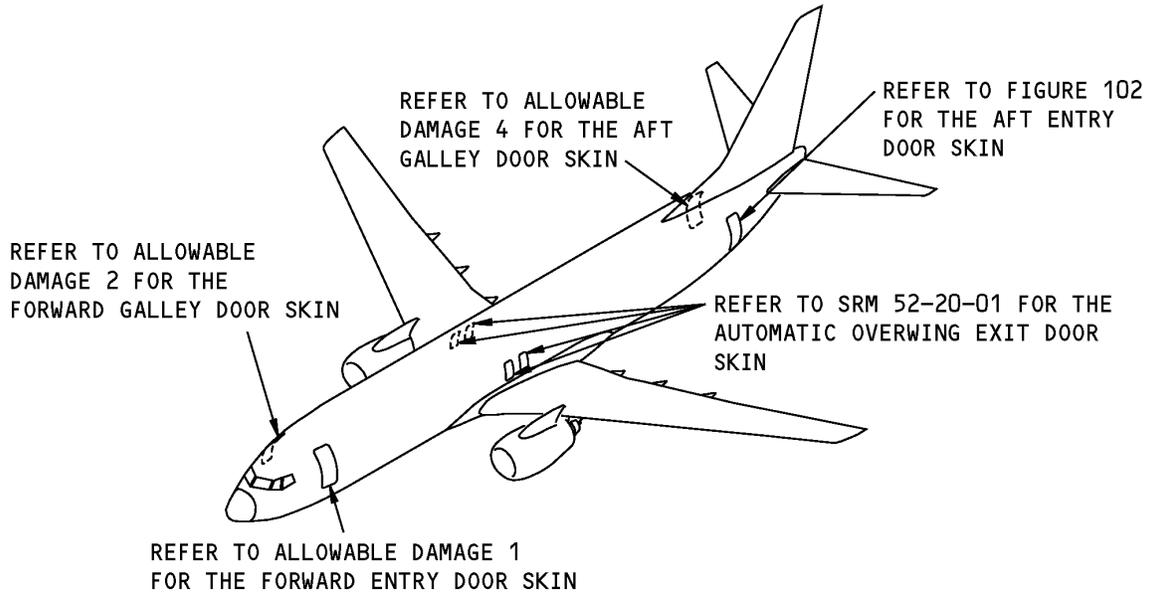
**Damage Limits for the Pressurized External Skin
Figure 105**

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ALLOWABLE DAMAGE 3 - AFT ENTRY DOOR SKIN

1. Applicability

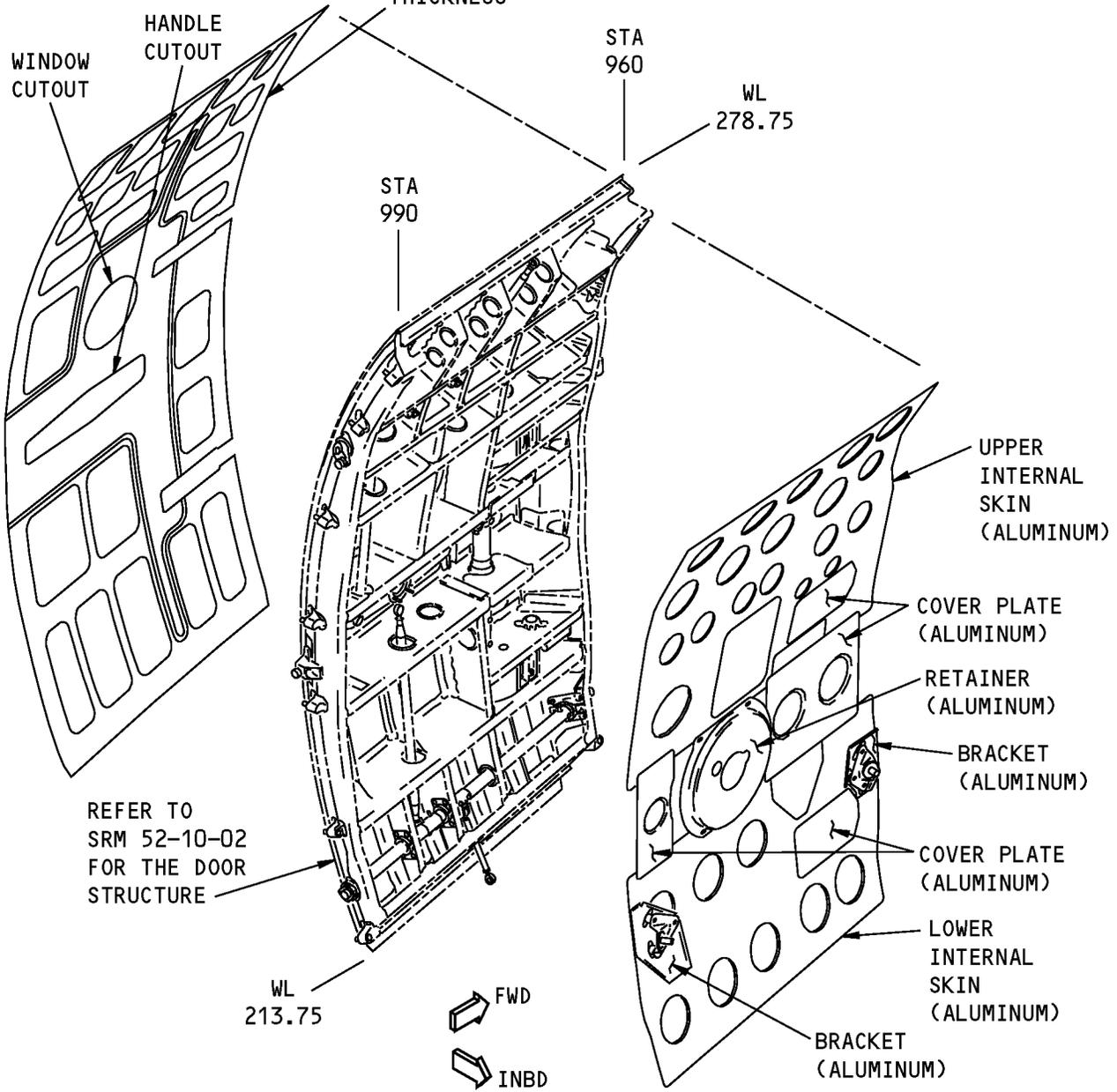
- A. This subject gives the allowable damage limits for the external and internal skins on the aft entry door shown in Aft Entry Door Skin Location, Figure 101/ALLOWABLE DAMAGE 3 and Aft Entry Door Skin, Figure 102/ALLOWABLE DAMAGE 3.



Aft Entry Door Skin Location
Figure 101

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EXTERNAL SKIN (ALUMINUM)
REFER TO IDENTIFICATION 3
FOR THE CHEM-MILLED
THICKNESS



AFT ENTRY DOOR

**Aft Entry Door Skin
Figure 102**



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2. General

- A. The aft entry door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 3
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 3

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. External Skin:



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- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 3 for the flight operation limits.
- (2) Cracks:
 - (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3, and Table 101 for the flight operation limits.
- (3) Nicks, Scratches, Gouges and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 3, Details A , B , C , D , and E .
 - (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3, and Table 101 for the flight operation limits.
- (4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 3, Detail F .
 - (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 3, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) There are no damaged fastener holes.
 - 3) There are no creases, gouges, or cracks near the dent.
 - 4) You do not fill the dent.
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- (5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 3 and Paragraph 5./ALLOWABLE DAMAGE 3

 - (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
 - 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:

ALLOWABLE DAMAGE 3

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- 1) Remove the damage to a circular or oval shape.
- 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3, and Table 101 for the flight operation limits.

B. Internal Skins, Bracket, Cover Plate, and Retainer:

(1) Cracks:

- (a) Remove the damage at an edge as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 3, Detail A , B , and C .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 3, Details A , B , C , D , E and F .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

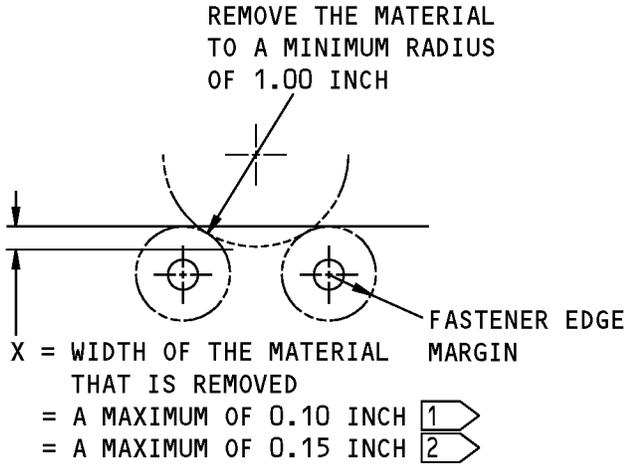
(3) Dents:

- (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 3, Detail G .

(4) Holes and Punctures:

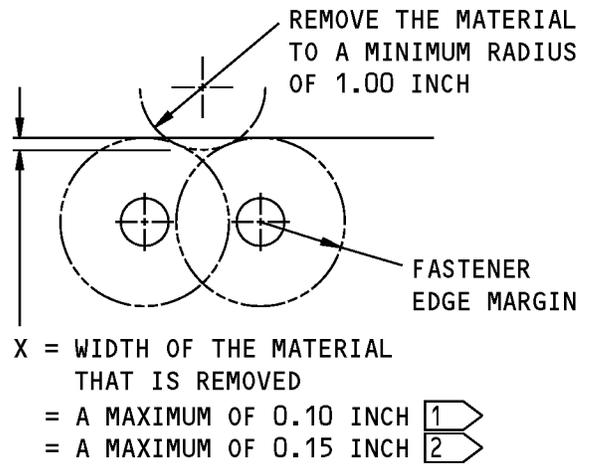
- (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

STRUCTURAL REPAIR MANUAL



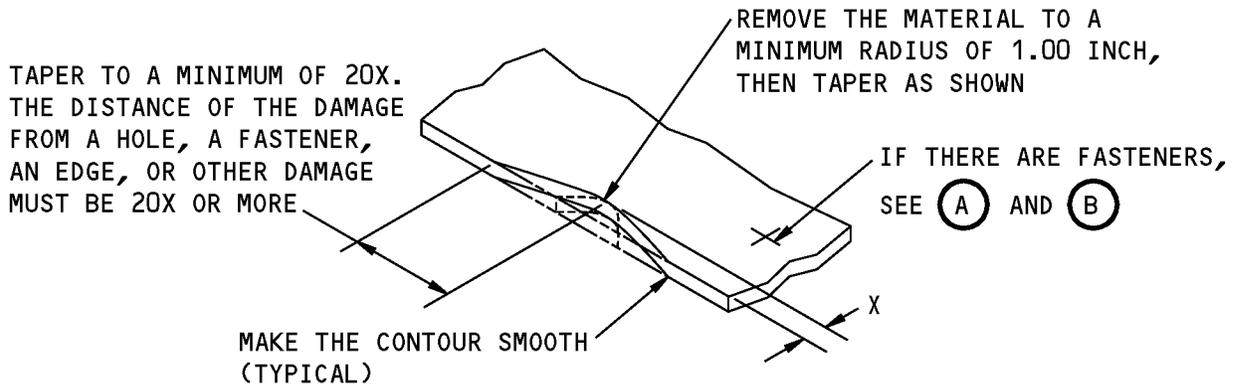
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 0.10 INCH 1

= A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

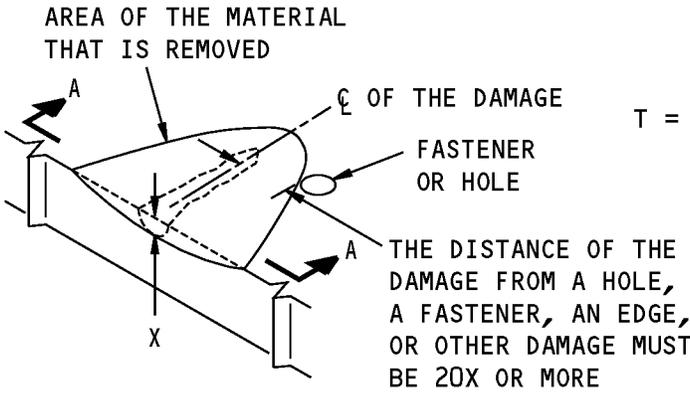
(C)

NOTES

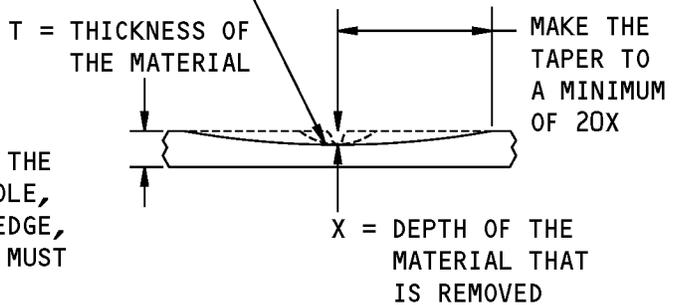
- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)

STRUCTURAL REPAIR MANUAL



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN



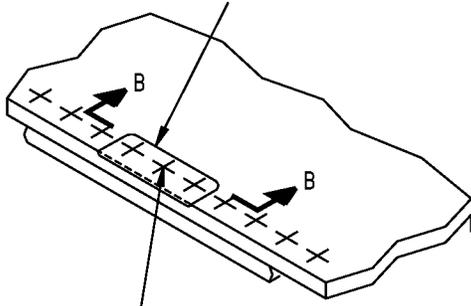
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

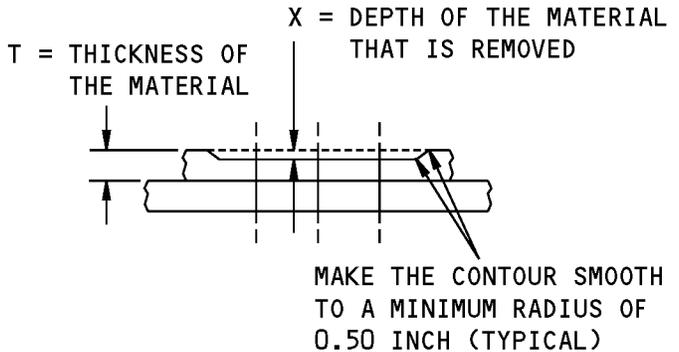
REMOVAL OF DAMAGED MATERIAL ON A SURFACE



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

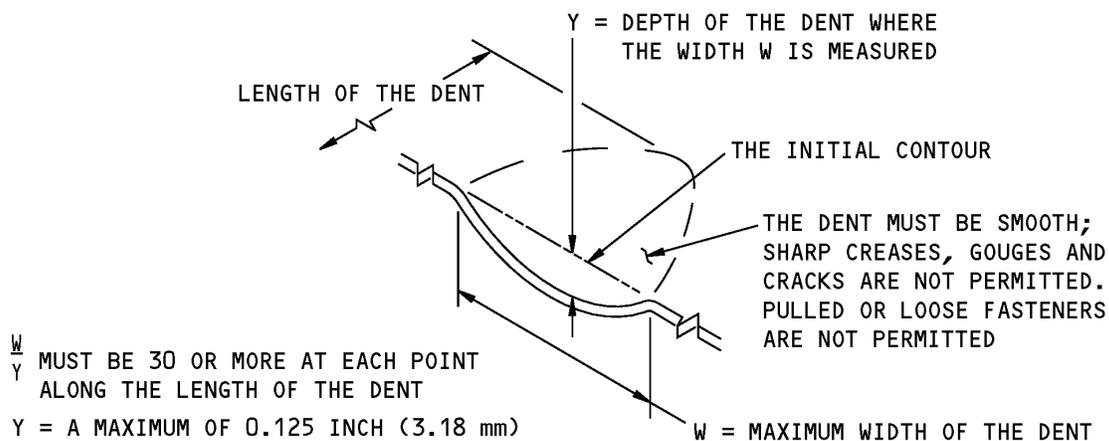
REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



B-B

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)**

**737-800
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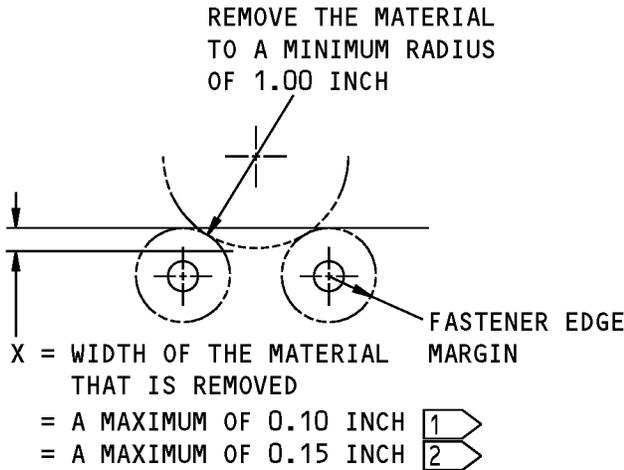


DENT THAT IS PERMITTED



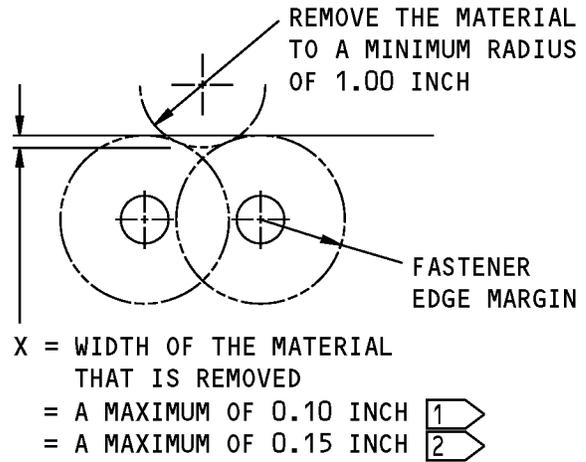
**Allowable Damage Limits - External Skin
Figure 103 (Sheet 3 of 3)**

STRUCTURAL REPAIR MANUAL



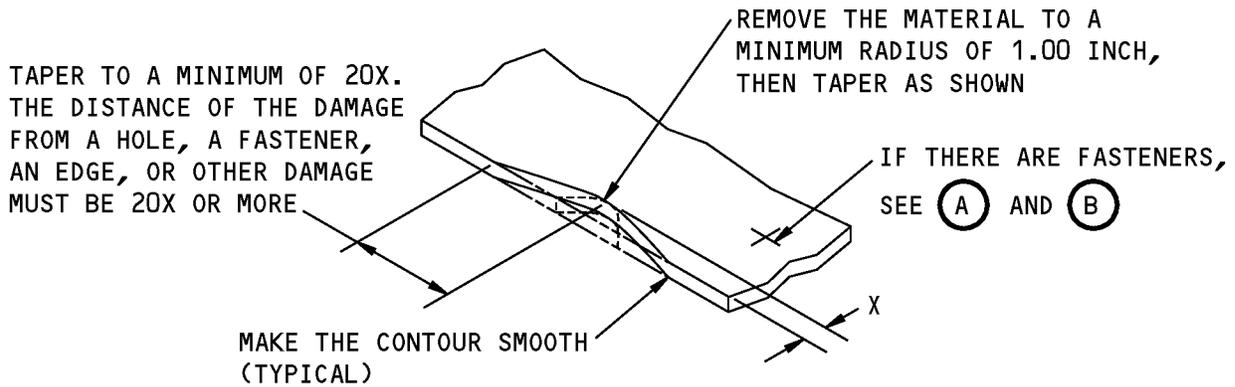
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 0.10 INCH 1

= A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

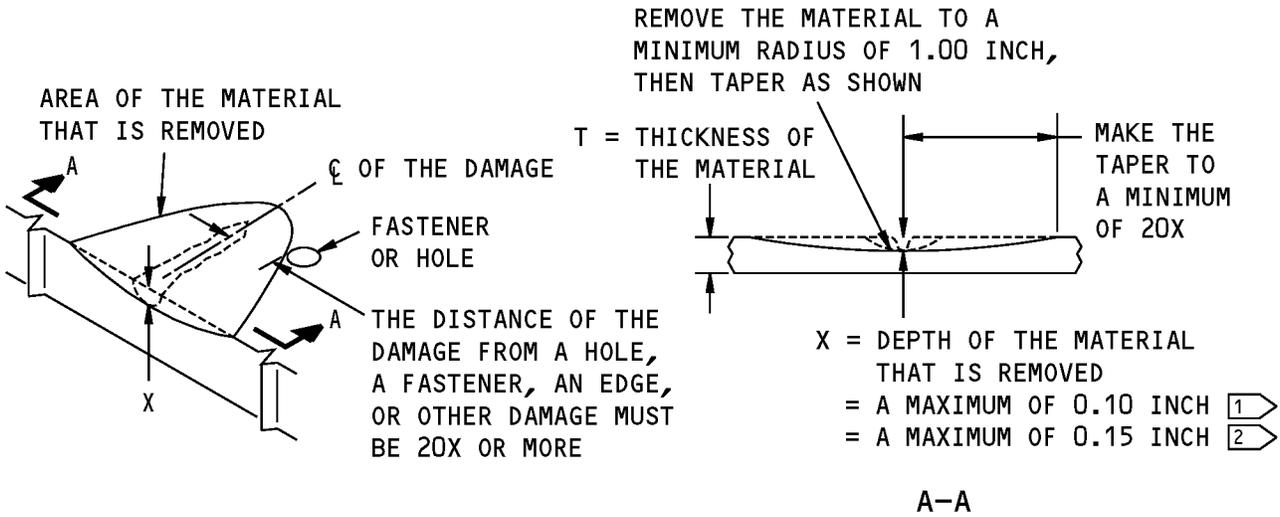
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 1 of 3)

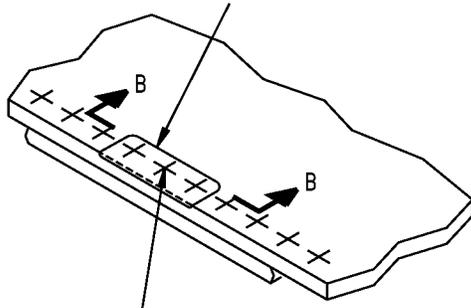
STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

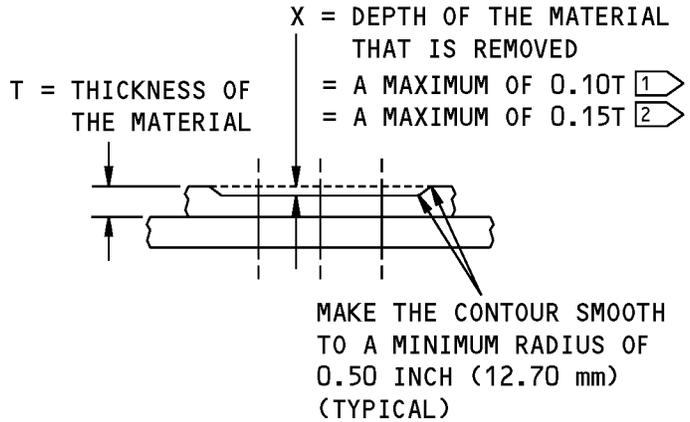
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

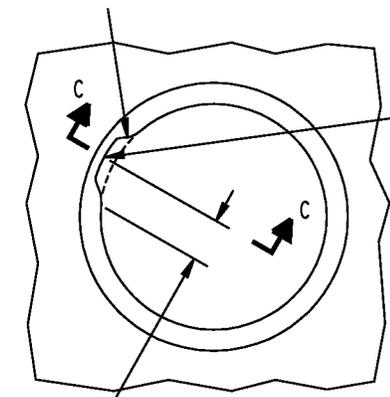


B-B

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 2 of 3)

STRUCTURAL REPAIR MANUAL

REMOVAL OF MATERIAL IS PERMITTED IN ONE LOCATION ONLY

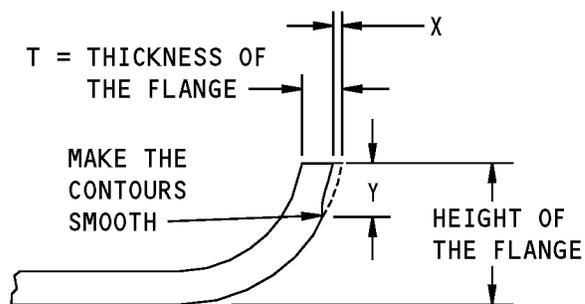


REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN

TAPER TO A MINIMUM OF 20X

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A FLANGED HOLE

F



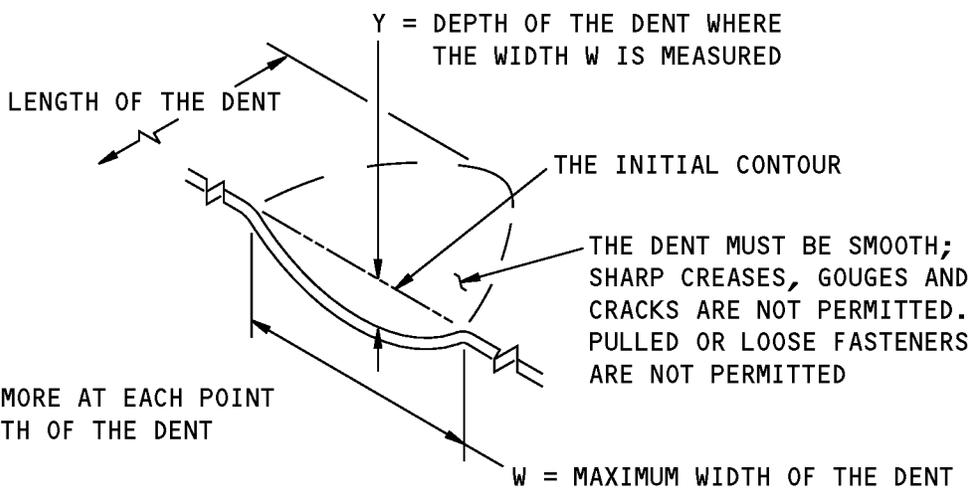
X = DEPTH OF THE MATERIAL THAT IS REMOVED

- = A MAXIMUM OF 0.10T
- = A MAXIMUM OF 0.15T

Y = LENGTH OF THE MATERIAL THAT IS REMOVED

- = A MAXIMUM OF 50 PERCENT OF THE FLANGE HEIGHT, OR 1.10 INCHES, THAT WHICH IS LESS

C-C



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

G

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and Punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 3 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3.

Table 101:

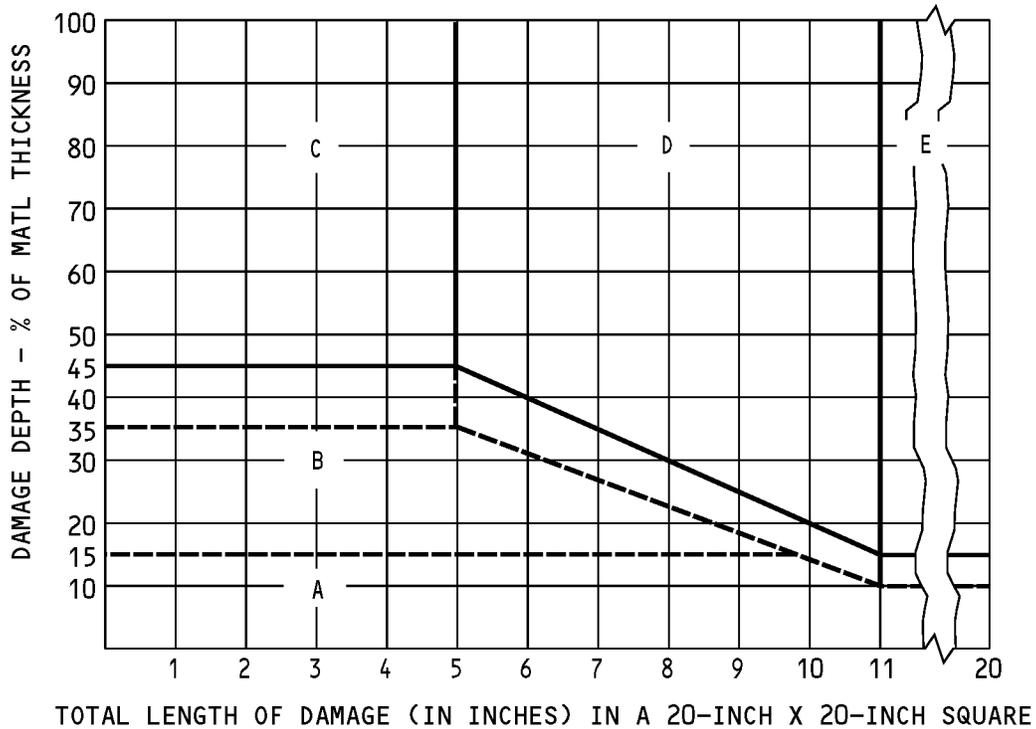
PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits



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STRUCTURAL REPAIR MANUAL**

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

**737-800
STRUCTURAL REPAIR MANUAL**



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

----- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

———— FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

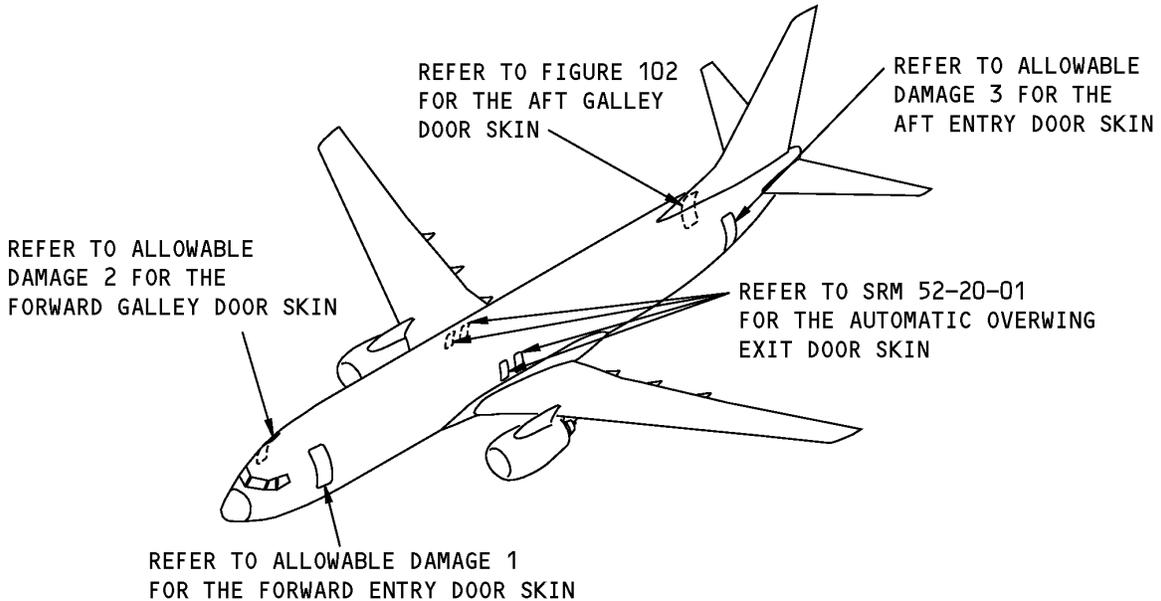
**Damage Limits for the Pressurized External Skin
Figure 105**

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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 4 - AFT GALLEY DOOR SKIN

1. Applicability

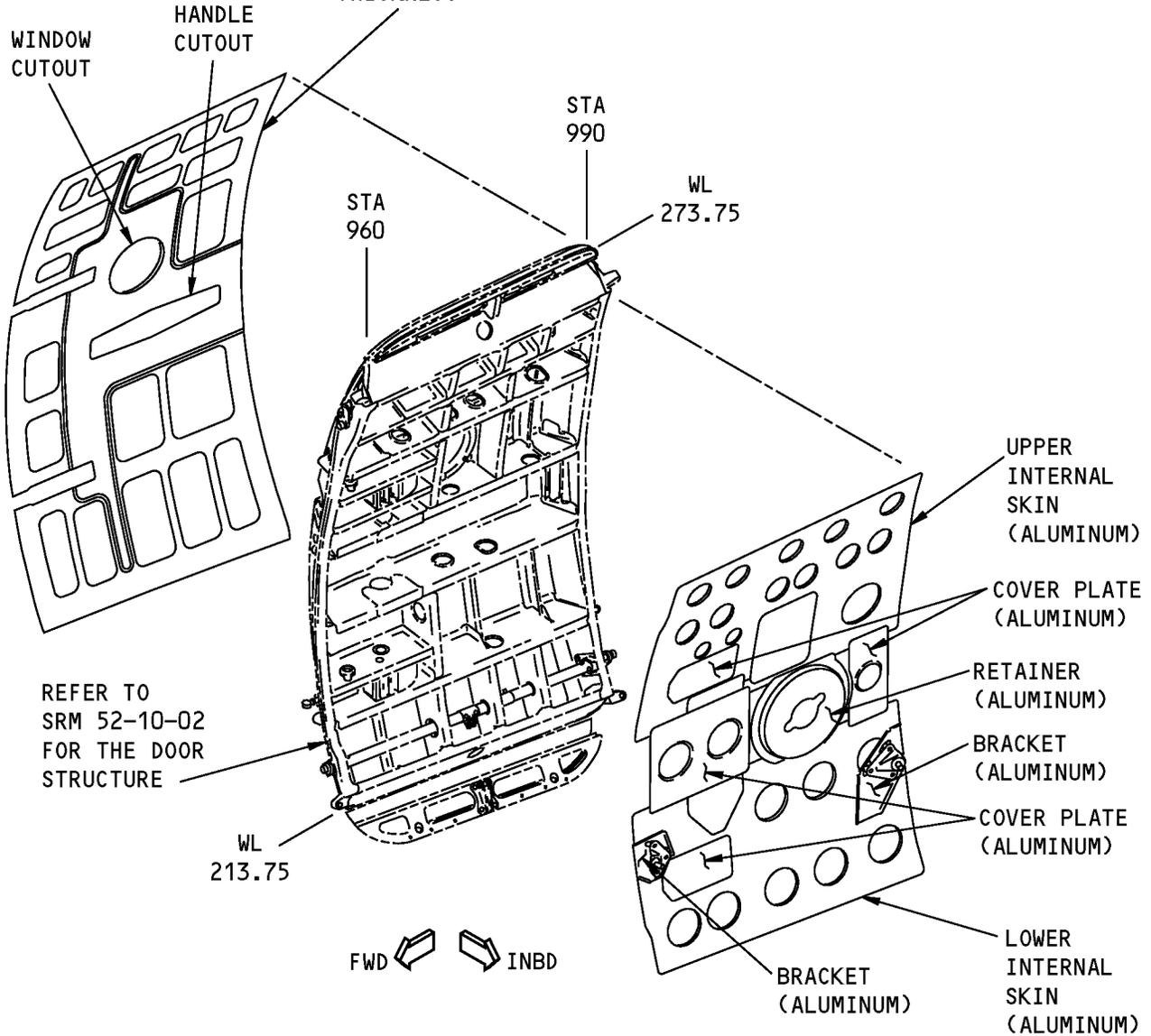
- A. This subject gives the allowable damage limits for the external and internal skins on the aft galley door shown in Aft Galley Door Skin Location, Figure 101/ALLOWABLE DAMAGE 4 and Aft Galley Door Skin, Figure 102/ALLOWABLE DAMAGE 4.



Aft Galley Door Skin Location
Figure 101

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STRUCTURAL REPAIR MANUAL**

EXTERNAL SKIN (ALUMINUM)
REFER TO IDENTIFICATION 4
FOR THE CHEM-MILLED
THICKNESS



AFT GALLEY DOOR

**Aft Galley Door Skin
Figure 102**

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2. General

- A. The aft galley door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 4
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 4

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. External Skin:



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- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 4 for the flight operation limits.
- (2) Cracks:
 - (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4, and Table 101 for the flight operation limits.
- (3) Nicks, Scratches, Gouges and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , C , D , and E .
 - (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4, and Table 101 for the flight operation limits.
- (4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 4, Detail F .
 - (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 4, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners
 - 2) There are no damaged fastener holes
 - 3) There are no creases, gouges, or cracks near the dent
 - 4) You do not fill the dent
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- (5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 4 and Paragraph 5./ALLOWABLE DAMAGE 4

 - (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
 - 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - (b) If you find damage that is larger than 0.25 inch in diameter, do as follows:

ALLOWABLE DAMAGE 4

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- 1) Remove the damage to a circular or oval shape.
- 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4, and Table 101 for the flight operation limits.

B. Internal Skins, Bracket, Cover Plate, and Retainer:

(1) Cracks:

- (a) Remove the damage at an edge as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 4, Detail A , B , and C .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 4, Details A , B , C , D , E and F .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

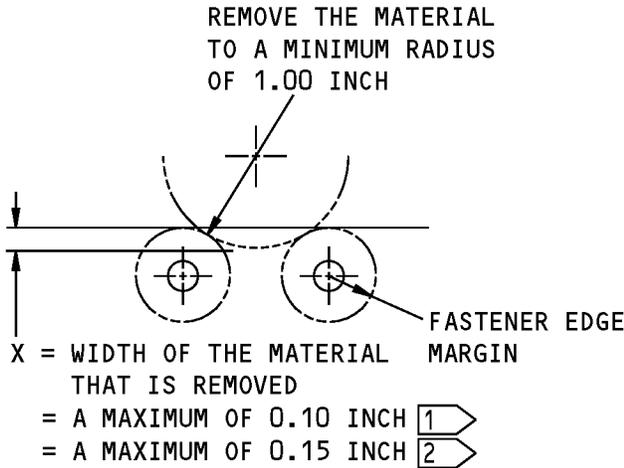
(3) Dents:

- (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 4, Detail G .

(4) Holes and Punctures:

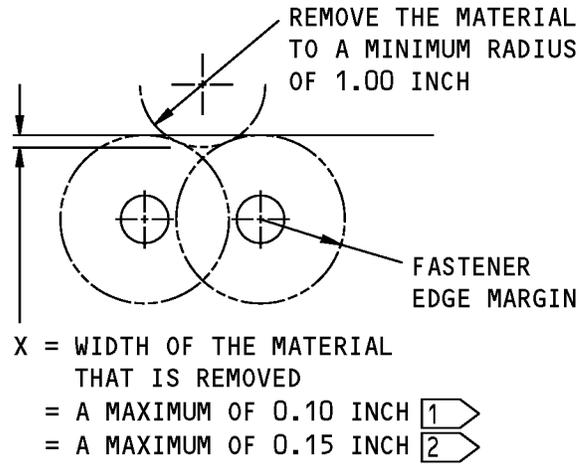
- (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

STRUCTURAL REPAIR MANUAL



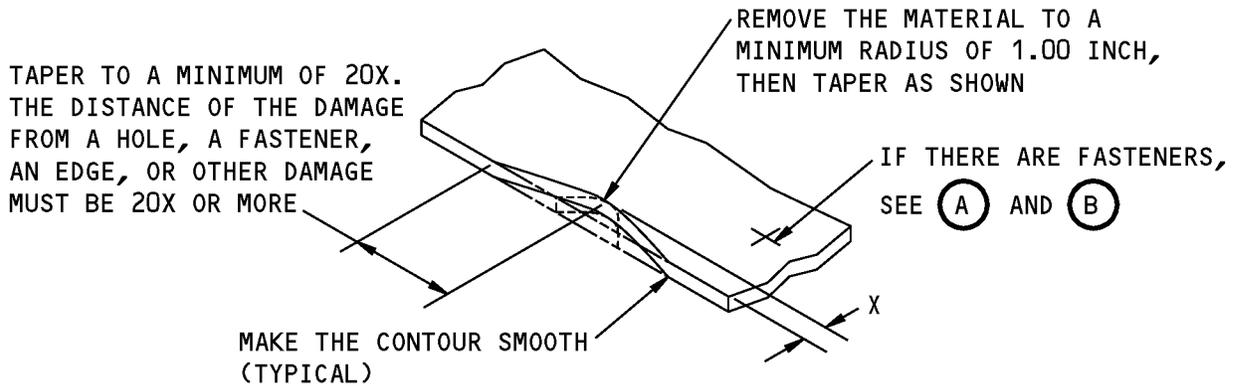
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

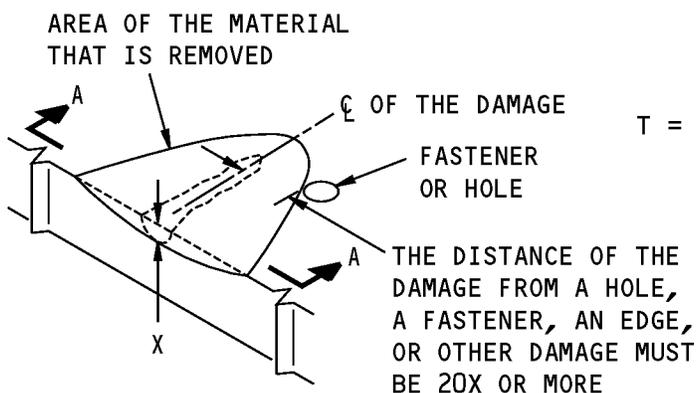
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)**

STRUCTURAL REPAIR MANUAL

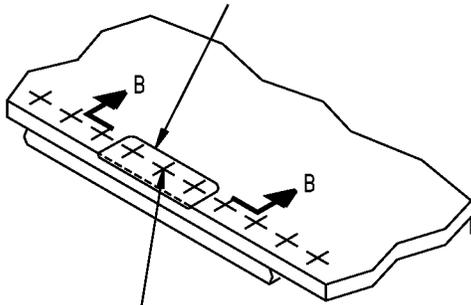


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



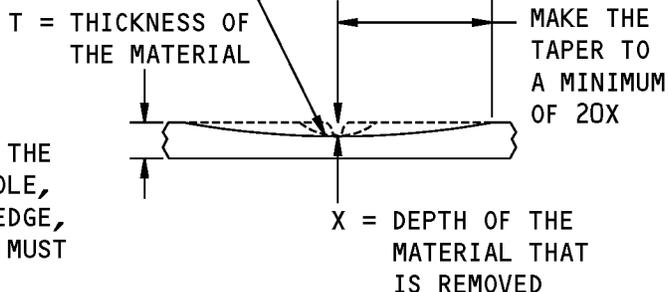
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

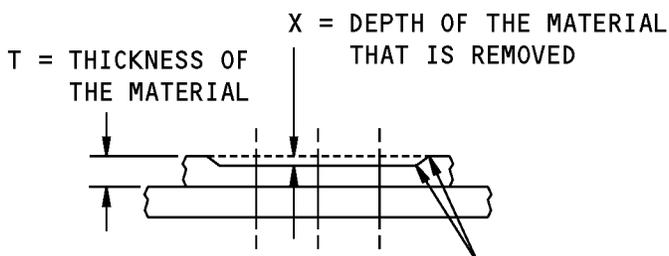


REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

A-A

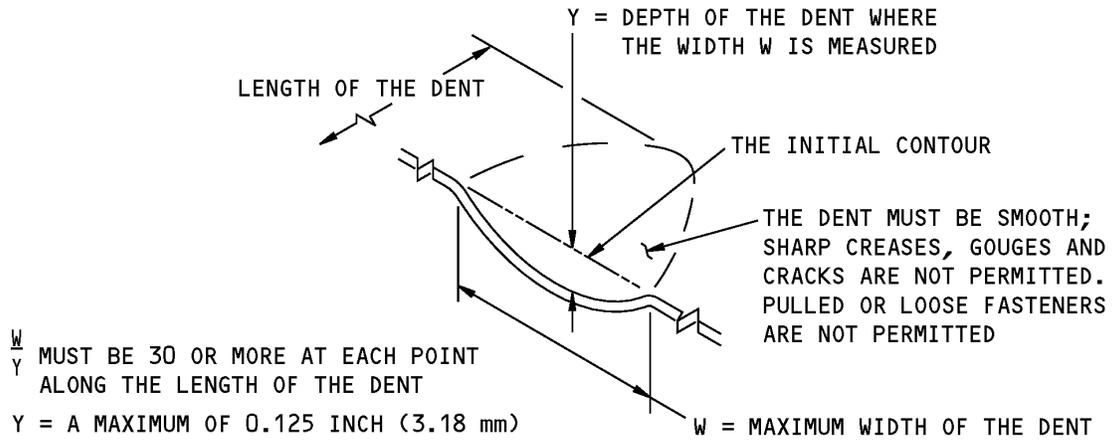


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

B-B

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)**

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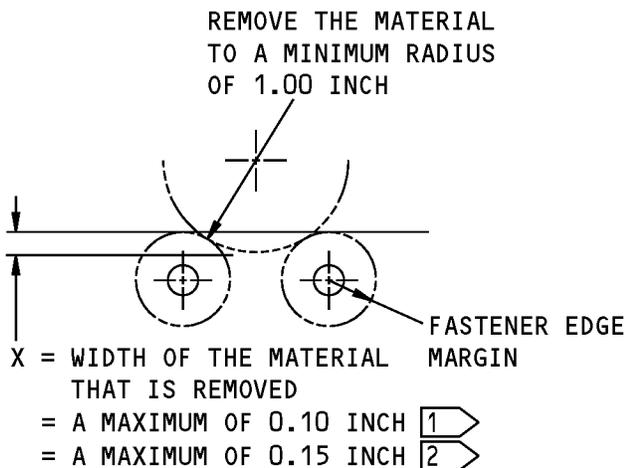


DENT THAT IS PERMITTED



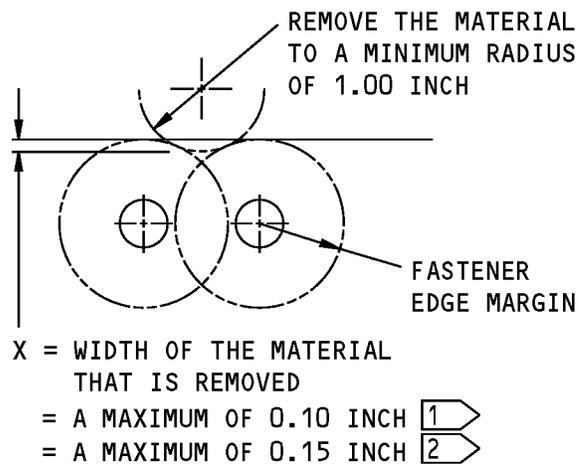
**Allowable Damage Limits - External Skin
Figure 103 (Sheet 3 of 3)**

STRUCTURAL REPAIR MANUAL



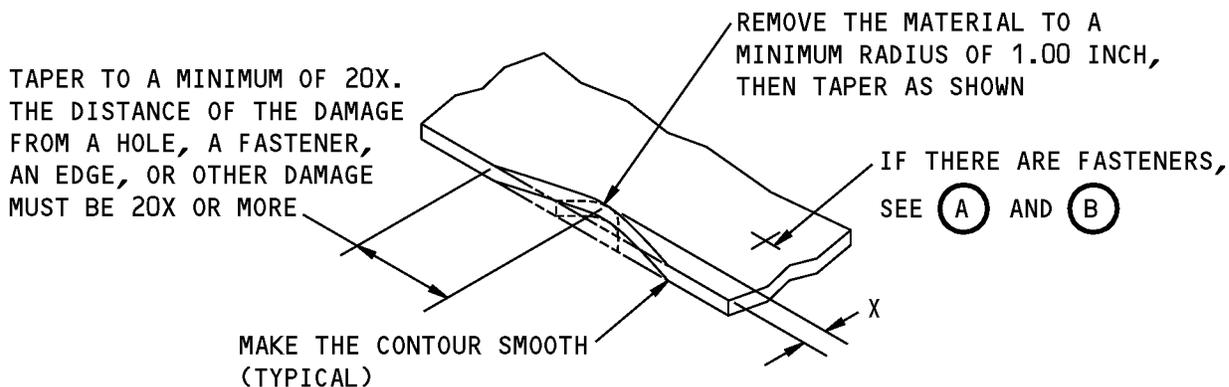
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

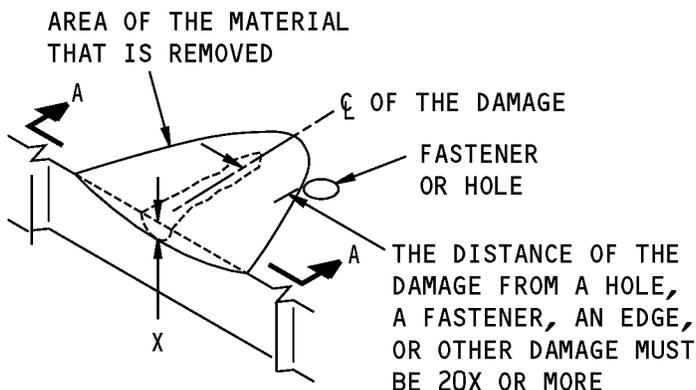
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

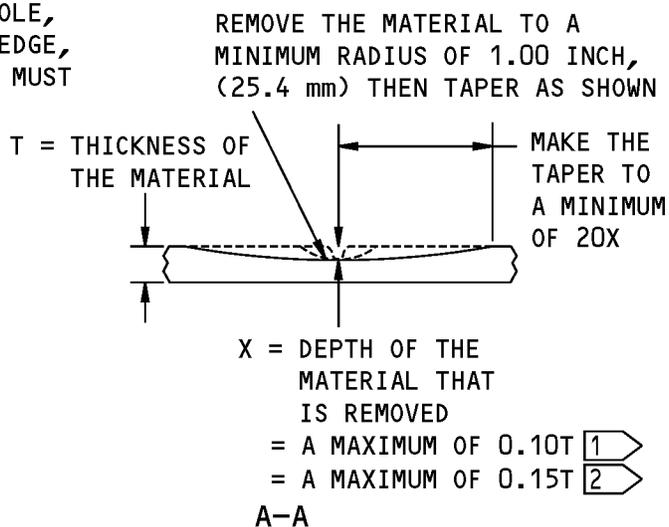
Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 1 of 3)

STRUCTURAL REPAIR MANUAL

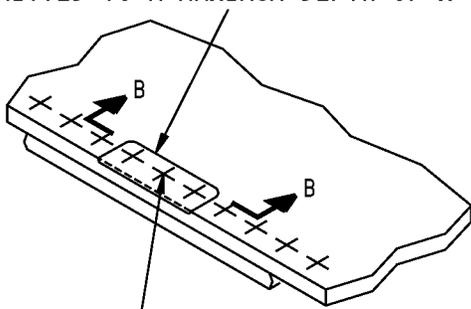


REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)



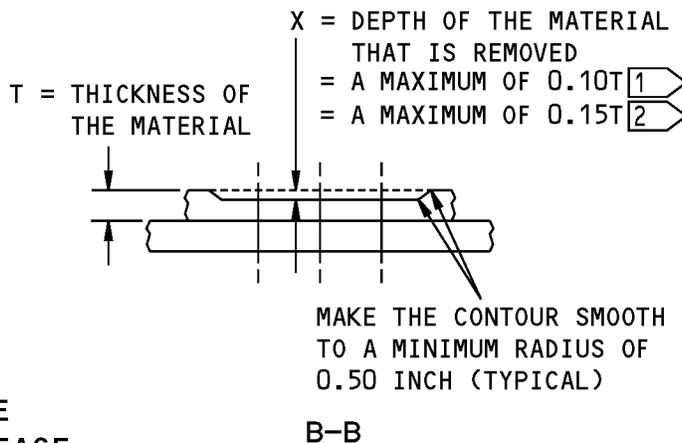
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

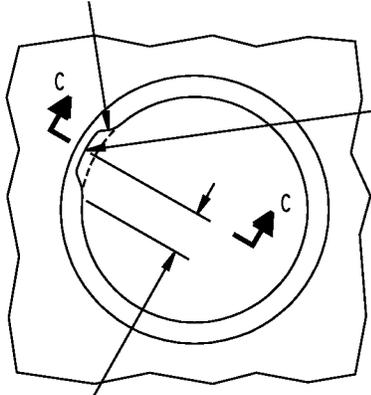
(E)



Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 2 of 3)

STRUCTURAL REPAIR MANUAL

REMOVAL OF MATERIAL IS PERMITTED IN ONE LOCATION ONLY

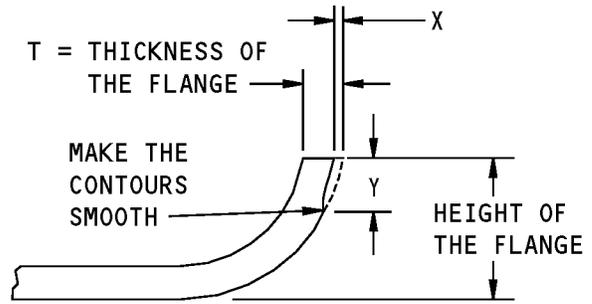


REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN

TAPER TO A MINIMUM OF 20X

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A FLANGED HOLE

F



T = THICKNESS OF THE FLANGE

MAKE THE CONTOURS SMOOTH

HEIGHT OF THE FLANGE

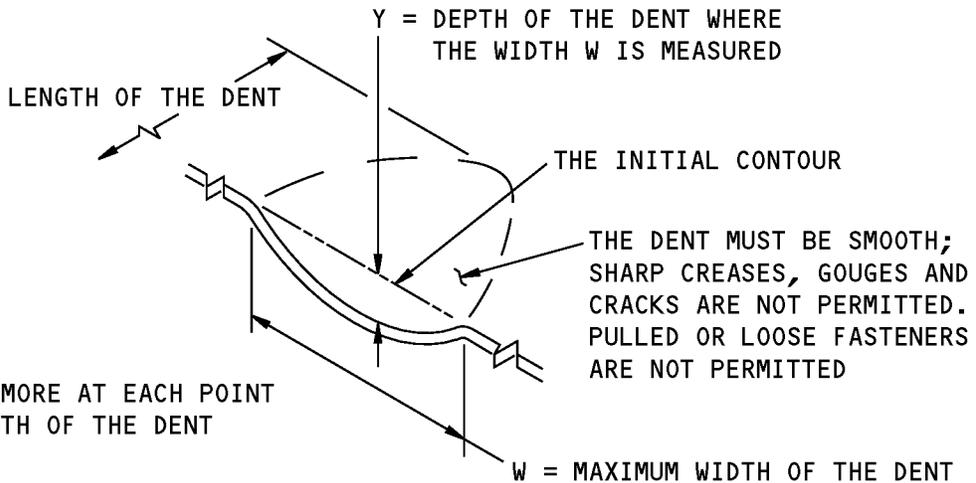
X = DEPTH OF THE MATERIAL THAT IS REMOVED

- = A MAXIMUM OF 0.10T
- = A MAXIMUM OF 0.15T

Y = LENGTH OF THE MATERIAL THAT IS REMOVED

- = A MAXIMUM OF 50 PERCENT OF THE FLANGE HEIGHT, OR 1.10 INCHES, THAT WHICH IS LESS

C-C



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

G

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 4 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4.

Table 101:

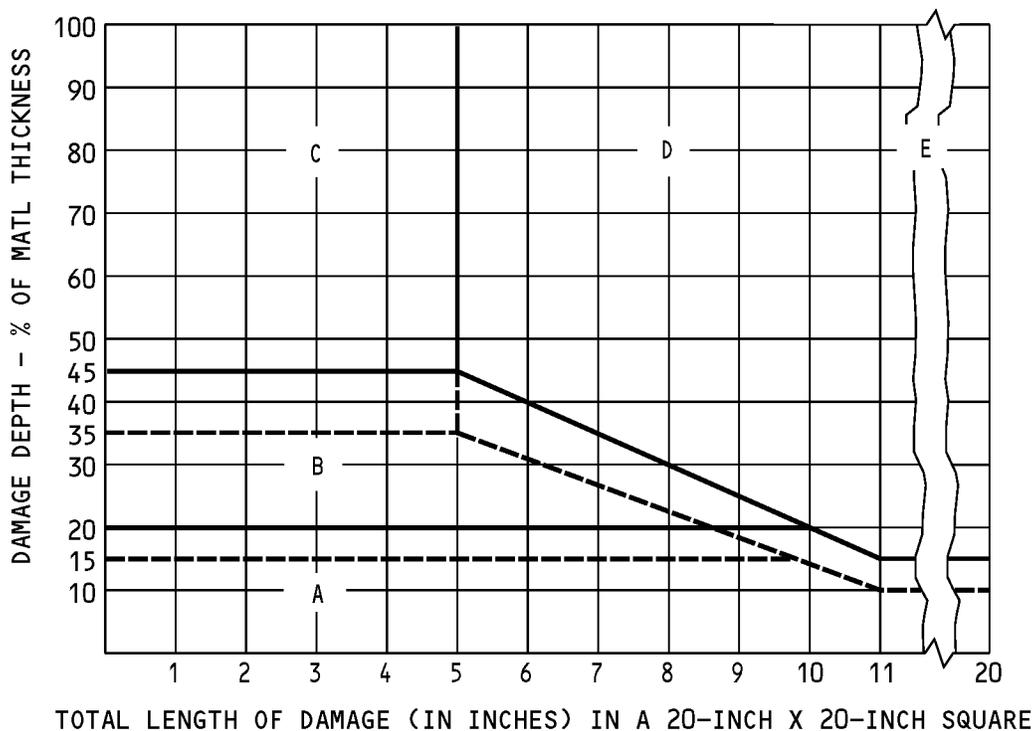
PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits



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PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits

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NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

----- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

———— FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

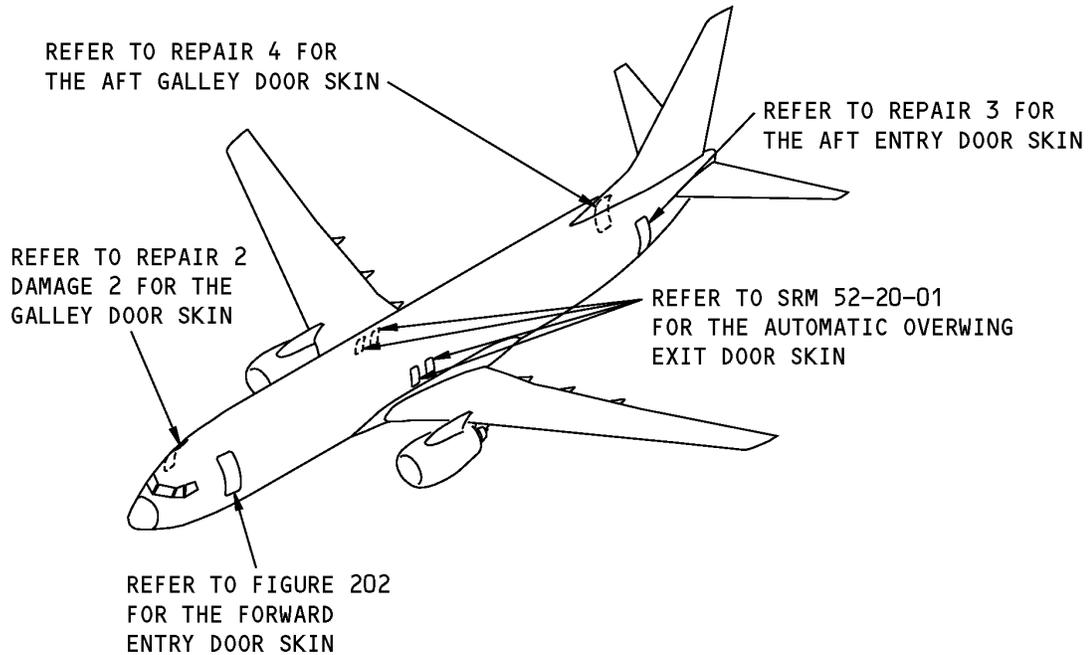
**Damage Limits for the Pressurized External Skin
Figure 105**

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STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD ENTRY DOOR SKIN

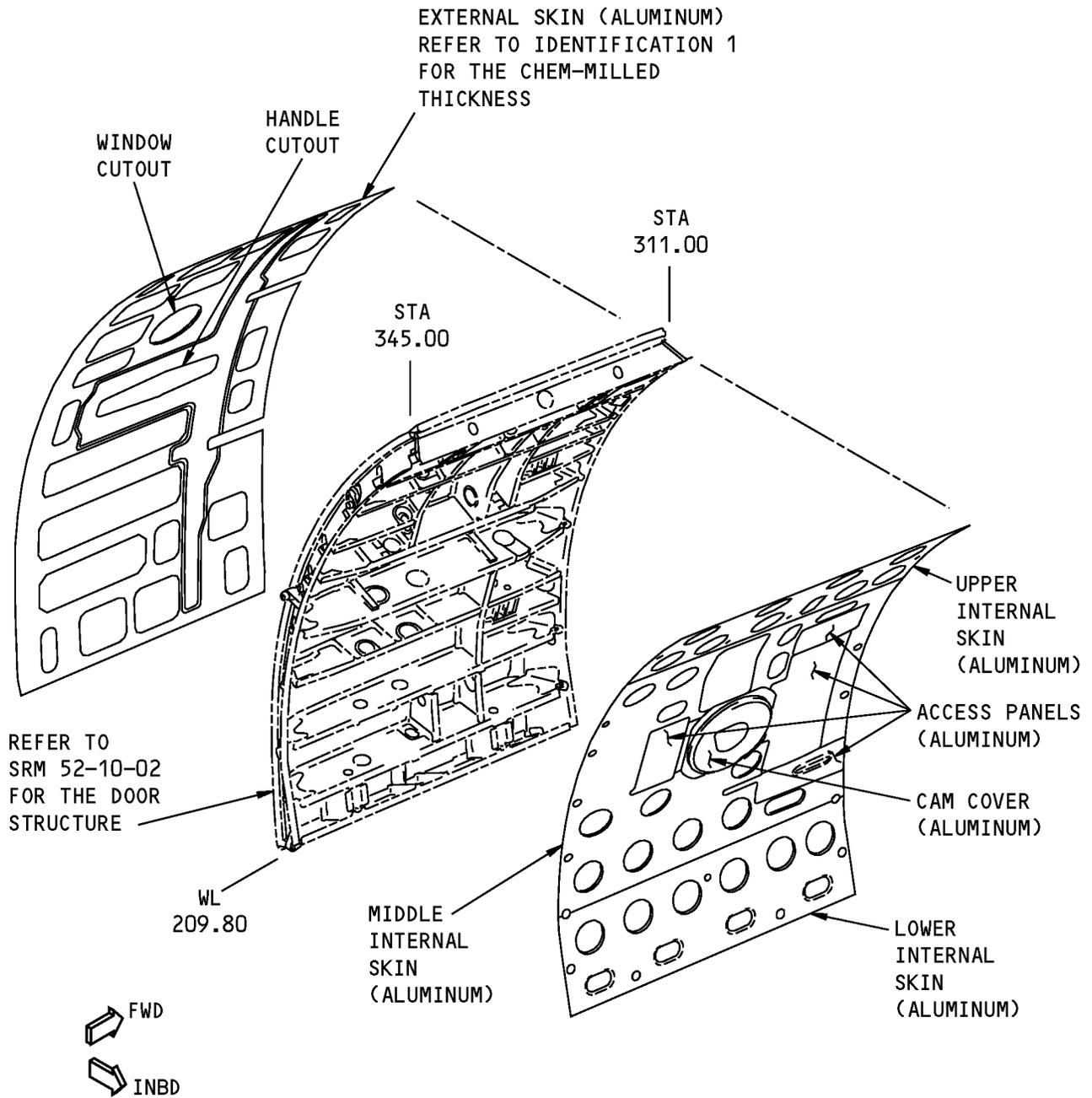
1. Applicability

- A. Repair 1 is applicable to damage to the forward entry door skins shown in Forward Entry Door Skin Location, Figure 201/REPAIR 1 and Forward Entry Door Skin, Figure 202/REPAIR 1.



Forward Entry Door Skin Location
Figure 201

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STRUCTURAL REPAIR MANUAL**



**Forward Entry Door Skin
Figure 202**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

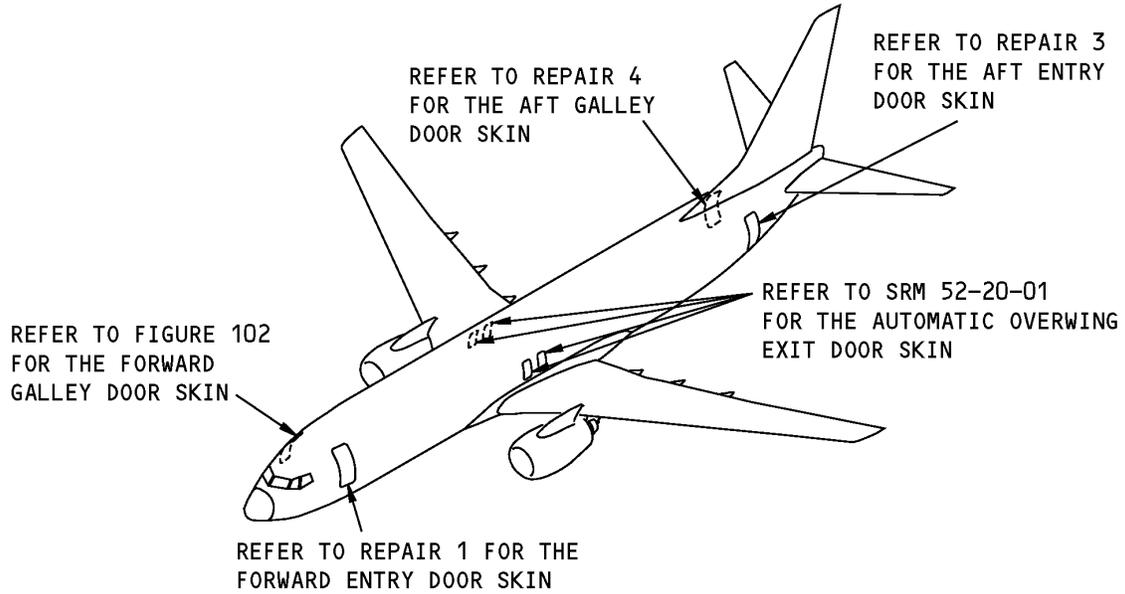
- A. Refer to 52-00-01, REPAIR 1
52-00-01, REPAIR 2
52-00-01, REPAIR 3
52-00-01, REPAIR 4
52-00-01, REPAIR 5
52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the forward entry door skins shown in Forward Entry Door Skin Location, Figure 201/REPAIR 1 and Forward Entry Door Skin, Figure 202/REPAIR 1.

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REPAIR 2 - FORWARD GALLEY DOOR SKIN

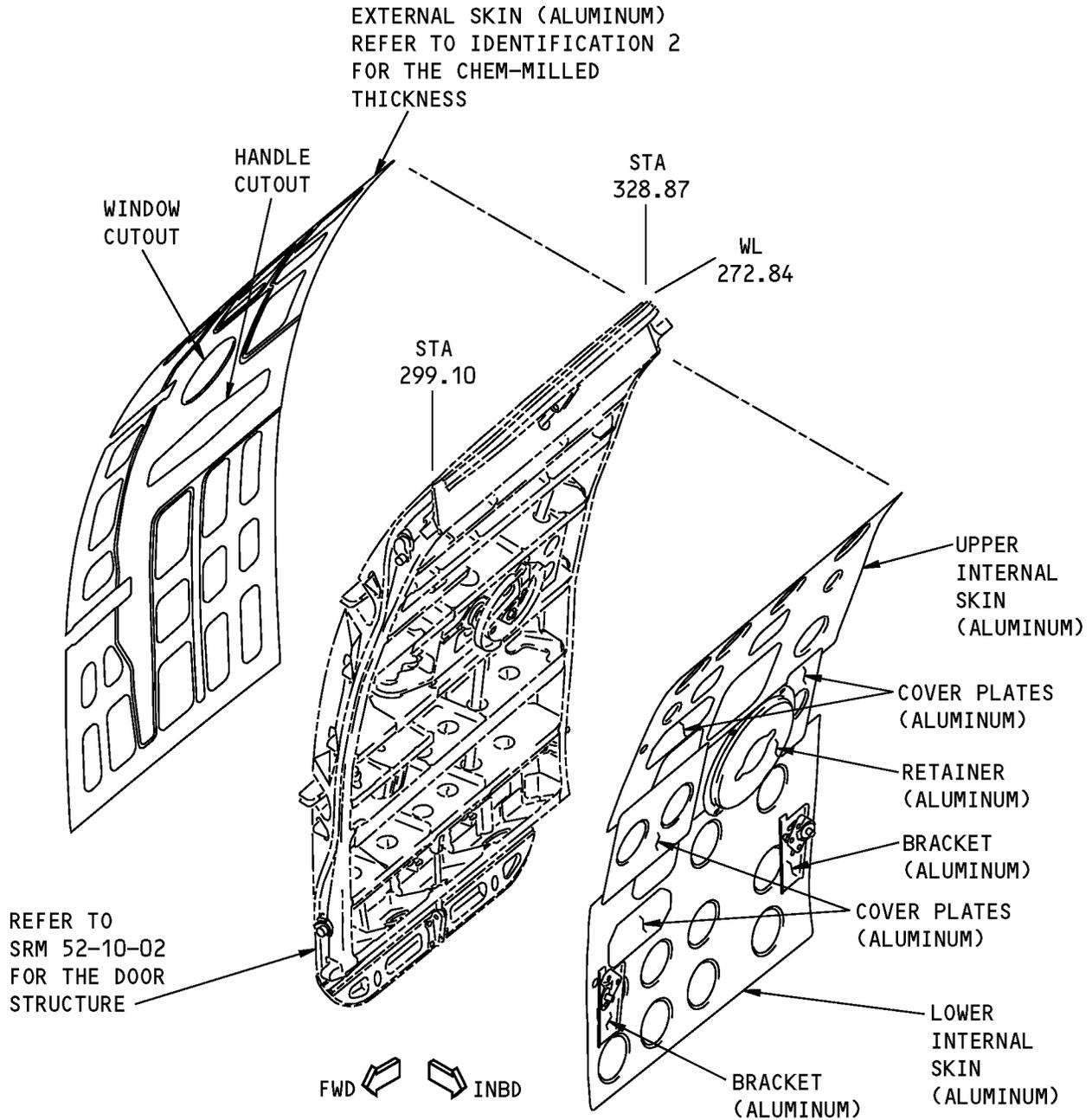
1. Applicability

- A. Repair 2 is applicable to damage to the forward galley door skins shown in Forward Galley Door Skin Location, Figure 201/REPAIR 2 and Forward Galley Door Skin, Figure 202/REPAIR 2.



**Forward Galley Door Skin Location
Figure 201**

STRUCTURAL REPAIR MANUAL



**Forward Galley Door Skin
Figure 202**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
- (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

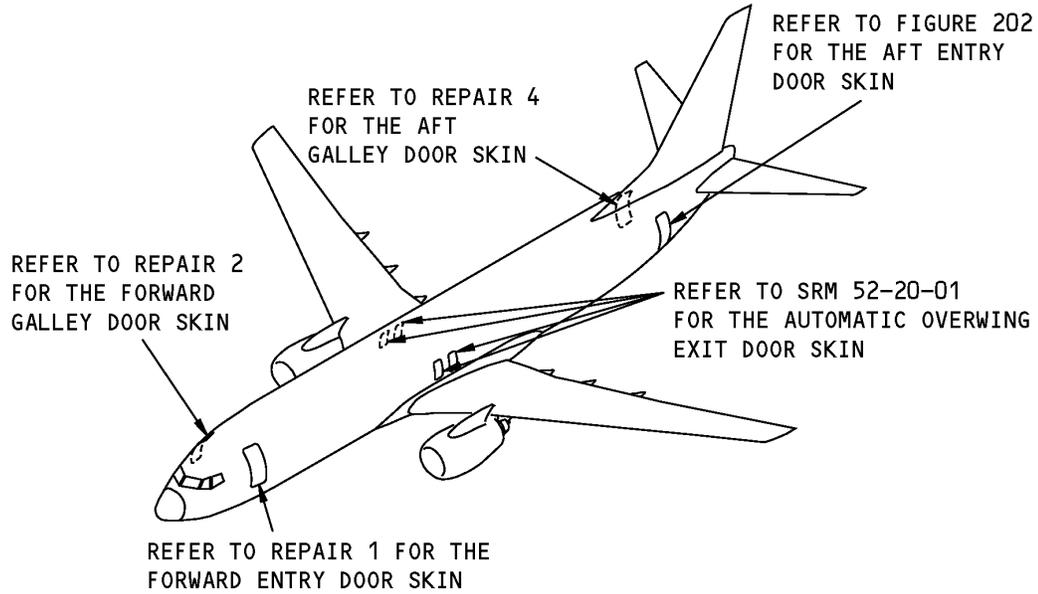
- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the forward galley door skins shown in Forward Galley Door Skin Location, Figure 201/REPAIR 2 and Forward Galley Door Skin, Figure 202/REPAIR 2.

STRUCTURAL REPAIR MANUAL

REPAIR 3 - AFT ENTRY DOOR SKIN

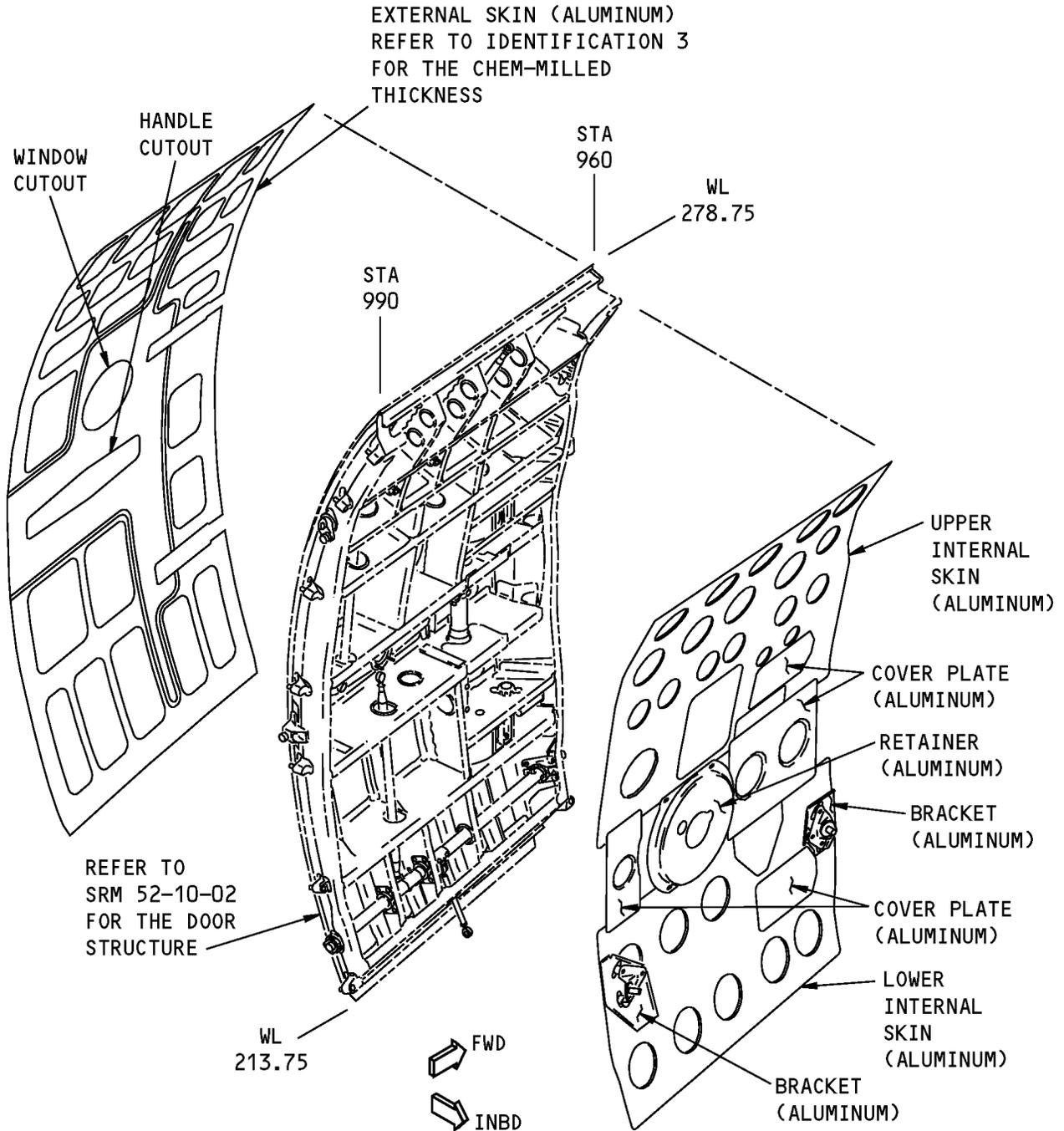
1. Applicability

- A. Repair 3 is applicable to damage to the aft entry door skins shown in Aft Entry Door Skin Location, Figure 201/REPAIR 3 and Aft Entry Door Skin, Figure 202/REPAIR 3.



**Aft Entry Door Skin Location
Figure 201**

STRUCTURAL REPAIR MANUAL



**Aft Entry Door Skin
Figure 202**



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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
- (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

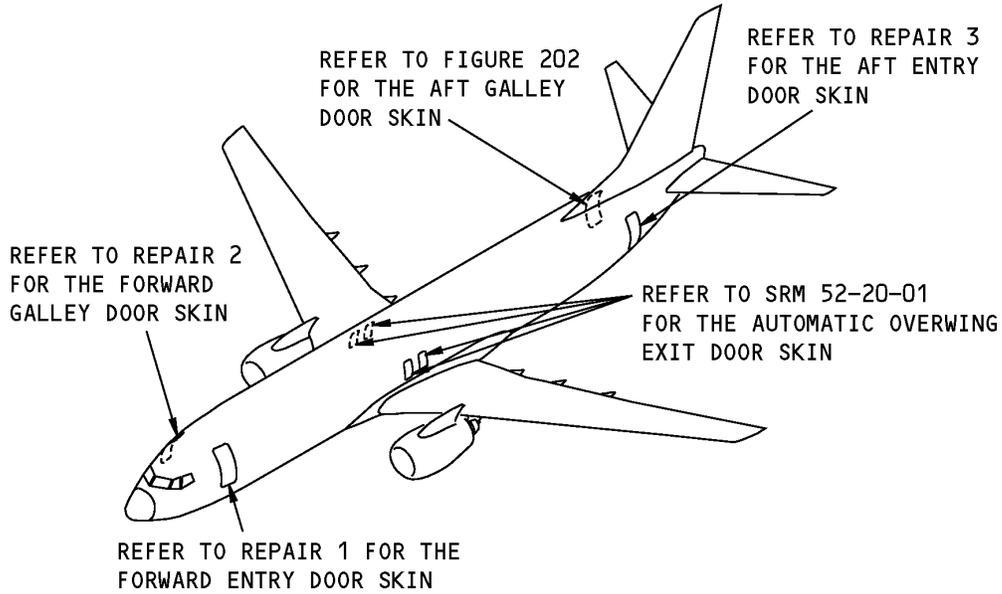
- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the aft entry door skins shown in Aft Entry Door Skin Location, Figure 201/REPAIR 3 and Aft Entry Door Skin, Figure 202/REPAIR 3.

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REPAIR 4 - AFT GALLEY DOOR SKIN

1. Applicability

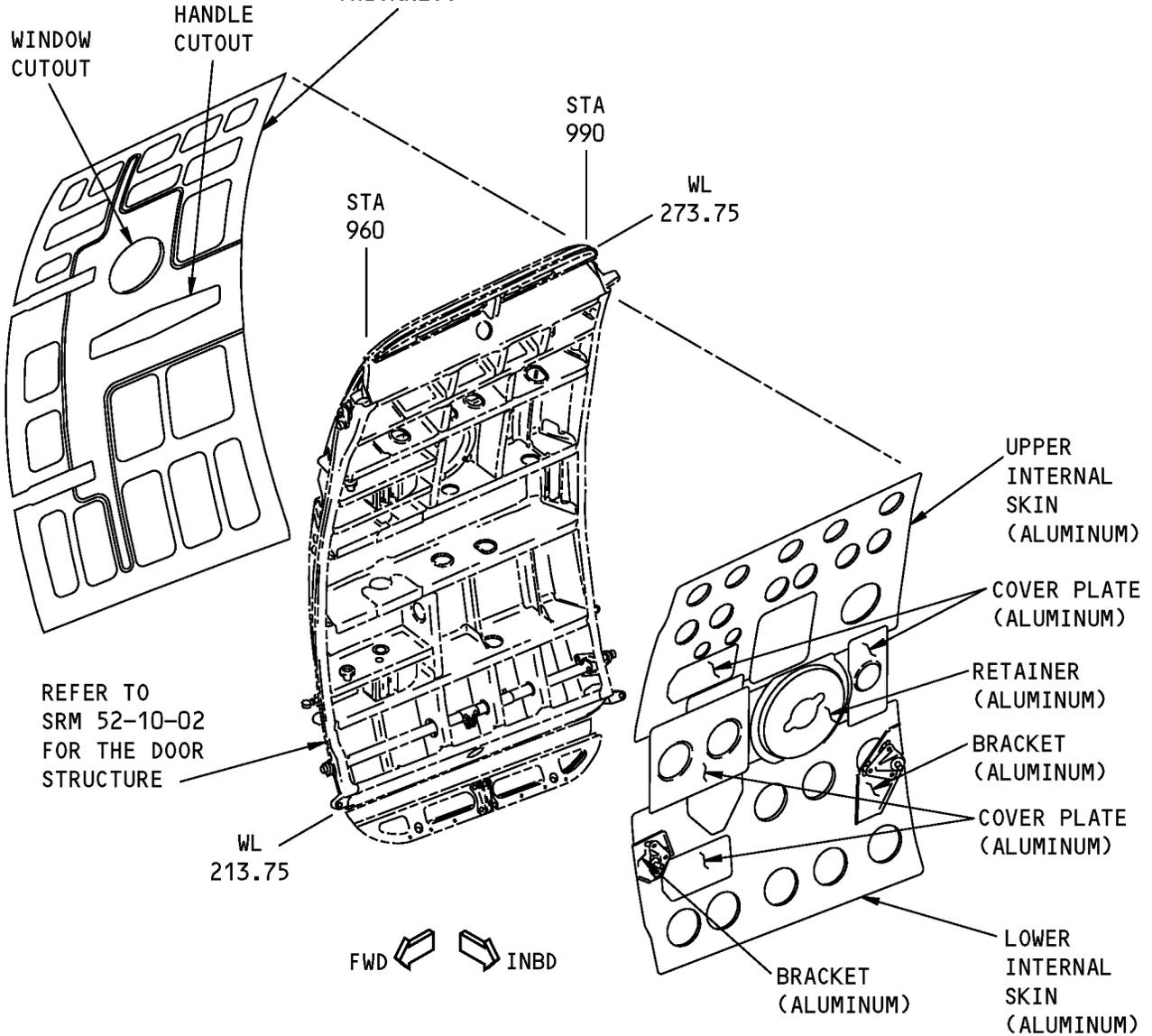
- A. Repair 4 is applicable to damage to the aft galley door skins shown in Aft Galley Door Skin Location, Figure 201/REPAIR 4 and Aft Galley Door Skin, Figure 202/REPAIR 4.



**Aft Galley Door Skin Location
Figure 201**

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EXTERNAL SKIN (ALUMINUM)
REFER TO IDENTIFICATION 4
FOR THE CHEM-MILLED
THICKNESS



**Aft Galley Door Skin
Figure 202**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
- (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

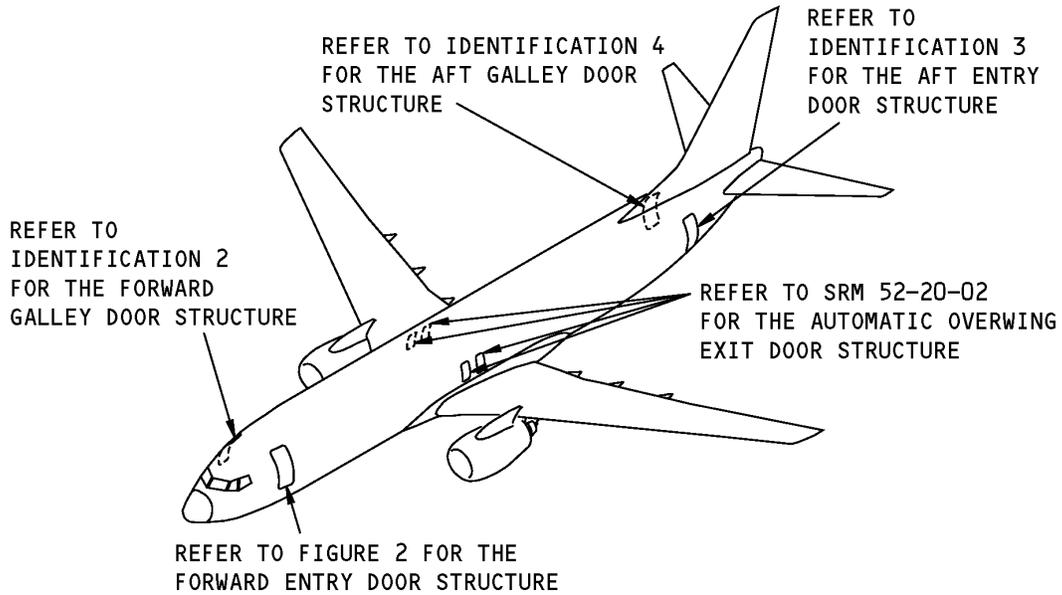
Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the aft galley door skins shown in Aft Galley Door Skin Location, Figure 201/REPAIR 4 and Aft Galley Door Skin, Figure 202/REPAIR 4.

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IDENTIFICATION 1 - FORWARD ENTRY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Entry Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6100	Forward Entry Door - Assembly Collector
141A6101	Frame and Beam Installation - Forward Entry Door
141A6120	Beam and Stop Assembly - Forward Entry Door
141A6140	Intercostal Installation - Forward Entry Door
141A6141	Intercostal Assembly - Forward Entry Door
141A6170	Upper Gate Installation - Forward Entry Door
141A6171	Upper Gate Assembly - Forward Entry Door
141A6180	Lower Gate Installation - Forward Entry Door
141A6181	Lower Gate Assembly - Forward Entry Door
141A6190	Hinge Support Installation - Forward Entry Door
141A6200	Window Installation - Forward Entry Door
141A6220	Bearing Housing - Installation Latch Torque Tube Forward Entry Door



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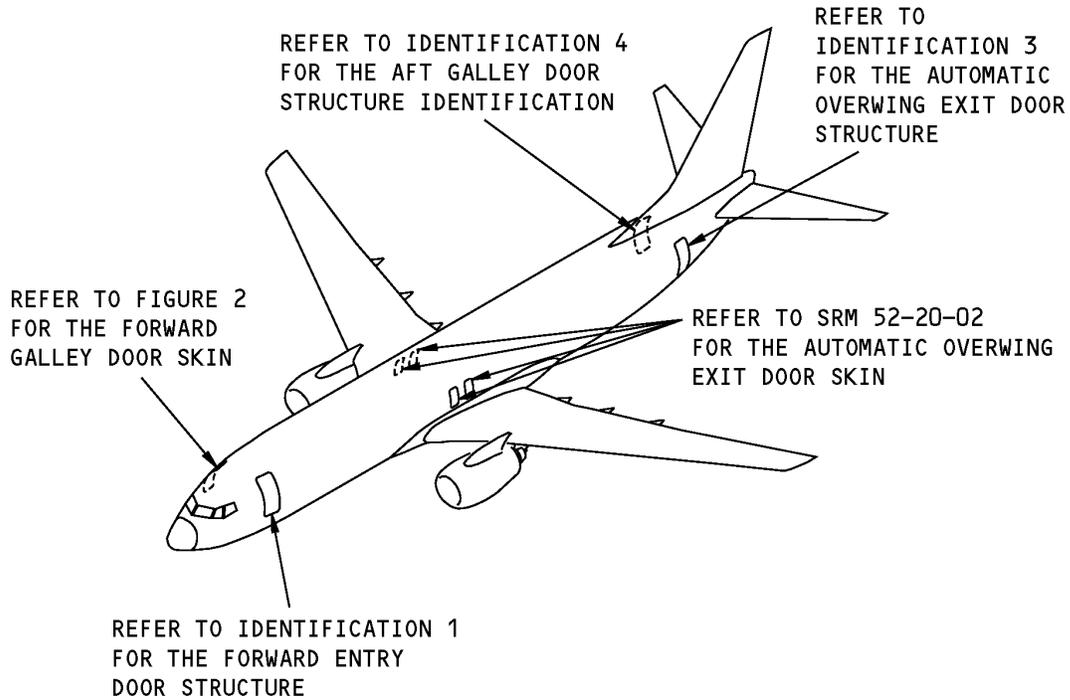
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Beam (11)		7050-T7451 plate. Refer to the production drawing for the machined areas	
[2]	Intercostal (13)	0.040 (1.02)	2024-T42 clad sheet	
[3]	Intercostal (2)	0.056 (1.42)	2024-T42 clad sheet	
[4]	Intercostal (4)		7050-T7451 plate. Refer to the production drawing for the machined areas	
[5]	Side Frame (2)	0.071 (1.80)	2024-T42 clad sheet	
[6]	Intercostal (2)	0.063 (1.60)	2024-T42 clad sheet	
[7]	Angle (2)		7050-T7451 plate. Refer to the production drawing for the machined areas	
[8]	Intercostal (2)	0.050 (1.27)	2024-T42 clad sheet as given in QQ-A-250/5	
[9]	Endgate, Lower		A357-T62 aluminum casting as given in Mil-A-21180, Strength Class 12	
[10]	Endgate, Upper		A357-T62 aluminum casting as given in Mil-A-21180, Strength Class 12	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - FORWARD GALLEY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Galley Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6500	Door Installation - Forward Galley Door
141A6516	Door Assembly - Forward Galley Door
141A6520	Stiffeners - Forward Galley Door
141A6522	Frames - Forward Galley Door
141A6524	Intercostal Details - Forward Galley Door
141A6525	Stub Beam, Hinge Support - Forward Galley Door

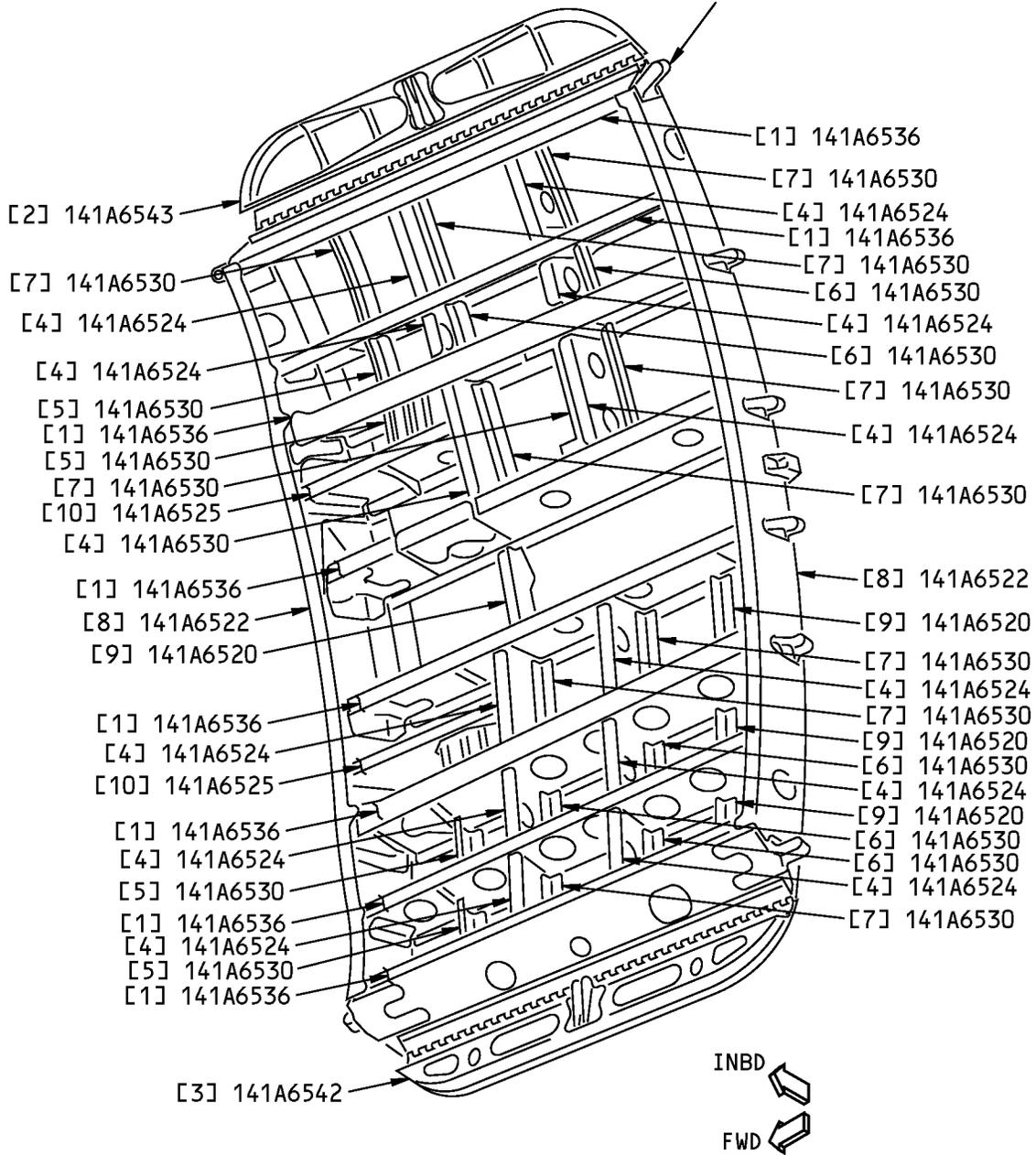


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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6530	Outer Chords, Intercostals - Forward Galley Door
141A6535	Beam Assembly - Forward Galley Door
141A6536	Beams, Machined - Forward Galley Door
141A6540	End Gate Assembly, Upper/Lower - Forward Galley Door
141A6542	End Gate Assembly, Lower - Forward Galley Door
141A6543	End Gate Assembly, Upper - Forward Galley Door

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REFER TO SRM 52-10-90
FOR THE FITTINGS
IDENTIFICATION



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Galley Door Structure Identification
Figure 2**



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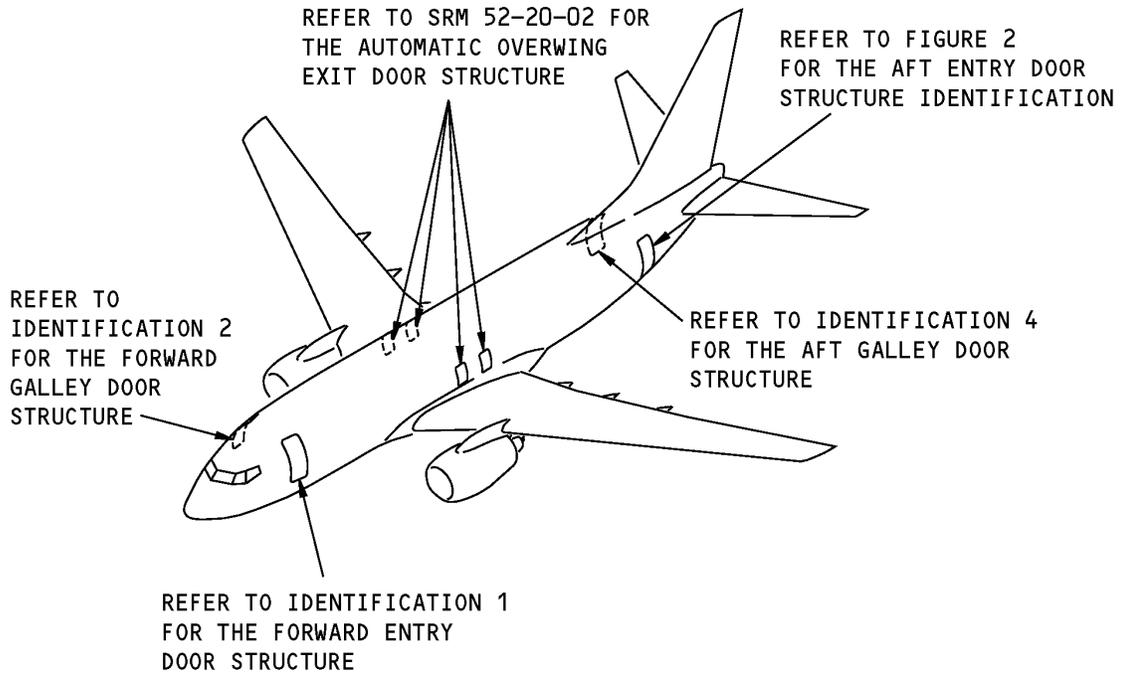
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate as given in AMS 4050, Class A. Refer to the production drawing for the thicknesses of the machined areas	
[2]	Endgate		AZ91E-T6 magnesium casting as given in AMS 4446	
[3]	Endgate		AZ91E-T6 magnesium casting as given in AMS 4446	
[4]	Intercostal	0.050 (1.27)	Clad 7075-T62 sheet	
[5]	Intercostal	0.050 (1.27)	Clad 7075-T62 sheet	
[6]	Intercostal		7075-T73511, BAC1503-100707 extrusion	
[7]	Intercostal		7075-T73511, BAC1503-100563 extrusion	
[8]	Side Frame	0.080	Clad 2024-T42 sheet	
[9]	Stiffener		7075-T7351, BAC1505-100970 extrusion	
[10]	Stub Beam		7050-T7451 plate as given in AMS 4050, Class A. Refer to the production drawing for the thicknesses of the machined areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 3 - AFT ENTRY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Aft Entry Door Structure Location
Figure 1**

Table 1:

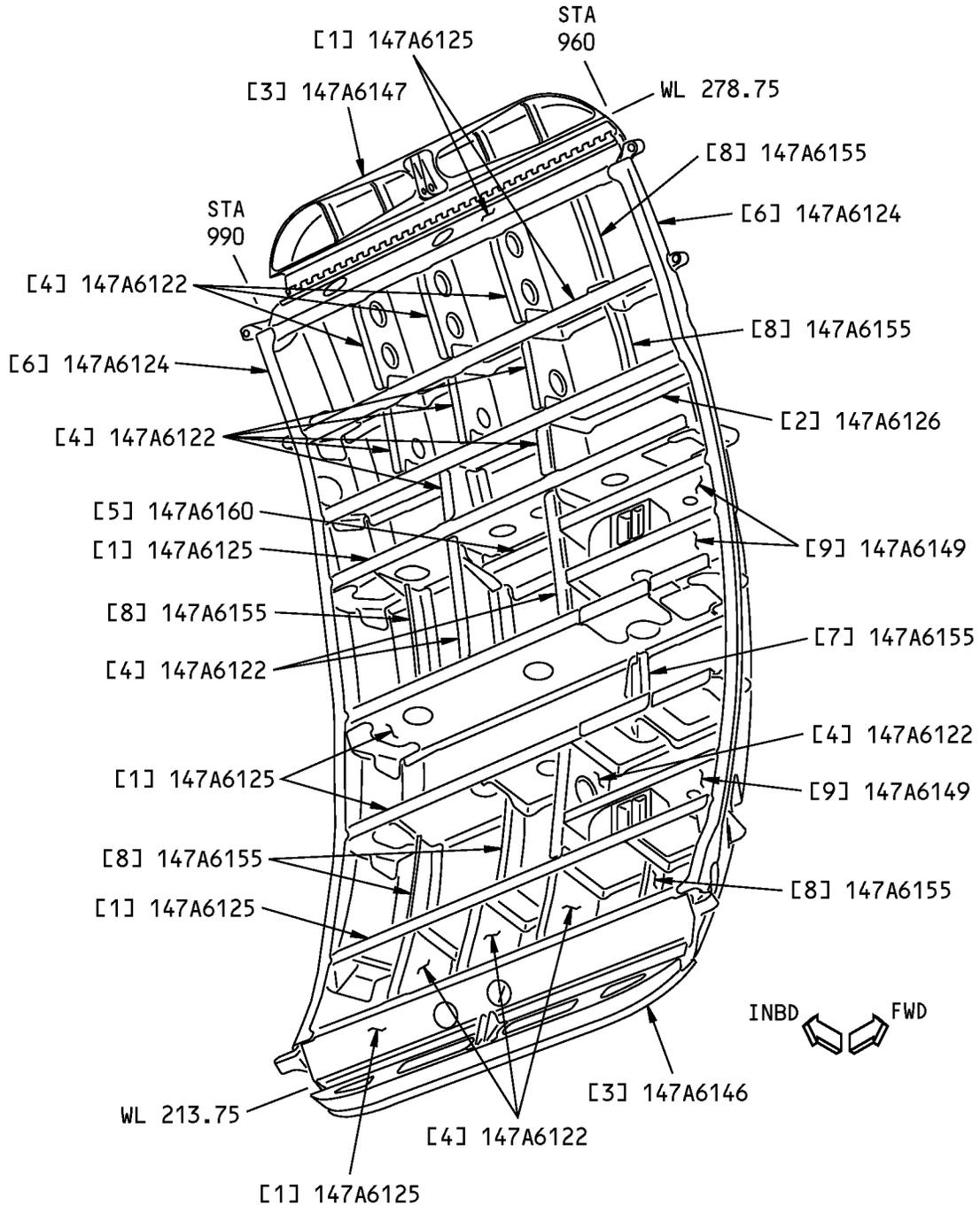
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6100	Door Installation - Aft Entry
147A6116	Door Assembly - Aft Entry
147A6122	Intercostal - Details, Aft Doors
147A6123	Outer Chords - Intercostals, Aft Doors
147A6124	Side Frames - Forward and Aft, Aft Entry Door
147A6125	Beam Assemblies - Aft Doors



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6126	Beams, Machined - Aft Doors
147A6143	End Gate Assemblies Aft Doors
147A6146	End Gate Assembly Lower, Aft Doors
147A6147	End Gate - Upper, Aft Entry Door
147A6149	Stub Beams - Hinge Support Aft Doors
147A6155	Stiffeners - Outer, Aft Doors
147A6160	Intercostal - Window, Aft Doors
149A9480	Brackets - Systems, Doors

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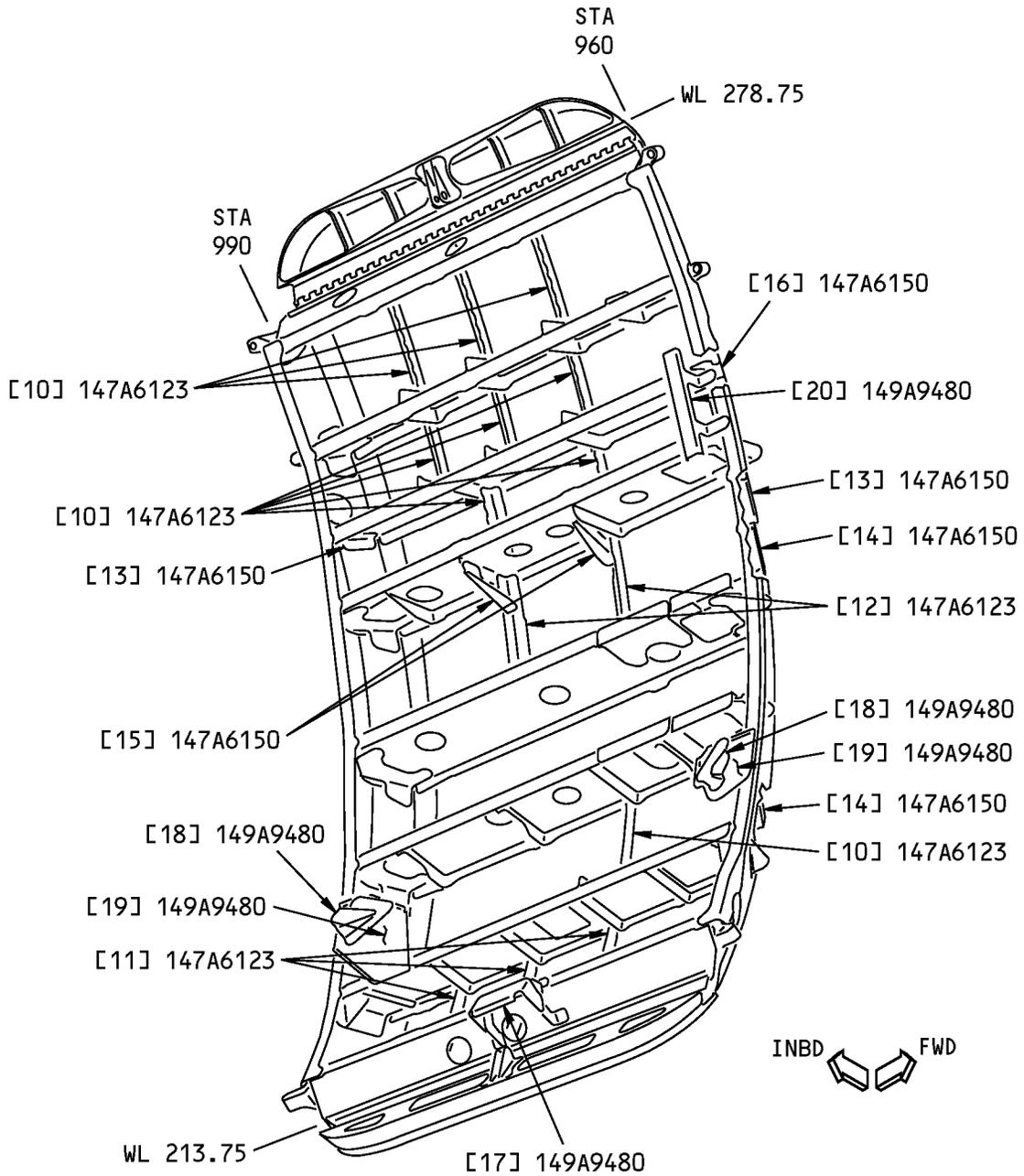


NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Aft Entry Door Structure Identification
Figure 2 (Sheet 1 of 2)**

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**Aft Entry Door Structure Identification
Figure 2 (Sheet 2 of 2)**



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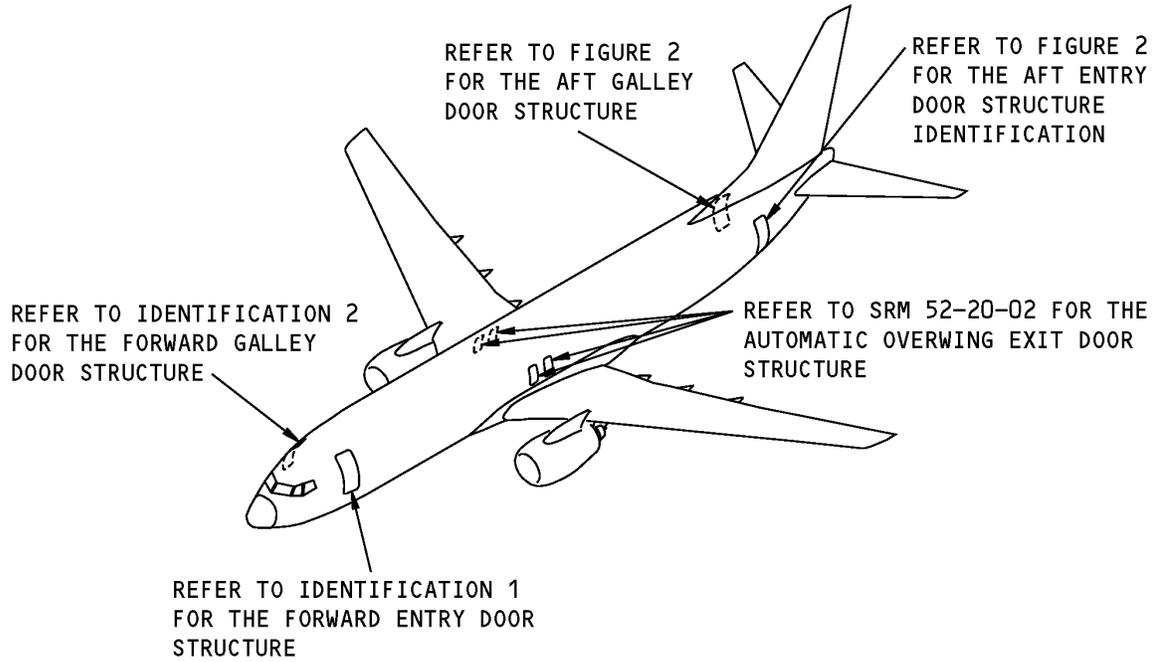
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[2]	Beam		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for machined thicknesses	
[3]	Endgate		AZ91E-T6 magnesium casting as given in AMS 4446	
[4]	Intercostal	0.050 (1.3)	7075-T62 clad sheet	
[5]	Intercostal	0.056 (1.4)	7075-T62 clad sheet	
[6]	Side Frame	0.080 (2.03)	2024-T42 clad sheet	
[7]	Stiffener		7075-T73511 BAC1505-100970 extrusion as given in QQ-A-200/11	
[8]	Stiffener	0.050 (1.3)	7075-T62 clad sheet	
[9]	Stub Beam		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[10]	Angle		7075-T73511 BAC1503-100563 extrusion	
[11]	Angle	0.050 (1.3)	7075-T62 clad sheet	
[12]	Angle	0.056 (1.4)	7075-T62 clad sheet	
[13]	Angle	0.063 (1.6)	7075-T62 clad sheet	
[14]	Angle		7075-T73511 BAC1503-100481 extrusion	
[15]	Angle		7075-T73511 BAC1503-100250 extrusion	
[16]	Tee		7075-T73511 BAC1506-3161 extrusion	
[17]	Bracket	0.063 (1.6)	2024-T42 clad sheet	
[18]	Bracket	0.071 (1.8)	2024-T42 clad sheet	
[19]	Backplate (2)	0.063 (1.6)	6013-T42 sheet as given in AMS 4347	
[20]	Handle Bracket	0.080 (2.03)	7075-T62 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 4 - AFT GALLEY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Aft Galley Door Structure Location
Figure 1**

Table 1:

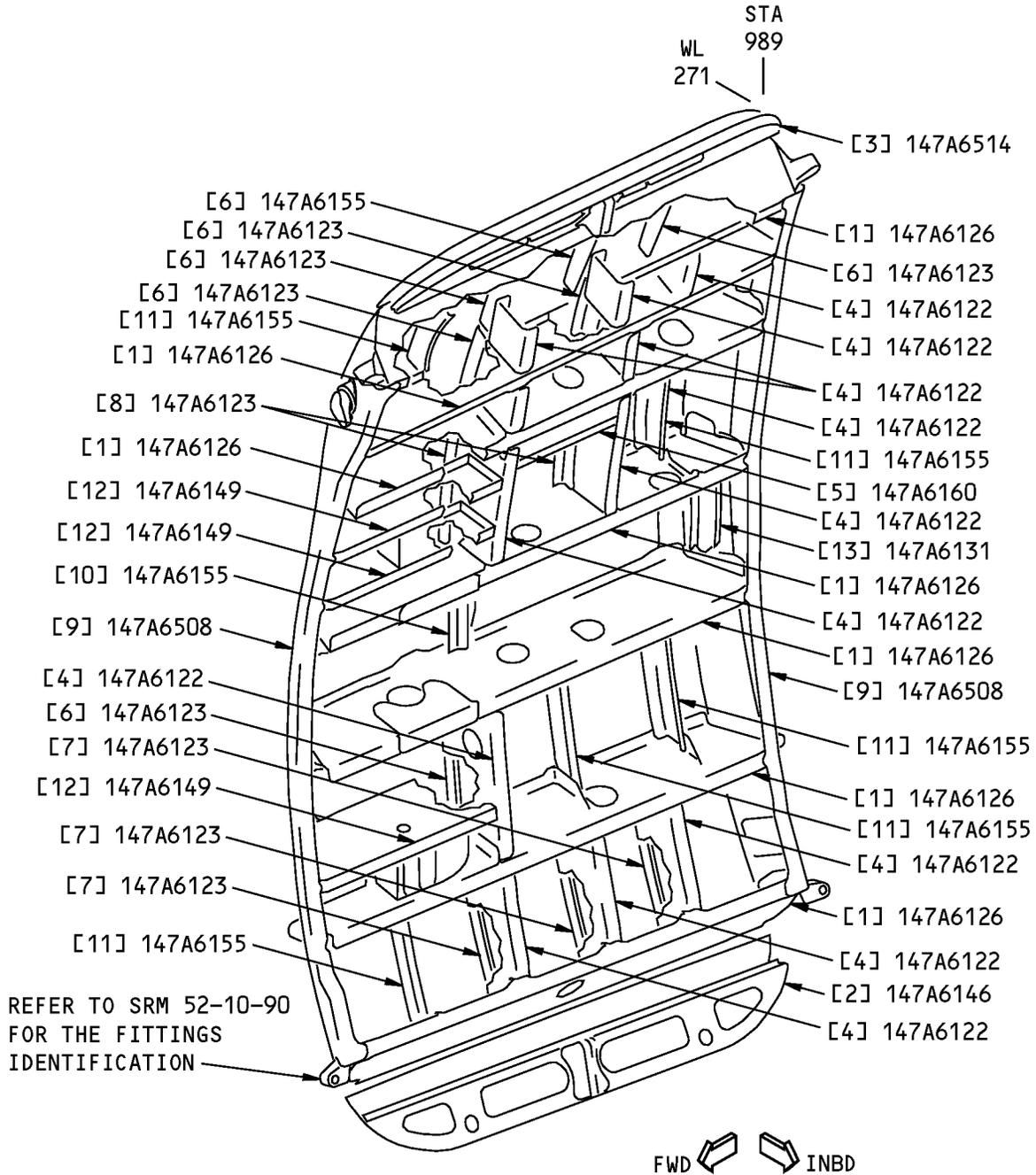
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6500	Door Installation - Aft Galley Door
147A6502	Door Assembly - Aft Galley
147A6122	Intercostal, Details - Aft Entry Doors
147A6123	Outer Chords, Intercostals - Aft Doors
147A6125	Beam Assembly - Aft Doors
147A6143	End Gate Assemblies - Aft Doors



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6131	Channel Assembly - Centering Guide
147A6514	End Gate Assemblies, Upper - Aft Galley Door

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Aft Galley Door Structure Identification
Figure 2**



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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the thicknesses of the machined areas	
[2]	Endgate, Lower		AZ91E-T6 magnesium casting as given in AMS 4446	
[3]	Endgate, Upper		AZ91E-T6 magnesium casting as given in AMS 4446	
[4]	Intercostal	0.050 (1.27)	7075-T62 clad sheet	
[5]	Intercostal	0.056 (1.42)	7075-T62 clad sheet	
[6]	Angle		7075-T73511 BAC1503-100563 extrusion	
[7]	Angle	0.050 (1.27)	7075-T62 clad sheet	
[8]	Angle	0.056 (1.42)	7075-T62 clad sheet	
[9]	Side Frame	0.080 (2.03)	2024-T42 clad sheet	
[10]	Stiffener		7075-T73511 BAC1505-100970 extrusion	
[11]	Stiffener	0.050 (1.27)	7075-T62 clad sheet	
[12]	Stub Beam		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the thicknesses of the machined areas	
[13]	Channel		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the thicknesses of the machined areas	

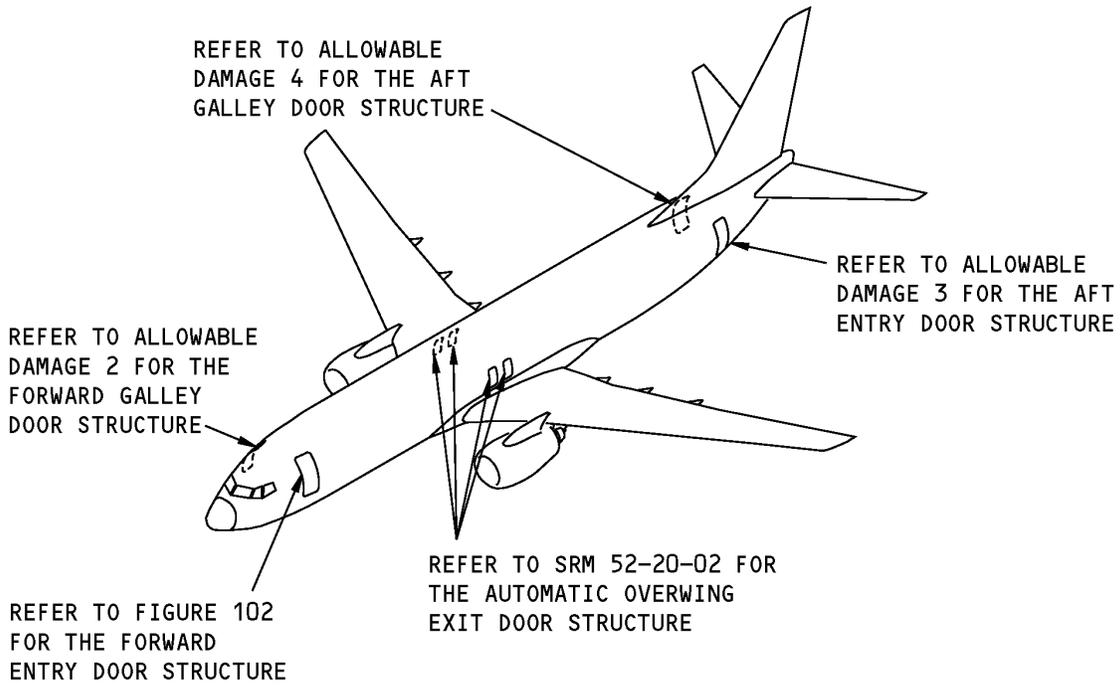
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - FORWARD ENTRY DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the forward entry door structure shown in Forward Entry Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Entry Door Structure, Figure 102/ALLOWABLE DAMAGE 1.



**Forward Entry Door Structure Location
Figure 101**



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2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits. Refer to Table 101/ALLOWABLE DAMAGE 1 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
ANGLE (MACHINED)	4.A
BEAMS (MACHINED)	4.A
INTERCOSTALS (MACHINED)	4.A
INTERCOSTALS (FORMED)	4.B
SIDE FRAMES FWD/AFT (FORMED)	4.B
UPPER AND LOWER GATE - GENERAL STRUCTURE AND HINGE PLATES (CASTING)	4.C
UPPER AND LOWER GATE - CLEVISES (CASTING)	4.D

- B. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of equipment and tools you can use to remove the damage.
- C. After you remove the damage, do the procedures that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas of non-aerodynamic surfaces as given in SOPM 20-41-02.
 - (3) Apply two layers of BMS 10-79, Type I primer to the reworked areas of the aerodynamic surfaces of the gates as given in SOPM 20-44-04.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primers

4. Allowable Damage Limits

- A. Angles, Intercostals, and Beams - Machined Plate



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- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , E , and H .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , D , E , F and H .
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- B. Intercostals and Side Frames - Formed
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and F .
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- C. Upper and Lower Gate - General Structure and Hinge Plates
- (1) Refer to Upper and Lower Gate Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones of the upper and lower gates, clevises, and hinge plates.
 - (2) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , E , and H .
 - (3) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the edge damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , D , E , F , and H .
 - (4) Dents are not permitted.
 - (5) Holes and Punctures are not permitted.

ALLOWABLE DAMAGE 1

52-10-02

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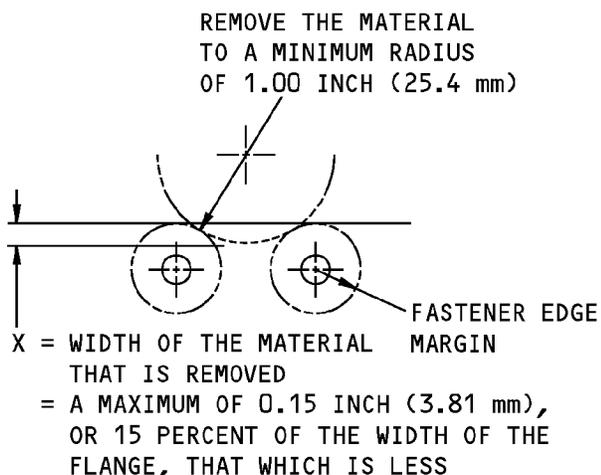
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D. Upper and Lower Gate - Clevises

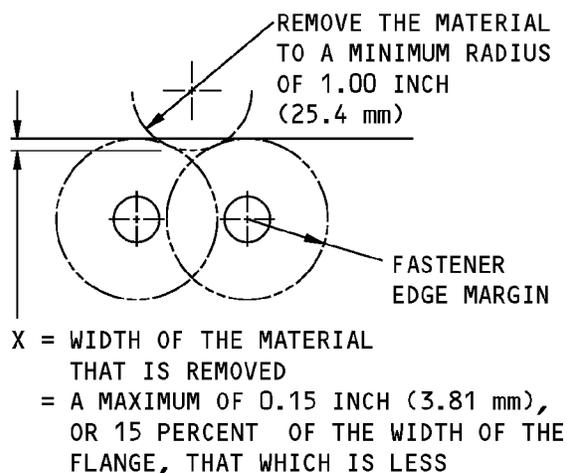
- (1) Cracks are not permitted.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , D , E , H , and I .
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

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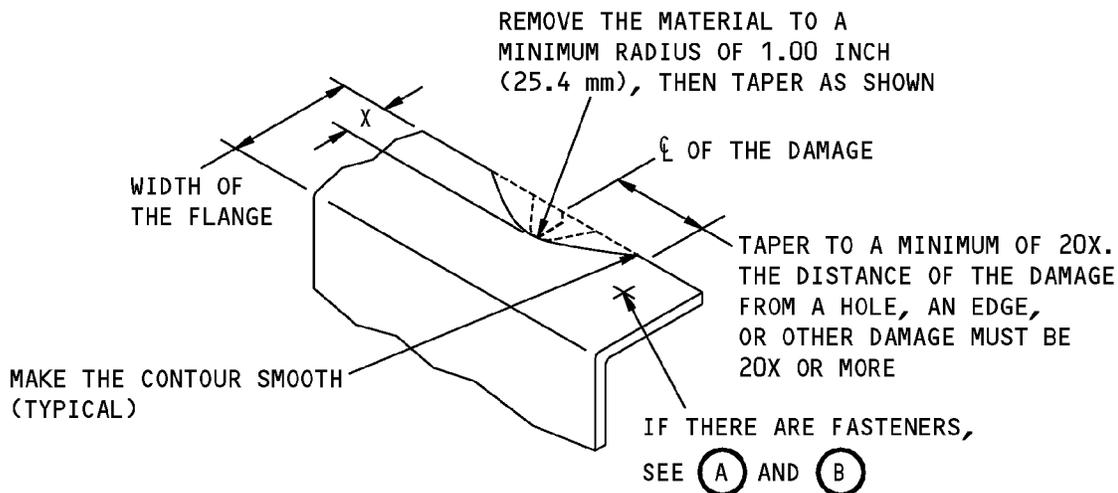
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

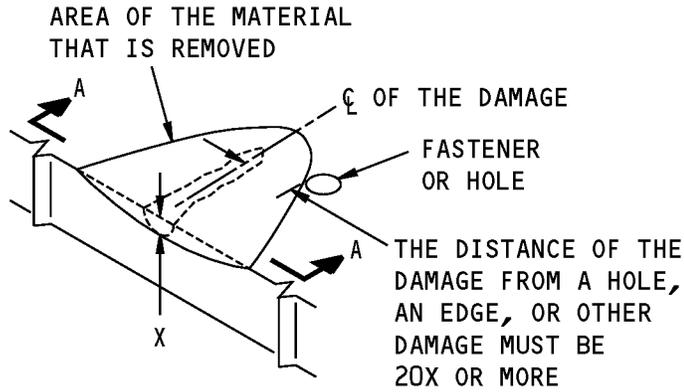


REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 6)**

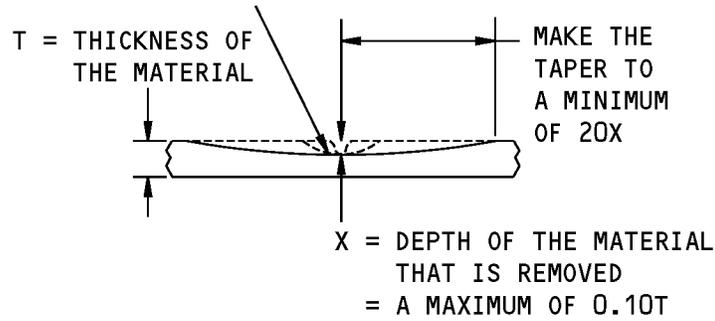
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

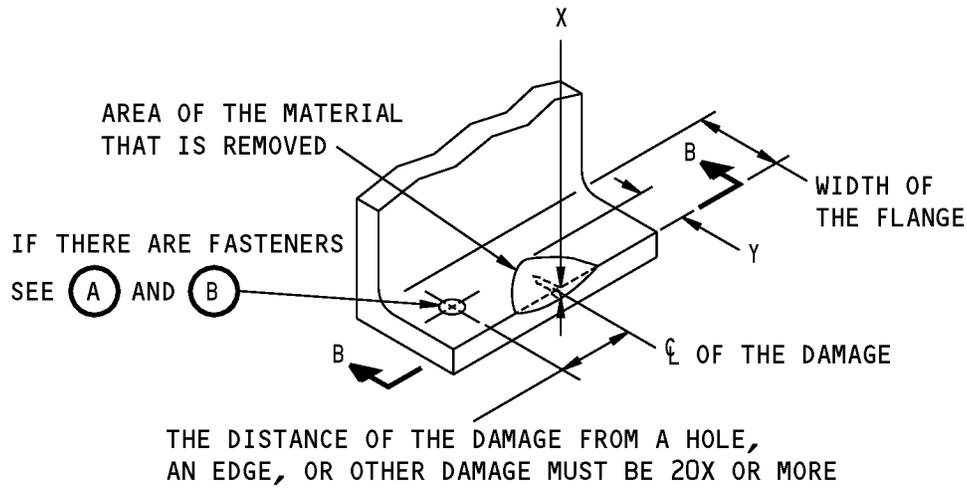
REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



A-A

**Allowable Damage Limits
Figure 103 (Sheet 2 of 6)**

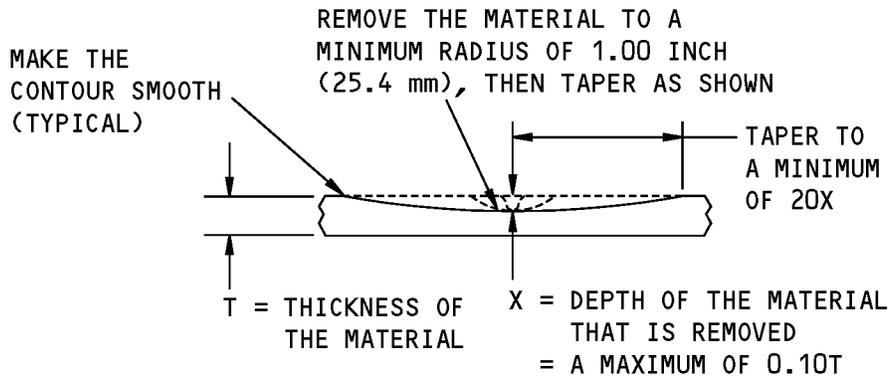
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Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**

(E)

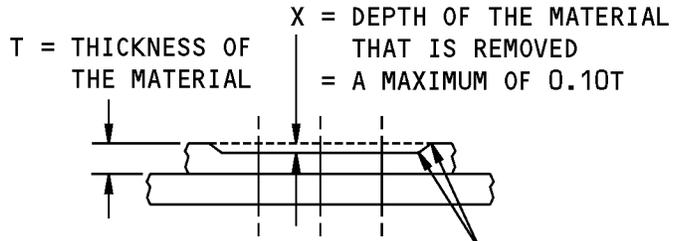
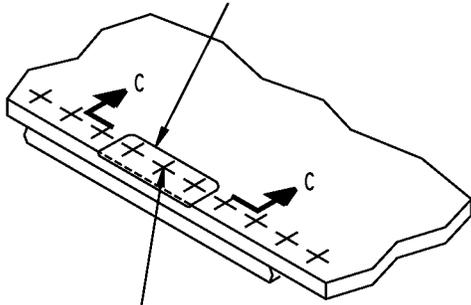


B-B

**Allowable Damage Limits
Figure 103 (Sheet 3 of 6)**

STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



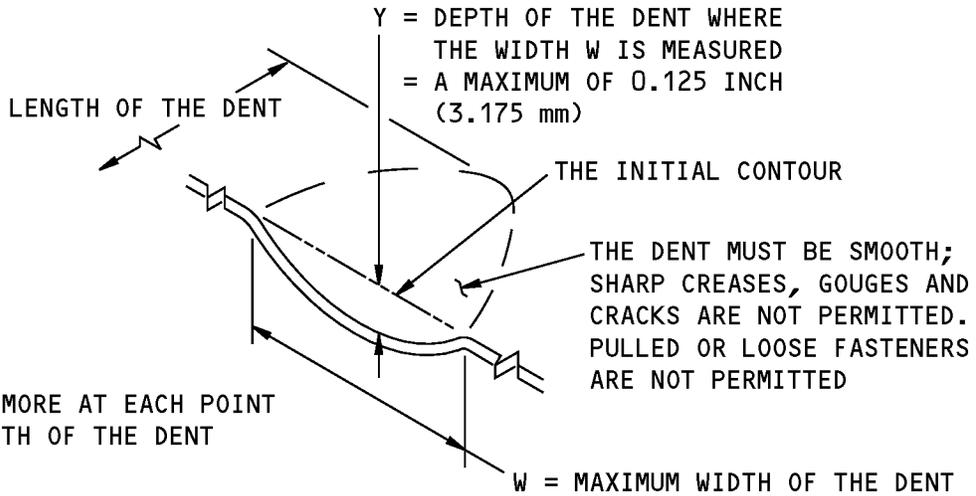
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

C-C

(F)



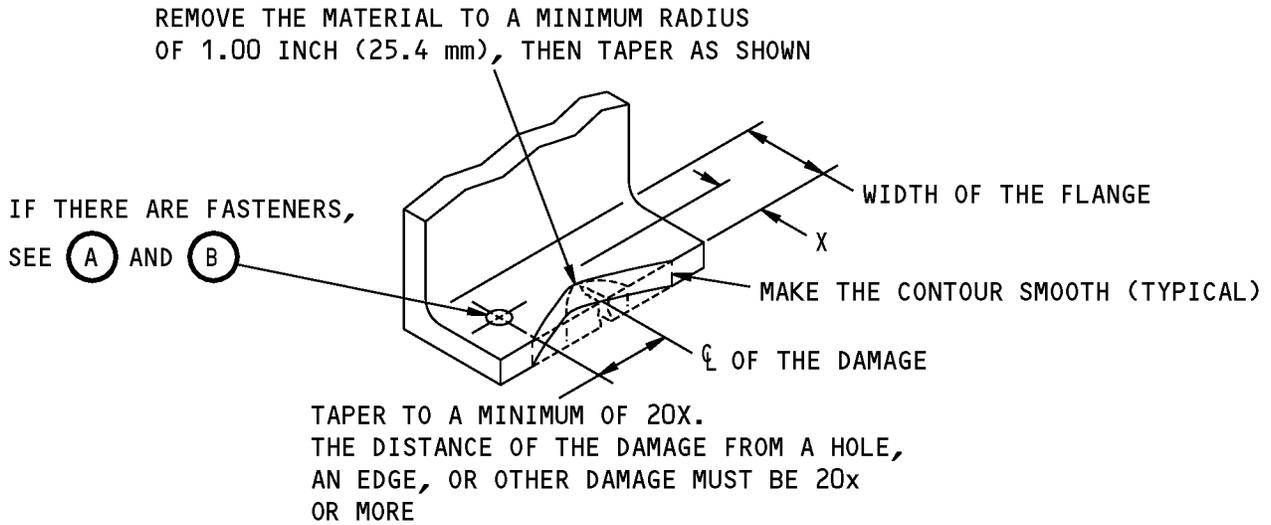
$\frac{W}{Y}$ MUST BE 20 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

(G)

**Allowable Damage Limits
Figure 103 (Sheet 4 of 6)**

737-800
STRUCTURAL REPAIR MANUAL



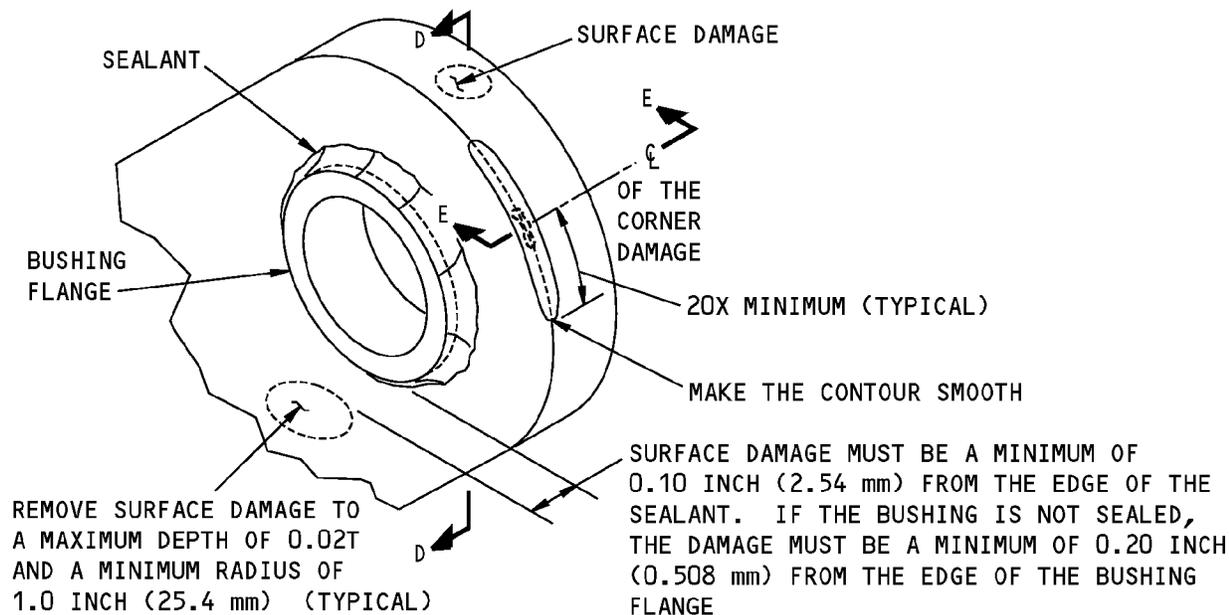
X = WIDTH OF THE MATERIAL REMOVED
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm), THAT WHICH IS LESS

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(H)

Allowable Damage Limits
Figure 103 (Sheet 5 of 6)

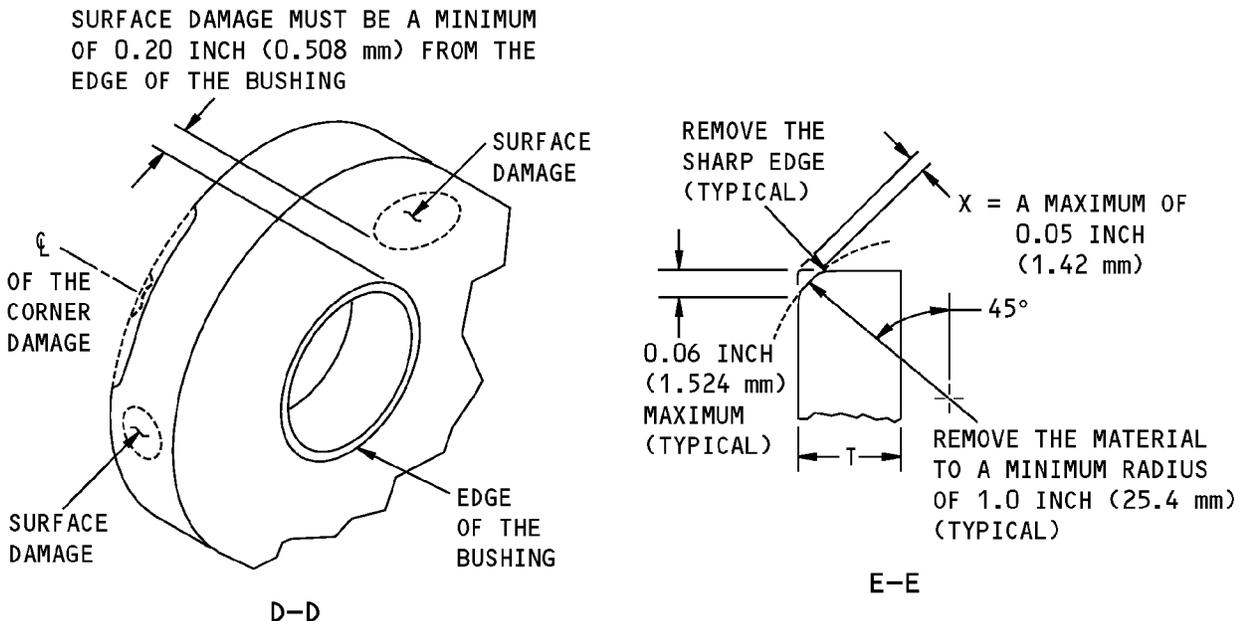
**737-800
STRUCTURAL REPAIR MANUAL**



NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

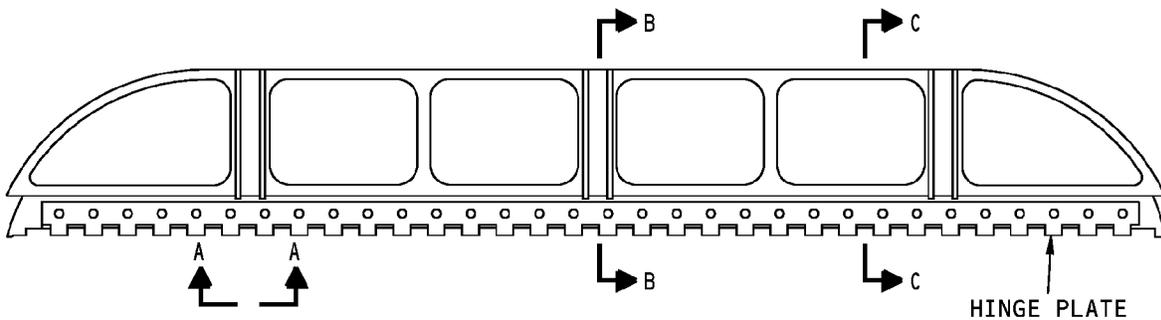
REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING

I

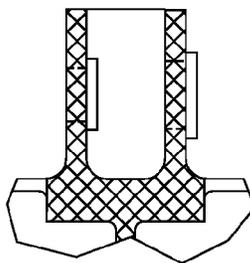


**Allowable Damage Limits
Figure 103 (Sheet 6 of 6)**

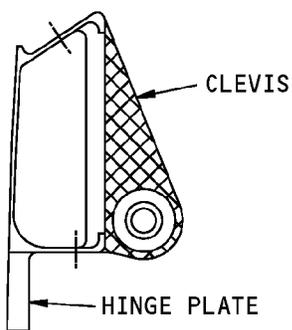
**737-800
STRUCTURAL REPAIR MANUAL**



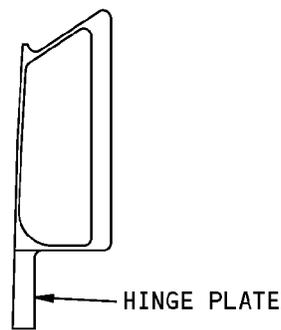
THE UPPER GATE IS SHOWN, THE LOWER GATE IS ALMOST THE SAME



AFT CLEVIS SHOWN, OTHER CLEVISES ARE THE SAME
A-A



B-B



C-C

-  GENERAL STRUCTURE, HINGE PLATE
-  CLEVIS

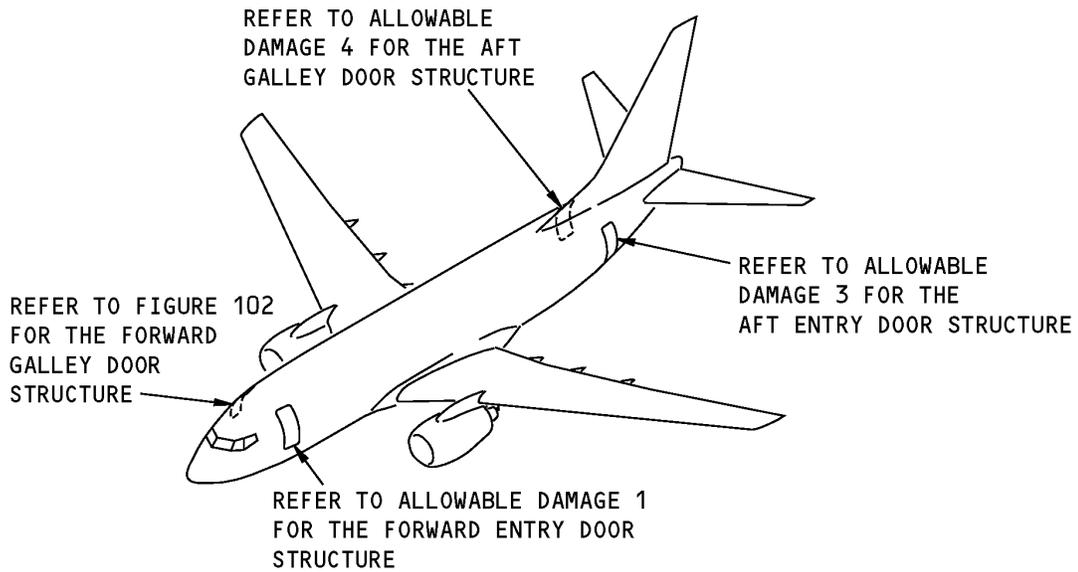
**Upper and Lower Gate Allowable Damage
Figure 104**

STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 2 - FORWARD GALLEY DOOR STRUCTURE

1. Applicability

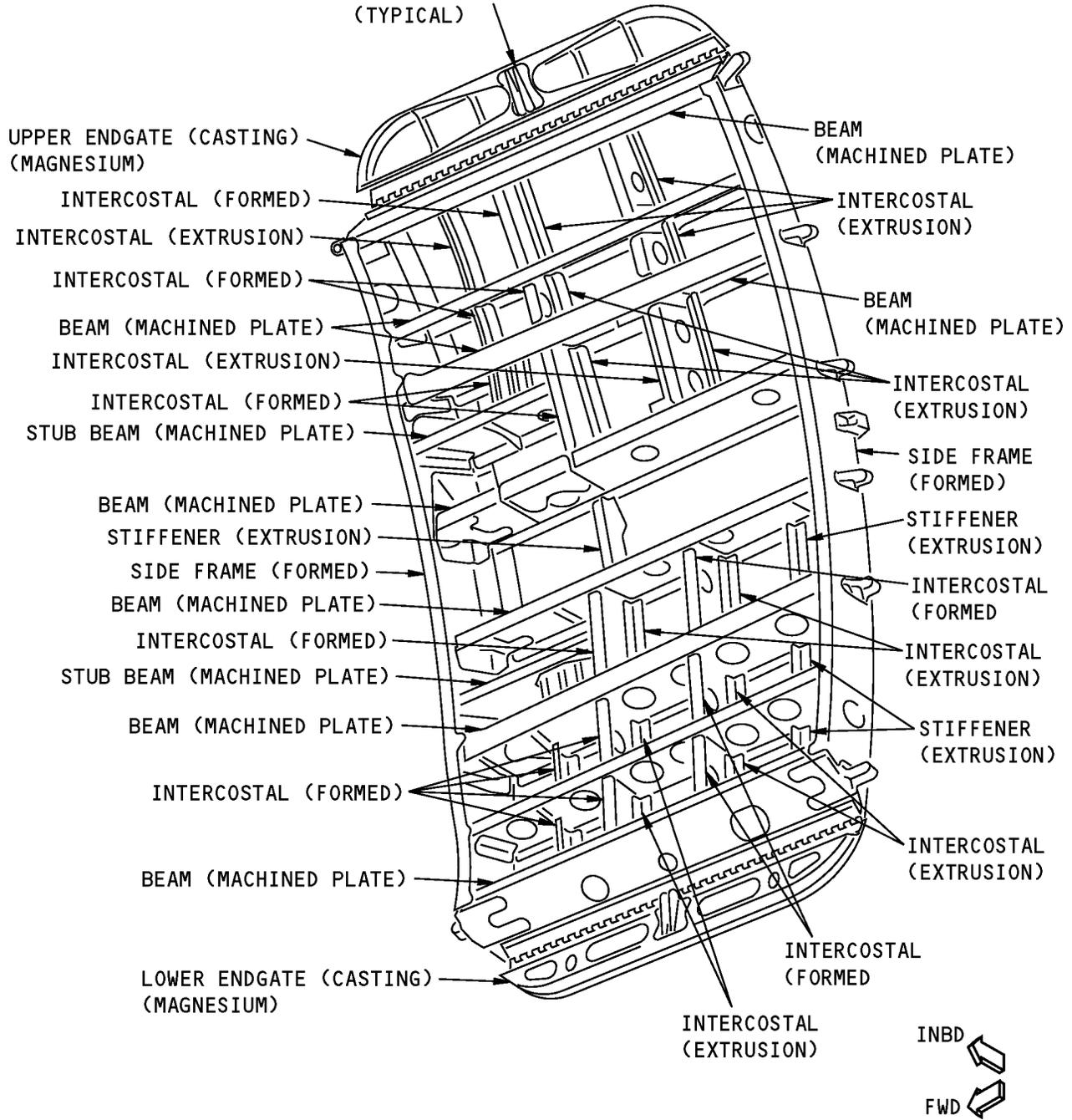
- A. This subject gives the allowable damage limits for the forward galley door structure shown in Forward Galley Door Location, Figure 101/ALLOWABLE DAMAGE 2 and Forward Galley Door Structure, Figure 102/ALLOWABLE DAMAGE 2.



**Forward Galley Door Location
Figure 101**

STRUCTURAL REPAIR MANUAL

REFER TO SRM 52-10-90
FOR THE DOOR FITTINGS
(TYPICAL)



NOTE: ALL PARTS ARE MADE FROM ALUMINUM (EXCEPT AS NOTED).

**Forward Galley Door Structure
Figure 102**



**737-800
STRUCTURAL REPAIR MANUAL**

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2. Refer to Table 101/ALLOWABLE DAMAGE 2 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Angles (Extrusion)	4.A
Angles (Formed)	4.B
Beams (Machined Plate)	4.A
Intercostals (Extrusion)	4.A
Intercostals (Formed)	4.B
Side Frames Fwd/Aft (Formed)	4.B
Stiffeners (Extrusion)	4.A
Upper and Lower Endgate (Casting)	4.C

- B. Remove the damaged material as necessary.

NOTE: The procedures that follow do not apply to dent damage.

- (1) Refer to 51-10-02 for the inspection and removal of damage.
- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
- (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. If damage has been removed from aluminum parts, do the steps that follow:

- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

WARNING: USE CARE WHEN YOU REWORK MAGNESIUM. SMALL PARTICLES AND FINE SHAVINGS OF MAGNESIUM ARE HIGHLY FLAMMABLE. MAGNESIUM DUST IS HIGHLY FLAMMABLE AND CAN CAUSE AN EXPLOSION. DO NOT PUT WATER ON HOT MAGNESIUM. A STEAM EXPLOSION CAN OCCUR. EXTINGUISH ALL FIRES OF MAGNESIUM WITH FULLY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON TOP OF THE BURNING METAL. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, HALON, OR CARBON DIOXIDE. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR. WEAR PROTECTIVE GOGGLES OR A FACE SHIELD WHEN YOU REMOVE THE CORROSION. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR.

- D. If damage has been removed from magnesium parts, do the steps that follow:

- (1) Apply a DOW 19 chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-79, Type III primer to the reworked areas as given in SOPM 20-44-04.



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3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primers
737 NDT Part 6, 51-00-00, Figure 4	Surface Inspection of Aluminum Parts

4. Allowable Damage Limits - Forward Galley Door Structure

- A. Angles, Beams, Stub Beams, Intercostals and Stiffeners - Machined Plate and Extrusion.
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, D, and H.
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, D, E, F, and H.
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail G.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- B. Angles, Backplate, Brackets, Intercostals, and Side Frames - Formed
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, and C.
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, C, D, E, and F.
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail G.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius



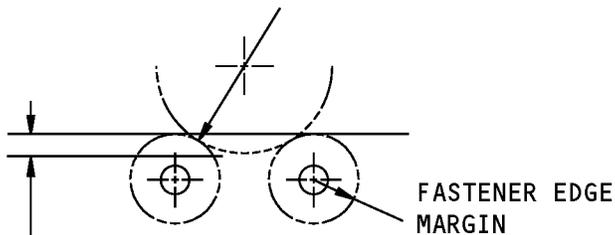
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STRUCTURAL REPAIR MANUAL

- (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- C. Upper and Lower Endgate - Casting
 - (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, and H.
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, D, F, and H.
 - (3) Dents are not permitted.
 - (4) Holes and Punctures are not permitted.

STRUCTURAL REPAIR MANUAL

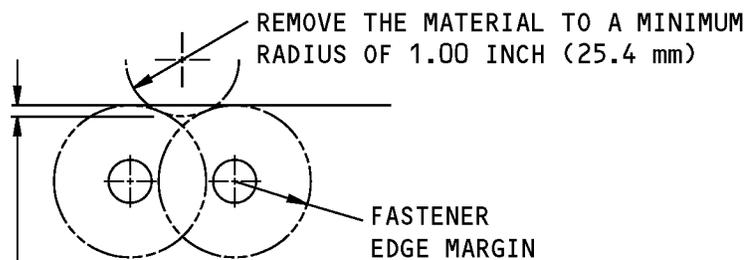
REMOVE THE MATERIAL TO A MINIMUM
RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE
 WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
 = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE
 WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

**REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE
FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP**

(A)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF
 THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
 = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF
 THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

**REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER
EDGE MARGINS HAVE AN OVERLAP**

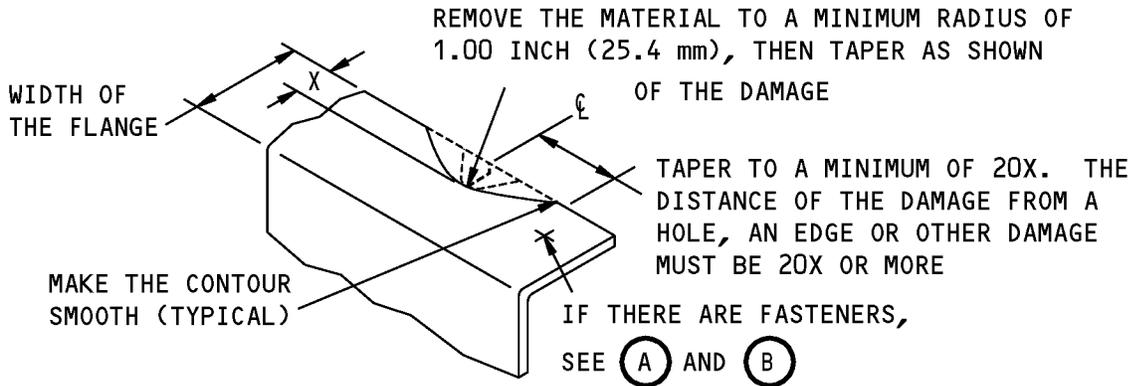
(B)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

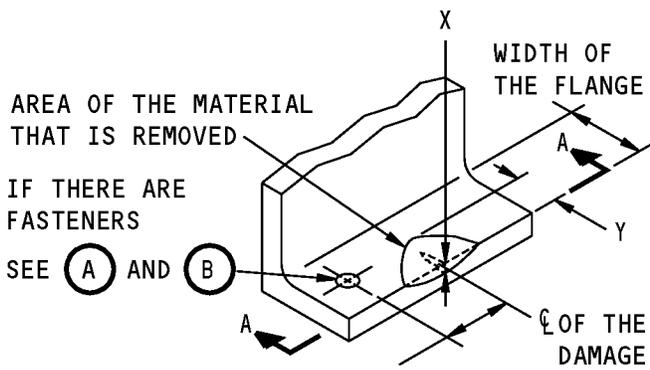
STRUCTURAL REPAIR MANUAL



- X = WIDTH OF THE MATERIAL THAT IS REMOVED
- = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
- = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

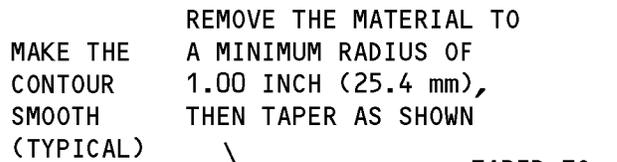


THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

- Y = WIDTH OF THE MATERIAL THAT IS REMOVED
- = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE 1
- = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 2

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(D)

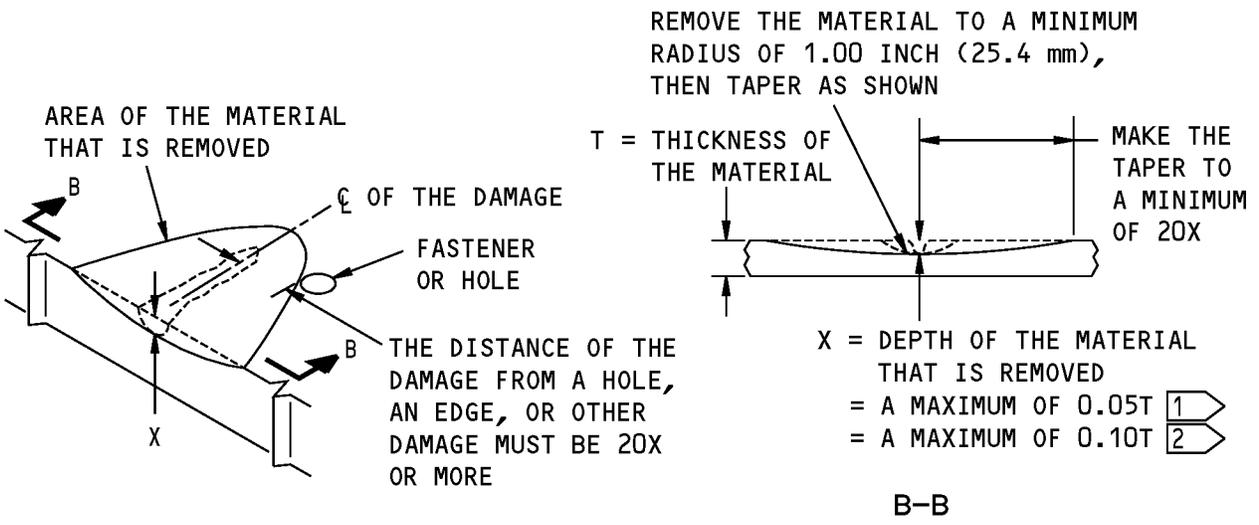


- T = THICKNESS OF THE MATERIAL
- X = DEPTH OF THE MATERIAL THAT IS REMOVED
- = A MAXIMUM OF 0.05T 1
- = A MAXIMUM OF 0.10T 2

A-A

**Allowable Damage Limits
Figure 103 (Sheet 2 of 4)**

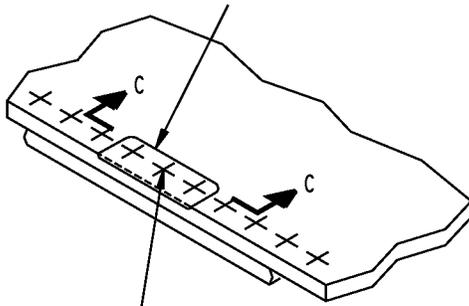
STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

E

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

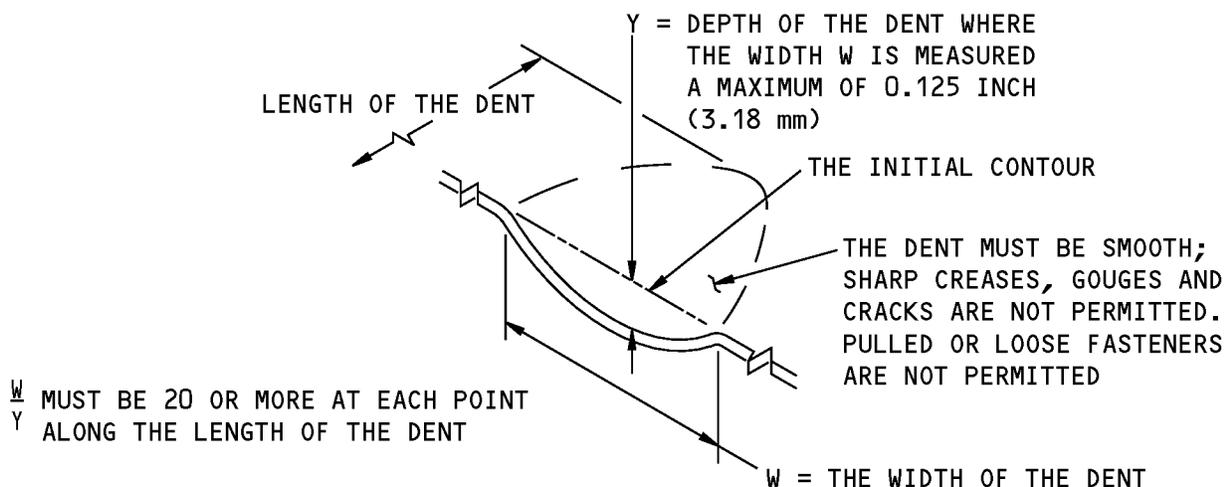
F

MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

C-C

**Allowable Damage Limits
Figure 103 (Sheet 3 of 4)**

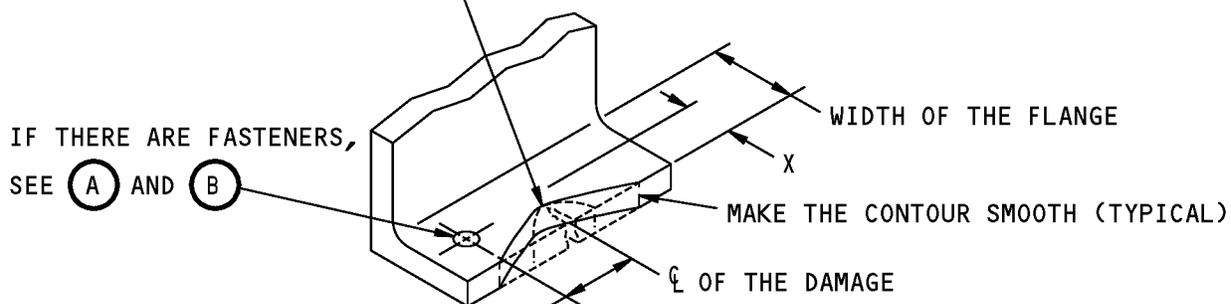
**737-800
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DENT THAT IS PERMITTED

G

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



TAPER TO A MINIMUM OF 20X. THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20x OR MORE

- X = WIDTH OF THE MATERIAL REMOVED
- = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
- = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

H

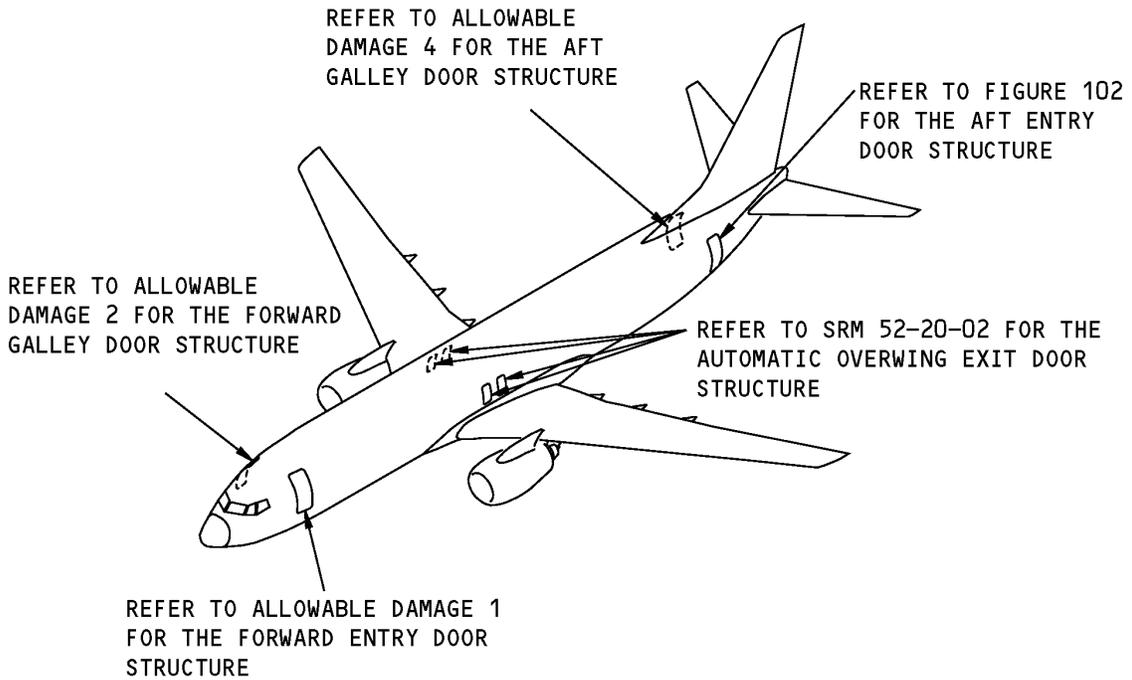
**Allowable Damage Limits
Figure 103 (Sheet 4 of 4)**

STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 3 - AFT ENTRY DOOR STRUCTURE

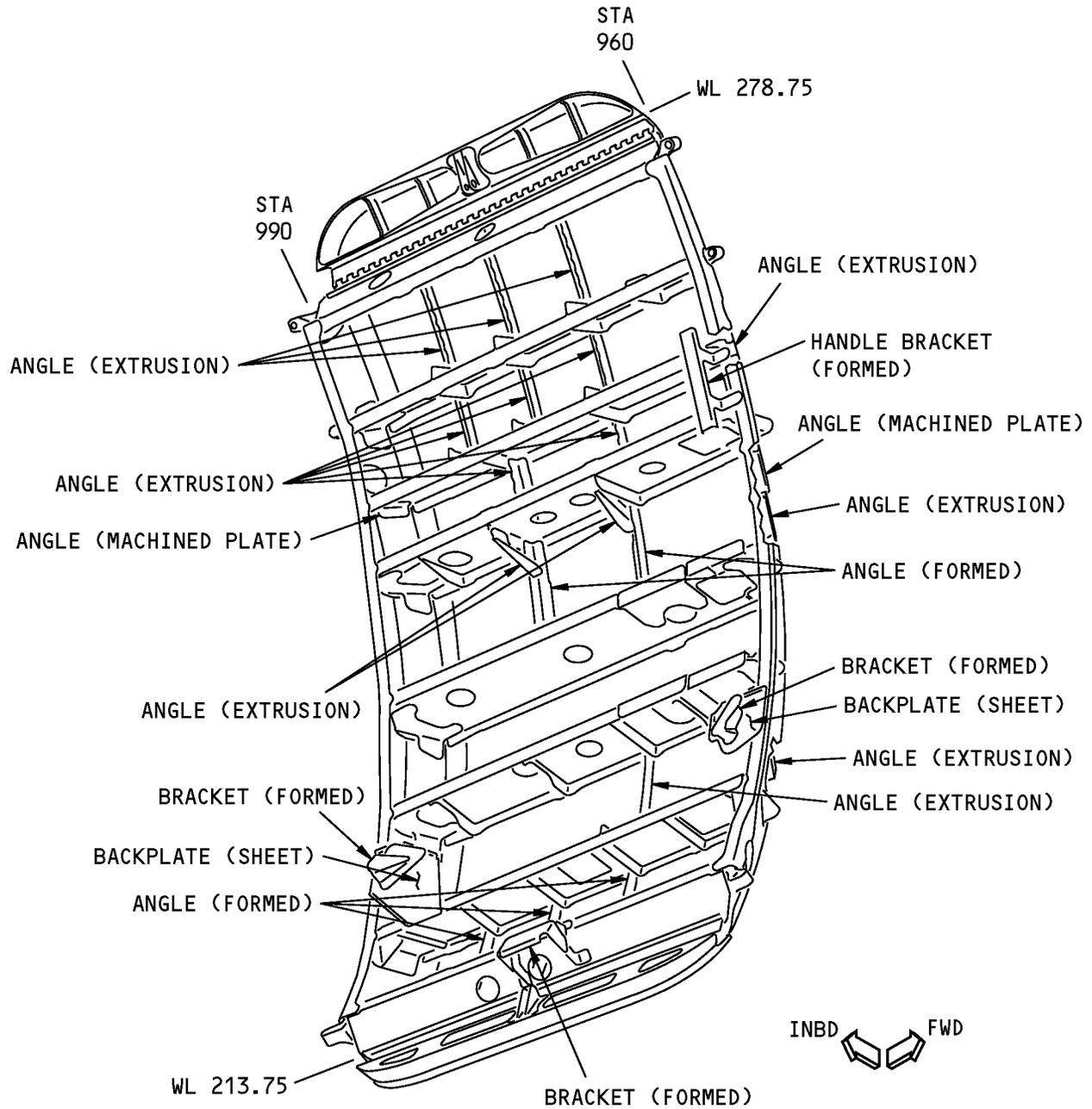
1. Applicability

- A. This subject gives the allowable damage limits for the structure of the aft entry door shown in Aft Entry Door Structure Location, Figure 101/ALLOWABLE DAMAGE 3 and Aft Entry Door Structure Allowable Damage, Figure 102/ALLOWABLE DAMAGE 3.



**Aft Entry Door Structure Location
Figure 101**

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STRUCTURAL REPAIR MANUAL**



**Aft Entry Door Structure Allowable Damage
Figure 102 (Sheet 2 of 2)**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 3.
- B. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible resources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
 - (4) Put a surface finish of 125 microinches Ra or better on the reworked surfaces.
- C. If damage is removed from aluminum, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish if necessary to the reworked area. Refer to AMM PAGEBLOCK 51-21-99/701.

WARNING: USE CARE WHEN YOU REWORK MAGNESIUM. SMALL PARTICLES AND SHAVINGS OF MAGNESIUM ARE HIGHLY FLAMMABLE. MAGNESIUM DUST IS HIGHLY FLAMMABLE AND CAN CAUSE AN EXPLOSION. DO NOT PUT WATER ON HOT MAGNESIUM. A STEAM EXPLOSION CAN OCCUR. EXTINGUISH ALL FIRES OF MAGNESIUM WITH FULLY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON THE METAL THAT IS ON FIRE. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, HALON, OR CARBON DIOXIDE. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR. WEAR PROTECTIVE GOGGLES OR A FACE SHIELD WHEN YOU REMOVE THE CORROSION. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR.

- D. If damage is removed from magnesium, do the steps that follow:
 - (1) Apply a DOW 19 chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-79, Type III primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish if necessary to the reworked area. Refer to AMM PAGEBLOCK 51-21-99/701.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
ANGLES - MACHINED PLATE	4.A
BEAMS - MACHINED PLATE	4.A
INTERCOSTALS - MACHINED PLATE	4.A
INTERCOSTALS - FORMED	4.B
SIDE FRAMES FWD/AFT - FORMED	4.B
UPPER AND LOWER GATES - ZONE 1 CASTING	4.C
UPPER AND LOWER GATES - ZONE 2 CASTING	4.D

ALLOWABLE DAMAGE 3

52-10-02

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3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits - Aft Entry Door Structure

A. Angles, Beams, Stub Beams, and Intercostals - Machined Plate and Extrusion.

(1) Cracks:

(a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, D, and F.

(2) Nicks, Gouges, Scratches, and Corrosion:

(a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, E, and G.

(3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail H.

(4) Holes and Punctures are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail D.

(a) If a hole or puncture is 0.25 inch or less in diameter, do as follows:

- 1) Fill the hole with a 2017-T3 or 2017-T4 rivet.
- 2) Install the rivet without sealant.

B. Angles, Backplate, Brackets, Intercostals, Side Frames, and Formed Stiffeners.

(1) Cracks:

(a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, C, and D.

(2) Nicks, Gouges, Scratches, and Corrosion:

(a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, C, E, and G.

(3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail H.

(4) Holes and Punctures are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail D.

(a) If a hole or puncture is 0.25 inch or less in diameter, do as follows:

- 1) Fill the hole with a 2017-T3 or 2017-T4 rivet.
- 2) Install the rivet without sealant.

C. Upper and Lower Endgates - Zone 1 (Refer to Aft Entry Door Structure - Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 3 for the allowable damage zones)



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(1) Cracks:

NOTE: There are critical areas on the upper and lower endgates. Refer to Aft Entry Door Structure - Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 3 for the Zones.

(a) Remove the damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.

(2) Nicks, Gouges, Scratches, and Corrosion:

(a) Remove the edge damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.

(b) Remove the surface damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details D, and E.

(c) Remove the damage around fasteners at an edge or a surface as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Detail F.

(3) Dents are not permitted.

(4) Holes and Punctures are not permitted.

D. Upper and Lower Endgates - Zone 2 (Refer to Aft Entry Door Structure - Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 3 for the allowable damage zones).

(1) Cracks:

(a) Remove the damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.

(2) Nicks, Gouges, Scratches, and Corrosion:

(a) Remove the edge damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.

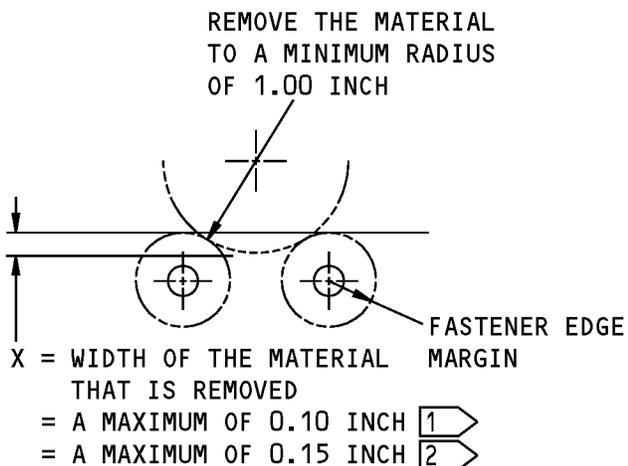
(b) Remove the surface damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details D and E.

(c) Remove the damage around fasteners at an edge or a surface as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Detail F.

(3) Dents are not permitted.

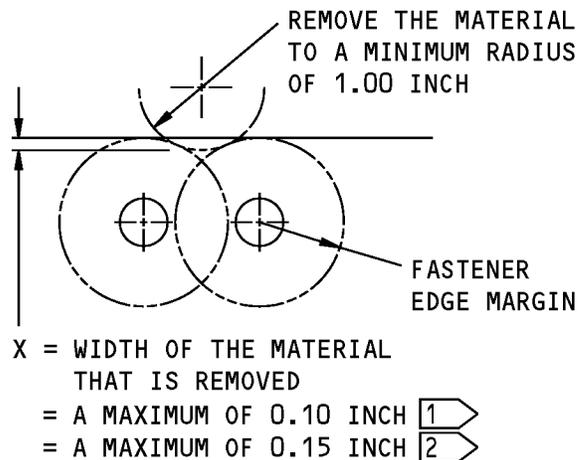
(4) Holes and Punctures are not permitted.

STRUCTURAL REPAIR MANUAL



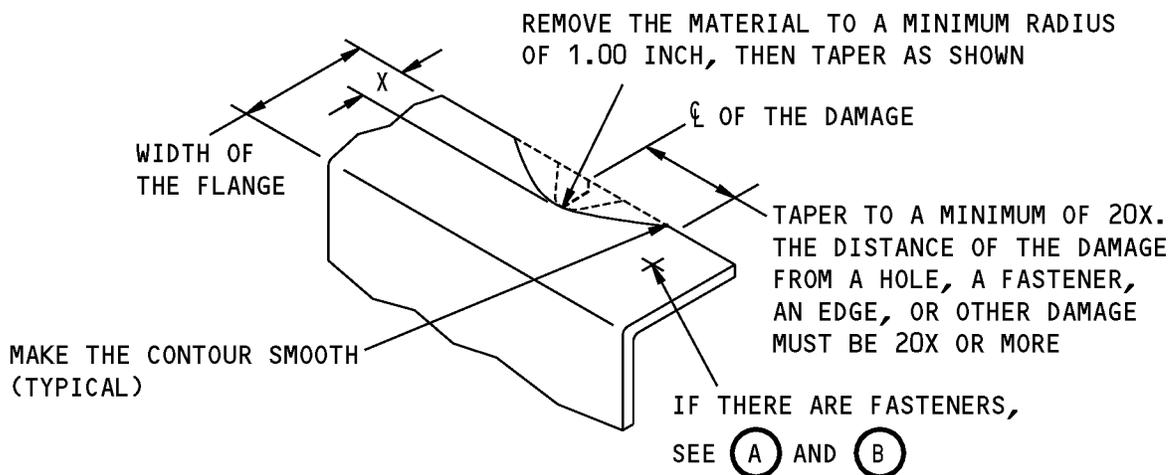
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL ON AN EDGE

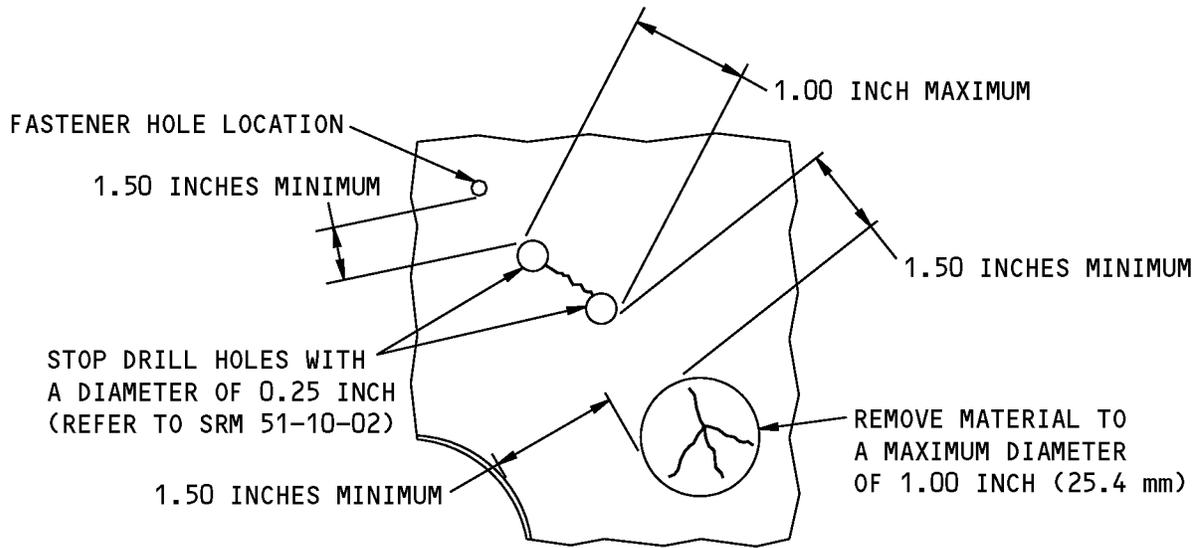
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

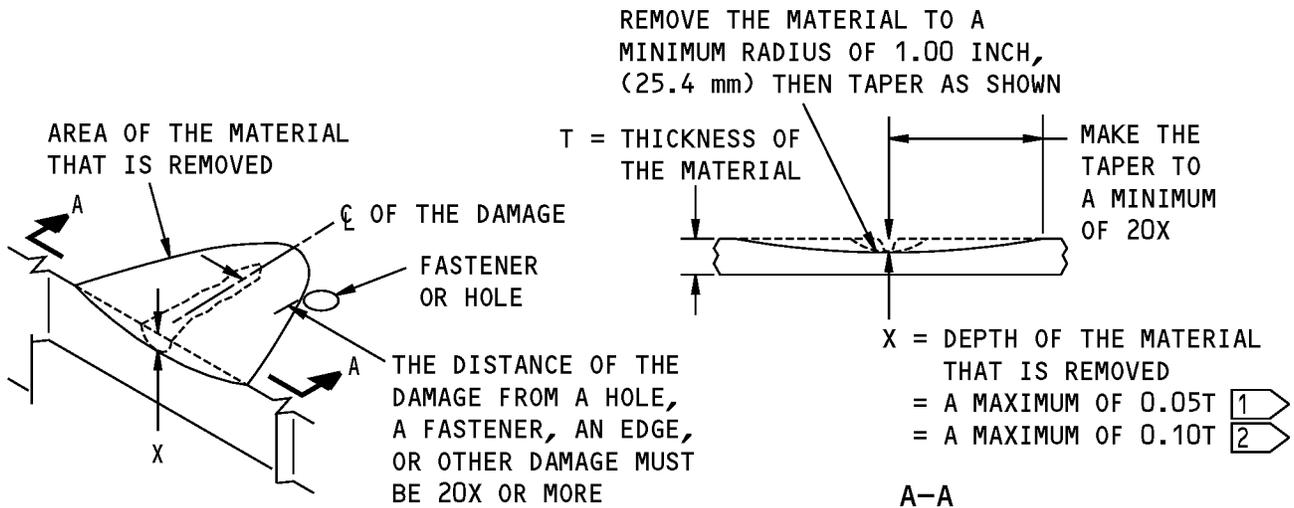
**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

**737-800
STRUCTURAL REPAIR MANUAL**



HOLES AND CRACKS THAT ARE PERMITTED

D

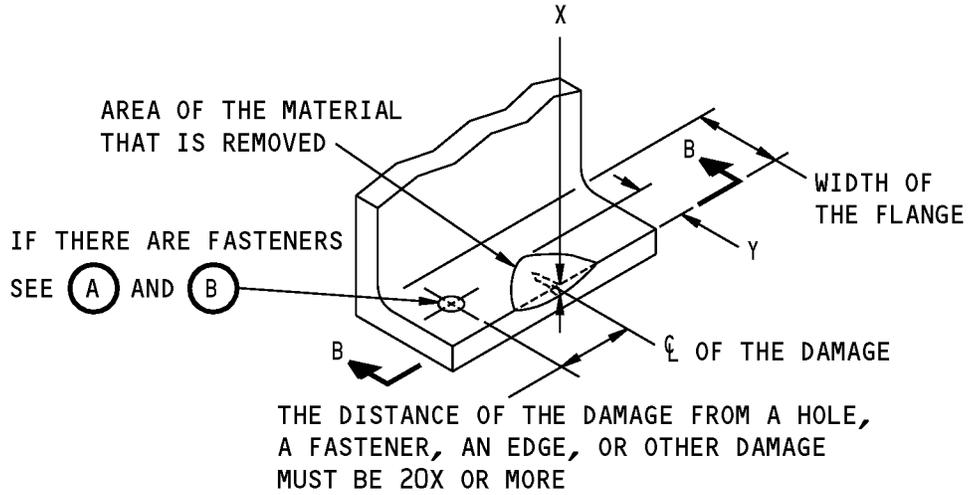


**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

E

**Allowable Damage Limits
Figure 103 (Sheet 2 of 4)**

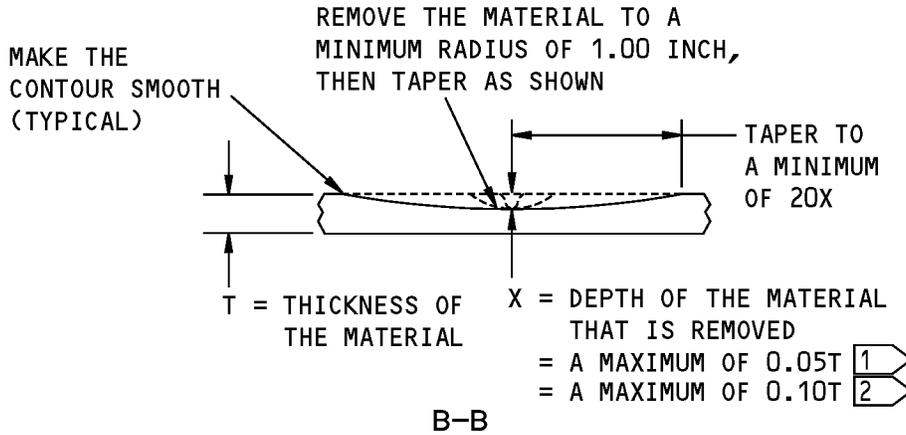
STRUCTURAL REPAIR MANUAL



- Y = WIDTH OF THE MATERIAL THAT IS REMOVED
- = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE 1
- = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 2

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

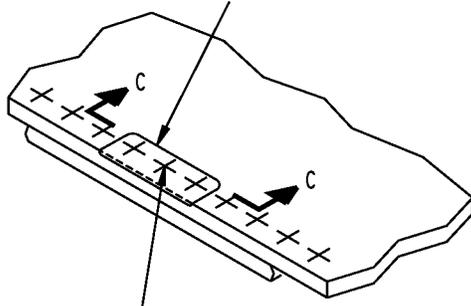
(F)



**Allowable Damage Limits
Figure 103 (Sheet 3 of 4)**

STRUCTURAL REPAIR MANUAL

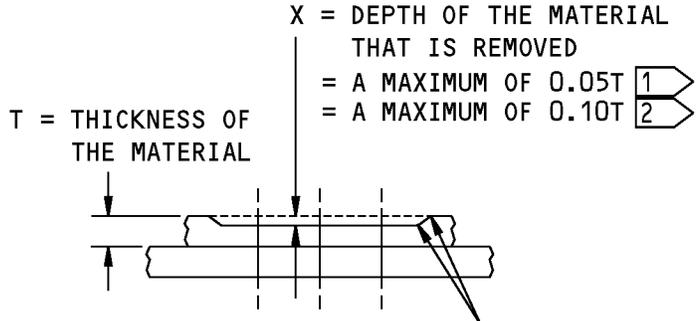
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



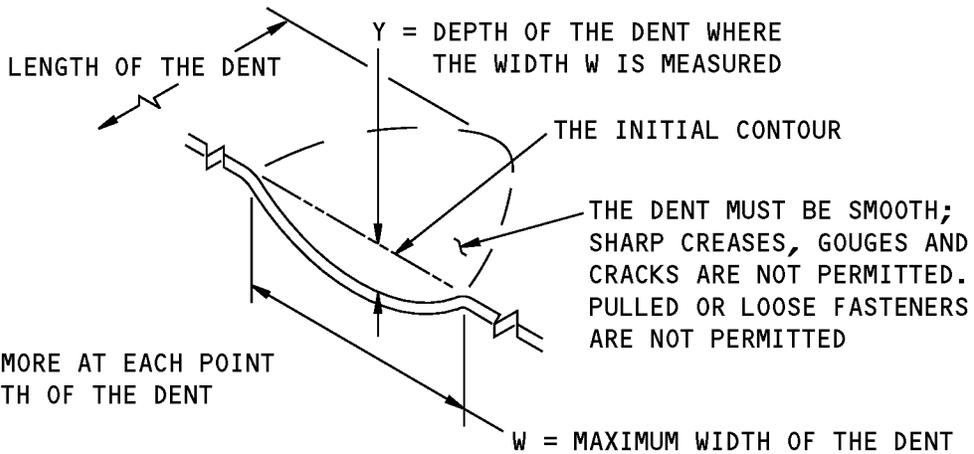
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(G)



I-I

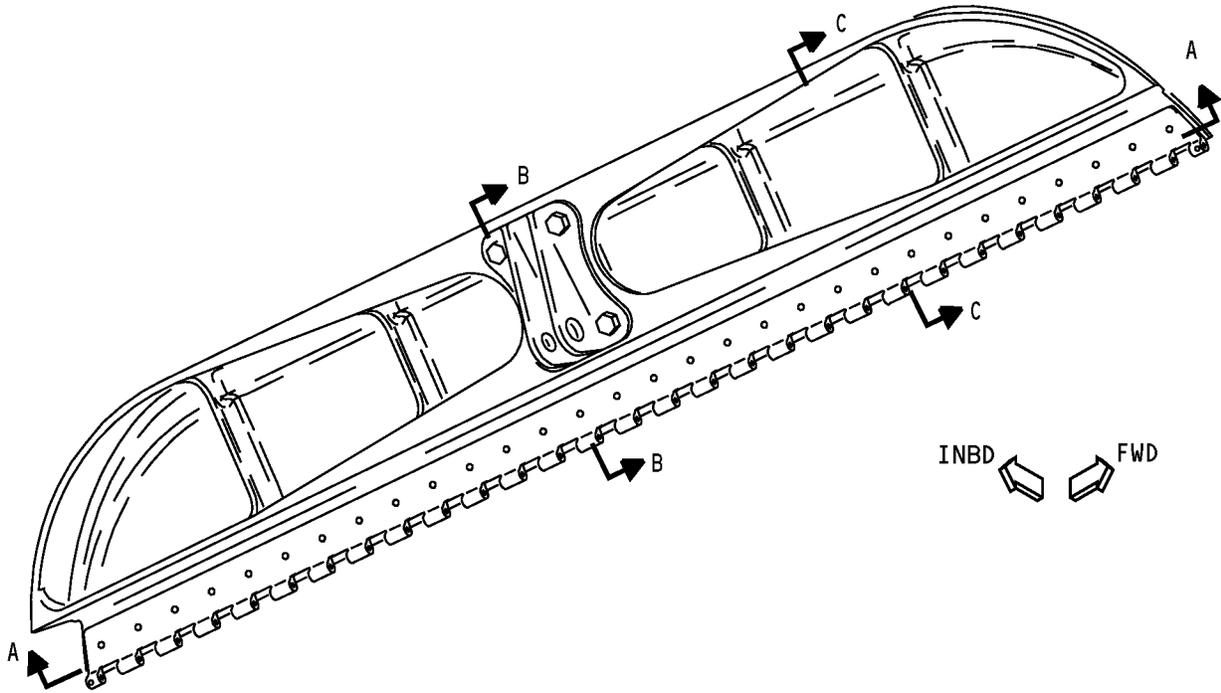


DENT THAT IS PERMITTED

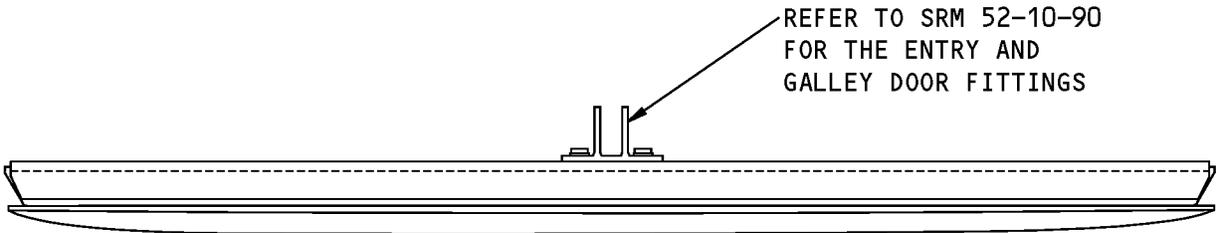
(H)

Allowable Damage Limits
Figure 103 (Sheet 4 of 4)

**737-800
STRUCTURAL REPAIR MANUAL**



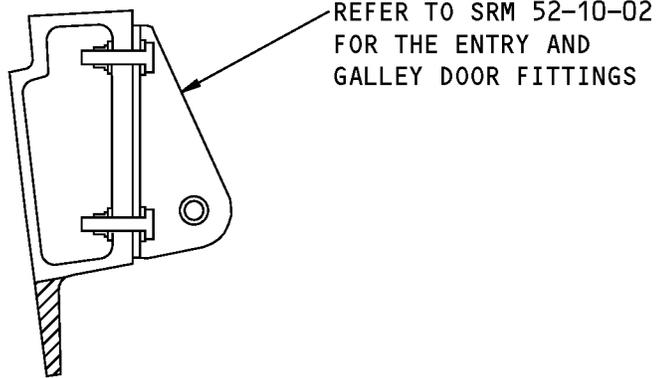
UPPER GATE IS SHOWN,
LOWER GATE IS ALMOST THE SAME



A-A

**Aft Entry Door Structure - Allowable Damage Zones
Figure 104 (Sheet 1 of 2)**

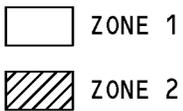
737-800
STRUCTURAL REPAIR MANUAL



B-B

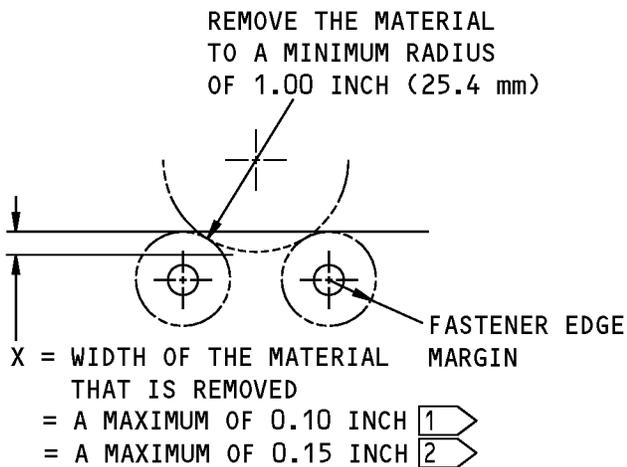


C-C



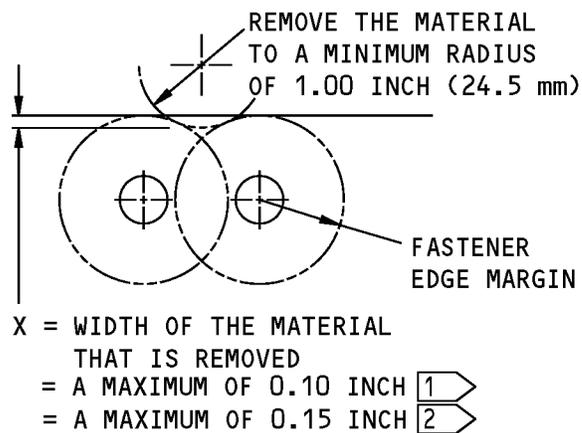
Aft Entry Door Structure - Allowable Damage Zones
Figure 104 (Sheet 2 of 2)

STRUCTURAL REPAIR MANUAL



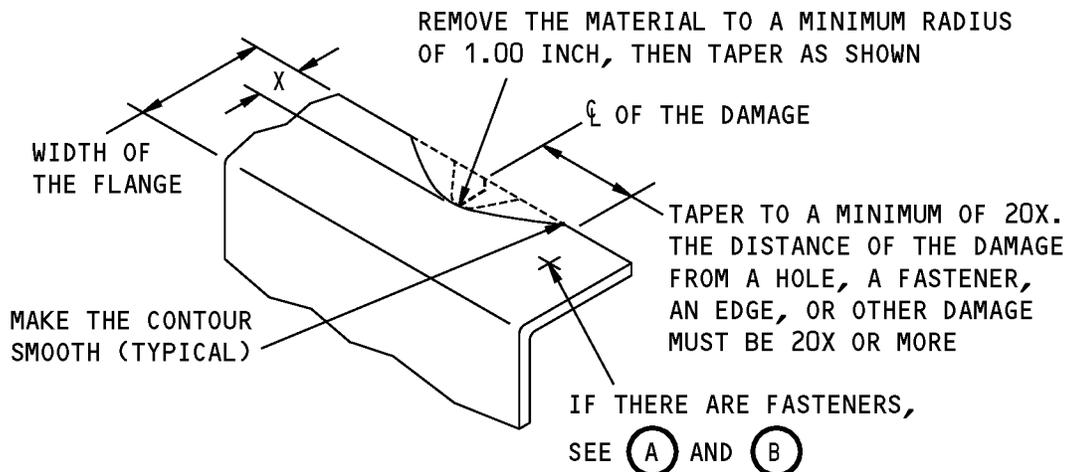
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 1
 = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE 2

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

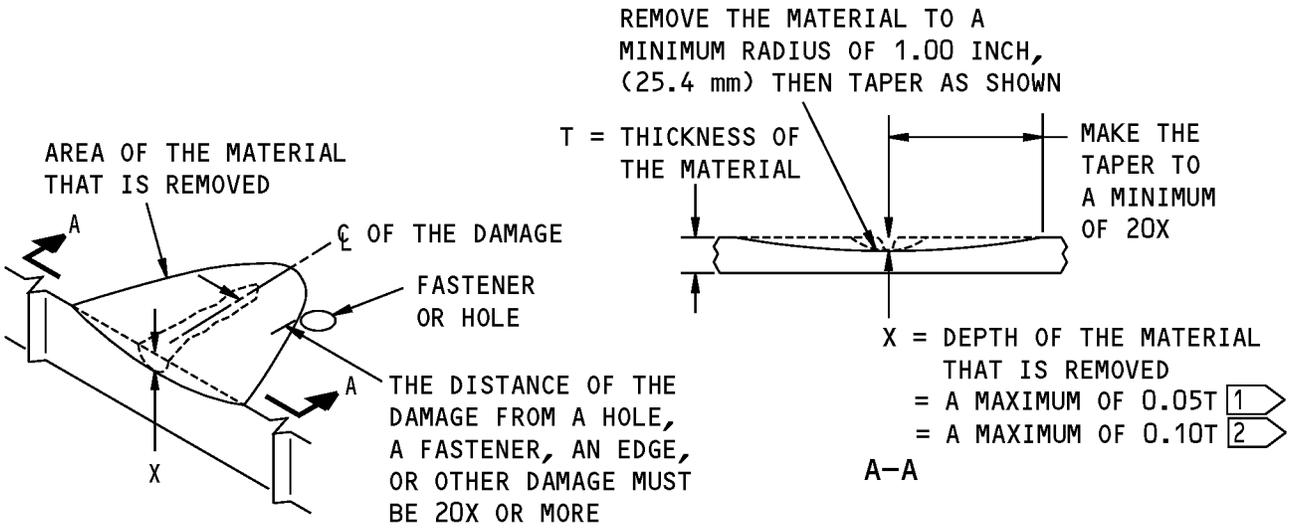
(C)

NOTES

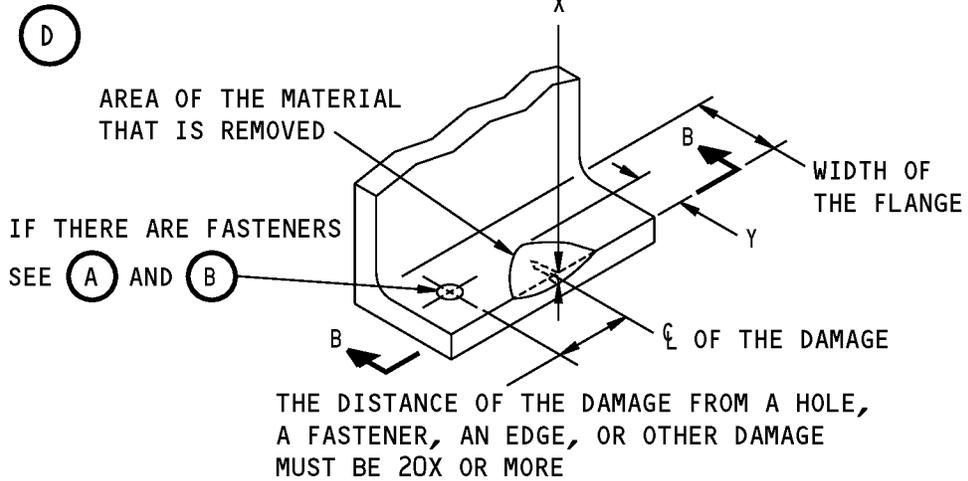
- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Aft Entry Door Structure Allowable Damage
 Figure 105 (Sheet 1 of 3)**

STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE



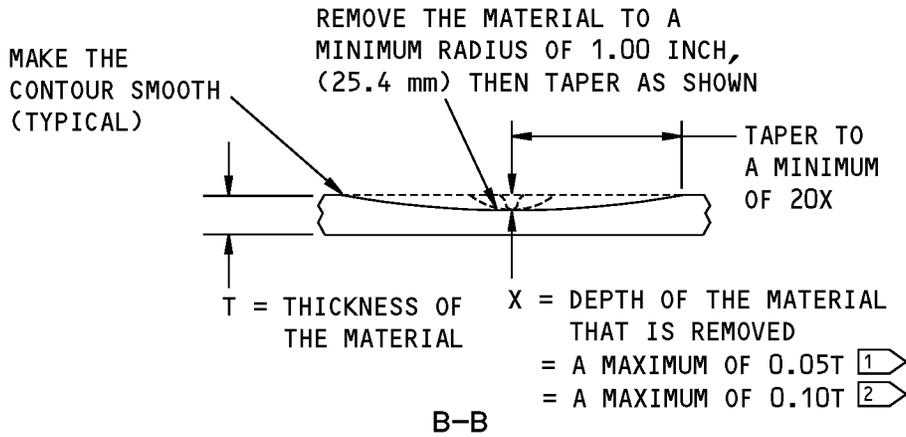
Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE 1
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 2

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

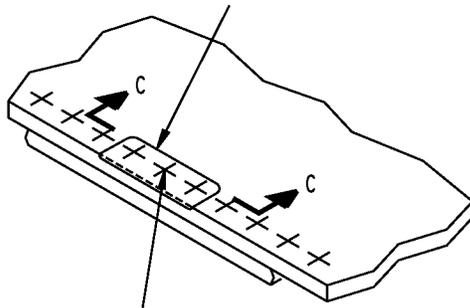
(E)

**Aft Entry Door Structure Allowable Damage
 Figure 105 (Sheet 2 of 3)**

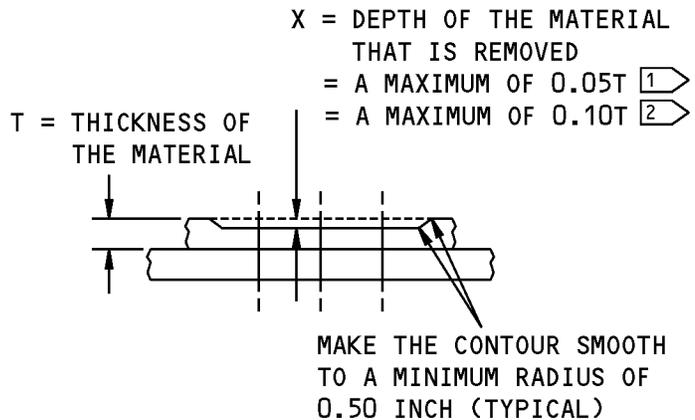
**737-800
STRUCTURAL REPAIR MANUAL**



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

F

C-C

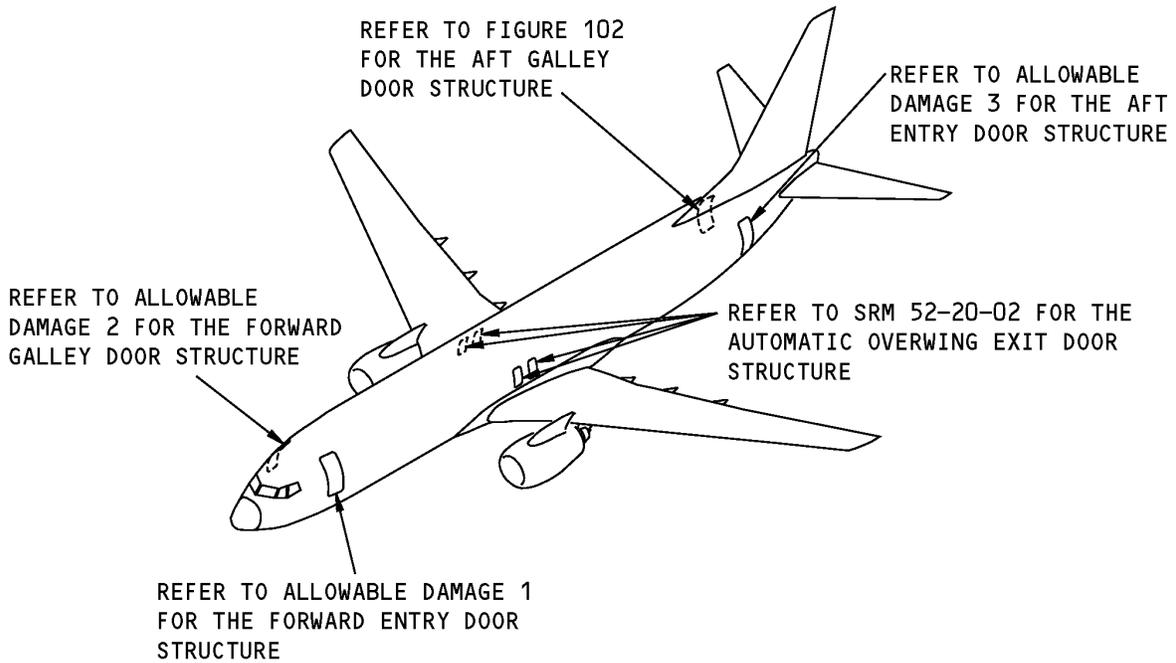
**Aft Entry Door Structure Allowable Damage
Figure 105 (Sheet 3 of 3)**

STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 4 - AFT GALLEY DOOR STRUCTURE

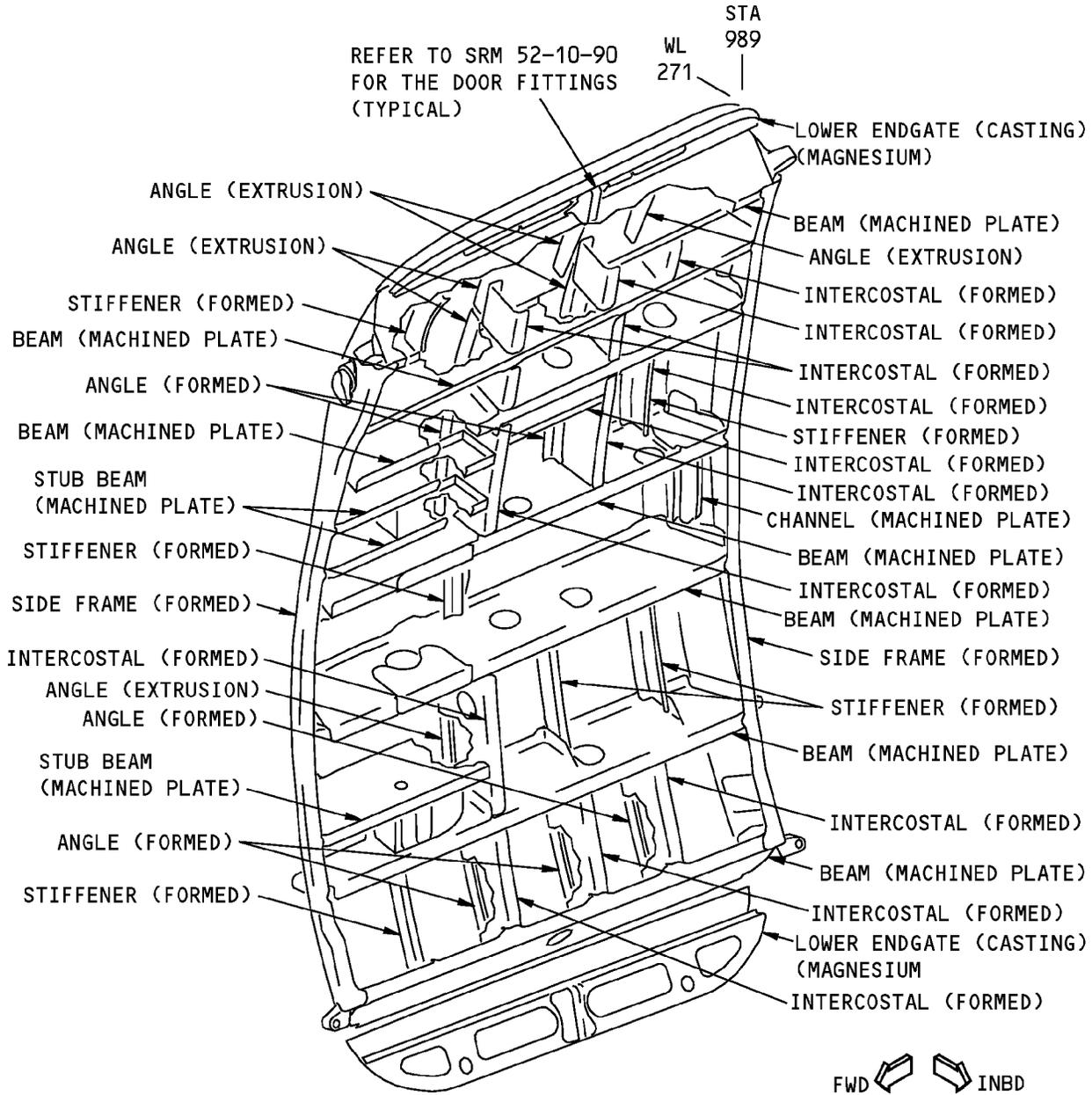
1. Applicability

- A. This subject gives the allowable damage limits for the aft galley door structure shown in Aft Galley Door Structure Location, Figure 101/ALLOWABLE DAMAGE 4 and Aft Galley Door Structure, Figure 102/ALLOWABLE DAMAGE 4.



**Aft Galley Door Structure Location
Figure 101**

**737-800
STRUCTURAL REPAIR MANUAL**



NOTE: ALL PARTS ARE MADE FROM ALUMINUM (EXCEPT AS NOTED).

**Aft Galley Door Structure
Figure 102**



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STRUCTURAL REPAIR MANUAL

2. **General**

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 4 Refer to Table 101/ALLOWABLE DAMAGE 4 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Angles (Extrusion)	4.A
Angles (Formed)	4.B
Beams (Machined Plate)	4.A
Intercostals (Formed)	4.B
Side Frames Fwd/Aft (Formed)	4.B
Stiffeners (Formed)	4.B
Upper and Lower Endgate (Casting)	4.C

- B. Remove the damaged material as necessary.

NOTE: The procedures that follow do not apply to dent damage.

- (1) Refer to 51-10-02 for the inspection and removal of damage.
- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
- (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. If damage has been removed from aluminum parts, do the steps that follow:

- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

WARNING: USE CARE WHEN YOU REWORK MAGNESIUM. SMALL PARTICLES AND FINE SHAVINGS OF MAGNESIUM ARE HIGHLY FLAMMABLE. MAGNESIUM DUST IS HIGHLY FLAMMABLE AND CAN CAUSE AN EXPLOSION. DO NOT PUT WATER ON HOT MAGNESIUM. A STEAM EXPLOSION CAN OCCUR. EXTINGUISH ALL FIRES OF MAGNESIUM WITH FULLY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON TOP OF THE BURNING METAL. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, HALON, OR CARBON DIOXIDE. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR. WEAR PROTECTIVE GOGGLES OR A FACE SHIELD WHEN YOU REMOVE THE CORROSION. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR.

- D. If damage has been removed from magnesium parts, do the steps that follow:

- (1) Apply a DOW 19 chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-79, Type III primer to the reworked areas as given in SOPM 20-44-04.

STRUCTURAL REPAIR MANUAL**3. References**

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primers

4. Allowable Damage Limits - Aft Galley Door Structure**A. Angles, Beams, Stub Beams, and Intercostals - Machined Plate and Extrusion**

(1) Cracks:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , D , and H .

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , D , E , F , and H .

(3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Detail G .

(4) Holes and Punctures are permitted if they are:

- (a) A maximum of 0.25 inch (0.64 mm) in diameter
- (b) A minimum of 1.00 inch (25.4 mm) away from other damage
- (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
- (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.

- 1) Install the rivet without sealant.

B. Angles, Backplate, Brackets, Intercostals, Side Frames, and Stiffeners - Formed

(1) Cracks:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , and C .

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , C , D , E , and F .

(3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Detail G .

(4) Holes and Punctures are permitted if they are:

- (a) A maximum of 0.25 inch (0.64 mm) in diameter
- (b) A minimum of 1.00 inch (25.4 mm) away from other damage
- (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
- (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.



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STRUCTURAL REPAIR MANUAL

1) Install the rivet without sealant.

C. Upper and Lower Endgate - Casting

(1) Cracks:

(a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , and H .

(2) Nicks, Gouges, Scratches, and Corrosion:

(a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , D , F , and H .

(3) Dents are not permitted.

(4) Holes and Punctures are not permitted.

ALLOWABLE DAMAGE 4

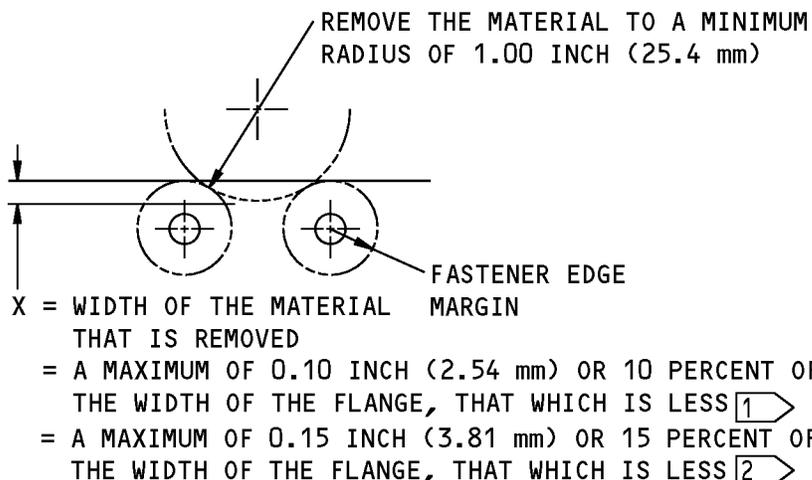
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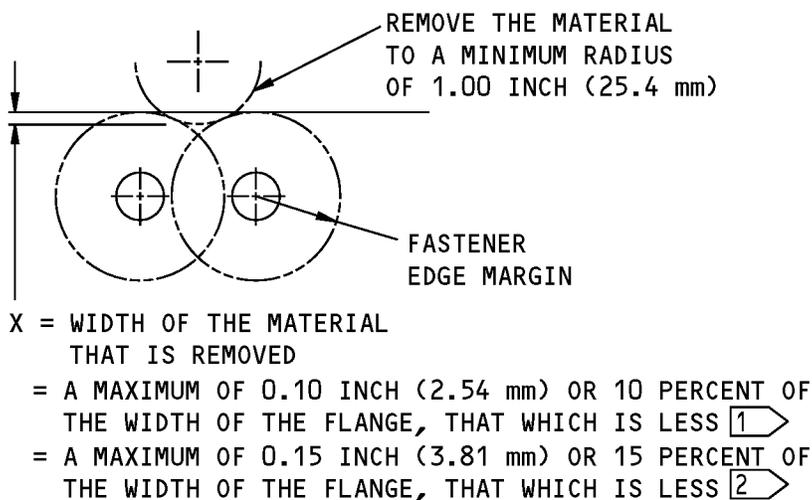
D634A210

STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

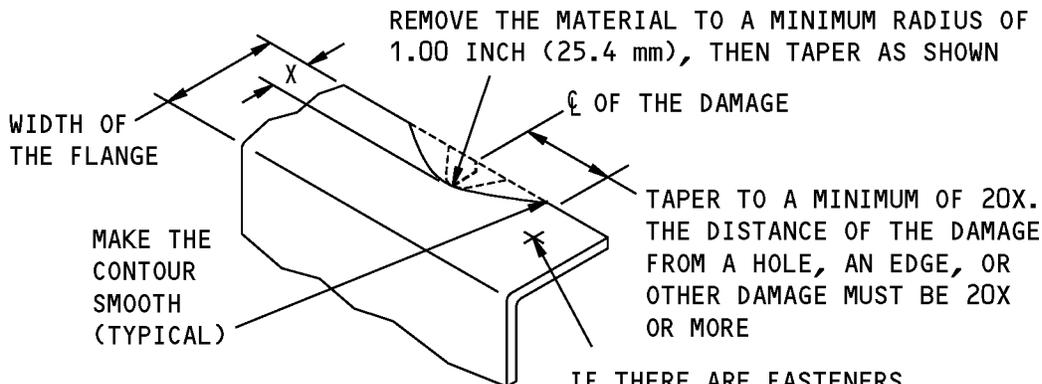
(B)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

STRUCTURAL REPAIR MANUAL

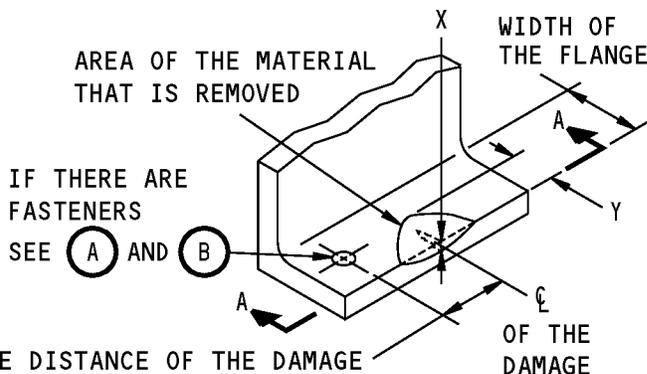


X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS **1**
 = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS **2**

IF THERE ARE FASTENERS, SEE **(A)** AND **(B)**

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

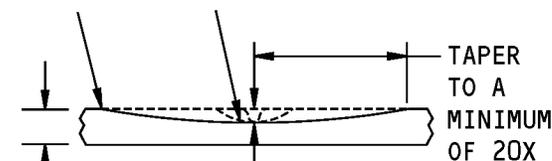


THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE **1**
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE **2**

MAKE THE CONTOUR SMOOTH (TYPICAL)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN



X = DEPTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.05T **1**
 = A MAXIMUM OF 0.10T **2**

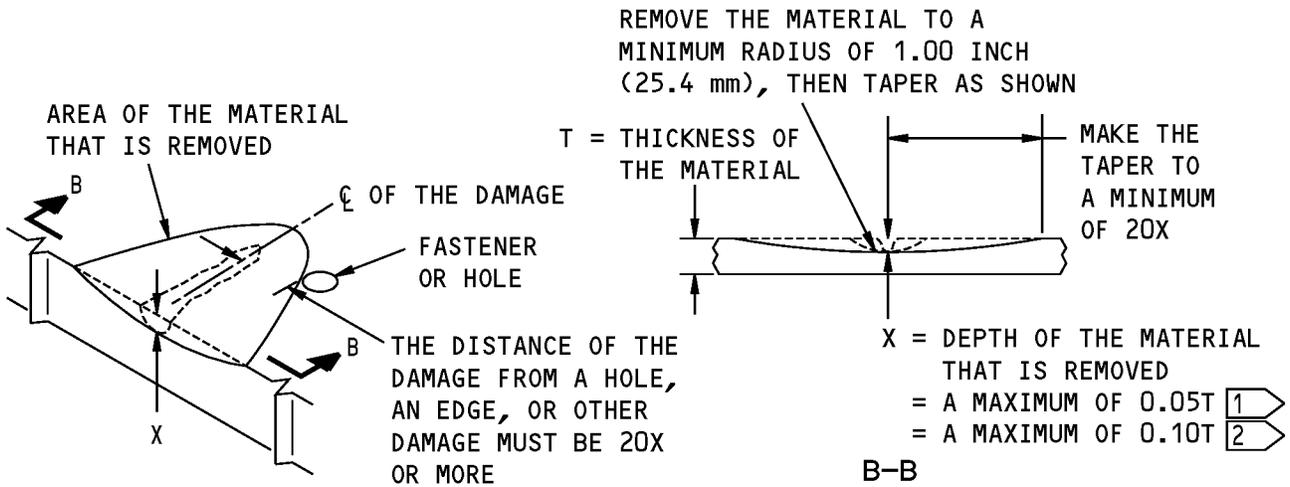
A-A

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(D)

**Allowable Damage Limits
 Figure 103 (Sheet 2 of 4)**

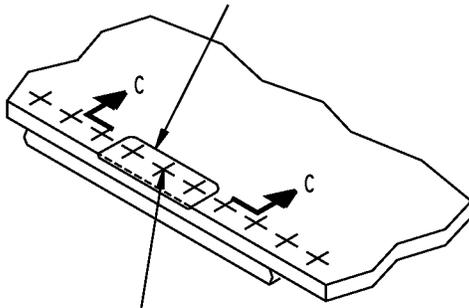
STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(E)

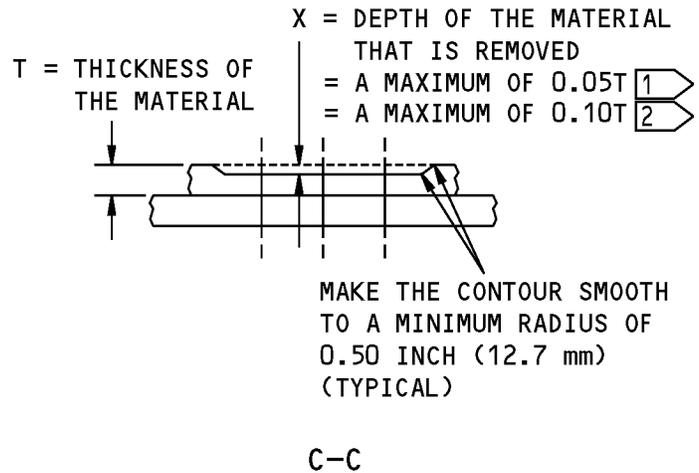
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

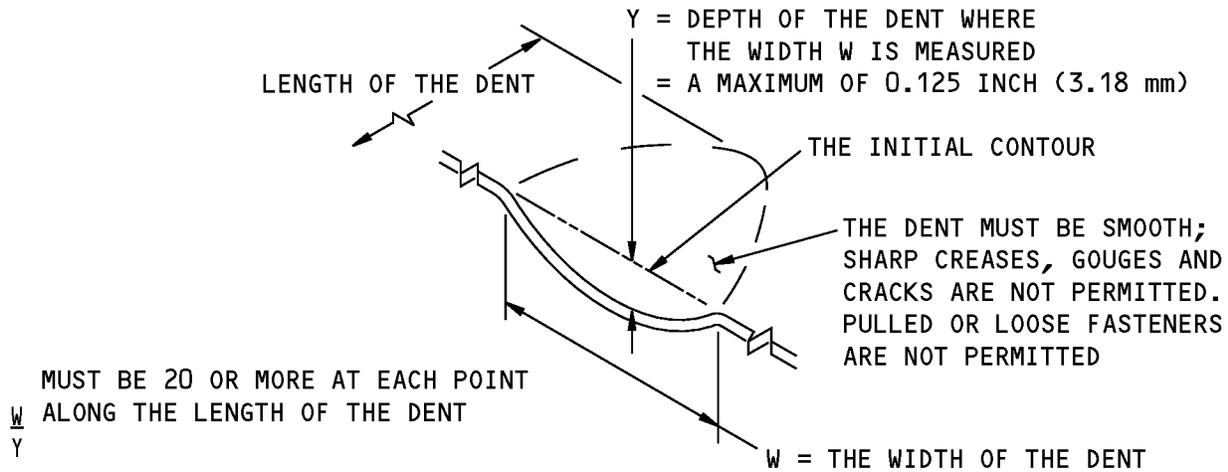
REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(F)



**Allowable Damage Limits
 Figure 103 (Sheet 3 of 4)**

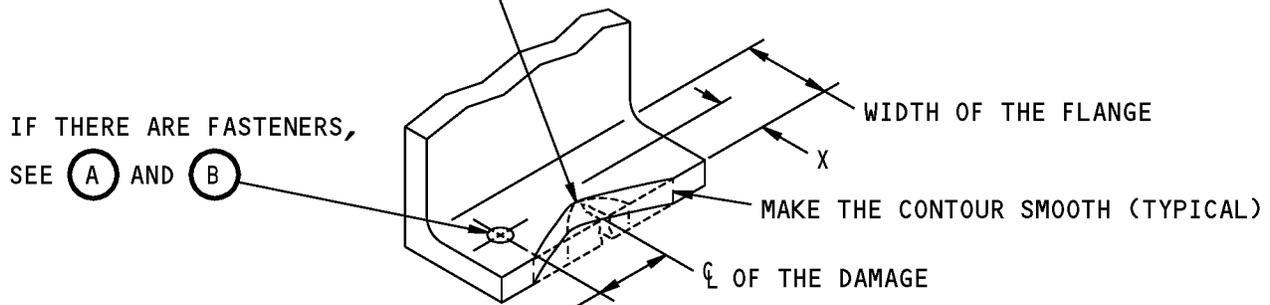
**737-800
STRUCTURAL REPAIR MANUAL**



DENT THAT IS PERMITTED

G

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20x OR MORE

- X = WIDTH OF THE MATERIAL REMOVED
- = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
 - = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

H

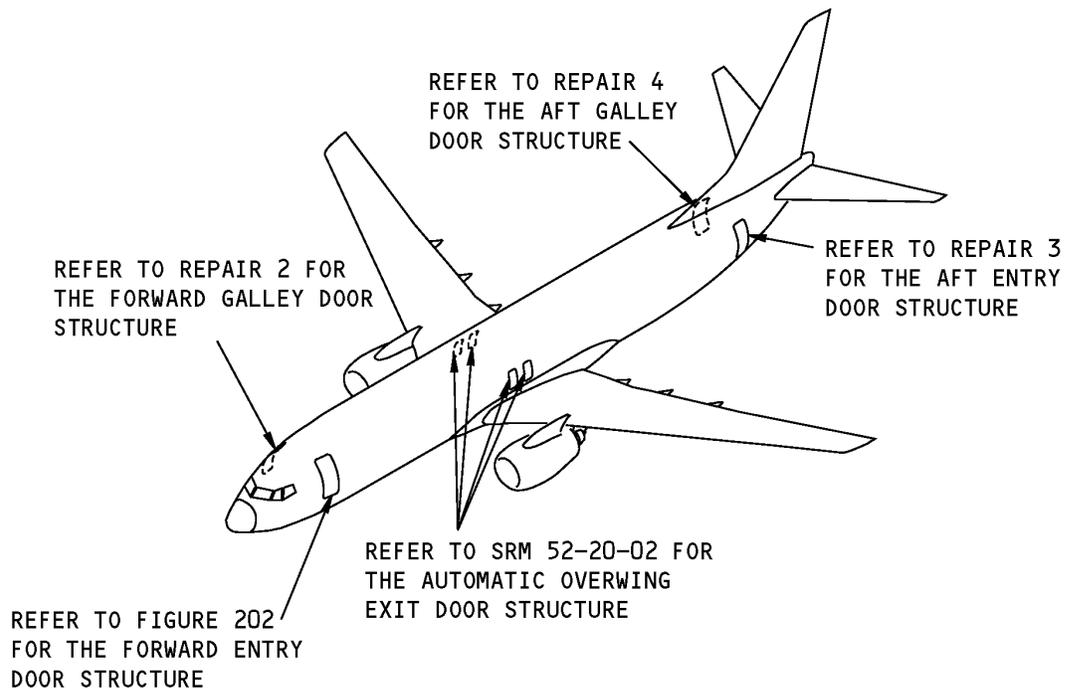
**Allowable Damage Limits
Figure 103 (Sheet 4 of 4)**

STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD ENTRY DOOR STRUCTURE

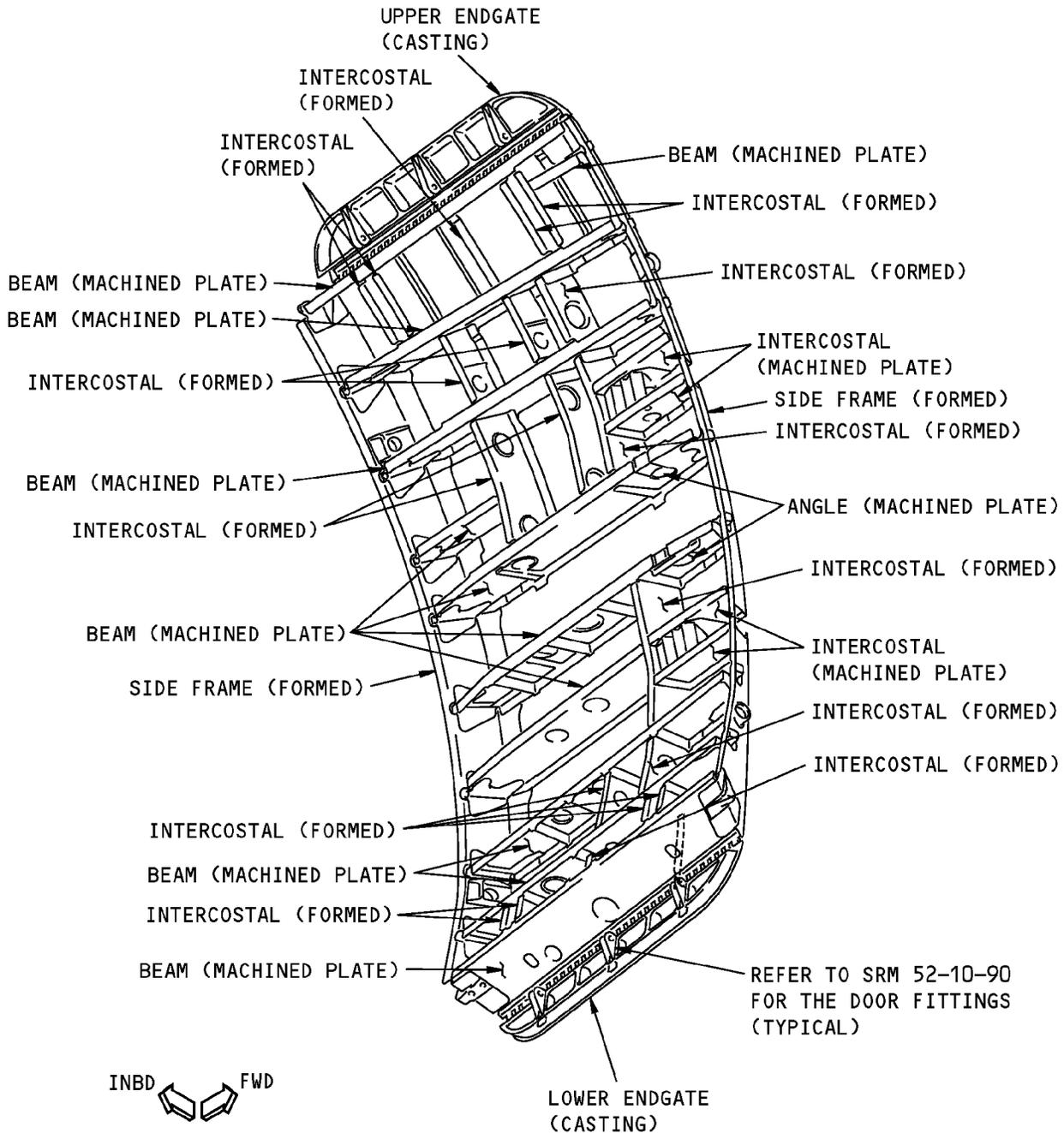
1. Applicability

- A. Repair 1 is applicable to damage to the forward entry door structure shown in Forward Entry Door Structure Location, Figure 201/REPAIR 1 and Forward Entry Door Structure, Figure 202/REPAIR 1.



**Forward Entry Door Structure Location
Figure 201**

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STRUCTURAL REPAIR MANUAL**



NOTE: ALL PARTS ARE MADE FROM ALUMINUM.

**Forward Entry Door Structure
Figure 202**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs given in 51-70-11 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
52-10-02	PASSENGER/GALLEY ENTRY DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Forward Entry Door Structure Location, Figure 201/REPAIR 1 and Forward Entry Door Structure, Figure 202/REPAIR 1, and Table 201 to find the applicable repair for the part that you want to repair.

NOTE: If necessary, refer to 52-10-02, Identification 1 to find the material and the process that was used to make the part which you want to repair.

Table 201:

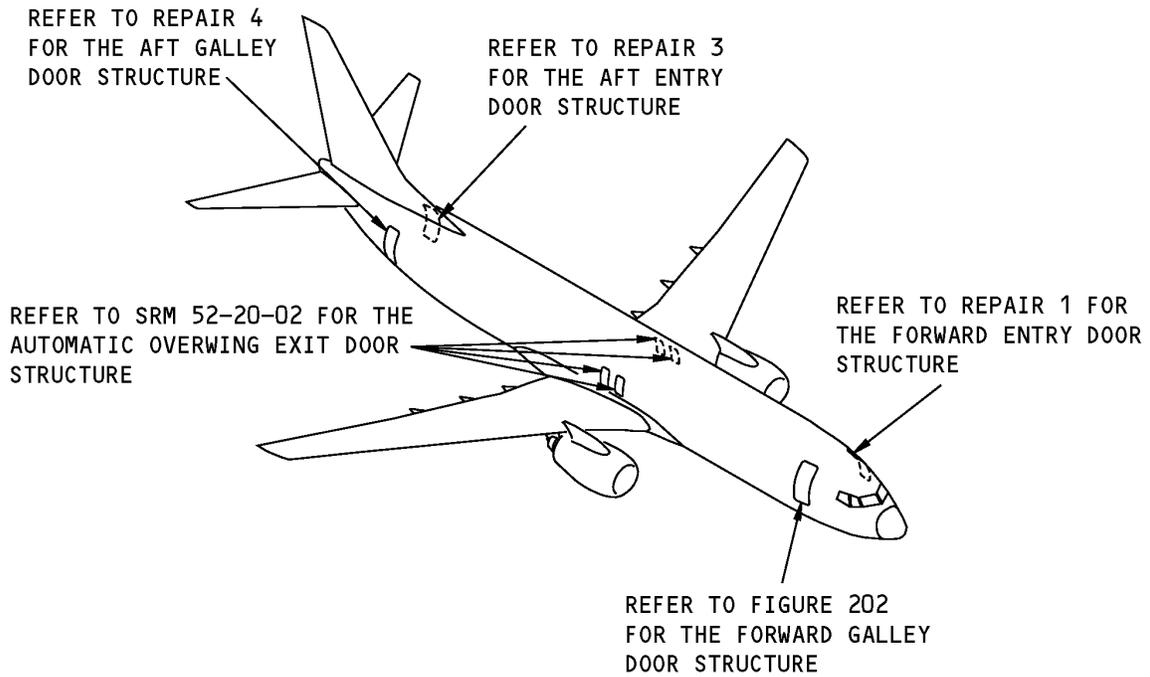
REPAIR REFERENCES FOR THE FORWARD ENTRY DOOR STRUCTURE	
COMPONENT	REPAIR
Angle (machined plate)	There are no repairs for the Angle structure in the Structural Repair Manual at this time.
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Endgate (Casting)	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
Frame (formed)	Refer to SRM 51-70-11
Intercostal (formed))	Refer to SRM 51-70-11
Intercostal (machined plate)	There are no repairs for the Intercostal structure in the Structural Repair Manual at this time.

STRUCTURAL REPAIR MANUAL

REPAIR 2 - FORWARD GALLEY DOOR STRUCTURE

1. Applicability

- A. Repair 2 is applicable to damage to the forward galley door structure shown in Forward Galley Door Structure Location, Figure 201/REPAIR 2 and Forward Galley Door Structure, Figure 202/REPAIR 2.



**Forward Galley Door Structure Location
Figure 201**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-10-02	PASSENGER/GALLEY ENTRY DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Forward Galley Door Structure Location, Figure 201/REPAIR 2 and Forward Galley Door Structure, Figure 202/REPAIR 2, and Table 201 to find the applicable repair for the part you want to repair.

NOTE: If necessary, refer to 52-10-02, Identification 2 to find the material and the process that was used to make the part which you want to repair.

Table 201:

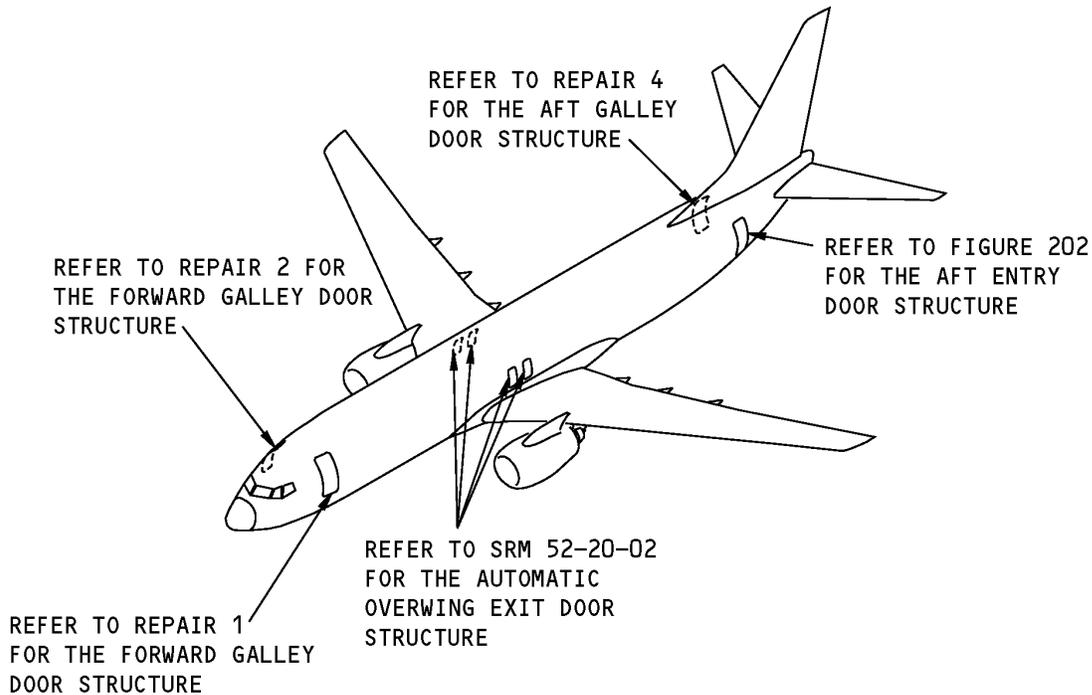
REPAIR REFERENCES FOR THE FORWARD GALLEY DOOR STRUCTURE	
COMPONENT	REPAIR
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Endgate (casting)	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
Frame (formed)	Refer to SRM 51-70-11
Intercostal (extrusion)	Refer to SRM 51-70-12
Intercostal (formed)	Refer to SRM 51-70-11
Stiffener (extrusion)	Refer to SRM 51-70-12
Stub Beam (machined plate)	There are no repairs for the Stub Beam structure in the Structural Repair Manual at this time.

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STRUCTURAL REPAIR MANUAL**

REPAIR 3 - AFT ENTRY DOOR STRUCTURE

1. Applicability

- A. Repair 3 is applicable to damage to the aft entry door structure shown in Aft Entry Door Structure Location, Figure 201/REPAIR 3.



NOTE: REFER TO TABLE 201 FOR THE REPAIR DATA.

**Aft Entry Door Structure Location
Figure 201**

2. References

Reference	Title
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS



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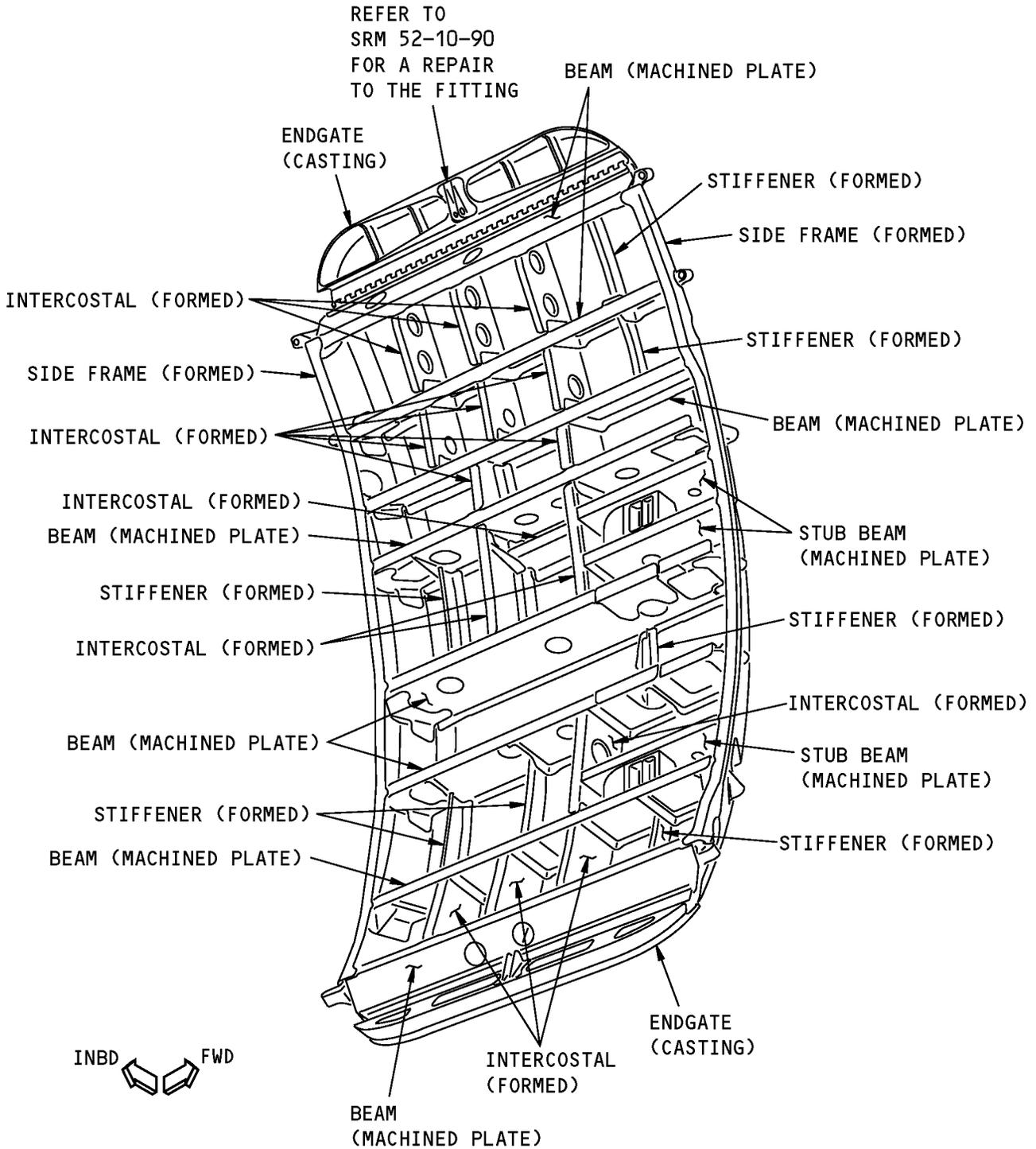
3. Repair Instructions

A. Refer to Table 201/REPAIR 3 to find the applicable repair for a component of the aft entry door structure shown in Aft Entry Door Structure Repairs, Figure 202/REPAIR 3.

Table 201:

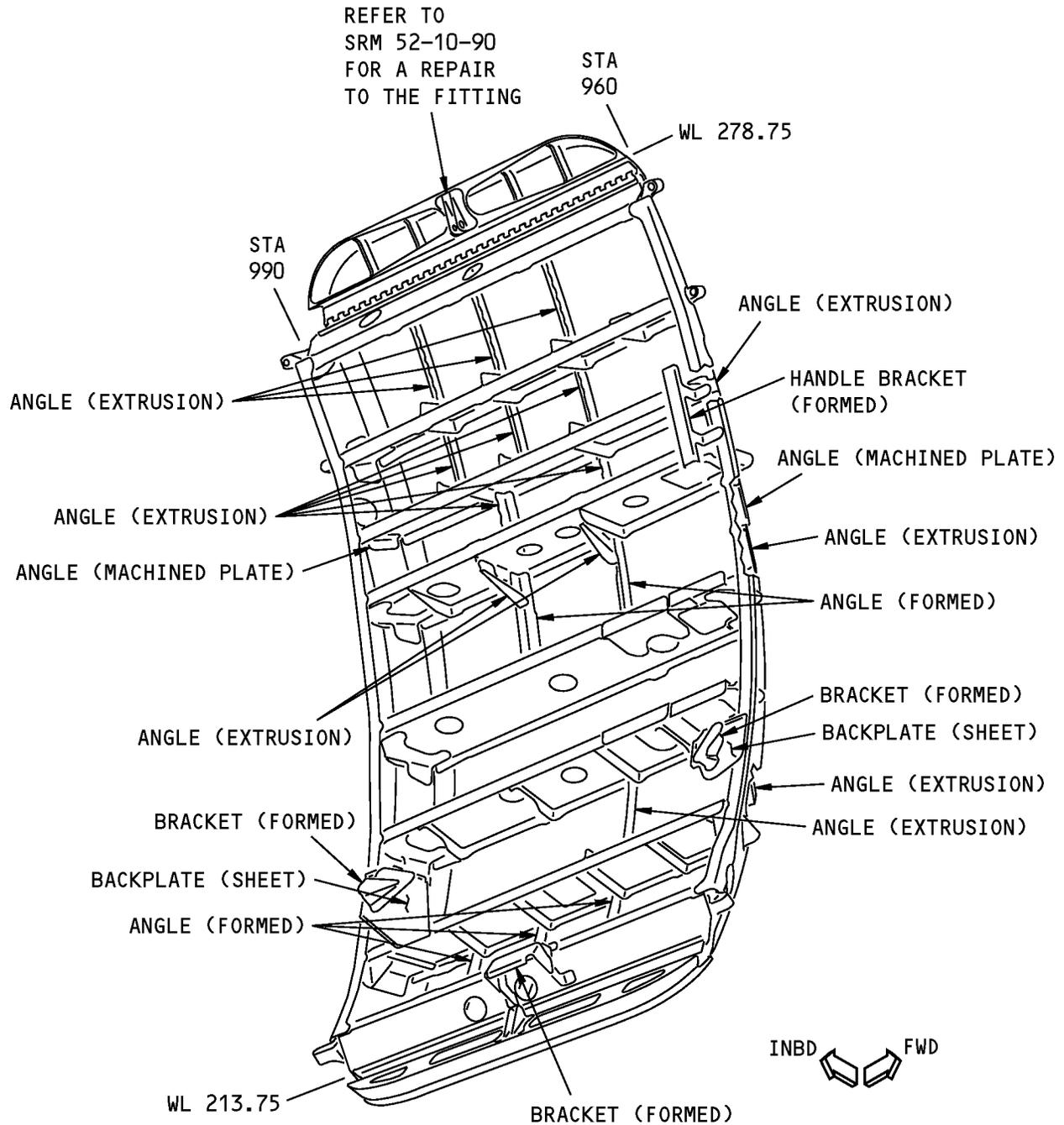
REPAIR REFERENCES FOR THE AFT ENTRY DOOR	
COMPONENT	REPAIR
ANGLE - FORMED	Refer to SRM 51-70-12
BACK PLATE - SHEET	Refer to SRM 51-70-01
BRACKET - FORMED	Refer to SRM 51-70-11
BEAM - MACHINED PLATE	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
ENDGATE - CASTING	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
HANDLE - BRACKET - FORMED	Refer to SRM 51-70-11
FRAME - FORMED	Refer to SRM 51-70-11
INTERCOSTAL - FORMED	Refer to SRM 51-70-11
STIFFENER - EXTRUSION	Refer to SRM 51-70-12
STUB BEAM - MACHINED PLATE	There are no repairs for the Stub Beam structure in the Structural Repair Manual at this time.

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**Aft Entry Door Structure Repairs
Figure 202 (Sheet 1 of 2)**

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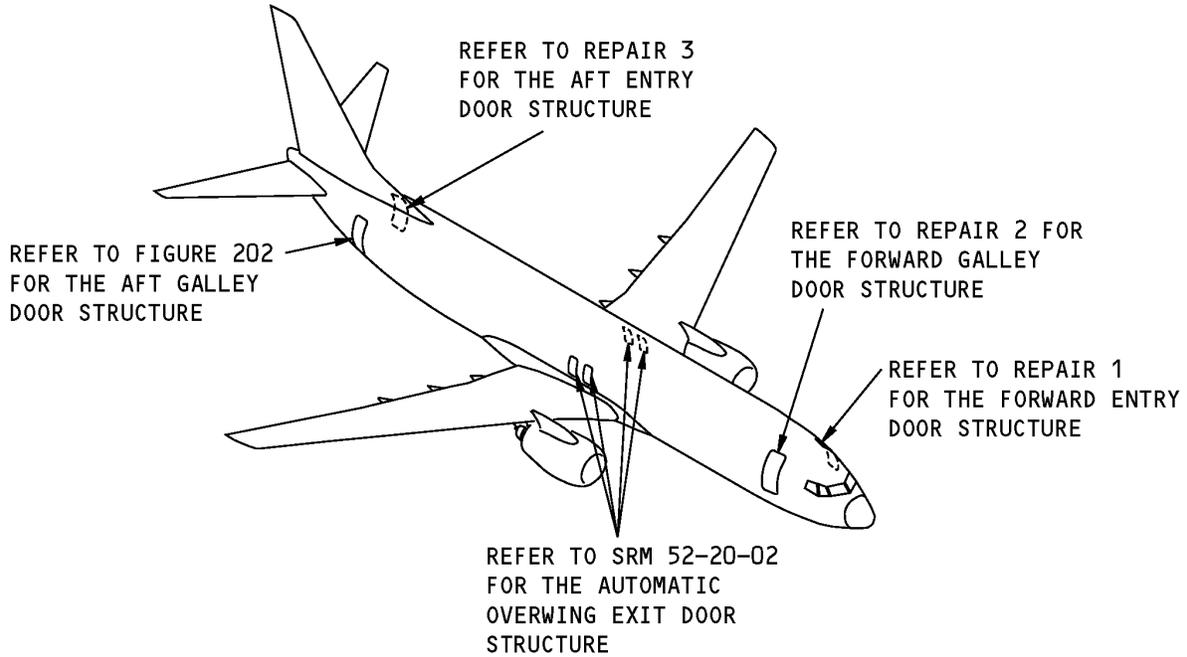
**Aft Entry Door Structure Repairs
Figure 202 (Sheet 2 of 2)**

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REPAIR 4 - AFT GALLEY DOOR STRUCTURE

1. Applicability

- A. Repair 4 is applicable to damage to the aft galley door structure shown in Aft Galley Door Structure Location, Figure 201/REPAIR 4 and Aft Galley Door Structure, Figure 202/REPAIR 4.



Aft Galley Door Structure Location
Figure 201



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2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-10-02	PASSENGER/GALLEY ENTRY DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Aft Galley Door Structure Location, Figure 201/REPAIR 4 and Aft Galley Door Structure, Figure 202/REPAIR 4, and Table 201 to find the applicable repair for the part you want to repair.

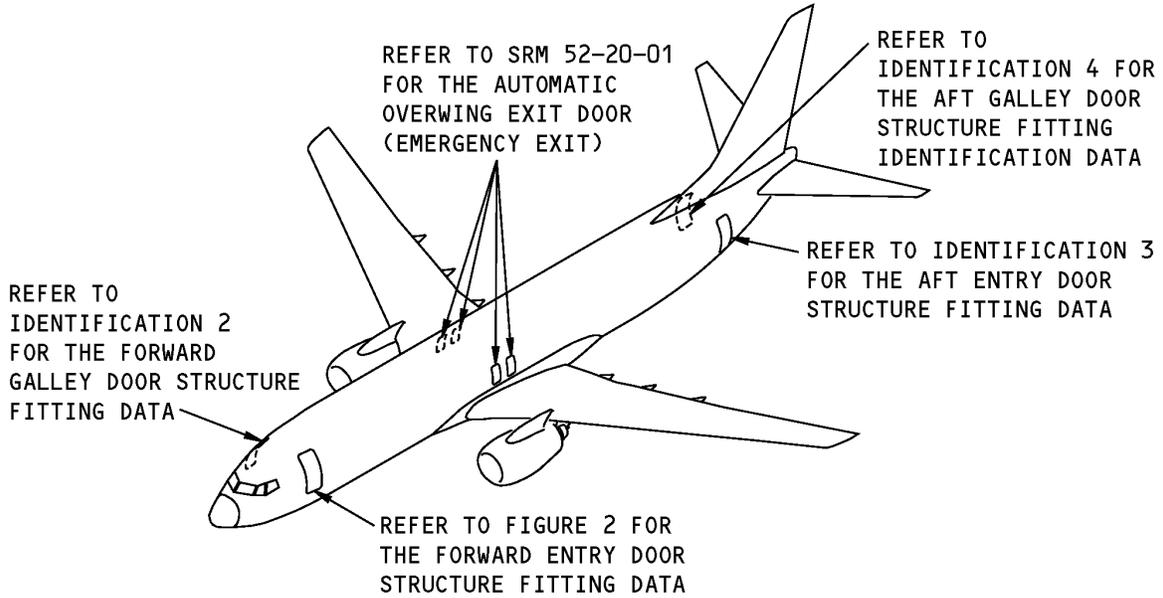
NOTE: If necessary, refer to 52-10-02, Identification 4 to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE FORWARD GALLEY DOOR STRUCTURE	
COMPONENT	REPAIR
Angle (extrusion)	Refer to SRM 51-70-12
Angle (formed)	Refer to SRM 51-70-11
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Endgate (casting)	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
Frame (formed)	Refer to SRM 51-70-11
Intercostal (formed)	Refer to SRM 51-70-11
Stiffener (extrusion)	Refer to SRM 51-70-12
Stiffener (formed)	Refer to SRM 51-70-11
Stub Beam (machined plate)	There are no repairs for the Stub Beam structure in the Structural Repair Manual at this time.

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IDENTIFICATION 1 - FORWARD ENTRY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Entry Door Location
Figure 1**

Table 1:

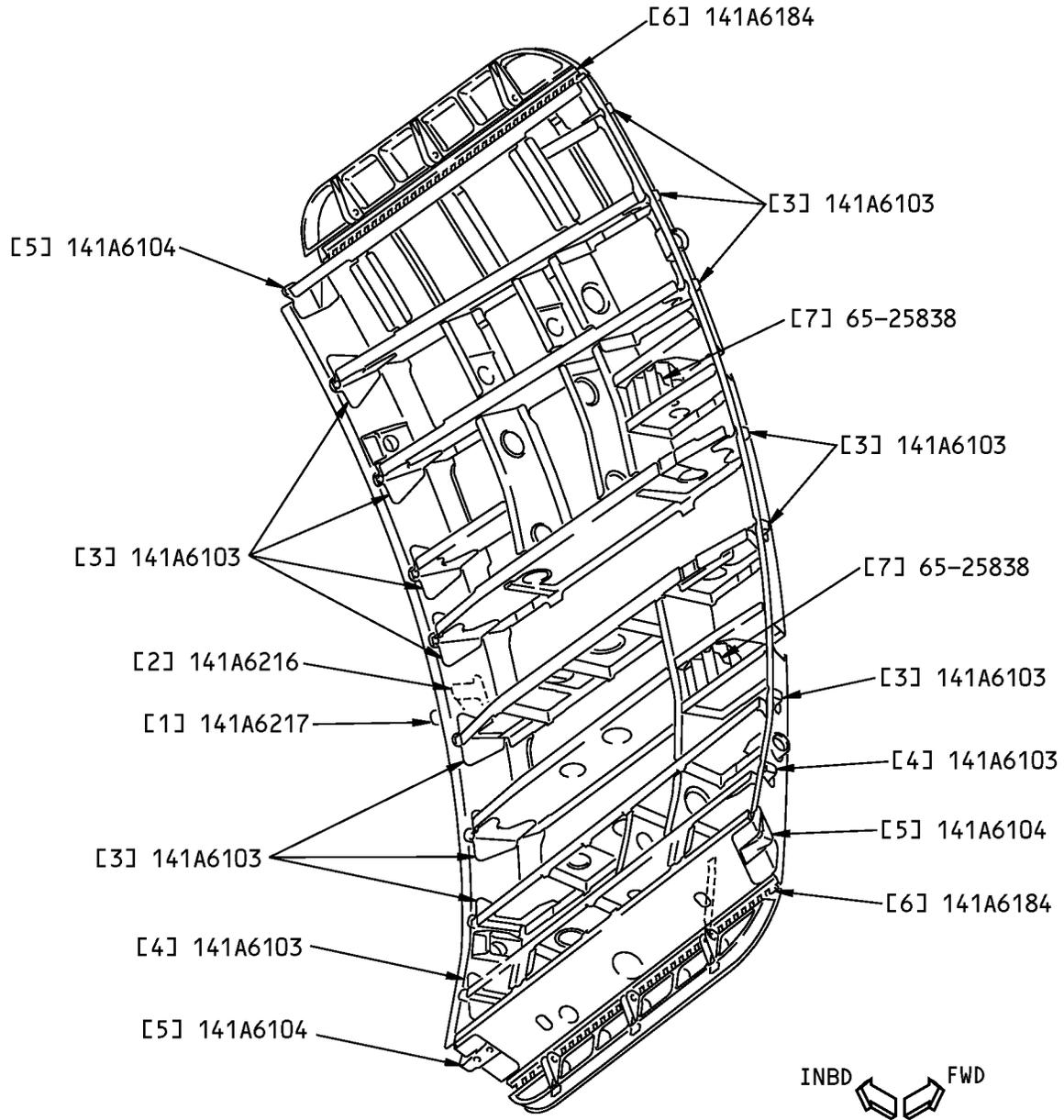
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6100	Forward Entry Door - Assembly Collector
141A6101	Frame and Beam Installation - Forward Entry Door
141A6120	Beam and Stop Assembly - Forward Entry Door
141A6170	Upper Gate Installation - Forward Entry Door
141A6171	Upper Gate Assembly - Forward Entry Door
141A6180	Lower Gate Installation - Forward Entry Door
141A6181	Lower Gate Assembly - Forward Entry Door



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6183	Gate Hinge Assembly - Forward Entry Door
141A6190	Hinge Support Installation - Forward Entry Door
141A6205	Centering Guide Installation - Forward Entry Door
141A6209	Guide Fitting Assembly - Forward Entry Door
69-22323	Hinge Support Assembly - Forward Entry Door

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Entry Door Structure Fitting Identification
Figure 2**



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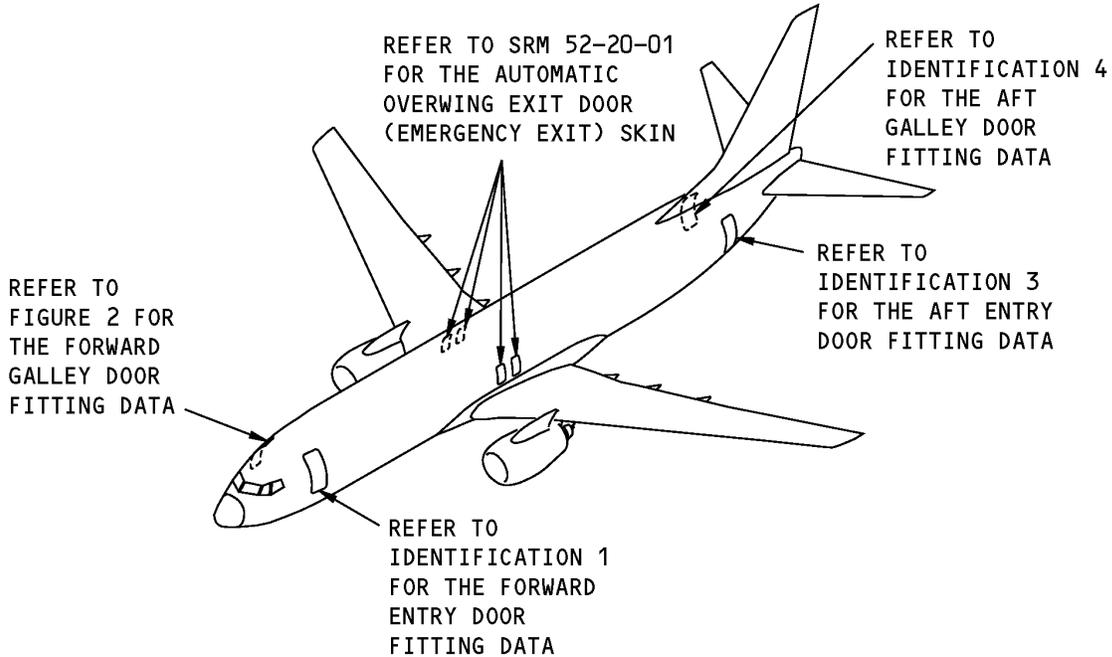
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Guide Ball		15-5PH CRES bar heat treated to 150 to 170 KSI. Refer to the production drawing for the machined thicknesses	
[2]	Guide Fitting		7075-T73511 plate. Refer to the production drawing for the machined thicknesses	
[3]	Stop Fitting		BAC1502-2801 2024-T3511 extrusion. Refer to the production drawing for the machined thicknesses	
[4]	Stop Fitting		BAC1502-2802 2024-T3511 extrusion. Refer to the production drawing for the machined thicknesses	
[5]	Support Fitting		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[6]	Hinge Half, Lower		BAC1520-2577 2024-T3511 extrusion	
[7]	Hinge Support		A356-T6 aluminum casting, composition 3	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - FORWARD GALLEY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Galley Door Structure Fittings Location
Figure 1**

Table 1:

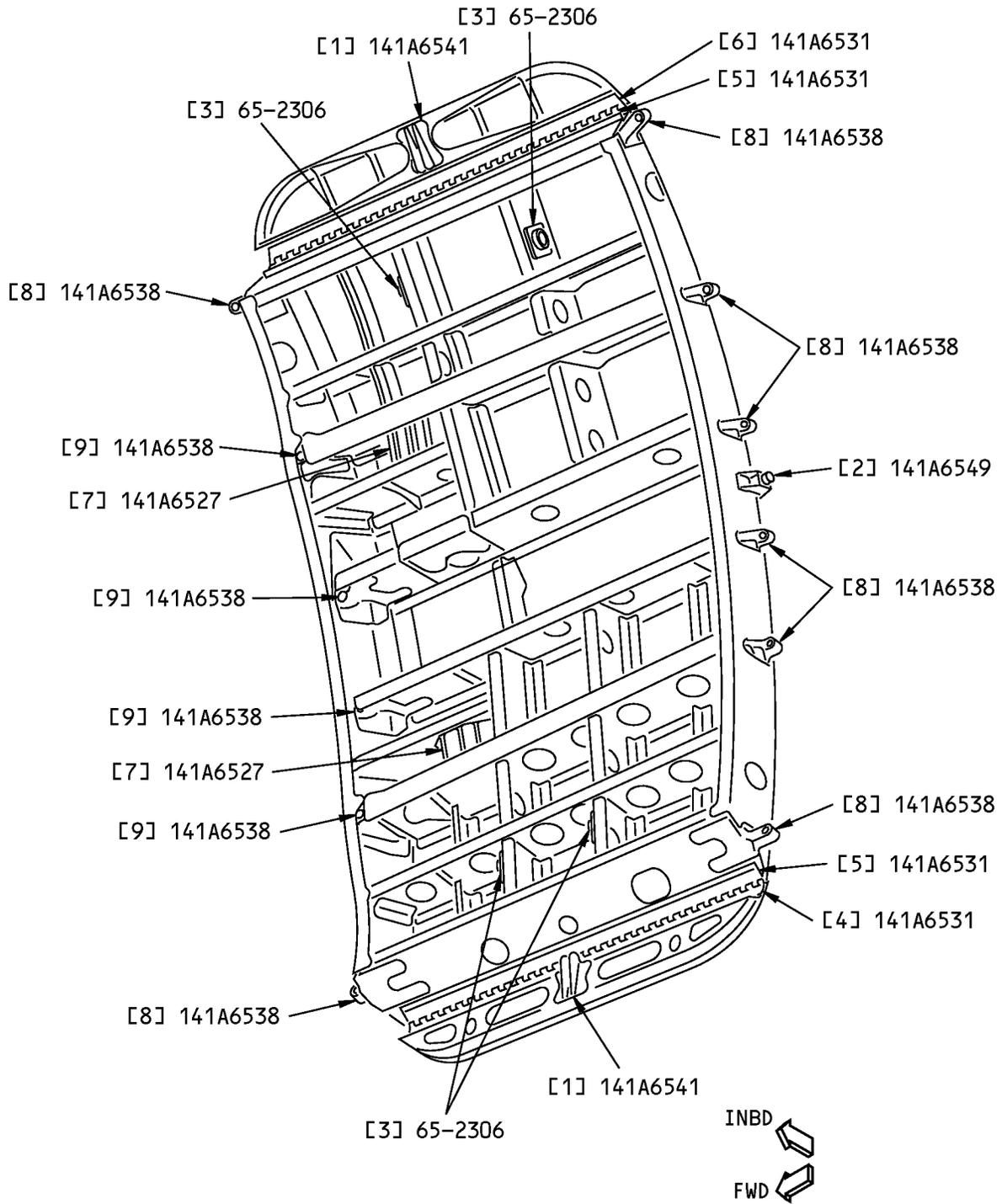
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6500	Structures Installation - Forward Galley Door
141A6516	Major Assembly - Forward Galley Door
141A6526	Hinge Support Assembly - Forward Galley Door
141A6531	Hinge Assembly, Gate - Forward Galley Door
141A6538	Stop Fitting Assembly - Forward Galley Door
141A6540	Endgate assembly, Upper/Lower - Fwd Galley Door



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6541	Clevis Assembly - Control Rod Attachment
141A6549	Centering Guide Assembly - Forward Galley Door
65-2306	Housing Assembly - Door Camshaft

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**Forward Galley Door Fitting Identification
Figure 2**



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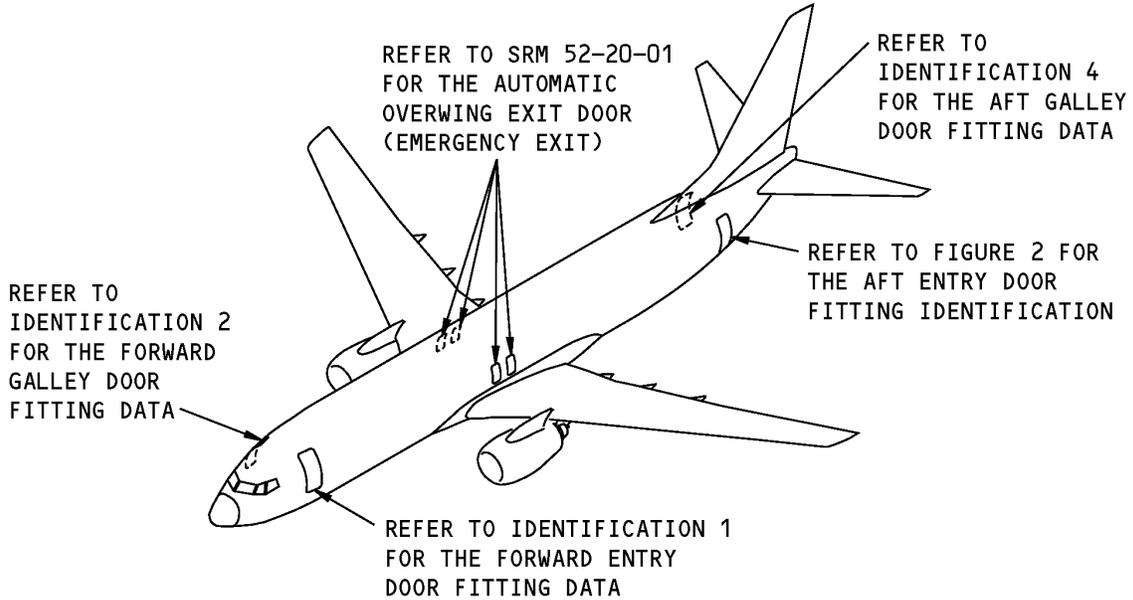
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Clevis		BAC1508-310 2024-T3511 extrusion	
[2]	Guide Fitting		7075-T73511 extruded bar. Refer to the production drawing for the machined thicknesses	
[3]	Hinge Housing		A356-T6 aluminum casting, as given in AMS 4219, composition 3 (Optional: A356-T6, composition 8)	
[4]	Hinge Half, Gate		BAC1520-2543 2024-T3511 extrusion	
[5]	Hinge Half, Gate		BAC1520-2544 2024-T3511 extrusion	
[6]	Hinge Half, Gate		BAC1520-2545 2024-T3511 extrusion	
[7]	Housing		A357-T61 aluminum casting as given in AMS 4219, Class 3, Grade C	
[8]	Stop Fitting		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the machined thicknesses	
[9]	Stop Fitting		BAC1520-2783 2024-T3511 extrusion. Refer to the production drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 3 - AFT ENTRY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Aft Entry Door Location
Figure 1**

Table 1:

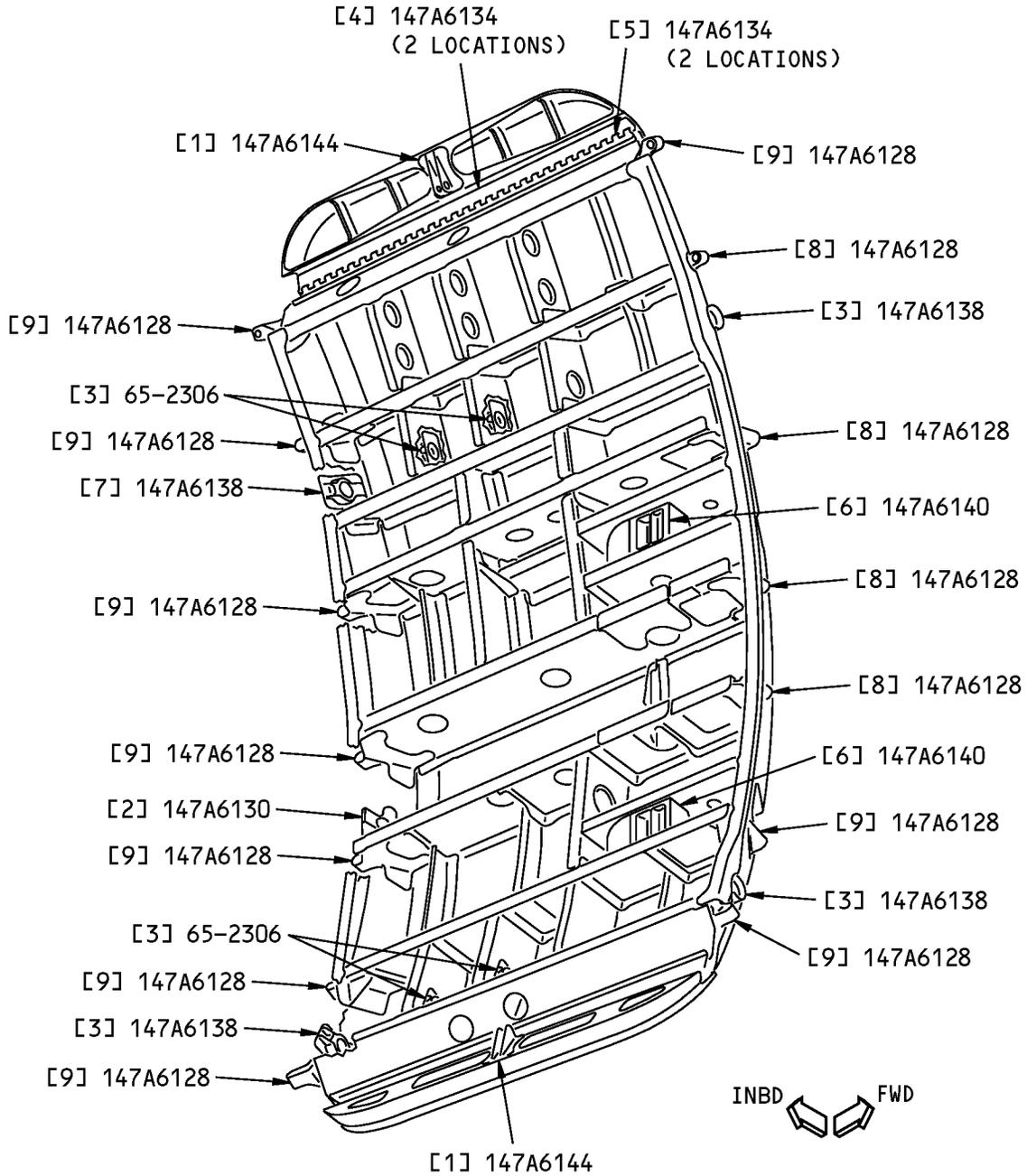
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6100	Door Installation - Aft Entry
147A6116	Door Assemble - Aft Entry Door
147A6140	Hinge Support Assembly - Aft Doors
147A6134	Hinge Assembly, Gate - Aft Doors
147A6138	Fitting Assembly, Latch Support - Aft Doors
147A6143	Endgate Assemblies - Aft Entry Doors



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6146	Endgate Assembly, lower Aft Doors
147A6147	Endgate Assembly, Upper Aft Doors
147A6144	Clevis Assembly - Aft Doors
147A6130	Centering Guide Assembly - Aft Doors
65-2306	Housing Assembly - Door Camshaft

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Aft Entry Door Structure Fittings Identification
Figure 2**



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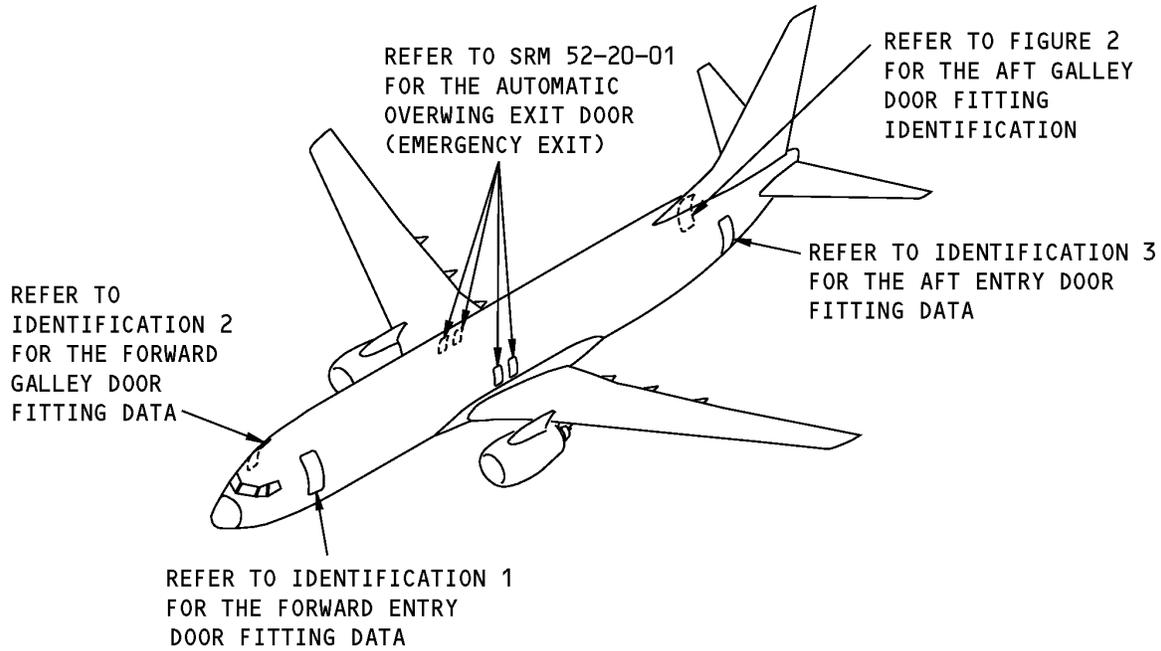
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Clevis		BAC1508-310 2024-T73511 extrusion	
[2]	Guide Fitting		7075-T73511 extruded bar. Refer to the production drawing for the thicknesses of the machined areas	
[3]	Hinge Housing		A356-T6 aluminum casting as given in AMS 4219, composition 3 (Optional: A356-T6, composition 8)	
[4]	Hinge Half		BAC1520-2545 2024-T3511 extrusion	
[5]	Hinge Gate		BAC1520-2545 2024-T3511 extrusion	
[6]	Hinge Housing		A357-T6 aluminum casting, composition 3	
[7]	Support Fitting		7050-T7451 plate as given in AMS 4050, Class A. Refer to the production drawing for the thicknesses of the machined areas	
[8]	Stop Fitting		BAC1520-2783 2024-T3511 extrusion. Refer to the production drawing for the thicknesses of the machined areas	
[9]	Stop Fitting		7050-T7451 plate as given in BMS 7-323, Type 1. Refer to the production drawing for the thicknesses of the machined areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 4 - AFT GALLEY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Aft Galley Door Location
Figure 1**

Table 1:

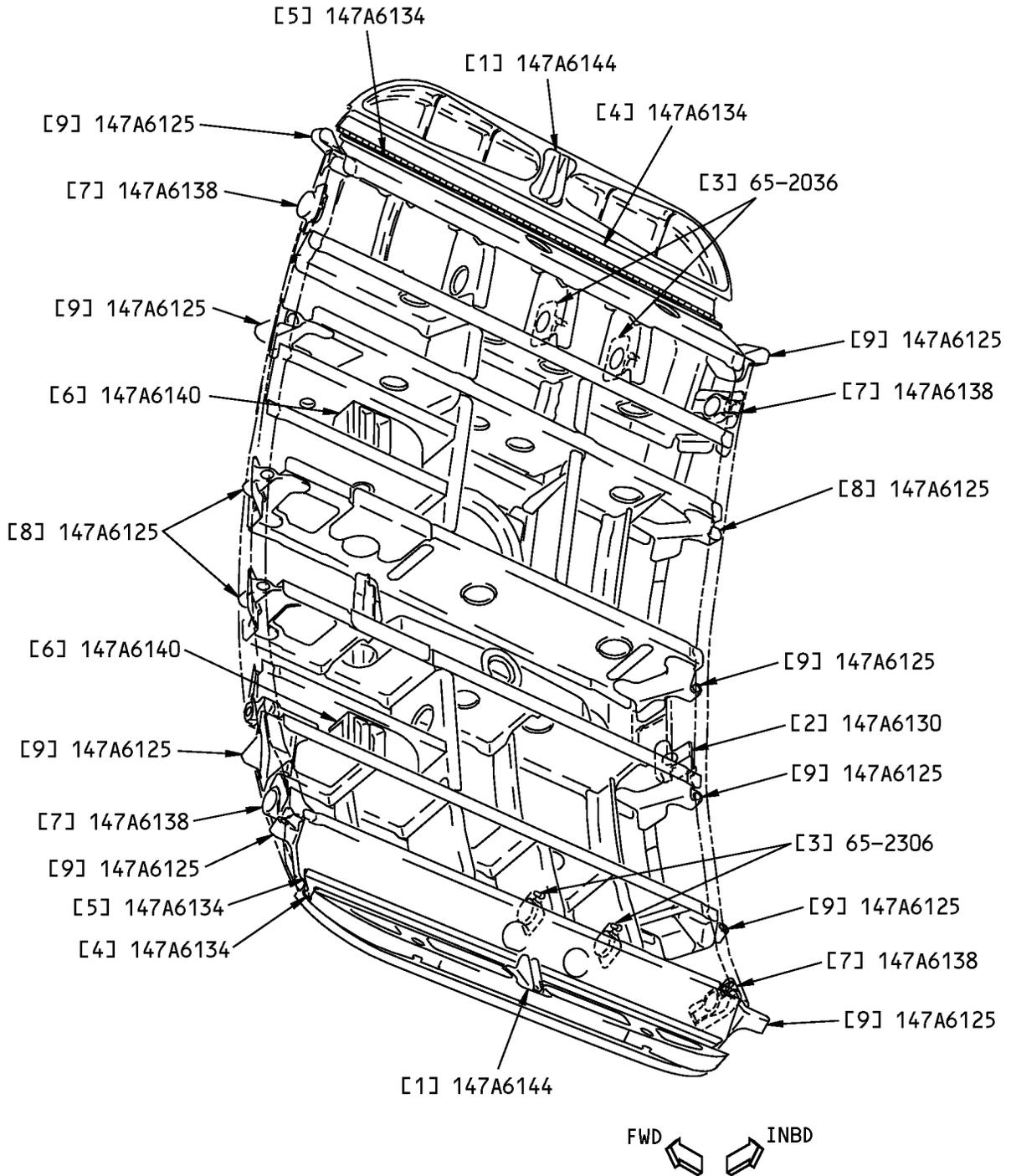
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6500	Door Installation - Aft Galley Door
147A6502	Door Assembly - Aft Galley Door
147A6125	Beam Assemblies - Aft Doors
147A6130	Centering Guide assembly - Aft Doors
147A6134	Hinge Assembly - Gate, Aft Doors
147A6140	Hinge Support Assembly - Aft Doors



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6143	Endgate Assemblies - Aft Doors, (Lower)
147A6144	Clevis Assembly-Control Rod Attachment, Aft Doors
147A6514	Endgate Assemblies - Upper, Aft Galley Door
65-2306	Housing Assembly - Door Camshaft

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Aft Galley Door Structure Fittings Identification
Figure 2**



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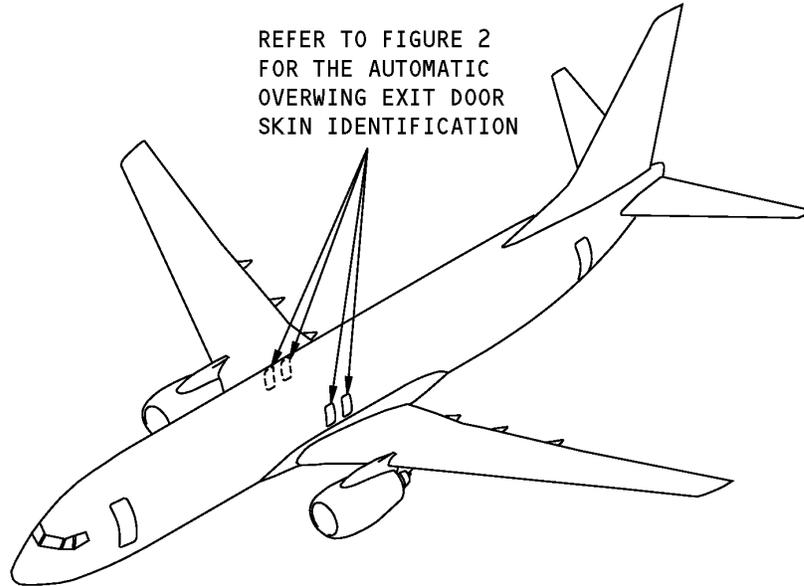
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Clevis		BAC1508-310 2024-T3511 extrusion	
[2]	Guide Fitting		7075-T73511 bar. Refer to the engineering drawing for the machined thicknesses	
[3]	Hinge Housing		A356-T6 aluminum casting composition 3 as given in QQ-A-601 (Optional: A356-T6 composition 8)	
[4]	Hinge Half		BAC1530-2545 2024-T3511 extrusion	
[5]	Hinge Gate		BAC1520-2543 2024-T3511 extrusion	
[6]	Hinge Housing		A357-T6 aluminum casting composition 3	
[7]	Support Fitting		7050-T7451 plate class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[8]	Stop Fitting		BAC1520-2783 2024-T3511 extrusion. Refer to the engineering drawing for the machined thicknesses	
[9]	Stop Fitting		7050-T7451 plate Type 1 as given in BMS 7-323. Refer to the production drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1 - AUTOMATIC OVERWING EXIT DOOR SKIN



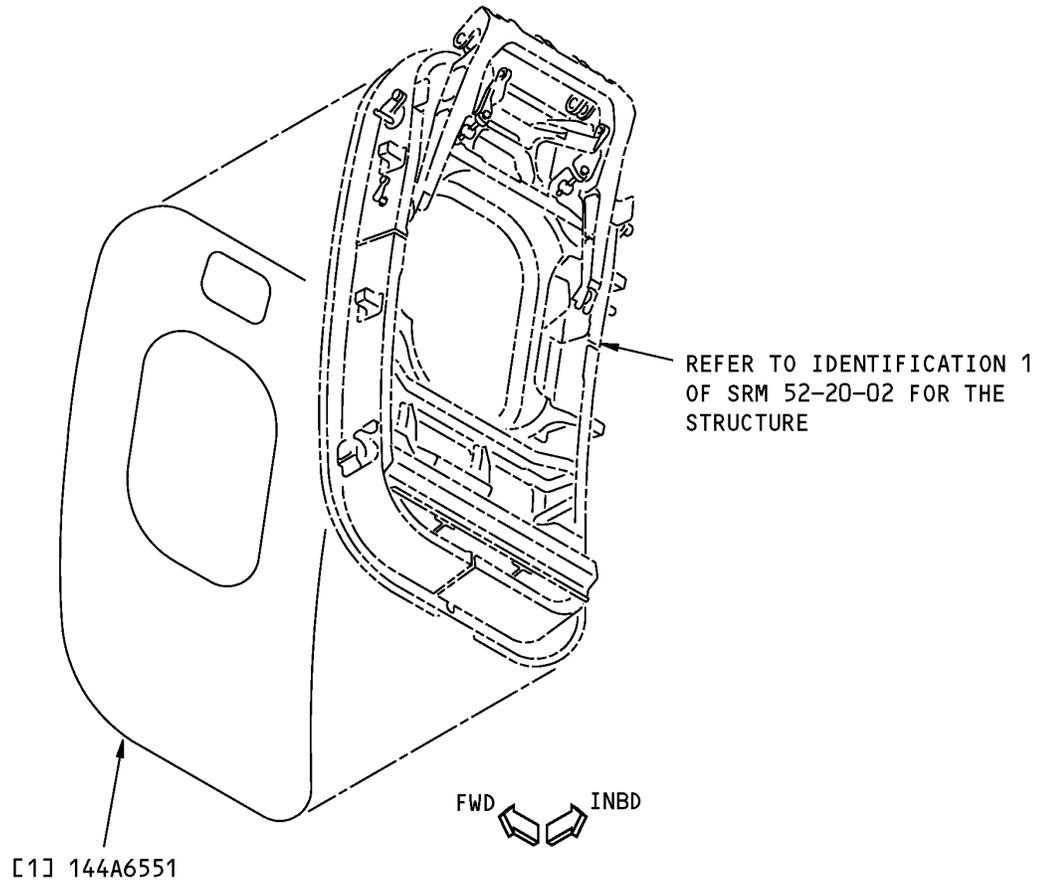
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Automatic Overwing Exit Door Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
144A6300	Emergency Escape Hatch and Automatic Overwing Exit - Functional Product Collector
144A6500	Door Installation - Automatic Overwing Exit
144A6550	Outer Skin Minor Assembly - Automatic Overwing Exit
144A6551	Outer Skin - Automatic Overwing Exit

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Automatic Overwing Exit Door Skin Identification
Figure 2**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.063 (1.60)	2024-T3 clad sheet	

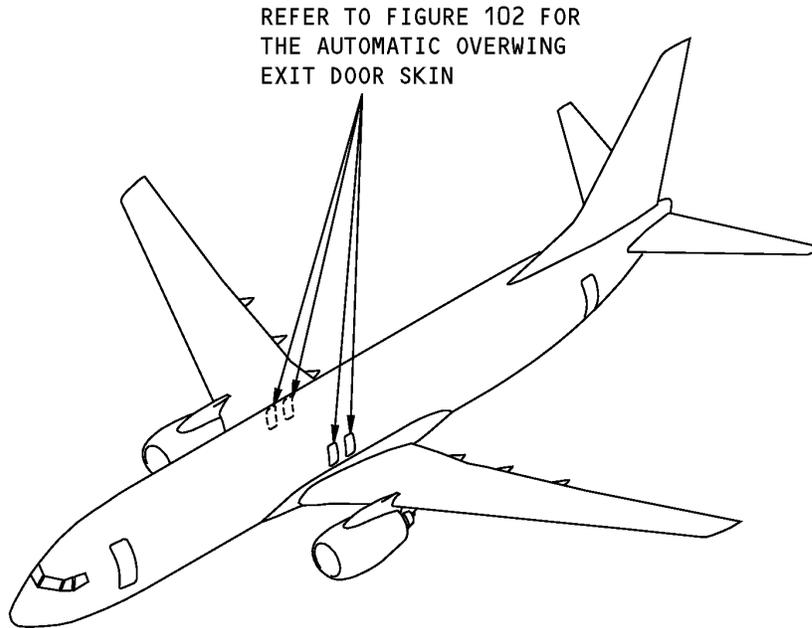
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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ALLOWABLE DAMAGE 1 - AUTOMATIC OVERWING EXIT DOOR SKIN

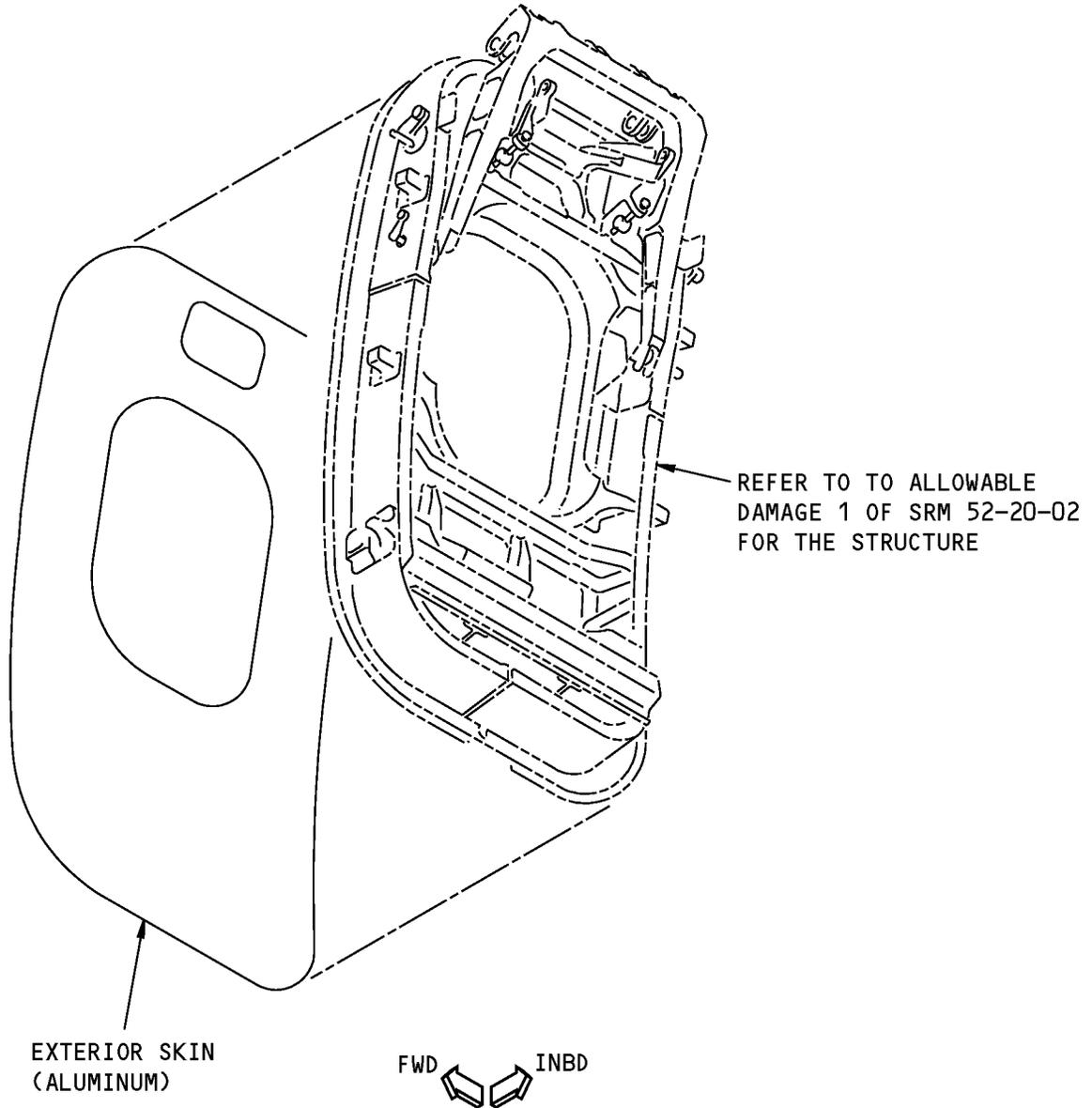
1. Applicability

- A. This subject gives the allowable damage limits for the external skin on the automatic overwing exit door shown in Automatic Overwing Exit Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1.



Automatic Overwing Exit Door Skin Location
Figure 101

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**Automatic Overwing Exit Door Skin
Figure 102**

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ALLOWABLE DAMAGE 1
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2. General

- A. The automatic overwing exit doors are in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. If you find damage to the external skin, other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.

ALLOWABLE DAMAGE 1

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B. Cracks:

- (1) Drill a 0.25 inch (6.4 mm) diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch (25.4 mm) away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
 - (c) Refer to Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

C. Nicks, Scratches, Gouges and Corrosion:

- (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
- (2) Refer to Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 and Table 101 for the flight operation limits.

D. Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

- (1) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F.
- (2) Dents larger than the limits shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F, that cannot be repaired immediately are permitted if:
 - (a) There are no loose or missing fasteners.
 - (b) There are no damaged fastener holes.
 - (c) There are no creases, gouges, or cracks near the dent.
 - (d) You do not fill the dent.
 - (e) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

E. Holes and Punctures:

NOTE: For holes and punctures that are a maximum of 0.25 inch (6.4 mm) in diameter, there are no flight operations limits. Refer to Paragraph 4.E.(1)/ALLOWABLE DAMAGE 1 For holes and punctures that are larger than 0.25 inch (6.4 mm) in diameter, flight operations limits are necessary. Refer to Paragraph 4.E.(2)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1

- (1) Damage is permitted if:
 - (a) It is a maximum of 0.25 inch (6.4 mm) in diameter
 - (b) It is a minimum of 1.00 inch (25.4 mm) away from a fastener hole, an edge, other damage, or a chem-milled radius
 - (c) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
- (2) If you find a hole or puncture that is larger than 0.25 inch (6.4 mm) in diameter, do as follows:
 - (a) Remove the damage to a circular or oval shape.

ALLOWABLE DAMAGE 1

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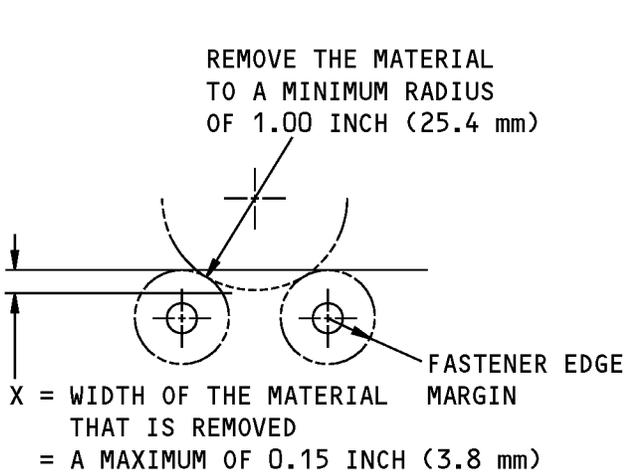


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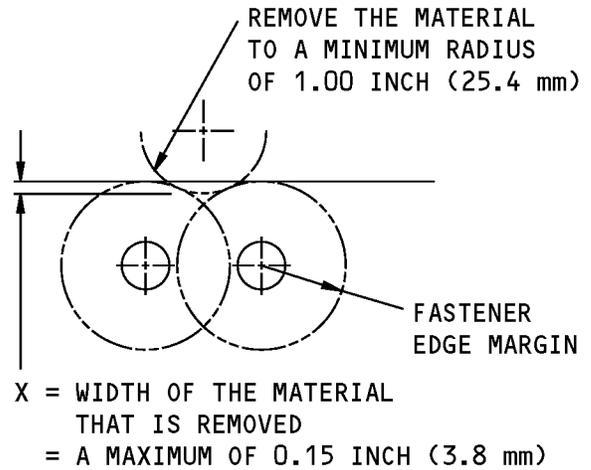
- (b) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch (25.4 mm) away from a fastener hole, an edge, other damage, or a chem-milled radius.
- (c) Refer to Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 and Table 101 for the flight operation limits.

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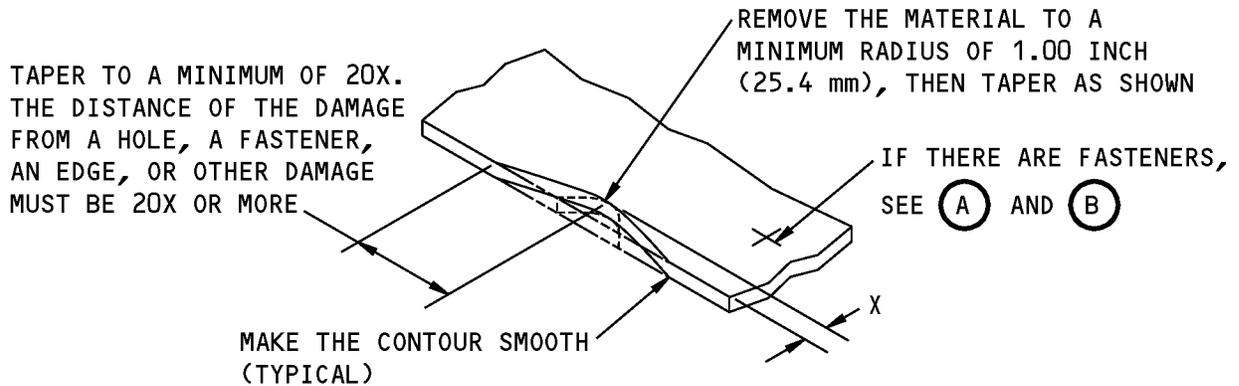
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



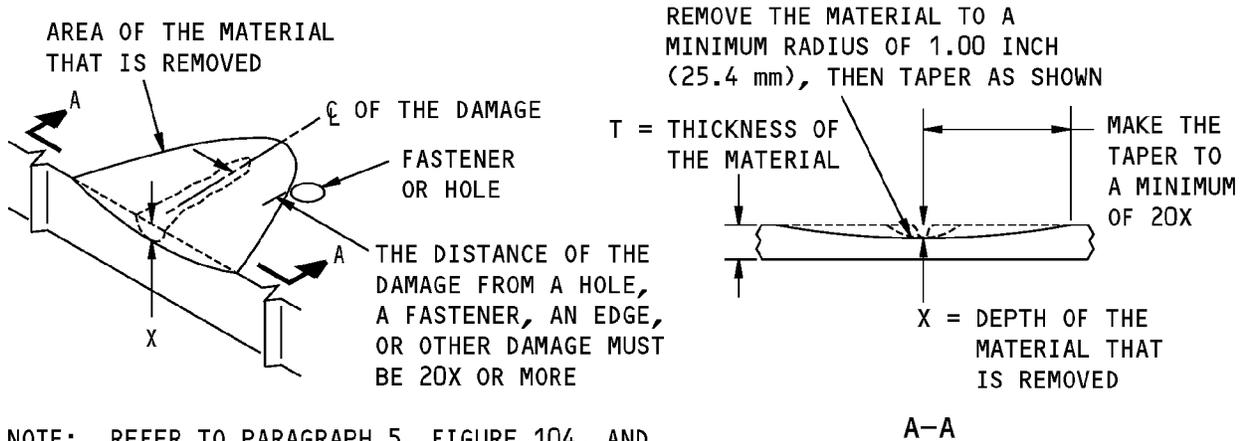
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH (3.8 mm)

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

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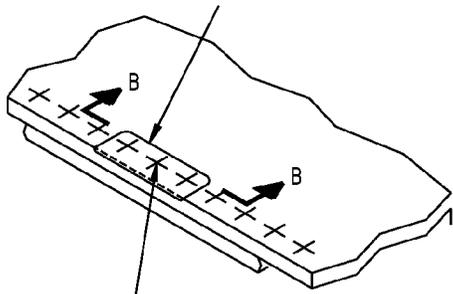


NOTE: REFER TO PARAGRAPH 5, FIGURE 104, AND TABLE 101 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

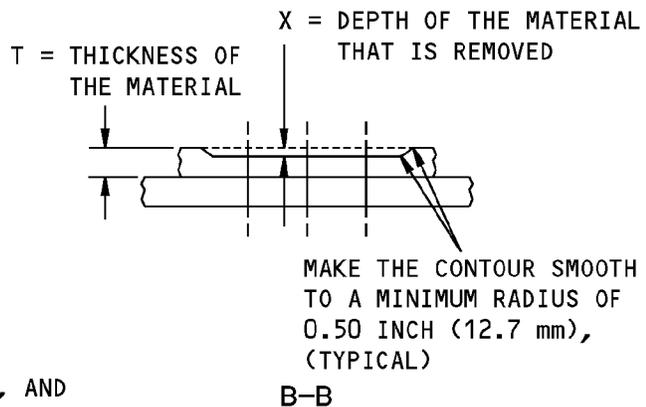
REMOVAL OF DAMAGED MATERIAL ON A SURFACE



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



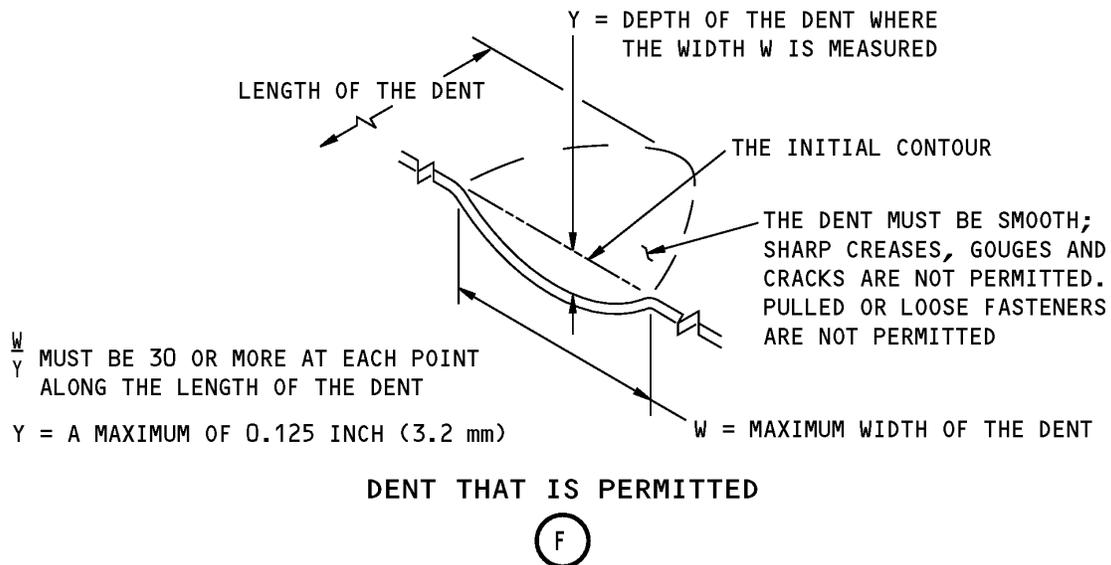
NOTE: REFER TO PARAGRAPH 5, FIGURE 104, AND TABLE 101 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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**Allowable Damage Limits
Figure 103 (Sheet 3 of 3)**

5. Airplane Operation Limits Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch (50.8 cm by 50.8 cm) square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and Punctures that are larger than 0.25 inch (6.4 mm) in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and the permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1.

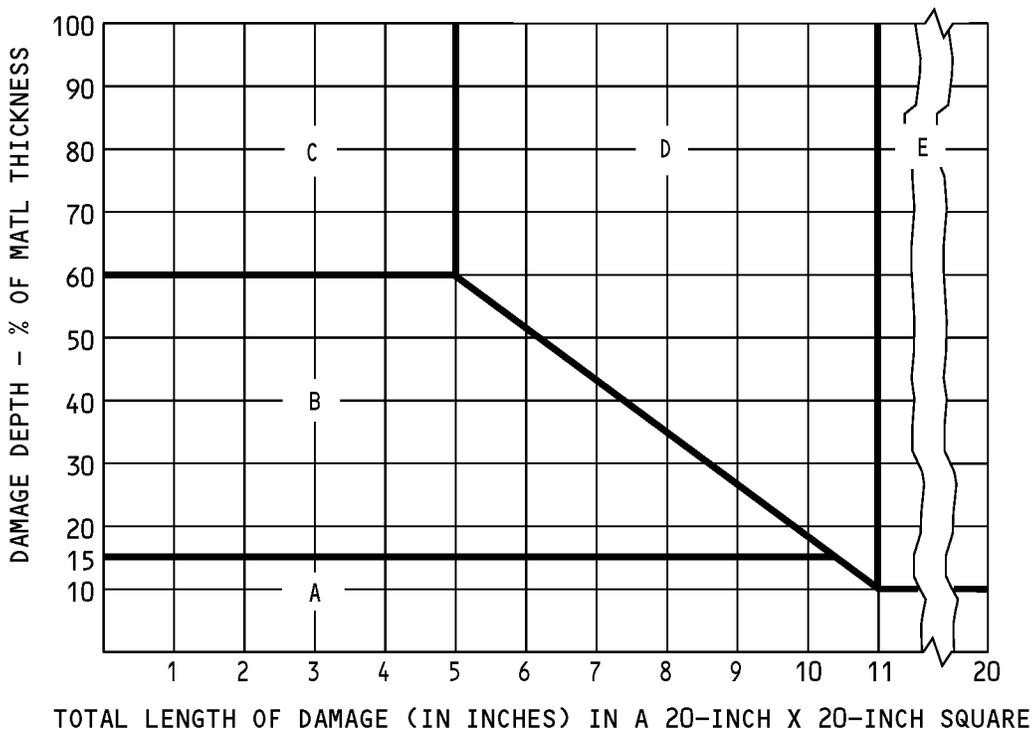


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Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch (6.4 mm) in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
D	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits

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NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

**Damage Limits for the Pressurized External Skin
Figure 104**

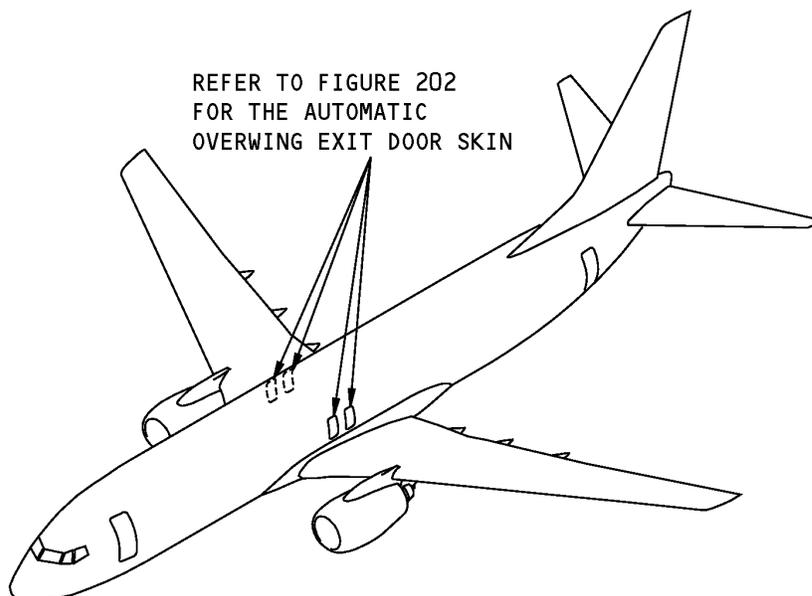


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REPAIR 1 - AUTOMATIC OVERWING EXIT DOOR SKIN

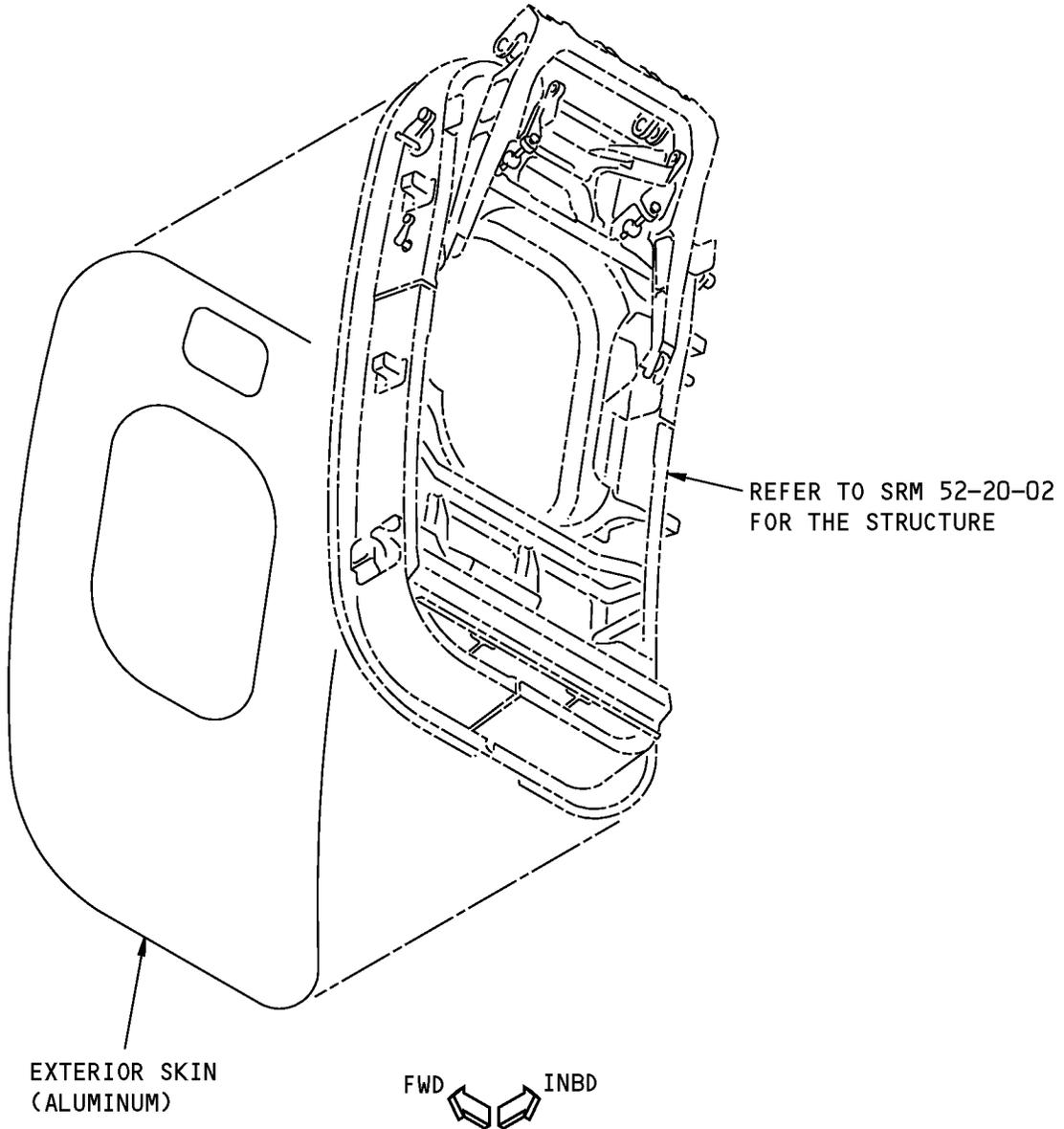
1. Applicability

- A. Repair 1 is applicable to damage to the automatic overwing exit door skins shown in Automatic Overwing Exit Door Skin Location, Figure 201/REPAIR 1.



Automatic Overwing Exit Door Skin Location
Figure 201

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**Automatic Overwing Exit Door Skin
Figure 202**



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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 5 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 5 before you start a repair.

3. References

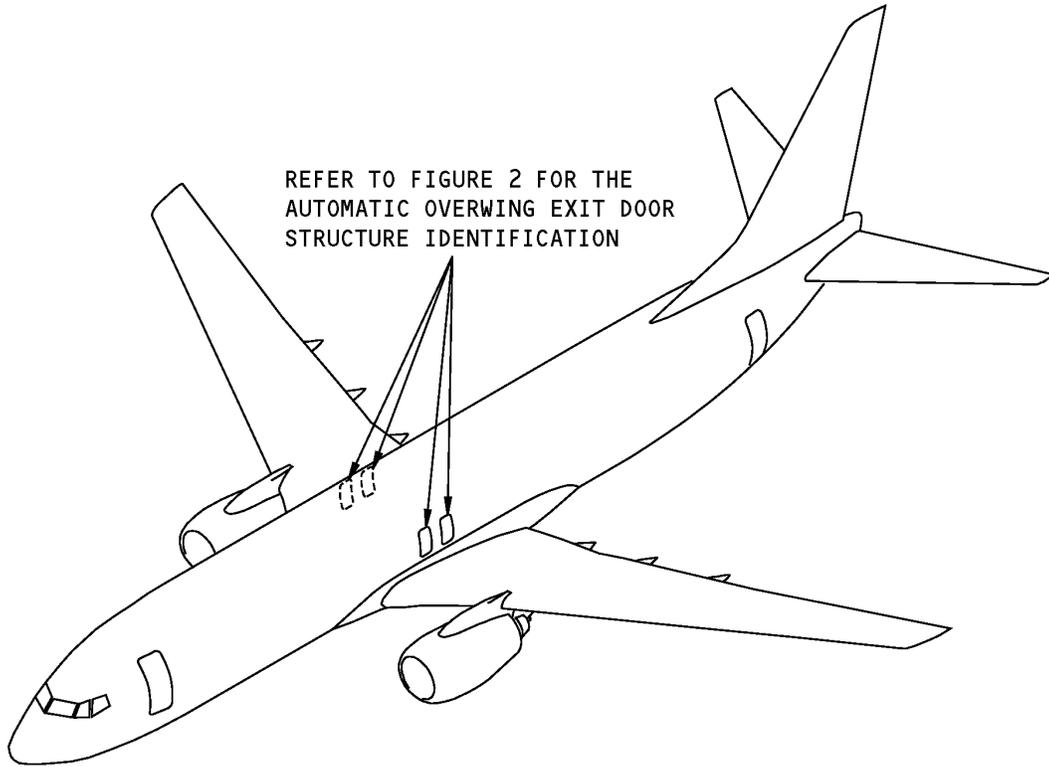
Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1
52-00-01, REPAIR 2
52-00-01, REPAIR 3
52-00-01, REPAIR 4 and 52-00-01, REPAIR 5 to find the applicable repair for the automatic overwing exit door skins shown in Automatic Overwing Exit Door Skin, Figure 202/REPAIR 1.

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IDENTIFICATION 1 - AUTOMATIC OVERWING EXIT DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Automatic Overwing Exit Door Structure Location
Figure 1**

Table 1:

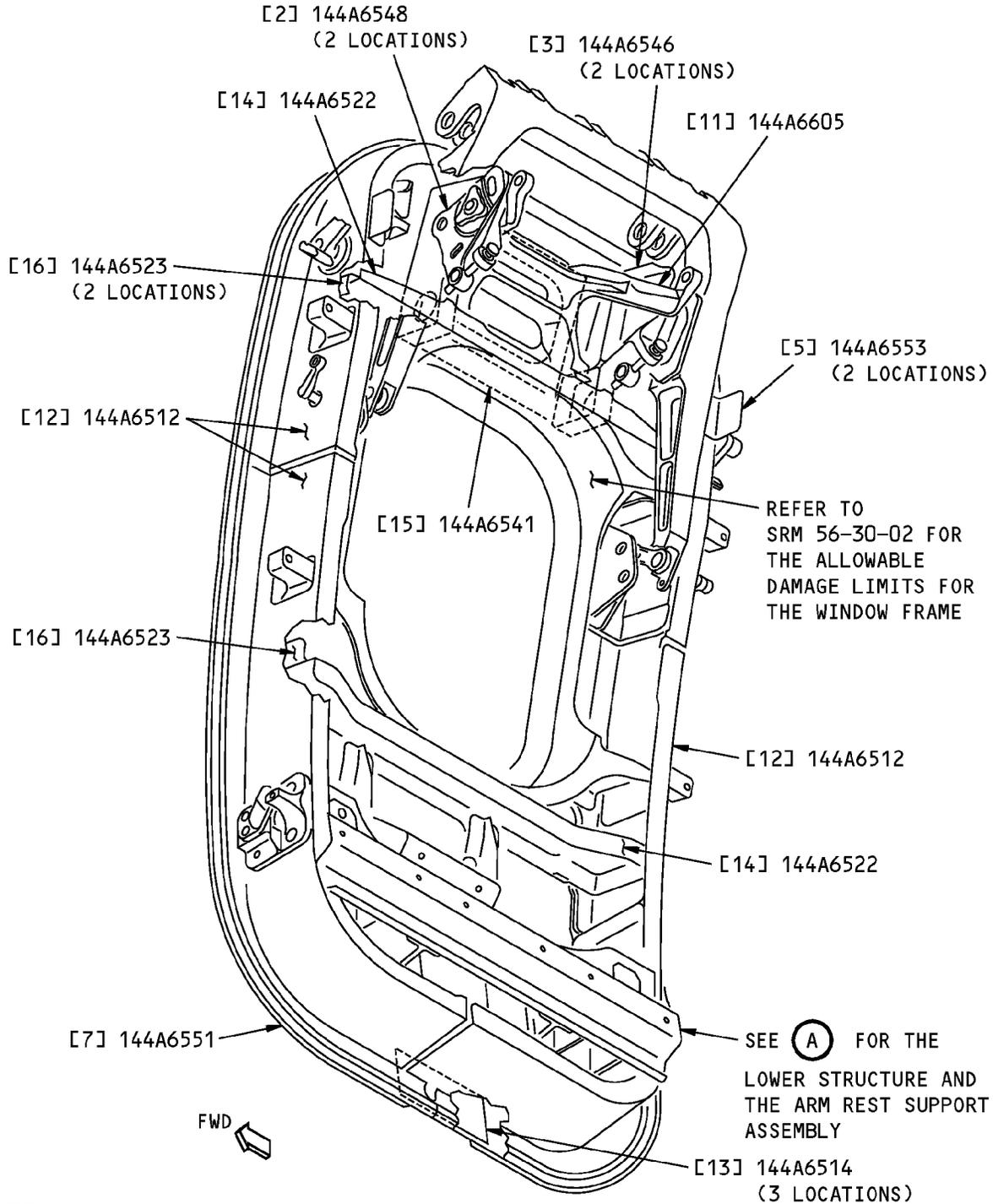
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
144A6505	Door Assembly - Automatic Overwing Exit (AOE)
144A6510	Frame Minor Assembly - (AOE)
144A6516	Handhold Support - Minor Assembly (AOE)
144A6520	Beam, Stop & Window Frame - Minor Assembly (AOE)
144A6523	Beam End (AOE)
144A6540	Handle Frame - Minor Assembly (AOE)



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
144A6544	Plate Assembly - Roller Adjustment (AOE)
144A6545	Intercostal Minor Assembly (AOE)
144A6550	Outer Skin Minor Assembly (AOE)
144A6585	Armrest Support Minor Assembly (AOE)
144A6600	Handle Mechanism - Minor Assembly (AOE)
144A6610	Hinge Arm Minor Assembly (AOE)
144A6695	Flight Lock Minor Assembly (AOE)

STRUCTURAL REPAIR MANUAL

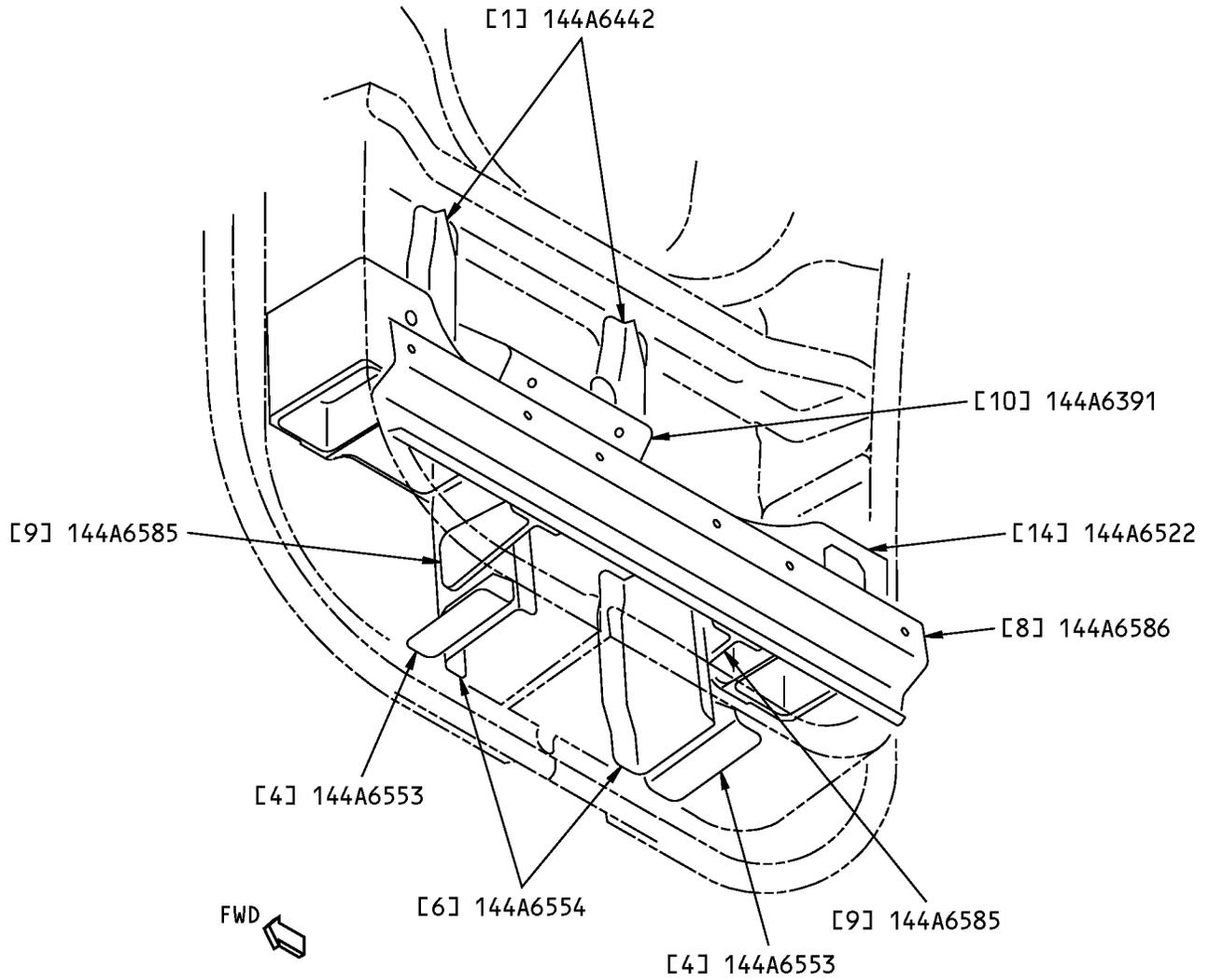


NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Section 44 Automatic Overwing Exit Door
Figure 2 (Sheet 1 of 2)**

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**LOWER STRUCTURE AND THE
ARM REST SUPPORT ASSEMBLY**

A

**Section 44 Automatic Overwing Exit Door
Figure 2 (Sheet 2 of 2)**



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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Lower Tee Stiffener		7050-T73 BAC1505-100350 extrusion	
[2]	Plate		15-5PH stainless steel bar	
[3]	Intercostal		7050-T7451 plate	
[4]	Angle	0.071 (1.80)	7075-T62 sheet	
[5]	Angle	0.100 (2.54)	7075-T62 sheet	
[6]	Intercostal	0.063 (1.60)	7075-T62 sheet	
[7]	Outer Skin		2024-T3 clad sheet	
[8]	Channel	0.063 (1.60)	7075-T62 sheet	
[9]	Tee		7075-T6511 BAC1505-101284 extrusion	
[10]	Support Assembly Support Stiffener		7075-T6 clad 2024-T3511 BAC1512-330 extrusion	
[11]	Handle		A357.0-T61 aluminum investment casting	
[12]	Frame		7050-T7451 as given in BMS 7-323, Type 1	
[13]	Frame Splice		7075-T73511 BAC1512-3341 extrusion	
[14]	Beam	0.071 (1.80)	7075-T62 sheet as given in BMS 7-302	
[15]	Handle Frame		7050-T7451 plate	
[16]	Beam End	0.071 (1.80)	7075-T62 sheet as given in BMS 7-302	

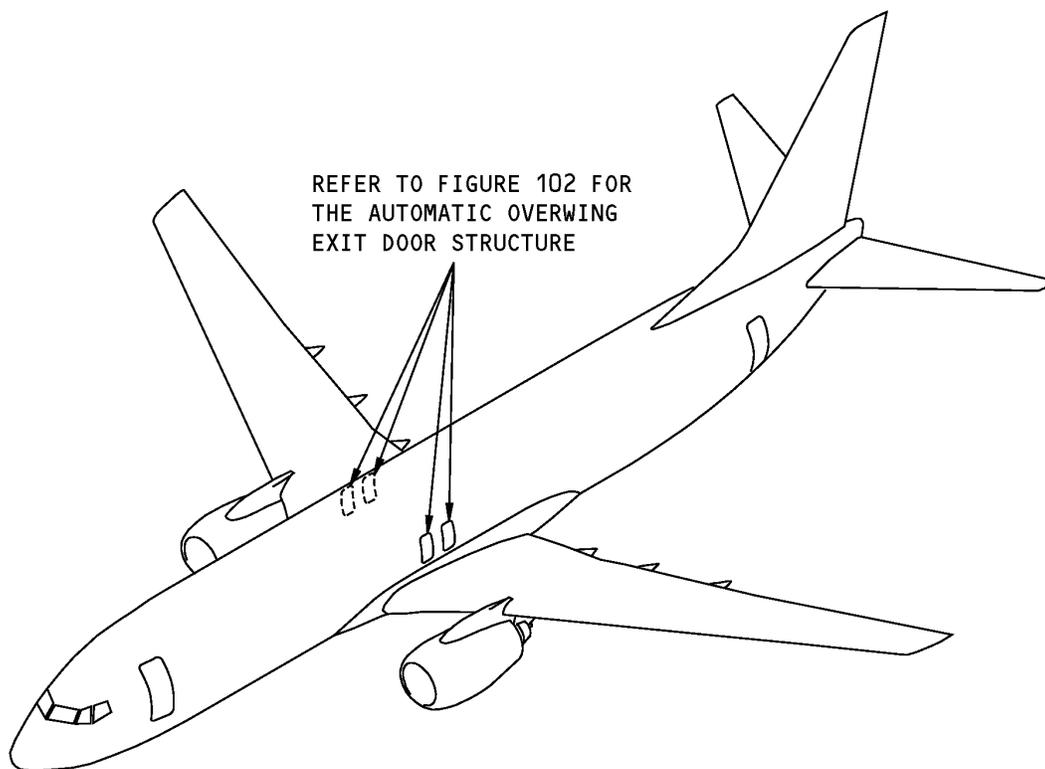
*[1] Note: T = Pre-manufactured thicknesses are in inches (millimeters).

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ALLOWABLE DAMAGE 1 - AUTOMATIC OVERWING EXIT DOOR STRUCTURE

1. Applicability

- A. Allowable Damage 1 is applicable to damage on the automatic overwing exit door structure as shown in Automatic Overwing Exit Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1.



Automatic Overwing Exit Door Structure Location
Figure 101

2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.
- B. Remove the necessary parts to get access to the automatic overwing exit door structure as shown in Section 44 Automatic Overwing Exit Door, Figure 102/ALLOWABLE DAMAGE 1.
- C. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.

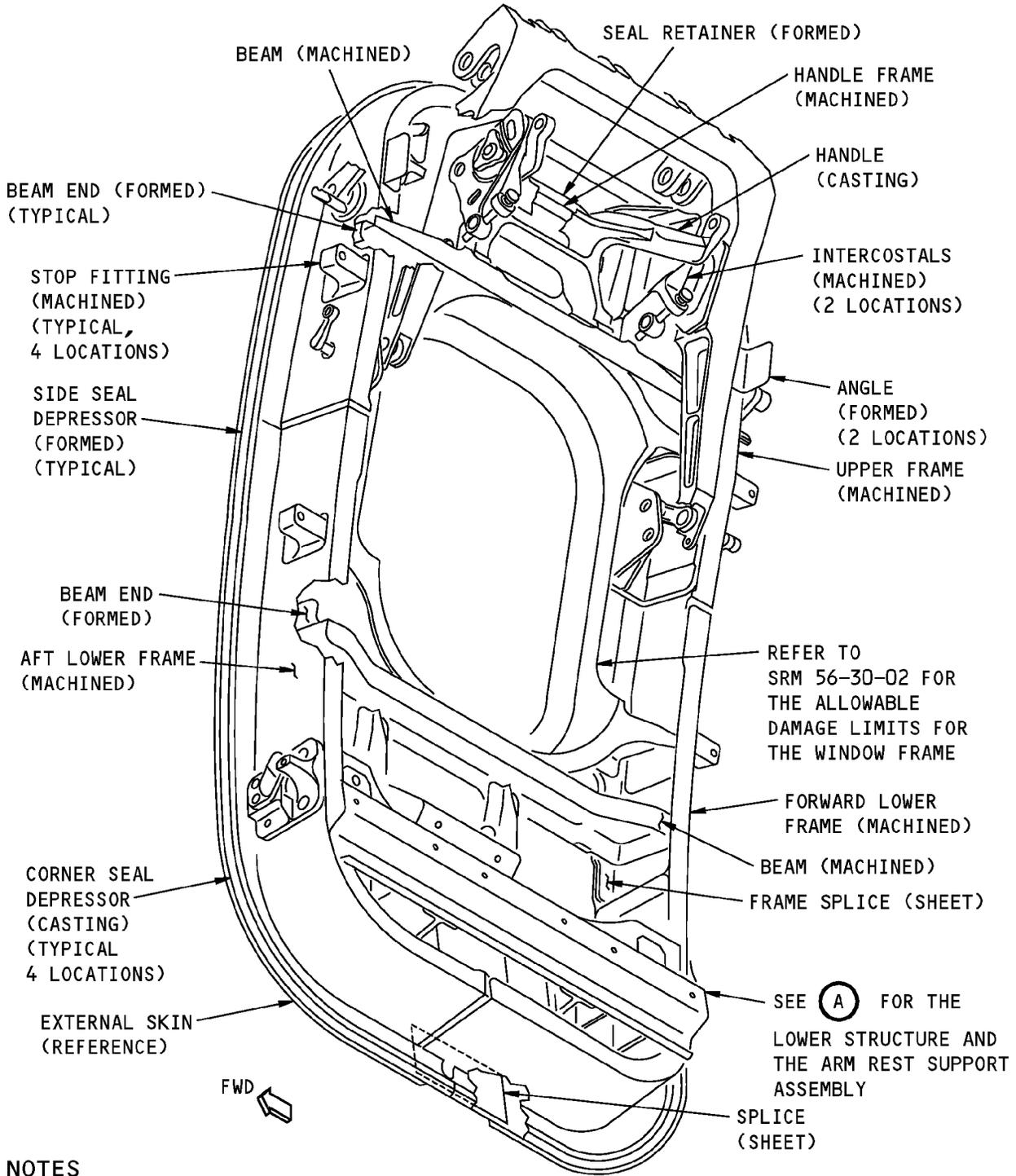


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- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. After you remove the damage, do the procedures that follow:
- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

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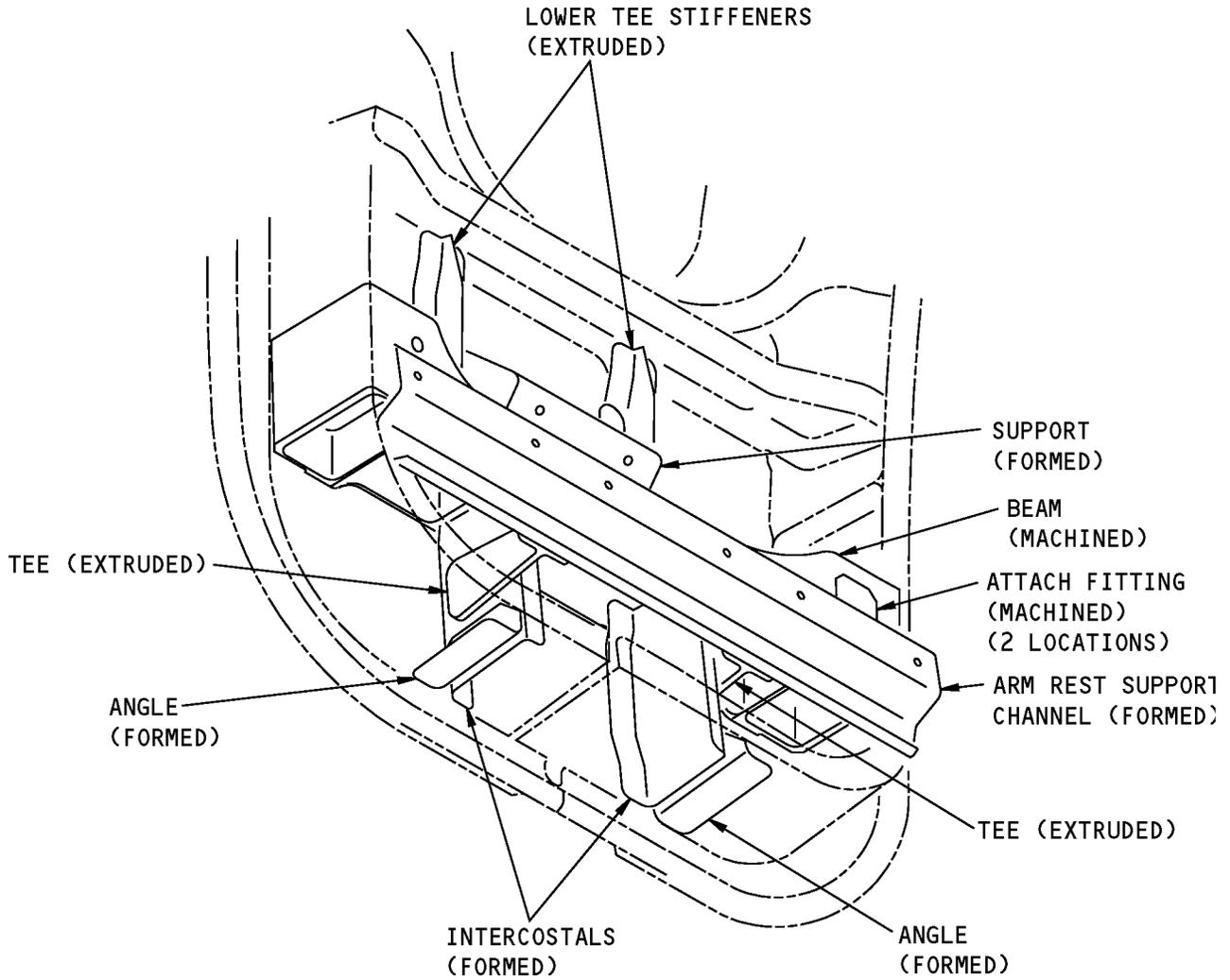


NOTES

- ALL MATERIAL IS ALUMINUM.

**Section 44 Automatic Overwing Exit Door
Figure 102 (Sheet 1 of 2)**

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**LOWER STRUCTURE AND THE
ARM REST SUPPORT ASSEMBLY**

A

**Section 44 Automatic Overwing Exit Door
Figure 102 (Sheet 2 of 2)**

D634A210

ALLOWABLE DAMAGE 1
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3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits for the Automatic Overwing Exit Door Structure

A. All Structure (This does not include the Stop Fittings):

(1) Cracks:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .

(3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G .

(4) Holes and Punctures are permitted if they are:

- (a) A maximum of 0.25 inch (6.4 mm) in diameter
- (b) A minimum of 1.00 inch (25.4 mm) away from other damage
- (c) A minimum of 1.5 inches (38.1 mm) away from a fastener, an edge, or a radius
- (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.

- 1) Install the rivet without sealant.

B. Stop Fittings (Typical, 4 places):

(1) Cracks are not permitted.

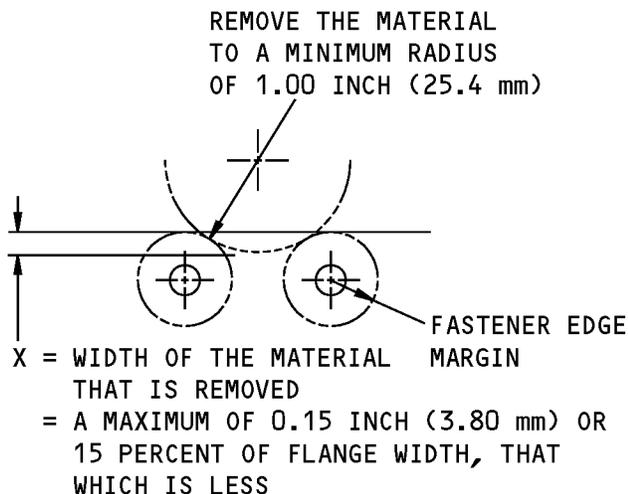
(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail H .

(3) Dents are not permitted.

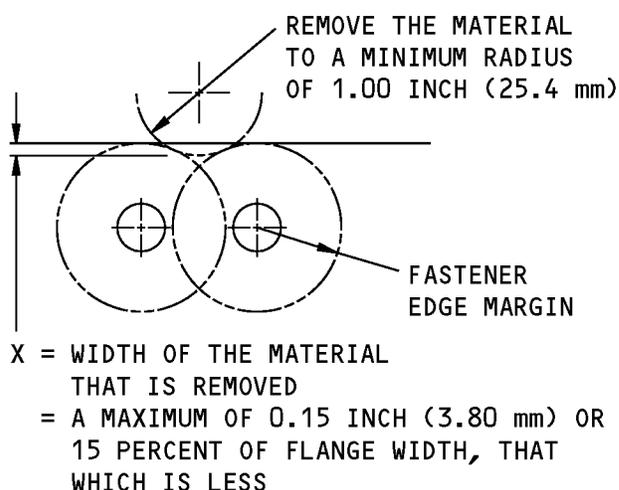
(4) Holes and Punctures are not permitted.

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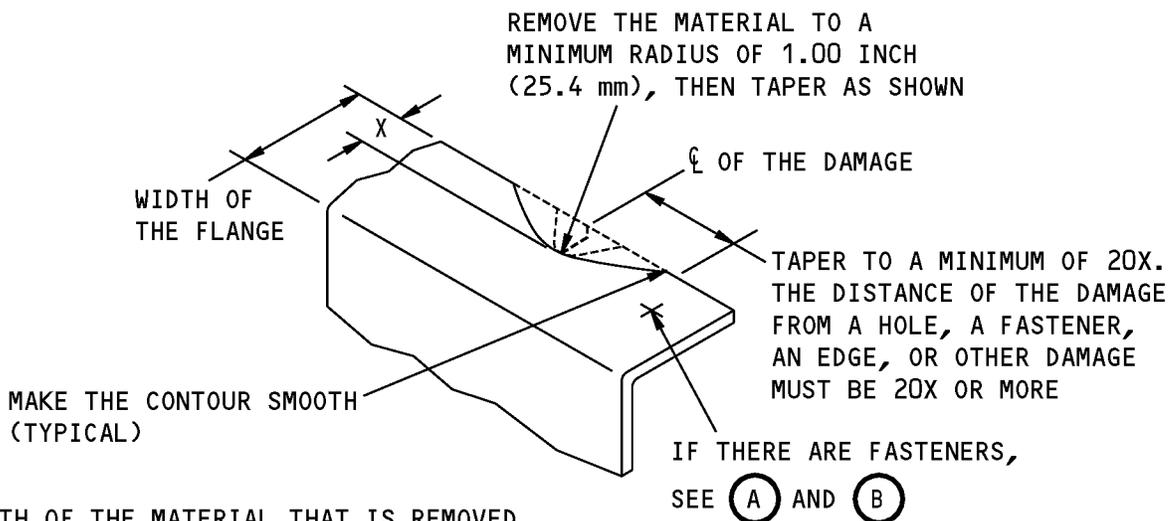
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



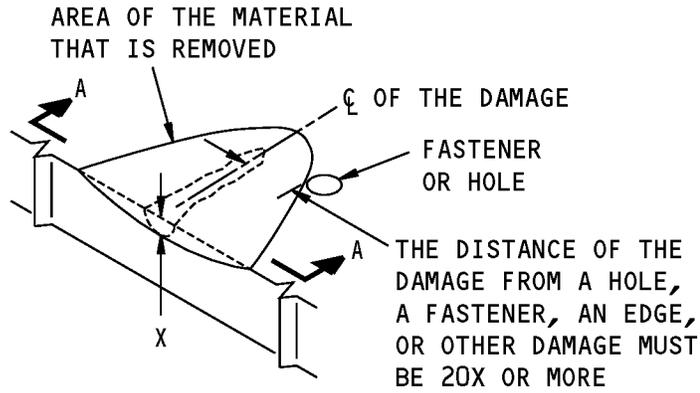
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH (3.80 mm) OR 15 PERCENT OF FLANGE WIDTH, THAT WHICH IS LESS

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 5)**

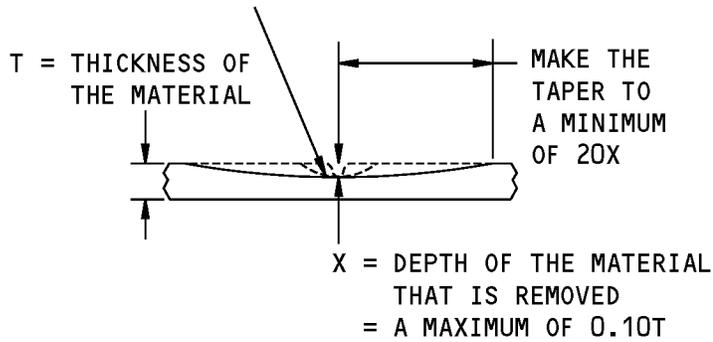
STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN

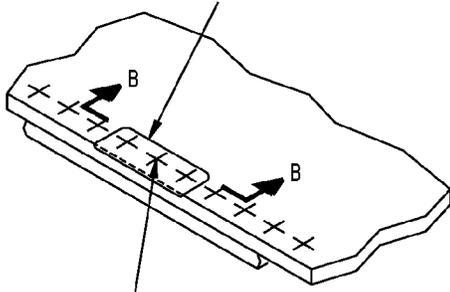


A-A

**Allowable Damage Limits
Figure 103 (Sheet 2 of 5)**

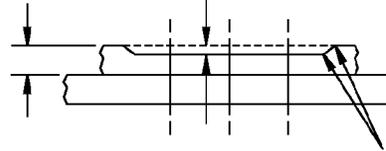
STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

T = THICKNESS OF THE MATERIAL
 X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF $0.10T$

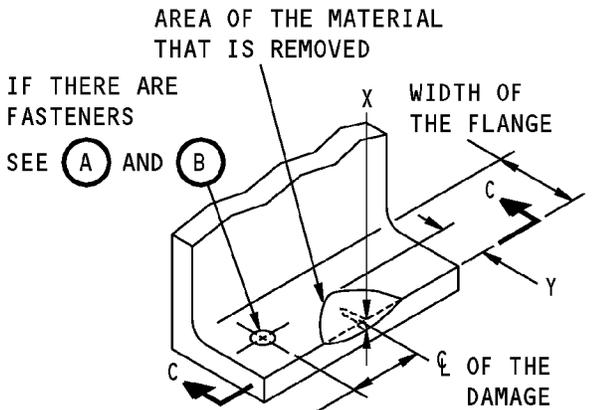


MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (1.27 mm) (TYPICAL)

B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

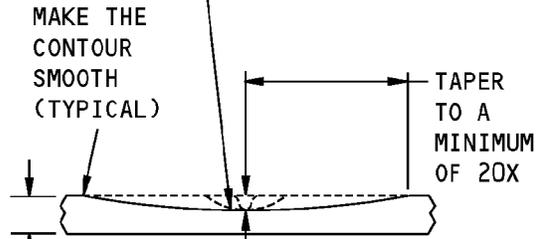
(E)



THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE $20X$ OR MORE

Y = WIDTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



T = THICKNESS OF THE MATERIAL
 X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF $0.10T$

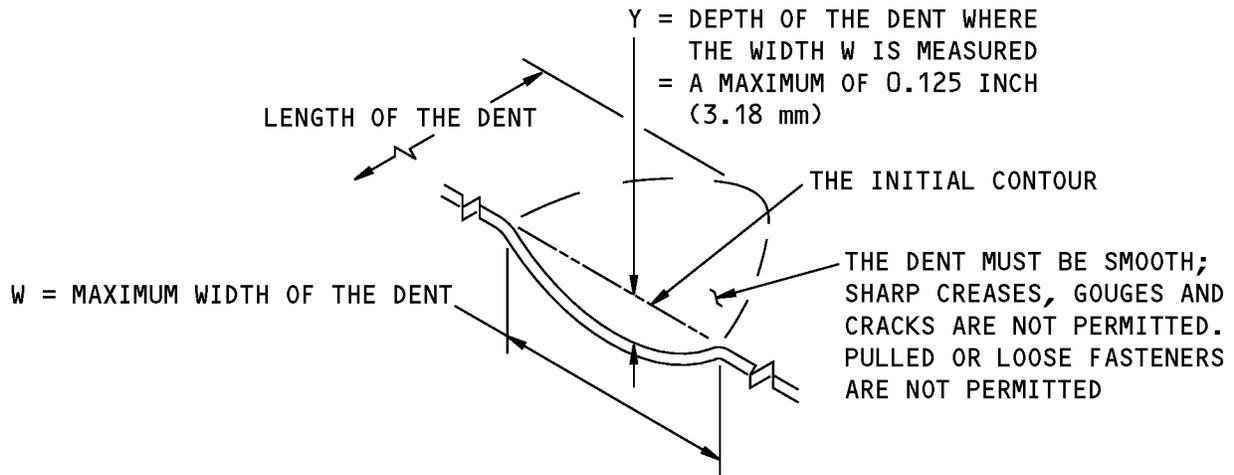
C-C

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(F)

**Allowable Damage Limits
 Figure 103 (Sheet 3 of 5)**

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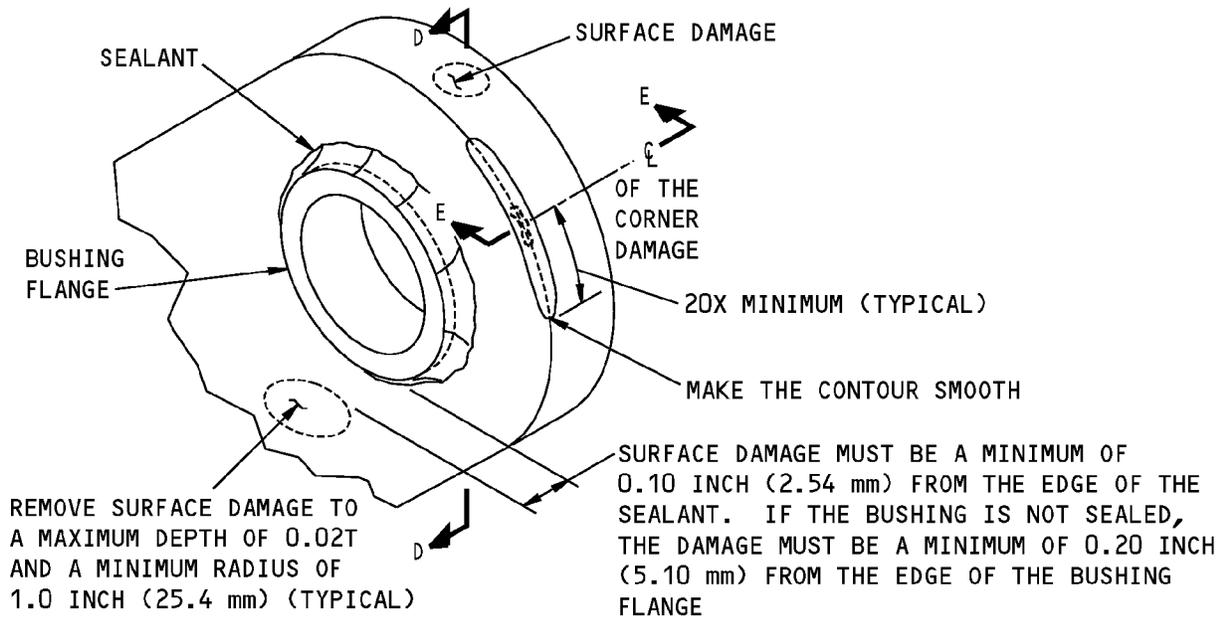
$\frac{W}{Y}$ MUST BE 20 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED



**Allowable Damage Limits
Figure 103 (Sheet 4 of 5)**

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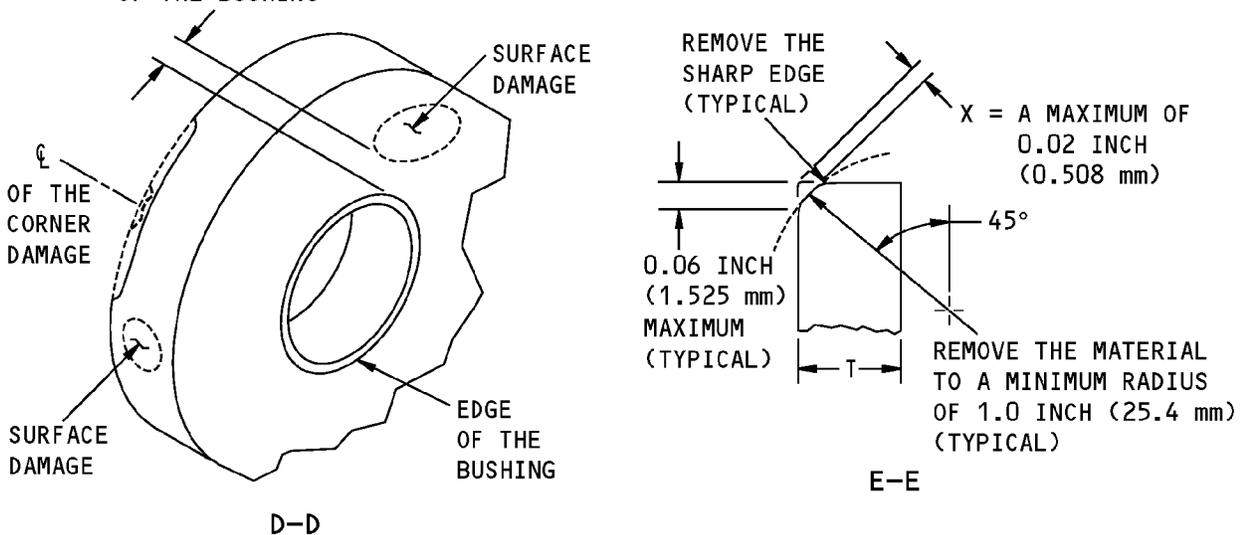


NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING

H

SURFACE DAMAGE MUST BE A MINIMUM OF 0.20 INCH (5.10 mm) FROM THE EDGE OF THE BUSHING



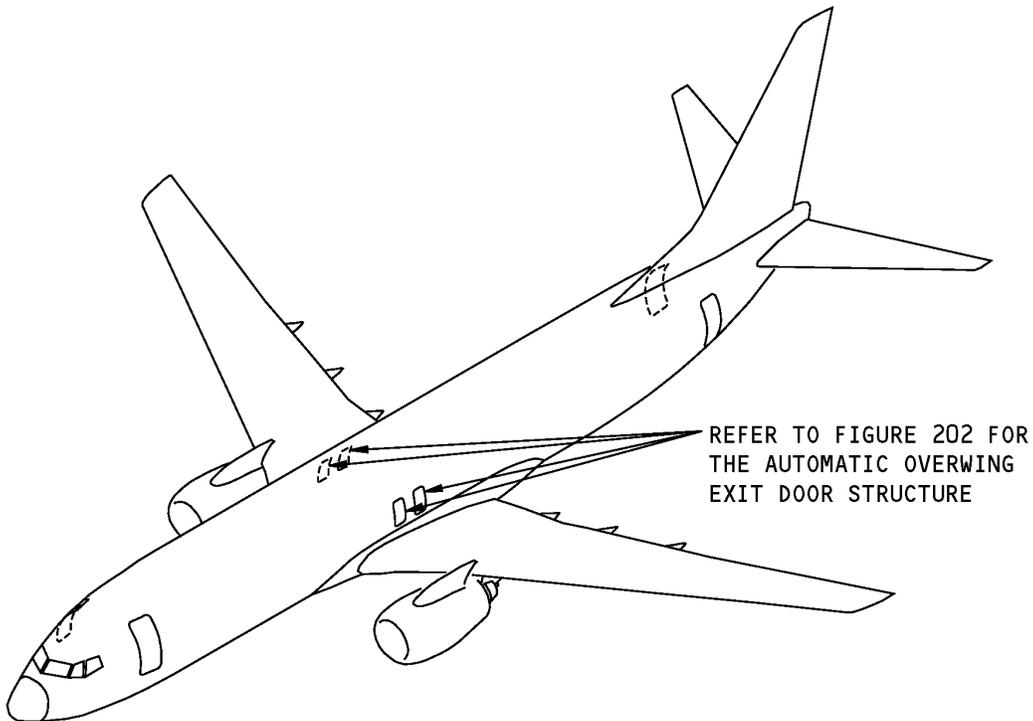
**Allowable Damage Limits
Figure 103 (Sheet 5 of 5)**

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STRUCTURAL REPAIR MANUAL

REPAIR 1 - AUTOMATIC OVERWING EXIT DOOR STRUCTURE

1. Applicability

- A. Repair 1 is applicable to damage to the Automatic Overwing Exit Door Structure shown in Automatic Overwing Exit Door Location, Figure 201/REPAIR 1.



Automatic Overwing Exit Door Location
Figure 201

2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.



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3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-20-02, ALLOWABLE DAMAGE 1	Automatic Overwing Exit Door Structure
52-20-02, IDENTIFICATION 1	Automatic Overwing Exit Door Structure

4. Repair Instructions

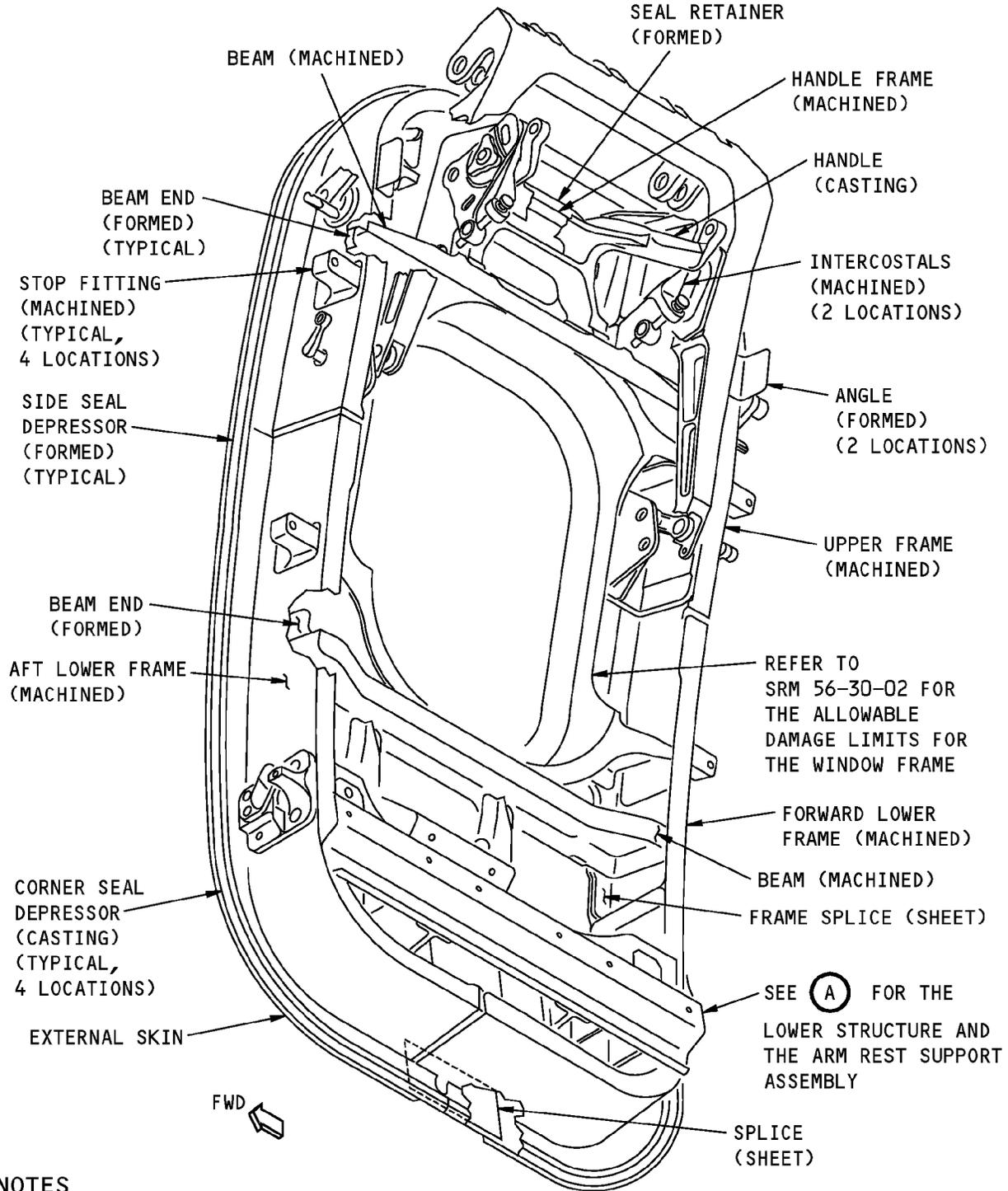
- A. Refer to Automatic Overwing Exit Door Location, Figure 201/REPAIR 1 and Section 44 Automatic Overwing Exit Door, Figure 202/REPAIR 1, and Table 201 to find the applicable repair for the part you want to repair.

NOTE: If necessary, refer to 52-20-02, IDENTIFICATION 1, to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE AUTOMATIC OVERWING EXIT DOOR STRUCTURE	
TYPE OF COMPONENT	REPAIR
Formed Parts	Refer to SRM 51-70-11
Extruded Parts	Refer to SRM 51-70-12
Beam, Handle Frame, Frame, Corner Seal Depressor, Handle	There are no repairs for the listed structure in the Structural Repair Manual at this time. If the damage to the structure is more than the limits given in SRM 52-20-02, Allowable Damage 1, replace the damaged part

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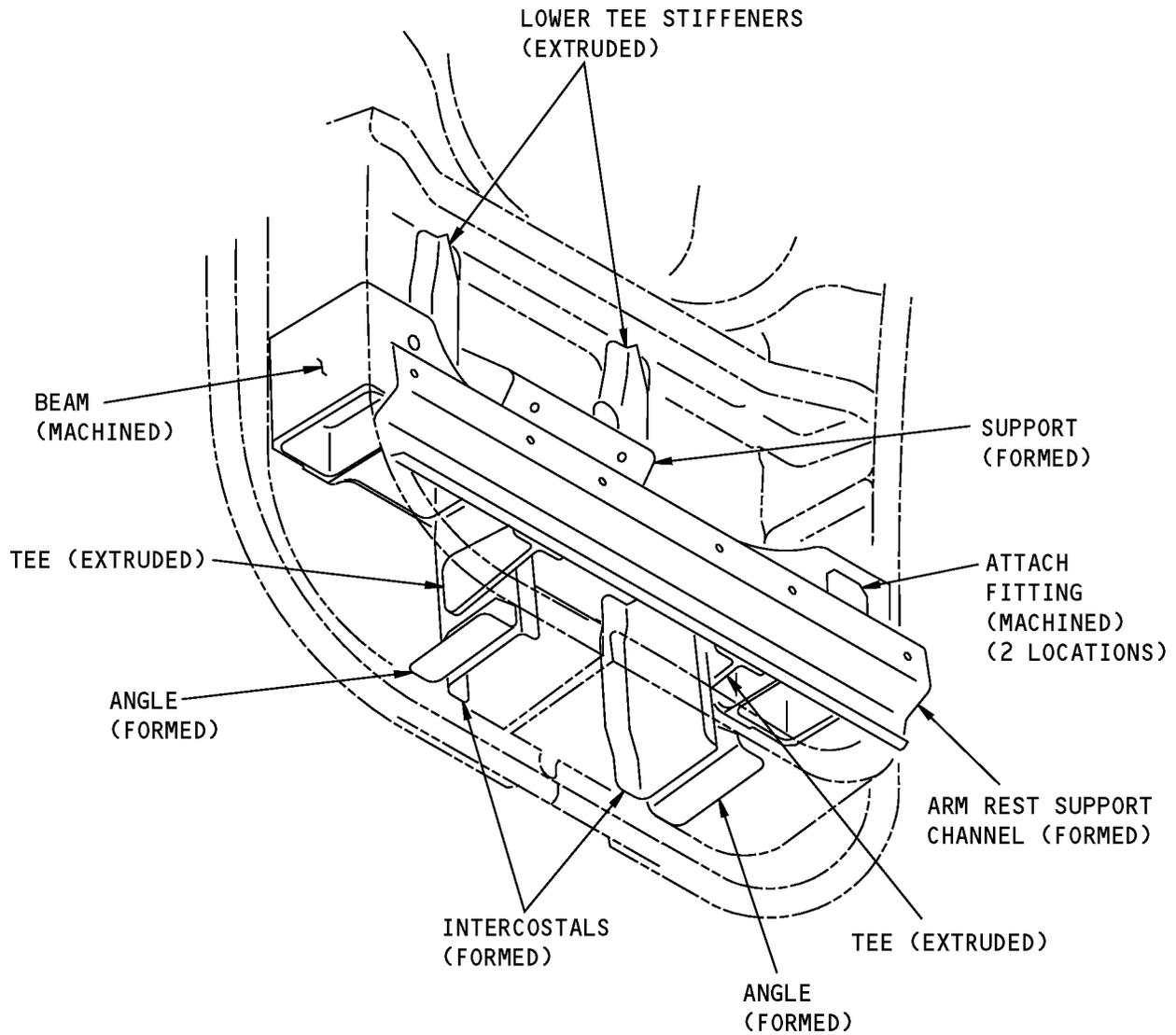


NOTES

- ALL MATERIAL IS ALUMINUM.

**Section 44 Automatic Overwing Exit Door
Figure 202 (Sheet 1 of 2)**

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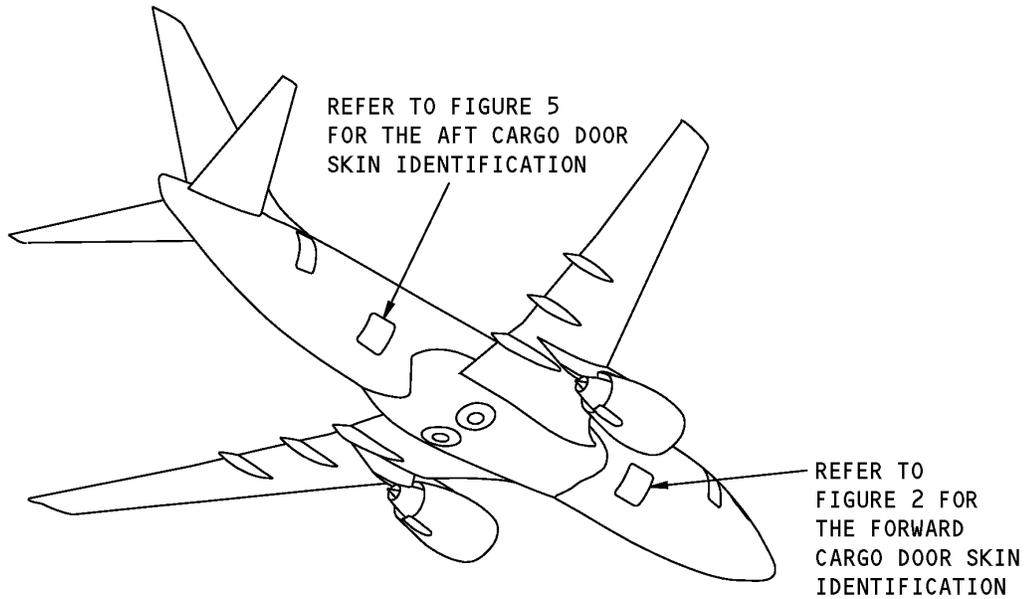
**LOWER STRUCTURE AND THE
ARM REST SUPPORT ASSEMBLY**

(A)

**Section 44 Automatic Overwing Exit Door
Figure 202 (Sheet 2 of 2)**

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IDENTIFICATION 1 - CARGO DOOR SKINS



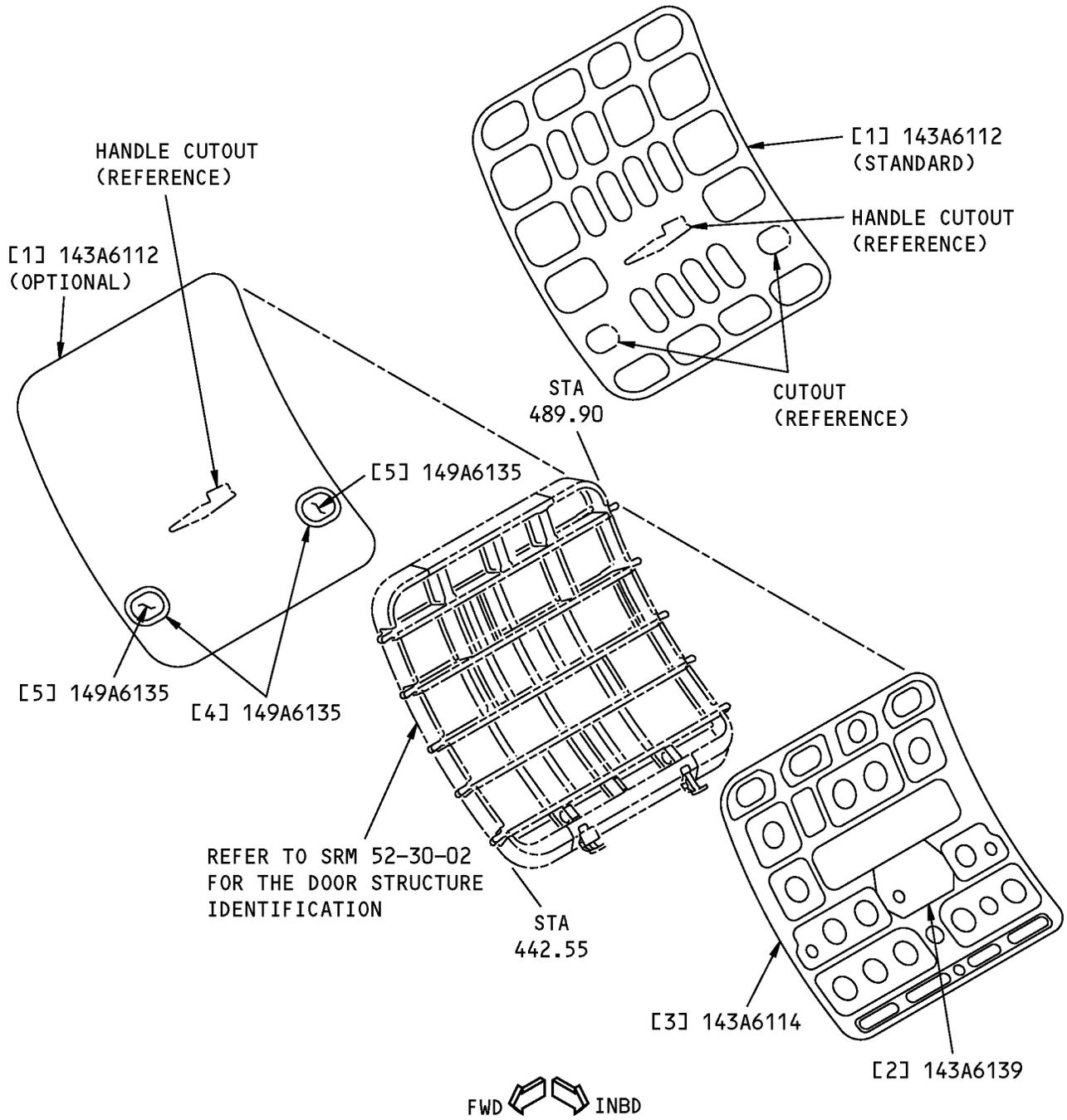
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Cargo Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0050	Functional Collector - Forward Cargo Door
140A0060	Functional Collector - Aft Cargo Door
143A6100	Door Installation - Forward Cargo Door
143A6110	Door Assembly - Forward Cargo Door
146A6100	Door Installation - Aft Cargo Door
146A6110	Door Assembly - Aft Cargo Door
149A6135	Panel Assembly - Cargo Door Access

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Cargo Door Skin Identification
Figure 2**



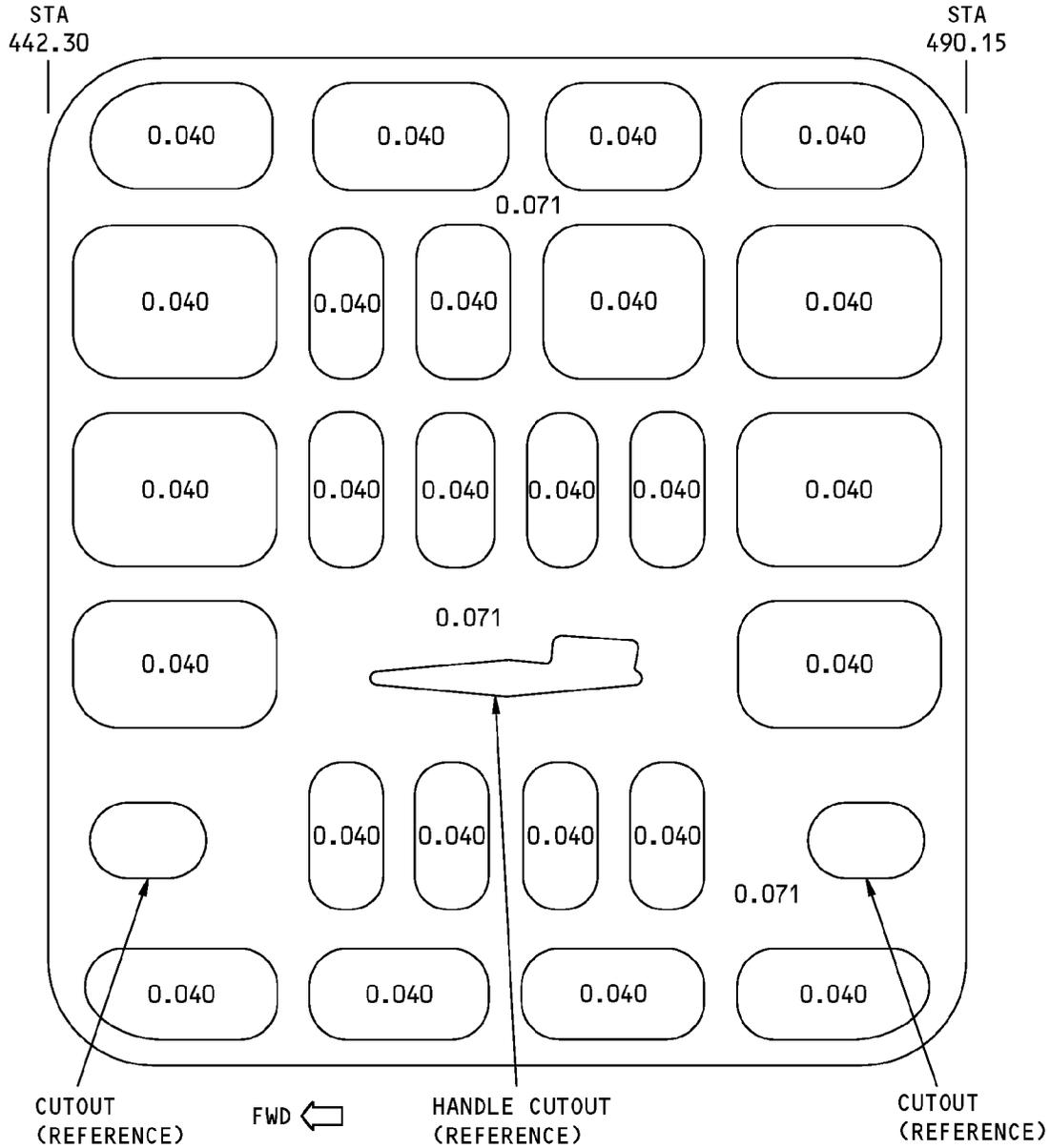
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin (Chem-milled)	0.071 (1.80)	2024-T3 clad sheet. Refer to Figure 3 for the chem-milled thicknesses of the different areas	Refer to Drawing 143A6112 for airplanes that have chem milled skins.
	External Skin (Solid Skin)	0.071 (1.80)	2024-T3 clad sheet. Constant thickness skin	Refer to Drawing 143A6112 for airplanes that have solid skins.
[2]	Access Cover	0.032 (0.81)	2024-T3 clad sheet	
[3]	Internal Skin	0.125 (3.18)	7075-T6 sheet. Refer to Figure 4 for the chem-milled thicknesses of the different areas	
[4]	Doubler	0.100 (2.54)	2024-T3 clad sheet	
[5]	Skin Access Panel	0.040 (1.02)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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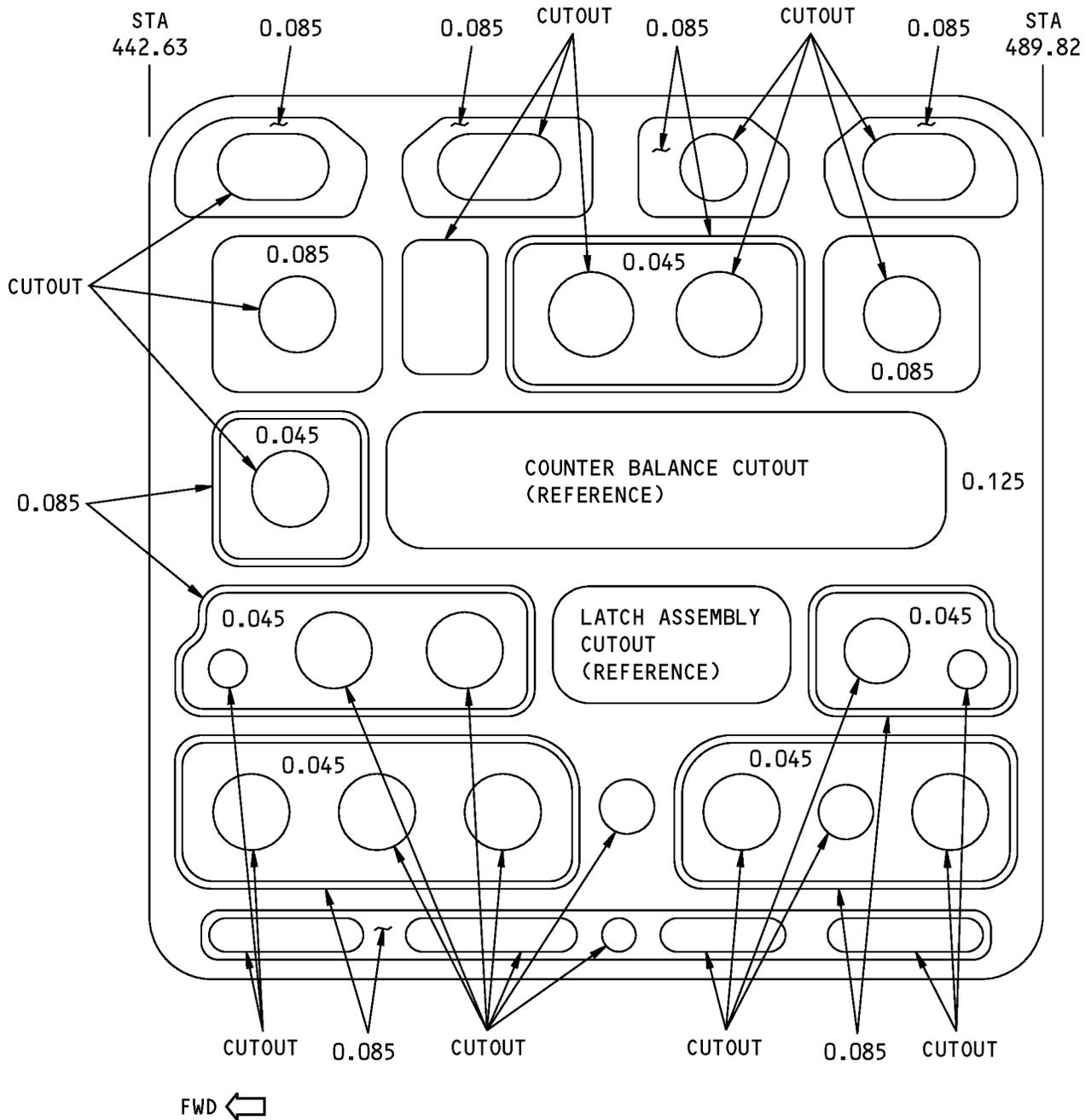
NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES. FOR MILLIMETERS REFER TO THE TABLE BELOW:

INCHES	mm
0.040	1.016
0.071	1.803

**VIEW OF THE INTERNAL SURFACE OF THE
FORWARD CARGO DOOR EXTERNAL SKIN**

**Chem-Milled Areas of Figure 2, Item [1] (Standard Skin)
Figure 3**

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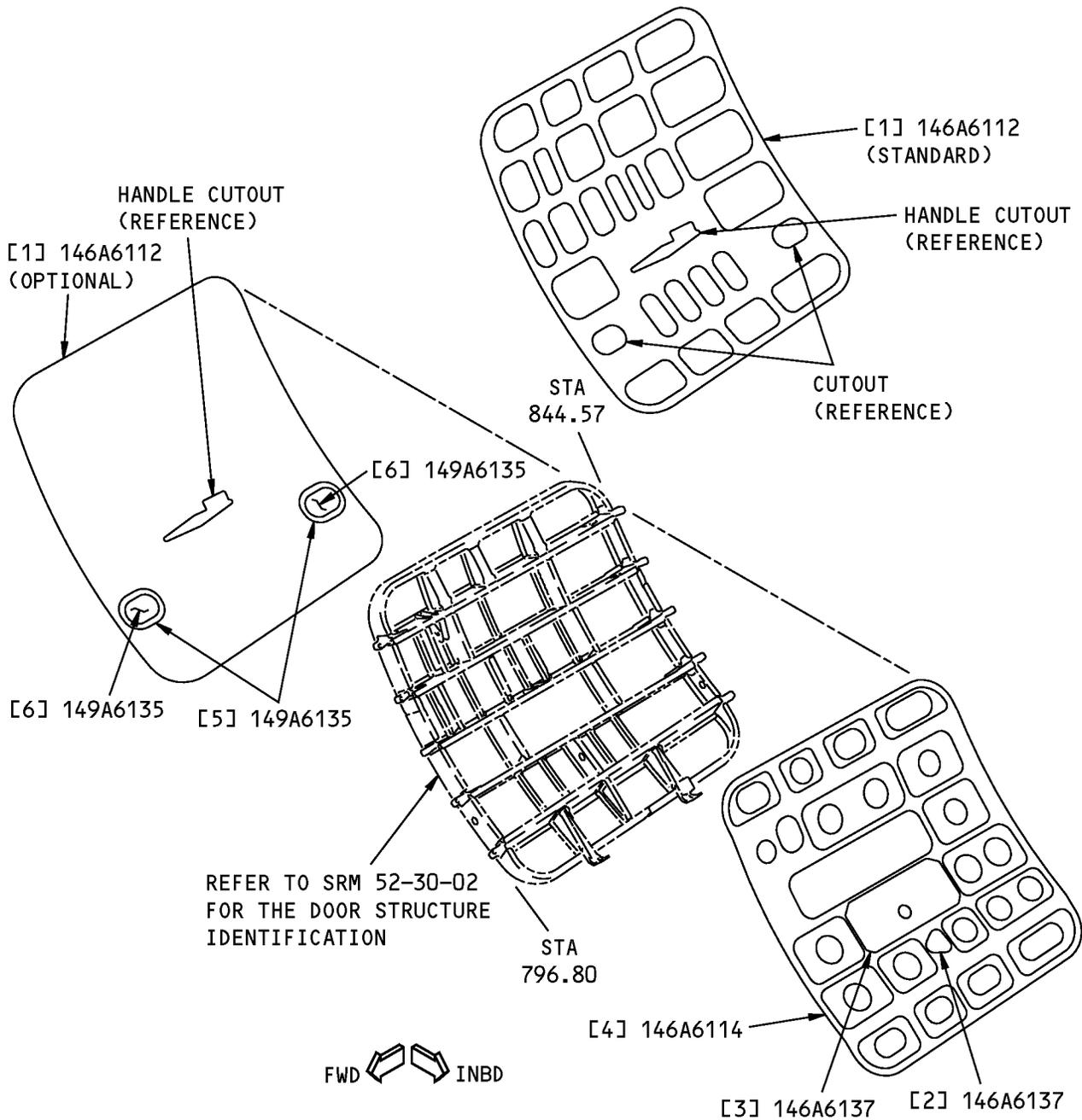


NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES.

**VIEW OF THE INTERNAL SURFACE OF THE
FORWARD CARGO DOOR INTERNAL SKIN**

**Chem-Milled Areas of Figure 2, Item [3]
Figure 4**

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NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

**Aft Cargo Door Skin Identification
Figure 5**



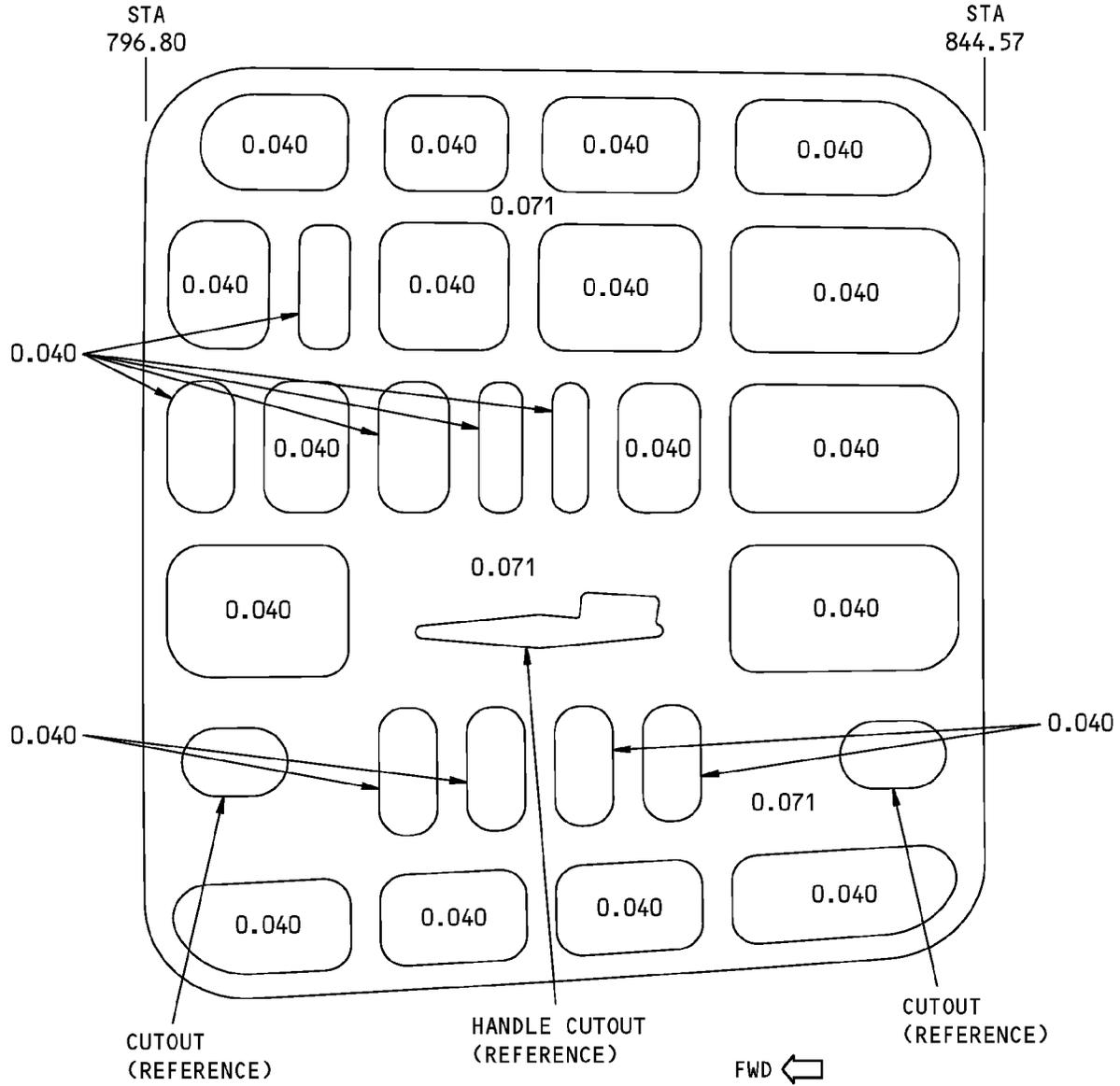
737-800
STRUCTURAL REPAIR MANUAL

Table 3:

LIST OF MATERIALS FOR FIGURE 5				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin (Chem-milled)	0.071 (1.80)	2024-T3 clad sheet. Refer to Figure 6 for the chem-milled thicknesses of the different areas	Refer to Drawing 146A6112 for airplanes that have chem milled skins.
	External Skin (Solid Skin)	0.071 (1.80)	2024-T3 clad sheet. Constant thickness skin	Refer to Drawing 146A6112 for airplanes that have solid skins.
[2]	Access Cover - Crank	0.032 (0.81)	2024-T3 clad sheet	
[3]	Access Cover - Latch	0.032 (0.81)	2024-T3 clad sheet	
[4]	Internal Skin	0.125 (3.18)	7075-T6 sheet. Refer to Figure 7 for the chem-milled thicknesses	
[5]	Doubler	0.100 (2.54)	2024-T3 clad sheet	
[6]	Skin - Access Panel	0.042 (1.07)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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STRUCTURAL REPAIR MANUAL**



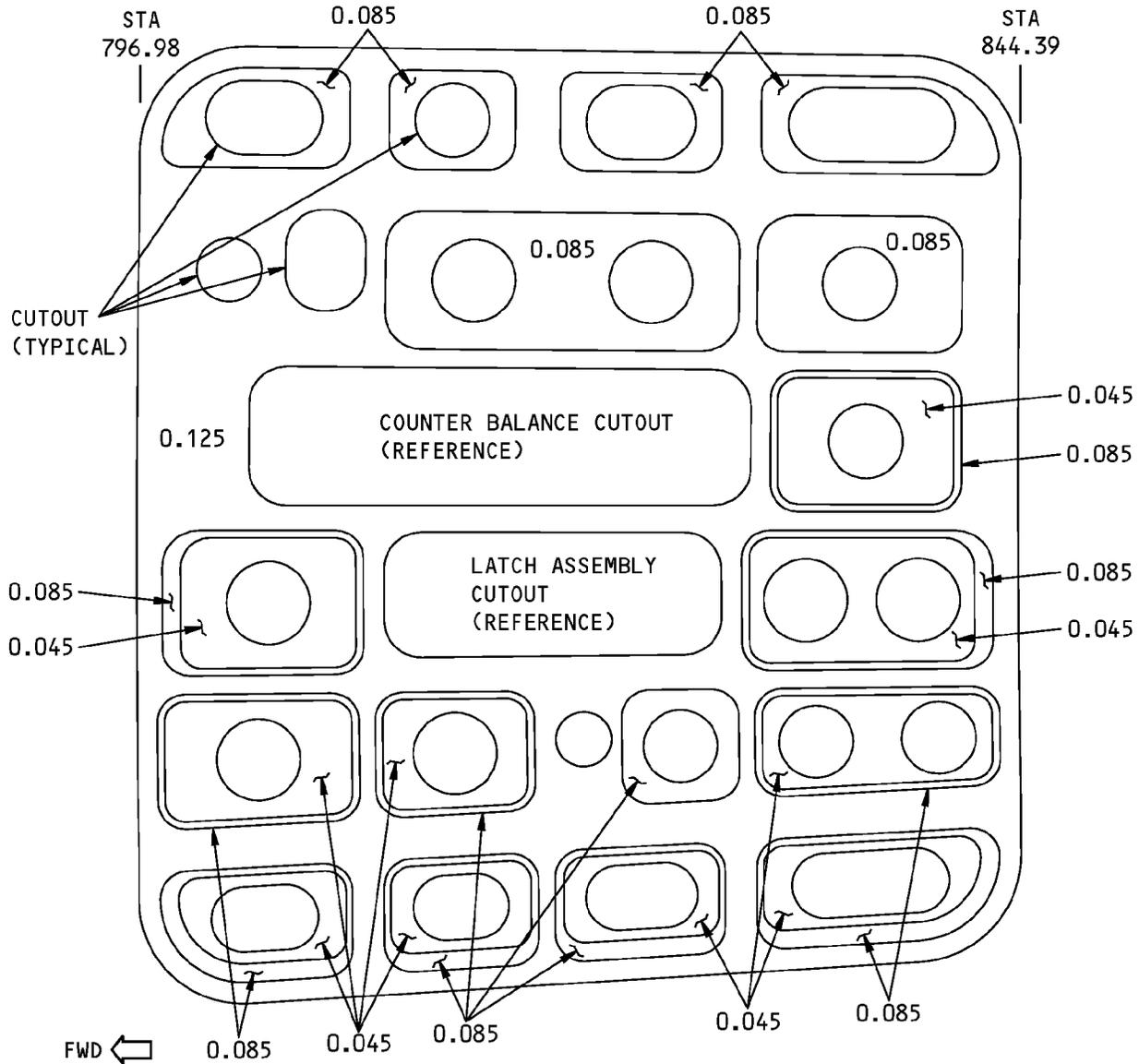
NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES.
FOR MILLIMETERS (mm) REFER TO TABLE BELOW:

INCHES	mm
0.040	1.016
0.071	1.803

VIEW OF THE INTERNAL SURFACE OF THE AFT CARGO DOOR EXTERNAL SKIN

**Chem-Milled Areas of Figure 5, Item [1] (Standard)
Figure 6**

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NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES.
FOR MILLIMETERS (mm) REFER TO TABLE BELOW:

INCHES	mm
0.045	1.143
0.085	2.159
0.125	3.175

VIEW OF THE INTERNAL SURFACE OF THE AFT CARGO DOOR INTERNAL SKIN

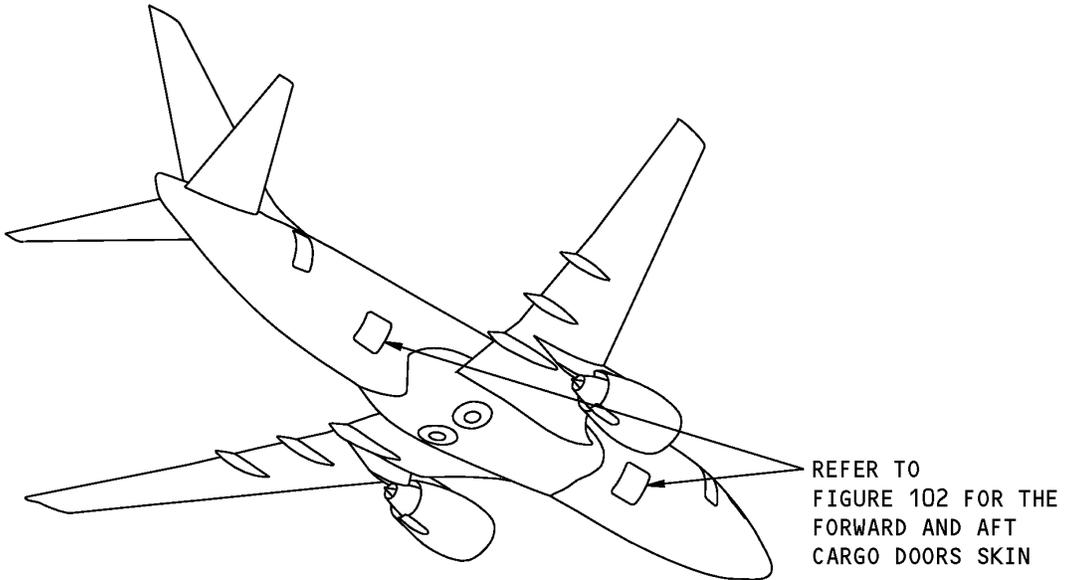
**Chem-Milled Areas of Figure 5, Item [4]
Figure 7**

STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - CARGO DOOR SKINS

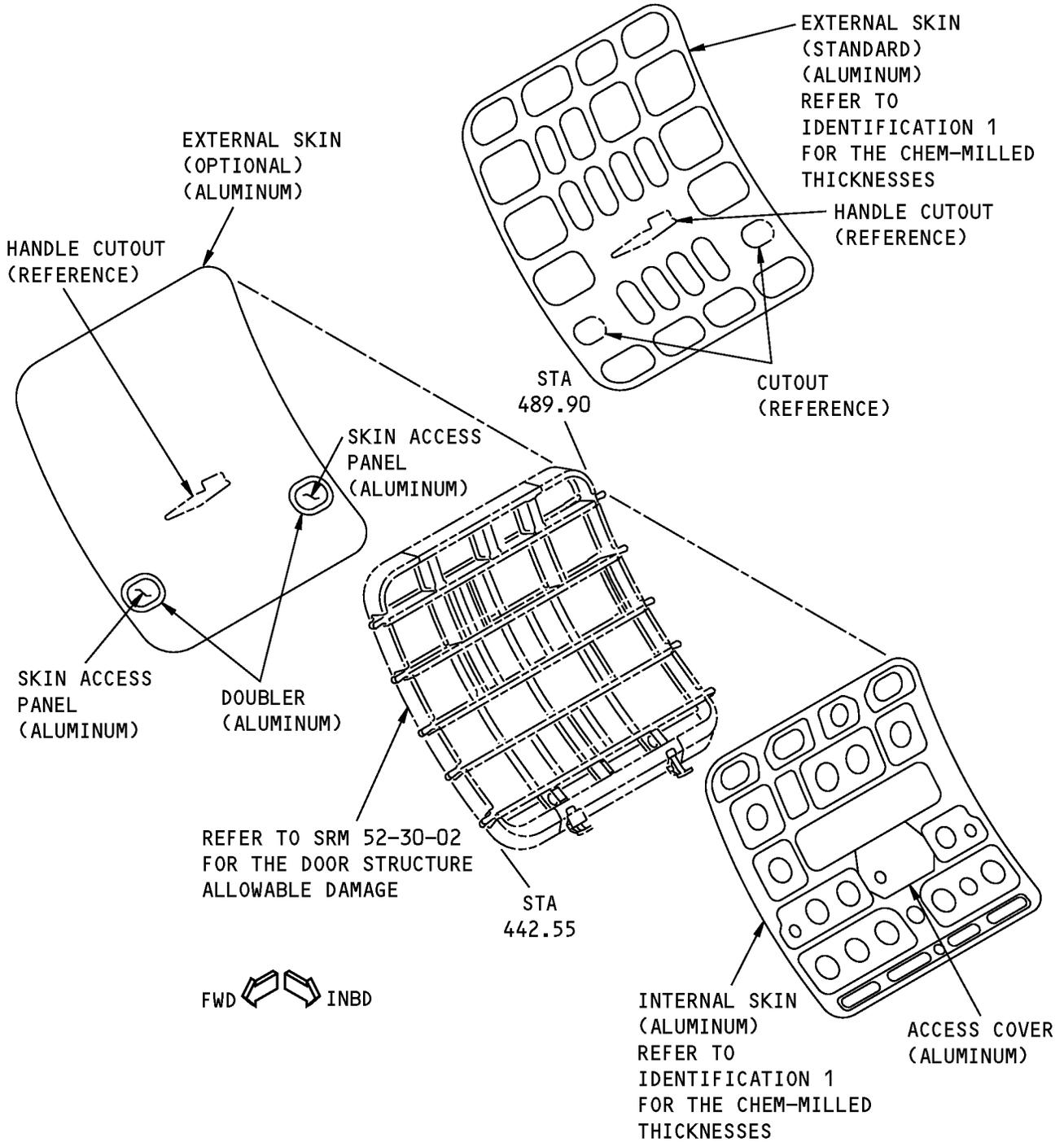
1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the cargo doors shown in Cargo Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Cargo Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



**Cargo Door Skin Location
Figure 101**

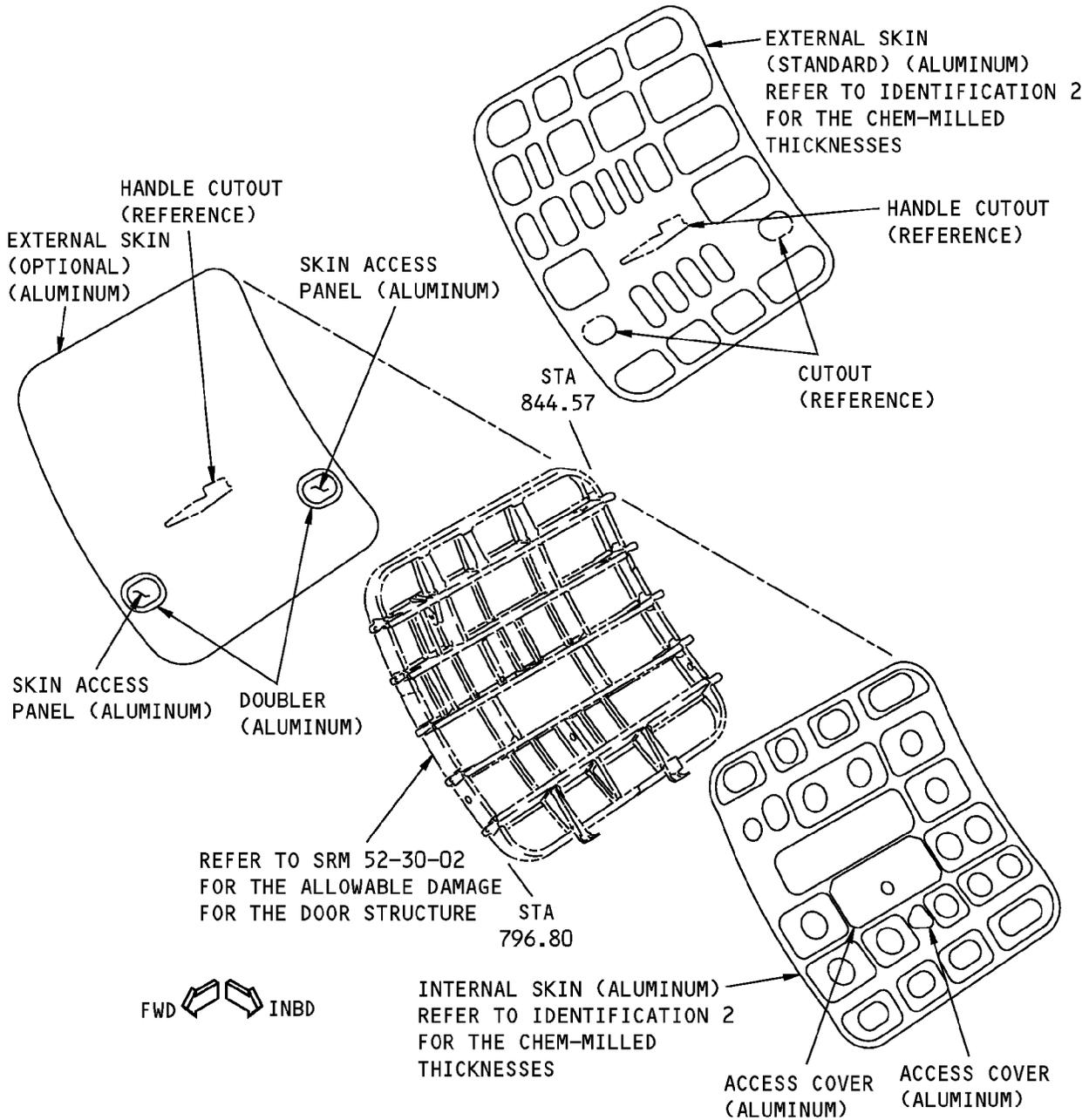
STRUCTURAL REPAIR MANUAL



FORWARD CARGO DOOR SKIN

**Cargo Door Skin
Figure 102 (Sheet 1 of 2)**

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AFT CARGO DOOR SKIN

**Cargo Door Skin
Figure 102 (Sheet 2 of 2)**



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2. General

- A. The cargo doors are in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The external skin includes the skin of the access panels.

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage to the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed from the aerodynamic outer surface of the external skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed from the non-aerodynamic inner surface of the external skin, or from the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

STRUCTURAL REPAIR MANUAL

4. Allowable Damage Limits

A. External Skin (This includes the access panels skin):

NOTE: If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.

(1) Cracks:

(a) Drill a 0.25 inch diameter stop hole at the ends of a crack. Refer to 51-10-02.

1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.

2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.

a) Install the rivet without sealant.

3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

(2) Nicks, Scratches, Gouges and Corrosion:

(a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .

(b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

(3) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

(a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F .

(b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F , that cannot be repaired immediately are permitted if:

1) There are no loose or missing fasteners

2) There are no damaged fastener holes

3) There are no creases, gouges, or cracks near the dent

4) You do not fill the dent

5) You do an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

(4) Holes and Punctures:

NOTE: For holes and punctures that are a maximum of 0.25 inch in diameter, there are no flight operations limits. Refer to Paragraph 4.A.(5)(a). For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b). and Paragraph 5./ALLOWABLE DAMAGE 1

(a) Holes and punctures are permitted if:

1) They are a maximum of 0.25 inch in diameter

2) They are a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius

3) They are filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.



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STRUCTURAL REPAIR MANUAL

- a) Install the rivet without sealant.
 - (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
 - 1) Remove the damage to a circular or oval shape.
 - 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- B. Internal Skin, Access Cover, and Doubler:
- (1) Cracks:
 - (a) Remove the damage at an edge as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler , Figure 104/ALLOWABLE DAMAGE 1, Detail A , B , and F .
 - (b) Remove the damage that is not at an edge as follows:
 - 1) Drill a 0.25 inch diameter stop hole at the ends of a crack that are not at a fastener hole or an edge as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler , Figure 104/ALLOWABLE DAMAGE 1, Detail D . Refer to 51-10-02.
 - a) The stop hole must be a minimum of 1.00 inch away from a chem-milled radius.
 - 2) You are permitted to remove the damage to a maximum diameter of 1.00 inch as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler , Figure 104/ALLOWABLE DAMAGE 1, Detail D if:
 - a) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (2) Nicks, Gouges, Scratches and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler , Figure 104/ALLOWABLE DAMAGE 1, Details A , B , C , E , and F .
 - (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (3) Dents:
 - (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler , Figure 104/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures:
 - (a) Holes and punctures are permitted if:
 - 1) They are a maximum of 1.00 inch in diameter
 - 2) They are a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

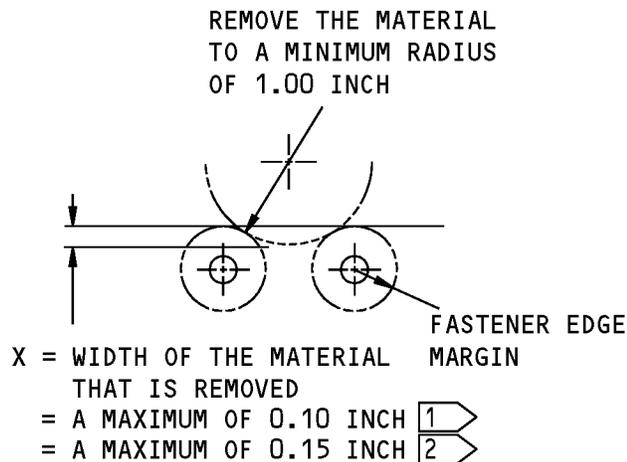
ALLOWABLE DAMAGE 1

52-30-01

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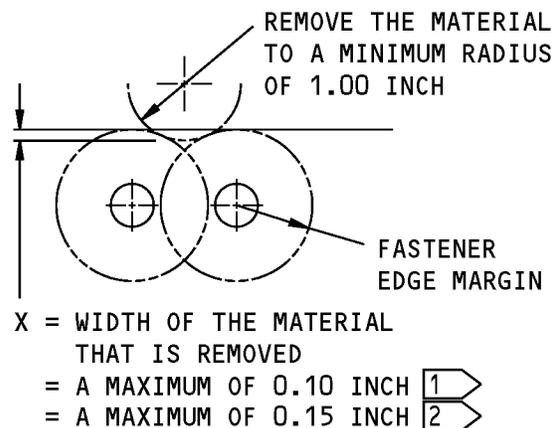
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STRUCTURAL REPAIR MANUAL



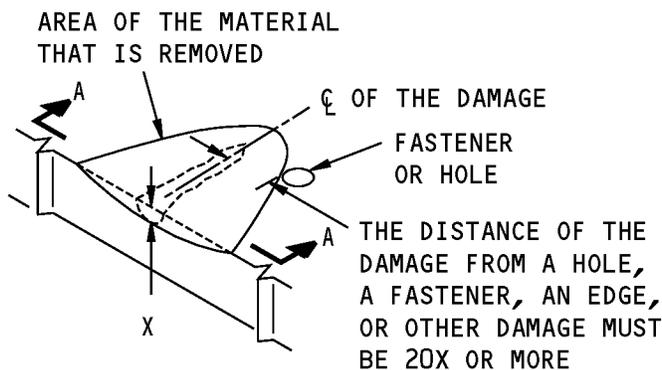
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

A



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

B



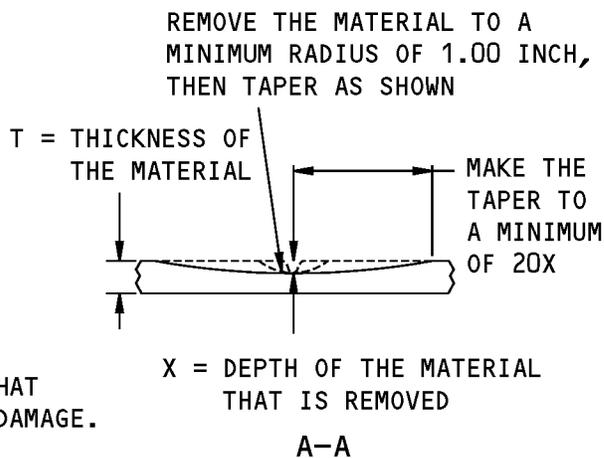
NOTE: REFER TO PARAGRAPH 5, TABLE 101 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

C

NOTES

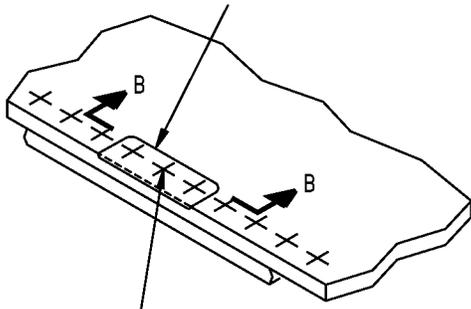
- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.



**Allowable Damage Limits - External Skin
 Figure 103 (Sheet 1 of 3)**

STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X

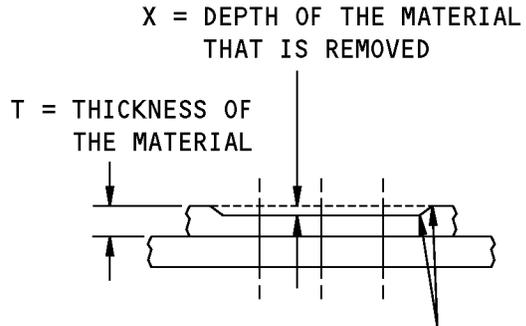


REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5, TABLE 101 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

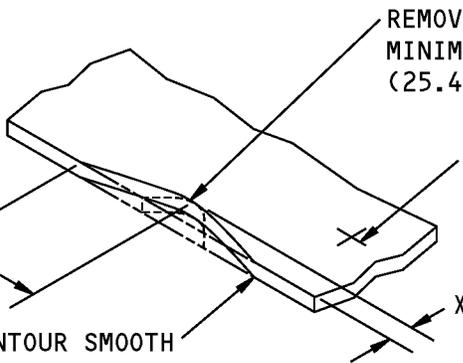
(D)



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

B-B

TAPER TO A MINIMUM OF 20X. THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN

IF THERE ARE FASTENERS, SEE (A) AND (B)

MAKE THE CONTOUR SMOOTH (TYPICAL)

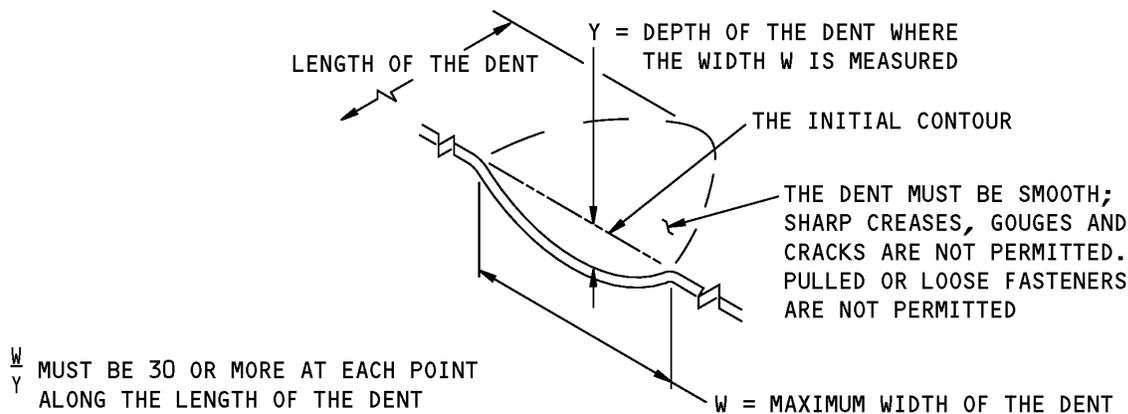
X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10T 
 = A MAXIMUM OF 0.15T 

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN

(E)

Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

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STRUCTURAL REPAIR MANUAL**



DENT THAT IS PERMITTED

F

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 3 of 3)**

5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, scratches, gouges, and corrosion
 - 3) Holes and punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1.

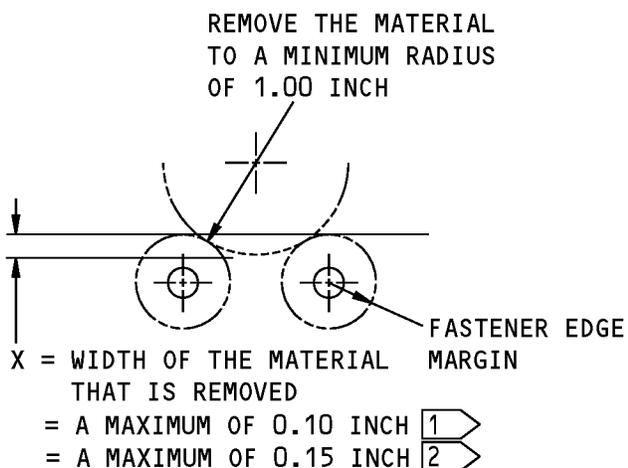


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STRUCTURAL REPAIR MANUAL**

Table 101:

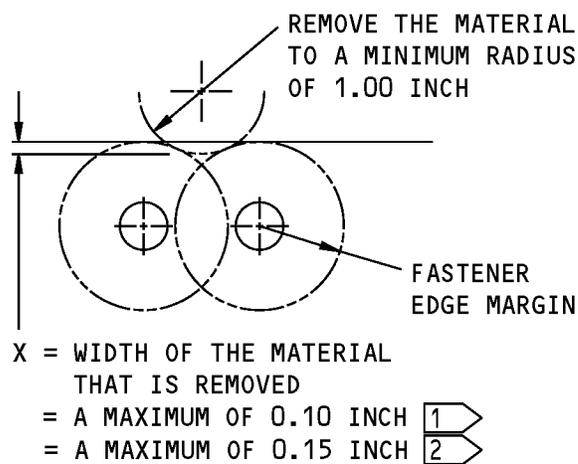
PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits

STRUCTURAL REPAIR MANUAL



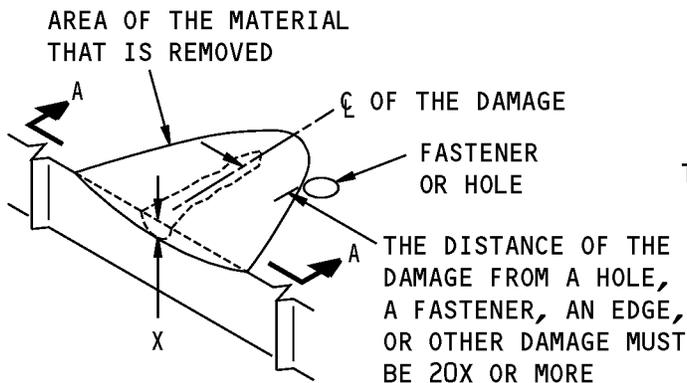
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



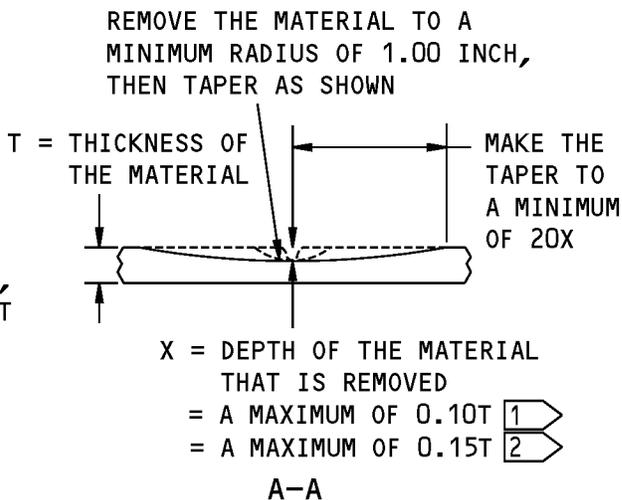
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(C)

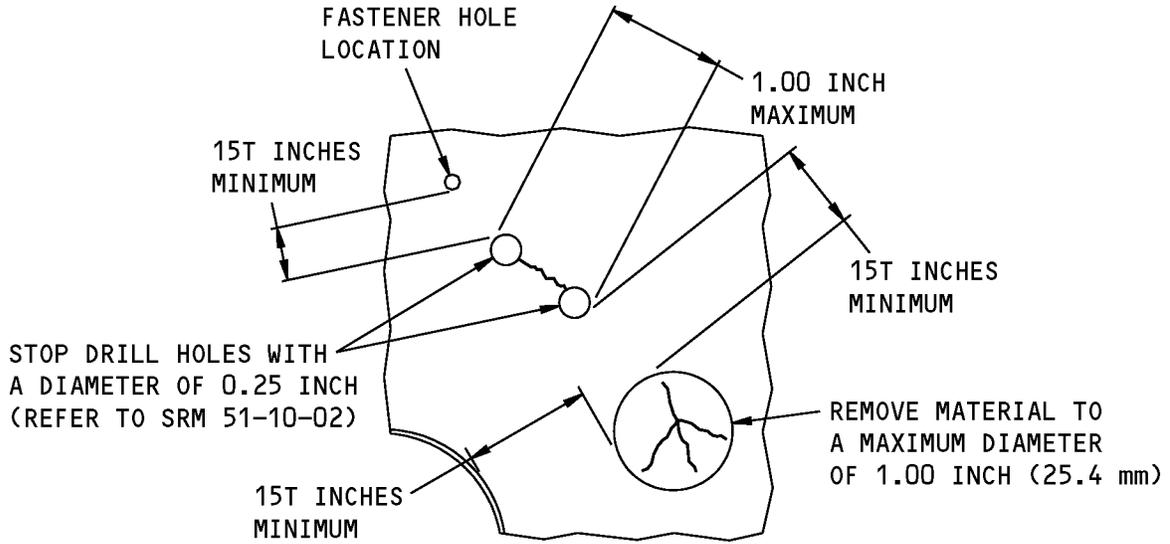


NOTES

- 1** FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2** FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

Allowable Damage Limits - Internal Skin, Access Cover, and Doubler
Figure 104 (Sheet 1 of 3)

STRUCTURAL REPAIR MANUAL



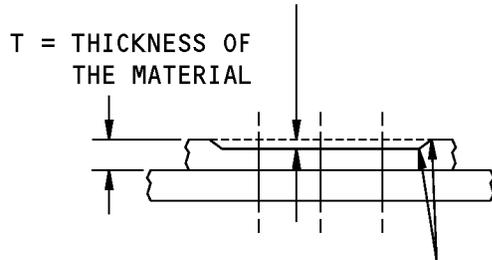
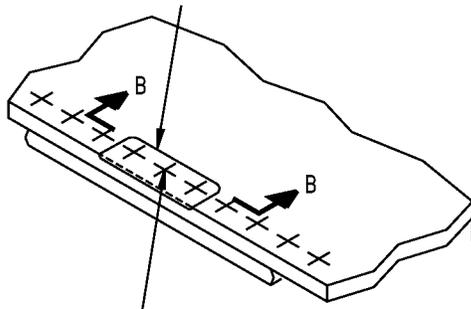
T = THICKNESS OF THE MATERIAL

CRACKS THAT ARE PERMITTED

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X

X = DEPTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10T 
 = A MAXIMUM OF 0.15T 



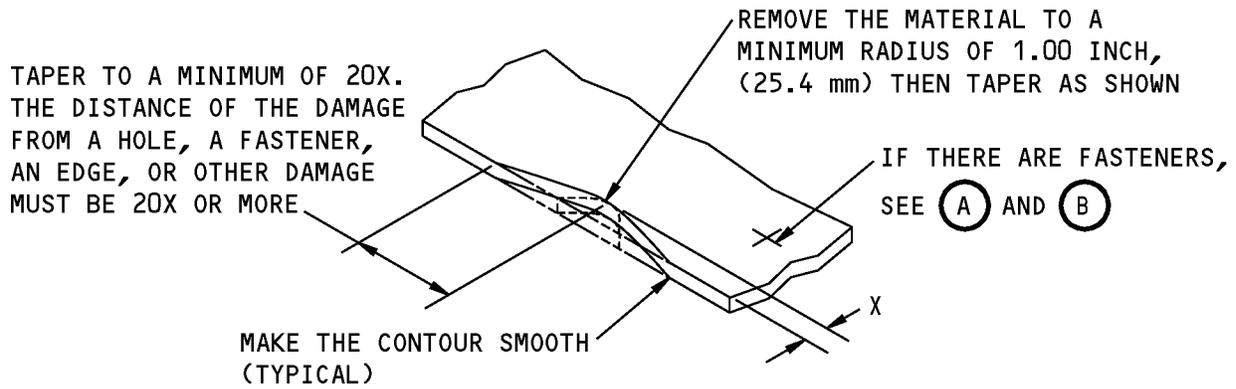
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

Allowable Damage Limits - Internal Skin, Access Cover, and Doubler
Figure 104 (Sheet 2 of 3)

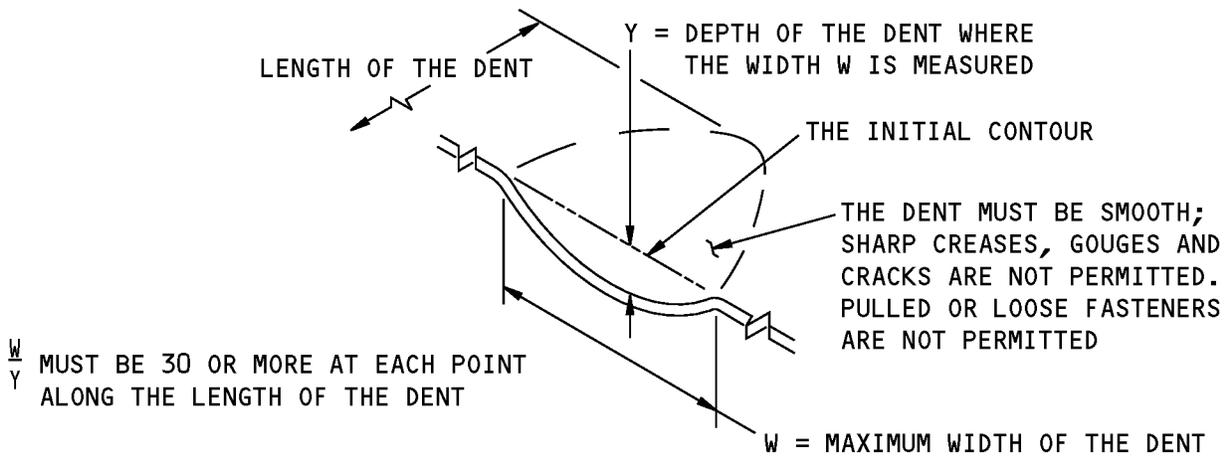
**737-800
STRUCTURAL REPAIR MANUAL**



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH 
 = A MAXIMUM OF 0.15 INCH 

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN

(F)



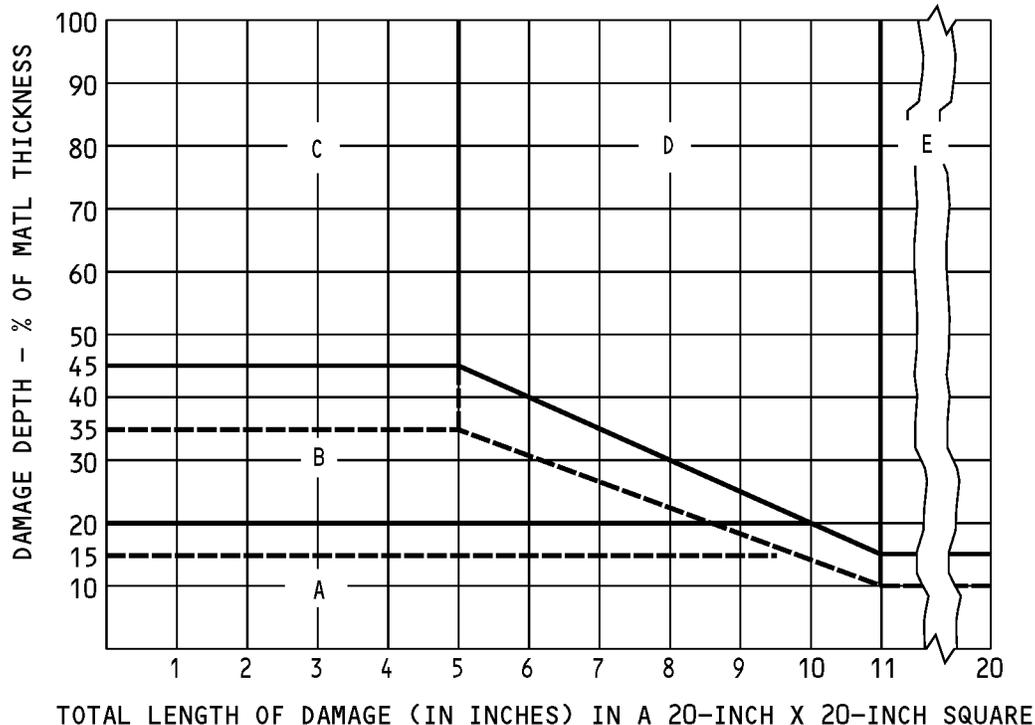
$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

(G)

**Allowable Damage Limits - Internal Skin, Access Cover, and Doubler
Figure 104 (Sheet 3 of 3)**

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STRUCTURAL REPAIR MANUAL**



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

----- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

———— FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

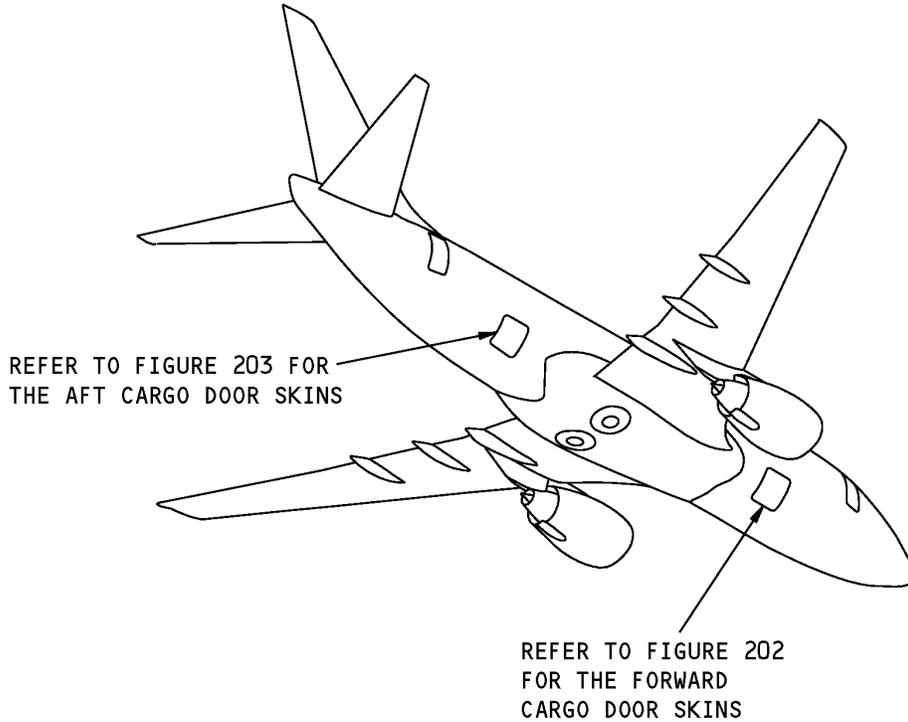
**Damage Limits for the Pressurized External Skin
Figure 105**

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STRUCTURAL REPAIR MANUAL

REPAIR 1 - CARGO DOOR SKINS

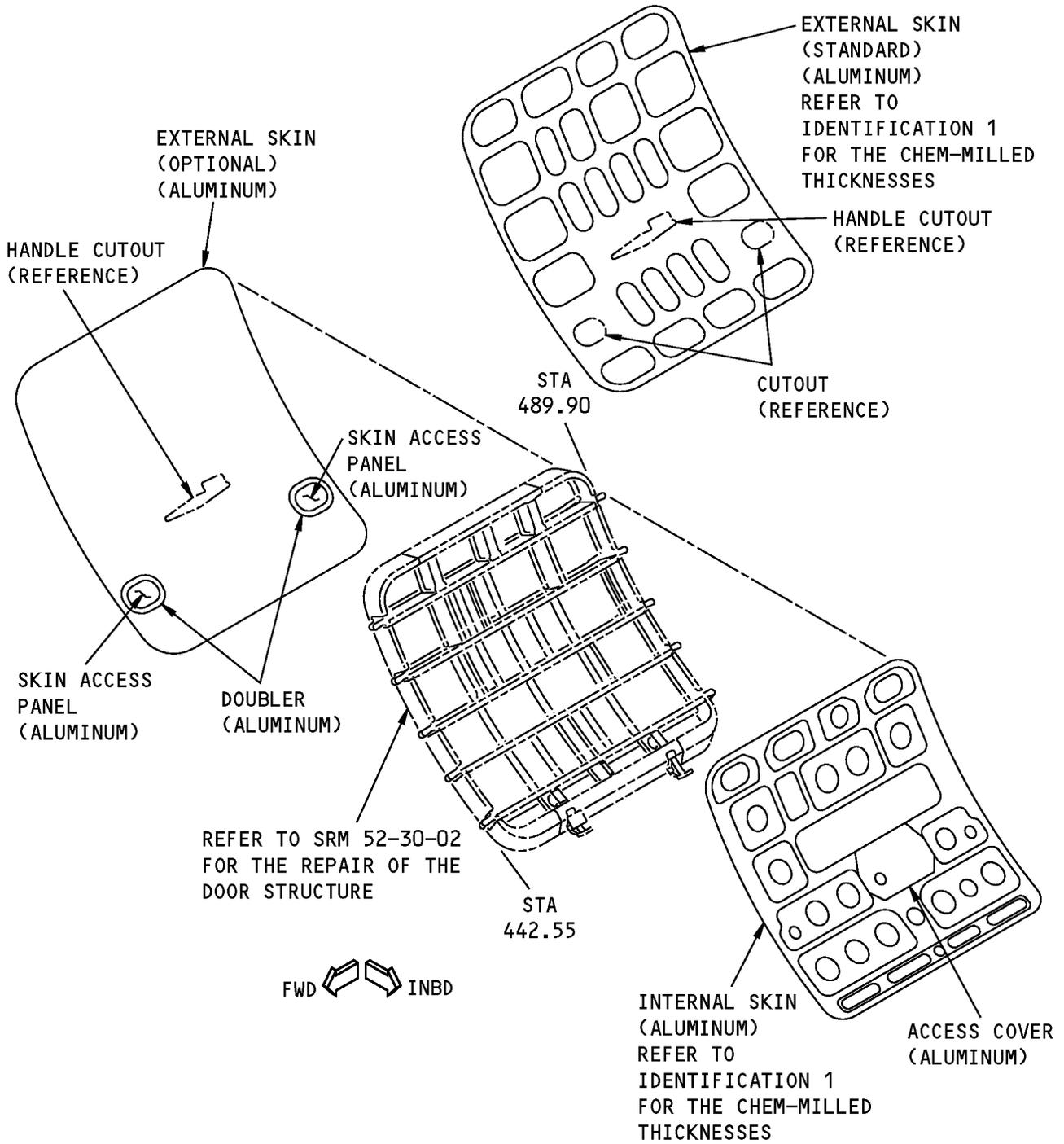
1. Applicability

- A. Repair 1 is applicable to damage to the cargo door skins shown in Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Skin, Figure 202/REPAIR 1 and Aft Cargo Door Skin, Figure 203/REPAIR 1.



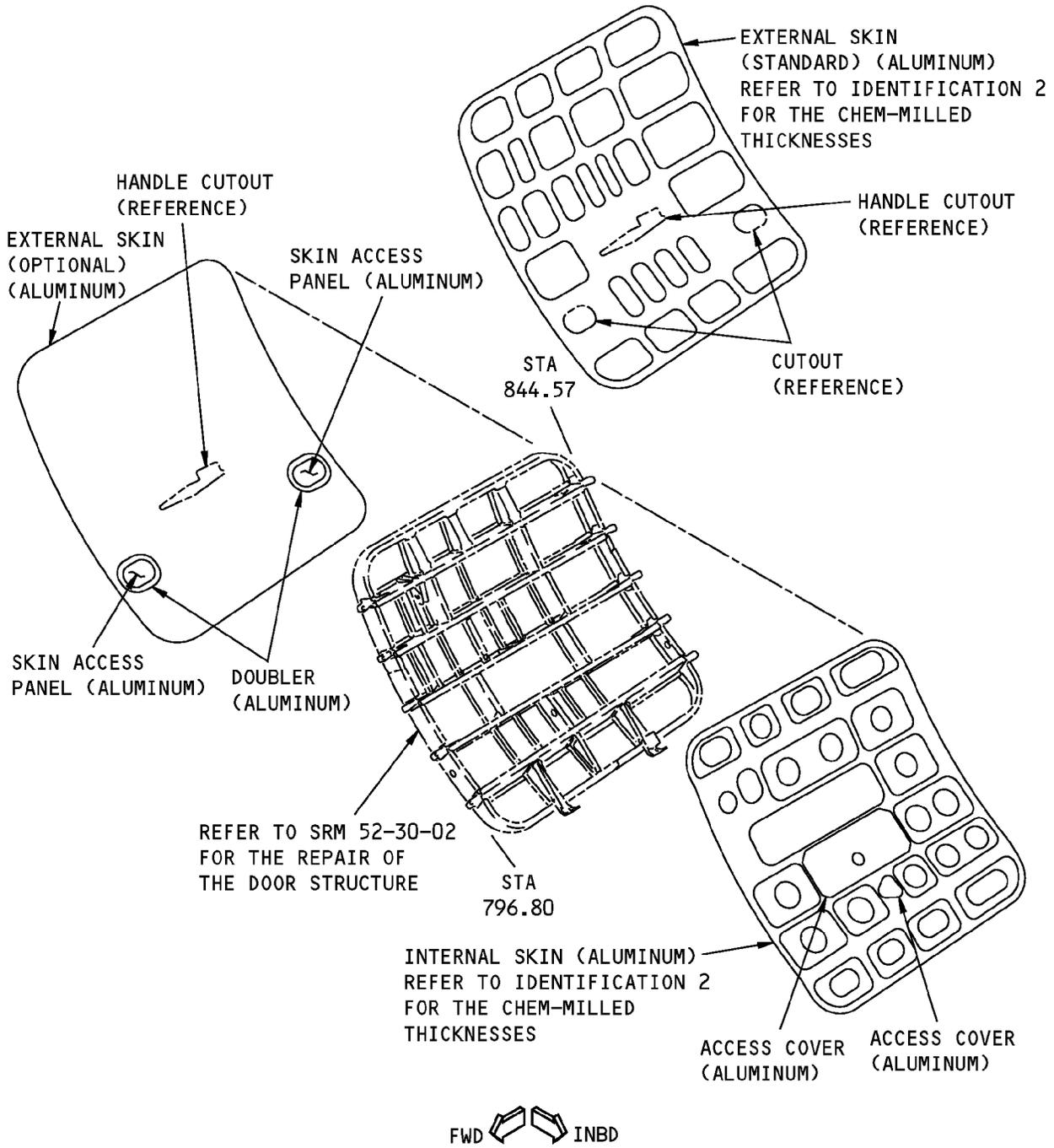
Cargo Door Location
Figure 201

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STRUCTURAL REPAIR MANUAL**



**Forward Cargo Door Skin
Figure 202**

**737-800
STRUCTURAL REPAIR MANUAL**



**Aft Cargo Door Skin
Figure 203**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
- (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

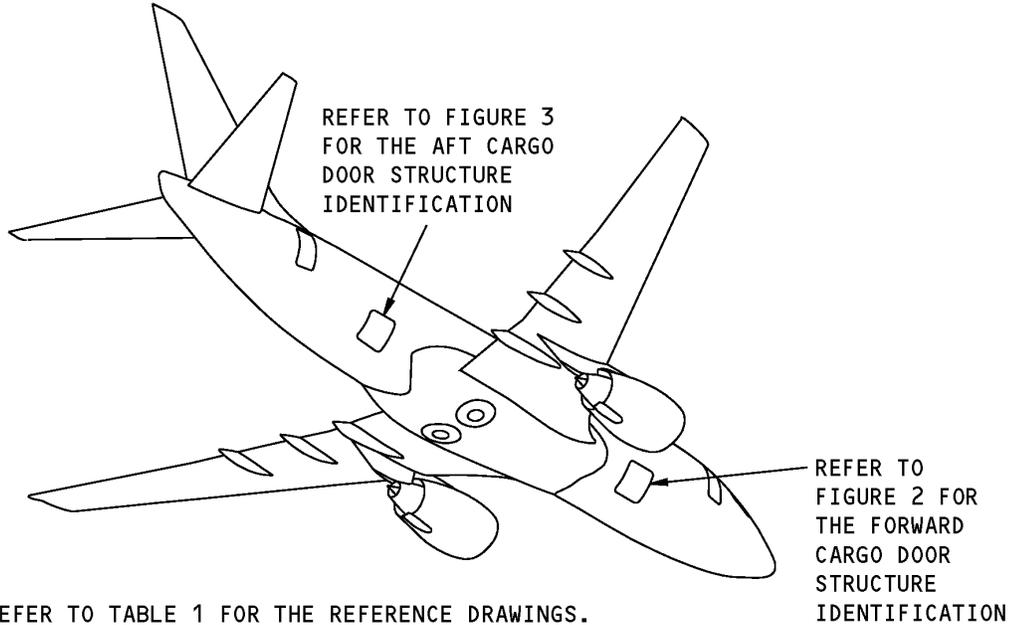
Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the cargo door skins shown in Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Skin, Figure 202/REPAIR 1 and Aft Cargo Door Skin, Figure 203/REPAIR 1.

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STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - CARGO DOOR STRUCTURE



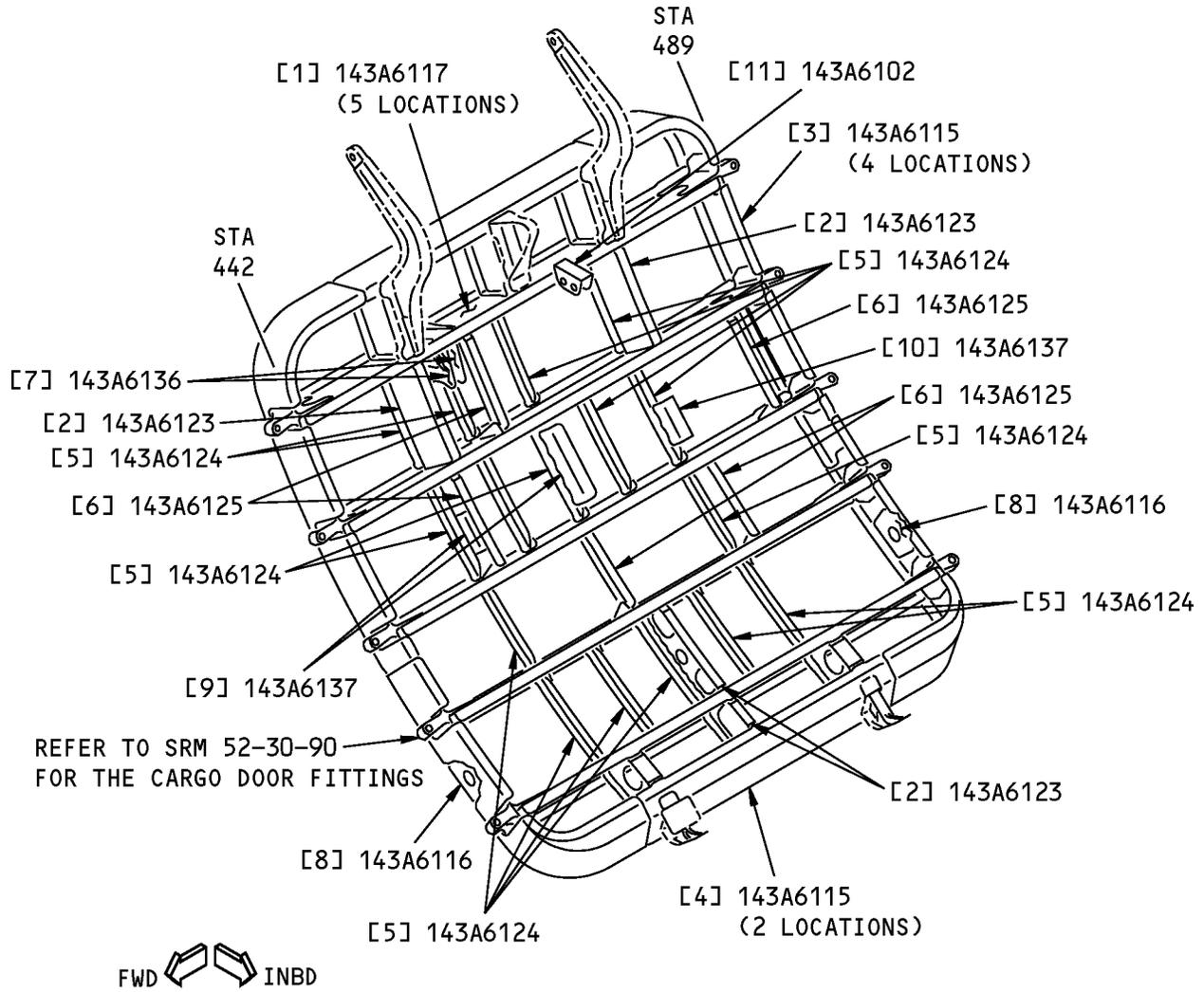
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Cargo Door Locations
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0050	Functional Collector - Forward Cargo Door
140A0060	Functional Collector - Aft Cargo Door
143A6100	Door Installation - Forward Cargo Door
143A6110	Door Assembly - Forward Cargo Door
143A6117	Beam Assemblies - Forward Cargo Door

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Cargo Door Structure Identification
Figure 2**



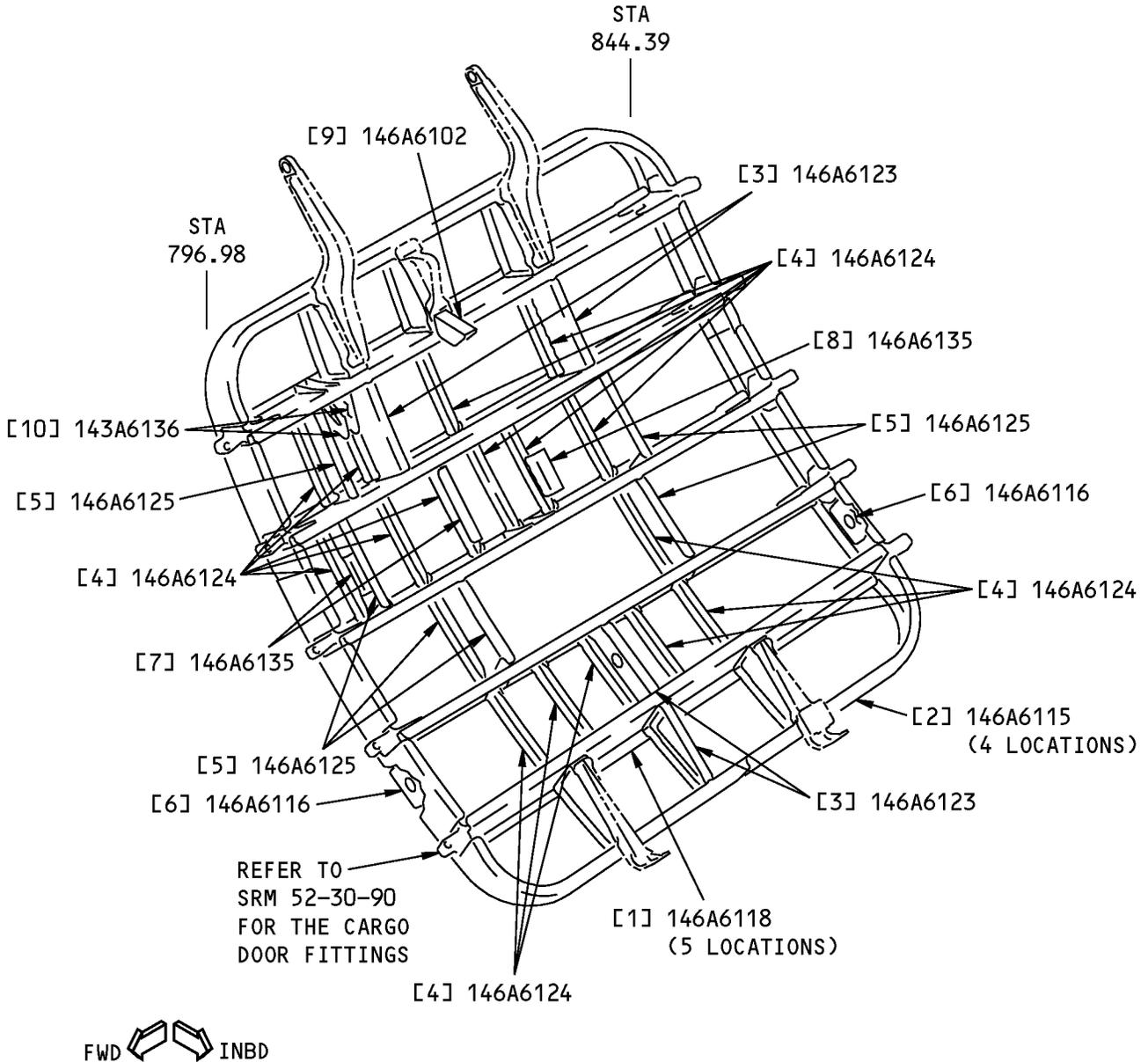
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[2]	Intercostal Web		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[3]	Frame	0.071 (1.83)	2024-T42 clad sheet	
[4]	Frame	0.056 (1.42)	7075-T62 clad sheet	
[5]	Stiffeners		7075-T73511 BAC1505-101687 extrusion	
[6]	Angle Stiffener		7075-T73511 BAC1505-101036 extrusion.	
[7]	Pulley Bracket		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[8]	Frame Doubler (2)	0.050 (1.27)	7075-T62 clad sheet	
[9]	Attach Bracket (2)		7075-T62 BAC1490-2685 sheet	
[10]	Support Angle		7075-T62 BAC1490-2685 sheet	
[11]	Support Bracket		7075-T73511 bar. Refer to the engineering drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

**Aft Cargo Door Structure Identification
Figure 3**



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Table 3:

LIST OF MATERIALS FOR FIGURE 3				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate. Refer to the engineering drawings for the machined thicknesses	
[2]	Frame	0.080 (2.032)	2024-T42 clad sheet	
[3]	Intercostal Web		7050-T7451 plate. Refer to the engineering drawings for the machined thicknesses	
[4]	Stiffener, Outer		7075-T73511 BAC1506-4500 extrusion	
[5]	Stiffener, Inner		7075-T73511 BAC1503-100707 extrusion	
[6]	Frame, Doubler - Latch	0.063 (1.600)	7075-T6 clad sheet	
[7]	Attach Bracket		2024-T42 BAC1489-369 extruded sheet	
[8]	Bracket, Ceiling Support		7075-T73511 extrusion	
[9]	Pulley Bracket		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	

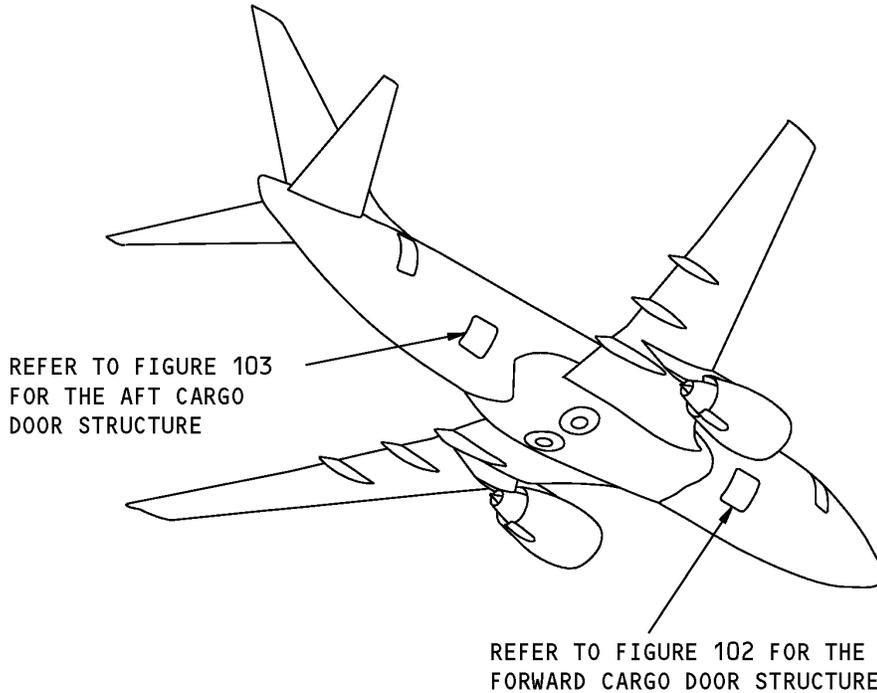
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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ALLOWABLE DAMAGE 1 - CARGO DOOR STRUCTURE

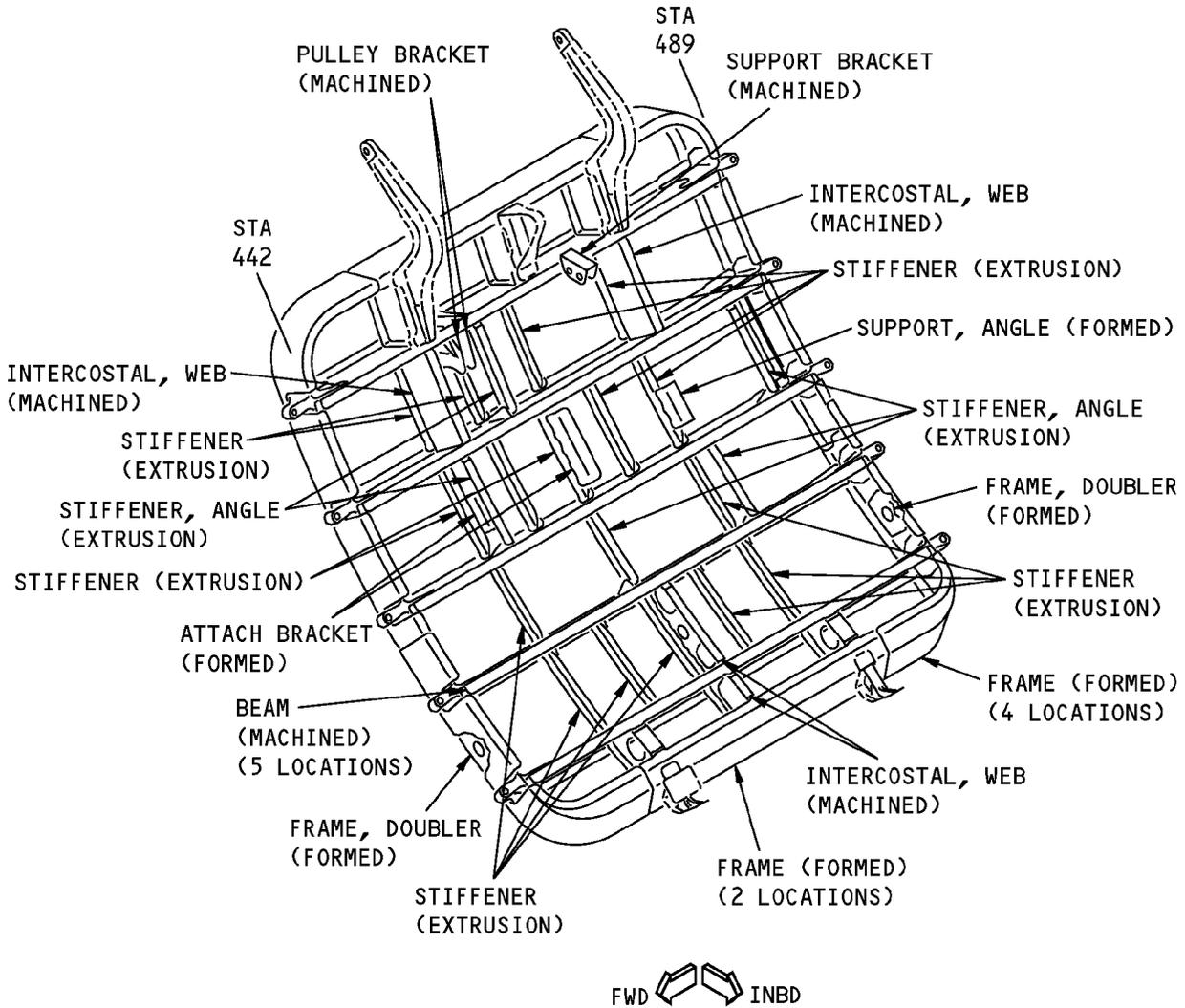
1. Applicability

- A. This subject gives the allowable damage limits for the structure of the cargo doors shown in Cargo Door Location, Figure 101/ALLOWABLE DAMAGE 1, Forward Cargo Door Structure, Figure 102/ALLOWABLE DAMAGE 1, and Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1.



**Cargo Door Location
Figure 101**

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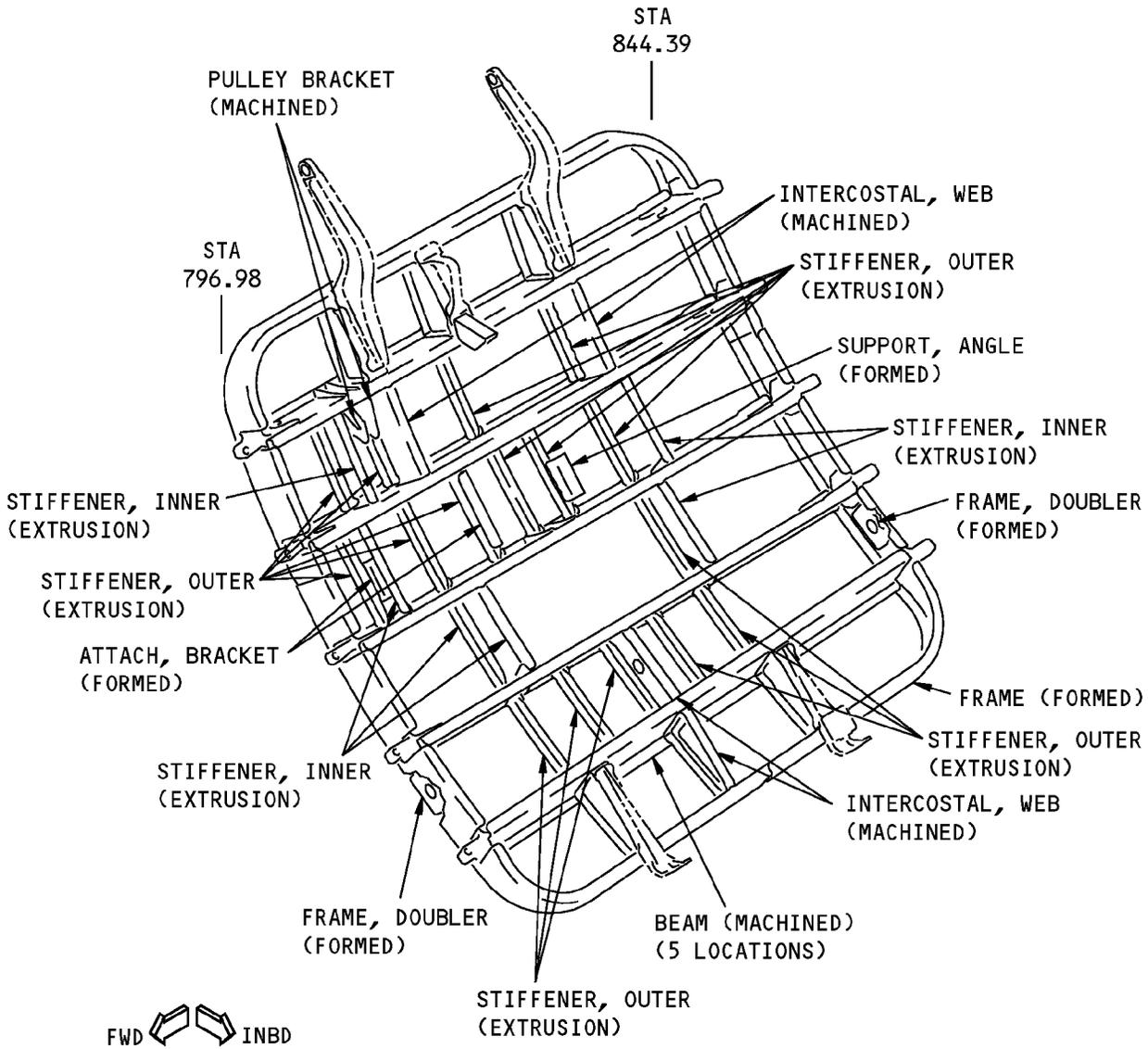


NOTE

- ALL PARTS ARE MADE FROM ALUMINUM.

**Forward Cargo Door Structure
Figure 102**

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NOTE

- ALL PARTS ARE MADE FROM ALUMINUM.

**Aft Cargo Door Structure
Figure 103**



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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1 Refer to Table 101/ALLOWABLE DAMAGE 1 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
BEAMS - MACHINED PLATE	4.A
BRACKET, ATTACH - FORMED	4.B
BRACKET PULLEY/SUPPORT - EXTRUSION	4.A
INTERCOSTALS - MACHINED	4.A
FRAMES - FORMED	4.B
FRAME, DOUBLER - FORMED	4.B
STIFFENERS - EXTRUSION	4.A
SUPPORT, ANGLE - FORMED	4.B

- B. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for the sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the sources of the equipment and tools you can use to remove the damage.
- C. After the damage has been removed, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Beams, Intercostal Webs, Pulley Bracket, Pulley Bracket Support, Stiffeners and Stiffener Angles - Machined Plate and Extrusion
- (1) Cracks:



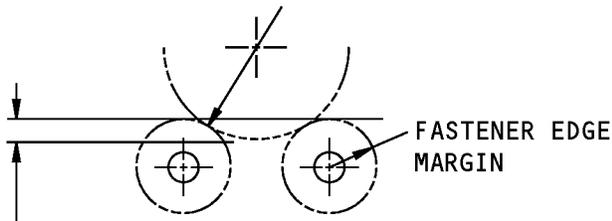
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- (a) Remove the damage as shown in Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and H .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , D , E , and F .
 - (3) Dents are permitted as shown in Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch, (38.1 mm) away from a fastener or part radius.
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- B. Attach Brackets, Frames, Frame Doublers, and Formed Support Angle
- (1) Cracks:
 - (a) Remove the damage as shown in Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .
 - (3) Dents are permitted as shown in Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius.
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.

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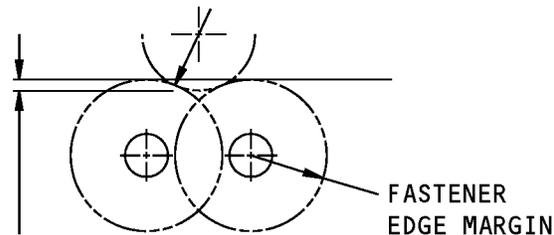
REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = 0.10 INCH (2.54 mm), OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
 = A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

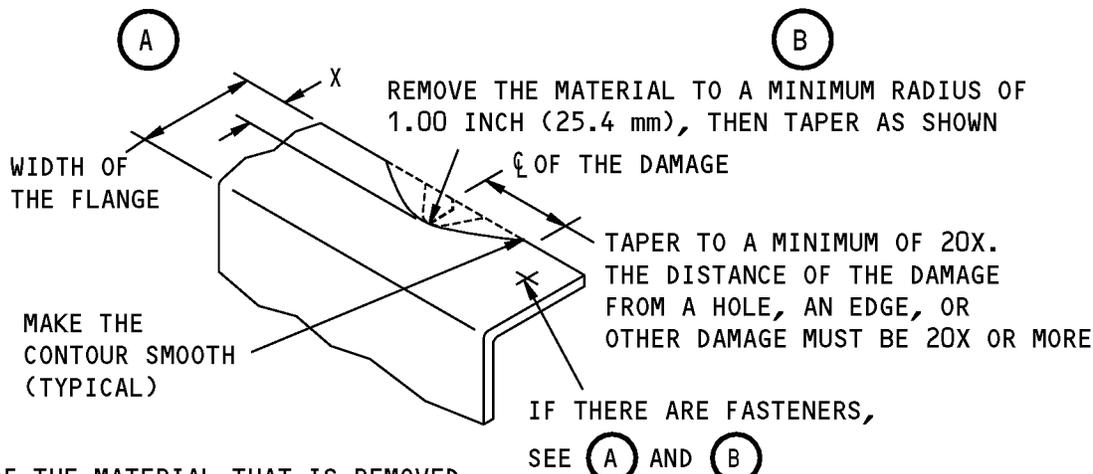
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = 0.10 INCH (2.54 mm), OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
 = A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = 10 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.10 INCH (2.54 mm), THAT WHICH IS LESS 1
 = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm), THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

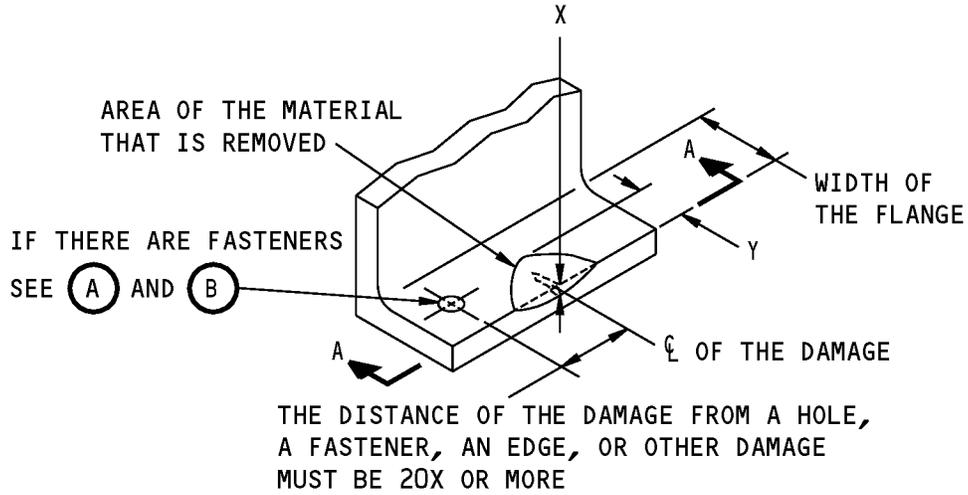
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits
 Figure 104 (Sheet 1 of 4)**

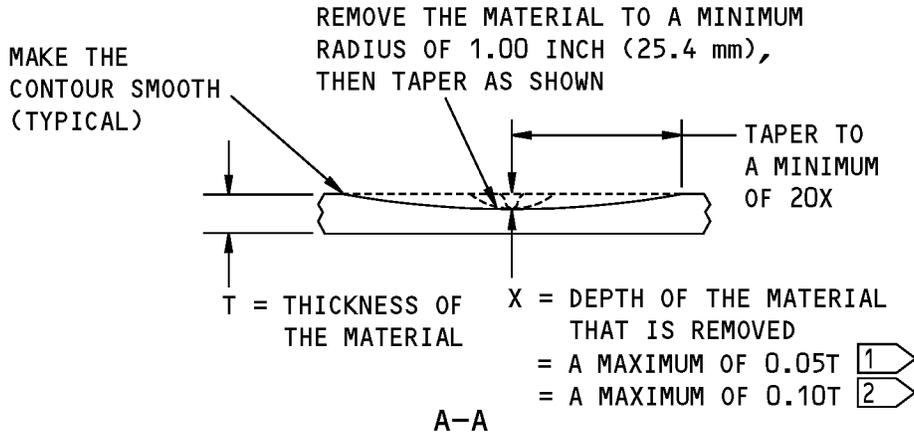
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- Y = WIDTH OF THE MATERIAL THAT IS REMOVED
- = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE 1
- = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 2

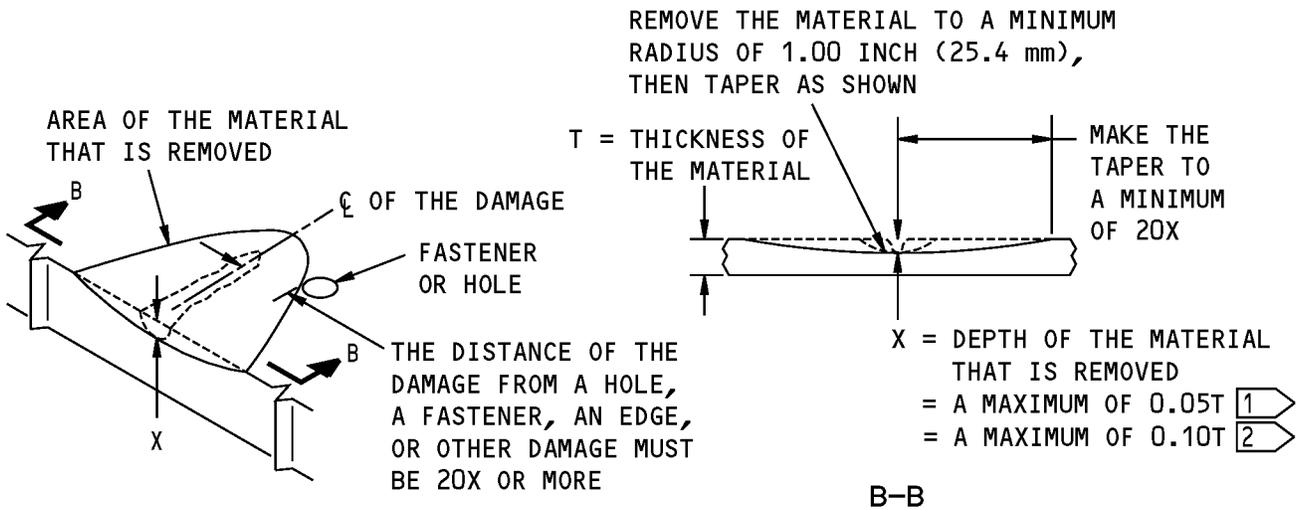
REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(D)



**Allowable Damage Limits
Figure 104 (Sheet 2 of 4)**

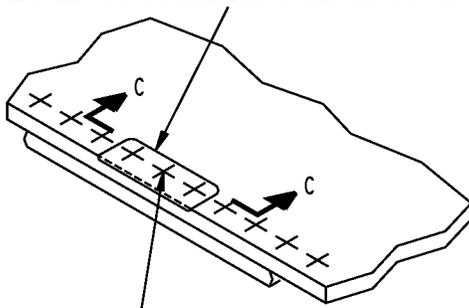
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**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

(E)

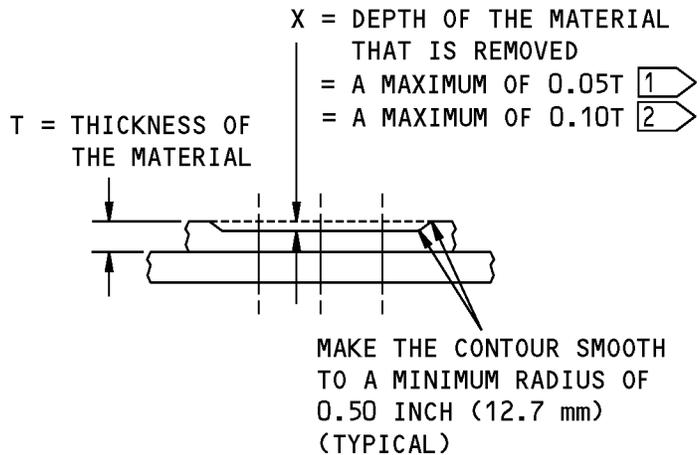
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

**REMOVAL OF DAMAGE AROUND THE
FASTENERS ON AN EDGE
OR A SURFACE**

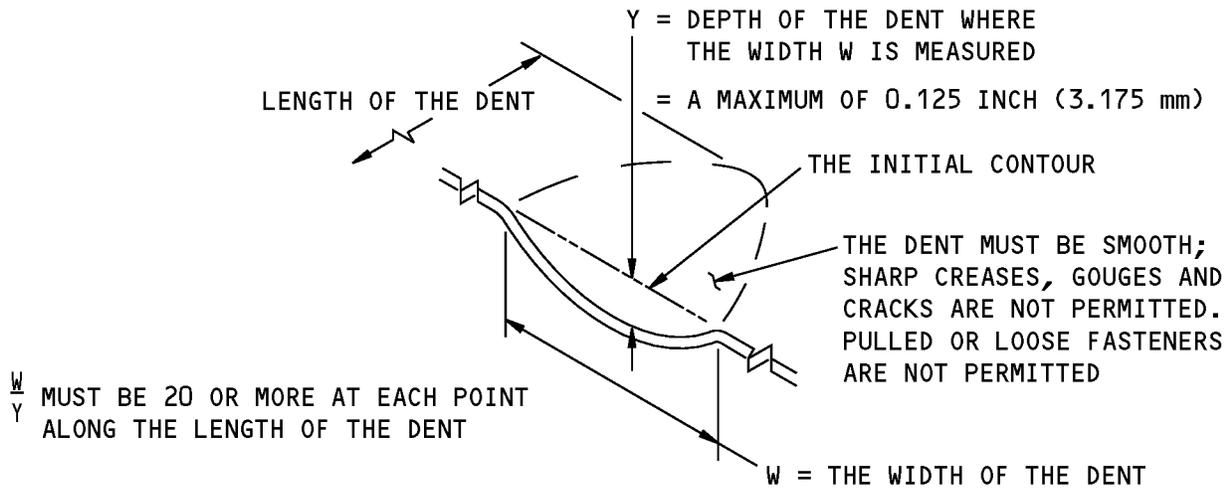
(F)



C-C

**Allowable Damage Limits
Figure 104 (Sheet 3 of 4)**

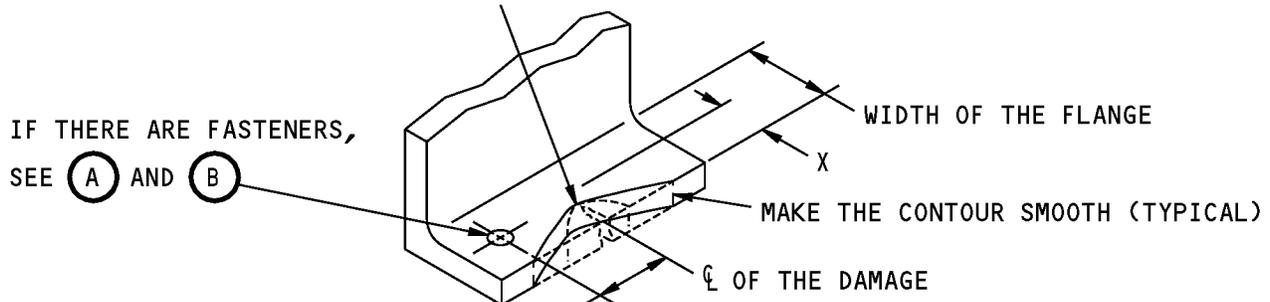
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DENT THAT IS PERMITTED

G

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



TAPER TO A MINIMUM OF 20X. THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

X = WIDTH OF THE MATERIAL REMOVED
 = 10 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.10 INCH (2.54 mm), THAT WHICH IS LESS 1
 = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.8 mm), THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

H

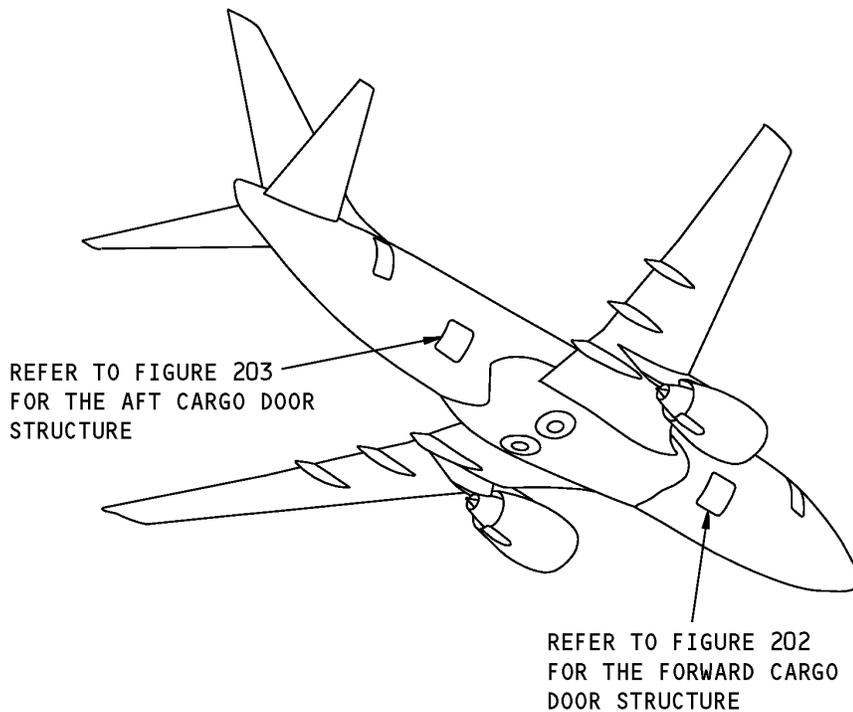
**Allowable Damage Limits
Figure 104 (Sheet 4 of 4)**

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REPAIR 1 - CARGO DOOR STRUCTURE

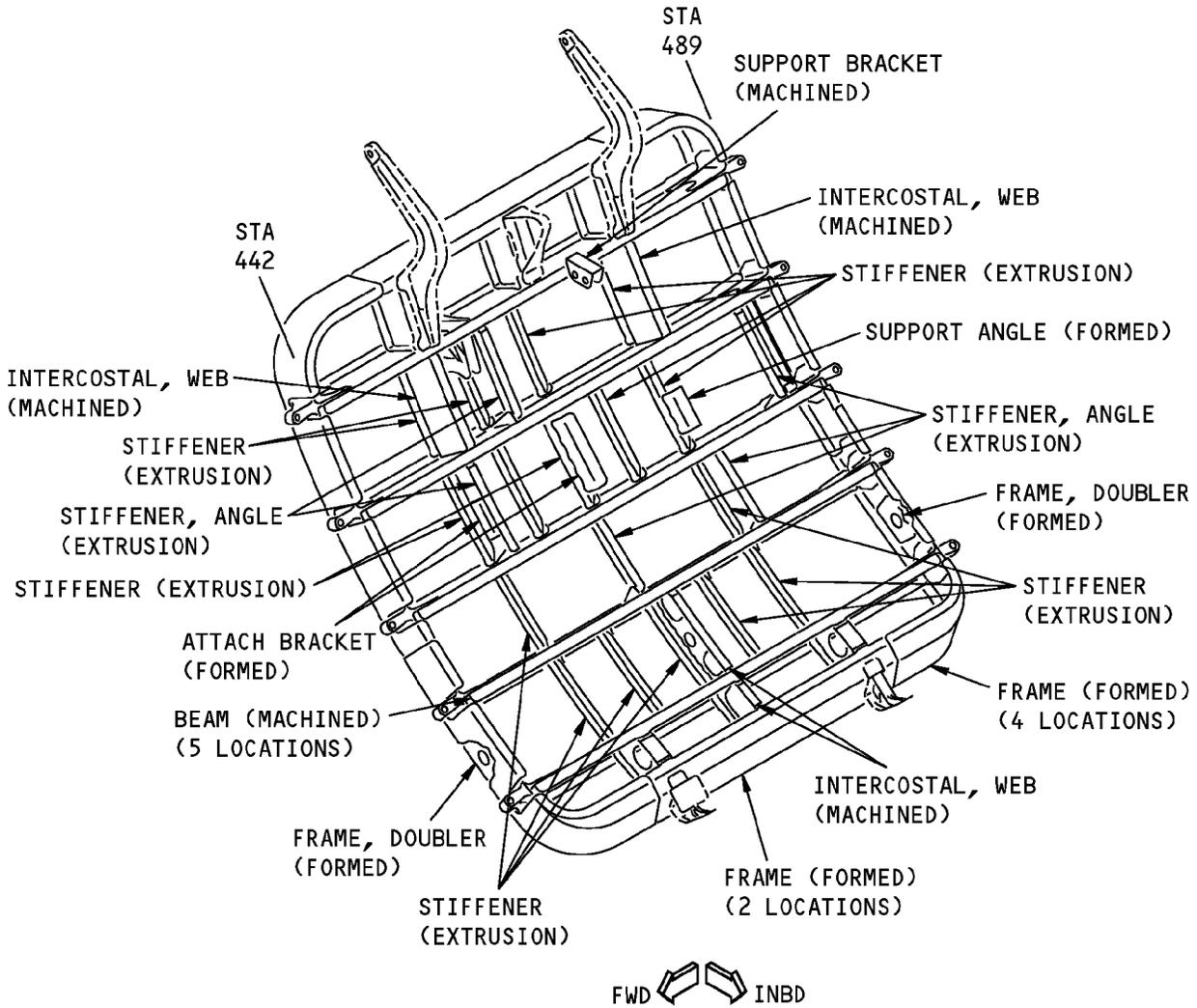
1. Applicability

- A. Repair 1 is applicable to damage to the cargo door structure shown in Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Structure, Figure 202/REPAIR 1 and Aft Cargo Door Structure, Figure 203/REPAIR 1.



**Cargo Door Location
Figure 201**

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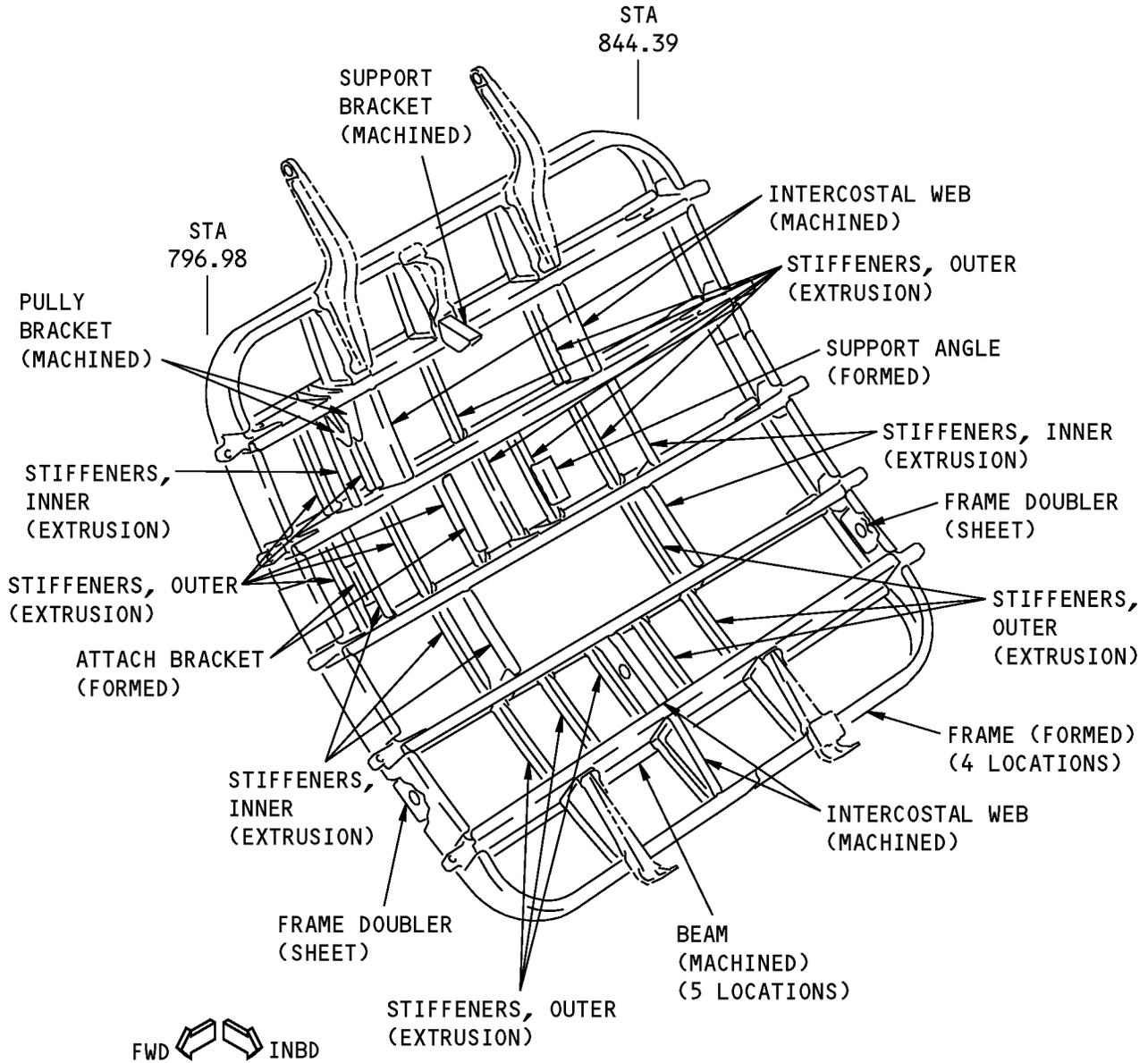


NOTES

- REFER TO SRM 52-30-90 FOR THE REPAIR OF THE CARGO DOOR FITTINGS.
- ALL PARTS ARE MADE FROM ALUMINUM.

**Forward Cargo Door Structure
Figure 202**

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NOTES

- REFER TO SRM 52-30-90 FOR THE REPAIR OF THE CARGO DOOR FITTINGS.
- ALL PARTS ARE MADE FROM ALUMINUM.

**Aft Cargo Door Structure
Figure 203**



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2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-30-02	CARGO DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Structure, Figure 202/REPAIR 1, Aft Cargo Door Structure, Figure 203/REPAIR 1, and Table 201 to find the applicable repair for the part you want to repair.

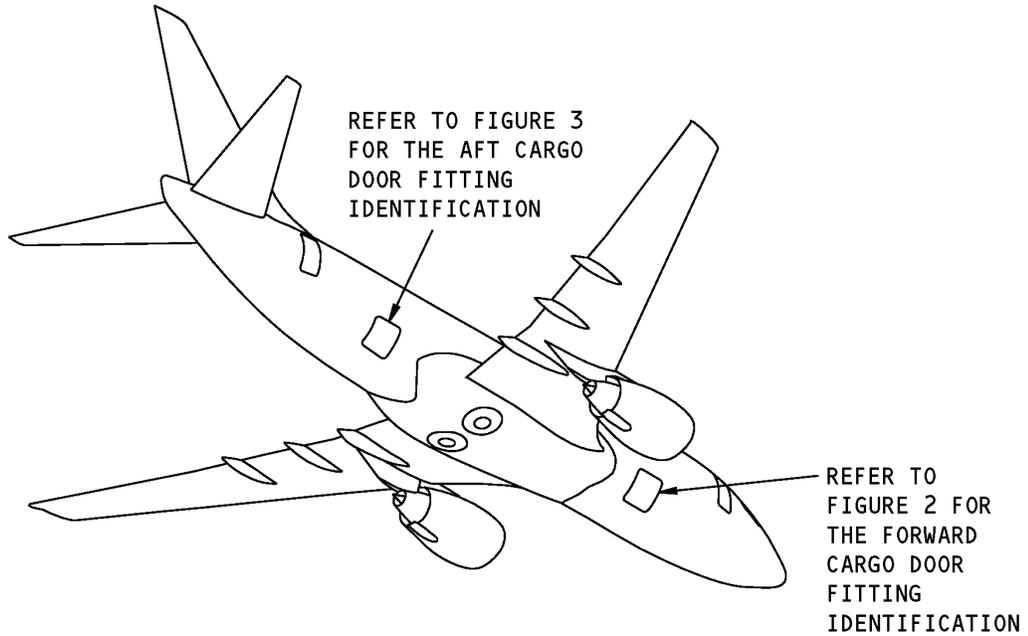
NOTE: If necessary, refer to 52-30-02, Identification 1 to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE FORWARD CARGO DOOR STRUCTURE	
COMPONENT	REPAIR
Attach Bracket (formed)	Refer to SRM 51-70-11
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Frame (sheet)	Refer to SRM 51-70-11
Frame, Doubler (sheet)	Refer to SRM 51-70-11
Intercostal, Web (machined plate)	There are no repairs for the Intercostal or Web structure in the Structural Repair Manual at this time.
Pulley Bracket (machined plate)	There are no repairs for the Pulley Bracket structure in the Structural Repair Manual at this time.
Stiffener (extrusion)	Refer to SRM 51-70-12
Stiffener, Angle (extrusion)	Refer to SRM 51-70-12
Support, Angle (formed)	Refer to SRM 51-70-11

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IDENTIFICATION 1 - CARGO DOOR STRUCTURE FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Cargo Door Locations
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0050	Functional Collector - Forward Cargo Door
140A0060	Functional Collector - Forward Cargo Door
143A6100	Door Installation - Forward Cargo Door
143A6103	Hinge Arm Assembly - Forward Cargo Door
143A6110	Door Assembly - Forward Cargo Door
143A6117	Beam Assemblies - Forward Cargo Door



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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
143A6126	Bearing Housing, Latch Torque Tube - Forward Cargo Door
143A6128	Stop Fitting Assemblies, Lower Frame
143A6134	Fitting - Door Snubber, Forward Cargo Door
143A6135	Hinge Support Fittings - Details, Forward Cargo Door
146A6100	Door Installation - Forward Cargo Door
146A6103	Hinge Arm Assembly - Aft Cargo Door
146A6110	Door Assembly - Aft Cargo Door
146A6117	Beam Assemblies - Aft Cargo Door
146A6120	Door Stop Assemblies - Forging
65-2306	Housing Assembly, Door Camshaft

IDENTIFICATION 1

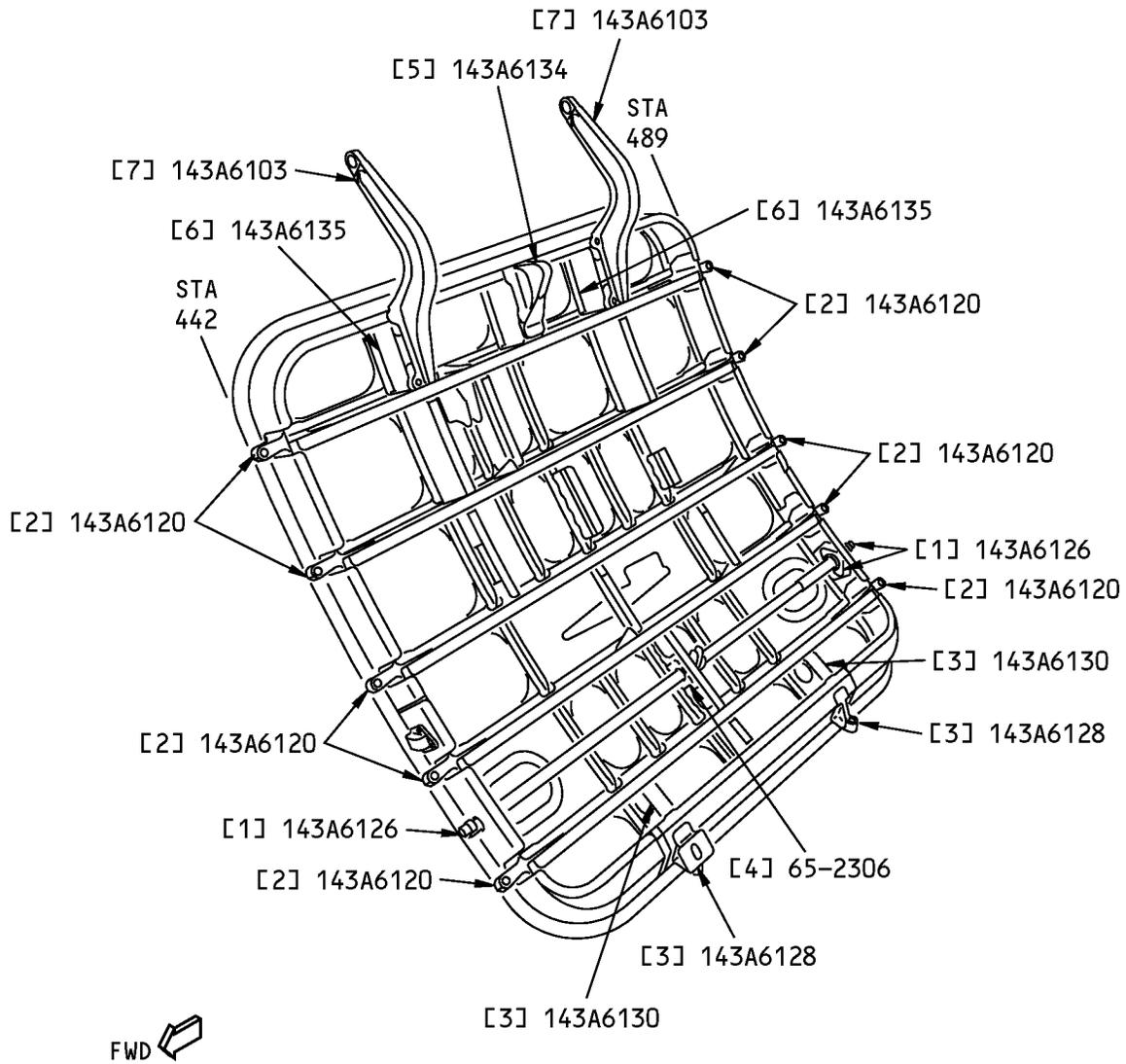
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52-30-90

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Cargo Door Structure Fitting Identification
Figure 2**



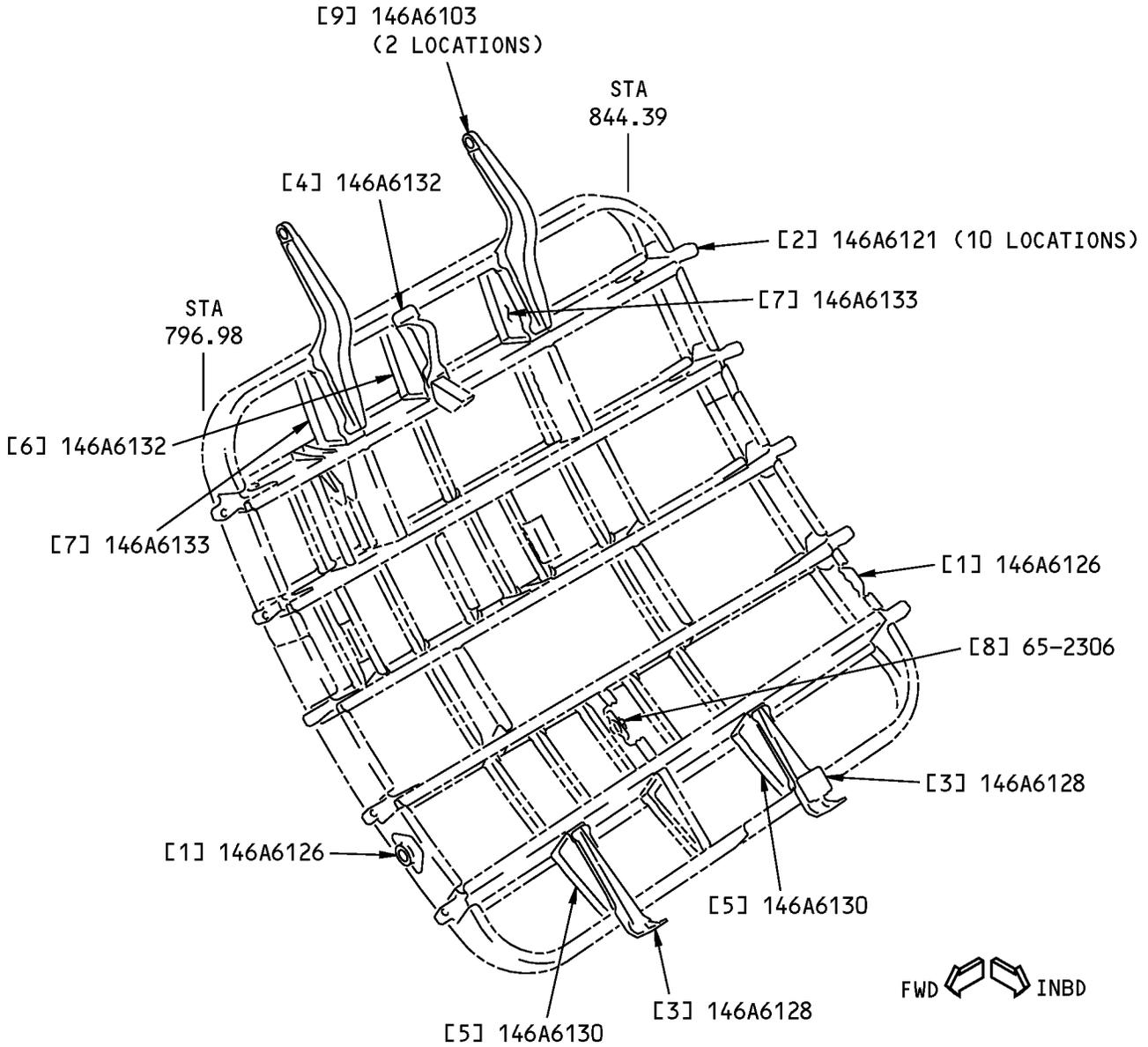
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Bearing Housing		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[2]	Stop Fitting		7075-T73 die forging. Refer to the engineering drawing for the machined thicknesses	
[3]	Stop Fitting		7050-T7451 plate. Refer to the engineering drawings for the machined thicknesses	
[8]	Housing		A356-T6 aluminum casting, COMP 3 (Optional: 356-T6 COMP 8)	
[5]	Support Fitting		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the engineering drawing for the machined thicknesses	
[6]	Support Fitting		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the engineering drawing for the machined thicknesses	
[7]	Hinge Arm Fitting		7075-T73 die forging, as given in BMS 7-186	

*[1] Note: T = Pre-manufactured thicknesses in inches (millimeters).

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NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

**Aft Cargo Door Structure Fittings Identification
Figure 3**

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Table 3:

LIST OF MATERIALS FOR FIGURE 3					
ITEM	DESCRIPTION		T^[1]	MATERIAL	EFFECTIVITY
[1]	Bearing Housing			7050-T7451 aluminum plate. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[2]	Stop Forging			7075-T73 aluminum die forging as given in BMS 7-186. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[3]	Stop Fitting			7050-T7451 aluminum plate. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[4]	Attachment Fitting, Snubber			7050-T7451 aluminum plate, Type I as given in BMS 7-323. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[5]	Support Fitting			7050-T7451 aluminum plate. Refer to the engineering drawing for the machined thicknesses	
[6]	Support Fitting, Snubber			7050-T7451 aluminum plate, Type I as given in BMS 7-323. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[7]	Support Fitting			7050-T7451 aluminum plate, Type I as given in BMS 7-323. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[8]	Housing			356-T6 aluminum casting as given in QQ-A-601 COMP 3 (Optional: 356-T6 aluminum casting as given in QQ-A-596 COMP 8)	
[9]	Hinge Arm Fitting			7075-T73 precision die forging as given in BMS 7-186. Grain direction controlled part Refer to the engineering drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).



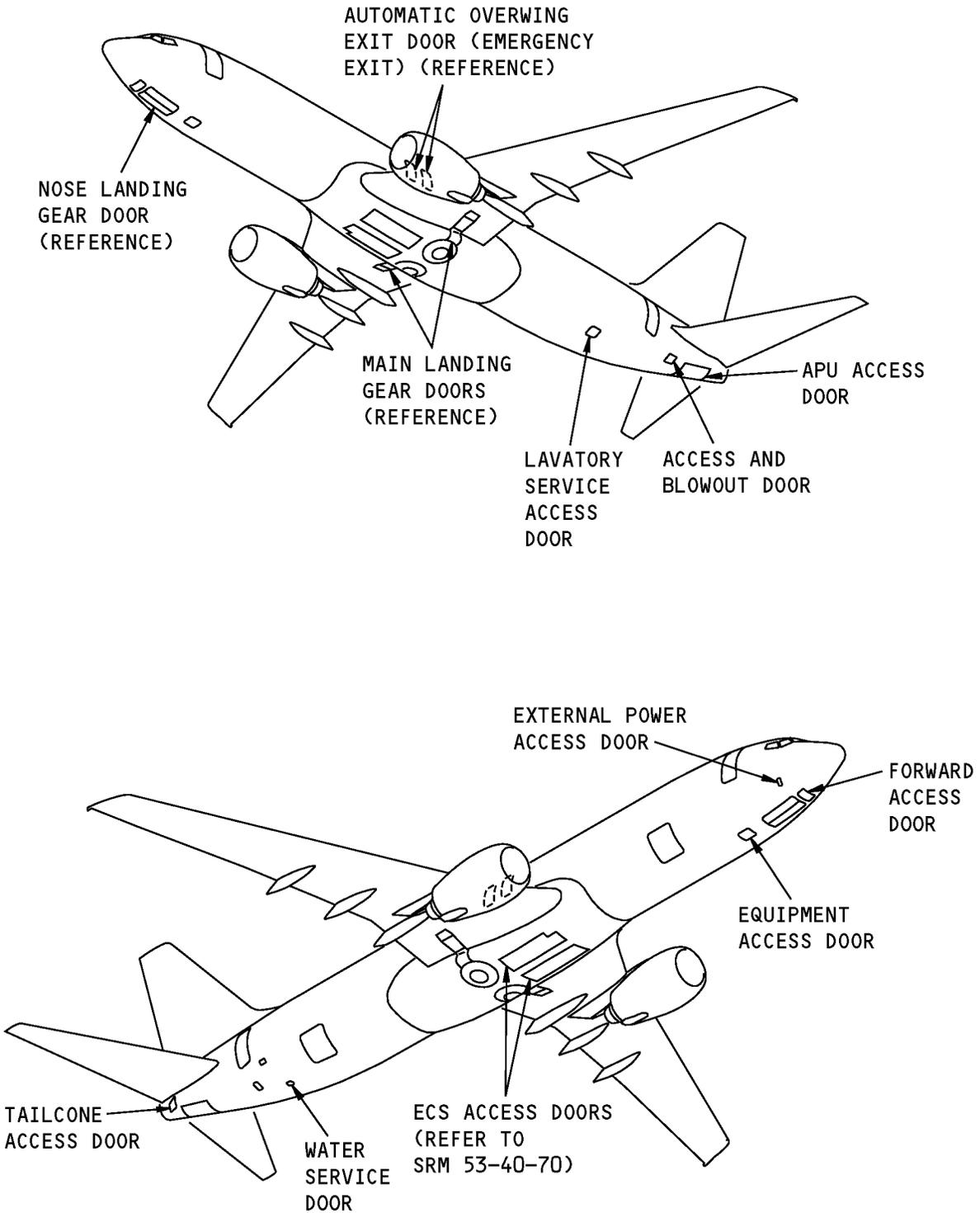
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GENERAL - SERVICE DOORS

1. General

- A. The door location diagram gives you the reference system to find the service and access doors (forward access door, equipment access door, external/power receptacle door, toilet and water service doors, ground air conditioning access door, access and blowout door, auxiliary power unit access door, tailcone access door). Refer to Service Door Location Diagram, Figure 1/GENERAL.
- B. All of the major structural components are located and identified by the use of detailed illustrations with related material lists.
- C. The allowable damage to the doors is given in each specified door subject that follows in this chapter.
- D. The permitted repairs with illustrations are given in this chapter.

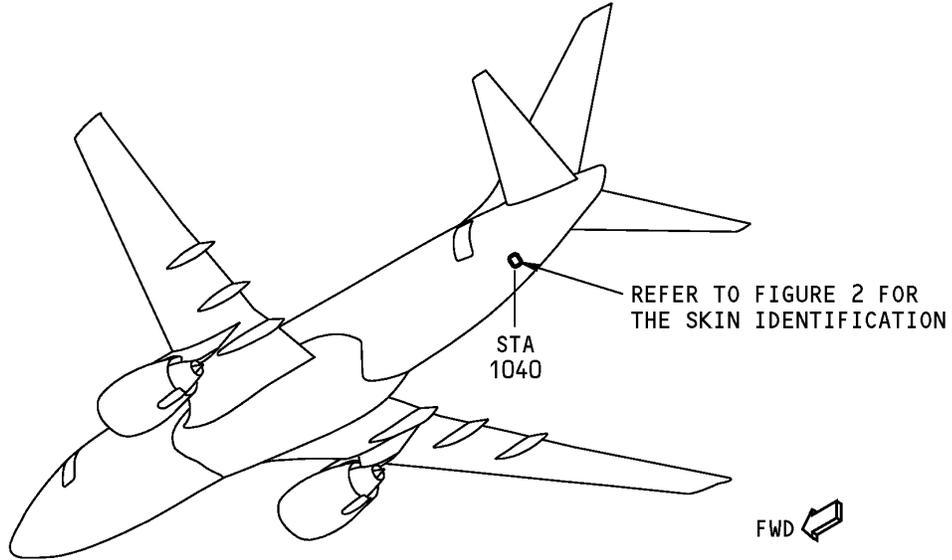
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**Service Door Location Diagram
Figure 1**

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IDENTIFICATION 1 - ACCESS AND BLOWOUT DOOR SKIN



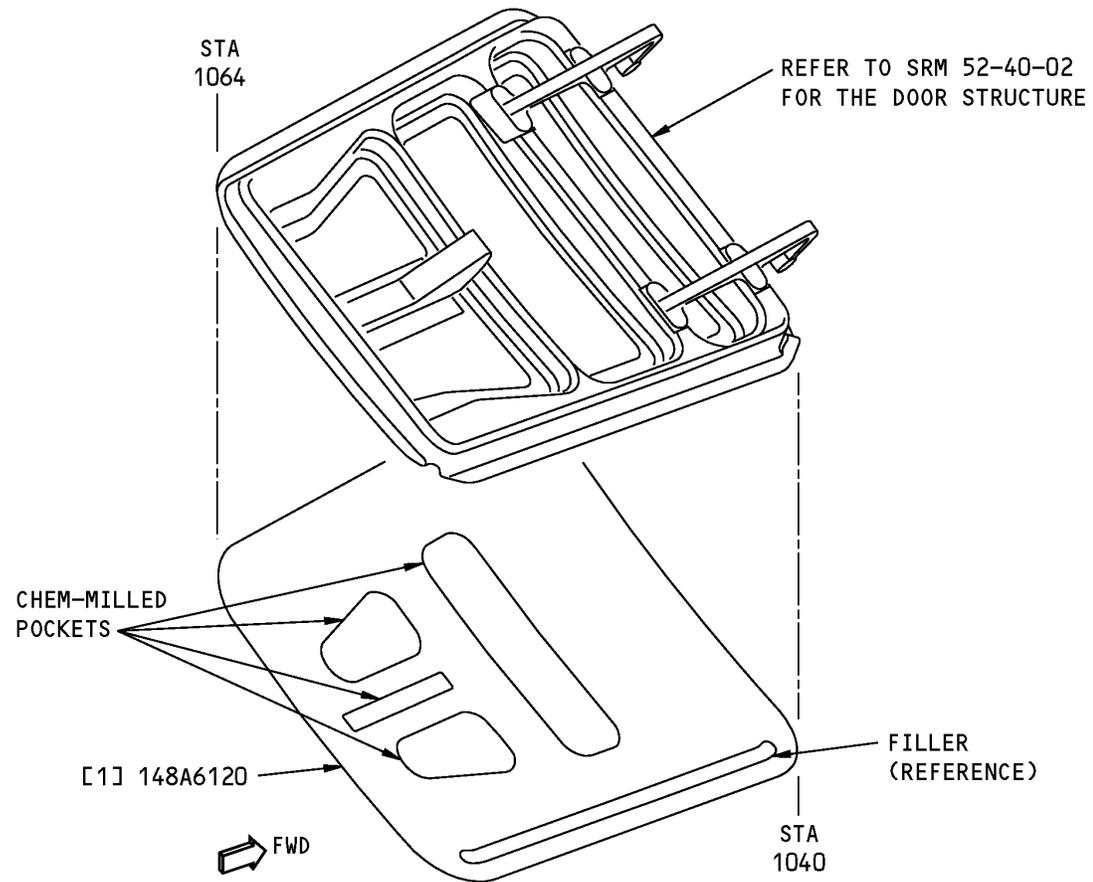
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Access and Blowout Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6100	Access and Blowout Door Installation
148A6110	Access and Blowout Door Assembly

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Access and Blowout Door Skin Identification
Figure 2**

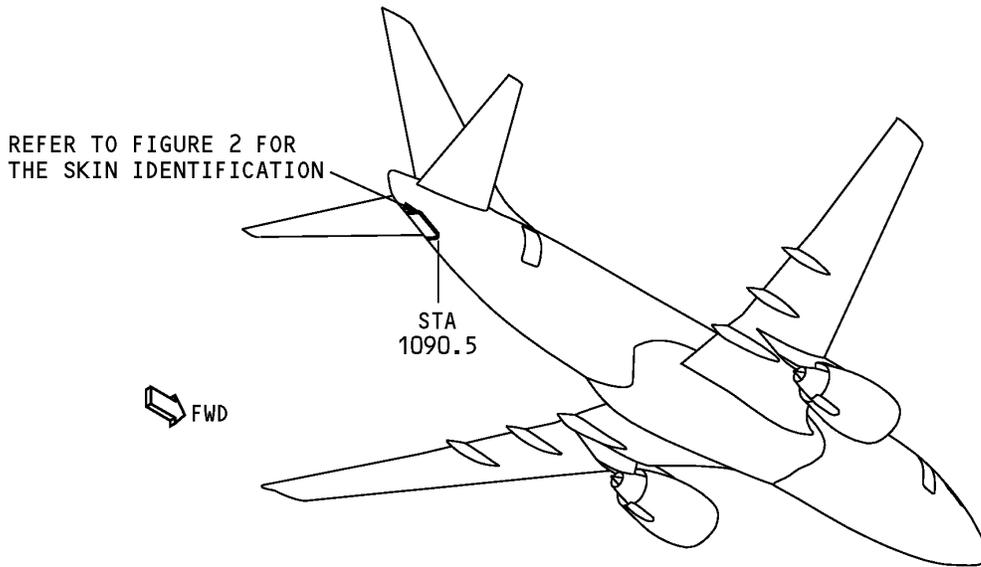
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.071 (1.803)	7075-T6 clad sheet. The thickness in the chem-milled pockets is 0.050 inch (1.270 mm)	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - APU ACCESS DOOR SKIN



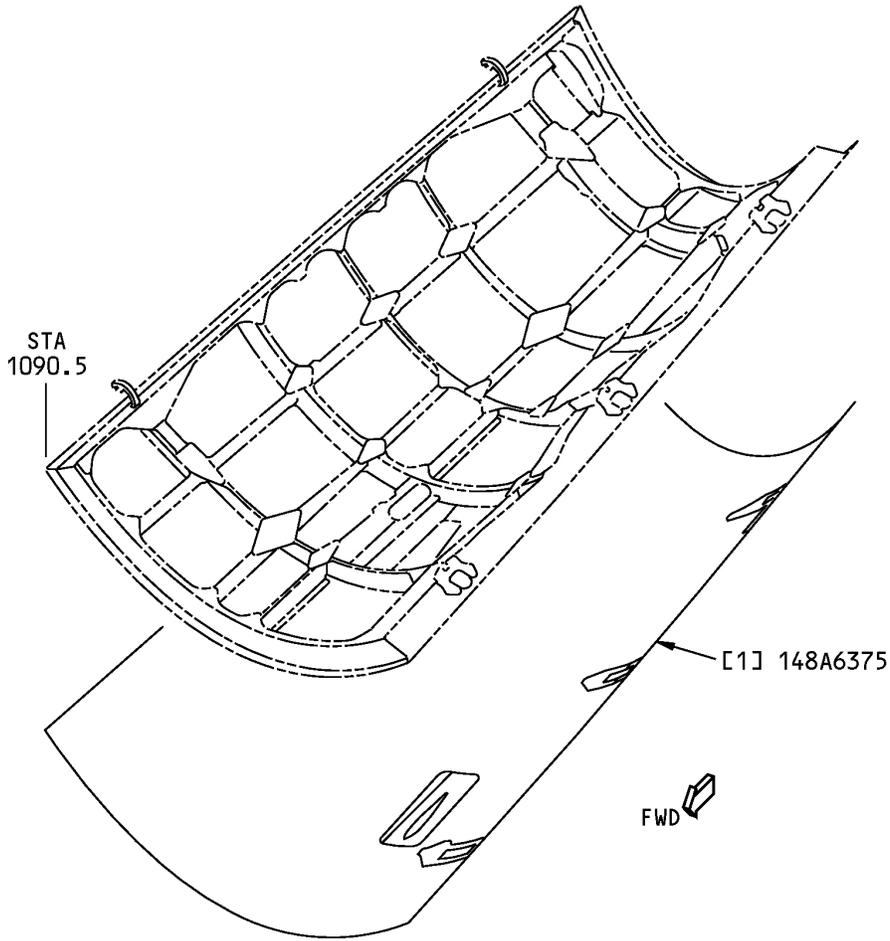
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**APU Access Door Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6350	APU Access Door Installation
148A6350	APU Access Door Assembly

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**APU Access Door Skin Identification
Figure 2**

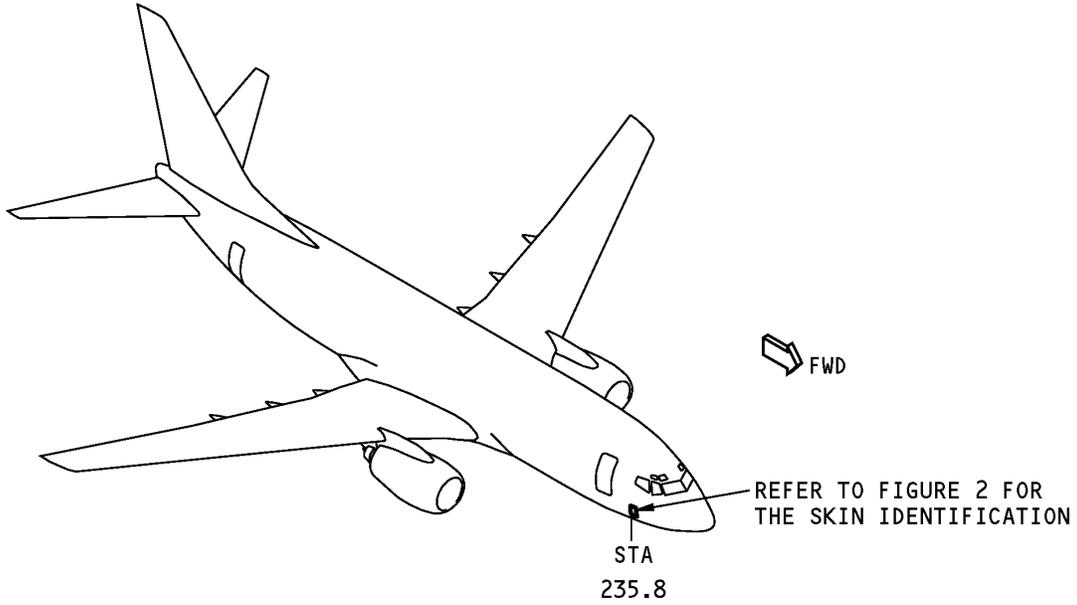
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.100 (2.54)	2024-T3 clad sheet that is chem-milled to a thickness of 0.032 inch (0.81 mm) in the pocket areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 3 - EXTERNAL POWER ACCESS DOOR SKIN



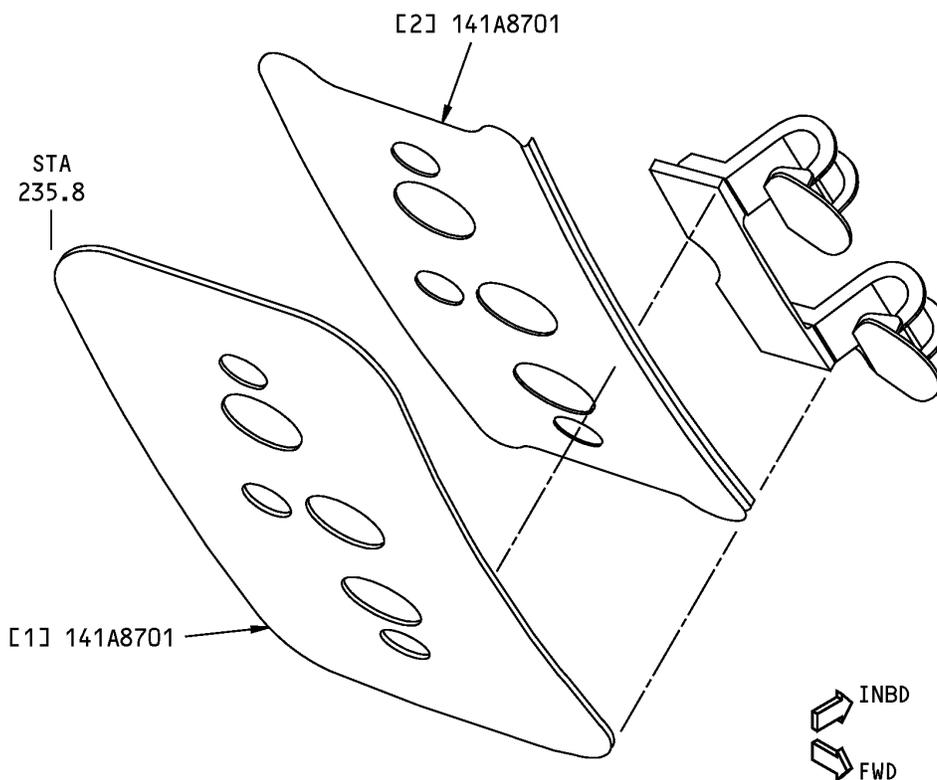
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**External Power Access Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A8701	External Power Access Door Installation

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**External Power Access Door Skin Identification
Figure 2**

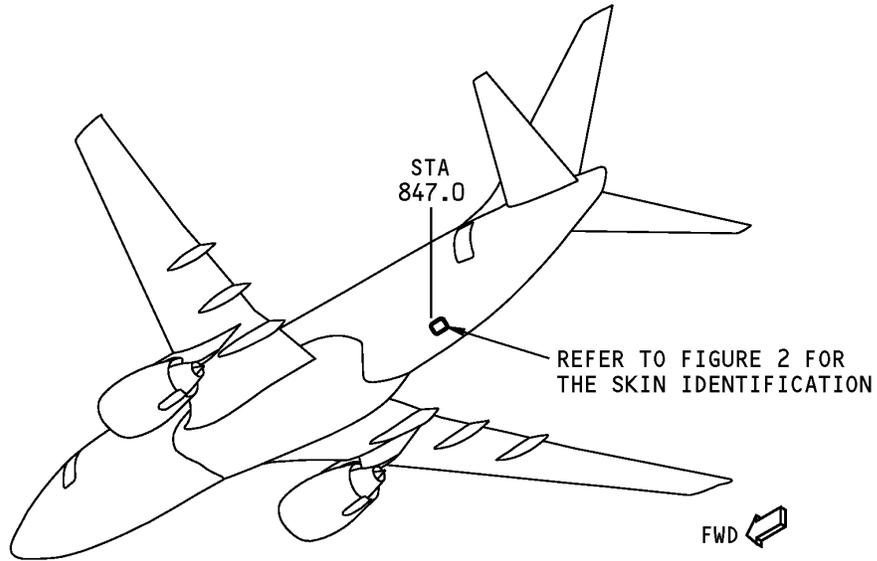
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.071 (1.80)	2024-T3 clad sheet that is chem-milled to a thickness of 0.032 inch (0.81 mm) in the pocket areas	
[2]	Doubler	0.020 (0.51)	2024-T42 clad sheet (Optional: 2024-T3 BAC1493-893 that is 12 inches (304.8 mm) in length)	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 4 - LAVATORY SERVICE ACCESS DOOR SKIN



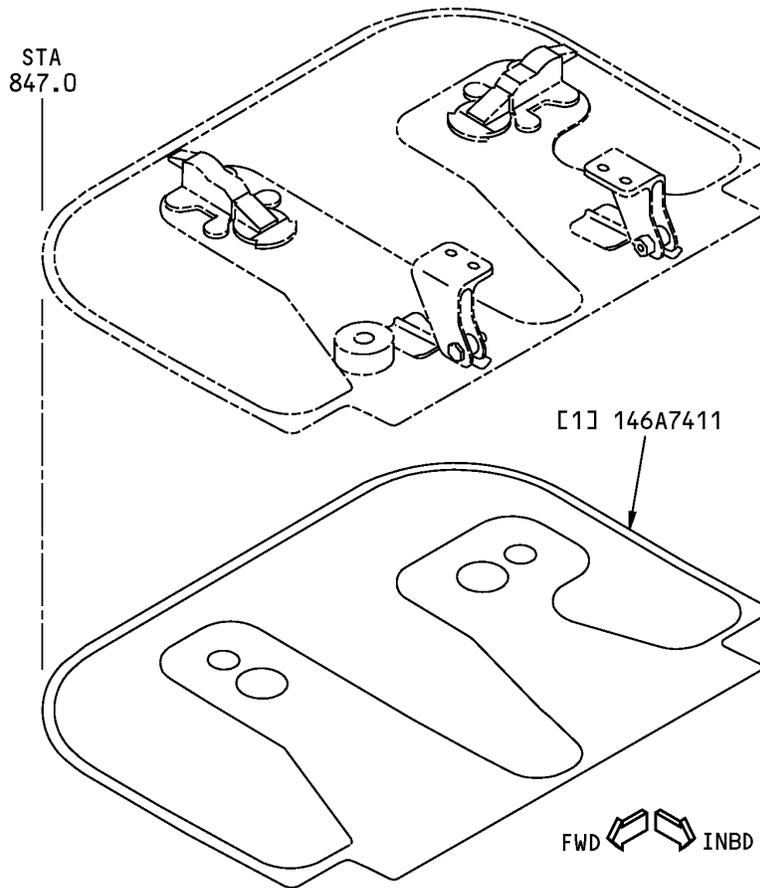
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Lavatory Service Access Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
146A7400	Lavatory Service Access - Pan/Door Installation
146A7410	Lavatory Service Access - Pan/Door Assembly

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Lavatory Service Access Door Skin Identification
Figure 2**

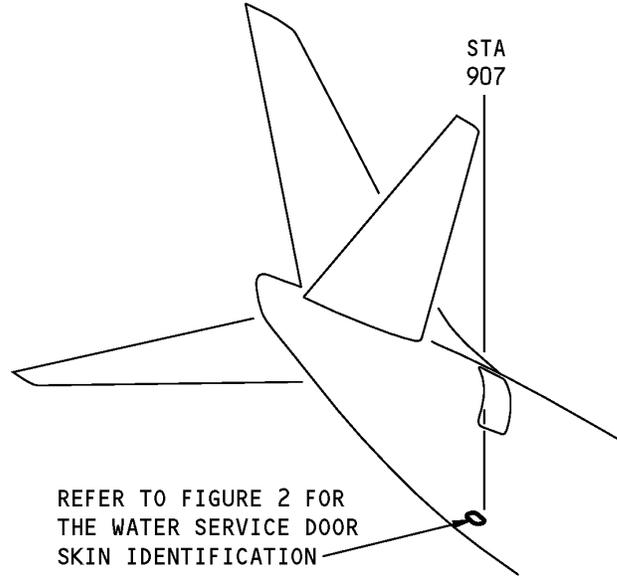
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Door Skin	0.100 (2.54)	2024-T3 clad sheet that is chem-milled to a thickness of 0.060 inch (1.52 mm) in the pocket area	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 5 - WATER SERVICE ACCESS DOOR SKIN



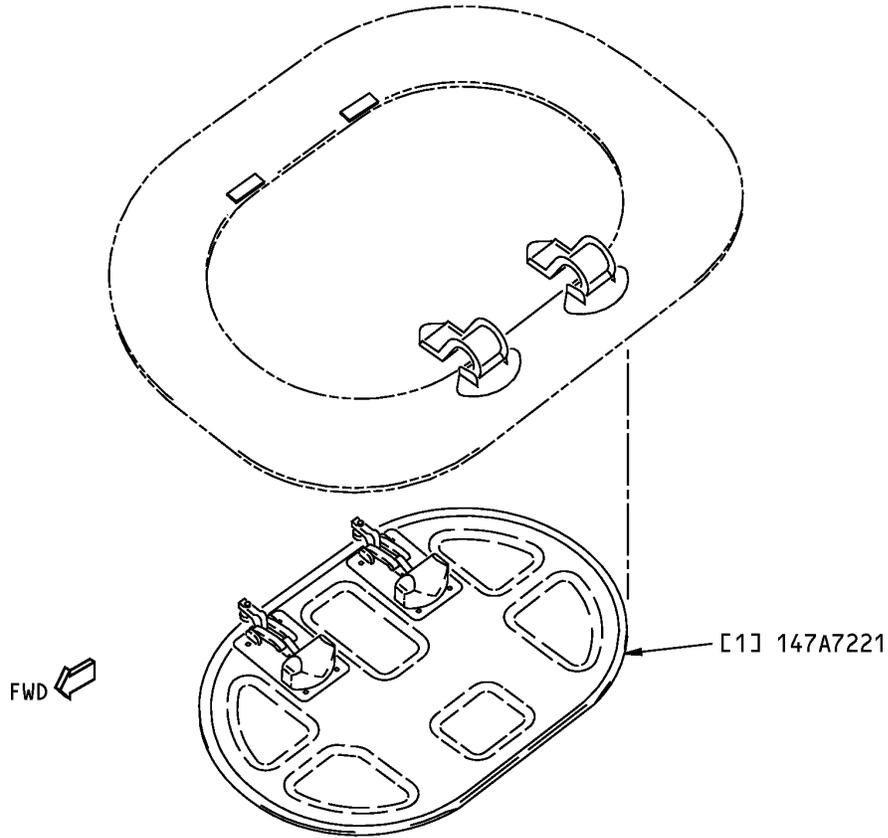
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Water Service Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A7221	Water Service Door Installation - Section 47

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Water Service Door Skin Identification
Figure 2**

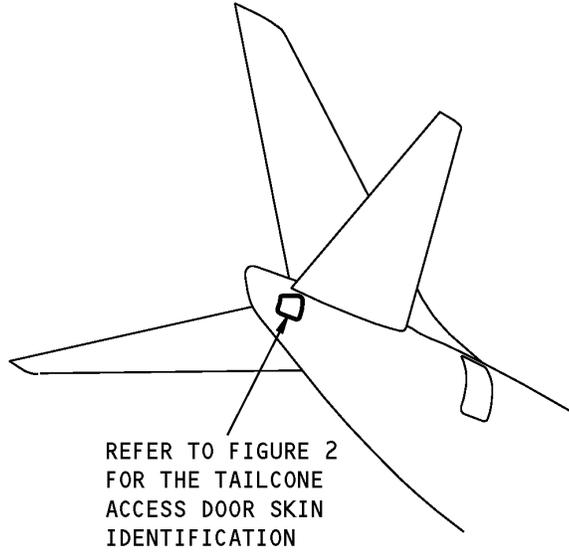
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.140 (3.56)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 6 - TAILCONE ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

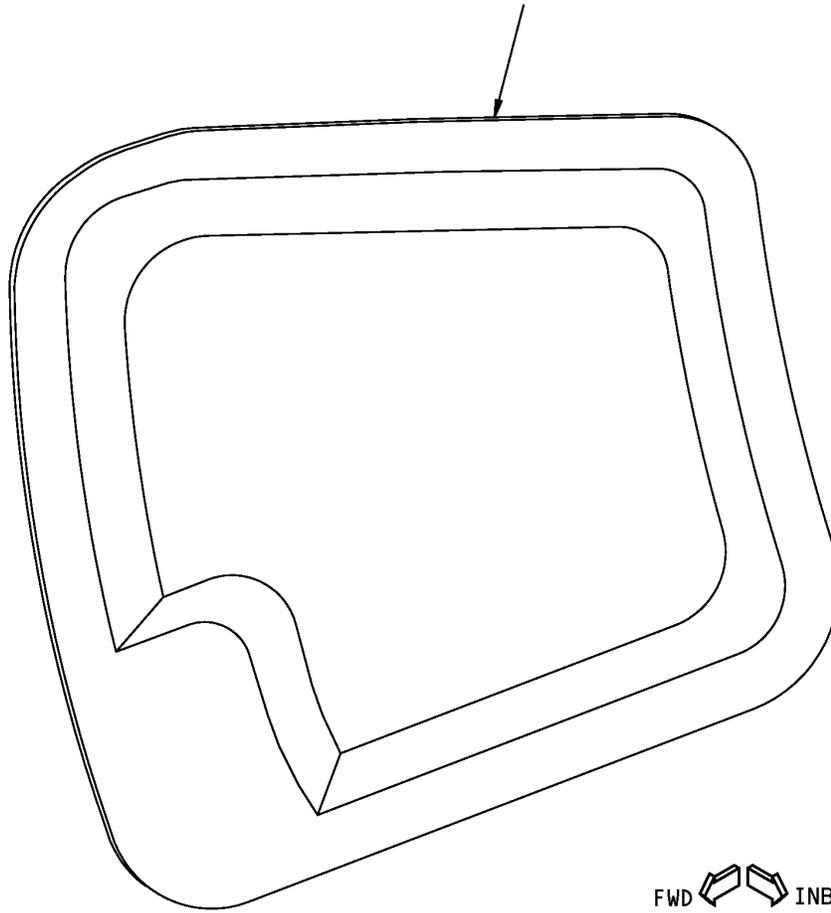
**Tailcone Access Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A0971	Tailcone Integration Installation
148A7141	Tailcone Access Door Assembly and Detail

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[1] 148A7141



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

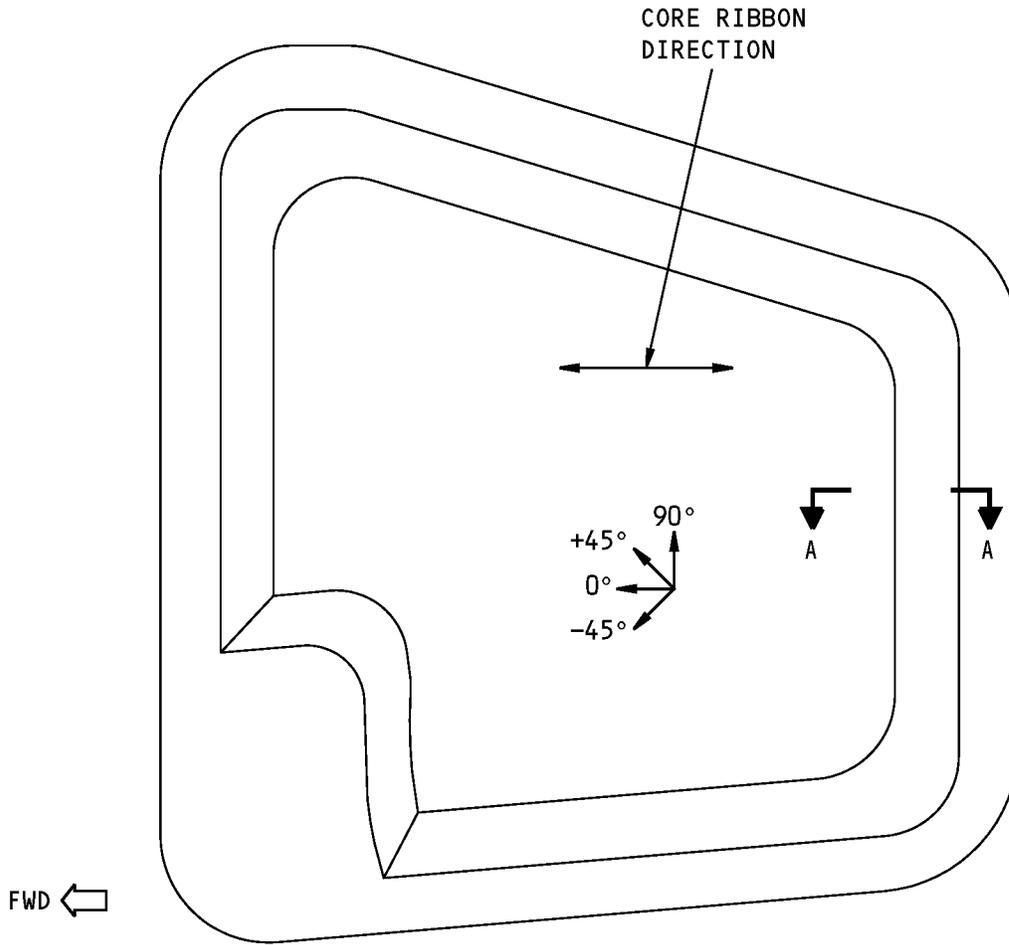
**Tailcone Access Door Skin Identification
Figure 2**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Bonded Door Assembly Skin Core	0.50 (12.7)	Refer to Figure 3 Non-metallic honeycomb as given in BMS 8-124, Type V, Class IV, Grade 3.0. Refer to Figure 3 for the core ribbon direction.	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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PLY LAYUP DIRECTION AND CORE RIBBON DIRECTION

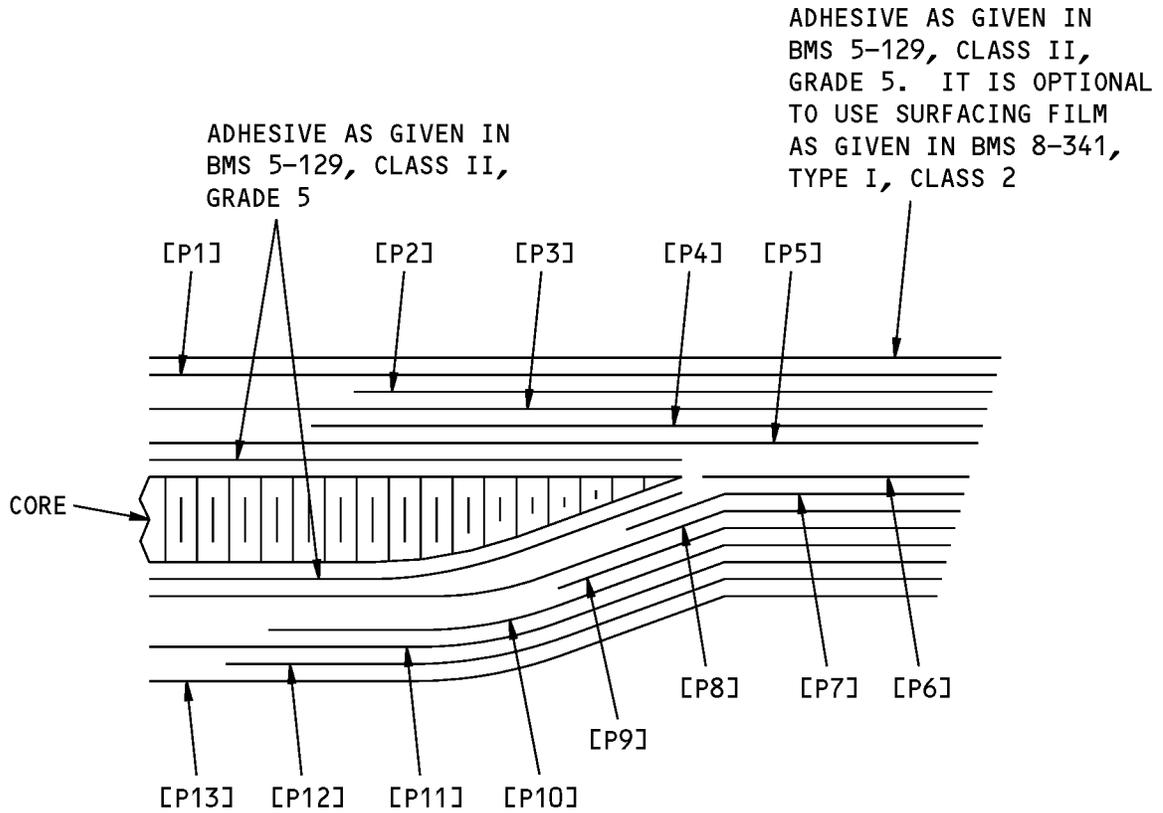
A

NOTES

- THE PLY DIRECTION IS THE WARP DIRECTION OF THE FABRIC. REFER TO DETAIL A FOR THE 0 DEGREE PLY DIRECTION.
- REFER TO SECTION A-A FOR THE PLY SEQUENCE. REFER TO THE ENGINEERING DRAWING FOR MORE INFORMATION.
- REFER TO TABLE 3 FOR THE DIRECTION AND MATERIAL OF EACH PLY.

**Ply Direction, Core Ribbon Direction, and Ply Sequence for Figure 2, Item [1]
Figure 3 (Sheet 1 of 2)**

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**PLY LAYUP SEQUENCE
A-A**

**Ply Direction, Core Ribbon Direction, and Ply Sequence for Figure 2, Item [1]
Figure 3 (Sheet 2 of 2)**



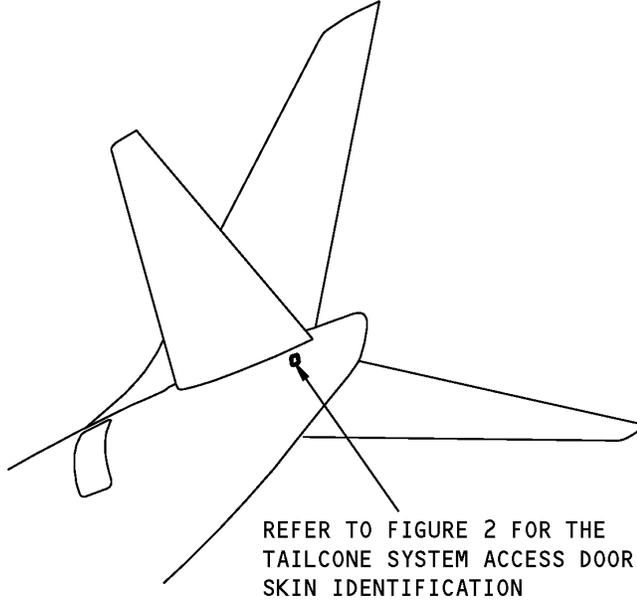
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Table 3:

PLY MATERIAL AND DIRECTION FOR FIGURE 3		
PLY	DIRECTION	MATERIAL
P1, P5, P8, and P13	0 or 90 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 120
P2, P6, and P12	+ or - 45 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 1581 or 7781
P4, P9, and P10	0 or 90 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 1581 or 7781
P3, P7, and P11	+ or - 45 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 120

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IDENTIFICATION 7 - TAILCONE SYSTEM ACCESS DOOR SKIN



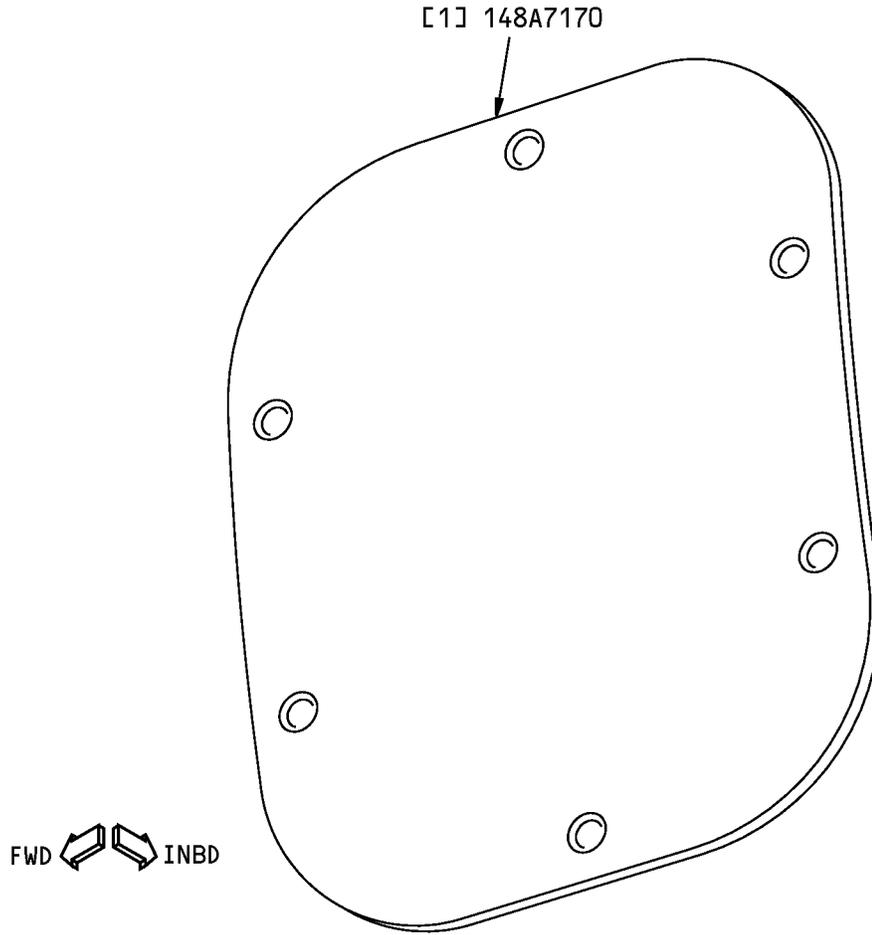
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Tailcone System Access Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A4813	Tailcone Functional Collector
148A0971	Tailcone Integration Installation
148A7170	Access Door - Tailcone

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Tailcone System Access Door Skin Identification
Figure 2**



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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.063 (1.600)	2024-T3 clad sheet	

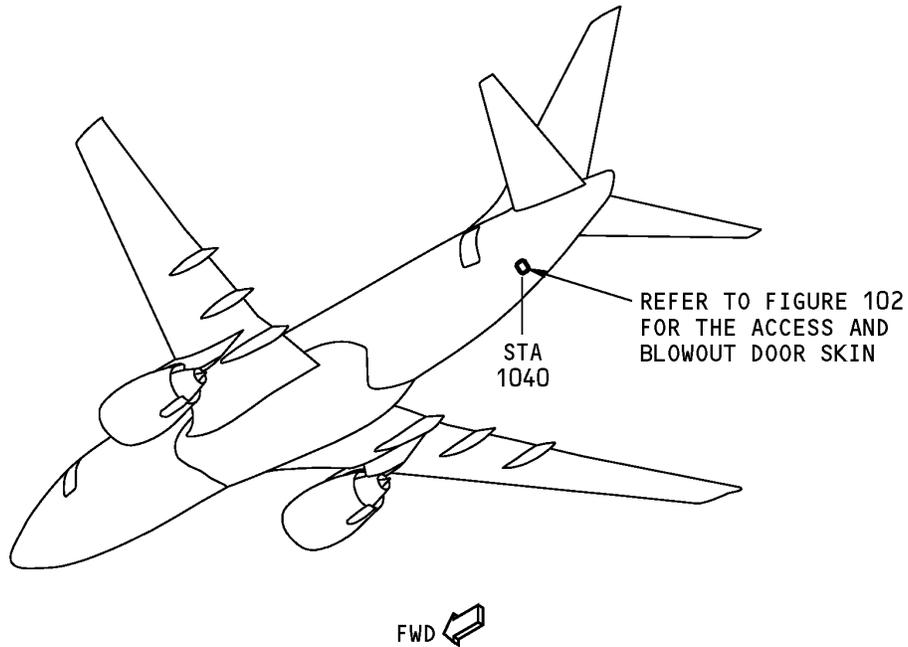
*[1] T = Pre-manufactured thickness in inches (millimeters).

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ALLOWABLE DAMAGE 1 - ACCESS AND BLOWOUT DOOR SKIN

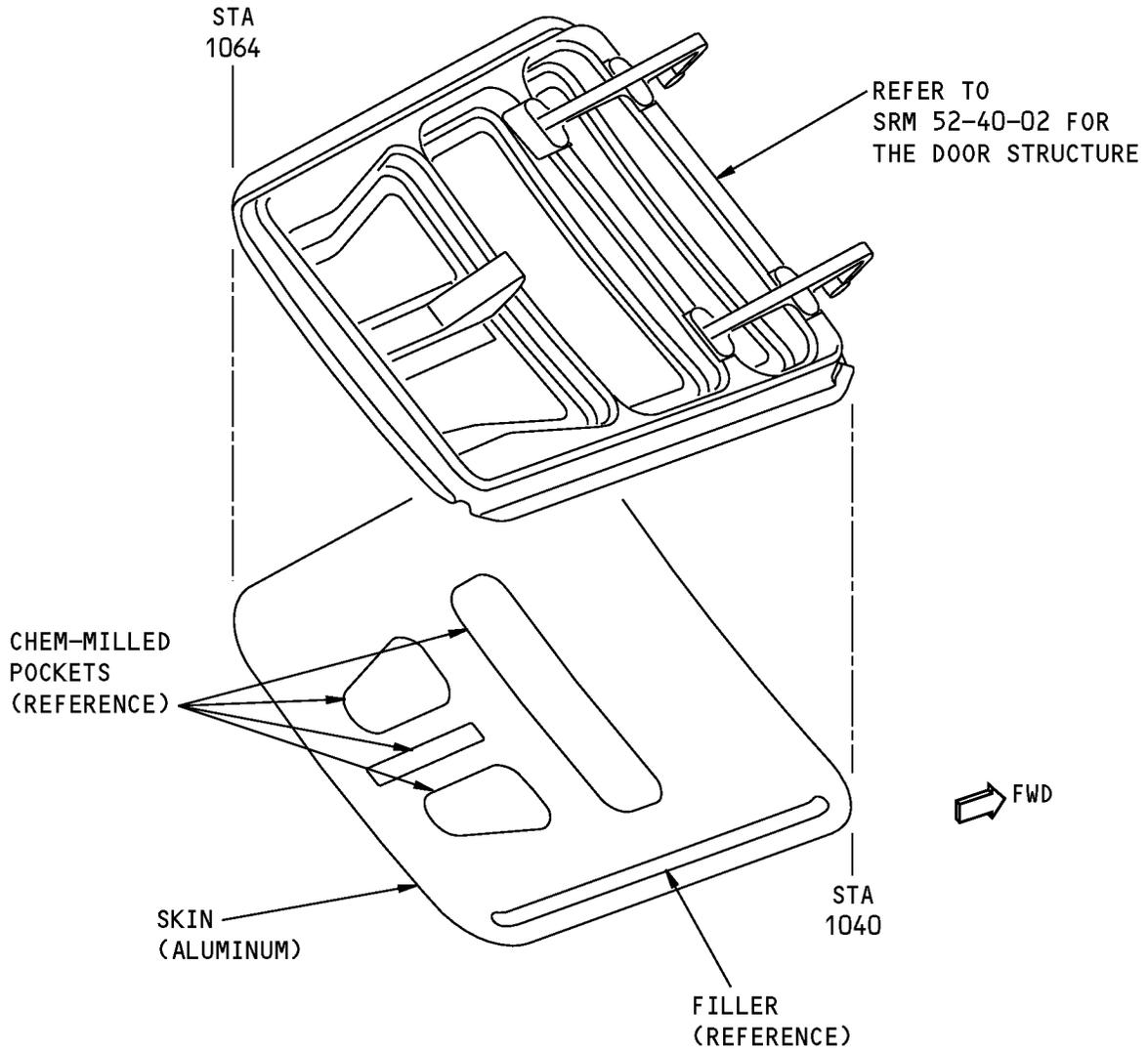
1. Applicability

- A. This subject gives the allowable damage limits for the access and blowout door skin as shown in Access and Blowout Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Access and Blowout Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



Access and Blowout Door Skin Location
Figure 101

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**Access and Blowout Door Skin
Figure 102**



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2. General

- A. The access and blowout door is not in a pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow are not applicable to dent damage.

- (1) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow are not applicable to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic inner surface of the skin, do the steps that follow:

NOTE: The steps that follow are not applicable to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion:



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- (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .

C. Dents:

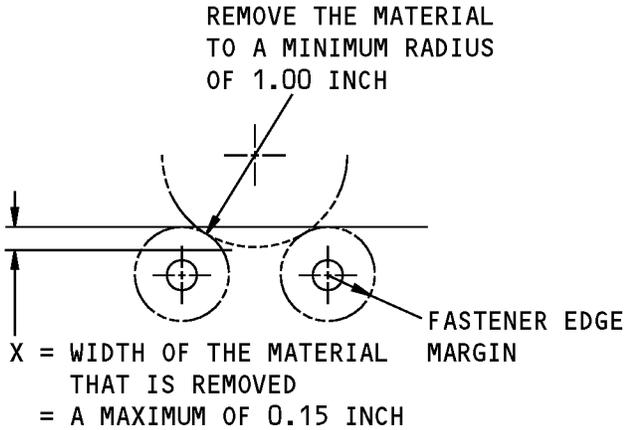
- (1) Dents are permitted as follows:

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F .
- (b) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

D. Holes and Punctures are permitted if:

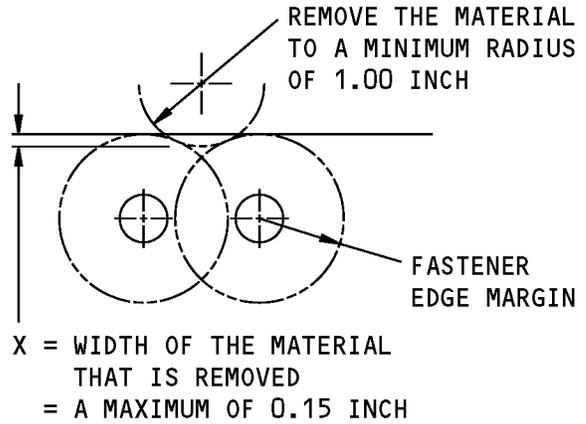
- (1) They are 0.25 inch in diameter or less
- (2) They are 1.00 inch or more away from a fastener hole, an edge, or other damage
- (3) They are filled with a 2117-T3 or 2117-T4 aluminum rivet.
 - (a) Install the rivet without sealant.

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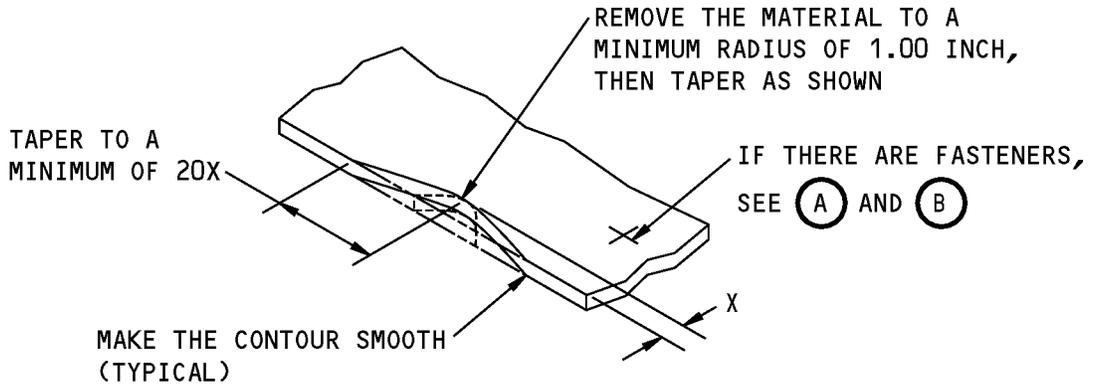
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



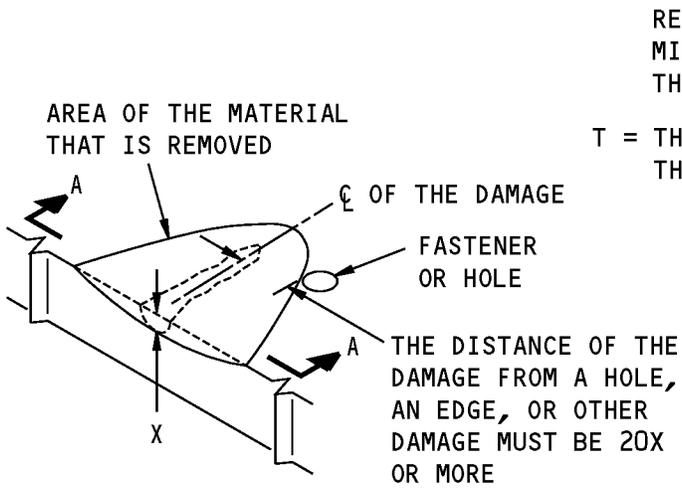
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

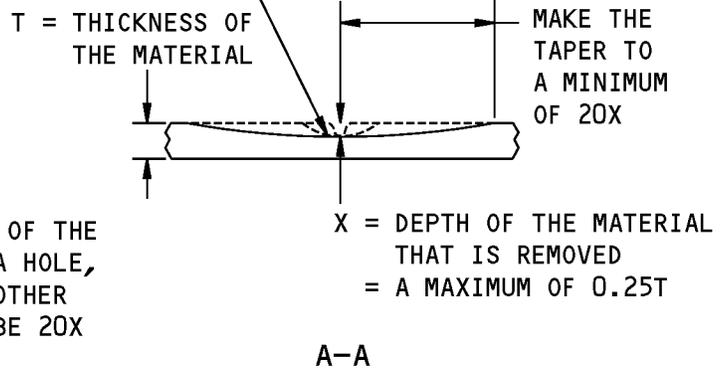
(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

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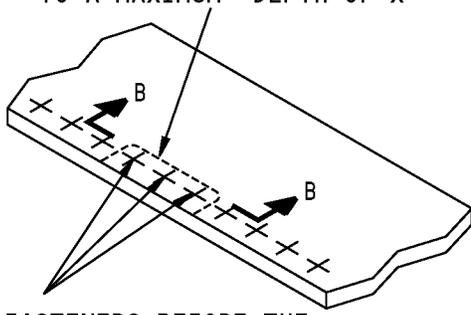
REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

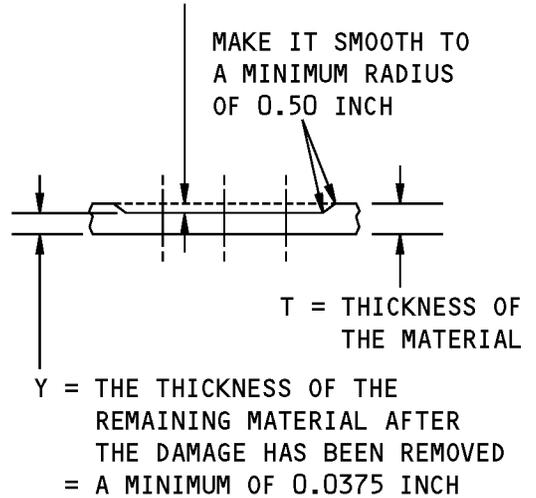
D

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

X = THE DEPTH OF THE MATERIAL REMOVED
 = A MAXIMUM OF 0.0335 INCH IN NON CHEM-MILLED AREAS
 = A MAXIMUM OF 0.0125 INCH IN CHEM-MILLED AREAS

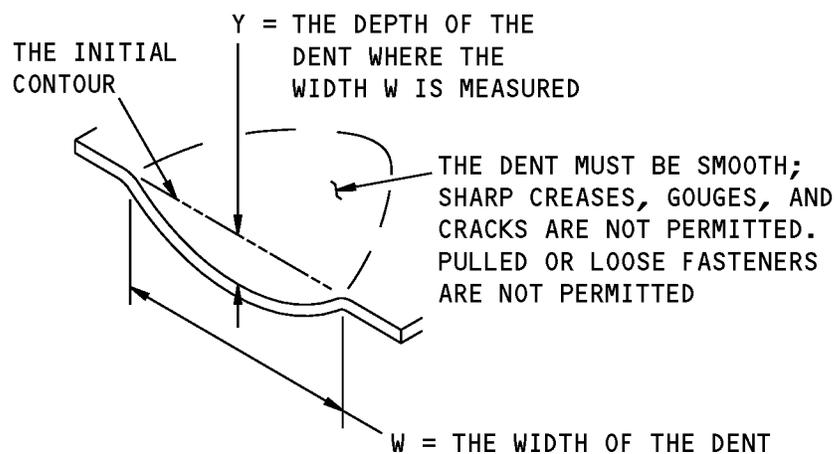


REMOVAL OF CORROSION DAMAGE

E

**Allowable Damage Limits
 Figure 103 (Sheet 2 of 3)**

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$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH

A DENT THAT IS PERMITTED



Allowable Damage Limits
Figure 103 (Sheet 3 of 3)



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ALLOWABLE DAMAGE 2 - APU ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the APU access door skin as shown in APU Access Door Location, Figure 101/ALLOWABLE DAMAGE 2 and APU Access Door Skin Allowable Damage, Figure 102/ALLOWABLE DAMAGE 2.

2. General

- A. The APU access door is not in a pressurized region of the fuselage.
- B. Refer to Paragraph 4./ALLOWABLE DAMAGE 2 for the allowable damage limits.
- C. Remove the damage if necessary.
 - (1) Refer to 51-30-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
 - (4) Put a surface finish of 125 microinches Ra or better on the reworked surfaces.
- D. For damage that was removed on the external aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- E. For damage that was removed on the internal non-aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01/701.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- F. Make sure the aerodynamic smoothness is satisfactory or there will be a decrease in the performance of the airplane. Refer to 51-10-01.

ALLOWABLE DAMAGE 2

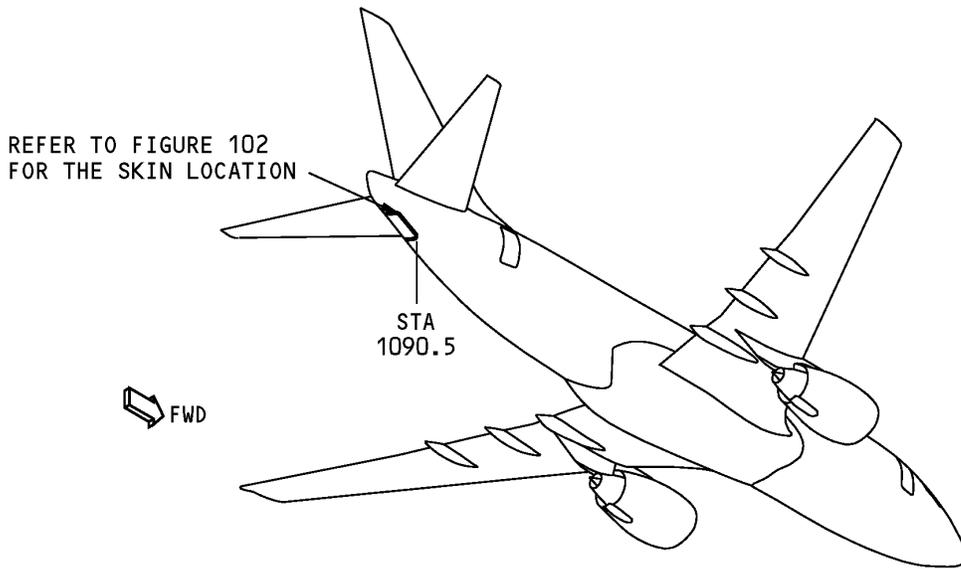
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52-40-01

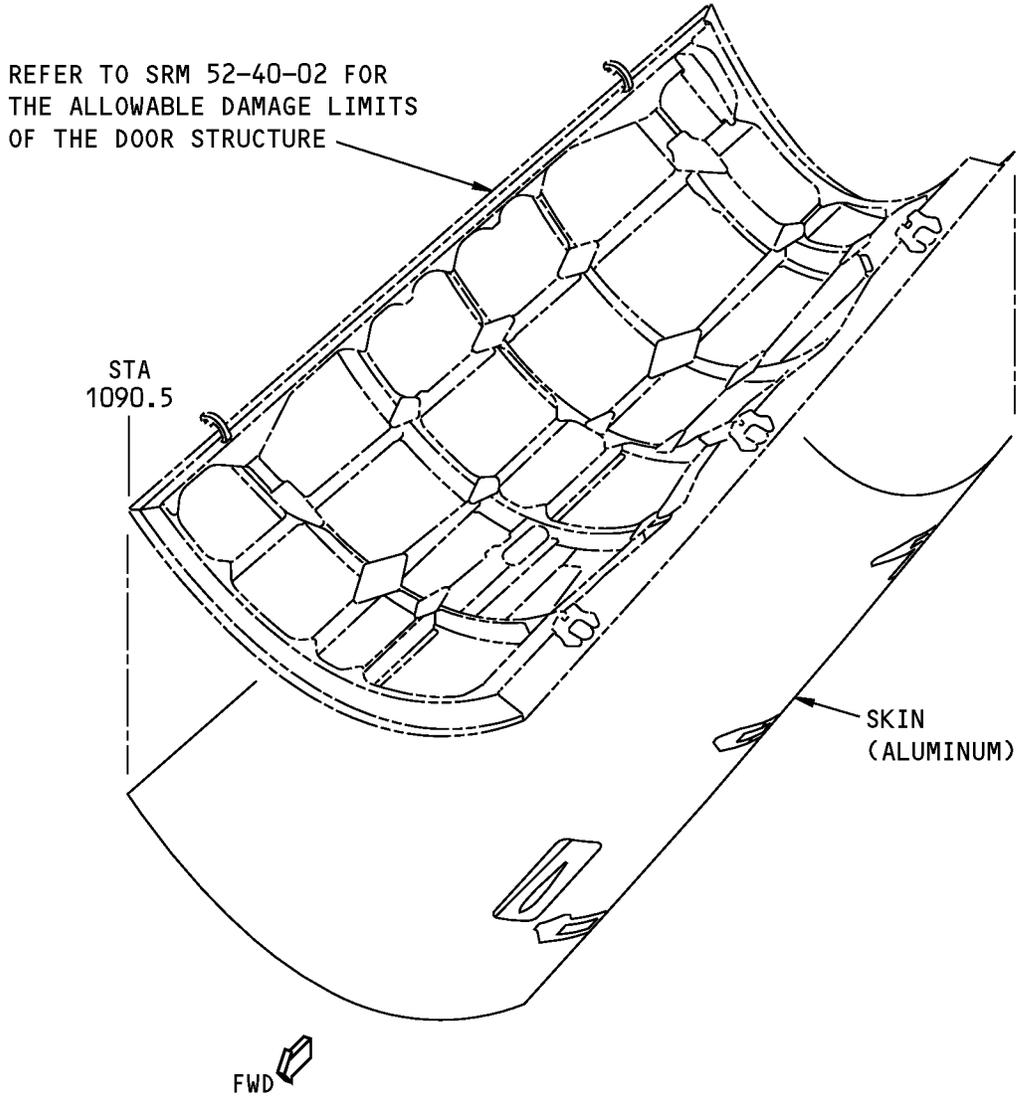
D634A210

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**APU Access Door Location
Figure 101**

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**APU Access Door Skin Allowable Damage
Figure 102**

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ALLOWABLE DAMAGE 2
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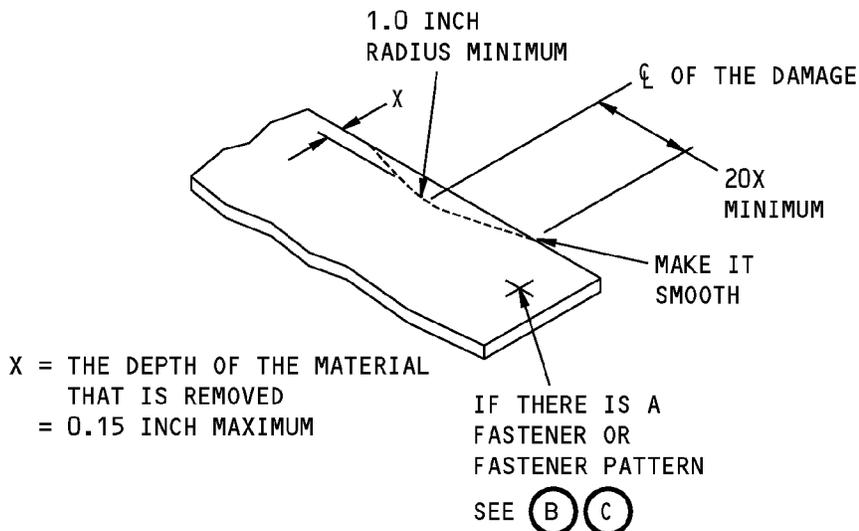
3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-02	METALLIC MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

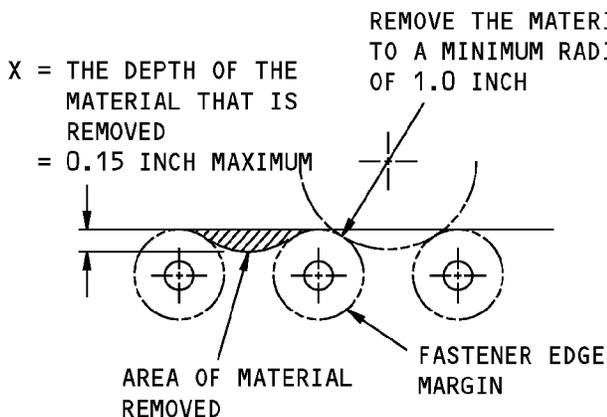
- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , and E .
- C. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch in diameter or less
 - (2) They are 1.00 inch or more away from a fastener hole, an edge, or other damage
 - (3) They are filled with a 2117-T3 or 2117-T4 aluminum rivet. Install the rivets without sealant.
- D. Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail F .

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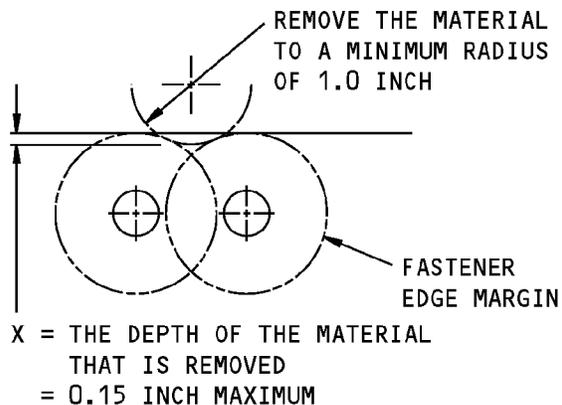
REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(B)

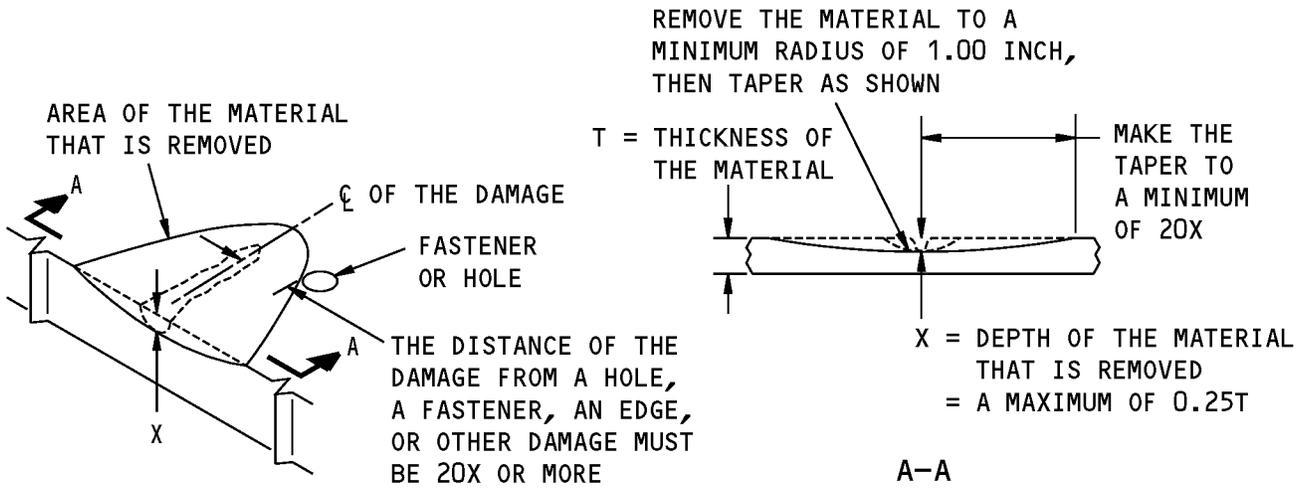


REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

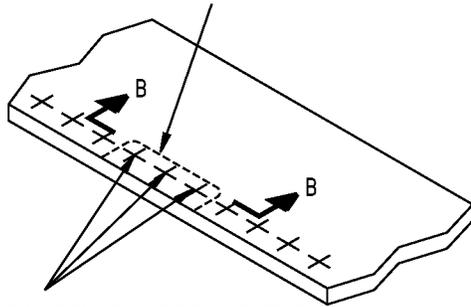
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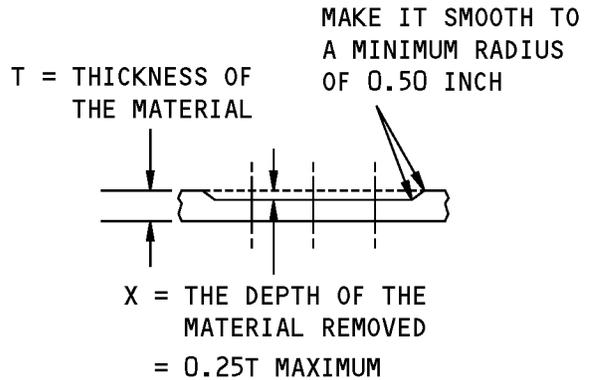
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED



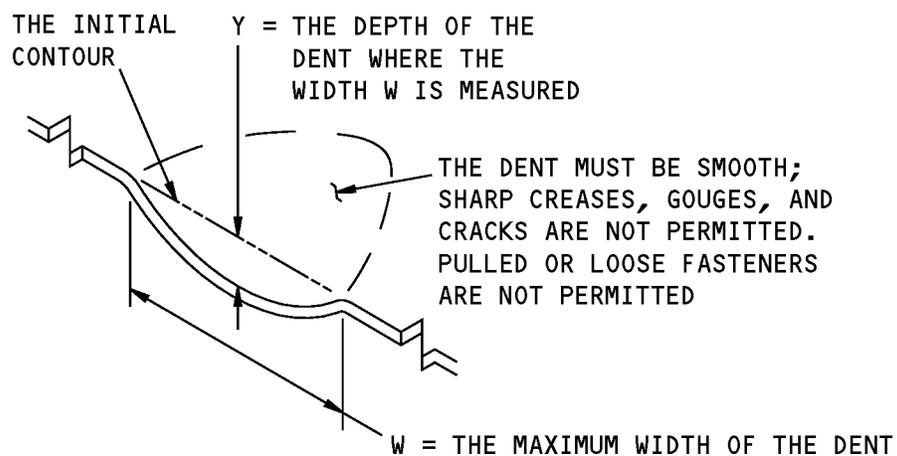
B-B

REMOVAL OF CORROSION DAMAGE

(E)

**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH

A DENT THAT IS PERMITTED



Allowable Damage Limits
Figure 103 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 3 - EXTERNAL POWER ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external power access door skin and doubler as shown in External Power Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 3 and External Power Access Door Skin, Figure 102/ALLOWABLE DAMAGE 3.

2. General

- A. The external power access door is not in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Remove the damage as necessary.

- (a) Refer to 51-10-02 for the inspection and removal of damage.

- (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.

- (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed from the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.

- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.

- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed from the non-aerodynamic inner surface of the skin, or from the doubler, do the steps that follow:

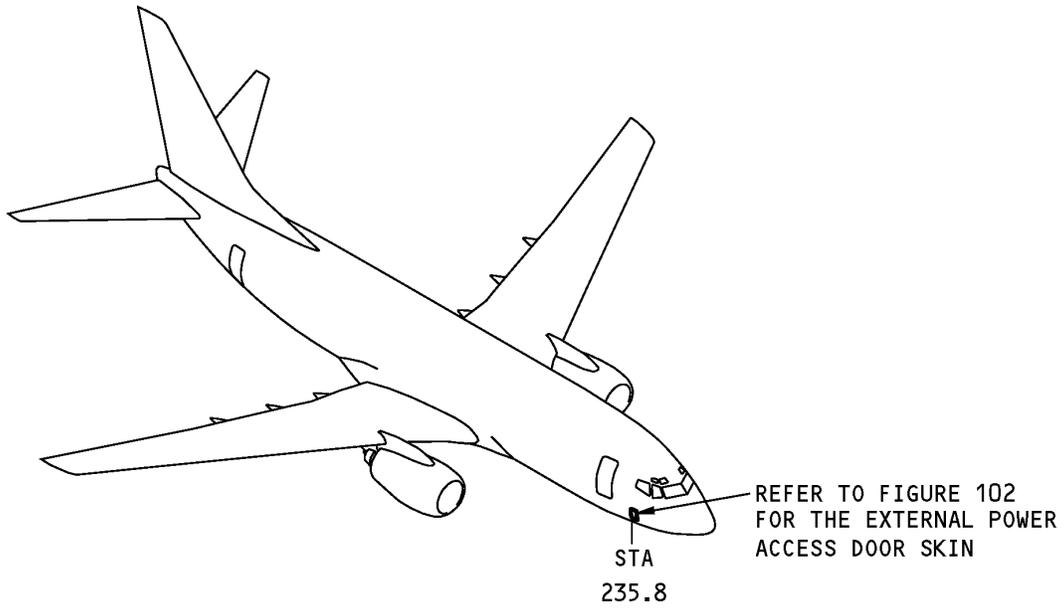
NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.

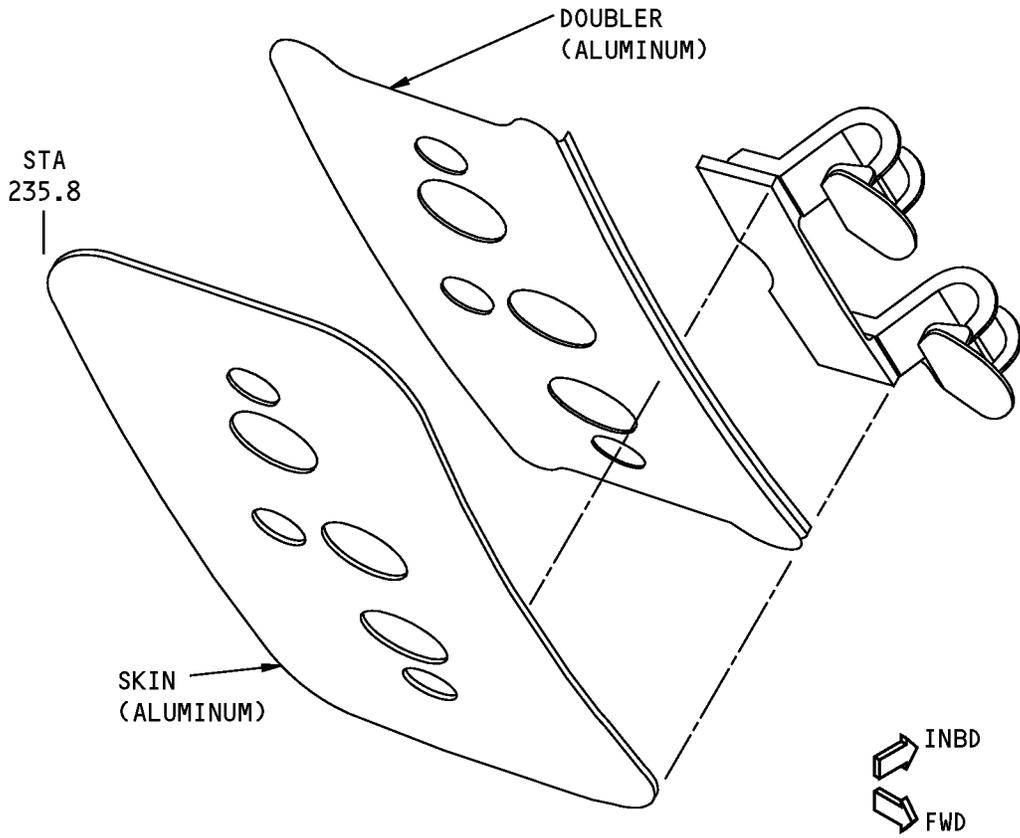
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 3

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**External Power Access Door Skin Location
Figure 101**



**External Power Access Door Skin
Figure 102**



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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

A. Cracks:

- (1) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, or other damage.

NOTE: The thickness of the skin allows for the installation of countersunk rivets, which is preferred.

- (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum rivet.
 - 1) Install the rivet without sealant.

B. Nicks, Gouges, Scratches, and Corrosion:

- (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, details A , B , C , D , and E .

C. Dents:

- (1) Dents are permitted as follows:
 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail F .
 - (b) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

D. Holes and Punctures

- (1) Holes and Punctures are permitted if:
 - (a) They are a maximum of 0.25 inch in diameter
 - (b) They are a minimum of 1.00 inch away from a fastener hole, an edge, or other damage
 - (c) They are filled with a 2017-T3 or 2017-T4 aluminum rivet.

NOTE: The thickness of the skin allows for the installation of countersunk rivets, which is preferred.

- 1) Install the rivet without sealant.
- (2) Non-revenue flights to a repair station are allowed if:
 - (a) The damage is removed to a 5.0 inch smooth circular or oval shape.



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STRUCTURAL REPAIR MANUAL

(b) The damage is a minimum of 1.0 inch away from the edge of the skin or a fitting.

E. Delamination

(1) A maximum of 1.00 square inch of delamination is permitted in any 10.00 square inches of doubler area.

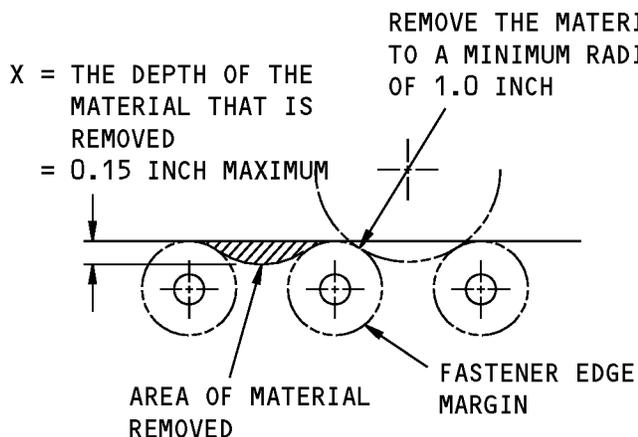
ALLOWABLE DAMAGE 3

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52-40-01

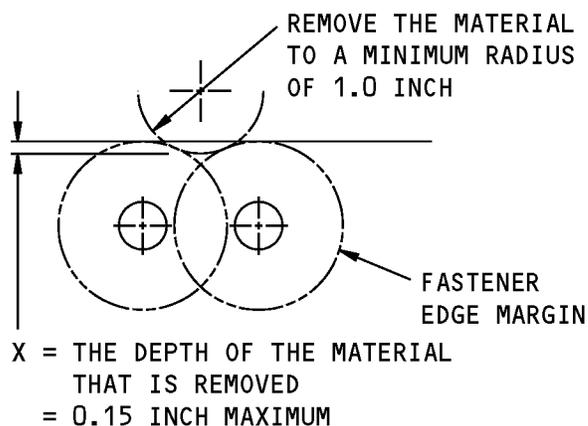
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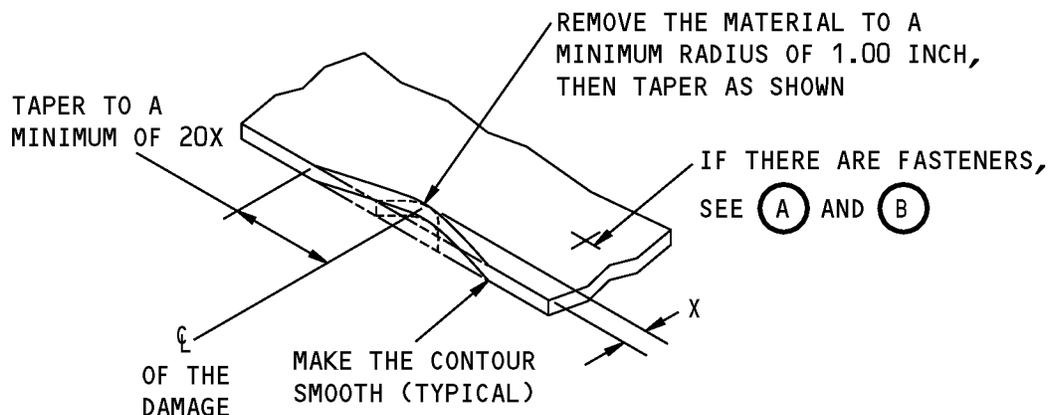
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



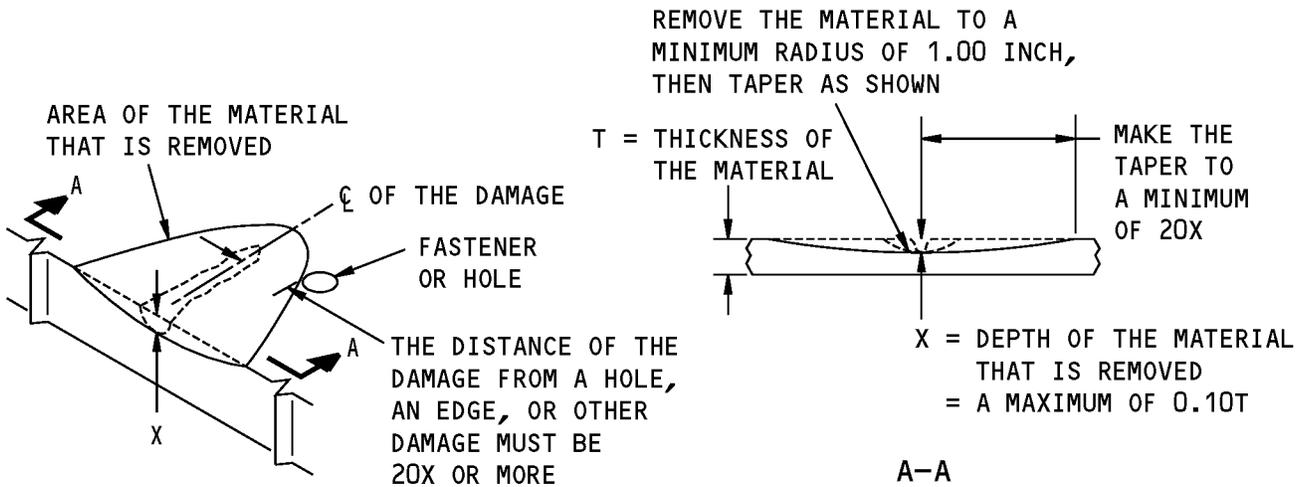
X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

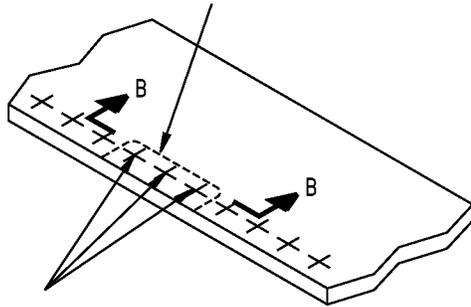
**737-800
STRUCTURAL REPAIR MANUAL**



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

D

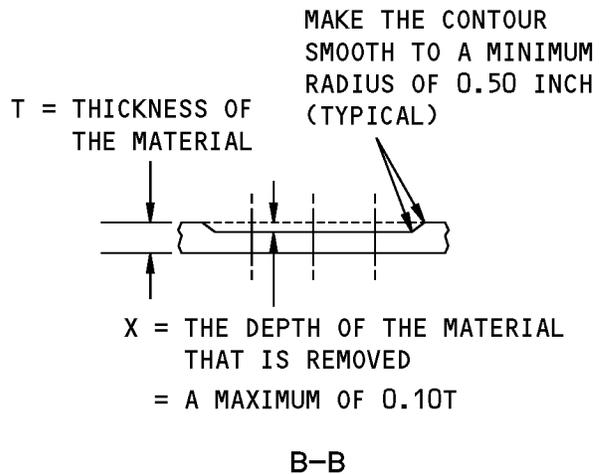
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

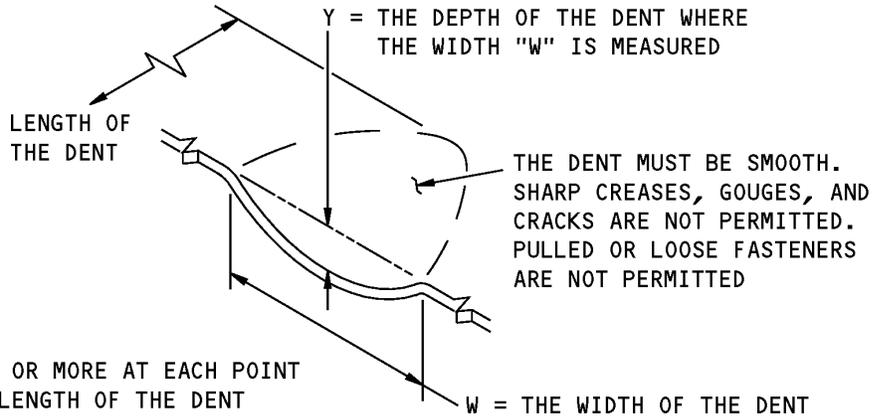
REMOVAL OF CORROSION DAMAGE

E



**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

STRUCTURAL REPAIR MANUAL



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH

THE MAXIMUM PERMITTED LENGTH
OF THE DENT IS 4.00 INCHES

DENT THAT IS PERMITTED



Allowable Damage Limits
Figure 103 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 4 - LAVATORY SERVICE ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the lavatory service access door skin as shown in Lavatory Service Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 4 and Lavatory Service Access Door Skin Allowable Damage, Figure 102/ALLOWABLE DAMAGE 4.

2. General

- A. The lavatory service access door is not in a pressurized region of the fuselage.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 4
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
 - (4) Put a surface finish of 125 microinches Ra or better on the reworked surfaces.
- D. If damage is removed on the external aerodynamic surface of the outer skin, do the steps that follows:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
 - (3) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- E. If damage is removed on the internal non-aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- F. Make sure the aerodynamic smoothness is satisfactory or there will be a loss in the economic performance of the airplane. Refer to 51-10-01.

ALLOWABLE DAMAGE 4

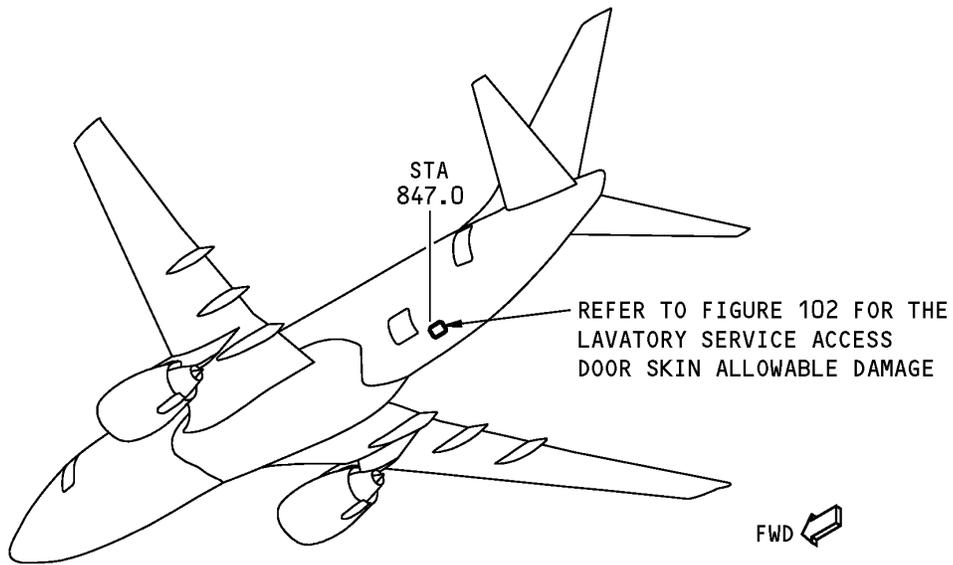
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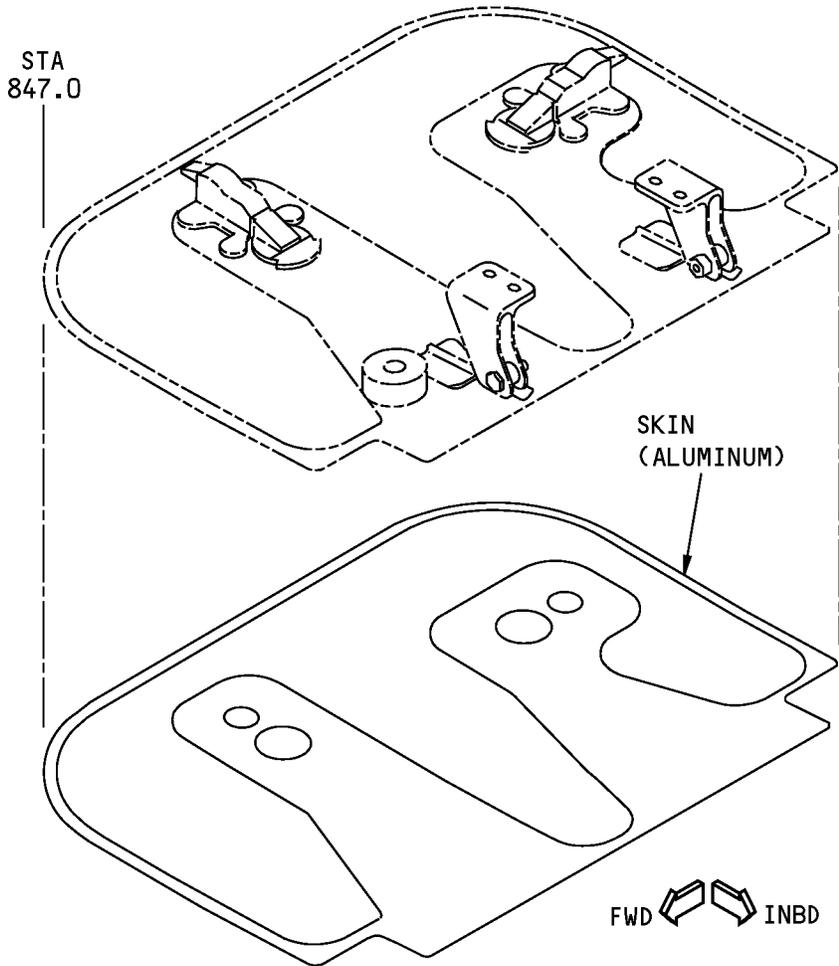
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**Lavatory Service Access Door Skin Location
Figure 101**

**737-800
STRUCTURAL REPAIR MANUAL**



**Lavatory Service Access Door Skin Allowable Damage
Figure 102**



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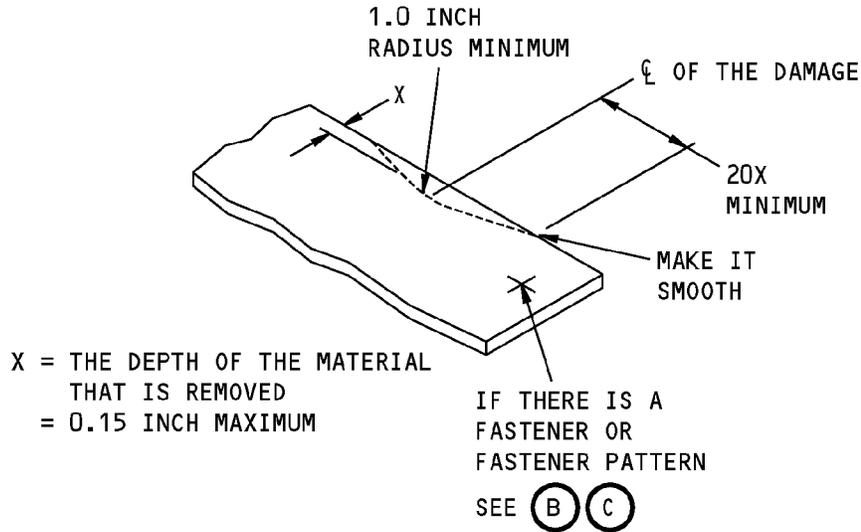
3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

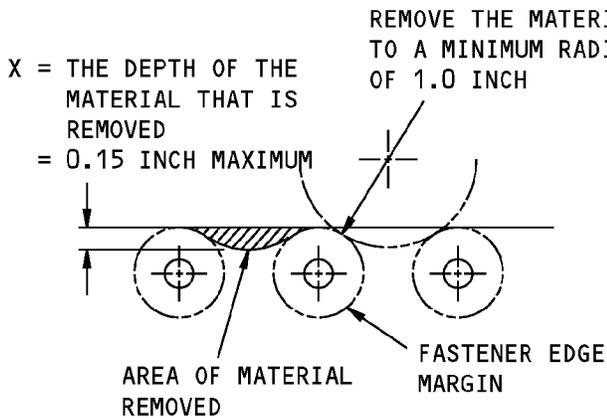
- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , C , D , and E .
- C. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch (6.35 mm) in diameter or less.
 - (2) They are 1.00 inch (25.4 mm) or more away from a fastener hole, an edge, or other damage.
 - (3) They are filled with a 2117-T3 or 2117-T4 aluminum protruding head rivet. Install the rivets without sealant.
- D. Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Detail F .

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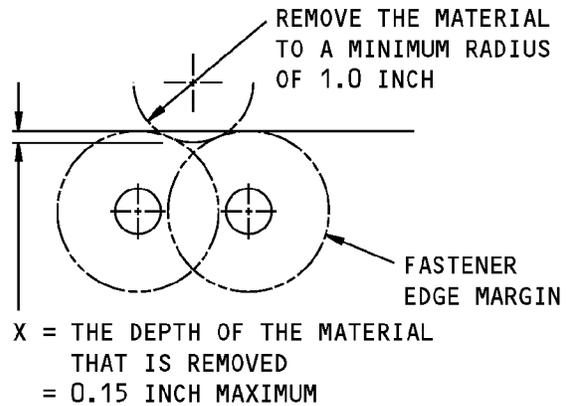
REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(B)

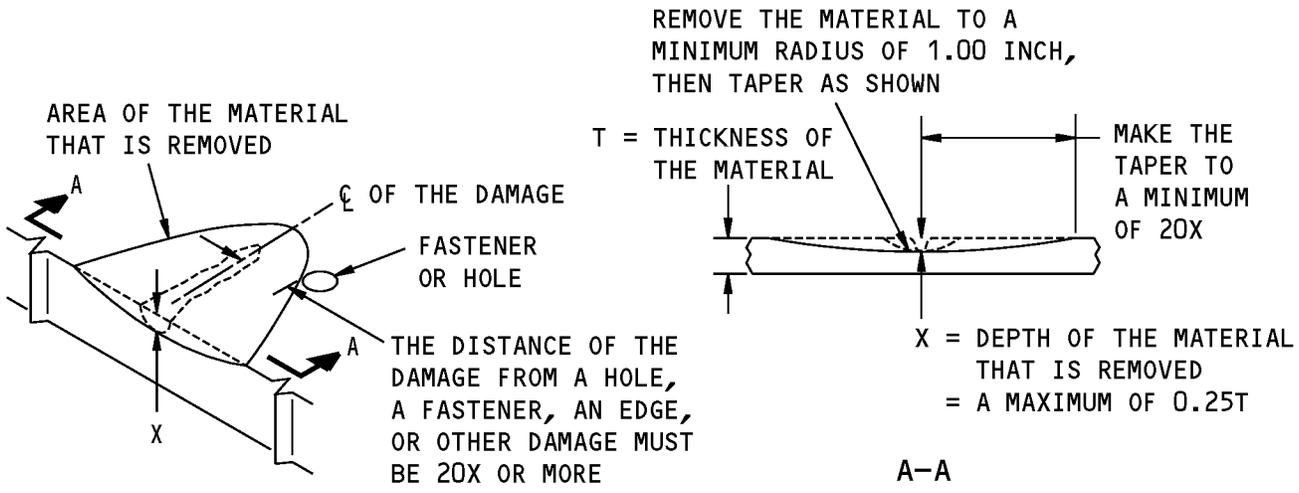


REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

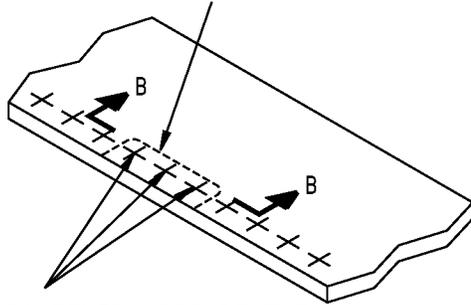
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STRUCTURAL REPAIR MANUAL**



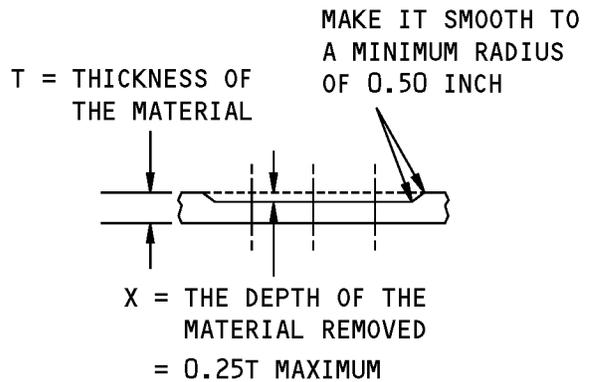
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

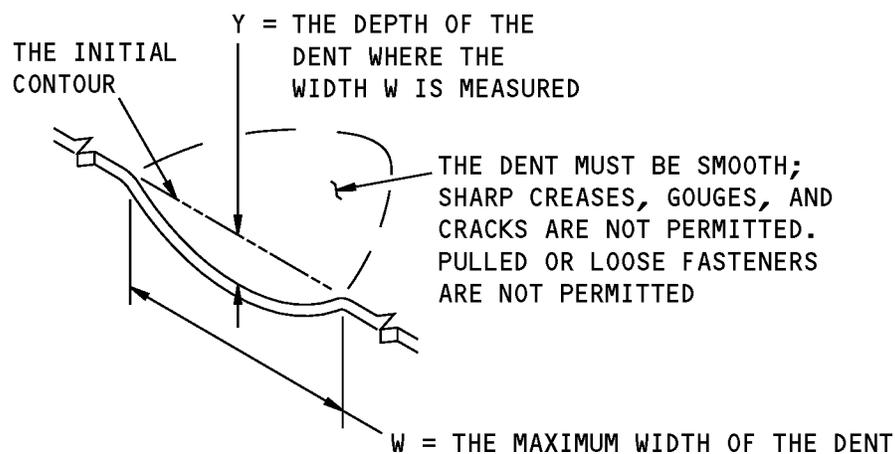


REMOVAL OF CORROSION DAMAGE

(E)

**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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STRUCTURAL REPAIR MANUAL



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH

A DENT THAT IS PERMITTED



Allowable Damage Limits
Figure 103 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 5 - WATER SERVICE ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the water service access door skin as shown in Water Service Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 5 and Water Service Access Door Skin Allowable Damage, Figure 102/ALLOWABLE DAMAGE 5.

2. General

- A. The water service access door is not in a pressurized region of the fuselage.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 5
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of the damage
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. If damage is removed from the external aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- E. If damage is removed from the internal non-aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- F. Make sure the aerodynamic smoothness is satisfactory or there will be a loss in the economic performance of the airplane. Refer to 51-10-01.

ALLOWABLE DAMAGE 5

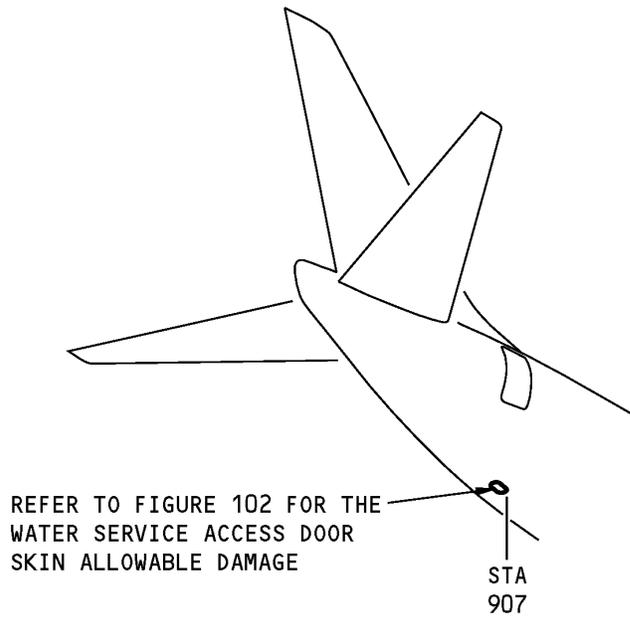
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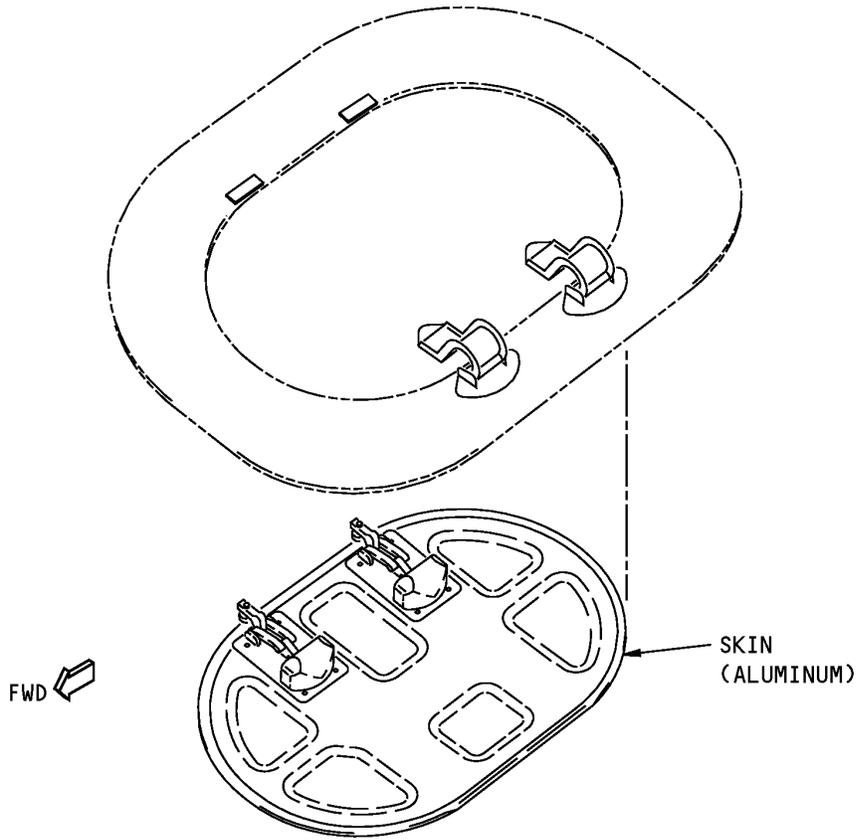
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STRUCTURAL REPAIR MANUAL**



**Water Service Access Door Skin Location
Figure 101**

**737-800
STRUCTURAL REPAIR MANUAL**



**Water Service Access Door Skin Allowable Damage
Figure 102**

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes



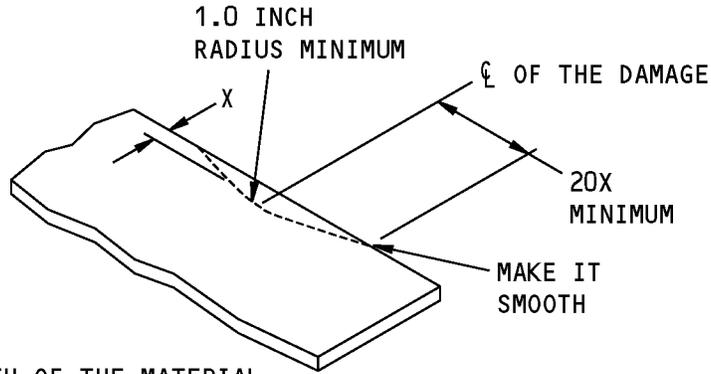
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STRUCTURAL REPAIR MANUAL

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 5, Details A , and B .
- C. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch (6.35 mm) or less in diameter.
 - (2) They are 1.00 inch (25.4 mm) or more away from a fastener hole, an edge, machined radius, or other damage.
 - (3) They are filled with a 2117-T3 or 2117-T4 aluminum rivet. Install the rivet without sealant.
- D. Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 5, Detail C .

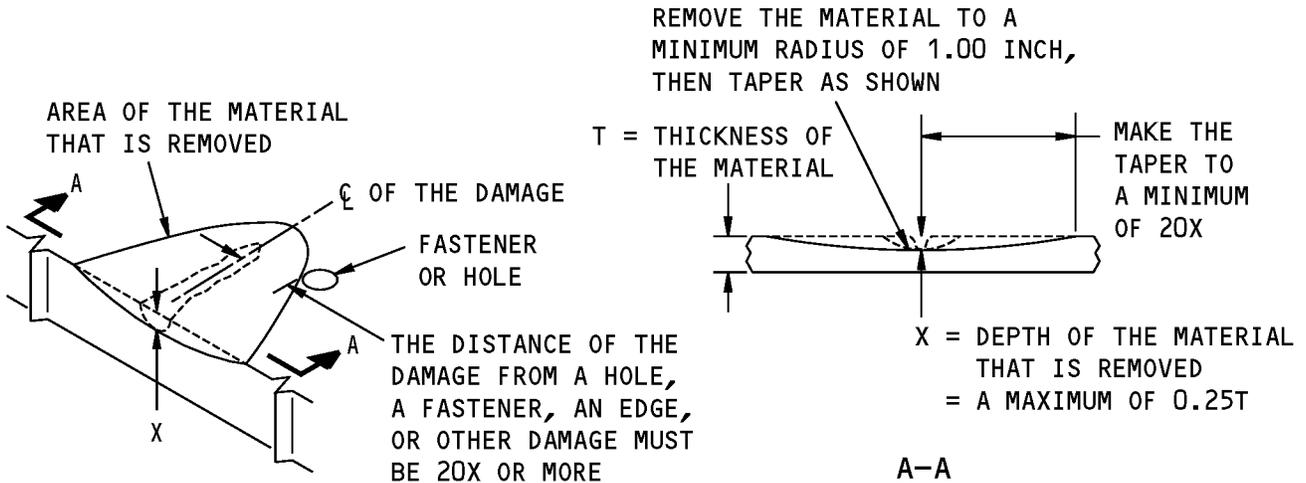
STRUCTURAL REPAIR MANUAL



X = THE DEPTH OF THE MATERIAL
THAT IS REMOVED
= 0.15 INCH MAXIMUM

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)

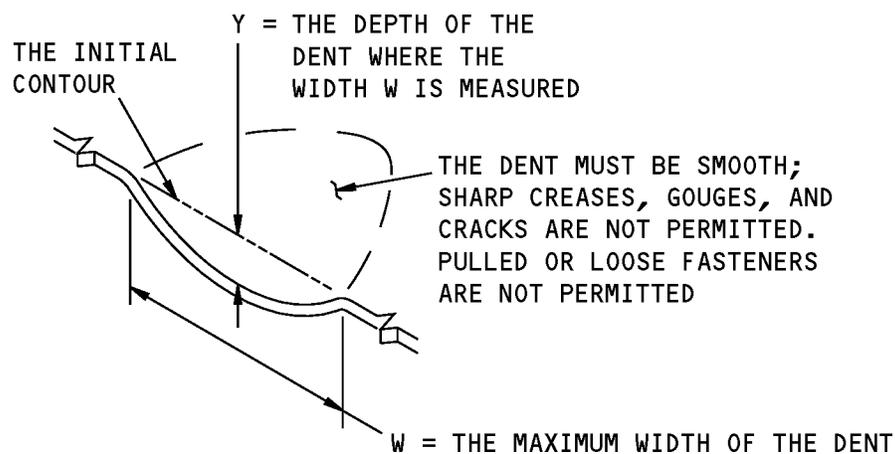


**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

(B)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 2)**

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STRUCTURAL REPAIR MANUAL



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH

A DENT THAT IS PERMITTED



Allowable Damage Limits
Figure 103 (Sheet 2 of 2)

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ALLOWABLE DAMAGE 5
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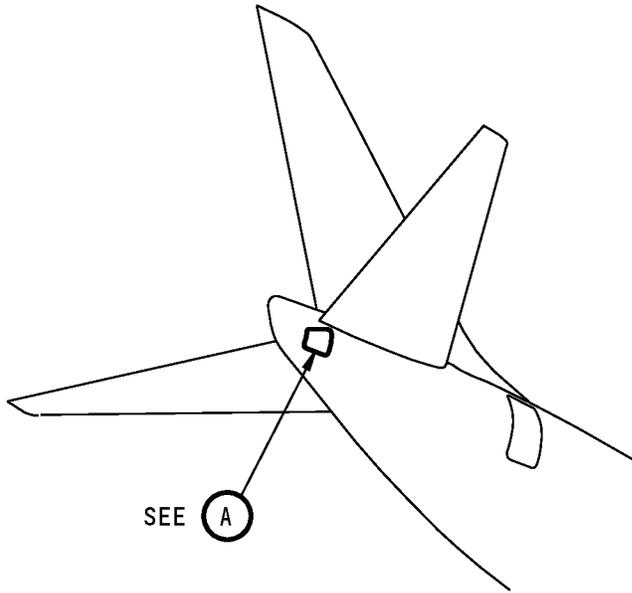
STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 6 - TAILCONE ACCESS DOOR SKIN

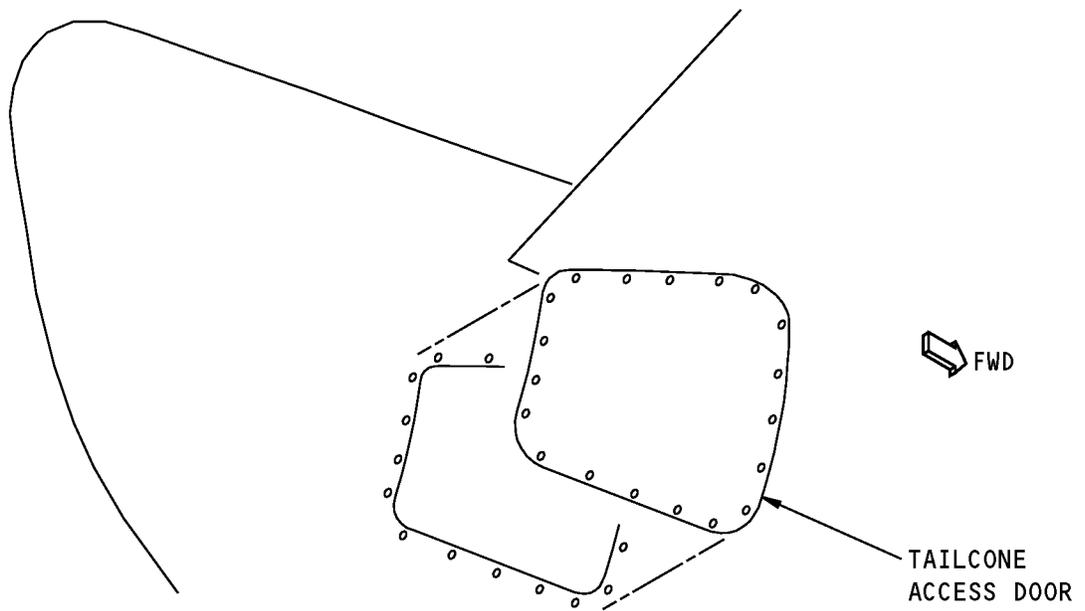
1. Applicability

- A. Allowable Damage 6 is applicable to damage on the Tailcone Access Door Skin composite panel as shown in Tailcone Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 6.

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SEE (A)



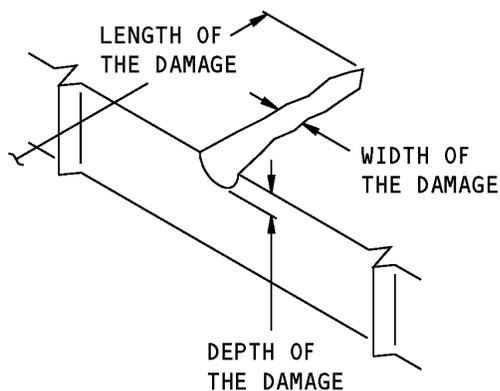
FWD

TAILCONE
ACCESS DOOR

(A)

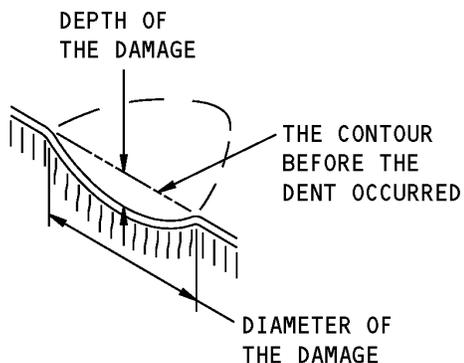
**Tailcone Access Door Skin Location
Figure 101**

**737-800
STRUCTURAL REPAIR MANUAL**



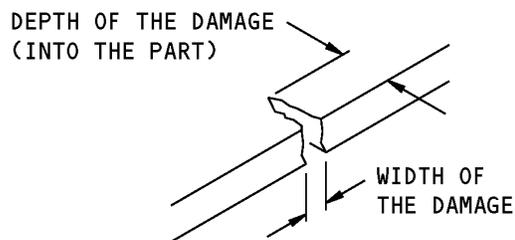
SIZE DEFINITIONS FOR NICK, GOUGE, OR SCRATCH DAMAGE

A



**SIZE DEFINITIONS FOR
DENT DAMAGE**

B



**SIZE DEFINITIONS FOR
EDGE DAMAGE**

C

**Definitions of the Damage Size
Figure 102**

2. General

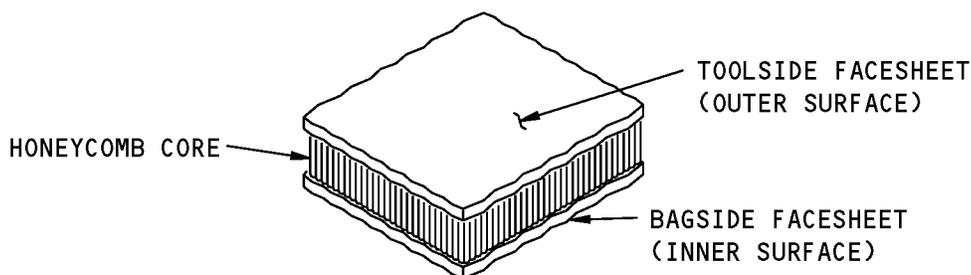
- A. Do an inspection of the damaged area to find the length, width, and depth of the damage. Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to 737 NDT Part 1, 51-01-02 for inspection procedures.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator can be used.

- (1) For the honeycomb core areas, the tap test is an alternative procedure to an instrumented NDT procedure.
- (2) Refer to Definitions of the Damage Size, Figure 102/ALLOWABLE DAMAGE 6 for the definitions of the length, width, and depth of the damage.

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- (3) Refer to Definitions of the Facesheets, Figure 103/ALLOWABLE DAMAGE 6 for the definitions of the facesheets of a honeycomb core area.
- B. Remove all of the contamination and water from the door.
- (1) Refer to 51-70-04 for the damage removal procedures.
 - (2) Refer to 51-30-05 for possible sources of the equipment you can use to remove the damage.
 - (3) Seal all damaged areas with the steps that follow.
 - (a) Seal the damage that is not more than one ply deep and that agrees with the allowable damage limits given in Paragraph 4./ALLOWABLE DAMAGE 6
 - 1) Make a temporary seal.
 - a) Apply aluminum foil tape (speed tape).
 - b) Keep a record of the location.
 - c) Make sure the tape is in satisfactory condition at 400 flight hours from the time you made the seal.
 - d) Seal the damage permanently by 5000 flight hours or less.
 - 2) Make a permanent seal.
 - a) Apply BMS 8-207 or BMS 8-301 epoxy resin to the area as given in 51-70-08.
 - b) Apply one layer of BMS 10-79, Type 3 or BMS 10-103, Type 1 primer. Refer to SOPM 20-44-04.
 - c) Apply one layer of BMS 10-60 enamel to the areas sealed with epoxy resin. Refer to AMM PAGEBLOCK 51-21-99/701.
 - (b) Seal all permitted damaged areas that are more than one ply deep. Refer to Paragraph 4./ALLOWABLE DAMAGE 6 Seal the damage as follows:
 - 1) Use a vacuum and heat to remove moisture from the solid laminate or the honeycomb cells. Refer to 51-70-04.
 - 2) Make a temporary seal with aluminum foil tape (speed tape).
 - 3) Keep a record of the location.
 - 4) Repair the damage by 400 flight hours or less.



Definitions of the Facesheets
Figure 103



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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
51-70-04	REPAIR PROCEDURES FOR WET LAYUP MATERIALS
51-70-08	RESIN SWEEP-FAIR PROCEDURES
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primers
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage

4. Allowable Damage Limits

A. Tailcone Access Door Skin GFRP Panel - Honeycomb Core Area

- (1) Nicks, Gouges and Scratches that do not cause damage to the glass fibers are permitted.
- (2) Nicks, Gouges and Scratches that cause damage to the glass fibers are permitted if they are:
 - (a) A maximum of one ply in depth
NOTE: Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A maximum length of 3.0 inches
 - (c) A maximum width of 0.25 inch
 - (d) A minimum distance of 4D away from the edge of any hole, part edge or other damage as shown in Figure 107 . Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
- (3) Dents are permitted if they are:
 - (a) A maximum depth of 0.050 inch
 - (b) A maximum of 1.50 inches in diameter
 - (c) A minimum distance from the edge of other damage as shown in Damage that is Permitted to GFRP Honeycomb Sandwich Areas, Figure 104/ALLOWABLE DAMAGE 6. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 1.00 inch in diameter

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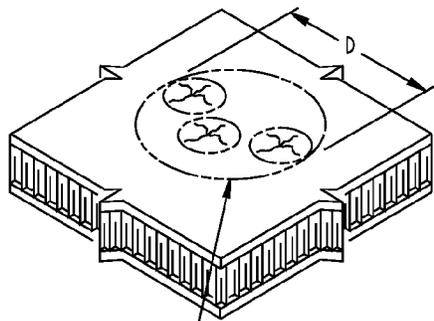
- (b) A minimum distance from the edge of other damage as shown in Damage that is Permitted to GFRP Honeycomb Sandwich Areas, Figure 104/ALLOWABLE DAMAGE 6. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies and
 - 2) Are sealed as given in Paragraph 2.
- (5) Delaminations are permitted if they are:
 - (a) A maximum of 1.50 inches in diameter
 - (b) A minimum distance from the edge of other damage as shown in Damage that is Permitted to GFRP Honeycomb Sandwich Areas, Figure 104/ALLOWABLE DAMAGE 6. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
- B. Tailcone Access Door Skin GFRP Panel - Solid Laminate Area
 - (1) Nicks, Gouges and Scratches that do not cause damage to the glass fibers are permitted.
 - (2) Nicks, Gouges and Scratches that cause damage to the glass fibers are permitted if they are:
 - (a) A maximum of one ply in depth
NOTE: Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
 - (3) Dents are permitted if they are:
 - (a) A maximum of 0.05 inch in depth
 - (b) A maximum of 1.00 inch diameter
 - (c) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 1.00 inch in diameter
 - (b) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
 - (5) Delaminations are permitted if they are:
 - (a) A maximum of 1.50 inch diameter.
 - (b) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies



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STRUCTURAL REPAIR MANUAL

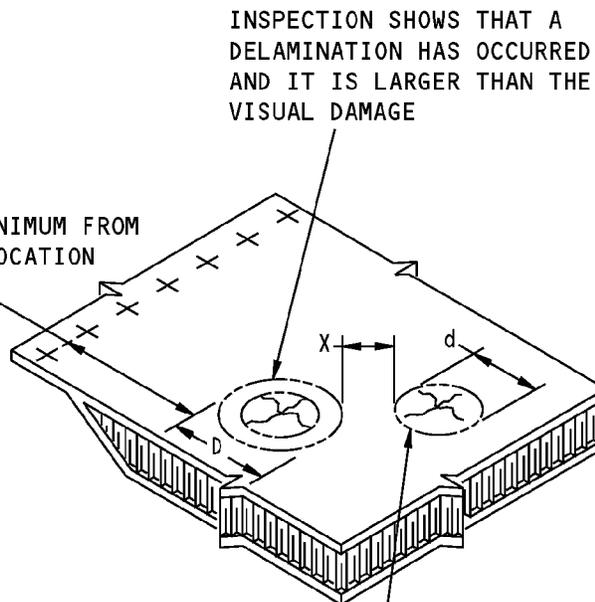
- 2) Are sealed as given in Paragraph 2.
- (6) Edge Erosion is permitted as shown in Sealing of Erosion Damage at an Edge of Composite Parts, Figure 105/ALLOWABLE DAMAGE 6.
- (7) Edge damage is permitted if:
 - (a) It is a maximum 0.10 inch in depth
 - (b) It is a maximum width of 0.25 inch

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STRUCTURAL REPAIR MANUAL



A GROUP OF SMALL DAMAGE AREAS THAT ARE NEAR EACH OTHER CAN BE SEEN AS ONE DAMAGE AREA

0.50 INCH MINIMUM FROM A FASTENER LOCATION



INSPECTION SHOWS THAT A DELAMINATION HAS OCCURRED AND IT IS LARGER THAN THE VISUAL DAMAGE

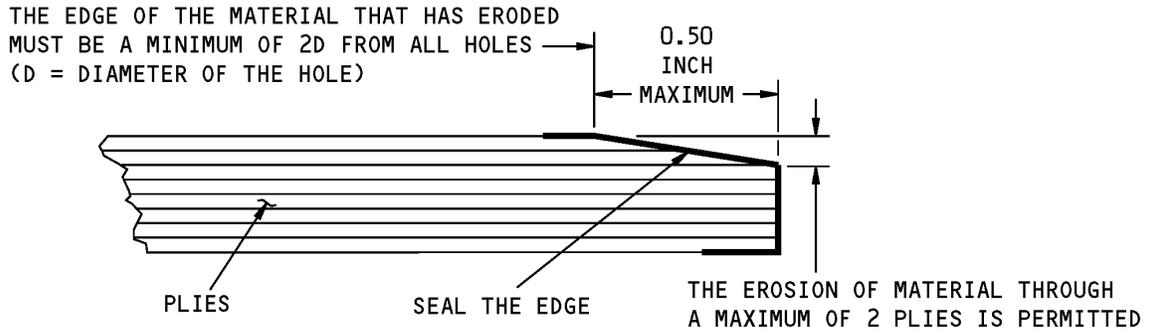
INSPECTION SHOWS THAT THERE IS ONLY VISUAL DAMAGE

NOTES

- TO FIND DELAMINATION, YOU CAN USE NONDESTRUCTIVE INSPECTION PROCEDURES. REFER TO NDT PART 1, 51-01-02.
- THE DIAMETER OF A DAMAGE AREA IS EITHER THE DIAMETER OF THE VISUAL DAMAGE OR THE DIAMETER OF THE DELAMINATION. USE THE DIAMETER OF THE LARGER DAMAGE.
- D IS THE LARGER DIAMETER OF TWO ADJACENT DAMAGE AREAS.
- d IS THE SMALLER DIAMETER OF TWO ADJACENT DAMAGE AREAS.
- X IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE AREAS.
- THE MINIMUM X THAT IS PERMITTED IS THE LARGER OF 0.75D OR 2d.

Damage that is Permitted to GFRP Honeycomb Sandwich Areas
Figure 104

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Sealing of Erosion Damage at an Edge of Composite Parts
Figure 105



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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 7 - TAILCONE SYSTEM ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the tailcone system access door skin as shown in Tailcone System Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 7 and Tailcone System Access Door Skin, Figure 102/ALLOWABLE DAMAGE 7.

2. General

- A. The tailcone system access door is not in a pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Remove the damage as necessary.

- (a) Refer to 51-10-02 for the inspection and removal of the damage.

- (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.

- (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.

- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.

- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic internal surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.

- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 7

ALLOWABLE DAMAGE 7

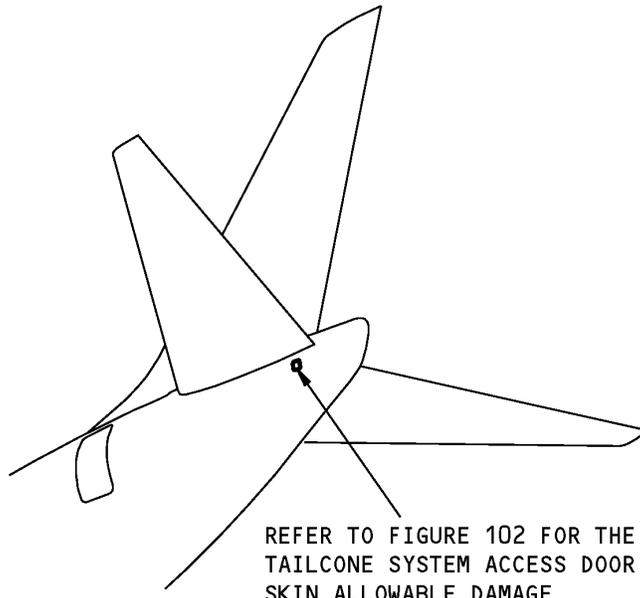
Page 101

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52-40-01

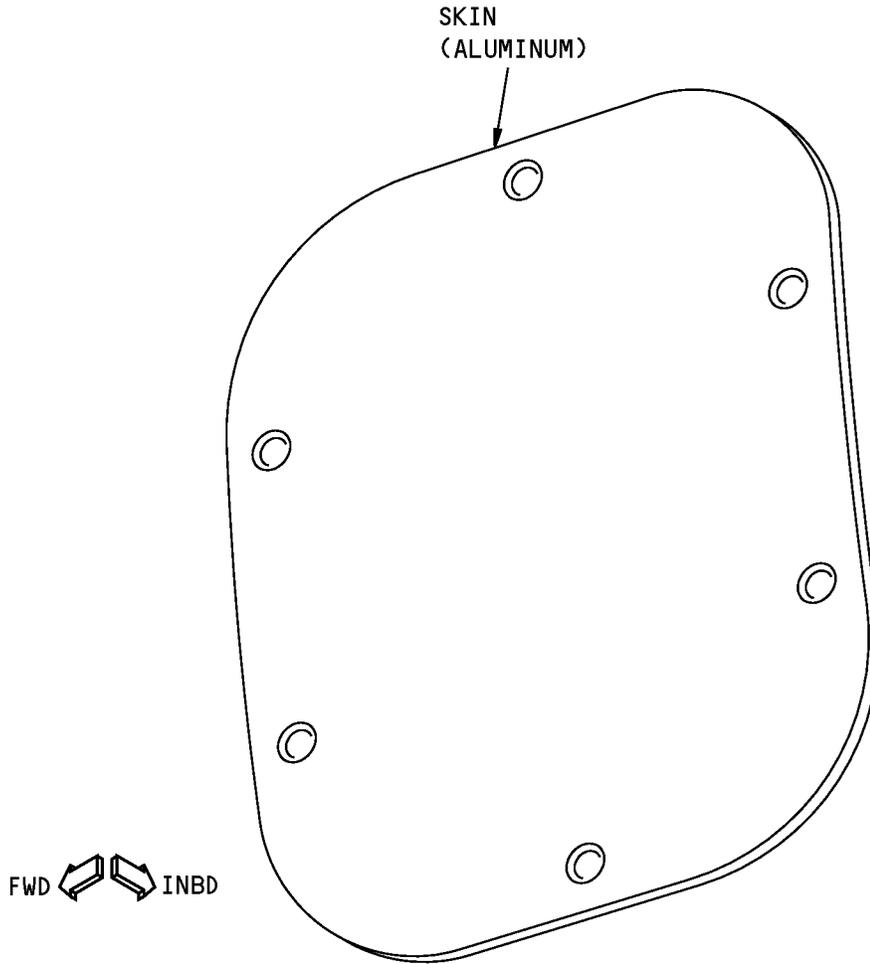
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**737-800
STRUCTURAL REPAIR MANUAL**



**Tailcone System Access Door Skin Location
Figure 101**

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**Tailcone System Access Door Skin
Figure 102**

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ALLOWABLE DAMAGE 7
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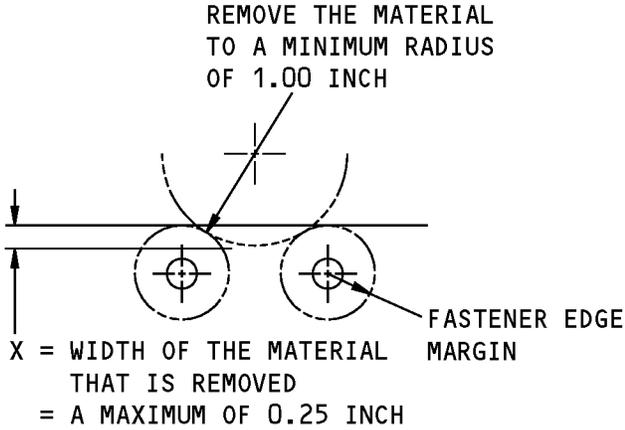
3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

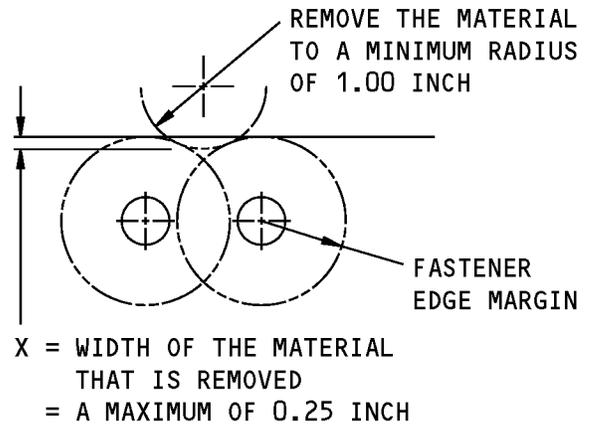
- A. Cracks are not permitted.
 - B. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 7, Details A , B , C , D , and E .
 - C. Dents:
 - (1) Dents are permitted as follows:
 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 7, Detail F .
 - (b) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.
 - D. Holes and Punctures:
 - (1) Holes and Punctures are permitted if:
 - (a) They are a maximum of 0.25 inch in diameter
 - (b) They are a minimum of 1.00 inch away from a fastener hole, an edge, or other damage
 - (c) They are filled with a 2117-T3 or 2117-T4 aluminum rivet.
- NOTE:** The thickness of the skin allows for the installation of countersunk rivets, which is preferred.
- 1) Install the rivet without sealant.

STRUCTURAL REPAIR MANUAL



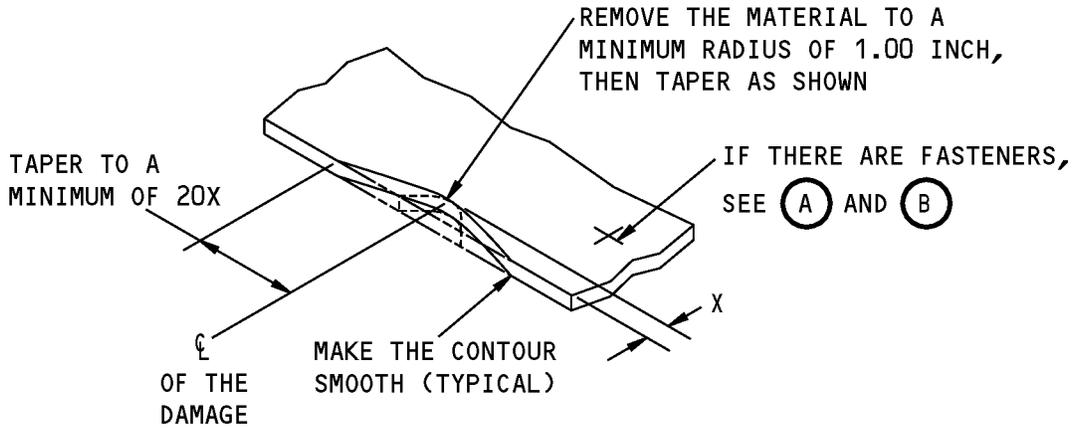
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



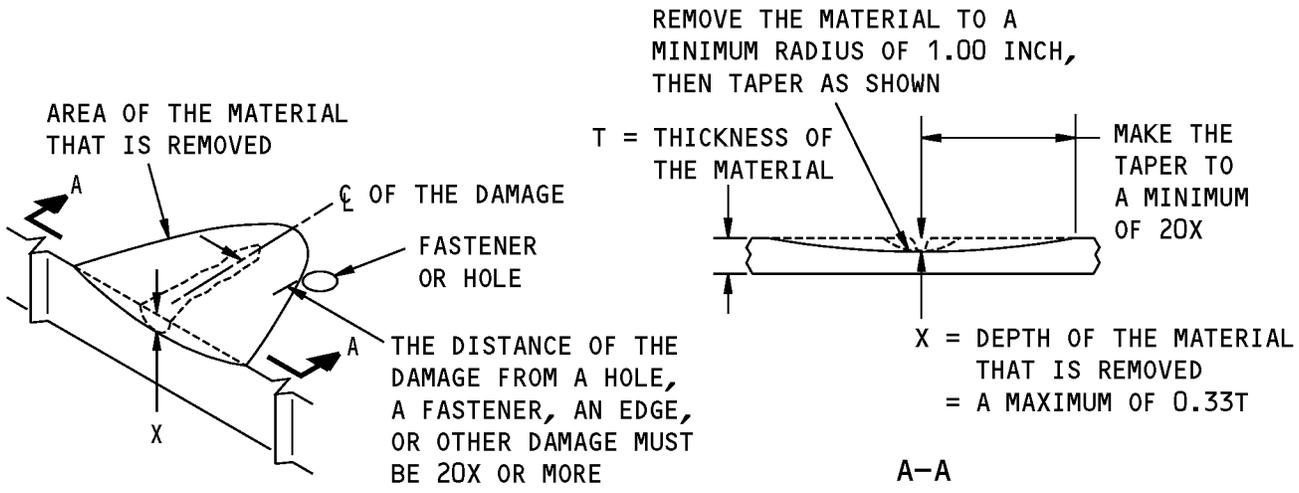
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.25 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

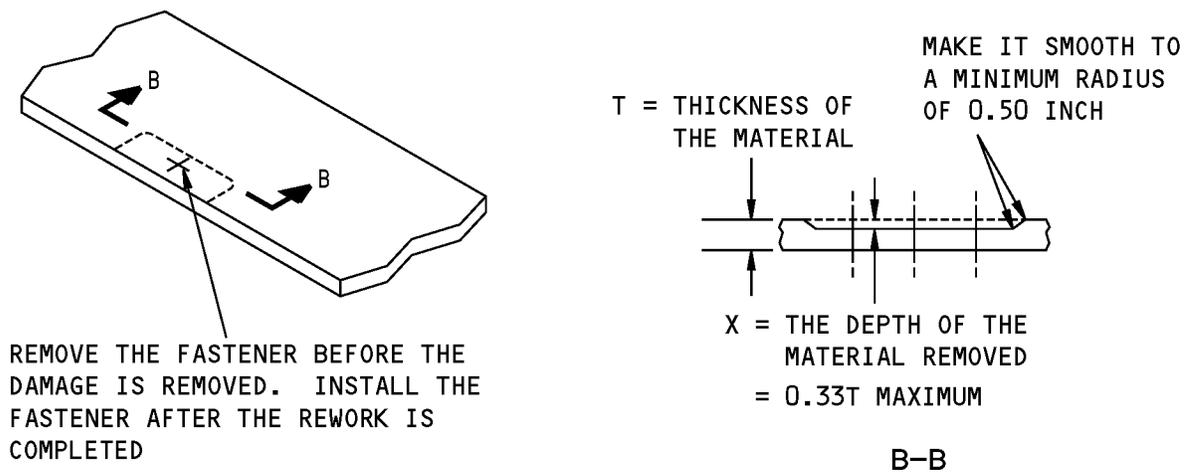
**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

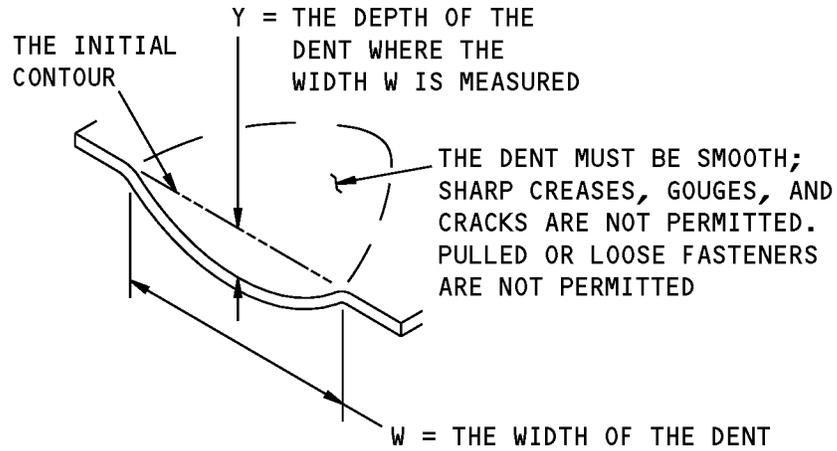


REMOVAL OF CORROSION DAMAGE

(E)

**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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STRUCTURAL REPAIR MANUAL



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH

A DENT THAT IS PERMITTED



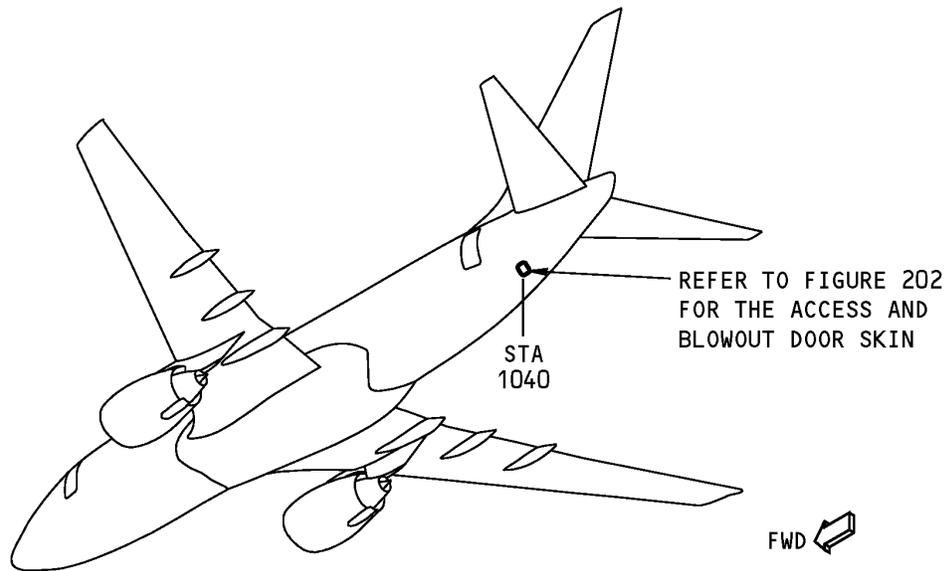
Allowable Damage Limits
Figure 103 (Sheet 3 of 3)

STRUCTURAL REPAIR MANUAL

REPAIR 1 - ACCESS AND BLOWOUT DOOR SKIN

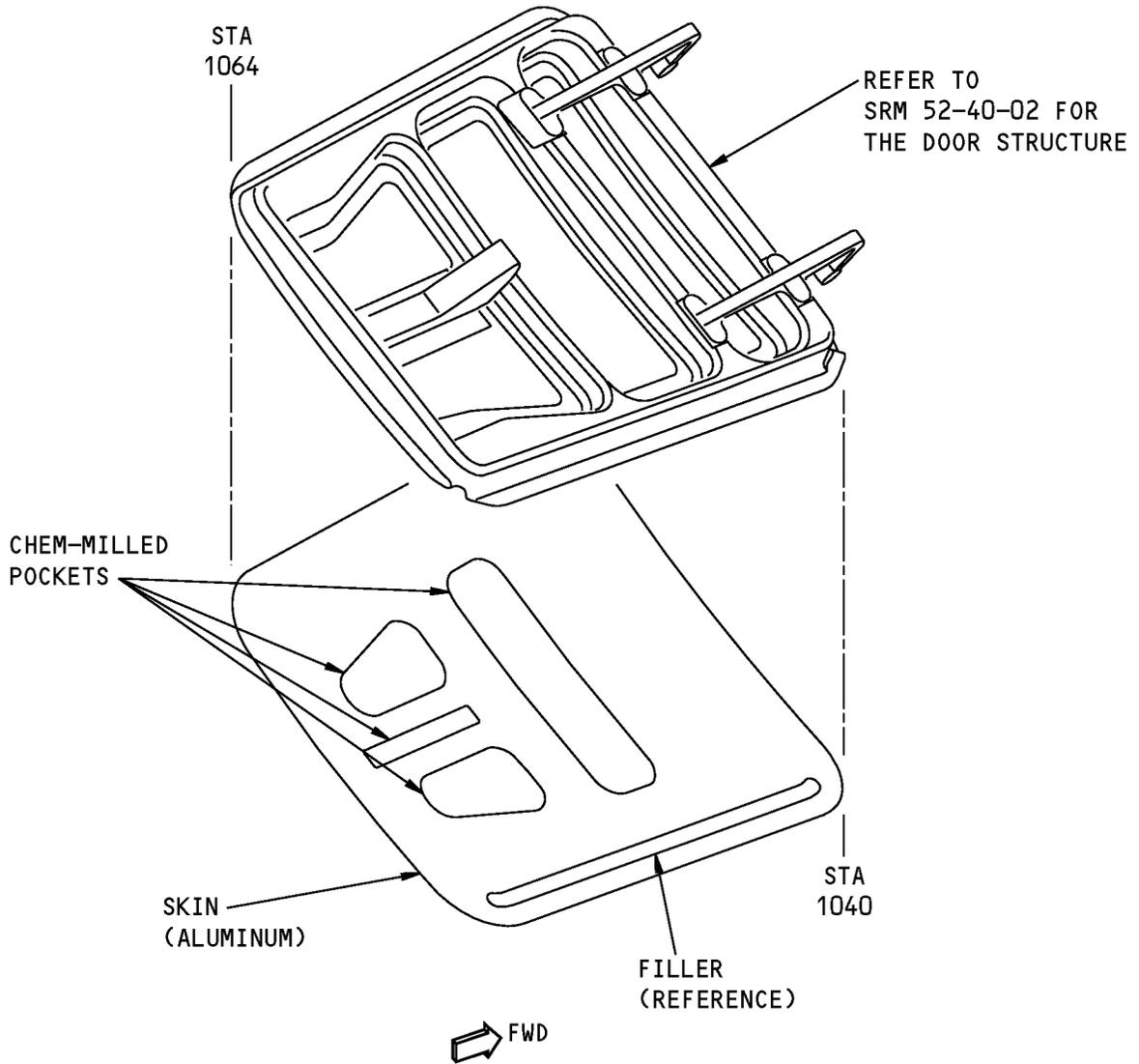
1. Applicability

- A. Repair 1 is applicable to damage to the access and blowout door skin shown in Access and Blowout Door Skin Location, Figure 201/REPAIR 1 and Access and Blowout Door Skin, Figure 202/REPAIR 1.



**Access and Blowout Door Skin Location
Figure 201**

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STRUCTURAL REPAIR MANUAL**



**Access and Blowout Door Skin
Figure 202**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 5 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 5 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams

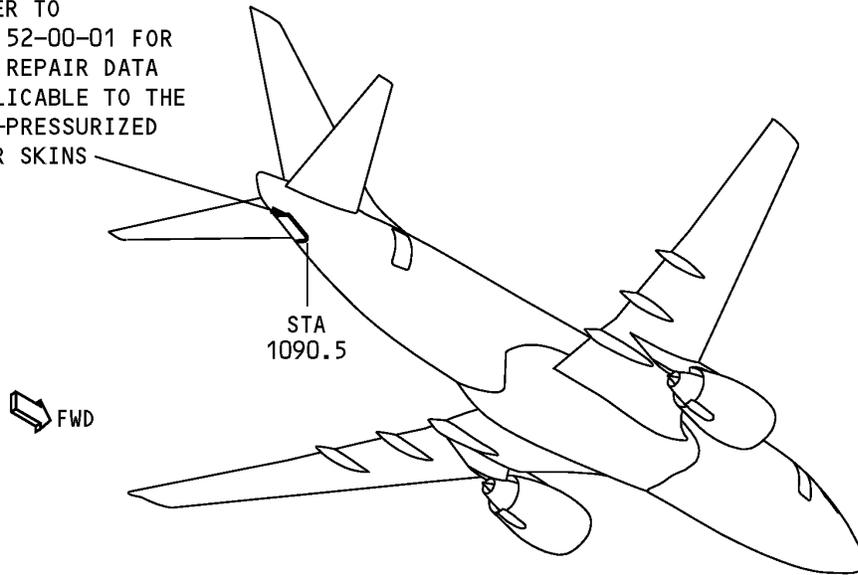
4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4 and 52-00-01, REPAIR 5 to find the applicable repair for the access and blowout door skin shown in Access and Blowout Door Skin Location, Figure 201/REPAIR 1 and Access and Blowout Door Skin, Figure 202/REPAIR 1.

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REPAIR 2 - APU ACCESS DOOR SKIN

REFER TO
SRM 52-00-01 FOR
THE REPAIR DATA
APPLICABLE TO THE
NON-PRESSURIZED
DOOR SKINS

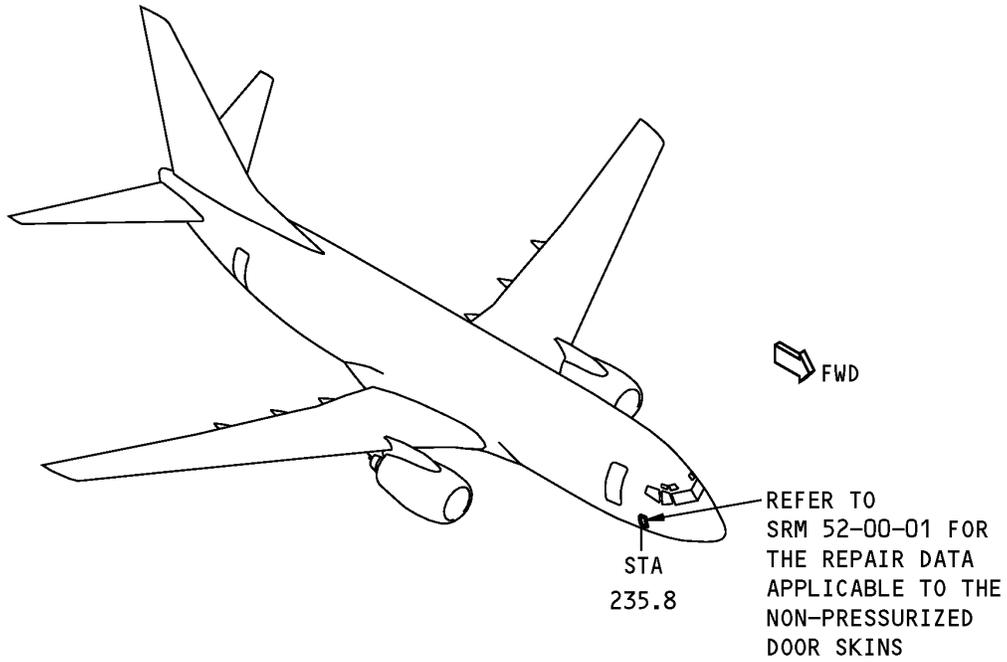


APU Access Door Skin Repair
Figure 201



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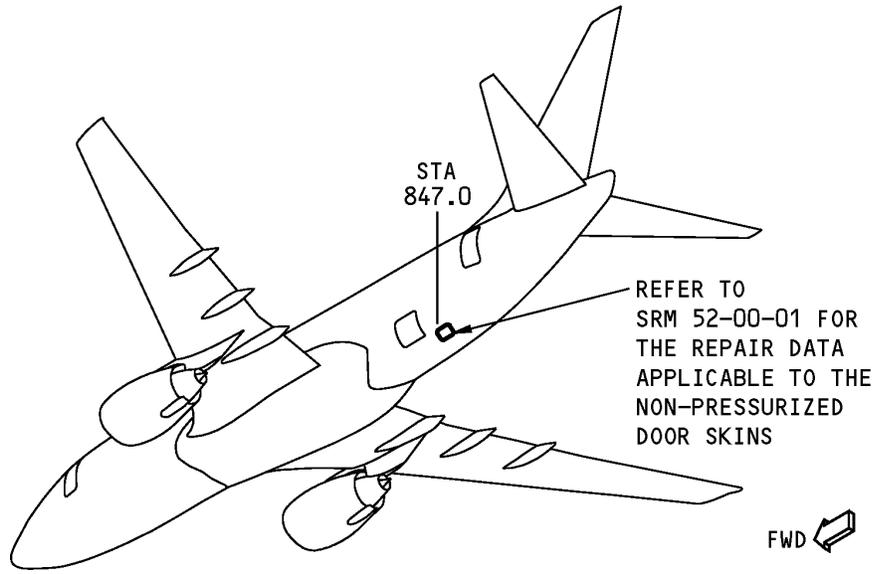
REPAIR 3 - EXTERNAL POWER ACCESS DOOR SKIN



External Power Access Door Skin Repair
Figure 201

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REPAIR 4 - LAVATORY SERVICE ACCESS DOOR SKIN

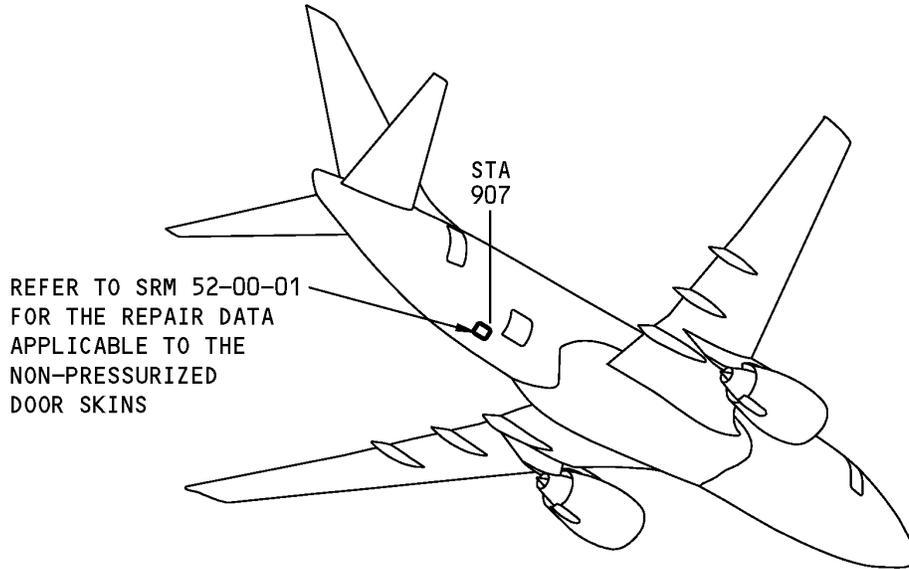


Lavatory Service Access Door Skin Repair
Figure 201



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REPAIR 5 - WATER SERVICE ACCESS DOOR SKIN



Water Service Access Door Skin Repair
Figure 201



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STRUCTURAL REPAIR MANUAL

REPAIR 6 - TAILCONE ACCESS DOOR SKIN

1. Applicability

- A. Repair 6 is applicable to the tailcone access door skin composite panel made of Glass Fiber Reinforced Plastic (GFRP) shown in Tailcone Access Door Skin Repair, Figure 201/REPAIR 6.
- B. Repair 6 is applicable to damage that is more than the limits permitted in Allowable Damage 6. Refer to Allowable Damage 6 for the type and size of damage that is permitted.

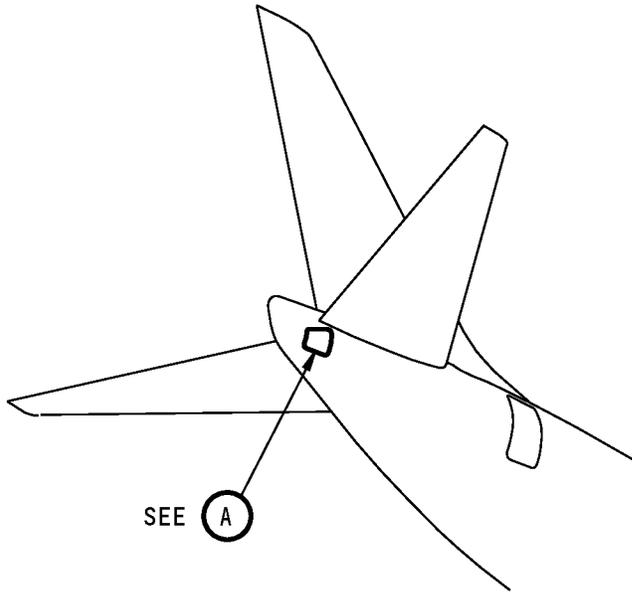
2. General

- A. Repair 6 gives instructions for Permanent or Interim Repairs. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Refer to Definitions of the Facesheets, Figure 203/REPAIR 6 for the definitions of the facesheet of the honeycomb core area.
- C. Get access to the damaged area.
 - (1) Refer to 51-40-02 for information on fastener removal.
- D. Do an inspection of the damaged area to find the dimensions of the damage.
 - (1) Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to NDT, Part 1, 51-01-02 for inspection procedures.

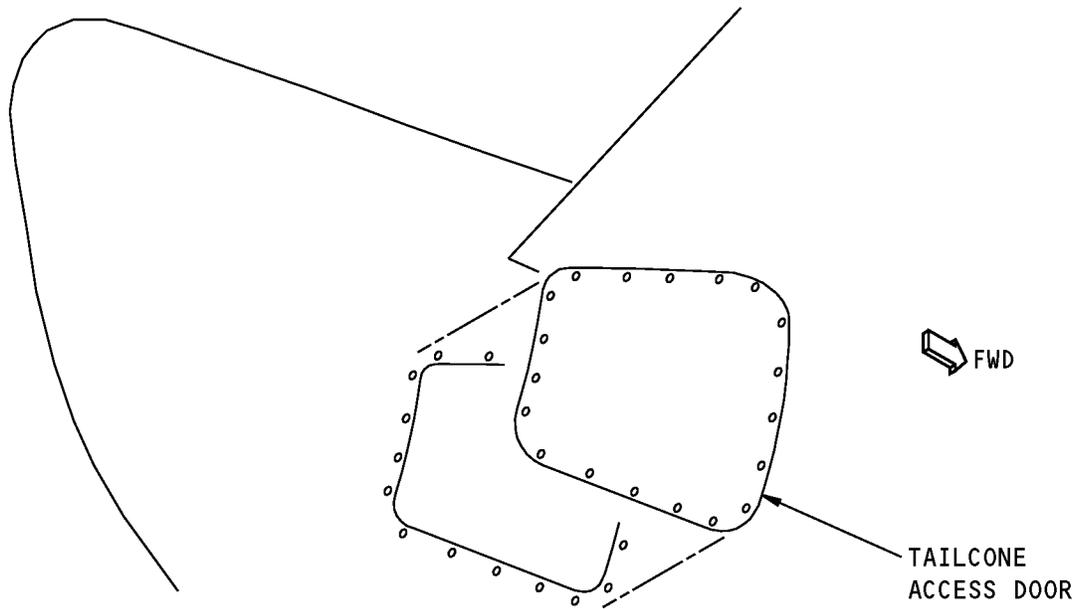
NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator can be used.

- E. Refer to Definitions of the Damage Size, Figure 202/REPAIR 6, Details A , B , and C for the definitions of the length, width, and depth of damage.
- F. Do the repair as given in Paragraph 4./REPAIR 6
- G. Put the access door back to the initial condition, as applicable.
 - (1) Install the access door, if it was removed.
 - (a) Refer to 51-40-02 for information on fastener installation.
 - (2) Make sure the aerodynamic smoothness is satisfactory or there will be a decrease in the performance of the airplane. Refer to 51-10-01.

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SEE (A)



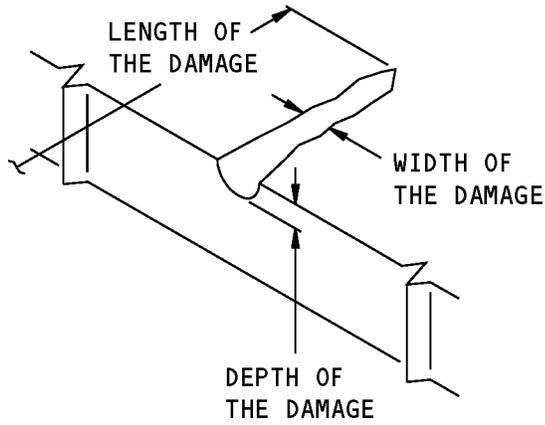
FWD

TAILCONE
ACCESS DOOR

(A)

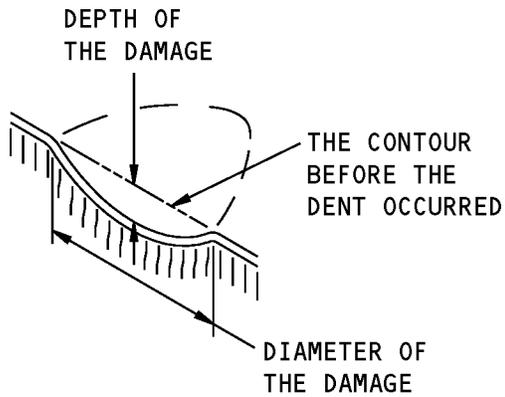
**Tailcone Access Door Skin Repair
Figure 201**

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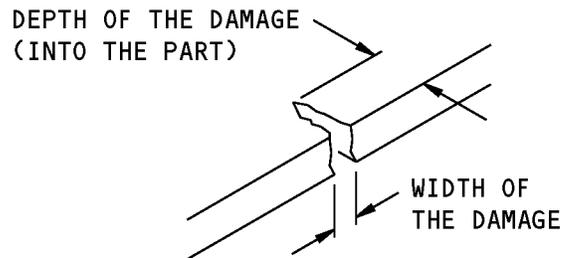
SIZE DEFINITIONS FOR NICK, GOUGE, OR SCRATCH DAMAGE

A



**SIZE DEFINITIONS FOR
DENT DAMAGE**

B

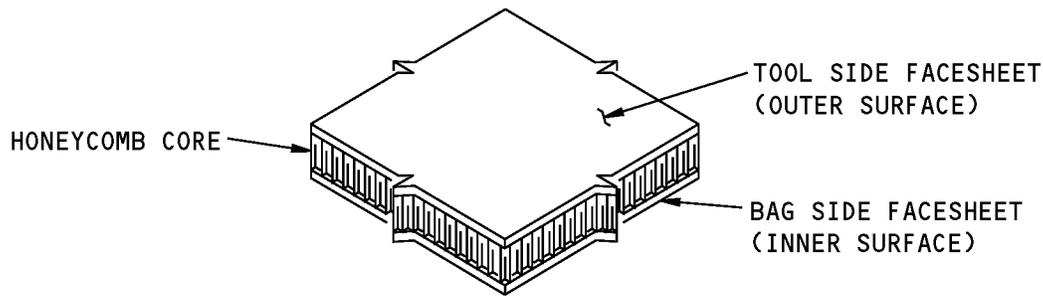


**SIZE DEFINITIONS FOR
EDGE DAMAGE**

C

**Definitions of the Damage Size
Figure 202**

**737-800
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**Definitions of the Facesheets
Figure 203**

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-70-04	REPAIR PROCEDURES FOR WET LAYUP MATERIALS
51-70-05	REPAIR PROCEDURES FOR PREIMPREGNATED MATERIALS
51-70-06	ROOM TEMPERATURE CURE REPAIRS
737 NDT Part 1, 51-01-01	Inspection of Repairs to Composite Structure
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage

4. Repair Instructions

- A. For dents that are a maximum of 2 inches in diameter and have no fiber damage and delamination, do the steps that follow:
 - (1) Fill the dent with BMS 5-28, Type 7 potting compound
 - (2) Apply a fiberglass patch over the potted area as given in 51-70-04.
- B. For dents that are not permitted by Paragraph 4.A./REPAIR 6 and for other damage that is not permitted by Allowable Damage 6, refer to Table 201/REPAIR 6.
- C. Use the instructions that follow to do an Interim repair with wet layup materials at room temperature cure.
 - (1) Only one repair is permitted for each 144 square inches of door skin area.
 - (2) The edges of the repair must be 6.0 inches or more away from:
 - (a) The edge of other repairs
 - (b) The edge of the part
 - (c) The edge of other damage. This does not include damage that is permitted and sealed as given in Allowable Damage 6.

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Table 201:

REPAIR DATA FOR THE 250°F (121°C) CURE TAILCONE ACCESS DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	Room Temperature	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE	Damage that is a maximum of: - 3.0 inches in diameter - 30 percent of the smallest dimension across the panel at the damage location - One facesheet and the honey-comb core in depth	Damage that is a maximum of: - 5.0 inches in diameter - 50 percent of the smallest dimension across the panel at the damage location	Damage that is a maximum of: - 6.0 inches in diameter - 50 percent of the smallest dimension across the panel at the damage location	There are no limits on the dimensions of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.D	SRM 51-70-04 and Paragraph 4.E	SRM 51-70-05 and Paragraph 4.F

- (3) Repair the damage as given in 51-70-06.
 - (a) Use the same number of repair plies as the number of initial plies that were removed.
- (4) Do an inspection of the repair at each 800 flight hour interval.
 - (a) Refer to 737 NDT Part 1, 51-01-01 for inspection procedures.
 - (b) If deterioration is found, replace the repair with a Permanent repair.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator can be used.

- D. Use the instructions that follow to do a Permanent repair with wet layup materials at 150°F (66°C) cure.
 - (1) Only one repair is permitted for each 144 square inches of panel area.
 - (2) The edges of the repair must be 3.0 inches or more away from:
 - (a) The edge of other repairs
 - (b) The edge of the part
 - (c) The edge of other damage. This does not include damage that is permitted and sealed as given in Allowable Damage 6.
 - (3) Repair the damage as given in 51-70-04.
 - (a) Use the same number of repair plies as the number of initial plies that were removed.
 - (b) Add one structural ply of BMS 9-3, Type H-2, or Type H-3 glass fabric that is ± 45 degrees.
 - (c) Add a second structural ply of BMS 9-3, Type H-2 or Type H-3 glass fabric that is 0 or 90 degrees.
- E. Use the instructions that follow to do a Permanent repair with wet layup materials at 200°F (93°C) cure.
 - (1) Only one repair is permitted for each 144 square inches of panel area.
 - (2) The edges of the repair must be 3.0 inches or more away from:
 - (a) The edge of other repairs



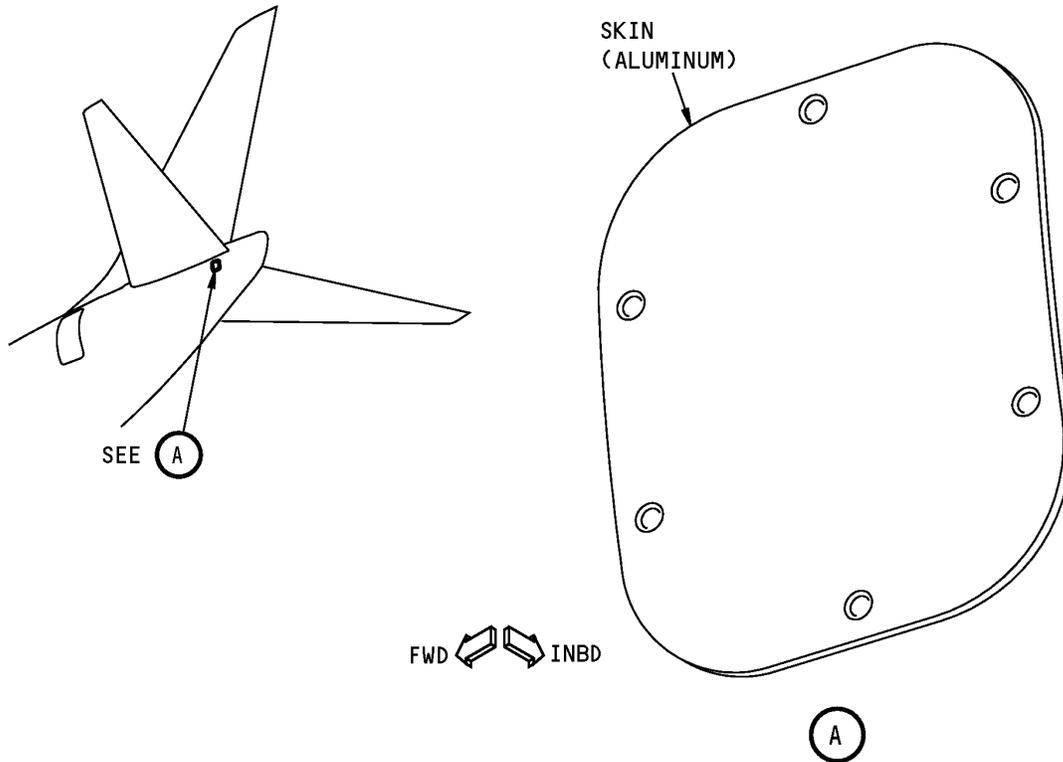
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STRUCTURAL REPAIR MANUAL

- (b) The edge of the part
 - (c) The edge of other damage. This does not include damage that is permitted and sealed as given in Allowable Damage 6.
- (3) Repair the damage as given in 51-70-04.
- (a) Use the same number of repair plies as the number of initial plies that were removed.
 - (b) Add one structural ply of BMS 9-3, Type H-2, or Type H-3 glass fabric that is ± 45 degrees.
 - (c) Add a second structural ply of BMS 9-3, Type H-2 or Type H-3 glass fabric that is 0 or 90 degrees.
- F. Use the instruction that follows to do a Permanent repair with preimpregnated layup materials at 250°F (121°C) cure.
- (1) Repair the damage as given in 51-70-05.
 - (a) Use the same number of repair plies as the number of initial plies that were removed

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REPAIR 7 - TAILCONE SYSTEM ACCESS DOOR SKIN

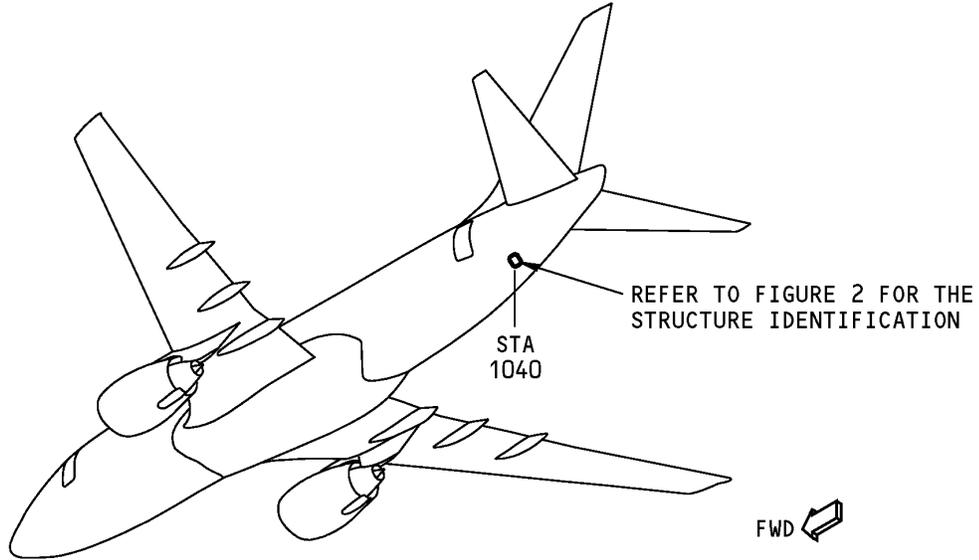


NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME. IF DAMAGE TO THE TAILCONE SYSTEM ACCESS DOOR SKIN IS MORE THAN THE LIMITS GIVEN IN SRM 52-40-01, ALLOWABLE DAMAGE 7, REPLACE THE DAMAGED PART.

**Tailcone System Access Door Skin Location
Figure 201**

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STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - ACCESS AND BLOWOUT DOOR STRUCTURE



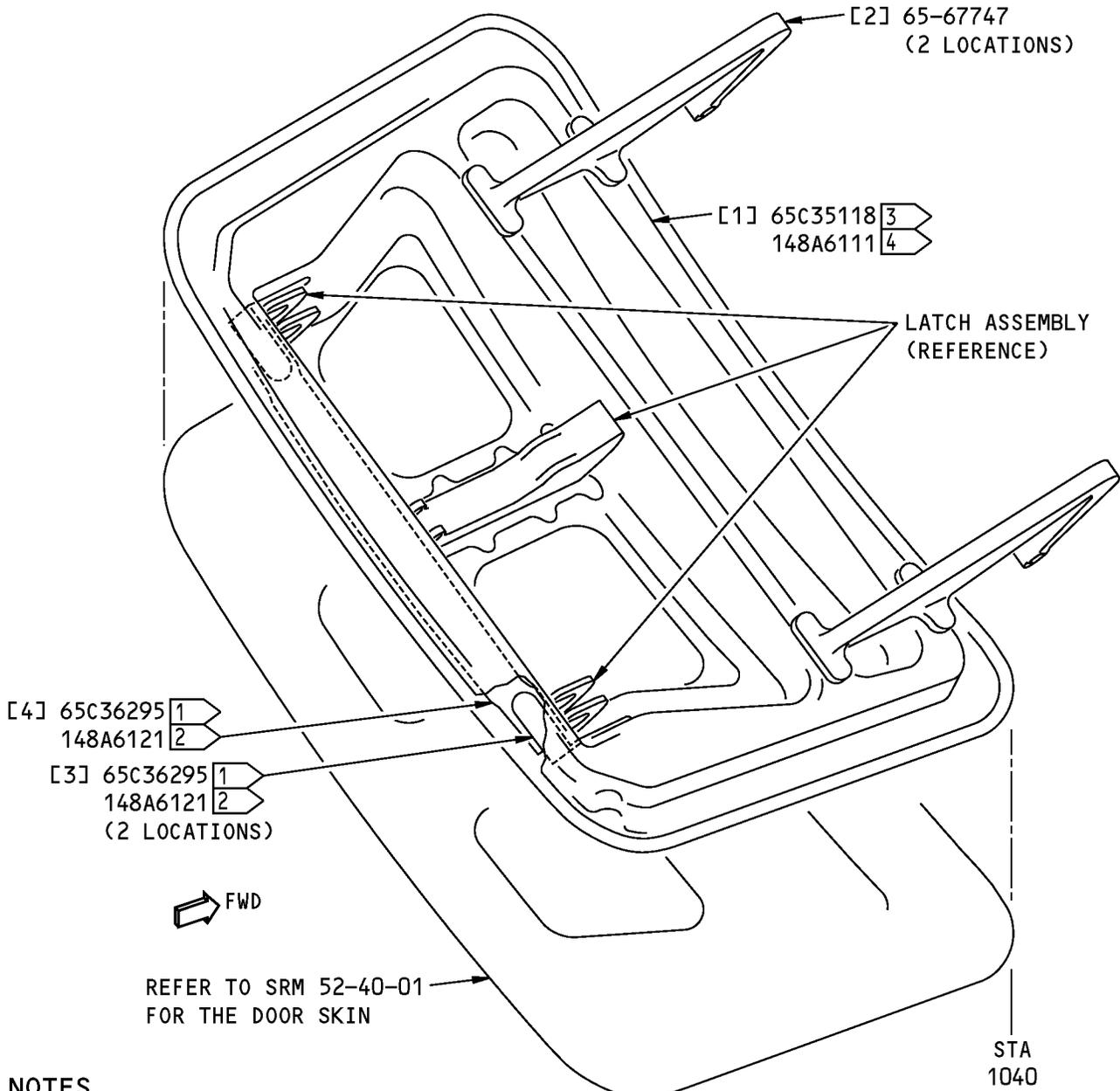
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Access and Blowout Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6100	Door Installation - Access and Blowout Door
148A6110	Door Assembly - Access and Blowout Door
65C35118	Pan - Access and Blowout Door, Section 48
148A6111	Pan - Access and Blowout Door, Section 48

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NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

- [1] AIRPLANE LINE NUMBERS 1 THRU 48
- [2] AIRPLANE LINE NUMBERS 49 AND ON
- [3] AIRPLANE LINE NUMBERS 1 THRU 331
- [4] AIRPLANE LINE NUMBERS 332 AND ON

**Access and Blowout Door Structure Identification
Figure 2**



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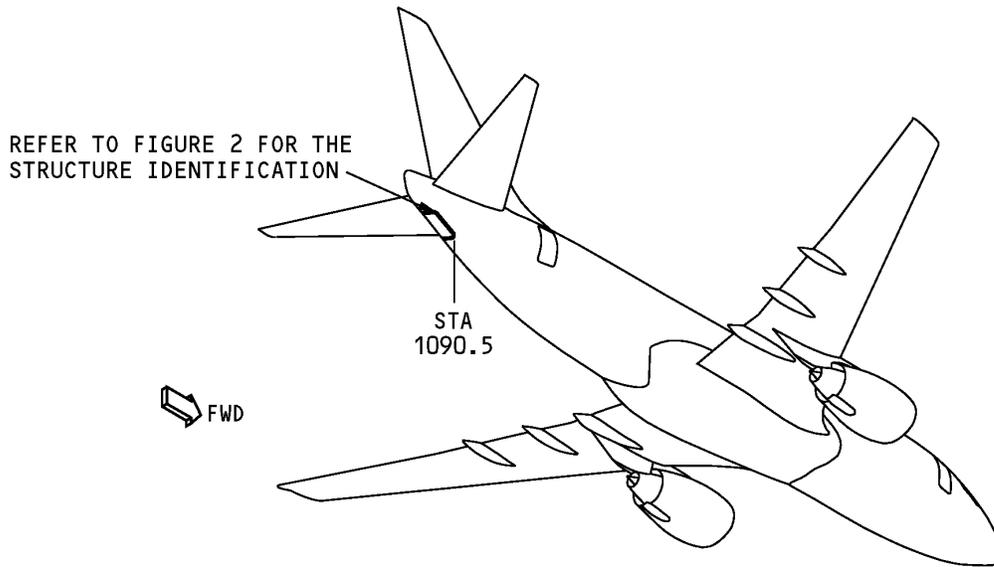
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Pan	0.059 (1.50)	7454-T76 SPF grade sheet as given in BMS 7-318	Line Numbers 1 thru 331
		0.063 (1.60)	7454-T4 bare sheet as given in BMS 7-318	Line Numbers 332 and on
[2]	Hinge		7075-T6 Forging as given in QQ-A367	
[3]	Latch Tee		BAC1505-100952 7075-T6511 extrusion as given in QQ-A-200/11	Line Numbers 1 thru 48
[3]	Latch Angle		BAC1503-100194 7075-T77351 extrusion as given in QQ-A-200/11	Line Numbers 49 and on
[4]	Latch Support	0.063 (1.60)	7075-T62 clad sheet as given in BMS 7-318	Line Numbers 1 thru 48
			7050-T7351 plate as given in QQ-A-250/12	Line Numbers 49 and on

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - APU ACCESS DOOR STRUCTURE



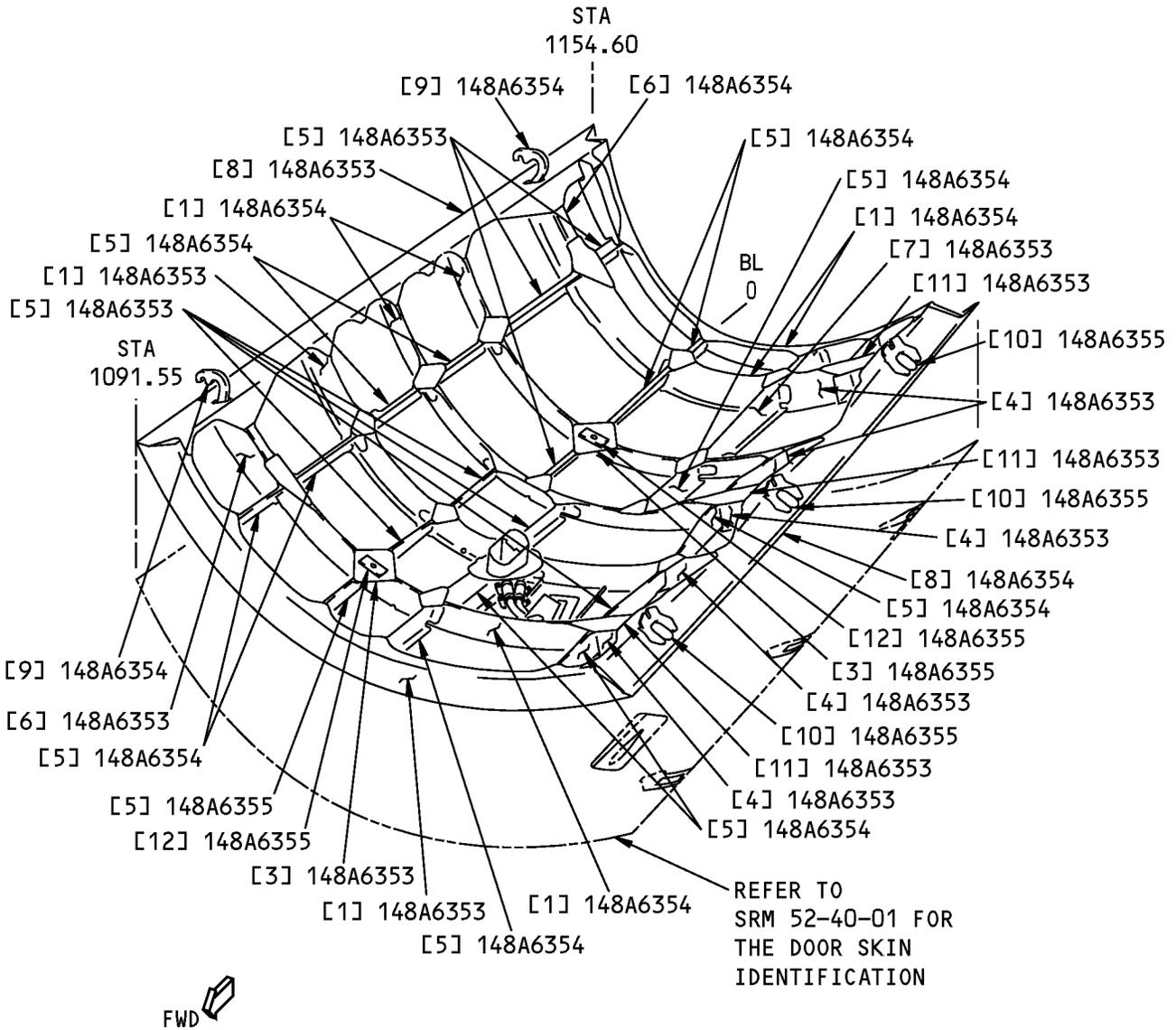
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**APU Access Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6350	APU Access Door Installation

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STRUCTURAL REPAIR MANUAL**



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**APU Access Door Structure Identification
Figure 2**



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STRUCTURAL REPAIR MANUAL

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Frame	0.050 (1.27)	2024-T42 clad sheet	
[2]	Gusset	0.050 (1.27)	2024-T42 clad sheet	
[3]	Hinge Gusset	0.063 (1.60)	2024-T42 clad sheet	
[4]	Frame Double Cant	1.30 (3.30)	7075-T7351 plate	
[5]	Intercostal	0.040 (1.02)	2024-T42 clad sheet	
[6]	Hinge Supports	0.050 (1.27)	2024-T42 clad sheet	
[7]	Intercostal	0.050 (1.27)	2024-T42 clad sheet	
[8]	Zee Edge - LH, RH	0.050 (1.27)	2024-T42 clad sheet	
[9]	Hinges	0.700 (1.78)	15-5PH CRES plate heat treated to 150-170 KSI	
[10]	Stop Fitting - FWD, MID, AFT	0.800 (2.03)	15-5PH CRES plate heat treated to 150-170 KSI	
[11]	Latch Gusset MID, AFT	0.050 (1.27)	2024-T3 clad sheet	
[12]	Plate	0.180 (4.57)	2024-T3 clad sheet	

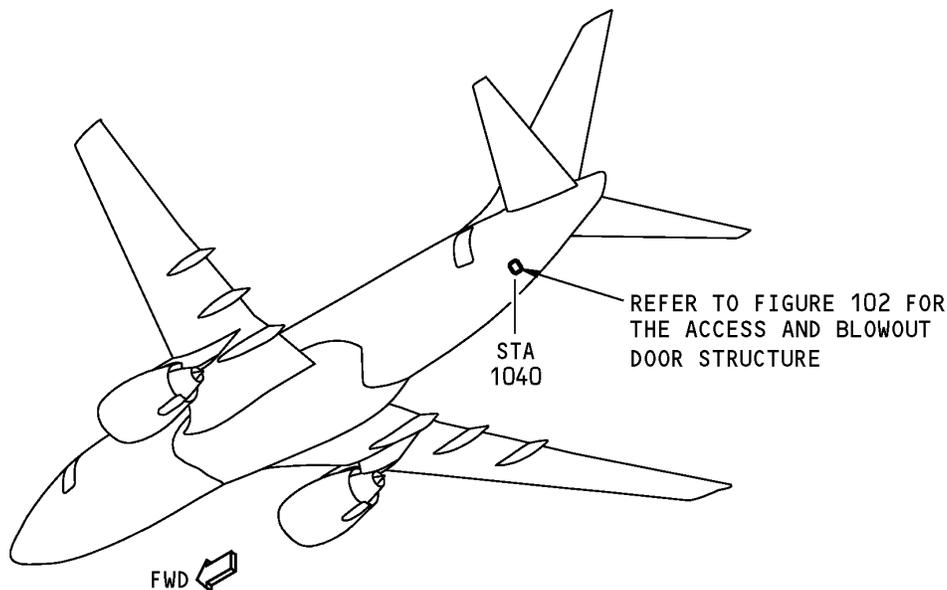
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

STRUCTURAL REPAIR MANUAL**ALLOWABLE DAMAGE 1 - ACCESS AND BLOWOUT DOOR STRUCTURE****1. Applicability**

- A. This subject gives the allowable damage limits for the structure on the access and blowout door shown in Access and Blowout Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1.

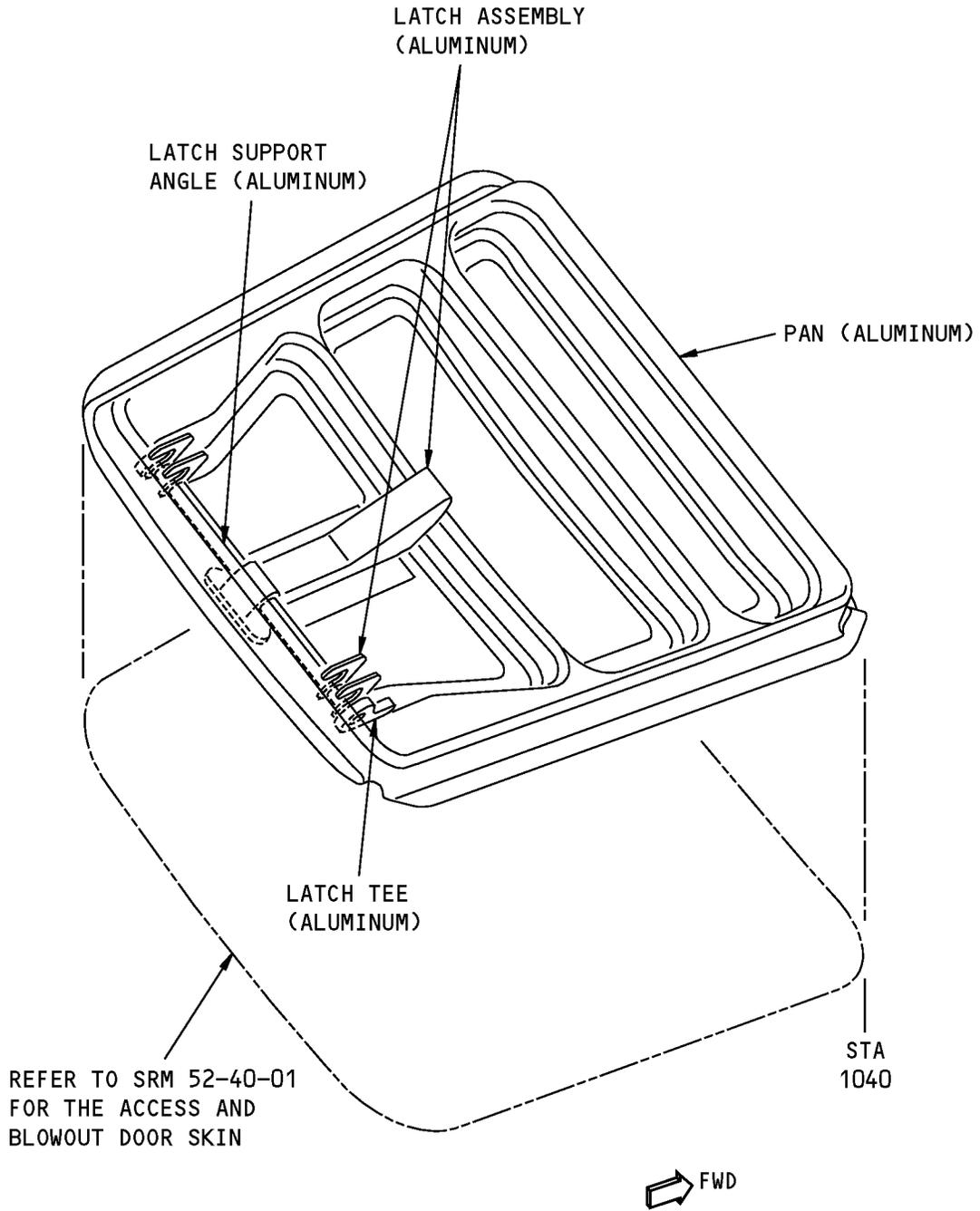
2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.
- B. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- C. If damage is removed from the structure, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.



**Access and Blowout Door Structure Location
Figure 101**

**737-800
STRUCTURAL REPAIR MANUAL**



**Access and Blowout Door Structure
Figure 102**



737-800 STRUCTURAL REPAIR MANUAL

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

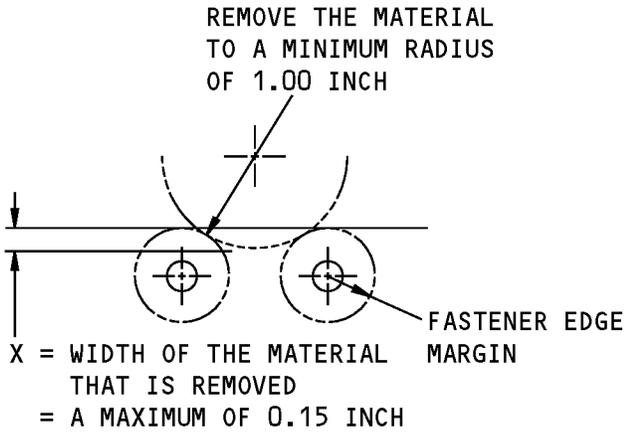
A. Pan:

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (b) Other cracks are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail D .
- (2) Nicks, Scratches, Gouges, and Corrosion:
 - (a) Damage that does not go through the clad surface is permitted.
 - (b) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , E , and F .
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
- (4) Holes and Punctures are permitted if:
 - (a) They are 0.25 inch in diameter or less
 - (b) They are 1.00 or more away from a part radius
 - (c) They are 1.5 D (D = the diameter of the damage) or more away from a part edge.

B. Latch Assembly, Latch Support, and Latch Tee:

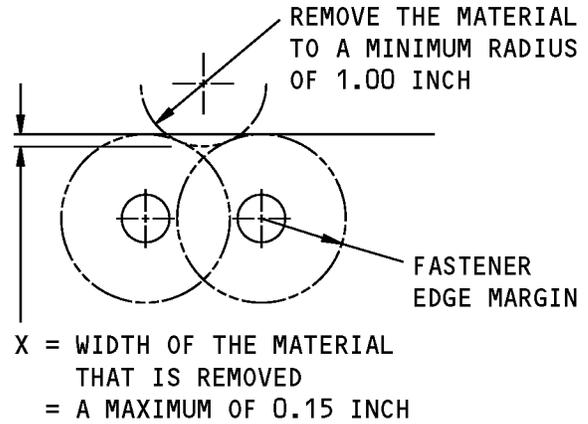
- (1) Cracks are not permitted.
- (2) Nicks, Scratches, Gouges, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail E and H .
 - (b) Remove the lug damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail I .
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

STRUCTURAL REPAIR MANUAL



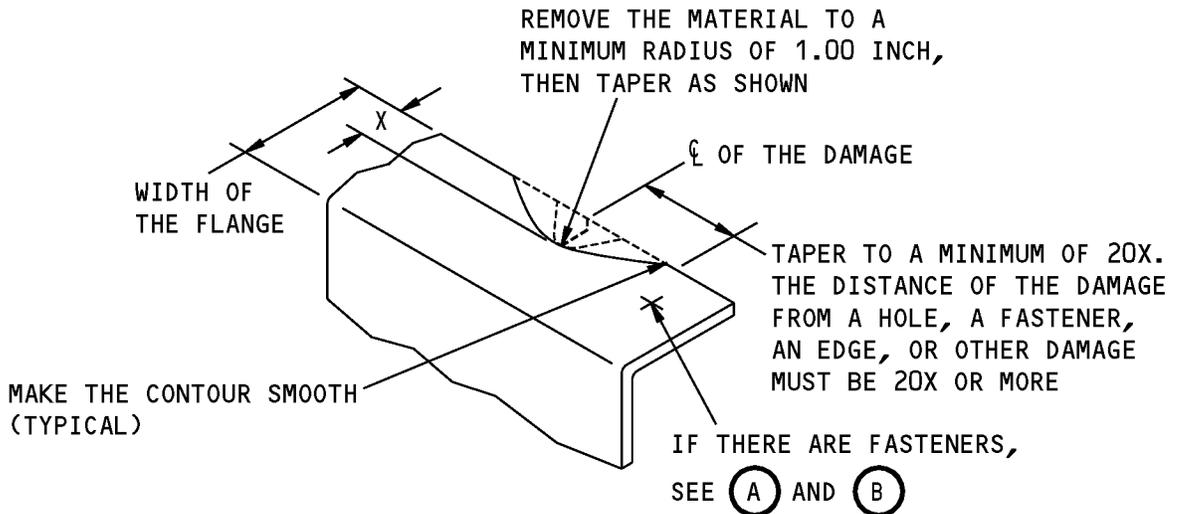
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



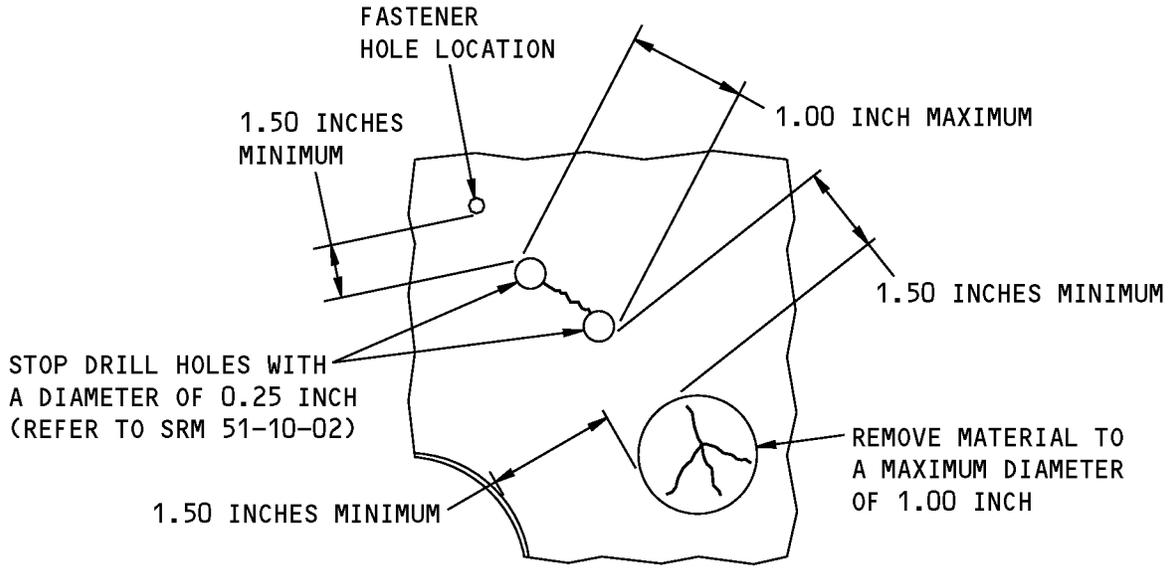
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

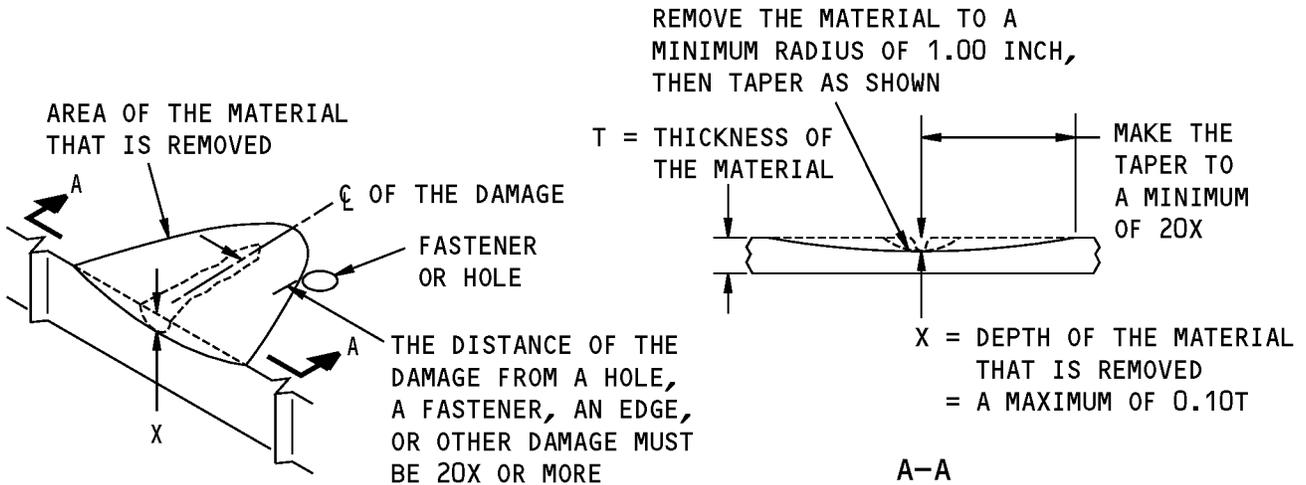
**Allowable Damage Limits
Figure 103 (Sheet 1 of 5)**

STRUCTURAL REPAIR MANUAL



CRACKS THAT ARE PERMITTED

(D)



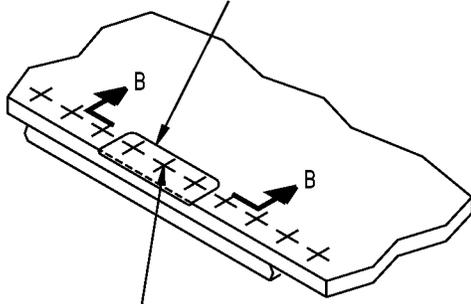
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(E)

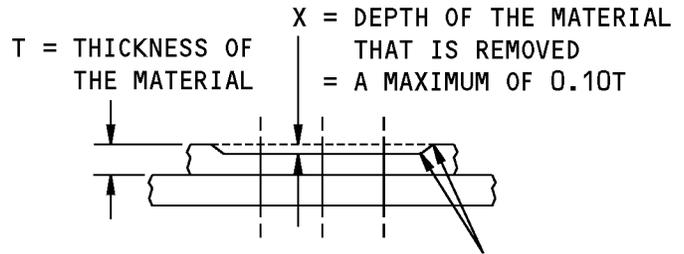
**Allowable Damage Limits
Figure 103 (Sheet 2 of 5)**

STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

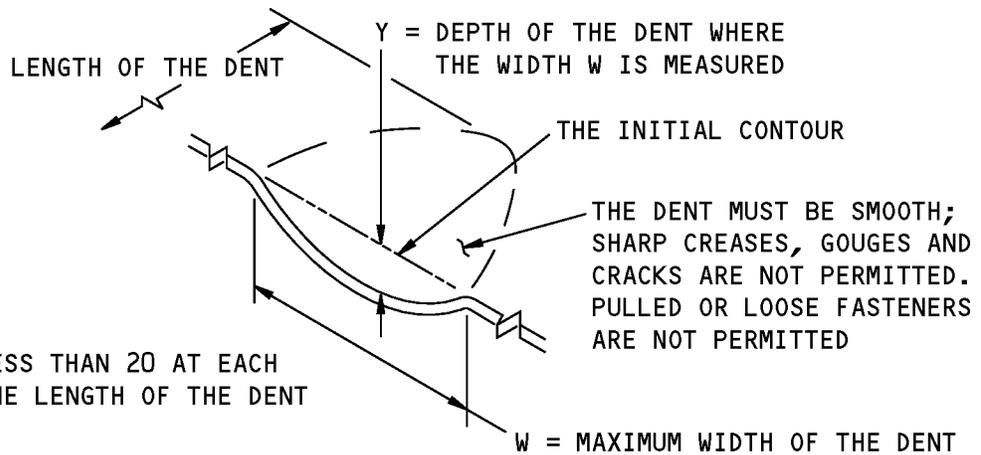


MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(F)



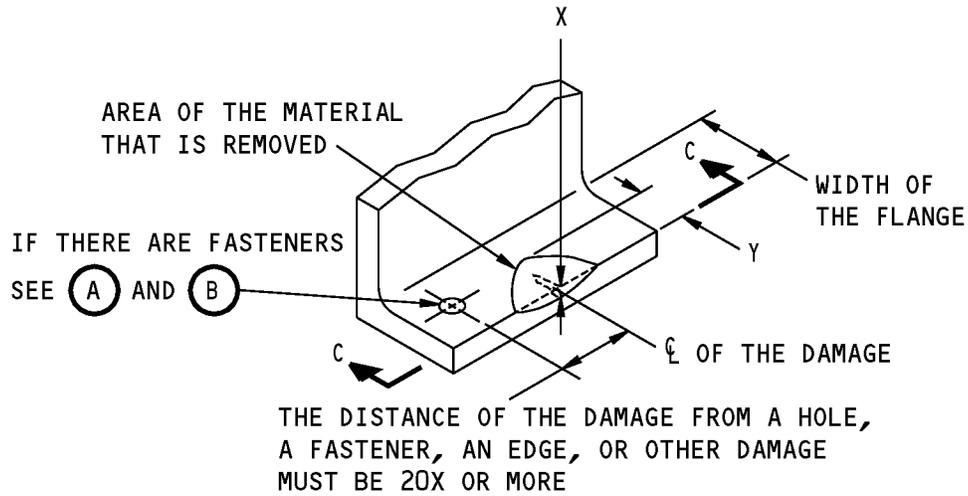
MUST NOT BE LESS THAN 20 AT EACH POINT ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED

(G)

**Allowable Damage Limits
Figure 103 (Sheet 3 of 5)**

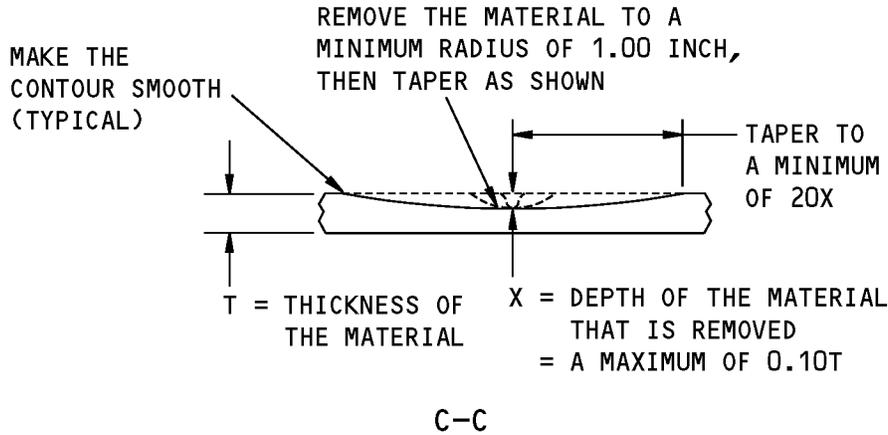
STRUCTURAL REPAIR MANUAL



Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

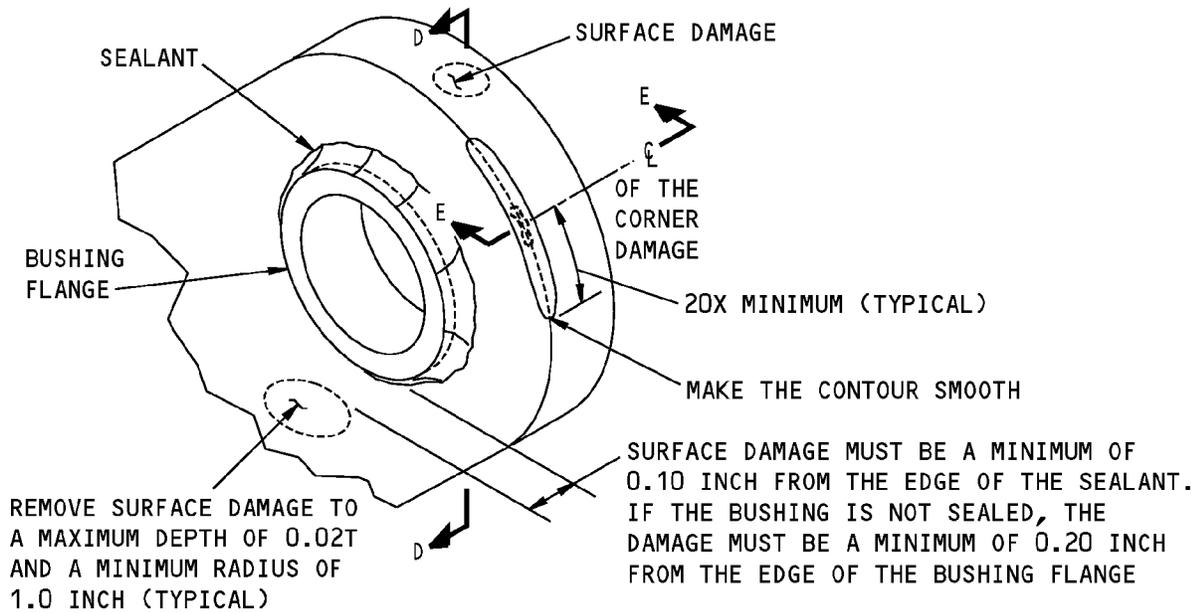
REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(H)



**Allowable Damage Limits
 Figure 103 (Sheet 4 of 5)**

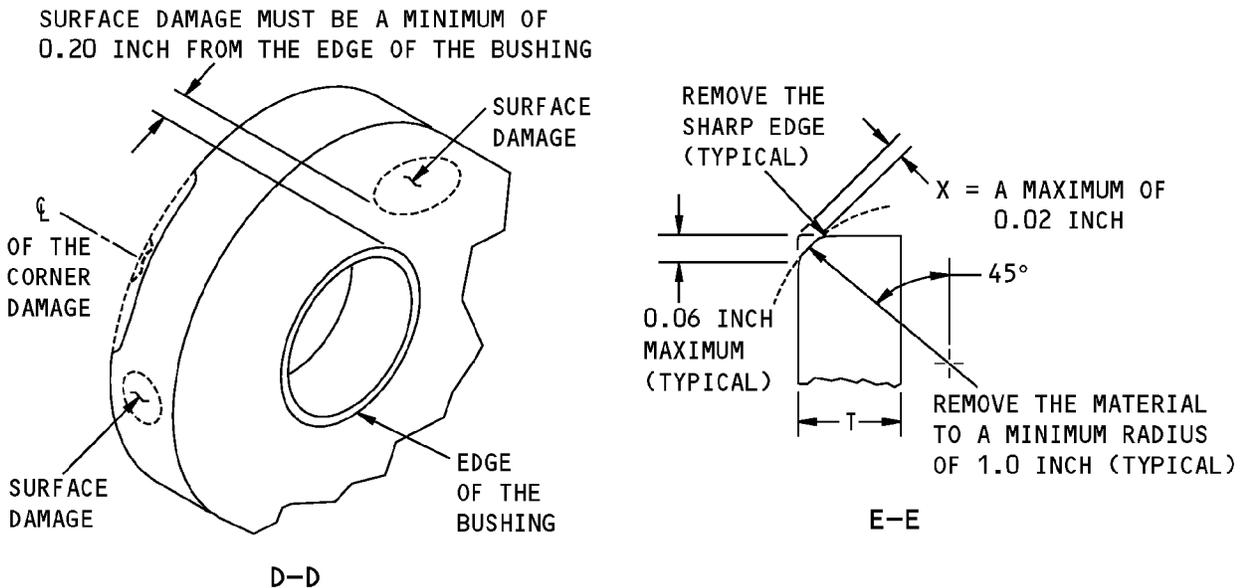
**737-800
STRUCTURAL REPAIR MANUAL**



NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING

I



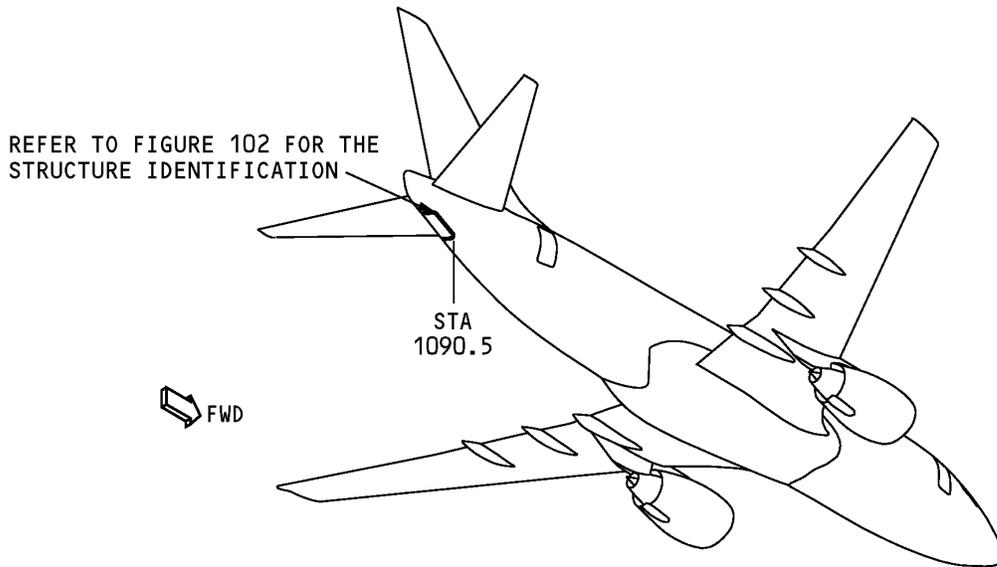
**Allowable Damage Limits
Figure 103 (Sheet 5 of 5)**

STRUCTURAL REPAIR MANUAL**ALLOWABLE DAMAGE 2 - APU ACCESS DOOR STRUCTURE****1. Applicability**

- A. Allowable Damage 2 is applicable to damage on the APU access door structure as shown in APU Access Door Structure Allowable Damage, Figure 101/ALLOWABLE DAMAGE 2.

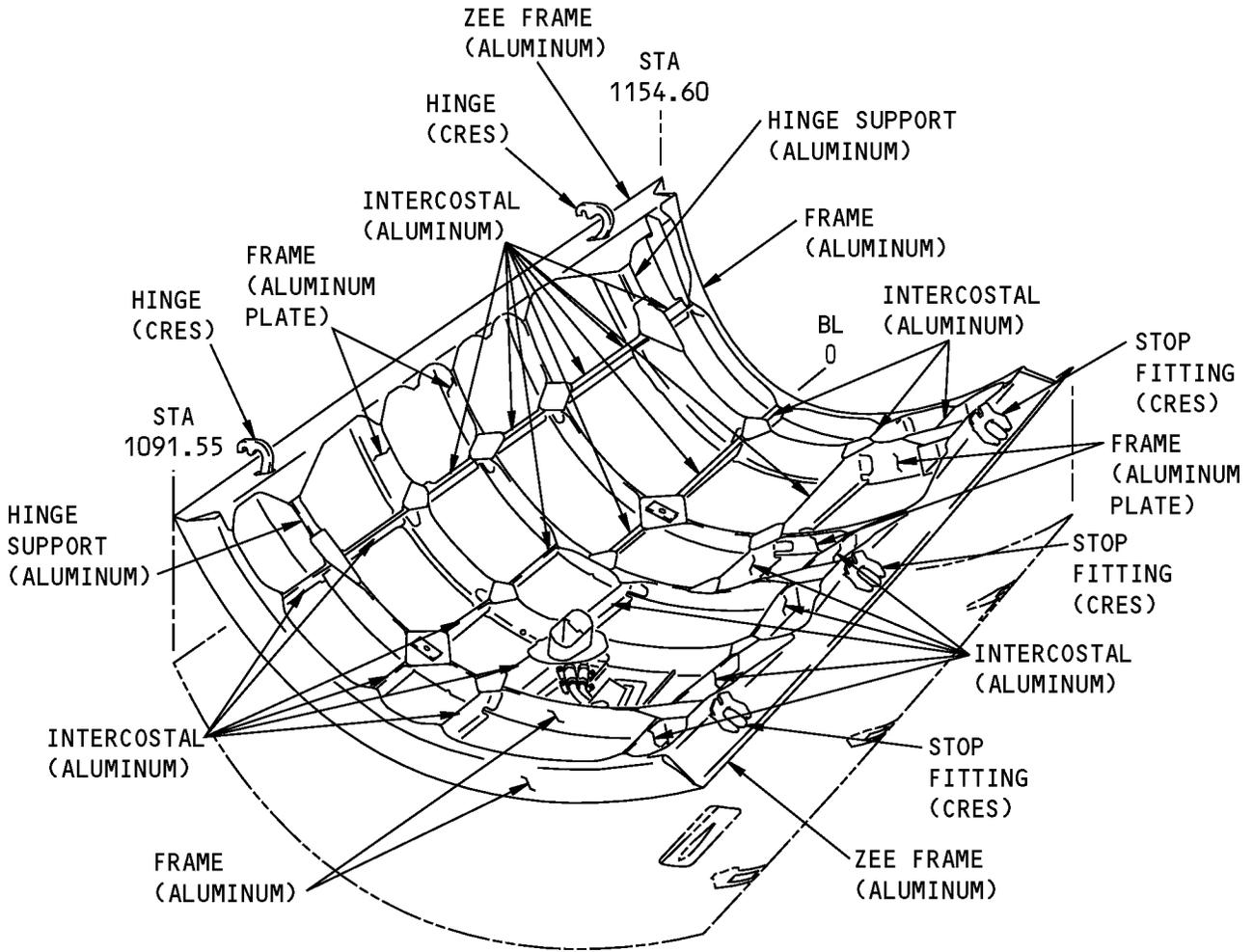
2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 2 for the allowable damage limits.
- B. Remove the damage as necessary for the aluminum and corrosion resistant steel (CRES) parts.
- (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- C. After you remove the damage on aluminum parts:
- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- D. After you remove the damage on steel parts:
- (1) Apply a cadmium plating to the reworked areas. Refer to SOPM 20-42-05.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.



**APU Access Door Structure Allowable Damage
Figure 101**

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**APU Access Door Structure
Figure 102**

D634A210

ALLOWABLE DAMAGE 2
52-40-02
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Nov 01/2003



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3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-42-05	Bright Cadmium Plating

4. Allowable Damage Limits

A. Frames, Edge Frames, Edge Zees, and Intercostals

(1) Cracks:

- (a) Remove edge damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , and C .

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , and E .

(3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail H .

(4) Holes and Punctures are permitted only in vertical web if:

- (a) They are 0.25 inch in diameter or less
- (b) They are 1.00 inch or more away from a fastener hole or other damage
- (c) They are 1.5 D (D = the diameter of the damage) away from a part radius or part edge.

B. Hinge Supports, Stop Fittings, and Plates:

(1) Cracks are not permitted.

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , E and F .

(3) Dents are not permitted.

(4) Holes and Punctures are not permitted.

C. Hinges:

(1) Cracks are not permitted.

(2) Nicks, Gouges, Scratches, and Corrosion:

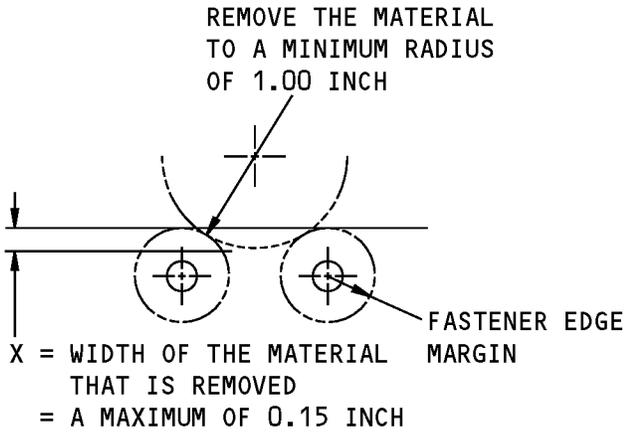
- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , E and F .

- (b) Remove the damage to the hinges as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail H .

(3) Dents are not permitted.

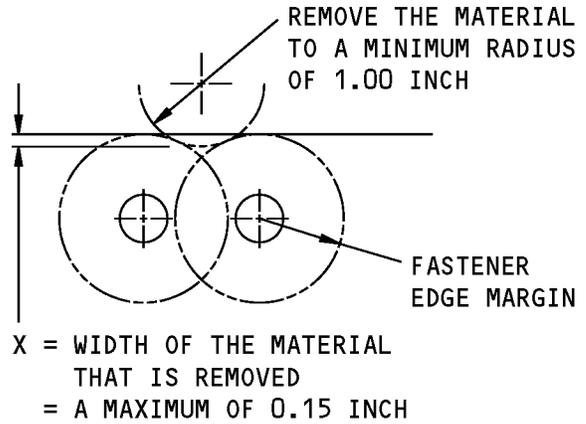
(4) Holes and Punctures are not permitted.

STRUCTURAL REPAIR MANUAL



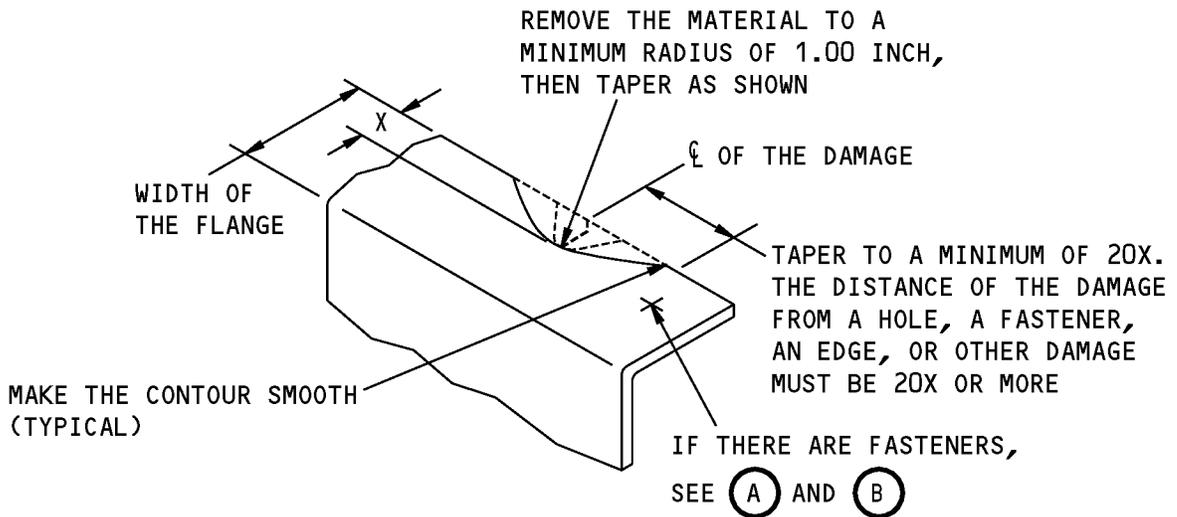
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



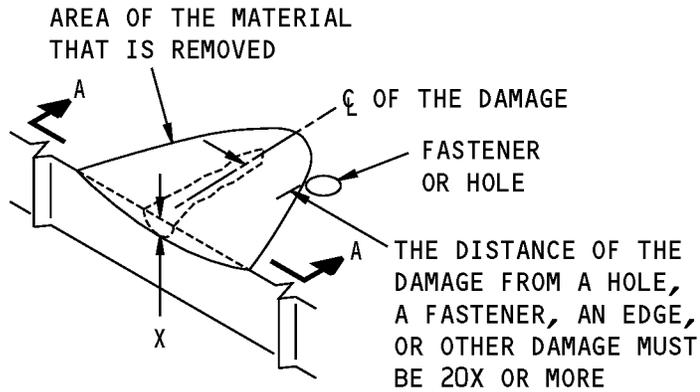
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

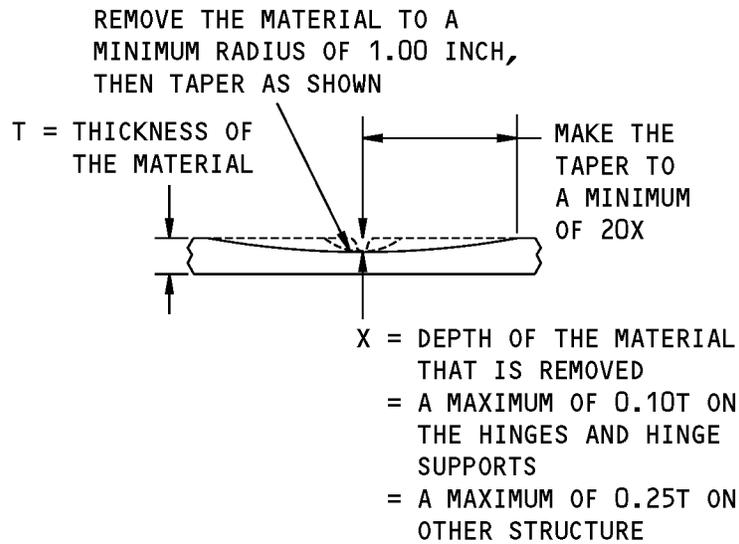
**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

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STRUCTURAL REPAIR MANUAL**



**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

(D)

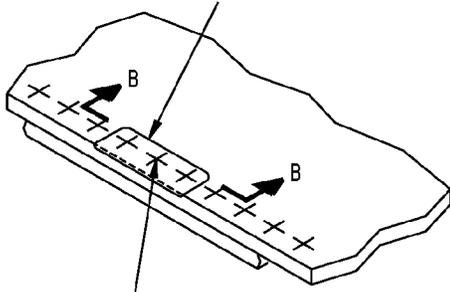


A-A

**Allowable Damage Limits
Figure 103 (Sheet 2 of 4)**

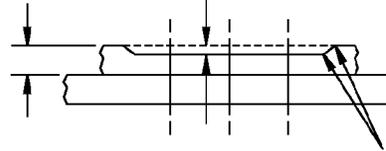
STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

T = THICKNESS OF THE MATERIAL
 X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF $0.10T$

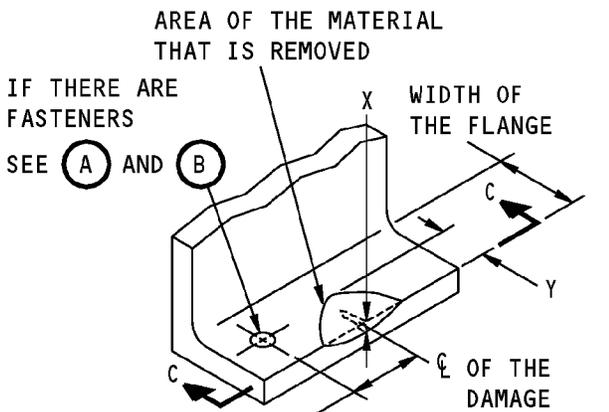


MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

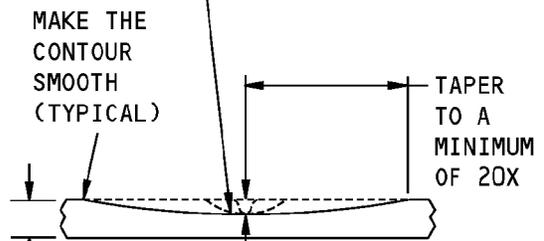
(E)



THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE $20X$ OR MORE

Y = WIDTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



MAKE THE CONTOUR SMOOTH (TYPICAL)
 T = THICKNESS OF THE MATERIAL
 X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF $0.10T$

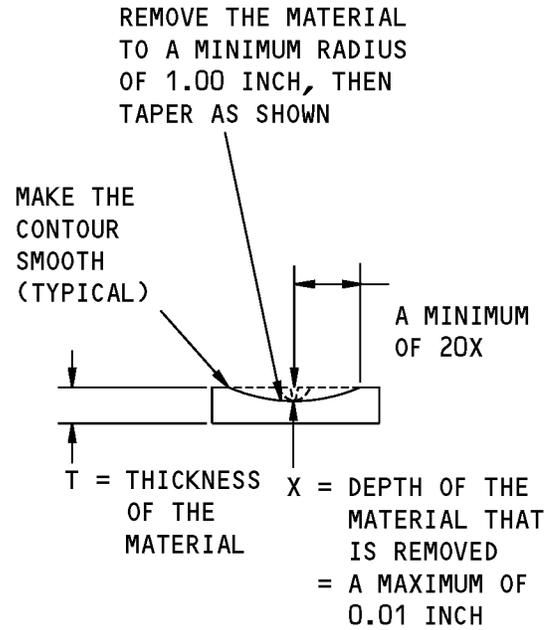
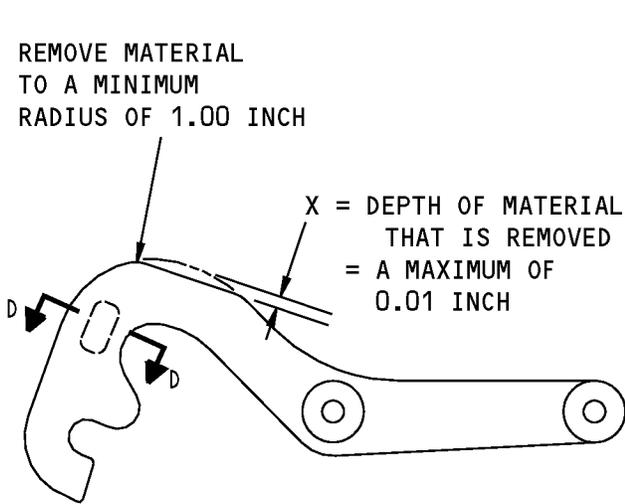
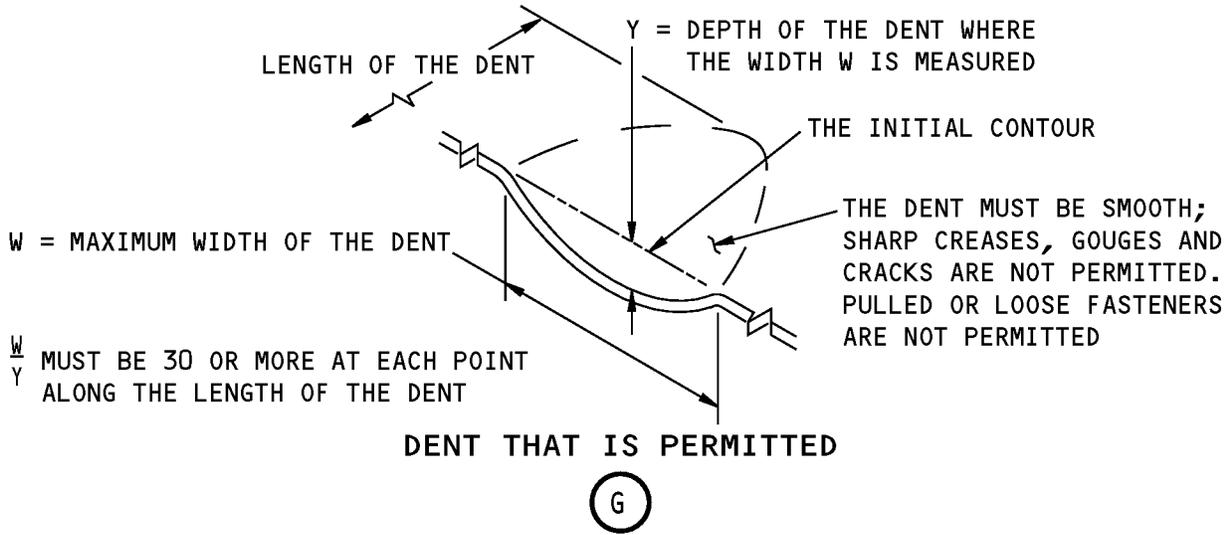
C-C

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(F)

**Allowable Damage Limits
 Figure 103 (Sheet 3 of 4)**

STRUCTURAL REPAIR MANUAL

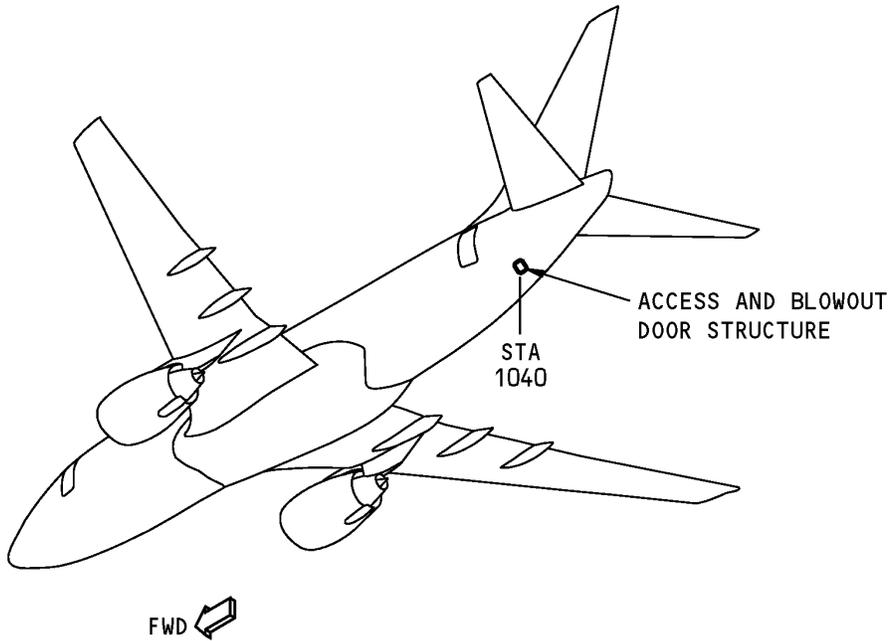


**Allowable Damage Limits
Figure 103 (Sheet 4 of 4)**



**737-800
STRUCTURAL REPAIR MANUAL**

REPAIR 1 - ACCESS AND BLOWOUT DOOR STRUCTURE



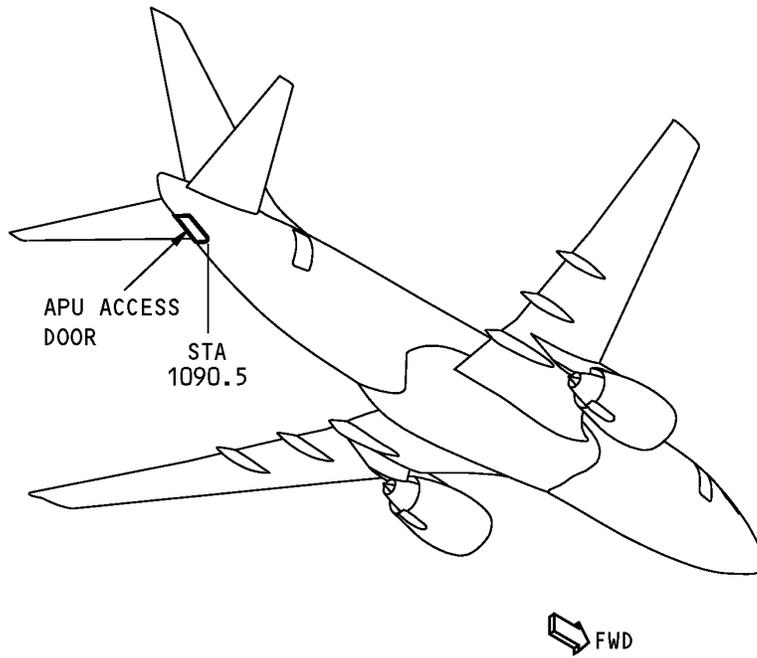
NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

**Access and Blowout Door Structure
Figure 201**



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STRUCTURAL REPAIR MANUAL

REPAIR 2 - APU ACCESS DOOR STRUCTURE

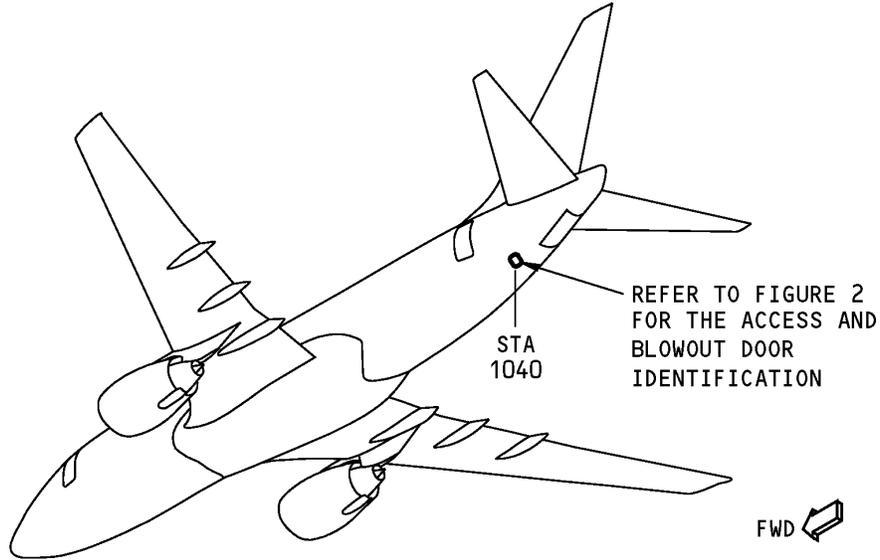


NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

APU Access Door Structure Repair
Figure 201

**737-800
STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - SECTION 48 ACCESS AND BLOWOUT DOOR FITTING

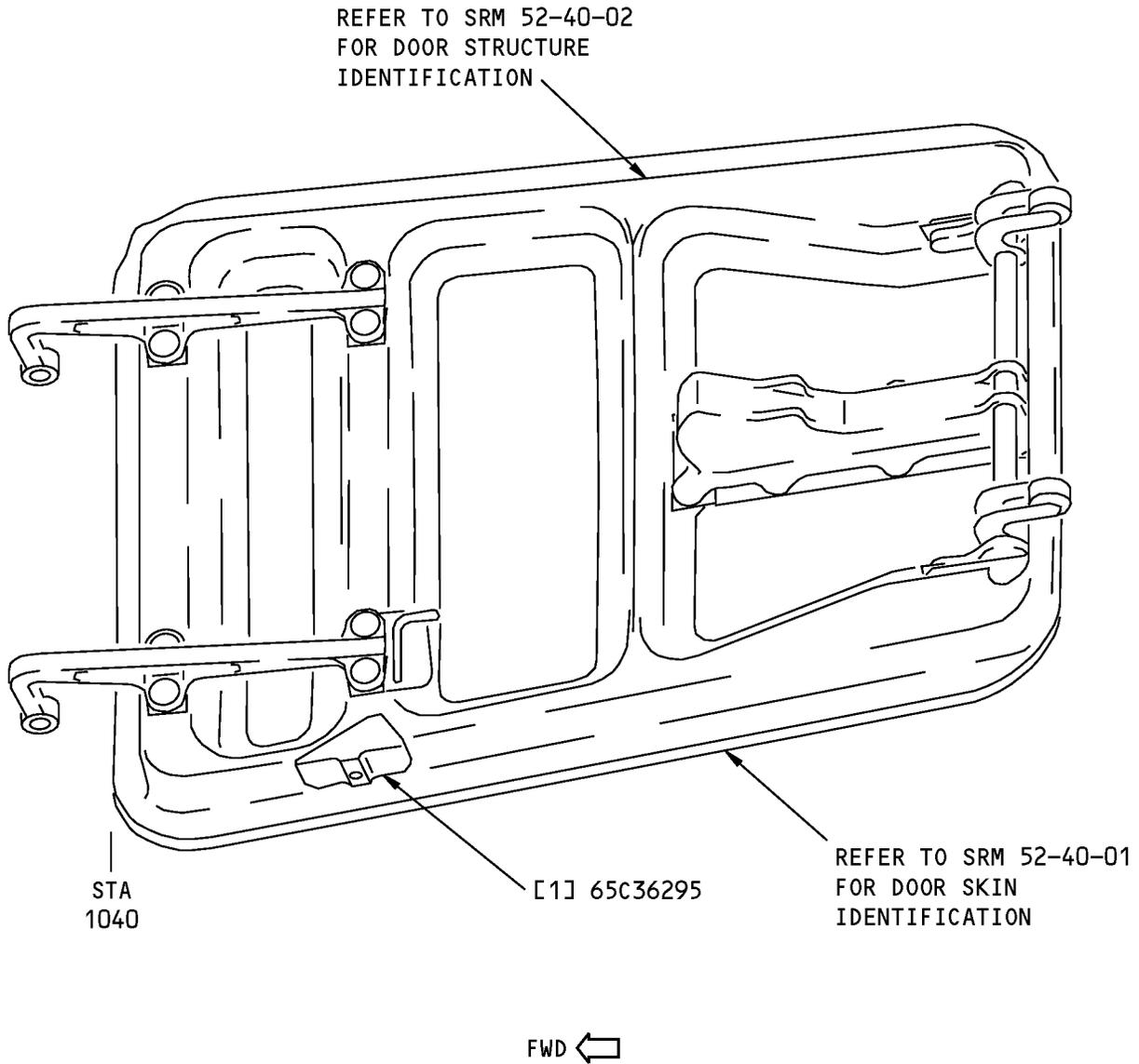


**Section 48 Access and Blowout Door Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
001A4001	Fuselage Product Collector
140A4805	Access and Blowout Door Functional Collector, Section 48
148A6100	Access and Blowout Door Installation
148A6110	Access and Blowout Door Assembly
65C36295	Details - Access and Blowout Door, Sec. 48

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STRUCTURAL REPAIR MANUAL**



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

VIEW IS LOOKING OUTBOARD

**Section 48 Access and Blowout Door Fitting Identification
Figure 2**



**737-800
STRUCTURAL REPAIR MANUAL**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Fitting, Jury Strut		BAC1503-5828 7075-T6511 extrusion	

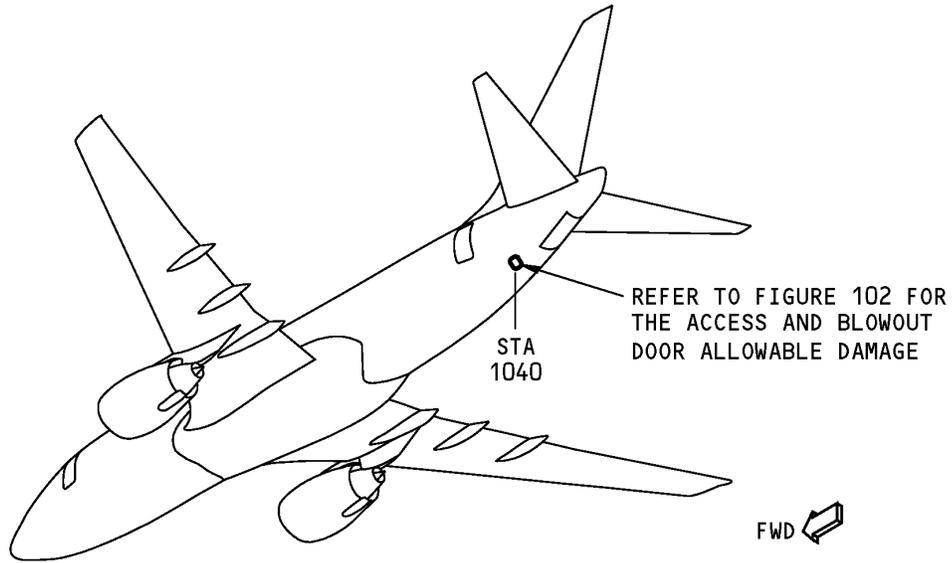
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

737-800
STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - SECTION 48 ACCESS AND BLOWOUT DOOR FITTING

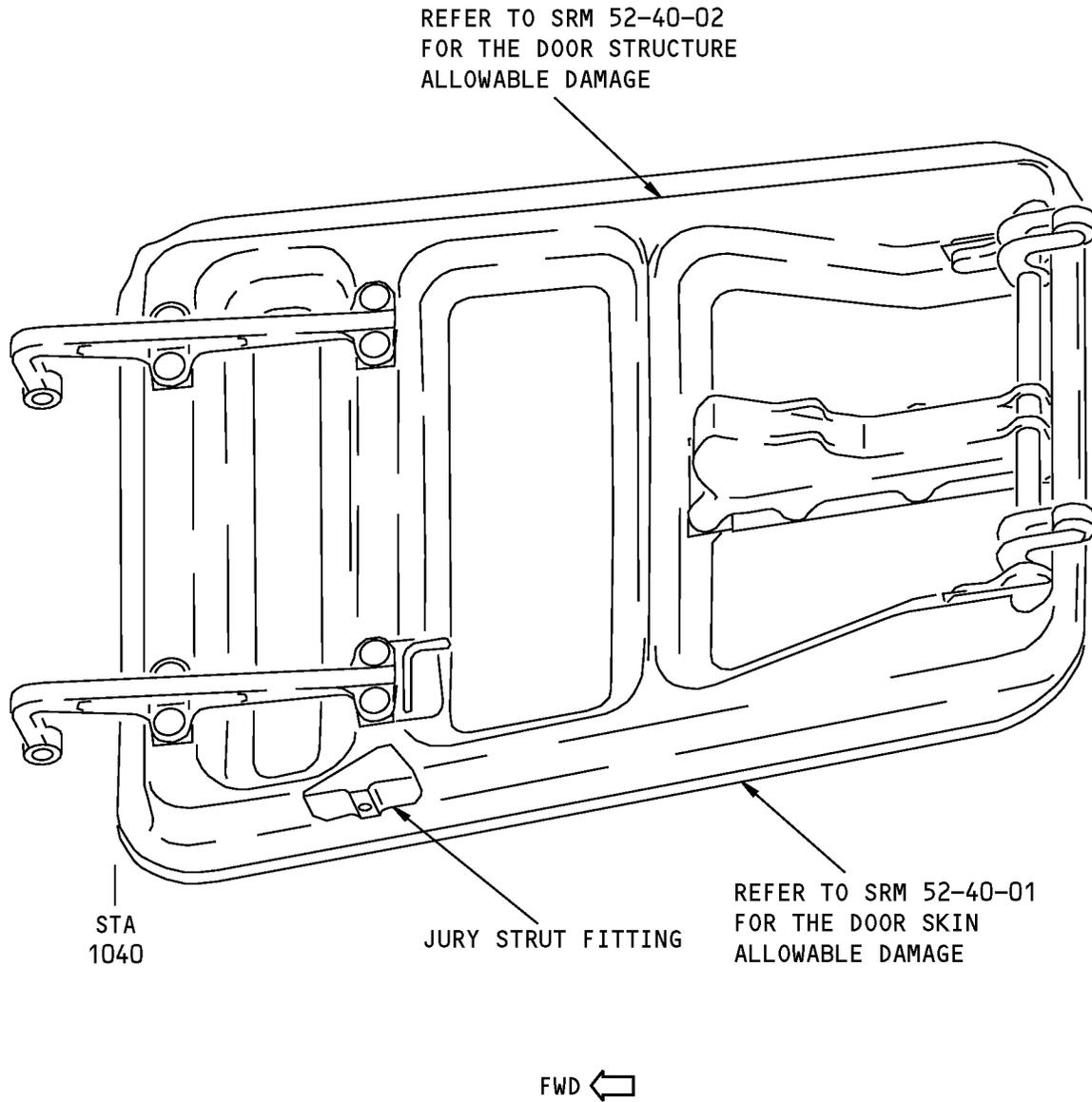
1. Applicability

- A. This subject gives the allowable damage limits for the Section 48 Access and Blowout Door Fitting shown in Section 48 Access and Blowout Door Location, Figure 101/ALLOWABLE DAMAGE 1.



Section 48 Access and Blowout Door Location
Figure 101

**737-800
STRUCTURAL REPAIR MANUAL**



VIEW IS LOOKING OUTBOARD

**Section 48 Access and Blowout Door Fitting Allowable Damage
Figure 102**



737-800
STRUCTURAL REPAIR MANUAL

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1
- B. Remove the damaged material as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you need to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you need to remove the damage.
- C. After the damage is removed, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

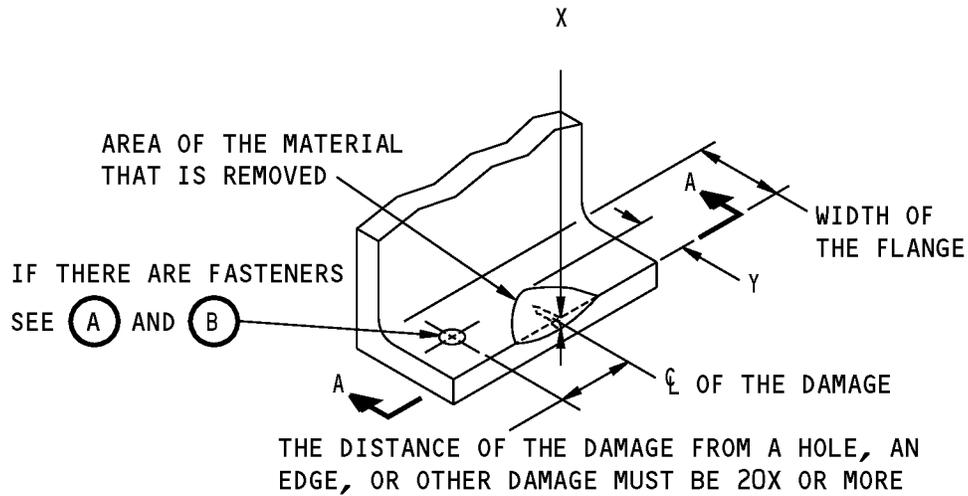
3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as show in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A and B .
 - (2) Dents are not permitted.
 - (3) Holes and Punctures are not permitted.

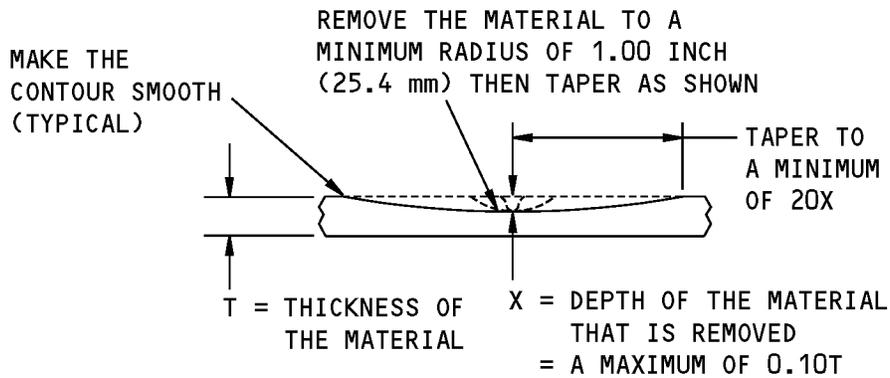
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STRUCTURAL REPAIR MANUAL**



Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**

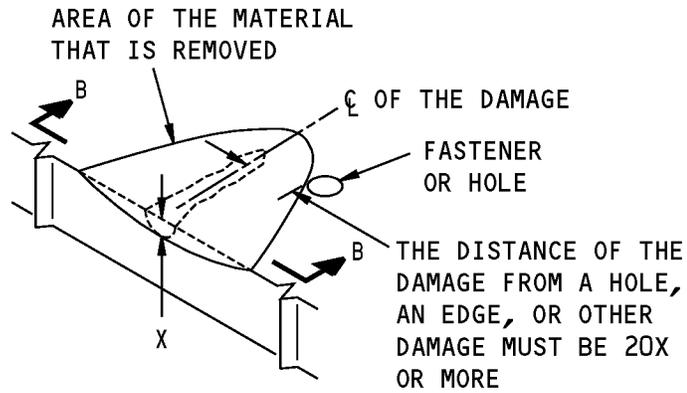
(A)



A-A

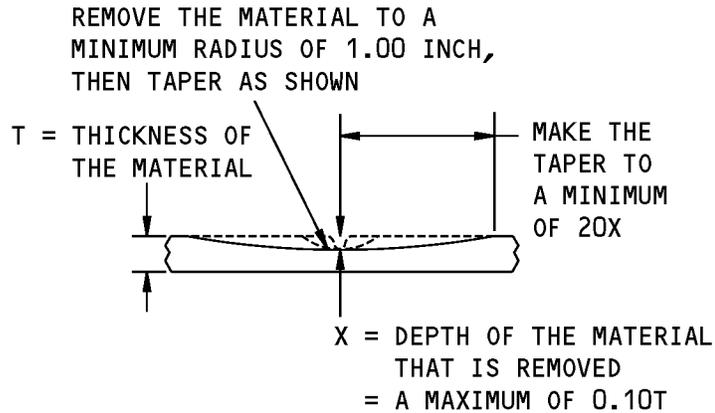
**Allowable Damage Limits
Figure 103 (Sheet 1 of 2)**

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**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

B

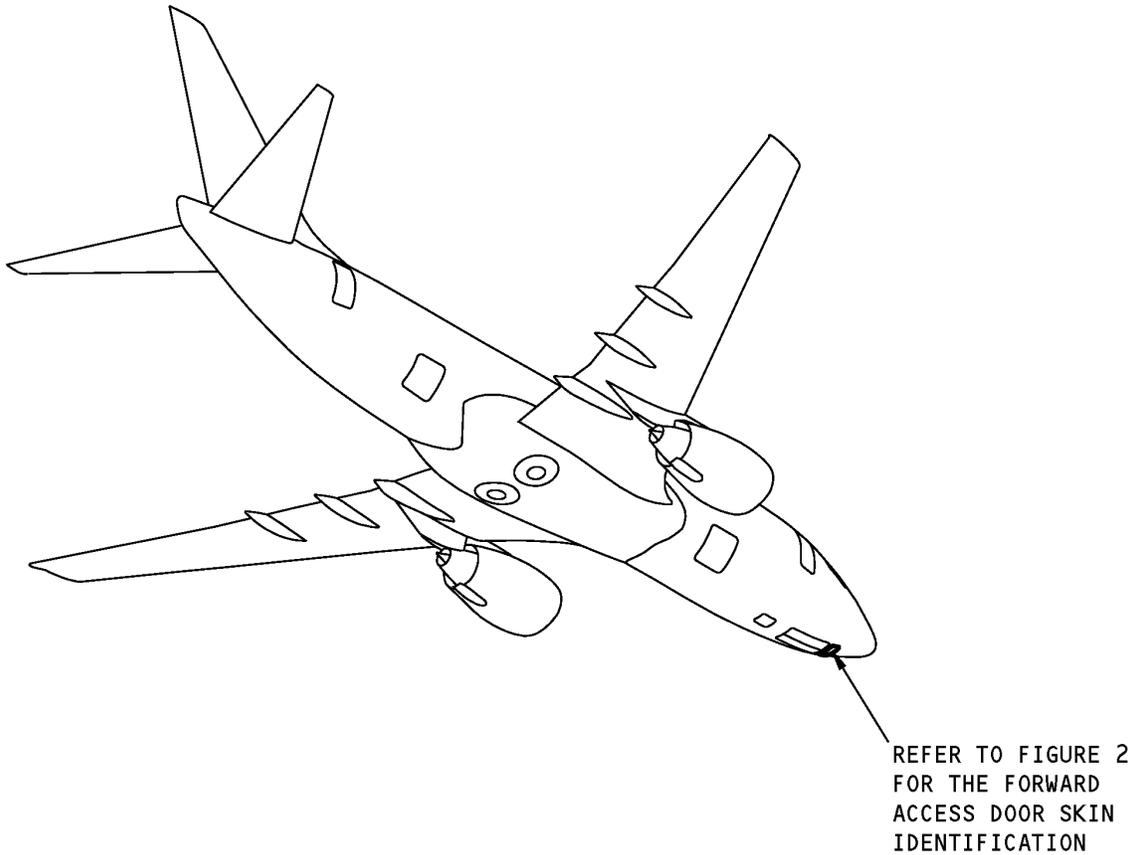


B-B

**Allowable Damage Limits
Figure 103 (Sheet 2 of 2)**

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STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - FORWARD ACCESS DOOR SKIN



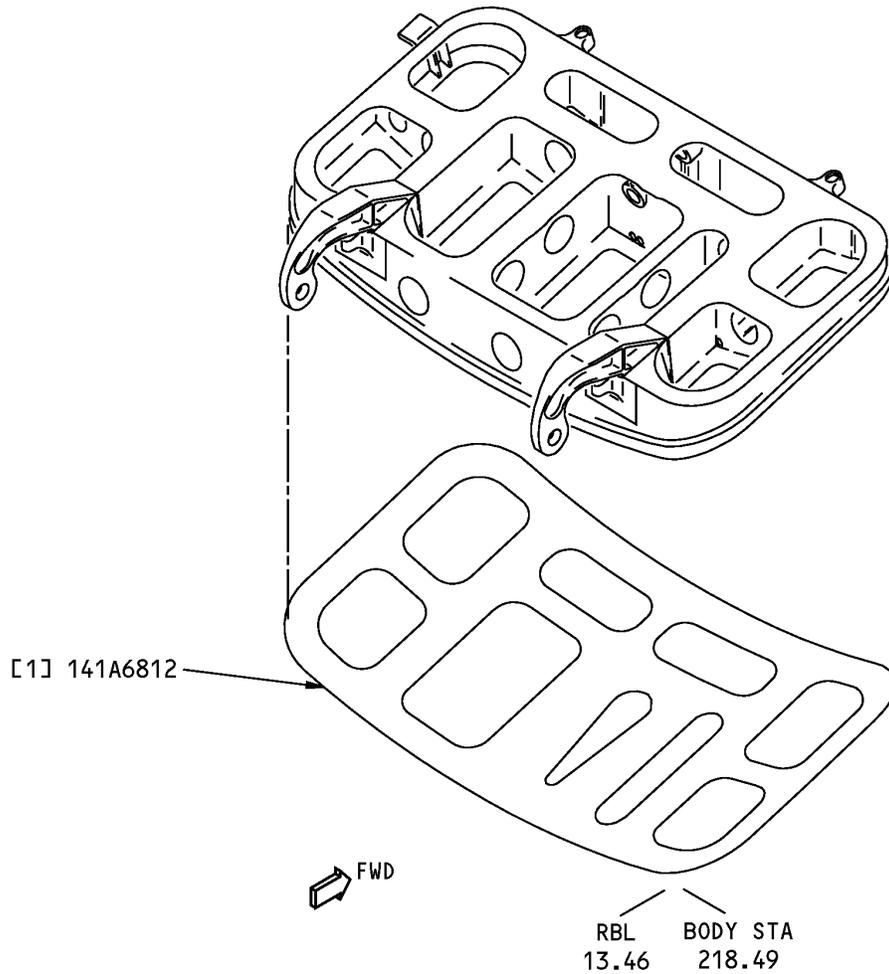
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Access Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6801	Door Installation - Forward Access Door
141A6812	Outer Skin - Forward Access Door

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**Forward Access Door Skin Identification
Figure 2**

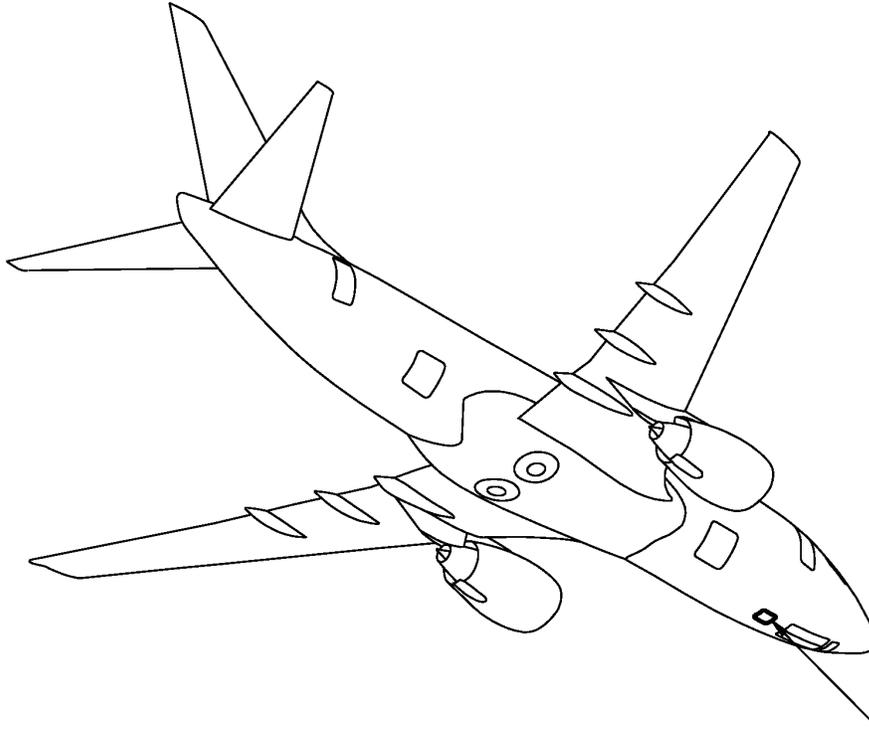
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Outer Skin	0.063 (1.60)	2024-T3 clad sheet that is chem-milled to a thickness of 0.04 inch (1.02 mm) in the pocket areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - EQUIPMENT ACCESS DOOR SKIN



REFER TO FIGURE 2
FOR THE EQUIPMENT
ACCESS DOOR SKIN
IDENTIFICATION

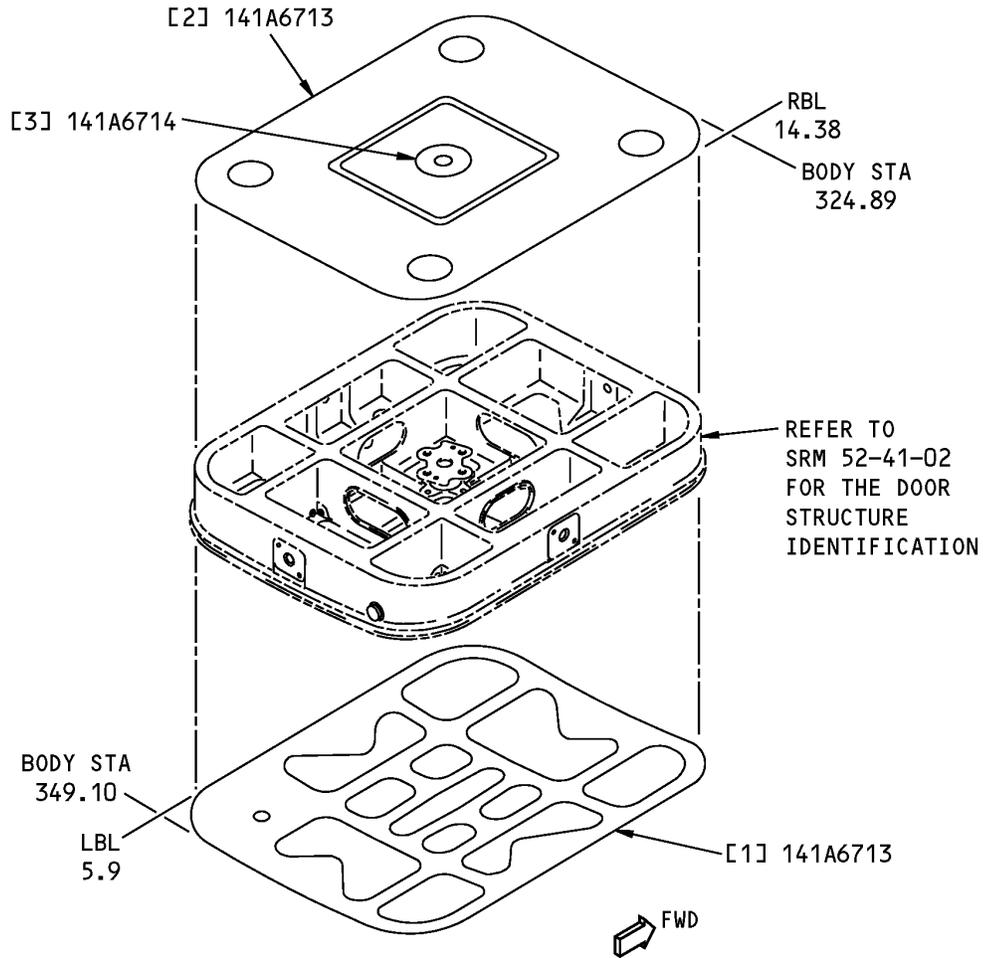
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Equipment Access Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6700	Door Installation - Equipment Access
141A6710	Door Assembly - Equipment Access

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Equipment Access Door Skin Identification
Figure 2**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.063 (1.60)	2024-T3 clad sheet that is chem-milled to a thickness of 0.040 inch (1.02 mm) in the pocket areas	
[2]	Internal Skin	0.040 (1.02)	7075-T6 clad sheet	
[3]	Access Cover	0.040 (1.02)	2024-T42 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

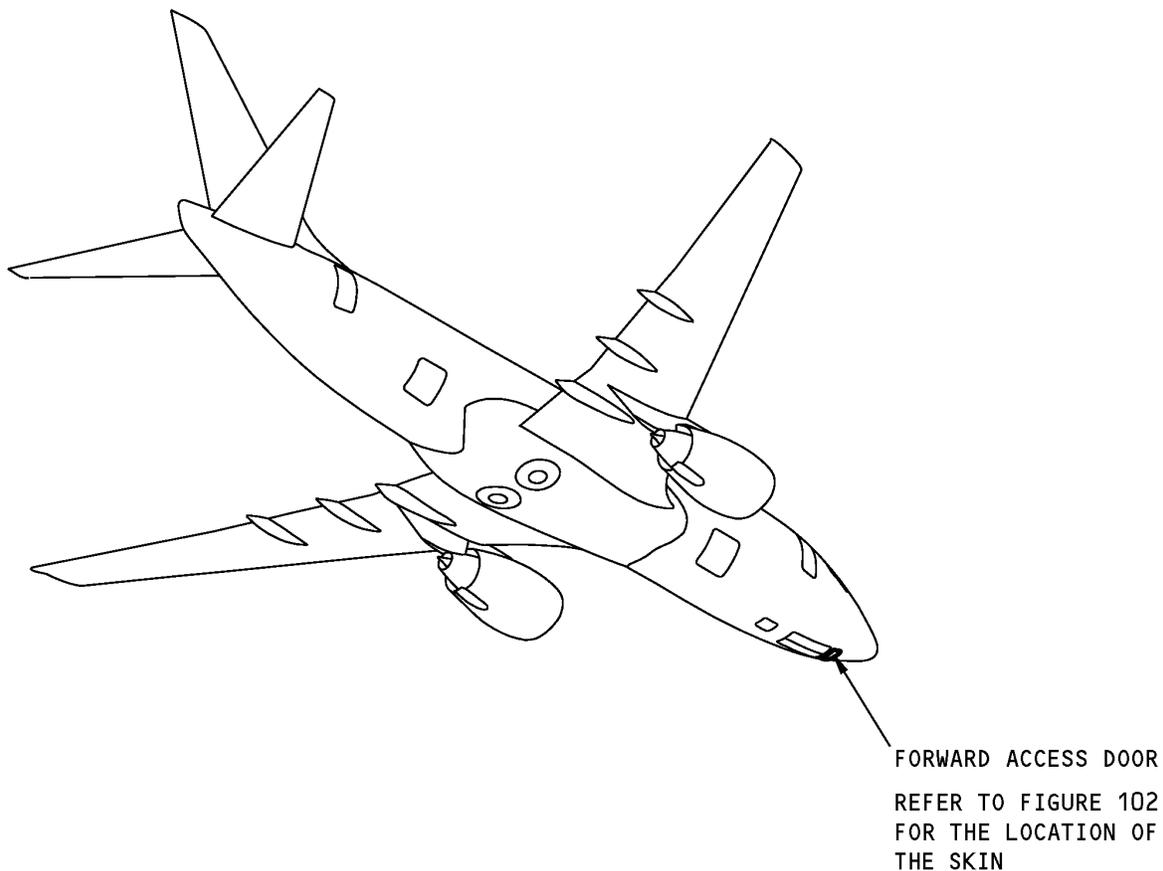


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ALLOWABLE DAMAGE 1 - FORWARD ACCESS DOOR SKIN

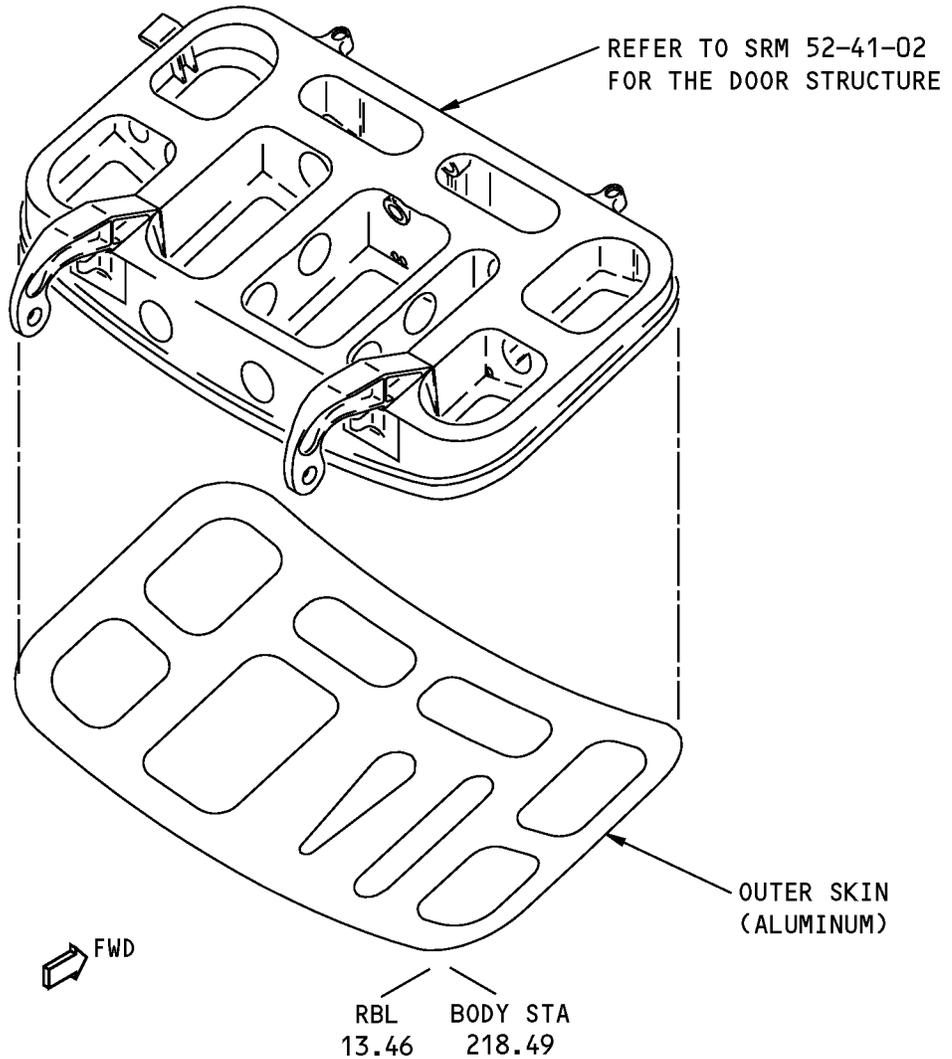
1. Applicability

- A. This subject gives the allowable damage limits and the flight operating limits for the skin on the forward access door as shown in Forward Access Door Location, Figure 101/ALLOWABLE DAMAGE 1.



Forward Access Door Location
Figure 101

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NOTE: ALL CHEM-MILLED POCKETS ARE 0.04 INCH THICK.

**Forward Access Door Skin Location
Figure 102**



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2. General

- A. The forward access door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the forward access door skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the forward access door skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic inner surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes



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4. Allowable Damage Limits

- A. If you find damage to the forward access door skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.
- B. Cracks:
- (1) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
 - (2) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- C. Nicks, Gouges, Scratches, and Corrosion:
- (1) Remove the damage as shown in Allowable Damage Limits - Forward Access Door Skin, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
 - (2) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- D. Dents:
- (1) Dents are permitted if they meet the limits of Allowable Damage Limits - Forward Access Door Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F .
 - (2) Dents larger than the limits shown in Allowable Damage Limits - Forward Access Door Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F , that cannot be repaired immediately are permitted if:
 - (a) There are no loose or missing fasteners
 - (b) There are no damaged fastener holes
 - (c) There are no creases, gouges, or cracks near the dent
 - (d) You do not fill the dent
 - (e) You do an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.
- E. Holes and Punctures

NOTE: For holes and punctures that are a maximum of 0.25 inch in diameter, there are no flight operation limits. Refer to Paragraph 4.E.(1)/ALLOWABLE DAMAGE 1 For holes and punctures that are larger than 0.25 inch in diameter, flight operation limits are necessary. Refer to Paragraph 4.E.(2)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1

- (1) Holes and punctures are permitted if:
 - (a) They are a maximum of 0.25 inch in diameter.
 - (b) They are a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.

ALLOWABLE DAMAGE 1

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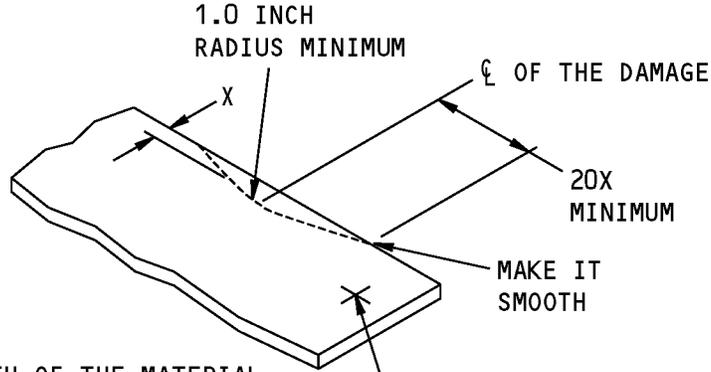


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STRUCTURAL REPAIR MANUAL

- (c) They are filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
- (2) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
 - (a) Remove the damage to a circular or oval shape.
 - (b) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (c) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

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X = THE DEPTH OF THE MATERIAL THAT IS REMOVED
 = 0.10 INCH MAXIMUM **1**
 = 0.15 INCH MAXIMUM **2**

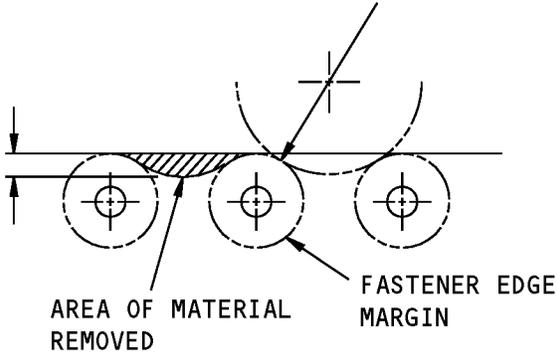
IF THERE IS A FASTENER OR FASTENER PATTERN
 SEE **(B)** **(C)**

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

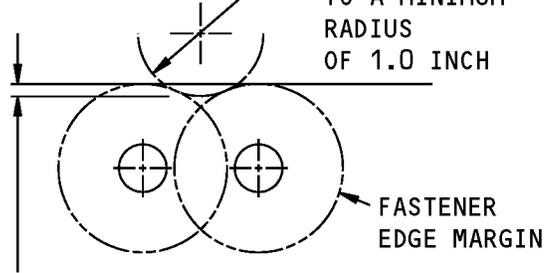
(A)

X = THE DEPTH OF THE MATERIAL THAT IS REMOVED
 = 0.10 INCH MAXIMUM **1**
 = 0.15 INCH MAXIMUM **2**

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.0 INCH



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.0 INCH



X = THE DEPTH OF THE MATERIAL THAT IS REMOVED
 = 0.10 INCH MAXIMUM **1**
 = 0.15 INCH MAXIMUM **2**

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(B)

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

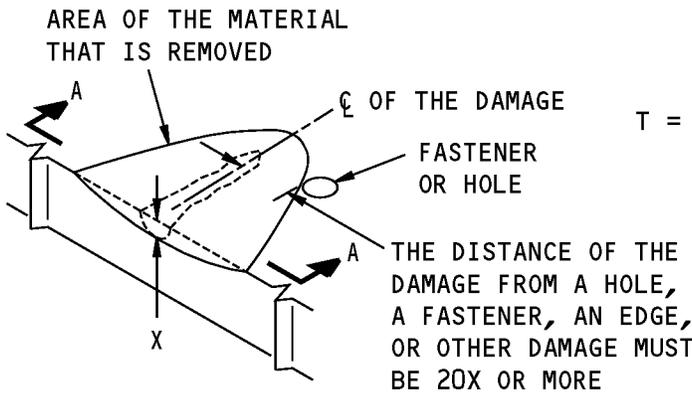
(C)

NOTES

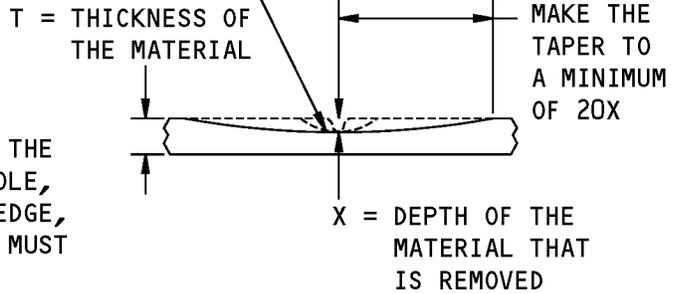
- 1** FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2** FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits - Forward Access Door Skin
 Figure 103 (Sheet 1 of 3)**

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REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



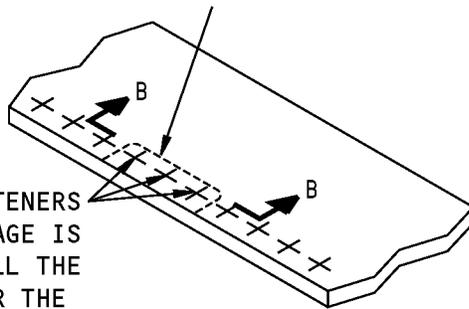
A-A

NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

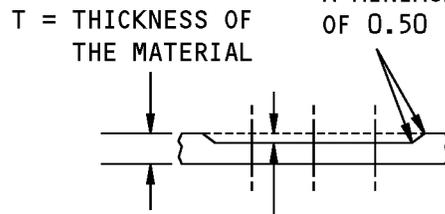
(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

MAKE IT SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH



X = THE DEPTH OF THE MATERIAL REMOVED
 = 0.05T MAXIMUM 1
 = 0.10T MAXIMUM 2

B-B

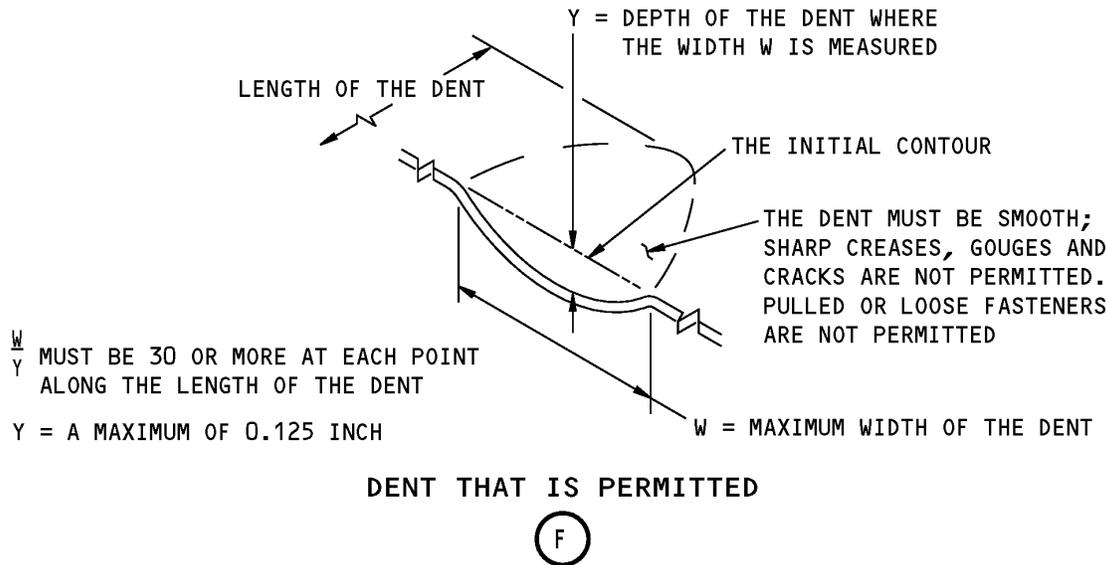
NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF NICKS, GOUGES, SCRATCHES, AND CORROSION DAMAGE

(E)

**Allowable Damage Limits - Forward Access Door Skin
 Figure 103 (Sheet 2 of 3)**

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**Allowable Damage Limits - Forward Access Door Skin
Figure 103 (Sheet 3 of 3)**

5. Airplane Flight Operation Limits

A. If there is damage to the external skin, airplane flight operation limits can be necessary.

(1) Find the applicable area in Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.

(a) The damage depth in Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.

1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.

(b) Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 is applicable to:

1) Cracks

2) Nicks, Scratches, Gouges, and Corrosion

3) Holes and Punctures that are larger than 0.25 inch in diameter.

(c) Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 is not applicable to dents.



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- (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1.

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch (6.4 mm) in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits
D	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits

ALLOWABLE DAMAGE 1

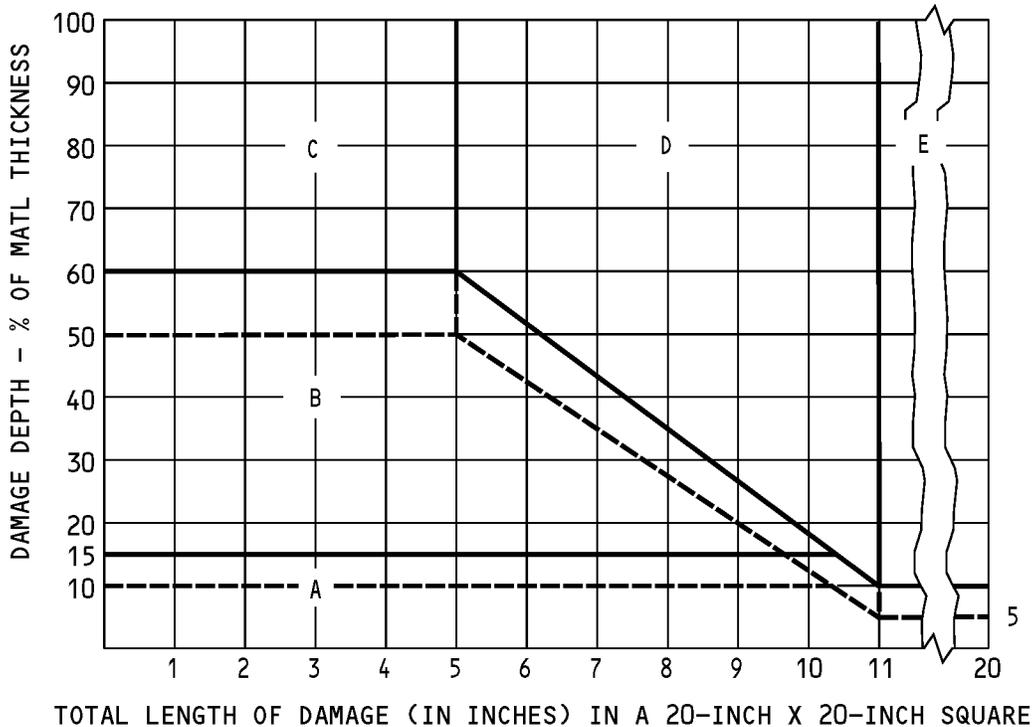
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NOTE: IF THERE IS DAMAGE AT MORE THAN ONE LOCATION, THE TOTAL LENGTH OF DAMAGE TO BE USED IN THE GRAPH IS THE TOTAL LENGTH OF DAMAGE IN A 20-INCH SQUARE. USE THE DEEPEST DAMAGE DEPTH IN A 20 INCH BY 20 INCH SQUARE FOR THE DAMAGE DEPTH IN THE GRAPH.

THERE ARE NO FLIGHT OPERATION LIMITS IF THE DAMAGE HAS BEEN FILLED AS GIVEN IN PARAGRAPH 4.D. THEN FIGURE 104 DOES NOT APPLY.

- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

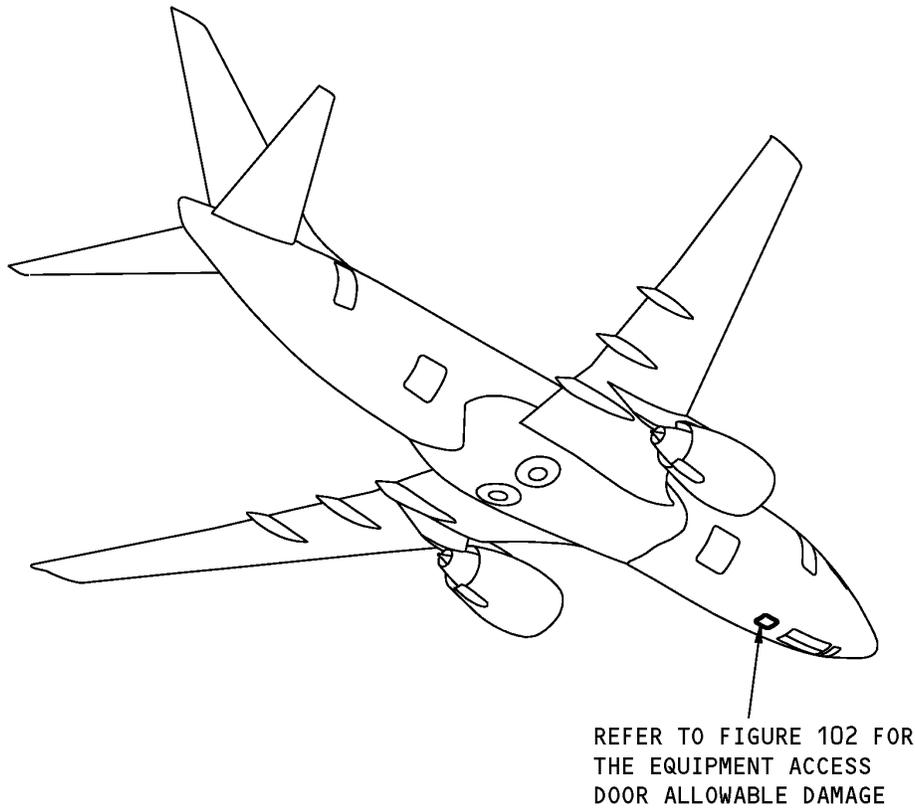
**Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door
Figure 104**

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ALLOWABLE DAMAGE 2 - EQUIPMENT ACCESS DOOR SKIN

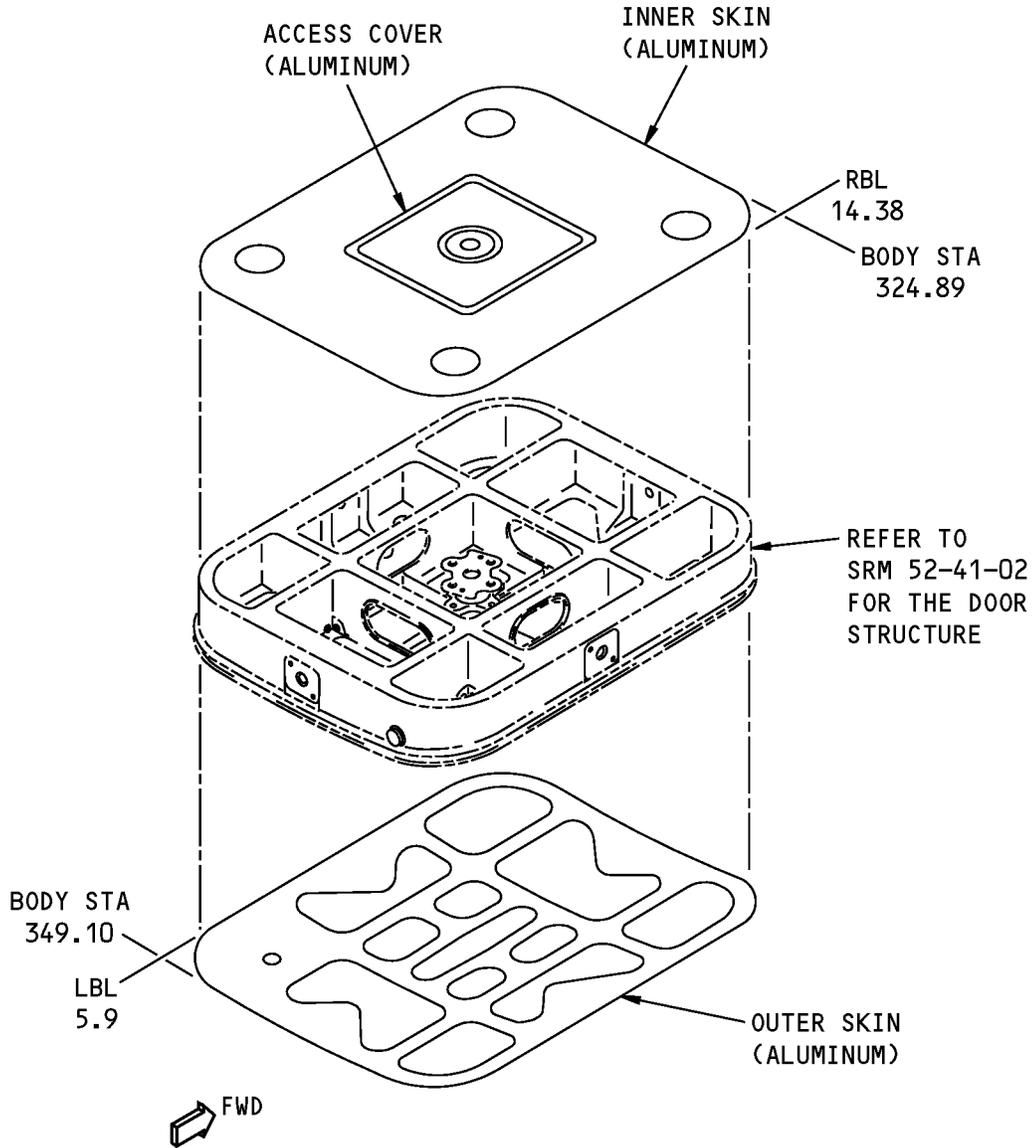
1. Applicability

- A. This subject gives the allowable damage limits and the flight operating limits for the skins on the equipment access door shown in Equipment Access Door Location, Figure 101/ALLOWABLE DAMAGE 2.



Equipment Access Door Location
Figure 101

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**Equipment Access Door Skin Allowable Damage
Figure 102**



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2. General

- A. The equipment access door is in a pressurized region of the fuselage.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- D. Airplane flight operation limits can be necessary. Refer to the limits given in Paragraph 5./ALLOWABLE DAMAGE 2, Table 101/ALLOWABLE DAMAGE 2, and shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.
- E. If damage is removed on the external aerodynamic surface of the outer skin, do the steps that follows:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- F. If damage is removed on the internal non-aerodynamic surface of the outer skin, or on the internal skin do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01/701.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
- G. Make sure the aerodynamic smoothness is satisfactory and not more than the limits given in 51-10-01.

NOTE: If the aerodynamic smoothness is not satisfactory there can be a loss in the economic performance of the airplane.

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. External Skin:



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(1) Cracks:

- (a) Airplane flight operation limits are necessary. Refer to Paragraph 5./ALLOWABLE DAMAGE 2, Table 101/ALLOWABLE DAMAGE 2, and Figure 104 for the flight operation limits.
- (b) Drill a 0.25 inch (6.35 mm) diameter stop hole at the ends of a crack that does not end at a fastener hole or surface edge. Refer to 51-10-02.
 - 1) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet. Install the rivet without sealant. Refer to 51-10-02 for the aerodynamic smoothness requirements.

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Airplane flight operation limits can be necessary. Depth of damage limits and length of damage limits are given in Table 101/ALLOWABLE DAMAGE 2 and shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.
- (b) Damage that does not go through the clad surface is permitted.
- (c) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, details A , B , C , D , and E .
- (d) Removal of damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail D and E is permitted to the limits given in Table 101/ALLOWABLE DAMAGE 2 and shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.

(3) Dents:

CAUTION: DO NOT FILL DENTS THAT ARE LARGER THAN THE ALLOWABLE DAMAGE LIMITS SHOWN IN FIGURE 103, DETAIL F. IF YOU DO NOT OBEY, THE RESULT CAN BE AN UNSATISFACTORY CONDITION THAT CAN CAUSE MORE DAMAGE TO THE AIRPLANE STRUCTURE.

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F .
- (b) A dent larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F , t hat cannot be repaired immediately, is permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) You do not fill the dent.
 - 3) There are no damaged fastener holes.
 - 4) You inspect the dent for corrosion and cracks at each 1500 flight hour interval or more frequently.

(4) Holes and Punctures:

- (a) Holes and punctures are permitted if:
 - 1) They are 0.25 inch (6.35 mm) or less in diameter.
 - 2) They are 1.00 inch (25.4 mm) or more away from a fastener hole, an edge, a chem-milled radius, or other damage or other damage.

ALLOWABLE DAMAGE 2

52-41-01

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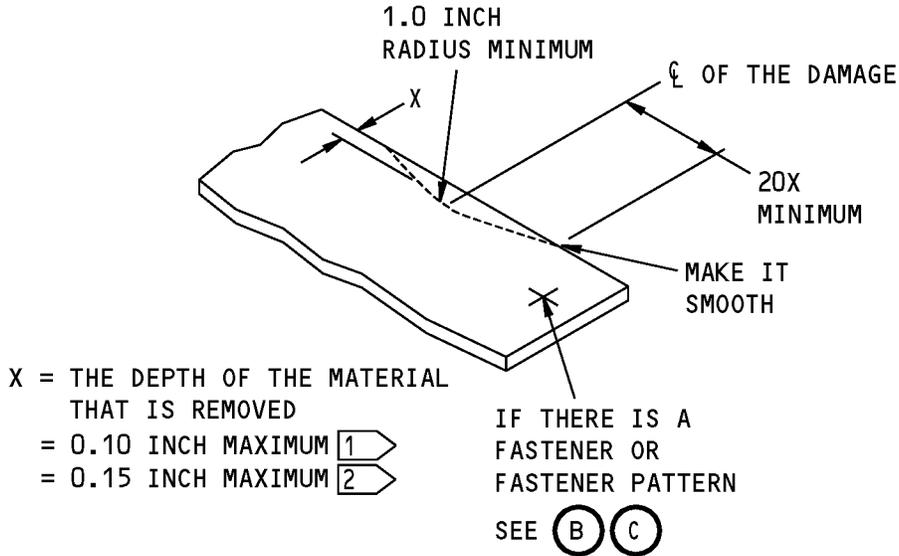


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STRUCTURAL REPAIR MANUAL

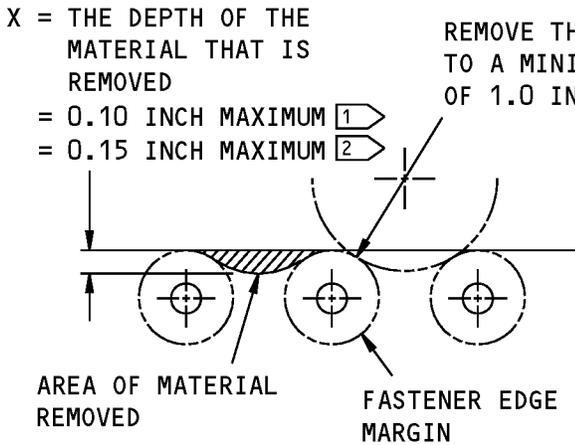
- 3) They are filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet. Install the rivet without sealant.
- (b) Flight operation limits are necessary if the damage is larger than 0.25 inch (6.35 mm) in diameter.
- 1) The damage must be 1.00 inch (6.35 mm) or more away from the edge of the part or fitting, a fastener hole, an edge, a chem-milled radius, or other damage.
 - 2) Remove the damage to a smooth circular or oval shape.
 - 3) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 and Table 101 for the flight operation limits.

STRUCTURAL REPAIR MANUAL



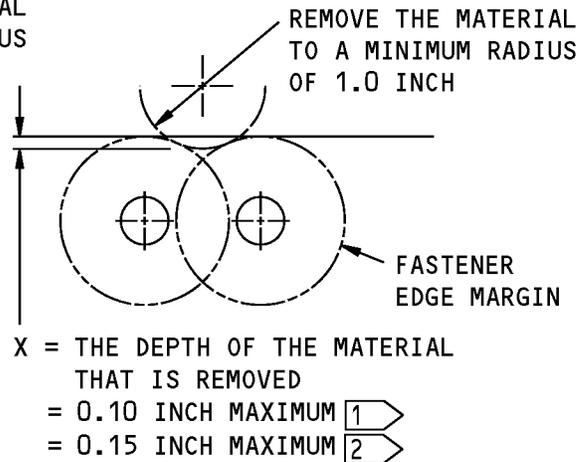
REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)



**REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP**

(B)



**REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP**

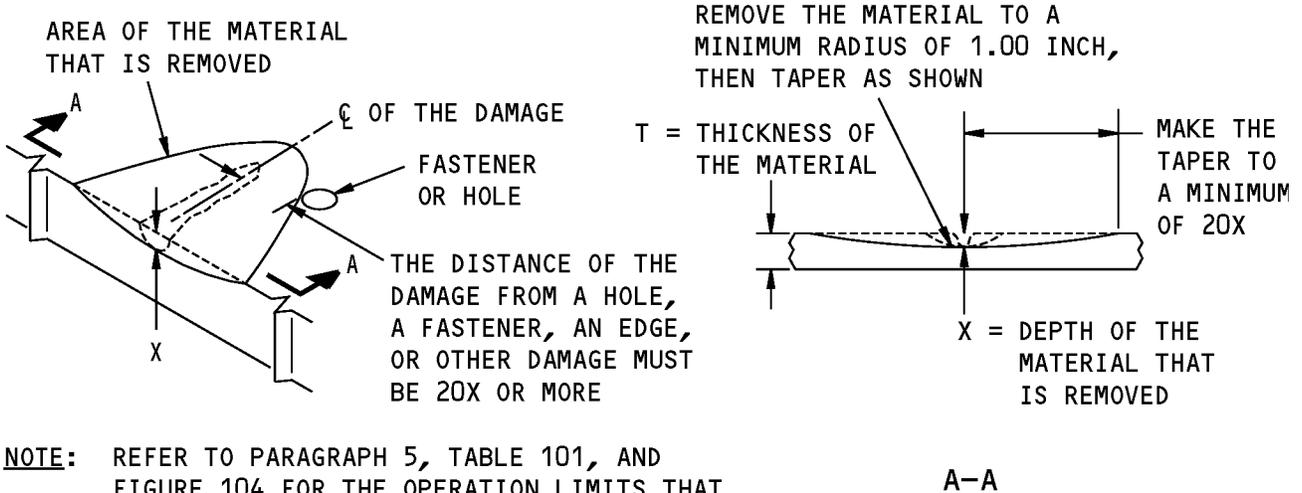
(C)

NOTES

- 1** FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2** FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)**

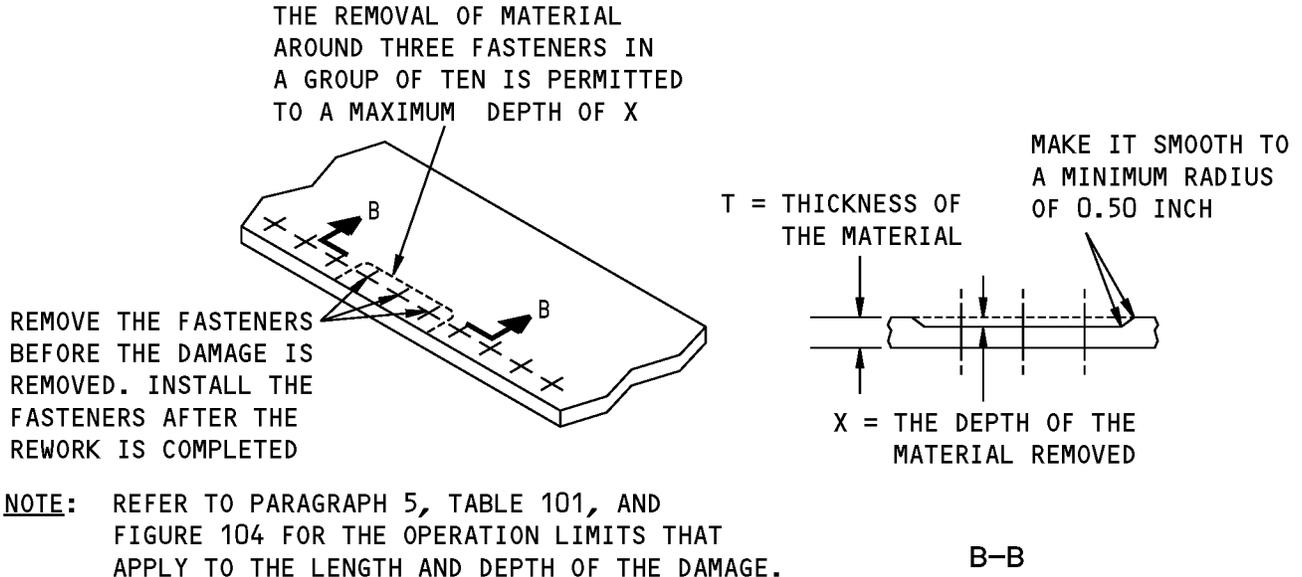
STRUCTURAL REPAIR MANUAL



NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)



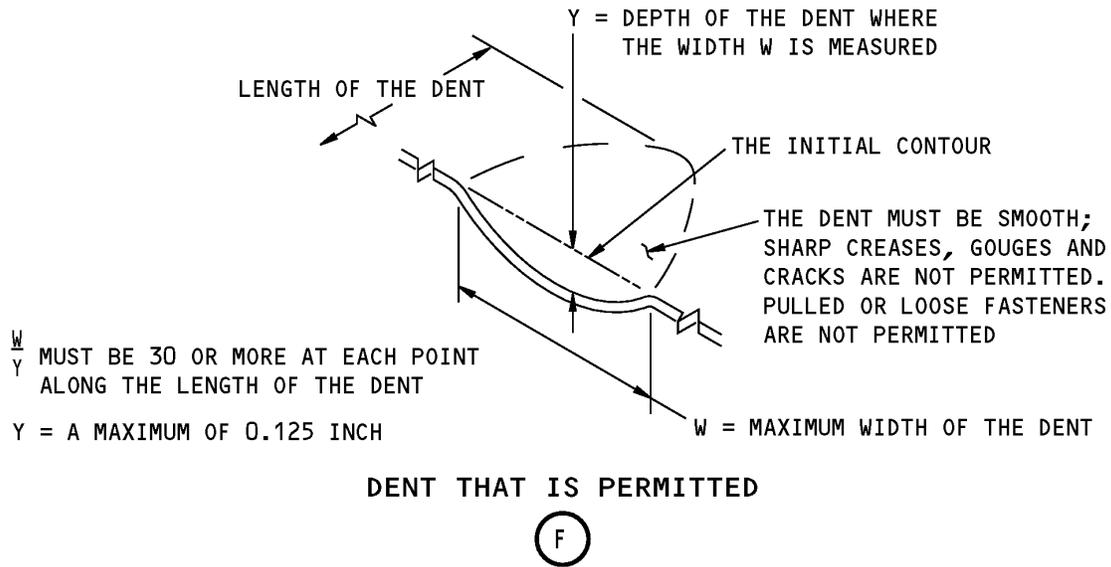
NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF NICKS, GOUGES, SCRATCHES, AND CORROSION DAMAGE

(E)

**Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)**

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STRUCTURAL REPAIR MANUAL**



**Allowable Damage Limits - External Skin
Figure 103 (Sheet 3 of 3)**

5. Airplane Flight Operation Limits

- A. If there is external door skin damage, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 for the length and depth of the damage in all 20 inch by 20 inch square (508 mm by 508 mm) areas of the door skin.
 - (a) The damage depth in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification subject or the engineering drawings.
 - (b) Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 is applicable to:
 - 1) Cracks
 - 2) Nicks, Gouges, Scratches, and Corrosion
 - 3) Holes and Punctures.
 - (c) Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 is not applicable to Dents.

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STRUCTURAL REPAIR MANUAL**

- (2) Refer to Table 101/ALLOWABLE DAMAGE 2 to find the damage treatment and permitted airplane flight operations for the area you found shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Clean up the damage as given in Figure 103	There are no airplane operation limits
B	Clean up the damage as given in Figure 103	Up to 50 revenue flight hours are permitted
	Do a permanent, interim or time limited repair	There are no airplane operation limits
C	Drill 0.25 inch diameter stop holes at the ends of the cracks. Clean up other damage as given in Figure 103	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 5.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair	There are no airplane operation limits.
D	Drill 0.25 inch diameter stop holes at the ends of the cracks. Clean up other damage as given in Figure 103	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair	There are no airplane operation limits
E	Drill 0.25 inch diameter stop holes at the ends of the cracks. Clean up other damage as given in Figure 103	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair	There are no airplane operation limits

B. Internal Skin:

(1) Cracks:

- (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Figure 105/ALLOWABLE DAMAGE 2, Detail A , B and C .
- (b) Drill a 0.25 inch (6.35 mm) diameter stop hole at the ends of a crack that are not at a fastener hole or an edge as shown in Allowable Damage Limits - Internal Skin, Figure 105/ALLOWABLE DAMAGE 2, Detail D . Refer to 51-10-02.
- (c) You are permitted to remove the damage to a maximum diameter of 1.00 inch (25.4 mm) if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from an edge, or other damage.
 - 2) You keep the fastener edge margins. Refer to 51-40-06.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Damage that does not go through the clad surface is permitted.
- (b) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Figure 105/ALLOWABLE DAMAGE 2, Details A , B , C , E , and F .

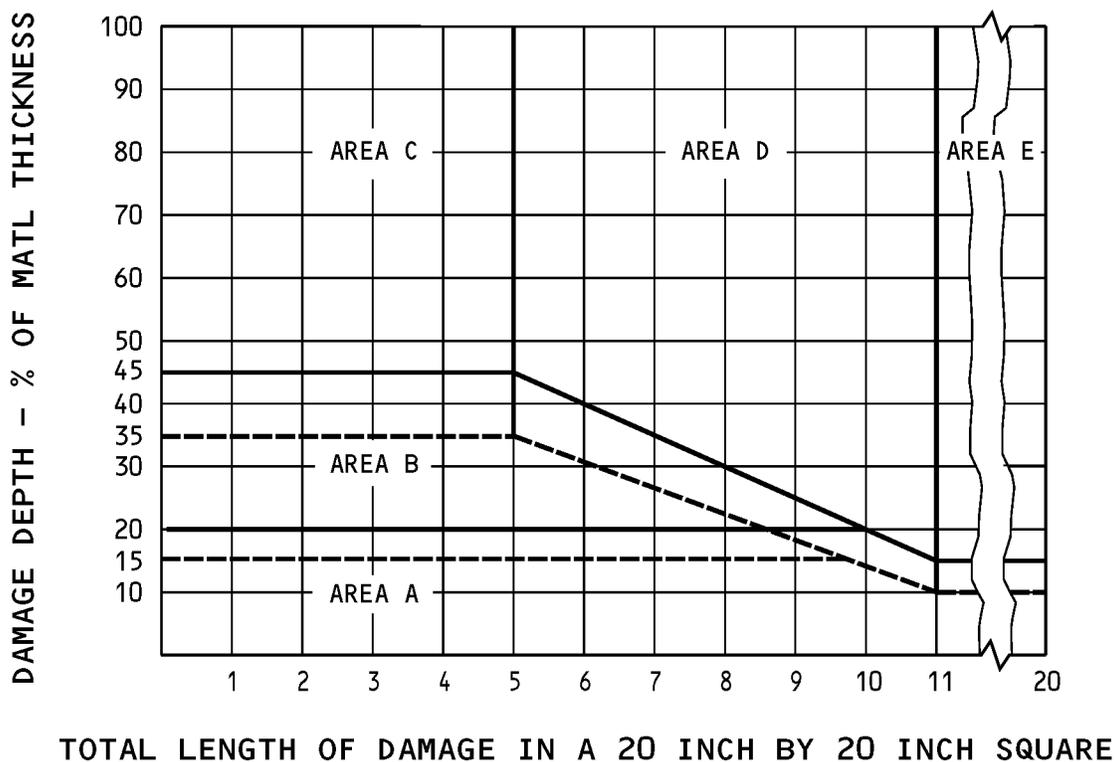


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STRUCTURAL REPAIR MANUAL

- (c) You are permitted to remove the damage to a maximum diameter of 1.00 inch (25.4 mm) if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from an edge, or other damage
 - 2) You keep the fastener edge margins. Refer to 51-40-06.
- (3) Dents:
 - (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Figure 105/ALLOWABLE DAMAGE 2, Detail G .
- (4) Holes and Punctures:
 - (a) Damage is permitted to a maximum diameter of 1.00 inch (25.4 mm), if it is a minimum of 30T (T = the thickness of the material) away from an edge, or other damage.
 - (b) Remove the damage to a smooth circular or oval shape.

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NOTE: THIS FIGURE APPLIES TO PRESSURIZED EXTERNAL SKIN PANLES OF THE FUSELAGE DOORS.

IF THERE IS DAMAGE AT MORE THAN ONE LOCATION, THE TOTAL LENGTH OF DAMAGE TO BE USED IN THE GRAPH IS THE TOTAL LENGTH OF DAMAGE IN A 20-INCH SQUARE.

USE THE DEEPEST DAMAGE DEPTH IN A 20 INCH BY 20 INCH SQUARE FOR THE DAMAGE DEPTH IN THE GRAPH.

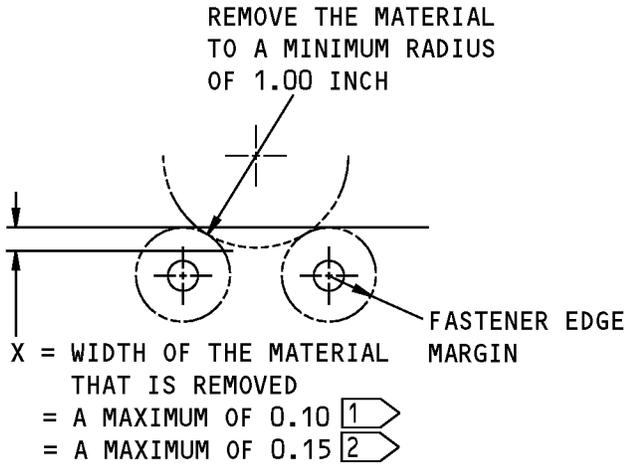
IF THE DAMAGE IN AREA C HAS BEEN FILLED AS GIVEN IN PARAGRAPH 4.A(4)(a), THEN FIGURE 104 DOES NOT APPLY.

----- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

———— FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

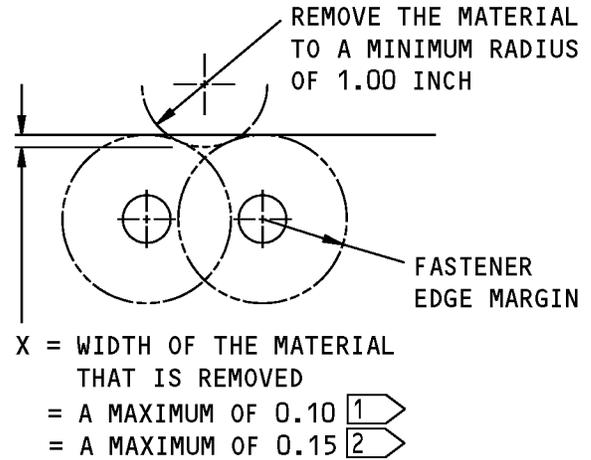
**Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door
External Skin
Figure 104**

STRUCTURAL REPAIR MANUAL



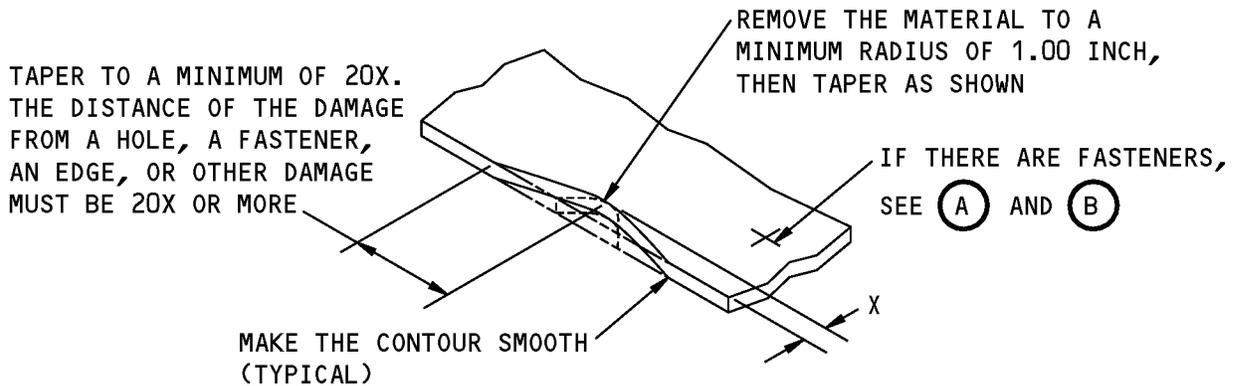
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

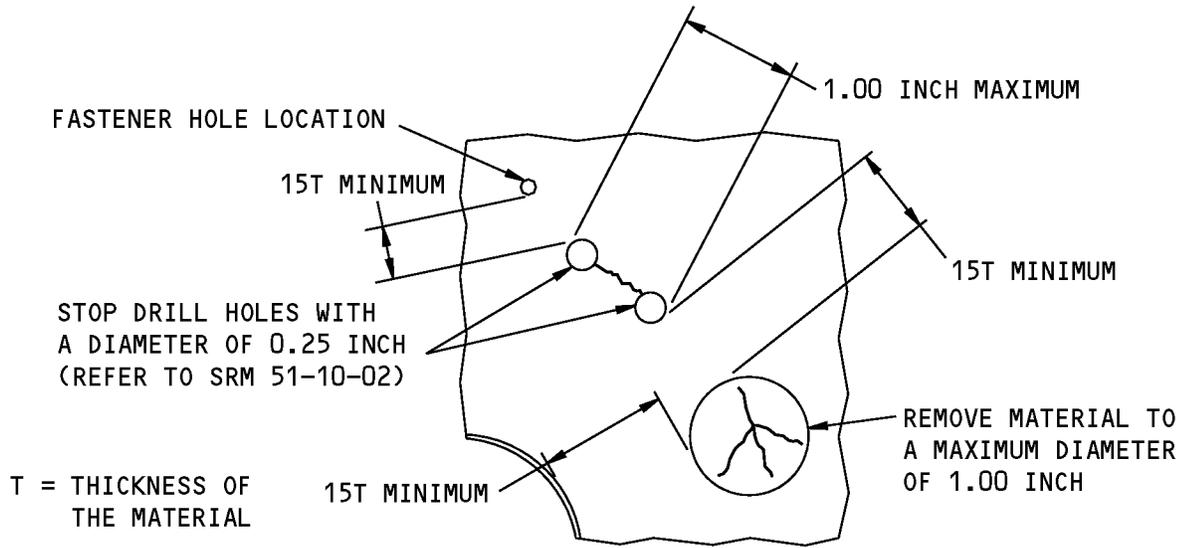
(C)

NOTES

- [1]** FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- [2]** FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

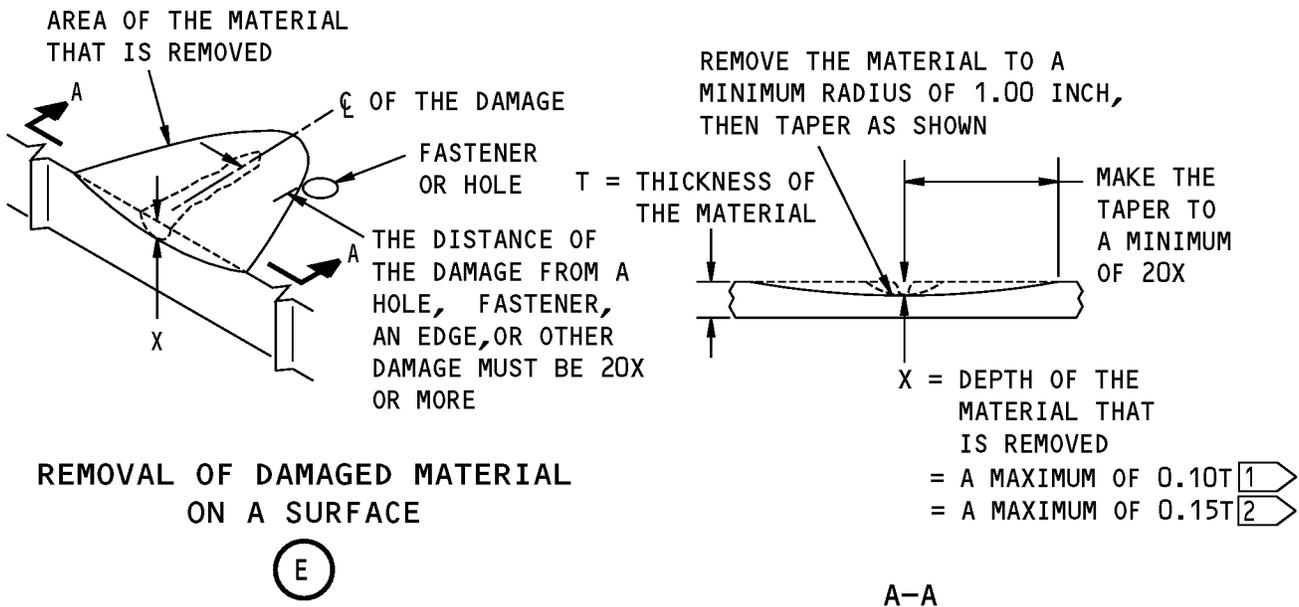
**Allowable Damage Limits - Internal Skin
Figure 105 (Sheet 1 of 3)**

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STRUCTURAL REPAIR MANUAL**



CRACKS THAT ARE PERMITTED

D



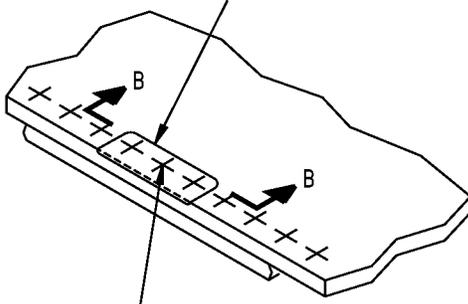
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

E

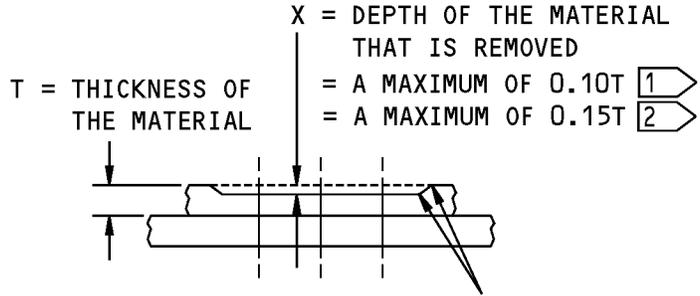
**Allowable Damage Limits - Internal Skin
Figure 105 (Sheet 2 of 3)**

STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

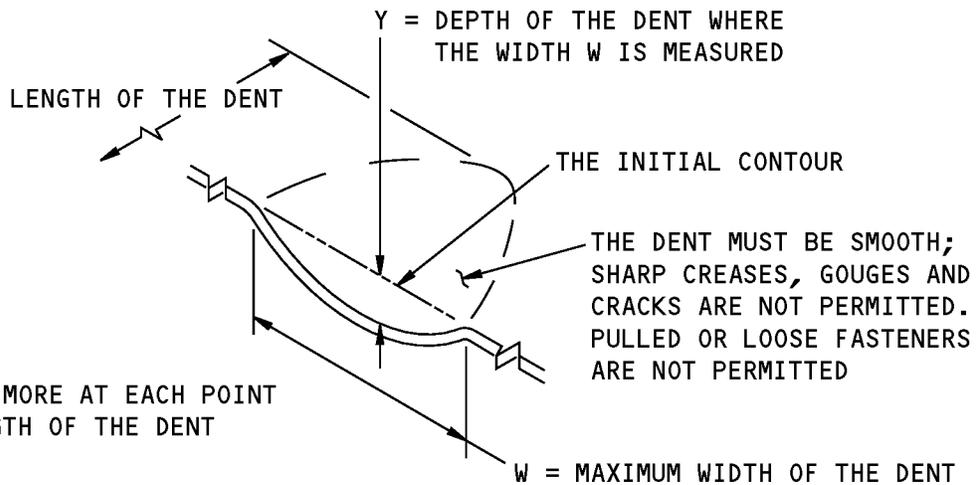


MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(F)



DENT THAT IS PERMITTED

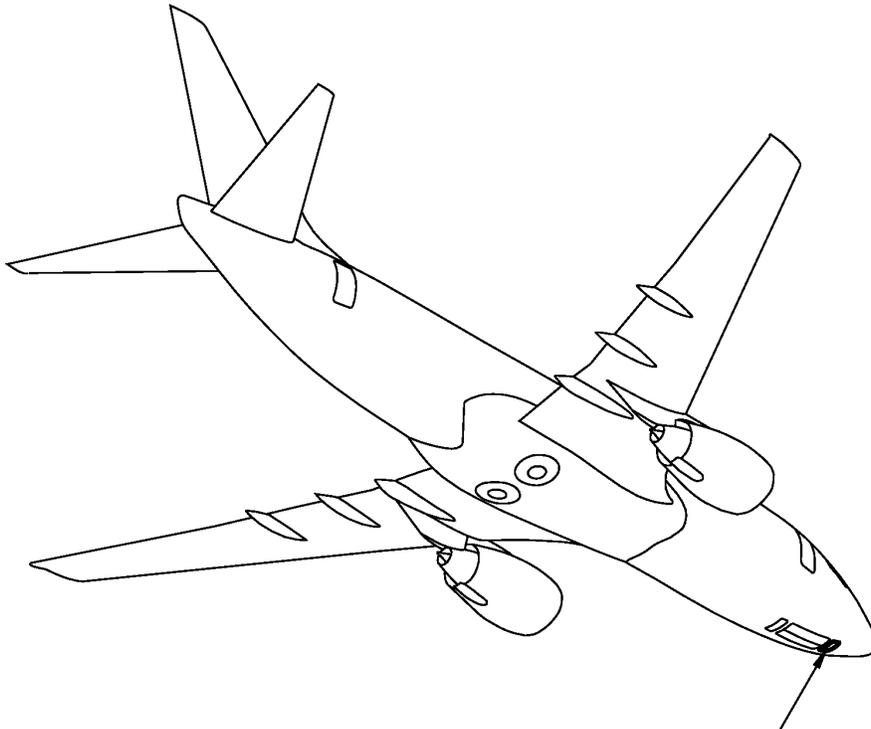
(G)

Allowable Damage Limits - Internal Skin
Figure 105 (Sheet 3 of 3)



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STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD ACCESS DOOR SKIN



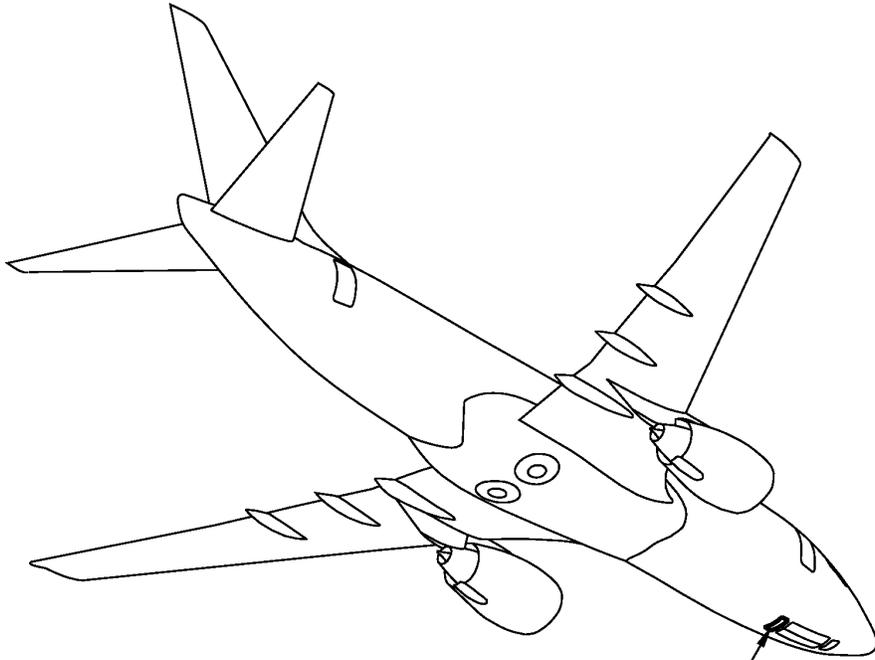
REFER TO SRM 52-00-01 FOR THE
REPAIR DATA APPLICABLE TO
THE PRESSURIZED DOOR SKINS

Forward Access Door Skin Repair
Figure 201



737-800
STRUCTURAL REPAIR MANUAL

REPAIR 2 - EQUIPMENT ACCESS DOOR SKIN

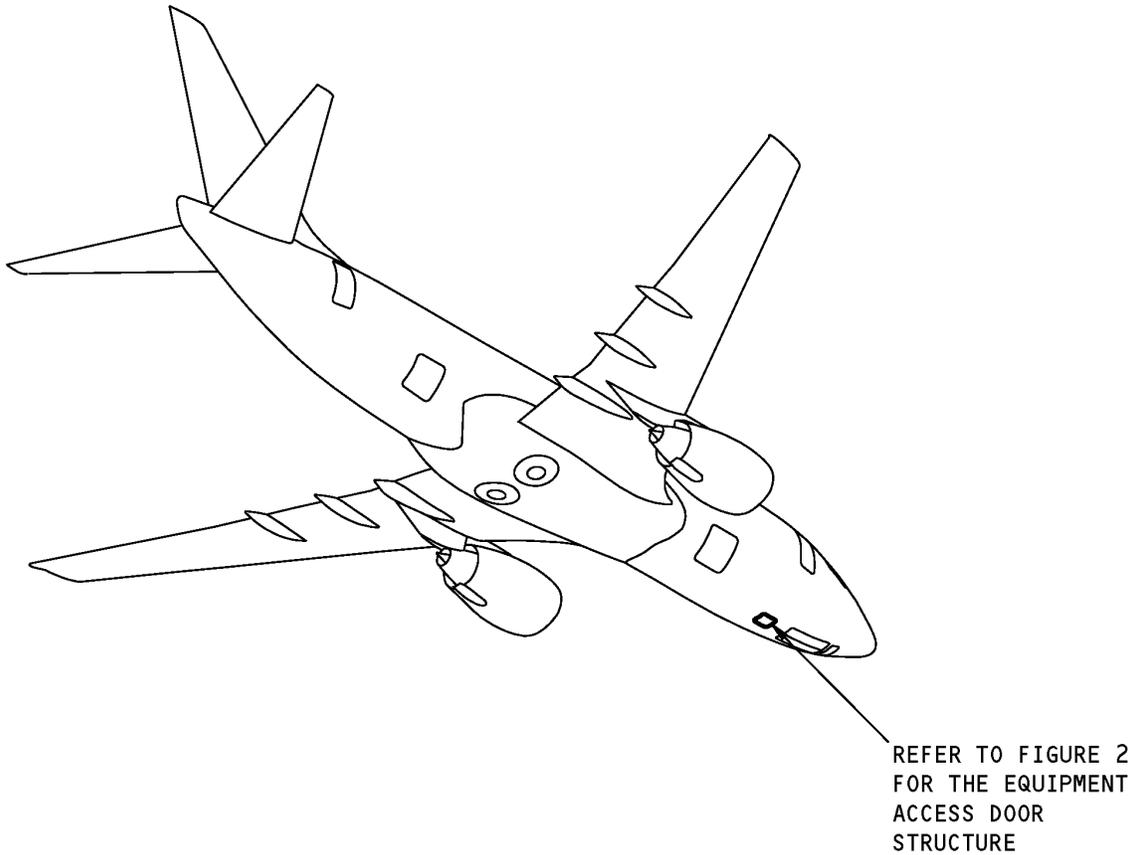


REFER TO SRM 52-00-01 FOR THE
REPAIR DATA APPLICABLE TO
THE PRESSURIZED DOOR SKINS

Equipment Access Door Skin Repair
Figure 201

**737-800
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IDENTIFICATION 1 - EQUIPMENT ACCESS DOOR STRUCTURE



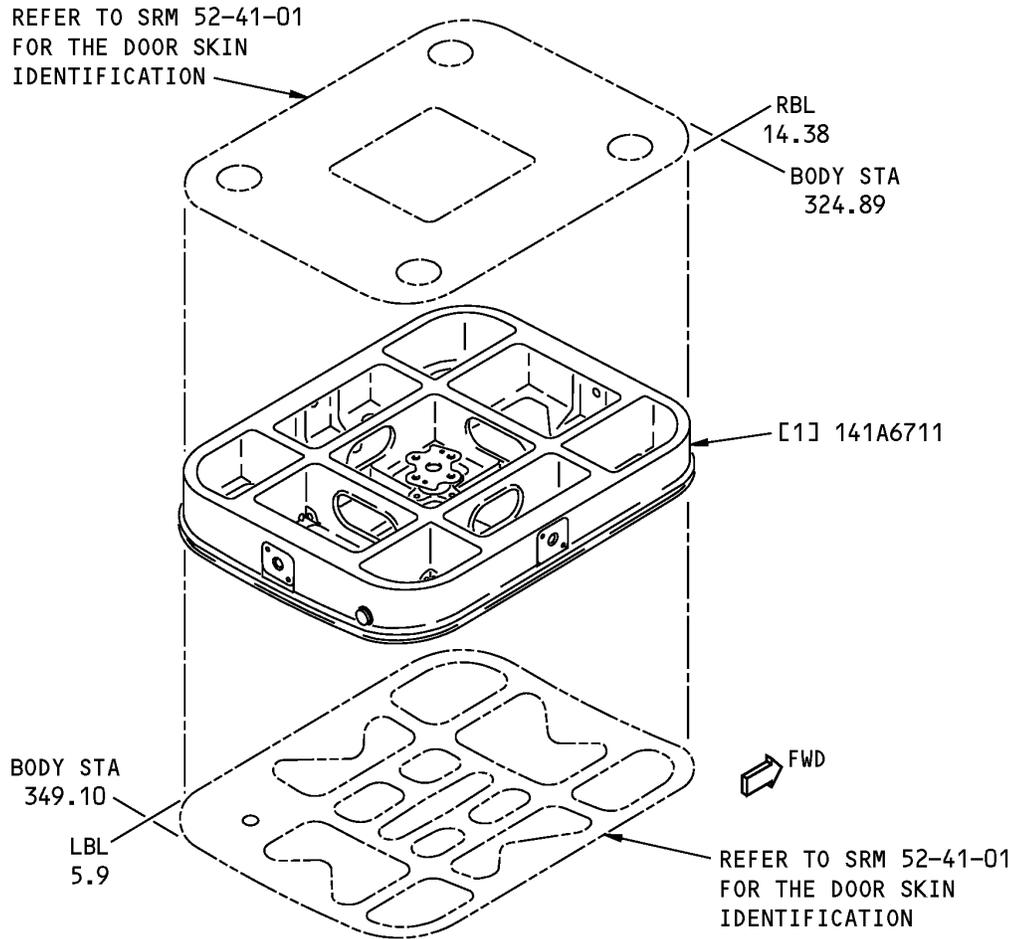
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Equipment Access Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6700	Installation - Equipment Access Door
141A6710	Assembly - Equipment Access Door
141A6711	Structural Casting - Equipment Access Door

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Equipment Access Door Structure Identification
Figure 2**

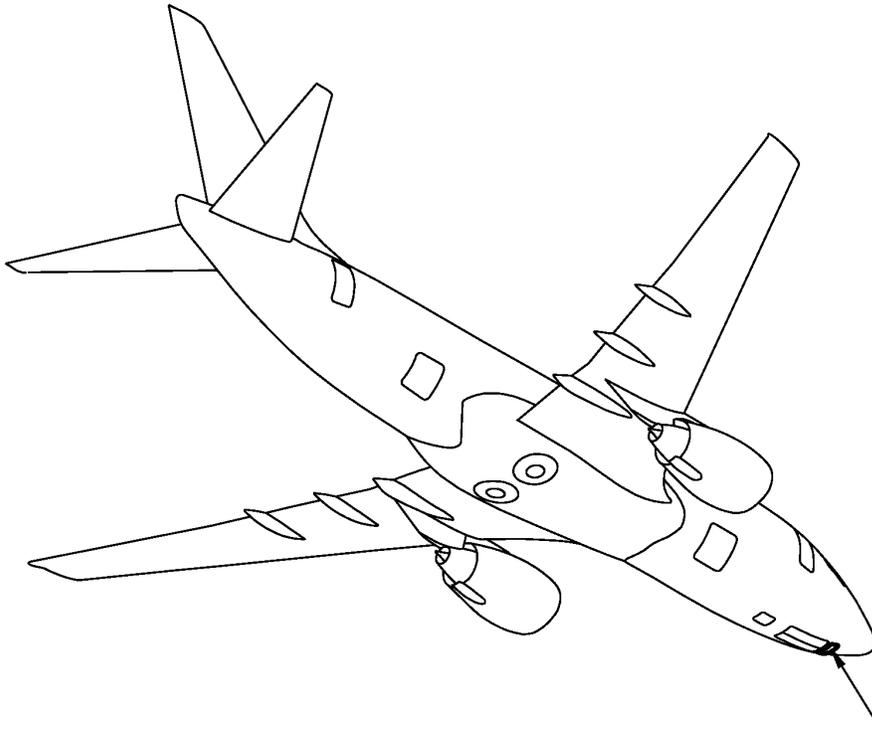
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Framework		D357.0-T6 casting as given in BMS 7-330	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - FORWARD ACCESS DOOR STRUCTURE



REFER TO FIGURE 2
FOR THE FORWARD
ACCESS DOOR
STRUCTURE
IDENTIFICATION

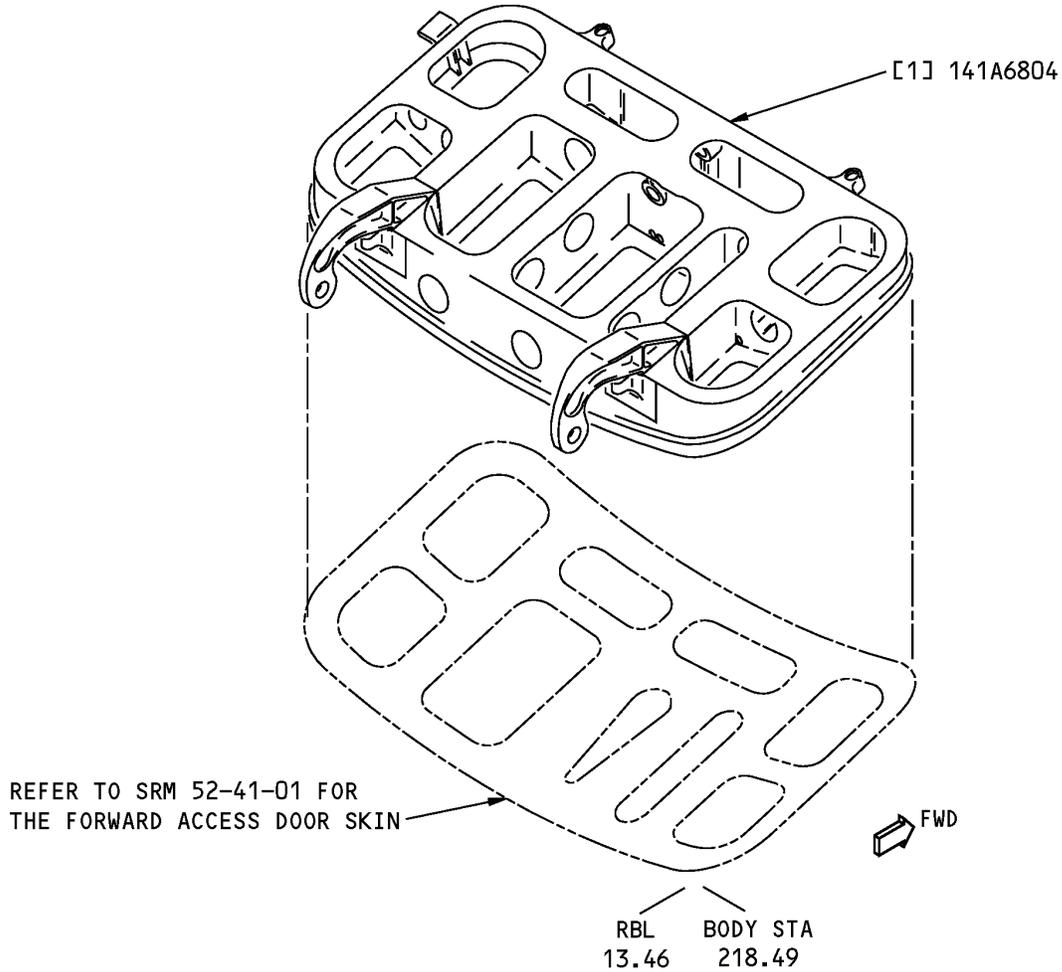
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Forward Access Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6800	Forward Access Door Functional Product Collector
141A6801	Installation - Forward Access Door
141A6802	Assembly - Forward Access Door
141A6803	Framework Assembly - Forward Access Door

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STRUCTURAL REPAIR MANUAL**



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Access Door Structure Identification
Figure 2**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Framework		D357.0-T6 aluminum casting as given in BMS 7-330	

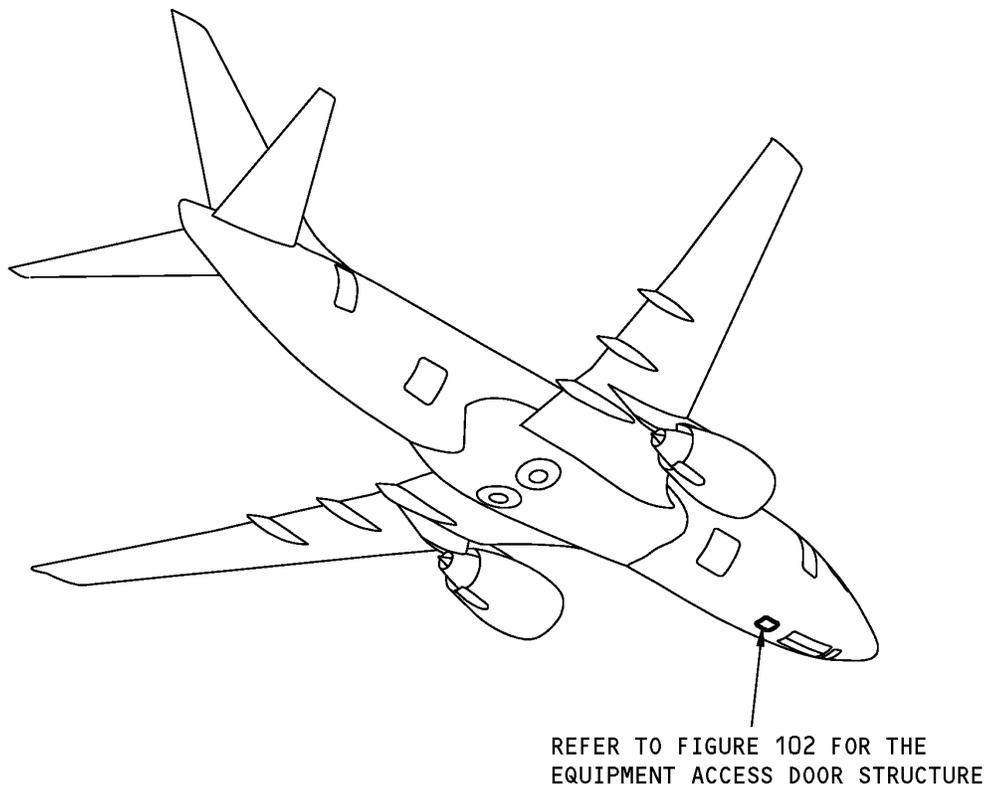
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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ALLOWABLE DAMAGE 1 - EQUIPMENT ACCESS DOOR STRUCTURE

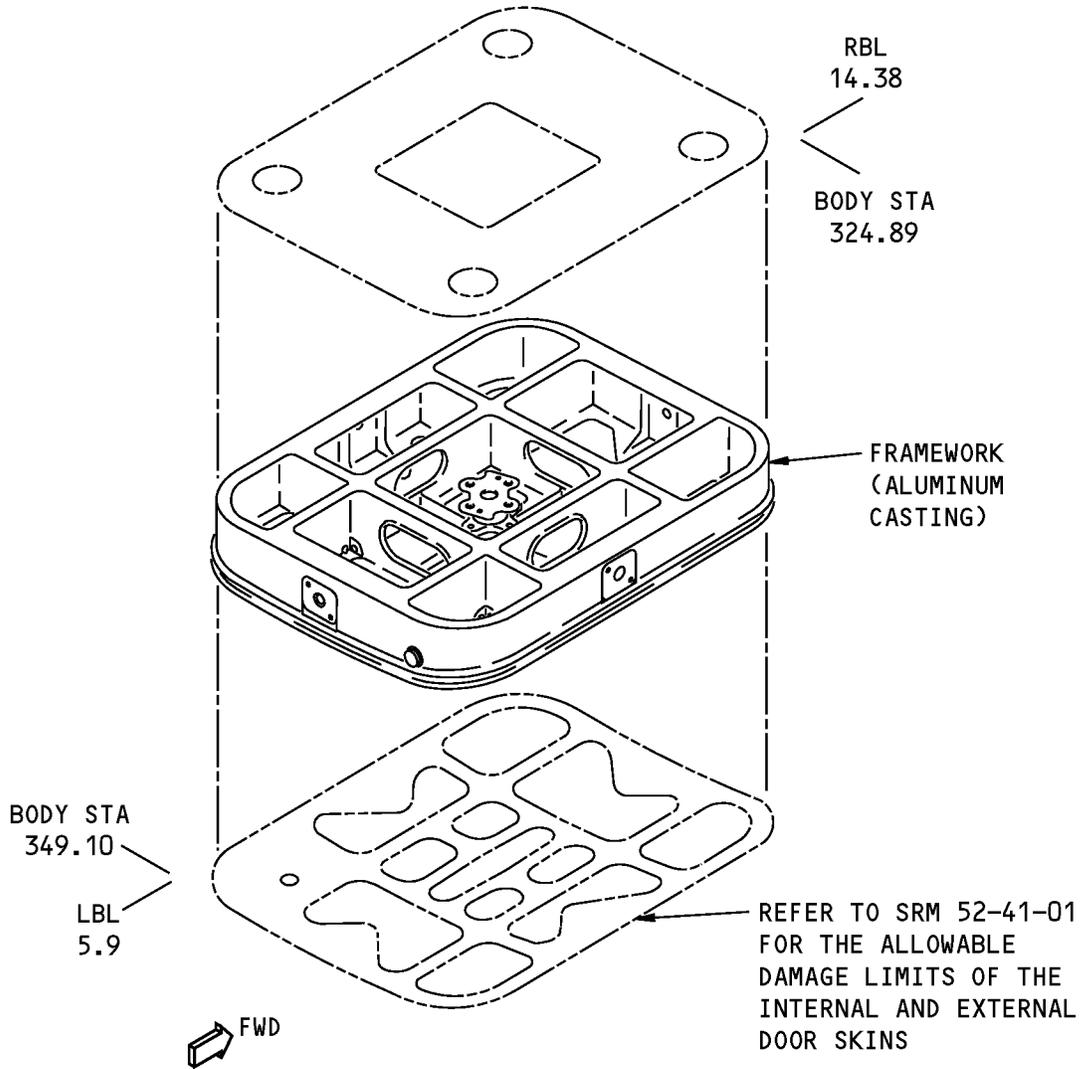
1. Applicability

- A. This subject gives the allowable damage limits for the equipment access door structure shown in Equipment Access Door Location, Figure 101/ALLOWABLE DAMAGE 1 and Equipment Access Door Structure, Figure 102/ALLOWABLE DAMAGE 1.



Equipment Access Door Location
Figure 101

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STRUCTURAL REPAIR MANUAL**



**Equipment Access Door Structure
Figure 102**



737-800 STRUCTURAL REPAIR MANUAL

2. General

- A. Remove the necessary parts to get access to the equipment access door structure shown in Equipment Access Door Structure, Figure 102/ALLOWABLE DAMAGE 1.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- D. After the damage has been removed, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

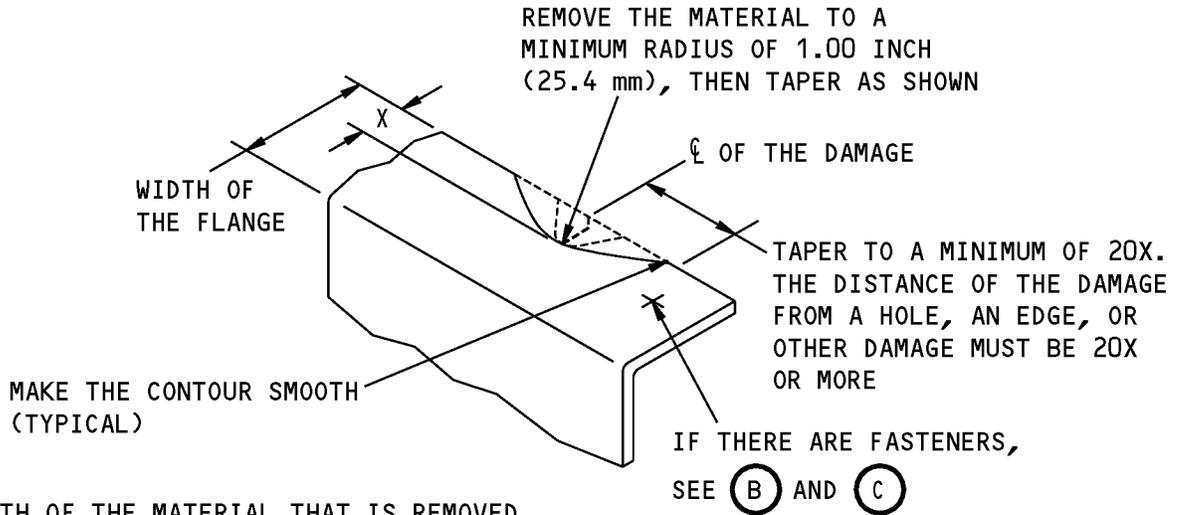
3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Scratches, Gouges, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .
- C. Dents are not permitted.
- D. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch (6.35 mm) in diameter or less
 - (2) They are 1.00 inch (25.4 mm) or more away from a fastener hole or other damage
 - (3) They are 1.5 D (D = the diameter of the damage) away from a part radius or part edge
 - (4) They are filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - (a) Install the rivet without sealant.

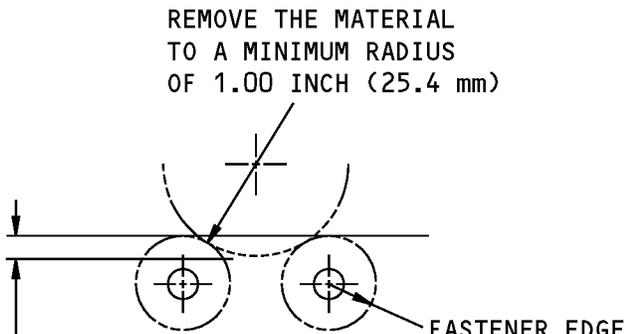
STRUCTURAL REPAIR MANUAL



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 1
 = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE 2

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

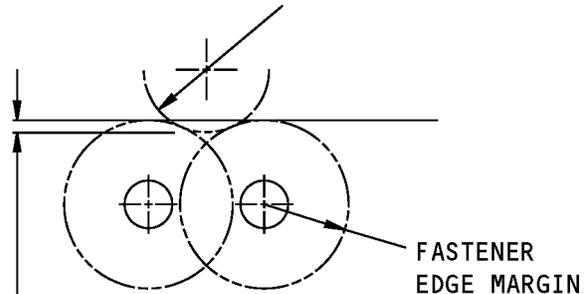
(A)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) 1
 = A MAXIMUM OF 0.15 INCH (3.8 mm) 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) 1
 = A MAXIMUM OF 0.15 INCH (3.8 mm) 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

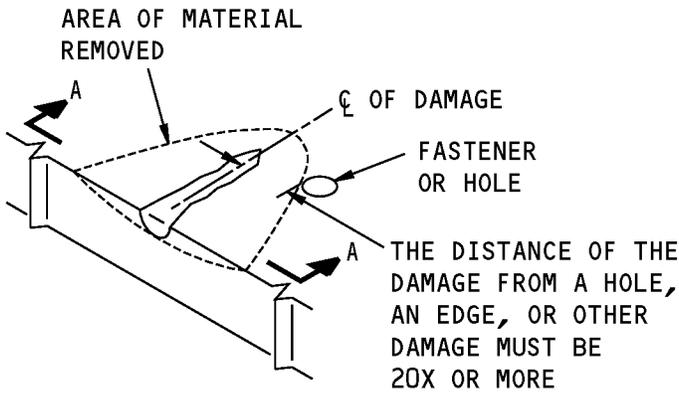
(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits
 Figure 103 (Sheet 1 of 3)**

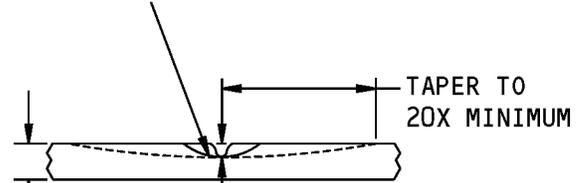
STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

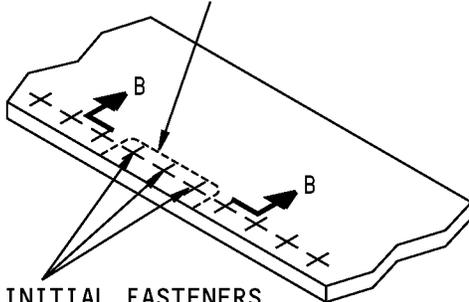
REMOVE THE MATERIAL TO A 1.00 INCH (25.4 mm) RADIUS MINIMUM, THEN TAPER AS SHOWN



T = THICKNESS OF THE MATERIAL
 X = THE DEPTH OF THE MATERIAL REMOVED
 = 0.05T MAXIMUM 1
 = 0.10T MAXIMUM 2

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A DEPTH OF X MAXIMUM

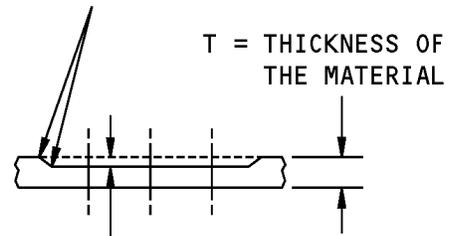


REMOVE THE INITIAL FASTENERS BEFORE THE DAMAGED MATERIAL IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

MAKE IT SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

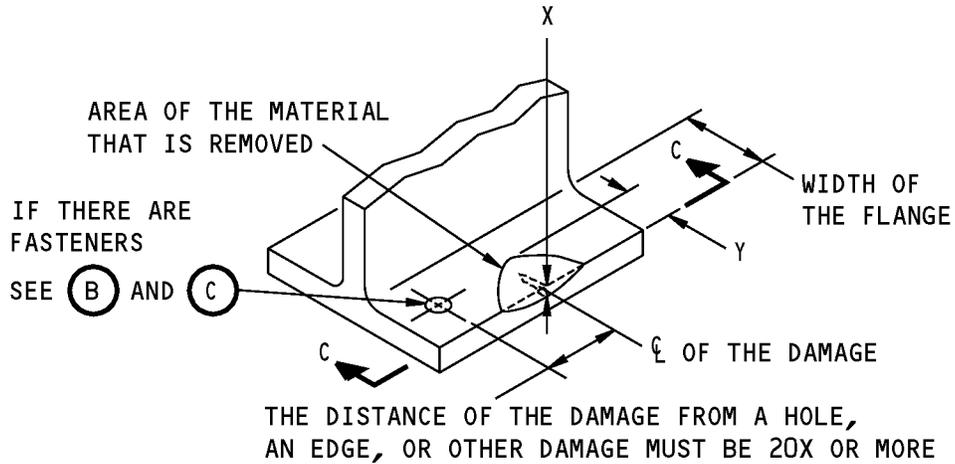


X = THE DEPTH OF THE MATERIAL REMOVED
 = 0.05T MAXIMUM 1
 = 0.10T MAXIMUM 2

B-B

**Allowable Damage Limits
 Figure 103 (Sheet 2 of 3)**

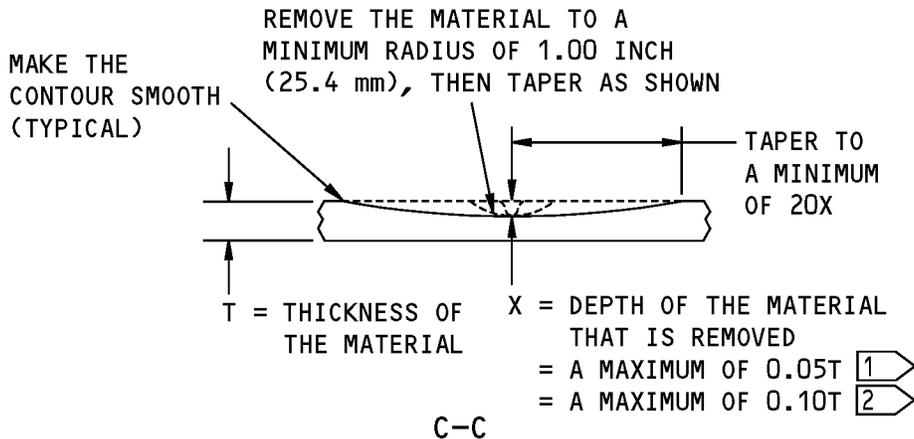
**737-800
STRUCTURAL REPAIR MANUAL**



- Y = THE WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 1
 = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE 2

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**

(F)



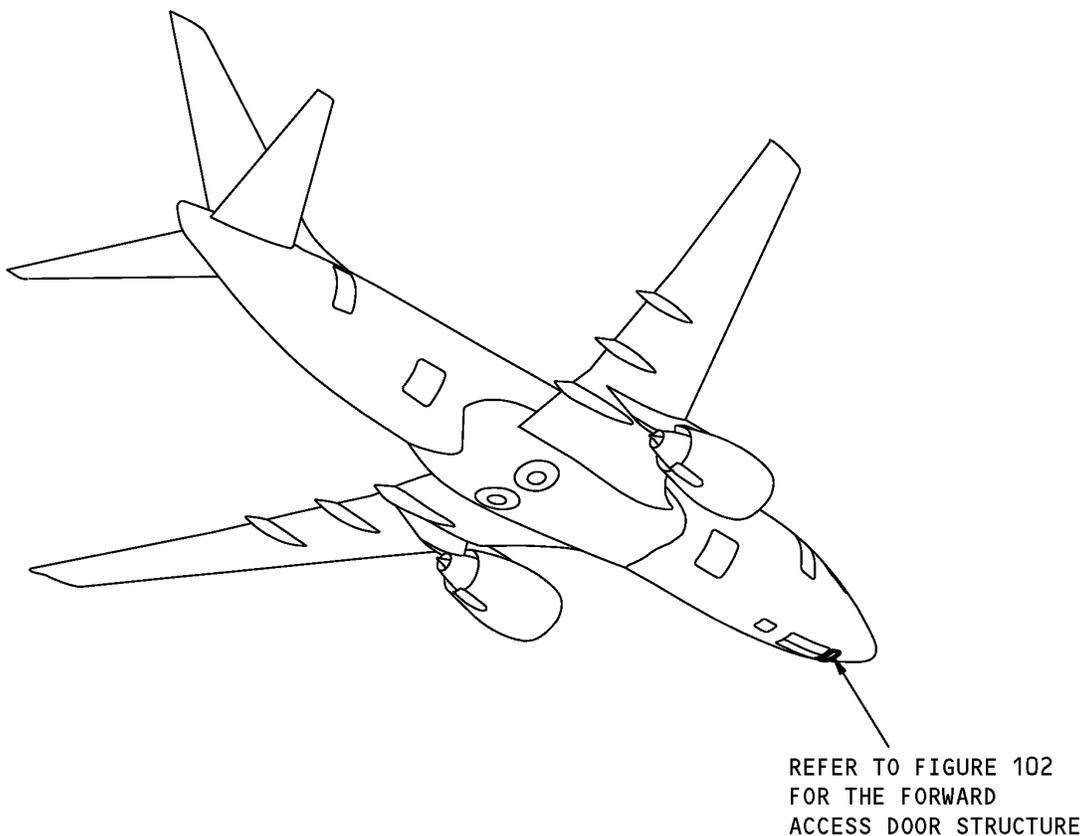
**Allowable Damage Limits
Figure 103 (Sheet 3 of 3)**

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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 2 - FORWARD ACCESS DOOR STRUCTURE

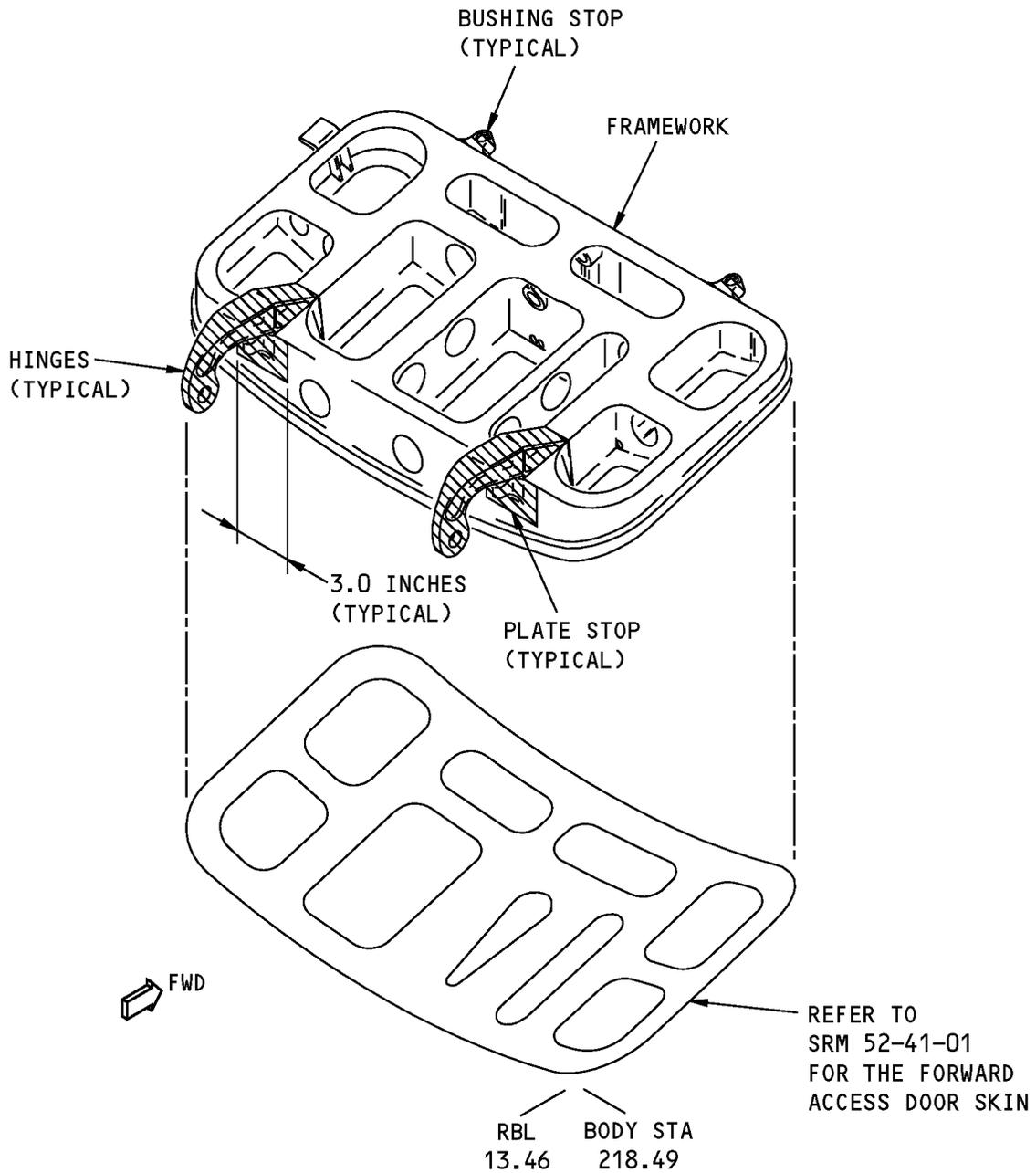
1. Applicability

- A. This subject gives the allowable damage limits for the forward access door structure shown in Forward Access Door Location, Figure 101/ALLOWABLE DAMAGE 2 and Forward Access Door Structure, Figure 102/ALLOWABLE DAMAGE 2.



Forward Access Door Location
Figure 101

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STRUCTURAL REPAIR MANUAL**



MATERIAL: ALUMINUM CASTING

-  FRAMEWORK
-  PLATE STOP, BUSHING STOP, HINGES

**Forward Access Door Structure
Figure 102**



**737-800
STRUCTURAL REPAIR MANUAL**

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2 Refer to Table 101/ALLOWABLE DAMAGE 2 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Framework	4.A
Hinges, and Plate Stop and Bushing Stop Points	4.B

- B. Remove the necessary parts to get access to the forward access door structure.
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. After the damage has been removed, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Framework:
 - (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits - Forward Access Door Structure, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , and C .
 - (2) Nicks, Scratches, Gouges, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - Forward Access Door Structure, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , E , and F .
 - (3) Holes and Punctures are not permitted.
 - (4) Dents are not permitted.



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STRUCTURAL REPAIR MANUAL

B. Hinges, and Plate and Bushing Stop Points:

- (1) Damage is not permitted.

ALLOWABLE DAMAGE 2

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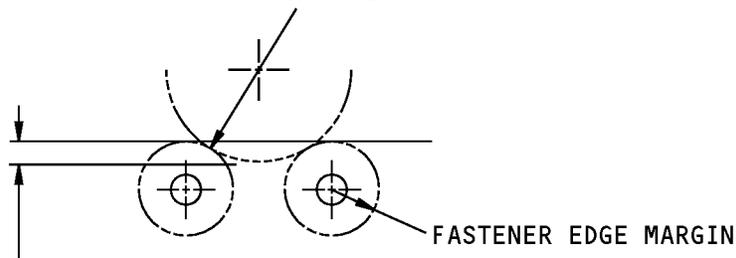
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52-41-02

STRUCTURAL REPAIR MANUAL

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH (25.4 mm)

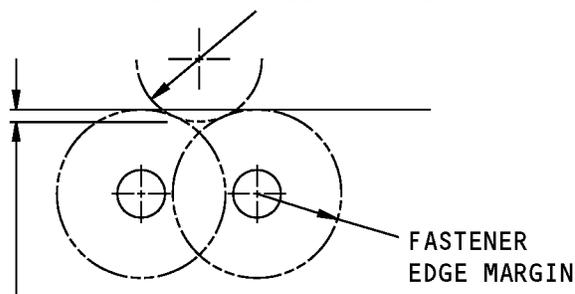


X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm), OR 10 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

**REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE
FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP**

(A)

REMOVE THE MATERIAL TO A MINIMUM
RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm), OR 10 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

**REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE
FASTENER EDGE MARGINS HAVE AN OVERLAP**

(B)

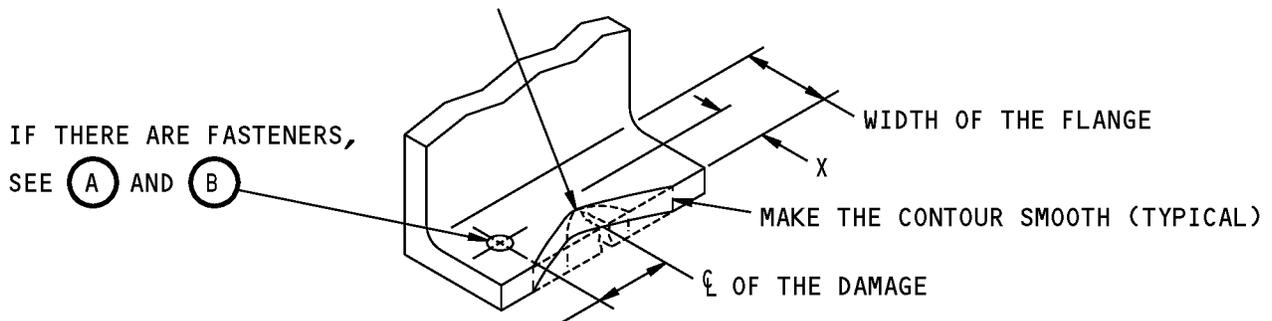
NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 1 of 4)**

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STRUCTURAL REPAIR MANUAL**

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN

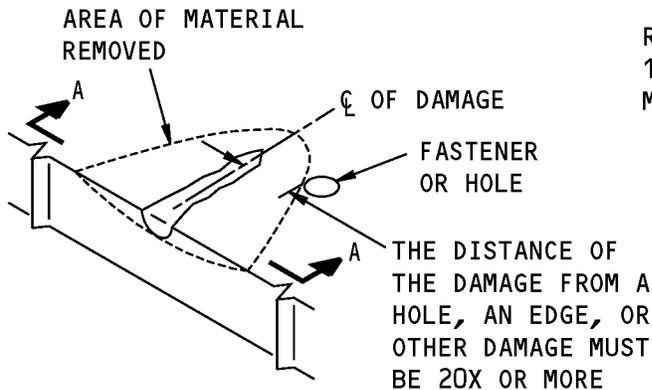


TAPER TO A MINIMUM OF 20X. THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20x OR MORE

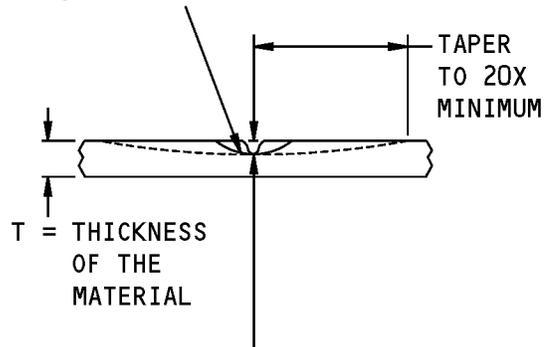
- X = WIDTH OF THE MATERIAL REMOVED
- = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.10 INCH (2.54 mm), THAT WHICH IS LESS 1
 - = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm), THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)



REMOVE THE MATERIAL TO A 1.00 INCH (25.4 mm) RADIUS MINIMUM, THEN TAPER AS SHOWN



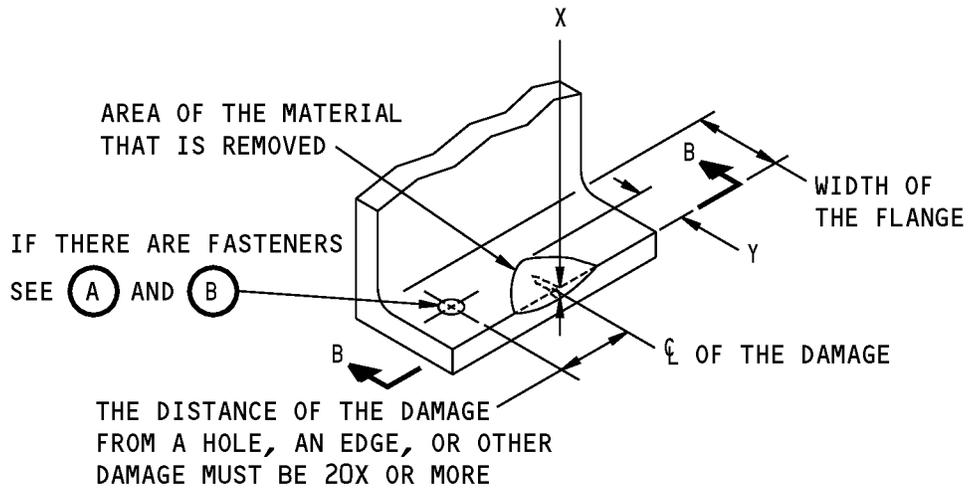
- X = THE DEPTH OF THE MATERIAL REMOVED
- = A MAXIMUM OF 0.05T 1
 - = A MAXIMUM OF 0.10T 2
- A-A

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

**Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 2 of 4)**

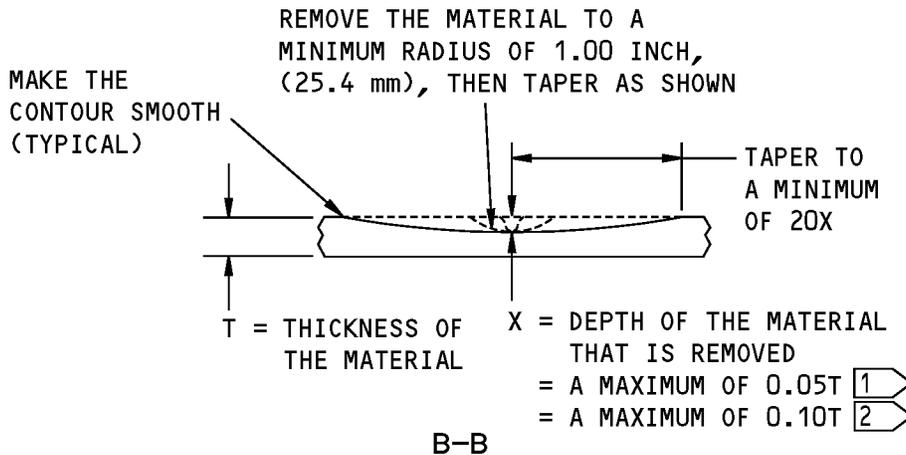
**737-800
STRUCTURAL REPAIR MANUAL**



- Y = WIDTH OF THE MATERIAL THAT IS REMOVED
- = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE 1
- = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 2

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**

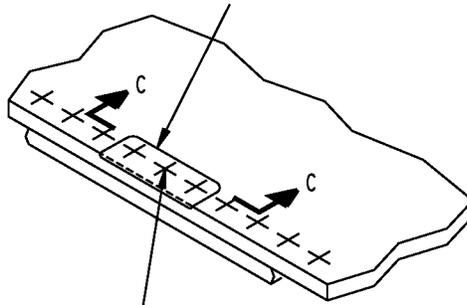
(E)



**Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 3 of 4)**

**737-800
STRUCTURAL REPAIR MANUAL**

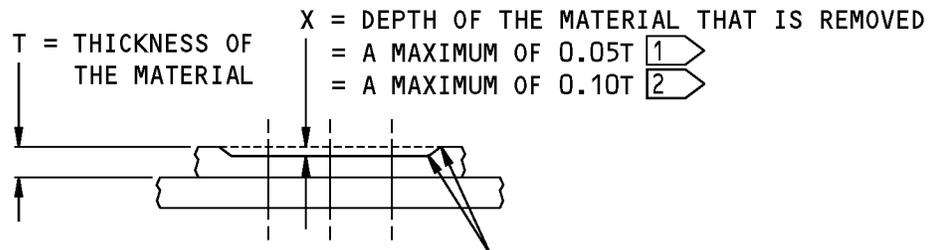
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

F



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

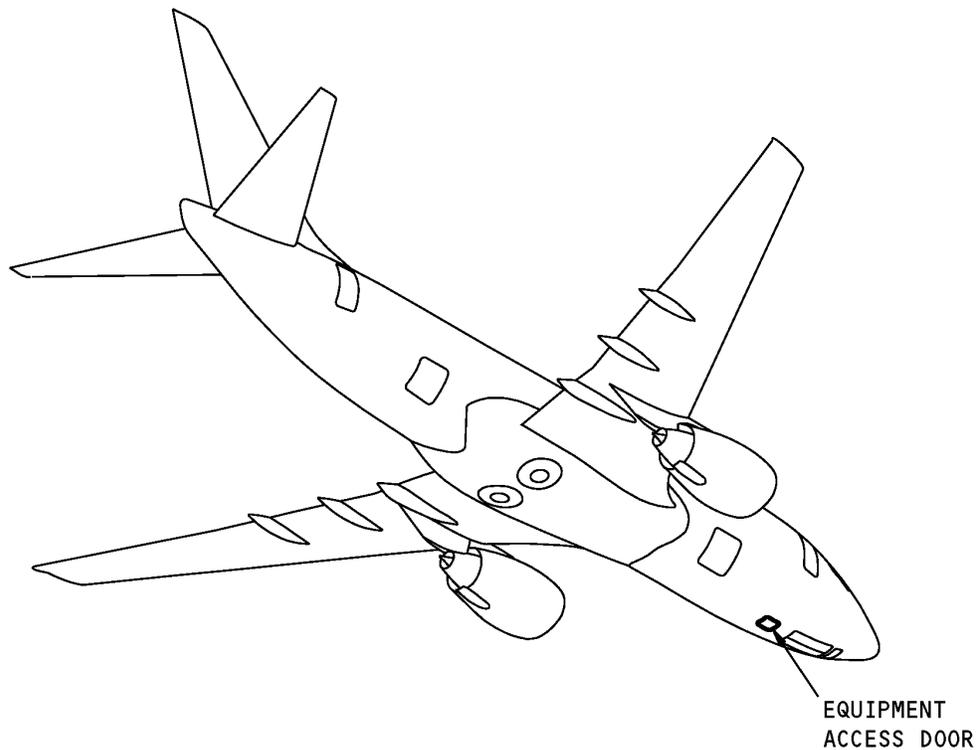
C-C

**Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 4 of 4)**



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STRUCTURAL REPAIR MANUAL

REPAIR 1 - EQUIPMENT ACCESS DOOR STRUCTURE

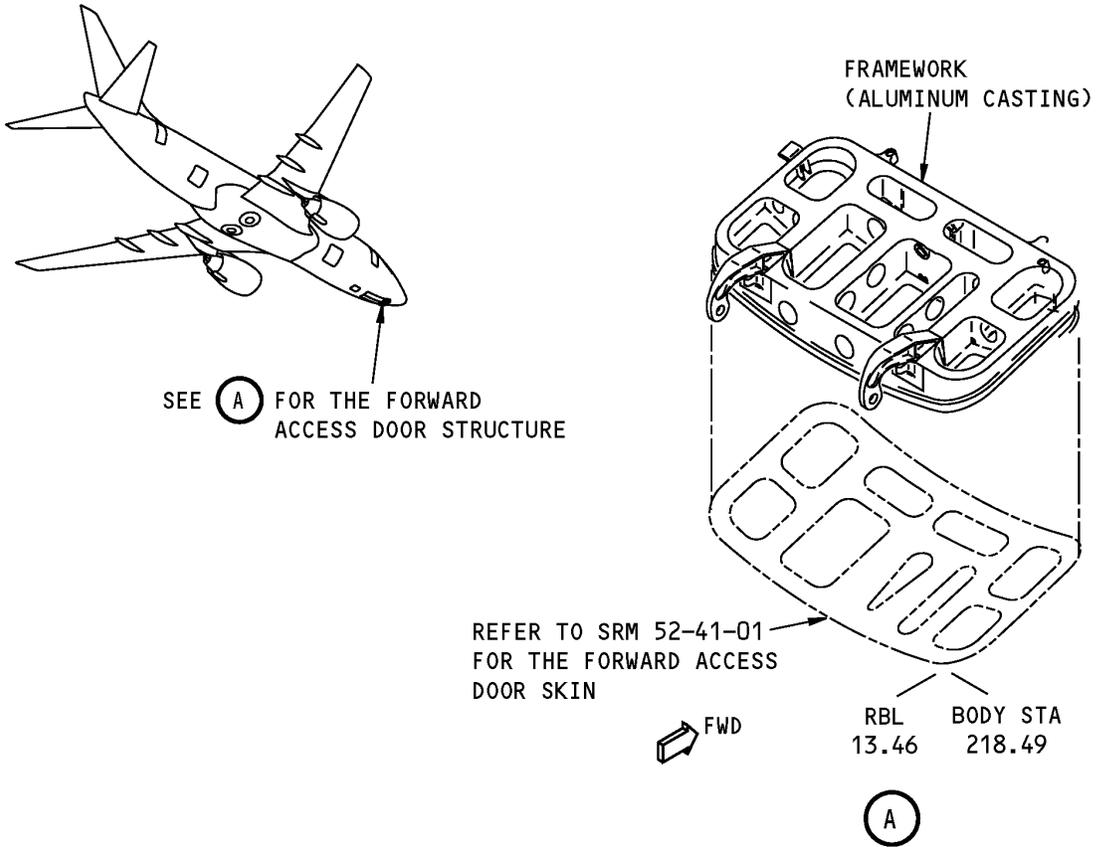


NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

Equipment Access Door Structure Repair
Figure 201

**737-800
STRUCTURAL REPAIR MANUAL**

REPAIR 2 - FORWARD ACCESS DOOR STRUCTURE



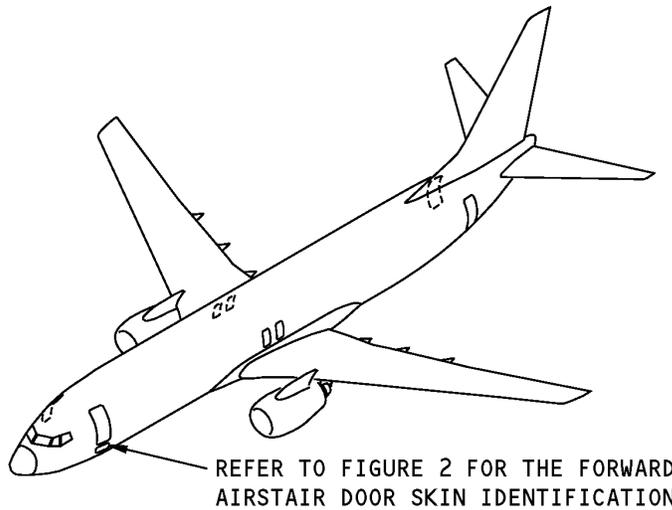
NOTES

- THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

**Forward Access Door Structure
Figure 201**

**737-800
STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - FORWARD AIRSTAIR DOOR SKIN



NOTES

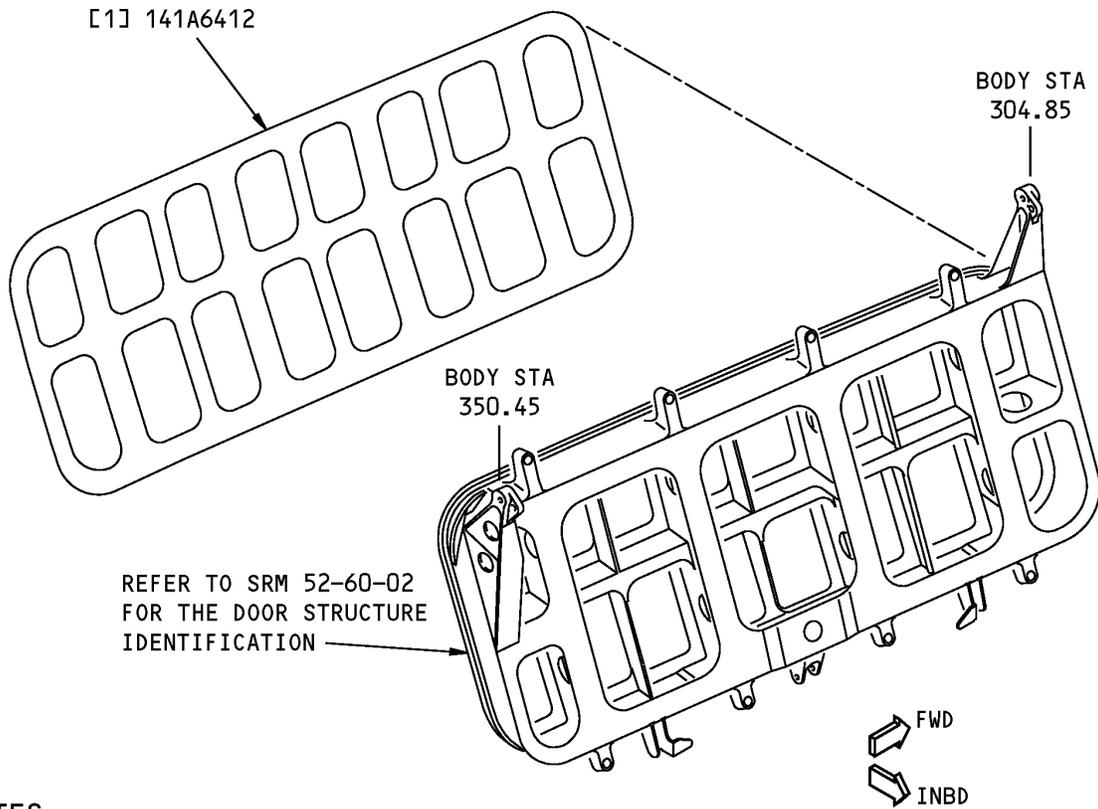
- REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.
- FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

**Forward Airstair Door Skin Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6401	Door Installation - Forward Airstair
141A6402	Door Assembly - Forward Airstair

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STRUCTURAL REPAIR MANUAL**



NOTES

- ALL CHEM-MILLED POCKETS ARE 0.040 INCH DEPTH
- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Airstair Door Skin Identification
Figure 2**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Outer Skin	0.063 (1.60)	2024-T3 clad sheet	

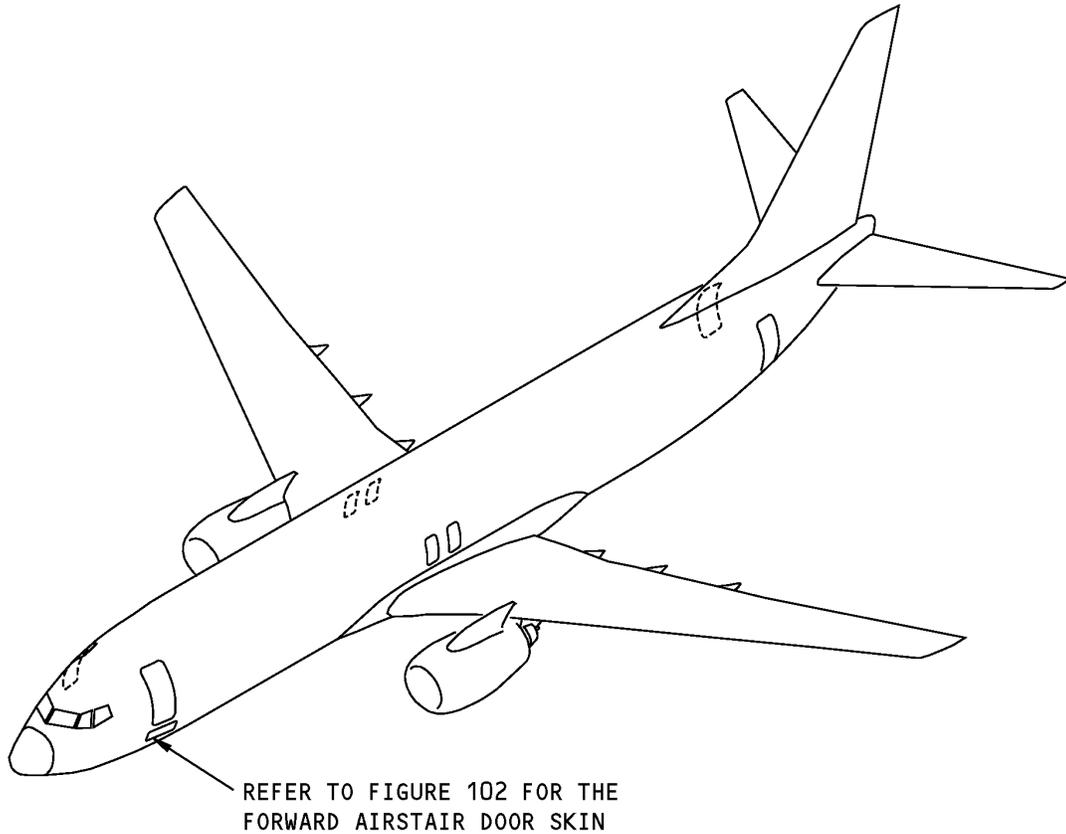
*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - FORWARD AIRSTAIR DOOR SKIN

1. Applicability

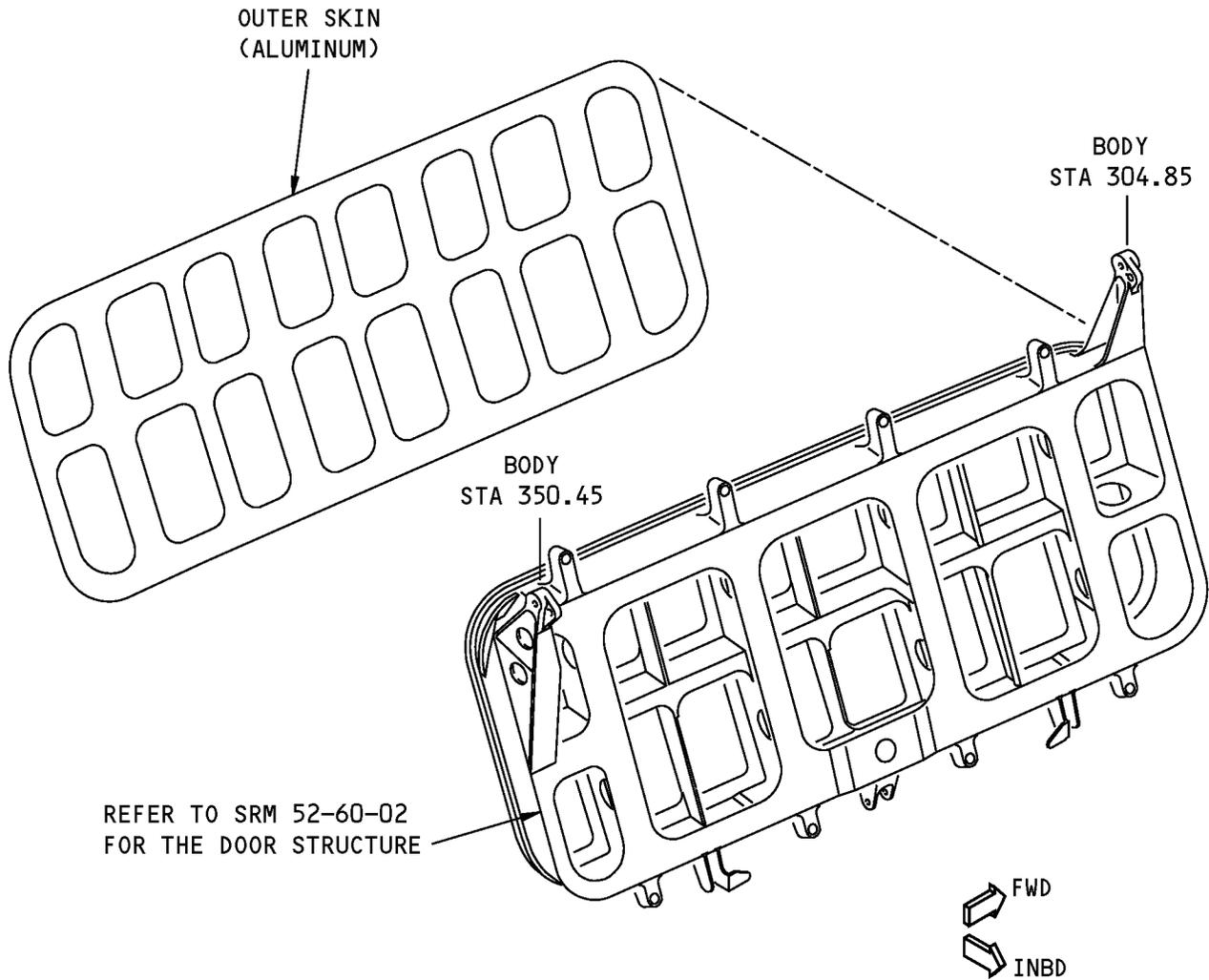
- A. This subject gives the allowable damage limits for the forward airstair door skin shown in Forward Airstair Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Airstair Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



NOTE: FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

Forward Airstair Door Skin Location
Figure 101

**737-800
STRUCTURAL REPAIR MANUAL**



NOTES

- ALL CHEM-MILLED POCKETS ARE 0.040 INCH DEPTH.

**Forward Airstair Door Skin
Figure 102**



737-800 STRUCTURAL REPAIR MANUAL

2. General

- A. The forward airstair door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the forward airstair door skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the forward airstair door skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic inner surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06, GENERAL	Fastener Edge Margins
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes



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4. Allowable Damage Limits

A. If you find damage to the forward airstair door skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.

B. Cracks:

- (1) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
- (2) Refer to Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

C. Nicks, Gouges, Scratches, and Corrosion:

- (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
- (2) Refer to Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

D. Dents:

- (1) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F .
- (2) Dents larger than the limits shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F , that cannot be repaired immediately are permitted if:
 - (a) There are no loose or missing fasteners
 - (b) There are no damaged fastener holes
 - (c) There are no creases, gouges, or cracks near the dent
 - (d) You do not fill the dent
 - (e) You do an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

E. Holes and Punctures

NOTE: For holes and punctures that are a maximum of 0.25 inch in diameter, there are no flight operation limits. Refer to Paragraph 4.E.(1)/ALLOWABLE DAMAGE 1 For holes and punctures that are larger than 0.25 inch in diameter, flight operation limits are necessary. Refer to Paragraph 4.E.(2)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1

- (1) Damage is permitted if:
 - (a) It is a maximum of 0.25 inch in diameter.
 - (b) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (c) It is filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.

ALLOWABLE DAMAGE 1

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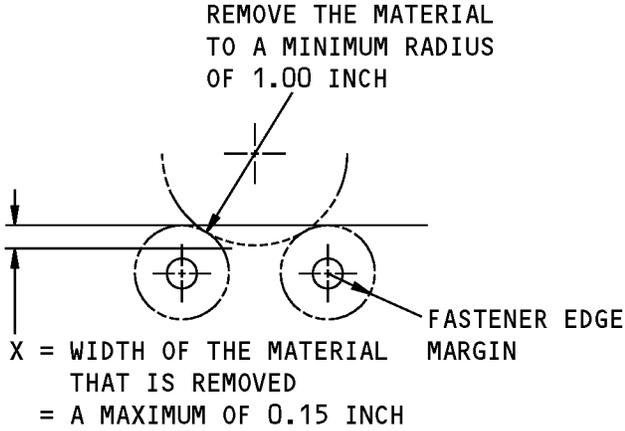


737-800

STRUCTURAL REPAIR MANUAL

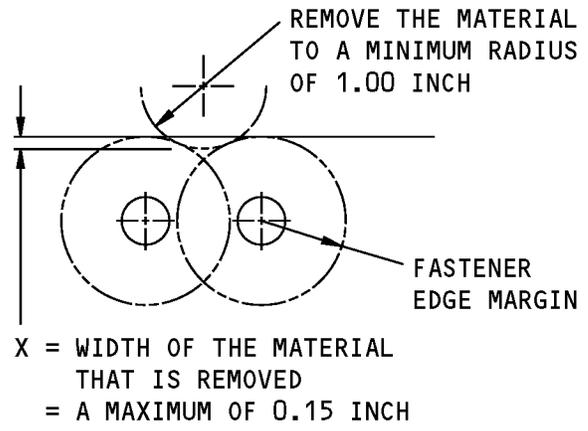
- (2) If you find damage that is larger than 0.25 inch in diameter, do as follows:
 - (a) Remove the damage to a circular or oval shape.
 - (b) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (c) Refer to Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

STRUCTURAL REPAIR MANUAL



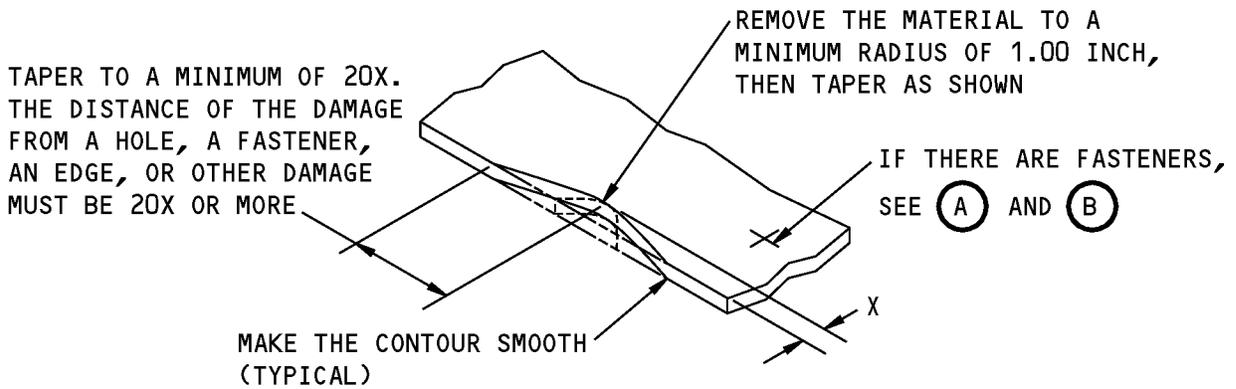
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



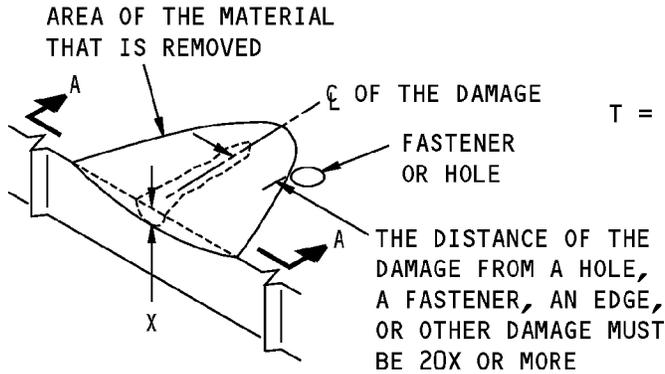
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

STRUCTURAL REPAIR MANUAL

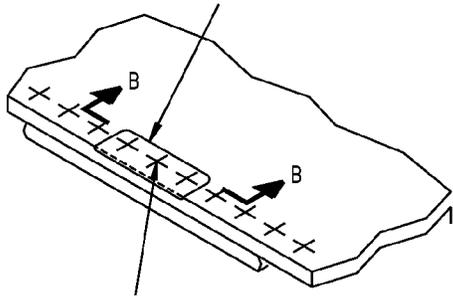


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

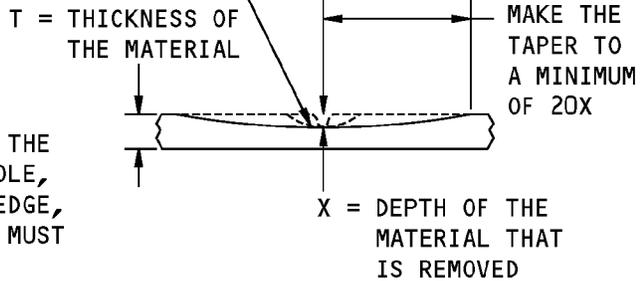
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



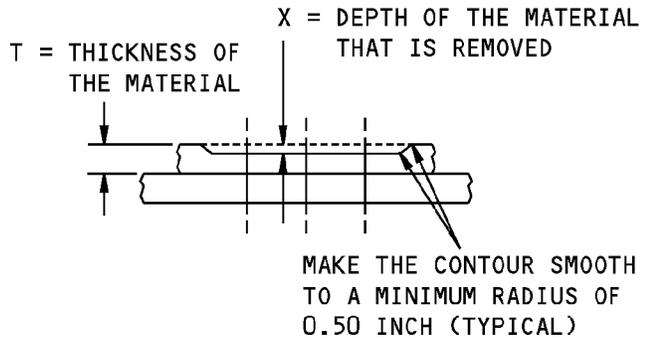
**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

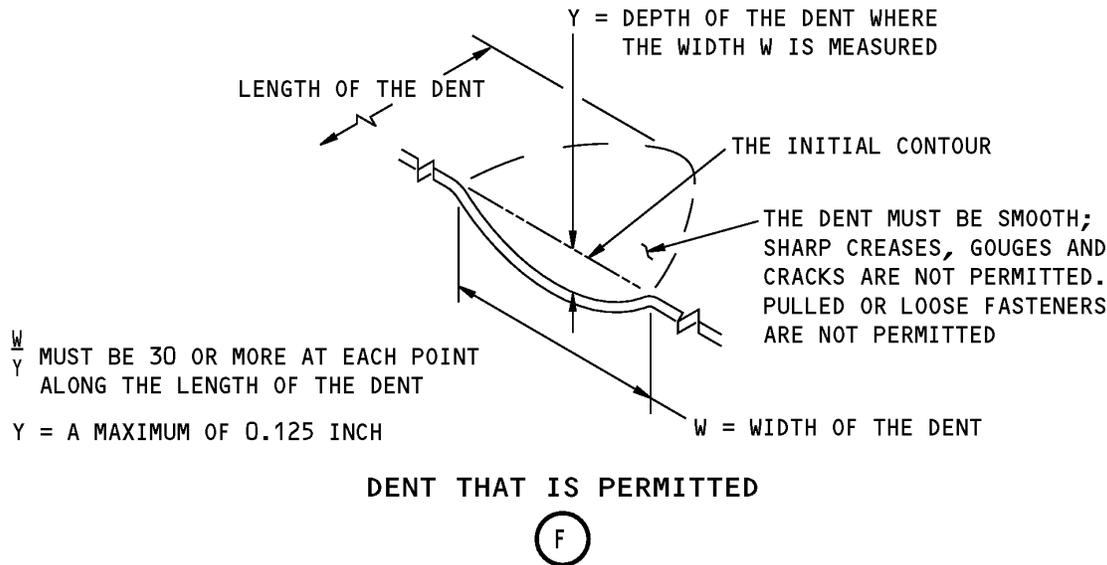
A-A



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

B-B

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STRUCTURAL REPAIR MANUAL**



**Allowable Damage Limits
Figure 103 (Sheet 3 of 3)**

5. Airplane Flight Operation Limits

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and Punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1.

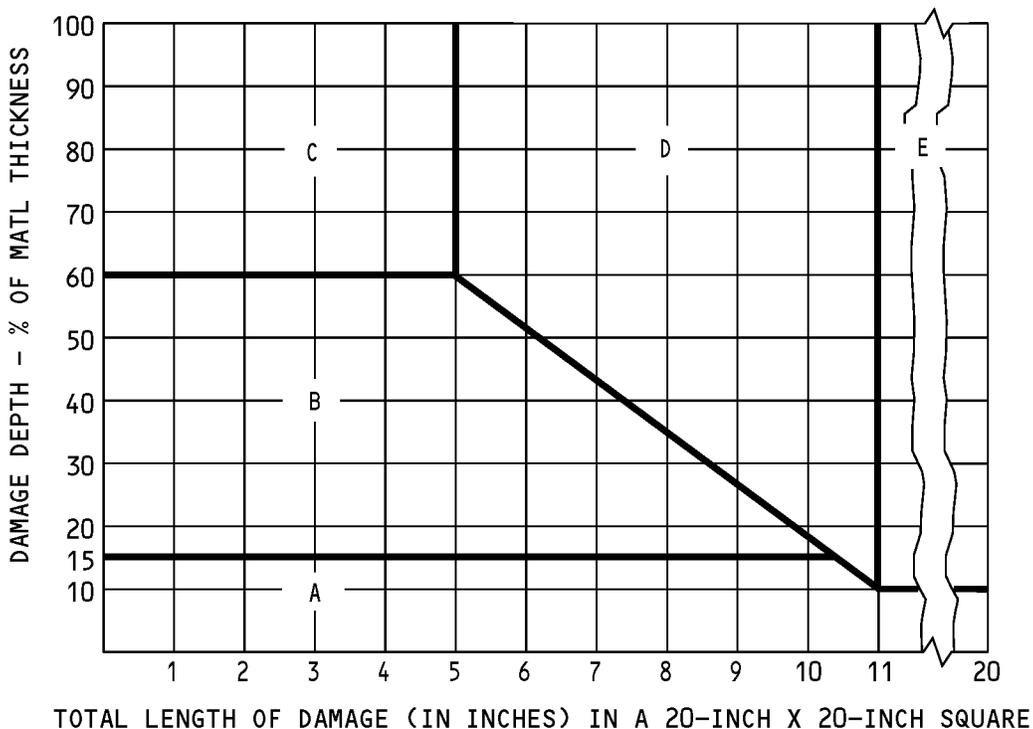


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Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired.</p> <p>For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG.</p> <p>Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
D	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	<p>A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing.</p> <p>The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.</p>
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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STRUCTURAL REPAIR MANUAL**



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

**Damage Limits for Pressurized External Skin
Figure 104**



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STRUCTURAL REPAIR MANUAL

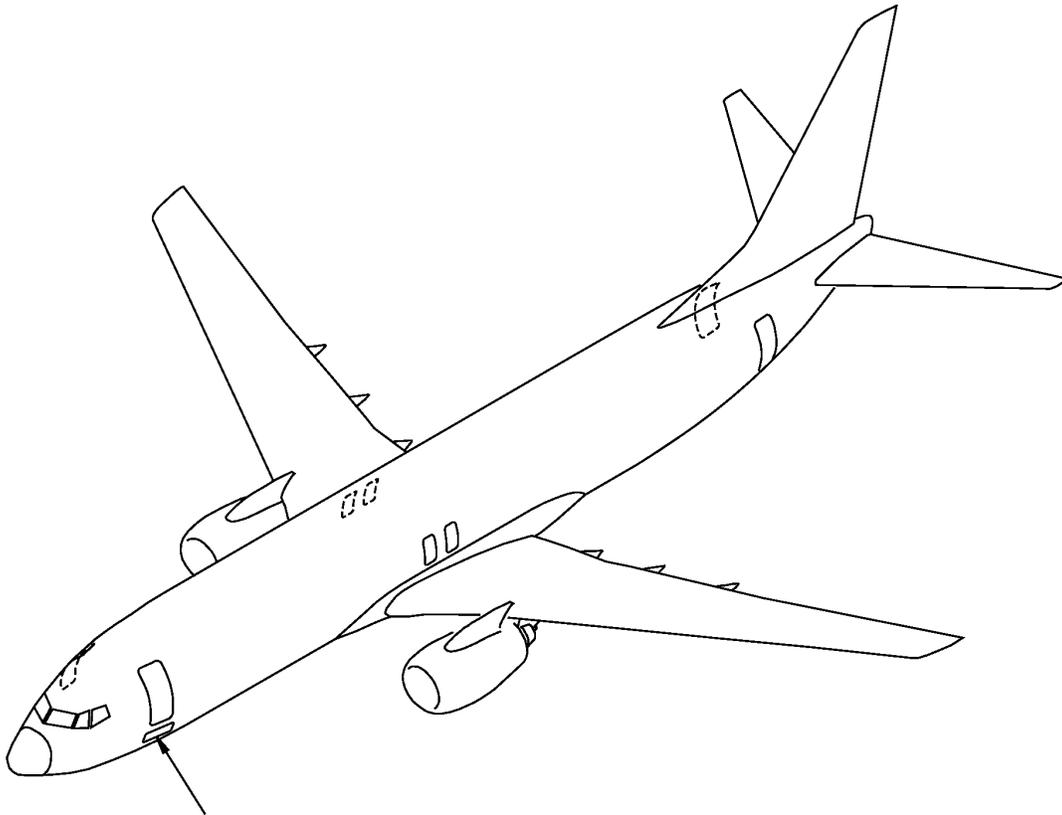
This data has been moved to 52-30-01, ALLOWABLE DAMAGE 1SRM 52-30-01, Allowable Damage 1.

STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD AIRSTAIR DOOR SKIN

1. Applicability

- A. Repair 1 is applicable to damage to the forward airstair door skin shown in Forward Airstair Door Skin Location, Figure 201/REPAIR 1 and Forward Airstair Door Skin, Figure 202/REPAIR 1.

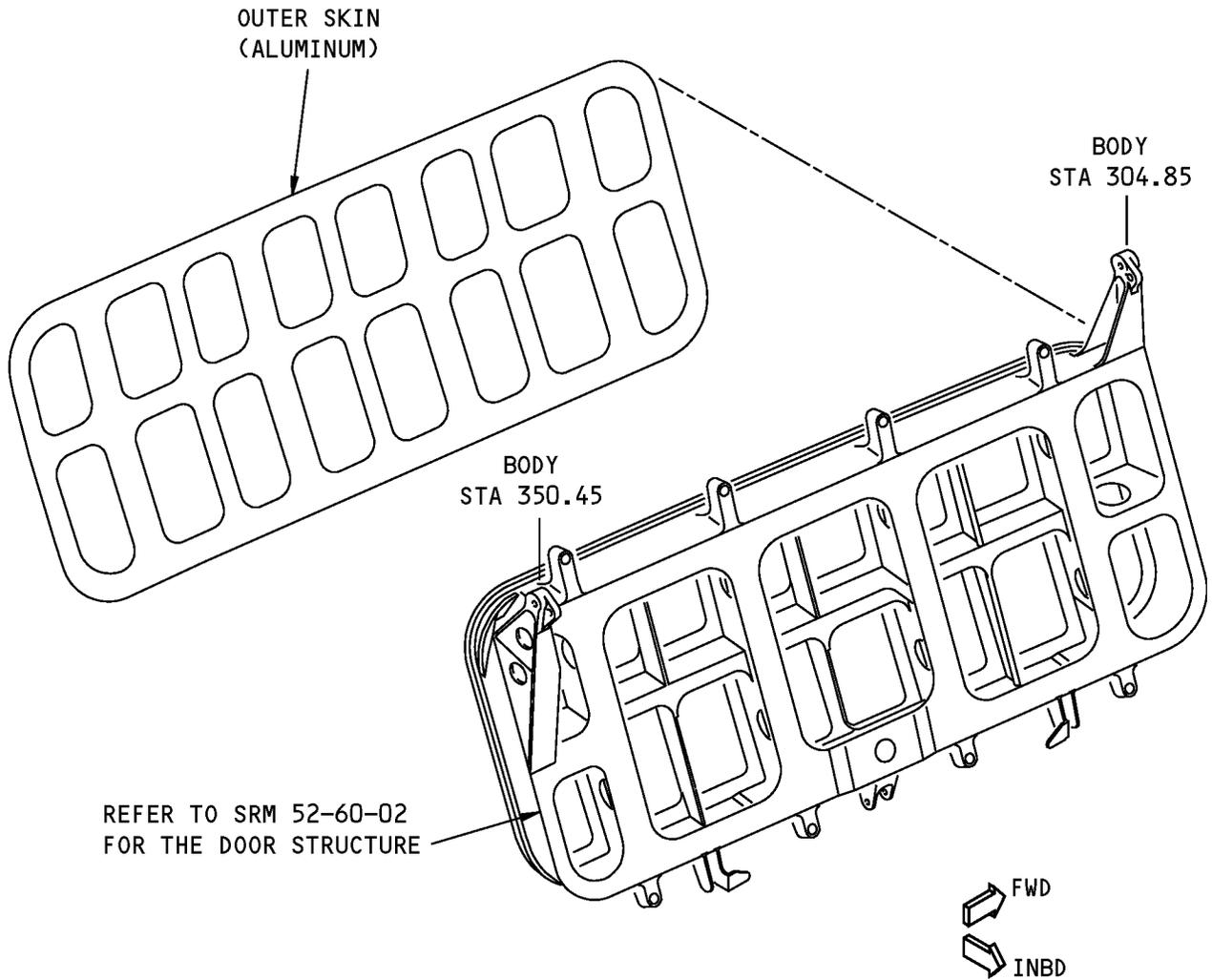


REFER TO FIGURE 202
FOR THE FORWARD
AIRSTAIR DOOR SKIN

NOTE: FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

**Forward Airstair Door Skin Location
Figure 201**

**737-800
STRUCTURAL REPAIR MANUAL**



NOTE: ALL CHEM-MILLED POCKETS ARE 0.040 INCH DEPTH.

**Forward Airstair Door Skin
Figure 202**



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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 5 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 5 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN ALLOWABLE DAMAGE AND REPAIRS
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams

4. Repair Instructions

- A. Refer to 52-00-01, Repair 1 through Repair 5 to find the applicable repair for the forward airstair door skin shown in Forward Airstair Door Skin Location, Figure 201/REPAIR 1 and Forward Airstair Door Skin, Figure 202/REPAIR 1.

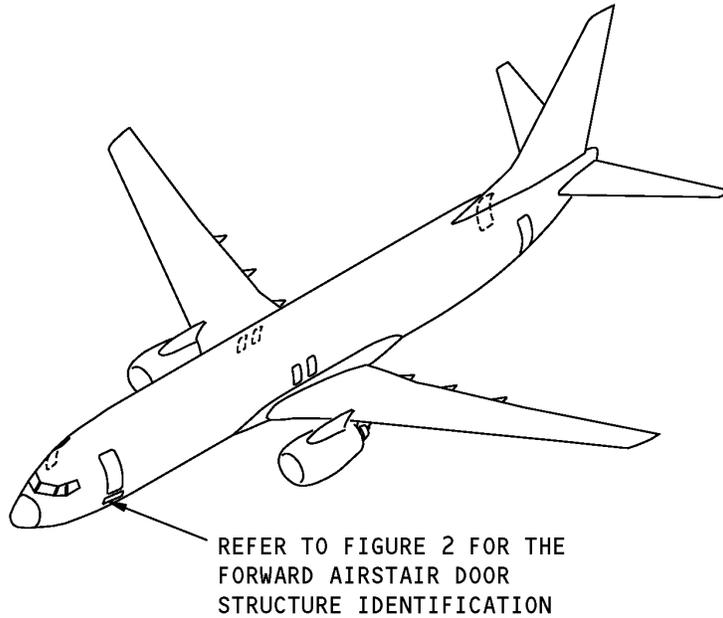


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STRUCTURAL REPAIR MANUAL

This data has been moved to 52-30-01, REPAIR 1SRM 52-30-01, Repair 1.

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STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - FORWARD AIRSTAIR DOOR STRUCTURE



NOTES

- REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.
- FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

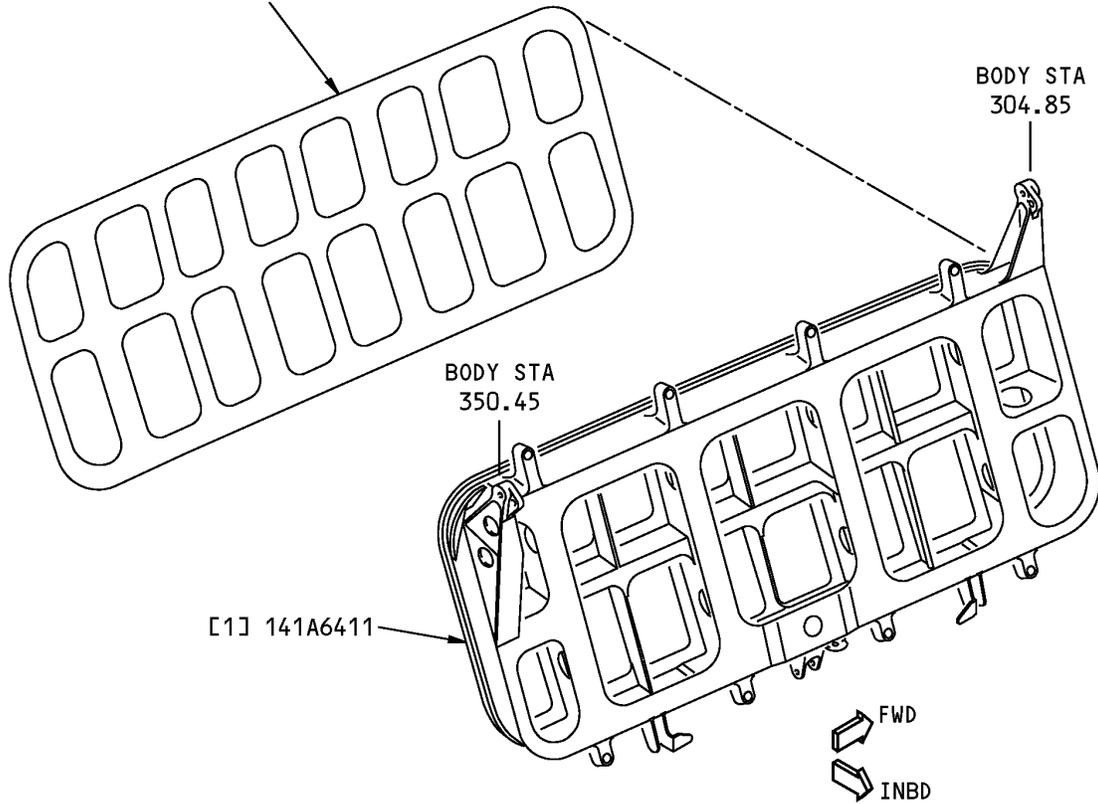
**Forward Airstair Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6400	Forward Airstair Door Functional Product Collector
141A6401	Door Installation - Forward Airstair
141A6402	Door Assembly - Forward Airstair

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REFER TO SRM 52-60-01
FOR THE FORWARD AIRSTAIR
DOOR SKIN IDENTIFICATION



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Forward Airstair Door Structure Identification
Figure 2**

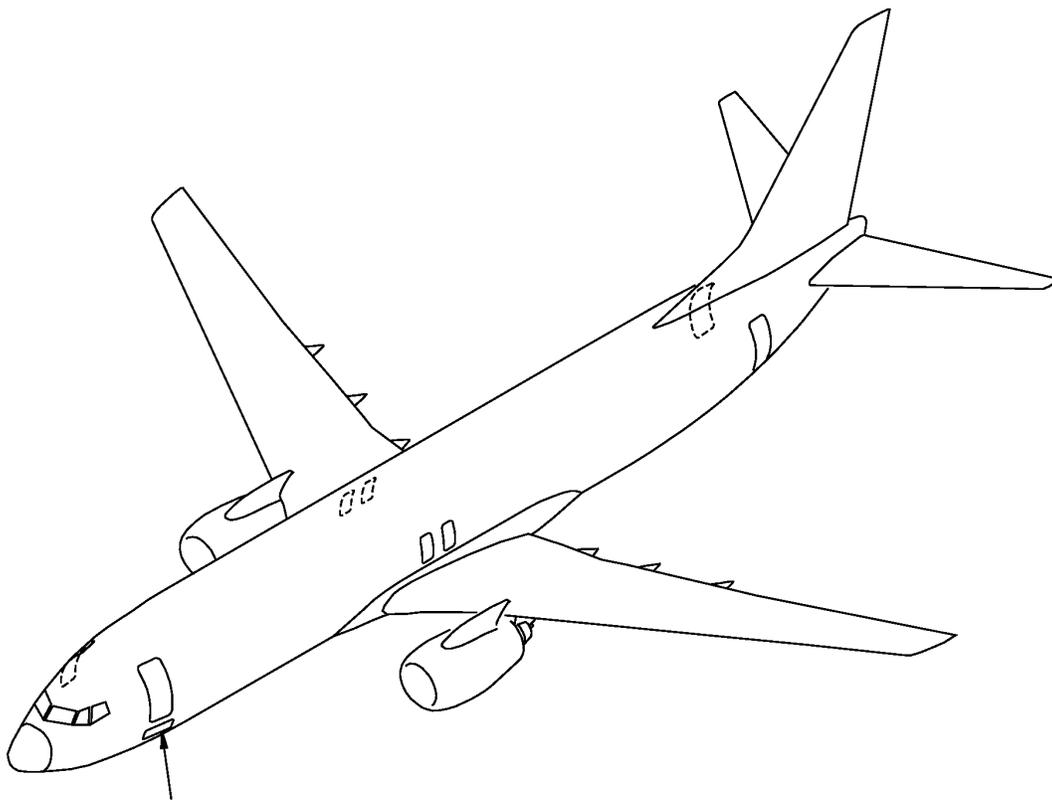
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Framework		D357.0-T6 aluminum casting as given in BMS 7-330	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

STRUCTURAL REPAIR MANUAL**ALLOWABLE DAMAGE 1 - FORWARD AIRSTAIR DOOR STRUCTURE****1. Applicability**

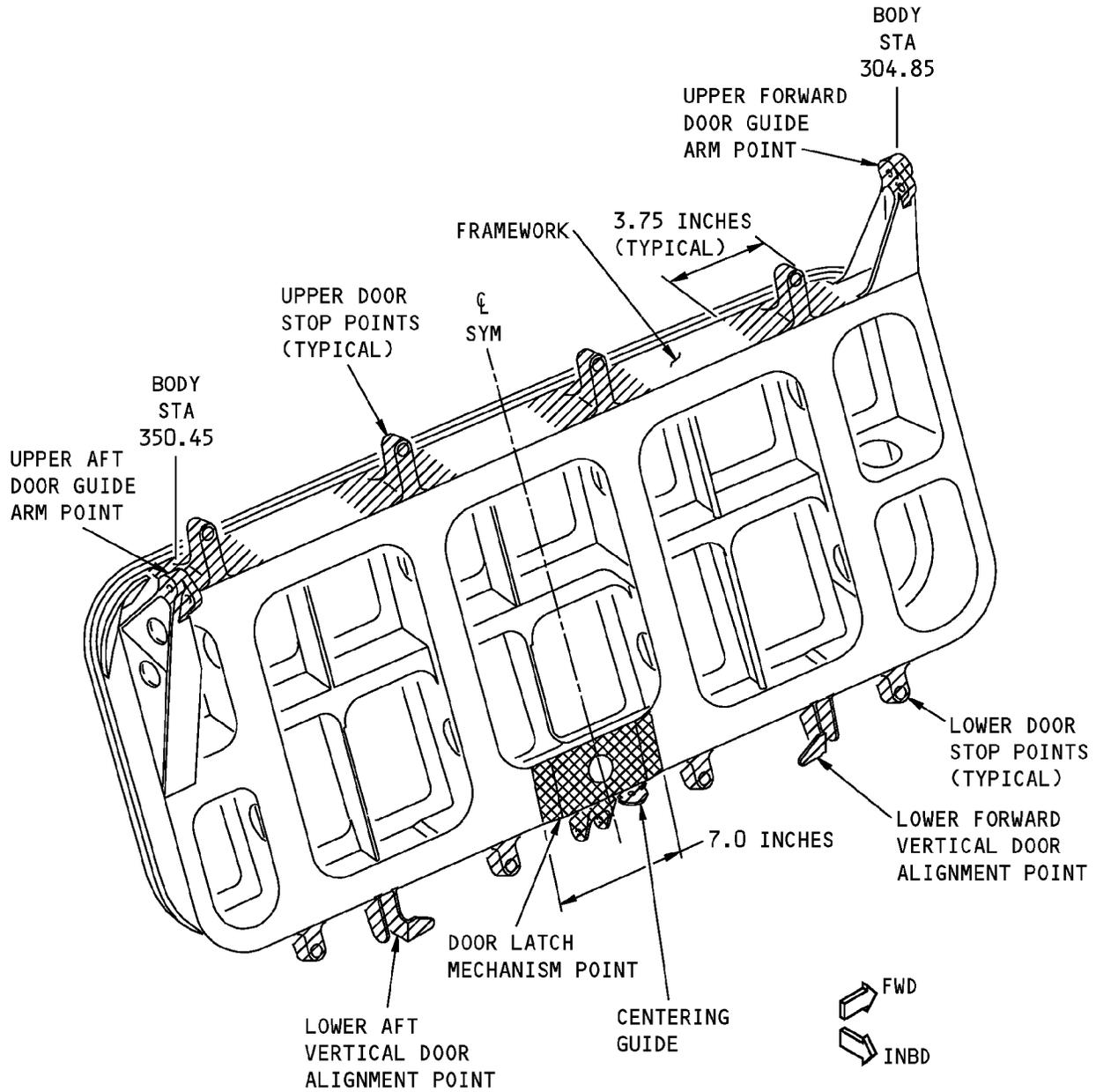
- A. This subject gives the allowable damage limits for the forward airstair door structure shown in Forward Airstair Door Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Airstair Door Structure, Figure 102/ALLOWABLE DAMAGE 1.



REFER TO FIGURE 102 FOR THE
FORWARD AIRSTAIR DOOR STRUCTURE

**Forward Airstair Door Location
Figure 101**

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MATERIAL: ALUMINUM CASTING

-  FRAMEWORK
-  DOOR STOP POINTS, GUIDE ARM POINTS, ALIGNMENT POINTS
-  DOOR LATCH MECHANISM POINT.

**Forward Airstair Door Structure
Figure 102**



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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1 Refer to Table 101/ALLOWABLE DAMAGE 1 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Framework	4.A
Upper and Lower Door Stop Points	4.B
Upper Forward and Aft Door Guide Arm Points	4.B
Lower Forward and Aft Vertical Door Alignment Points	4.B
Door Latch Mechanism Point	4.B
Centering Guide	4.B

- B. Remove the necessary parts to get access to the forward access door structure.
- C. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. After the damage has been removed, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06, GENERAL	Fastener Edge Margins
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Framework:
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (2) Nicks, Gouges, Scratches, and Corrosion:

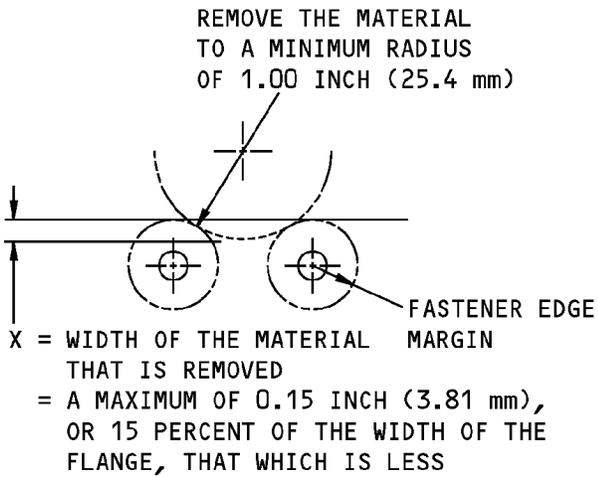


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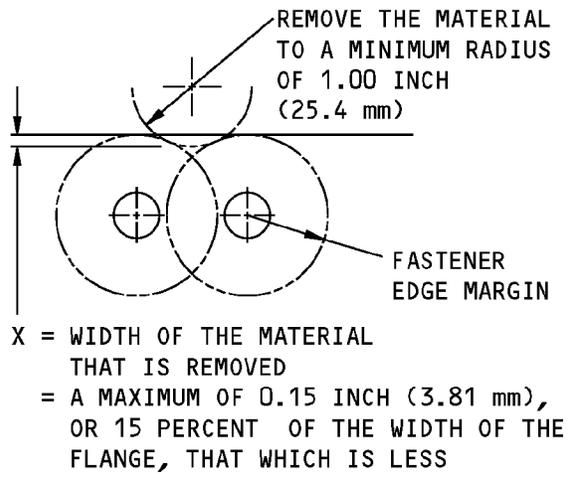
- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .
- (3) Holes and Punctures are not permitted.
- (4) Dents are not permitted.
- B. Upper and Lower Door Stop Points, Upper Forward and Aft Door Guide Arm Points, Lower Forward and Aft Vertical Door Alignment Points, Centering Guide and Door Latch Mechanism Point:
 - (1) Damage is not permitted.

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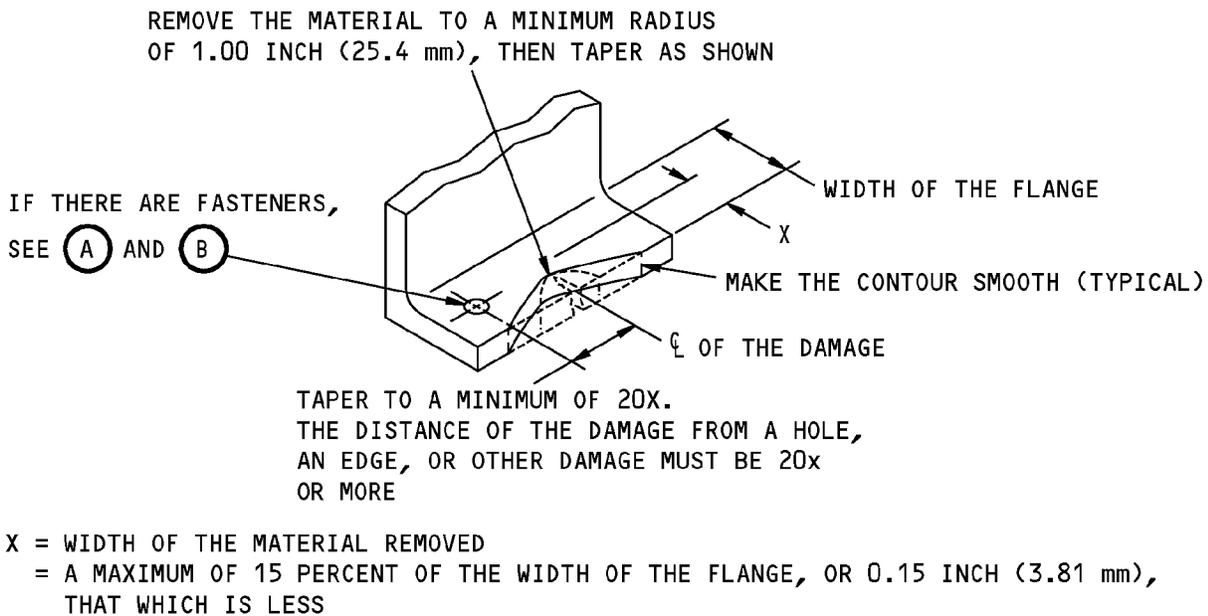
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

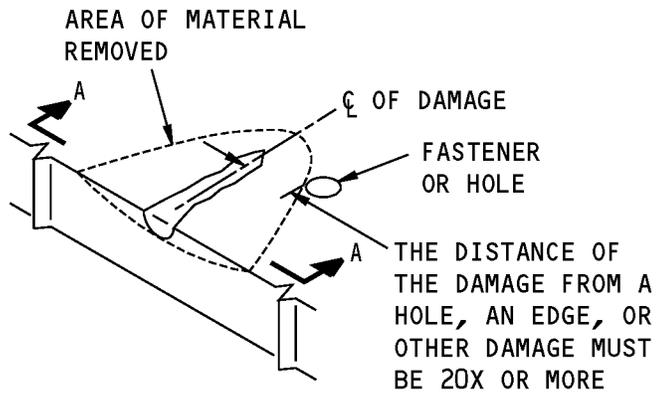


REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

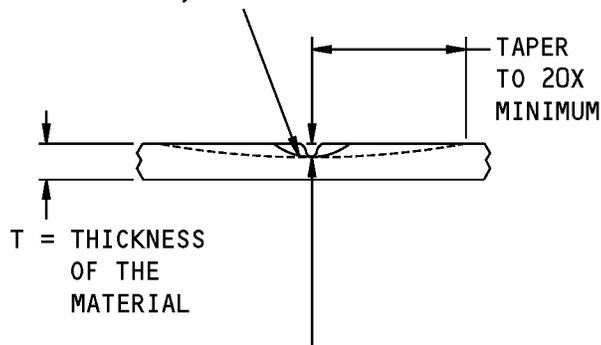
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE



REMOVE THE MATERIAL TO A 1.00 INCH (25.4 mm), RADIUS MINIMUM, THEN TAPER AS SHOWN

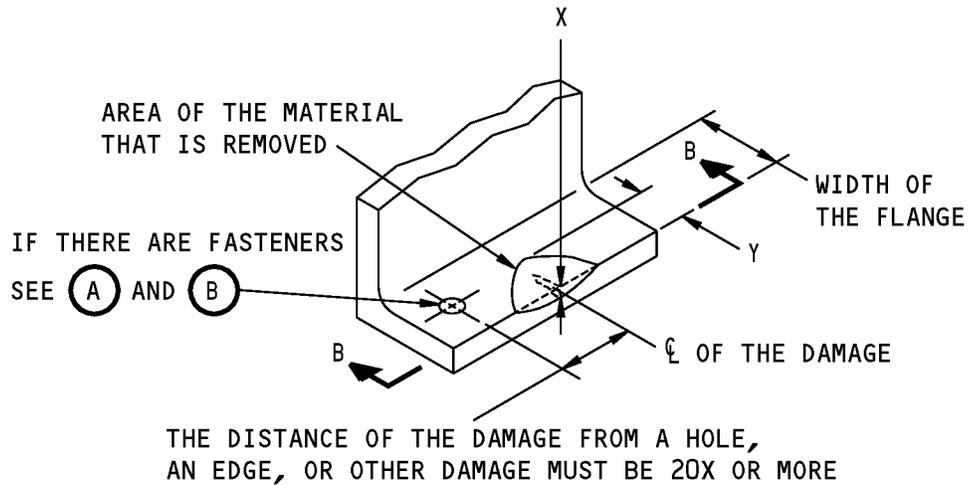


X = THE DEPTH OF THE MATERIAL REMOVED
= A MAXIMUM OF 0.10T

A-A

**Allowable Damage Limits
Figure 103 (Sheet 2 of 4)**

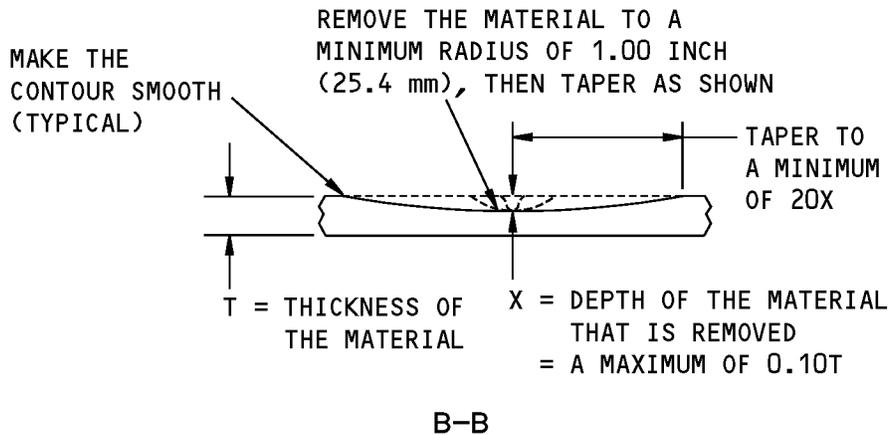
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Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**

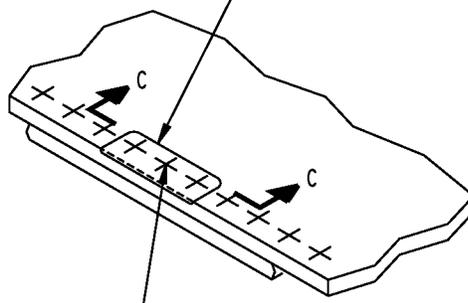
(E)



**Allowable Damage Limits
Figure 103 (Sheet 3 of 4)**

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THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X

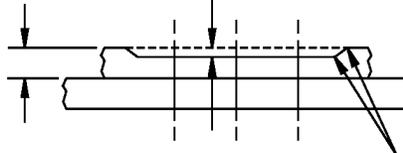


REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



T = THICKNESS OF THE MATERIAL
X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 0.10T



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

C-C

**Allowable Damage Limits
Figure 103 (Sheet 4 of 4)**



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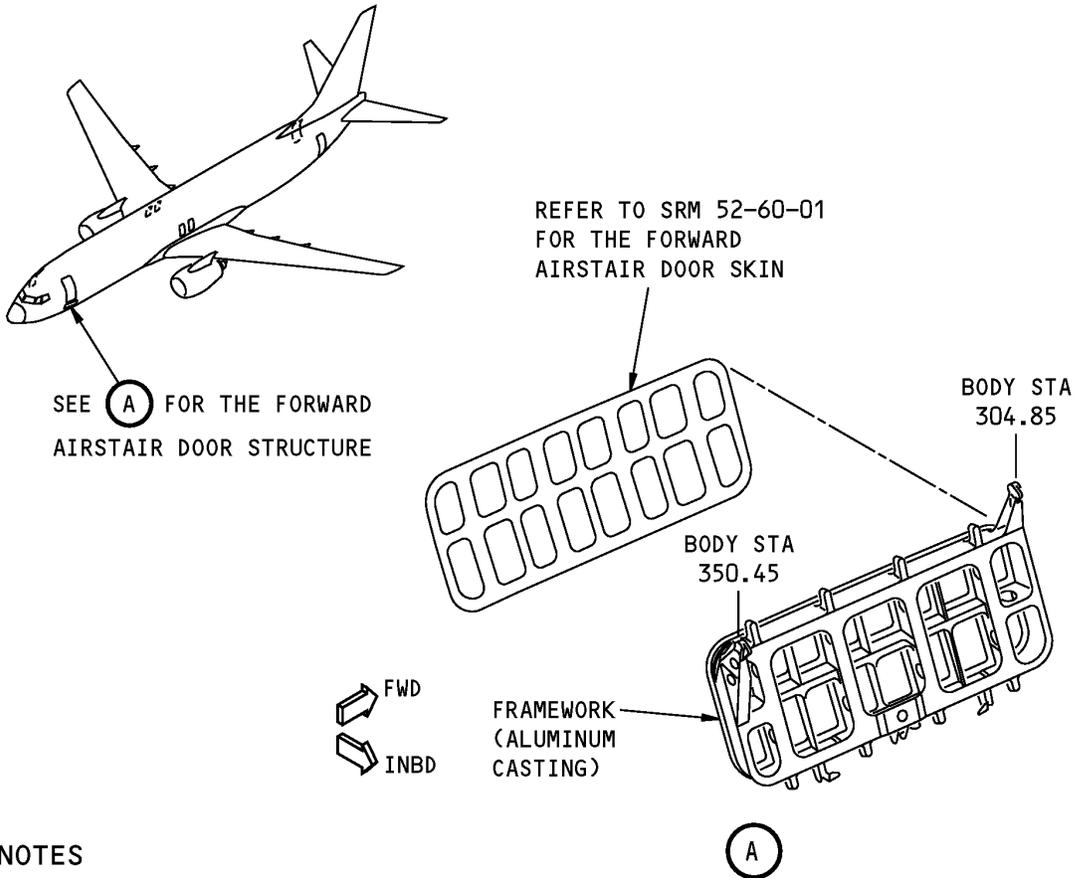
ALLOWABLE DAMAGE 2 - DELETED

1. Allowable Damage 2

- A. The data for Allowable Damage 2 has been moved to SRM 52-30-02, Allowable Damage 1.

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REPAIR 1 - FORWARD AIRSTAIR DOOR STRUCTURE



NOTES

- FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.
- THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

**Forward Airstair Door Structure
Figure 201**



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REPAIR 2 - DELETED

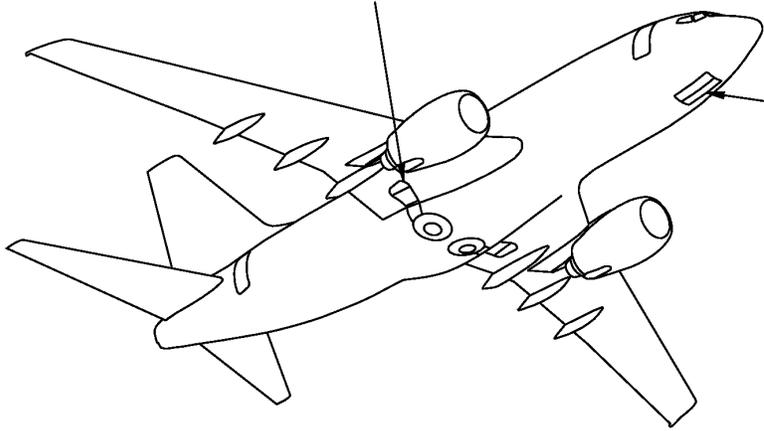
1. Repair 2

- A. The data for Repair 2 has been moved to SRM 52-30-02, Repair 1.

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IDENTIFICATION 1 - NOSE LANDING GEAR DOOR SKIN

REFER TO SRM 52-80-02 FOR
THE MAIN LANDING GEAR DOOR



REFER TO FIGURE 2 FOR THE
NOSE LANDING GEAR DOOR

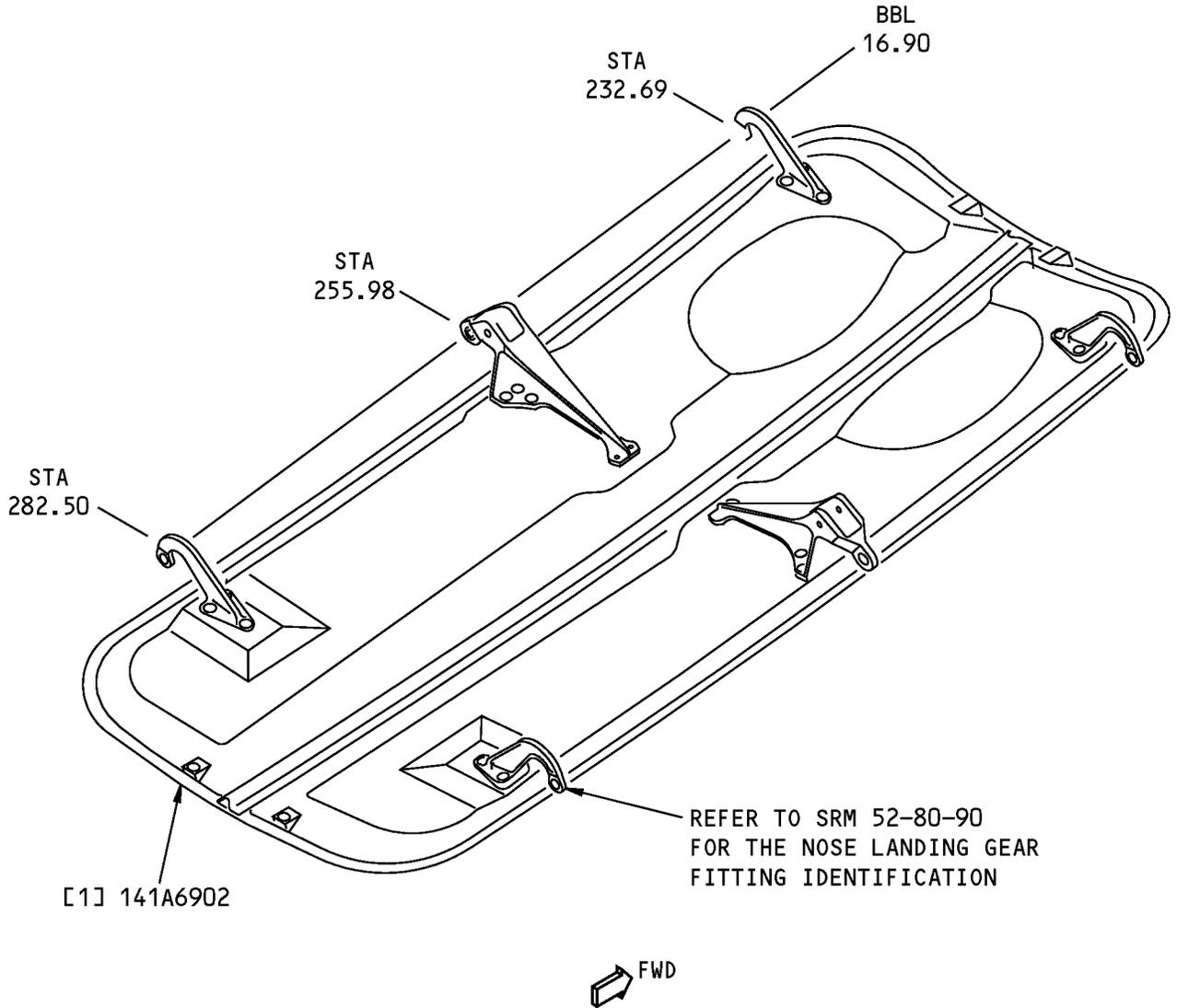
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Nose Landing Gear Door Skin Location
Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6900	Door Installation - Nose Wheel Well
141A6902	Door Assembly - Nose Wheel Well
141A6903	Bonded Door Assembly - Nose Wheel Well
141A6904	Machined Core Details - Nose Wheel Well Doors
141A6905	Seal Details and Block Assembly - Nose Wheel Well
141A6906	Hinge Assembly - Nose Wheel Well Door

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

**Nose Landing Gear Door Skin Identification
Figure 2**



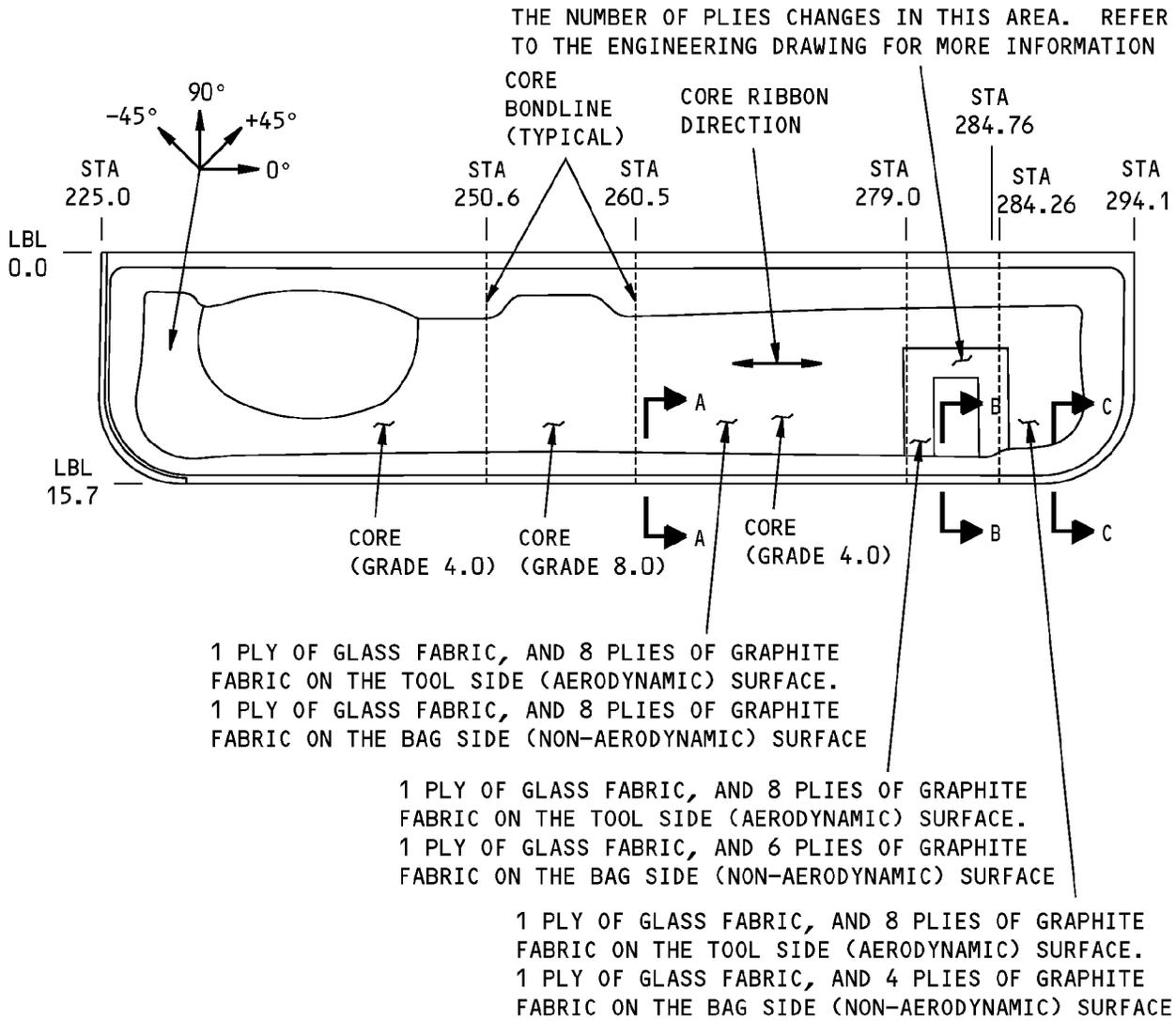
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Nose Wheel Door, Bonded Assembly		Carbon Fiber Reinforced Plastic (CFRP) honeycomb sandwich with Glass Fiber Reinforced Plastic (GFRP) isolation plies	
	Skin		Refer to Figure 3	
	Core (2)		Phenolic honeycomb as given in BMS 8-124, Type I, Class 1, Grade 4.0. Refer to the production drawing for the machined thicknesses	
	Core		Phenolic honeycomb as given in BMS 8-124, Type I, Class 1, Grade 8.0. Refer to the production drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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**VIEW IS ON THE TOOL SIDE (AERODYNAMIC) SURFACE
PLY LAYUP AND CORE RIBBON DIRECTION**

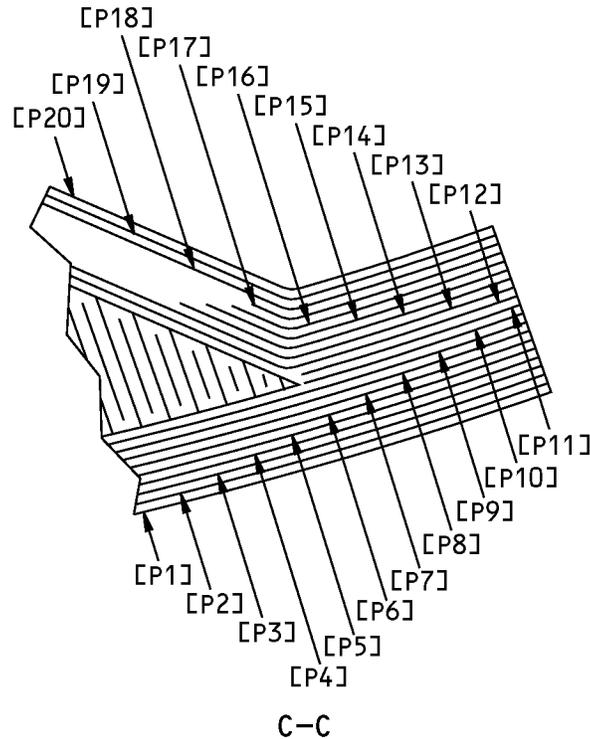
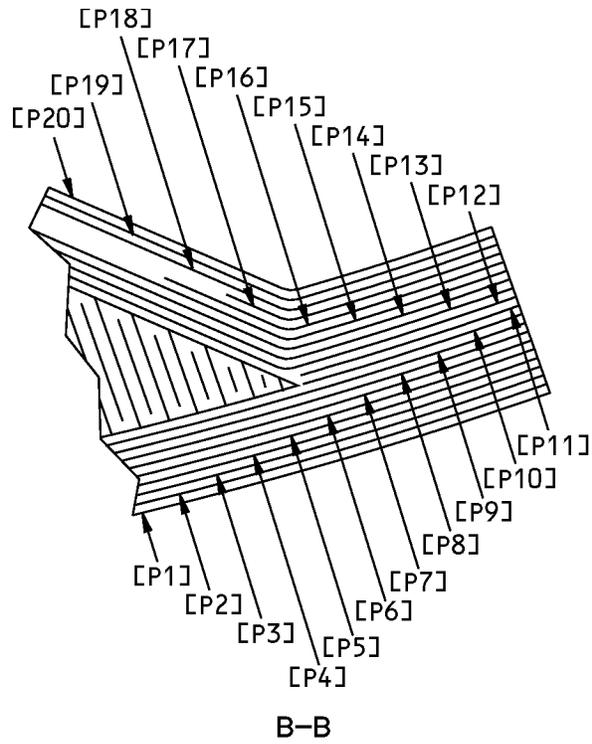
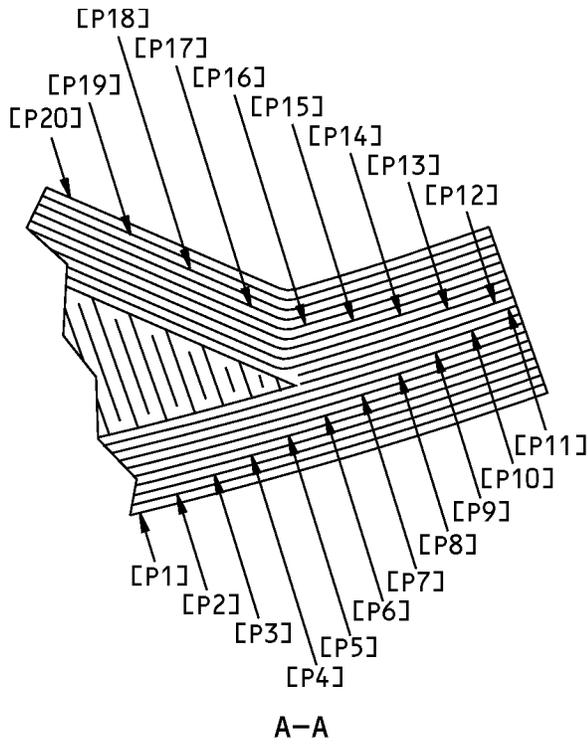
A

NOTES

- THE PLY DIRECTION IS THE WARP DIRECTION OF THE FABRIC, REFER TO DETAIL A FOR THE 0 DEGREE PLY DIRECTION AND THE CORE RIBBION DIRECTION.
- REFER TO SECTIONS A-A, B-B, AND C-C FOR THE PLY SEQUENCE AT THOSE LOCATIONS.
- REFER TO TABLE 3 FOR THE DIRECTION AND MATERIAL OF EACH PLY.

**Ply Direction and Ply Sequence for Figure 2, Item [1]
Figure 3 (Sheet 1 of 2)**

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**Ply Direction and Ply Sequence for Figure 2, Item [1]
Figure 3 (Sheet 2 of 2)**



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Table 3:

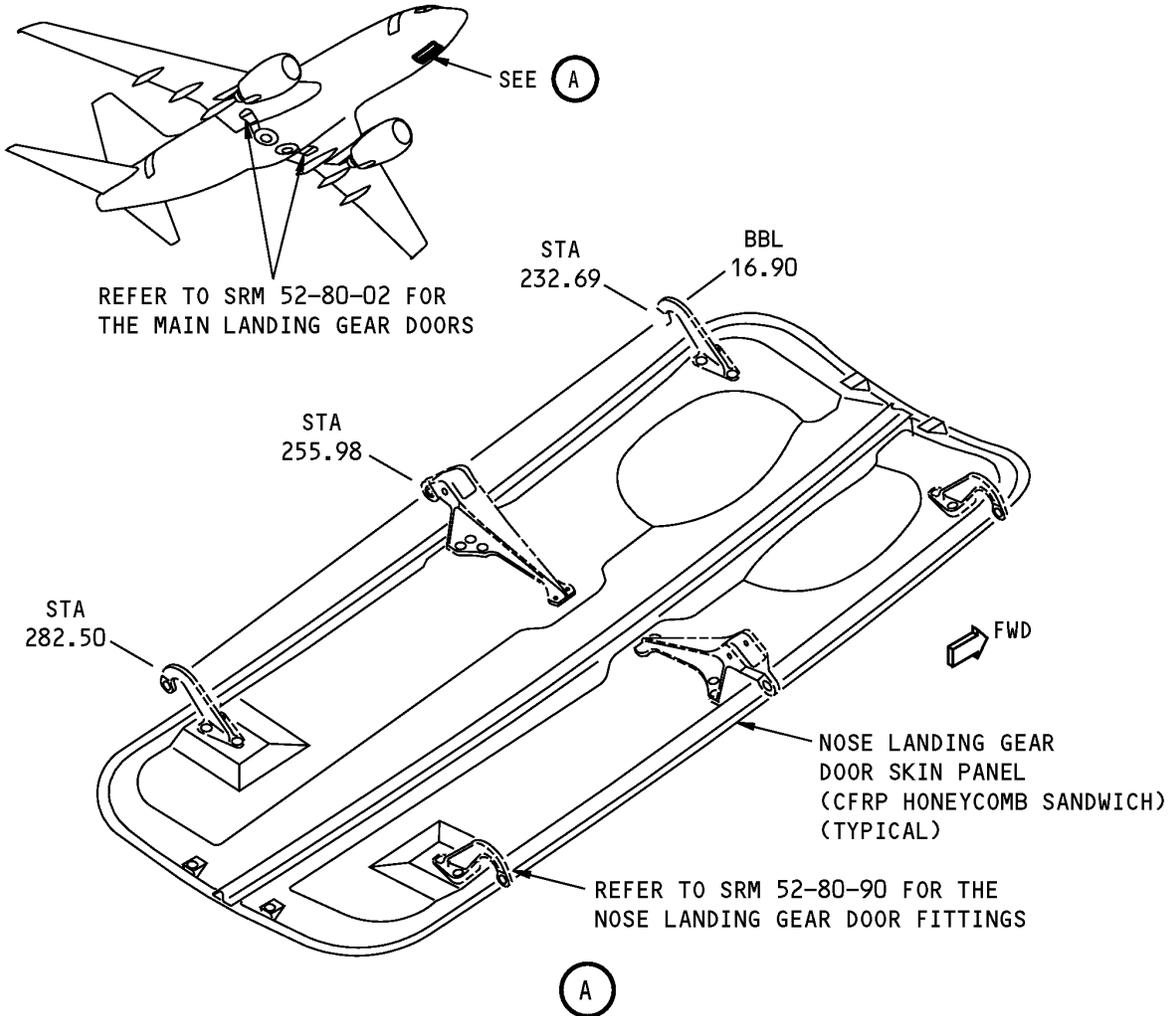
PLY MATERIAL AND DIRECTION FOR FIGURE 2, Item [1]		
PLY	DIRECTION	MATERIAL
P1, P20	0 or 90 degrees	Epoxy impregnated fiberglass fabric as given in BMS 8-169, Type 120
P2, P5, P6, P9, P10, P12, P15, P16, P19	+ or - 45 degrees	Epoxy impregnated graphite woven fabric as given in BMS 8-258, Class II, Style 3K-70-PW
P3, P4, P7, P8, P11, P13, P14, P17, P18	0 or 90 degrees	Epoxy impregnated graphite woven fabric as given in BMS 8-258, Class II, Style 3K-70-PW

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ALLOWABLE DAMAGE 1 - NOSE LANDING GEAR DOOR SKIN

1. Applicability

- A. Allowable Damage 1 is applicable to damage on the Nose Landing Gear Door Skin made from carbon fiber reinforced plastic (CFRP) shown in Nose Landing Gear Door Skin, Figure 101/ALLOWABLE DAMAGE 1.
- B. The allowable damage limits are only applicable if they are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1



**Nose Landing Gear Door Skin
Figure 101**



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2. General

- A. Do an inspection of the damaged area to find the length, width and depth of the damage. Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to NDT, Part 1, 51-01-02 or 51-01-03 for inspection procedures.

NOTE: Other equivalent inspection methods that have been examined and found to be satisfactory by the operator can be used.

- (1) For the honeycomb core areas, the tap test is an alternative procedure to an instrumented NDT.
- (a) Refer to Damage Definitions, Figure 102/ALLOWABLE DAMAGE 1, Details A , B , and C for the definitions of the length, width, and depth of damage.
 - (b) Refer to Definitions of the Facesheets, Figure 103/ALLOWABLE DAMAGE 1 for the definitions of the facesheets of a honeycomb core area.
- B. Remove all the contamination and water from the structure.
- (1) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (2) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
 - (3) Refer to 51-70-05 for the cleanup procedures.
- C. Seal all damaged areas with the steps that follow:
- (1) Seal the damage that is not more than one ply deep and that agrees with the allowable damage limits given in Paragraph 4./ALLOWABLE DAMAGE 1
 - (a) Make a temporary seal.
 - 1) Apply aluminum foil tape (speed tape).
 - 2) Keep a record of the location.
 - 3) Make sure the tape is in satisfactory condition at each 400 flight hour interval or more frequently.
 - 4) Seal the damage permanently no later than 5000 flight hours from the time the temporary seal was made.
 - (b) Make a permanent seal.
 - 1) Apply BMS 8-207 or BMS 8-301 epoxy resin to the area as given in 51-70-08.
 - 2) Apply one layer of BMS 10-79, Type III or BMS 10-103, Type I primer. Refer to SOPM 20-44-04.
 - 3) Apply one layer of BMS 10-60 enamel to the areas sealed with epoxy resin. Refer to AMM PAGEBLOCK 51-21-99/701.
 - (2) Seal the damaged areas that are more than one ply deep and that agree with the allowable damage limits given in Paragraph 4./ALLOWABLE DAMAGE 1
 - (a) Use a vacuum and heat to remove moisture from the solid laminate or the honeycomb cells. Refer to 51-70-05.
 - (b) Make a temporary seal with aluminum foil tape (speed tape).
 - (c) Keep a record of the location.
 - 1) Repair the damage no later than 400 flight hours from the time the seal was made.

ALLOWABLE DAMAGE 1

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D. If there is damage in Zone 2, do the steps that follow:

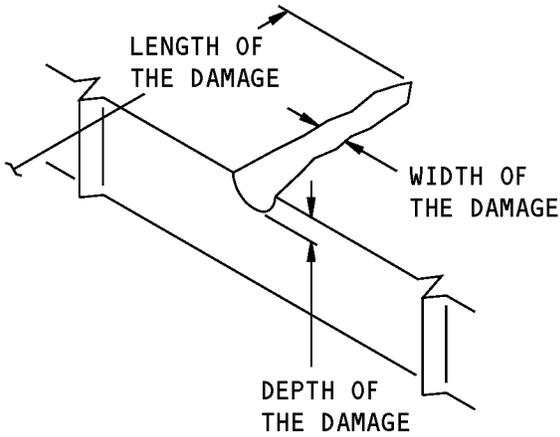
NOTE: Refer to Nose Landing Gear Door Skin Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones.

- (1) Do an inspection of the damage at each 400 flight hour interval or more frequently.
- (2) Repair the damage in 90 days or less.

E. Make sure the aerodynamic smoothness is satisfactory or there will be a decrease in the economic performance of the airplane.

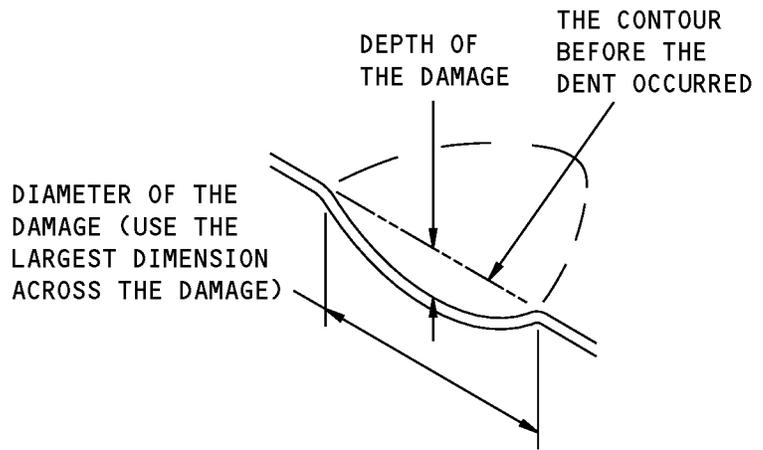
F. Restore the aircraft exterior paint system in the area where damage has been removed, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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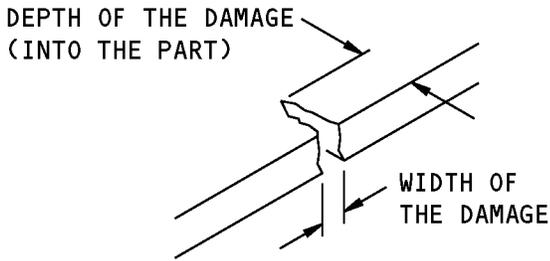
**DEFINITIONS FOR NICK,
GOUGE, OR SCRATCH DAMAGE**

(A)



**DEFINITIONS FOR
DENT DAMAGE**

(B)

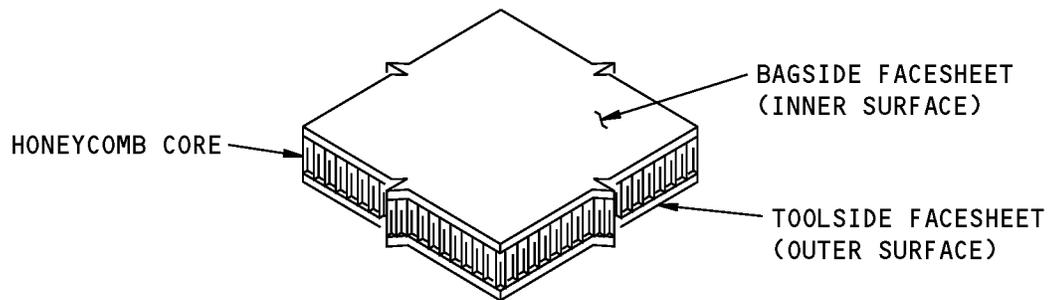


**DEFINITIONS FOR
EDGE DAMAGE**

(C)

**Damage Definitions
Figure 102**

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**Definitions of the Facesheets
Figure 103**

3. References

Reference	Title
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-10-02, GENERAL	Inspection and Removal of Damage
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-05, GENERAL	Repair Sealing
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-05	REPAIR PROCEDURES FOR PREIMPREGNATED MATERIALS
51-70-08	RESIN SWEEP-FAIR PROCEDURES
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primers
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage
737 NDT Part 1, 51-01-03	NDT Assessment of Lightning Strike Damage to Graphite/Epoxy Composite Structure

4. Allowable Damage Limits

A. Zone 1 and Zone 2 - CFRP Honeycomb Core Area

NOTE: Refer to Paragraph 2.C./ALLOWABLE DAMAGE 1 for the inspection intervals and repair instructions for damage that is in Zone 2. Refer to Nose Landing Gear Door Skin Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones.

- (1) Nicks, Gouges and Scratches are permitted if they:
 - (a) Cause damage to the outer ply glass fibers only and thus
 - (b) Do not cause damage to the carbon fibers
 - (c) Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (2) Nicks, Gouges and Scratches that cause damage to the carbon fibers are permitted if they are:



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- (a) A maximum of one ply in depth
- NOTE:** Use the limits for holes and punctures if the damage is more than one ply in depth.
- (b) A maximum of 1.00 inch in length
- (c) A maximum of 0.25 inch in width
- (d) A minimum of 1.5 inches away from the edge of any hole, part edge, or other damage
- NOTE:** Other damage does not include nicks, gouges, and scratches that:
- Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (3) Dents that do not cause damage to the carbon fibers are permitted if they are:
- (a) A maximum of 0.050 inch in depth
- NOTE:** Use the limits for holes and punctures if there is carbon fiber damage or if the depth of the dent is more than 0.050 inch.
- (b) A maximum of 1.50 inches in diameter
- (c) A minimum of 2.5D (D = the largest dimension across the damage) away from the edge of any hole, part edge or other damage
- NOTE:** Other damage does not include nicks, gouges, and scratches that:
- Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (d) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (4) Holes and Punctures are permitted if they are:
- (a) A maximum of 1.00 inch in diameter
- (b) A minimum of 2.5D (D = the largest dimension across the damage) away from the edge of other damage
- NOTE:** Other damage does not include nicks, gouges, and scratches that:
- Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (c) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (5) Delaminations are permitted if they are:
- (a) A maximum of one facesheet and the core in depth
- (b) A maximum of 1.00 inch in length
- (c) A maximum of 1.00 inch in width
- (d) A minimum distance of 4D (D = the largest dimension across the damage) away from the edge of other damage
- NOTE:** Other damage does not include nicks, gouges, and scratches that:
- Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

ALLOWABLE DAMAGE 1

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B. Zone 1 - CFRP Solid Laminate Area

NOTE: Refer to Nose Landing Gear Door Skin Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones.

- (1) Nicks, Gouges and Scratches are permitted if they:
 - (a) Cause damage to the outer ply glass fibers only and thus
 - (b) Do not cause damage to the carbon fibers
 - (c) Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (2) Nicks, Gouges and Scratches that cause damage to the carbon fibers are permitted if they are:
 - (a) A maximum of one ply in depth

NOTE: Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A maximum of 1.00 inch in length
 - (c) A maximum of 0.25 inch in width
 - (d) A minimum of 0.50 inch away from the edge of any hole, part edge, or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
 - (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (3) Dents are permitted if they are:
 - (a) A maximum of 0.05 inch in depth
 - (b) A maximum of 1.00 inch in diameter
 - (c) A minimum of 0.50 inch away from the edge of any hole, part edge, or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
 - (d) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch in diameter
 - (b) A minimum of 1.5D (D = the largest dimension across the damage) away from the edge of any hole, part edge, or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
 - (c) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (5) Delaminations are permitted if they are:
 - (a) A maximum of 0.30 inch in width
 - (b) A maximum of 1.50 square inches in area
 - (c) A maximum of 25 percent of the length of the honeycomb core that is adjacent to the edgeband in length

ALLOWABLE DAMAGE 1

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- (d) A minimum of 2D (D = the largest dimension across the damage) but not less than 1.00 inch away from the edge of any hole, part edge, or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:

- Do not cause damage to the glass fiber plies
- Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

- (6) Edge Erosion is permitted as shown in CFRP Honeycomb Sandwich Panels - Sealing of Erosion Damage at an Edge , Figure 105/ALLOWABLE DAMAGE 1.

- (7) Edge damage is permitted if it is:

(a) A maximum of 0.10 inch in depth

(b) A maximum of 0.25 inch in width

(c) A minimum of 2.5D (D = the largest dimension across the damage) away from the edge of any hole or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:

- Do not cause damage to the glass fiber plies
- Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

- (d) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

ALLOWABLE DAMAGE 1

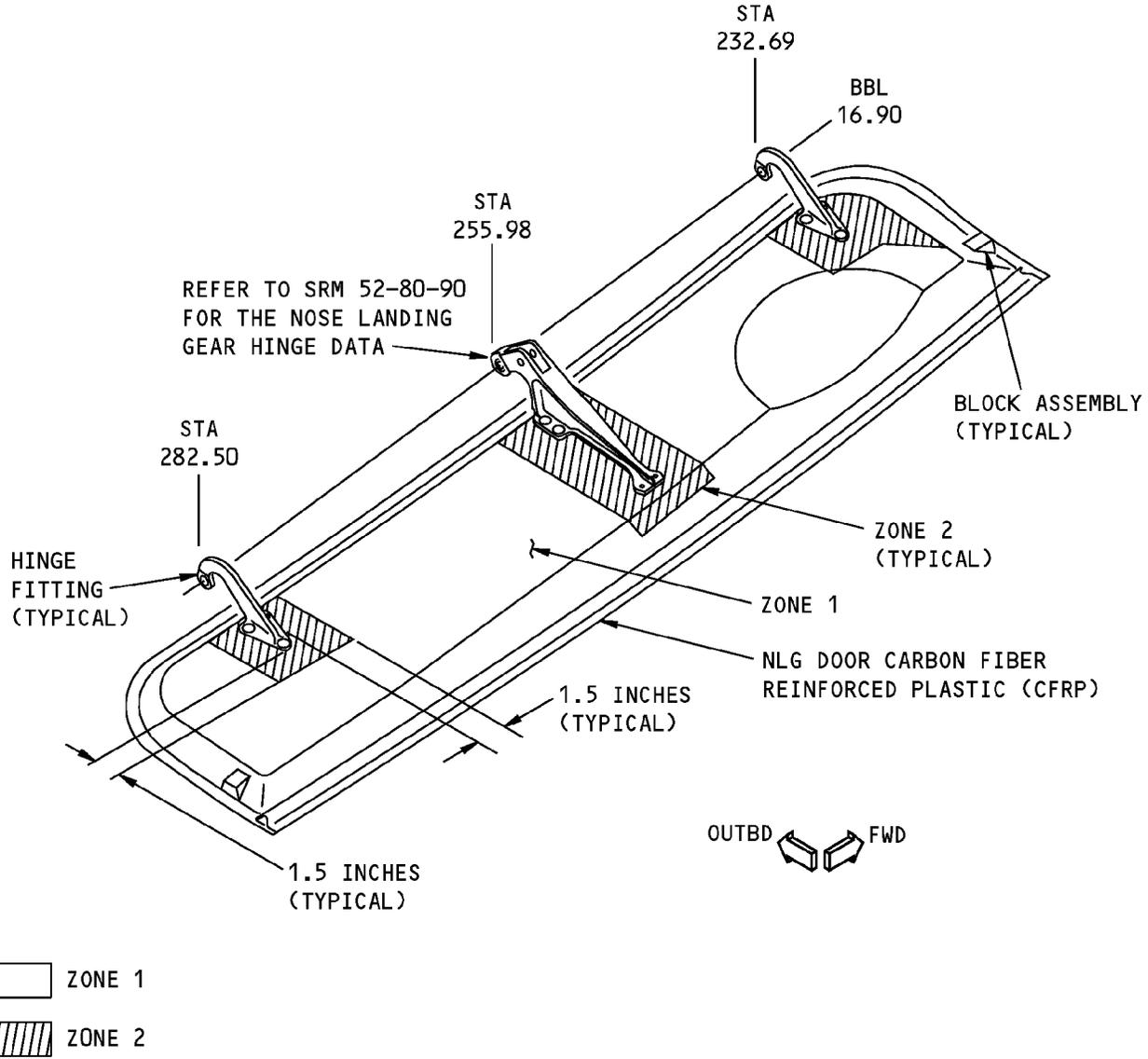
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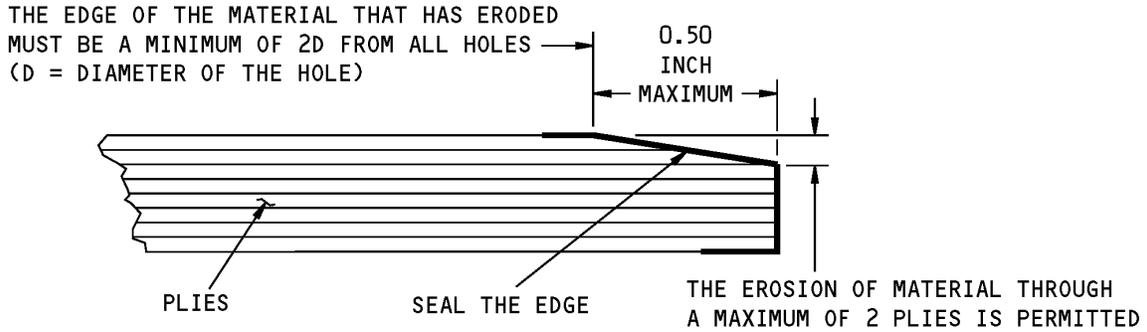
**737-800
STRUCTURAL REPAIR MANUAL**



LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE

**Nose Landing Gear Door Skin Allowable Damage Zones
Figure 104**

737-800
STRUCTURAL REPAIR MANUAL



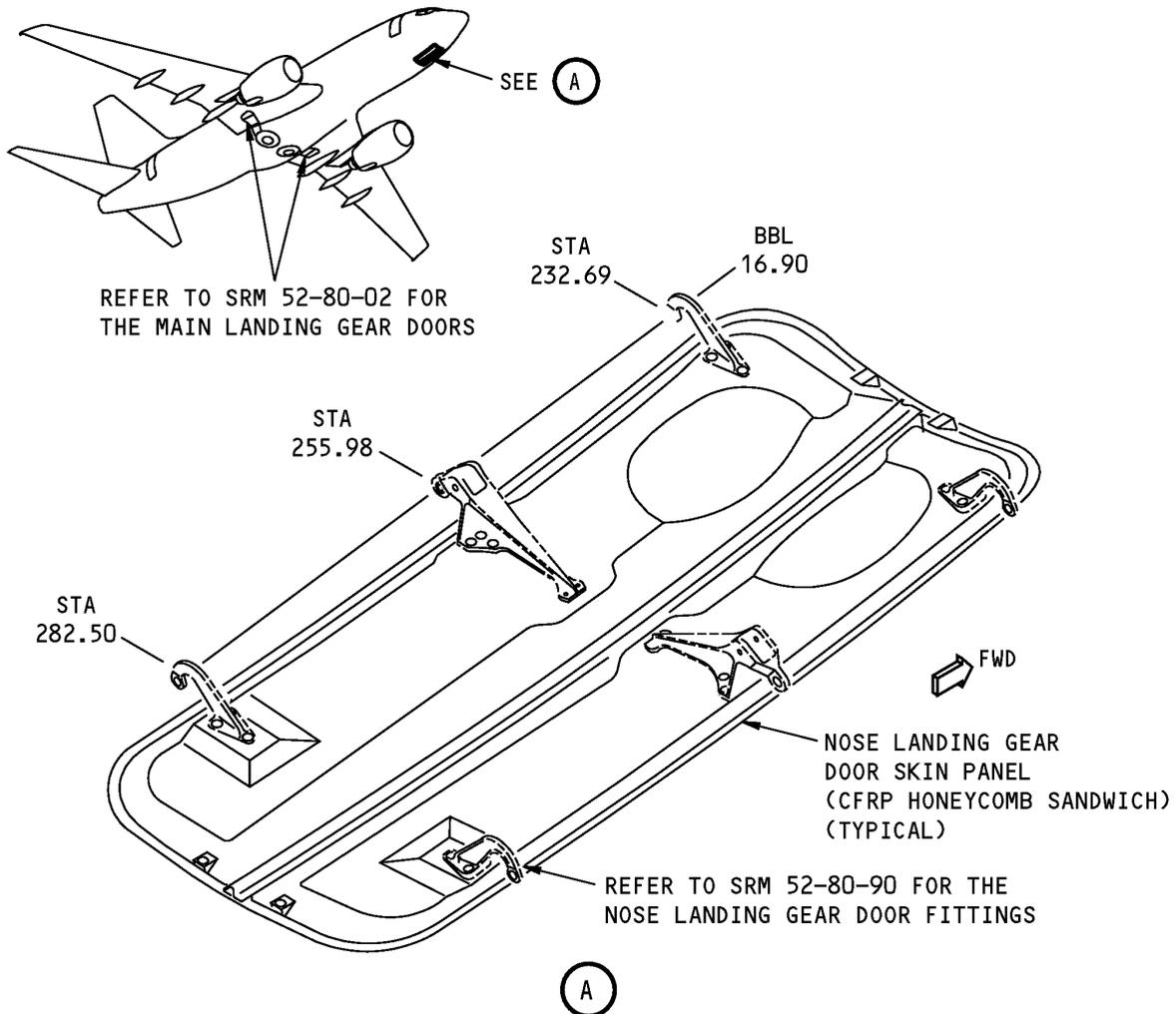
CFRP Honeycomb Sandwich Panels - Sealing of Erosion Damage at an Edge
Figure 105

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STRUCTURAL REPAIR MANUAL**

REPAIR 1 - NOSE LANDING GEAR DOOR SKIN

1. Applicability

- A. Repair 1 is applicable to the nose landing gear door skin shown in Nose Landing Gear Door Skin, Figure 201/REPAIR 1.
- B. Repair 1 is applicable to damage that is more than the limits permitted in Allowable Damage 1.



**Nose Landing Gear Door Skin
Figure 201**

2. General

- A. Repair 1 gives instructions for Permanent and Interim repairs. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Get access to the damaged area.
 - (1) Remove the nose landing gear door, as necessary. Refer to AMM 32-22-11/401.

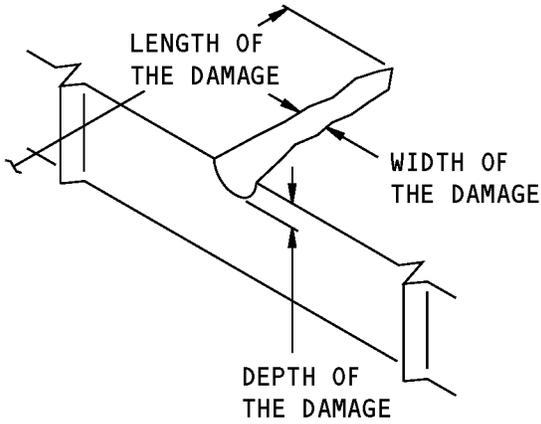


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STRUCTURAL REPAIR MANUAL

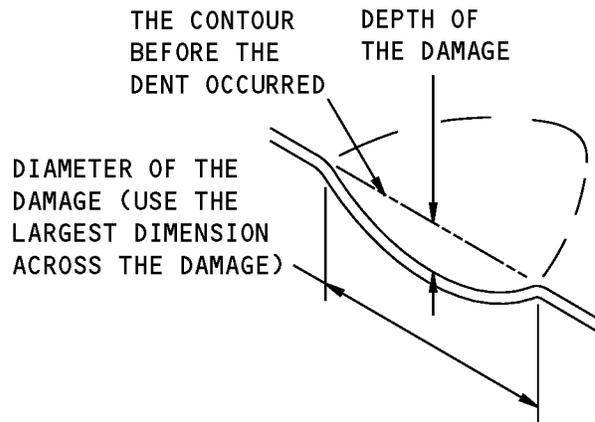
- (a) As applicable, remove the nose landing gear door fittings. Refer to 51-40-02 for the fastener removal procedures.
 - (b) If a fastener hole is damaged, refer to Repair 8 of 51-70-04 or Repair 8 of 51-70-05 for the repair procedures.
- C. Do an inspection of the damaged area to find the dimensions of the damage. Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to 737 NDT Part 1, 51-01-02 or 737 NDT Part 1, 51-01-03 for the inspection procedures.
- NOTE:** Other equivalent inspection methods that have been examined and found to be satisfactory by the operator can be used.
- (1) For the honeycomb core areas, the tap test is an alternative procedure to an instrumented NDI.
 - (2) Refer to Damage Definitions, Figure 202/REPAIR 1, Details A , B , and C for the definitions of the length, width, and depth of damage.
 - (3) Refer to Definitions of the Facesheets, Figure 203/REPAIR 1 for the definitions of the facesheets of a honeycomb core area.
- D. Do the repair as given in Paragraph 4./REPAIR 1
- E. Make sure the aerodynamic smoothness is satisfactory or there can be a decrease in the economic performance of the airplane.
- F. Restore the aircraft to the initial condition.
- (1) Install the nose landing gear door fittings, as applicable.
- G. Restore the aircraft nose landing gear door skin panel exterior finish, as applicable. Refer to AMM 51-21-00/701.

STRUCTURAL REPAIR MANUAL



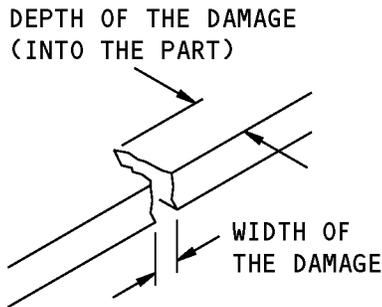
**DEFINITIONS FOR NICK,
GOUGE, OR SCRATCH DAMAGE**

A



**DEFINITIONS FOR
DENT DAMAGE**

B

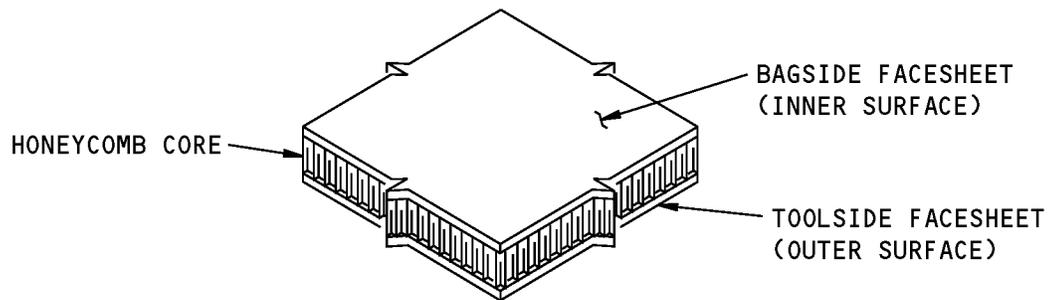


**DEFINITIONS FOR
EDGE DAMAGE**

C

**Damage Definitions
Figure 202**

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STRUCTURAL REPAIR MANUAL**



**Definitions of the Facesheets
Figure 203**

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-30-05, GENERAL	Equipment and Tools For Repairs
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-70-04	REPAIR PROCEDURES FOR WET LAYUP MATERIALS
51-70-05	REPAIR PROCEDURES FOR PREIMPREGNATED MATERIALS
52-80-01	NOSE LANDING GEAR DOORS
52-80-01, ALLOWABLE DAMAGE 1	Nose Landing Gear Door Skin
52-80-01, IDENTIFICATION 1	Nose Landing Gear Door Skin
AMM 32-22-11/401	Nose Landing Gear Wheel Well Door - Removal/Installation
AMM 51-21-00/701	Interior And Exterior Finishes - Cleaning/Painting
737 NDT Part 1, 51-01-01	Inspection of Repairs to Composite Structure
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage
737 NDT Part 1, 51-01-03	NDT Assessment of Lightning Strike Damage to Graphite/Epoxy Composite Structure

4. Repair Instructions

NOTE: If necessary, refer to 52-80-01, Identification 1 to find the material and the build-up of the part that you want to repair.

- A. For dents that are a maximum of 2 inches in diameter and have no fiber damage and delamination, do the steps that follow:
 - (1) Fill the dent with BMS 5-28, Type 7 potting compound.
 - (2) Apply a fiberglass patch over the potted area as given in Repair 14 of 51-70-04.
- B. If Paragraph 4.A./REPAIR 1 is not applicable, then refer to:
 - (1) Table 201/REPAIR 1 and Table 202/REPAIR 1 for the repair data that is applicable to damage in Zone 1. Refer to Nose Landing Gear Door Skin Repair Zones, Figure 204/REPAIR 1 for the repair zones.
 - (2) Table 203/REPAIR 1 for the repair data that is applicable to damage in Zone 2. Refer to Nose Landing Gear Door Skin Repair Zones, Figure 204/REPAIR 1 for the repair zones.



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C. For repairs made with wet layup materials, do as follows, as applicable:

- (1) Use one repair ply of fabric for each initial ply that was damaged.
- (2) Add two structural plies of fabric for each facesheet that is repaired. Put one structural ply at ± 45 degrees to the core ribbon direction and the other at 0 or 90 degrees.

NOTE: Repair plies or added plies are not necessary in the repair of delamination at an edge if the delamination is a minimum of 2D (D = fastener diameter) away from a fastener hole.

- (3) Inspect Interim repairs after each 800 flight hour interval or more frequently. Refer to 737 NDT Part 1, 51-01-01 for inspection procedures. If deterioration is found, then they must be replaced with Permanent repairs.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator, can be used.

D. For repairs made with preimpregnated layup materials, use the same number of repair plies as the number of initial plies that were damaged.

Table 201:

REPAIR DATA FOR ZONE 1 OF THE HONEYCOMB CORE 250°F (121°C) CURE, NOSE LANDING GEAR DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	ROOM TEMPERATURE	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE AND LIMITS	Damage that is a maximum of: - 2.0 inches across the largest dimension of the damage - 30 percent of the smallest dimension across the panel at the damage location - one facesheet and the honey- honeycomb core in depth One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes - panel edges	Damage that is a maximum of: - 6.50 inches across the largest dimension of the damage - 80 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes - panel edges	Damage that is a maximum of: - 6.50 inches across the largest dimension of the damage - 80 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes - panel edges	There are no limits on the dimension of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-05 and Paragraph 4.D



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Table 202:

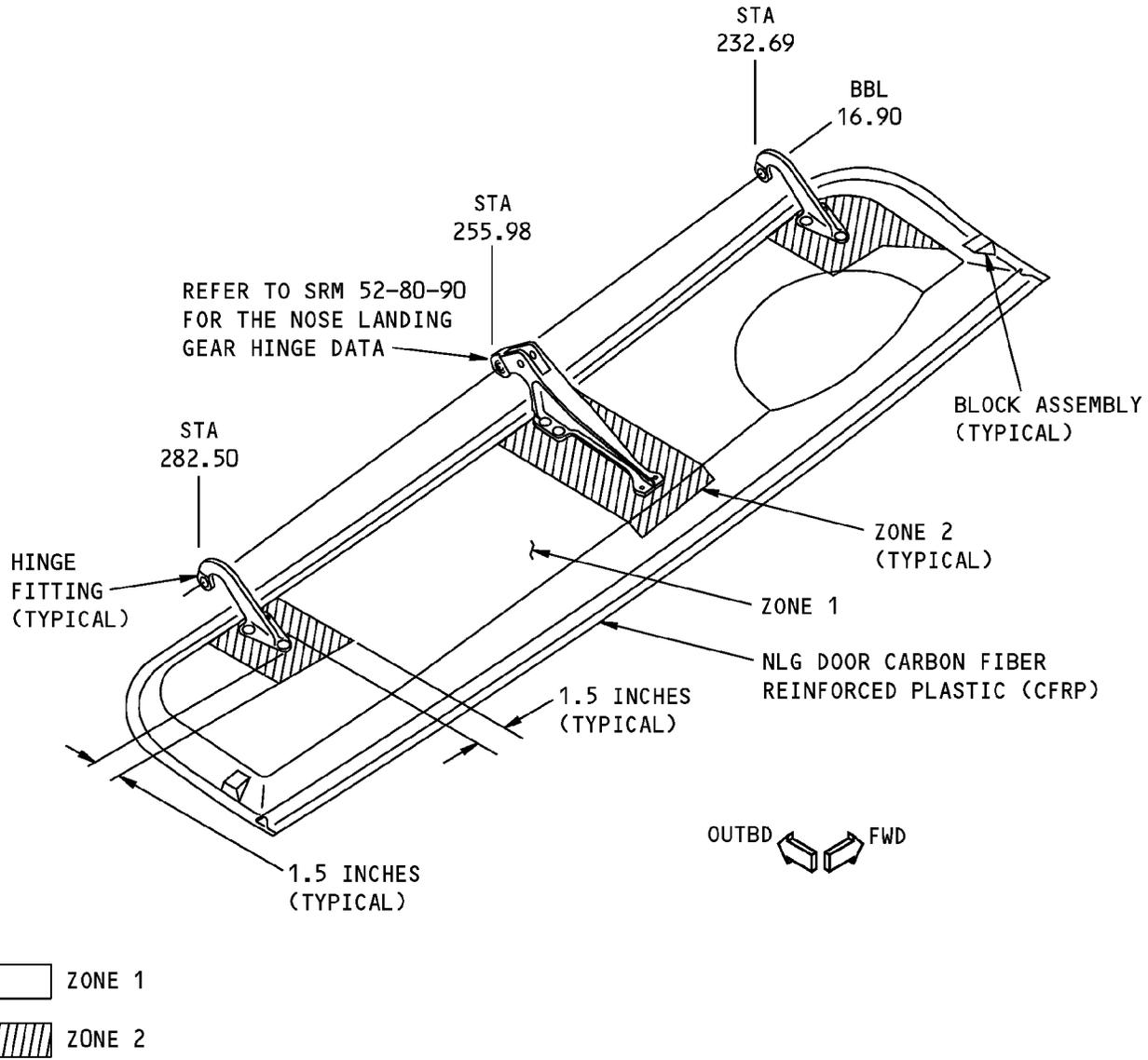
REPAIR DATA FOR THE ZONE 1 EDGE BANDS FOR THE 250°F (121°C) CURE NOSE LANDING GEAR DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	ROOM TEMPERATURE	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE AND LIMITS	Damage that is a maximum of: - 15 percent of the cross-sectional area of the edgeband at the damage location - 10 percent of the length of the edgeband on the side of the damage	There are no limits on the dimensions of the repair	There are no limits on the dimensions of the repair	There are no limits on the dimensions of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-05 and Paragraph 4.D

NOTE: Refer to Figure 205 for the definition of the damage areas for zone 1 edgebands.

Table 203:

REPAIR DATA FOR THE ZONE 2 OF THE HONEYCOMB CORE 250°F (121°C) CURE NOSE LANDING GEAR DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	ROOM TEMPERATURE	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE AND LIMITS	Damage that is a maximum of: - 2.0 inches across the largest dimension of the damage - 30 percent of the smallest dimension across the panel at the damage location - One facesheet and the honeycomb core in depth One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes - panel edges	Damage that is a maximum of: - 5.0 inches across the largest dimension of the damage - 50 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes - panel edges	Damage that is a maximum of: - 6.50 inches across the largest dimension of the damage - 80 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes - panel edges	There are no limits on the dimensions of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-05 and Paragraph 4.D

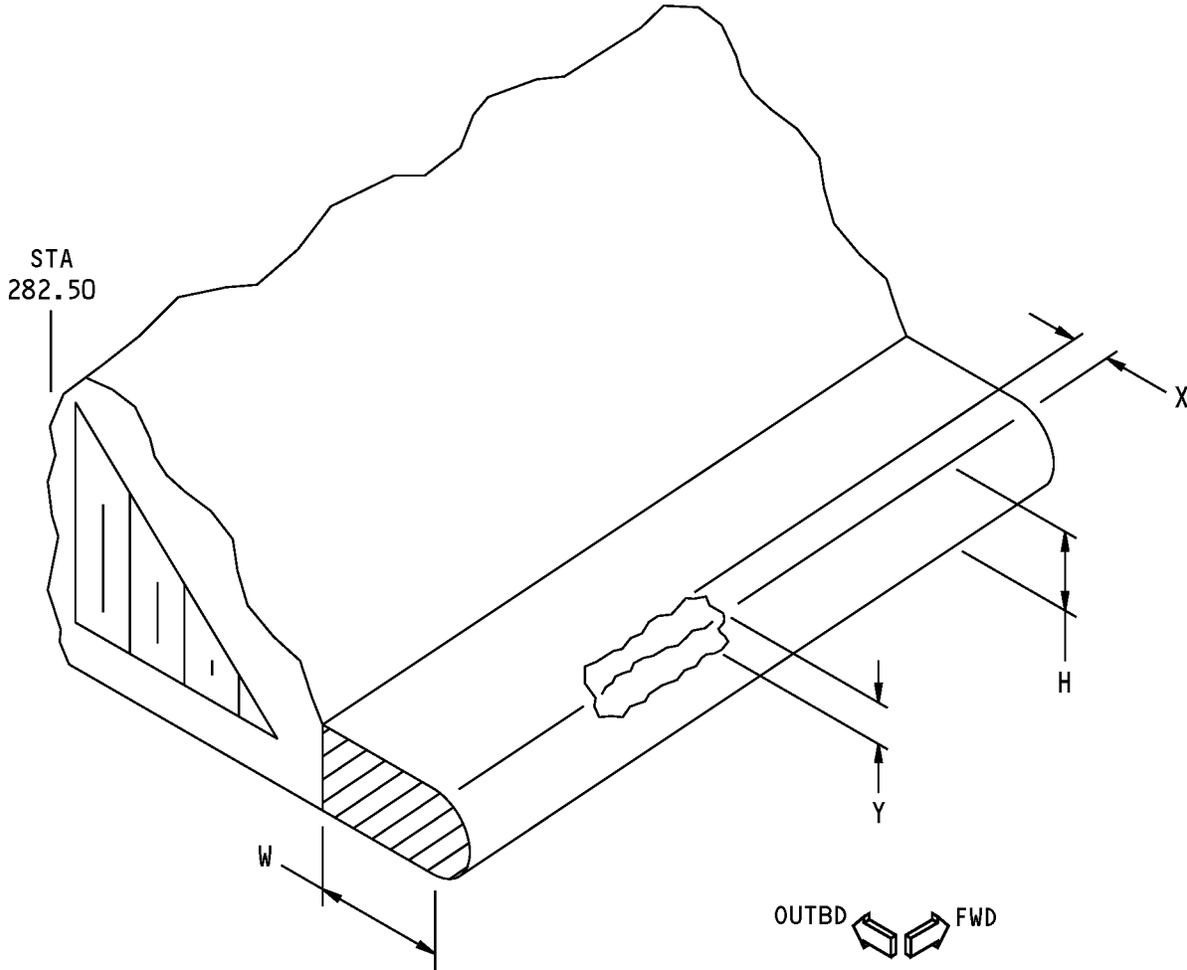
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LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE

**Nose Landing Gear Door Skin Repair Zones
Figure 204**

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 CROSS-SECTIONAL AREA AS GIVEN IN TABLE 202.

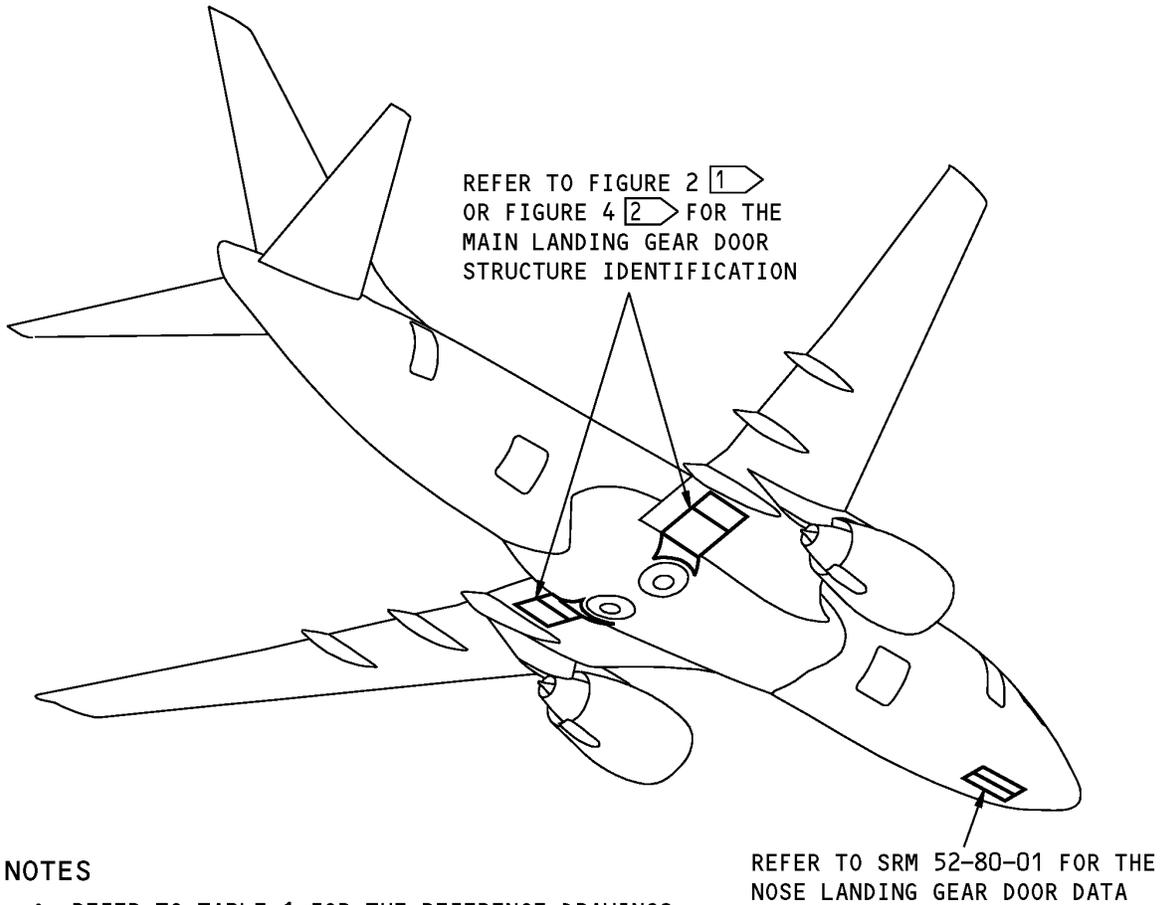
TOTAL CROSS-SECTIONAL AREA = $W \times H$
DAMAGE AREA = $X \times Y$
SEE TABLES FOR THE MAXIMUM DAMAGE AREA

A-A

**Nose Landing Gear Door Skin Damage Areas for Zone 1 Edgebands
Figure 205**

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IDENTIFICATION 1 - MAIN LANDING GEAR DOOR STRUCTURE



NOTES

- REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

1 FOR AIRPLANES WITH 3 PIECE DOOR ASSEMBLY

2 FOR AIRPLANES WITH 4 PIECE DOOR ASSEMBLY

**Main Landing Gear Door Structure Location
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8000	Main Landing Gear Door Installation
113A8100	Door Assembly - Outboard Main landing Gear
113A8130	Casting - Outboard Main landing Gear Door
113A8131	Outboard Main landing Gear Door
113A8200	Door Assembly - Center Main Landing Gear
113A8230	Casting - Center Main Landing Gear Door

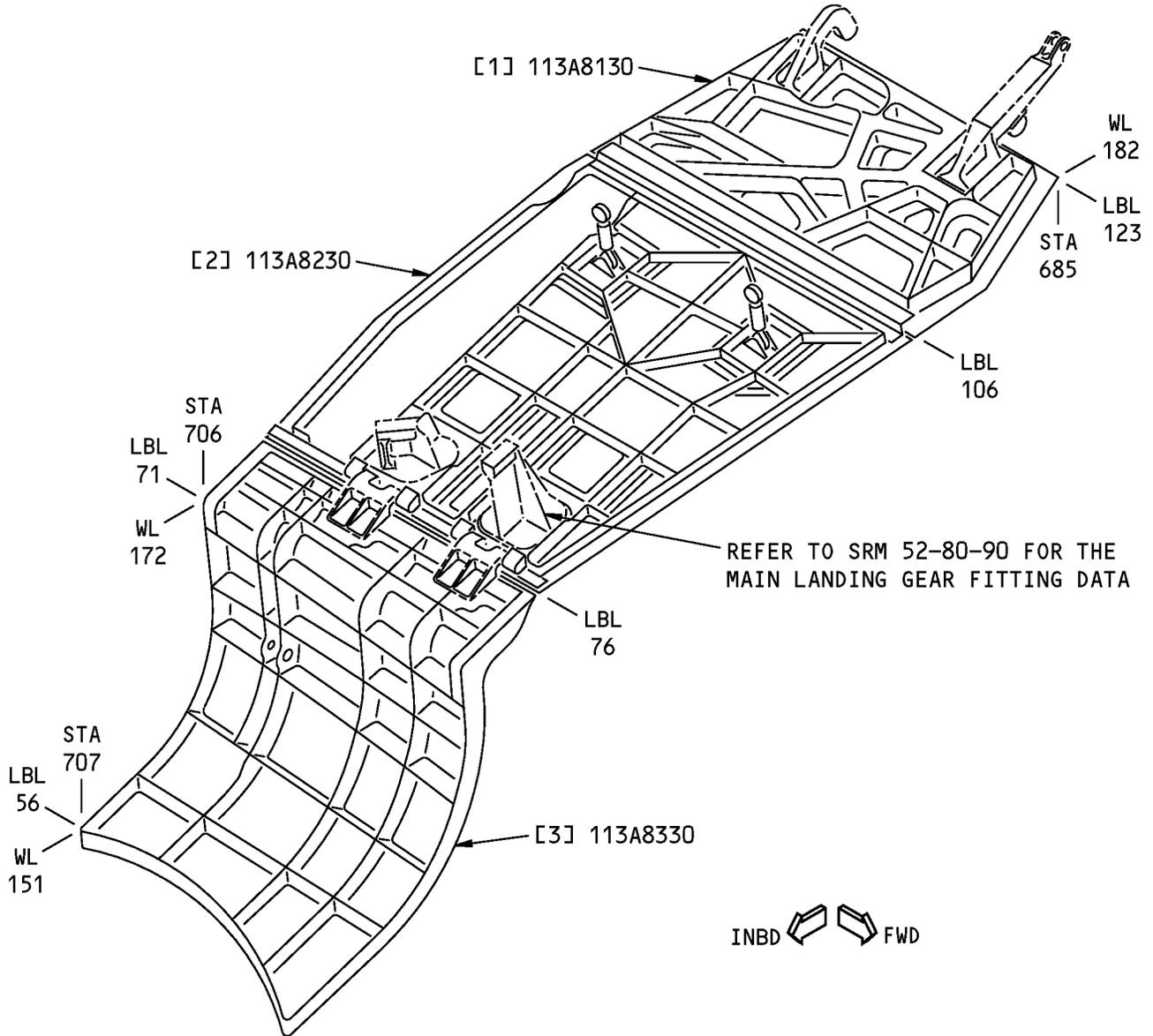


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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8232	Center Main Landing Gear Door
113A8331	Door Assembly - Inboard Main Landing Gear
113A8335	Door Assembly - Inboard Main Landing Gear
113A8330	Casting - Inboard Main Landing Gear Door
113A8334	Inboard Center Main Landing Gear Door
113A8333	Inboard Center Main Landing Gear Door

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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

**Three Piece Door Assembly Structure Identification
Figure 2**



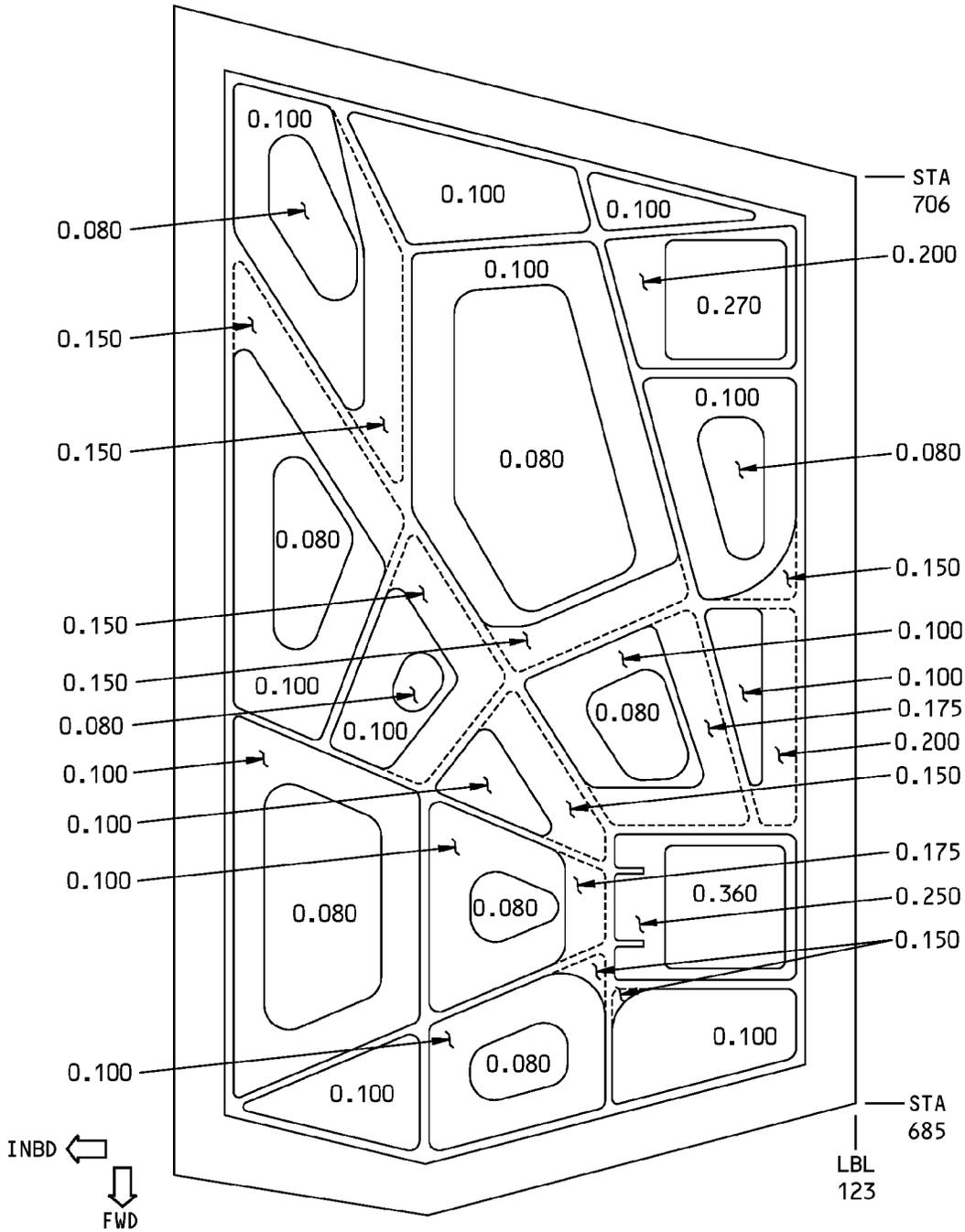
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Outboard MLG Door (2)		A357-T6 aluminum casting as given in MIL-A-21180. Refer to Figure 3 for the machined thicknesses of the different areas	
[2]	Center MLG Door (2)		A357-T6 aluminum casting as given in MIL-A-21180. Refer to Figure 3 for the machined thicknesses of the different areas	
[3]	Inboard Upper MLG Door (2)		A357-T6 aluminum casting as given in MIL-A-21180. Refer to Figure 3 for the machined thicknesses of the different areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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STRUCTURAL REPAIR MANUAL**

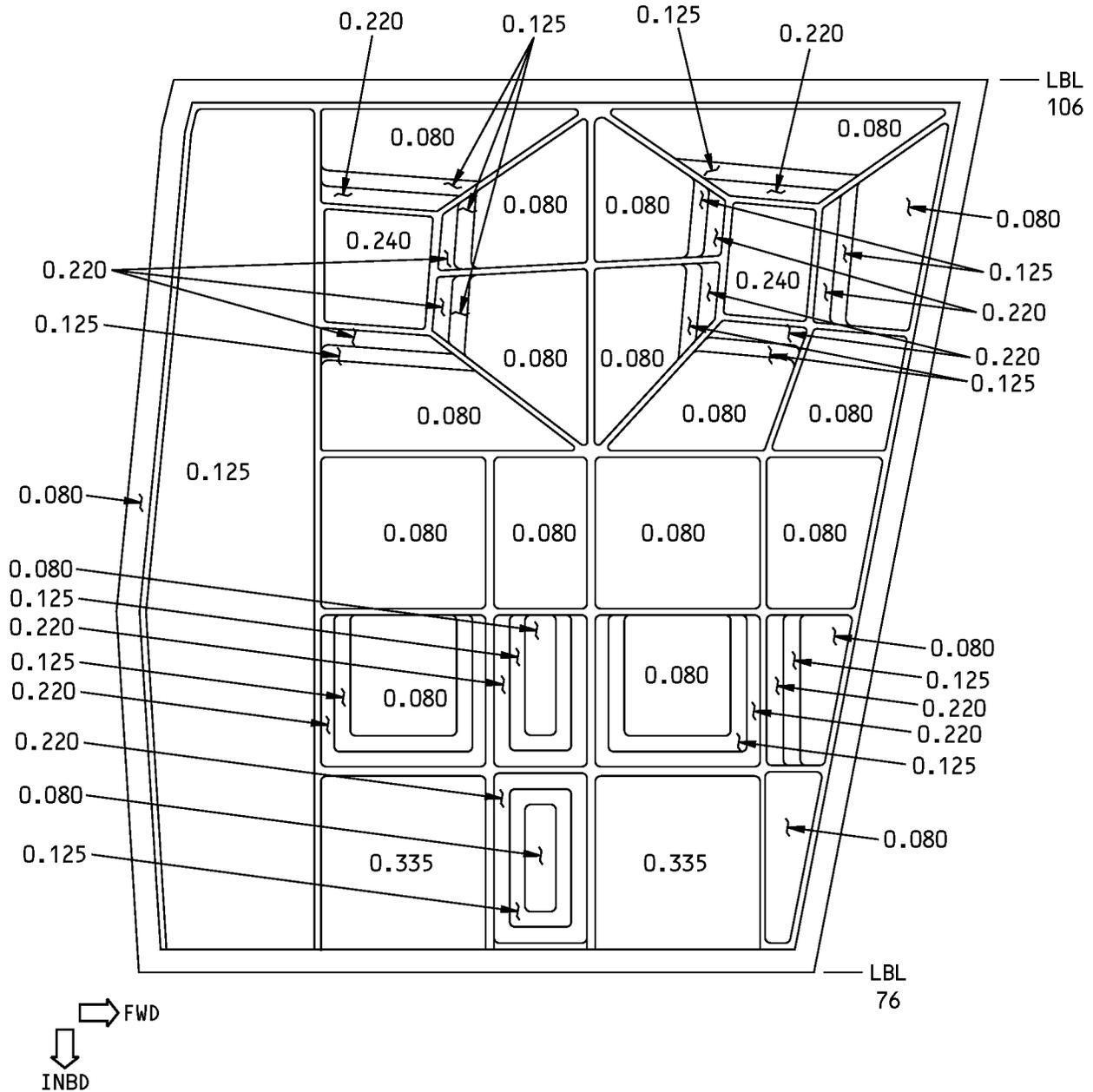


NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE OUTBOARD
MAIN LANDING GEAR DOOR CASTING**

**Machined Areas for Doors
Figure 3 (Sheet 1 of 3)**

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STRUCTURAL REPAIR MANUAL**

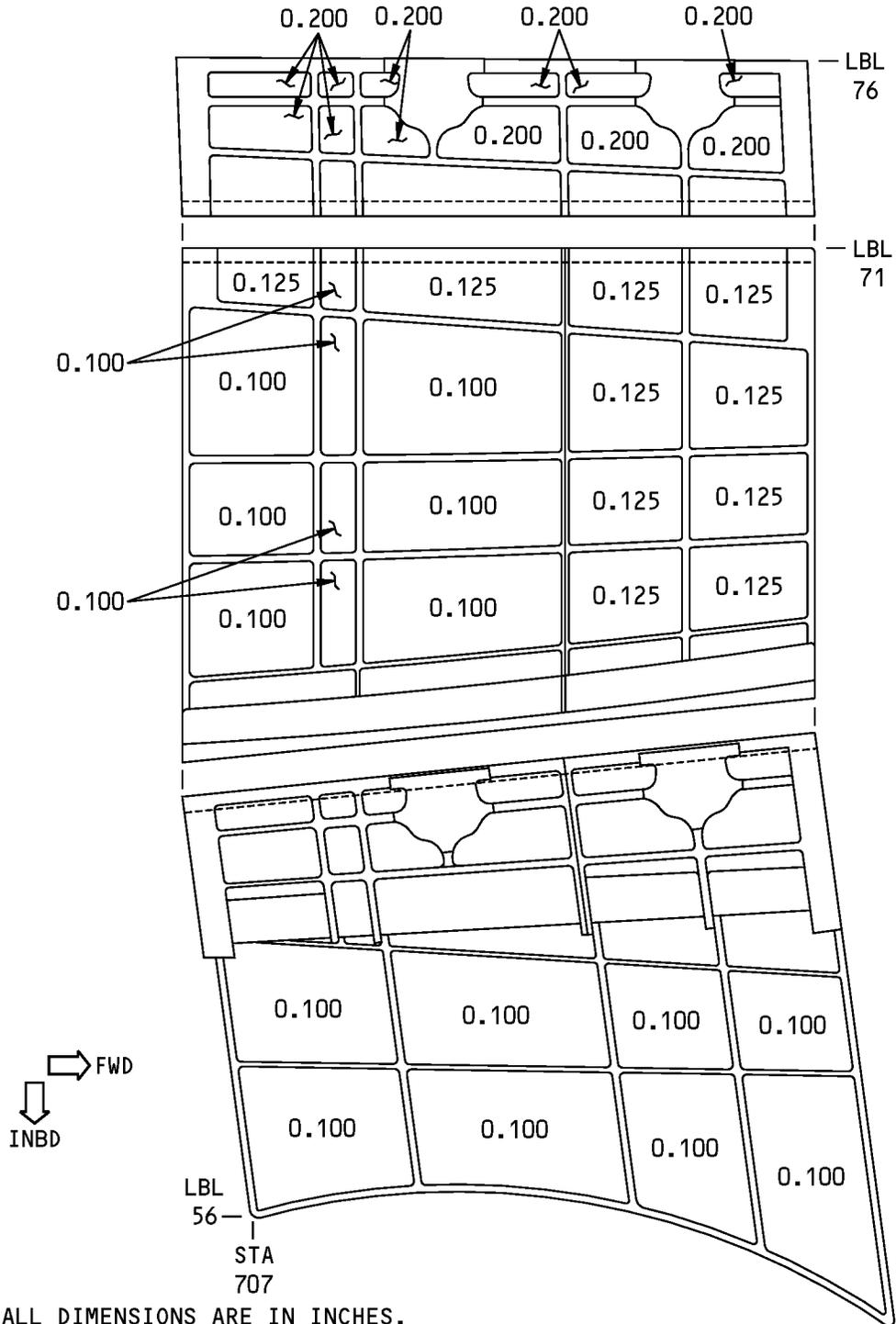


NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR CASTING**

**Machined Areas for Doors
Figure 3 (Sheet 2 of 3)**

**737-800
STRUCTURAL REPAIR MANUAL**

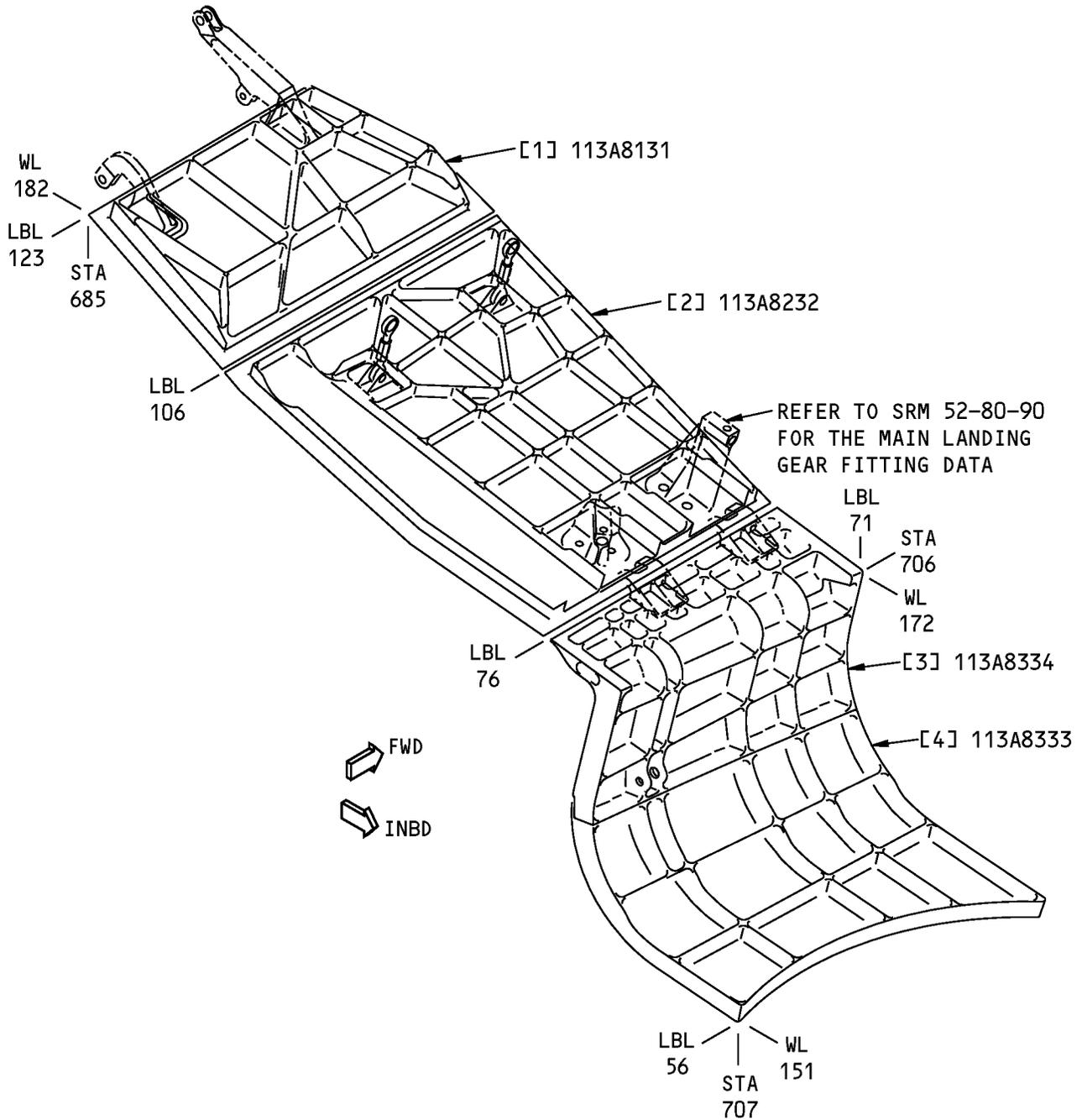


NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE INBOARD
MAIN LANDING GEAR DOOR**

**Machined Areas for Doors
Figure 3 (Sheet 3 of 3)**

**737-800
STRUCTURAL REPAIR MANUAL**



NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

**Four Piece Door Assembly Structure Identification
Figure 4**



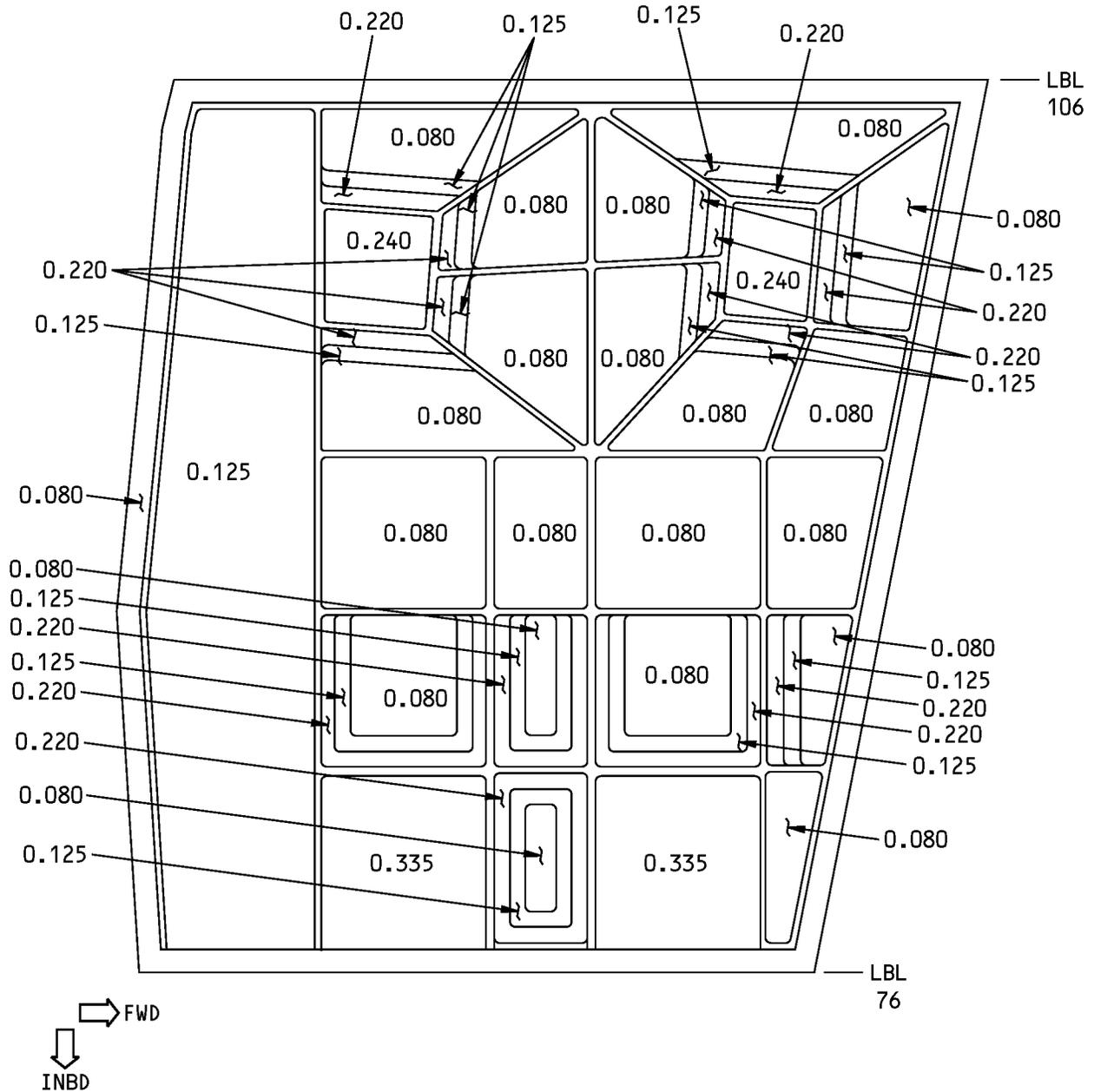
737-800
STRUCTURAL REPAIR MANUAL

Table 3:

LIST OF MATERIALS FOR FIGURE 4				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Outboard MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	
[2]	Center MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	
[3]	Inboard Upper MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	
[4]	Inboard Upper MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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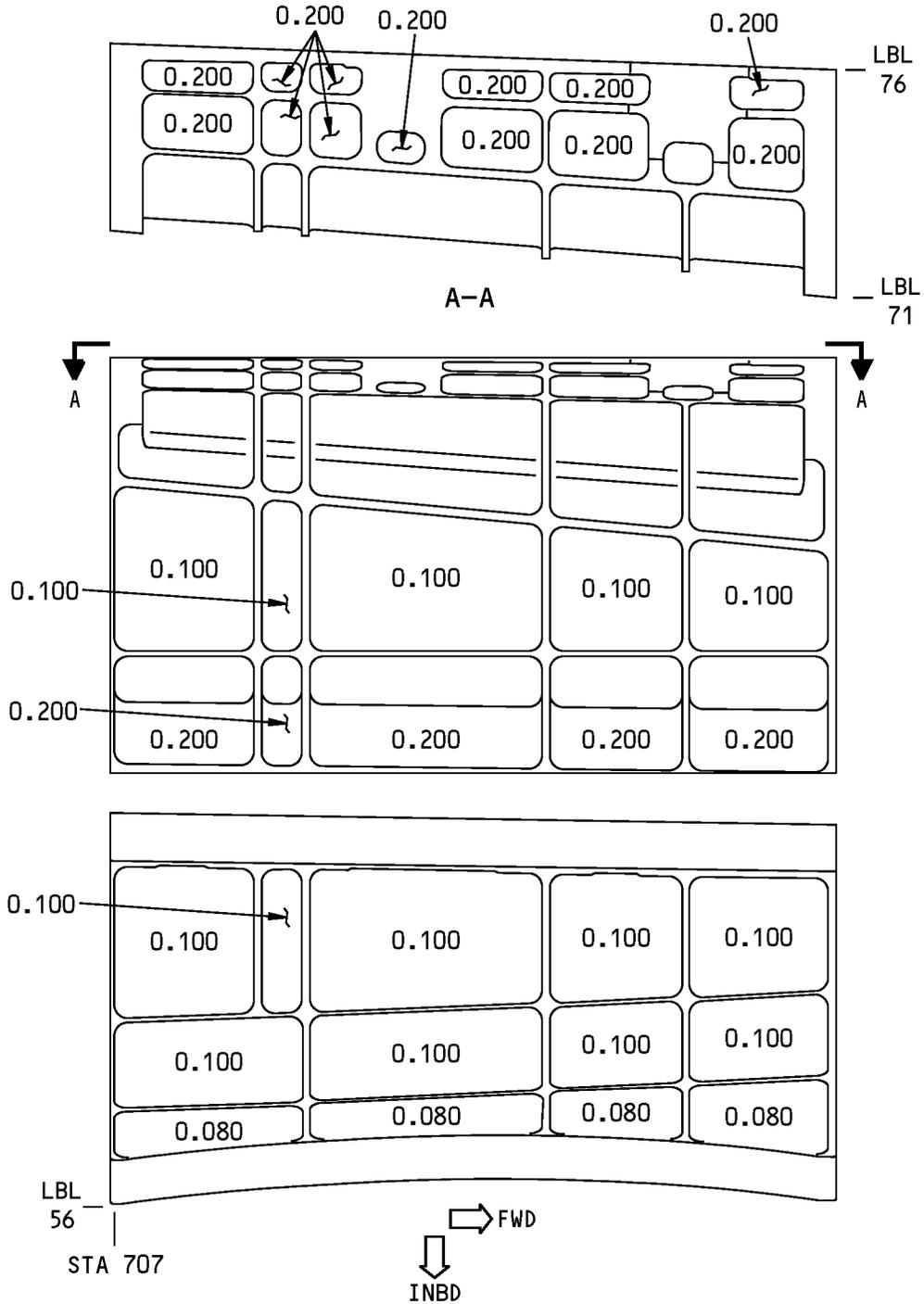


NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR**

**Machined Areas for Doors
Figure 5 (Sheet 2 of 3)**

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STRUCTURAL REPAIR MANUAL**



NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE INBOARD
UPPER AND LOWER MAIN LANDING GEAR DOOR CASTING**

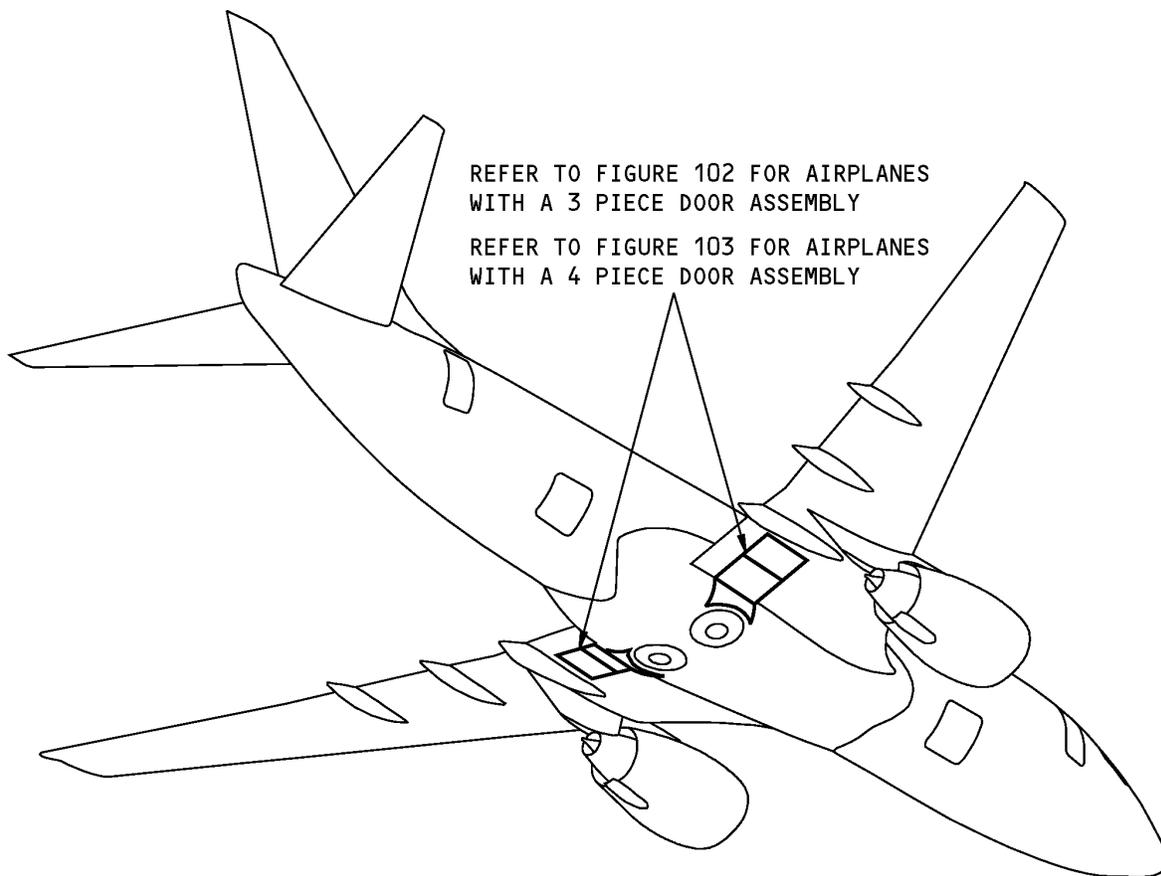
**Machined Areas for Doors
Figure 5 (Sheet 3 of 3)**

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ALLOWABLE DAMAGE 1 - MAIN LANDING GEAR DOOR STRUCTURE

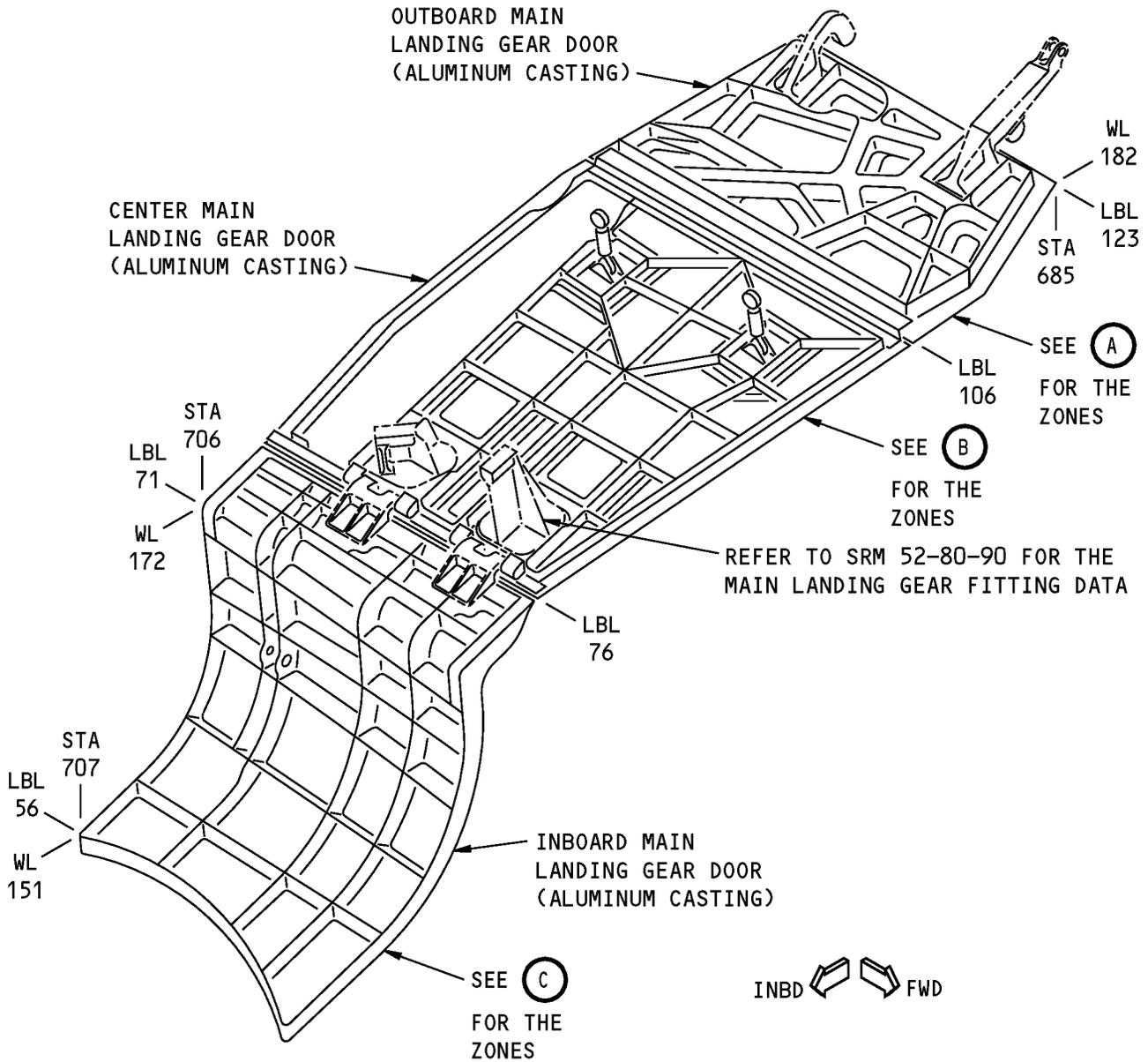
1. Applicability

- A. This subject gives the allowable damage limits for the structure of the main landing gear doors as shown in Main Landing Gear Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1.



Main Landing Gear Door Structure Location
Figure 101

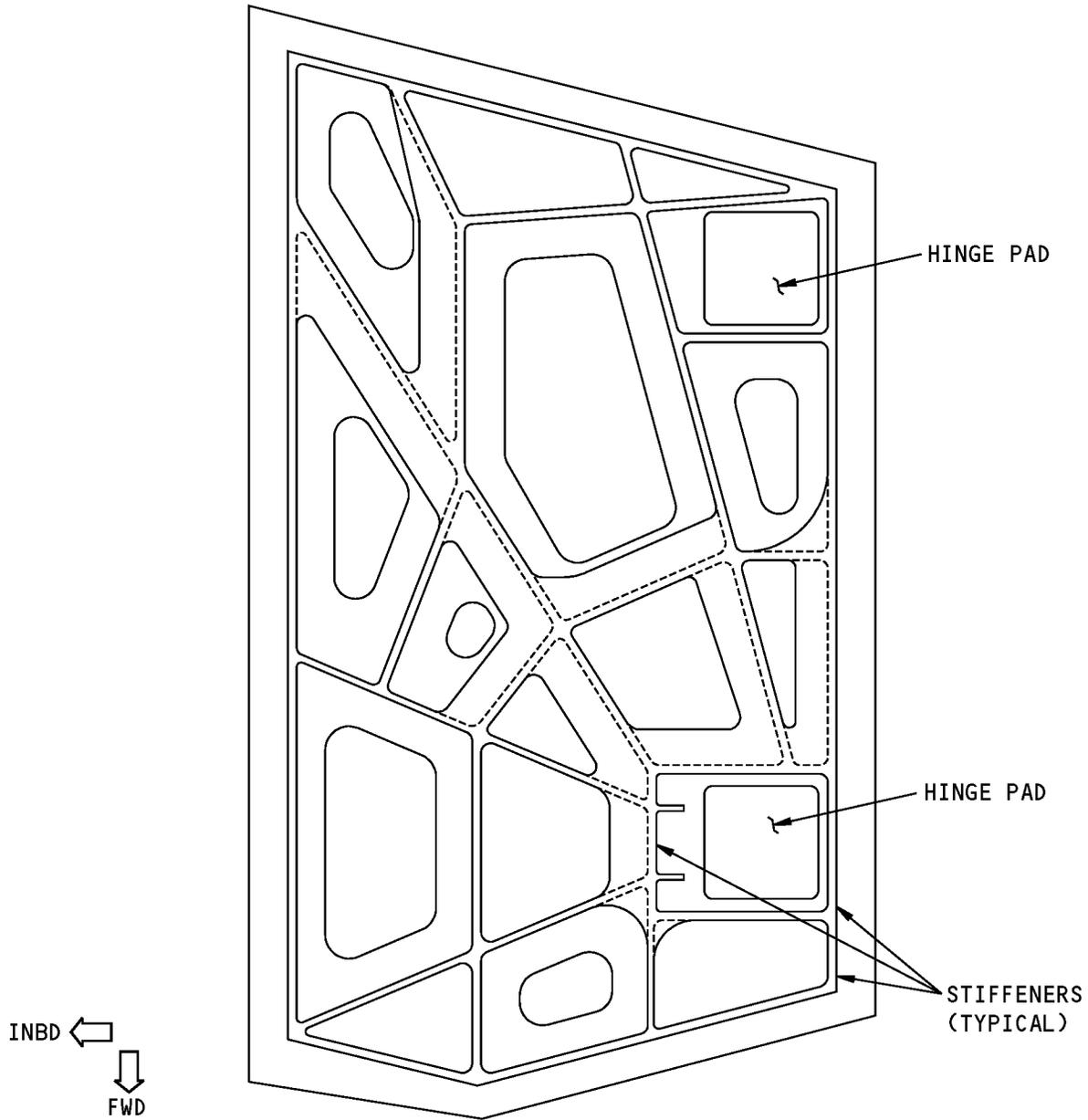
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LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

**Three Piece Door Assembly Allowable Damage Zones
Figure 102 (Sheet 1 of 4)**

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STRUCTURAL REPAIR MANUAL**



**VIEW OF THE INNER SURFACE OF THE OUTBOARD
MAIN LANDING GEAR DOOR CASTING**

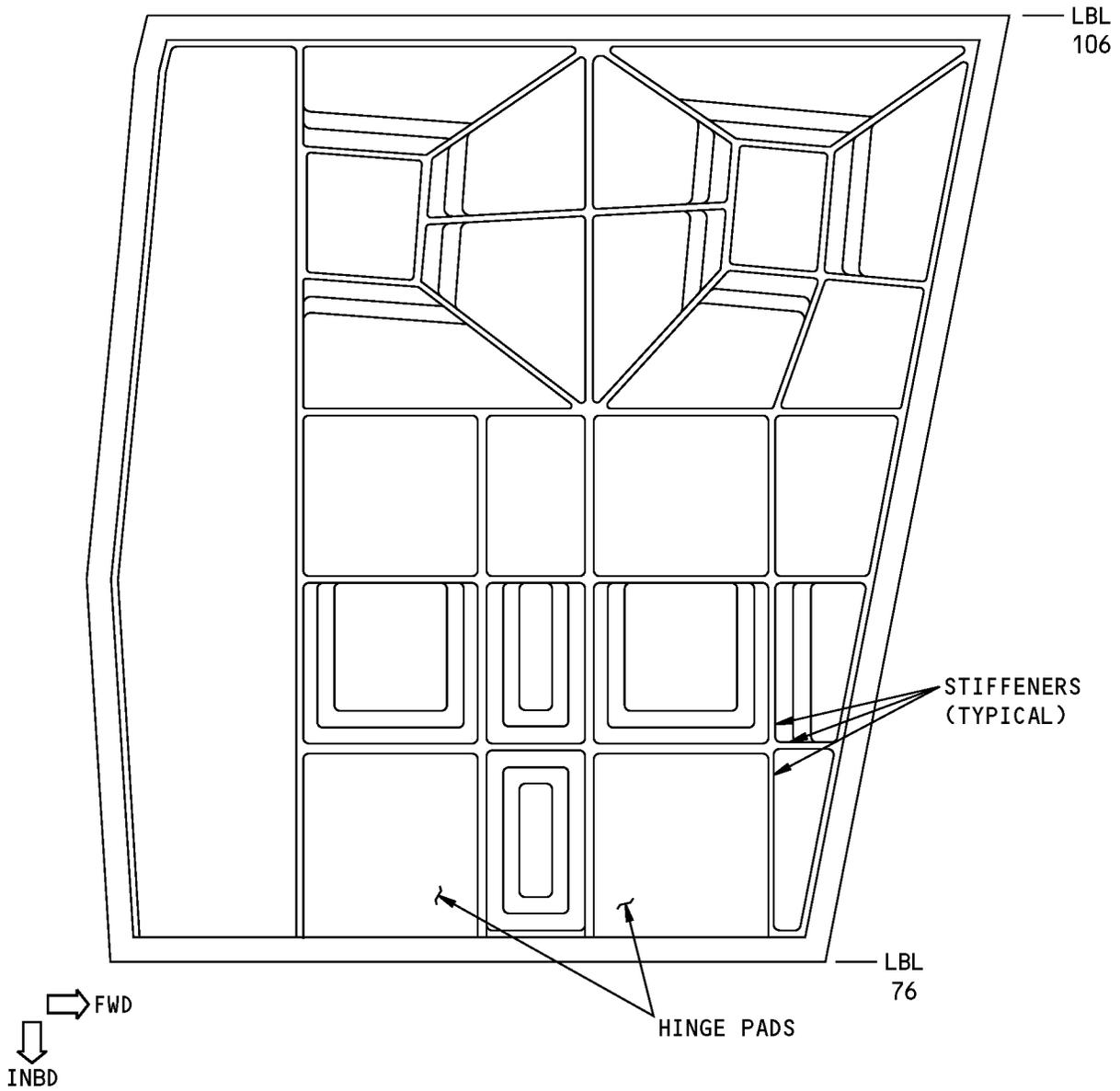
A

**Three Piece Door Assembly Allowable Damage Zones
Figure 102 (Sheet 2 of 4)**

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ALLOWABLE DAMAGE 1
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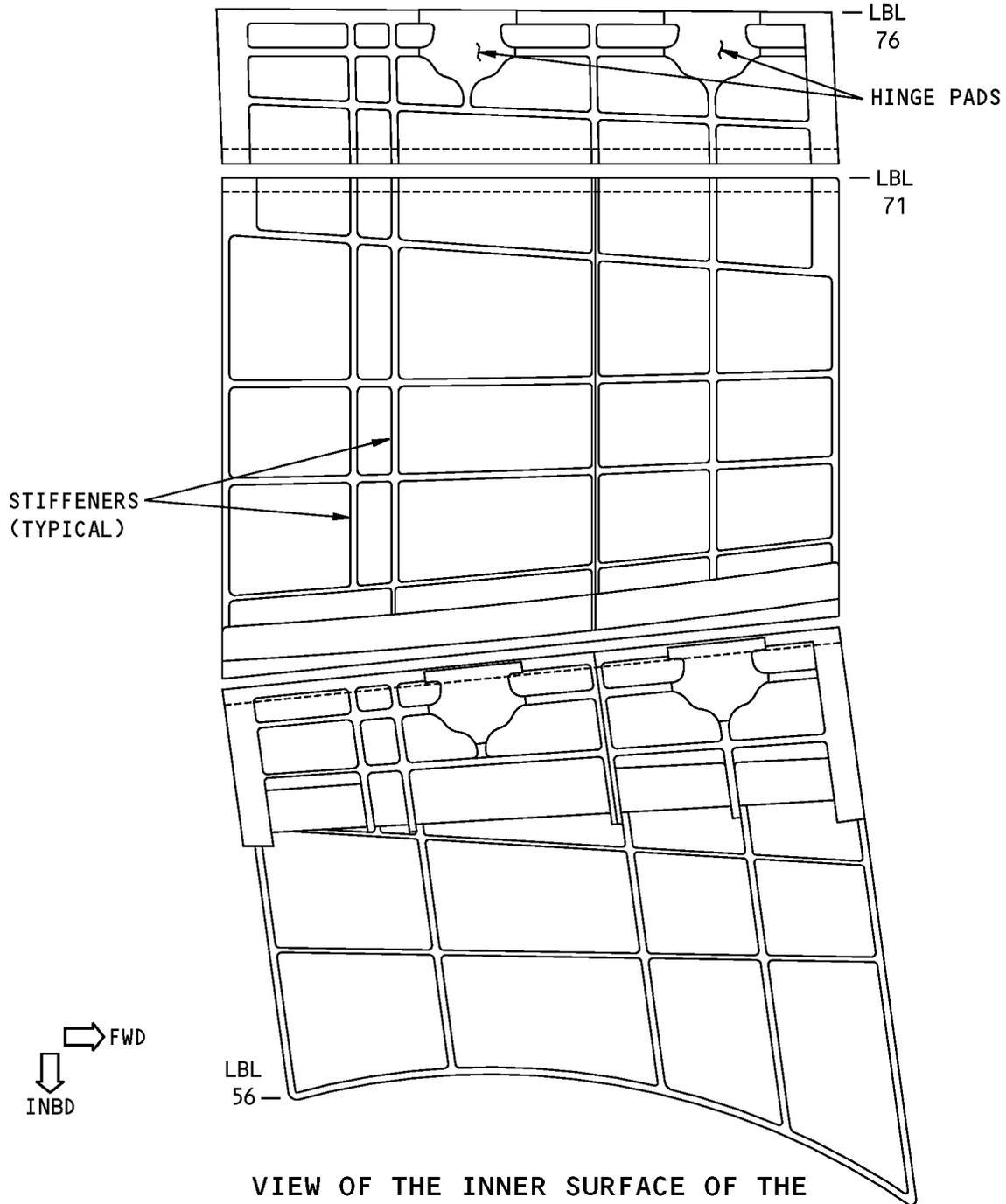


**VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR CASTING**

(B)

**Three Piece Door Assembly Allowable Damage Zones
Figure 102 (Sheet 3 of 4)**

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STRUCTURAL REPAIR MANUAL**

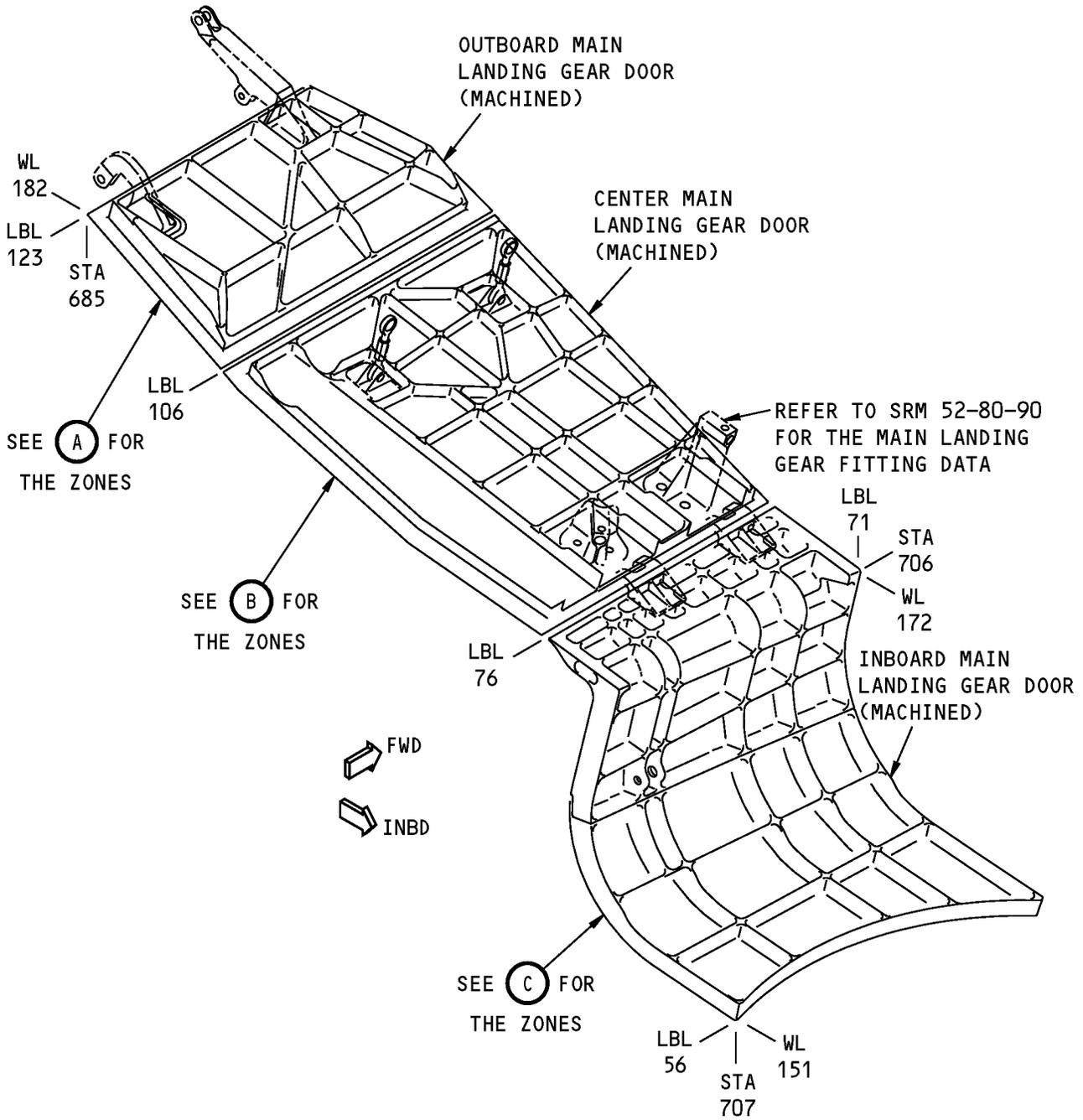


**VIEW OF THE INNER SURFACE OF THE
INBOARD MAIN LANDING GEAR DOOR CASTING**

C

**Three Piece Door Assembly Allowable Damage Zones
Figure 102 (Sheet 4 of 4)**

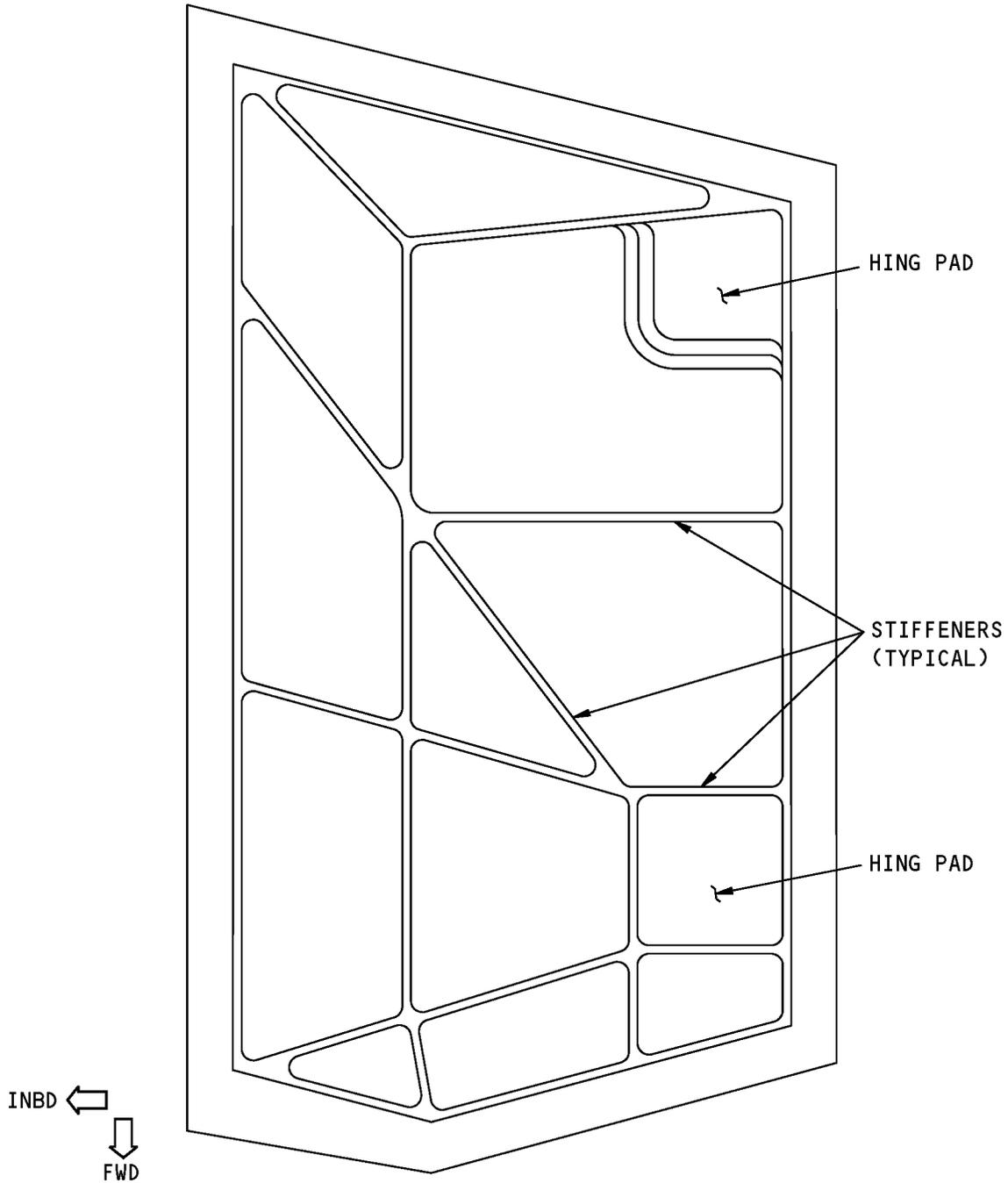
**737-800
STRUCTURAL REPAIR MANUAL**



LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

**Four Piece Door Assembly Allowable Damage Zones
Figure 103 (Sheet 1 of 4)**

**737-800
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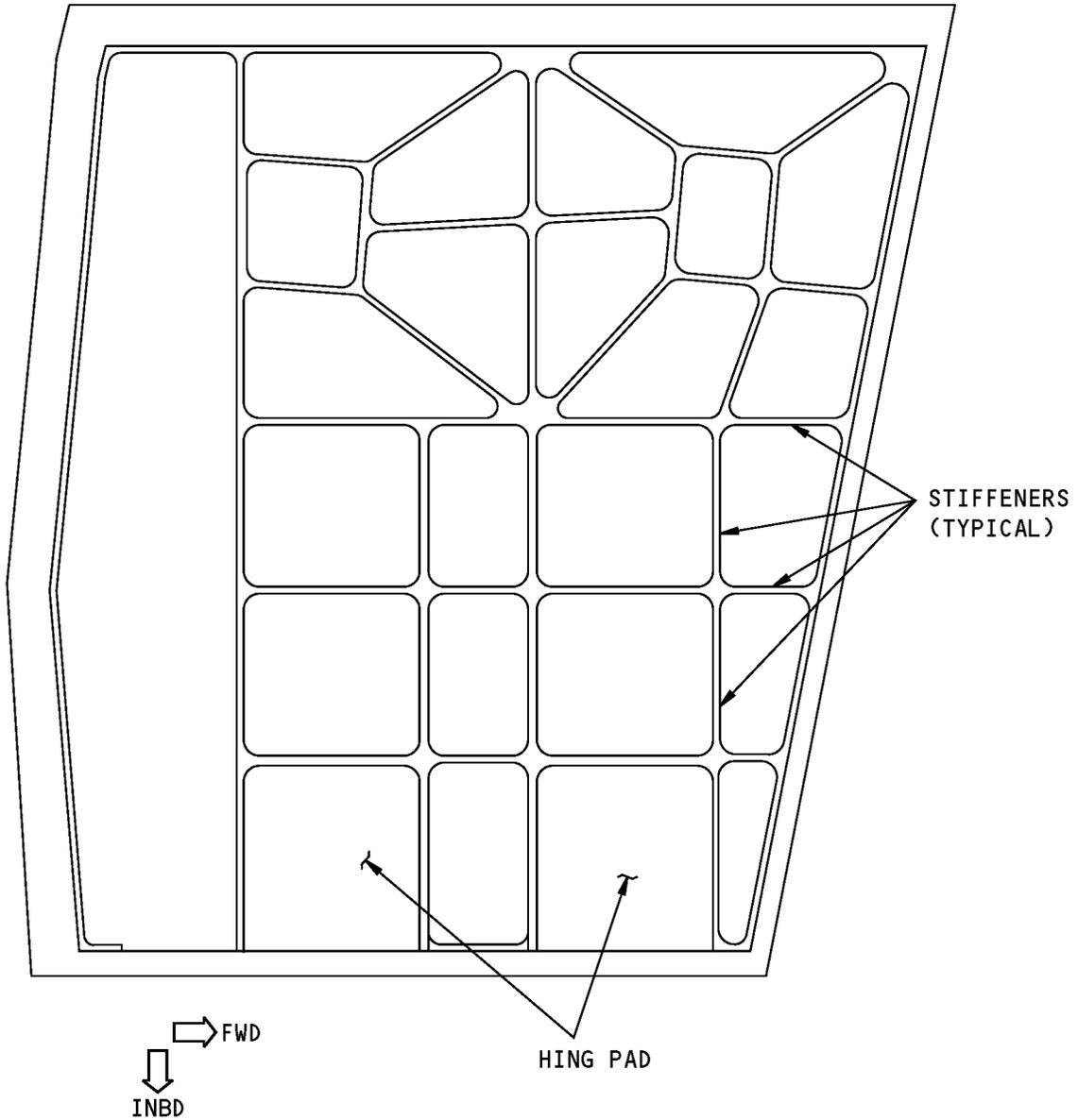


**VIEW OF THE INNER SURFACE OF THE OUTBOARD
MAIN LANDING GEAR DOOR**

A

**Four Piece Door Assembly Allowable Damage Zones
Figure 103 (Sheet 2 of 4)**

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STRUCTURAL REPAIR MANUAL**

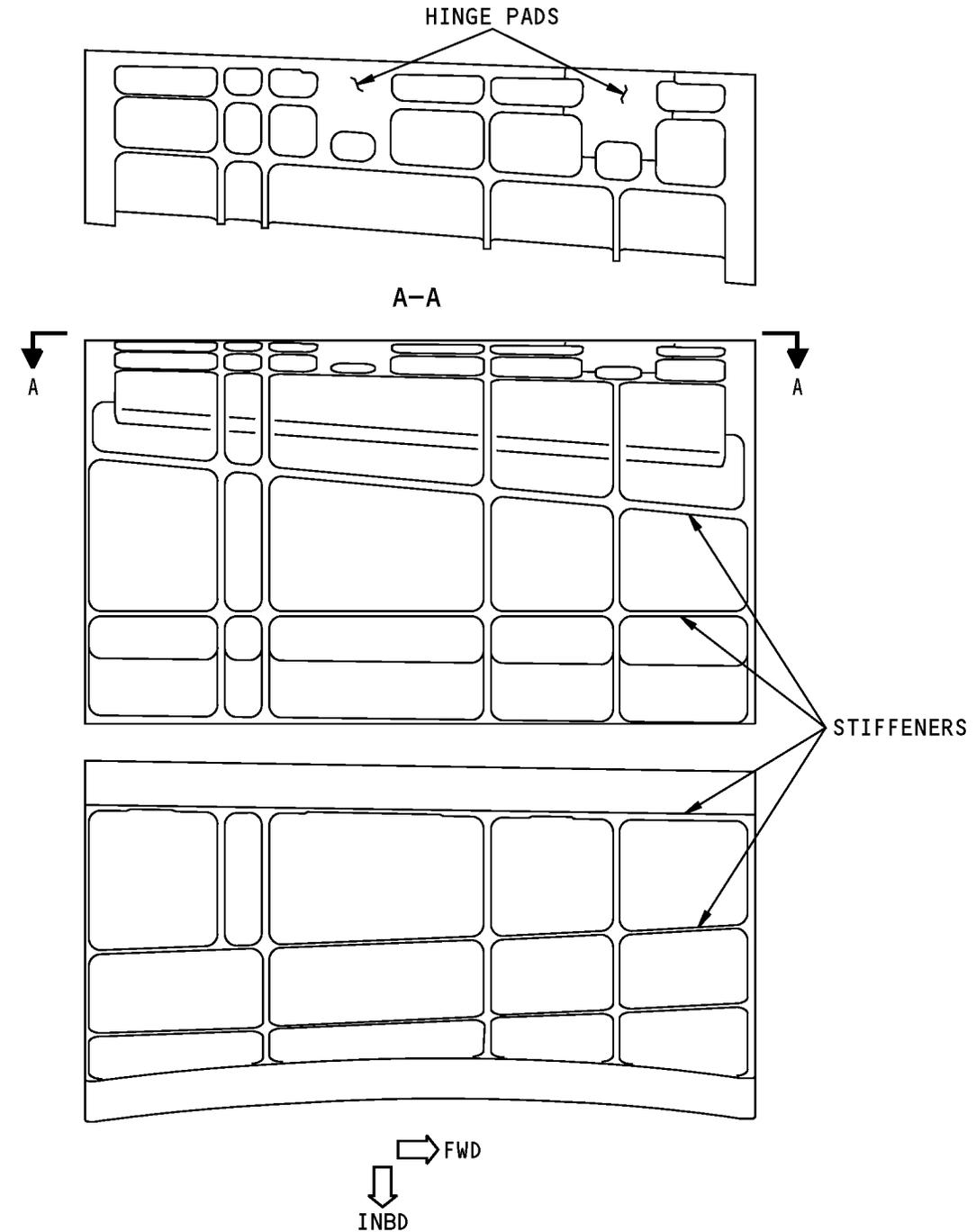


**VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR**

B

**Four Piece Door Assembly Allowable Damage Zones
Figure 103 (Sheet 3 of 4)**

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STRUCTURAL REPAIR MANUAL**



**VIEW OF THE INNER SURFACE OF THE INBOARD
UPPER AND LOWER MAIN LANDING GEAR DOOR CASTING**

C

**Four Piece Door Assembly Allowable Damage Zones
Figure 103 (Sheet 4 of 4)**



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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1
- (1) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (2) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- B. If damage is removed, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish, if necessary. Refer to AMM PAGEBLOCK 51-21-99/701.

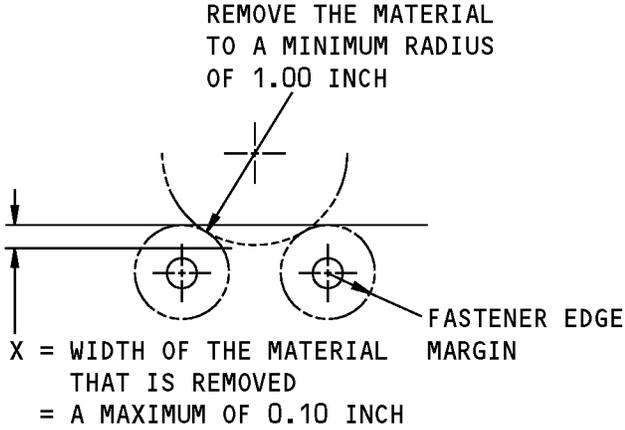
3. References

Reference	Title
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-10-02, GENERAL	Inspection and Removal of Damage
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-30-06, GENERAL	Order Data for Composite Repair Materials
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits - Main Landing Gear Door Structure

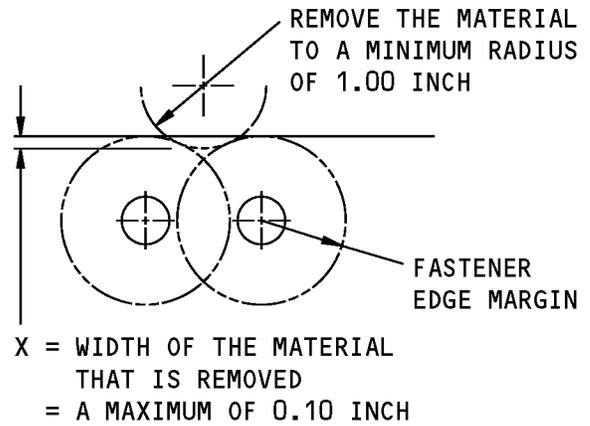
- A. Inboard, Center, and Outboard Doors
- (1) Cracks:
 - (a) Remove the damage as shown in Main Landing Gear Door Structure Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Main Landing Gear Door Structure Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .
 - (3) Dents:
 - (a) Remove the damage as shown in Main Landing Gear Door Structure Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch in diameter
 - (b) A minimum of 6D (D = the diameter of the fastener) away from other damage
 - (c) A minimum of 2.00 inch away from a fastener or part radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.

STRUCTURAL REPAIR MANUAL



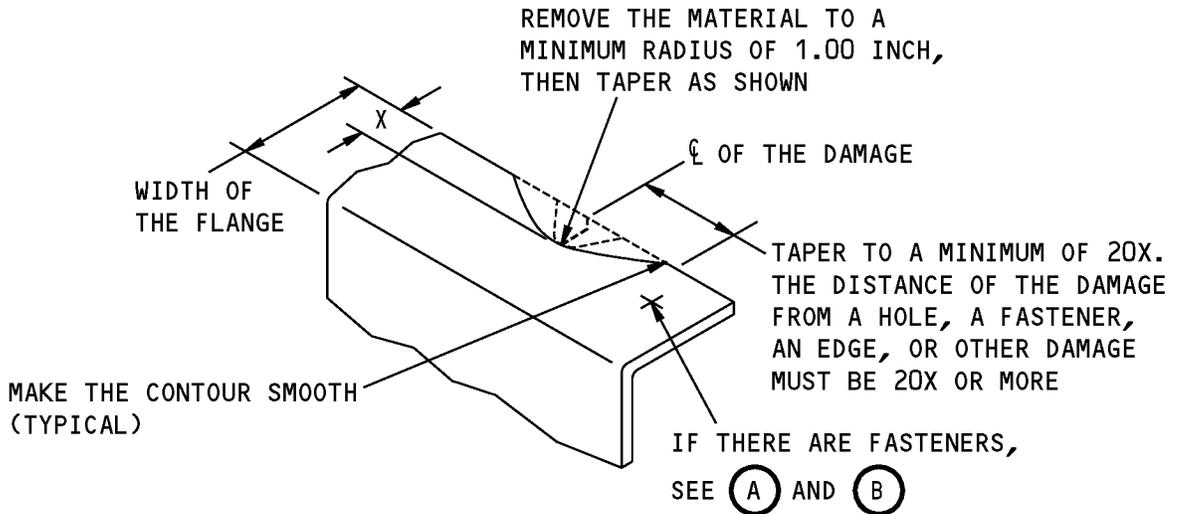
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



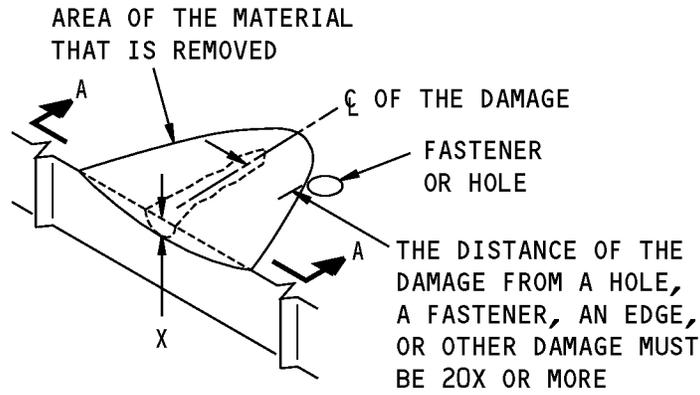
X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

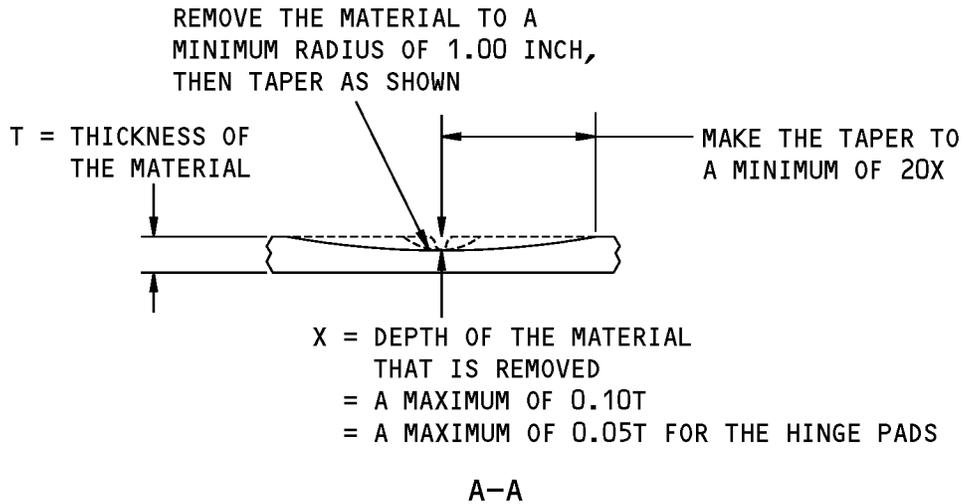
**Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 1 of 4)**

**737-800
STRUCTURAL REPAIR MANUAL**



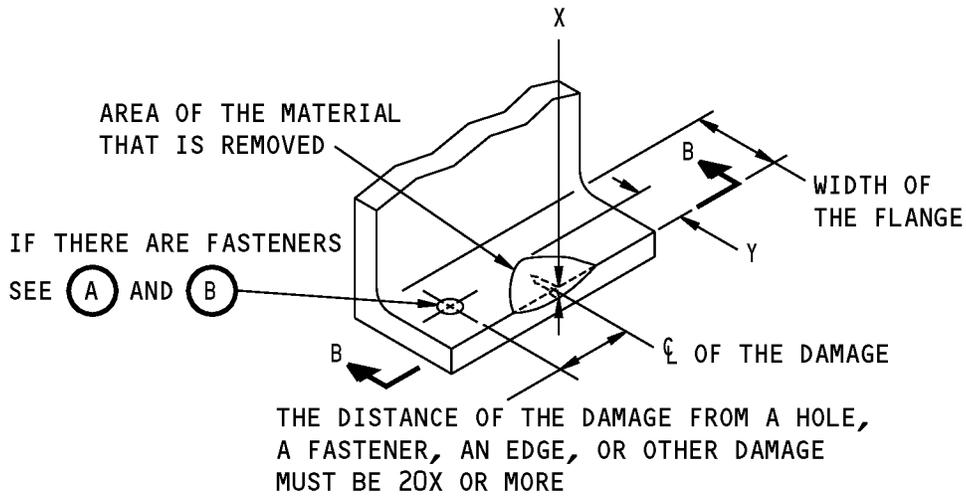
**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

(D)



**Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 2 of 4)**

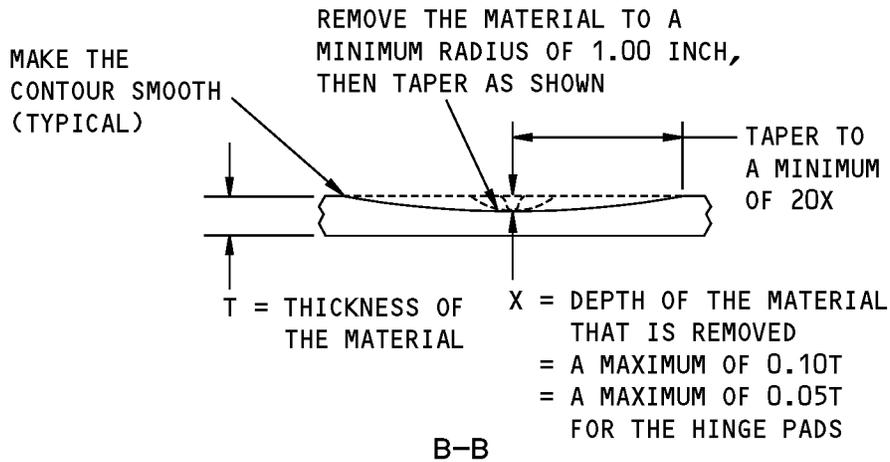
STRUCTURAL REPAIR MANUAL



Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

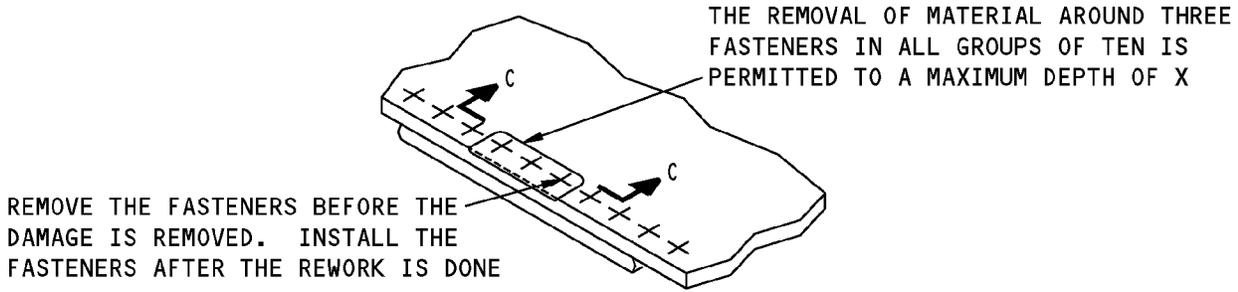
REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(E)



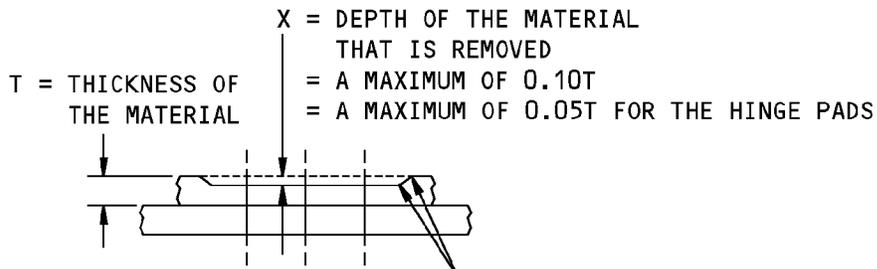
**Main Landing Gear Door Structure Allowable Damage
 Figure 104 (Sheet 3 of 4)**

**737-800
STRUCTURAL REPAIR MANUAL**



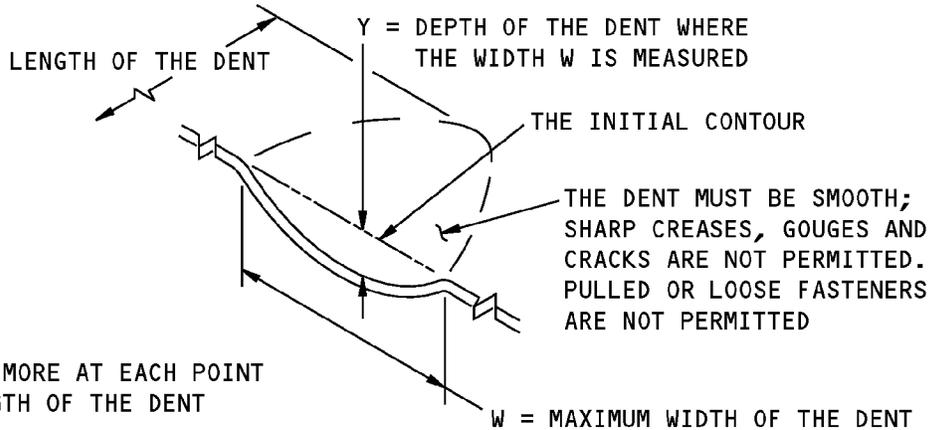
**REMOVAL OF DAMAGE AROUND THE FASTENERS
ON AN EDGE OR A SURFACE**

F



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

C-C



$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT ALONG THE LENGTH OF THE DENT

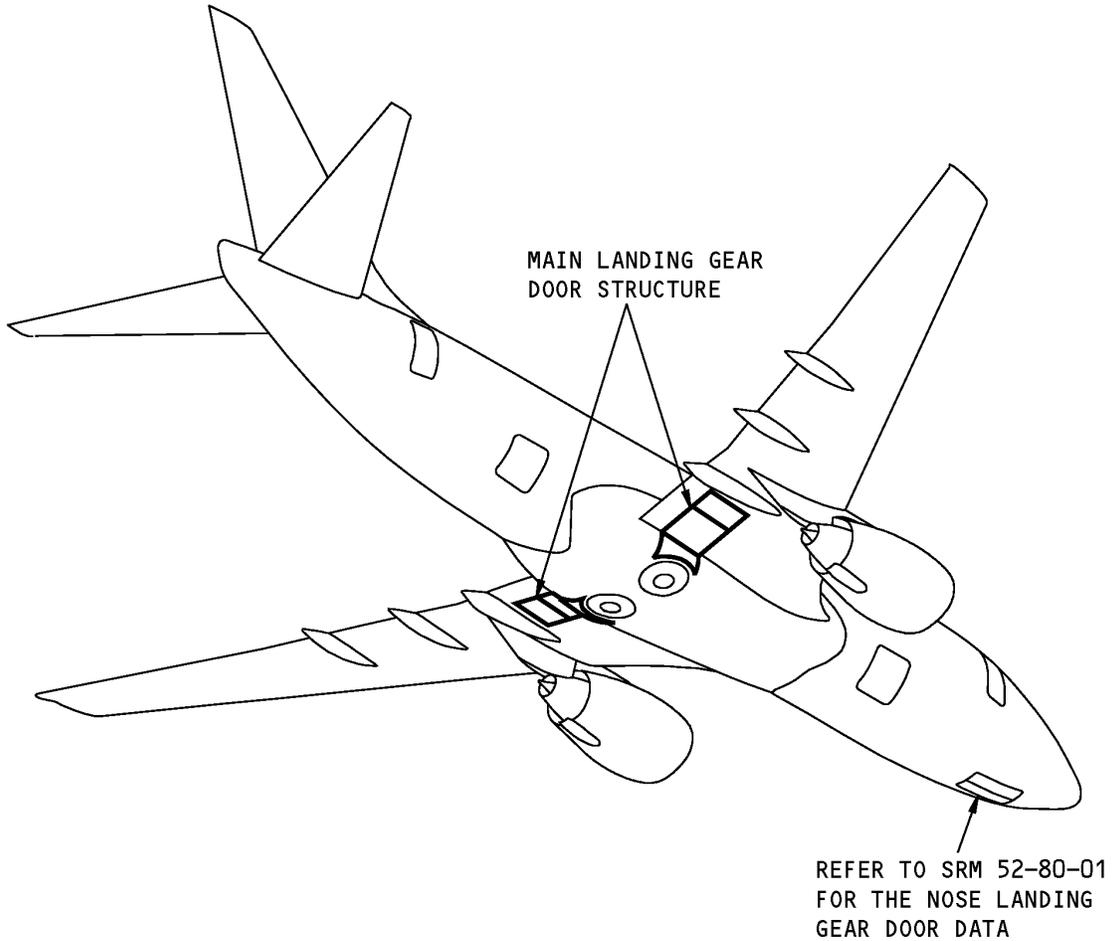
DENT THAT IS PERMITTED

G

**Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 4 of 4)**

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STRUCTURAL REPAIR MANUAL

REPAIR 1 - MAIN LANDING GEAR DOOR STRUCTURE



NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

Main Landing Gear Door Location
Figure 201



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STRUCTURAL REPAIR MANUAL

REPAIR 2 - MAIN LANDING GEAR DOOR CRACK REPAIR - CENTER DOOR

1. Applicability

- A. This repair is applicable to a stiffener crack in the center main landing gear door.
- B. This repair is applicable to the center main landing gear door that is made from aluminum casting.
- C. This repair is not applicable to a crack that extends into the web of the center main landing gear door.

2. General

- A. This repair is a Category A repair. Refer to STRUCTURAL REPAIR DEFINITIONS, 51-00-06 for the definitions of the different categories of damage tolerant repairs.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-20-13	SURFACE ROUGHNESS FINISH REQUIREMENTS
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-06	FASTENER EDGE MARGINS
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00	Structures - General

4. Repair Instructions

- A. Get access to the damaged area.
- B. Remove the initial fasteners as necessary. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.
- C. Where applicable, make a slot in the flange at the crack location as shown in Figure 202/REPAIR 2. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.
- D. For damage at the forward hinge fitting location, remove the initial flange of the door as shown in Figure 202/REPAIR 2, Detail C. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.
- E. Do a High Frequency Eddy Current (HFEC) inspection of the repair area to make sure that all the damage is removed. Refer to 737 NDT Part 6, 51-00-00.
- F. Make the repair parts. Refer to Table 201/REPAIR 2 and Figure 203/REPAIR 2, Details A, B or C, as applicable.

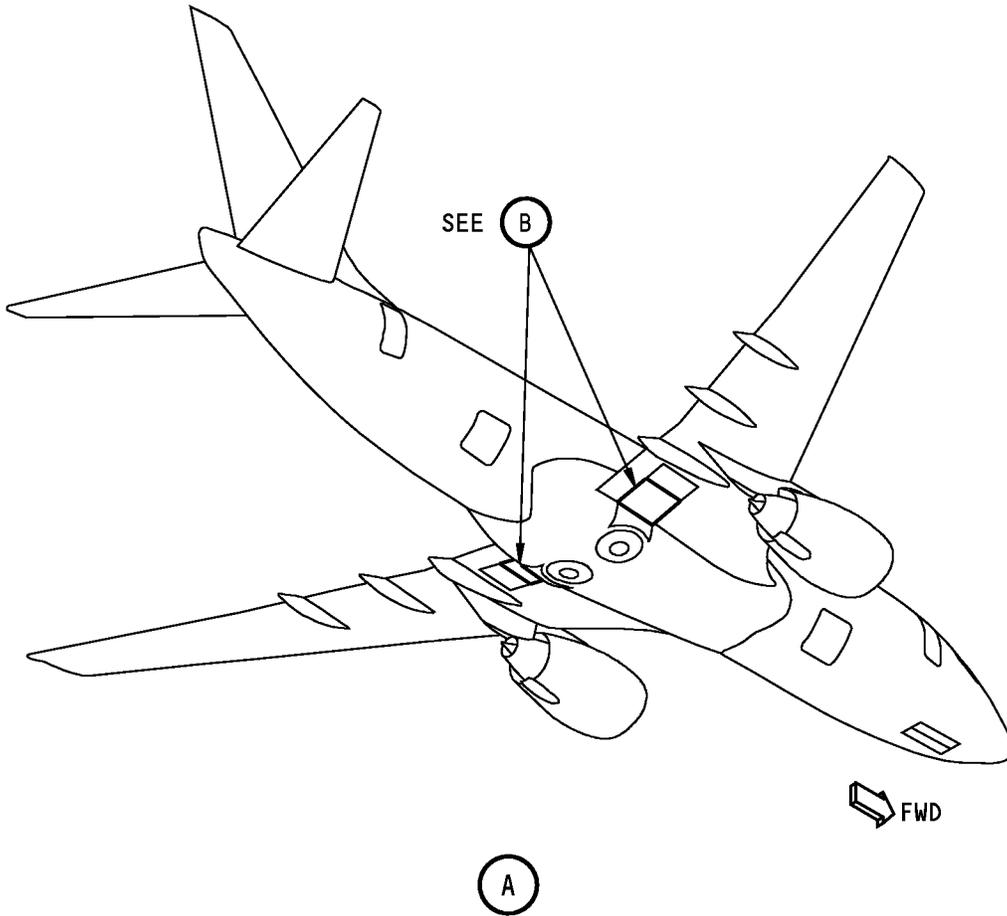
737-800
STRUCTURAL REPAIR MANUAL

Table 201: Repair Material

ITEM	PART	QUANTITY	MATERIAL
[1]	ANGLE DOUBLER	1	Use 7050-T7451 plate as given in AMS 4050. Thickness 1.20 in. (30.48 mm). Ultrasonic inspect as given in BAC5439, Class B.
[2]	FITTING	1	Use 7050-T7451 plate as given in AMS 4050. Thickness 1.20 in. (30.48 mm). Ultrasonic inspect as given in BAC5439, Class B.
[3]	ANGLE	1	Use 7050-T7451 plate as given in AMS 4050. Thickness 1.00 in. (25.40 mm). Ultrasonic inspect as given in BAC5439, Class B.
[4]	RADIUS FILLER	AS NECESSARY	Use 7050-T7451 plate as given in AMS 4050. Thickness 0.25 in. (6.35 mm).

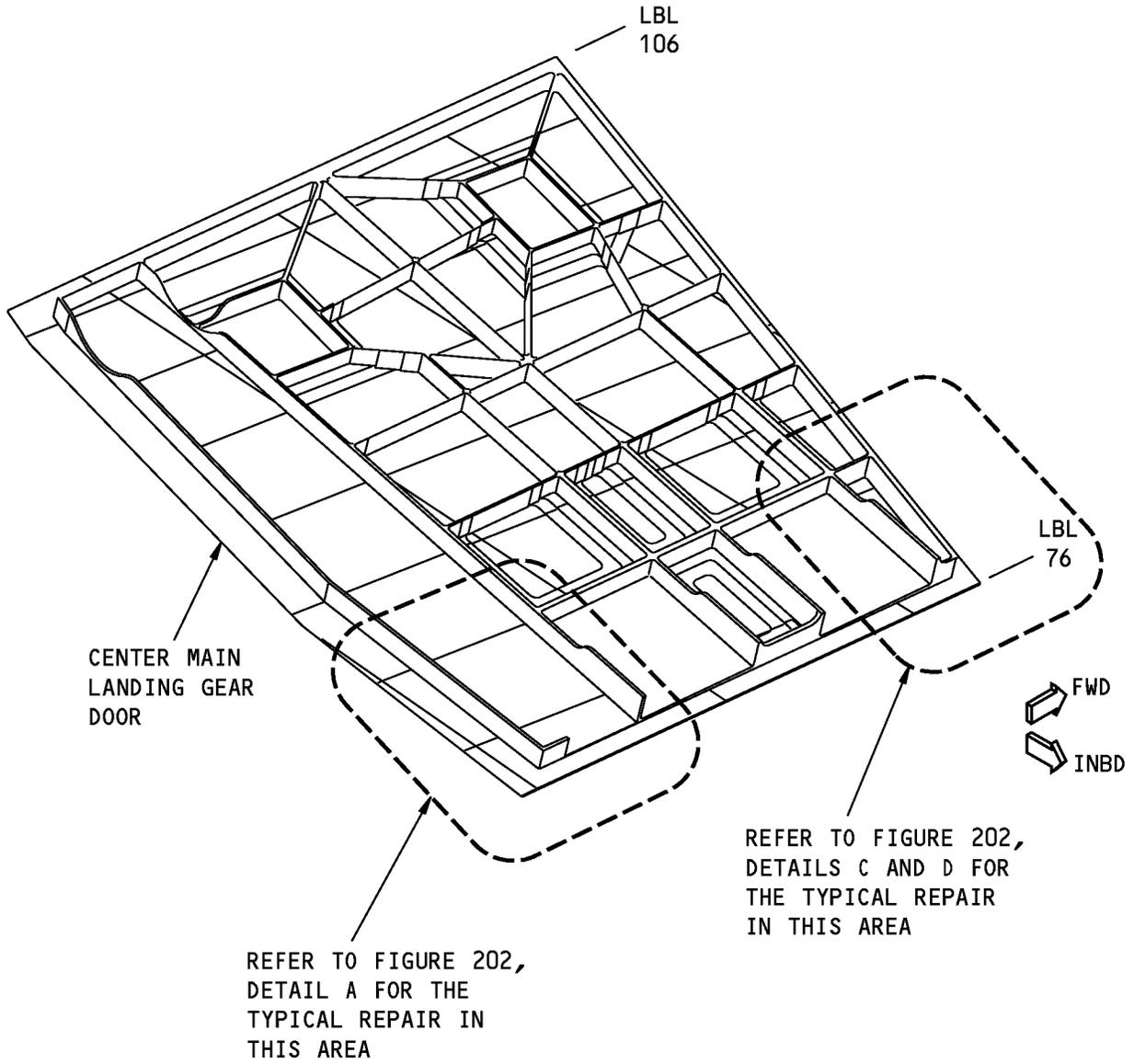
- G. Make sure the surface of the repair parts and the bare surfaces of the initial part have a surface finish of 125 microinches (3.2 micrometers) Ra or smoother. Refer to SURFACE ROUGHNESS FINISH REQUIREMENTS, 51-20-13.
- H. Assemble the repair parts.
- I. Drill the fastener holes. Refer to Figure 202/REPAIR 2, as applicable. Refer to FASTENER EDGE MARGINS, 51-40-06 for fastener edge margins.
 - (1) If there is not sufficient space between the slot and the flange to install a fastener as shown in Figure 202 (Sheet 6), E-E, then do the following:
 - (a) Use a 2024-T3 or same aluminum filler to fill the slot.
 - (b) Install the fastener through the filler with 0.030 inch minimum wall thickness on the filler.
 - (2) If the fastener rides up the fillet radius of the repair parts, add the part [4] Radius Filler as necessary. Refer to Figure 202 (Sheet 2), B-B.
- J. Disassemble the repair parts.
- K. Remove the nicks, scratches, gouges, burrs and sharp edges from the repair parts and the bare surfaces of the initial part.
- L. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the initial part. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
- M. Apply two layers of BMS 10-11, Type I to the repair parts and to the bare surfaces of the initial part. Refer to SOPM 20-41-02.
- N. Install the repair parts and initial parts that you removed:
 - (1) Apply BMS 5-95 sealant between the mating surfaces. Refer to REPAIR SEALING, 51-20-05.
 - (2) Shim all gaps between the mating surfaces of the parts that are more than 0.005 in. (0.127 mm). If the shim gap is more than 0.040 in. (1.02 mm) do not install a shim, contact the Boeing Company.
 - (3) Install all fasteners wet with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- O. Apply a fillet seal and fill all gaps with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- P. Restore the aircraft external finish as applicable. Refer to AMM SECTION 51-21.

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STRUCTURAL REPAIR MANUAL**



**Center Main Landing Gear Door Location
Figure 201 (Sheet 1 of 2)**

**737-800
STRUCTURAL REPAIR MANUAL**

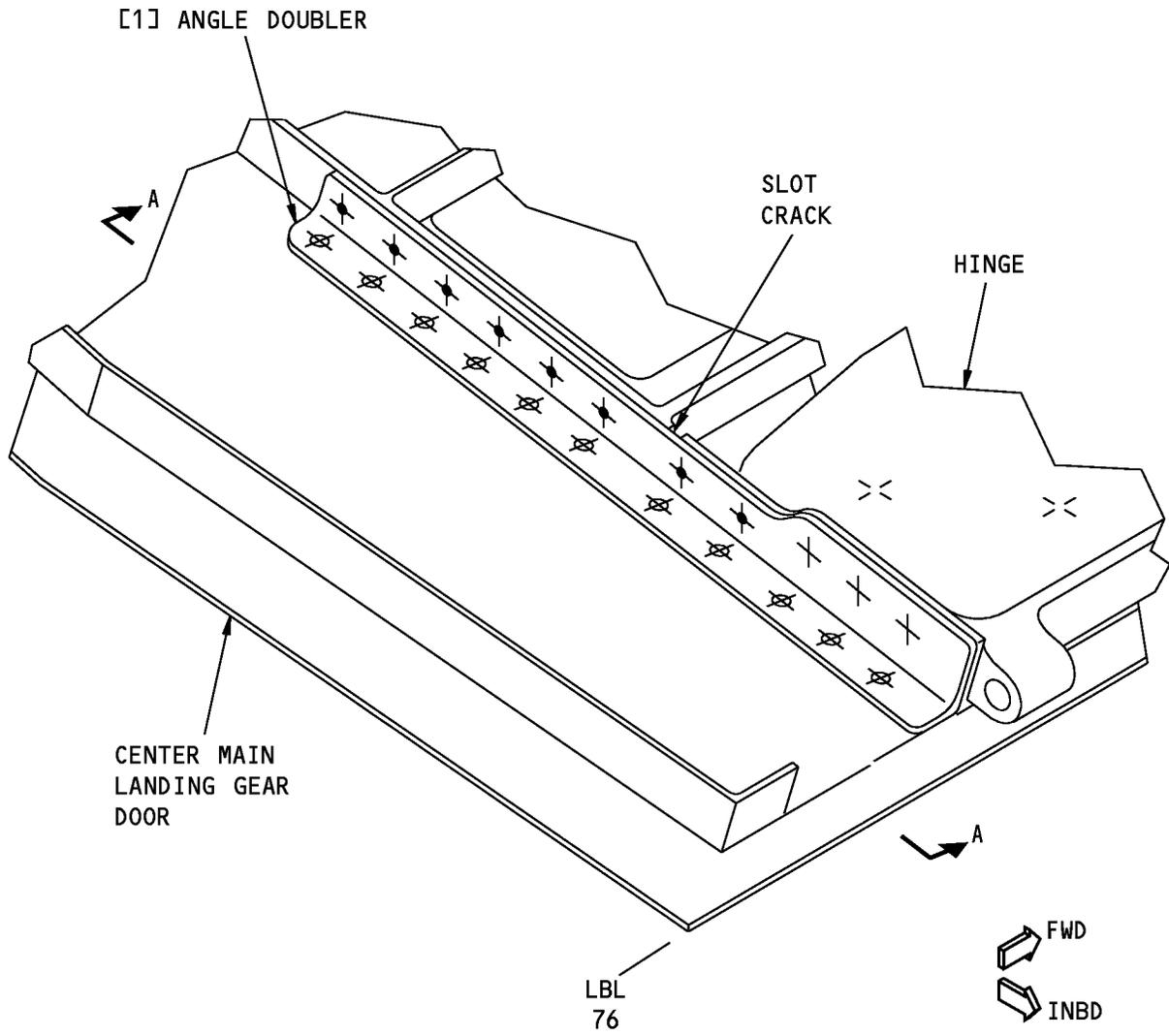


LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

(B)

**Center Main Landing Gear Door Location
Figure 201 (Sheet 2 of 2)**

**737-800
STRUCTURAL REPAIR MANUAL**

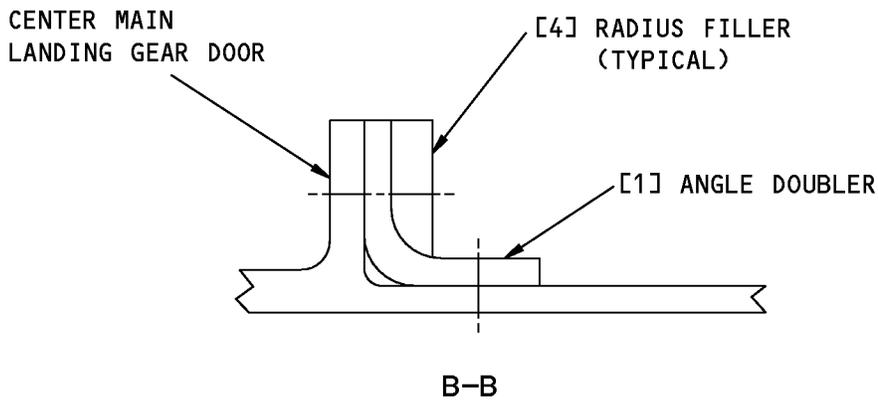
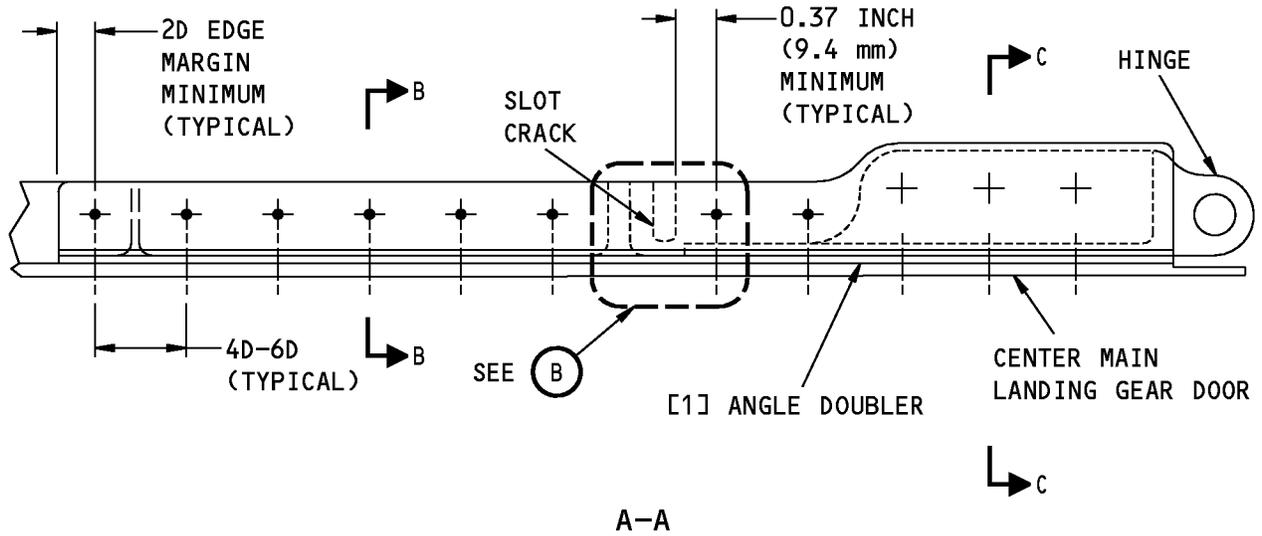


TYPICAL REPAIR

A

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 1 of 8)**

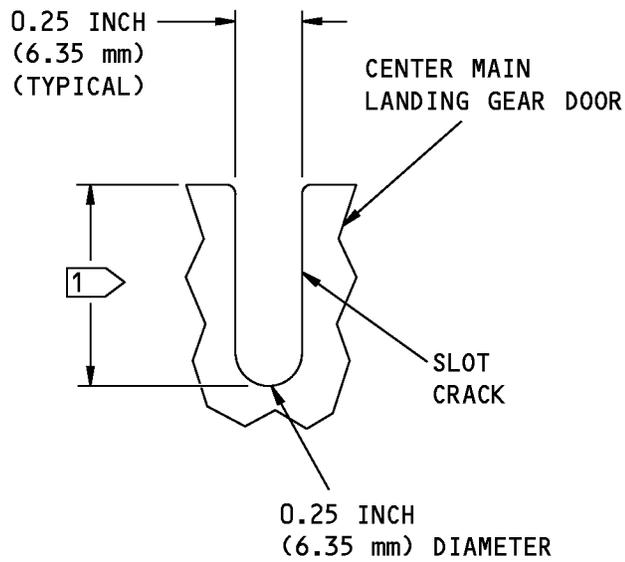
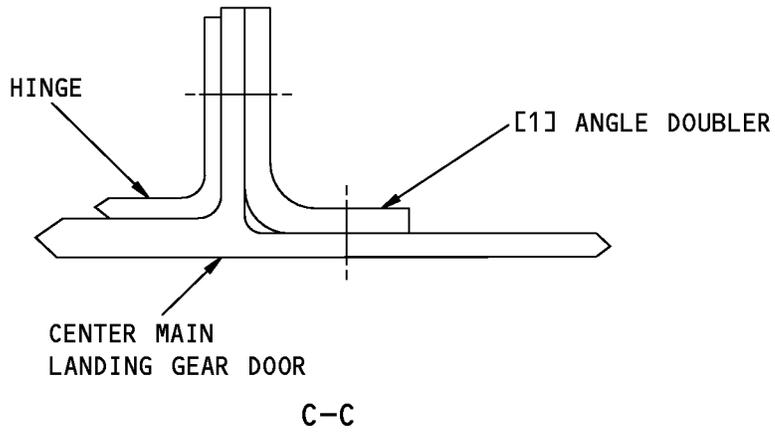
**737-800
STRUCTURAL REPAIR MANUAL**



1305443 S0000226017_V1

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 2 of 8)**

**737-800
STRUCTURAL REPAIR MANUAL**

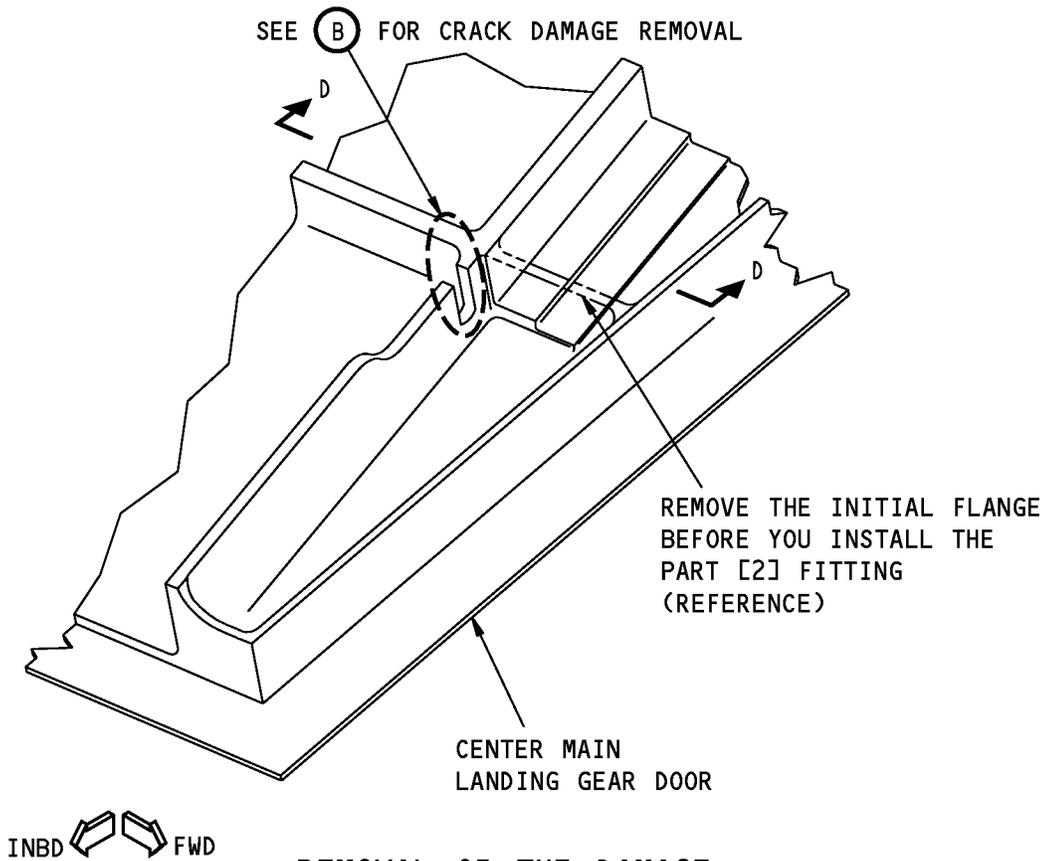


**TYPICAL CRACK DAMAGE REMOVAL
(REPAIR PARTS ARE NOT SHOWN)**

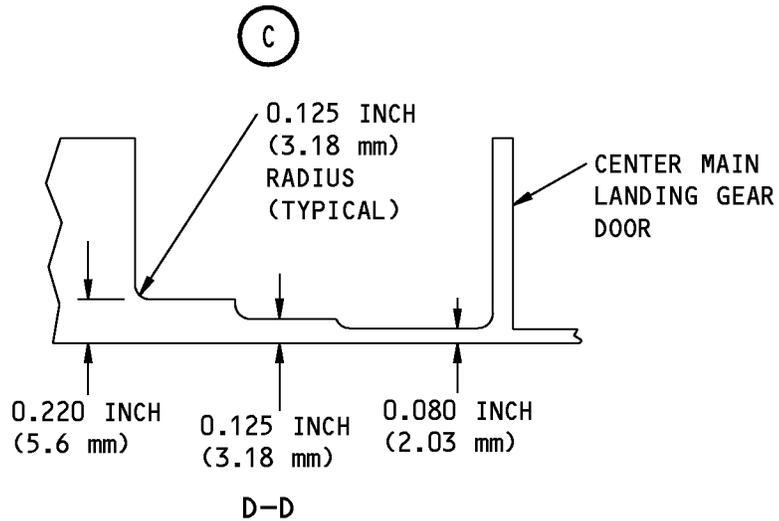
B

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 3 of 8)**

**737-800
STRUCTURAL REPAIR MANUAL**

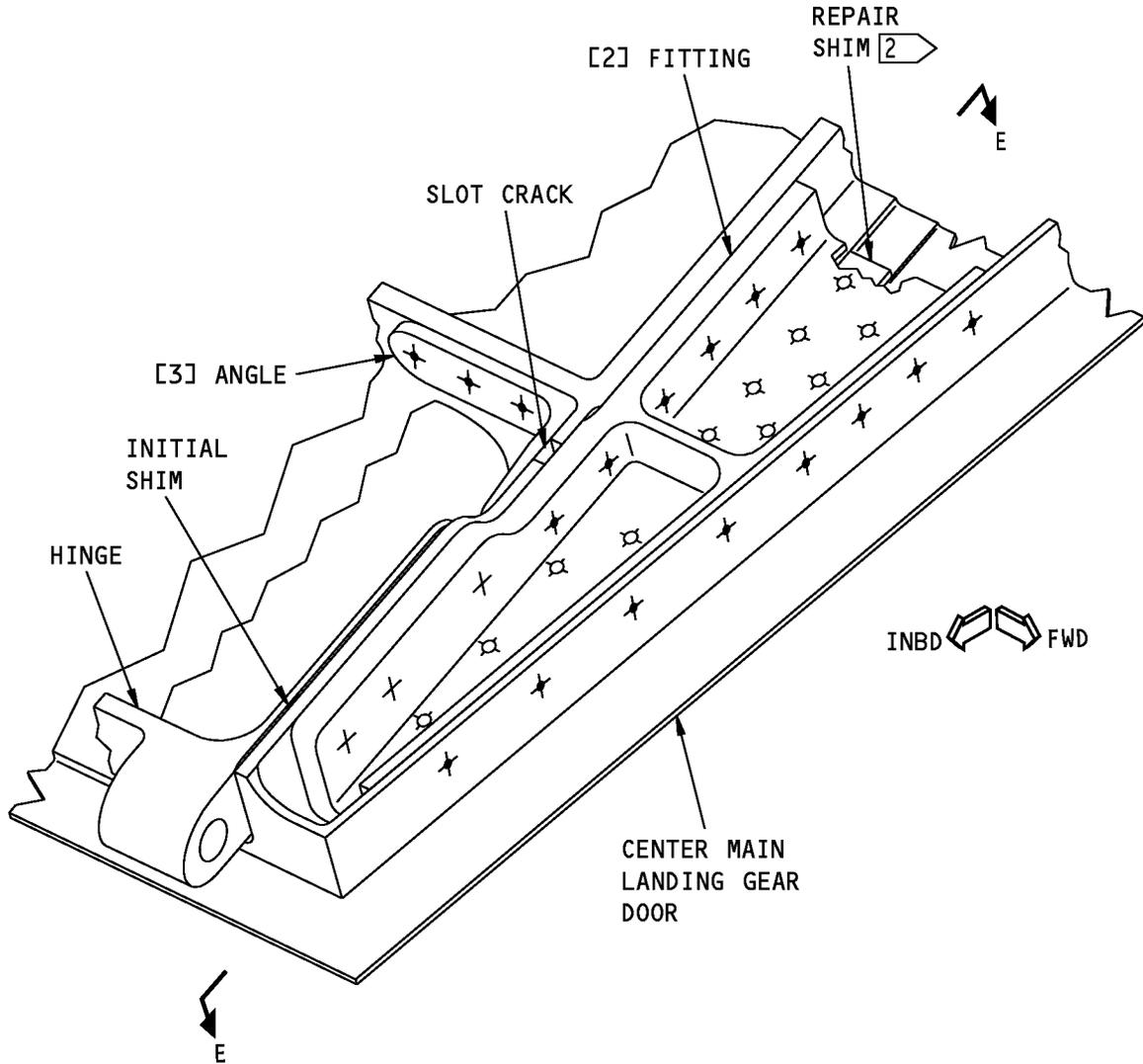


REMOVAL OF THE DAMAGE



**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 4 of 8)**

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STRUCTURAL REPAIR MANUAL**



TYPICAL REPAIR

D

1305446 S0000226020_V1

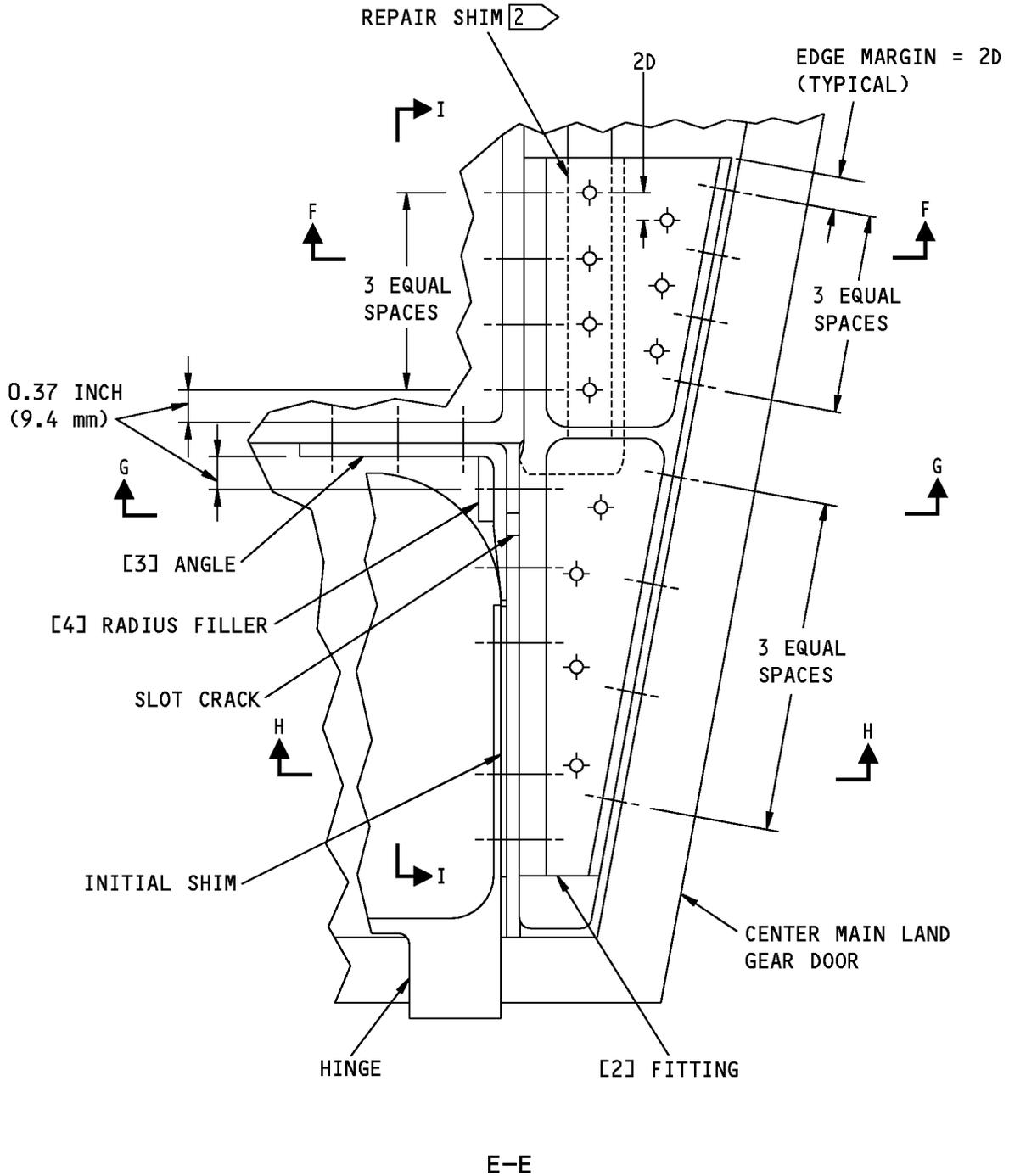
**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 5 of 8)**

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52-80-02

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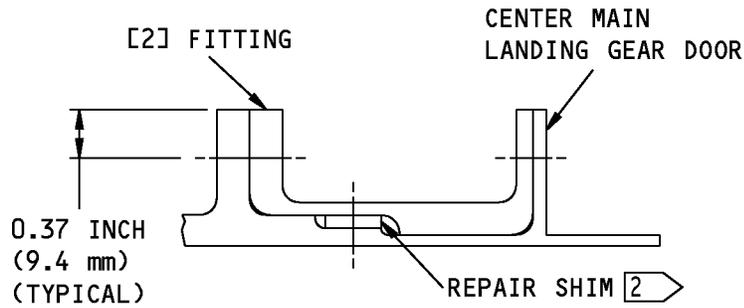
**737-800
STRUCTURAL REPAIR MANUAL**



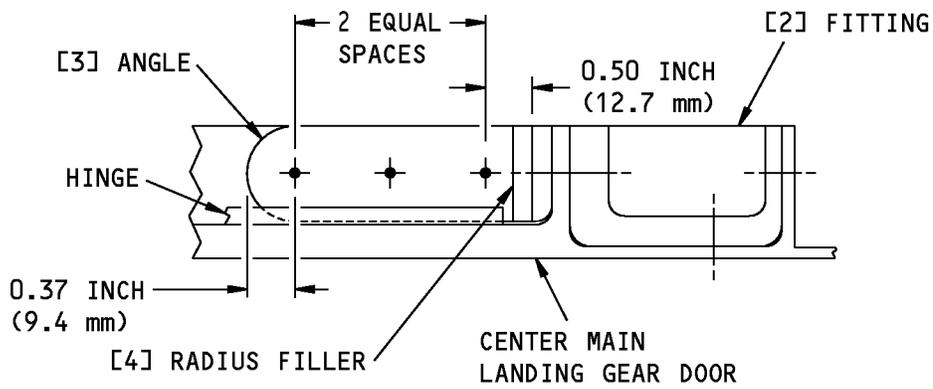
1305447 S0000226021_V1

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 6 of 8)**

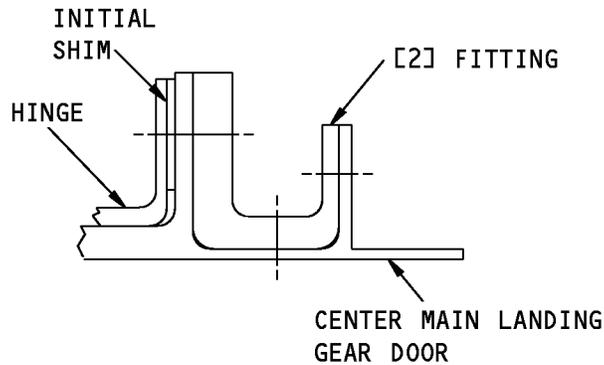
**737-800
STRUCTURAL REPAIR MANUAL**



F-F



G-G

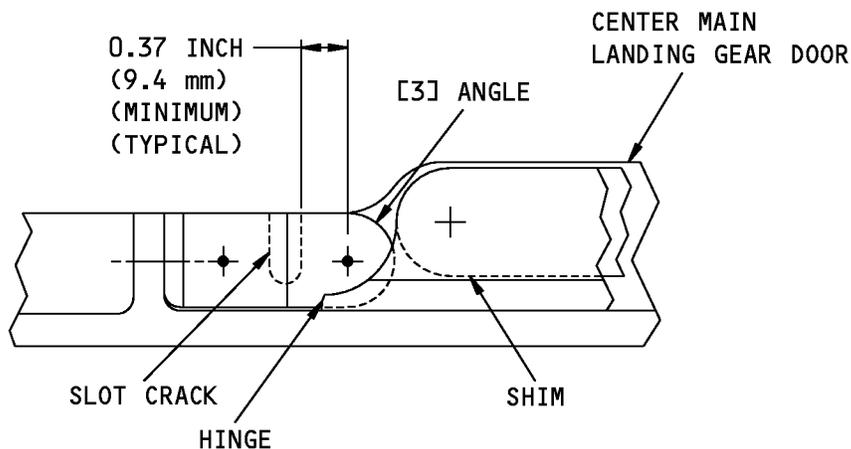


H-H

1305448 S0000226022_V1

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 7 of 8)**

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STRUCTURAL REPAIR MANUAL**



I-I

VIEW IS ROTATED 90° COUNTERCLOCKWISE

NOTES

- D = FASTENER DIAMETER

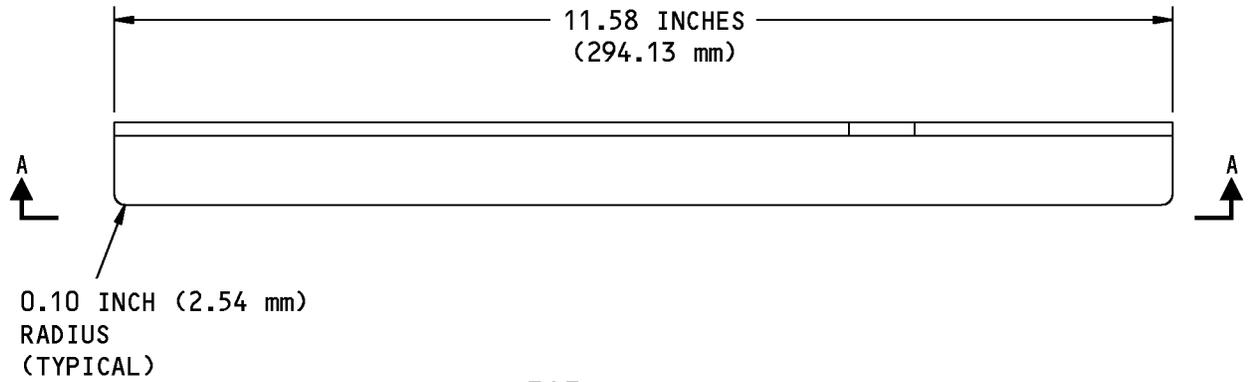
- 1 REMOVE THE CRACK. DO NOT TRIM INTO THE RADIUS OF THE WEB. BREAK ALL SHARP EDGES.
- 2 INSTALL THE PART [2] FITTING WITH SHIM, AT SHOWN LOCATION. MAKE SHIM FROM 7075-T6 OR 2024-T3 WITH THICKNESS 0.095 INCH (2.41 mm) NOMINAL. APPLY CHEMICAL CONVERSION COATING WITH TWO LAYERS OF BMS 10-11, TYPE I PRIMER PRIOR TO INSTALLATION.

FASTENER SYMBOLS

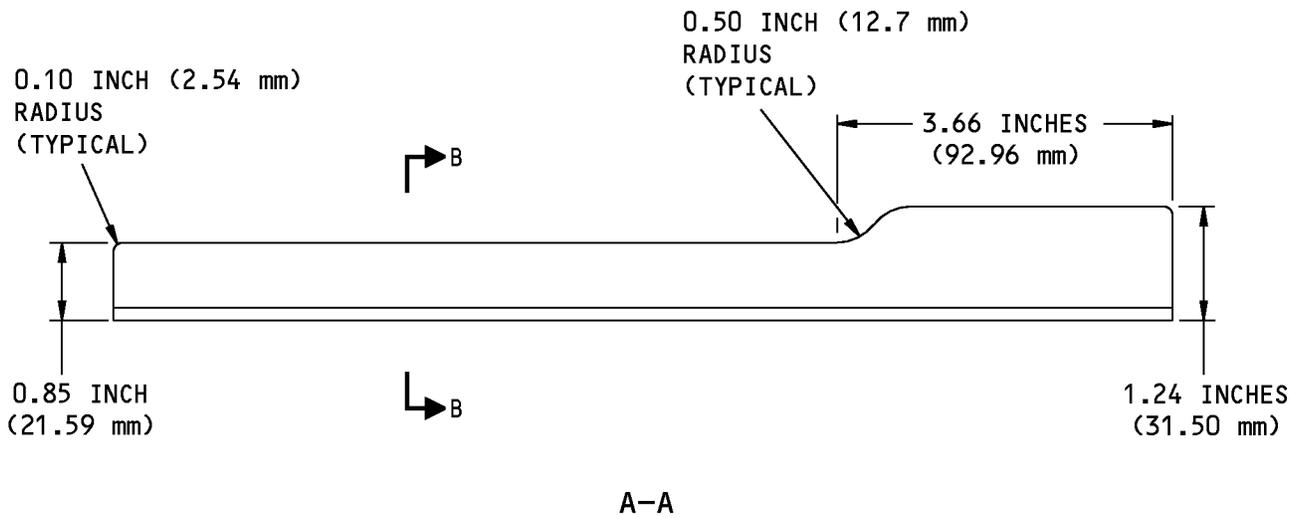
- ⊕ REFERENCE FASTENER LOCATION.
- + INITIAL FASTENER LOCATION. INSTALL THE FASTENERS WITH THE SAME TYPE AS INITIAL, OVERSIZE UP TO 1/64 INCH AND LENGTH, AS NECESSARY.
- ⊕ REPAIR FASTENER LOCATION. INSTALL A BACB30VT6K() WITH A BACC30BL6 COLLAR FOR DETAIL A. INSTALL A BACB30NX6K() WITH A BACC30X6 COLLAR FOR DETAIL D.
- ⊕ REPAIR FASTENER LOCATION. INSTALL A BACR15CE6 RIVET.
- ⊕ REPAIR FASTENER LOCATION. INSTALL A BACB30VU6K() WITH A BACC30BL6 COLLAR.

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 8 of 8)**

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STRUCTURAL REPAIR MANUAL**

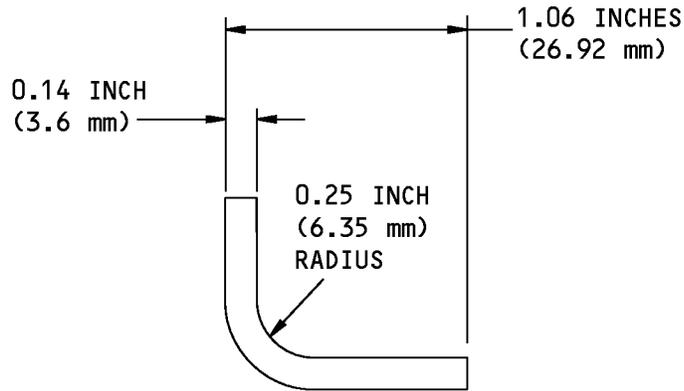


PART [1] ANGLE DOUBLER

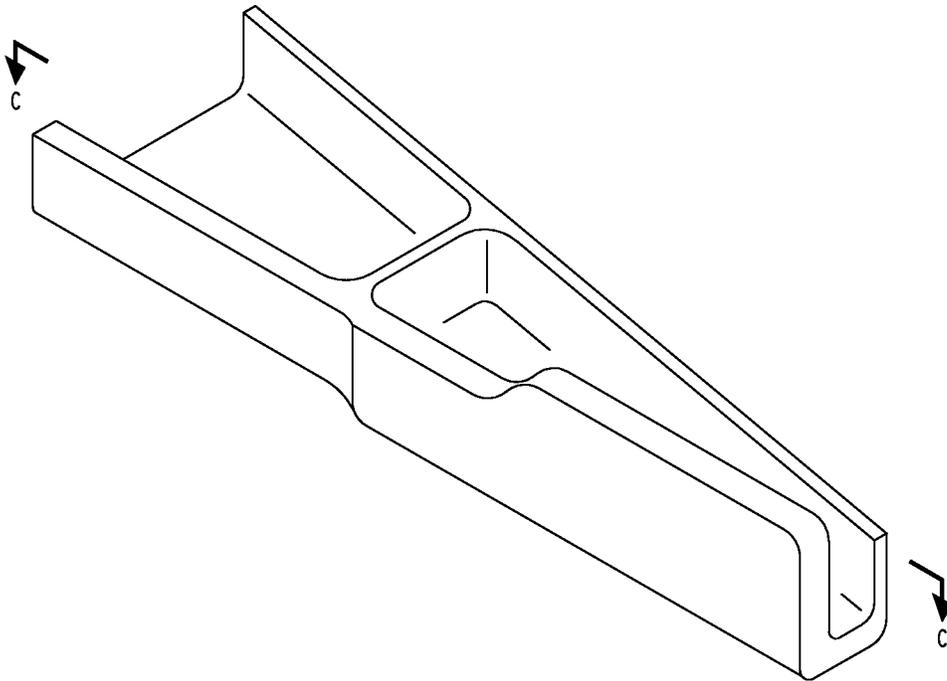


**Repair Details
Figure 203 (Sheet 1 of 5)**

**737-800
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B-B

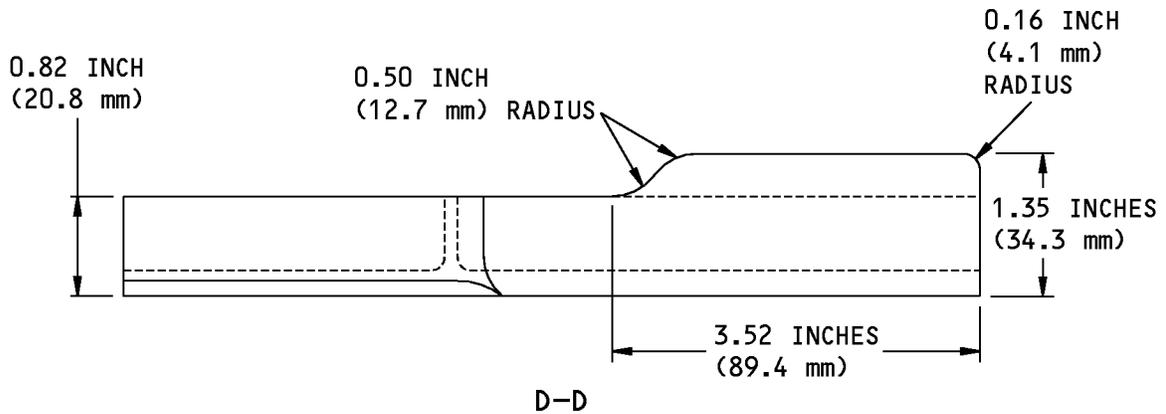
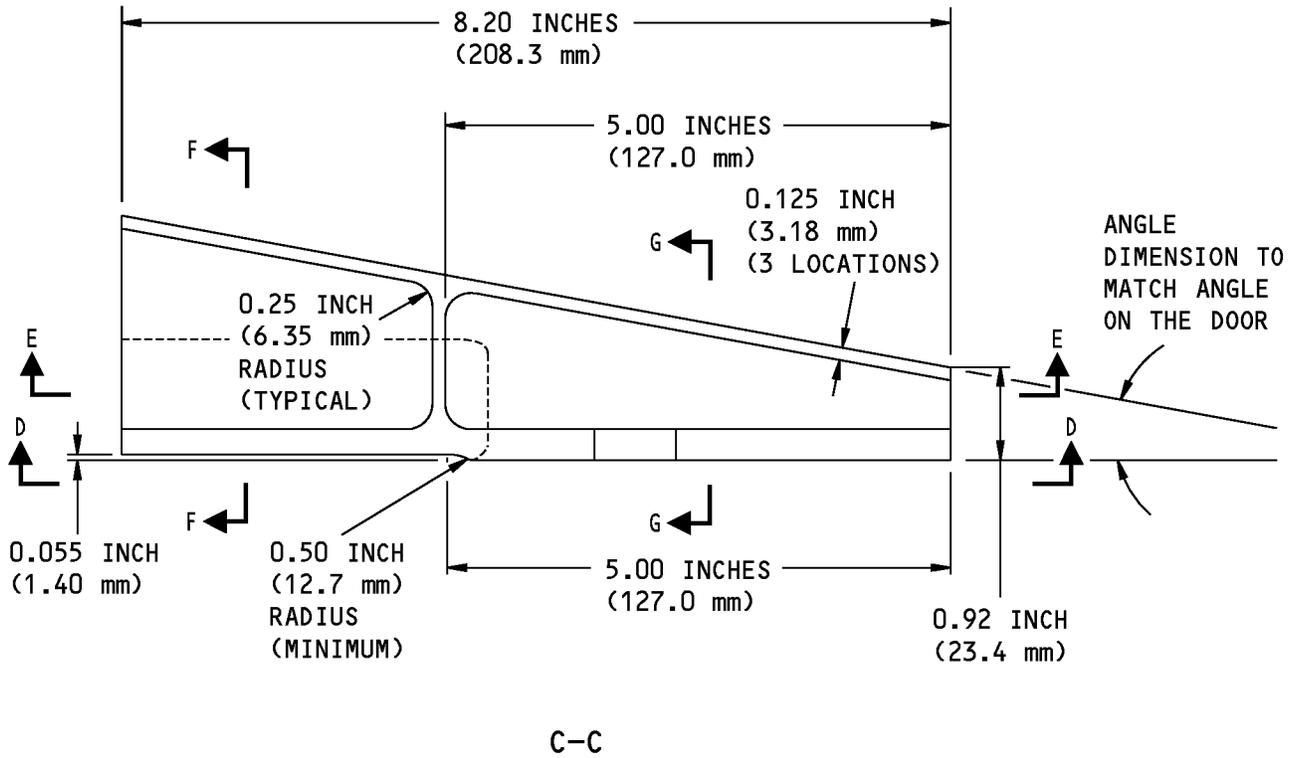


PART [2] FITTING

(B)

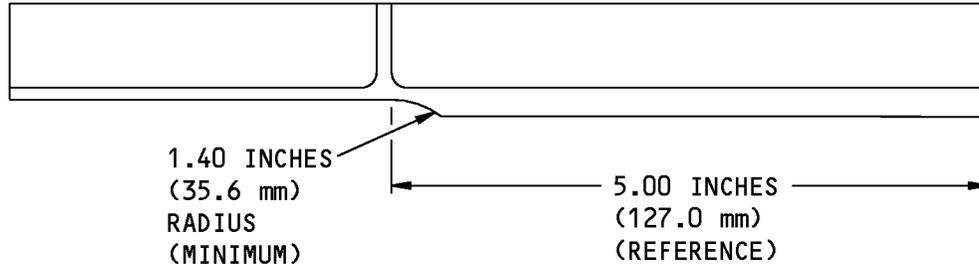
**Repair Details
Figure 203 (Sheet 2 of 5)**

**737-800
STRUCTURAL REPAIR MANUAL**

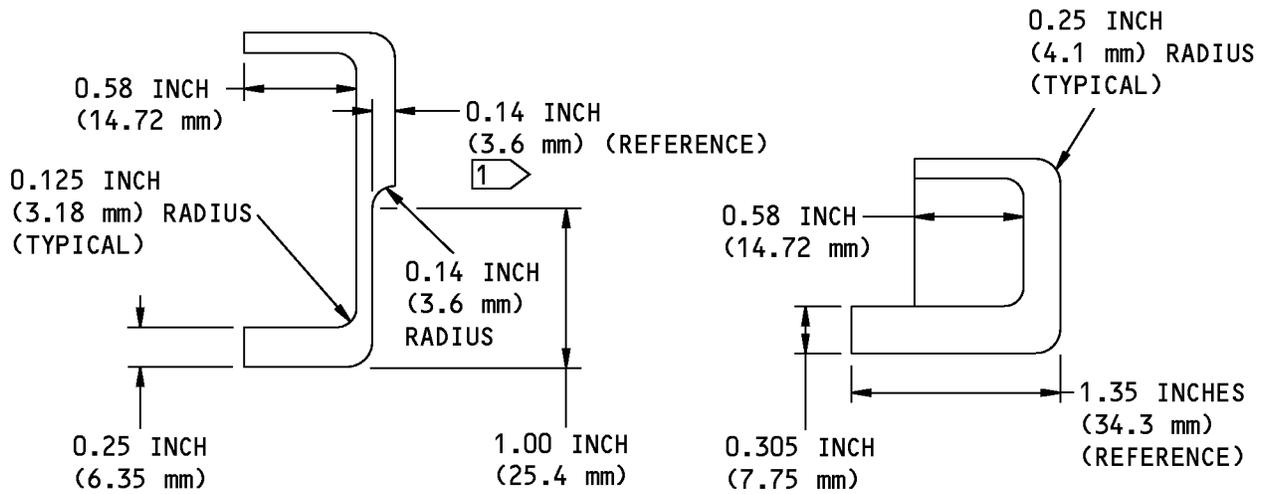


**Repair Details
Figure 203 (Sheet 3 of 5)**

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E-E

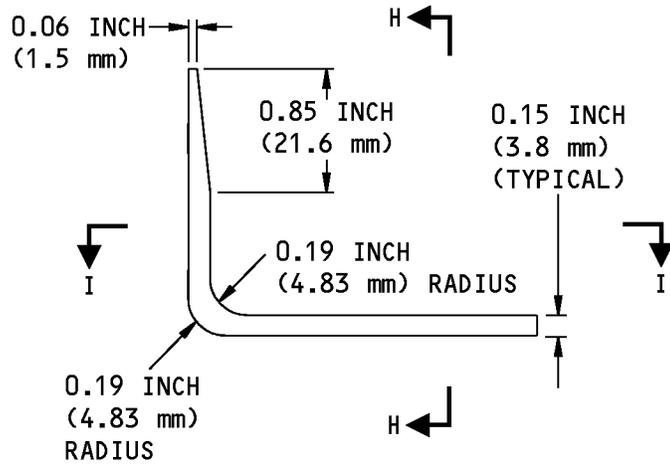


F-F

G-G

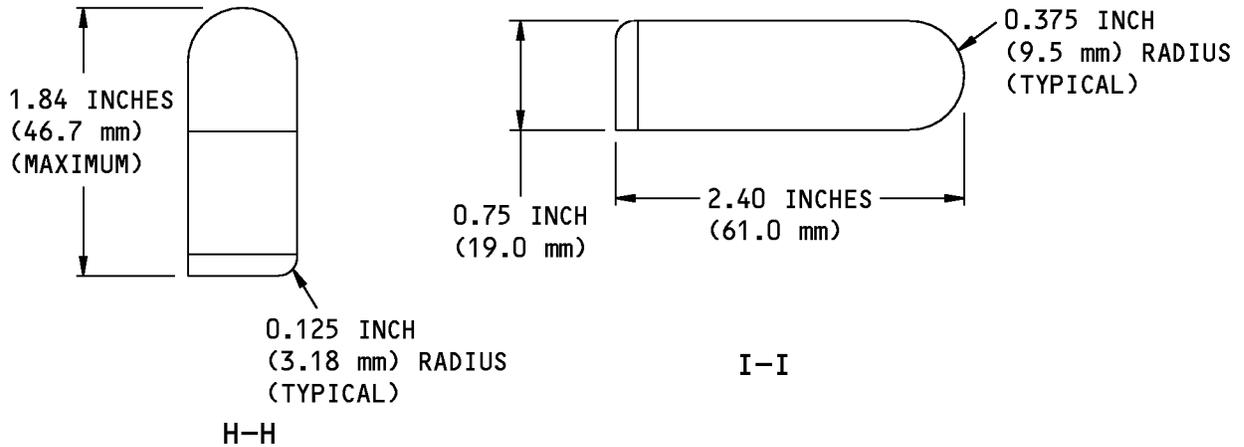
**Repair Details
Figure 203 (Sheet 4 of 5)**

**737-800
STRUCTURAL REPAIR MANUAL**



PART [3] ANGLE

C



NOTES

- REFER TO TABLE 201, REPAIR 2 FOR THE MATERIAL THICKNESS.

1 FIND THIS DIMENSION AFTER THE REMOVAL OF THE INITIAL FLANGE. REFER TO FIGURE 202/REPAIR 2, DETAIL C.

1305450 S0000226034_V1

**Repair Details
Figure 203 (Sheet 5 of 5)**

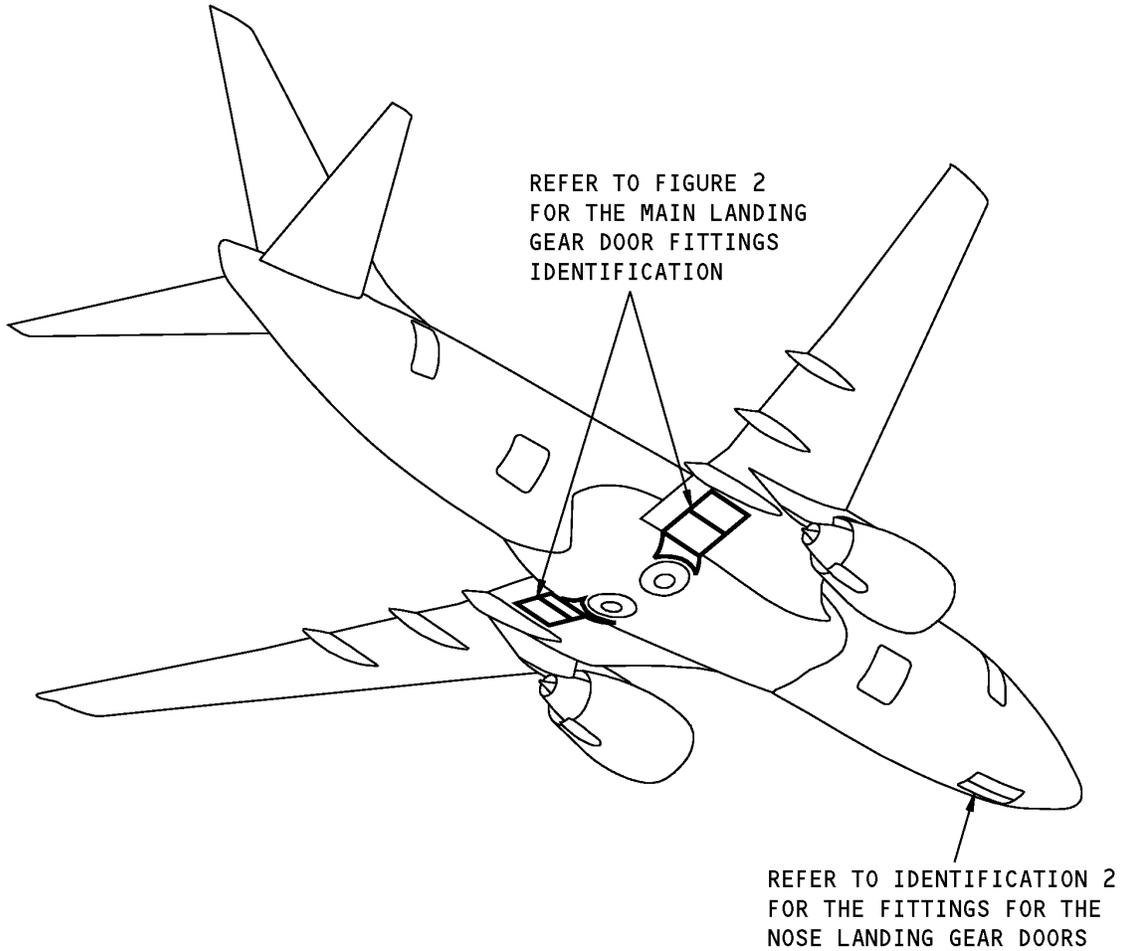
52-80-02

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STRUCTURAL REPAIR MANUAL**

IDENTIFICATION 1 - MAIN LANDING GEAR DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Main Landing Gear Door Fittings Locations
Figure 1**

Table 1:

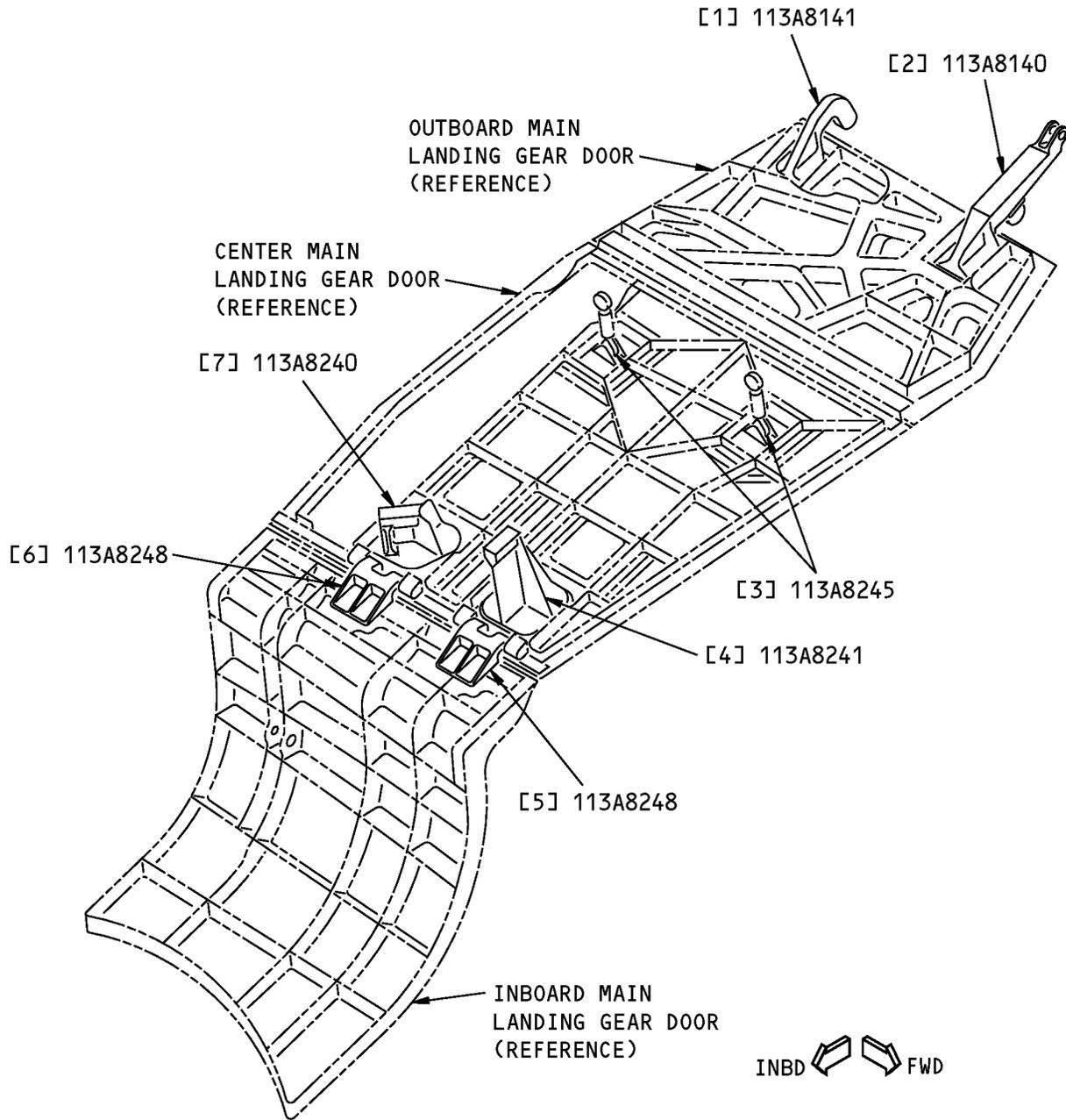
REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8000	Main Landing Gear Door Installation - Center
113A8100	Door Assembly - Outboard Main landing Gear
113A8140	Hinge Assembly - Forward Outboard Main Landing Gear Door
113A8240	Fitting - Inboard Aft Center Main Landing Gear Door
113A8241	Fitting - Forward Inboard Center Main Landing Gear Door
113A8245	Clevis Assembly - Center Main Landing Gear Door



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STRUCTURAL REPAIR MANUAL

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8248	Hinge Assembly - Inboard, Forward and Aft Main Landing Gear Door

**737-800
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

**Main Landing Gear Door Fittings Identification
Figure 2**



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STRUCTURAL REPAIR MANUAL

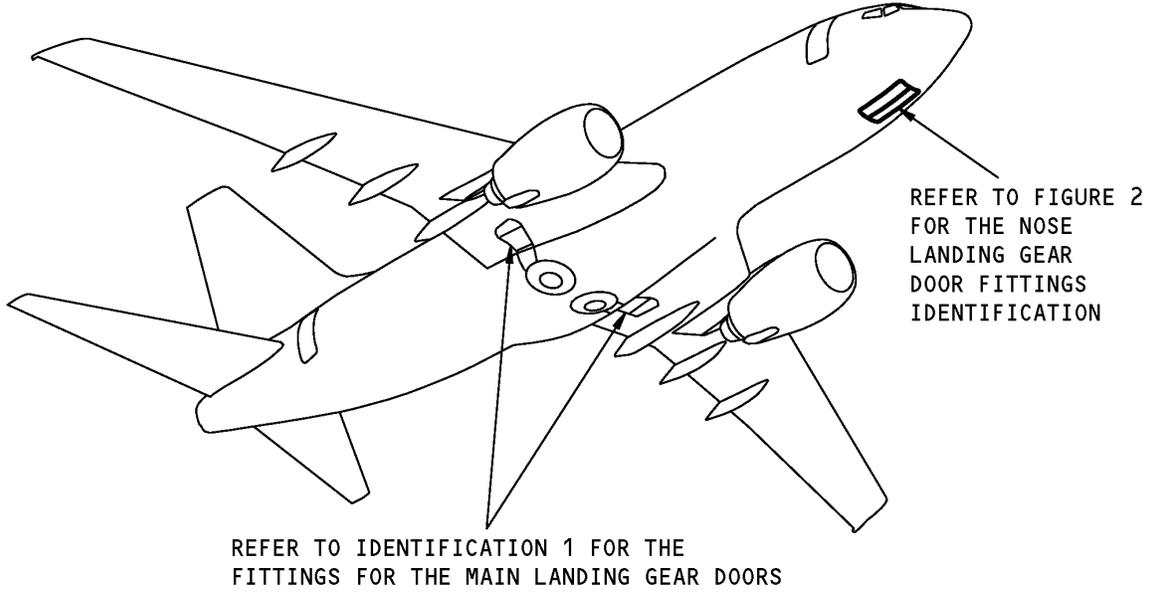
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^[1]	MATERIAL	EFFECTIVITY
[1]	Aft Hinge Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[2]	Forward Hinge Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[3]	Clevis Assembly (4)		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the grain direction	
[4]	Forward, Inboard, Center Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[5]	Forward, Inboard, Center Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[6]	Aft, Inboard, Center Hinge Assembly (2)		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the grain direction	
[7]	Aft, Inboard Center Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2 - NOSE LANDING GEAR DOOR FITTINGS



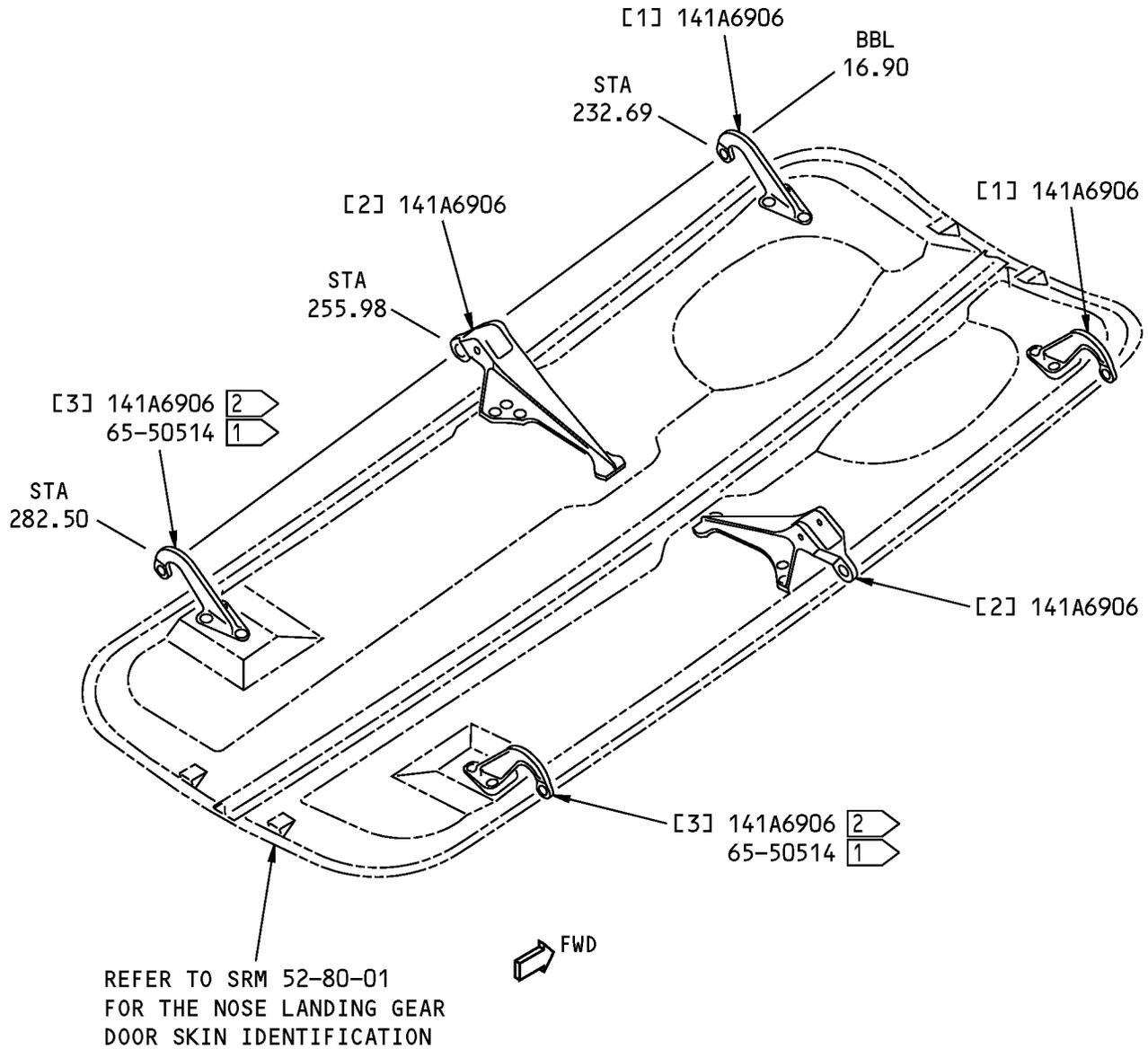
NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

**Nose Landing Gear Door Fittings Locations
Figure 1**

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6900	Door Installation - Nose Wheel Well
141A6902	Door Assembly - Nose Wheel Well
141A6906	Hinge Assembly - Nose Wheel Well Door
65-50514	Hinge Assembly - Nose Wheel Well Door

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STRUCTURAL REPAIR MANUAL**



NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

1 FOR AIRCRAFT WITH LINE NUMBER 1 THRU 701

2 FOR AIRCRAFT WITH LINE NUMBER 702 AND ON

**Nose Landing Gear Door Fittings Identification
Figure 2**



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STRUCTURAL REPAIR MANUAL

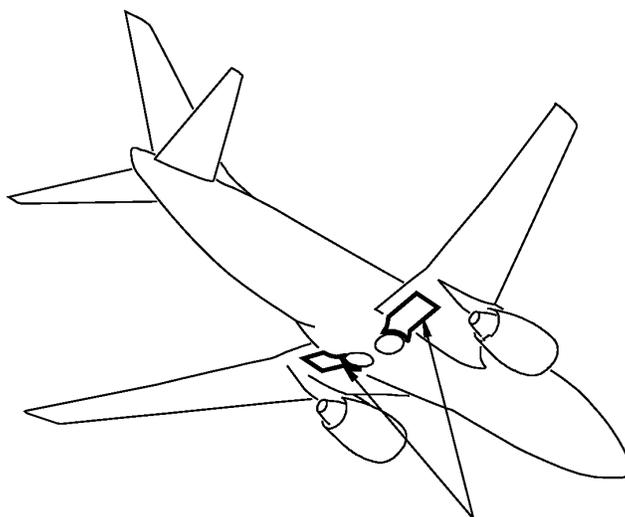
Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Forward Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the grain direction	
[2]	Center Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the grain direction	
[3]	Aft Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the grain direction	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

STRUCTURAL REPAIR MANUAL**ALLOWABLE DAMAGE 1 - MAIN LANDING GEAR DOOR FITTINGS****1. Applicability**

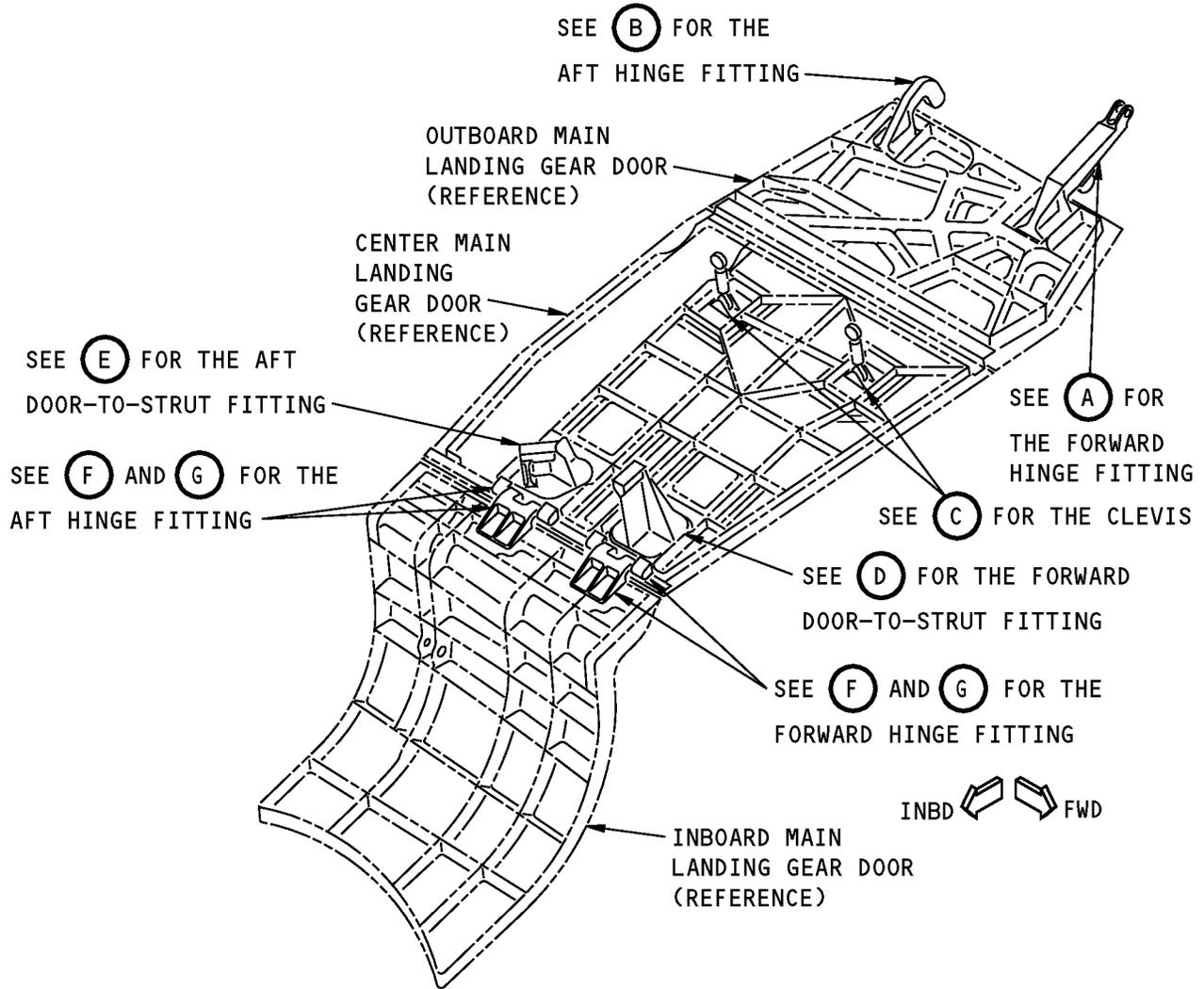
- A. This subject gives the allowable damage limits for the main landing gear door fittings shown in Main Landing Gear Door Fittings Location, Figure 101/ALLOWABLE DAMAGE 1 and Main Landing Gear Door Fittings, Figure 102/ALLOWABLE DAMAGE 1.



REFER TO FIGURE 102 FOR THE
MAIN LANDING GEAR DOOR FITTINGS

**Main Landing Gear Door Fittings Location
Figure 101**

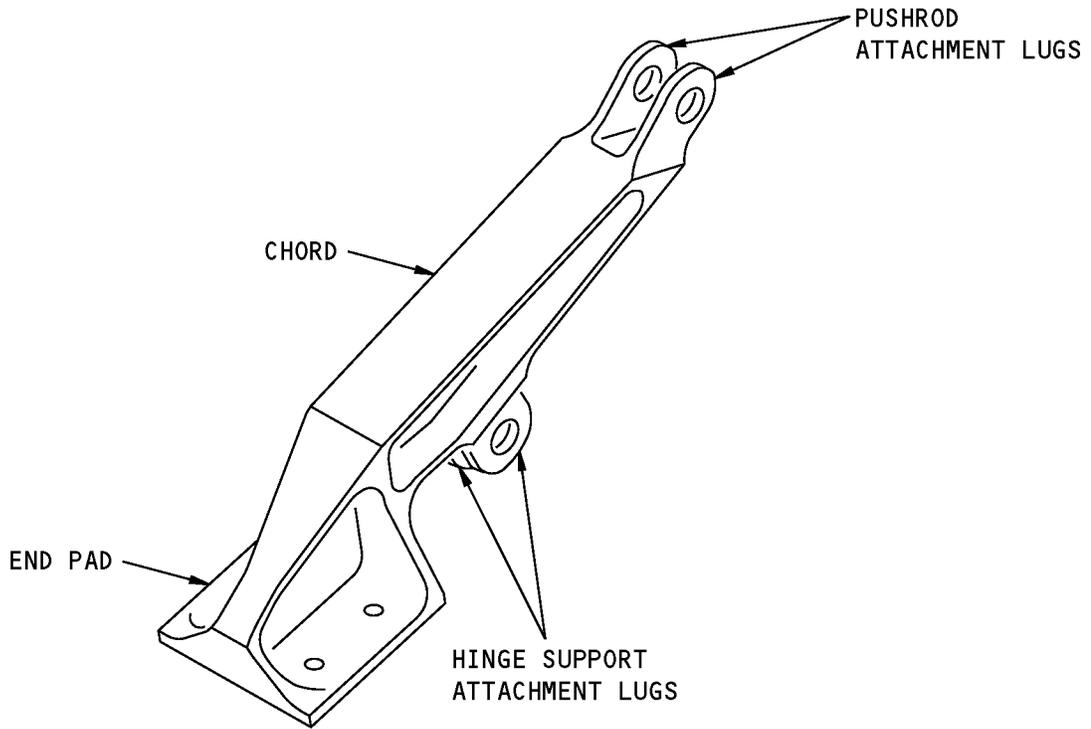
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LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

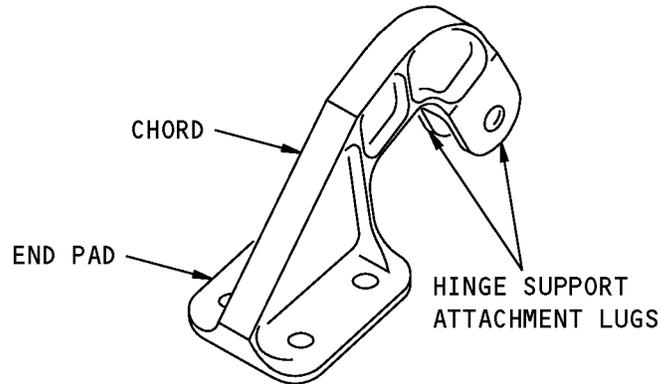
**Main Landing Gear Door Fittings
Figure 102 (Sheet 1 of 4)**

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**OUTBOARD MAIN LANDING GEAR DOOR
FORWARD HINGE FITTING**

A

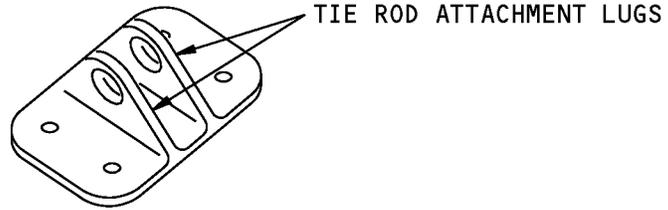


**OUTBOARD MAIN LANDING GEAR DOOR
AFT HINGE FITTING**

B

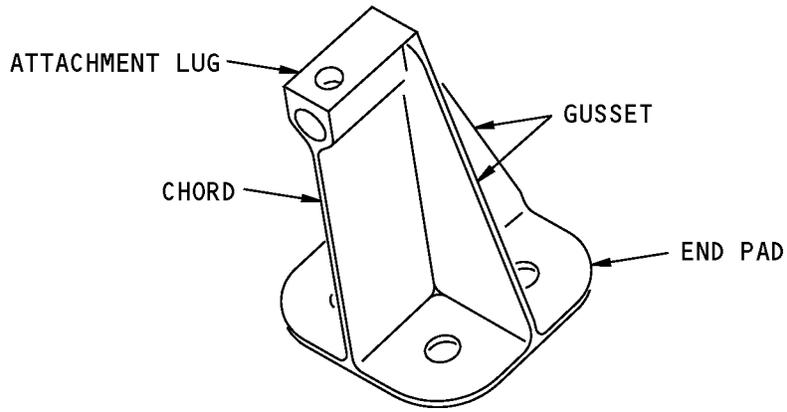
**Main Landing Gear Door Fittings
Figure 102 (Sheet 2 of 4)**

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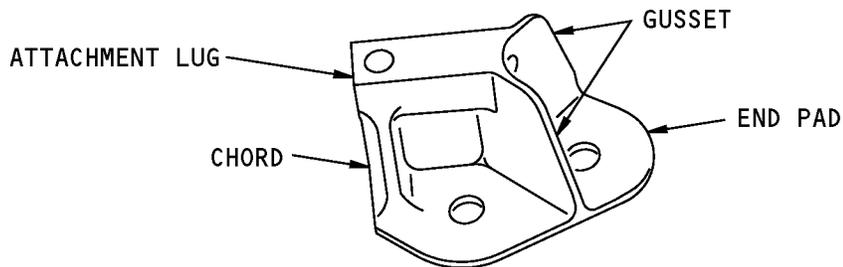
**CENTER MAIN LANDING GEAR DOOR
CLEVIS**

C



**CENTER MAIN LANDING GEAR DOOR
FORWARD DOOR-TO-STRUT SUPPORT FITTING**

D

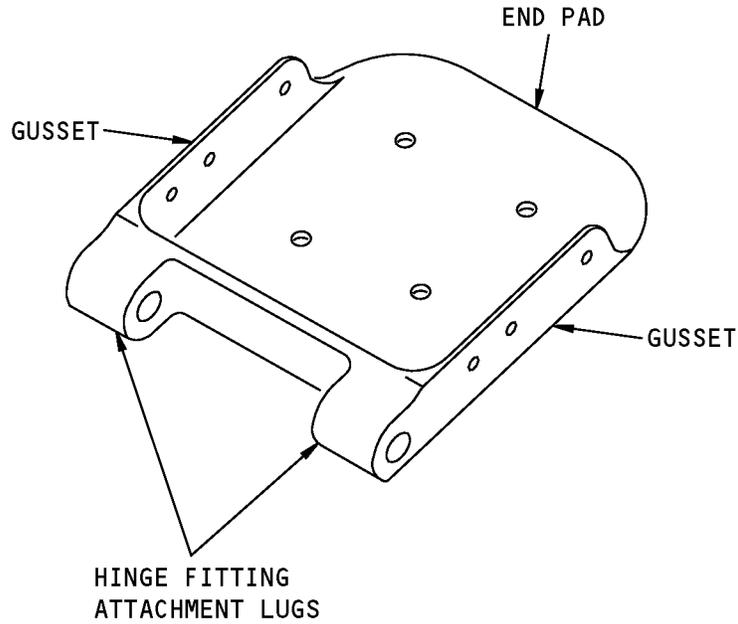


**CENTER MAIN LANDING GEAR DOOR
AFT DOOR-TO-STRUT SUPPORT FITTING**

E

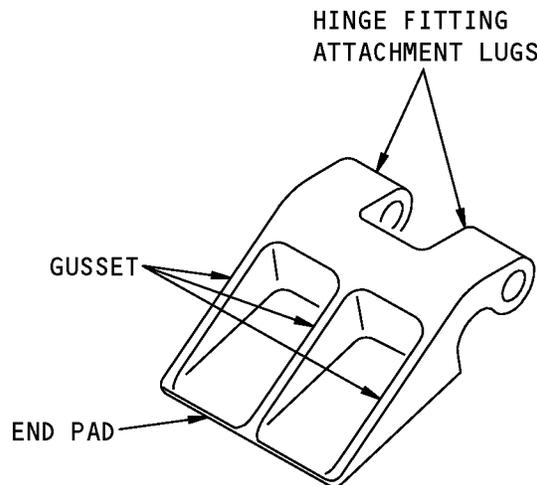
**Main Landing Gear Door Fittings
Figure 102 (Sheet 3 of 4)**

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**CENTER MAIN LANDING GEAR DOOR
FORWARD HINGE FITTING IS SHOWN,
AFT HINGE FITTING IS SIMILAR**

F



**INBOARD MAIN LANDING GEAR DOOR
FORWARD AND AFT HINGE FITTING**

G

**Main Landing Gear Door Fittings
Figure 102 (Sheet 4 of 4)**



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2. General

A. For the removal and installation of bushings, refer to SOPM 20-50-03, as applicable.

CAUTION: MAKE SURE THAT YOU DO NOT DAMAGE THE LUG BORE WHEN YOU REMOVE THE BUSHING(S).

B. If you remove the bushing(s) to remove the damage on the face of the lug and there is no damage on the lug bore, do as follows after you have removed the damage from the face of the lug:

(1) Install the same type and size of bushing(s)

(a) Refer to Table 101/ALLOWABLE DAMAGE 1 for the type and size of the bushing(s) for each fitting.

Table 101:

TYPE, SIZE, AND INTERFERENCE FIT OF THE BUSHINGS FOR EACH FITTING			
FITTING		BUSHING(S)	INTERFERENCE FIT INCHES (mm)
OUTBOARD MAIN LANDING GEAR DOOR	Forward Hinge Fitting - Pushrod Attachment Lugs	BACB28AT08D013C (outer bushing)	0.0005-0.0016 (0.013-0.041)
		BACB28AU06B019C (inner bushing)	0.0100-0.0175 (0.25-0.44)
	Forward Hinge Fitting - Hinge Support Attachment Lugs	BACB28AT07B015C (larger lug)	0.0010-0.0011 (0.025-0.028)
		BACB28AP05P015 (smaller lug)	0.0003-0.0014 (0.008-0.036)
Aft Hinge Fitting - Hinge Support Attachment Lugs	BACB28AT07D012C (outer bushing)	0.0005-0.0016 (0.013-0.041)	
		BACB28AU05B018C (inner bushing)	0.0002-0.0014 (0.005-0.036)
CENTER MAIN LANDING GEAR DOOR	Forward and Aft Clevis - Tie Rod Attachment Lugs	BACB28AT08B013C (outer bushing)	0.0005-0.0016 (0.013-0.041)
		BACB28AU06B019C (inner bushing)	0.0004-0.0015 (0.010-0.038)
	Forward Door-to-Strut Support Fitting - Attachment Lug	BAC~ B28AU06D022B	0.0004-0.0015 (0.010-0.038)
	Aft Door-to-Strut Support Fitting - Attachment Lug	BAC~ B28AU06D022B	0.0004-0.0015 (0.010-0.038)
	Forward Hinge Fitting - Hinge Fitting Attachment Lugs	BACB28BB05A098C and BACB28B~ B05A103C	0.0003-0.0014 (0.007-0.036) (both bushings)
Aft Hinge Fitting - Hinge Fitting Attachment Lugs	BACB28BB05A107C and BACB28B~ B05A110C	0.0003-0.0014 (0.007-0.036) (both bushings)	
INBOARD MAIN LANDING GEAR DOOR	Forward and Aft Hinge Fitting - Hinge Fitting Attachment Lugs	BACB28BB05A091C and BACB28B~ C05A091C	0.0003-0.0014 (0.007-0.036) (both bushings)

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- C. If you remove the bushing(s) to remove the damage on the face of the lug and there is also damage on the lug bore, do as follows after you have removed the damage from the face and the bore of the lug:
- (1) Install an oversized bushing.
 - (a) Install the bushing with the same interference fit as the initial bushing installation. Refer to Table 101/ALLOWABLE DAMAGE 1 for the interference fit.
- D. Do the steps that follow if you have damage:
- (1) Do a detailed close visual inspection of the damaged area to find the length, width, and depth of the damage.
 - (a) The methods that follow are permitted as an alternative to the detailed close visual inspection:
 - 1) Penetrant inspection. Refer to SOPM 20-20-02.
 - 2) High Frequency Eddy Current (HFEC) inspection. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.
 - (2) Remove the damage.
 - (a) Refer to 51-10-02 for the inspection and removal of the damage.
 - (b) Refer to 51-30-03 for possible sources of nonmetallic materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- E. After you remove the damage, do as follows:
- (1) For fitting surfaces and edges, do a penetrant inspection of the area where the damage has been removed to make sure that all the damage has been removed. Refer to SOPM 20-20-02.
 - (a) The High Frequency Eddy Current (HFEC) inspection is permitted as an alternative to the penetrant inspection. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.
 - (2) For the lugs of the fittings, do a High Frequency Eddy Current (HFEC) inspection of the area where the damage has been removed to make sure that all the damage has been removed. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.

WARNING: MAKE SURE THAT YOU WEAR EYE PROTECTION WHEN YOU USE THE FLAP PEEN WHEEL. IF YOU DO NOT OBEY, AN INJURY CAN OCCUR.

- (3) Flap peen or shot peen the reworked areas.

NOTE: Do not flap peen or shot peen the inner surface of the fastener holes and the bore of the lugs.

- (a) Refer to 51-20-06 for the shot peen intensity and shot number.
 - (b) Refer to SOPM 20-10-03 for the flap peen and shot peen procedures.
- (4) Apply a chemical conversion coating to the bare surfaces of the part. Refer to 51-20-01.
 - (5) Apply one layer of BMS 10-11, Type I primer to the surfaces of the reworked areas of the part. Refer to SOPM 20-41-02.

NOTE: Do not apply the BMS 10-11, Type 1 primer to the bore of the lug where a bushing is installed.

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- (6) Restore the paint layer on the hinge fitting with BMS 10-60 Boeing color 707 gray gloss enamel. Refer to AMM PAGEBLOCK 51-21-99/701.

NOTE: Do not apply the BMS 10-60, enamel to the bore of the lug where a bushing is installed.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-06	SHOT PEENING
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-10-03	General - Shot Peening Procedures
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-42-05	Bright Cadmium Plating
SOPM 20-50-03	Bearing and Bushing Replacement
737 NDT Part 6, 51-00-00	Structures - General

4. Allowable Damage Limits

A. Lugs of the Fittings:

NOTE: For the removal and installation of bushings, refer to SOPM 20-50-03, as applicable.

NOTE: Refer to Paragraph 2.B./ALLOWABLE DAMAGE 1 and Paragraph 2.C./ALLOWABLE DAMAGE 1 for general guidelines on the required installation of bushings after the damage on the bore of the lug has been removed.

(1) Cracks, Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage on the edge and the face of the lug as shown in Fitting Lug Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail A , and as given in Table 102/ALLOWABLE DAMAGE 1.

1) When you remove the damage along the complete edge of the bore (spotface), do as follows:

- a) Make sure that the spotface is perpendicular to the bore
- b) Make a 15-5PH or 17-4PH CRES washer to fill the spotface
 - Make the washer the same thickness as the depth of the spotface
 - Keep the center of the hole in the washer aligned with the center of the bore within plus or minus 0.005 inch (0.1270 mm)
 - The inside diameter of the washer must be the same or a small amount larger in diameter than the diameter of the bore
 - Make the outside diameter of the washer smaller than the radius at the outer edge of the spotface
 - The outside edge of the washer may not touch the radius at the outer edge of the spotface

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- Cadmium plate the washer as given in QQ-P-416, Type 2, Class 2. Refer to SOPM 20-42-05
 - Install the washer wet with BMS 5-95 sealant.
- (b) Remove the damage on the bore as follows:
- 1) Oversize the lug bore by reaming out the inside diameter of the lug up to the maximum oversize diameter given in Table 103/ALLOWABLE DAMAGE 1.
 - a) Make sure that the oversized bore has the same alignment as the initial bore.
- (c) Dents are not permitted.
- (d) Holes and Punctures are not permitted.

Table 102:

MAXIMUM DIMENSIONS OF THE DAMAGE CLEANUP AT THE LUGS AS GIVEN IN FIGURE 103, DETAIL A					
FITTING		X1 INCHES (mm)	X2 INCHES (mm)	X3 INCHES (mm)	D1 INCHES (mm)
OUTBOARD MAIN LANDING GEAR DOOR	Forward Hinge Fitting - Pushrod Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.01 (25.7)
	Forward Hinge Fitting - Hinge Support Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.01 (25.7)
	Aft Hinge Fitting - Hinge Support Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.225 (31.12)
CENTER MAIN LANDING GEAR DOOR	Forward and Aft Clevis - Tie Rod Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.00 (25.4)
	Forward Door-to-Strut Support Fitting - Attachment Lug	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.87 (22.1)
	Aft Door-to-Strut Support Fitting - Attachment Lug	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.87 (22.1)
	Forward Hinge Fitting Hinge Fitting Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.00 (25.4)
	Aft Hinge Fitting Hinge Fitting Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.83 (21.1)
INBOARD MAIN LANDING GEAR DOOR	Forward and Aft Hinge Fitting - Hinge Fitting Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.81 (20.6)

Table 103:

MAXIMUM OVERSIZE DIAMETERS OF THE LUG BORES AFTER THE REMOVAL OF THE DAMAGE		
FITTING		DIAMETER IN INCHES (mm)
OUTBOARD MAIN LANDING GEAR DOOR	Forward Hinge Fitting - Pushrod Attachment Lugs	0.6856 (17.41)
	Forward Hinge Fitting - Hinge Support Attachment Lugs smaller lug larger lug	0.4981 (12.65) 0.6231 (15.83)
	Aft Hinge Fitting - Hinge Support Attachment Lugs	0.6231 (15.83)

ALLOWABLE DAMAGE 1

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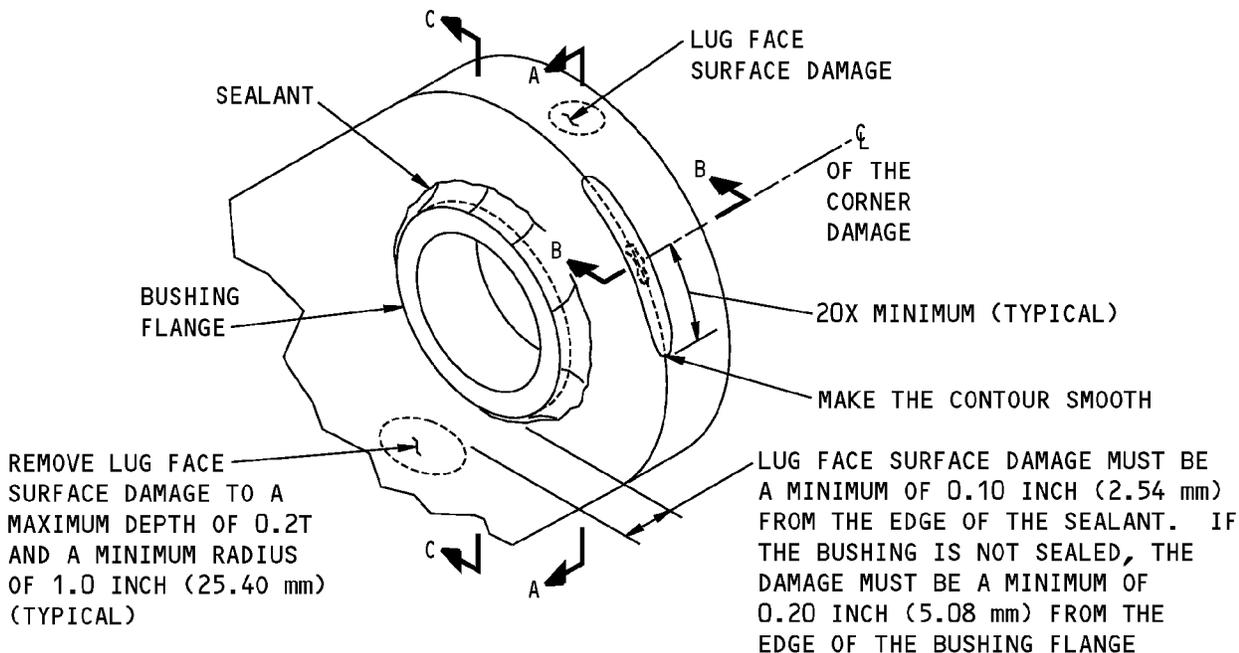
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MAXIMUM OVERSIZE DIAMETERS OF THE LUG BORES AFTER THE REMOVAL OF THE DAMAGE		
CENTER MAIN LANDING GEAR DOOR	Forward and Aft Clevis - Tie Rod Attachment Lugs	0.6856 (17.41)
	Forward Door-to-Strut Support Fitting - Attachment Lug	0.7530 (19.13)
	Aft Door-to-Strut Support Fitting - Attachment Lug	0.7530 (19.13)
	Forward Hinge Fitting - Hinge Fitting Attachment Lugs	0.4981 (12.65)
	Aft Hinge Fitting - Hinge Fitting Attachment Lugs	0.4981 (12.65)
INBOARD MAIN LANDING GEAR DOOR	Forward and Aft Hinge Fitting - Hinge Fitting Attachment Lugs	0.4981 (12.65)

B. Fitting Surfaces and Edges (Chords, Gussets, and End Pads):

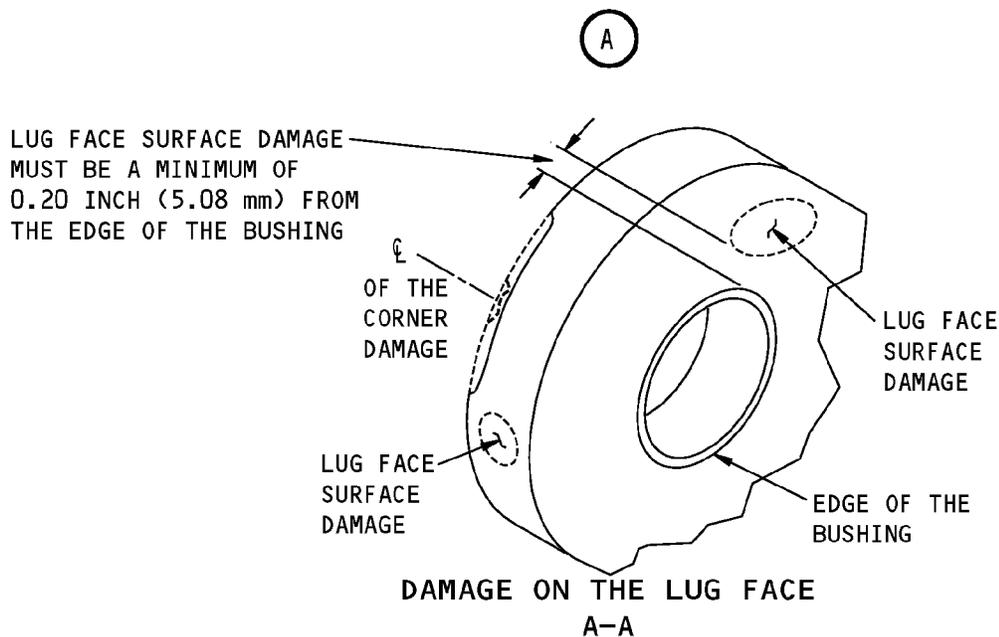
- (1) Cracks are permitted if:
 - (a) The damage is removed as shown in Fitting Chord and Clevis Allowable Damage Limits, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , D , and E
 - (b) The damage is a minimum distance of 0.50 inches (12.70 mm) away from the lug.
- (2) Nicks, Gouges, Scratches, and Corrosion are permitted if:
 - (a) The damage is removed as shown in Fitting Chord and Clevis Allowable Damage Limits, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E
 - (b) The damage is a minimum distance of 0.50 inches (12.70 mm) away from the lug.
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

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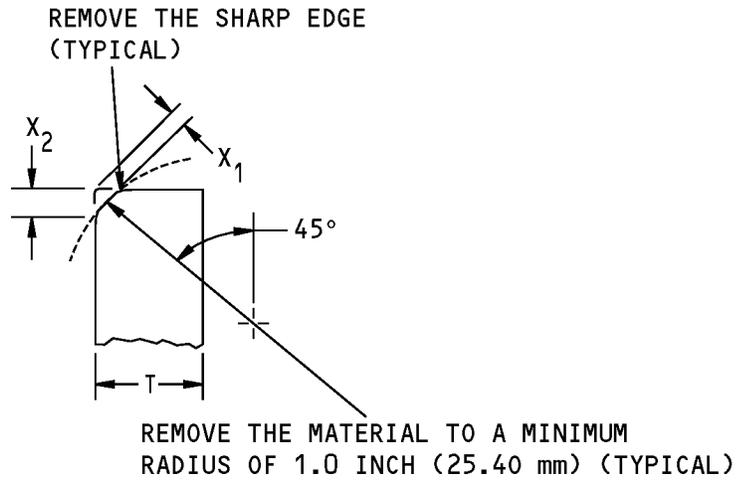
NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING (TYPICAL LUG IS SHOWN)

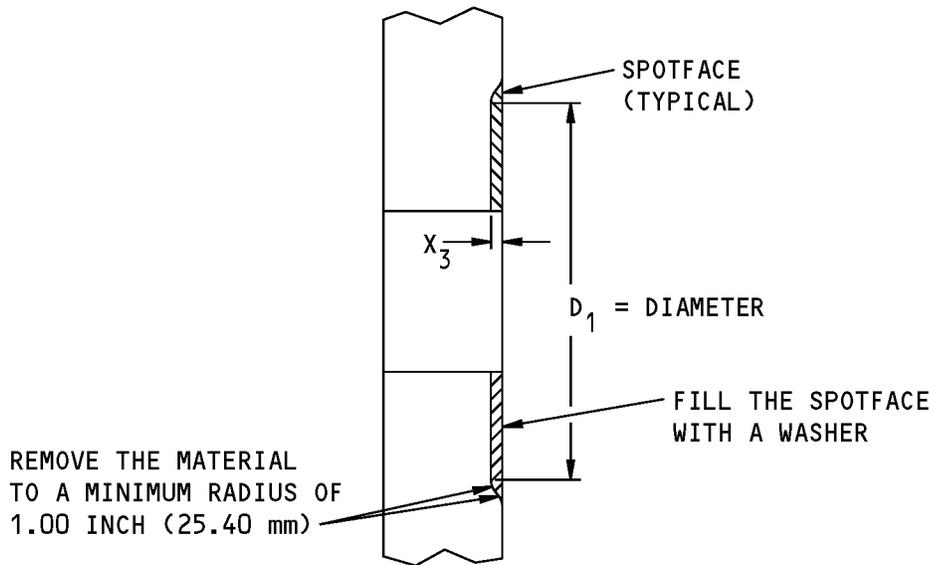


**Fitting Lug Allowable Damage Limits
Figure 103 (Sheet 1 of 2)**

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**DAMAGE ON THE LUG EDGE
B-B**



SHADED AREA SHOWS WHERE THE DAMAGE HAS BEEN REMOVED

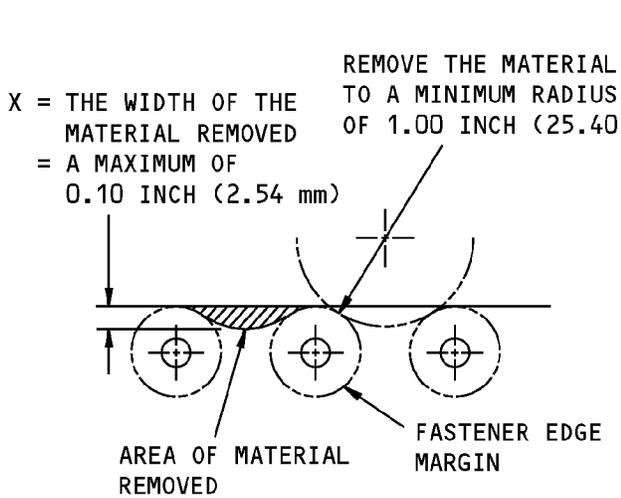
NOTES

- REFER TO TABLE 102 FOR THE MAXIMUM DIMENSIONS OF X_1 , X_2 , X_3 , AND D_1 FOR EACH FITTING.

**DAMAGE ON THE LUG FACE
C-C**

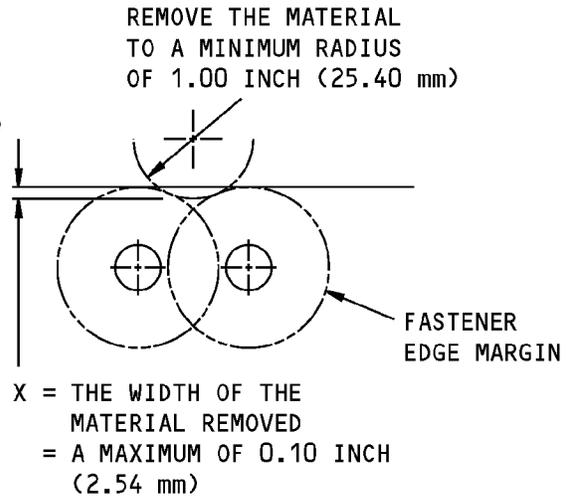
**Fitting Lug Allowable Damage Limits
Figure 103 (Sheet 2 of 2)**

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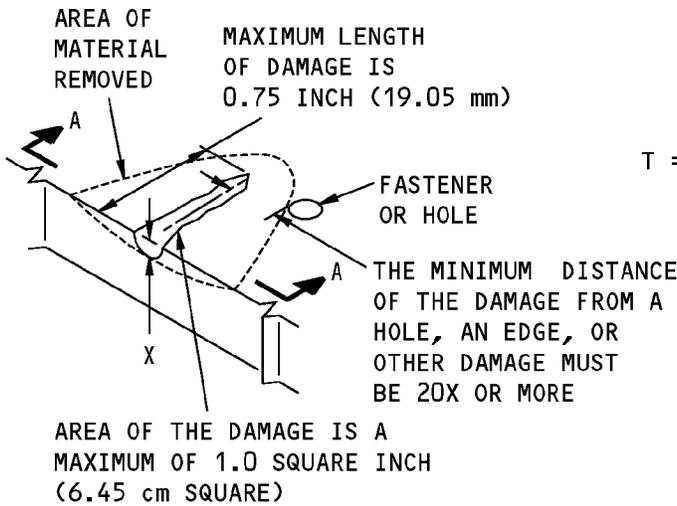
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



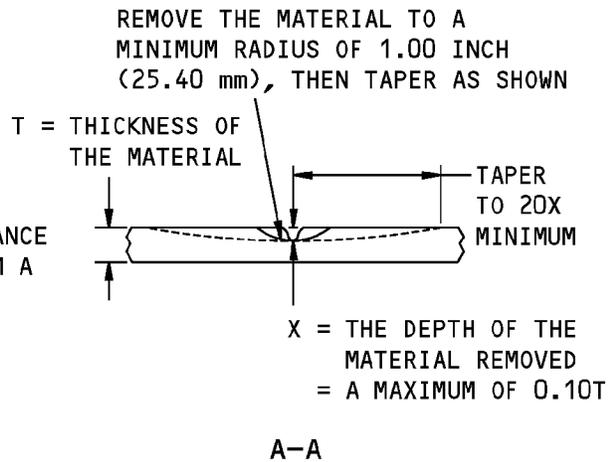
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



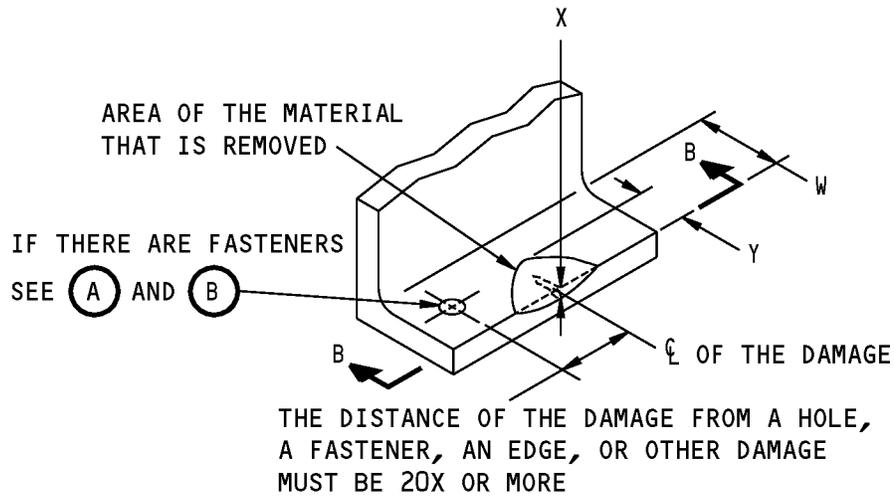
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(C)



**Fitting Chord and Clevis Allowable Damage Limits
Figure 104 (Sheet 1 of 3)**

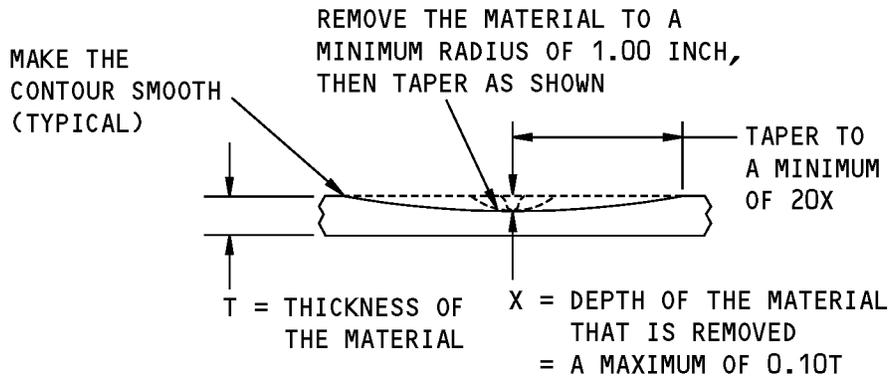
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W = THE WIDTH OF THE FLANGE
 Y = THE WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10W

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**

(D)

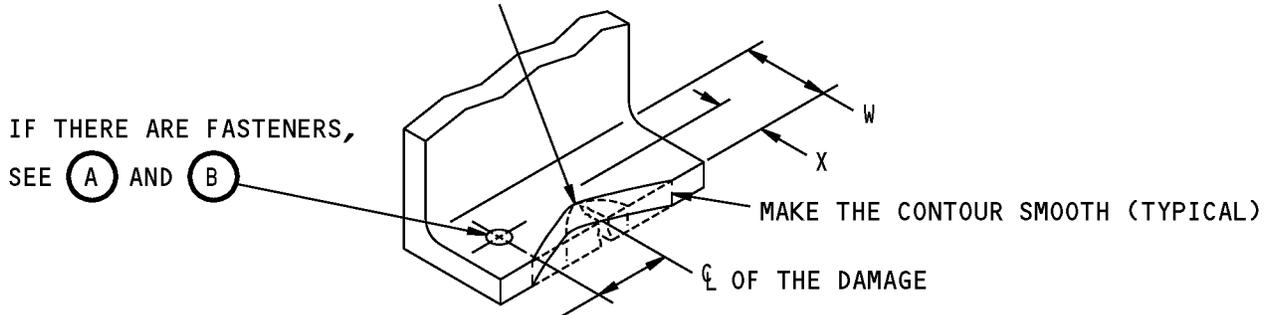


B-B

**Fitting Chord and Clevis Allowable Damage Limits
Figure 104 (Sheet 2 of 3)**

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REMOVE THE MATERIAL TO A MINIMUM RADIUS OF
1.00 INCH (25.40 mm), THEN TAPER AS SHOWN



TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM
A HOLE, AN EDGE, OR OTHER DAMAGE
MUST BE 20X OR MORE

W = THE WIDTH OF THE FLANGE
X = THE WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10W

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(E)

Fitting Chord and Clevis Allowable Damage Limits
Figure 104 (Sheet 3 of 3)