

Scandinavian Airlines System

PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
CHAPTER 54 TAB			54-51-00		CONT.	54-51-02		
NACELLES/PYLONS			215	NOV 10/94	02N	401	AUG 22/01	02
EFFECTIVE PAGES			216	AUG 10/94	02N	402	BLANK	
SEE LAST PAGE OF LIST			217	NOV 10/95	02N	54-51-02		
FOR NUMBER OF PAGES			218	NOV 10/94	02N	601	APR 22/05	02
54-CONTENTS			219	NOV 10/94	02N	602	APR 22/05	10
R 1	AUG 22/09	SAS.1	220	AUG 10/94	02N	R 603	AUG 22/09	06.1
R 2	AUG 22/09	SAS.1	221	NOV 10/95	02N	604	BLANK	
3	APR 22/09	SAS	222	NOV 10/94	02N	54-51-03		
4	BLANK		223	NOV 10/94	02N	CONFIG 4		
54-00-00			224	NOV 10/94	02N	401	DEC 22/05	01
1	NOV 10/93	01	225	AUG 10/94	02N	402	AUG 10/97	01
2	NOV 10/91	01	226	NOV 10/95	02N	403	AUG 10/97	01
54-05-03			227	NOV 10/94	01N	404	DEC 22/05	01
A 201	AUG 22/09	01	228	AUG 22/05	02N	405	DEC 22/05	01
A 202	AUG 22/09	01	229	APR 22/06	01N	406	DEC 22/05	01
A 203	AUG 22/09	01	230	BLANK		407	DEC 22/05	01
A 204	AUG 22/09	01	54-51-01			408	DEC 22/05	01
A 205	AUG 22/09	01	201	APR 22/08	07	409	DEC 22/05	01
A 206	AUG 22/09	01	202	APR 22/07	01	410	DEC 22/05	01
A 207	AUG 22/09	01	203	DEC 22/01	01	411	DEC 22/05	01
A 208	AUG 22/09	01	204	DEC 22/01	10	412	DEC 22/05	01
A 209	AUG 22/09	01	54-51-01			413	AUG 22/07	01
A 210	AUG 22/09	11	401	AUG 22/05	01N	414	DEC 22/05	01
A 211	AUG 22/09	11	402	FEB 10/95	01N	415	AUG 22/07	01
A 212	AUG 22/09	11	403	FEB 10/95	01N	416	DEC 22/05	01
54-31-01			404	AUG 22/05	01N	417	DEC 22/05	01
401	DEC 22/07	01	405	APR 22/00	01N	418	DEC 22/05	01
402	AUG 10/95	01	406	NOV 10/95	01N	419	DEC 22/05	01
R 403	AUG 22/09	02.1	407	DEC 10/98	01N	420	DEC 22/05	01
404	BLANK		408	NOV 10/95	01N	421	AUG 22/07	01
54-51-00			409	APR 22/02	01N	422	AUG 22/07	01
1	NOV 10/93	02	410	DEC 22/02	01N	423	DEC 22/05	01
2	NOV 01/86	03	411	AUG 22/07	01N	424	BLANK	
54-51-00			412	APR 22/05	01N	54-51-03		
201	AUG 22/05	01N	413	APR 22/05	01N	CONFIG 14		
202	NOV 10/94	02N	414	APR 22/05	02N	401	DEC 22/05	01
203	AUG 10/94	02N	415	AUG 22/07	01N	402	AUG 10/97	01
204	AUG 10/94	02N	416	APR 22/05	01N	403	AUG 10/97	01
205	NOV 10/94	02N	417	APR 22/05	01N	404	DEC 22/05	01
206	AUG 10/94	02N	418	APR 22/05	01N	405	DEC 22/05	01
207	AUG 10/94	02N	419	APR 22/05	01N	406	DEC 22/05	01
208	NOV 10/94	02N	420	APR 22/05	03N	407	DEC 22/05	01
209	NOV 10/94	02N	421	APR 22/05	03N	408	DEC 22/05	01
210	AUG 10/94	02N	422	APR 22/05	01N	409	DEC 22/05	01
211	AUG 10/94	02N	423	APR 22/05	03N	410	DEC 22/05	01
212	NOV 10/95	02N	424	APR 22/05	03N	411	DEC 22/05	01
213	NOV 10/94	02N	425	APR 22/05	03N	412	DEC 22/05	01
214	NOV 10/94	02N	426	APR 22/05	02N	413	AUG 22/07	01
			54-51-01			414	DEC 22/05	01
			601	APR 22/05	01N	415	AUG 22/07	01
			602	APR 22/05	01N	416	DEC 22/05	01
			603	APR 22/05	01N	417	DEC 22/05	01
			604	APR 22/05	01N	418	DEC 22/05	01
						419	DEC 22/05	01
						420	DEC 22/05	01
						421	DEC 22/05	01
						422	AUG 22/07	02

R = REVISED, A = ADDED OR D = DELETED
F = FOLDOUT PAGE
33
AUG 22/09

D633T133

CHAPTER 54
EFFECTIVE PAGES
PAGE 1
CONTINUED



BOEING
767
MAINTENANCE MANUAL

Scandinavian Airlines System

PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
54-51-03	CONFIG 14	CONT.	54-51-05	CONFIG 4		54-51-51		
423	APR 22/09	01	401	APR 22/05	01	401	AUG 10/90	02
424	APR 22/09	01	402	APR 22/05	01	402	NOV 10/88	02
425	AUG 22/06	02	403	APR 22/05	01	403	AUG 10/90	02
426	BLANK		404	APR 22/05	01	404	BLANK	
			405	APR 22/05	01			
			406	APR 22/05	01	54-52-00		
54-51-04	CONFIG 4		407	APR 22/05	01	1	AUG 10/95	01
401	APR 22/05	01	408	APR 22/05	01	2	AUG 10/95	01
402	APR 22/05	01	409	APR 22/05	01	3	AUG 10/95	02
403	APR 22/05	01	410	APR 22/05	01	4	BLANK	
404	APR 22/05	01	411	AUG 22/05	01			
405	APR 22/05	01	412	APR 22/05	01	54-52-01	CONFIG 3	
406	APR 22/05	01	413	DEC 22/08	01	401	FEB 10/96	01
407	APR 22/05	01	414	APR 22/05	01	402	FEB 10/96	01
408	APR 22/05	01	415	APR 22/05	01	403	MAY 10/96	01
409	APR 22/05	01	416	DEC 22/08	01	404	MAY 10/96	01
410	APR 22/05	01	417	AUG 22/07	01	405	MAY 10/96	01
411	APR 22/05	01	418	APR 22/05	01	406	MAY 10/96	01
412	AUG 22/07	01	419	APR 22/05	01	407	MAY 10/96	01
413	AUG 22/07	02	420	APR 22/05	03	408	MAY 10/96	01
414	APR 22/05	01	421	APR 22/05	03	409	MAY 10/96	01
415	APR 22/05	01	422	APR 22/05	01	410	MAY 10/96	01
416	APR 22/05	02	423	APR 22/05	01	411	MAY 10/96	01
417	AUG 22/06	02	424	APR 22/05	01	412	BLANK	
418	APR 22/05	03	425	DEC 22/08	01			
419	DEC 22/06	02	426	AUG 22/07	03	54-52-01		
420	AUG 22/07	03	427	AUG 22/99	02	601	NOV 10/95	01
421	APR 22/05	01	428	DEC 22/08	03	602	APR 22/05	01
422	APR 22/05	01	429	AUG 22/07	03			
423	AUG 22/06	02	430	APR 22/05	02	54-52-02		
424	BLANK					401	NOV 10/95	09
			54-51-05	CONFIG 14		402	SEP 01/81	01
54-51-04	CONFIG 14		401	APR 22/05	01	403	SEP 01/81	01
401	APR 22/05	01	402	APR 22/05	01	404	NOV 10/95	08
402	APR 22/05	01	403	APR 22/05	01	405	NOV 10/95	06
403	APR 22/05	01	404	APR 22/05	01	406	NOV 10/95	01
404	APR 22/05	01	405	APR 22/05	01			
405	APR 22/05	01	406	APR 22/05	01	54-52-02		
406	APR 22/05	02	407	APR 22/05	01	501	FEB 10/91	01
407	APR 22/05	01	408	APR 22/05	01	502	SEP 01/81	01
408	APR 22/05	01	409	APR 22/05	01	503	SEP 01/81	01
409	APR 22/05	01	410	AUG 22/05	01	504	AUG 22/08	02
410	APR 22/05	01	411	APR 22/05	01	505	FEB 10/91	01
411	APR 22/05	01	412	DEC 22/08	01	506	BLANK	
412	AUG 22/07	03	413	APR 22/05	01			
413	APR 22/05	03	414	DEC 22/08	01	54-52-02		
414	APR 22/05	01	415	APR 22/05	01	801	NOV 10/95	04
415	APR 22/05	01	416	APR 22/05	01	802	FEB 01/85	01
416	APR 22/05	01	417	APR 22/05	01	803	NOV 10/95	04
417	APR 22/05	01	418	APR 22/05	01	804	BLANK	
418	APR 22/05	01	419	APR 22/05	01			
419	DEC 22/06	01	420	APR 22/05	01	54-52-03		
420	AUG 22/07	03	421	DEC 22/08	01	401	FEB 10/91	08
421	APR 22/05	01	422	APR 22/05	01	402	AUG 10/87	01
422	APR 22/05	01	423	APR 22/05	01	403	NOV 10/95	08
423	AUG 22/06	03	424	DEC 22/08	01	404	BLANK	
424	APR 22/05	01	425	AUG 22/07	01			
			426	APR 22/05	01			

R = REVISED, A = ADDED OR D = DELETED
F = FOLDOUT PAGE
33
AUG 22/09

D633T133

CHAPTER 54
EFFECTIVE PAGES
PAGE 2
CONTINUED

Scandinavian Airlines System

PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
54-52-03			54-54-00					
601	FEB 10/91	01	1	AUG 22/01	10			
602	BLANK		2	AUG 01/86	02			
54-52-04			54-54-00					
401	NOV 10/90	02	601	FEB 10/93	07			
402	NOV 01/86	01	602	AUG 10/87	01			
			603	NOV 10/96	09			
54-53-00			604	BLANK				
1	MAY 10/95	15	54-54-01					
2	MAY 10/95	13	401	AUG 22/01	01			
54-53-01			402	FEB 10/89	04			
401	APR 22/05	01	403	AUG 22/01	05			
402	AUG 10/88	09	404	AUG 22/01	01			
403	NOV 10/87	09	54-54-03					
404	APR 22/05	14	401	AUG 22/03	01			
405	MAY 01/87	01	402	AUG 22/03	03			
406	APR 22/05	10	403	AUG 22/03	01			
407	DEC 22/08	02	404	BLANK				
408	APR 22/05	01	54-54-03					
54-53-01			801	DEC 22/07	01			
501	APR 22/08	01	802	DEC 22/07	01			
R 502	AUG 22/09	01.1	803	DEC 22/07	01			
R 503	AUG 22/09	02.1	804	BLANK				
R 504	AUG 22/09	02.1						
R 505	AUG 22/09	01.101						
R 506	BLANK							
54-53-02								
401	NOV 10/95	05						
402	MAY 10/95	01						
403	DEC 22/07	02						
404	MAY 10/95	01						
405	APR 22/07	02						
406	APR 22/07	02						
407	DEC 22/07	03						
408	AUG 22/08	16						
54-53-02								
501	APR 22/07	21						
502	APR 22/07	15						
503	APR 22/07	20						
504	DEC 22/08	20						
505	DEC 22/08	17						
506	BLANK							
54-53-02								
601	MAY 10/95	03						
602	APR 22/05	01						
603	APR 22/07	01						
604	DEC 22/07	01						
605	APR 22/05	05						
606	BLANK							

R = REVISED, A = ADDED OR D = DELETED
F = FOLDOUT PAGE
33
AUG 22/09

D633T133

CHAPTER 54
EFFECTIVE PAGES
PAGE 3
LAST PAGE

CHAPTER 54 - NACELLES/PYLONS

TABLE OF CONTENTS

<u>Subject</u>	<u>Chapter Section Subject</u>	<u>Page</u>	<u>Effectivity</u>
<u>NACELLES/PYLONS</u>	54-00-00		
Description and Operation		1	ALL
General		1	
Component Details		1	
Engine Strut Structure		1	
<u>NACELLE SECTION</u>	54-30-00		
THRUST REVERSER	54-31-00		
THRUST REVERSER	54-31-01		
Removal/Installation		401	ALL
Bearomg - Thrust Reverser Hinge		401	
<u>PYLON</u>	54-50-00		
NACELLE STRUT	54-51-00		
Description and Operation		1	ALL
General		1	
Component Details		1	
Maintenance Practices		201	ALL
Leak Check (S1) - Midspar Structure		208	
Leak Check (S2) - Forward Upper Spar Structure		214	
Leak Check (S3) - Aft Upper Spar Structure		218	
Leak Check (S4) - Aft Fairing Structure		223	
Leak Check (T1) - Forward Drain Tube		201	
Strut Drain Line Inspection and Cleaning		228	
FITTING - CORE COWL HINGE	54-51-51		
Removal/Installation		401	ALL
MIDSPAR FUSE PINS	54-51-04		
Removal/Installation		401	CONFIG 14 [*]
[*] AIRPLANES WITH PW4000 ENGINES AND SB 767-54-0080			
PINS - STRUT ATTACH FUSE	54-51-02		
Removal/Installation		401	ALL
Inspection/Check		601	ALL

CHAPTER 54 - NACELLES/PYLONS

TABLE OF CONTENTS

<u>Subject</u>	<u>Chapter Section Subject</u>	<u>Page</u>	<u>Effectivity</u>
PINS - STRUT DIAGONAL BRACE ATTACH FUSE	54-51-05		
Removal/Installation		401	CONFIG 4 [*]
[*] AIRPLANES WITH PW4000 ENGINES AND WITHOUT SB 767-54-0080			
Removal/Installation		401	CONFIG 14 [*]
[*] AIRPLANES WITH PW4000 ENGINES AND SB 767-54-0080			
PINS - STRUT MIDSPAR ATTACH FUSE	54-51-04		
Removal/Installation		401	CONFIG 4 [*]
[*] AIRPLANES WITH PW4000 ENGINES AND WITHOUT SB 767-54-0080			
PINS - STRUT UPPER LINK ATTACH FUZE	54-51-03		
Removal/Installation		401	CONFIG 4 [*]
[*] AIRPLANES WITH PW 4000 ENGINES AND WITHOUT SB 767-54-0080			
STRUT	54-51-01		
Maintenance Practices		201	ALL
Removal/Installation		401	ALL
Inspection/Check		601	ALL
UPPER LINK FUSE PINS	54-51-03		
Removal/Installation		401	CONFIG 14 [*]
[*] AIRPLANES WITH PW 4000 ENGINES AND SB 767-54-0080			
FAIRINGS - ENGINE TO WING	54-52-00		
Description and Operation		1	ALL
General		1	
Component Details		1	
Aft Fairing		1	
Core Cowl Skirt Fairing		1	
Forward Fairing		1	
Thrust Reverser Fairing		1	
Trailing Edge Fairing		3	
Underwing Fairing		1	
DOOR - FORWARD FAIRING PRESSURE RELIEF	54-52-03		
Removal/Installation		401	ALL
Inspection/Check		601	ALL
FAIRINGS - STRUT	54-52-01		
Removal/Installation		401	CONFIG 3 [*]
[*] AIRPLANES WITH PW4000 ENGINES			

CHAPTER 54 - NACELLES/PYLONS

TABLE OF CONTENTS

<u>Subject</u>	<u>Chapter Section Subject</u>	<u>Page</u>	<u>Effectivity</u>
Inspection/Check		601	ALL
LATCHES - FORWARD FAIRING	54-52-02		
Removal/Installation		401	ALL
Adjustment/Test		501	ALL
Approved Repairs		801	ALL
SEAL - AFT FAIRING STRUT	54-52-04		
Removal/Installation		401	ALL
STRUT ACCESS DOORS AND PANELS	54-53-00		
Description and Operation		1	ALL
General		1	
Component Details		1	
Aft Fairing Access Panel		1	
Strut Doors Numbered 1-4		1	
Strut Doors Numbered 5-6		1	
Strut Doors Numbered 7-8		1	
Strut Doors Numbered 9-10		1	
DOORS - STRUT PRESSURE RELIEF AND ACCESS	54-53-01		
Removal/Installation		401	ALL
Adjustment/Test		501	ALL
PANEL - AFT FAIRING ACCESS	54-53-02		
Removal/Installation		401	ALL
Adjustment/Test		501	[*]
[*] AIRPLANES PRE SB 54-0109			
Inspection/Check		601	ALL
STRUT FIRESEAL AND FIREWALL	54-54-00		
Description and Operation		1	ALL
General		1	
Inspection/Check		601	ALL
BLANKET - STRUT INSULATION	54-54-03		
Removal/Installation		401	ALL
Approved Repairs		801	ALL
FIRESEAL - STRUT	54-54-01		
Removal/Installation		401	ALL

NACELLES/PYLONS - DESCRIPTION AND OPERATION

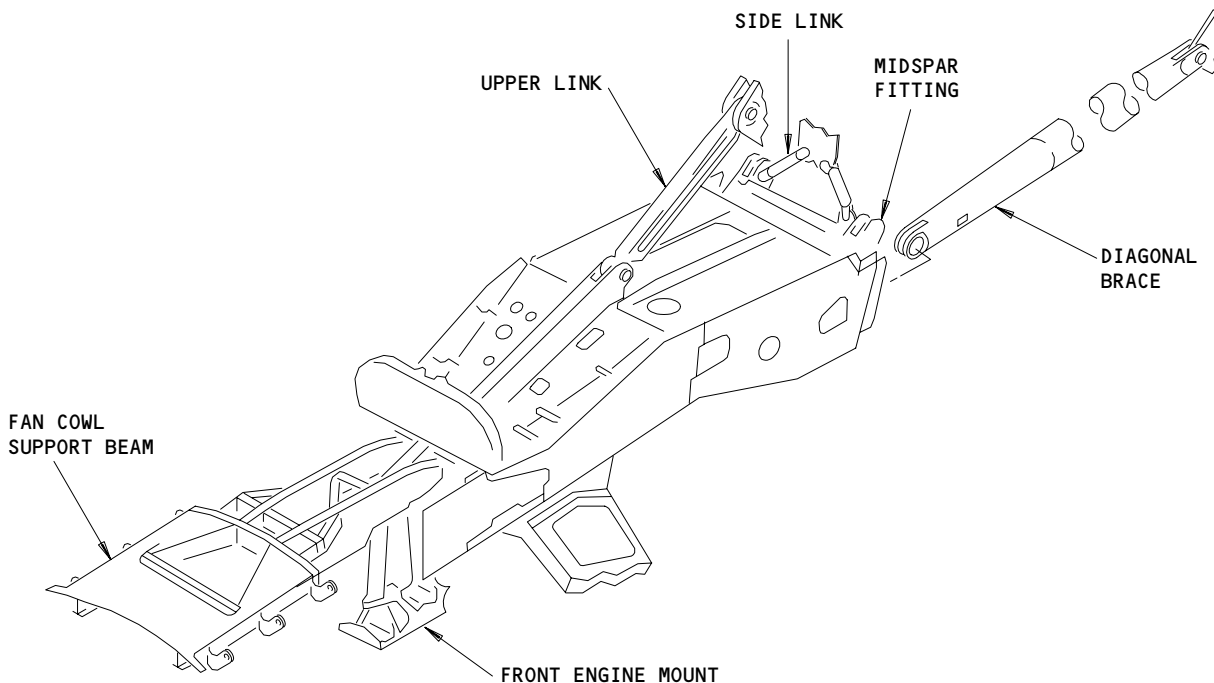
1. General

A. The engines are attached to the wing with nacelle struts (pylons). The strut encloses all the pneumatic, electric, fuel, and hydraulic connections to the engine.

2. Component Details (Fig. 1)

A. Engine Strut Structure

(1) Struts are essentially frame and skin structures riveted and bonded together to form a torque box. Each nacelle strut attaches to the wing with an upper link, a diagonal brace, and midspar fittings. The side links provide stability against vibrations and side loads. Fuse pins are used at the upper link, diagonal brace, and midspar fittings. Fuse shoulder bolts are used at the side link assemblies.



Nacelles/Pylons
Figure 1

EFFECTIVITY

ALL

54-00-00

01

Page 1
Nov 10/93

 **BOEING**
767
MAINTENANCE MANUAL

- (2) The strut transmits engine loads through the forward and aft engine mounts. The forward engine mount transmits thrust, vertical and side loads. The aft engine mount transmits vertical and side loads.
- (3) The strut and nacelle fair the wing to the engine. The fairings and cowlings provide smooth airflow over the nacelle and strut. Cowlings are described in 71-11-00.

EFFECTIVITY

ALL

54-00-00

01

Page 2
Nov 10/91

BODY FLOOR BEAMS INSTALLATION – MAINTENANCE PRACTICES

TASK 54-05-03-212-801

1. Power Plant Strut -#1 (GE)

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-001

(1) Do the inspection.

TASK 54-05-03-212-802

2. Power Plant Strut -#1 (P&W)

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-002

(1) Do the inspection.

TASK 54-05-03-212-803

3. Power Plant Strut -#1

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-003

(1) Do the inspection.

TASK 54-05-03-212-804

4. Nacelle Strut No. 1

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-004

(1) Do the inspection.

TASK 54-05-03-212-805

5. No. 1 Nacelle Strut

A. General

(1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 201
Aug 22/09

B. Inspection

S 212-005

- (1) Do the inspection.

TASK 54-05-03-212-806

6. Nacelle Strut No. 1

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-006

- (1) Do the inspection.

TASK 54-05-03-212-810

7. Power Plant Strut - #1 (RR CONFIGURATION)

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-010

- (1) Do the inspection.

TASK 54-05-03-212-812

8. Nacelle Strut No. 1 Forward Upper Spar

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-012

- (1) Do the inspection.

TASK 54-05-03-212-813

9. Nacelle Strut No. 1 - Forward Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-013

- (1) Do the inspection.

TASK 54-05-03-212-814

10. Nacelle Strut No. 1 - Forward Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 202
Aug 22/09

B. Inspection

S 212-014

- (1) Do the inspection.

TASK 54-05-03-212-818

11. Nacelle Strut No. 1 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-018

- (1) Do the inspection.

TASK 54-05-03-212-819

12. Nacelle Strut No. 1 Upper Link

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-019

- (1) Do the inspection.

TASK 54-05-03-212-820

13. Nacelle Strut No. 1 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-020

- (1) Do the inspection.

TASK 54-05-03-212-823

14. Nacelle Strut 1 - Mid and Aft Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-023

- (1) Do the inspection.

TASK 54-05-03-212-824

15. Strut No. 1 Aft Engine Mount Bulkhead

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 203
Aug 22/09

B. Inspection

S 212-024

- (1) Do the inspection.

TASK 54-05-03-212-827

16. Nacelle Strut No. 1 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-027

- (1) Do the inspection.

TASK 54-05-03-212-828

17. Nacelle Strut No. 1 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-028

- (1) Do the inspection.

TASK 54-05-03-212-829

18. Left Nacelle Strut Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-029

- (1) Do the inspection.

TASK 54-05-03-212-830

19. Left Nacelle Strut Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-030

- (1) Do the inspection.

TASK 54-05-03-212-831

20. Left Nacelle Strut/Wing Lower Surface

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 204
Aug 22/09

B. Inspection

S 212-031

(1) Do the inspection.

TASK 54-05-03-212-832

21. Left Nacelle Strut/Wing Lower Surface

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-032

(1) Do the inspection.

TASK 54-05-03-212-833

22. Power Plant Strut - #2 (GE Configuration)

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-033

(1) Do the inspection.

TASK 54-05-03-212-834

23. Power Plant Strut - #2

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-034

(1) Do the inspection.

TASK 54-05-03-212-835

24. Power Plant Strut - #2

A. General

(1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-035

(1) Do the inspection.

TASK 54-05-03-212-836

25. Nacelle Strut No. 2

A. General

(1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 205
Aug 22/09

B. Inspection

S 212-036

- (1) Do the inspection.

TASK 54-05-03-212-837

26. Nacelle Strut No. 2

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-037

- (1) Do the inspection.

TASK 54-05-03-212-838

27. Nacelle Strut No. 2

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-038

- (1) Do the inspection.

TASK 54-05-03-212-842

28. Power Plant Strut - #2

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-042

- (1) Do the inspection.

TASK 54-05-03-212-844

29. Nacelle Strut No. 2 Forward Upper Spar

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-044

- (1) Do the inspection.

TASK 54-05-03-212-845

30. Nacelle Strut No. 2 Forward Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 206
Aug 22/09

B. Inspection

S 212-045

- (1) Do the inspection.

TASK 54-05-03-212-846

31. Nacelle Strut No. 2 Forward Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-046

- (1) Do the inspection.

TASK 54-05-03-212-848

32. Nacelle Strut No. 2 Forward Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-048

- (1) Do the inspection.

TASK 54-05-03-212-850

33. Nacelle Strut No. 2 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-050

- (1) Do the inspection.

TASK 54-05-03-212-851

34. Nacelle Strut No. 2 Upper Link

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-051

- (1) Do the inspection.

TASK 54-05-03-212-852

35. Nacelle Strut No. 2 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 207
Aug 22/09

B. Inspection

S 212-052

- (1) Do the inspection.

TASK 54-05-03-212-853

36. Nacelle Strut No. 2 Aft Upper Spar

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-053

- (1) Do the inspection.

TASK 54-05-03-212-854

37. Nacelle Strut No. 2 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-054

- (1) Do the inspection.

TASK 54-05-03-212-857

38. Nacelle Strut Mid and Aft Torque Box

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-057

- (1) Do the inspection.

TASK 54-05-03-212-858

39. No. 2 Strut Aft Engine Mount Bulkhead

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-058

- (1) Do the inspection.

TASK 54-05-03-212-859

40. Nacelle Strut No. 2 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 208
Aug 22/09

B. Inspection

S 212-059

- (1) Do the inspection.

TASK 54-05-03-212-860

41. Nacelle Strut No. 2 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-060

- (1) Do the inspection.

TASK 54-05-03-212-861

42. Right Nacelle Strut Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-061

- (1) Do the inspection.

TASK 54-05-03-212-862

43. Right Nacelle Strut Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-062

- (1) Do the inspection.

TASK 54-05-03-212-863

44. Right Nacelle Strut/Wing Lower Surface

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-063

- (1) Do the inspection.

TASK 54-05-03-212-864

45. Right Nacelle Strut/Wing Lower Surface

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

01

Page 209
Aug 22/09

B. Inspection

S 212-064

- (1) Do the inspection.

TASK 54-05-03-212-869

46. Strut No. 2 Side Load Links

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-069

- (1) Do the inspection.

TASK 54-05-03-212-872

47. Strut No. 2 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-072

- (1) Do the inspection.

TASK 54-05-03-212-876

48. Strut No. 2 Diagonal Brace Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-076

- (1) Do the inspection.

TASK 54-05-03-212-898

49. Strut No. 2 Aft Engine Mount Bulkhead

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-098

- (1) Do the inspection.

TASK 54-05-03-212-912

50. Nacelle Strut No. 2 Midspar Chord

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

B. Inspection

S 212-112

- (1) Do the inspection.

TASK 54-05-03-212-916

51. Engine 2 Forward Mount Bulkhead Fittings

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-116

- (1) Do the inspection.

TASK 54-05-03-212-924

52. Strut No. 1 Side Load Links

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-124

- (1) Do the inspection.

TASK 54-05-03-212-927

53. Strut No. 1 Midspar Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-127

- (1) Do the inspection.

TASK 54-05-03-212-931

54. Strut No. 1 Diagonal Brace Fitting

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-131

- (1) Do the inspection.

TASK 54-05-03-212-953

55. Strut No. 1 Aft Engine Mount Bulkhead

A. General

- (1) This procedure is a scheduled maintenance task.

EFFECTIVITY

ALL

54-05-03

B. Inspection

S 212-153

- (1) Do the inspection.

TASK 54-05-03-212-967

56. Nacelle Strut No. 1 Midspar Chord

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-167

- (1) Do the inspection.

TASK 54-05-03-212-971

57. Engine 1 Forward Mount Bulkhead Fittings

A. General

- (1) This procedure is a scheduled maintenance task.

B. Inspection

S 212-171

- (1) Do the inspection.

EFFECTIVITY

ALL

54-05-03

11

Page 212
Aug 22/09

THRUST REVERSER HINGE BEARING – REMOVAL/INSTALLATION

1. General

- A. This procedure contains the data to remove and install the bearing assembly in the thrust reverser hinge which is on the strut.
- B. The bearing assembly is made up of the bearing ball and the bearing race assembly. The bearing race assembly has a locking element in the threads.
- C. The bearing race assembly is designed to be installed only one time. If the assembly becomes loose, both parts of the race should be replaced.

TASK 54-31-01-004-001

2. Bearing Assembly Removal from the Hinge (Fig. 401)

A. References

- (1) AMM 78-31-01/401, Thrust Reverser
- (2) AIPC 54-51-51

B. Equipment

- (1) Spanner, A20008

C. Access

- (1) Location Zone
 - 415AL Thrust Reverser (Left)
 - 416AR Thrust Reverser (Right)
 - 425AL Thrust Reverser (Left)
 - 426AR Thrust Reverser (Right)

D. Procedure

S 014-002

- (1) Do the procedure to remove the thrust reverser half (AMM 78-31-01/401).

S 034-003

- (2) Remove the ball from the race.

S 024-004

- (3) Remove the race from the thrust reverser hinge.

S 164-005

- (4) Clean the thrust reverser hinge.

S 214-006

- (5) Examine the thrust reverser hinge for damage.

S 424-007

- (6) If the thrust reverser hinge is damaged, replace the hinge.

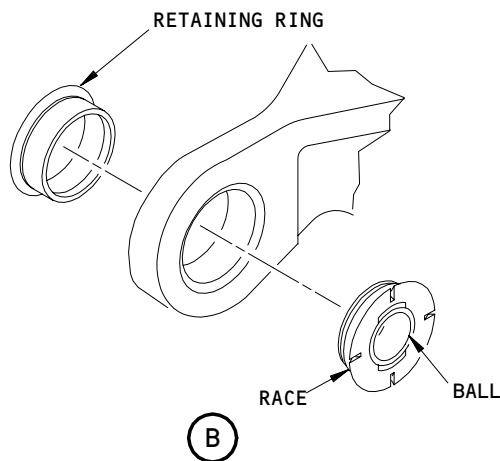
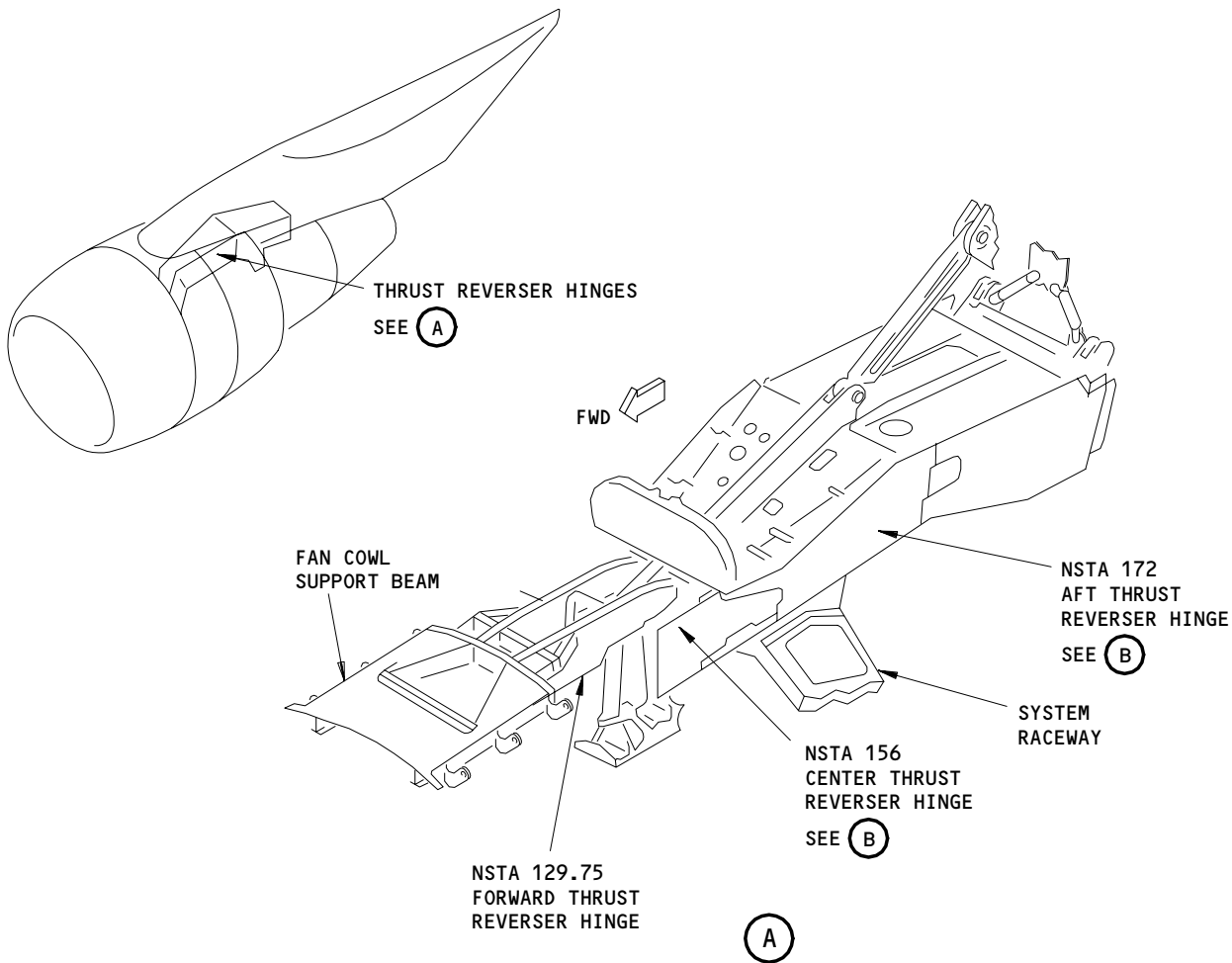
EFFECTIVITY

ALL

54-31-01

01

Page 401
Dec 22/07



Thrust Reverser Hinge Fitting
Figure 401

EFFECTIVITY	
	ALL

54-31-01

01

Page 402
Aug 10/95

TASK 54-31-01-404-008

3. Bearing Assembly Installation in the Hinge (Fig. 401)

A. Equipment

- (1) Spanner, A20008

B. References

- (1) AMM 78-31-01/401, Thrust Reverser
- (2) AIPC 54-51-51

C. Access

- (1) Location Zone
 - 415AL Thrust Reverser (Left)
 - 416AR Thrust Reverser (Right)
 - 425AL Thrust Reverser (Left)
 - 426AR Thrust Reverser (Right)

D. Procedure

S 424-011

- (1) Put the race into the hinge from the aft side.

S 424-012

- (2) Hold the race in place with the socket wrench.

NOTE: Keep the slot in the vertical position.

S 424-013

- (3) Put the retaining ring into the hinge lug from the forward side.

S 434-020

- (4) Use the socket wrench to tighten the retaining ring to 116 - 200 pound-inches.

S 424-016

- (5) Put the ball into the race.

S 424-017

- (6) If you will not immediately install the thrust reverser half, hold the ball in place with a small piece of rope.

S 414-018

- (7) Do the procedure to install the thrust reverser half (AMM 78-31-01/401).

EFFECTIVITY

ALL

54-31-01

02.1

Page 403
Aug 22/09

NACELLE STRUT - DESCRIPTION AND OPERATION

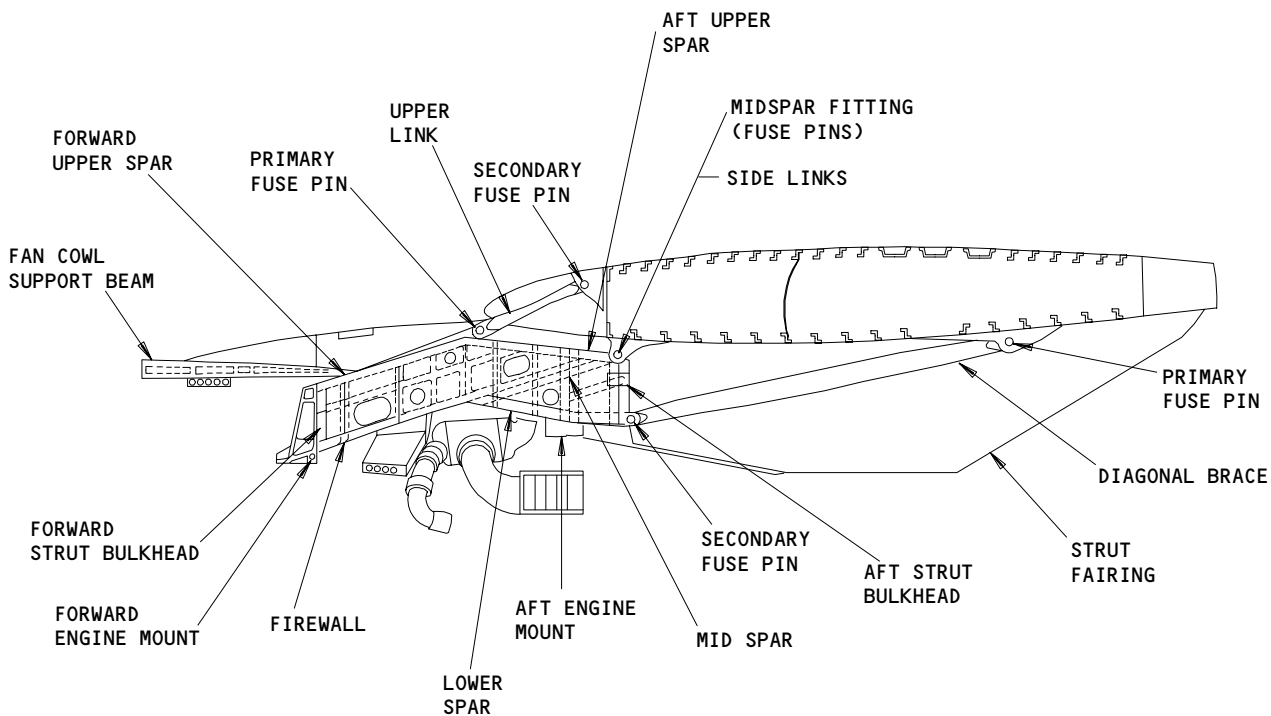
1. General

A. The strut attaches to the wing in three places: the upper link, midspar fittings, and diagonal brace. Engine mount loads are transmitted through these members to the wing.

2. Component Details (Fig. 1)

A. Strut (pylon) attaches the engine to the wing with the upper link, midspar fittings and diagonal brace.

- (1) The upper link attaches the strut upper spar to the wing with fuse pins.
- (2) Midspar fittings directly connect the strut to the wing with fuse shoulder bolts and provide stability against side sway of strut.
- (3) The diagonal brace connects lower spar to wing with fuse pins.



Nacelle Strut
Figure 1

EFFECTIVITY	
	ALL

54-51-00

 **BOEING**
767
MAINTENANCE MANUAL

- B. The strut is essentially a frame and skin structure riveted and bonded together to form a torque box. Outside skins are riveted to bulkheads, spars and frames.
 - (1) Spars are the primary load carrying member in the strut. Spars are spanwise structural members made of aluminum chords and webs. Three spars in the strut are the lower spar, mid spar, and upper spar. The upper spar fitting attaches to the upper links, the mid spar attaches to the midspar fitting, and the lower spar fitting attaches to the diagonal brace.
 - (2) Bulkheads are transverse structural members made of forged aluminum. The forward and aft engine mounts are connected to the forward bulkhead and aft engine mount bulkhead with lockbolts.
 - (3) Length of strut from forward engine mount to aft bulkhead is approximately 100 inches.
- C. The fan cowl support beam, made of aluminum alloys, is attached to the strut with lockbolts.
- D. Forward and aft engine mount loads are transmitted through the strut to the wing.

EFFECTIVITY

ALL

54-51-00

03

Page 2
Nov 01/86

NACELLE STRUT - MAINTENANCE PRACTICES

1. General

- A. This procedure has these six tasks:
 - (1) Forward Drain Tube - Leak Check (T1)
 - (2) Midspar Structure - Leak Check (S1)
 - (3) Forward Upper Spar Structure - Leak Check (S2)
 - (4) Aft Upper Spar Structure - Leak Check (S3)
 - (5) Aft Fairing Structure - Leak Check (S4)
 - (6) Strut Drain Line Inspection and Cleaning
- B. The T1 leak check makes sure the tubes in the strut do not have leaks.
- C. The S1 - S4 leak checks make sure that the strut structure does not have leaks.
- D. You can do each of the leak check tasks independently after you do maintenance on areas of the struts.
- E. If you do more than one leak check, you can keep the access panels open until you complete the last task on that strut.
- F. All the nacelle stations (NSTA) numbers shown in Figure 201, and referred to in the procedure, are approximate.

TASK 54-51-00-702-095

2. Forward Drain Tube - Leak Check (T1)

- A. General
 - (1) This task gives the instructions on how to do a leak check (T1) of the forward drain tube on the engine strut.
- B. Equipment
 - (1) Water source - low pressure, can spray up to 2 quarts (1.9 liters) per minute
 - (2) Container - 5 gallon (19 liter) capacity, can collect and measure water to within 1 fluid ounce (30 ml) (measure can be done in smaller containers)
 - (3) Funnel - long necked
- C. References
 - (1) AMM 08-21-00/201, Leveling
 - (2) AMM 20-10-09/801, Flareless Tubing Assembly
 - (3) AMM 27-81-00/201, Leading Edge Slat System
 - (4) AMM 51-31-01/201, Seals and Sealing
 - (5) AMM 54-53-01/401, Strut Pressure Relief and Access Doors
 - (6) AMM 71-11-04/201, Panels - Fan Cowl
 - (7) AMM 71-11-06/201, Panels - Core Cowl
 - (8) AMM 71-71-00/601, Engine Vents and Drains
 - (9) AMM 78-31-00/201, Thrust Reverser System

EFFECTIVITY

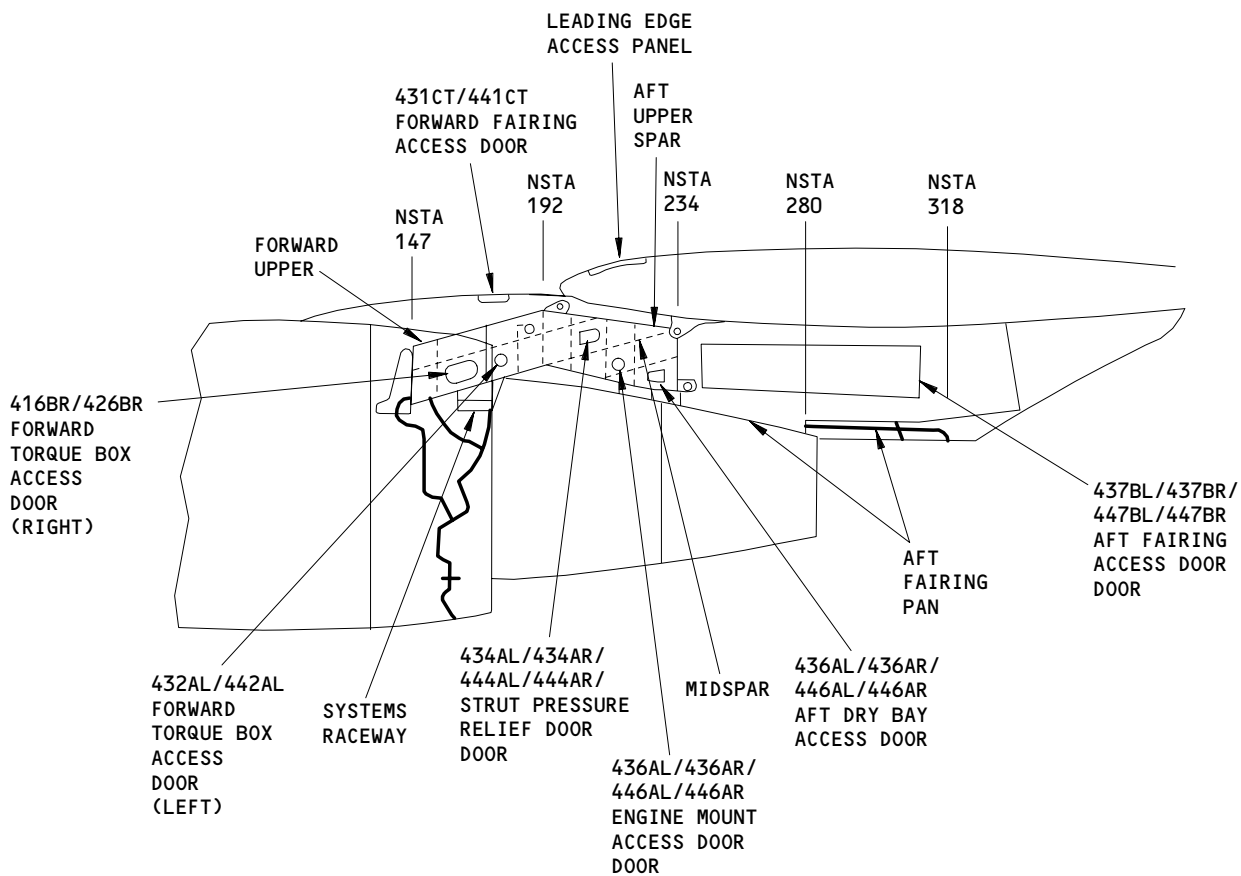
ALL

54-51-00

01N

Page 201
Aug 22/05

BOEING
767
MAINTENANCE MANUAL



Strut Drain Access
Figure 201 (Sheet 1)

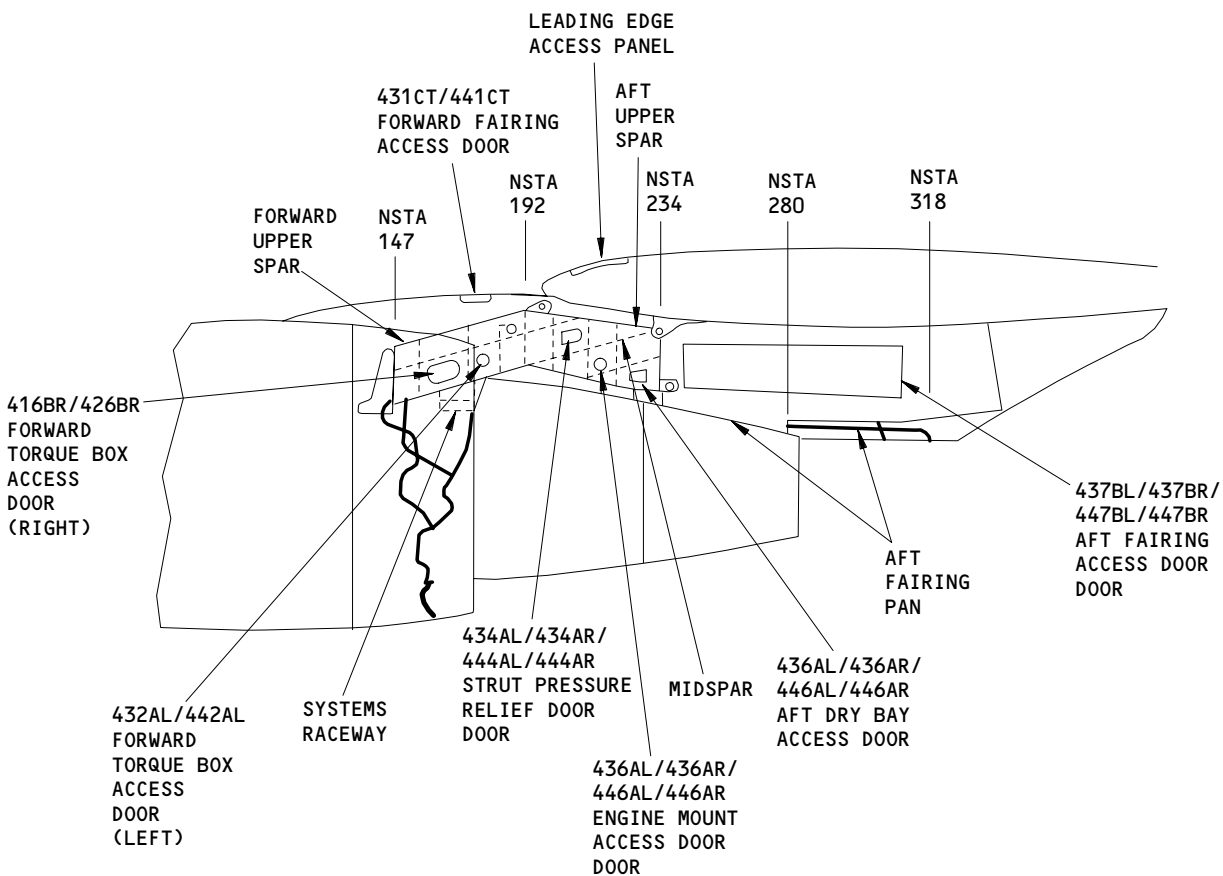
EFFECTIVITY	
	ALL

54-51-00

02N

Page 202
Nov 10/94

E43437



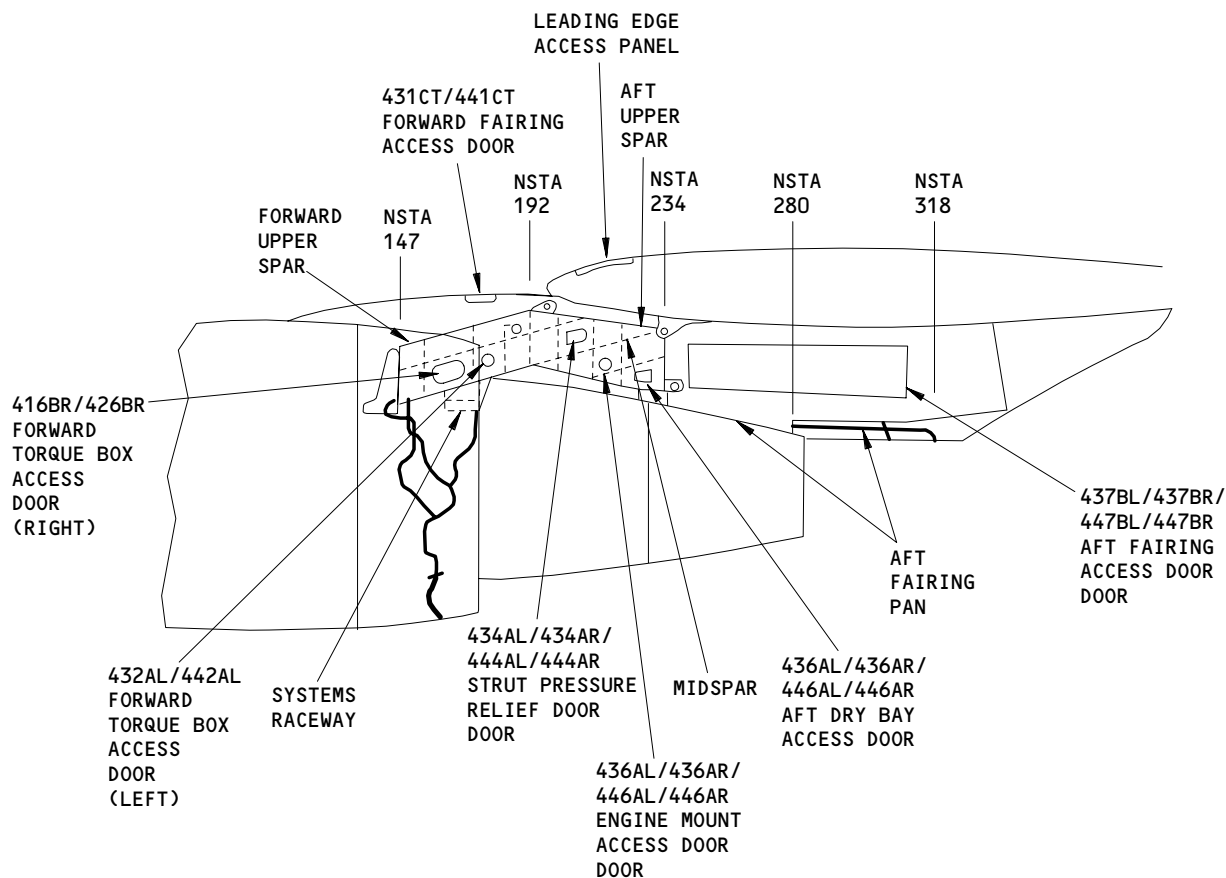
Strut Drain Access
Figure 201 (Sheet 2)

EFFECTIVITY	
	ALL

54-51-00

02N

Page 203
Aug 10/94



Strut Drain Access
Figure 201 (Sheet 3)

EFFECTIVITY	ALL
-------------	-----

54-51-00

D. Access

(1) Location Zone

- 410 Power Plant (Left Engine)
- 420 Power Plant (Right Engine)
- 430 Nacelle Strut (Left Engine)
- 440 Nacelle Strut (Right Engine)

(2) Access Panel

- 432AL Nacelle Strut Fwd Torque Box - Engine 1
- 442AL Nacelle Strut Fwd Torque Box - Engine 2

E. Prepare for the Forward Drain Tube - Leak Check (T1)

S 582-175

- (1) Level the airplane to a maximum of one-half degree (AMM 08-21-00/201).

S 042-173

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats (AMM 27-81-00/201).

S 042-342

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 012-170

- (4) Open the left and right fan cowl panels (AMM 71-11-04/201).

S 012-343

- (5) Open the left and right core cowl panels (AMM 71-11-06/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 205
Nov 10/94

S 012-171

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the left and right thrust reversers (AMM 78-31-00/201).

S 012-174

- (7) Remove these access panels (AMM 54-53-01/401):
(a) Access panel 432AL/442AL on the left side of the strut at NSTA 161, above the systems raceway.

S 162-176

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (8) Make sure you remove all unwanted materials (spilled sealant, fasteners, tie wires, etc.) from the midspar top surface and the midspar forward drain inlet.

F. Do the Forward Drain Tube - Leak Check (T1) (Figure 201)

S 942-177

- (1) Put an empty container below the strut forward drain outlet (NSTA 154, NWL 61).

S 792-178

- (2) With a funnel and hose, apply water through access door 432AL/442AL at NSTA 161, and onto the midspar upper surface as follows:
(a) Apply 254 to 258 fluid ounces (7510 to 7630 ml) of water in 3.5 to 4.5 minutes.

NOTE: This is approximately 64 fluid ounces (1/2 gallon or 1900 ml) per minute for 4 minutes.

S 792-391

- (3) Make sure you see no water leaks as follows:
(a) Make sure you see no water leaks at the tube connections.
(b) After three minutes, make sure that a minimum of 236 fluid ounces (6980 ml) of water collects in the container.

EFFECTIVITY

ALL

54-51-00

02N

Page 206
Aug 10/94

S 392-181

- (4) If you found water leaks during the test, do these steps:
- (a) If the leak is from a tube, do the procedure to repair the tube (AMM 20-10-09/801).
 - (b) If the leak is from a seal, do the procedure to seal the applicable area of the leak (AMM 51-31-01/201).
 - (c) After you repair the leak, do the applicable leak test again.

S 362-182

- (5) If you did not collect the correct quantity of water, and cannot find leaks, do these steps:
- (a) Do the task to remove the blockage of the applicable strut drain (AMM 71-71-00/601).
 - (b) After you remove the blockage in the tube, do the leak test again until you collect the correct quantity of water.
- G. If you will not do more leak checks at this time, put the airplane back to its usual condition.

S 162-183

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (1) Make sure you remove all unwanted materials from the strut compartments.

S 412-184

- (2) Install these access panels (AMM 54-53-01/401):
- (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.

S 412-187

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Close the left and right thrust reversers (AMM 78-31-00/201).

S 412-365

- (4) Close the left and right core cowl panels (AMM 71-11-06/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 207
Aug 10/94

S 412-188
(5) Close the left and right fan cowl panels (AMM 71-11-04/201).

S 442-366
(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 442-185

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-00-702-096

3. Midspar Structure - Leak Check (S1)

A. General

(1) This task gives the instructions on how to do a leak check (S1) of the midspar structure on the engine strut.

B. Equipment

- (1) Water source - low pressure, can spray up to 2 quarts (1.9 liters) per minute
- (2) Container - 5 gallon (19 liter) capacity, can collect and measure water to within 1 fluid ounce (30 ml) (measure can be done in smaller containers)
- (3) Funnel - long necked

C. References

- (1) AMM 08-21-00/201, Leveling
- (2) AMM 20-10-09/801, Flareless Tubing Assembly
- (3) AMM 27-81-00/201, Leading Edge Slat System
- (4) AMM 51-31-01/201, Seals and Sealing
- (5) AMM 54-53-01/401, Strut Pressure Relief and Access Doors.
- (6) AMM 71-11-04/201, Panels - Fan Cowl
- (7) AMM 71-11-06/201, Panels - Core Cowl
- (8) AMM 71-71-00/601, Engine Vents and Drains
- (9) AMM 78-31-00/201, Thrust Reverser System

EFFECTIVITY

ALL

54-51-00

02N

Page 208
Nov 10/94

D. Access

(1) Location Zone

- 410 Power Plant (Left Engine)
- 420 Power Plant (Right Engine)
- 430 Nacelle Strut (Left Engine)
- 440 Nacelle Strut (Right Engine)

(2) Access Panel

- 432AL Nacelle Strut Fwd Torque Box - Engine 1
- 434AL Strut Pressure Relief Door (left) - Engine 1
- 436AL Strut Engine Mount Door (left) - Engine 1
- 436AR Strut Engine Mount Door (right) - Engine 1
- 436BL Strut Aft Dry Bay Door (left) - Engine 1
- 436BR Strut Aft Dry Bay Door (right) - Engine 1
- 442AL Nacelle Strut Fwd Torque Box - Engine 2
- 444AL Strut Pressure Relief Door (left) - Engine 2
- 446AL Strut Engine Mount Door (left) - Engine 2
- 446AR Strut Engine Mount Door (right) - Engine 2
- 446BL Strut Aft Dry Bay Door (left) - Engine 2
- 446BR Strut Aft Dry Bay Door (right) - Engine 2

E. Prepare for the Midspar Structure - Leak Check (S1)

S 582-216

- (1) Level the airplane to a maximum of one-half degree (AMM 08-21-00/201).

S 042-214

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats (AMM 27-81-00/201).

S 042-346

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 209
Nov 10/94

S 012-211

- (4) Open the left and right fan cowl panels (AMM 71-11-04/201).

S 012-347

- (5) Open the left and right core cowl panels (AMM 71-11-06/201).

S 012-212

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the left and right thrust reversers (AMM 78-31-00/201).

S 012-215

- (7) Remove or open these access panels (AMM 54-53-01/401):
- (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.
 - (b) Access panel 434AL/444AL on the left side of the strut at NSTA 207.
 - (c) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (d) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.

S 032-218

- (8) Disconnect the raceway drain fitting from the drain line immediately below the raceway.
- (a) Install a cap or plug into the raceway drain fitting.

S 162-217

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (9) Make sure you remove all unwanted materials (spilled sealant, fasteners, tie wires, etc.) from the midspar top surface and the midspar forward drain inlet.

EFFECTIVITY

ALL

54-51-00

02N

Page 210
Aug 10/94

F. Do the Midspar Structure - Leak Check (S1) (Figure 201)

S 942-219

- (1) Put an empty container below the strut forward drain outlet (NSTA 154, NWL 61).

S 792-220

- (2) With a funnel and hose, apply water over the top surface of the midspar as follows:
- (a) Apply 254 to 258 fluid ounces (7510 to 7630 ml) of water in 3.5 to 4.5 minutes.

NOTE: This is approximately 64 fluid ounces (1/2 gallon or 1900 ml) per minute for 4 minutes.

- (b) Make sure you fully wet the midspar top surface (between the midspar drain and NSTA 234), and all system penetrations into the midspar forward compartment.

S 792-221

- (3) Make sure you see no water leaks as follows:
- (a) Make sure you see no water leaks at the midspar lower surface.
- (b) Make sure there is no water leakage from the left and right dry bay condensate drain tubes.
- (c) Make sure there is no leakage through NSTA 234 strut to wing vapor barrier wire bundle and tubing penetrations, or through the strut to wing vapor barrier structure.

NOTE: For access to the aft side of the strut to wing vapor barrier, open the aft fairing doors.

- (d) Make sure there is no water leakage near the midspar forward drain fitting.
- (e) After three minutes, make sure that a minimum of 236 fluid ounces (6980 ml) of water collects in the container.

S 792-223

- (4) Look for leaks from the raceway drain as follows:
- (a) Put a small empty container below the raceway drain fitting.
- (b) Remove the cap or plug from the raceway drain fitting, and let the water drain into the container.
- (c) Measure the water that leaked from the raceway drain into the container.

EFFECTIVITY

ALL

54-51-00

02N

Page 211
Aug 10/94

(d) A maximum of 4 ounces (120 ml) of water is permitted.

NOTE: It is permitted for 2 ounces (60 ml) of water to leak into the strut system raceway compartment for each gallon (128 ounces) of applied water. If 2 gallons (256 ounces or 7630 ml) are applied, 4 ounces (120 ml) of water leakage is permitted.

(e) Connect the raceway drain fitting to the drain line immediately below the raceway.

(f) Make sure there is no puddling of water in the strut area.

NOTE: Puddling is defined as more than 0.5 fluid ounce (15 ml) of water in a continuous pool.

S 392-036

- (5) If you found water leaks during the test, do these steps:
- (a) If the leak is from a tube, do the procedure to repair the tube (AMM 20-10-09/801).
 - (b) If the leak is from a seal, do the procedure to seal the applicable area of the leak (AMM 51-31-01/201).
 - (c) After you repair the leak, do the applicable leak test again.

S 362-225

- (6) If you did not collect the correct quantity of water, and cannot find leaks, do these steps:
- (a) Do the task to remove the blockage of the applicable strut drain (AMM 71-71-00/601).
 - (b) After you remove the blockage in the tube, do the leak test again until you collect the correct quantity of water.
- G. If you will not do more leak checks at this time, put the airplane back to its usual condition.

S 162-226

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (1) Make sure you remove all unwanted materials from the strut compartments.

EFFECTIVITY

ALL

54-51-00

02N

Page 212
Nov 10/95

S 412-227

- (2) Install or close these access panels (AMM 54-53-01/401):
- (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.
 - (b) Access panel 434AL/444AL on the left side of the strut at NSTA 207.
 - (c) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (d) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.

S 412-229

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Close the left and right thrust reversers (AMM 78-31-00/201).

S 412-369

- (4) Close the left and right core cowl panels (AMM 71-11-06/201).

S 412-230

- (5) Close the left and right fan cowl panels (AMM 71-11-04/201).

S 442-370

- (6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 442-228

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 213
Nov 10/94

TASK 54-51-00-702-099

4. Forward Upper Spar Structure - Leak Check (S2)

A. General

- (1) This task gives the instructions on how to do a leak check (S2) of the forward upper spar structure on the engine strut.

B. Equipment

- (1) Water source - low pressure, can spray up to 2 quarts (1.9 liters) per minute
- (2) Container - 5 gallon (19 liter) capacity, can collect and measure water to within 1 fluid ounce (30 ml) (measure can be done in smaller containers)
- (3) Funnel - long necked

C. References

- (1) AMM 08-21-00/201, Leveling
- (2) AMM 20-10-09/801, Flareless Tubing Assembly
- (3) AMM 27-81-00/201, Leading Edge Slat System
- (4) AMM 51-31-01/201, Seals and Sealing
- (5) AMM 54-53-01/401, Strut Pressure Relief and Access Doors.
- (6) AMM 71-11-04/201, Panels - Fan Cowl
- (7) AMM 71-11-06/201, Panels - Core Cowl
- (8) AMM 71-71-00/601, Engine Vents and Drains
- (9) AMM 78-31-00/201, Thrust Reverser System

D. Access

(1) Location Zone

- 410 Power Plant (Left Engine)
- 420 Power Plant (Right Engine)
- 430 Nacelle Strut (Left Engine)
- 440 Nacelle Strut (Right Engine)

(2) Access Panel

- 431CT Fwd Fairing Pressure Relief Door - Engine 1
- 432AL Nacelle Strut Fwd Torque Box - Engine 1
- 434AL Strut Pressure Relief Door (left) - Engine 1
- 436AL Strut Engine Mount Door (left) - Engine 1
- 436AR Strut Engine Mount Door (right) - Engine 1
- 436BL Strut Aft Dry Bay Door (left) - Engine 1
- 436BR Strut Aft Dry Bay Door (right) - Engine 1
- 441CT Fwd Fairing Pressure Relief Door - Engine 2
- 442AL Nacelle Strut Fwd Torque Box - Engine 2
- 444AL Strut Pressure Relief Door (left) - Engine 2
- 446AL Strut Engine Mount Door (left) - Engine 2
- 446AR Strut Engine Mount Door (right) - Engine 2
- 446BL Strut Aft Dry Bay Door (left) - Engine 2
- 446BR Strut Aft Dry Bay Door (right) - Engine 2

EFFECTIVITY

ALL

54-51-00

02N

Page 214
Nov 10/94

E. Prepare for the Forward Upper Spar Structure - Leak Check (S2)

S 582-314

- (1) Level the airplane to a maximum of one-half degree (AMM 08-21-00/201).

S 042-313

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats (AMM 27-81-00/201).

S 042-348

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 012-309

- (4) Open the left and right fan cowl panels (AMM 71-11-04/201).

S 012-349

- (5) Open the left and right core cowl panels (AMM 71-11-06/201).

S 012-310

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the left and right thrust reversers (AMM 78-31-00/201).

S 012-315

- (7) Remove or open these access panels (AMM 54-53-01/401):
 - (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.
 - (b) Access panel 434AL/444AL on the left side of the strut at NSTA 207.

EFFECTIVITY

ALL

54-51-00

02N

Page 215
Nov 10/94

- (c) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
- (d) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.
- (e) Access panel 431CT/441CT on the forward fairing.

S 162-317

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (8) Make sure you remove all unwanted materials (spilled sealant, fasteners, tie wires, etc.) from the upper spar surfaces and the upper spar forward drain inlet.

F. Do the Forward Upper Spar Structure - Leak Test (S2) (Figure 201)

S 942-037

- (1) Put an empty container below the strut forward drain outlet (NSTA 154, NWL 61).

S 792-038

- (2) With a funnel and hose, apply water to the top surface of the forward upper spar as follows:
 - (a) Apply 128 fluid ounces (1 gallon or 3785 ml) of water, in 1.5 to 2.5 minutes.

NOTE: This is approximately 64 fluid ounces (1/2 gallon or 1900 ml) per minute for 2 minutes.

- (b) Make sure you fully wet the forward upper spar surface (between NSTA 144 and NSTA 192), and all system penetrations into the forward upper spar compartment.

S 792-319

- (3) Make sure you see no water leaks as follows:
 - (a) After three minutes, make sure that a minimum of 115 fluid ounces (3400 ml) of water collects in the container.
 - (b) Make sure there is no puddling of water in the strut area.

NOTE: Puddling is defined as more than 0.5 fluid ounce (15 ml) of water in a continuous pool.

EFFECTIVITY

ALL

54-51-00

02N

Page 216
Aug 10/94

S 392-056

- (4) If you found water leaks during the test, do these steps:
- (a) If the leak is from a tube, do the procedure to repair the tube (AMM 20-10-09/801).
 - (b) If the leak is from a seal, do the procedure to seal the applicable area of the leak (AMM 51-31-01/201).
 - (c) After you repair the leak, do the applicable leak test again.

S 362-321

- (5) If you do not collect the correct quantity of water, and cannot find leaks, do these steps:
- (a) Do the task to remove the blockage from the applicable strut drain (AMM 71-71-00/601).
 - (b) After you remove the blockage in the tube, do the leak test again until you collect the correct quantity of water.
- G. If you will not do more leak checks at this time, put the airplane back to its usual condition.

S 162-323

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (1) Make sure you remove all unwanted materials from the strut compartments.

S 412-325

- (2) Install or close these access panels (AMM 54-53-01/401):
- (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.
 - (b) Access panel 434AL/444AL on the left side of the strut at NSTA 207.
 - (c) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (d) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.
 - (e) Access panel 431CT/441CT on the forward fairing.

EFFECTIVITY

ALL

54-51-00

02N

Page 217
Nov 10/95

S 412-329

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Close the left and right thrust reversers (AMM 78-31-00/201).

S 412-371

(4) Close the left and right core cowl panels (AMM 71-11-06/201).

S 412-330

(5) Close the left and right fan cowl panels (AMM 71-11-04/201).

S 442-372

(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 442-327

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-00-702-097

5. Aft Upper Spar Structure - Leak Check (S3)

A. General

(1) This task gives the instructions on how to do a leak check (S3) of the aft upper spar structure on the strut.

B. Equipment

(1) Water source - low pressure, can spray up to 2 quarts (1.9 liters) per minute

(2) Container - 5 gallon (19 liter) capacity, can collect and measure water to within 1 fluid ounce (30 ml) (measure can be done in smaller containers)

(3) Funnel - long necked

C. References

(1) AMM 08-21-00/201, Leveling

(2) AMM 20-10-09/801, Flareless Tubing Assembly

EFFECTIVITY

ALL

54-51-00

02N

Page 218
Nov 10/94

- (3) AMM 27-81-00/201, Leading Edge Slat System
- (4) AMM 51-31-01/201, Seals and Sealing
- (5) AMM 54-53-01/401, Strut Pressure Relief and Access Doors
- (6) AMM 71-11-04/201, Panels - Fan Cowl
- (7) AMM 71-11-06/201, Panels - Core Cowl
- (8) AMM 71-71-00/601, Engine Vents and Drains
- (9) AMM 78-31-00/201, Thrust Reverser System

D. Access

- (1) Location Zone
 - 410 Power Plant (Left Engine)
 - 420 Power Plant (Right Engine)
 - 430 Nacelle Strut (Left Engine)
 - 440 Nacelle Strut (Right Engine)
- (2) Access Panels
 - 432AL Nacelle Strut Fwd Torque Box (left) - Engine 1
 - 434AL Strut Pressure Relief Door (left) - Engine 1
 - 436AL Strut Engine Mount Door (left) - Engine 1
 - 436AR Strut Engine Mount Door (right) - Engine 1
 - 436BL Strut Aft Dry Bay Door (left) - Engine 1
 - 436BR Strut Aft Dry Bay Door (right) - Engine 1
 - 442AL Nacelle Strut Fwd Torque Box (left) - Engine 2
 - 444AL Strut Pressure Relief Door (left) - Engine 2
 - 446AL Strut Engine Mount Door (left) - Engine 2
 - 446AR Strut Engine Mount Door (right) - Engine 2
 - 446BL Strut Aft Dry Bay Door (left) - Engine 2
 - 446BR Strut Aft Dry Bay Door (right) - Engine 2
 - 511PT Wing Leading Edge Cover - Engine 1
 - 611PT Wing Leading Edge Cover - Engine 2

E. Prepare for the Aft Upper Spar Structure - Leak Check (S3)

S 582-238

- (1) Level the airplane to a maximum of one-half degree (AMM 08-21-00/201).

S 042-235

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 219
Nov 10/94

S 042-350

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 012-232

- (4) Open the left and right fan cowl panels (AMM 71-11-04/201).

S 012-351

- (5) Open the left and right core cowl panels (AMM 71-11-06/201).

S 012-233

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the left and right thrust reversers (AMM 78-31-00/201).

S 012-057

- (7) Remove or open these access doors and panels (AMM 54-53-01/401):
- (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.
 - (b) Access panel 434AL/444AL on the left side of the strut at NSTA 207.
 - (c) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (d) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.
 - (e) Access panel 431CT/441CT on the forward fairing.
 - (f) Access panel 511PT/611PT on the wing leading edge.

EFFECTIVITY

ALL

54-51-00

02N

Page 220
Aug 10/94

S 162-239

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (8) Make sure you remove all unwanted materials (spilled sealant, fasteners, tie wires, etc.) from the aft upper spar surface between NSTA 192 and NSTA 234.

F. Do the Aft Upper Spar Structure - Leak Check (S3) (Figure 201)

S 942-058

- (1) Put an empty container below the strut forward drain outlet (NSTA 154, NWL 61).

S 792-073

- (2) With a funnel and hose, apply water to the aft upper spar surface as follows:
(a) Apply 1 gallon (128 fl oz or 3785 ml) of water, in 1.5 to 2.5 minutes.

NOTE: This is approximately 64 fluid ounces (1/2 gallon or 1900 ml) per minute for 2 minutes.

- (b) Make sure you fully wet the aft upper spar surface (between NSTA 192 and NSTA 234), and all system penetrations into the aft upper spar compartment.

S 792-074

- (3) Make sure you see no water leaks as follows:
(a) After three minutes, make sure that a minimum of 115 fluid ounces (3400 ml) of water collects in the container.
(b) Make sure there is no puddling of water in the strut area.

NOTE: Puddling is defined as more than 0.5 fluid ounce (15 ml) of water in a continuous pool.

S 392-244

- (4) If you found water leaks during the test, do these steps:
(a) If the leak is from a tube, do the procedure to repair the tube (AMM 20-10-09/801).

EFFECTIVITY

ALL

54-51-00

02N

Page 221
Nov 10/95

- (b) If the leak is from a seal, do the procedure to seal the applicable area of the leak (AMM 51-31-01/201).
- (c) After you repair the leak, do the applicable leak test again.

S 362-245

- (5) If you did not collect the correct quantity of water, and cannot find leaks, do these steps:
 - (a) Do the task to remove the blockage from the applicable strut drain (AMM 71-71-00/601).
 - (b) After you remove the blockage in the tube, do the leak test again until you collect the correct quantity of water.
- G. If you will not do more leak checks at this time, put the airplane back to its usual condition.

S 162-246

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (1) Make sure you remove all unwanted materials from the strut compartments.

S 412-247

- (2) Install or close these access panels (AMM 54-53-01/401):
 - (a) Access panel 432AL/442AL on the left side of the strut at NSTA 161.
 - (b) Access panel 434AL/444AL on the left side of the strut at NSTA 207.
 - (c) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (d) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.
 - (e) Access panel 431CT/441CT on the forward fairing.
 - (f) Access panel 511PT/611PT on the wing leading edge.

S 412-251

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Close the left and right thrust reversers (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 222
Nov 10/94

S 412-389
(4) Close the left and right core cowl panels (AMM 71-11-06/201).

S 412-252
(5) Close the left and right fan cowl panels (AMM 71-11-04/201).

S 442-373
(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 442-249

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-00-702-098

6. Aft Fairing Structure - Leak Check (S4)

A. General

(1) This task gives the instructions on how to do a leak check (S4) of the aft fairing structure on the engine strut.

B. Equipment

- (1) Water source - low pressure, can spray up to 2 quarts (1.9 liters) per minute
- (2) Container - 5 gallon (19 liter) capacity, can collect and measure water to within 1 fluid ounce (30 ml) (measure can be done in smaller containers)
- (3) Funnel - long necked

C. References

- (1) AMM 08-21-00/201, Leveling
- (2) AMM 20-10-09/801, Flareless Tubing Assembly
- (3) AMM 27-81-00/201, Leading Edge Slat System
- (4) AMM 51-31-01/201, Seals and Sealing
- (5) AMM 54-53-01/401, Strut Pressure Relief and Access Doors.
- (6) AMM 71-11-04/201, Panels - Fan Cowl
- (7) AMM 71-11-06/201, Panels - Core Cowl
- (8) AMM 78-31-00/201, Thrust Reverser System

EFFECTIVITY

ALL

54-51-00

02N

Page 223
Nov 10/94

D. Access

(1) Location Zone

- 410, Power Plant (Left Engine)
- 420, Power Plant (Right Engine)
- 430, Nacelle Strut (Left Engine)
- 440, Nacelle Strut (Right Engine)

(2) Access Panel

- 436AL Strut Engine Mount Door (left) - Engine 1
- 436AR Strut Engine Mount Door (right) - Engine 1
- 436BL Strut Aft Dry Bay Door (left) - Engine 1
- 436BR Strut Aft Dry Bay Door (right) - Engine 1
- 437BL Aft Fairing Access Door (left) - Engine 1
- 437BR Aft Fairing Access Door (right) - Engine 1
- 446AL Strut Engine Mount Door (left) - Engine 2
- 446AR Strut Engine Mount Door (right) - Engine 2
- 446BL Strut Aft Dry Bay Door (left) - Engine 2
- 446BR Strut Aft Dry Bay Door (right) - Engine 2
- 447BL Aft Fairing Access Door (left) - Engine 2
- 447BR Aft Fairing Access Door (right) - Engine 2

E. Prepare for the Aft Fairing Structure - Leak Check (S4)

S 582-261

- (1) Level the airplane to a maximum of one-half degree (AMM 08-21-00/201).

S 042-257

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats (AMM 27-81-00/201).

S 042-352

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-51-00

02N

Page 224
Nov 10/94

S 012-075

- (4) Remove or open these access panels (AMM 54-53-01/401):
- (a) Access panels 436AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (b) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.
 - (c) Access panels 437BL/437BR/447BL/447BR on the left and right sides of the aft fairing.

S 162-262

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (5) Make sure you remove all unwanted materials (spilled sealant, fasteners, tie wires, etc.) from the aft fairing pan surface (Between the aft bulkhead at NSTA 234 and NSTA 318).
- F. Do the Aft Fairing Structure - Leak Check (S4) (Figure 201)

S 942-088

- (1) Put an empty container below the forward outlet of the aft fairing drain line at NSTA 307.

S 792-264

- (2) With a funnel and hose, apply water to the aft fairing structure as follows:
- (a) Apply water for a minimum of two minutes at a minimum rate of 1 gallon per minute.
 - (b) Make sure you fully wet the aft surface of the aft bulkhead at NSTA 234, and the top surface of the aft fairing pan between NSTA 234 and NSTA 280.

S 792-089

- (3) Make sure you see no water leaks as follows:
- (a) Make sure that no water flows through the dry bay condensate drains just forward of the aft bulkhead at NSTA 234.
 - (b) Make sure there is no leakage through the aft fairing pan.

EFFECTIVITY

ALL

54-51-00

02N

Page 225
Aug 10/94

- (c) Make sure there is no puddling of water in the aft fairing area.

NOTE: Puddling is defined as more than 0.5 fluid ounce (15 ml) of water in a continuous pool.

S 942-092

- (4) Put an empty container below the aft outlet of the aft fairing drain line at NSTA 318.

S 792-093

- (5) With a funnel and hose, apply water to the aft fairing structure as follows:
 - (a) Apply water for a minimum of one minute at a minimum rate of 1 gallon per minute.
 - (b) Make sure you fully wet the top surface of the aft fairing pan between NSTA 280 and NSTA 318.

S 792-094

- (6) Make sure you see no water leaks as follows:
 - (a) Make sure there is no leakage through the aft fairing pan.
 - (b) Make sure there is no puddling of water in the aft fairing area.

NOTE: Puddling is defined as more than 0.5 fluid ounces (15 ml) of water in a continuous pool.

S 392-270

- (7) If you found water leaks during the test, do these steps:
 - (a) If the leak is from a tube, do the procedure to repair the tube (AMM 20-10-09/801).
 - (b) If the leak is from a seal, do the procedure to seal the applicable area of the leak (AMM 51-31-01/201).
 - (c) After you repair the leak, do the applicable leak test again.
- G. If you will not do more leak checks at this time, put the airplane back to its usual condition.

EFFECTIVITY

ALL

54-51-00

02N

Page 226
Nov 10/95

S 162-272

CAUTION: MAKE SURE YOU KEEP THE STRUT AREA CLEAN. LOOSE TOOLS AND UNWANTED MATERIALS IN THE STRUT COMPARTMENTS CAN PREVENT THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (1) Make sure you remove all unwanted materials from the strut compartments.

S 412-273

- (2) Install or close these access panels (AMM 54-53-01/401):
 - (a) Access panels 346AL/436AR/446AL/446AR on the left and right sides of the strut at NSTA 217.
 - (b) Access panels 436BL/436BR/446BL/446BR on the left and right sides of the strut at NSTA 230.
 - (c) Access panels 437BL/437BR/447BL/447BR on the left and right sides of the aft fairing.

S 442-375

- (3) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 442-276

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WITH HYDRAULIC POWER REMOVED, THE FLAPS WILL MOVE AUTOMATICALLY BY ELECTRICAL POWER WHEN YOU MOVE THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY

ALL

54-51-00

01N

Page 227
Nov 10/94

TASK 54-51-00-102-393

7. Strut Drain Line Inspection and Cleaning

A. Equipment

- (1) Air source - regulated, compressed, 25-35 psi (170-240 kPa)

B. Access

(1) Location Zones

- 410 Power Plant (Left Engine)
- 420 Power Plant (Right Engine)
- 430 Nacelle Strut (Left Engine)
- 440 Nacelle Strut (Right Engine)

(2) Access Panel

- 413AL Left Fan Cowl Panel (Left Engine)
- 415AL Left Thrust Reverser Half (Left Engine)
- 423AL Left Fan Cowl Panel (Right Engine)
- 425AL Left Thrust Reverser Half (Right Engine)

C. Procedure

S 212-394

- (1) Visually inspect the strut raceway for leakage or collected fluid.
 - (a) Remove insulation and cover plates from the strut raceway.
 - (b) Remove any fluid from the compartment.
 - (c) Find the fluid source(s) and treat the identified area.

S 212-404

- (2) Check inside the hydraulic reservoir for debris.
 - (a) Check drains and drain screens for debris or clogging.
 - (b) Remove any debris from the compartment and clean drain screens.

S 212-395

- (3) Check inside strut raceway for hydraulic fluid contamination of the electrical connectors.
 - (a) Replace the contaminated connectors.
 - (b) Check drain and drain screens for debris or clogging.
 - (c) Remove any debris from the compartment and clean drain screens.

EFFECTIVITY

ALL

54-51-00

02N

Page 228
Aug 22/05

- S 032-396
- (4) Disconnect the drain hoses from the strut.
- S 212-397
- (5) Check raceway drain fittings for blockage.
- (a) Replace fitting if there are signs of excessive residue build up or blockage.
- S 212-398
- (6) Check hose end fitting for debris, build up, or blockage.
- (a) Replace hose assemblies if there are signs of excessive residue build up, blockage or if the hose is kinked.
- S 162-399
- (7) Blow shop air into each drain line from the top.
- (a) Place a rag at the lower end of the drain line to catch debris.
- (b) Make sure there is a free flow of air through the engine mounted strut drain lines.
- NOTE: Removed lines and fittings may be mechanically cleaned. Use normal airline procedures and confirm with compressed air that the tube is clear. The cleaned tube may be reinstalled or stored for future use.
- S 912-400
- (8) Make sure that drain lines are open by pouring water or Stoddard solvent down each drain line.
- (a) If there are no visual signs of leakage or residue build up and free air flow is obtained, restore the drain system and no further action is necessary.
- S 022-401
- (9) Remove tube assemblies that show signs of residue build up or leakage, and make sure the tube is open and clear of blockage.
- (a) Clean tube assemblies and fittings by removing all debris and build up.
- 1) Replace tube assemblies that show signs of excessive residue build up or blockage.
- S 422-402
- (10) When reinstalling drain tubes, make sure the drain system is clear by pouring water or Stoddard solvent into the raceway drain fitting and collecting it at the drain mast.
- S 422-403
- (11) Reinstall the strut raceway cover plates and insulation.
- (a) Seal the cover plates with BMS 5-63

EFFECTIVITY

ALL

54-51-00

01N

Page 229
Apr 22/06

STRUT - MAINTENANCE PRACTICES

1. General

- A. This procedure adjusts the strut access doors, panels and fairings to permit smooth air flow. These access doors, panels and fairings are in areas where aerodynamic smoothness is very important.
- B. Refer to Chapter 54 of the SRM for applicable repairs for the nacelles and pylons.

TASK 54-51-01-912-004

2. Aerodynamic Smoothness Adjustment

- A. References
 - (1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels
 - (2) AMM 78-31-00/201, Thrust Reverser System
- B. Access
 - (1) Location Zone
 - 430 Nacelle Strut (Left Engine)
 - 440 Nacelle Strut (Right Engine)
- C. Do the Aerodynamic Smoothness Adjustment (Fig. 201)

S 862-001

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 222-014

- (2) Do these steps to examine the clearance between the adjacent surfaces (Fig. 201).
 - (a) Look for an unusually large clearance or a change in the contour between adjacent surfaces, doors and access panels (AMM 06-43-00/201).
 - (b) The clearance between these surfaces must agree with the permitted tolerance.

S 212-008

- (3) If you removed the forward fairing panel, do these steps:
 - (a) Make sure all tools and unwanted materials are removed.

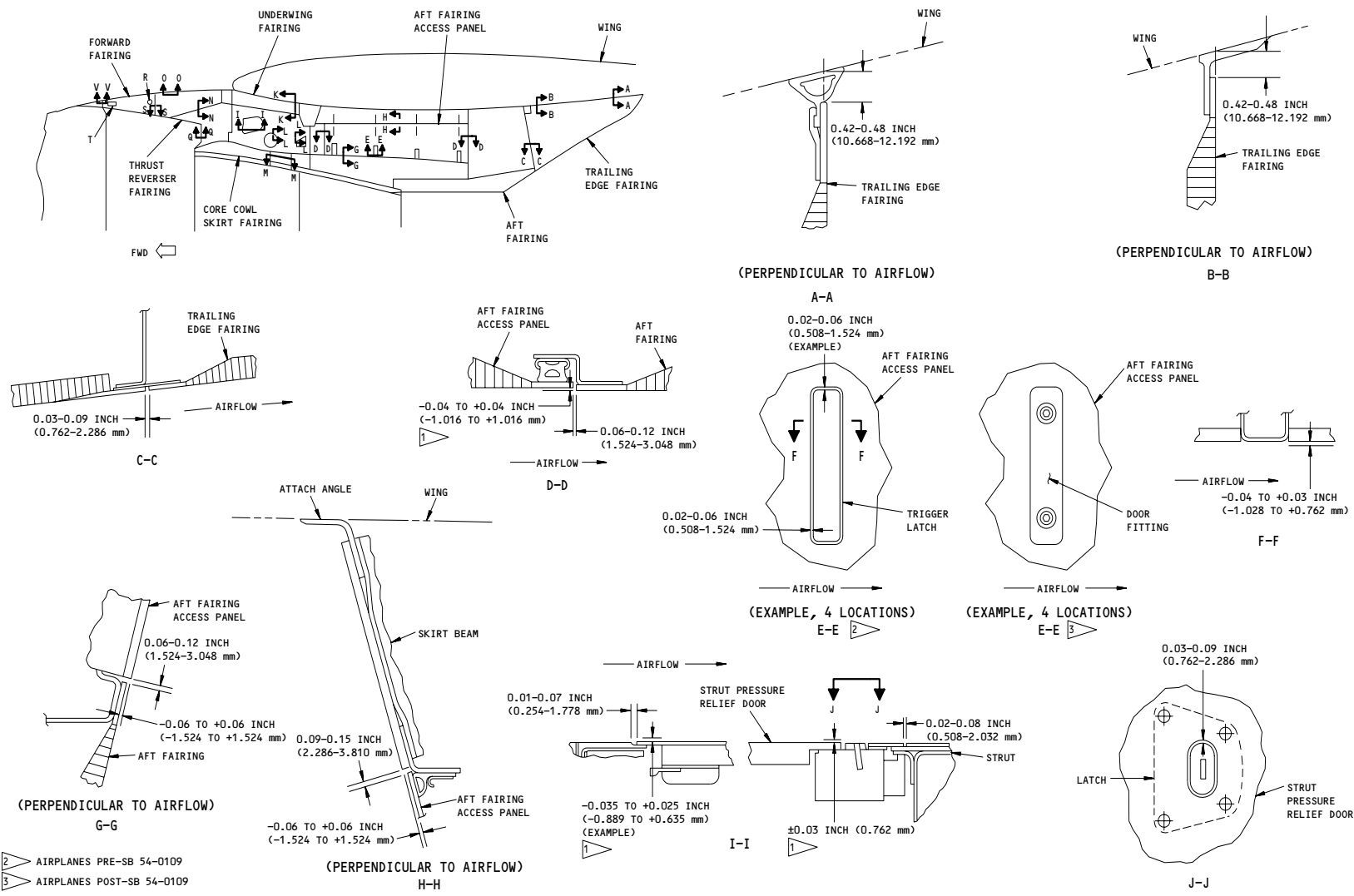
EFFECTIVITY

ALL

54-51-01

07

Page 201
Apr 22/08



Strut Fairings, Doors and Panels Aerodynamic Smoothness
Figure 201 (Sheet 1)

2 AIRPLANES PRE-SB 54-0109
3 AIRPLANES POST-SB 54-0109

EFFECTIVITY

ALL

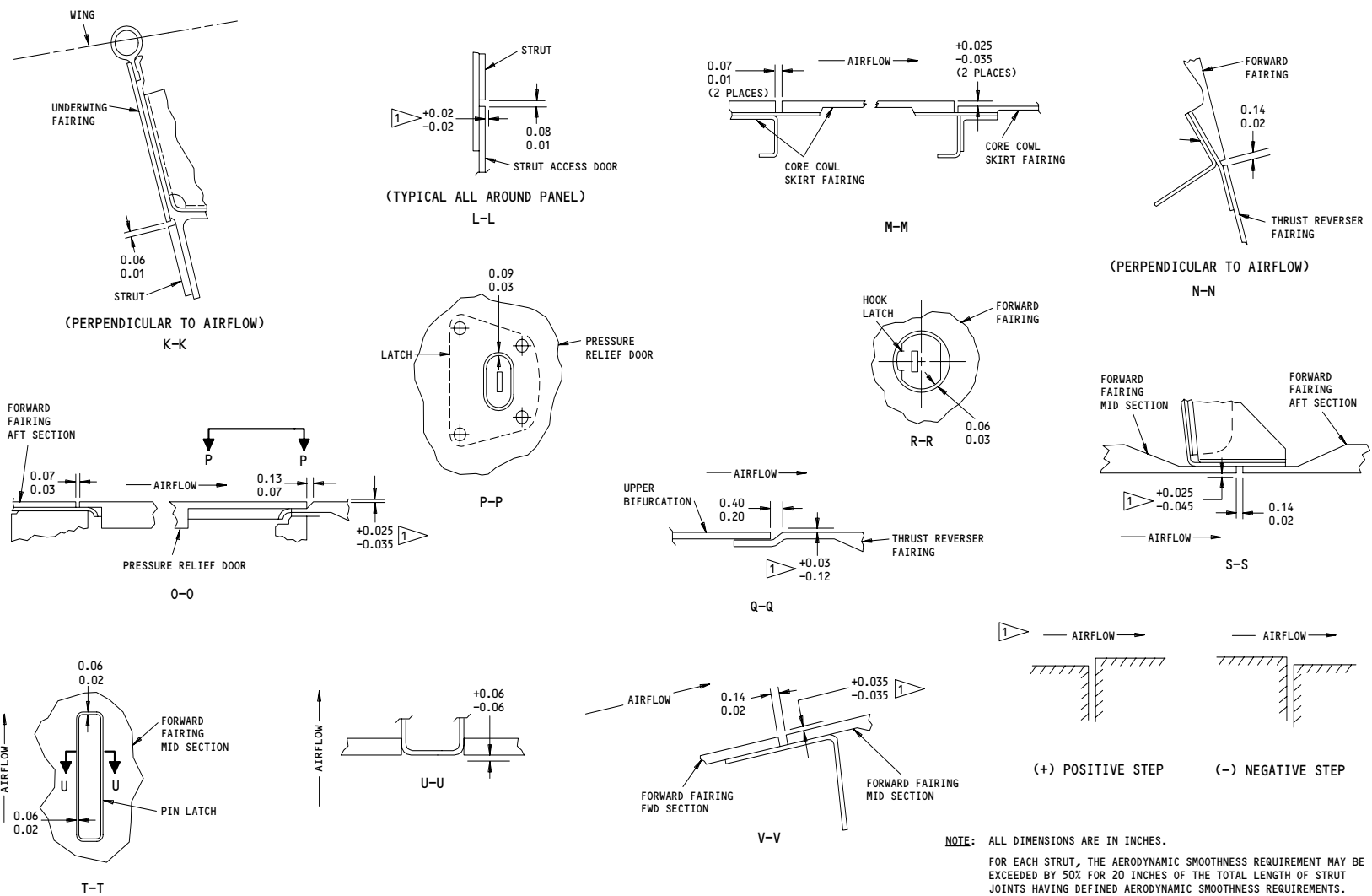
BOEING PROPRIETARY - Copyright (C) - Unpublished Work - See title page for details.

01

54-51-01

7004

Page 202
Apr 22/07



NOTE: ALL DIMENSIONS ARE IN INCHES.
FOR EACH STRUT, THE AERODYNAMIC SMOOTHNESS REQUIREMENT MAY BE EXCEEDED BY 50% FOR 20 INCHES OF THE TOTAL LENGTH OF STRUT JOINTS HAVING DEFINED AERODYNAMIC SMOOTHNESS REQUIREMENTS.

Strut Fairings, Doors and Panels Aerodynamic Smoothness
Figure 201 (Sheet 2)

EFFECTIVITY

ALL

BOEING PROPRIETARY - Copyright (C) - Unpublished Work - See title page for details.

01

54-51-01

767

Page 203
Dec 22/01

 **BOEING**
767
MAINTENANCE MANUAL

(b) Make sure the strut drains are not blocked.

S 862-003

(4) Do the activation procedure for the thrust reverser
(AMM 78-31-00/201).

EFFECTIVITY

ALL

54-51-01

10

Page 204
Dec 22/01

STRUT - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks. The first task removes the strut from the wing. The second task installs the strut on the wing.

TASK 54-51-01-004-001

2. Remove the Strut

A. Equipment

- (1) A54003-1 Sling, Strut Hoisting
- (2) A54004-27 Fixture, Strut Preload - G54007 or J54001 Sling, Strut Preload/Unload (Alternative)
- (3) Crane - 2000 pound (907.18 kg) capacity

B. References

- (1) AMM 20-41-00/201, Static Grounding
- (2) AMM 24-22-00/201, Electrical Power - Control
- (3) AMM 27-81-00/201, Leading Edge Slat System
- (4) AMM 29-11-00/501, Main Hydraulic Systems
- (5) AMM 36-11-01/401, Pneumatic Duct
- (6) AMM 36-11-15/401, Air Supply Precooler
- (7) AMM 54-52-01/401, Strut Fairings
- (8) AMM 54-53-01/401, Strut Pressure Relief and Access Doors
- (9) AMM 71-00-02/401, Power Plant
- (10) AMM 78-31-01/401, Thrust Reverser

C. Access

(1) Location Zones

- 210 Control Cabin
- 410 Power Plant Nacelle Left
- 420 Power Plant Nacelle Right
- 430 Nacelle Strut Left
- 440 Nacelle Strut Right
- 510 Wing Leading Edge - Left, Forward of front spar, inboard of the strut
- 610 Wing Leading Edge - Right, Forward of front spar, inboard of the strut

D. Prepare to Remove the Strut.

S 044-002

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLAT. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

EFFECTIVITY

ALL

54-51-01

01N

Page 401
Aug 22/05

S 014-003

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do the task to remove the thrust reverser (AMM 78-31-01/401).

S 014-004

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE THE ENGINE. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Remove the power plant (AMM 71-00-02/401).

S 864-005

(4) Make sure that the fuel control switch is in the CUTOFF position.

S 864-006

(5) Remove the electrical power (AMM 24-22-00/201).

S 864-007

(6) Make sure the airplane is grounded (AMM 20-41-00/201).

S 864-008

(7) Make sure the hydraulic system and the reservoir are not pressurized for the applicable strut (AMM 29-11-00/201).

S 864-009

(8) Make sure the applicable spar shutoff valve for the fuel is closed.

S 034-010

(9) Disconnect the electrical connector from the spar shutoff valve for the fuel.

S 034-011

(10) Disconnect the electrical connector from the shutoff valve for the hydraulic fluid.

S 864-012

(11) Make sure the fuel supply line to the engine is drained.

S 014-013

(12) Remove all the strut fairings (AMM 54-52-01/401).

EFFECTIVITY

ALL

54-51-01

01N

Page 402
Feb 10/95

S 014-014

- (13) Open the aft fairing access doors.

S 014-015

- (14) Remove all the strut access panels (AMM 54-53-01/401).

S 034-016

- (15) Do these steps when you disconnect equipment:
(a) Remove the sealant when you disconnect the equipment.
(b) Install caps or plugs on the equipment after you disconnect the equipment.

S 034-017

- (16) Disconnect all the system tubes and wires attached to the clamps on the diagonal brace.

S 034-018

- (17) Remove the precooler (AMM 36-11-15/401).

S 034-019

- (18) Disconnect the ducts for the wing air supply, wing anti-ice, and starter (AMM 36-11-01/401).

S 034-065

- (19) Disconnect the hydraulic lines for the thrust reverser at the aft bulkhead (Fig. 401).

NOTE: Be prepared to catch any fluid that may drain.

S 034-020

- (20) Disconnect the fuel, hydraulic and drain lines for the engine.

NOTE: Be prepared to catch any fluid that may drain.

- (a) Put protection caps on all hydraulic and fuel lines.
(b) Make sure the area is clean.

S 034-021

- (21) Disconnect the wire bundles between the strut and the wing.
(a) Disconnect the electrical connectors between the strut and the wing.
1) Install tags for identification.
(b) Pull the wire bundles to the aft end of strut and put on the top of the wing.

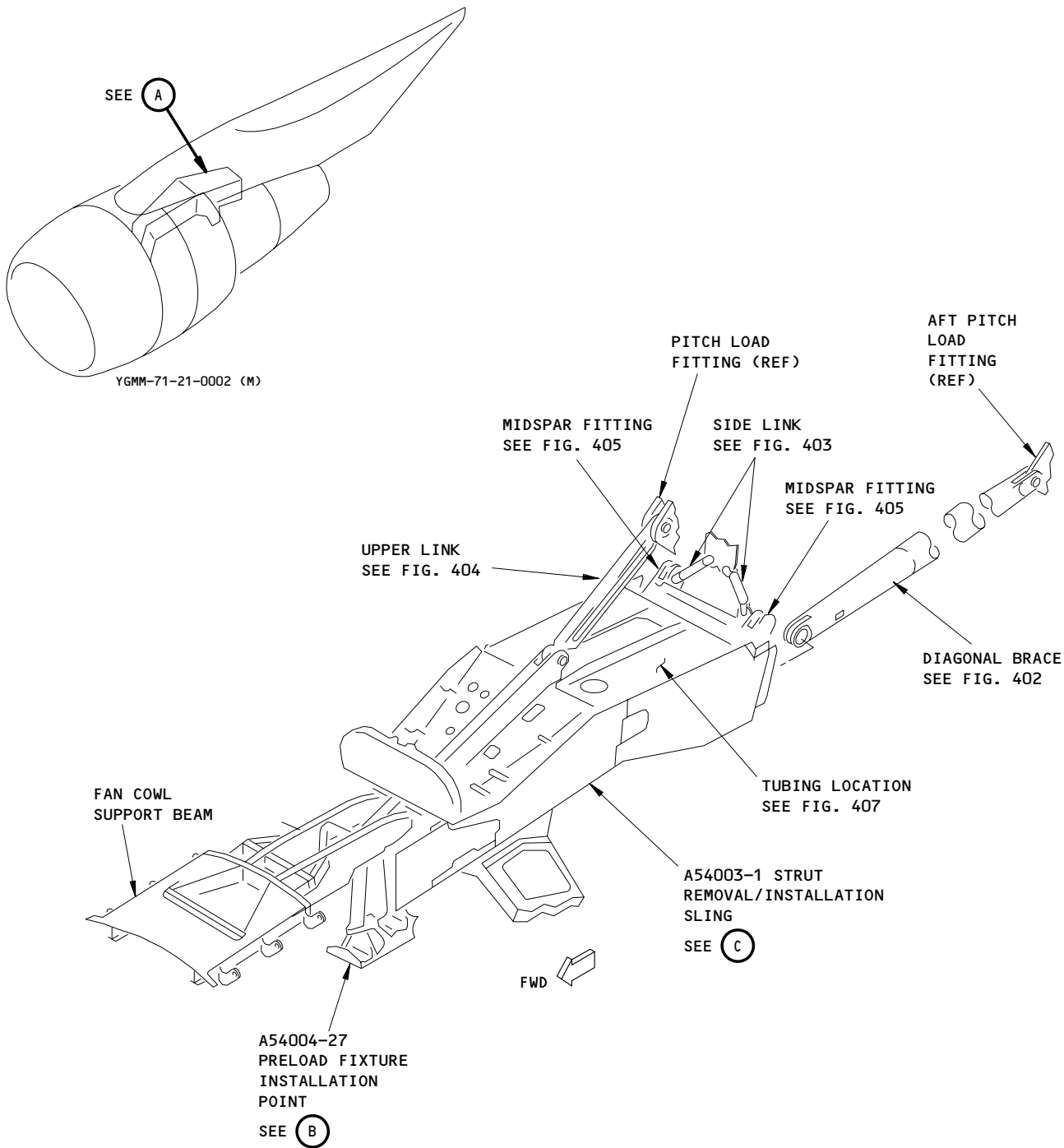
EFFECTIVITY

ALL

54-51-01

01N

Page 403
Feb 10/95



STRUT-TO-WING ATTACHMENT

(A)

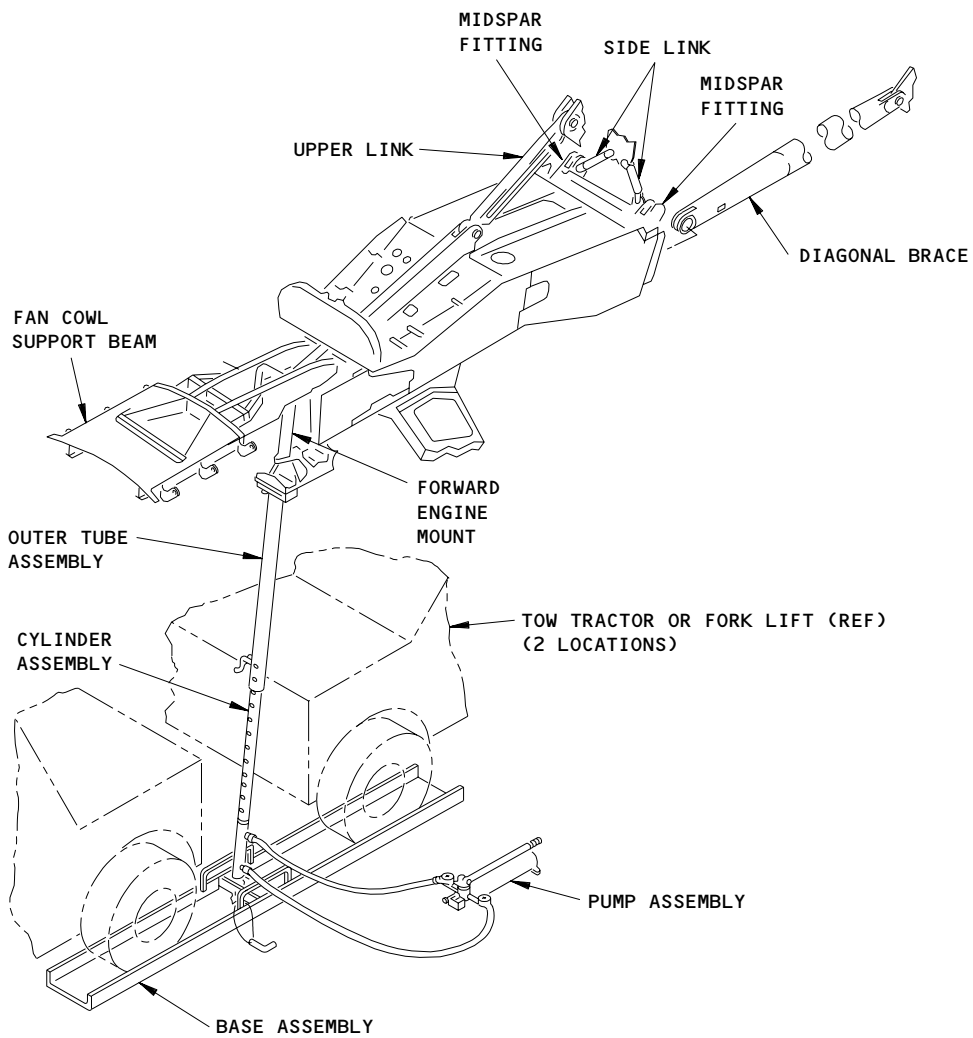
Strut Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY	
	ALL

54-51-01

01N

Page 404
Aug 22/05



A54004-27 PRELOAD FIXTURE INSTALLATION

(B)

Strut Installation Equipment and Attach Points
Figure 401 (Sheet 2)

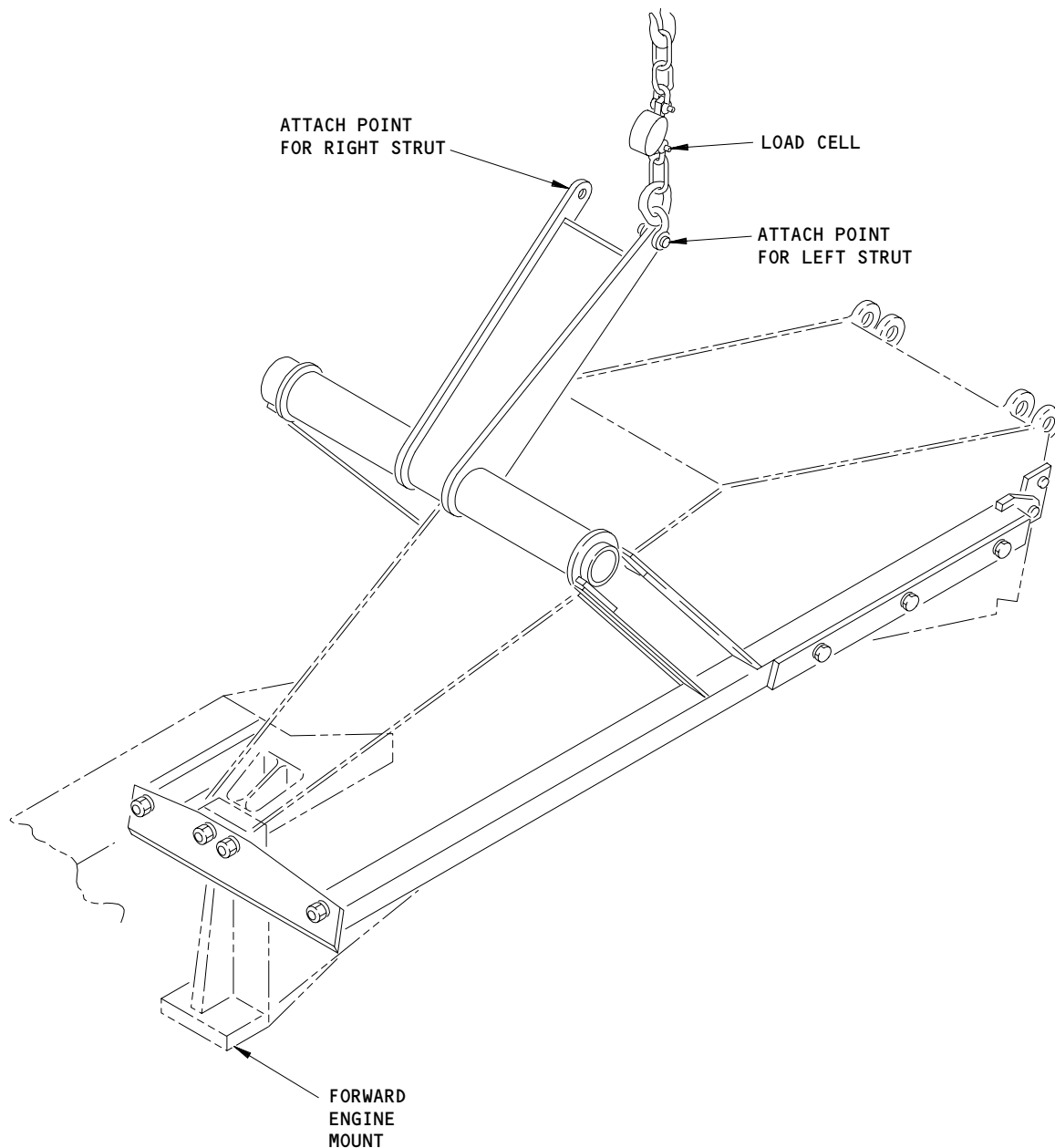
EFFECTIVITY	
	ALL

54-51-01

01N

Page 405
Apr 22/00

F38992



A54003-1 STRUT REMOVAL/INSTALLATION
SLING INSTALLATION

(C)

Strut Installation Equipment and Attach Points
Figure 401 (Sheet 3)

EFFECTIVITY	
	ALL

54-51-01

01N

Page 406
Nov 10/95

F38996

E. Remove the Strut.

S 494-022

- (1) Install the strut preload fixture.

S 024-023

- (2) Remove the diagonal brace (Fig. 402).

CAUTION: DO NOT LIFT THE STRUT MORE THAN IS NECESSARY TO PERMIT THE FUSE PIN TO TURN. USE A MAXIMUM TORQUE OF 125 POUND-INCHES (14.12 NM) TO TURN THE FUSE PIN. DO NOT LIFT THE STRUT OR PULL DOWN ON THE STRUT WITH MORE THAN 5,000 POUNDS (2268 KG) OF FORCE. IF YOU LIFT THE STRUT WITH MORE FORCE THAN NECESSARY, DAMAGE TO THE STRUCTURE CAN OCCUR.

- (a) To remove the fuse pin (6) in the diagonal brace assembly, apply a load at the forward engine mount of the strut with the preload fixture.
- 1) The permitted load in the up direction is 0.0 to 5000 pounds (2268 kg). The permitted load in the down direction is 0.0 pounds to 5000 pounds.
- (b) Remove the cotter pin (1), nut (2), washers (3, 3A), bolts (7, 10), end caps (4, 8), and fuse pins (6, 9) at the two ends of the brace (5).
- (c) Look for markings on the brace that identify the airplane, strut position and center to center distance.

NOTE: If the brace is marked with this information, it is an optional (custom) brace.

- (d) If you remove an optional diagonal brace (custom fitted brace), this same brace or a new brace with the same center to center distance must be installed on the strut and airplane where it was removed.
- 1) Tag the brace with the airplane number and strut location or make sure this information is marked on the brace.

S 094-024

- (3) Remove the strut preload fixture.

S 024-025

- (4) Remove the side links (Fig. 403).
- (a) Remove the cotter pin (23), nut (21), washers (22, 24) and fuse shoulder bolt (25) at the two ends of the side links (20, 20A, 20B).

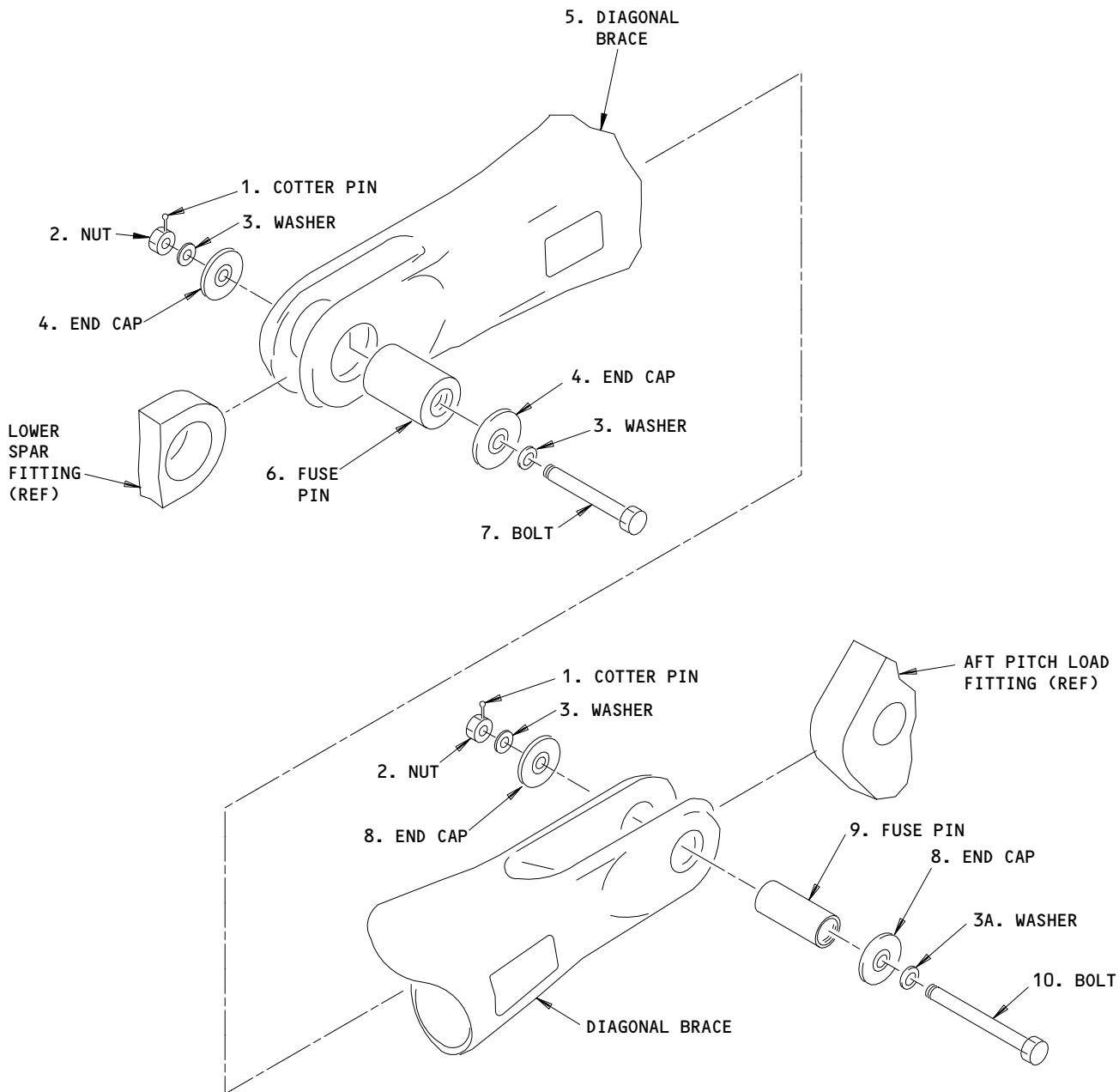
EFFECTIVITY

ALL

54-51-01

01N

Page 407
Dec 10/98



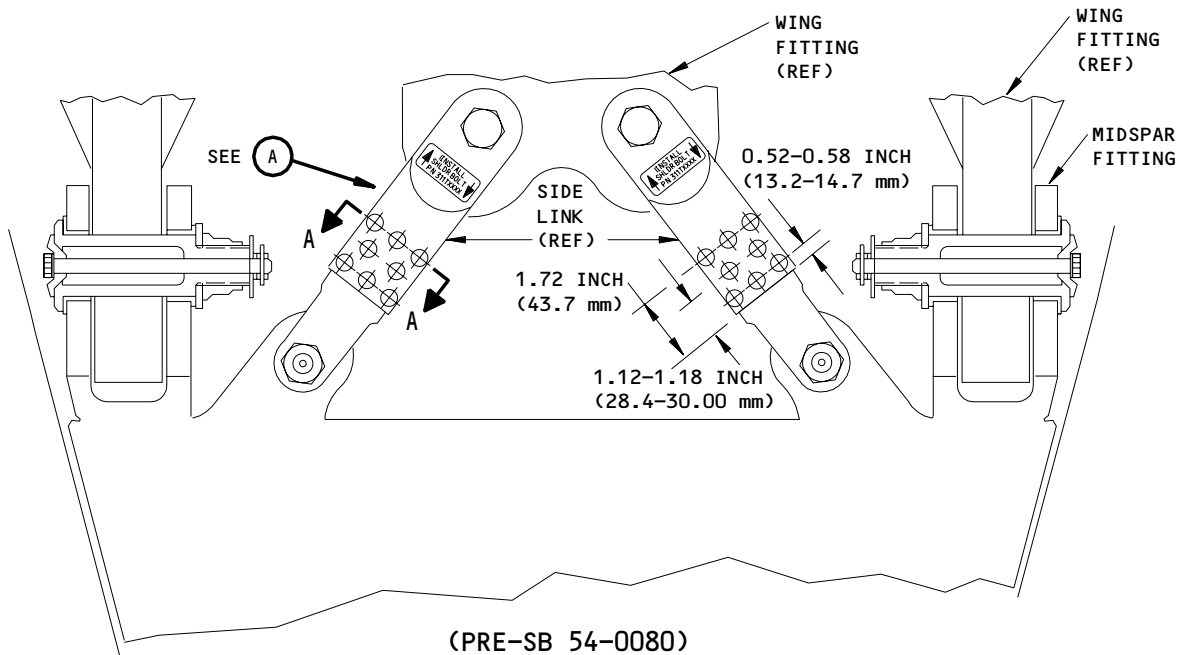
Strut Installation - Diagonal Brace Fittings
Figure 402

EFFECTIVITY	
	ALL

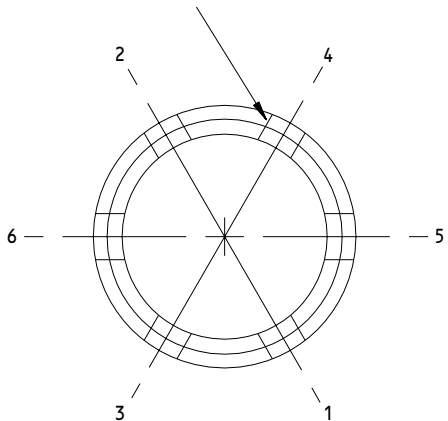
54-51-01

01N

Page 408
Nov 10/95

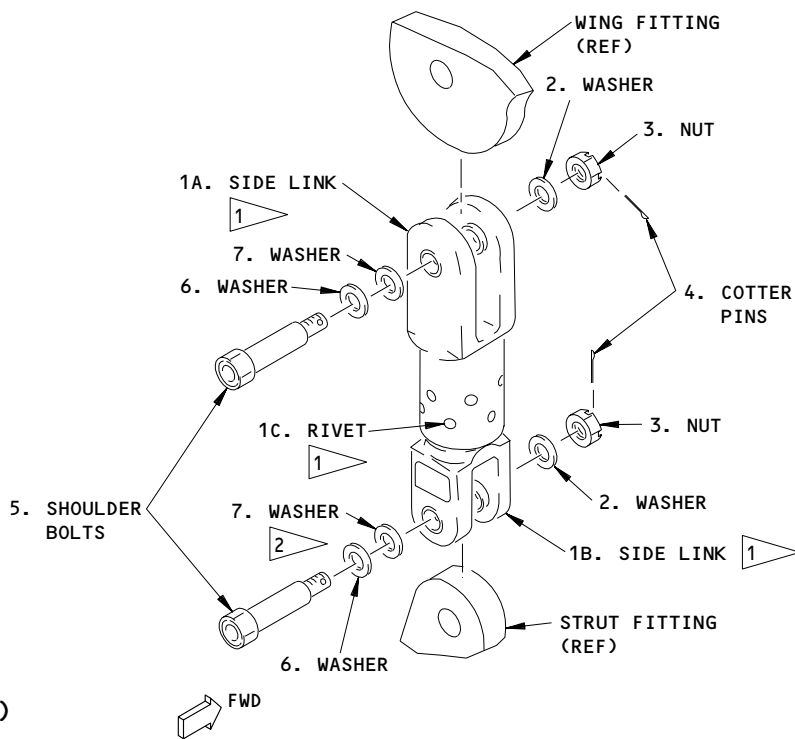


DRILL 6 EQUALLY SPACED $\frac{63}{100}$
0.260-0.263 INCH
(6.60-6.68 mm) DIA HOLES
INSTALL MS90354-0804 RIVETS
(BLIND) IN SEQUENCE SHOWN.



RIVET INSTALLATION
(2 LOCATIONS ON EACH SIDE LINK)
A-A

- 1 REMOVE AS UNIT
- 2 NOT USED ON ALL INSTALLATIONS



SIDE LINK FITTINGS
(2 LOCATIONS)



Strut Installation - Side Link Fittings
Figure 403 (Sheet 1)

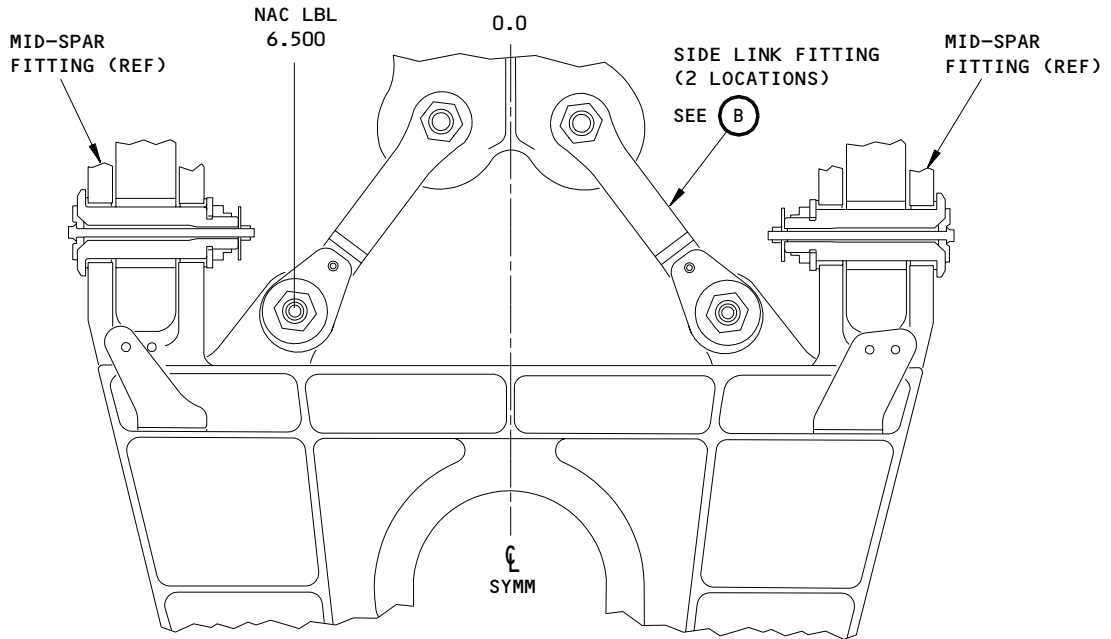
EFFECTIVITY

ALL

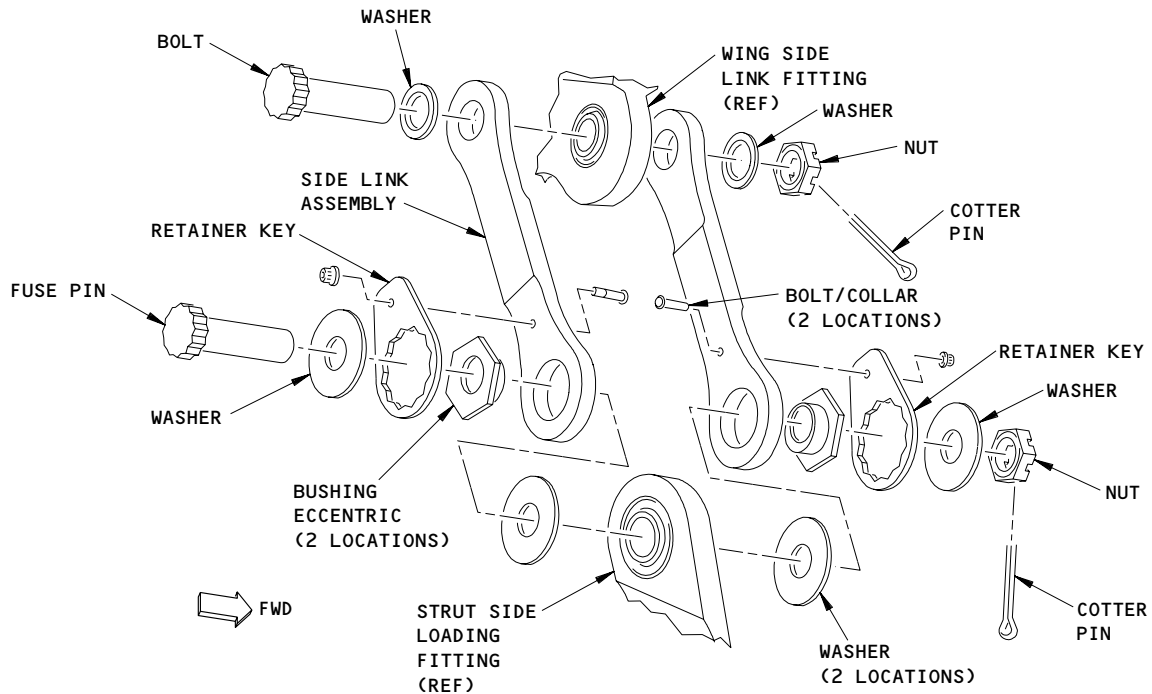
54-51-01

01N

Page 409
Apr 22/02



(VIEW IN THE FORWARD DIRECTION)
(POST-SB 54-0080)



SIDE LINK FITTING
(2 LOCATIONS, STRUT AND WING SIDE)

(B)

Strut Installation - Side Link Fittings
Figure 403 (Sheet 2)

EFFECTIVITY	
ALL	

54-51-01

01N

Page 410
Dec 22/02

- S 494-026
- (5) Install the strut hoisting sling.
- S 024-027
- (6) Remove the upper link (Fig. 404).
- (a) Remove the cotter pins (2), nuts (3), washers (4), bolts (7, 8), end caps (5), and fuse pins (6, 9) at the two ends of the link (1).
- S 024-028
- (7) Disconnect the strut at the midspar fittings (Fig. 405).
- (a) Before you remove hardware, look for broken seals, bushing migration or rotation which would require later attention (SRM 57-20-90).
- (b) Remove the sealant, cotter pin (10), nuts (11, 13), washers (12, 14, 18), bolts (19), end caps (17) and fuse pins (16).
- S 024-029

CAUTION: BE CAREFUL TO PREVENT DAMAGE TO THE DUCTS, TUBES AND LINES WHEN YOU REMOVE THE STRUT FROM THE WING. USE SANDBAGS TO PREVENT DAMAGE TO THE ENGINE MOUNTS ON THE STRUT.

- (8) Remove the strut and put on a dolly.

TASK 54-51-01-404-030

3. Install the Strut

A. Equipment

- (1) A54003-1 Sling, Strut Hoisting
- (2) A54004-27 Fixture, Strut Preload - G54007 or J54001 Sling, Strut Preload/Unload (Alternative)
- (3) A54002-9 Drill Jig, Side Link
- (4) A54002-19 Drill Jig, Side Link (-400 A/P)
- (5) Crane capable of lifting 2000 lbs (907.18 kg)

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type 1
- (3) C00308 Compound - Corrosion Preventive Petrolatum Hot Application, MIL-C-11796 Class 1

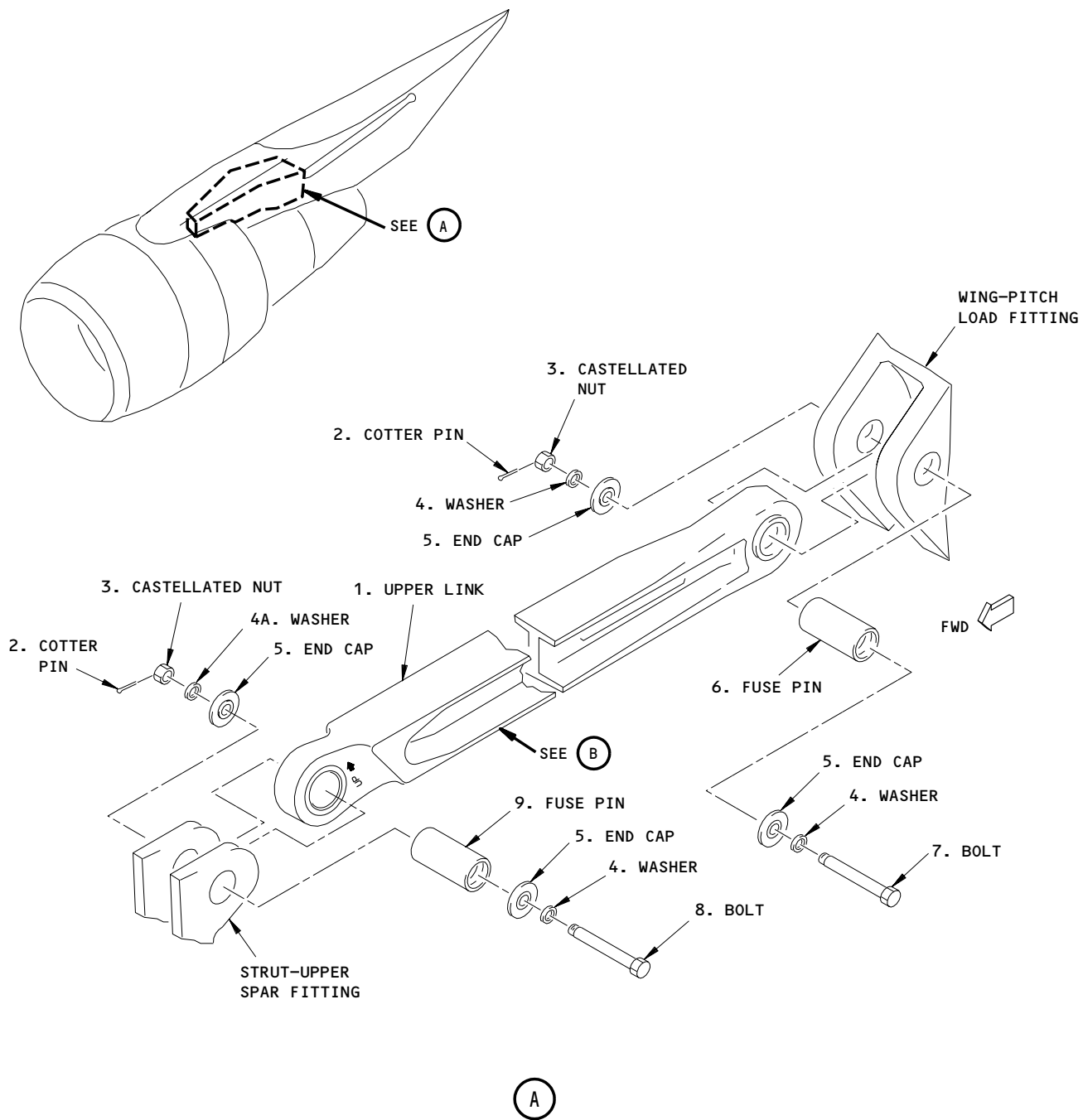
EFFECTIVITY

ALL

54-51-01

01N

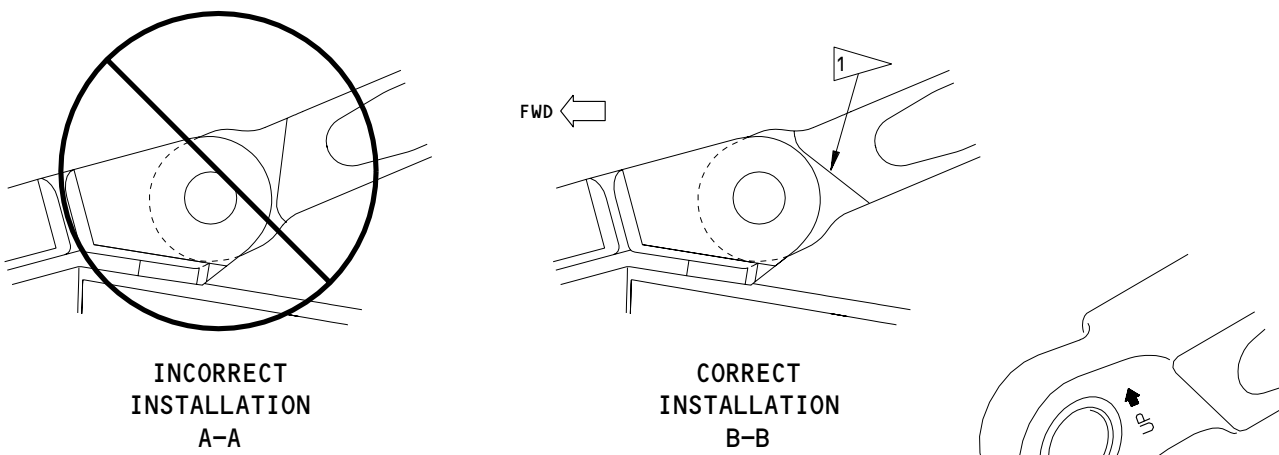
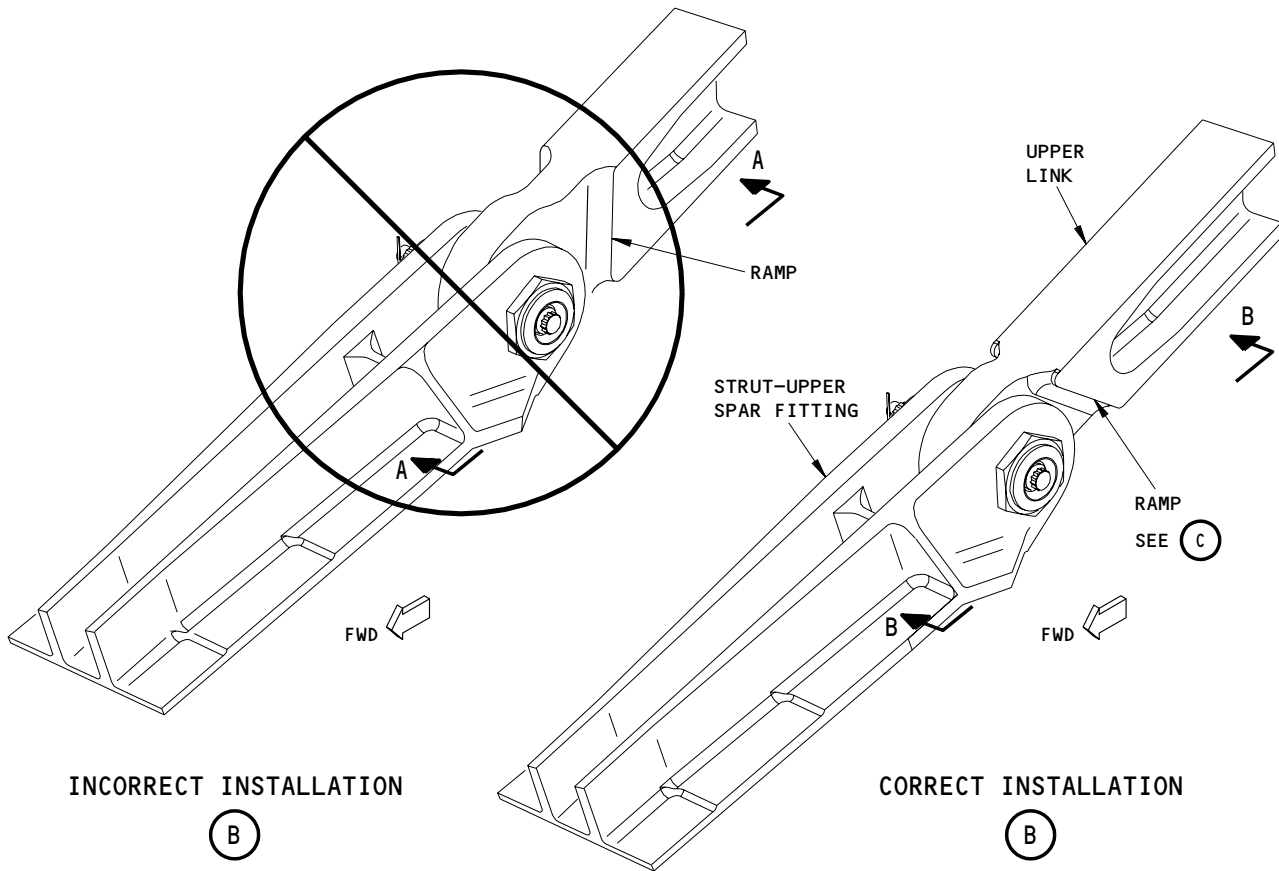
Page 411
Aug 22/07



Strut Installation - Upper Link Fittings
Figure 404 (Sheet 1)

EFFECTIVITY	
ALL	

54-51-01



1 **WARNING:** MAKE SURE THAT THE ARROW ON THE UPPER LINK POINTS UP WHEN YOU INSTALL THE UPPER LINK. MAKE SURE THAT THE DIRECTION OF THE RAMP ON THE UPPER LINK AGREES WITH THIS ILLUSTRATION. IF YOU INSTALL THE UPPER LINK INCORRECTLY, THE LINKS CAN OPERATE INCORRECTLY DURING SOME CONDITIONS.

Strut Installation - Upper Link Fittings
Figure 404 (Sheet 2)

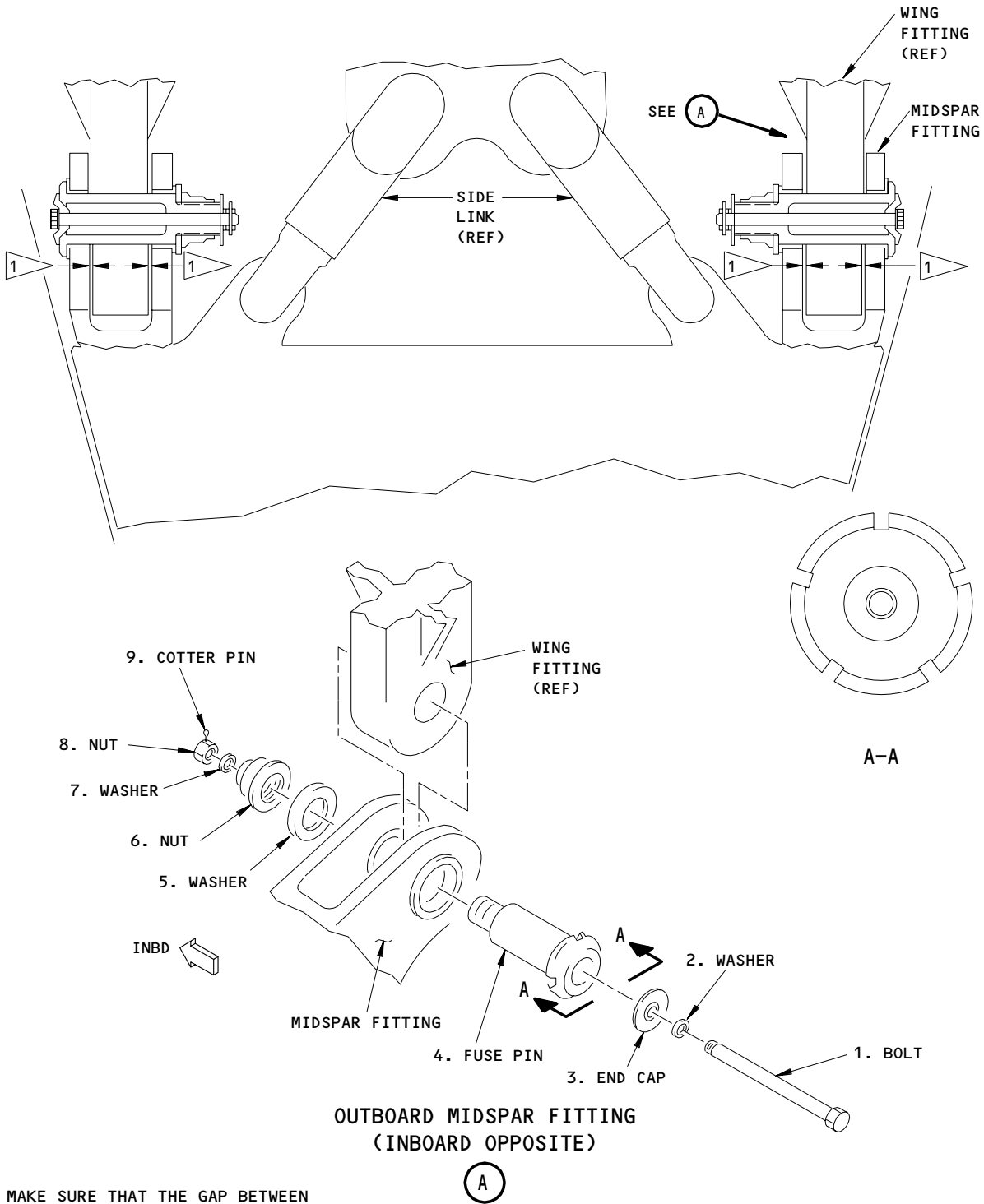
EFFECTIVITY	
	ALL

54-51-01

01N

Page 413
Apr 22/05

039214



1 MAKE SURE THAT THE GAP BETWEEN THE WING FITTING AND THE MIDSPAR FITTING IS 0.030 INCH OR MORE.

Strut Installation - Midspar Fittings
Figure 405

EFFECTIVITY	
	ALL

54-51-01

- (4) D00633 Grease - BMS 3-33 (Preferred)
- (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (6) D00014 Grease - MIL-G-21164 (Alternate)

C. Parts

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
402	1	Cotter Pin	54-51-62	02	10
	2	Nut			55
	3	Washer			25
	3A	Washer			30
	4	End Cap			35
	5	Diagonal Brace			60
	6	Fuse Pin			45
	7	Bolt			15
	8	End Cap			40
	9	Fuse Pin			50
	10	Bolt	20		

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
403	1A	Side Link	54-51-62	02	100
	1B	Side Link			105
	2	Washer			85
	3	Nut			90
	4	Cotter Pin			70
	5	Shoulder Bolt			75
	6	Washer			80
	7	Washer	85		

EFFECTIVITY

ALL

54-51-01

01N

Page 415
Aug 22/07

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
404	1	Upper Link	54-51-62	02	175
	2	Cotter Pin			135
	3	Nut			170
	4	Washer			150
	5	End Cap			155
	6	Fuse Pin			165
	7	Bolt			145
	8	Bolt			140
	9	Fuse Pin			160

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
405	1	Bolt	54-51-62	02	190
	2	Washer			195
	3	Retaining Cap			205
	4	Fuse Pin			210
	5	Washer			215
	6	Nut			220
	7	Washer			200
	8	Nut			225
	9	Cotter Pin			185

D. References

- (1) AMM 12-21-32/301, Strut
- (2) AMM 20-10-09/401, Flareless Tubing Assy
- (3) AMM 20-41-00/201, Static Grounding
- (4) AMM 24-11-00/501, Generator Drive System
- (5) AMM 24-22-00/201, Electrical Power - Control
- (6) AMM 27-81-00/201, Leading Edge Slat System
- (7) AMM 29-11-00/201, Pressurize/Depressurize Main Hydraulic Systems
- (8) AMM 29-11-00/501, Main Hydraulic Systems
- (9) AMM 30-11-00/501, Wing Thermal Anti-Icing
- (10) AMM 36-11-00/501, Pneumatic System
- (11) AMM 36-11-01/401, Pneumatic Duct
- (12) AMM 36-11-15/401, Air Supply Precooler
- (13) AMM 51-31-01/201, Seals and Sealing
- (14) AMM 54-51-01/601, Strut
- (15) AMM 54-52-01/401, Strut Fairings
- (16) AMM 54-53-01/401, Strut Pressure Relief and Access Doors

EFFECTIVITY

ALL

54-51-01

01N

Page 416
Apr 22/05

(17) AMM 71-00-02/401, Power Plant

(18) AMM 78-31-01/401, Fan Duct Cowl and Thrust Reverser

E. Access

(1) Location Zones

- 210 Control Cabin
- 410 Power Plant Nacelle Left
- 420 Power Plant Nacelle Right
- 430 Nacelle Strut Left
- 440 Nacelle Strut Right
- 510 Wing Leading Edge - Left, Forward of front spar,
inboard of the strut
- 610 Wing Leading Edge - Right, Forward of front spar,
inboard of the strut

F. Prepare to Install the Strut.

S 864-031

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure the leading edge slats on the wing are in the retracted position (AMM 27-81-00/201).

S 864-032

(2) Make sure the fuel control switches are in the CUTOFF position.

S 864-033

(3) Make sure the electrical power is removed (AMM 24-22-00/201).

S 864-034

(4) Make sure the airplane is grounded (AMM 20-41-00/201).

S 864-035

(5) Make sure there is no pressure in the applicable hydraulic system (AMM 29-11-00/201).

S 864-036

(6) Make sure the electrical connector for the fuel shutoff valve is disconnected.

S 864-037

(7) Make sure the electrical connector for the hydraulic fluid shutoff valve is disconnected.

S 864-038

(8) Make sure the fuel supply line in the strut is drained of fluid.

EFFECTIVITY

ALL

54-51-01

01N

Page 417
Apr 22/05

S 684-039

- (9) Make sure the hydraulic fluid lines in the strut are drained of fluid.

S 014-040

- (10) Open the aft fairing access doors.

S 214-041

- (11) Make a check for worn parts at the strut-to-wing fittings (AMM 54-51-01/601).

S 214-064

- (12) For all parts, make a check for corrosion on the pins, bolts, end caps, washers and inner surfaces of the fuse pins and bolts.
- (a) Remove the small surface corrosion from all the non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer.
 - (d) If the corrosion cannot be removed, replace the part.

S 214-042

- (13) Make a check for corrosion on all the bushings at the strut fittings and the wing fittings.
- (a) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings (AMM 51-31-01/201).
 - 1) If you use flanged bushings, apply a fillet seal to the mating surface with BMS 5-95.
 - 2) If you use double bushings, fill the empty space between the bushings with BMS 5-95 unless the empty space is a lube path.

G. Install the strut.

S 494-043

- (1) Install the hoisting sling.

EFFECTIVITY

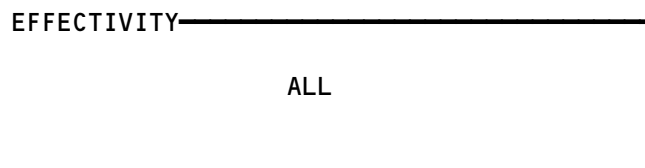
ALL

54-51-01

01N

Page 418
Apr 22/05

Not Used
Figure 406

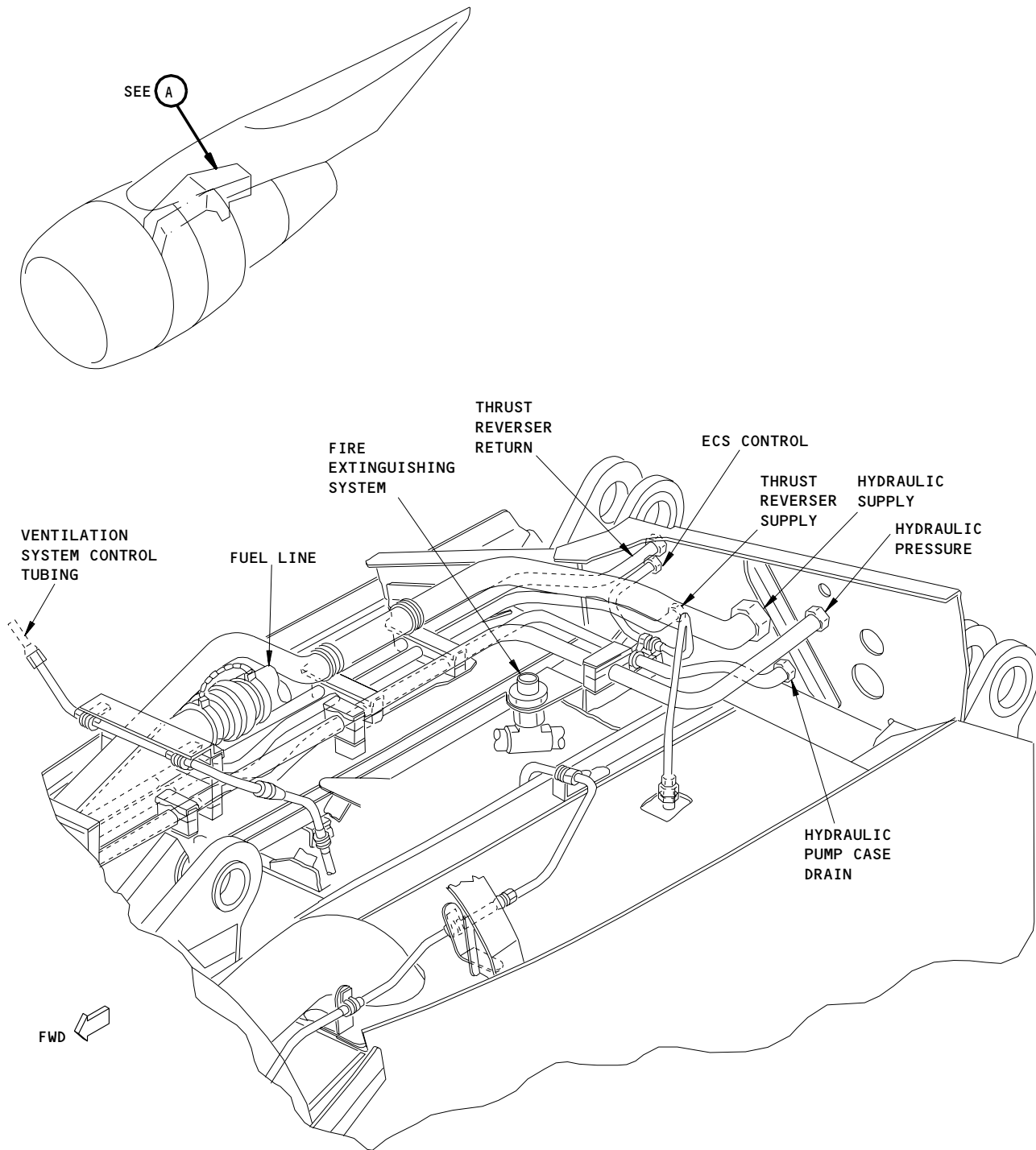


54-51-01

01N

Page 419
Apr 22/05

F39005



A

Strut Installation - Tubing Location
Figure 407 (Sheet 1)

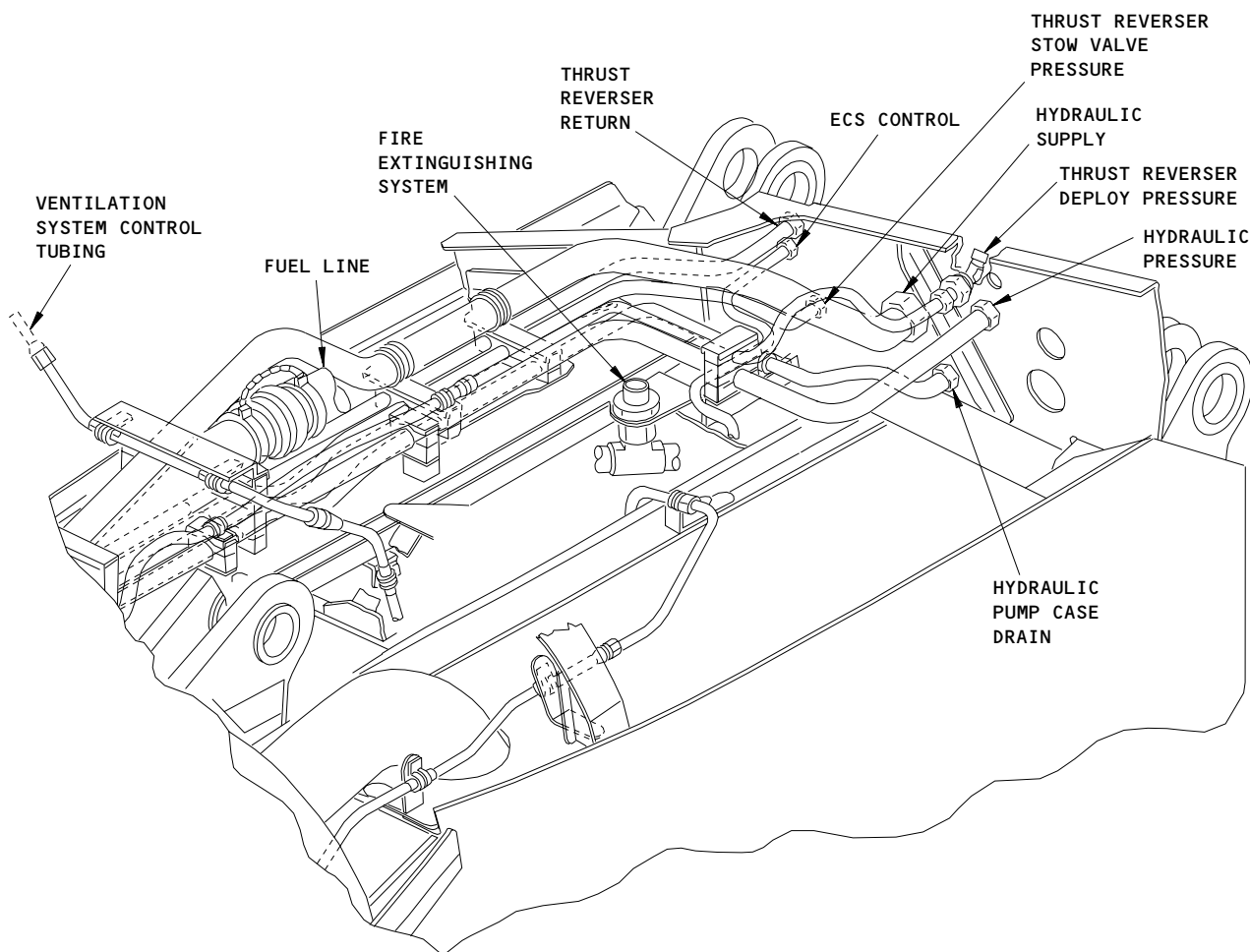
EFFECTIVITY
SAS 050, 051, 150-166, 275-277

54-51-01

03N

Page 420
Apr 22/05

E80706



(A)

Strut Installation - Tubing Location
Figure 407 (Sheet 2)

EFFECTIVITY
SAS 167, 278, 280, 281-999

54-51-01

03N

Page 421
Apr 22/05

E80787

S 424-044

- (2) Connect the strut to the wing at the midspar fittings (Fig. 405).
(a) For Pre Strut Mod: Pins - Midspar Attach Pins, Fuse
(AMM 54-51-04/401 Configuration 4).

For Post Strut Mod: Pins - Midspar Attach Pins, Fuse
(AMM 54-51-04/401 Configuration 14).

S 424-073

CAUTION: MAKE SURE THE UPPER LINK IS IN THE CORRECT POSITION. DAMAGE TO THE STRUT CAN OCCUR IF IT IS NOT POSITIONED CORRECTLY.

- (3) Install the upper link (Fig. 404).

NOTE: Determine the correct installation of the upper link ramp feature as shown in Fig. 404.

- (a) For Pre Strut Mod: Pins - Upper Link Attach Fuse,
(AMM 54-51-03/401 Configuration 4).

For Post Strut Mod: Pins - Upper Link Attach Fuse,
(AMM 54-51-03/401 Configuration 14).

S 424-046

- (4) Install the side link, Pre Strut Mod configuration (Fig. 403).

- (a) Apply a thin layer of grease to these parts:
1) The outer surface of the shoulder bolts (5).
2) The bottom surface of the bolt head.
- (b) Install the bolts (5), washers (2, 6, 7) and nuts (3).
1) Make sure the bolt head is against washer (6) and washer (6) is fully against washer (7).

NOTE: Washer (7) is not used on all installations (limited effectivity).

- 2) Make sure the nut (3) is fully against the washer (2).
3) Tighten the nut (3) with your hand.
4) Make sure the space between the wing and strut midspar fittings is in tolerance (Fig. 405).
a) If the space between the wing and strut midspar fittings are not in tolerance, replace the side links with unriveted assys (Fig. 403).
b) Adjust the space.
c) Use the drill jig tool to drill the holes.
d) Install the rivets.
5) Tighten the nuts (3) to a maximum of 200 pound-inches.
6) Do a check to make sure the torque value is correct.

EFFECTIVITY

ALL

54-51-01

01N

Page 422
Apr 22/05

- 7) Remove the unwanted grease.
- (c) Install the cotter pin.
 - 1) If it is necessary, loosen the nut (3) to install the cotter pin (4).
 - 2) Do a check to make sure the parts are installed correctly.
 - 3) Put BMS 5-79 sealant on the cotter pin ends to a thickness of 0.10 inch.
- S 424-068
- (5) Install the side links, Post Strut Mod configuration.
 - (a) Apply a light film of grease to these parts:
 - 1) The outer surface of the shoulder bolt and the fuse pin.
 - (b) Apply anti-seize to these parts:
 - 1) The faces of the washers.
 - 2) The bottom surface of the bolt head.
 - 3) The outside diameter and flanges of the eccentric bearing.
 - (c) Do a check to ensure that the clearance between the midspar fittings and the wing fittings are in tolerance (Fig. 405).
 - (d) Use the MIT SM311T2740 tool to determine the required distance between pin centers from the wing fitting to the strut side load fitting, with no load applied to the strut.
 - (e) Adjust the new side link assembly to match the measured distance between pin centers.
 - 1) Side links are available with three adjustment ranges (center-to-center): 6.90-7.10 inches, 7.10-7.30 inches and 7.30-7.50 inches (175.3-180.3 mm, 180.3-185.4 mm and 185.4-190.5 mm).
 - 2) Turn the eccentric bushings in the link to adjust the center-to-center distance.
 - 3) Use care to avoid dropping the eccentric bushing.
 - (f) Drill the fastener hole for each retainer key.

NOTE: The retainer can be turned over at assembly to allow 30 degrees of rotation and to ensure minimum edge margin of 0.040 inch (10.16 mm).
 - (g) Install each retainer key with the fastener.
 - (h) Tag the side link assembly airplane number and strut location, or make sure this information is marked on the side link assembly.

EFFECTIVITY

ALL

54-51-01

03N

Page 423
Apr 22/05

S 424-069

- (6) Install the side link (upper) attach bolt.
- (a) Install the bolt, washers and nut.
 - (b) The bolt head direction is optional.
 - (c) Tighten the nut to 1200-2000 pound-inches (135.6-226 Nm).
 - 1) Do a check to ensure the torque is correct.
 - 2) Make sure the link is flat against the bearing surfaces.
 - (d) Install the cotter pin.
 - 1) A combination of washers may be used under the nut to achieve the required torque and cotter pin alignment.
 - 2) Apply sealant, approximately 0.10 inch thick to both ends of the cotter pin to prevent pin movement.

S 424-070

- (7) Install the side link (lower) fuse pin.
- (a) Apply antiseize to washer faces, under the bolt head and the outside diameter and flanges of the eccentric bearing.

S 424-071

- (8) Install the fuse pin, washers and the nut.
- (a) The fuse pin head direction is optional.
 - (b) Tighten the nut to 1200-2000 pound-inches (135.6-226 Nm).
 - (c) Do a check to ensure the torque value is correct.

S 434-072

- (9) Install the cotter pin.
- (a) You can use a combination of washers to obtain the torque value and align the hole for the cotter pin.
 - (b) Do a check to ensure all components of the side link assembly are installed correctly.
 - (c) Apply sealant, approximately 0.10 inch (2.54 mm) thick to both ends of the cotter pin to prevent pin movement.

S 424-047

- (10) Install the diagonal brace to the wing fitting (Fig. 402).
- (a) For Pre Strut Mod: Pins - Diagonal Brace Attach Fuse, (AMM 54-51-05/401 Configuration 4).

For Post Strut Mod: Pins - Diagonal Brace Attach Fuse,
(AMM 54-51-05/401 Configuration 14).

EFFECTIVITY

ALL

54-51-01

03N

Page 424
Apr 22/05

S 644-066

(11) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).

(a) Remove excess grease from around the edge of the pin.

H. Put the Airplanes Back To Its Usual Condition.

S 094-049

(1) Remove the equipment, hoists, and slings.

S 434-050

(2) Remove the identification tags and connect the electrical connectors.

(a) Install the lockwire on the electrical connectors, if it is necessary.

S 434-051

(3) Remove the caps or plugs from the tubes.

S 434-052

CAUTION: MAKE SURE YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.

(4) Connect the system tubes and wires with the clamps on the diagonal brace.

S 434-053

(5) Connect the fuel, hydraulic and drain lines at the aft bulkhead (Fig. 401).

S 434-054

(6) Connect the ducts for the wing air supply, wing anti-ice, and starter (AMM 36-11-01/401).

EFFECTIVITY

ALL

54-51-01

03N

Page 425
Apr 22/05

- S 414-055
(7) Install the precooler (AMM 36-11-15/401).
- S 414-056
(8) If necessary, do the task to install and test the power plant (AMM 71-00-02/401).
- S 414-057
(9) If necessary, do the task to install and test the thrust reverser (AMM 78-31-01/401).
- S 864-058
(10) If necessary, supply electrical power (AMM 24-22-00/201).
- S 714-059

WARNING: IF THE SLATS MOVE FROM THE RETRACTED POSITION, INJURY COULD OCCUR TO PERSONS IN THE AREA OF THE SLATS. MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE SLATS.

- (11) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).
- S 414-060
(12) Close the aft fairing access doors.
- S 414-061
(13) Install the strut access doors (AMM 54-53-01/401).
- S 414-062
(14) Install the fairings (AMM 54-52-01/401).
- S 714-063

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE SLATS. IF THE SLATS MOVE FROM THE RETRACTED POSITION, INJURY COULD OCCUR TO PERSONS IN THE AREA OF THE SLATS.

- (15) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY

ALL

54-51-01

02N

Page 426
Apr 22/05

STRUT - INSPECTION/CHECK

1. General

- A. This procedure contains the wear limits for the strut-to-wing attachment fittings. The wear limits shown are for those locations that can be measured during regular line maintenance activity.

TASK 54-51-01-226-001

2. Nacelle Strut Wear Limits (Fig. 601)

A. References

- (1) AMM 54-51-02/401, Strut Attach Fuse Pins
- (2) SRM 54-53-90
- (3) SRM 57-20-90

B. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

C. Procedure

S 226-002

- (1) Make sure the correct procedure was used to access the fitting (AMM 54-51-02/401).

S 226-003

- (2) Use the limits in the figures to determine if the fittings and bolts/pins are acceptable.

S 966-004

- (3) If the fittings or bolts/pins are not within the limits shown, repair or replace the component.

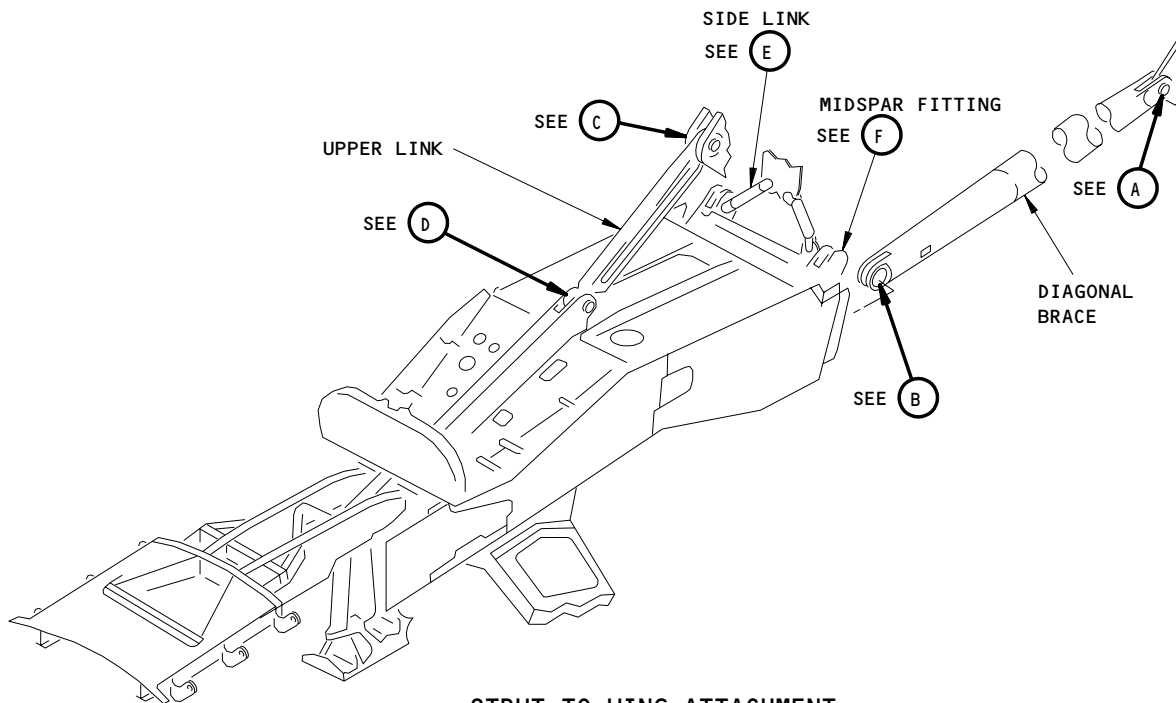
EFFECTIVITY

ALL

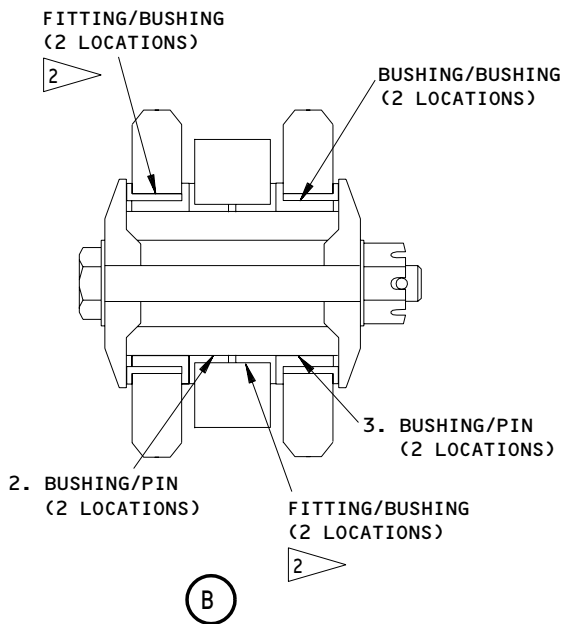
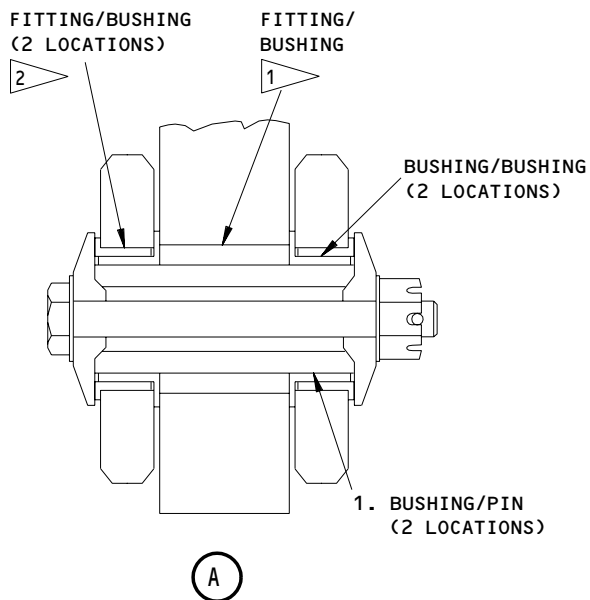
54-51-01

01N

Page 601
Apr 22/05



STRUT-TO-WING ATTACHMENT

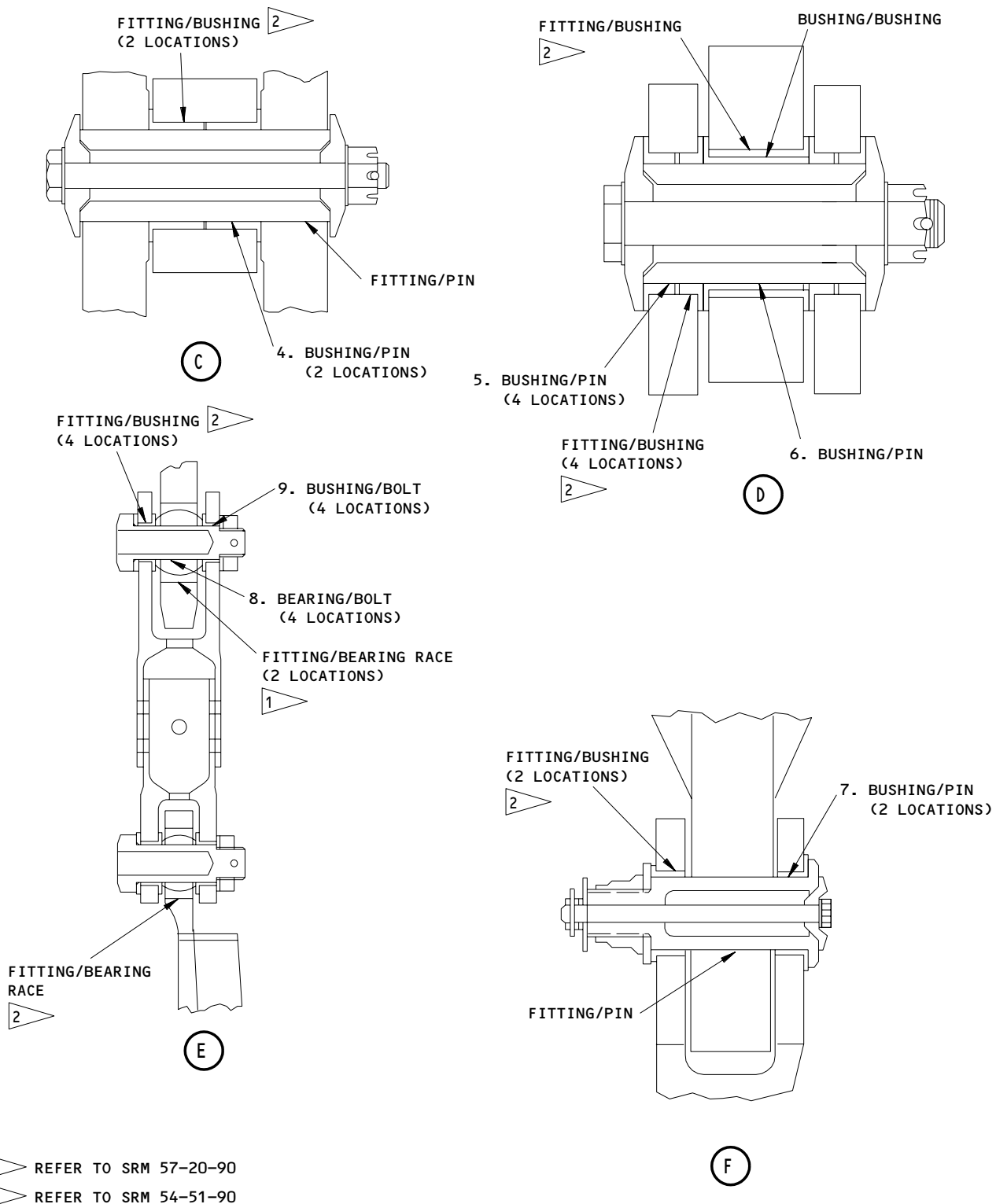


- 1 REFER TO SRM 57-20-90
- 2 REFER TO SRM 54-53-90

**Strut Wear Limits
Figure 601 (Sheet 1)**

EFFECTIVITY	ALL
-------------	-----

54-51-01



Strut Wear Limits
Figure 601 (Sheet 2)

EFFECTIVITY	ALL
-------------	-----

54-51-01

BOEING
767
MAINTENANCE MANUAL

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPLACE WORN PART	REPAIR WORN PART
			DIAMETER		PERMITTED WEAR DIM.	MAX DIA CLEARANCE		
			MIN	MAX				
1	BUSHING	ID	1.5376	1.5382	1.5406	0.0056	X	
	PIN	OD	1.5350	1.5362	1.5326			X
2	BUSHING	ID	1.8750	1.8762	1.8784	0.0056	X	
	PIN	OD	1.8728	1.8740	1.8706		X	
3	BUSHING	ID	1.8750	1.8762	1.8784	0.0056	X	
	PIN	OD	1.8728	1.8740	1.8706			X
4	BUSHING	ID	1.8760	1.8765	1.8784	0.0056	X	
	PIN	OD	1.8728	1.8740	1.8709			X
5	BUSHING	ID	1.6965	1.6975	1.6986	0.0056	X	
	PIN	OD	1.6930	1.6952	1.6919			X
6	BUSHING	ID	1.6965	1.6975	1.6986	0.0056	X	
	PIN	OD	1.6930	1.6952	1.6919			X
7	BUSHING	ID	1.5810	1.5822	1.5845	0.0060	X	
	PIN	OD	1.5785	1.5796	1.5762			X
8	BEARING	ID	0.7495	0.7500	0.7519	0.0034		X
	BOLT	OD	0.7485	0.7490	0.7466			X
9	BUSHING	ID	0.7495	0.7500	0.7519	0.0034	X	
	BOLT	OD	0.7485	0.7490	0.7466			X

Strut Wear Limits
Figure 601 (Sheet 3)

EFFECTIVITY

ALL

54-51-01

01N

Page 604
Apr 22/05

E61599

STRUT ATTACH FUSE PINS – REMOVAL/INSTALLATION

TASK 54-51-02-904-149

1. Strut Attach Fuse Pins

A. General

- (1) This section previously contained the procedures for the three attach points, the midspar, upper link and the diagonal brace. Each of these attach points is now assigned to the following section:
 - (a) Upper Link Fuse Pin R/I: AMM 54-51-03/401
 - (b) Midspar Fuse Pin R/I: AMM 54-51-04/401
 - (c) Diagonal Brace Fuse Pin R/I: AMM 54-51-05/401
- (2) To distinguish between engine types and between Pre-Strut Mod and Post-Strut Mod, configurations are assigned as noted below.
 - (a) Pre-Strut Mod Configurations:
 - GE CF6-80A, -1
 - GE CF6-80C2, -2
 - PW JT9D, -3
 - PW 4000, -4
 - RB211, -5
 - (b) Post-Strut Mod Configurations:
 - GE CF6-80A, -11
 - GE CF6-80C2, -12
 - PW JT9D, -13
 - PW 4000, -14
 - RB211, -15

EFFECTIVITY

ALL

54-51-02

02

Page 401
Aug 22/01

STRUT ATTACH FUSE PINS - INSPECTION/CHECK (BUSHING MIGRATION)

1. General

A. This procedure contains the data to do an inspection of the bushings for the nacelle strut fuse pins as follows:

- (1) The lugs on each end of the upper link and diagonal brace assemblies.
- (2) The midspar fitting lugs of the strut.
- (3) The strut fitting for the upper link.
- (4) The strut fitting for the diagonal brace.

TASK 54-51-02-206-001

2. Bushing Migration Inspection

A. Consumable Materials

- (1) A00247 Sealant - BMS 5-95 (AMM 20-30-02/201)

B. References

- (1) AMM 20-30-02/201, Sealant Application
- (2) AMM 27-81-00/201, Leading Edge Slat System
- (3) AMM 54-52-01/401, Strut Fairings
- (4) AMM 54-53-01/401, Strut Pressure Relief and Access Doors
- (5) SRM 54-52-90, Strut Attachment Fittings

C. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut
 - 510 Wing Leading Edge - Left
 - 610 Wing Leading Edge - Right

D. Prepare for the Inspection

S 046-002

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLAT. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 016-003

- (2) Remove the applicable strut fairings (AMM 54-52-01/401).

S 016-004

- (3) Open the aft fairing doors.

S 016-005

- (4) Remove the applicable strut access panels (AMM 54-53-01/401).

EFFECTIVITY

ALL

54-51-02

02

Page 601
Apr 22/05

E. Do the Inspection

S 216-006

- (1) Look for broken sealant along the outside edge of the bushings at these locations:

NOTE: Bushing migration or rotation is indicated by cracks in the sealant, a gap between the sealant and the attachment fitting or by bushing displacement during manual manipulation of the bushing or pin.

- (a) Both ends of the upper link assembly.
- (b) The strut fitting at the forward end of the upper link.
- (c) Both ends of the diagonal brace assembly.
- (d) The strut fitting at the forward end of the diagonal brace assembly.
- (e) The strut midspar fitting lugs.

S 216-007

- (2) If you do not find broken sealant, stop the inspection.

S 216-008

- (3) If you find broken sealant do these steps:
- (a) Do a check of the bushing flange for wear (if the flange rubs an adjacent part of the structure).
 - 1) If the flange face thickness has greater than 25% wear, replace the bushing.
 - a) Refer to SRM 54-53-90 for bushings on the strut structure.
 - (b) Remove the sealant.
 - (c) Do a check for corrosion around the flange of the bushing.
 - 1) If you see corrosion, replace the bushing.
 - a) Refer to SRM 54-53-90 for bushings on the strut structure.
 - (d) If you do not find corrosion or flange face thickness wear greater than 25%, fillet seal the outside edge of the bushing flange with BMS 5-95 sealant (AMM 20-30-01/201).

EFFECTIVITY

ALL

54-51-02

(e) Remove excess sealant with a clean cloth.

TASK 54-51-02-206-016

3. Midspar Fuse Pin Inspection

NOTE: Inspect or replace the midspar fuse pins every 2000 flight cycles or 2 years, whichever is earlier for inspected pins, and 5000 flight cycles or 5 years, whichever is earlier for new pins. The midspar fuse pins can be replaced at anytime, in order to gain the maximum number of cycles, before the next inspection.

NOTE: Re-inspect or replace new fuse pins within 5,000 flight-cycles or 5 years, whichever is earlier. Re-inspect or replace fuse pins that are inspected and verified to be good by eddy current and 100% magnetic particle inspections every 3,000 flight-cycles or 5 years, whichever is earlier.

NOTE: Termination of this inspection requirement can be done with the incorporation of BAC SB 54-0069, SB 54-0080, SB 54-0081 or SB 54-0082, whichever is applicable.

A. Put the Airplane Back to Its Usual Condition.

S 416-012

(1) Install the applicable strut fairings (AMM 54-52-01/401).

S 416-011

(2) Close the aft fairing doors.

S 416-010

(3) Install the applicable strut access panels (AMM 54-53-01/401).

S 446-014

(4) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY

ALL

54-51-02

06.1

Page 603
Aug 22/09

UPPER LINK FUSE PINS – REMOVAL/INSTALLATION

1. General

- A. This procedure covers the removal and installation of the upper link fuse pins with the engines installed or removed.
- B. This Section uses Configurations to identify the engine type used by the operator:

	PRE STRUT MODIFICATION	POST STRUT MODIFICATION
GE CF6-80A Engines	Config 1	Config 11
GE CF6-80C2 Engines	Config 2	Config 12
PW JT9D-7R4 Engines	Config 3	Config 13
PW 4000 Engines	Config 4	Config 14
RR RB211-524H Engines	Config 5	Config 15

- (1) Each operator will receive only the configuration applicable to their operation. For example an operator that uses only PW 4000 engines will receive only Configs 4 and 14. An operator using JT9D-7R4 and PW 4000 will receive Configs 3, 4, 13 and 14.
- C. The upper link connects the upper spar fitting of the strut to the pitch load fitting on the wing leading edge spar.
- D. The connection at the strut has a fuse pin. The connection at the pitch fitting is a pin with a through bolt.
- E. If the upper link cannot be removed by applying an upload, the engine must be removed and use the tooling/equipment in AMM 54-51-02/401.
- F. The tools which are used to apply an up or down load are shown in Figure 401.

TASK 54-51-03-004-040-004

2. Remove the Upper Link and/or Fuse Pins (ENGINE INSTALLED)

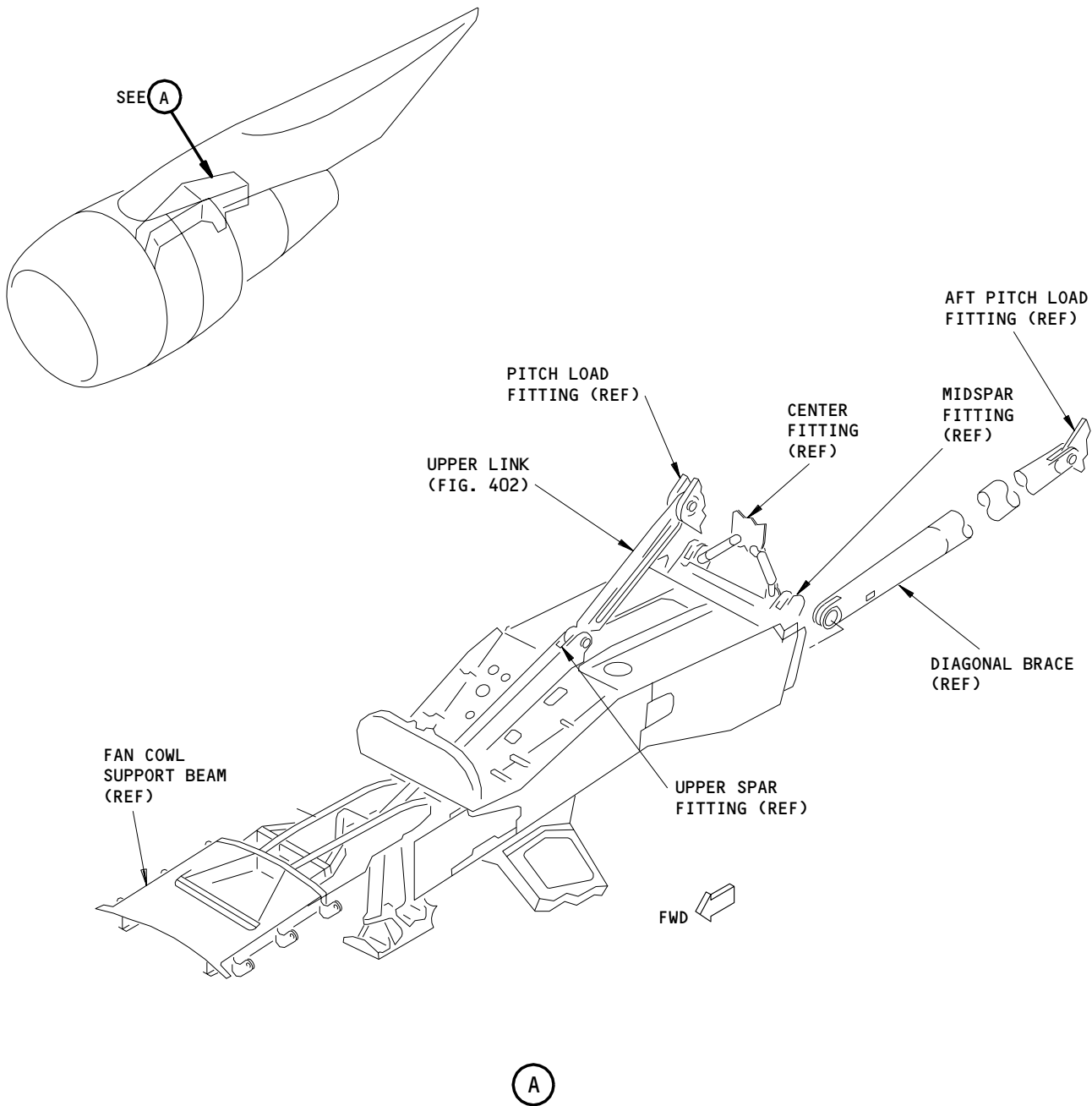
A. General

- (1) Use a crane and an overhead sling to hold the engine. Platforms and stands are necessary to get access to the engine and strut.
- (2) The power plant weighs approximately 11,000 pounds (4989.52 kg). Do not apply too much force when lifting the engine. Use a dynamometer or a precision load positioner when lifting the engine. If the crane includes an adjustable load limiter, it is not necessary to use the dynamometer or the precision load positioner.
- (3) When operating the engine, the airflow can move unwanted objects into the engine. Before operating the engine, make sure the engine inlet and the area around the engine is free from tools and other objects.

EFFECTIVITY
 AIRPLANES WITH
 PW 4000 ENGINES AND
 WITHOUT SB 767-54-0080

54-51-03
 CONFIG 4
 Page 401
 Dec 22/05

01

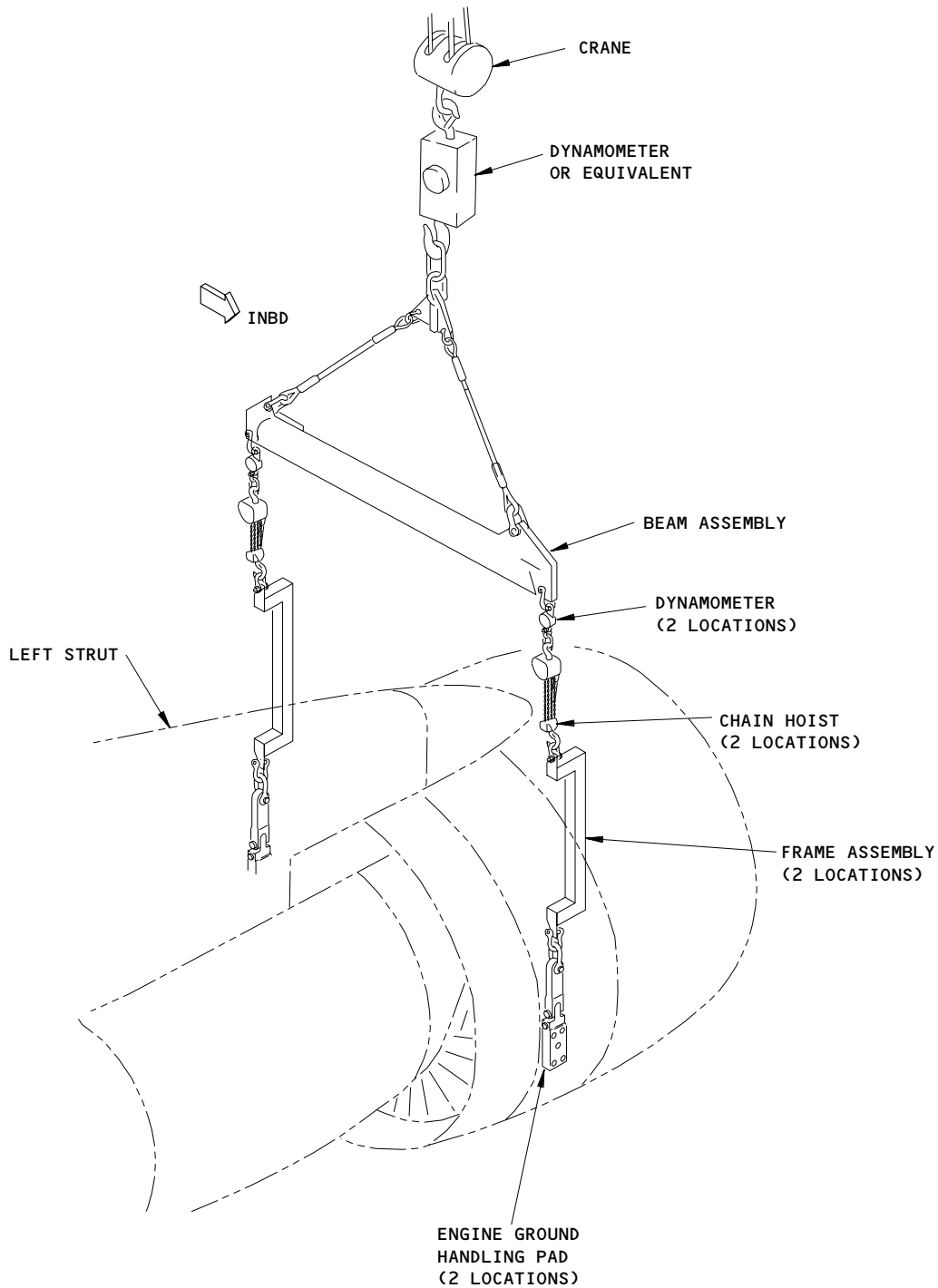


Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 402
Aug 10/97

01



A54001-138 STRUT UNLOAD SLING

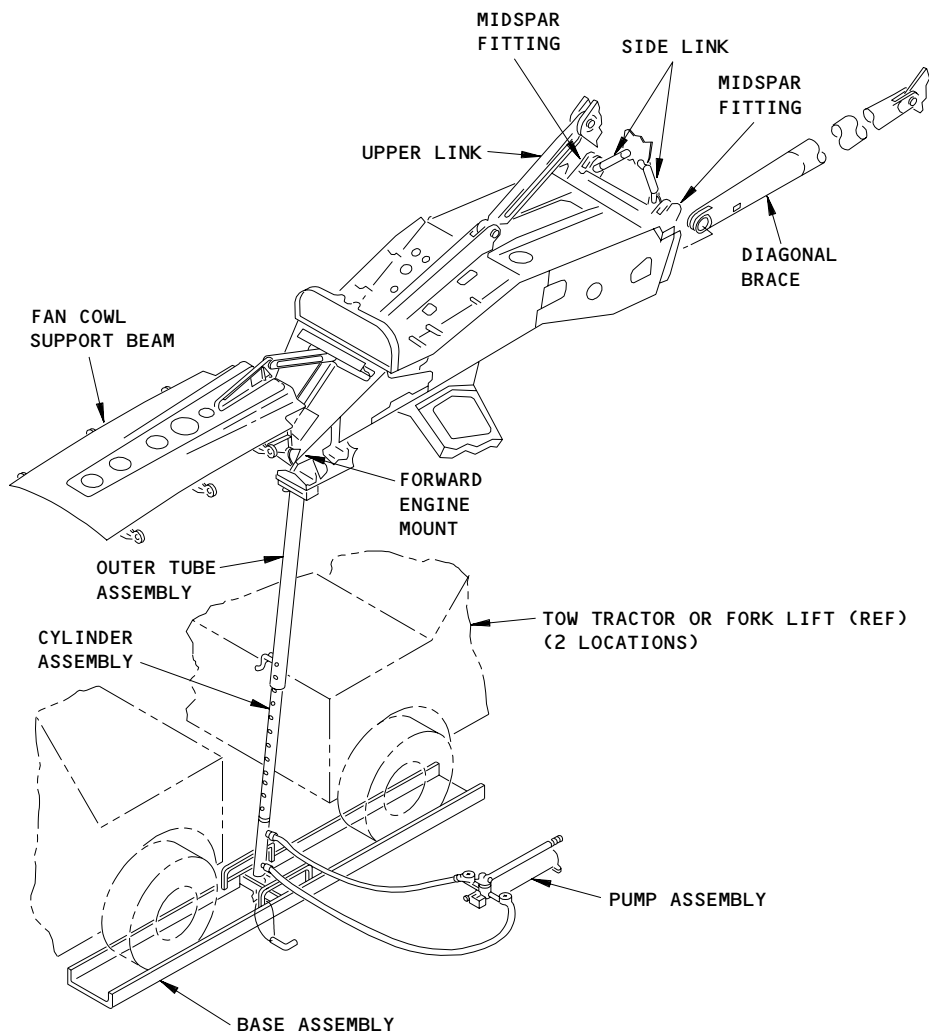
(D)

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 403
Aug 10/97

01



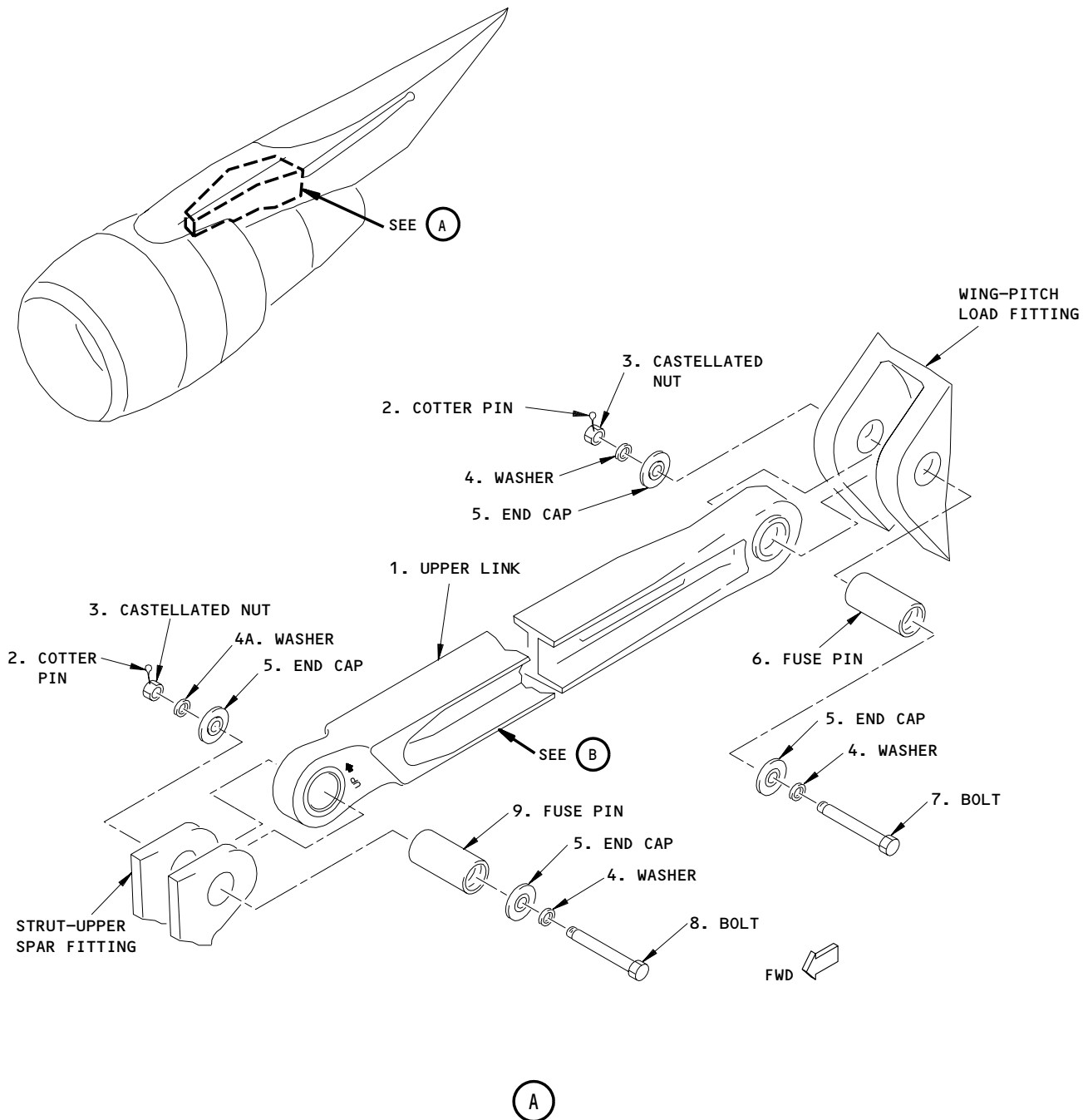
A54004-27 PRELOAD FIXTURE INSTALLATION

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 3)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 404
Dec 22/05

01

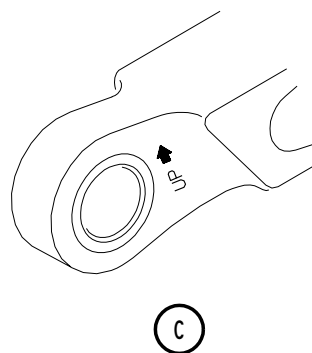
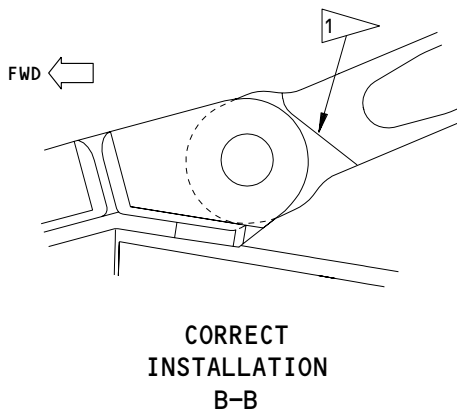
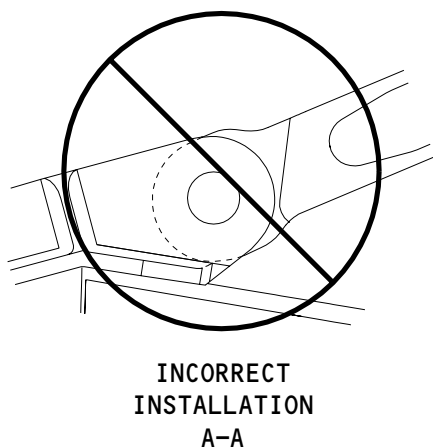
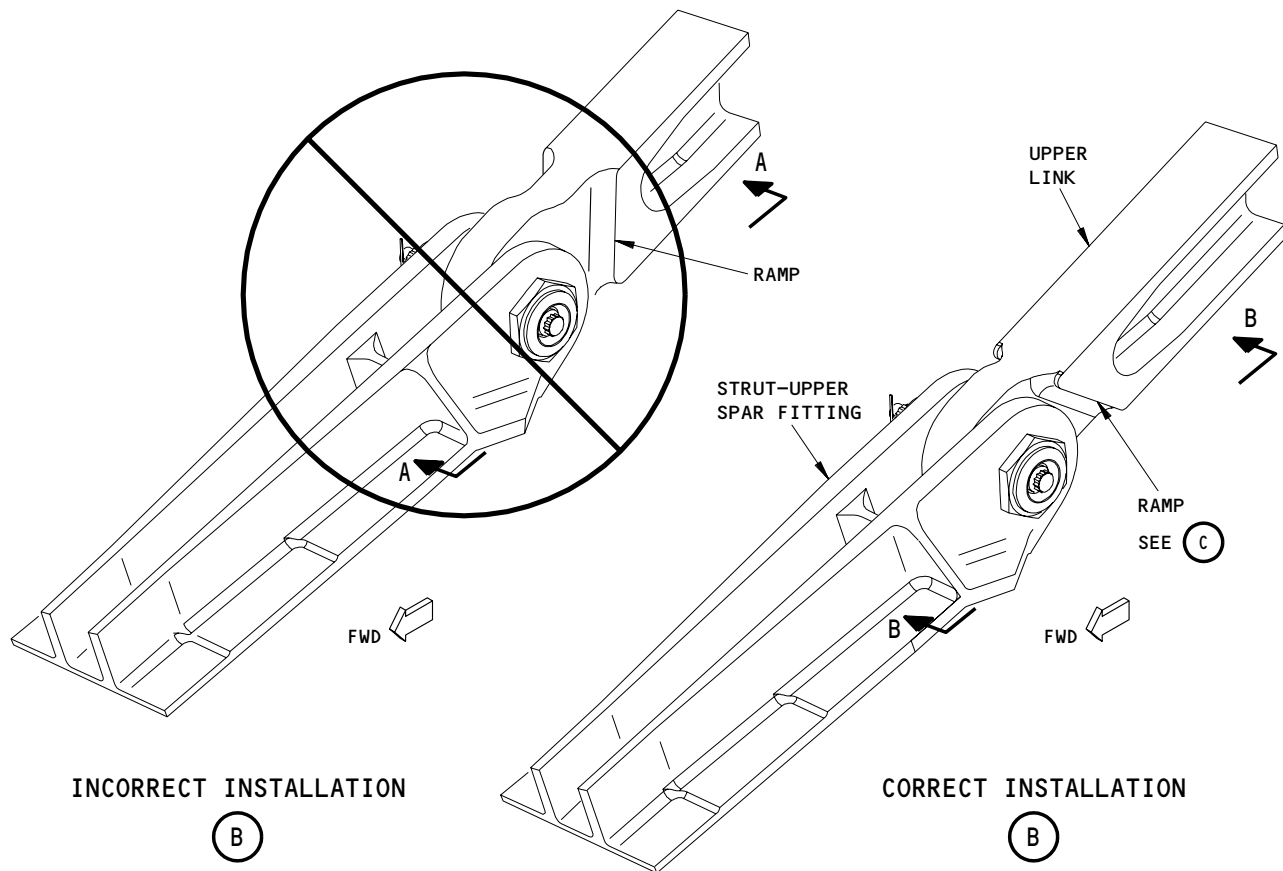


Fuse Pin Installation - Upper Link Fittings
Figure 402 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 405
Dec 22/05

01



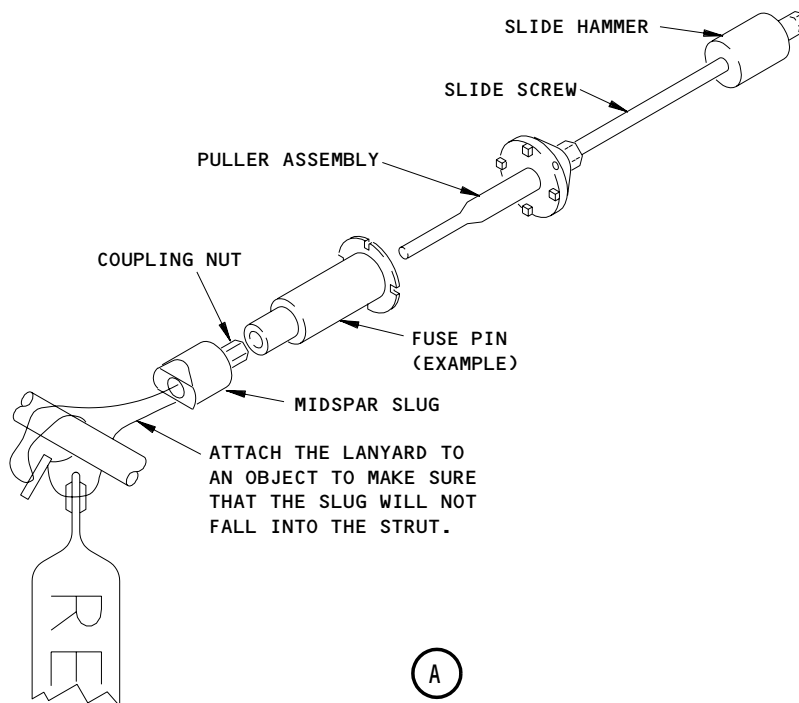
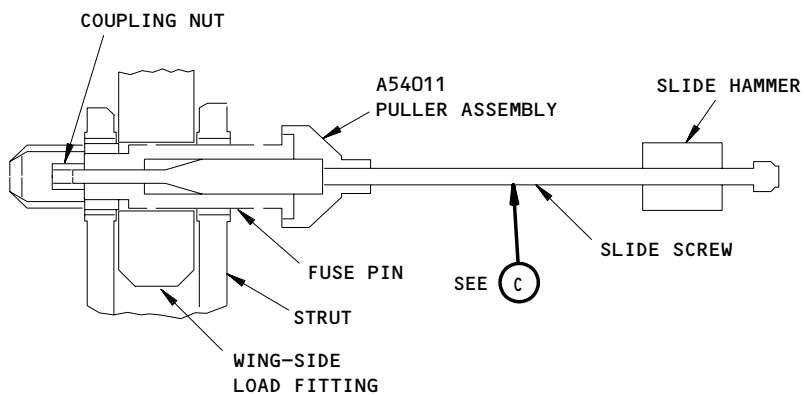
1 **WARNING:** MAKE SURE THAT THE ARROW ON THE UPPER LINK POINTS UP WHEN YOU INSTALL THE UPPER LINK. MAKE SURE THAT THE DIRECTION OF THE RAMP ON THE UPPER LINK AGREES WITH THIS ILLUSTRATION. IF YOU INSTALL THE UPPER LINK INCORRECTLY, THE LINKS CAN OPERATE INCORRECTLY DURING SOME CONDITIONS.

Fuse Pin Installation - Upper Link Fittings
Figure 402 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 406
Dec 22/05

01



Fuse Pin Removal Installation Equipment
Figure 403

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 407
Dec 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

B. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
- (b) Dynamometer - 20,000 pounds (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if a precision load positioner is used.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and a precision load positioner is not used.
- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity, Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Sling Assembly, Diagonal Brace Unload - A54001-138

NOTE: The 54001-138 Sling Assembly supercedes the A54001-119 Sling Assembly for future procurement.

- (e) Chain Hoist - 9000 pounds (4082.33 kg) capacity
(2 are necessary)
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 408
Dec 22/05

01

C. References

- (1) AMM 06-44-00/201, Wings, Access Doors and Panels - Maintenance Practices
- (2) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices
- (3) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (4) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (5) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (6) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (7) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (8) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (9) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (10) AMM 54-53-01/401, Strut Pressure Relief and Access Doors - Removal/Installation
- (11) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (12) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (13) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare for the Removal of the Upper Link and/or Fuse Pins

S 864-001-004

- (1) Make sure the forward thrust levers are in the idle position.

S 044-036-004

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 044-035-004

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 024-042-004

- (4) Remove the fan cowl panels (AMM 71-11-04/401).

S 014-043-004

- (5) Open the core cowl panels (AMM 71-11-06/201).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 409
Dec 22/05

01

S 014-037-004

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF THE INSTRUCTIONS ARE NOT OBEYED, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Open the thrust reversers (AMM 78-31-00/201).

S 864-005-004

(7) Ground the airplane (AMM 20-41-00/201).

S 864-030-004

- (8) Do these steps to make sure the applicable engine and spar fuel valves are closed:
- (a) Supply electrical power (AMM 24-22-00/201).
 - (b) Make sure these circuit breakers on the overhead panel, P11, are closed:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
 - (c) Open these circuit breakers on the P6 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR

S 864-031-004

(9) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).

S 034-032-004

(10) If removing the upper link, disconnect the wire bundle attached to the clamp on the upper link.

S 034-033-004

(11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.

S 864-006-004

(12) Remove the forward and the underwing fairings (AMM 54-52-01/401).

S 014-007-004

(13) Remove the overwing panel (AMM 06-44-00/201).

S 014-008-004

(14) Open the access panels and pressure relief doors on the strut (AMM 54-31-01/401).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 410
Dec 22/05

01

S 494-038-004

CAUTION: DO NOT USE THE G54006-1 ENGINE SUPPORT SLING. DAMAGE TO THE ENGINE CAN OCCUR IF THIS SLING IS USED.

- (15) Use the tool placard for instructions on how to install the engine support sling, A54001-138 (Fig. 401).
- F. Remove the fuse pins from the upper link.

S 024-039-004

WARNING: DO NOT REMOVE THE UPPER LINK FUSE PIN IF THE DIAGONAL BRACE OR THE MIDSPAR FUSE PIN HAVE BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do the steps that follow when removing the fuse pins from the upper link:
- (a) Remove the cotter pins, the nuts, the washers, the bolts and the end caps from both of the fuse pins.

CAUTION: DO NOT LIFT THE ENGINE WITH A FORCE THAT IS MORE THAN NECESSARY TO PERMIT THE PIN/BOLT TO TURN WHEN APPLYING 125 INCH-POUNDS (14.12 Nm) MAXIMUM TORQUE. DO NOT APPLY A TOTAL LOAD OF MORE THAN 17000 POUNDS (7711.1 Kg) MORE THAN THE WEIGHT OF THE EQUIPMENT. DO NOT APPLY A LOAD OF MORE THAN 8500 POUNDS (3855.54 Kg) ON ONE ATTACH POINT. DO NOT APPLY A LOAD WITH A DIFFERENCE BETWEEN THE TWO SIDES OF MORE THAN 1500 POUNDS (680.40 Kg). LIFT THE ENGINE VERTICALLY. IF THE CRANE LIFTS THE ENGINE WITH TOO MUCH FORCE, OR AT AN INCORRECT ANGLE, DAMAGE TO THE ENGINE CAN OCCUR.

- (b) Do these steps to remove the load on the fuse pin:
- 1) Slowly apply a small load with the crane.
 - 2) Adjust the chain hoists so the load on the inboard and outboard dynamometers is approximately equal.
 - 3) Move the crane as necessary to apply a vertical load at the tool attach points.
 - a) At the side of the engine, visually align the engine sling between the flanges on the fan case so the beam assembly is directly above the flanges.
 - b) At the front or rear of the engine, visually align the engine sling vertically side-to-side.
 - c) Monitor the angle of the engine sling side-to-side and forward/aft during the procedure.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 411
Dec 22/05

01

- 4) Use the crane to lift the strut in 500 pound (226.80 kg) increments not to exceed the maximum upload, until the fuse pin can be removed with a fuse pin puller.
 - a) Attempt to move the fuse pin after each increment of 500 pounds (226.80 kg) to see if it can move easily.
 - 5) When the total uplift reaches 5000 pounds (2268.0 kg), reduce the incremental lift increase to 50-100 pounds (22.7-45.36 kg).
 - a) Try to turn the pin to see if it moves easily after each lift increase.
 - 6) Remove the fuse pin from the upper link fitting.
- (c) Keep the load on the strut the same until the fuse pins are installed again.

NOTE: The hydraulic system in the crane can bleed which causes the load to change.

- (d) Remove the Upper Link
- 1) Do these steps if the overhead crane must be removed after the fuse pin has been taken out of the upper link:
 - a) Make a note of the load used to remove the fuse pin at the upper link.
 - b) Slowly remove the load from the strut.
 - c) Remove the overhead crane.
 - 2) Remove the Thermal Anti-Ice ducts and valve from both sides of the main pneumatic duct exchange located under the upper link.
 - 3) Remove the main pneumatic duct exchange located under the upper link to provide clearance for the upper link removal.
 - 4) Remove the aft fuse pin from the upper link.
 - 5) Do the following motion to remove the upper link:
 - a) Lower the aft end of the upper link.
 - b) Push the upper link aft toward the pitch load fitting.
 - c) As the link clears the pitch load fitting and strut fitting, rotate the upper link 90 degrees.
 - d) Slide the upper link out of the strut.

TASK 54-51-03-404-041-004

3. Install the Upper Link and/or Fuse Pins (ENGINE INSTALLED)

A. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 412
Dec 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- (b) Dynamometer - 20,000 pounds (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if a precision load positioner is used.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and a precision load positioner is not used.
- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pounds (4082.33 kg) capacity
(2 are necessary)
- (e) Sling Assembly, Diagonal Brace Unload - A54001-138

NOTE: The A54001-138 Sling Assembly supercedes the A54001-119 Sling Assembly for future procurement.

- (f) Tag lines - Used for controlling the overhead hoisting sling
 - (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
 - (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
 - (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
 - (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)
- B. Consumable Materials
- (1) A00247 Sealant - BMS 5-95
 - (2) C00259 Primer - BMS 10-11, Type I
 - (3) C00308 Compound - Corrosion Preventive, Petrolatum Hot
Application, MIL-C-11796 Class 1
 - (4) D00633 Grease - BMS 3-33 (Preferred)
 - (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
 - (6) D00014 Grease - MIL-G-21164 (Alternate)
- C. References
- (1) AMM 06-44-00/201, Wings, Access Doors and Panels - Maintenance Practices
 - (2) AMM 12-21-32/301, Strut - Servicing (Lubrication)
 - (3) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
 - (4) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 413
Aug 22/07

01

- (5) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (6) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (7) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (8) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (9) AMM 29-11-00/201, Pressurize/Depressurize Main Hydraulic Systems
- (10) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (11) AMM 54-51-01/601, Strut - Inspection/Check
- (12) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (13) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (14) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (15) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the fuse pins

S 214-011-004

- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-012-004

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).

S 214-013-004

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 214-014-004

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the Upper Link (Fig. 402).

S 034-044-004

CAUTION: MAKE SURE THE UPPER LINK IS IN THE CORRECT POSITION. DAMAGE TO THE STRUT CAN OCCUR IF IT IS NOT POSITIONED CORRECTLY.

- (1) Position the main pneumatic duct exchanger under the upper link to be installed later.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 414
Dec 22/05

01

S 414-016-004

- (2) Put the upper link into the pitch load and strut fittings.

NOTE: Determine the correct installation of the upper link ramp feature as shown in Figure 402.

- (a) Turn the upper link as required to allow enough clearance while inserting the strut end into the fitting area.

S 214-045-004

- (3) Make sure the flange on the forward end of the upper link points down and does not touch the fitting on the strut.
- G. Install the fuse pin (Fig. 402).

S 824-046-004

CAUTION: BE VERY CAREFUL WHEN LIFTING THE ENGINE. DAMAGE TO THE ENGINE AND THE STRUT CAN OCCUR.

- (1) Make sure the load on the strut is correct for easy installation of the fuse pins.

NOTE: If the diagonal brace or upper link are removed, and the overhead crane is removed, use the load that was noted to reinstall the sling using the above procedure.

S 434-018-004

- (2) Do the steps that follow when installing the fuse pins in the upper link:
- (a) Make sure that the fuse pin, bolt and bushing has the correct wear dimensions (AMM 54-51-01/601).
- (b) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound (MIL-C-11796, Class 1).
- 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch (1.27 mm).
- (c) Apply a thin layer of grease to these parts:
- 1) The outer surface of the fuse pins.
- 2) The outer surface of the bolt and to the bottom of the bolt head.
- 3) The inner surface of the end caps.
- (d) Install the upper link with the fuse pin, the bolt, the end caps, the washers, and the nut.
- 1) Make sure the arrow at the forward end of the upper link is in the position shown in Fig. 402.
- 2) Make sure that the washers are fully against the end caps.
- 3) Tighten the nut to 150-200 inch-pounds (16.95-22.6 Nm).
- 4) Do a check to make sure the torque value is correct.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 415
Aug 22/07

01

- (e) Install the cotter pin.
 - 1) If the cotter pin cannot be installed, loosen the nut only until the cotter pin can be installed.
 - 2) Do a check to make sure the parts are installed correctly.
 - 3) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).

S 094-019-004

- (3) Remove the equipment, the hoist, and the slings.

S 414-020-004

- (4) Install the fan cowl panels (AMM 71-11-04/401).

S 644-021-004

- (5) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).

- (a) Remove excess grease from around the edge of the pin.

H. Put the Airplane Back to its Usual Condition.

S 434-022-004

- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

S 864-091-004

- (2) Supply electrical power (AMM 24-22-00/201).

S 864-092-004

- (3) Do these steps to make sure the applicable engine and spar fuel valves are opened:
 - (a) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
 - 1) For the left engine
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
 - (b) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV R

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 416
Dec 22/05

01

S 434-048-004

CAUTION: MAKE SURE TO SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE UPPER LINK (AMM 20-10-09/401). IF THE CORRECT CLEARANCES ARE NOT SET, DAMAGE TO THE COMPONENTS CAN OCCUR.

- (4) Put the clamp for the electrical bundle on the upper link.
 - (a) Connect the system tubes and wires with the clamps on the diagonal brace.
 - (b) Install the pneumatic Thermal Anti-Ice ducts and valve.
 - 1) Verify that the "E" seals for the pneumatic duct and valve are serviceable.
 - 2) Replace any "E" seals that are not serviceable.
 - (c) Install the pulley support bracket located under the upper link.
 - (d) Install the overwing access panel (AMM 06-44-00/201).
 - (e) Install the forward and underwing fairing (AMM 54-52-01/401).
 - (f) Do any performance/system checks required, rigging of the control cables and a pneumatic check.

S 414-024-004

- (5) Close the core cowl panels (AMM 71-11-06/401).

S 414-047-004

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURES TO CLOSE THE THRUST REVERSERS. IF THE INSTRUCTIONS ARE NOT OBEYED, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the thrust reversers (AMM 78-31-00/201).

S 414-026-004

- (7) Close the core cowl panels (AMM 71-11-06/201).

S 414-027-004

- (8) Install and close the fan cowl panels (AMM 71-11-04/401).

S 444-028-004

- (9) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 444-029-004

- (10) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 417
Dec 22/05

01

TASK 54-51-03-004-050-004

4. Remove the Fuse Pins (ENGINE REMOVED)

A. General

- (1) This procedure is for the removal and installation of the strut fuse pins with the engine removed. Unless the strut is removed from the wing, remove only one strut-to-wing component at a time.
- (2) Use this optional procedure for the removal and the installation of the fuse pins for the upper link. This procedure can also be used to remove these fuse pins with the engine installed.

B. Equipment

CAUTION: DO NOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT IN ORDER TO REMOVE OR INSTALL THE FUSE PINS. THE STRUT PRELOAD FIXTURE MUST BE USED OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (4) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (5) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
430 No. 1 Nacelle Strut
440 No. 2 Nacelle Strut

E. Prepare for Removal

S 864-051-004

- (1) Make sure the forward thrust levers are in the idle position.

S 044-052-004

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. THE ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 014-053-004

- (3) If necessary, do the task to remove the engine (AMM 71-00-02/401).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 418
Dec 22/05

01

- S 864-055-004
(4) Remove the electrical power (AMM 24-22-00/201).
- S 864-056-004
(5) Ground the airplane (AMM 20-41-00/201).
- S 014-063-004
(6) Open the access doors on the aft fairing.
- S 014-064-004
(7) Remove the underwing fairings (AMM 54-52-01/401).
- F. Remove the fuse pins (Fig. 402).

S 494-065-004

WARNING: DO NOT USE ALTERNATIVE EQUIPMENT OR THE STRUT REMOVAL/ INSTALLATION SLING (A54003) WHEN LIFTING THE STRUT. USE ONLY THE EQUIPMENT THAT IS SPECIFIED BY THE MANUFACTURERS. MAKE SURE TO USE ONLY THE CORRECT EQUIPMENT WITH THE PRELOAD FIXTURE. INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (1) Install the strut preload fixture (Fig. 401).

NOTE: For A54004 Preload Equipment, 2830 psi is equivalent to 5000 pounds in the up direction. 5092 psi is equivalent to 5000 pounds in the down direction.

- (a) Attach the tube assembly to the strut at the forward engine mount.
- (b) Attach the cylinder assembly to the tube assembly.
- (c) Extend the cylinder and tube assembly to the ground to locate the proper position for the base assembly.
- (d) Connect the pump assembly to the cylinder assembly.
- (e) Attach the cylinder assembly to the base assembly.
- (f) Make sure the base assembly is on the ground.

WARNING: USE TWO OBJECTS WITH A TOTAL WEIGHT OF 5000 POUNDS (2268 Kg) OR MORE TO HOLD THE BASE UNIT IN PLACE. IF THERE IS NOT ENOUGH WEIGHT ON THE BASE UNIT, IT MAY CAUSE DAMAGE TO THE EQUIPMENT AND/OR INJURY TO PERSONS.

- (g) Put weight on the track of the base assembly.

NOTE: Fork lift trucks may be placed on either side of the cylinder assembly.

- S 024-066-004
(2) Remove the fuse pins.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 419
Dec 22/05

01

CAUTION: DO NOT LIFT THE STRUT MORE THAN IS NECESSARY TO PERMIT THE FUSE PIN TO TURN. USE A MAXIMUM TORQUE OF 125 INCH-POUNDS (14.12 Nm) TO TURN THE FUSE PIN. DO NOT LIFT THE STRUT OR PULL DOWN ON THE STRUT WITH MORE THAN 5000 POUNDS (2268 Kg) OF FORCE. IF LIFTING THE STRUT WITH MORE FORCE THAN NECESSARY, DAMAGE TO THE STRUCTURE CAN OCCUR.

- (a) To remove a fuse pin, apply a load at the forward engine mount of the strut with the preload fixture.
- 1) The permitted load in the up direction is 0.0 to 5000 pounds (0.0 to 2268 kg).
 - 2) The permitted load in the down direction is 0.0 pounds to 5000 pounds (0.0 kg to 2268 kg).
 - 3) Install the fuse pin puller tool (Fig. 403).

WARNING: DO NOT REMOVE THE UPPER LINK FUSE PIN IF THE DIAGONAL BRACE OR THE MIDSPAR FUSE PIN HAS BEEN REMOVED, UNLESS THE STRUT IS REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Remove a upper link fuse pin:
- 1) Remove the cotter pin, the nuts, the washers, the bolt, and the end caps from the fuse pin.
 - 2) Remove the fuse pin.
 - 3) Make sure the load on the strut is kept the same until the fuse pin is installed again.

NOTE: The hydraulic system can bleed which can cause the the load to change.

- (c) Make a note of the load used to remove the fuse pin of the upper link fitting.
- (d) Slowly remove the load from the strut.
- (e) Remove the preload fixture.

TASK 54-51-03-404-067-004

5. Install the Fuse Pins (ENGINE REMOVED)

A. Equipment

CAUTION: DO NOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT IN ORDER TO REMOVE OR INSTALL THE FUSE PINS. THE STRUT PRELOAD FIXTURE MUST BE USED OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 420
Dec 22/05

01

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type I
- (3) C00308 Compound - Corrosion Preventive, Petrolatum Hot Application, MIL-C-11796 Class 1
- (4) D00633 Grease - BMS 3-33 (Preferred)
- (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (6) D00014 Grease - MIL-G-21164 (Alternate)

C. References

- (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
- (2) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices
- (3) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (4) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (5) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (6) AMM 24-11-00/501, Generator Drive System - Adjustment/Test
- (7) 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (8) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (9) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (10) AMM 30-11-00/501, Wing Thermal Anti-Ice - Adjustment/Test
- (11) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (12) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (13) AMM 54-51-01/401, Strut - Removal/Installation
- (14) AMM 54-51-01/601, Strut - Inspection/Check
- (15) AMM 71-00-02/401, Power Plant - Removal/Installation
- (16) AMM 76-11-00/201, Engine Control System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the fuse pins

S 214-069-004

- (1) Do a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-070-004

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
 - (d) If the corrosion cannot be removed, replace the part.

S 214-071-004

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 421
Aug 22/07

01

S 214-072-004

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 402).

S 424-073-004

- (1) Do the steps that follow when installing the fuse pins in the upper link:
 - (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound (MIL-C-11796, Class 1).
 - 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch (1.27 mm).
 - (b) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and to the bottom of the bolt head.
 - 3) The inner surface of the end caps.
 - (c) Install the upper link with the fuse pin, the bolt, the end caps, the washers, and the nut.
 - 1) Make sure the arrow at the forward end of the upper link is in the position shown in Fig. 402.
 - 2) Make sure that the washers are fully against the end caps.
 - 3) Tighten the nut to 150-200 inch-pounds (16.94-22.58 Nm).
 - 4) Do a check to make sure the torque value is correct.
 - 5) Remove the unwanted grease.
 - 6) Install the cotter pin.
 - a) If the cotter pin cannot be installed, loosen the nut only until the cotter pin can be installed.
 - b) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).
 - 7) Do a check to make sure the parts are installed correctly.

S 094-074-004

- (2) Remove the preload fixture.

S 644-075-004

- (3) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
 - (a) Remove excess grease from around the edge of the pin.

G. Put the Airplane Back to its Usual Condition.

S 864-076-004

- (1) Remove electrical power (AMM 24-22-00/201).

S 434-077-004

- (2) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 422
Aug 22/07

01

- S 424-078-004
- (3) If this task was done as part of the strut installation, return to the task to install the strut (AMM 54-51-01/401).
- S 424-090-004
- (4) Do the procedure to install the engine (AMM 71-00-02/401).
- S 784-079-004
- (5) Pressurize the hydraulic system (AMM 29-11-00/201).
(a) Look for hydraulic system leakage.
- S 864-080-004
- (6) Supply electrical power (AMM 24-22-00/201).
- S 864-081-004
- (7) Remove the electrical ground for the airplane (AMM 20-41-00/201).
- S 714-082-004
- (8) Do a test on the generator drive system (AMM 24-11-00/501).
- S 714-083-004
- (9) Remove the locks from the leading edge slats (AMM 27-81-00/201).
- S 714-084-004
- (10) Do a test on the pneumatic system (AMM 36-11-00/501).
- S 714-085-004
- (11) Do a test on the wing Thermal Anti-Ice system (AMM 30-11-00/501).
- S 414-086-004
- (12) Close the access doors on the aft fairing.
- S 494-087-004
- (13) Make sure the components of the engine control system in the strut are not wet.
(a) If the components are wet, do this procedure:
1) Dry the Engine Control System in the Strut Area (AMM 76-11-00/201).
- S 414-088-004
- (14) Install or close all the access doors.
- S 444-089-004
- (15) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-03
CONFIG 4
Page 423
Dec 22/05

01

UPPER LINK FUSE PINS – REMOVAL/INSTALLATION

1. General

- A. This procedure covers the removal and installation of the upper link fuse pins with the engines installed.
- B. This Section uses Configurations to identify the engine type used by the operator:

	PRE STRUT MODIFICATION	POST STRUT MODIFICATION
GE CF6-80A Engines	Config 1	Config 11
GE CF6-80C2 Engines	Config 2	Config 12
PW JT9D-7R4 Engines	Config 3	Config 13
PW 4000 Engines	Config 4	Config 14
RR RB211-524H Engines	Config 5	Config 15

- (1) Each operator will receive only the configuration applicable to their operation. For example an operator that uses only PW 4000 engines will receive only Configs 4 and 14. An operator using JT9D-7R4 and PW 4000 will receive Configs 3, 4, 13 and 14.
- C. The upper link connects the upper spar fitting of the strut to the pitch load fitting on the wing leading edge spar.
- D. The connection at the strut has a fuse pin. The connection at the pitch fitting is a pin with a through bolt.
- E. If the upper link cannot be removed by applying an upload, the engine must be removed and use the tooling/equipment in AMM 54-51-02/401.
- F. The tools which are used to apply an up or down load are shown in Figure 401.

TASK 54-51-03-004-001-014

2. Remove the Upper Link and/or Fuse Pins (ENGINE INSTALLED)

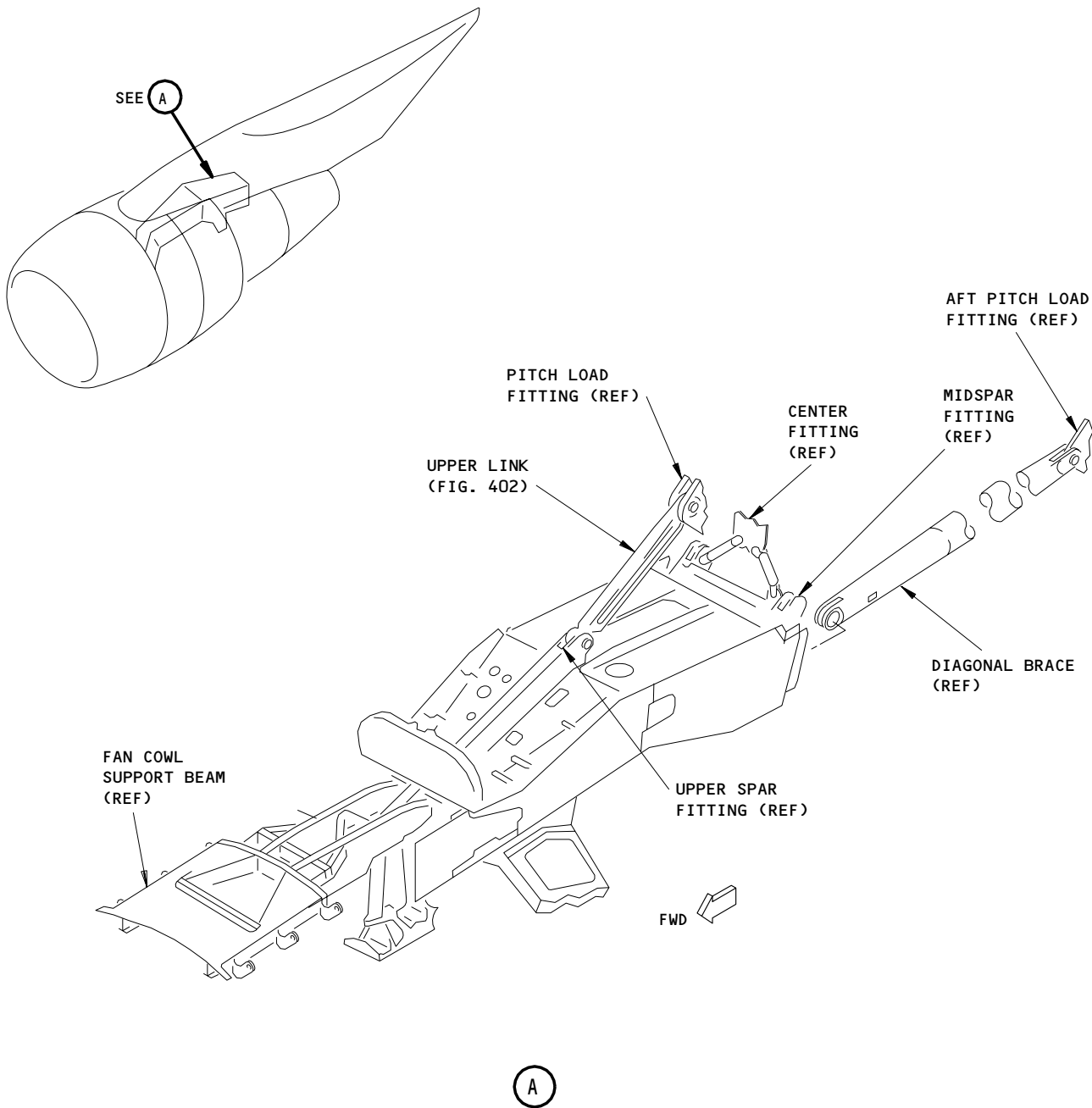
A. General

- (1) Use a crane and an overhead sling to hold the engine. Platforms and stands are necessary to get access to the engine and strut.
- (2) The power plant weighs approximately 11,000 pounds (4989.5 kg). Do not apply too much force when lifting the engine. Use a dynamometer or a precision load positioner when lifting the engine. If the crane includes an adjustable load limiter, it is not necessary to use the dynamometer or the precision load positioner.
- (3) When operating the engine, the airflow can move unwanted objects into the engine. Before operating the engine, make sure the engine inlet and the area around the engine is free from tools and other objects.

EFFECTIVITY
 AIRPLANES WITH
 PW 4000 ENGINES AND
 SB 767-54-0080

54-51-03
 CONFIG 14
 Page 401
 Dec 22/05

01

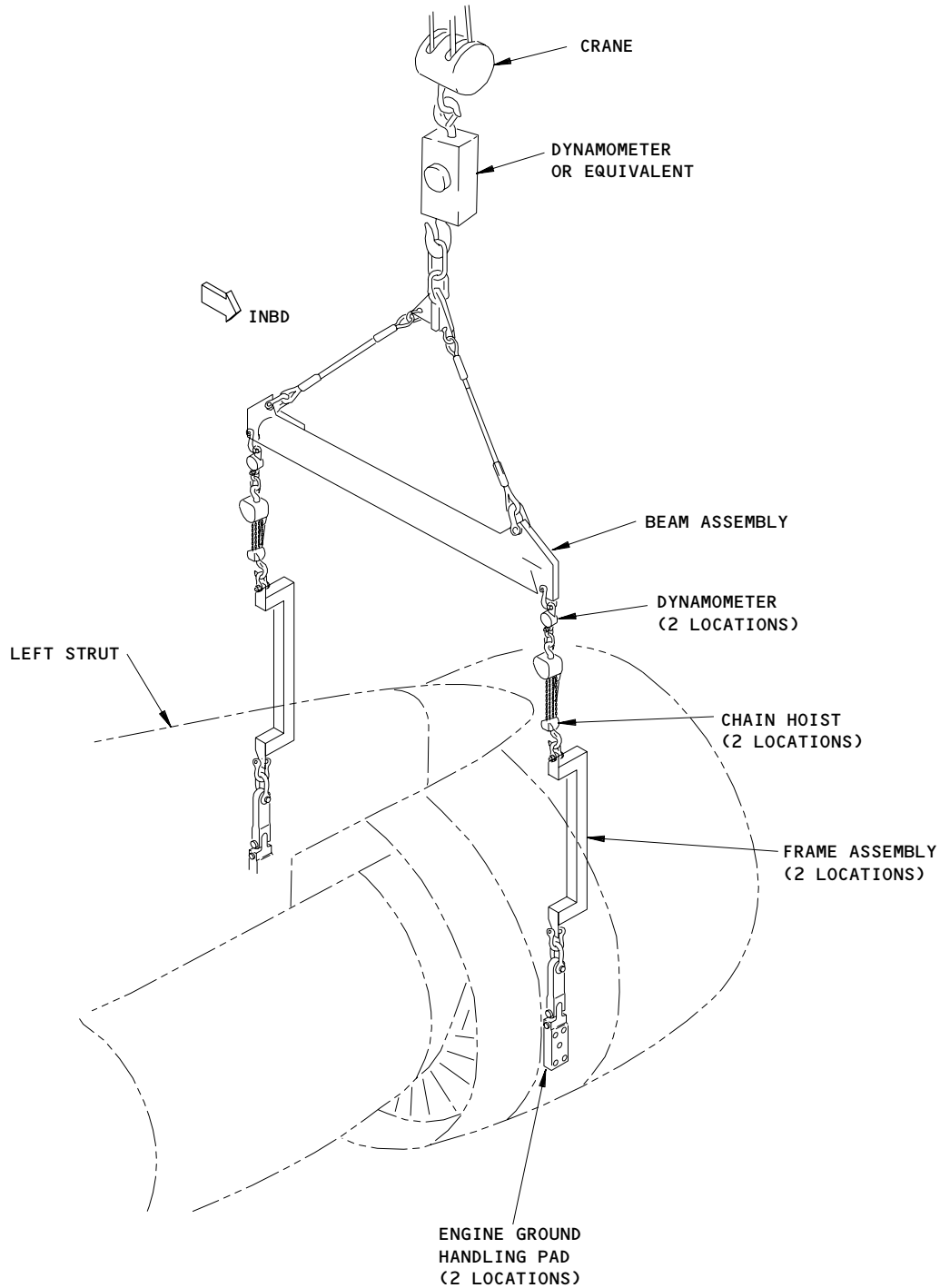


Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 402
Aug 10/97

01



A54001-138 STRUT UNLOAD SLING

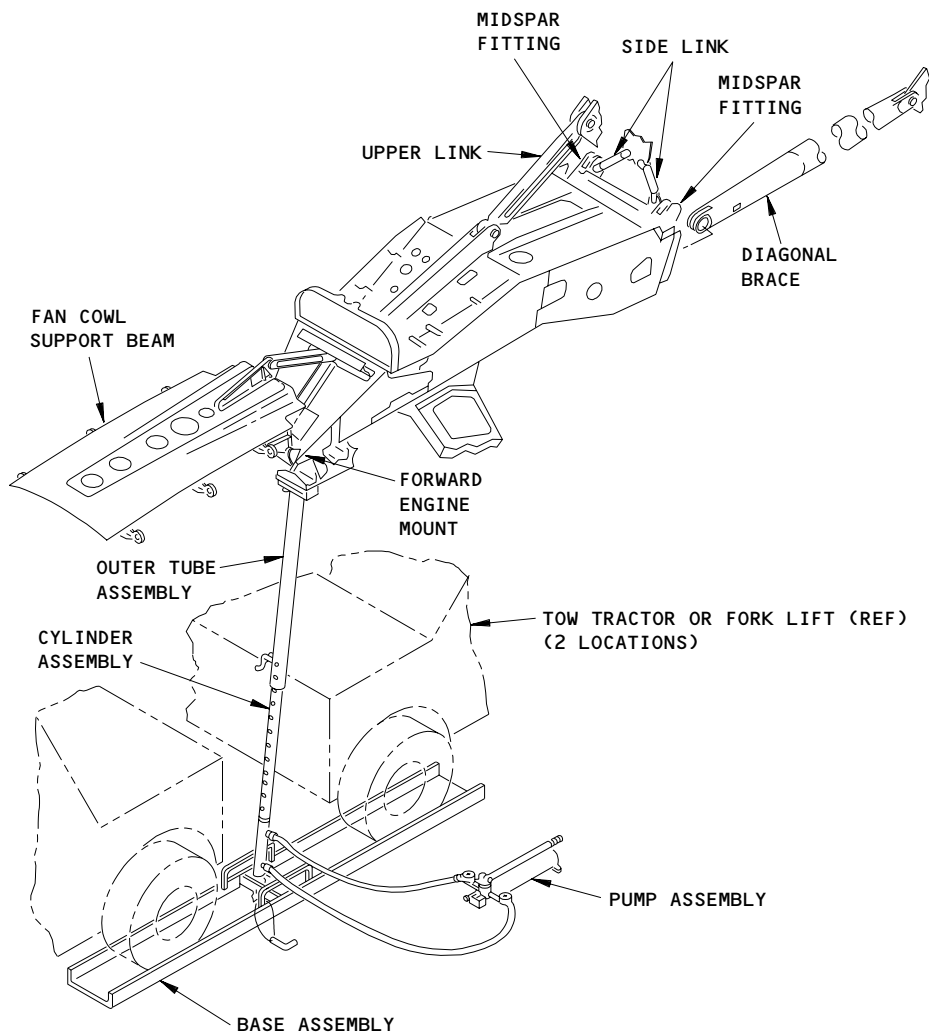
(D)

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 403
Aug 10/97

01



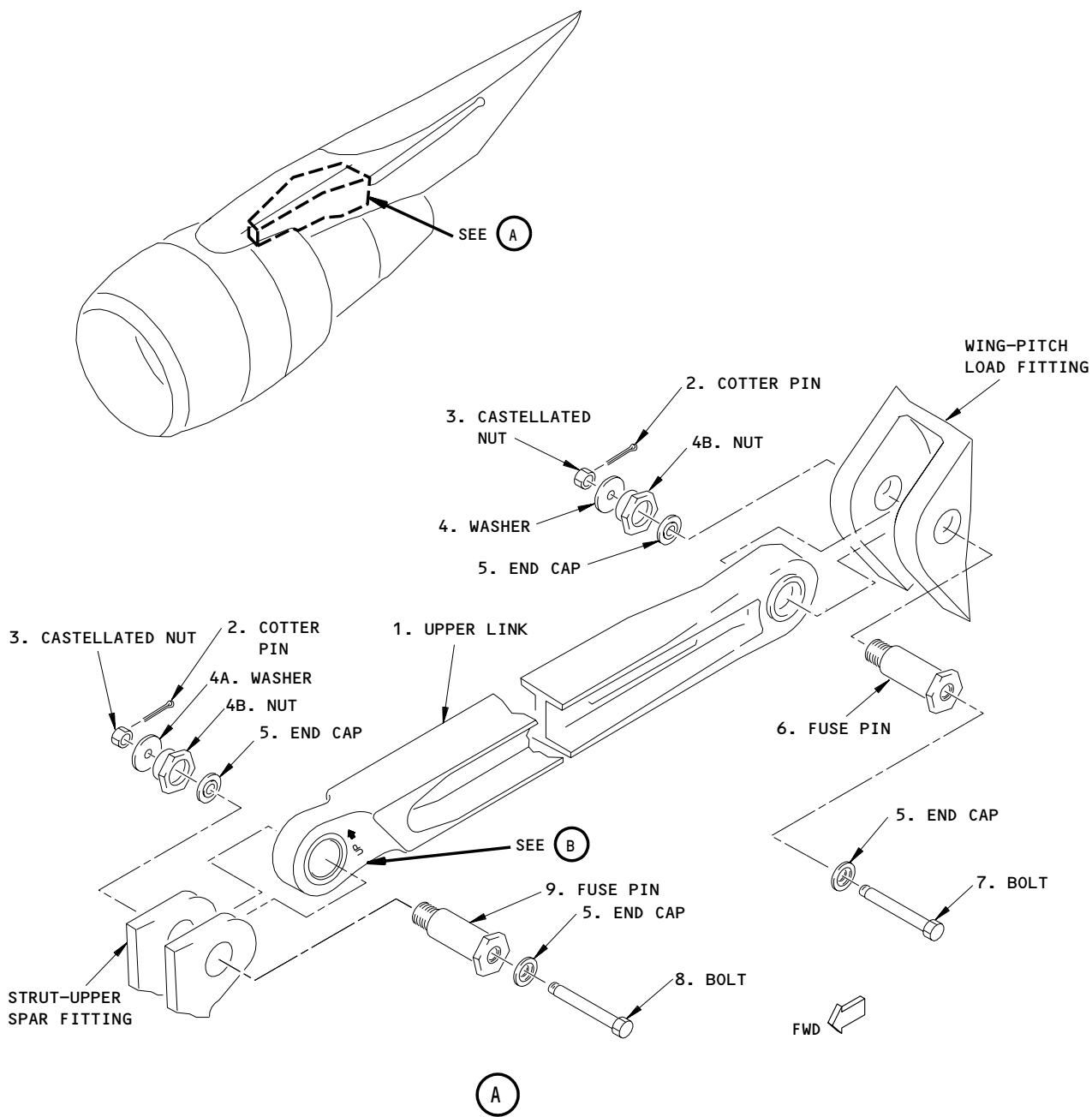
A54004-27 PRELOAD FIXTURE INSTALLATION

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 3)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 404
Dec 22/05

01

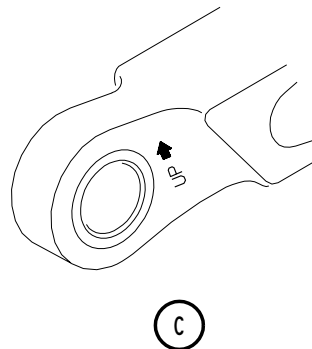
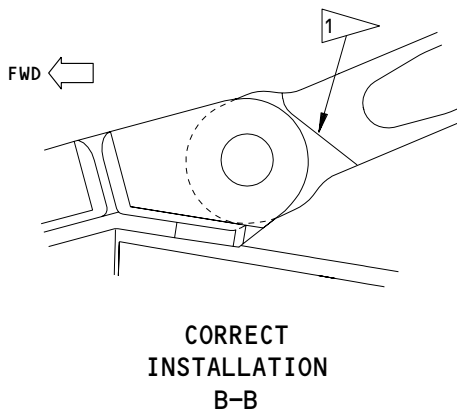
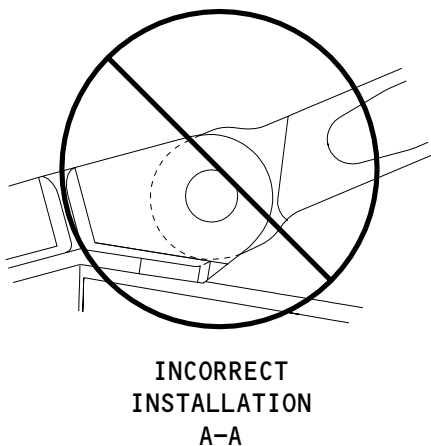
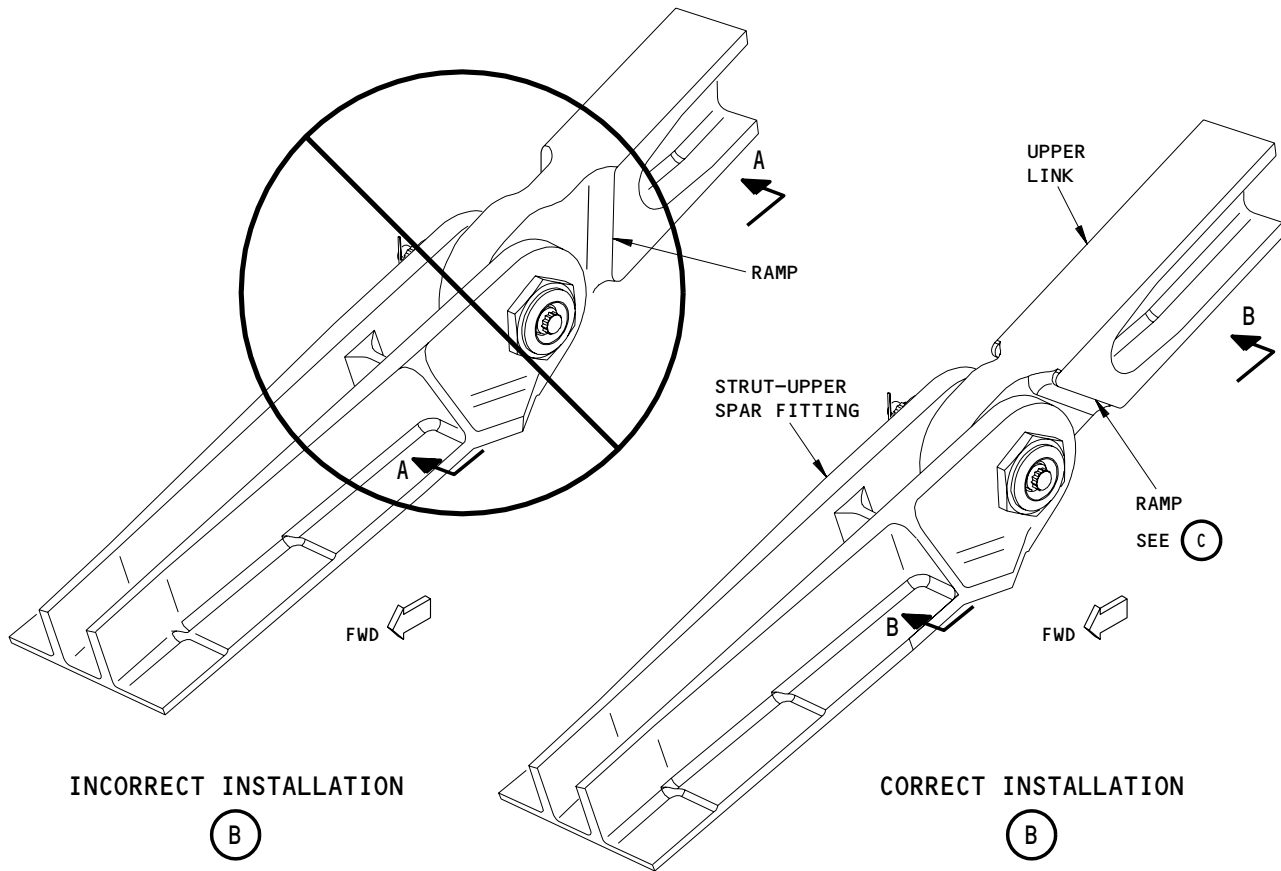


Fuse Pin Installation - Upper Link Fittings
Figure 402 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 405
Dec 22/05

01



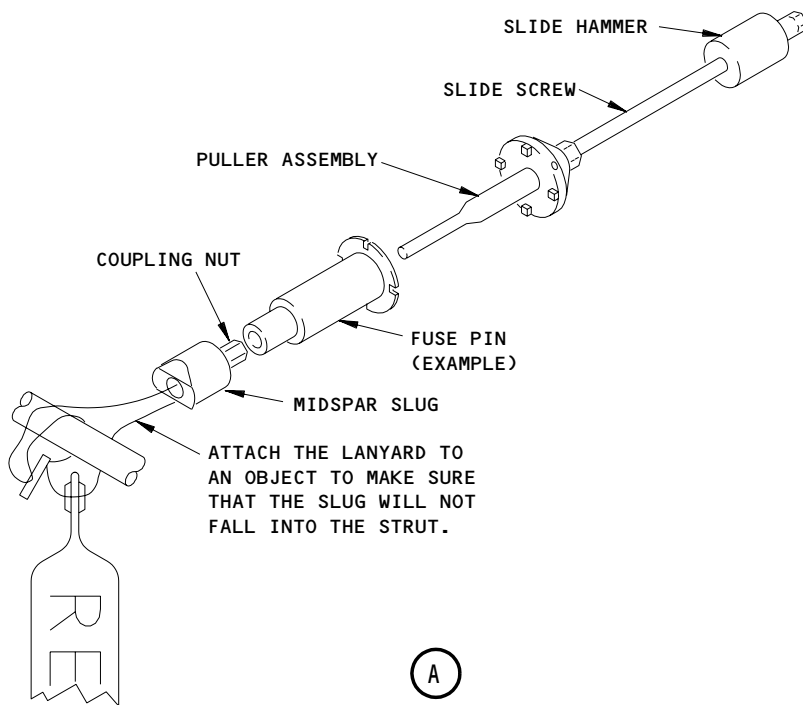
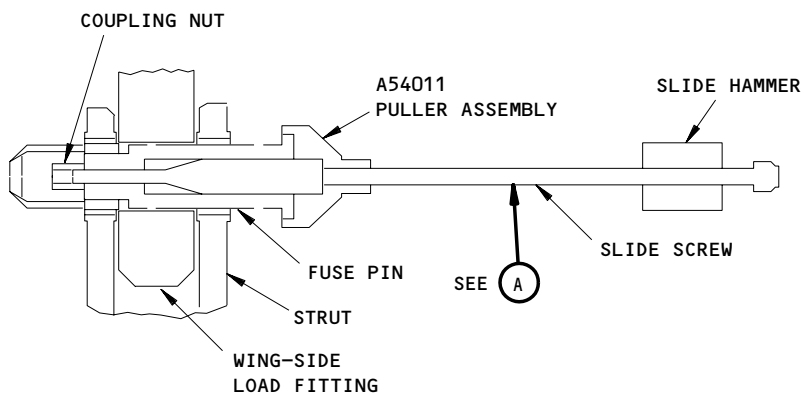
1 **WARNING:** MAKE SURE THAT THE ARROW ON THE UPPER LINK POINTS UP WHEN YOU INSTALL THE UPPER LINK. MAKE SURE THAT THE DIRECTION OF THE RAMP ON THE UPPER LINK AGREES WITH THIS ILLUSTRATION. IF YOU INSTALL THE UPPER LINK INCORRECTLY, THE LINKS CAN OPERATE INCORRECTLY DURING SOME CONDITIONS.

Fuse Pin Installation - Upper Link Fittings
Figure 402 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 406
Dec 22/05

01



Fuse Pin Removal Installation Equipment
mFigure 403

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 407
Dec 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

B. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
- (b) Dynamometer - 20,000 pounds (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if a precision load positioner is used.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter a precision load positioner is not used.
- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Sling-Strut, Unload, Pin Removal/Installation - A54001-138
- (e) Chain Hoist - 9000 pounds (4082.3 kg) capacity
(2 are necessary)
- (f) Tag lines - Used for controlling the overhead hoisting sling

- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)

- (3) Puller Equipment. Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 06-44-00/201, Wings, Access Doors and Panels - Maintenance Practices

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 408
Dec 22/05

01

- (2) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (3) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (4) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (5) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (6) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (7) AMM 54-53-01/401, Strut Pressure Relief and Access Doors - Removal/Installation
- (8) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (9) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (10) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare for the Removal of the Upper Link and/or Fuse Pins

S 864-002-014

- (1) Make sure the forward thrust levers are in the idle position.

S 044-003-014

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 044-004-014

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 024-005-014

- (4) Remove the fan cowl panels (AMM 71-11-04/401).

S 014-006-014

- (5) Open the core cowl panels (AMM 71-11-06/201).

S 014-007-014

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF THE INSTRUCTIONS ARE NOT OBEYED, INJURIES TO PERSONS AND/OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the thrust reversers (AMM 78-31-00/201).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 409
Dec 22/05

01

- S 864-008-014
- (7) Ground the airplane (AMM 20-41-00/201).
- S 864-009-014
- (8) Do these steps to make sure the applicable engine and spar fuel valves are closed:
- (a) Supply electrical power (AMM 24-22-00/201).
 - (b) Make sure these circuit breakers on the overhead panel, P11, are closed:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
 - (c) Open these circuit breakers on the P6 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
- S 864-010-014
- (9) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).
- S 034-011-014
- (10) If removing the upper link, disconnect the wire bundle attached to the clamp on the upper link.
- S 034-012-014
- (11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.
- S 864-013-014
- (12) Remove the forward and the underwing fairings (AMM 54-52-01/401).
- S 014-014-014
- (13) Remove the overwing panel (AMM 06-44-00/201).
- S 014-015-014
- (14) Open the access panels and pressure relief doors on the strut (AMM 54-31-01/401).
- S 494-016-014

CAUTION: DO NOT USE THE G54006-1 ENGINE SUPPORT SLING. DAMAGE TO THE ENGINE CAN OCCUR THIS SLING IS USED.

- (15) Use the tool placard for instructions on how to install the engine support sling, A54001-119 (Fig. 401).
- F. Remove the fuse pins from the upper link.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 410
Dec 22/05

01

S 024-017-014

WARNING: DO NOT REMOVE THE UPPER LINK FUSE PIN IF THE DIAGONAL BRACE OR THE MIDSPAR FUSE PIN HAVE BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do the steps that follow when removing the fuse pins from the upper link:
- (a) Remove the cotter pins, the nuts, the washers, the bolts and

CAUTION: DO NOT LIFT THE ENGINE WITH A FORCE THAT IS MORE THAN NECESSARY TO PERMIT THE PIN/BOLT TO TURN WHEN APPLYING 125 INCH-POUNDS (14.12 Nm) MAXIMUM TORQUE. DO NOT APPLY A TOTAL LOAD OF MORE THAN 17000 POUNDS (7711.1 Kg) MORE THAN THE WEIGHT OF THE EQUIPMENT. DO NOT APPLY A LOAD OF MORE THAN 8500 POUNDS (3855.5 Kg) ON ONE ATTACH POINT. DO NOT APPLY A LOAD WITH A DIFFERENCE BETWEEN THE TWO SIDES OF MORE THAN 1500 POUNDS (680.4 Kg). LIFT THE ENGINE VERTICALLY. IF THE CRANE LIFTS THE ENGINE WITH TOO MUCH FORCE, OR AT AN INCORRECT ANGLE, DAMAGE TO THE ENGINE CAN OCCUR.

- (b) Do these steps to remove the load on the fuse pin:
- 1) Slowly apply a small load with the crane.
 - 2) Adjust the chain hoists so the load on the inboard and outboard dynamometers is approximately equal.
 - 3) Move the crane as necessary to apply a vertical load at the tool attach points.
 - a) At the side of the engine, visually align the engine sling between the flanges on the fan case so the beam assembly is directly above the flanges.
 - b) At the front or rear of the engine, visually align the engine sling vertically side-to-side.
 - c) Monitor the angle of the engine sling side-to-side and forward/aft during the procedure.
 - 4) Use the crane to lift the strut in 500 pound (226.8 kg) increments not to exceed the maximum upload, until you can remove the fuse pin with a fuse pin puller.
 - a) Attempt to move the fuse pin after each increment of 500 pounds (226.8 kg) to see if it can move easily.
 - 5) When the total lift exceeds 5000 pounds (2268 kg), reduce the incremental lift increase to 50-100 pounds (22.68-45.36 kg).
 - a) Try to turn the pin to see if it moves easily after each lift increase.
 - 6) Remove the fuse pin from the upper link fitting.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 411
Dec 22/05

01

- (c) Keep the load on the strut the same until installing the fuse pins again.

NOTE: The hydraulic system in the crane can bleed which causes the load to change.

- (d) Remove the Upper Link
 - 1) Do these steps if the overhead crane must be removed after the fuse pin has been taken out of the upper link:
 - a) Make a note of the load used to remove the fuse pin at the upper link.
 - b) Slowly remove the load from the strut.
 - c) Remove the overhead crane.
 - 2) Remove the Thermal Anti-Ice ducts and valve from both sides of the main pneumatic duct exchange located under the upper link.
 - 3) Remove the main pneumatic duct exchange located under the upper link to provide clearance for the upper link removal.
 - 4) Remove the aft fuse pin from the upper link.
 - 5) Do the following motion to remove the upper link:
 - a) Lower the aft end of the upper link.
 - b) Push the upper link aft toward the pitch load fitting.
 - c) As the link clears the pitch load fitting and strut fitting, turn the upper link 90 degrees.
 - d) Slide the upper link out of the strut.

TASK 54-51-03-404-018-014

3. Install the Upper Link and/or Fuse Pins (ENGINE INSTALLED)

A. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
- (b) Dynamometer - 20,000 pounds (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if a precision load positioner is used.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and a precision load positioner is not used.
- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 412
Dec 22/05

01

- (d) Chain Hoist - 9000 pounds (4082.3 kg) capacity
(2 are necessary)
- (e) Sling Assembly, Diagonal Brace Unload - A54001-138

NOTE: The A54001-138 Sling Assembly supercedes the A54001-119 Sling Assembly for future procurement.

- (f) Tag lines - Used for controlling the overhead hoisting sling
 - (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
 - (3) Puller Equipment. Fuse Pin - A54008-1 (ALTERNATIVE)
 - (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
 - (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)
- B. Consumable Materials**
- (1) A00247 Sealant - BMS 5-95
 - (2) C00259 Primer - BMS 10-11, Type I
 - (3) C00308 Compound - Corrosion Preventive , Petrolatum Hot
Application, MIL-C-11796 Class 1
 - (4) D00633 Grease - BMS 3-33 (Preferred)
 - (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
 - (6) D00014 Grease - MIL-G-21164 (Alternate)
 - (7) C00852 Compound - Antiseize Molybdenum Disulfide-Petrolatum
MIL-PRF-83483 (Supersedes MIL-T-83483)
- C. References**
- (1) AMM 06-44-00/201, Wings, Access Doors and Panels - Maintenance Practices
 - (2) AMM 12-21-32/301, Strut - Servicing (Lubrication)
 - (3) AMM 20-10-09/401, Flareless Tubing Assy - Removal/Installation
 - (4) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices
 - (5) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
 - (6) AMM 20-30-04/201, Lubricants - Maintenance Practices
 - (7) AMM 20-30-07/201, Miscellaneous Materials - Maintenance Practices
 - (8) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
 - (9) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
 - (10) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
 - (11) AMM 54-51-01/601, Strut - Inspection/Check
 - (12) AMM 54-52-01/401, Strut Fairings - Removal/Installation
 - (13) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
 - (14) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 413
Aug 22/07

01

- (15) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices
- D. Access
- (1) Location Zones
- 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut
- E. Prepare to install the fuse pins
- S 214-019-014
- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).
- S 214-020-014
- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
- (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
- S 214-021-014
- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.
- S 214-022-014
- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).
- F. Install the Upper Link (Fig. 402).
- S 034-023-014
- CAUTION:** MAKE SURE THE UPPER LINK IS IN THE CORRECT POSITION. DAMAGE TO THE STRUT CAN OCCUR IF IT IS NOT POSITIONED CORRECTLY.
- (1) Position the main pneumatic duct exchanger under the upper link to be installed later.
- S 414-024-014
- (2) Put the upper link into the pitch load and strut fittings.
- NOTE:** Determine the correct installation of the upper link ramp feature as shown in Figure 402.
- (a) Turn the upper link as required to allow enough clearance while inserting the strut end into the fitting area.
- S 214-025-014
- (3) Make sure the flange on the forward end of the upper link points down and does not touch the fitting on the strut.
- G. Install the fuse pin (Fig. 402).

S 824-026-014

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE ENGINE. DAMAGE TO THE ENGINE AND THE STRUT CAN OCCUR.

- (1) Make sure the load on the strut is correct for easy installation of the fuse pins.

NOTE: If the diagonal brace or upper link are removed, and the overhead crane is removed, use the load that was noted to reinstall the sling using the above procedure.

S 434-027-014

- (2) Do the steps that follow when installing the fuse pins in the upper link:
 - (a) Make sure that the fuse pin, bolt and bushing has the correct wear dimensions (AMM 54-51-01/601).
 - (b) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound (MIL-C-11796, Class 1).
 - 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch (1.27 mm).
 - (c) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and to the bottom of the bolt head.
 - 3) The inner surface of the end caps.
 - (d) Install the upper link with the fuse pin, the bolt, the end caps, the washers, and the nut.
 - 1) Make sure the arrow at the forward end of the upper link is in the position shown in Fig. 402.
 - 2) Apply anti-seize compound (NEVERSEEZ, or MIL-T-83483) to the threads of the fuse pin and the self locking nut.
 - 3) Make sure that the centering washer is fully seated in the bore of the fuse pin.
 - 4) Do a check of the self locking torque of the nut. The torque range is 90-800 inch-pounds (10.17-90.39 Nm).
 - 5) Tighten the nut to 1000-1200 inch-pounds (112.98-135.58 Nm).
 - 6) Install the nut on the retainer bolt. Use a combination of NAS1149E0416R, NAS1149E432R and/or NAS1149E463R washers as required to get required torque and cotter pin alignment.
 - 7) Tighten the nut to 50-100 inch-pounds (5.65-11.3 Nm).
 - 8) Do a check to make sure the torque value is correct.
 - (e) Install the cotter pin.
 - 1) Do a check to make sure the parts are installed correctly.
 - 2) Apply BMS 5-95 sealant to both ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 415
Aug 22/07

01

- S 094-028-014
- (3) Remove the equipment, the hoist, and the slings.
- S 414-029-014
- (4) Install the fan cowl panels (AMM 71-11-04/401).
- S 644-030-014
- (5) Do the task to lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
- (a) Remove excess grease from around the edge of the pin.
- H. Put the Airplane Back to its Usual Condition.
- S 434-031-014
- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 864-086-014
- (2) Supply electrical power (AMM 24-22-00/201).
- S 864-087-014
- (3) Do these steps to make sure the applicable engine and spar fuel valves are opened:
- (a) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
- 1) For the left engine
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
- (b) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
- 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
- S 434-032-014
- CAUTION:** MAKE SURE TO SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE UPPER LINK (AMM 20-10-09/401). IF THE CORRECT CLEARANCES ARE NOT SET, DAMAGE TO THE COMPONENTS CAN OCCUR.
- (4) Put the clamp for the electrical bundle on the upper link.
- (a) Connect the system tubes and wires with the clamps on the diagonal brace.
- (b) Install the pneumatic Thermal Anti-Ice ducts and valve.
- 1) Verify that the "E" seals for the pneumatic duct and valve are serviceable.
 - 2) Replace any "E" seals that are not serviceable.

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 416
Dec 22/05

01

- (c) Install the pulley support bracket located under the upper link.
- (d) Install the overwing access panel (AMM 06-44-00/201).
- (e) Install the forward and underwing fairing (AMM 54-52-01/401).
- (f) Do any performance/system checks required, rigging of the control cables and a pneumatic check (AMM 36-11-00/501).

S 414-033-014

- (5) Close the core cowl panels (AMM 71-11-06/401).

S 414-034-014

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURES TO CLOSE THE THRUST REVERSERS. IF THE INSTRUCTIONS ARE NOT OBEYED, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the thrust reversers (AMM 78-31-00/201).

S 414-035-014

- (7) Close the core cowl panels (AMM 71-11-06/201).

S 414-036-014

- (8) Install and close the fan cowl panels (AMM 71-11-04/401).

S 444-037-014

- (9) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 444-038-014

- (10) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-03-004-040-014

4. Remove the Fuse Pins (ENGINE REMOVED)

A. General

- (1) This procedure is for the removal and installation of the strut fuse pins with the engine removed. Unless the strut is removed from the wing, remove only one strut-to-wing component at a time.
- (2) Use this optional procedure for the removal and the installation of the fuse pins for the the upper link. This procedure can also be used to remove these fuse pins with the engine installed.

B. Equipment

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 417
Dec 22/05

01

CAUTION: DO NOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT IN ORDER TO REMOVE OR INSTALL THE FUSE PINS. THE STRUT PRELOAD FIXTURE MUST BE USED OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment. Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slats System - Maintenance Practices
- (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (6) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare for Removal

S 864-041-014

- (1) Make sure the forward thrust levers are in the idle position.

S 044-042-014

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. THE ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

- S 014-043-014
(3) If necessary, do the task to remove the engine (AMM 71-00-02/401).
- S 864-045-014
(4) Remove the electrical power (AMM 24-22-00/201).
- S 864-046-014
(5) Ground the airplane (AMM 20-41-00/201).
- S 864-047-014
(6) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).
- S 864-048-014
(7) Make sure the applicable spar shutoff valve for the fuel is closed.
- S 034-049-014
(8) Disconnect the electrical connectors from the spar shutoff valve for the fuel.
- S 034-050-014
(9) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.
- S 864-051-014
(10) Drain the fuel supply line to the engine.
- S 864-052-014
(11) Drain the hydraulic fluid lines to the engine.
- S 014-053-014
(12) Open the access doors on the aft fairing.
- S 014-054-014
(13) Remove the underwing fairings (AMM 54-52-01/401).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 419
Dec 22/05

01

F. Remove the fuse pins (Fig. 402).

S 494-056-014

WARNING: DO NOT USE ALTERNATIVE EQUIPMENT OR THE STRUT REMOVAL/ INSTALLATION SLING (A54003) WHEN LIFTING THE STRUT. USE ONLY THE EQUIPMENT THAT IS SPECIFIED BY THE MANUFACTURERS. MAKE SURE TO USE ONLY THE CORRECT EQUIPMENT WITH THE PRELOAD FIXTURE. INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Install the strut preload fixture (Fig. 401).

NOTE: For A54004 Preload Equipment, 2830 psi is equivalent to 5000 pounds (2268 kg) in the up direction. 5092 psi is equivalent to 5000 pounds (2268 kg) in the down direction.

- (a) Attach the tube assembly to the strut at the forward engine mount.
- (b) Attach the cylinder assembly to the tube assembly.
- (c) Extend the cylinder and tube assembly to the ground to locate the proper position for the base assembly.
- (d) Connect the pump assembly to the cylinder assembly.
- (e) Attach the cylinder assembly to the base assembly.
- (f) Make sure the base assembly is on the ground.

WARNING: USE TWO OBJECTS WITH A TOTAL WEIGHT OF 5000 POUNDS (2268 Kg) OR MORE TO HOLD THE BASE UNIT IN PLACE. IF THERE IS NOT ENOUGH WEIGHT ON THE BASE UNIT, IT MAY CAUSE DAMAGE TO THE EQUIPMENT AND/OR INJURY TO PERSONS.

(g) Put weight on the track of the base assembly.

NOTE: Fork lift trucks may be placed on either side of the cylinder assembly.

S 024-057-014

(2) Remove the fuse pins.

CAUTION: DO NOT LIFT THE STRUT MORE THAN IS NECESSARY TO PERMIT THE FUSE PIN TO TURN. USE A MAXIMUM TORQUE OF 125 INCH-POUNDS (14.12 Nm) TO TURN THE FUSE PIN. DO NOT LIFT THE STRUT OR PULL DOWN ON THE STRUT WITH MORE THAN 5000 POUNDS (2268 Kg) OF FORCE. IF LIFTING THE STRUT WITH MORE FORCE THAN NECESSARY, DAMAGE TO THE STRUCTURE CAN OCCUR.

- (a) To remove a fuse pin, apply a load at the forward engine mount of the strut with the preload fixture.
- 1) The permitted load in the up direction is 0.0 to 5000 pounds (0.0 to 2268 kg).
 - 2) The permitted load in the down direction is 0.0 to 5000 pounds (0.0 to 2268 kg).
 - 3) Install the fuse pin puller tool (Fig. 403).

WARNING: DO NOT REMOVE THE UPPER LINK FUSE PIN IF THE DIAGONAL BRACE OR THE MIDSPAR FUSE PIN HAS BEEN REMOVED, UNLESS THE STRUT IS REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Remove a upper link fuse pin:
- 1) Remove the cotter pin, the nuts, the washers, the bolt, and the end caps from the fuse pin.
 - 2) Remove the fuse pin.
 - 3) Make sure the load on the strut is kept the same until the fuse pins are installed again.

NOTE: The hydraulic system can bleed which can cause the the load to change.

- (c) Make a note of the load used to remove the fuse pin of the upper link fitting.
- (d) Slowly remove the load from the strut.
- (e) Remove the preload fixture.

TASK 54-51-03-404-059-014

5. Install the Fuse Pins (ENGINE REMOVED)

A. Equipment

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 421
Dec 22/05

01

CAUTION: DO NOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT IN ORDER TO REMOVE OR INSTALL THE FUSE PINS. THE STRUT PRELOAD FIXTURE MUST BE USED OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type I
- (3) C00308 Compound - Corrosion Preventive , Petrolatum Hot
Application, MIL-C-11796 Class 1
- (4) D00633 Grease - BMS 3-33 (Preferred)
- (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (6) D00014 Grease - MIL-G-21164 (Alternate)

C. References

- (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
- (2) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (3) AMM 24-11-00/501, Generator Drive System - Adjustment/Test
- (4) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (5) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (6) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (7) AMM 30-11-00/501, Wing Thermal Anti-Ice - Adjustment/Test
- (8) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (9) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (10) AMM 54-51-01/401, Strut - Removal/Installation
- (11) AMM 54-51-01/601, Strut - Inspection/Check

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the fuse pins

S 214-061-014

- (1) Do a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-064-014

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
 - (d) If the corrosion cannot be removed, replace the part.

S 214-065-014

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 214-066-014

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 402).

S 424-067-014

- (1) Do the steps that follow when installing the fuse pins in the upper link:
 - (a) Make sure that the fuse pin, bolt, and bushing have the correct wear dimensions (AMM 54-51-01/601).
 - (b) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound (MIL-C-11796, Class 1).
 - 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch (1.27 mm).
 - (c) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and to the bottom of the bolt head.

- 3) The inner surface of the end caps.
- (d) Install the upper link with the fuse pin, the bolt, the end caps, the washers, and the nut.
 - 1) Make sure the arrow at the forward end of the upper link is in the position shown in Fig. 402.
 - 2) Make sure that the washers are fully against the end caps.
 - 3) Apply anti-seize compound (NEVERSEIZE or MIL-T-83483) to the threads of the fuse pin and the self-locking nut.
 - 4) Do a check of the self-locking torque of the nut. The torque range is 90-800 inch-pounds (10.17-90.39 Nm).
 - 5) Tighten the nut to 1000-1200 inch-pounds (112.98-135.58 Nm).
 - 6) Install the nut on the retainer bolt. Use a combination of NAS1147E0416R, NAS1149E432R, and/or NAS1149E463R washers as required to get required torque and cotter pin alignment.
 - 7) Tighten the nut to 50-100 inch-pounds (5.65-11.3 Nm).
 - 8) Do a check to make sure that the torque value is correct.
 - 9) Remove the unwanted grease.
 - 10) Install the cotter pin.
 - a) If the cotter pin cannot be installed, loosen the nut only until the cotter pin can be installed.
 - b) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).
 - 11) Do a check to make sure the parts are installed correctly.

S 094-069-014

- (2) Remove the preload fixture.

S 644-070-014

- (3) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
 - (a) Remove excess grease from around the edge of the pin.

G. Put the Airplane Back to its Usual Condition.

S 864-072-014

- (1) Remove electrical power (AMM 24-22-00/201).

S 434-073-014

- (2) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

S 424-074-014

- (3) If you did this task as part of the strut installation, return to the task to install the strut (AMM 54-51-01/401).

- S 784-075-014
- (4) Pressurize the hydraulic system (AMM 29-11-00/201).
(a) Look for hydraulic system leakage.
- S 864-076-014
- (5) Supply electrical power (AMM 24-22-00/201).
- S 864-077-014
- (6) Remove the electrical ground for the airplane (AMM 20-41-00/201).
- S 714-078-014
- (7) Do a test on the generator drive system (AMM 24-11-00/501).
- S 714-079-014
- (8) Remove the locks from the leading edge slats (AMM 27-81-00/201).
- S 714-080-014
- (9) Do a test on the pneumatic system (AMM 36-11-00/501).
- S 714-081-014
- (10) Do a test on the wing Thermal Anti-Ice system (AMM 30-11-00/501).
- S 414-082-014
- (11) Close the access doors on the aft fairing.
- S 494-083-014
- (12) Make sure the components of the engine control system in the strut are not wet.
(a) If the components are wet, do this procedure:
- S 414-084-014
- (13) Install or close all the access doors.
- S 444-085-014
- (14) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW 4000 ENGINES AND
SB 767-54-0080

54-51-03
CONFIG 14
Page 425
Aug 22/06

02

MIDSPAR FUSE PINS - REMOVAL/INSTALLATION

1. General

- A. This procedure covers the removal and installation of the midspar fuse pins with the engines installed and removed.
- B. This Section uses Configurations to identify the engine type used by the operator:

	PRE STRUT MODIFICATION	POST STRUT MODIFICATION
GE CF6-80A Engines	Config 1	Config 11
GE CF6-80C2 Engines	Config 2	Config 12
PW JT9D-7R4 Engines	Config 3	Config 13
PW 4000 Engines	Config 4	Config 14
RR RB211-524H Engines	Config 5	Config 15

- C. Each operator will receive only the configuration applicable to his operation. For example an operator that uses only PW 4000 engines will receive only Configs 4 and 14. An operator using JT9D-7R4 and PW 4000 will receive Configs 3, 4, 13 and 14.

TASK 54-51-04-024-048-004

2. Remove the Fuse Pins (ENGINE INSTALLED)(Fig. 401)

A. General

- (1) You will use a crane and an overhead sling to hold the engine. Platforms and stands are necessary to get access to the engine and strut.
- (2) The power plant weighs approximately 11,000 pounds. Do not apply too much force when you lift the engine. Use a dynamometer or a precision load positioner when you lift the engine. If the crane includes an adjustable load limiter, it is not necessary to use the dynamometer or the precision load positioner.
- (3) When you operate the engine, the airflow can move unwanted objects into the engine. Before you operate the engine, make sure the engine inlet and the area around the engine is free from tools and other objects.

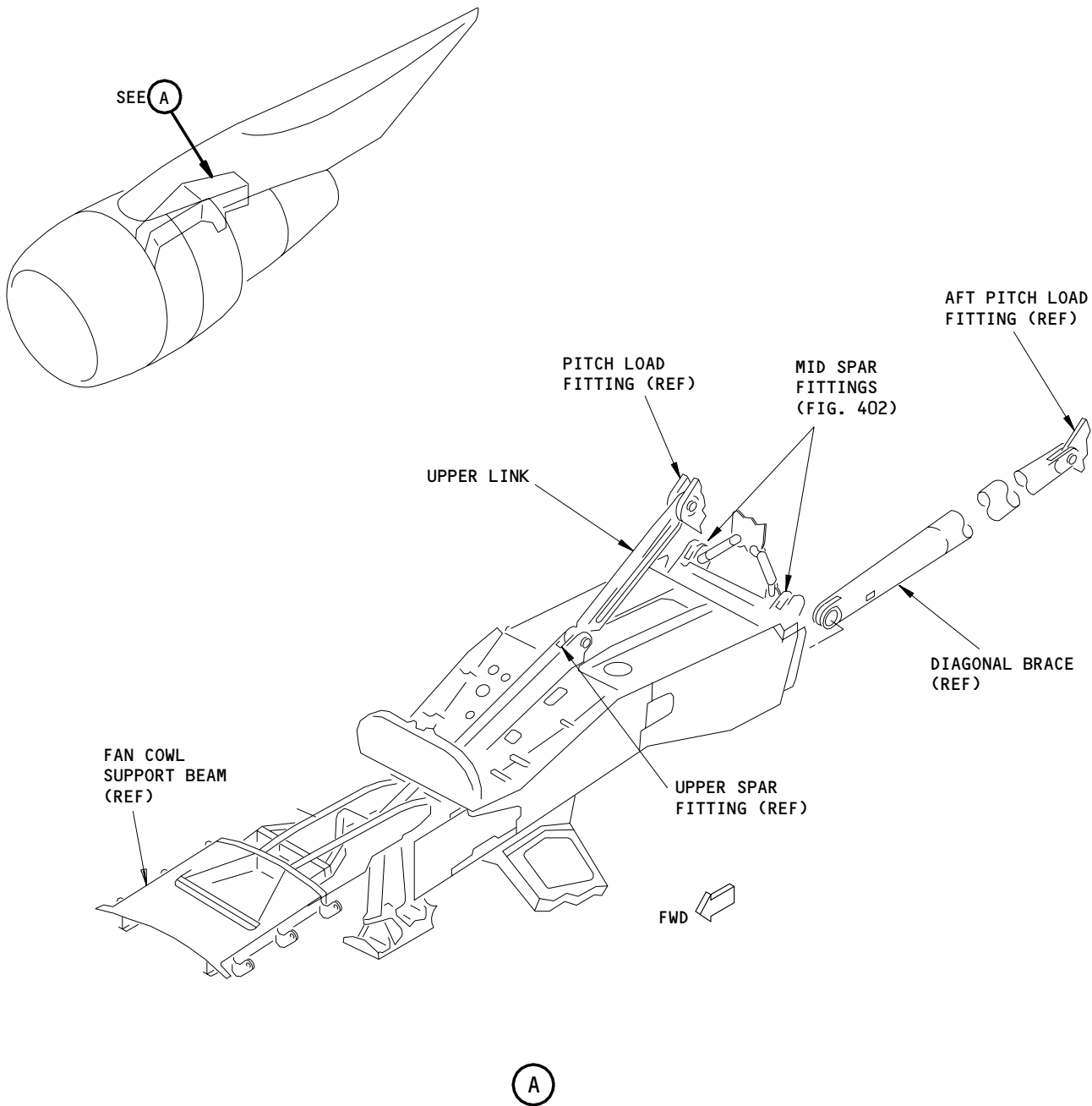
B. Equipment

- (1) Lift Equipment
 - (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
 - (b) Dynamometer - 20,000 pound (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 401
Apr 22/05

01

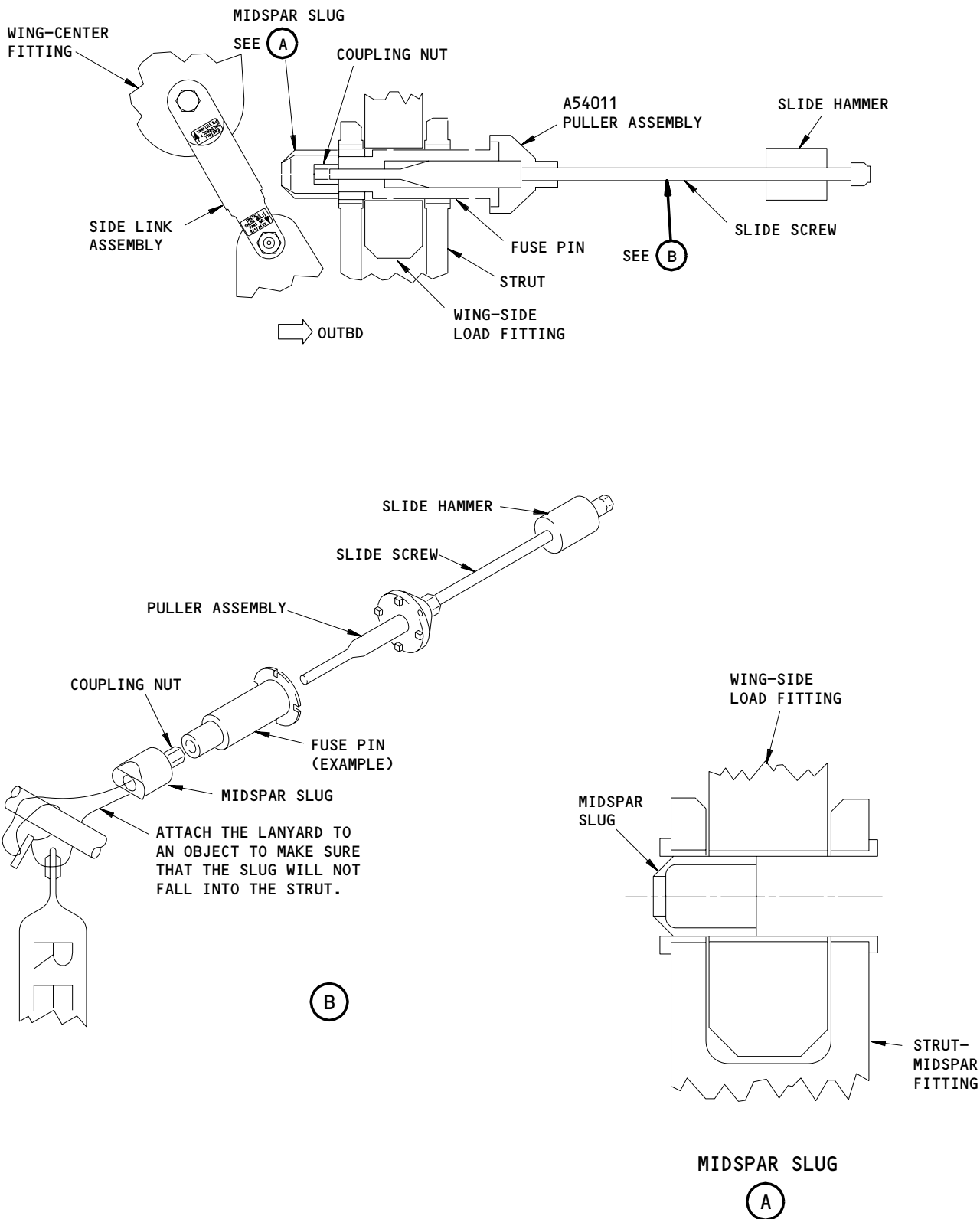


Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 402
Apr 22/05

01



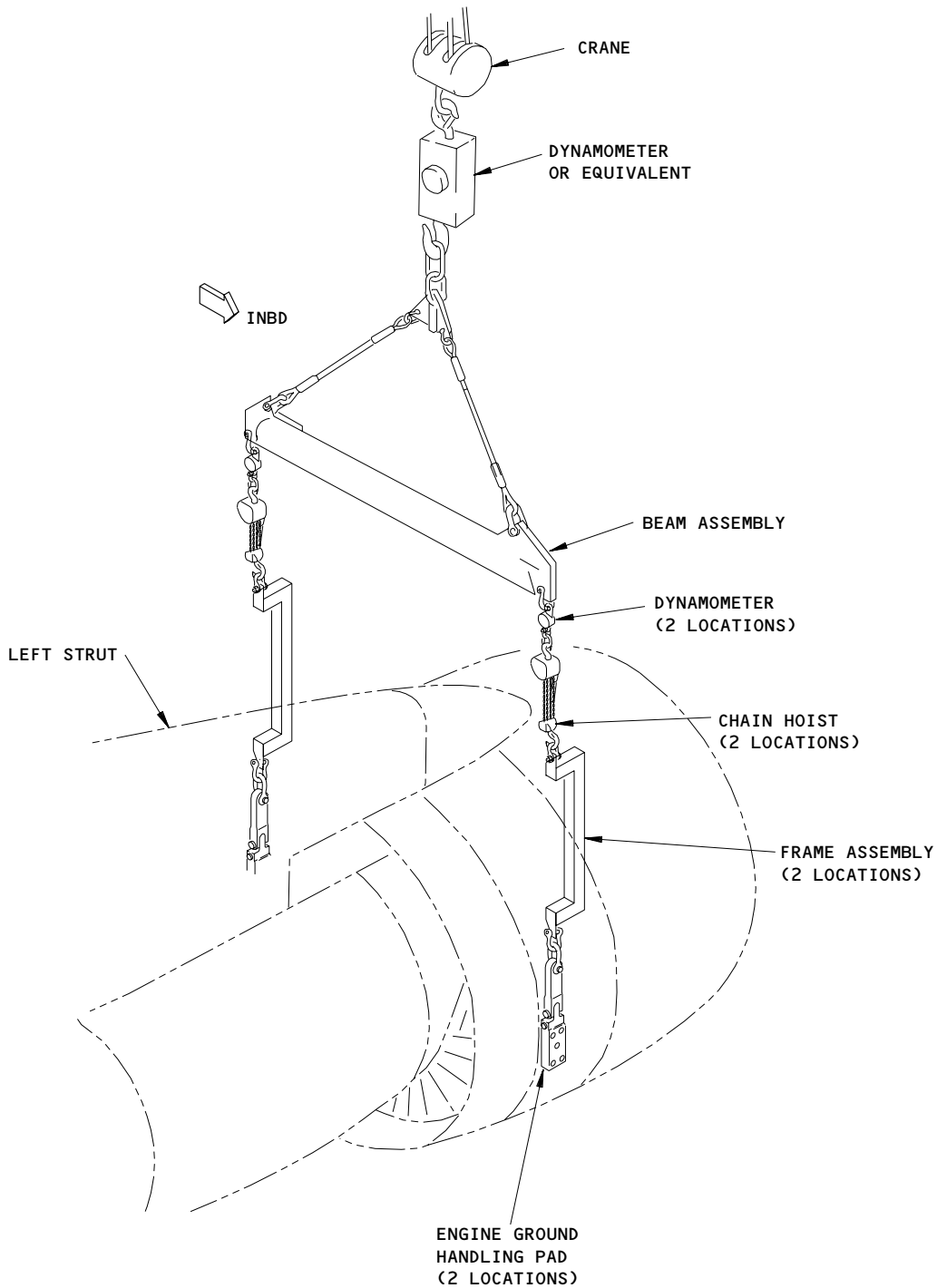
Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 403
Apr 22/05

01

BOEING
767
MAINTENANCE MANUAL



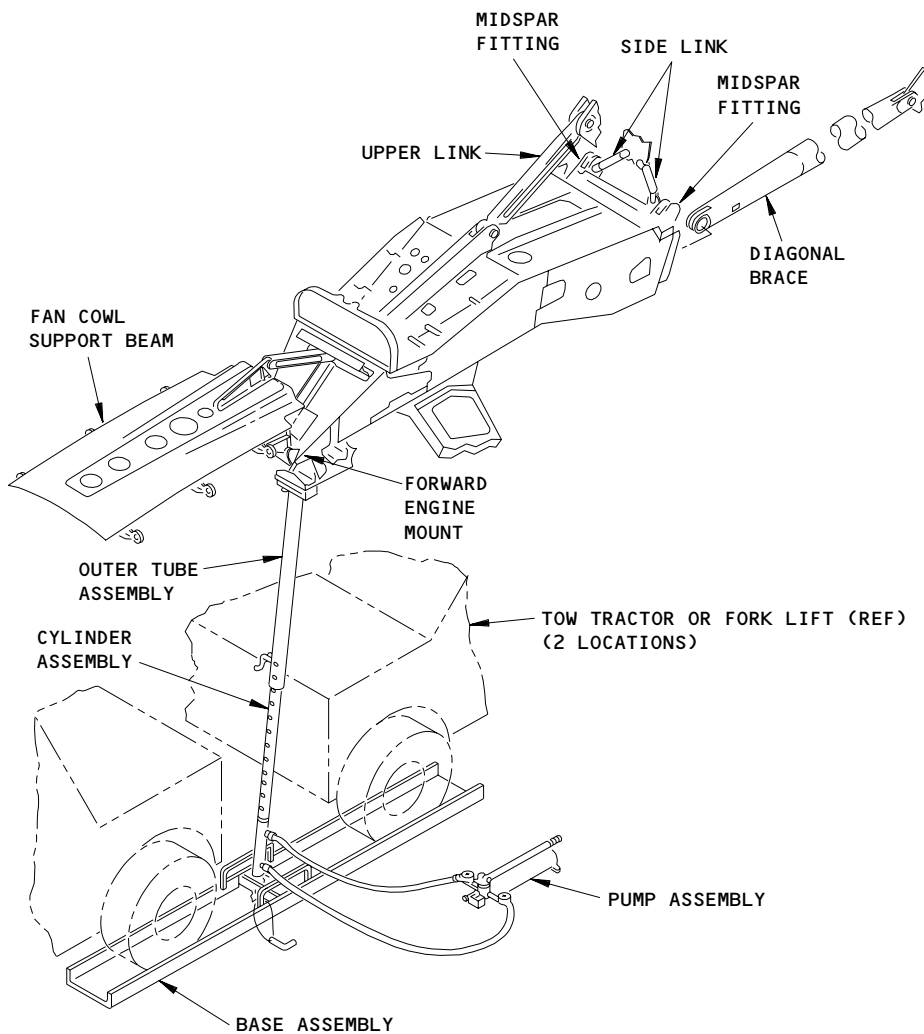
A54001-138 STRUT UNLOAD SLING

**Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 3)**

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 404
Apr 22/05

01



A54004-27 PRELOAD FIXTURE INSTALLATION

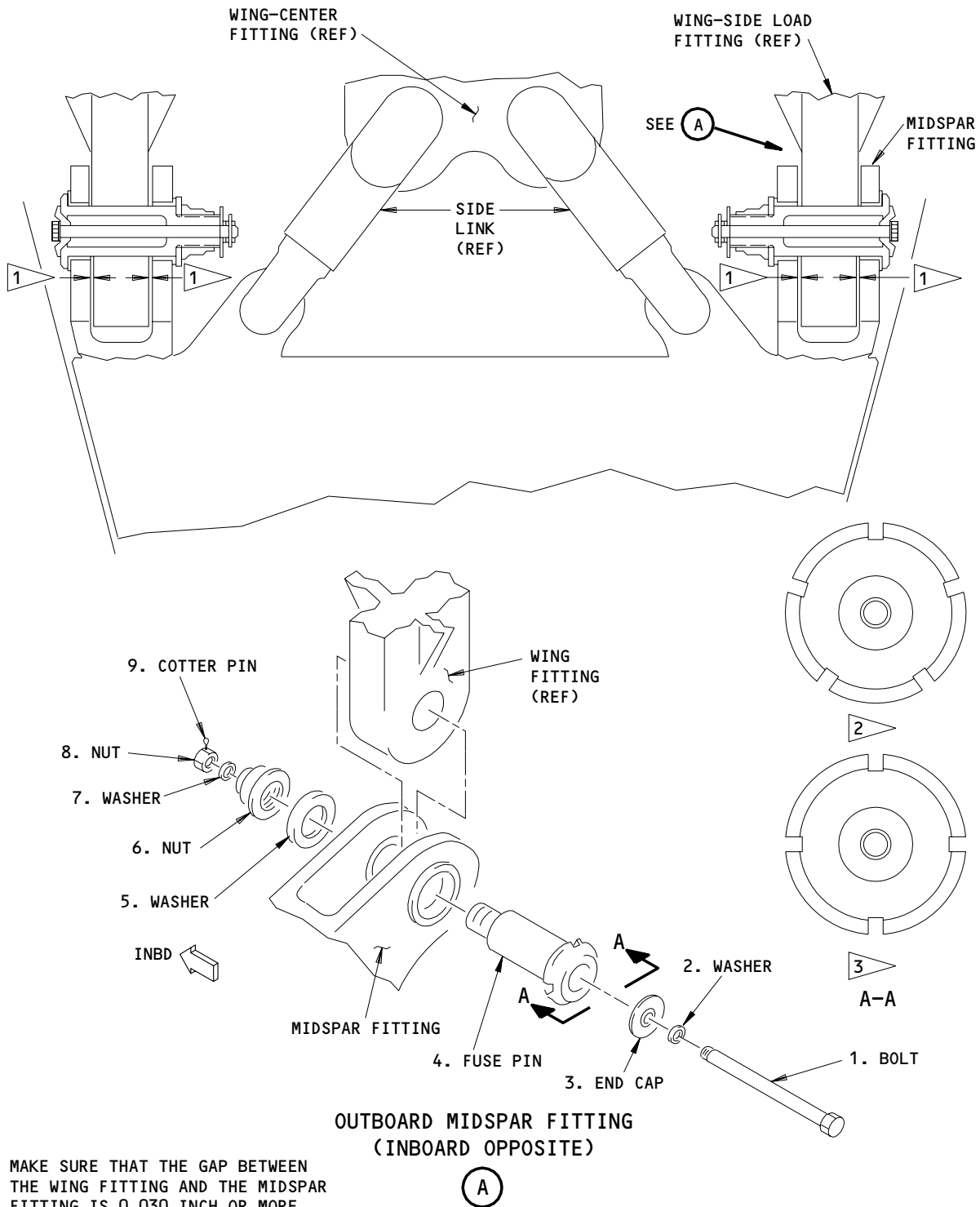
(C)

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 4)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 405
Apr 22/05

01



- 1 MAKE SURE THAT THE GAP BETWEEN THE WING FITTING AND THE MIDSPAR FITTING IS 0.030 INCH OR MORE.
- 2 FUSE PINS WITH 5 SLOTS ON THE HEAD
- 3 FUSE PINS WITH 4 SLOTS ON THE HEAD

Fuse Pin Installation - Midspar Fittings
Figure 402

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 406
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pound (4082.3 kg) capacity
(2 are necessary)
- (e) Sling, Strut Unload, Pin Removal/Installation - A54001-138
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
 - (a) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (3) Container - 10 Gallon (37.85 liter) capacity (for fuel)
- (4) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (6) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (7) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (8) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare for the Removal of the Midspar and/or Fuse Pins

S 864-001-004

- (1) Make sure the forward thrust levers are in the idle position.

S 044-042-004

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 407
Apr 22/05

01

S 044-003-004

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 014-004-004

- (4) Remove the fan cowl panels (AMM 71-11-04/401).

S 014-037-004

- (5) Open the core cowl panels (AMM 71-11-06/201).

S 864-043-004

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the thrust reversers (AMM 78-31-00/201).

S 864-006-004

- (7) Ground the airplane (AMM 20-41-00/201).

S 864-007-004

- (8) Do these steps to make sure the applicable engine and spar fuel valves are closed:
 - (a) Supply electrical power (AMM 24-22-00/201).
 - (b) Make sure these circuit breakers on the overhead panel, P11, are closed:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
 - (c) Make sure these circuit breakers on the main power distribution panel, P6, are closed:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
 - (d) Move the FUEL CONTROL switch on the control stand to the CUTOFF position.
 - 1) Attach a DO-NOT-OPERATE tag to the switch.
 - (e) Make sure the ENG VALVE and the SPAR VALVE lights, on the control stand, are not on.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 408
Apr 22/05

01

S 864-041-004

- (9) Do these steps to make sure the applicable engine and spar fuel valves stay closed:
- (a) Open these circuit breakers on the P11 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
 - (b) Open these circuit breakers on the P6 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - b) For the right engine:
 - c) 6E2, FUEL VALVES R SPAR

S 864-008-004

- (10) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).

S 034-009-004

- (11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.

S 034-010-004

- (12) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.

S 864-011-004

- (13) If you remove the fuse pins from the midspar fitting, drain the fuel supply line to the engine.

S 864-012-004

- (14) If you remove the fuse pins from the midspar fitting, drain the hydraulic lines to the engine.

S 014-013-004

- (15) Remove the forward and the underwing fairings (AMM 54-52-01/401).

S 014-014-004

- (16) Open the access doors on the aft fairing.

S 494-016-004

- (17) Use the tool placard for instructions on how to install the engine support sling, A54001-138 (Fig. 402).

F. Remove the fuse pins

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 409
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

S 024-044-004

WARNING: DO NOT REMOVE THE MIDSPAR FUSE PIN IF THE DIAGONAL BRACE, UPPER LINK OR OPPOSITE MIDSPAR FUSE PIN HAS BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do these steps to remove the midspar fuse pins:
- (a) Remove the cotter pin, castellated nut, washers, end cap, bolt and self-locking nut from the fuse pin that you will remove.

CAUTION: DO NOT LIFT THE ENGINE WITH A FORCE THAT IS MORE THAN NECESSARY TO PERMIT THE PIN/BOLT TO TURN WHEN YOU APPLY 125 INCH-POUNDS MAXIMUM TORQUE. DO NOT APPLY A TOTAL LOAD OF MORE THAN 17000 POUNDS (7711.1 Kg) MORE THAN THE WEIGHT OF THE EQUIPMENT. DO NOT APPLY A LOAD OF MORE THAN 8500 POUNDS (3855.54 Kg) ON ONE ATTACH POINT. DO NOT APPLY A LOAD WITH A DIFFERENCE BETWEEN THE TWO SIDES OF MORE THAN 1500 POUNDS (680.40 Kg). LIFT THE ENGINE VERTICALLY. IF THE CRANE LIFTS THE ENGINE WITH TOO MUCH FORCE, OR AT AN INCORRECT ANGLE, DAMAGE TO THE ENGINE CAN OCCUR.

- (b) Do these steps to remove the load from the midspar fuse pin that you will remove:

NOTE: The inboard midspar fuse pin usually releases first. If you find the load which releases the inboard midspar fuse pin, you can increase the load on the outboard midspar fuse pin to release it.

- 1) Slowly apply a small load with the crane.
- 2) Adjust the chain hoists so the load on the inboard and outboard dynamometers is approximately equal.
- 3) Move the crane as necessary to apply a vertical load at the tool attach points.
 - a) At the side of the engine, visually align the engine sling between the flanges on the fan case so the beam assembly is directly above the flanges.
 - b) At the front or rear of the engine, visually align the engine sling vertically side-to-side.
 - c) Monitor the angle of the engine sling side-to-side and forward/aft during the procedure.
- 4) Use the crane to lift the engine until the Load on the dynamometer on the same side of the strut is approximately 4000 pounds.
- 5) Install the fuse pin puller tool.
- 6) Use the torque wrench to try to turn the fuse pin with 125 inch-pounds (14.12 Nm) maximum torque.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 410
Apr 22/05

01

- 7) Increase the lift load in 50–100 pound (22.7–45.36 kg) increments, trying to turn the fuse pin after each load increase.
- 8) Continue to increase the load in increments (within the maximum limit) until you can remove the fuse pin with a fuse pin puller.

WARNING: REMOVE ONLY ONE MIDSPAR FUSE PIN AT A TIME. IF YOU REMOVE BOTH, THE STRUT CAN MOVE SUDDENLY AND INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: MAKE SURE YOU INSTALL A BRASS SLUG AS YOU PULL OUT THE FUSE PIN. IF YOU DO NOT USE A BRASS SLUG, THE WING FITTING MAY NOT ALIGN WITH THE MIDSPAR FITTING. DAMAGE TO THE BUSHINGS OR STRUCTURE CAN OCCUR.

- (c) Do these steps to remove the midspar fuse pin:
- 1) Apply a light layer of grease to the brass slug from the A54011 tool kit.
 - 2) As you pull the pin with the fuse pin puller tool, push the brass slug in from the opposite side.
 - 3) Keep the load on the strut the same until you install a fuse pin at this location.

NOTE: The hydraulic system in the crane can bleed which can cause the load to change.

- (d) Do these steps if you will remove the other midspar fuse pin:
- 1) Install a midspar fuse pin in the location where you removed one in the steps above.
 - 2) Remove the cotter pin, castellated nut, washers, end cap, bolt, and self-locking nut from the fuse pin that you will remove.
 - 3) Install the fuse pin puller tool.
 - 4) Use a torque wrench to try to turn the fuse pin with 125 inch-pounds (14.12 Nm) maximum torque.
 - 5) Adjust the chain hoists or the crane to change the load on the midspar fuse pin until it turns with 125 inch-pounds (14.12 Nm) maximum torque.
 - 6) As you pull the pin with the fuse pin puller tool, push the brass slug in from the opposite side.
 - 7) Keep the load on the strut the same until you install a fuse pin at this location.

NOTE: The hydraulic system in the crane can bleed which can cause the load to change.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 411
Apr 22/05

01

TASK 54-51-04-424-049-004

3. Install the Fuse Pins (ENGINE INSTALLED)

A. General

(1) Lift Equipment

(a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)

1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin

(b) Dynamometer - 20,000 pound (9071.85 kg) capacity, 2% accuracy

1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.
2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.

(c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (alternative)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California

(d) Chain Hoist - 9000 pound (4082.33 kg) capacity
(2 are necessary)

(e) Sling, Strut Unload, Pin Removal/Installation - A54001-138

(f) Tag lines - Used for controlling the overhead hoisting sling

(2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)

(3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)

(4) Container - 10 Gallon (37.85 liter) capacity (for fuel)

(5) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)

B. Consumable Materials

(1) A00247 Sealant - BMS 5-95

(2) C00259 Primer - BMS 10-11, Type I

(3) C00308 Compound - Corrosion Preventive, Petrolatum Hot Application, MIL-C-11796 Class 1

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 412
Aug 22/07

01

- (4) D00633 Grease - BMS 3-33 (Preferred)
- (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (6) D00014 Grease - MIL-G-21164 (Alternate)

C. References

- (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
- (2) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
- (3) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices
- (4) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (5) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (6) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (7) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (8) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (9) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (10) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (11) AMM 54-51-01/601, Strut - Inspection/Check
- (12) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (13) AMM 71-00-00/201, Power Plant - Maintenance Practices
- (14) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (15) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (16) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the fuse pins

S 214-017-004

- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-018-004

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
 - (d) If the corrosion cannot be removed, replace the part.

S 214-019-004

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 214-020-004

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 401).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 413
Aug 22/07

02

 **BOEING**
767
MAINTENANCE MANUAL

S 424-053-004

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE ENGINE. DAMAGE TO THE ENGINE AND THE STRUT CAN OCCUR.

- (1) Do these steps to install the midspar fuse pins:
 - (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound.
 - 1) If the fuse pin does not have corrosion preventative compound, apply it to the inner surface with a minimum thickness of 0.05 inch.
 - (b) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and the bottom of the bolt head.
 - 3) The inner surface of the end caps.
 - (c) Install the fuse pin, the washers, and the self-locking nut in the midspar fitting.
 - 1) As you install the fuse pin, remove the brass slug from the opposite side of the midspar fitting.
 - 2) Make sure the self-locking nut and the fuse pin are fully against the washer.
 - 3) FUSE PINS WITH 4 SLOTS ON THE HEAD;
Tighten the self-locking nut to 1000-1200 inch-pounds (112.92-135.56 Nm).
 - 4) FUSE PINS WITH 5 SLOTS ON THE HEAD;
Do a check of the self-locking torque of nut:
 - a) Make sure the torque is in the range of 90-800 inch-pounds (10.17-90.39 Nm).
 - b) If the torque is not in this range, replace the nut and do the check again.
 - 5) FUSE PINS WITH 5 SLOTS ON THE HEAD;
Tighten the self-locking nut:
 - a) Apply the torque to the nut.
 - b) Tighten the nut to 1000-1200 inch-pounds (112.92-135.5 Nm).
 - 6) Do a check to make sure the torque value is correct.
 - 7) Install the end cap, the washers, the bolt, and the castellated nut.
 - 8) Make sure the nut is fully against the washer.
 - 9) FUSE PINS WITH 4 SLOTS ON THE HEAD;
Tighten the castellated nut to 200 inch-pounds maximum (22.60 Nm).
 - 10) FUSE PINS WITH 4 SLOTS ON THE HEAD
Do a check to make sure you can install the cotter pin.
 - a) If you cannot, loosen the castellated nut a minimum quantity to permit the alignment for the cotter pin.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 414
Apr 22/05

01

- 11) FUSE PINS WITH 5 SLOTS ON THE HEAD;
Tighten the castellated nut to 50-200 inch-pounds
(5.65-22.58 Nm)
 - a) Do a check to make sure that you can install the cotter pin.
 - b) If you cannot, remove the castellated nut and install washers.
- 12) Do a check to make sure the torque value is correct.
- 13) Remove the unwanted grease.
- (d) Install the cotter pin.
 - 1) Do a check to make sure the parts are installed correctly.
 - 2) Put BMS 5-95 sealant on the ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).

S 094-022-004

- (2) Remove the equipment, the hoist, and the slings.

S 644-024-004

- (3) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
 - (a) Remove excess grease from around the edge of the pin.

G. Put the Airplane Back to its Usual Condition.

S 434-025-004

- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

S 864-026-004

- (2) Supply electrical power (AMM 24-22-00/201).

S 794-027-004

- (3) Do these steps to do a check of the fuel system for leaks:
 - (a) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
 - 1) For the left engine
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
 - (b) Look at the FUEL QUANTITY indicator for the fuel quantity.
 - (c) Remove the DO-NOT-OPERATE tag from the FUEL CONTROL switch.
 - (d) Move the FUEL CONTROL switch to the RUN position.
 - (e) Put the applicable BOOST PUMP switch to the ON position.
 - (f) Examine the fuel system on the engine and strut for leaks.

NOTE: Look carefully at the connectors for the main fuel supply line.

- (g) Put the applicable BOOST PUMP switch to the ON position.
- (h) Move the FUEL CONTROL switch to the CUTOFF position.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 415
Apr 22/05

01

- S 864-040-004
- (4) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
- (a) For the left engine:
 - 1) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - (b) For the right engine:
 - 1) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
- S 784-028-004
- (5) Pressurize the hydraulic system (AMM 29-11-00/201).
- (a) Look for hydraulic system leakage.
- S 714-029-004
- (6) If you removed a midspar fuse pin, do a test of the pneumatic system (AMM 36-11-00/501).
- S 794-030-004
- (7) If you removed a midspar fuse pin, do the task for the ground test (idle leak test) (AMM 71-00-00/201).
- S 414-032-004
- (8) Close the access doors on the aft fairing.
- S 414-033-004
- (9) Install the fairings (AMM 54-52-01/401).
- S 414-050-004
- WARNING:** OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.
- (10) Close the thrust reversers (AMM 78-31-00/201).
- S 414-039-004
- (11) Close the core cowl panels (AMM 71-11-06/201).
- S 444-035-004
- (12) Install and close the fan cowl panels (AMM 71-11-04/401).
- S 444-051-004
- (13) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).
- S 444-054-004
- (14) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 416
Apr 22/05

02

TASK 54-51-04-544-055-004

4. Remove the Fuse Pins (ENGINE REMOVED)

A. General

- (1) This procedure is for the removal and installation of the strut fuse pins with the engine removed. Unless you remove the strut from the wing, remove only one strut-to-wing component at a time.
- (2) Use this optional procedure for the removal and the installation of the fuse pins for the the upper link. You can also remove these fuse pins with the engine installed.

B. Equipment

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (4) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (5) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
430 No. 1 Nacelle Strut
440 No. 2 Nacelle Strut

E. Prepare for Removal

S 864-094-004

CAUTION: YOU CANNOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT TO REMOVE OR INSTALL THE FUSE PINS. YOU MUST USE THE STRUT PRELOAD FIXTURE OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Make sure the forward thrust levers are in the idle position.

S 044-057-004

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. THE ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 864-059-004

- (3) Remove the electrical power (AMM 24-22-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 417
Aug 22/06

02

- S 864-060-004
- (4) Ground the airplane (AMM 20-41-00/201).
- S 034-061-004
- (5) Disconnect the electrical connectors from the spar shutoff valve for the fuel.
- S 014-062-004
- (6) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.
- S 014-063-004
- (7) Open the access doors on the aft fairing.
- S 034-064-004
- (8) Remove the underwing fairings (AMM 54-52-01/401).
- S 494-065-004

WARNING: DO NOT USE ALTERNATIVE EQUIPMENT OR THE STRUT REMOVAL/INSTALLATION SLING (A54003) WHEN YOU LIFT THE STRUT. USE ONLY EQUIPMENT THAT IS SPECIFIED BY THE MANUFACTURERS. MAKE SURE YOU USE ONLY THE CORRECT EQUIPMENT WITH THE PRELOAD FIXTURE. INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (9) Install the strut preload fixture (A54004-27).

NOTE: For A54004 Preload Equipment, 2830 psi is equivalent to 5000 pounds (2268 Kg) in the up direction. 5092 psi is equivalent to 5000 pounds (2268 Kg) in the down direction.

- (a) Attach the tube assembly to the strut at the forward engine mount.
- (b) Attach the cylinder assembly to the tube assembly.
- (c) Extend the cylinder and tube assembly to the ground to locate the proper position for the base assembly.
- (d) Connect the pump assembly to the cylinder assembly.
- (e) Attach the cylinder assembly to the base assembly.
- (f) Make sure the base assembly is on the ground.

WARNING: USE TWO OBJECTS WITH A TOTAL WEIGHT OF 5000 POUNDS (2268 Kg) OR MORE TO HOLD THE BASE UNIT IN PLACE. IF YOU DO NOT HAVE ENOUGH WEIGHT ON THE BASE UNIT, YOU MAY CAUSE DAMAGE TO THE EQUIPMENT AND INJURY TO PERSONS.

(g) Put weight on the track of the base assembly.

NOTE: Fork lift trucks may be placed on either side of the cylinder assembly.

S 024-066-004

(10) Remove the fuse pins.

(a) To remove a fuse pin, apply a load at the forward engine mount of the strut with the preload fixture.

- 1) The permitted load in the up direction is 0.0 to 5000 pounds (0.0 to 2268 kg).
- 2) The permitted load in the down direction is 0.0 to 5000 pounds (0.0 to 2268 kg).

WARNING: DO NOT REMOVE THE MIDSPAR FUSE PIN IF THE DIAGONAL BRACE, UPPER LINK OR OPPOSITE MIDSPAR FUSE PIN HAS BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: MAKE SURE YOU INSTALL A BRASS SLUG AS YOU PULL OUT THE FUSE PIN. IF YOU DO NOT USE A BRASS SLUG, THE WING FITTING MAY NOT ALIGN WITH THE MIDSPAR FITTING. DAMAGE TO THE BUSHINGS OR STRUCTURE CAN OCCUR.

(b) Remove a midspar fuse pin:

- 1) Remove the cotter pin, the nuts, the washers, the bolt, and the end caps from the fuse pin.
- 2) Install the fuse pin puller tool (Fig. 401).
- 3) Apply a light layer of grease to the brass slug from the A54011 tool kit.
- 4) As you pull the pin with the fuse pin puller tool, push the brass slug in from the opposite side.

WARNING: DO NOT REMOVE THE UPPER LINK FUSE PIN IF DIAGONAL BRACE OR MIDSPAR FUSE PIN HAS BEEN REMOVED UNLESS YOU REMOVE THE STRUT. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Slowly remove the load from the strut.

(d) Remove the preload fixture.

TASK 54-51-04-544-067-004

5. Install the Fuse Pins (ENGINE REMOVED)

A. Equipment

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 419
Dec 22/06

02

CAUTION: YOU CANNOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT TO REMOVE OR INSTALL THE FUSE PINS. YOU MUST USE THE STRUT PRELOAD FIXTURE OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type I
- (3) C00308 Compound - Corrosion Preventive, Petrolatum Hot Application, MIL-C-11796 Class 1
- (4) D00633 Grease - BMS 3-33 (Preferred)
- (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (6) D00014 Grease - MIL-G-21164 (Alternate)

C. References

- (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
- (2) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
- (3) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices
- (4) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (5) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (6) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (7) AMM 24-11-00/501, Generator Drive System - Adjustment/Test
- (8) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (9) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (10) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (11) AMM 30-11-00/501, Wing Thermal Anti-Ice - Adjustment/Test
- (12) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (13) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (14) AMM 54-51-01/401, Strut - Removal/Installation
- (15) AMM 54-51-01/601, Strut - Inspection/Check
- (16) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the fuse pins

S 214-068-004

- (1) Do a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 420
Aug 22/07

03

S 214-069-004

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
 - (d) If the corrosion cannot be removed, replace the part.

S 214-070-004

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 394-071-004

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 401).

S 424-072-004

- (1) Do the steps that follow when you connect the midspar fittings to the wing with the fuse pins:
 - (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound.
 - 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch.
 - (b) Apply antiseize compound (NEVERSEEZ or equivalent) to the threads of the fuse pin and the self locking nut.
 - (c) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and to the bottom of the bolt head.
 - 3) The inner surface of the end caps.
 - (d) Install the fuse pins, the end cap, the bolts, the washers, and the nuts.
 - 1) As you install the fuse pin, remove the brass slug from the opposite side of the midspar fitting.
 - 2) Make sure the washer is fully against the bolt and nut.
 - 3) Do a check of the self locking torque of the nut. This torque shall be in the range of 90-800 inch-pounds (10.16-90.33 Nm).
 - 4) Replace the nut if this requirement is not met, and do the check with a new nut.
 - 5) Tighten the self-locking nut to 1000-1200 inch-pounds (112.92-135.5 Nm).
 - 6) Do a check to make sure the torque value is correct.
 - (e) Install the washer and the castellated nut.
 - 1) FUSE PINS WITH FOUR SLOTS;
Tighten the castellated nut to a maximum torque value of 50-100 inch-pounds (5.65-11.29 Nm).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 421
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- 2) Do a check to make sure the torque value is correct.
 - 3) FUSE PINS WITH FIVE SLOTS;
Tighten the castellated nut to 50-200 inch-pounds (5.65-22.58 Nm).
 - 4) Do a check to make sure the torque value is correct.
 - 5) Remove the unwanted grease.
 - 6) Install the cotter pin.
 - a) If you cannot install the cotter pin, loosen the castellated nut only until you can install the cotter pin.
- (f) Install the washer and castellated nut.
- 1) Tighten the castellated nut to a maximum torque value of 200 inch-pounds (22.68 Nm).
 - 2) Do a check to make sure the torque value is correct.
 - 3) Remove the unwanted grease.
 - 4) Install the cotter pin.
 - 5) Do a check to make sure the parts are installed correctly.
 - a) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch.
 - b) Apply a torque stripe on the fuse pin primary nut and the fuse pin threads with torque seal marking lacquer.

S 094-073-004

- (2) Remove the preload fixture.

S 394-074-004

- (3) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
 - (a) Remove excess grease from around the edge of the pin.
- G. Put the Airplane Back to its Usual Condition.

S 024-093-004

- (1) If you removed the diagonal brace, do the steps that follow:

CAUTION: MAKE SURE YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.

- (a) Connect the system tubes and wires with the clamps on the diagonal brace.

S 864-075-004

- (2) Remove electrical power (AMM 24-22-00/201).

S 434-076-004

- (3) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 422
Apr 22/05

01

- S 424-077-004
- (4) If you did this task as part of the strut installation, return to the task to install the strut (AMM 54-51-01/401).
- S 424-078-004
- (5) If necessary, do the task to install and test the powerplant (AMM 71-00-02/401).
- S 444-079-004
- (6) Pressurize the hydraulic system (AMM 29-11-00/201).
(a) Look for hydraulic system leakage.
- S 864-080-004
- (7) Supply electrical power (AMM 24-22-00/201).
- S 034-089-004
- (8) Remove the electrical ground for the airplane (AMM 20-41-00/201).
- S 714-081-004
- (9) Do a test on the generator drive system (AMM 24-11-00/501).
- S 714-082-004
- (10) Remove the locks from the leading edge slats (AMM 27-81-00/201).
- S 714-083-004
- (11) Do a test on the pneumatic system (AMM 36-11-00/501).
- S 714-084-004
- (12) Do a test on the Wing Thermal Anti-Ice system (AMM 30-11-00/501).
- S 414-085-004
- (13) Close the access doors on the aft fairing.
- S 494-086-004
- (14) Make sure the components of the engine control system in the strut are not wet.
(a) If the components are wet, do this procedure:
- S 414-087-004
- (15) Install or close all the access doors.
- S 444-088-004
- (16) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-04
CONFIG 4
Page 423
Aug 22/06

02

MIDSPAR FUSE PINS - REMOVAL/INSTALLATION

1. General

- A. This procedure covers the removal and installation of the midspar fuse pins with the engines installed or the engines removed.
- B. This Section uses Configurations to identify the engine type used by the operator:

	PRE STRUT MODIFICATION	POST STRUT MODIFICATION
GE CF6-80A Engines	Config 1	Config 11
GE CF6-80C2 Engines	Config 2	Config 12
PW JT9D-7R4 Engines	Config 3	Config 13
PW 4000 Engines	Config 4	Config 14
RR RB211-524H Engines	Config 5	Config 15

- C. Each operator will receive only the configuration applicable to his operation. For example an operator that uses only PW 4000 engines will receive only Configs 4 and 14. An operator using JT9D-7R4 and PW 4000 will receive Configs 3, 4, 13 and 14.

TASK 54-51-04-024-001-014

2. Remove the Fuse Pins (ENGINE INSTALLED)(Fig. 401)

A. General

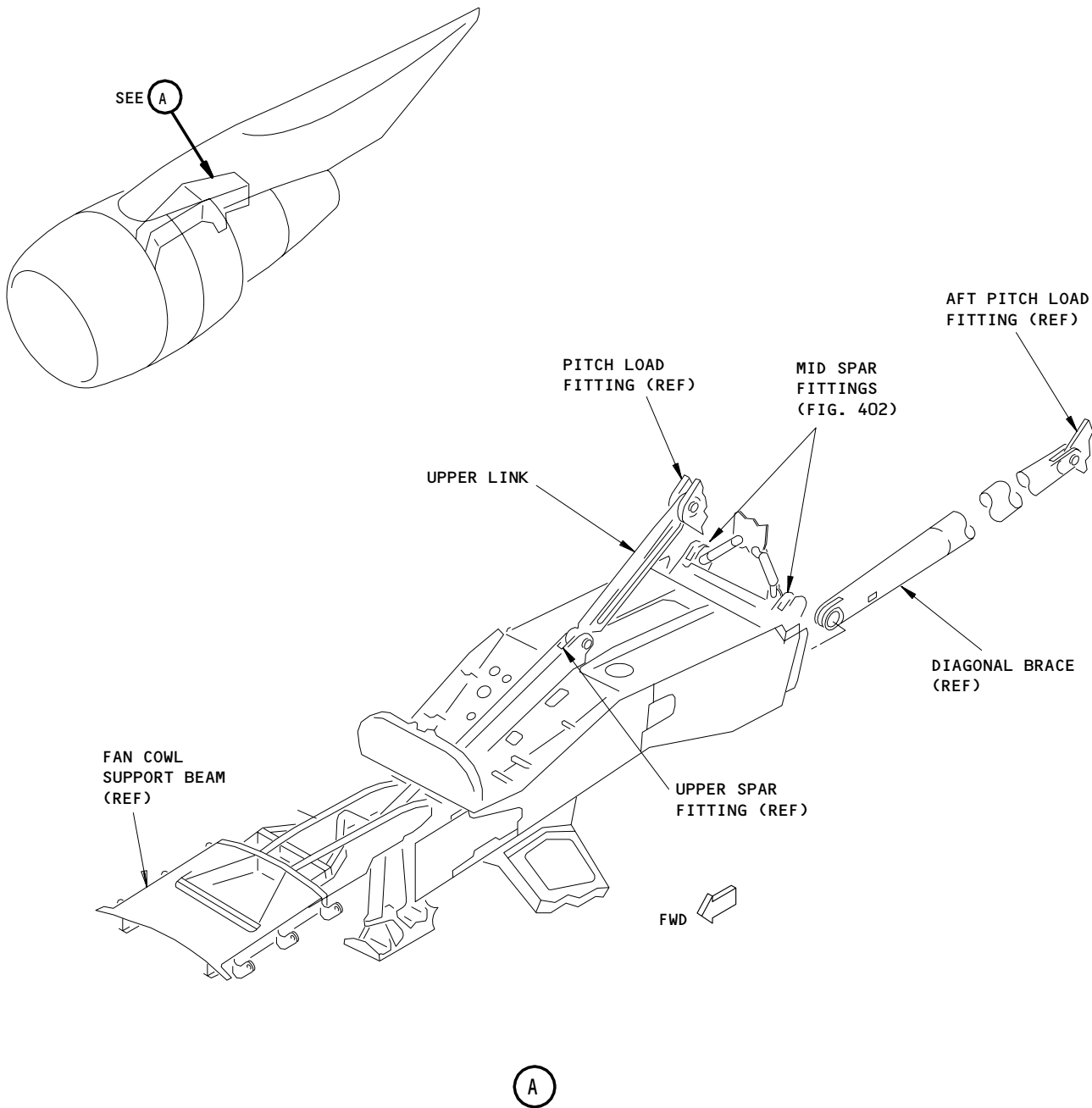
- (1) You will use a crane and an overhead sling to hold the engine. Platforms and stands are necessary to get access to the engine and strut.
- (2) The power plant weighs approximately 11,000 pounds. Do not apply too much force when you lift the engine. Use a dynamometer or a precision load positioner when you lift the engine. If the crane includes an adjustable load limiter, it is not necessary to use the dynamometer or the precision load positioner.
- (3) When you operate the engine, the airflow can move unwanted objects into the engine. Before you operate the engine, make sure the engine inlet and the area around the engine is free from tools and other objects.

B. Equipment

- (1) Lift Equipment
 - (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
 - (b) Dynamometer - 0-20,000 pound (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 401
Apr 22/05

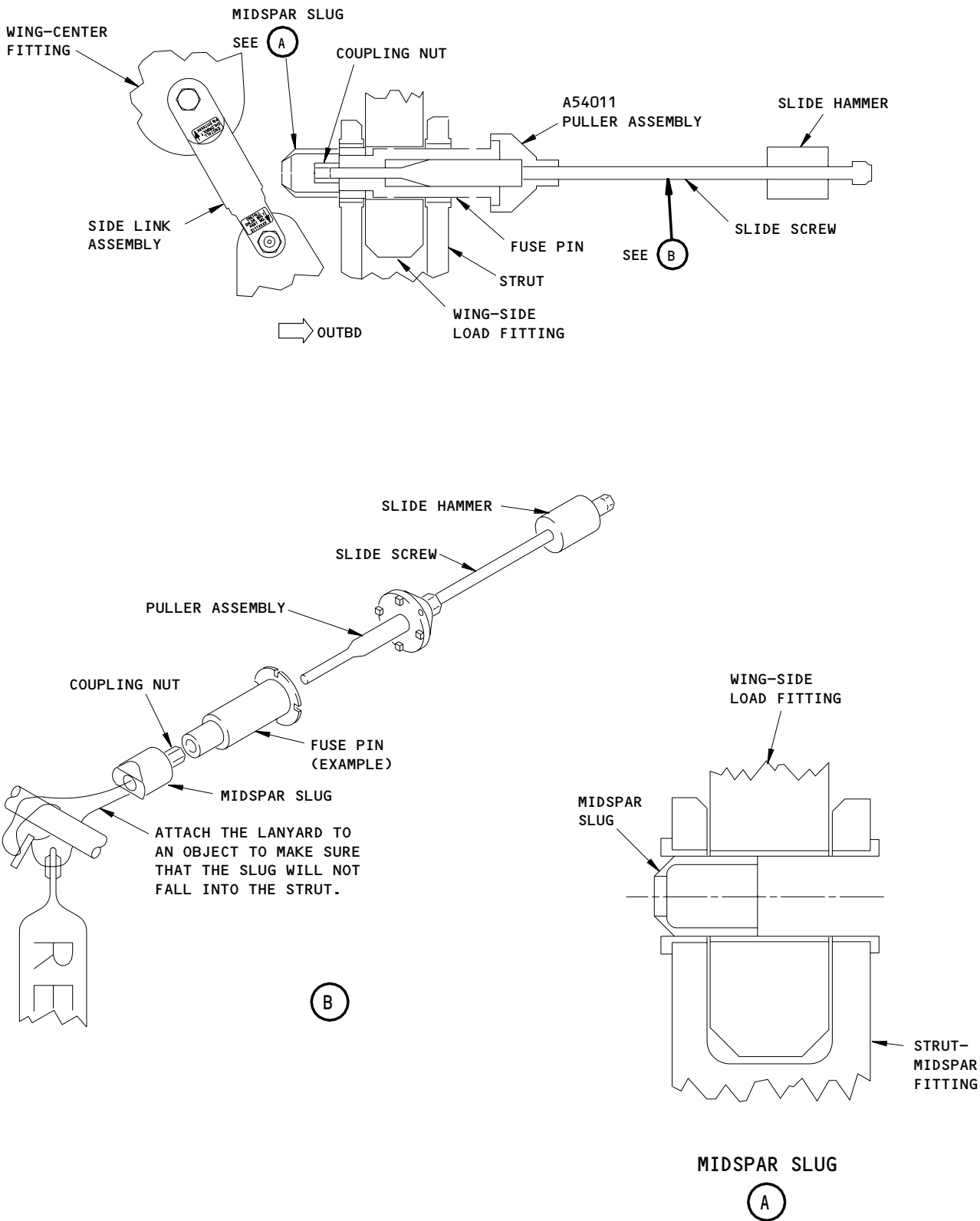


Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 402
Apr 22/05

01



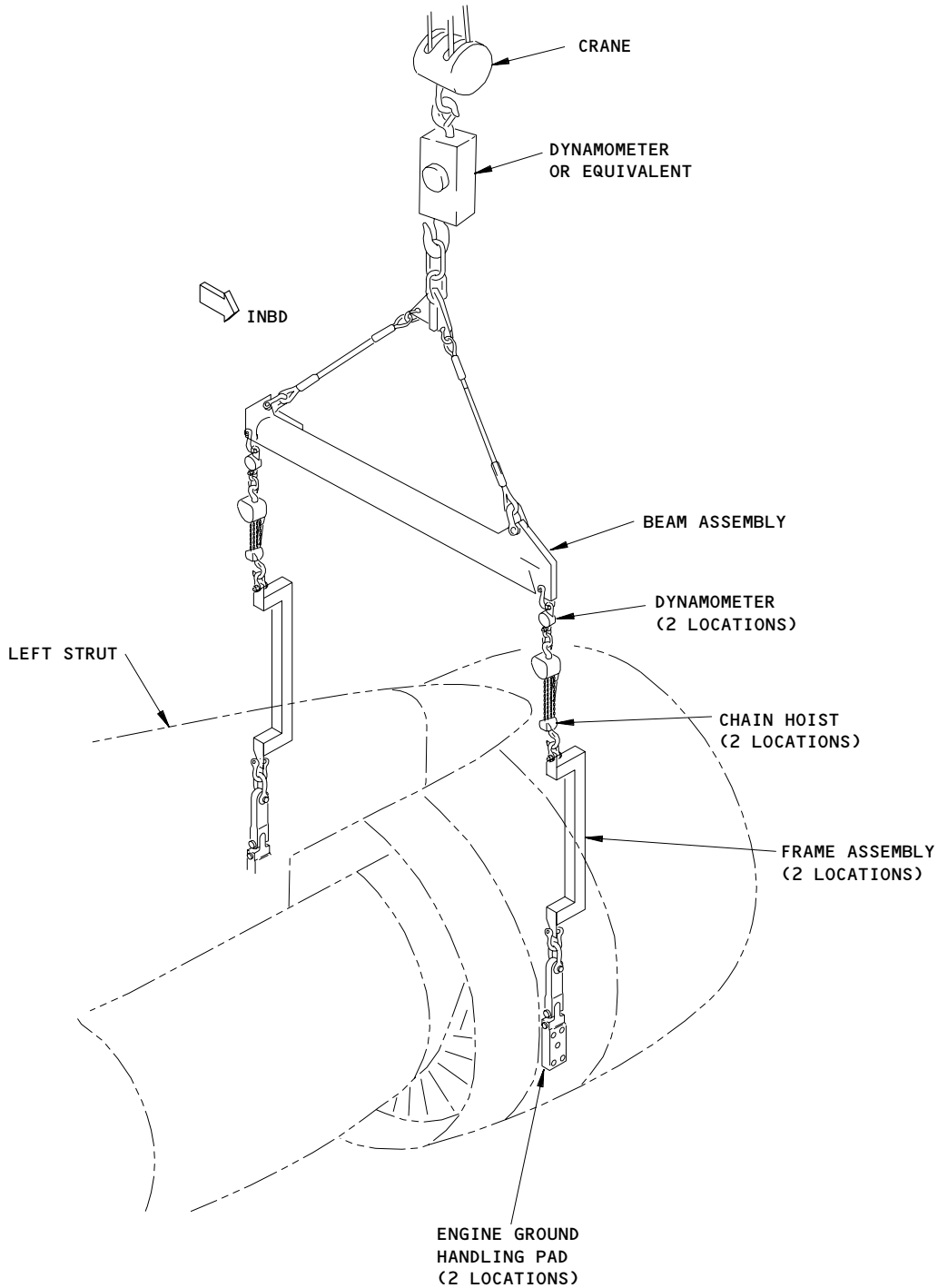
Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 403
Apr 22/05

01

BOEING
767
MAINTENANCE MANUAL



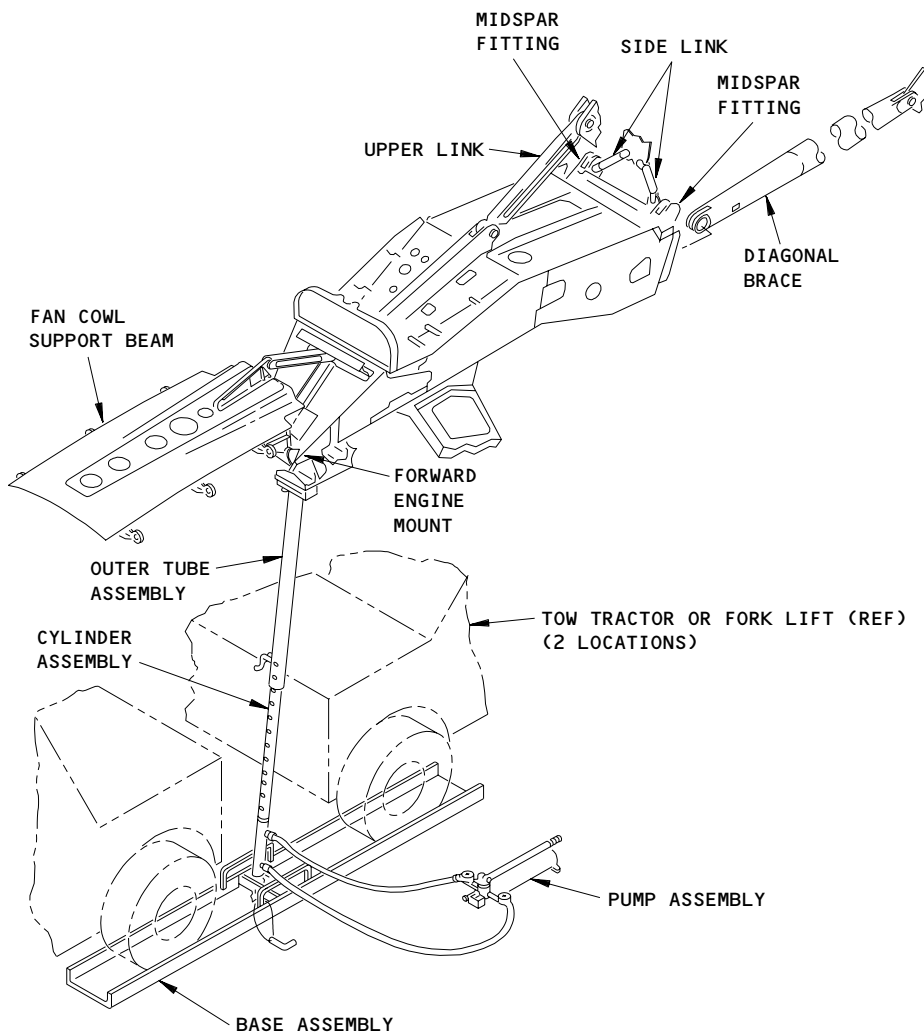
A54001-138 STRUT UNLOAD SLING

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 3)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 404
Apr 22/05

01



A54004-27 PRELOAD FIXTURE INSTALLATION

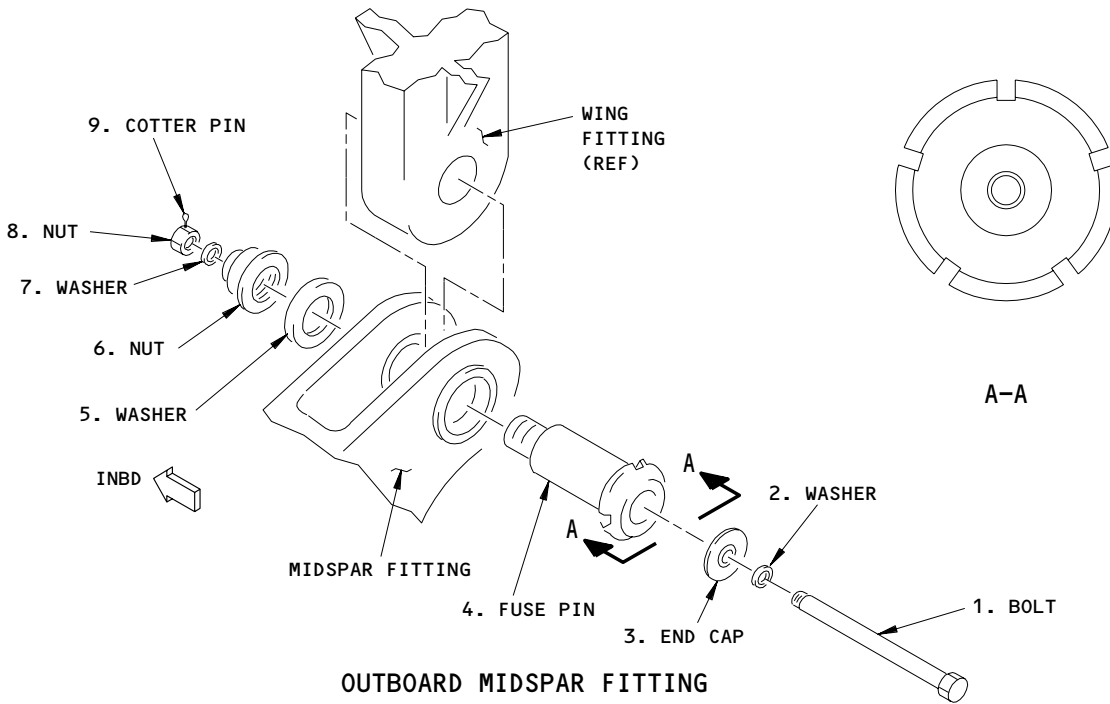
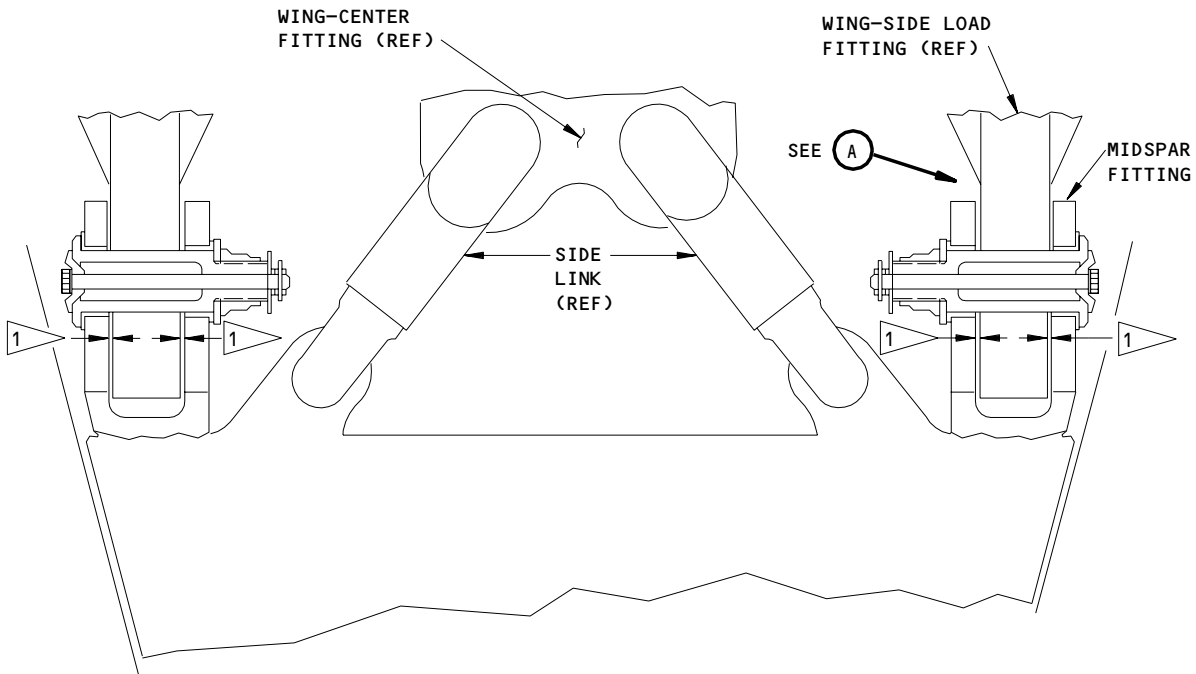
(C)

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 4)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 405
Apr 22/05

01



**OUTBOARD MIDSPAR FITTING
(INBOARD OPPOSITE)**

1 MAKE SURE THAT THE GAP BETWEEN THE WING FITTING AND THE MIDSPAR FITTING IS 0.030 INCH OR MORE.

A

**Fuse Pin Installation - Midspar Fittings
Figure 402**

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 406
Apr 22/05

02

 **BOEING**
767
MAINTENANCE MANUAL

- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pound (4082.3 kg) capacity
(2 are necessary)
- (e) Sling, Strut Unload, Pin Removal/Installation - A54001-138
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 Gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (6) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (7) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (8) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare for the Removal of the Midspar and/or Fuse Pins

S 864-002-014

- (1) Make sure the forward thrust levers are in the idle position.

S 044-003-014

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 407
Apr 22/05

01

S 044-004-014

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 014-005-014

- (4) Remove the fan cowl panels (AMM 71-11-04/401).

S 014-006-014

- (5) Open the core cowl panels (AMM 71-11-06/201).

S 864-007-014

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the thrust reversers (AMM 78-31-00/201).

S 864-008-014

- (7) Ground the airplane (AMM 20-41-00/201).

S 864-009-014

- (8) Do these steps to make sure the applicable engine and spar fuel valves are closed:
- (a) Supply electrical power (AMM 24-22-00/201).
 - (b) Make sure these circuit breakers on the overhead panel, P11, are closed:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
 - (c) Make sure these circuit breakers on the main power distribution panel, P6, are closed:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
 - (d) Move the FUEL CONTROL switch on the control stand to the CUTOFF position.
 - 1) Attach a DO-NOT-OPERATE tag to the switch.
 - (e) Make sure the ENG VALVE and the SPAR VALVE lights, on the control stand, are not on.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 408
Apr 22/05

01

- S 864-010-014
- (9) Do these steps to make sure the applicable engine and spar fuel valves stay closed:
- (a) Open these circuit breakers on the P11 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
 - (b) Open these circuit breakers on the P6 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - b) For the right engine:
 - c) 6E2, FUEL VALVES R SPAR
- S 864-011-014
- (10) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).
- S 034-012-014
- (11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.
- S 034-013-014
- (12) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.
- S 864-014-014
- (13) If you remove the fuse pins from the midspar fitting, drain the fuel supply line to the engine.
- S 864-015-014
- (14) If you remove the fuse pins from the midspar fitting, drain the hydraulic lines to the engine.
- S 014-016-014
- (15) Remove the forward and the underwing fairings (AMM 54-52-01/401).
- S 014-017-014
- (16) Open the access doors on the aft fairing.
- S 494-018-014
- (17) Use the tool placard for instructions on how to install the engine support sling, A54001-112 (Fig. 402).
- F. Remove the fuse pins

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 409
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

S 024-019-014

WARNING: DO NOT REMOVE THE MIDSPAR FUSE PIN IF THE DIAGONAL BRACE, UPPER LINK OR OPPOSITE MIDSPAR FUSE PIN HAS BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do these steps to remove the midspar fuse pins:
- (a) Remove the cotter pin, castellated nut, washers, end cap, bolt and self-locking nut from the fuse pin that you will remove.

CAUTION: DO NOT LIFT THE ENGINE WITH A FORCE THAT IS MORE THAN NECESSARY TO PERMIT THE PIN/BOLT TO TURN WHEN YOU APPLY 125 INCH-POUNDS (14.12 Nm) MAXIMUM TORQUE. DO NOT APPLY A TOTAL LOAD OF MORE THAN 17000 POUNDS (7711.1 Kg) MORE THAN THE WEIGHT OF THE EQUIPMENT. DO NOT APPLY A LOAD OF MORE THAN 8500 POUNDS (3855.5 Kg) ON ONE ATTACH POINT. DO NOT APPLY A LOAD WITH A DIFFERENCE BETWEEN THE TWO SIDES OF MORE THAN 1500 POUNDS (680.4 Kg). LIFT THE ENGINE VERTICALLY. IF THE CRANE LIFTS THE ENGINE WITH TOO MUCH FORCE, OR AT AN INCORRECT ANGLE, DAMAGE TO THE ENGINE CAN OCCUR.

- (b) Do these steps to remove the load from the midspar fuse pin that you will remove:

NOTE: The inboard midspar fuse pin usually releases first. If you find the load which releases the inboard midspar fuse pin, you can increase the load on the outboard midspar fuse pin to release it.

- 1) Slowly apply a small load with the crane.
- 2) Adjust the chain hoists so the load on the inboard and outboard dynamometers is approximately equal.
- 3) Move the crane as necessary to apply a vertical load at the tool attach points.
 - a) At the side of the engine, visually align the engine sling between the flanges on the fan case so the beam assembly is directly above the flanges.
 - b) At the front or rear of the engine, visually align the engine sling vertically side-to-side.
 - c) Monitor the angle of the engine sling side-to-side and forward/aft during the procedure.
- 4) Use the crane to lift the engine until the Load on the dynamometer on the same side of the strut is approximately 4000 pounds (1814.37 kg).
- 5) Install the fuse pin puller tool.
- 6) Use the torque wrench to try to turn the fuse pin with 125 inch-pounds (14.12 Nm).maximum torque.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 410
Apr 22/05

01

- 7) Increase the lift load in 50–100 pound (5.65–11.29 kg) increments, trying to turn the fuse pin after each load increase.
- 8) Continue to increase the load in increments (within the maximum limit) until you can remove the fuse pin with a fuse pin puller.

WARNING: REMOVE ONLY ONE MIDSPAR FUSE PIN AT A TIME. IF YOU REMOVE BOTH, THE STRUT CAN MOVE SUDDENLY AND INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: MAKE SURE YOU INSTALL A BRASS SLUG AS YOU PULL OUT THE FUSE PIN. IF YOU DO NOT USE A BRASS SLUG, THE WING FITTING MAY NOT ALIGN WITH THE MIDSPAR FITTING. DAMAGE TO THE BUSHINGS OR STRUCTURE CAN OCCUR.

- (c) Do these steps to remove the midspar fuse pin:
- 1) Apply a light layer of grease to the brass slug from the A54011 tool kit.
 - 2) As you pull the pin with the fuse pin puller tool, push the brass slug in from the opposite side.
 - 3) Keep the load on the strut the same until you install a fuse pin at this location.

NOTE: The hydraulic system in the crane can bleed which can cause the load to change.

- (d) Do these steps if you will remove the other midspar fuse pin:
- 1) Install a midspar fuse pin in the location where you removed one in the steps above.
 - 2) Remove the cotter pin, castellated nut, washers, end cap, bolt, and self-locking nut from the fuse pin that you will remove.
 - 3) Install the fuse pin puller tool.
 - 4) Use a torque wrench to try to turn the fuse pin with 125 inch-pounds (14.12 Nm) maximum torque.
 - 5) Adjust the chain hoists or the crane to change the load on the midspar fuse pin until it turns with 125 inch-pounds (14.12 Nm) maximum torque.
 - 6) As you pull the pin with the fuse pin puller tool, push the brass slug in from the opposite side.
 - 7) Keep the load on the strut the same until you install a fuse pin at this location.

NOTE: The hydraulic system in the crane can bleed which can cause the load to change.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 411
Apr 22/05

01

TASK 54-51-04-424-020-014

3. Install the Fuse Pins (ENGINE INSTALLED)

A. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
 - (b) Dynamometer - 0-20,000 pound (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.
 - (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
 - (d) Chain Hoist - 9000 pound (4082.3 kg) capacity
(2 are necessary)
 - (e) Sling, Strut Unload, Pin Removal/Installation - A54001-138
 - (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 Gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type I
- (3) D00633 Grease - BMS3-33 (Preferred)
- (4) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (5) D00014 Grease - MIL-G-21164 (Alternate)

C. References

- (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
- (2) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
- (3) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance Practices

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 412
Aug 22/07

03

- (4) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (5) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (6) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (7) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (8) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (9) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (10) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (11) AMM 54-51-01/601, Strut - Inspection/Check
- (12) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (13) AMM 71-00-00/201, Power Plant - Maintenance Practices
- (14) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (15) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (16) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the fuse pins

S 214-021-014

- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-022-014

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
 - (d) If the corrosion cannot be removed, replace the part.

S 214-023-014

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 214-024-014

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 401).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 413
Apr 22/05

03

S 424-047-014

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE ENGINE. DAMAGE TO THE ENGINE AND THE STRUT CAN OCCUR.

- (1) Do these steps to install the midspar fuse pins:
 - (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound.
 - 1) If the fuse pin does not have corrosion preventative compound, apply it to the inner surface with a minimum thickness of 0.05 inch.
 - (b) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and the bottom of the bolt head.
 - 3) The inner surface of the end caps.
 - (c) Install the fuse pin, the washers, and the self-locking nut in the midspar fitting.
 - 1) As you install the fuse pin, remove the brass slug from the opposite side of the midspar fitting.
 - 2) Make sure the self-locking nut and the fuse pin are fully against the washer.
 - 3) FUSE PINS (5 SLOTS ON THE HEAD);
Do a check of the self-locking torque of nut:
 - a) Make sure the torque is in the range of 90-800 inch-pounds (10.16-90.33 Nm).
 - b) If the torque is not in this range, replace the nut and do the check again.
 - 4) Tighten the self-locking nut:
 - a) Apply the torque to the nut.
 - b) Tighten the nut to 1000-1200 inch-pounds (112.92-135.5 Nm).
 - 5) Do a check to make sure the torque value is correct.
 - 6) Install the end cap, the washers, the bolt, and the castellated nut.
 - 7) Make sure the nut is fully against the washer.
 - 8) Tighten the castellated nut to 50-200 inch-pounds (5.65-22.58 Nm).
 - a) Do a check to make sure that you can install the cotter pin.
 - b) If you cannot, remove the castellated nut and install washers.
 - 9) Do a check to make sure the torque value is correct.
 - 10) Remove the unwanted grease.
 - (d) Install the cotter pin.
 - 1) Do a check to make sure the parts are installed correctly.
 - 2) Put BMS 5-79 sealant on the ends of the cotter pin to a minimum thickness of 0.10 inch.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 414
Apr 22/05

01

- S 094-026-014
- (2) Remove the equipment, the hoist, and the slings.
- S 644-028-014
- (3) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
- (a) Remove excess grease from around the edge of the pin.
- G. Put the Airplane Back to its Usual Condition.
- S 434-029-014
- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 434-030-014
- (2) If you removed the diagonal brace, do the steps that follow:
- S 434-031-014
- CAUTION:** MAKE SURE YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.
- (3) Connect the system tubes and wires with the clamps on the diagonal brace.
- S 864-032-014
- (4) Supply electrical power (AMM 24-22-00/201).
- S 794-033-014
- (5) Do these steps to do a check of the fuel system for leaks:
- (a) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
- 1) For the left engine
- a) 6E1, FUEL VALVES L SPAR
- 2) For the right engine:
- a) 6E2, FUEL VALVES R SPAR
- (b) Look at the FUEL QUANTITY indicator for the fuel quantity.
- (c) Remove the DO-NOT-OPERATE tag from the FUEL CONTROL switch.
- (d) Move the FUEL CONTROL switch to the RUN position.
- (e) Put the applicable BOOST PUMP switch to the ON position.
- (f) Examine the fuel system on the engine and strut for leaks.
- NOTE:** Look carefully at the connectors for the main fuel supply line.
- (g) Put the applicable BOOST PUMP switch to the ON position.
- (h) Move the FUEL CONTROL switch to the CUTOFF position.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 415
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- S 864-034-014
- (6) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
- (a) For the left engine:
 - 1) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RESET L
 - (b) For the right engine:
 - 1) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RESET R
- S 784-035-014
- (7) Pressurize the hydraulic system (AMM 29-11-00/201).
- (a) Look for hydraulic system leakage.
- S 714-036-014
- (8) If you removed a midspar fuse pin, do a test of the pneumatic system (AMM 36-11-00/501).
- S 794-037-014
- (9) If you removed a midspar fuse pin, do the task for the ground test (idle leak test) (AMM 71-00-00/201).
- S 494-038-014
- (10) Make sure the components of the engine control system in the strut are not wet.
- S 414-039-014
- (11) Close the access doors on the aft fairing.
- S 414-040-014
- (12) Install the fairings (AMM 54-52-01/401).
- S 414-041-014
- WARNING:** OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.
- (13) Close the thrust reversers (AMM 78-31-00/201).
- S 414-042-014
- (14) Close the core cowl panels (AMM 71-11-06/201).
- S 444-043-014
- (15) Install and close the fan cowl panels (AMM 71-11-04/401).
- S 444-044-014
- (16) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 416
Apr 22/05

01

S 444-045-014

- (17) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-04-544-048-014

4. Remove the Fuse Pins (ENGINE REMOVED)

A. General

- (1) This procedure is for the removal and installation of the upper link fuse pins with the engine removed.
(2) Use this procedure for the removal and the installation of the fuse pins for the upper link. You can also remove these fuse pins with the engine installed.

B. Equipment

CAUTION: YOU CANNOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT TO REMOVE OR INSTALL THE FUSE PINS. YOU MUST USE THE STRUT PRELOAD FIXTURE OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
(2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
(3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
(4) Container - 10 gallon (37.85 liter) capacity (for fuel)
(5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
(2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
(3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
(4) AMM 54-52-01/401, Strut Fairings - Removal/Installation
(5) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
430 No. 1 Nacelle Strut
440 No. 2 Nacelle Strut

E. Prepare for Removal

S 864-049-014

- (1) Make sure the forward thrust levers are in the idle position.

S 044-050-014

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. THE ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 417
Apr 22/05

01

- S 014-051-014
- (3) If necessary, do the task to remove the engine (AMM 71-00-02/401).
- S 864-052-014
- (4) Remove the electrical power (AMM 24-22-00/201).
- S 864-053-014
- (5) Ground the airplane (AMM 20-41-00/201).
- S 034-054-014
- (6) Disconnect the electrical connectors from the spar shutoff valve for the fuel.
- S 014-055-014
- (7) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.
- S 014-056-014
- (8) Open the access doors on the aft fairing.
- S 034-057-014
- (9) Remove the underwing fairings (AMM 54-52-01/401).
- S 494-058-014

WARNING: DO NOT USE ALTERNATIVE EQUIPMENT OR THE STRUT REMOVAL/INSTALLATION SLING (A54003) WHEN YOU LIFT THE STRUT. USE ONLY EQUIPMENT THAT IS SPECIFIED BY THE MANUFACTURERS. MAKE SURE YOU USE ONLY THE CORRECT EQUIPMENT WITH THE PRELOAD FIXTURE. INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (10) Install the strut preload fixture (A54004-27).

NOTE: For A54004 Preload Equipment, 2830 psi is equivalent to 5000 pounds (2268 kg) in the up direction. 5092 psi is equivalent to 5000 pounds (2268 kg) in the down direction.

- (a) Attach the tube assembly to the strut at the forward engine mount.
- (b) Attach the cylinder assembly to the tube assembly.
- (c) Extend the cylinder and tube assembly to the ground to locate the proper position for the base assembly.
- (d) Connect the pump assembly to the cylinder assembly.
- (e) Attach the cylinder assembly to the base assembly.
- (f) Make sure the base assembly is on the ground.

WARNING: USE TWO OBJECTS WITH A TOTAL WEIGHT OF 5000 POUNDS (2268 Kg) OR MORE TO HOLD THE BASE UNIT IN PLACE. IF YOU DO NOT HAVE ENOUGH WEIGHT ON THE BASE UNIT, YOU MAY CAUSE DAMAGE TO THE EQUIPMENT AND INJURY TO PERSONS.

(g) Put weight on the track of the base assembly.

NOTE: Fork lift trucks may be placed on either side of the cylinder assembly.

S 024-059-014

(11) Remove the fuse pins.

(a) To remove a fuse pin, apply a load at the forward engine mount of the strut with the preload fixture.

- 1) The permitted load in the up direction is 0.0 to 5000 pounds (0.0 to 2268 kg).
- 2) The permitted load in the down direction is 0.0 to 5000 pounds (0.0 to 2268 kg).

WARNING: DO NOT REMOVE THE MIDSPAR FUSE PIN IF THE DIAGONAL BRACE, UPPER LINK OR OPPOSITE MIDSPAR FUSE PIN HAS BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: MAKE SURE YOU INSTALL A BRASS SLUG AS YOU PULL OUT THE FUSE PIN. IF YOU DO NOT USE A BRASS SLUG, THE WING FITTING MAY NOT ALIGN WITH THE MIDSPAR FITTING. DAMAGE TO THE BUSHINGS OR STRUCTURE CAN OCCUR.

(b) Remove a midspar fuse pin:

- 1) Remove the cotter pin, the nuts, the washers, the bolt, and the end caps from the fuse pin.
- 2) Install the fuse pin puller tool (Fig. 401).
- 3) Apply a light layer of grease to the brass slug from the A54011 tool kit.
- 4) As you pull the pin with the fuse pin puller tool, push the brass slug in from the opposite side.

WARNING: DO NOT REMOVE THE UPPER LINK FUSE PIN IF DIAGONAL BRACE OR MIDSPAR FUSE PIN HAS BEEN REMOVED UNLESS YOU REMOVE THE STRUT. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Slowly remove the load from the strut.

(d) Remove the preload fixture.

TASK 54-51-04-544-060-014

5. Install the Fuse Pins (ENGINE REMOVED)

A. Equipment

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 419
Dec 22/06

01

CAUTION: YOU CANNOT USE A STRUT OVERHEAD SLING TO APPLY THE PRELOAD TO THE STRUT TO REMOVE OR INSTALL THE FUSE PINS. YOU MUST USE THE STRUT PRELOAD FIXTURE OR DAMAGE TO THE STRUT CAN OCCUR.

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
A54008-1 Puller Equipment -
Fuse Pin (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type I
- (3) C00308 Compound - Corrosion Preventive, Petrolatum Hot
Application, MIL-C-11796 Class 1
- (4) D00633 Grease - BMS3-33 (Preferred)
- (5) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (6) D00014 Grease - MIL-G-21164 (Alternate)

C. References

- (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
- (2) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
- (3) AMM 20-30-01/201, Adhesives, Cements, Sealers - Maintenance
Practices
- (4) AMM 20-30-03/201, Finishing Materials - Maintenance Practices
- (5) AMM 20-30-04/201, Lubricants - Maintenance Practices
- (6) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (7) AMM 24-11-00/501, Generator Drive System - Adjustment/Test
- (8) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (9) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (10) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (11) AMM 30-11-00/501, Wing Thermal Anti-Ice - Adjustment/Test
- (12) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (13) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (14) AMM 54-51-01/401, Strut - Removal/Installation
- (15) AMM 54-51-01/601, Strut - Inspection/Check
- (16) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 420
Aug 22/07

03

E. Prepare to install the fuse pins

S 214-061-014

- (1) Do a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-062-014

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer (BMS 10-11).
 - (d) If the corrosion cannot be removed, replace the part.

S 214-063-014

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 394-064-014

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 401).

S 424-065-014

- (1) Do the steps that follow when you connect the midspar fittings to the wing with the fuse pins:
 - (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound.
 - 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch.
 - (b) Apply antiseize compound (NEVERSEEZ or equivalent) to the threads of the fuse pin and the self locking nut.
 - (c) Apply a thin layer of grease to these parts:
 - 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and to the bottom of the bolt head.
 - 3) The inner surface of the end caps.
 - (d) Install the fuse pins, the end cap, the bolts, the washers, and the nuts.
 - 1) As you install the fuse pin, remove the brass slug from the opposite side of the midspar fitting.
 - 2) Make sure the washer is fully against the bolt and nut.
 - 3) Do a check of the self locking torque of the nut. This torque shall be in the range of 90-800 inch-pounds (10.16-90.33 Nm).
 - 4) Replace the nut if this requirement is not met, and do the check with a new nut.
 - 5) Tighten the self-locking nut to 1000-1200 inch-pounds (112.92-135.5 Nm).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 421
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- 6) Do a check to make sure the torque value is correct.
- (e) Install the washer and the castellated nut.
 - 1) FUSE PINS WITH FOUR SLOTS;
Tighten the castellated nut to a maximum torque value of 50-100 inch-pounds (5.65-11.29 Nm).
 - 2) Do a check to make sure the torque value is correct.
 - 3) FUSE PINS WITH FIVE SLOTS;
Tighten the castellated nut to 50-200 inch-pounds (5.65-22.58 Nm).
 - 4) Do a check to make sure the torque value is correct.
 - 5) Remove the unwanted grease.
 - 6) Install the cotter pin.
 - a) If you cannot install the cotter pin, loosen the castellated nut only until you can install the cotter pin.
- (f) Install the washer and castellated nut.
 - 1) Tighten the castellated nut to a maximum torque value of 200 inch-pounds (22.58 Nm).
 - 2) Do a check to make sure the torque value is correct.
 - 3) Remove the unwanted grease.
 - 4) Install the cotter pin.
 - a) If you cannot install the cotter pin, loosen the castellated nut only until you can install the cotter pin.
 - 5) Do a check to make sure the parts are installed correctly.
 - a) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch.
 - b) Apply a torque stripe on the fuse pin primary nut and the fuse pin threads with torque seal marking lacquer.

S 094-066-014

- (2) Remove the preload fixture.

S 394-067-014

- (3) Do the task to Lubricate the Strut-to-Wing Attach Fittings (AMM 12-21-32/301).
 - (a) Remove excess grease from around the edge of the pin.

G. Put the Airplane Back to its Usual Condition.

S 024-086-014

- (1) If you removed the diagonal brace, do the steps that follow:

CAUTION: MAKE SURE YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.

- (a) Connect the system tubes and wires with the clamps on the diagonal brace.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 422
Apr 22/05

01

- S 864-068-014
(2) Remove electrical power (AMM 24-22-00/201).
- S 434-069-014
(3) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 424-070-014
(4) If you did this task as part of the strut installation, return to the task to install the strut (AMM 54-51-01/401).
- S 424-071-014
(5) If necessary, do the task to install and test the powerplant (AMM 71-00-02/401).
- S 444-072-014
(6) Pressurize the hydraulic system (AMM 29-11-00/201).
(a) Look for hydraulic system leakage.
- S 864-073-014
(7) Supply electrical power (AMM 24-22-00/201).
- S 034-074-014
(8) Remove the electrical ground for the airplane (AMM 20-41-00/201).
- S 714-075-014
(9) Do a test on the generator drive system (AMM 24-11-00/501).
- S 714-076-014
(10) Remove the locks from the leading edge slats (AMM 27-81-00/201).
- S 714-077-014
(11) Do a test on the pneumatic system (AMM 36-11-00/501).
- S 714-078-014
(12) Do a test on the Wing Thermal Anti-Ice system (AMM 30-11-00/501).
- S 414-079-014
(13) Close the access doors on the aft fairing.
- S 494-080-014
(14) Make sure the components of the engine control system in the strut are not wet.
(a) If the components are wet, do this procedure:
- S 414-081-014
(15) Install or close all the access doors.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-04
CONFIG 14
Page 423
Aug 22/06

03

 **BOEING**
767
MAINTENANCE MANUAL

- S 444-082-014
(16) Do the activation procedure for the leading edge slats
(AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

01

54-51-04
CONFIG 14
Page 424
Apr 22/05

DIAGONAL BRACE FUSE PINS – REMOVAL/INSTALLATION

1. General

- A. This procedure covers the removal and installation of the diagonal brace fuse pins with the engine installed and with the engine removed.
- B. This Section uses Configurations to identify the engine type used by the operator:

	PRE STRUT MODIFICATION	POST STRUT MODIFICATION
GE CF6-80A Engines	Config 1	Config 11
GE CF6-80C2 Engines	Config 2	Config 12
PW JT9D-7R4 Engines	Config 3	Config 13
PW 4000 Engines	Config 4	Config 14
RR RB211-524H Engines	Config 5	Config 15

- (1) Each operator will receive only the configuration applicable to his operation. For example an operator that uses only PW 4000 engines will receive only Configs 4 and 14. An operator using JT9D-7R4 and PW 4000 will receive Configs 3, 4, 13 and 14.

TASK 54-51-05-024-038-004

2. Remove the Fuse Pins (ENGINE INSTALLED)(Fig. 401)

A. General

- (1) You will use a crane and an overhead sling to hold the engine. Platforms and stands are necessary to get access to the engine and strut.
- (2) The power plant weighs approximately 11,000 pounds (4082.33 kg). Do not apply too much force when you lift the engine. Use a dynamometer or a precision load positioner when you lift the engine. If the crane includes an adjustable load limiter, it is not necessary to use the dynamometer or the precision load positioner.
- (3) When you operate the engine, the airflow can move unwanted objects into the engine. Before you operate the engine, make sure the engine inlet and the area around the engine is free from tools and other objects.

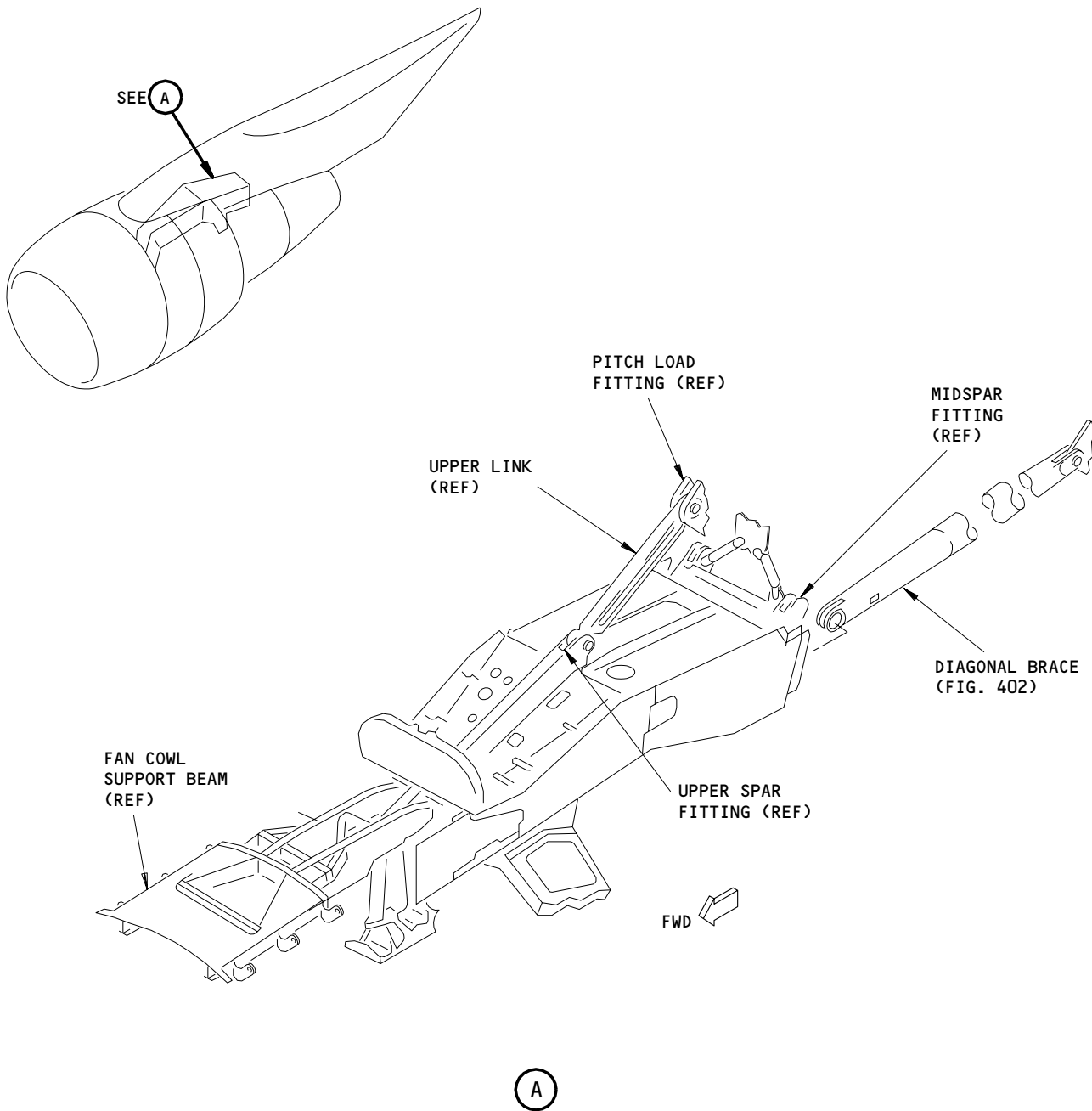
B. Equipment

- (1) Lift Equipment
 - (a) Crane – Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 – P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
 - (b) Dynamometer – 0-20,000 pound (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 401
Apr 22/05

01

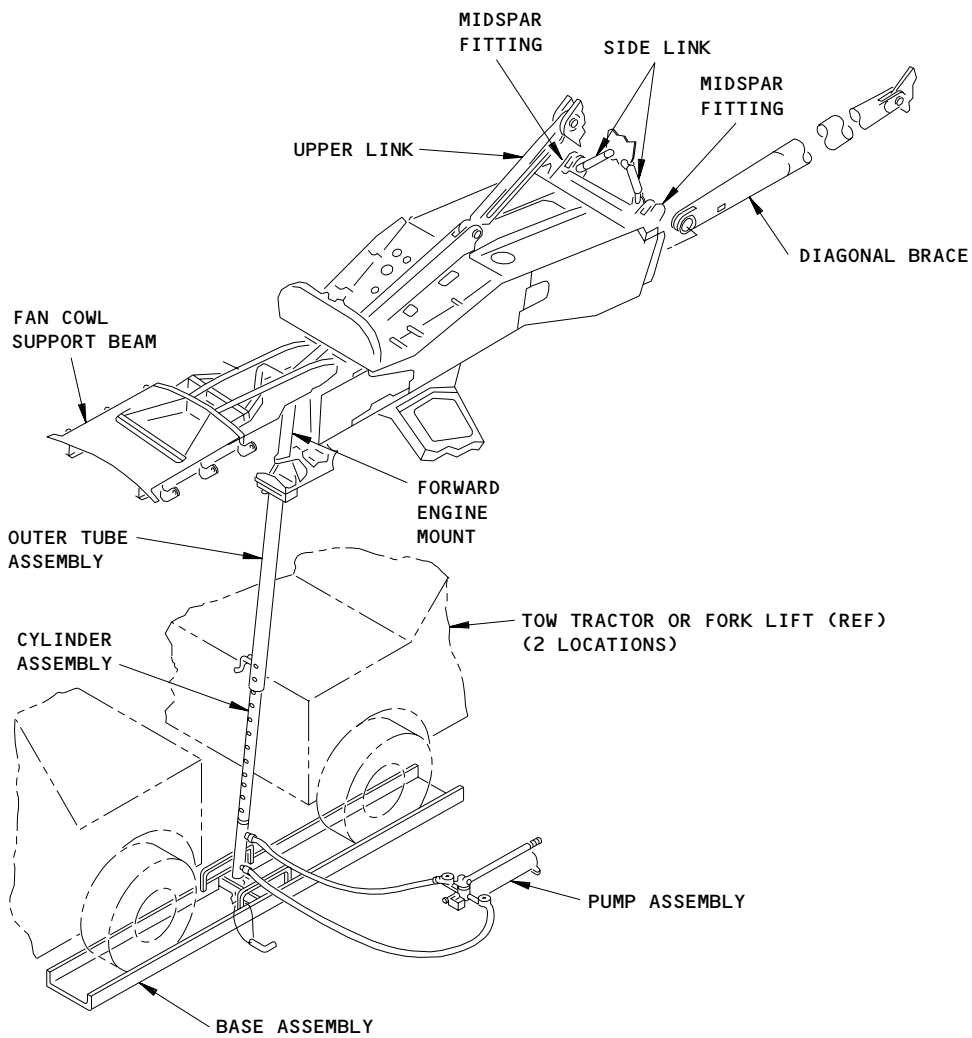


Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 402
Apr 22/05

01



A54004-27 PRELOAD FIXTURE INSTALLATION

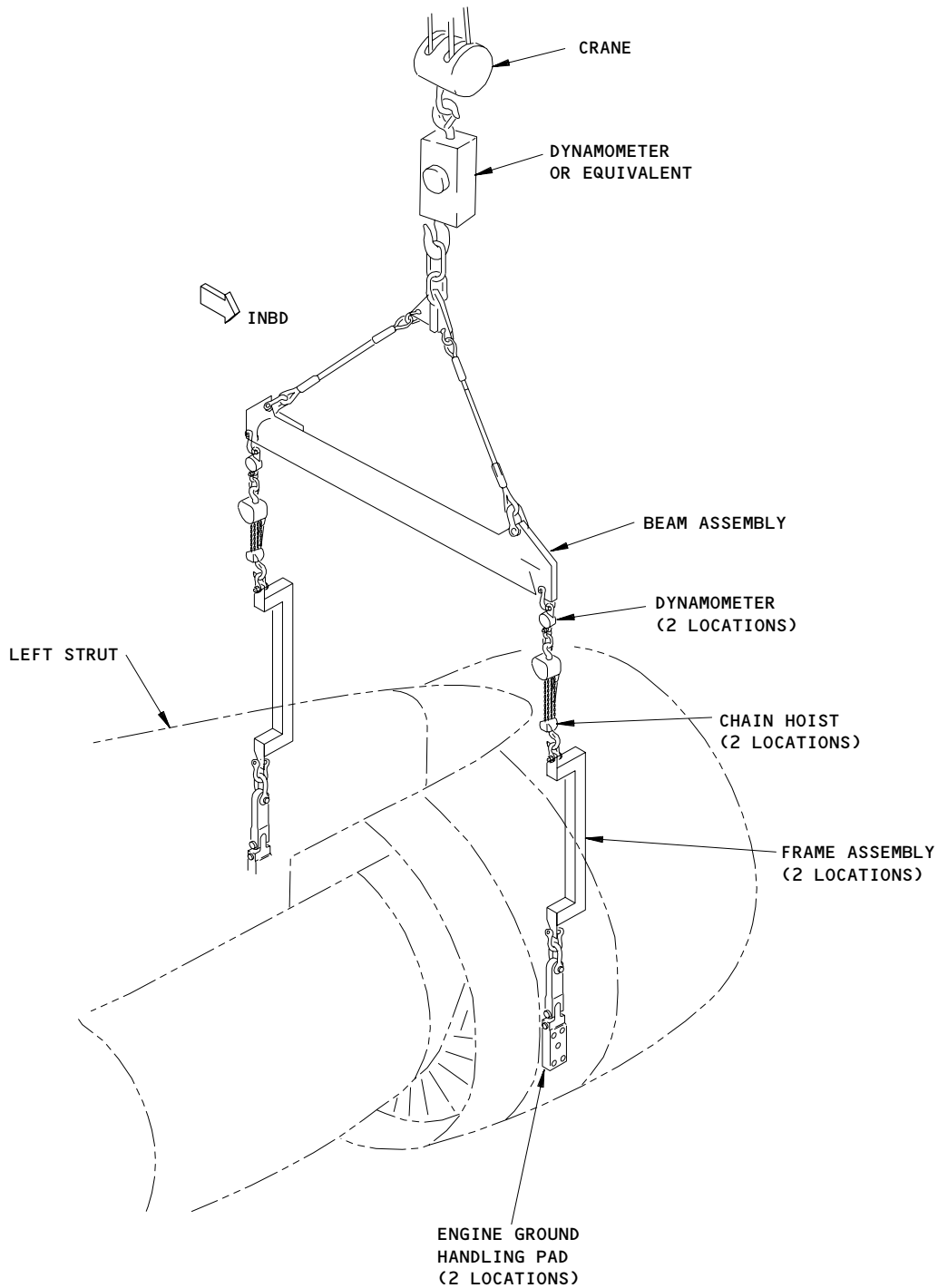
Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 403
Apr 22/05

01

BOEING
767
MAINTENANCE MANUAL



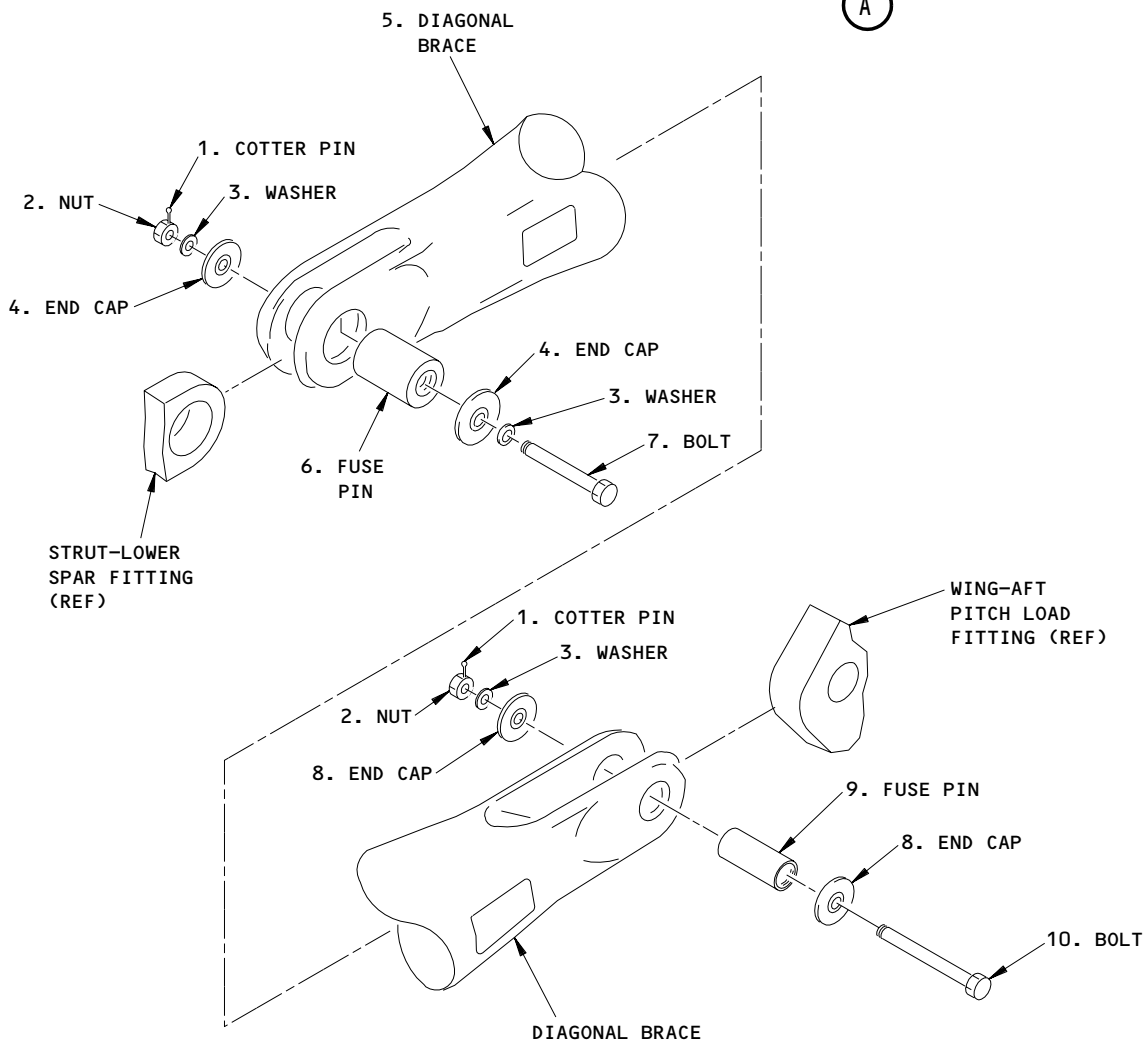
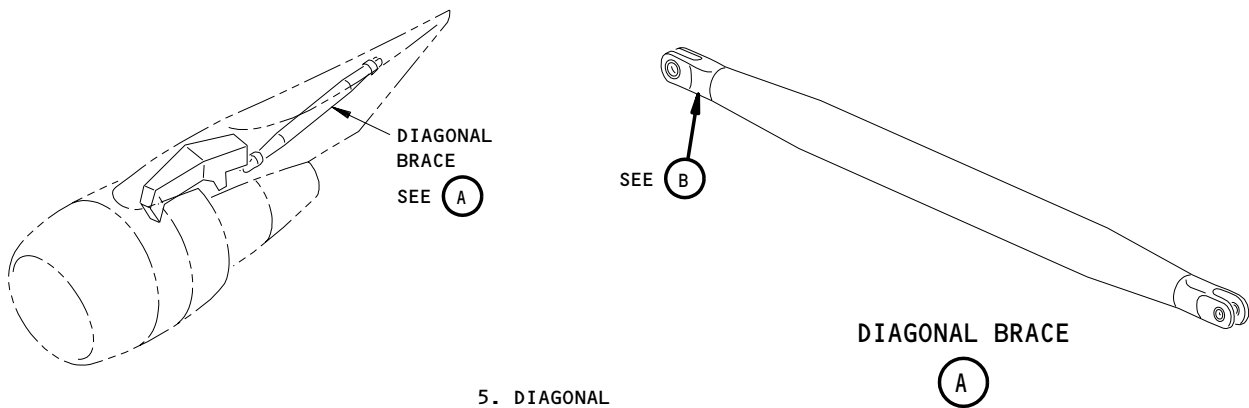
A54001-138 STRUT UNLOAD SLING

**Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 3)**

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 404
Apr 22/05

01



FUSE PIN INSTALLATION

(B)

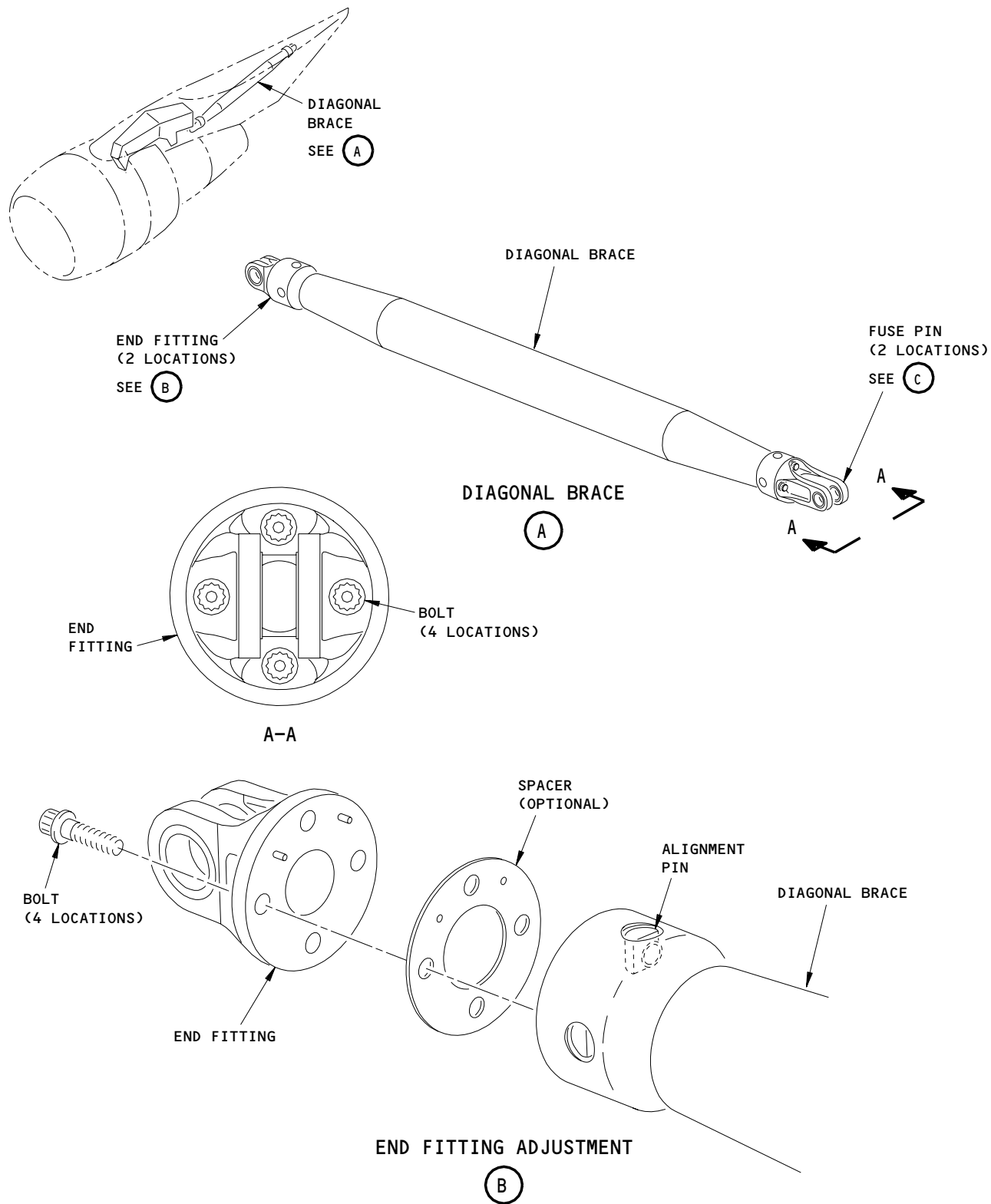
One Piece Diagonal Brace
Figure 402

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05

CONFIG 4
Page 405
Apr 22/05

01

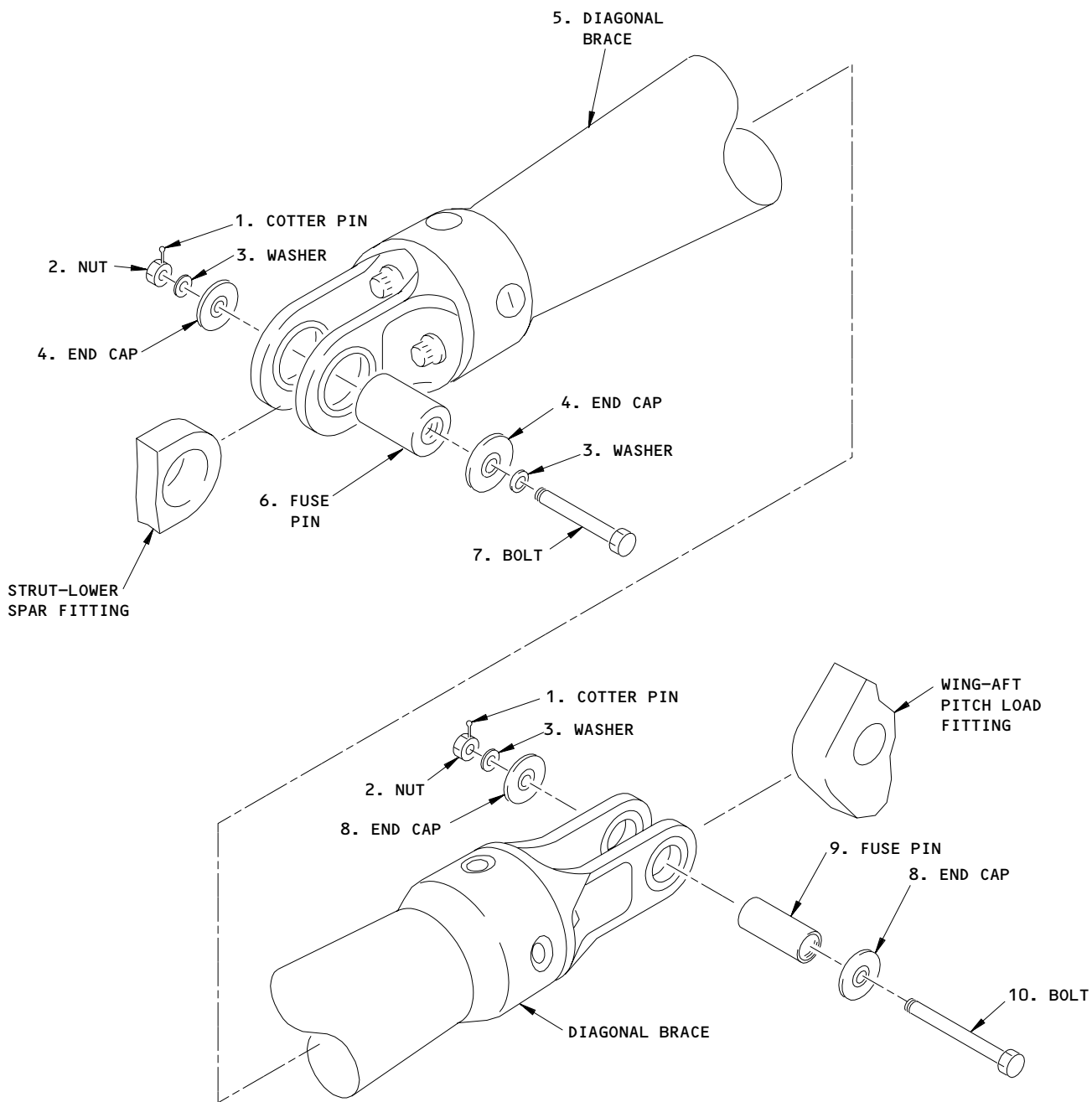


Three Piece Diagonal Brace
Figure 403 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 406
Apr 22/05

01



FUSE PIN INSTALLATION



Three Piece Diagonal Brace
Figure 403 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05

CONFIG 4
Page 407
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.
- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pound (4082.33 kg) capacity
(2 are necessary)
- (e) Sling, Strut Unload, Pin Removal/Installation - A54001-138
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 Gallon (37.88 liter) capacity (for fuel)
- (5) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
- (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (6) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (7) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (8) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to remove the diagonal brace fuse pins

S 214-050-004

- (1) Make sure the forward thrust levers are in the idle position.

S 044-044-004

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats for ground maintenance (AMM 29-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 408
Apr 22/05

01

S 044-045-004

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 014-003-004

- (4) Remove the fan cowl panels (AMM 71-11-04/401).

S 014-004-004

- (5) Open the core cowl panels (AMM 71-11-06/201).

S 014-046-004

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the thrust reversers (AMM 78-31-00/201).

S 864-006-004

- (7) Ground the airplane (AMM 20-41-00/201).

S 864-007-004

- (8) Do these steps to make sure the applicable engine and spar fuel valves are closed:

(a) Supply electrical power (AMM 24-22-00/201).

(b) Make sure these circuit breakers on the overhead panel, P11, are closed:

1) For the left engine:

a) 11D25, ENGINE FUEL CONT VLV L

2) For the right engine:

a) 11D26, ENGINE FUEL CONT VLV R

(c) Make sure these circuit breakers on the main power distribution panel, P6, are closed:

1) For the left engine:

a) 6E1, FUEL VALVES L SPAR

2) For the right engine:

a) 6E2, FUEL VALVES R SPAR

(d) Move the FUEL CONTROL switch on the control stand to the CUTOFF position.

1) Attach a DO-NOT-OPERATE tag to the switch.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 409
Apr 22/05

01

- (e) Make sure the ENG VALVE and the SPAR VALVE lights, on the control stand, are not on.

S 864-008-004

- (9) Do these steps to make sure the applicable engine and spar fuel valves stay closed:
 - (a) Open these circuit breakers on the P11 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV R
 - (b) Open these circuit breakers on the P6 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - b) For the right engine:
 - c) 6E2, FUEL VALVES R SPAR

S 864-009-004

- (10) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).

S 034-010-004

- (11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.

S 034-011-004

- (12) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.

S 014-012-004

- (13) Remove the forward and the underwing fairings (AMM 54-52-01/401).

S 014-013-004

- (14) Open the access doors on the aft fairing.

S 424-047-004

CAUTION: DO NOT USE THE G54006-1 ENGINE SUPPORT SLING. DAMAGE TO THE ENGINE CAN OCCUR IF YOU USE THIS SLING.

- (15) Use the tool placard for instructions on how to install the engine support sling, A54001-138 (Fig. 402).
 - (a) Make sure you install a spacer on each side of the C-beam between the C-beam and the attach fitting.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 410
Apr 22/05

01

F. Remove the fuse pins

S 024-041-004

WARNING: DO NOT REMOVE THE MIDSPAR FUSE PIN IF THE DIAGONAL BRACE, UPPER LINK OR OPPOSITE MIDSPAR FUSE PIN HAS BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do the steps that follow when you remove the fuse pins from the diagonal brace:
 - (a) Remove the cotter pin, the nut, the washers, the bolt, and the end caps from the fuse pin.

CAUTION: DO NOT LIFT THE ENGINE WITH A FORCE THAT IS MORE THAN NECESSARY TO PERMIT THE PIN/BOLT TO TURN WHEN YOU APPLY 125 INCH-POUNDS (14.12 Nm) MAXIMUM TORQUE. DO NOT APPLY A TOTAL LOAD OF MORE THAN 17000 POUNDS (7711.1 Kg) MORE THAN THE WEIGHT OF THE EQUIPMENT. DO NOT APPLY A LOAD OF MORE THAN 8500 POUNDS (3855.54 Kg) ON ONE ATTACH POINT. DO NOT APPLY A LOAD WITH A DIFFERENCE BETWEEN THE TWO SIDES OF MORE THAN 1500 POUNDS (680.40 Kg). LIFT THE ENGINE VERTICALLY. IF THE CRANE LIFTS THE ENGINE WITH TOO MUCH FORCE, OR AT AN INCORRECT ANGLE, DAMAGE TO THE ENGINE CAN OCCUR.

- (b) Do these steps to remove the force on the fuse pin:
 - 1) Slowly apply a small load with the crane.
 - 2) Adjust the chain hoists so the load on the inboard and outboard dynamometers is approximately equal.
 - 3) Move the crane as necessary to apply a vertical load at the tool attach points.
 - a) At the side of the engine, visually align the engine sling between the flanges on the fan case so the beam assembly is directly above the flanges.
 - b) At the front or rear of the engine, visually align the engine sling vertically side-to-side.
 - c) Monitor the angle of the engine sling side-to-side and forward/aft during the procedure.
 - 4) Use the crane to lift the strut in 1000 pound (453.6 kg) increments until the load is approximately 9000 pounds (4082.33 kg).
 - 5) Continue to increase the load in increments of 50 to 100 pounds (16.95 - 45.36 kg) until you can remove the fuse pin with a fuse pin puller.
 - a) Move the fuse pin after each lift increment to see if it moves easily.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 411
Aug 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

WARNING: DO NOT REMOVE THE UPPER LINK AND THE DIAGONAL BRACE AT THE SAME TIME UNLESS YOU REMOVE THE STRUT. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Remove the fuse pins.
- (d) Look for markings on the brace that identify the airplane, strut position and center to center diameter.

NOTE: If the brace is marked with this information, it is an optional (custom) brace.

- (e) If you remove an optional diagonal brace (custom fitted brace), this same brace or a new brace with the same center to center diameter must be installed on the strut and airplane where it was removed.
 - 1) Tag the brace with the airplane number and strut location or make sure this information is marked on the brace.
- (f) Keep the load on the strut the same until you install the fuse pins again.

NOTE: The hydraulic system in the crane can bleed, which can cause the load to change.

S 094-015-004

- (2) Do these steps if the overhead crane must be removed after the fuse pin has been taken out of the diagonal brace fitting:
 - (a) Make a note of the load used to remove the fuse pin at the diagonal brace fitting.
 - (b) Slowly remove the load from the strut.
 - (c) Remove the overhead crane.

TASK 54-51-05-424-039-004

3. Install the Fuse Pins (ENGINE INSTALLED)(Fig. 401)

A. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 412
Apr 22/05

01

- (b) Dynamometer - 0-20,000 pound (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.
- (c) Precision Load Positioner - 10 ton (9071.85 kg) capacity,
Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pound (4082.33 kg) capacity
(2 are necessary)
- (e) Sling, Strut Unload, Pin Removal/Installation - A54001-138
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 Gallon (37.88 liter) capacity (for fuel)
- (5) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)
- B. Consumable Materials
 - (1) A00247 Sealant - BMS 5-95
 - (2) C00259 Primer - BMS 10-11, Type I
 - (3) C00308 Compound - Corrosion Preventive, Petrolatum Hot Application, MIL-C-11796 Class 1
 - (4) C00913 Compound - Corrosion Inhibiting Material, Nondrying Resin Mix, BMS 3-27 (Preferred)
 - (5) C50056 Compound - Non-drying Corrosion Inhibiting Resin Mix, BMS 3-38 (Alternate)
 - (6) G50136 Paste - Corrosion Inhibiting Non-drying, BMS 3-38 (Alternate)
 - (7) C00913 Compound - Corrosion Inhibiting, Non-drying Cor-Ban 27L, BMS 3-38 (Alternate)
 - (8) D00633 Grease - BMS 3-33 (Preferred)
 - (9) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
 - (10) D00014 Grease - MIL-G-21164 (Alternate)
- C. References
 - (1) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
 - (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
 - (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 413
Dec 22/08

01

- (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (5) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (6) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (7) AMM 54-51-01/601, Strut - Inspection/Check
- (8) AMM 54-52-01/401, Strut Fairings
- (9) AMM 71-00-00/201, Power Plant - Maintenance Practices
- (10) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (11) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (12) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

(1) Location Zones

- 430 No. 1 Nacelle Strut
- 440 No. 2 Nacelle Strut

E. Prepare to install the diagonal brace fuse pins

S 214-016-004

- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-017-004

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer.
 - (d) If the corrosion cannot be removed, replace the part.

S 214-018-004

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 214-019-004

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Adjust the length of the 3 piece diagonal brace

S 424-051-004

- (1) The three piece diagonal brace is disassembled/assembled by removing/installing the four tension bolts at either end, the end fittings and the spacers (if used).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 414
Apr 22/05

01

S 824-052-004

CAUTION: RESTRAIN THE END FITTING WITH TOOLING TO PREVENT SHEARING THE SMALL ALIGNMENT PIN BETWEEN THE ALUMINUM TUBE AND THE TITANIUM END FITTING. TOOLING MUST NOT DAMAGE THE TUBE OR THE END FITTING. USE A TAPERED PLASTIC SHIM TO REMOVE THE SPACER FROM THE END OF THE TUBE.

- (2) Do these steps to measure and adjust the length of the three piece diagonal brace:
 - (a) If the intact diagonal brace is undistorted, the length may be transferred directly to the new brace.

S 824-054-004

- (3) If the existing brace is distorted or if the operator prefers, do the following steps.
 - (a) Return the strut/engine to the hardware condition that existed when weighed.

S 824-055-004

- (4) Apply the recorded strut removal load.

S 824-056-004

- (5) Loosen the bolts on the aft end fitting of the diagonal brace to obtain 0.20 inch (0.51 mm) of play (spacer removal may be required).

S 424-057-004

- (6) Temporarily install the front and aft ends of the diagonal brace into the strut and wing fittings.

S 824-058-004

- (7) Using feeler gauges, measure and record the gap between the tube and the end fitting (keep the gap parallel to the ends of the tube and fitting).

S 824-059-004

- (8) Adjust the length of the brace by removing or installing spacers of the required thickness.

S 224-060-004

- (9) The allowable adjustment range is minus 0.180 inch to plus 0.140 inch (-4.57 to + 3.56 mm).

S 114-061-004

- (10) Remove any existing fay surface sealant on tube ends, end fittings or spacers.

S 374-062-004

- (11) Touch up any damaged primer with BMS 10-11.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 415
Apr 22/05

01

S 334-063-004

- (12) Apply parting agent to tube ends, end fittings and spacers and allow to cure.

S 394-064-004

- (13) Fay surface seal both sides of spacer (or tube end if no spacer is used) with BMS 5-95.

S 394-065-004

CAUTION: DO NOT USE LEAD COMPOUNDS (EASE-OFF 990).

- (14) Apply anti-seize compound such as Bostic NEVERSEEZ Pure Nickel Special, to barrel nut threads.

S 394-066-004

- (15) Apply corrosion inhibiting compound, BMS 3-27 (preferred) or BMS 3-38 (alternate), to the bolt shank and install.

S 824-067-004

- (16) Verify the run-on torque is 50 inch-pounds (5.65 Nm) minimum. Replace barrel nuts that do not meet this value.

S 824-068-004

- (17) Tighten all four bolts to 1800-2200 inch-pounds (203.37-248.57 Nm).
(a) Verify that each bolt end extends 0.078-0.270 inch (1.98-6.86 mm) past the barrel nut.

S 434-189-004

CAUTION: RESTRAIN THE END FITTING TO PREVENT THE SHEARING OF THE ALIGNMENT PIN BETWEEN THE ALUMINUM TUBE AND THE END FITTING.

- (18) If only the tube is restrained when tightening the bolts, tighten the bolts in a circular pattern in 100 inch-pounds (11.30 Nm) increments until 500 inch-pounds (56.49 Nm) is reached.
(a) Continue the circular pattern in 200 inch-pounds (22.6 Nm) increments until 1500 inch-pounds (169.48 Nm) is reached.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 416
Dec 22/08

01

S 434-194-004

- (19) Final torque all bolts to 3600-4400 inch-pounds (406.75-497.13 Nm).
(a) Apply the final torque to the fasteners in a circular pattern.

S 214-070-004

- (20) Verify bolt extension.
G. Install the fuse pins (Fig. 401).

S 824-048-004

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE ENGINE. DAMAGE TO THE ENGINE AND THE STRUT CAN OCCUR.

- (1) Make sure the load on the strut is correct for easy installation of the fuse pins.

NOTE: If you removed the diagonal brace or upper link, and you removed the overhead crane, use the load that you noted to reinstall the sling using the above procedure.

S 424-021-004

- (2) Do the steps that follow when you install the fuse pins in the one piece (original style) diagonal brace.

NOTE: Use this procedure if you are installing a three piece diagonal brace without having incorporated SB 767-54-0080. Use the attach hardware that was removed from the original installation (or identical replacements).

- (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound (MIL-C-11796, Class 1).
1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch (1.27 mm).
- (b) Apply a thin layer of grease to these parts:
1) The outer surface of the fuse pins.
2) The outer surface of the bolt and to the bottom of the bolt head.
3) The inner surface of the end caps.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 417
Aug 22/07

01

 **BOEING**
767
MAINTENANCE MANUAL

- (c) Install the diagonal brace with the fuse pin, the bolt, the end caps, the washers, and the nut.
 - 1) Make sure you install the same diagonal brace assembly that was removed from this airplane and strut, if the brace that was removed was an optional brace (custom fitted).
 - a) Look for a tag or markings on the brace that identify the airplane, strut position and center to center diameter.

NOTE: If the brace is tagged or marked with this information, it is an optional (custom) brace.

- 2) Make sure that the washers are fully against the end caps.
- 3) Tighten the nut to 150-200 inch-pounds (16.94-22.58 Nm).
- 4) Do a check to make sure the torque value is correct.
- 5) Remove the unwanted grease.
- (d) Install the cotter pin.
 - 1) If you cannot install the cotter pin, loosen the nut only until you can install the cotter pin.
 - 2) Do a check to make sure the parts are installed correctly.
 - 3) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).

H. Put the Airplane Back to its Usual Condition.

S 424-195-004

- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

S 434-023-004

- (2) If you removed the diagonal brace, do the steps that follow:

CAUTION: MAKE SURE YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.

- (a) Connect the system tubes and wires with the clamps on the diagonal brace.

S 864-024-004

- (3) Supply electrical power (AMM 24-22-00/201).

S 794-025-004

- (4) Do these steps to do a check of the fuel system for leaks:
 - (a) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
 - 1) For the left engine
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 418
Apr 22/05

01

- (b) Look at the FUEL QUANTITY indicator for the fuel quantity.
- (c) Remove the DO-NOT-OPERATE tag from the FUEL CONTROL switch.
- (d) Move the FUEL CONTROL switch to the RUN position.
- (e) Put the applicable BOOST PUMP switch to the ON position.
- (f) Examine the fuel system on the engine and strut for leaks.

NOTE: Look carefully at the connectors for the main fuel supply line.

- (g) Put the applicable BOOST PUMP switch to the ON position.
- (h) Move the FUEL CONTROL switch to the CUTOFF position.

S 024-042-004

- (5) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
 - (a) For the right engine:
 - 1) 11D25, ENGINE FUEL CONT VLV L
 - (b) For the left engine:
 - 1) 11D26, ENGINE FUEL CONT VLV R

S 784-026-004

- (6) Pressurize the hydraulic system (AMM 29-11-00/201).
 - (a) Look for hydraulic system leakage.

S 714-027-004

- (7) If you removed a midspar fuse pin, do a test of the pneumatic system (AMM 36-11-00/501).

S 794-028-004

- (8) If you removed a midspar fuse pin, do the task for the ground test (idle leak test) (AMM 71-00-00/201).

S 494-029-004

- (9) Make sure the components of the engine control system in the strut are not wet.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 419
Apr 22/05

01

S 414-030-004

(10) Close the access doors on the aft fairing.

S 414-031-004

(11) Install the fairings (AMM 54-52-01/401).

S 414-049-004

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(12) Close the thrust reversers (AMM 78-31-00/201).

S 414-034-004

(13) Close the core cowl panels (AMM 71-11-06/201)

S 414-035-004

(14) Install and close the fan cowl panels (AMM 71-11-04/401).

S 444-036-004

(15) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 444-037-004

(16) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-05-024-130-004

4. Remove the Fuse Pins (ENGINE REMOVED)

A. General

(1) This procedure is for the removal and installation of the strut fuse pins with the engine removed. Unless you remove the strut from the wing, remove only one strut-to-wing fuse pin at a time.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 420
Apr 22/05

03

B. Equipment

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.88 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slats System - Maintenance Practices
- (4) AMM 29-11-00/201, Main Hydraulic System - Maintenance Practices
- (5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
- (6) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare for Removal

S 864-131-004

- (1) Make sure the forward thrust levers are in the idle position.

S 044-132-004

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. THE ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 014-134-004

- (3) If necessary, do the task to remove the engine (AMM 71-00-02/401).

S 864-135-004

- (4) Make sure the fuel control switch is in the CUTOFF position.

S 864-136-004

- (5) Remove the electrical power (AMM 24-22-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 421
Apr 22/05

03

- S 864-139-004
(6) Ground the airplane (AMM 20-41-00/201).
- S 864-140-004
(7) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).
- S 864-141-004
(8) Make sure the applicable spar shutoff valve for the fuel is closed.
- S 034-142-004
(9) Disconnect the electrical connectors from the spar shutoff valve for the fuel.
- S 034-143-004
(10) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.
- S 864-144-004
(11) Drain the fuel supply line to the engine.
- S 864-145-004
(12) Drain the hydraulic fluid lines to the engine.
- S 014-146-004
(13) Open the access doors on the aft fairing.
- S 014-147-004
(14) Remove the underwing fairings (AMM 54-52-01/401).
- S 034-148-004
(15) Disconnect the system tubes and wires attached to the clamps on the diagonal brace.
- F. Remove the fuse pins (Fig. 401).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

01

54-51-05
CONFIG 4
Page 422
Apr 22/05

S 494-149-004

WARNING: DO NOT USE ALTERNATIVE EQUIPMENT OR THE STRUT REMOVAL/INSTALLATION SLING (A54003) WHEN YOU LIFT THE STRUT. USE ONLY EQUIPMENT THAT IS SPECIFIED BY THE MANUFACTURERS. MAKE SURE YOU USE ONLY THE CORRECT EQUIPMENT WITH THE PRELOAD FIXTURE. INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Install the strut preload fixture (A54004-27).

NOTE: For A54004 Preload Equipment, 2830 psi is equivalent to 5000 pounds in the up direction. 5092 psi is equivalent to 5000 pounds in the down direction.

- (a) Attach the tube assembly to the strut at the forward engine mount.
- (b) Attach the cylinder assembly to the tube assembly.
- (c) Extend the cylinder and tube assembly to the ground to locate the proper position for the base assembly.
- (d) Connect the pump assembly to the cylinder assembly.
- (e) Attach the cylinder assembly to the base assembly.

WARNING: USE TWO OBJECTS WITH A TOTAL WEIGHT OF 5000 POUNDS OR MORE TO HOLD THE BASE UNIT IN PLACE. IF YOU DO NOT HAVE ENOUGH WEIGHT ON THE BASE UNIT, YOU MAY CAUSE DAMAGE TO THE EQUIPMENT AND INJURY TO PERSONS.

(f) Put weight on the track of the base assembly.

NOTE: Fork lift trucks may be placed on either side of the cylinder assembly.

S 024-150-004

(2) Remove the fuse pins.

CAUTION: DO NOT LIFT THE STRUT MORE THAN IS NECESSARY TO PERMIT THE FUSE PIN TO TURN. USE A MAXIMUM TORQUE OF 125 INCH-POUNDS (14.12 Nm) TO TURN THE FUSE PIN. DO NOT LIFT THE STRUT OR PULL DOWN ON THE STRUT WITH MORE THAN 3000 POUNDS OF FORCE. IF YOU LIFT THE STRUT WITH MORE FORCE THAN NECESSARY, DAMAGE TO THE STRUCTURE CAN OCCUR.

- (a) The permitted load in the up or down direction is 0.0 to 3000 pounds.
- (b) Remove a diagonal brace fuse pin:
 - 1) Remove the cotter pin, the nuts, the washers, the bolt, and the end caps from the fuse pin.
 - 2) Remove the fuse pin.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 423
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- 3) Make sure the load on the strut is kept the same until you install the fuse pin again.

NOTE: The hydraulic system can bleed which can cause the the load to change.

- (c) Look for markings on the brace that identify the airplane, strut position and center to center diameter.

NOTE: If the brace is marked with this information, it is an optional (custom) brace.

- (d) If you remove an optional diagonal brace (custom fitted brace), this same brace or a new brace with the same center to center diameter must be installed on the strut and airplane where it was removed.

- 1) Tag the brace with the airplane number and strut location or make sure this information is marked on the brace.

S 094-151-004

- (3) Do these steps if the preload fixture must be removed after the fuse pin has been taken out of either the upper link or diagonal brace fitting:
 - (a) Make a note of the load used to remove the fuse pin at the diagonal brace fitting.
 - (b) Slowly remove the load from the strut.
 - (c) Remove the preload fixture.

TASK 54-51-05-424-152-004

5. Install the Fuse Pins (ENGINE REMOVED)

A. Equipment

- (1) Preload Equipment, Strut Installation - A54004-27
- (2) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 424
Apr 22/05

01

- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 gallon (37.88 liter) capacity (for fuel)
- (5) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)
- B. Consumable Materials
 - (1) A00247 Sealant - BMS 5-95
 - (2) C00259 Primer - BMS 10-11, Type I
 - (3) C00308 Compound - Corrosion Preventive, Petrolatum Hot Application, MIL-C-11796 Class 1
 - (4) C50056 Compound - Non-drying Corrosion Inhibiting Resin Mix, BMS 3-38 (Alternate)
 - (5) G50136 Paste - Corrosion Inhibiting Non-drying, BMS 3-38 (Alternate)
 - (6) C00913 Compound - Corrosion Inhibiting, Non-drying Cor-Ban 27L, BMS 3-38 (Alternate)
 - (7) D00633 Grease - BMS 3-33 (Preferred)
 - (8) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
 - (9) D00014 Grease - MIL-G-21164 (Alternate)
- C. References
 - (1) AMM 12-21-32/301, Strut - Servicing (Lubrication)
 - (2) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
 - (3) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
 - (4) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
 - (5) AMM 54-51-01/601, Strut - Inspection/Check
 - (6) AMM 71-00-02/401, Power Plant - Removal/Installation
- D. Access
 - (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut
- E. Prepare to install the fuse pins
 - S 204-153-004
 - (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).
 - S 204-154-004
 - (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer.
 - (d) If the corrosion cannot be removed, replace the part.
 - S 214-155-004
 - (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.
 - S 394-156-004
 - (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01//201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 425
Dec 22/08

01

S 424-157-004

- (5) Do the steps that follow when you install the fuse pins in the one piece (original style) diagonal brace.

NOTE: Use this procedure if you are installing a three piece diagonal brace without having incorporated SB 767-54-0080. Use the attach hardware that was removed from the original installation (or identical replacements).

- (a) Make sure the inner surfaces of the fuse pins have a layer of corrosion preventive compound (MIL-C-11796, Class 1).
- 1) Apply the corrosion preventive compound to the inner surface of the fuse pin with a minimum thickness of 0.05 inch.
- (b) Apply a thin layer of grease to these parts:
- 1) The outer surface of the fuse pins.
 - 2) The outer surface of the bolt and to the bottom of the bolt head.
 - 3) The inner surface of the end caps.
- (c) Install the diagonal brace with the fuse pin, the bolt, the end caps, the washers, and the nut.
- 1) Make sure you install the same diagonal brace assembly that was removed from this airplane and strut, if the brace that was removed was an optional brace (custom fitted).
 - 2) Make sure that the washers are fully against the end caps.
 - 3) Tighten the nut to 150-200 inch-pounds (16.94-22.58 Nm).
 - 4) Do a check to make sure the torque value is correct.
 - 5) Remove the unwanted grease.
 - 6) Install the cotter pin.
 - a) If you cannot install the cotter pin, loosen the nut only until you can install the cotter pin.
 - b) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch.
 - 7) Do a check to make sure the parts are installed correctly.
- F. Adjust the length of the 3 piece (new style) diagonal brace for installation.

S 424-158-004

- (1) The three piece diagonal brace is disassembled/assembled by removing/installing the four tension bolts at either end, the end fittings and the spacers (if used).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 426
Aug 22/07

03

S 824-159-004

CAUTION: RESTRAIN THE END FITTING WITH TOOLING TO PREVENT SHEARING THE SMALL ALIGNMENT PIN BETWEEN THE ALUMINUM TUBE AND THE TITANIUM END FITTING. TOOLING MUST NOT DAMAGE THE TUBE OR THE END FITTING. USE A TAPERED PLASTIC SHIM TO REMOVE THE SPACER FROM THE END OF THE TUBE.

- (2) Adjust the length of the diagonal brace by removing or installing a spacer of the required thickness under the end fittings. Adjustment range is minus 0.180 to plus 0.14 inch (-4.57 to +3.56 mm). Only one or no spacer is allowed at each end.

S 824-160-004

- (3) Do these steps to measure and adjust the length of the three piece diagonal brace:
 - (a) If the intact diagonal brace is undistorted, the length may be transferred directly to the new brace.

S 824-161-004

- (4) If the existing brace is distorted or if the operator prefers, do the following steps.
 - (a) Return the strut/engine to the hardware condition that existed when weighed.

S 824-162-004

- (5) Apply the recorded strut removal load.

S 824-163-004

- (6) Loosen the bolts on the aft end fitting of the diagonal brace to obtain 0.20 inch (0.51 mm) of play (spacer removal may be required).

S 424-164-004

- (7) Temporarily install the front and aft ends of the diagonal brace into the strut and wing fittings.

S 824-165-004

- (8) Using feeler gauges, measure and record the gap between the tube and the end fitting (keep the gap parallel to the ends of the tube and fitting).

S 824-166-004

- (9) Adjust the length of the brace by removing or installing spacers of the required thickness.

S 224-167-004

- (10) The allowable adjustment range is minus 0.180 inch to plus 0.140 inch (-4.57 to + 3.56 mm).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 427
Aug 22/99

02

S 114-168-004

- (11) Remove any existing fay surface sealant on tube ends, end fittings and spacers, if used.

S 374-169-004

- (12) Touch up any damaged primer with BMS 10-11.

S 334-170-004

- (13) Apply parting agent to tube ends, end fittings and spacers and allow to cure.

S 394-171-004

- (14) Fay surface seal both sides of spacer (or tube end if no spacer is used) with BMS 5-95.

S 394-172-004

CAUTION: DO NOT USE LEAD COMPOUNDS (EASE-OFF 990).

- (15) Apply anti-seize compound such as Bostic NEVERSEEZ Pure Nickel Special, to barrel nut threads.

S 394-173-004

- (16) Apply corrosion inhibiting compound, BMS 3-27 (preferred) or BMS 3-38 (alternate), to the bolt shank and install.

S 824-174-004

- (17) Verify the run-on torque is 50 inch-pounds (5.65 Nm) minimum. Replace barrel nuts that do not meet this value.

S 824-175-004

- (18) Tighten all four bolts to 1800-2200 inch-pounds (203.37-248.57 Nm).

S 224-176-004

- (19) Verify that each bolt end extends 0.078-0.270 inch (1.98-6.86 mm) past the barrel nut.

S 434-177-004

CAUTION: RESTRAIN THE END FITTING TO PREVENT THE SHEARING OF THE ALIGNMENT PIN BETWEEN THE ALUMINUM TUBE AND THE END FITTING.

- (20) If only the tube is restrained when tightening the bolts, tighten the bolts in a circular pattern in 100 inch-pounds (11.30 Nm) increments until 500 inch-pounds (56.49 Nm) is reached.
(a) Continue the circular pattern in 200 inch-pounds (22.6 Nm) increments until 1500 inch-pounds (169.48 Nm) is reached.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 428
Dec 22/08

03

S 434-178-004

- (21) Final torque all bolts to 3600-4400 inch-pounds (406.75-497.13 Nm).
(a) Apply the final torque to the fasteners in a circular pattern.

S 214-179-004

- (22) Verify bolt extension.
G. Install the fuse pins in three piece (new style) diagonal brace

S 424-180-004

- (1) Do the steps that follow when you install the fuse pins in the diagonal brace, wing (aft) end.
(a) Apply a thin film of grease to the outside diameter of the pin.
(b) Apply antiseize to the threads of the pin and barrel nut.
(c) Install the diagonal brace with the fuse pin, the bolt, the end caps, the washers, and the nut.
1) Make sure the washers are fully against the end caps.
2) Do a check of the self locking torque of the nut. The torque range is 14-100 inch-pounds (1.58-11.3 Nm). Nuts that do not meet this requirement must be replaced.
3) Tighten the nut to 370-440 inch-pounds (41.8-49.7 Nm).
4) Do a check to make sure the torque value is correct.
5) Remove the unwanted grease.
(d) Install the cotter pin.
1) Apply BMS 5-95 sealant to both ends of the cotter pin to a thickness of 0.10 inch (2.54 mm).
2) Do a check to make sure the parts are installed correctly.

S 424-181-004

- (2) Do the steps that follow to install the fuse pin of the diagonal brace - strut (forward) end.
(a) Apply a thin film of grease to the outside diameter of the pin.
(b) Install the pin by applying a load at the strut jack point, NAC STA 119.10. Maximum Allowable load equals 3,000 pounds (1360.78 kg) up or down.
1) If the brace cannot be installed within the limits of the pre-load, the length of the brace can be adjusted by replacing one or both spacers with spacers of a different gauge thickness (Fig. 402). One or both spacers may be omitted, if necessary.
(c) Apply 480-850 inch-pounds (54.2-96.0 Nm) torque to the nut. Use a combination of NAS1149E0916R, NAS1149E0932R and/or NAS1149E0963R washers to achieve required torque and cotter pin alignment.
(d) Install the cotter pin.
1) Apply BMS 5-95 sealant to both ends of the cotter pin to a thickness of 0.10 inch (2.54 mm).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 429
Aug 22/07

03

- S 084-196-004
- (3) Remove the preload fixture.
- S 644-197-004
- (4) Lubricate the strut-to-wing attach fittings (AMM 12-21-32/301).
(a) Remove any excess grease.
- H. Put the Airplane Back to its Usual Condition.
- S 424-198-004
- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 434-183-004
- (2) If you removed the diagonal brace, do the steps that follow:
- CAUTION:** MAKE SURE THAT YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.
- (a) Connect the system tubes and wires with the clamps on the diagonal brace.
- S 864-185-004
- (3) Remove electrical power (AMM 24-22-00/201).
- S 434-186-004
- (4) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 424-187-004
- (5) Do the task to install the engine (AMM 71-00-02/401).
(a) Look for hydraulic system leakage.
- S 414-199-004
- (6) Close the access doors on the aft fairing.
- S 414-200-004
- (7) Install the fairings (AMM 54-52-01/401).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
WITHOUT SB 767-54-0080

54-51-05
CONFIG 4
Page 430
Apr 22/05

02

DIAGONAL BRACE FUSE PINS – REMOVAL/INSTALLATION

1. General

- A. This procedure covers the removal and installation of the diagonal brace pins with the engine installed and with the engine removed.
- B. This Section uses Configurations to identify the engine type used by the operator:

	PRE STRUT MODIFICATION	POST STRUT MODIFICATION
GE CF6-80A Engines	Config 1	Config 11
GE CF6-80C2 Engines	Config 2	Config 12
PW JT9D-7R4 Engines	Config 3	Config 13
PW 4000 Engines	Config 4	Config 14
RR RB211-524H Engines	Config 5	Config 15

- (1) Each operator will receive only the configuration applicable to his operation. For example an operator that uses only PW 4000 engines will receive only Configs 4 and 14. An operator using JT9D-7R4 and PW 4000 will receive Configs 3, 4, 13 and 14.

TASK 54-51-05-024-001-014

2. Remove the Fuse Pins (ENGINE INSTALLED)(Fig. 401)

A. General

- (1) You will use a crane and an overhead sling to hold the engine. Platforms and stands are necessary to get access to the engine and strut.
- (2) The power plant weighs approximately 11,000 pounds (4989.5 kg). Do not apply too much force when you lift the engine. Use a dynamometer or a precision load positioner when you lift the engine. If the crane includes an adjustable load limiter, it is not necessary to use the dynamometer or the precision load positioner.
- (3) When you operate the engine, the airflow can move unwanted objects into the engine. Before you operate the engine, make sure the engine inlet and the area around the engine is free from tools and other objects.

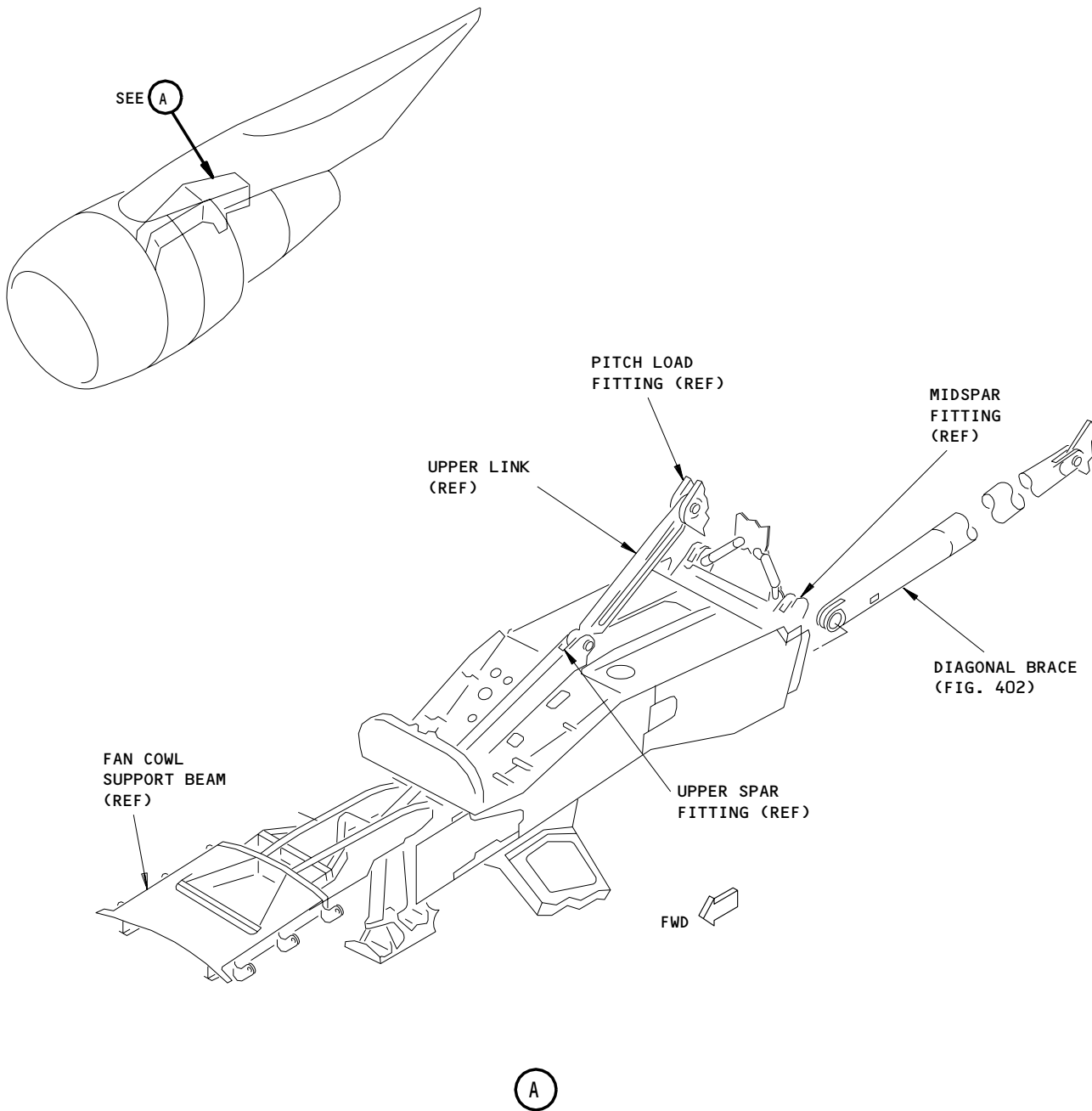
B. Equipment

- (1) Lift Equipment
 - (a) Crane – Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 – P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin
 - (b) Dynamometer – 0-20,000 pound capacity (9071.85 kg), 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 401
Apr 22/05

01

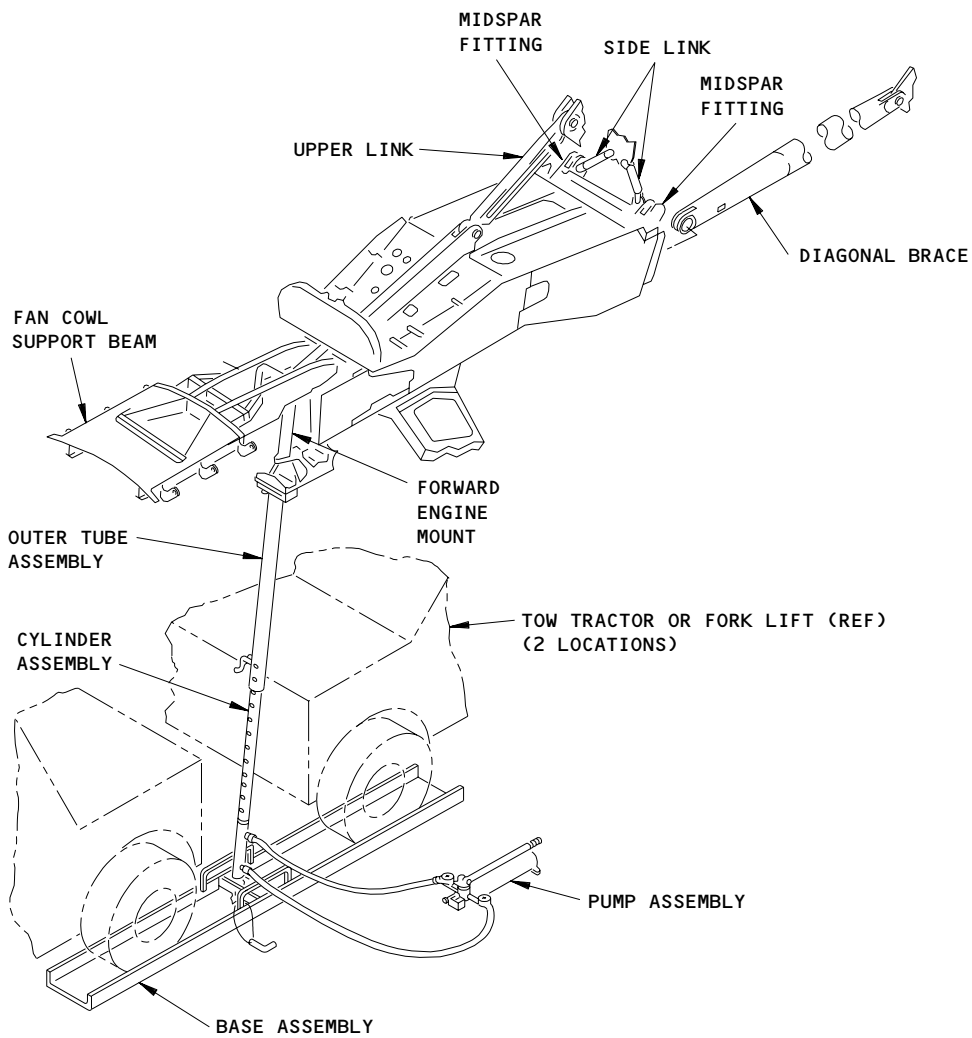


Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 402
Apr 22/05

01



A54004-27 PRELOAD FIXTURE INSTALLATION

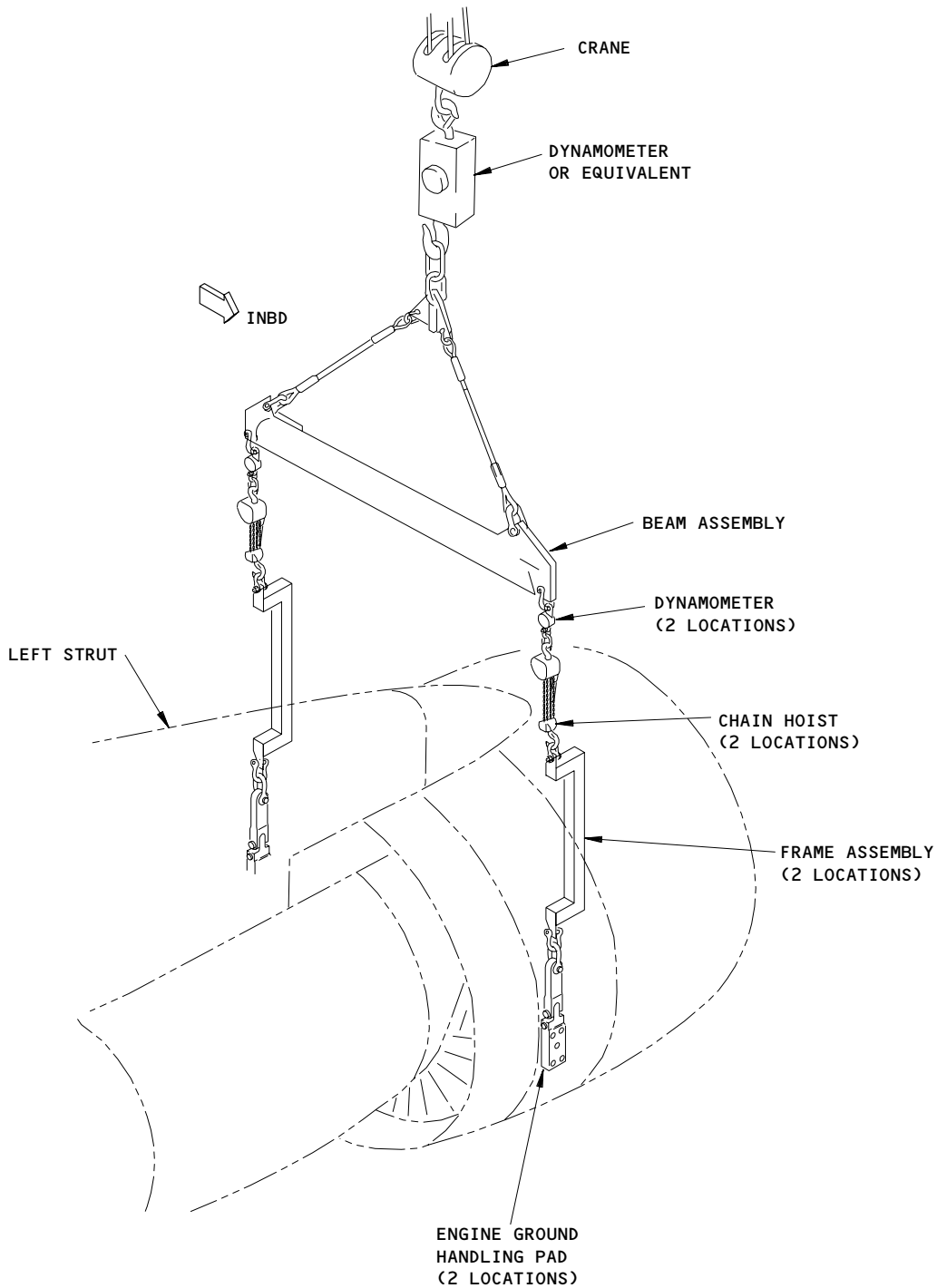
Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 403
Apr 22/05

01

BOEING
767
MAINTENANCE MANUAL



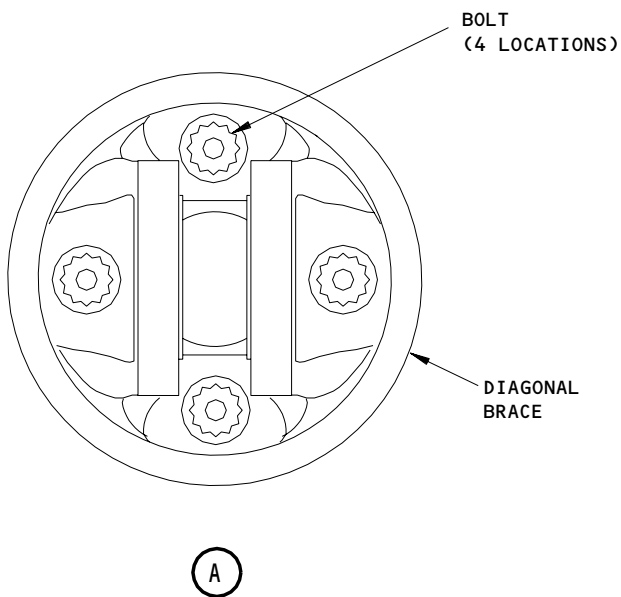
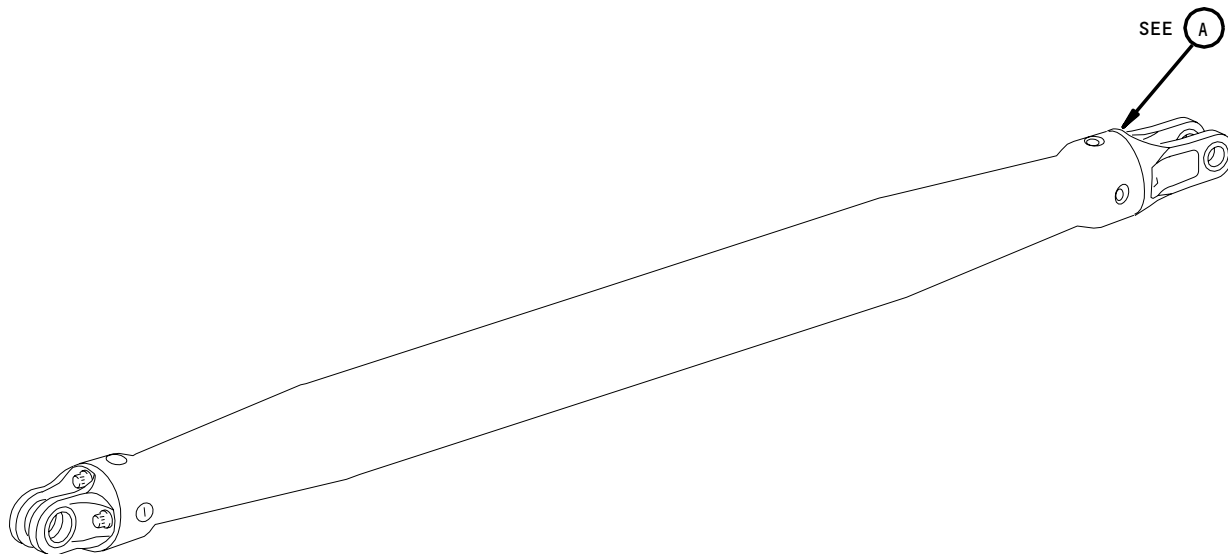
A54001-138 STRUT UNLOAD SLING

Fuse Pin Installation Equipment and Attach Points
Figure 401 (Sheet 3)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 404
Apr 22/05

01



Fuse Pin Installation - Diagonal Brace Fittings
Figure 402 (Sheet 1)

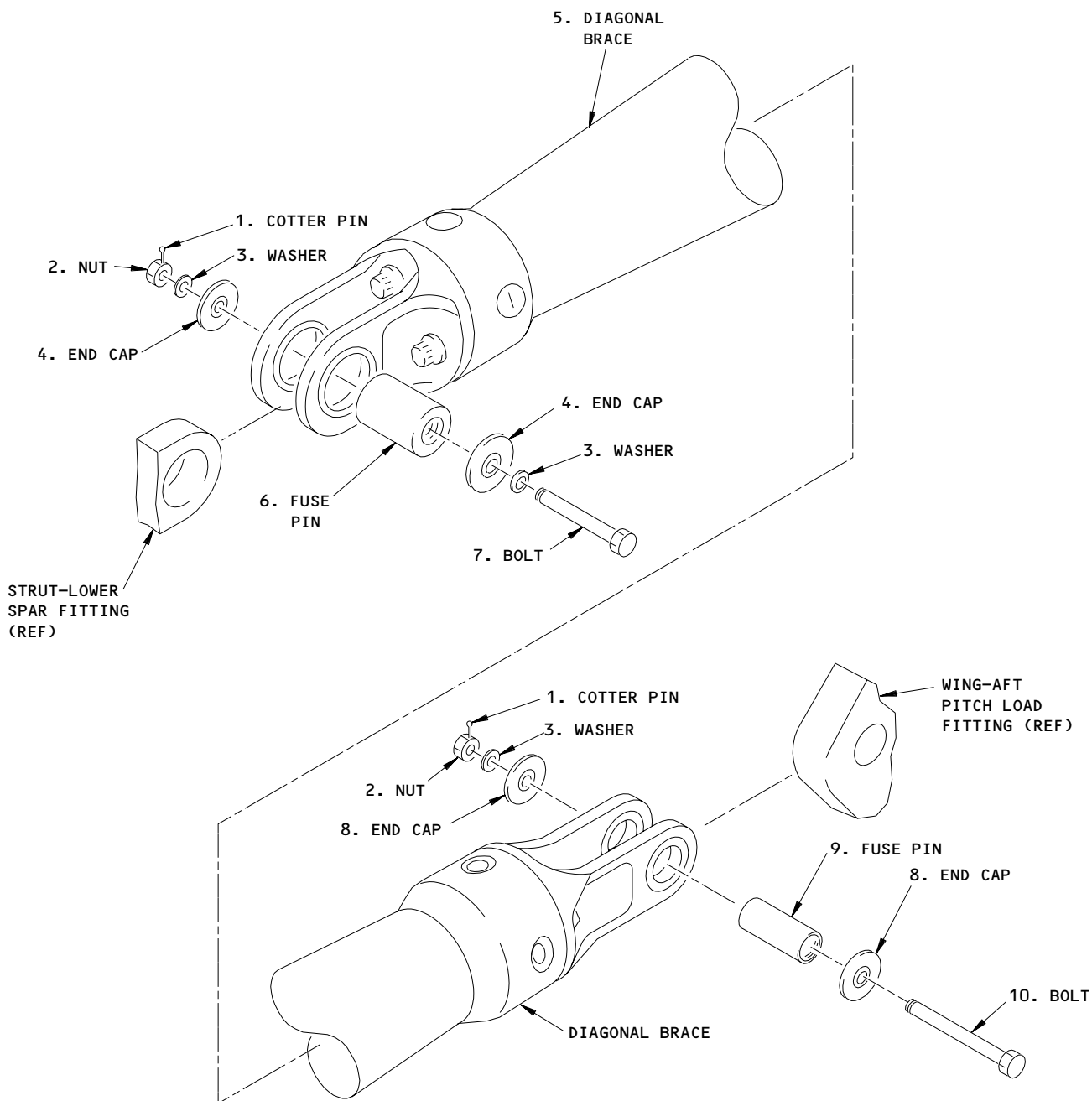
EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

G71994

54-51-05

CONFIG 14
Page 405
Apr 22/05

01



Fuse Pin Installation - Diagonal Brace Fittings
Figure 402 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 406
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.
- (c) Precision Load Positioner - 10 ton capacity, Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pound (4082.3 kg) capacity
(2 are necessary)
- (e) Sling, Strut Unload, Pin Removal/Installation - A54001-119
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54001-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (3) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (4) Container - 10 Gallon (37.85 liter) capacity (for fuel)
- (5) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)
- C. References
 - (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
 - (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
 - (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
 - (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
 - (5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
 - (6) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
 - (7) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
 - (8) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices
- D. Access
 - (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut
- E. Prepare to remove the diagonal brace fuse pins

S 864-052-014

- (1) Make sure the forward thrust levers are in the idle position.

S 044-044-014

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats for ground maintenance (AMM 27-81-00/201).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 407
Apr 22/05

01

S 044-045-014

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 014-004-014

- (4) Remove the fan cowl panels (AMM 71-11-04/401).

S 014-005-014

- (5) Open the core cowl panels (AMM 71-11-06/201).

S 014-046-014

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Open the thrust reversers (AMM 78-31-00/201).

S 864-007-014

- (7) Ground the airplane (AMM 20-41-00/201).

S 864-008-014

- (8) Do these steps to make sure the applicable engine and spar fuel valves are closed:
 - (a) Supply electrical power (AMM 24-22-00/201).
 - (b) Make sure these circuit breakers on the overhead panel, P11, are closed:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV R
 - (c) Make sure these circuit breakers on the main power distribution panel, P6, are closed:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
 - (d) Move the FUEL CONTROL switch on the control stand to the CUTOFF position.
 - 1) Attach a DO-NOT-OPERATE tag to the switch.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 408
Apr 22/05

01

- (e) Make sure the ENG VALVE and the SPAR VALVE lights, on the control stand, are not on.

S 864-009-014

- (9) Do these steps to make sure the applicable engine and spar fuel valves stay closed:
 - (a) Open these circuit breakers on the P11 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 11D25, ENGINE FUEL CONT VLV L
 - 2) For the right engine:
 - a) 11D26, ENGINE FUEL CONT VLV R
 - (b) Open these circuit breakers on the P6 panel and attach a DO-NOT-CLOSE tag:
 - 1) For the left engine:
 - a) 6E1, FUEL VALVES L SPAR
 - b) For the right engine:
 - c) 6E2, FUEL VALVES R SPAR

S 864-010-014

- (10) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).

S 034-011-014

- (11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.

S 034-012-014

- (12) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.

S 014-013-014

- (13) Remove the forward and the underwing fairings (AMM 54-52-01/401).

S 014-014-014

- (14) Open the access doors on the aft fairing.

S 424-047-014

CAUTION: DO NOT USE THE G54006-1 ENGINE SUPPORT SLING. DAMAGE TO THE ENGINE CAN OCCUR IF YOU USE THIS SLING.

- (15) Use the tool placard for instructions on how to install the engine support sling, A54001-119 (Fig. 402).
 - (a) Make sure you install a spacer on each side of the C-beam between the C-beam and the attach fitting.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 409
Apr 22/05

01

F. Remove the fuse pins

S 024-016-014

WARNING: DO NOT REMOVE THE MIDSPAR FUSE PIN IF THE DIAGONAL BRACE, UPPER LINK OR OPPOSITE MIDSPAR FUSE PIN HAS BEEN REMOVED. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do the steps that follow when you remove the fuse pins from the diagonal brace:
- (a) Remove the cotter pin, the nut, the washers, the bolt, and the end caps from the fuse pin.

CAUTION: DO NOT LIFT THE ENGINE WITH A FORCE THAT IS MORE THAN NECESSARY TO PERMIT THE PIN/BOLT TO TURN WHEN YOU APPLY 125 INCH-POUNDS (14.12 Nm) MAXIMUM TORQUE. DO NOT APPLY A TOTAL LOAD OF MORE THAN 17000 POUNDS (7711.1 Kg) MORE THAN THE WEIGHT OF THE EQUIPMENT. DO NOT APPLY A LOAD OF MORE THAN 8500 POUNDS (3855.5 Kg) ON ONE ATTACH POINT. DO NOT APPLY A LOAD WITH A DIFFERENCE BETWEEN THE TWO SIDES OF MORE THAN 1500 POUNDS (680.4 Kg). LIFT THE ENGINE VERTICALLY. IF THE CRANE LIFTS THE ENGINE WITH TOO MUCH FORCE, OR AT AN INCORRECT ANGLE, DAMAGE TO THE ENGINE CAN OCCUR.

- (b) Do these steps to remove the force on the fuse pin:
 - 1) Slowly apply a small load with the crane.
 - 2) Adjust the chain hoists so the load on the inboard and outboard dynamometers is approximately equal.
 - 3) Move the crane as necessary to apply a vertical load at the tool attach points.
 - a) At the side of the engine, visually align the engine sling between the flanges on the fan case so the beam assembly is directly above the flanges.
 - b) At the front or rear of the engine, visually align the engine sling vertically side-to-side.
 - c) Monitor the angle of the engine sling side-to-side and forward/aft during the procedure.
 - 4) Use the crane to lift the strut in 1000 pound (453.6 kg) increments until the load is approximately 9000 pounds (4082.3 kg).

- 5) Continue to increase the load in increments of 50 to 100 pounds (22.7 - 45.4 kg) until you can remove the fuse pin with a fuse pin puller.
 - a) Move the fuse pin after each lift increment to see if it moves easily.

WARNING: DO NOT REMOVE THE UPPER LINK AND THE DIAGONAL BRACE AT THE SAME TIME UNLESS YOU REMOVE THE STRUT. THE STRUT CAN MOVE SUDDENLY AND INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Remove the fuse pins.
- (d) Look for markings on the brace that identify the airplane, strut position and center to center diameter.
- (e) If you remove a diagonal brace, this same brace or a new brace with the same center to center diameter must be installed on the strut and airplane where it was removed.
 - 1) Tag the brace with the airplane number and strut location or make sure this information is marked on the brace.
- (f) Keep the load on the strut the same until you install the fuse pins again.

NOTE: The hydraulic system in the crane can bleed which causes the load to change.

S 094-017-014

- (2) Do these steps if the overhead crane must be removed after the fuse pin has been taken out of the diagonal brace fitting:
 - (a) Make a note of the load used to remove the fuse pin at the diagonal brace fitting.
 - (b) Slowly remove the load from the strut.
 - (c) Remove the overhead crane.

TASK 54-51-05-424-018-014

3. Install the Fuse Pins (ENGINE INSTALLED)(Fig. 401)

A. Equipment

(1) Lift Equipment

- (a) Crane - Approved to lift 20,000 pounds (9071.85 kg), with micro-positioning capabilities (RECOMMENDED), or with Pull Pac Cylinder (ALTERNATIVE)
 - 1) Pull Pac Cylinder BRP-306 - P-80 Pump, HC-941 Hose Assembly (ALTERNATIVE)
ENERPAC,
Division of Applied Power, Inc.
Butler, Wisconsin

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 411
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

- (b) Dynamometer - 0-20,000 pound (9071.85 kg) capacity, 2% accuracy
 - 1) Two dynamometers are necessary if the crane includes an adjustable load limiter or if you use a precision load positioner.
 - 2) An additional dynamometer is necessary if the crane does not include an adjustable load limiter and you do not use a precision load positioner.
- (c) Precision Load Positioner - 10 ton capacity, Model D Hydra-Set (ALTERNATIVE)
Del Mar Engineering Laboratories,
Hydra-Set Division
International Airport
Los Angeles, California
- (d) Chain Hoist - 9000 pound (4082.3 kg) capacity
(2 are necessary)
- (e) Sling, Strut Unload, Pin Removal/Installation - A54001-119
- (f) Tag lines - Used for controlling the overhead hoisting sling
- (2) Removal/Installation Kit, Fuse Pin - A54001-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
 - (a) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (3) Container - 10 Gallon (37.85 liter) capacity (for fuel)
- (4) Container - 12 Gallon (45.42 liter) capacity (for hydraulic fluid)

B. Consumable Materials

- (1) A00247 Sealant - BMS 5-95
- (2) C00259 Primer - BMS 10-11, Type I
- (3) C00913 Compound - Corrosion Inhibiting Material, Nondrying Resin Mix, BMS 3-27 (Preferred)
- (4) C50056 Compound - Non-drying Corrosion Inhibiting Resin Mix, BMS 3-38 (Alternate)
- (5) G50136 Paste - Corrosion Inhibiting Non-drying, BMS 3-38 (Alternate)
- (6) G50237 Compound - Corrosion Inhibiting, Non-drying Cor-Ban 27L, BMS 3-38 (Alternate)
- (7) D00633 Grease - BMS 3-33 (Preferred)
- (8) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
- (9) D00014 Grease - MIL-G-21164 (Alternate)
- (10) C00852 Compound - Antiseize, Molybdenum Disulfide-Petrolatum MIL-PRF-83483 (Supersedes MIL-T-83483)

C. References

- (1) AMM 20-10-09/201, Flareless Tubing Assembly - Removal/Installation
- (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
- (3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 412
Dec 22/08

01

- (4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
- (5) AMM 36-11-00/501, Air Supply Distribution System - Adjustment/Test
- (6) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
- (7) AMM 54-51-01/601, Strut - Inspection/Check
- (8) AMM 54-52-01/401, Strut Fairings - Maintenance Practices
- (9) AMM 71-00-00/201, Power Plant - Maintenance Practices
- (10) AMM 71-11-04/401, Fan Cowl Panels - Removal/Installation
- (11) AMM 71-11-06/201, Core Cowl Panels - Maintenance Practices
- (12) AMM 78-31-00/201, Thrust Reverser System - Maintenance Practices

D. Access

- (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut

E. Prepare to install the diagonal brace fuse pins

S 214-019-014

- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 214-020-014

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer.
 - (d) If the corrosion cannot be removed, replace the part.

S 214-021-014

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

S 214-022-014

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Install the fuse pins (Fig. 401).

S 824-048-014

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE ENGINE. DAMAGE TO THE ENGINE AND THE STRUT CAN OCCUR.

- (1) Make sure the load on the strut is correct for easy installation of the fuse pins.

NOTE: If you removed the diagonal brace or upper link, and you removed the overhead crane, use the load that you noted to reinstall the sling using the above procedure.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 413
Apr 22/05

01

S 434-053-014

- (2) Do the steps that follow when you install the fuse pins in the diagonal brace.
- (a) Apply a thin film of grease to the outside diameter of the pin.
 - (b) Install the diagonal brace with the fuse pin, the bolt, the end caps, the washers, and the nut.
 - 1) Make sure the washers are fully against the end caps.
 - 2) Do a check of the self locking torque of the nut. The torque range is 14-100 pound inches (1.58-11.3 Nm). Nuts that do not meet this requirement must be replaced.
 - 3) Tighten the nut to 370-440 pound inches (41.8-49.7 Nm).
 - 4) Do a check to make sure the torque value is correct.
 - 5) Remove the unwanted grease.
 - (c) Install the cotter pin.
 - 1) Apply sealant BMS 5-95 to both ends of the cotter pin to a thickness of 0.10 inch (2.54 mm).
 - 2) Do a check to make sure the parts are installed correctly.

S 424-049-014

- (3) Do the steps that follow to install the fuse pin of the diagonal brace - strut (forward) end.
- (a) Apply a thin film of grease to the outside diameter of the pin.
 - (b) Install the pin by applying a load at the strut jack point, NAC STA 119.10. Maximum Allowable load equals 5,000 pounds (2267.96 kg) up or down.
 - 1) If the brace cannot be installed within the limits of the pre-load, the length of the brace can be adjusted by replacing one or both spacers with spacers of a different gauge thickness (Fig. 402). One or both spacers may be omitted, if necessary.
 - (c) Apply 480-850 inch-pounds (54.2-96.0 Nm) torque to the nut. Use a combination of NAS1149E0916R, NAS1149E0932R and/or NAS1149E0963R washers to achieve required torque and cotter pin alignment.
 - (d) Install the cotter pin.
 - 1) Apply BMS 5-95 sealant to the ends of the cotter pin to a minimum thickness of 0.10 inch (2.54 mm).

S 424-050-014

- (4) Reinstall diagonal brace end fitting if spacer configuration was changed.
- (a) Apply antiseize compound (MIL-T-83483) to nut threads and install the bolts with BMS 3-27 (preferred) or BMS 3-38 (alternate).

CAUTION: A RESTRAINT METHOD MUST BE USED TO PREVENT THE END FITTING FROM TURNING RELATIVE TO THE BRACE CENTER SECTION WHEN TORQUING THE FOUR BOLTS. THE TWO (2) ALIGNMENT PINS C/T THE DIAGONAL BRACE CENTER SECTION MAY SHEAR.

- (b) Verify that the locking torque of lubed bolts in barrel nuts is 50 inch-pounds (5.65 Nm) prior to the bolt seating.
 - (c) Tighten the four bolts to 50 percent of their final torque.
 - (d) Tighten the bolts to a final torque range of 3600-4400 inch-pounds (406.75-497.13 Nm).
 - (e) Do a check to ensure that each bolt end extends past the barrel nut 0.078-0.270 inch (3.56-4.62 mm).
- G. Put the Airplane Back to its Usual Condition.

S 424-111-014

- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.

S 434-026-014

- (2) If you removed the diagonal brace, do the steps that follow:

CAUTION: MAKE SURE THAT YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.

- (a) Connect the system tubes and wires with the clamps on the diagonal brace.

S 864-027-014

- (3) Supply electrical power (AMM 24-22-00/201).

S 794-028-014

- (4) Do these steps to do a check of the fuel system for leaks:
 - (a) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
 - 1) For the left engine
 - a) 6E1, FUEL VALVES L SPAR
 - 2) For the right engine:
 - a) 6E2, FUEL VALVES R SPAR
 - (b) Look at the FUEL QUANTITY indicator for the fuel quantity.
 - (c) Remove the DO-NOT-OPERATE tag from the FUEL CONTROL switch.
 - (d) Move the FUEL CONTROL switch to the RUN position.
 - (e) Put the applicable BOOST PUMP switch to the ON position.
 - (f) Examine the fuel system on the engine and strut for leaks.

NOTE: Look carefully at the connectors for the main fuel supply line.

- (g) Put the applicable BOOST PUMP switch to the ON position.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 415
Apr 22/05

01

 **BOEING**
767
MAINTENANCE MANUAL

(h) Move the FUEL CONTROL switch to the CUTOFF position.

S 024-029-014

(5) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:

(a) For the right engine:

1) 11D25, ENGINE FUEL CONT VLV L

(b) For the left engine:

1) 11D26, ENGINE FUEL CONT VLV R

S 784-030-014

(6) Pressurize the hydraulic system (AMM 29-11-00/201).

(a) Look for hydraulic system leakage.

S 714-031-014

(7) If you removed a midspar fuse pin, do a test of the pneumatic system (AMM 36-11-00/501).

S 794-032-014

(8) If you removed a midspar fuse pin, do the task for the ground test (idle leak test) (AMM 71-00-00/201).

S 494-033-014

(9) Make sure the components of the engine control system in the strut are not wet.

S 414-034-014

(10) Close the access doors on the aft fairing.

S 414-035-014

(11) Install the fairings (AMM 54-52-01/401).

S 414-051-014

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(12) Close the thrust reversers (AMM 78-31-00/201).

S 414-038-014

(13) Close the core cowl panels (AMM 71-11-06/201)

S 414-039-014

(14) Install and close the fan cowl panels (AMM 71-11-04/401).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 416
Apr 22/05

01

S 444-040-014

- (15) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 444-041-014

- (16) Do the activation procedure for the leading edge slats (AMM 27-81-00/201).

TASK 54-51-05-024-054-014

4. Remove the Fuse Pins (ENGINE REMOVED)

A. General

- (1) This procedure is for the removal and installation of the strut fuse pins with the engine removed. Unless you remove the strut from the wing, remove only one strut-to-wing fuse pin at a time.

B. Equipment

- (1) Preload/Unload Equipment, Diagonal Brace - G54007 (Alternative to J54001)
(2) Preload/Unload Equipment, Diagonal Brace - J54001 (Alternative to G54007)
(3) Preload Equipment, Strut Installation - A54004-27
(4) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
(5) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
(6) Container - 10 gallon (37.85 liter) capacity (for fuel)
(7) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)

C. References

- (1) AMM 20-41-00/201, Static Grounding - Maintenance Practices
(2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
(3) AMM 27-81-00/201, Leading Edge Slat System - Maintenance Practices
(4) AMM 29-11-00/201, Main Hydraulic Systems - Maintenance Practices
(5) AMM 54-52-01/401, Strut Fairings - Removal/Installation
(6) AMM 71-00-02/401, Power Plant - Removal/Installation

D. Access

- (1) Location Zones
430 No. 1 Nacelle Strut
440 No. 2 Nacelle Strut

E. Prepare for Removal

S 864-055-014

- (1) Make sure the forward thrust levers are in the idle position.

S 044-056-014

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. THE ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-00/201).

S 014-057-014

- (3) If necessary, do the task to remove the engine (AMM 71-00-02/401).

S 864-058-014

- (4) Make sure the fuel control switch is in the CUTOFF position.

S 864-059-014

- (5) Remove the electrical power (AMM 24-22-00/201).

S 014-060-014

- (6) Open the access doors on the aft fairing.

S 014-061-014

- (7) Remove the underwing fairings (AMM 54-52-01/401).

S 864-062-014

- (8) Ground the airplane (AMM 20-41-00/201).

S 864-063-014

- (9) Remove the pressure in the hydraulic system and the reservoir for the applicable strut (AMM 29-11-00/201).

S 864-064-014

- (10) Make sure the applicable spar shutoff valve for the fuel is closed.

S 034-065-014

- (11) Disconnect the electrical connectors from the spar shutoff valve for the fuel.

S 034-066-014

- (12) Disconnect the electrical connectors from the shutoff valve for the hydraulic fluid.

S 864-067-014

- (13) Drain the fuel supply line to the engine.

S 864-068-014

- (14) Drain the hydraulic fluid lines to the engine.

S 014-069-014

- (15) Open the access doors on the aft fairing.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 418
Apr 22/05

01

S 014-070-014

- (16) Remove the underwing fairings (AMM 54-52-01/401).

S 034-071-014

- (17) Disconnect the system tubes and wires attached to the clamps on the diagonal brace.

- F. Remove the fuse pins (Fig. 401).

S 494-072-014

WARNING: DO NOT USE ALTERNATIVE EQUIPMENT OR THE STRUT REMOVAL/INSTALLATION SLING (A54003) WHEN YOU LIFT THE STRUT. USE ONLY EQUIPMENT THAT IS SPECIFIED BY THE MANUFACTURERS. MAKE SURE YOU USE ONLY THE CORRECT EQUIPMENT WITH THE PRELOAD FIXTURE. INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (1) Install the strut preload fixture (A54004-27).

NOTE: For A54004 Preload Equipment, 2830 psi is equivalent to 5000 pounds in the up direction. 5092 psi is equivalent to 5000 pounds in the down direction.

- (a) Attach the tube assembly to the strut at the forward engine mount.
- (b) Attach the cylinder assembly to the tube assembly.
- (c) Extend the cylinder and tube assembly to the ground to locate the proper position for the base assembly.
- (d) Connect the pump assembly to the cylinder assembly.
- (e) Attach the cylinder assembly to the base assembly.

WARNING: USE TWO OBJECTS WITH A TOTAL WEIGHT OF 5000 POUNDS OR MORE TO HOLD THE BASE UNIT IN PLACE. IF YOU DO NOT HAVE ENOUGH WEIGHT ON THE BASE UNIT, YOU MAY CAUSE DAMAGE TO THE EQUIPMENT AND INJURY TO PERSONS.

- (f) Put weight on the track of the base assembly.

NOTE: Fork lift trucks may be placed on either side of the cylinder assembly.

S 024-073-014

- (2) Remove the fuse pins.

CAUTION: DO NOT LIFT THE STRUT MORE THAN IS NECESSARY TO PERMIT THE FUSE PIN TO TURN. USE A MAXIMUM TORQUE OF 125 INCH-POUNDS (14.12 Nm) TO TURN THE FUSE PIN. DO NOT LIFT THE STRUT OR PULL DOWN ON THE STRUT WITH MORE THAN 3000 POUNDS OF FORCE. IF YOU LIFT THE STRUT WITH MORE FORCE THAN NECESSARY, DAMAGE TO THE STRUCTURE CAN OCCUR.

- (a) The permitted load in the up or down direction is 0.0 to 3000 pounds.
- (b) Remove a diagonal brace fuse pin:
 - 1) Remove the cotter pin, the nuts, the washers, the bolt, and the end caps from the fuse pin.
 - 2) Remove the fuse pin.
 - 3) Make sure the load on the strut is kept the same until you install the fuse pin again.

NOTE: The hydraulic system can bleed which can cause the the load to change.

- (c) Look for markings on the brace that identify the airplane, strut position and center to center diameter.

NOTE: If the brace is marked with this information, it is an optional (custom) brace.

- (d) If you remove an optional diagonal brace (custom fitted brace), this same brace or a new brace with the same center to center diameter must be installed on the strut and airplane where it was removed.
 - 1) Tag the brace with the airplane number and strut location or make sure this information is marked on the brace.

S 094-074-014

- (3) Do these steps if the preload fixture must be removed after the fuse pin has been taken out of either the upper link or diagonal brace fitting:
 - (a) Make a note of the load used to remove the fuse pin at the diagonal brace fitting.
 - (b) Slowly remove the load from the strut.
 - (c) Remove the preload fixture.

TASK 54-51-05-424-075-014

5. Install the Fuse Pins (ENGINE REMOVED)

A. Equipment

- (1) Preload/Unload Equipment, Diagonal Brace - G54007 (Alternative to J54001)
- (2) Preload/Unload Equipment, Diagonal Brace - J54001 (Alternative to G54007)
- (3) Preload Equipment, Strut Installation - A54004-27

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 420
Apr 22/05

01

- (4) Removal/Installation Kit, Fuse Pin - A54011-25 (RECOMMENDED)
A54011-24 (ALTERNATIVE)
A54011-18 (ALTERNATIVE)
- (5) Puller Equipment, Fuse Pin - A54008-1 (ALTERNATIVE)
- (6) Container - 10 gallon (37.85 liter) capacity (for fuel)
- (7) Container - 12 gallon (45.42 liter) capacity (for hydraulic fluid)
- B. Consumable Materials
 - (1) A00247 Sealant - BMS 5-95
 - (2) C00259 Primer - BMS 10-11, Type I
 - (3) C00913 Compound - Corrosion Inhibiting Material, Nondrying Resin Mix, BMS 3-27 (Preferred)
 - (4) C50056 Compound - Non-drying Corrosion Inhibiting Resin Mix, BMS 3-38 (Alternate)
 - (5) G50136 Paste - Corrosion Inhibiting Non-drying, BMS 3-38 (Alternate)
 - (6) G50237 Compound - Corrosion Inhibiting, Non-drying Cor-Ban 27L, BMS 3-38 (Alternate)
 - (7) D00633 Grease - BMS 3-33 (Preferred)
 - (8) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)
 - (9) D00014 Grease - MIL-G-21164 (Alternate)
 - (10) C00852 Compound - Anti-Seize, Molybdenum Disulfide-Petrolatum MIL-PRF-83483 (Supersedes MIL-T-83483)
- C. References
 - (1) AMM 20-10-09/401, Flareless Tubing Assembly - Removal/Installation
 - (2) AMM 24-22-00/201, Control (Supply Power) - Maintenance Practices
 - (3) AMM 51-31-01/201, Seals and Sealing - Maintenance Practices
 - (4) AMM 54-51-01/601, Strut - Inspection/Check
 - (5) AMM 71-00-02/401, Power Plant - Removal/Installation
- D. Access
 - (1) Location Zones
 - 430 No. 1 Nacelle Strut
 - 440 No. 2 Nacelle Strut
- E. Prepare to install the fuse pins

S 204-076-014

- (1) Make a check for worn parts and corrosion at the connection of the strut to the wing (AMM 54-51-01/601).

S 204-077-014

- (2) Look for corrosion on the bolts, the end caps, the washers and the inner surfaces of the fuse pins.
 - (a) Remove small surface corrosion from all non-bearing surfaces with a nylon scuff pad.
 - (b) Make these surfaces clean with solvent.
 - (c) Apply two layers of primer.
 - (d) If the corrosion cannot be removed, replace the part.

S 214-078-014

- (3) Examine all the bushings at the strut fittings and the wing fittings for corrosion.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 421
Dec 22/08

01

S 394-079-014

- (4) If the bushings are not sealed, apply a fillet seal to the flanges of the bushings with BMS 5-95 (AMM 51-31-01/201).

F. Adjust the length of the 3 piece (new style) diagonal brace for installation.

S 424-081-014

- (1) The three piece diagonal brace is disassembled/assembled by removing/installing the four tension bolts at either end, the end fittings and the spacers (if used).

S 824-082-014

CAUTION: RESTRAIN THE END FITTING WITH TOOLING TO PREVENT THE SHEARING OF THE SMALL ALIGNMENT PIN BETWEEN THE ALUMINUM TUBE AND THE TITANIUM END FITTING. TOOLING MUST NOT DAMAGE THE TUBE OR THE END FITTING. USE A TAPERED PLASTIC SHIM TO REMOVE THE SPACER FROM THE END OF THE TUBE.

- (2) Adjust the length of the diagonal brace by removing or installing a spacer of the required thickness under the end fittings. Adjustment range is minus 0.180 to plus 0.14 inch (-4.57 to +3.56 mm). Only one or no spacer is allowed at each end.

S 824-083-014

- (3) Do these steps to measure and adjust the length of the three piece diagonal brace:
 - (a) If the intact diagonal brace is undistorted, the length may be transferred directly to the new brace.

S 824-084-014

- (4) If the existing brace is distorted or if the operator prefers, do the following steps.
 - (a) Return the strut/engine to the hardware condition that existed when weighed.

S 824-085-014

- (5) Apply the recorded strut removal load.

- S 824-086-014
- (6) Loosen the bolts on the aft end fitting of the diagonal brace to obtain 0.20 inch (0.51 mm) of play (spacer removal may be required).
- S 424-087-014
- (7) Temporarily install the front and aft ends of the diagonal brace into the strut and wing fittings.
- S 824-088-014
- (8) Using feeler gauges, measure and record the gap between the tube and the end fitting (keep the gap parallel to the ends of the tube and fitting).
- S 824-089-014
- (9) Adjust the length of the brace by removing or installing spacers of the required thickness.
- S 224-090-014
- (10) The allowable adjustment range is minus 0.180 inch to plus 0.140 inch (-4.57 to + 3.56 mm).
- S 114-091-014
- (11) Remove any existing fay surface sealant on tube ends, end fittings and spacers, if used.
- S 374-092-014
- (12) Touch up any damaged primer with BMS 10-11.
- S 334-093-014
- (13) Apply parting agent to tube ends, end fittings and spacers and allow to cure.
- S 394-094-014
- (14) Fay surface seal both sides of spacer (or tube end if no spacer is used) with BMS 5-95.

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 423
Apr 22/05

01

S 394-095-014

CAUTION: DO NOT USE LEAD COMPOUNDS (EASE-OFF 990).

(15) Apply antiseize compound (MIL-T-83483) to nut threads.

S 394-096-014

(16) Apply corrosion inhibiting compound, BMS 3-27 (preferred) or BMS 3-38 (alternate), to the bolt shank and install.

S 824-097-014

(17) Verify the run-on torque is 50 inch-pounds (5.65 Nm) minimum. Replace barrel nuts that do not meet this value.

S 824-098-014

(18) Tighten all four bolts to 1800-2200 inch-pounds (203.37-248.57 Nm).

S 224-099-014

(19) Verify each bolt end extends 0.078-0.270 inch (1.98-6.86 mm) past the barrel nut.

S 434-100-014

CAUTION: RESTRAIN THE END FITTING TO PREVENT THE SHEARING OF THE ALIGNMENT PIN BETWEEN THE ALUMINUM TUBE AND THE TITANIUM FITTING.

(20) If only the tube is restrained when tightening the bolts, tighten the bolts in a circular pattern in 100 inch-pounds (11.30 Nm) increments until 500 inch-pounds (56.49 Nm) is reached.

(a) Continue the circular pattern in 200 inch-pounds (22.6 Nm) increments until 1500 inch-pounds (169.48 Nm) is reached.

S 434-101-014

(21) Final torque all bolts to 3600-4400 inch-pounds (406.75-497.13 Nm).

(a) Apply the final torque to the fasteners in a circular pattern.

S 214-102-014

(22) Verify bolt extension.

G. Install the fuse pins in three piece (new style) diagonal brace

S 424-103-014

- (1) Do the steps that follow when you install the fuse pins in the diagonal brace, wing (aft) end.
 - (a) Apply a thin film of grease to the outside diameter of the pin.
 - (b) Apply antiseize to the threads of the pin and barrel nut.
 - (c) Install the diagonal brace with the fuse pin, the bolt, the end caps, the washers, and the nut.
 - 1) Make sure the washers are fully against the end caps.
 - 2) Do a check of the self locking torque of the nut. The torque range is 14-100 inch-pounds (1.58-11.3 Nm). Nuts that do not meet this requirement must be replaced.
 - 3) Tighten the nut to 370-440 inch-pounds (41.8-49.7 Nm).
 - 4) Do a check to make sure the torque value is correct.
 - 5) Remove the unwanted grease.
 - (d) Install the cotter pin.
 - 1) Apply sealant BMS 5-95 to both ends of the cotter pin to a thickness of 0.10 inch (2.54 mm).
 - 2) Do a check to make sure the parts are installed correctly.

S 424-104-014

- (2) Do the steps that follow to install the fuse pin of the diagonal brace - strut (forward) end.
 - (a) Apply a thin film of grease to the outside diameter of the pin.
 - (b) Install the pin by applying a load at the strut jack point, NAC STA 119.10. Maximum Allowable load equals 3000 pounds (1360.78 kg) up or down.
 - 1) If the brace cannot be installed within the limits of the pre-load, the length of the brace can be adjusted by replacing one or both spacers with spacers of a different gauge thickness (Fig. 402). One or both spacers may be omitted, if necessary.
 - (c) Apply 480-850 inch-pounds (54.2-96.0 Nm) torque to the nut. Use a combination of NAS1149E0916R, NAS1149E0932R and/or NAS1149E0963R washers to achieve required torque and cotter pin alignment.
 - (d) Install the cotter pin.
 - 1) Apply BMS 5-95 sealant to both ends of the cotter pin to a thickness of 0.10 inch (2.54 mm).

EFFECTIVITY
AIRPLANES WITH
PW4000 ENGINES AND
SB 767-54-0080

54-51-05
CONFIG 14
Page 425
Aug 22/07

01

- S 084-112-014
- (3) Remove the preload fixture.
- S 644-113-014
- (4) Lubricate the strut-to-wing attach fittings (AMM 12-21-32/301).
(a) Remove any excess grease.
- H. Put the Airplane Back to its Usual Condition.
- S 424-114-014
- (1) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 434-106-014
- (2) If you removed the diagonal brace, do the steps that follow:
- CAUTION:** MAKE SURE THAT YOU SET THE CORRECT CLEARANCES AT ALL THE CLAMP LOCATIONS ON THE DIAGONAL BRACE (AMM 20-10-09/401). IF YOU DO NOT SET THE CORRECT CLEARANCES, YOU CAN CAUSE DAMAGE TO THE COMPONENTS.
- (a) Connect the system tubes and wires with the clamps on the diagonal brace.
- S 864-108-014
- (3) Remove electrical power (AMM 24-22-00/201).
- S 434-109-014
- (4) Connect the electrical connectors to the fuel and the hydraulic shutoff valves.
- S 424-110-014
- (5) Do the task to install the engine (AMM 71-00-02/401).
(a) Look for hydraulic system leakage.
- S 414-115-014
- (6) Close the access doors on the aft fairing.
- S 414-116-014
- (7) Install the fairings (AMM 54-52-01/401).

CORE COWL HINGE FITTING – REMOVAL/INSTALLATION

1. General

- A. This procedure removes and installs the hinge fitting of the core cowl. This hinge fitting must be removed when the precooler is removed.

TASK 54-51-51-004-001

2. Remove the Core Cowl Hinge Fitting

A. References

- (1) 71-11-06/401, Core Cowl Panels

B. Access

- (1) Location Zones

434 Mid Torque Box, Left

444 Mid Torque Box, Right

C. Remove the Core Cowl Hinge Fitting (Fig. 401)

S 014-002

- (1) Remove the core cowl panel (Ref 71-11-06).

S 024-003

- (2) Remove the bolts and hinge.

S 024-004

- (3) Remove the shim.

TASK 54-51-51-404-005

3. Install the Core Cowl Hinge Fitting

A. Consumable Materials

- (1) A00964 Primer – BMS 10-11, Type 1
(2) A00160 Sealant – Dow Corning 93-006 or
BMS 5-63, Class B

B. References

- (1) 71-11-06/401, Core Cowl Panels

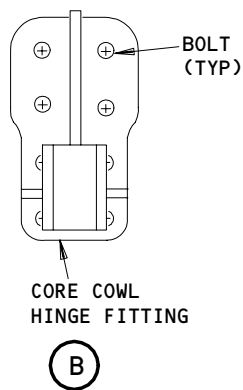
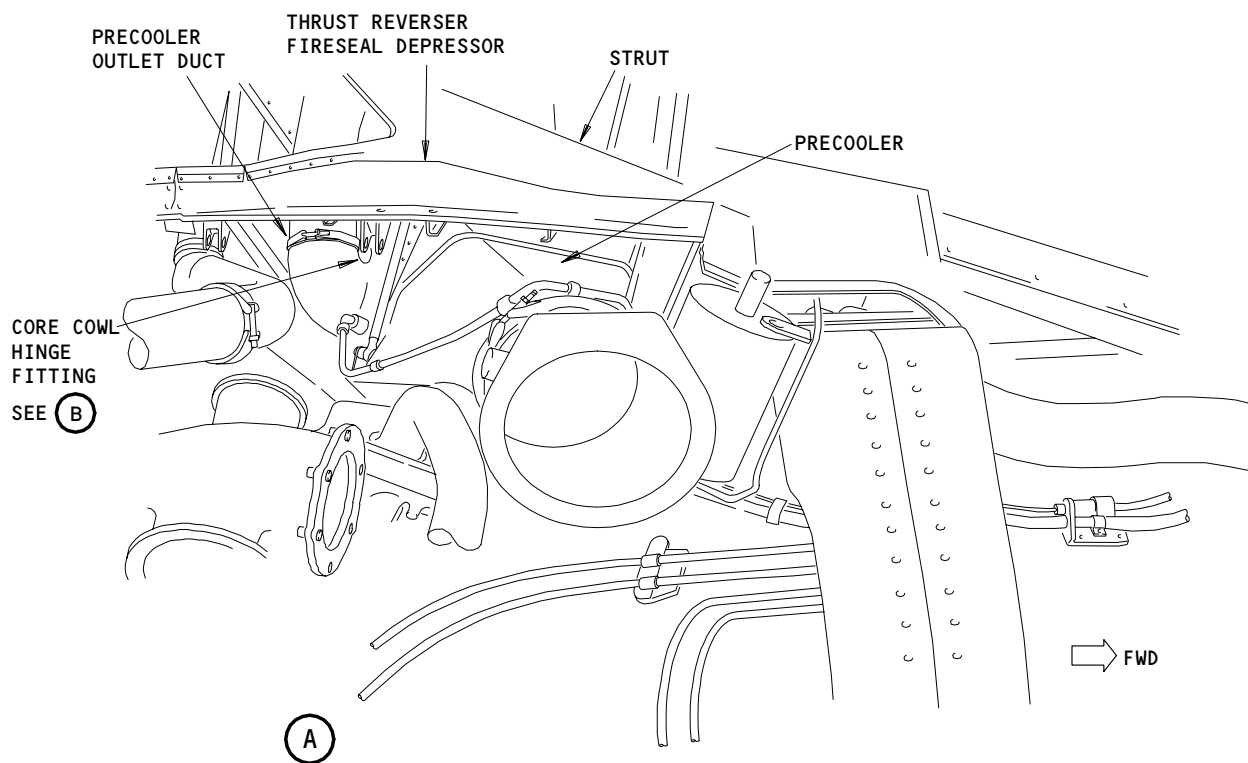
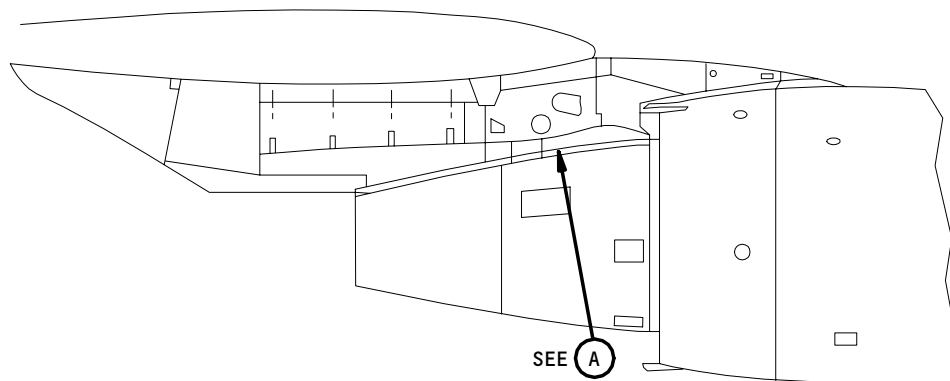
EFFECTIVITY

ALL

54-51-51

02

Page 401
Aug 10/90



Core Cowl Hinge Fitting
Figure 401

EFFECTIVITY	
	ALL

54-51-51

C. Access

(1) Location Zones

- 434 Mid Torque Box, Left
- 444 Mid Torque Box, Right

D. Install the Core Cowl Hinge Fitting (Fig. 401)

S 824-006

- (1) Do the steps that follow when you align the hinge.
 - (a) Align the hinge bolt holes of the core cowl.
 - 1) If it is necessary adjust the hinge shim.
 - (b) Apply the primer to the shim.
 - 1) Make sure the primer does not dry before it is installed.
 - (c) Install the shim.

S 424-007

- (2) Put the hinge on the strut and install the bolts and the washers.

S 394-008

- (3) Apply the sealant around the hinge.

S 414-009

- (4) Install the core cowl panel (Ref 71-11-06).

EFFECTIVITY

ALL

54-51-51

02

Page 403
Aug 10/90

ENGINE TO WING FAIRINGS – DESCRIPTION AND OPERATION

1. General

- A. The fairings provide the strut with a smooth surface for unobstructed airflow. Systems and connections in the strut are accessible through panels and doors in the fairings.
- B. Engine cowling provides a smooth covering for the sides of the engine and its accessories. For additional information see AMM 71-11-00.

2. Component Details (Fig. 1)

A. Forward Fairing

- (1) The forward fairing is comprised of three sections. The mid section is retained by four latches: hook latches to the aft section and pin latches to the forward section. The other sections are retained with bolts. The mid-section must be removed prior to removing the fwd or aft sections.
- (2) A pressure relief door is located in the aft section of the forward fairing. It provides pressure relief in event of pneumatic duct rupture and access to the throttle quadrant.

B. Underwing Fairing

- (1) The underwing fairing fairs the wing to the strut. It is comprised of five removable sections which are retained with bolts.
- (2) The three forward sections curve around the forward edge of the wing. The aft section provides access to inspect the mid-spar fittings.
- (3) Bonding jumpers are attached to the fairings to carry lightning strike current from the strut into the wing structure.

C. Thrust Reverser Fairing

- (1) The thrust reverser fairing fairs the thrust reverser to the strut. It must be removed to gain access to the hydraulic and electric access doors.

D. Core Cowl Skirt Fairing

- (1) The core cowl skirt fairing is comprised of three removable sections retained with bolts. A seal, on the lower section, fairs with the core cowl panel.

E. Aft Fairing

- (1) This section has the drain tubes for the all fairings aft of the strut.

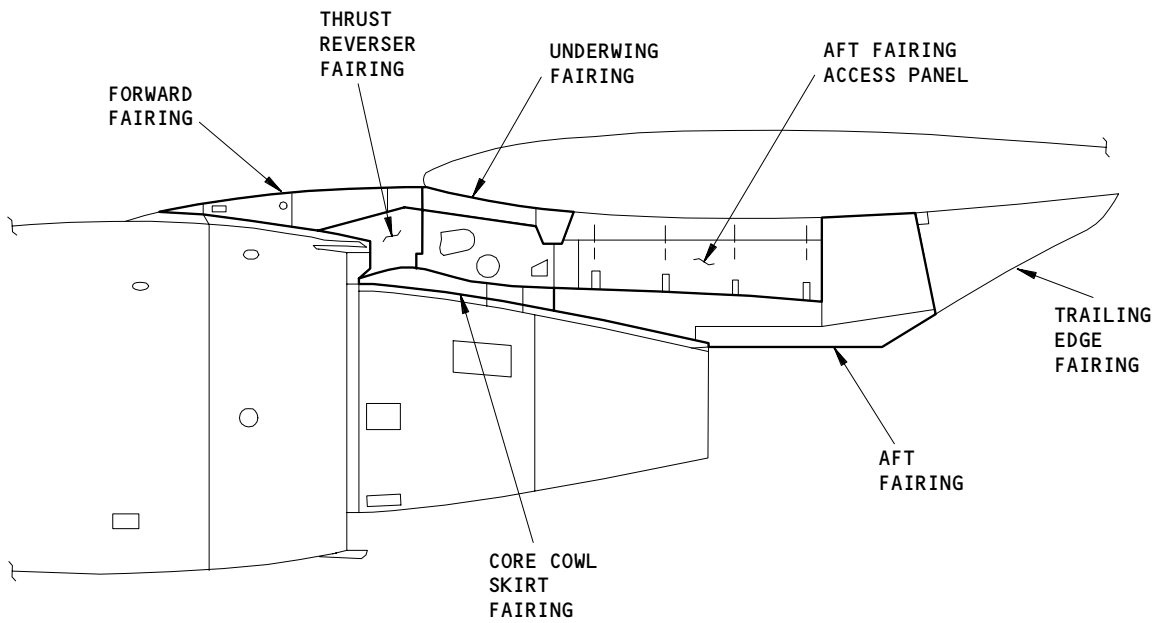
EFFECTIVITY

ALL

54-52-00

01

Page 1
Aug 10/95



Engine to Wing Fairings
Figure 1

EFFECTIVITY	ALL
-------------	-----

54-52-00

01

Page 2
Aug 10/95

- (2) The aft fairing has the following sections:
 - (a) The aft panel
 - 1) The aft panel is attached by bolts and hiloks to the wing skate angle.
 - 2) The aft side of the aft panel has clamps for system tubes.
 - (b) The forward panel.
 - 1) The forward end of the forward panel has a floating interface with the aft bulkhead of the strut.
 - (c) The lower pan.
 - (3) The trailing edge fairing must be removed prior to removing the aft fairing.
 - (4) The aft fairing access panel is above the forward panel of the aft fairing. For additional information see AMM 54-53-02.
- F. Trailing Edge Fairing
- (1) The trailing edge fairing is retained with bolts. The upper edge attaches to the wing with an angle at the forward section and fairs to wing with a rubber seal at the aft section.
 - (2) The trailing edge fairing has an access panel to inspect or lubricate the diagonal brace attachment to the wing.

EFFECTIVITY

ALL

54-52-00

02

Page 3
Aug 10/95

STRUT FAIRINGS – REMOVAL/INSTALLATION

1. General

- A. This procedure contains these tasks:
 - (1) Remove the fairings.
 - (2) Install the fairings.
- B. The following fairings can be removed and installed:
 - (1) The underwing fairing
 - (2) The forward fairings
 - (a) The forward fairing contains three parts: the forward, middle, and aft sections.
 - (b) The middle section is the only location that is not attached with bolts. This section is attached with four latches. You must remove the middle section before you remove the forward or aft sections.
 - (3) The fairing for the thrust reverser
 - (4) The skirt fairings for the core cowl
 - (a) The skirt fairing for the core cowl is comprised of three removable sections.
 - (5) The aft fairing
 - (a) The aft fairing is comprised of three sections: the forward panel, the aft panel, and the lower pan. The aft fairing should be removed as a single unit.
 - (6) The trailing edge fairing.

TASK 54-52-01-004-001-003

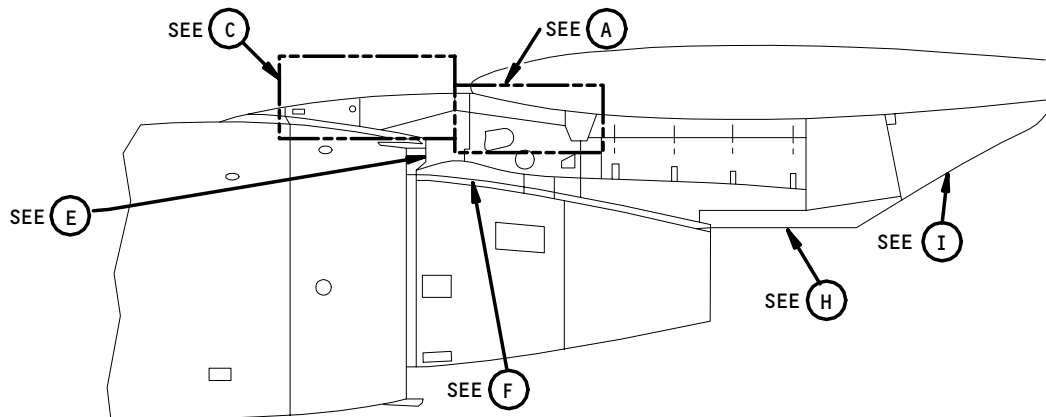
2. Remove the Fairings

- A. Equipment
 - (1) PHILLIPS ACR Removal Bit, size #3, SDM263R, Snap-On Tools
- B. References
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 78-31-00/201, Thrust Reverser System
- C. Access
 - (1) Location Zones
 - 431/441 Forward Nacelle Strut Fairing
 - 433/443 Underwing Fairing
 - 435/445 Core Cowl Skirt Fairing
 - 437/447 Aft Nacelle Strut Fairing
- D. Remove the fairings (Fig. 401).

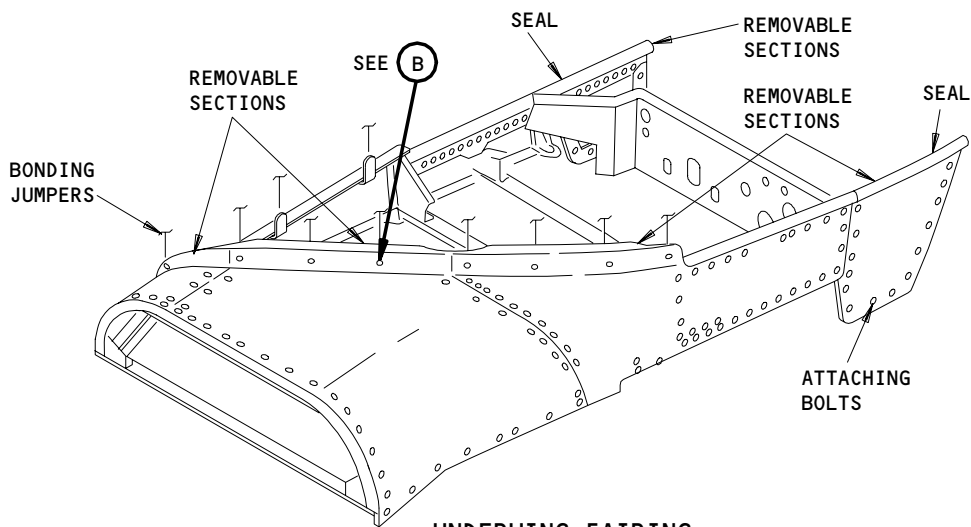
EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

54-52-01
CONFIG 3
Page 401
Feb 10/96

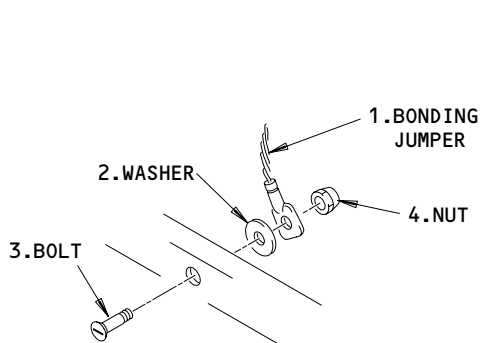
01



STRUT FAIRING

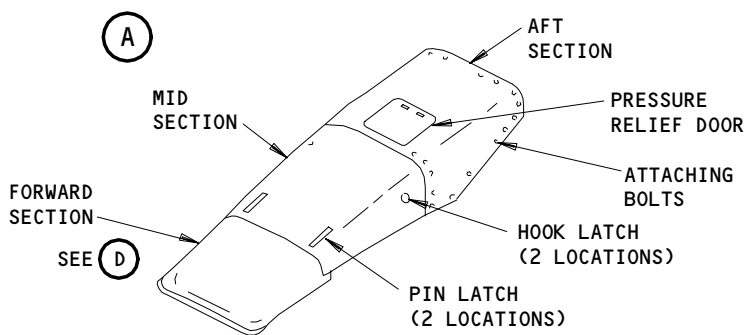


UNDERWING FAIRING



FORWARD EDGE (8 LOCATIONS)

B



FORWARD FAIRING

C

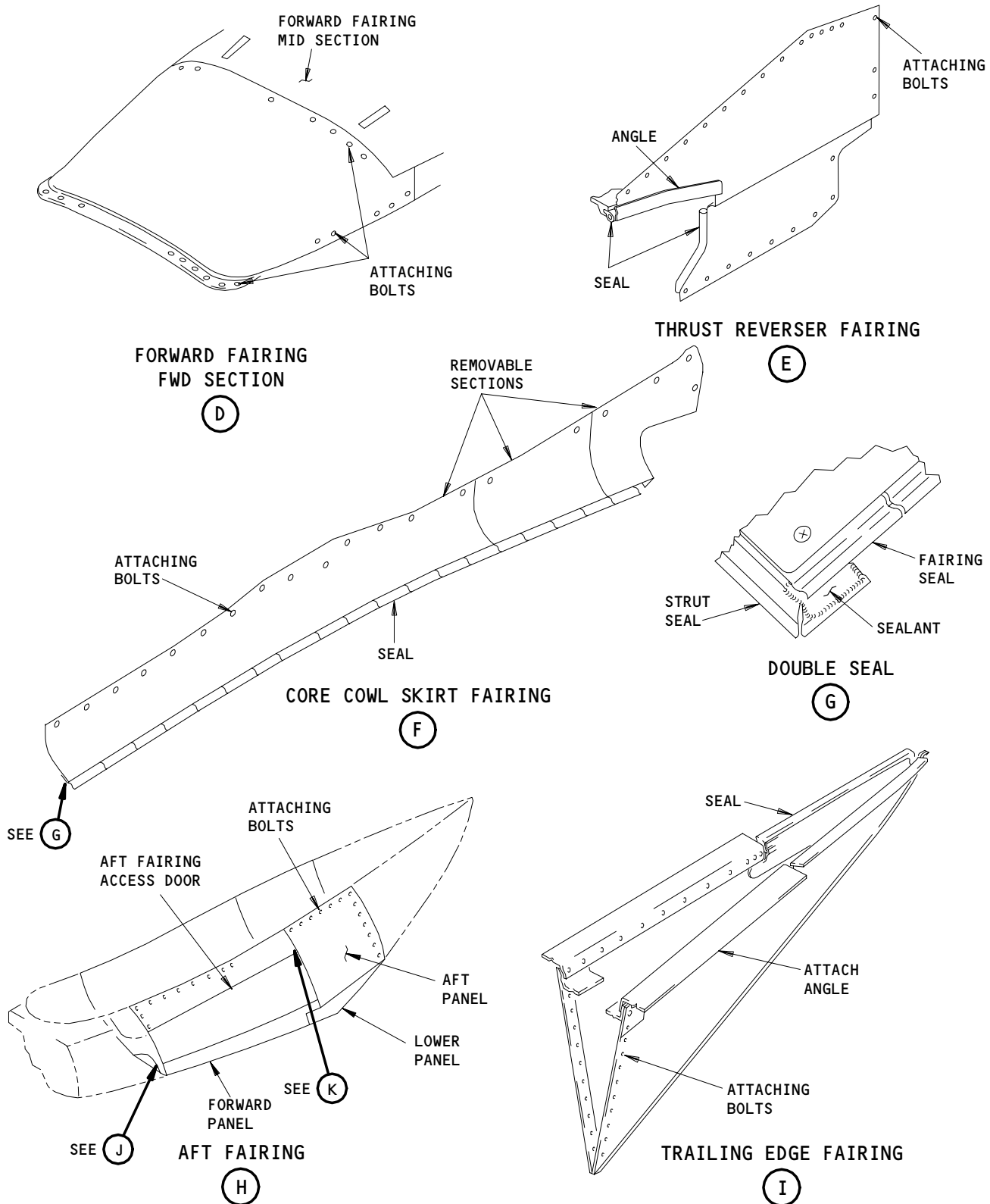
**Strut Fairing Installation
Figure 401 (Sheet 1)**

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

54-52-01

CONFIG 3
Page 402
Feb 10/96

01



Strut Fairing Installation
Figure 401 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

F20627

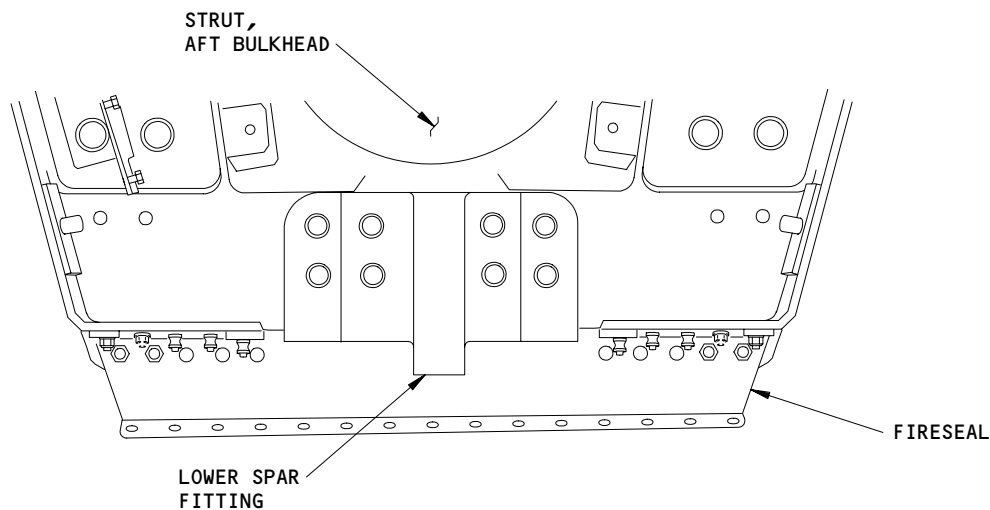
54-52-01

CONFIG 3

01

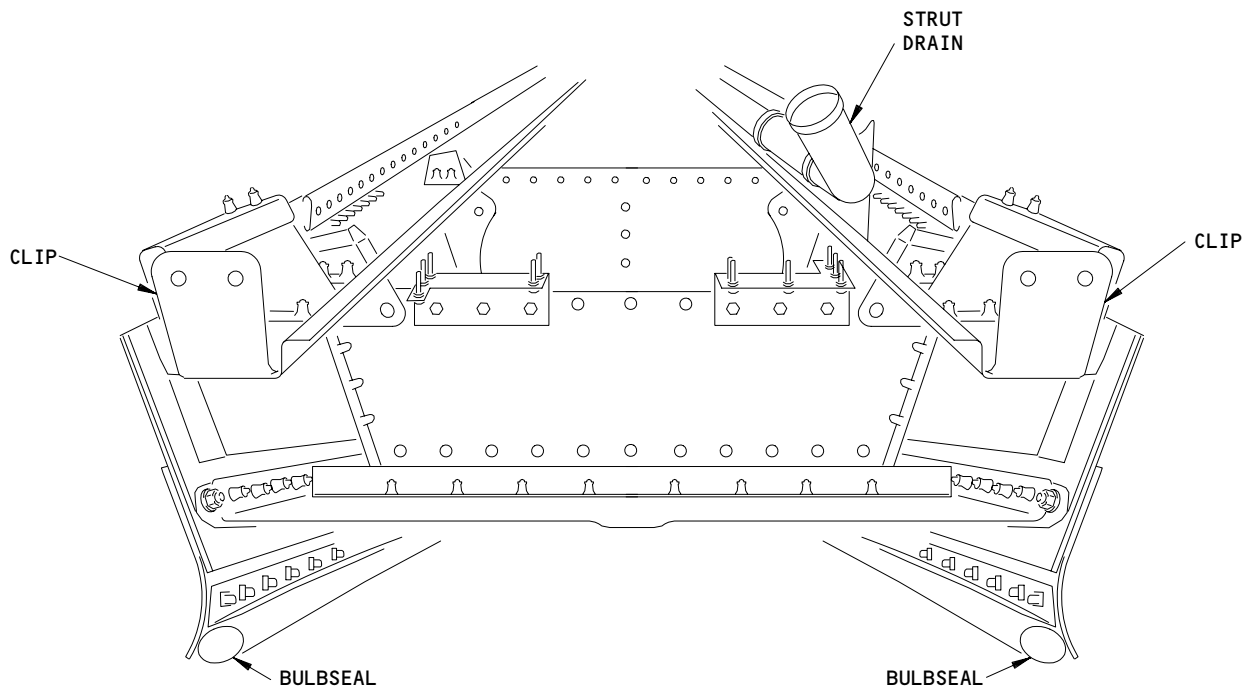
Page 403

May 10/96



FORWARD PANEL
(VIEW IN THE FORWARD DIRECTION)

(J)



FORWARD PANEL
(VIEW IN THE AFT DIRECTION)

(J)

Strut Fairing Installation
Figure 401 (Sheet 3)

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

F74020

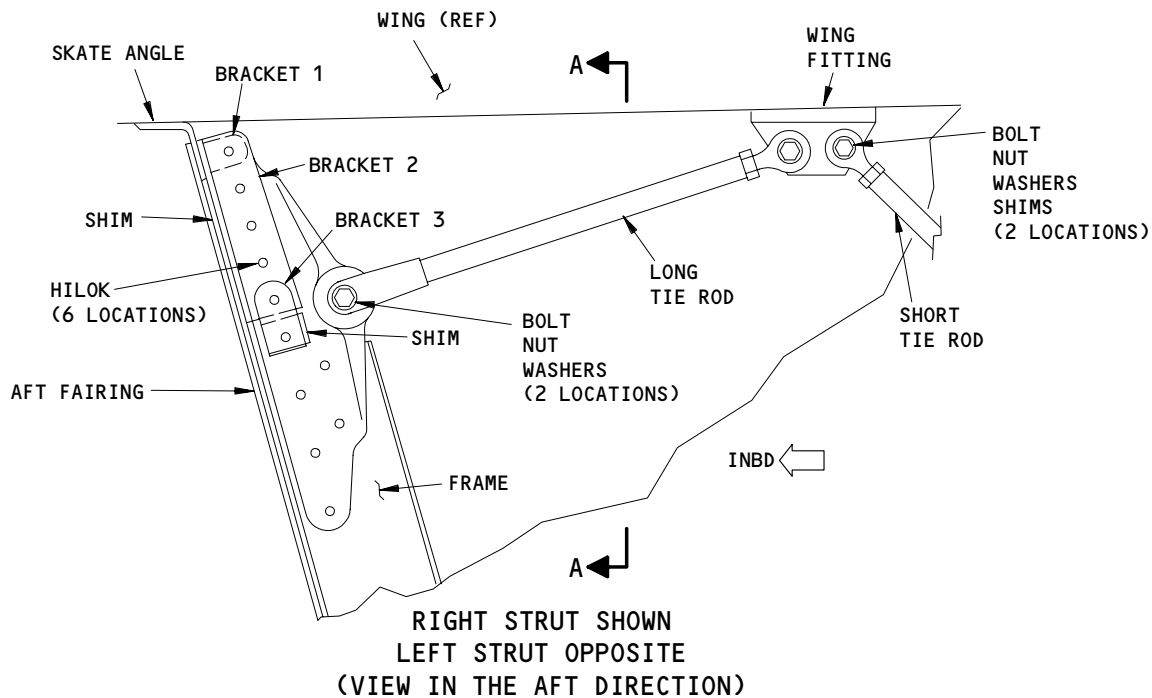
54-52-01

CONFIG 3

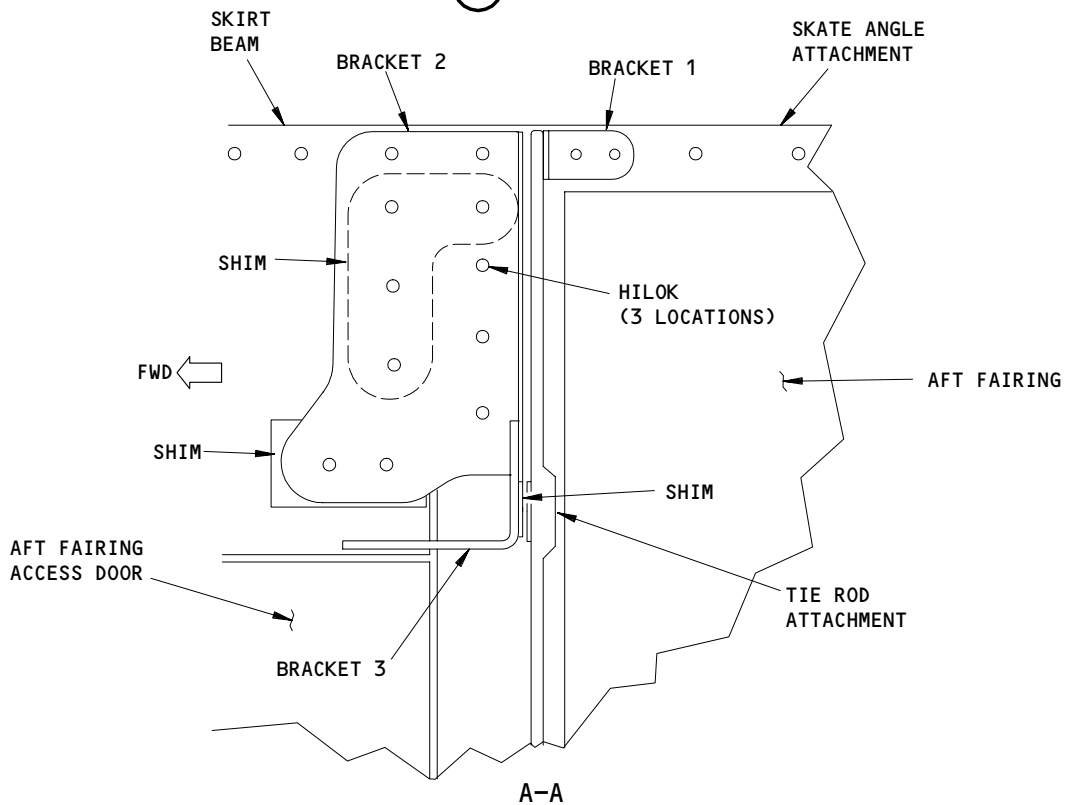
Page 404

May 10/96

01



(H)



Strut Fairings Installation
Figure 401 (Sheet 4)

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

F74023

54-52-01

CONFIG 3

Page 405

May 10/96

01

S 044-002-003

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 024-003-003

- (2) Hold the fairings.

S 024-004-003

- (3) Remove the underwing fairings.
 - (a) Bonding jumpers are connected between the wing and the underwing fairing.
 - (b) Remove the bolts from the underwing fairings.
 - (c) Lift each fairing section until you can get the nuts on the fairing.

NOTE: There are bonding jumpers between the wing and the fairings.

- (d) Remove the bolts, nuts, washers, and bonding jumper from each section.

CAUTION: WHEN YOU REMOVE THE BOLTS, USE AN ANTI-CAMOUT RIB (ACR) BIT. THIS WILL PREVENT DAMAGE TO THE HEAD OF THE BOLT.

- (e) Remove the bolts on the aft sections.

S 024-005-003

- (4) Remove the forward fairings.
 - (a) Do these steps to remove the middle section.
 - 1) On the hook latches, put a screwdriver into the tool slot of the latch and move rearward. This will release the latch.
 - 2) On the pin latches, push the trigger to release the latch.
 - (b) Remove the bolts from the forward and aft sections.

S 024-006-003

- (5) Remove the fairing for the thrust reverser
 - (a) Remove the wing panels adjacent to the inboard side of the strut. This will help you get to the fasteners in the fairing.

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

54-52-01
CONFIG 3
Page 406
May 10/96

01

 **BOEING**
767
MAINTENANCE MANUAL

- (b) Remove the bolts.
 - 1) If the bolt length change, make a note of the locations.
- (c) Open the fan cowl panel (AMM 71-11-04/201).
- (d) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (e) Open the thrust reverser (AMM 78-31-00/201).

NOTE: This will release the pressure on the seal.

S 024-007-003

- (6) Remove the core cowl skirt fairing or the trailing edge fairing.
 - (a) Remove the bolts.
 - (b) Make a note of the bolt location and length.

S 024-020-003

- (7) Remove the aft fairing (Fig. 401).

NOTE: You must remove the trailing edge fairing, core cowl skirt fairing, forward access panel and the engine tailcone or the engine before you can remove the aft fairing.

- (a) Make a note of all the bolt locations and lengths when you remove the bolts.
- (b) Remove the clamp for the hydraulic tube.

NOTE: This clamp is at the aft end of the panel near the skate angle.

- (c) Remove the tie rods from the wing fitting and the aft fairing.
 - 1) Make a note of the locations of the washers and shims at the rod ends.

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

54-52-01
CONFIG 3
Page 407
May 10/96

01

- (d) Remove inboard and outboard brackets 1, 2, 3 and shims from the forward edge of the aft panels and the aft edge of the skirt beam fairing.

NOTE: The brackets are attached by hiloks.

- (e) Remove the clips from the forward end of the forward panel and the aft end of the strut for both inboard and outboard sides of the nacelle.
- (f) Remove the forward end of the heat blanket from under the forward panel of the aft fairing.
- (g) Remove the fireshield from the aft end of the strut and the forward end of the forward panel.

NOTE: The fireshield is attached by hiloks.

CAUTION: WHEN YOU REMOVE THE BOLTS, USE AN ANTI-CAMOUT RIB (ACR) BIT. THIS WILL PREVENT DAMAGE TO THE HEAD OF THE BOLT.

- (h) Hold the aft fairing assembly and remove the bolts from the top edge of the aft panel of the aft fairing.

NOTE: Two or more persons are necessary to hold and remove the aft fairing.

- (i) Slide the aft fairing aft and down off the skate angles and strut.

TASK 54-52-01-404-009-003

3. Install the Fairings

A. Equipment

- (1) PHILLIPS ACR Installer Bit, size #3, SDM263I, Snap-On Tools

B. Consumable Materials

- (1) Primer - Sealant BMS 5-63, Class B (AMM 20-30-03)

C. References

- (1) AMM 54-51-01/201, Strut
- (2) AMM 54-52-02/801, Forward Fairing Latches
- (3) AMM 71-11-04/201, Fan Cowl Panels
- (4) AMM 71-11-06/201, Core Cowl Panels
- (5) AMM 78-31-00/201, Thrust Reverser System

D. Access

- (1) Location Zones
 - 431/441 Forward Nacelle Strut Fairing
 - 433/443 Underwing Fairing
 - 435/445 Core Cowl Skirt Fairing
 - 437/447 Aft Nacelle Strut Fairing

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

54-52-01
CONFIG 3
Page 408
May 10/96

01

E. Install the fairings (Fig. 401).

S 424-010-003

- (1) Install the forward fairings.
 - (a) Put the fairings on the strut.
 - (b) Align the holes for the bolts.
 - (c) Install the bolts.
 - 1) Find the correct locations if the bolt lengths change.

S 424-011-003

- (2) Install the underwing fairings.
 - (a) Install the bonding jumpers, bolts, nuts and washers to the fairings.
 - (b) Align the fairings.

CAUTION: WHEN YOU INSTALL THE BOLTS, USE AN ANTI-CAMOUT RIB (ACR) BIT. THIS WILL PREVENT DAMAGE TO THE HEAD OF THE BOLT.

- (c) Install the bolts.

S 424-012-003

- (3) Install the forward fairings.
 - (a) Do these steps when you install the forward and aft sections.
 - 1) Put the fairings on the strut.
 - 2) Install the bolts.
 - (b) Do these steps when you install the middle section.
 - 1) Put the latch pins through the three in-line lugs.
 - 2) Close the latches.

NOTE: When the pin latch is closed, make sure the latch moves freely in the three in-line lugs. If it is necessary, ream the holes in the lug bushings (AMM 54-52-02).

S 424-021-003

- (4) Install the aft fairing (Fig. 401).

NOTE: Two or more persons are necessary to hold and install the aft fairing.

- (a) Slide the aft fairing forward and up on the skate angles and strut.

CAUTION: WHEN YOU INSTALL THE BOLTS, USE AN ANTI-CAMOUT RIB (ACR) BIT. THIS WILL PREVENT DAMAGE TO THE HEAD OF THE BOLT.

- (b) Align the holes of the aft fairing assembly and the skate angles.
- (c) Install the bolts on the top edge of the aft panel of the aft fairing.
- (d) Install the clips on the forward end of the forward panel and the aft of the strut for both inboard and outboard sides of the nacelle.
- (e) Install the fireshield on the aft end of the strut and the forward end of the forward panel.
- (f) Install the forward end of the heat blanket under the forward end of the aft fairing.
- (g) Install the inboard and outboard brackets 1, 2, 3 and shims from the forward edge of the aft panels and the aft edge of the skirt beam fairing.
- (h) Install the tie rods on the wing fitting and the aft fairing.
- (i) Use the washers and shims to center the tie rod ends to be attached to the wing fitting.
- (j) Install the clamp for the hydraulic tube in the aft fairing near the skate angle.

S 424-013-003

- (5) Install the skirt fairings for the core cowl.
 - (a) Put the fairings on the strut.
 - (b) Align the holes of the bolts.
 - (c) Install the bolts.
 - (d) On fairings with a double seal, apply sealant between the strut seal and the fairing seal.

S 414-014-003

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the thrust reverser (AMM 78-31-00/201).

 **BOEING**
767
MAINTENANCE MANUAL

- S 414-015-003
(7) Install the inboard wing panels adjacent to the strut.
- S 414-016-003
(8) Close the core cowl panel (AMM 71-11-06/201).
- S 414-017-003
(9) Close the fan cowl panel (AMM 71-11-04/201).
- S 444-018-003
(10) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).
- S 224-019-003
(11) Make sure the fairings are smooth (AMM 54-51-01/201).

EFFECTIVITY
AIRPLANES WITH PW4000 ENGINES

01

54-52-01
CONFIG 3
Page 411
May 10/96

STRUT FAIRINGS – INSPECTION/CHECK

1. General

A. This procedure examines the strut fairings.

TASK 54-52-01-226-001

2. Strut Fairings Inspection Check

A. References

- (1) AMM 54-51-01/201, Strut
- (2) AMM 54-52-02/801, Forward Fairing Latches
- (3) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

- 431/441 Forward Nacelle Strut Fairing
- 433/443 Underwing Fairing
- 435/445 Core Cowl Skirt Fairing
- 437/447 Aft Nacelle Strut Fairing

C. Examine the Fairings

S 046-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 216-003

- (2) Examine the fairings for cracks in the skin, and damage to the paint and the protective coating.

S 216-004

- (3) Examine the latches for damage.

EFFECTIVITY

ALL

54-52-01

01

Page 601
Nov 10/95

- S 216-021
(4) Make sure the latches operate correctly.

NOTE: When the forward fairing latch is closed, make sure the latch pin moves freely in the three in-line lugs. If it is necessary, ream the holes in the lug bushings (AMM 54-52-02/801).

- S 216-005
(5) Make sure the bolts are not loose or have threads which are gone.

- S 216-025
(6) Examine the fitting assembly in the strut aft lower spar for corrosion.
(a) A corrosion can occur on washers under the fasteners in the fitting assembly.

- S 216-006
(7) Examine the seal along the trailing edge, aft fairing skirt, underwing, and thrust reverser fairings for damage.

- S 216-012
(8) Visually examine the metal spring seal attached to the core cowl skirt fairing.
(a) If the seal has cracks, is badly bent, or worn, replace the applicable fairing section.

- S 216-013
(9) Make sure the fairings are smooth (AMM 54-51-01/201).

- S 446-014
(10) Do this procedure: Thrust Reverser Activation (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-52-01

01

Page 602
Apr 22/05

FORWARD FAIRING LATCHES – REMOVAL/INSTALLATION

1. General

- A. The forward fairing contains two sections: the mid section and the aft section. The latches on the mid section give access to the strut for maintenance and inspections. The aft section has a door with pressure relief latches. These latches open when the internal pressure is more than a given limit.

TASK 54-52-02-004-001

2. Remove the Forward Fairing Latches

A. References

- (1) AMM 54-52-01/401, Strut Fairings
- (2) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones
 - 431 Forward Nacelle Strut Fairing
 - 441 Forward Nacelle Strut Fairing

C. Remove the mid section latches (Fig. 401)

S 044-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 024-056

- (2) Remove the mid section of the forward fairing (AMM 54-52-01/401).

S 024-007

- (3) Remove the latches.
 - (a) Remove the cotter pin, bolt, washer, and nut that attach the hook latch to the fairing.
 - (b) Remove the sealant, bolts, washers, nuts and spacers that attach the pin latch to the fairing.

D. Remove the door latches in the aft section

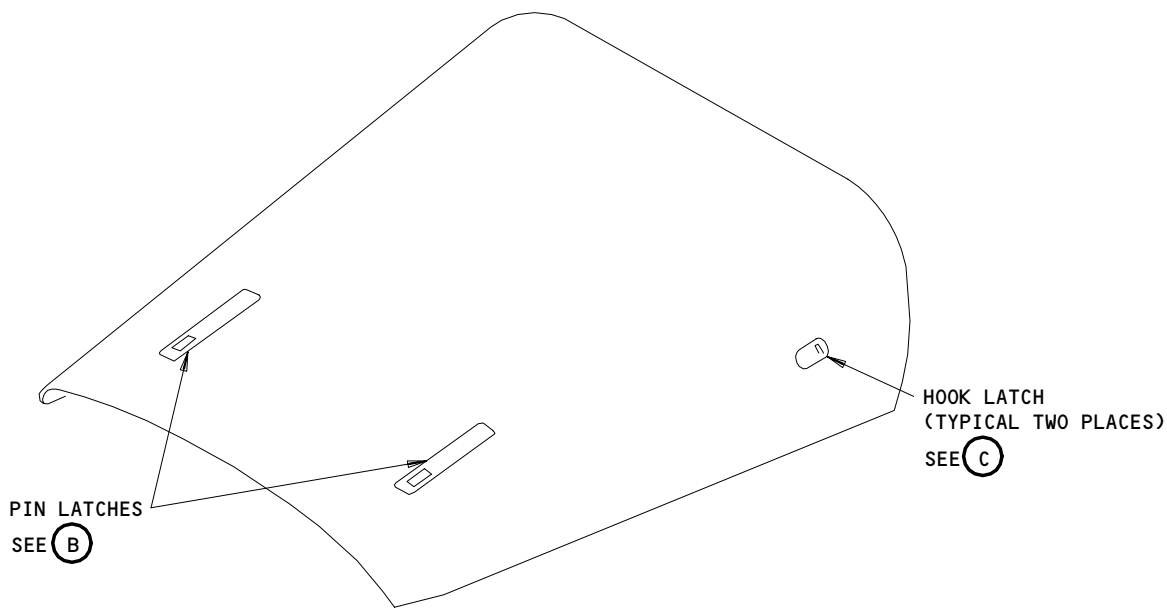
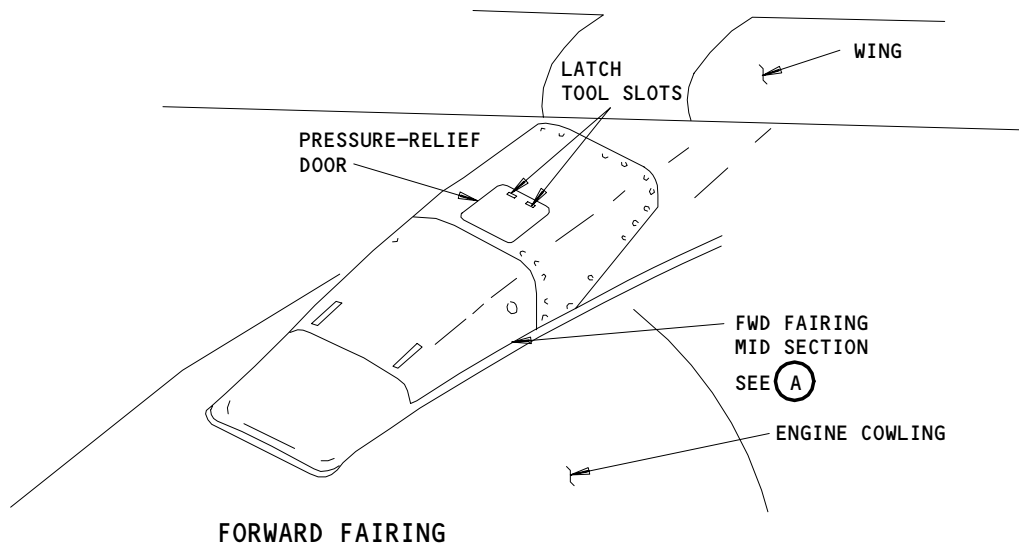
EFFECTIVITY

ALL

54-52-02

09

Page 401
Nov 10/95



FORWARD FAIRING MID-SECTION

(A)

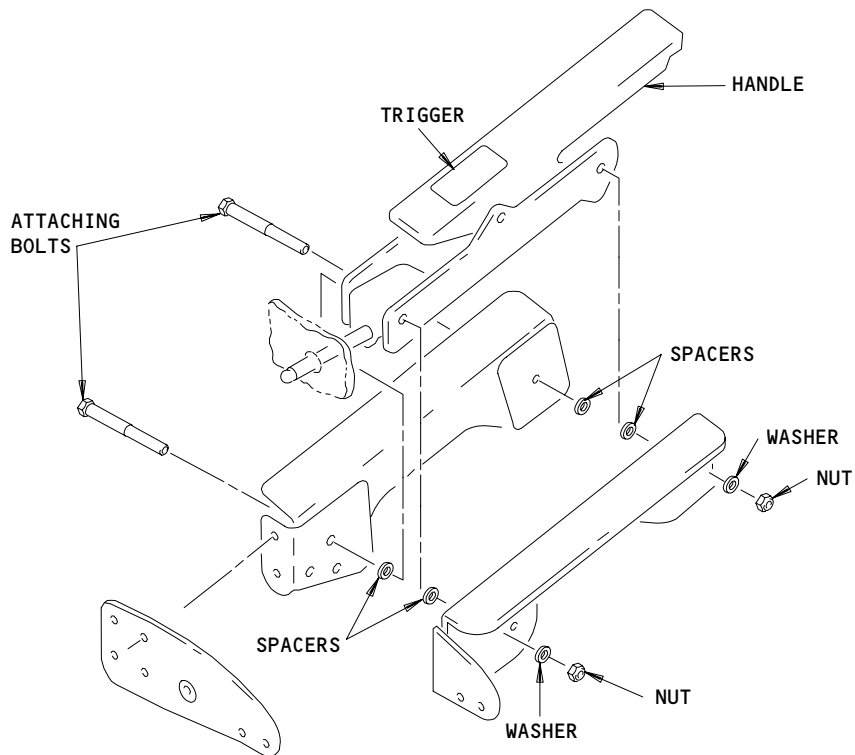
Forward Fairing Latches Installation
Figure 401 (Sheet 1)

EFFECTIVITY	
ALL	

54-52-02

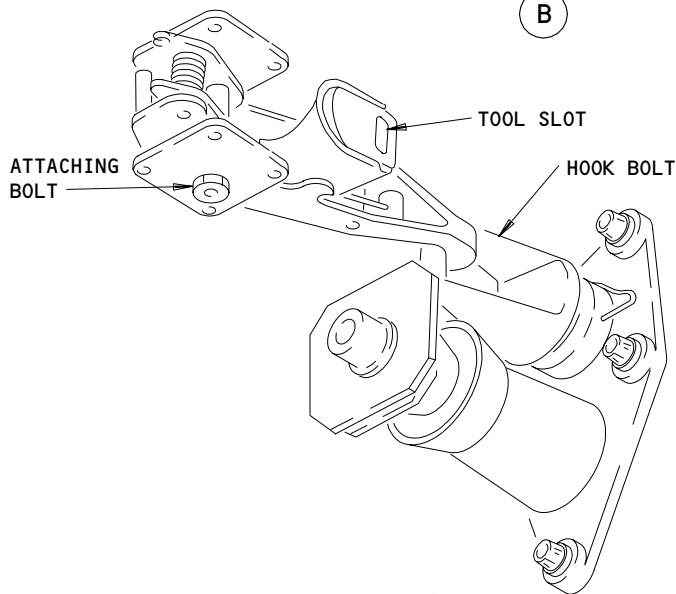
01

Page 402
Sep 01/81



**PIN LATCH
(TYPICAL TWO PLACES)**

(B)



**HOOK LATCH
(TYPICAL TWO PLACES)**

(C)

**Forward Fairing Latches Installation
Figure 401 (Sheet 2)**

EFFECTIVITY	
	ALL

54-52-02

01

Page 403
Sep 01/81

S 044-010

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 014-014

- (2) If it is necessary, remove the tape from the latches.

S 014-017

- (3) Put a screwdriver into the tool slot and move aft. This will release the latch.

S 024-018

- (4) Remove the bolts, nuts and washers from the latch.

S 024-022

- (5) If the latch striker is damaged, remove the bolts, nuts, and shims from the striker.

TASK 54-52-02-404-025

3. Install the Forward Fairing Latches

A. Consumable Materials

- (1) A00091 Sealant, Silicon Rubber - Dow Corning 93-006 (AMM 20-30-01)
- (2) C00259 Primer - BMS 10-11, type 1 (AMM 20-30-03)
- (3) G00117 Tape, Aluminum Foil - Permacel P11, P12 or equivalent (AMM 20-30-07)

B. References

- (1) AMM 54-51-01/201, Strut
- (2) AMM 54-52-01/401, Strut Fairings
- (3) AMM 54-52-02/501, Forward Fairing Latches
- (4) AMM 54-52-02/801, Forward Fairing Latches

EFFECTIVITY

ALL

54-52-02

08

Page 404
Nov 10/95

- (5) AMM 78-31-00/201, Thrust Reverser System
- C. Access
 - (1) Location Zones
 - 431 Forward Nacelle Strut Fairing
 - 441 Forward Nacelle Strut Fairing
- D. Install the mid section latches (Fig. 401)
 - S 424-026
 - (1) Install the hook latches.
 - (a) Install the hook latch with the nut, washer, bolt and cotter pin.
 - (b) Adjust the hook bolts (AMM 54-52-02/501).
 - S 424-027
 - (2) Install the pin latches.
 - (a) Install the pin latch with washers, spacers, nuts and bolts.

NOTE: Install the smaller spacers with the aft bolt.
 - (b) Apply sealant to the end of the bolt and nut to a thickness of approximately 0.06 inch.
 - (c) If the pin is not free to move in the three in-line lugs when you close the latch, do the step that follows:
 - 1) Ream the holes in the lug bushings (AMM 54-52-02/801).
 - S 224-028
 - (3) Make sure the latches are smooth (AMM 54-51-01/201).
 - S 424-030
 - (4) Install the mid section latches (AMM 54-52-01/401).
 - S 444-032
 - (5) Do this procedure: Thrust Reverser Activation (AMM 78-31-00/201).
- E. Install the door latches in the aft section
 - S 424-040
 - (1) Install the latches with the bolts, nuts and washers.
 - S 424-044
 - (2) If the latch striker was removed, install the striker with the shims, bolts and nuts.
 - (a) If it is necessary, remove or add layers of the shim to get the door sill to a thickness of 0.130-0.135 inch.
 - (b) Apply 2 layers of the primer.

EFFECTIVITY

ALL

54-52-02

06

Page 405
Nov 10/95

- S 224-047
- (3) Make sure the door is smooth (AMM 54-51-01/201).
(a) If it is necessary, adjust the door with shims.
(b) Apply a primer to the shims.
- S 414-048
- (4) If it is necessary, install the tape.
- S 444-051
- (5) Do this procedure: Thrust Reverser Activation (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-52-02

01

Page 406
Nov 10/95

FORWARD FAIRING LATCHES - ADJUSTMENT/TEST

1. General

- A. This procedure does the adjustment and the test of the latches on the forward fairings.
- B. There are three types of latches on the forward fairings. The first type are pressure relief latches. The latches open when the internal pressure is more than a given limit. The other two are the pin and hook latches. These latches close when you apply a given force.

TASK 54-52-02-715-001

2. Forward Fairing Latches Adjustment Test

A. Equipment

- (1) Dial Push-Pull Gage - 100 lb capacity, one pound increments, Model DPPH-100, J. Chatillon and Sons, Inc., New York, New York, or equivalent

B. Consumable Materials

- (1) G00117 / Tape, Aluminum Foil - Permacel P11, P12 or equivalent (Ref 20-30-07)

C. References

- (1) 54-52-02/401, Forward Fairing Latches
- (2) 78-31-00/201, Thrust Reverser System

D. Access

- (1) Location Zones
 - 431 Forward Nacelle Strut Fairing
 - 441 Forward Nacelle Strut Fairing

E. Adjust the latches.

S 725-002

- (1) Do a test of the aft section latches (Fig. 501).

NOTE: Do this procedure to make sure the latches open when the internal pressure is more than the limits.

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (Ref 78-31-00).
- (b) If it is necessary, remove the tape from the latches.
- (c) Put a screwdriver into the tool slot and move it rearward. This will release the latch.
- (d) Close the latch with a dial push-pull gage.
- (e) Make sure the force necessary to open this latch is 81-99 pounds applied vertical to the surface.

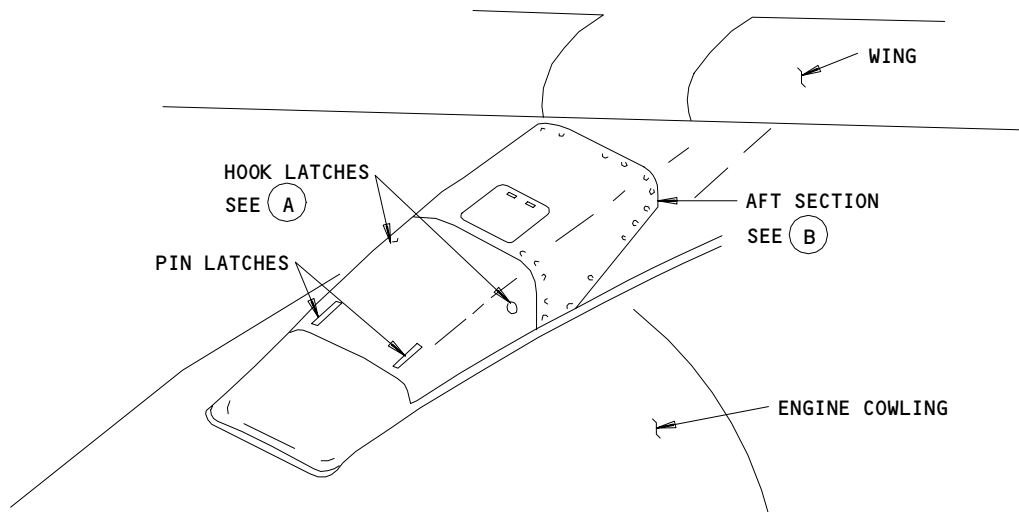
EFFECTIVITY

ALL

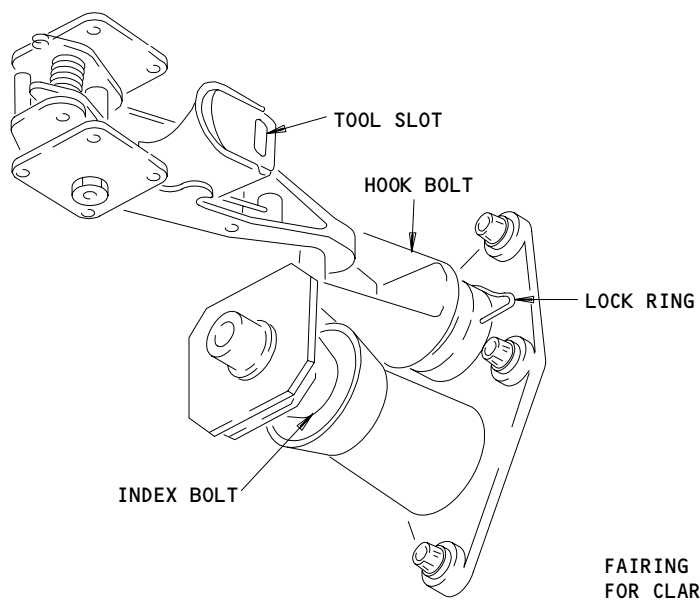
54-52-02

01

Page 501
Feb 10/91



FORWARD FAIRING



HOOK LATCH

(A)

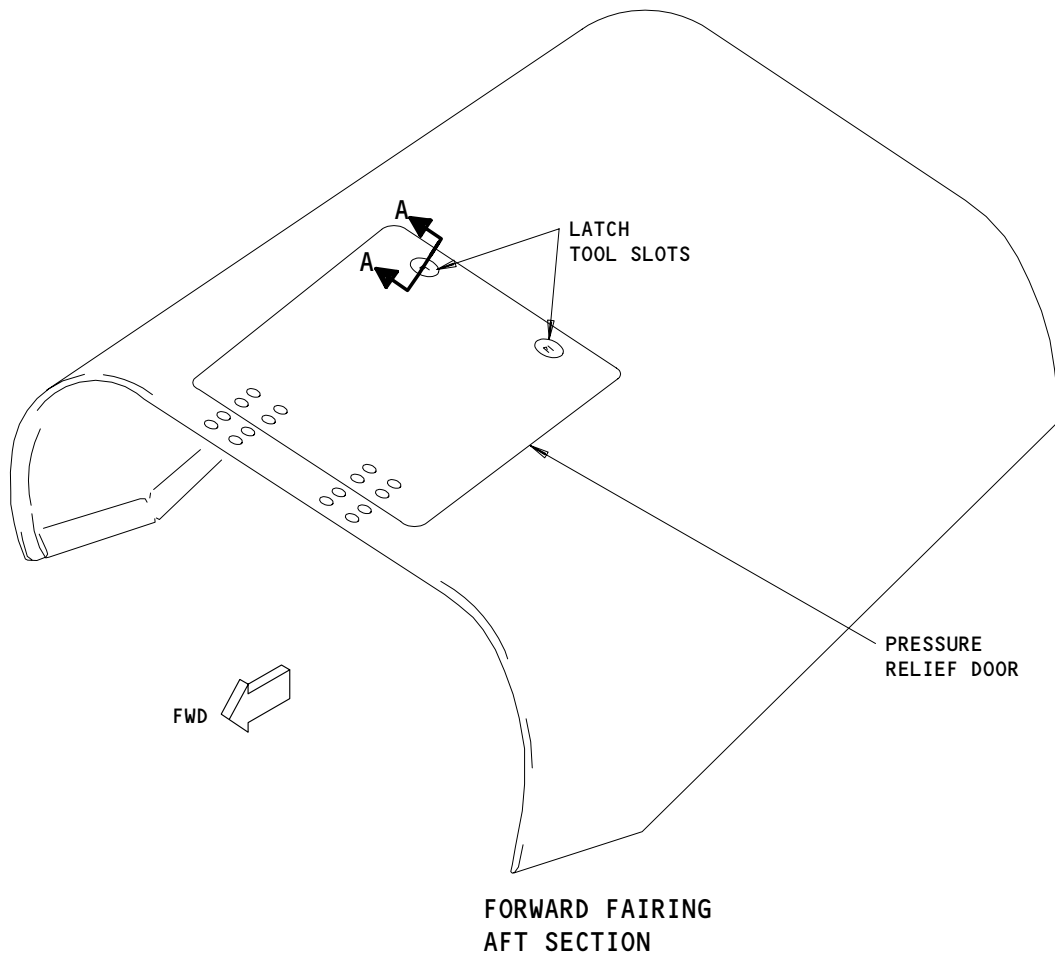
Forward Fairing Latches Adjustment
Figure 501 (Sheet 1)

EFFECTIVITY	
ALL	

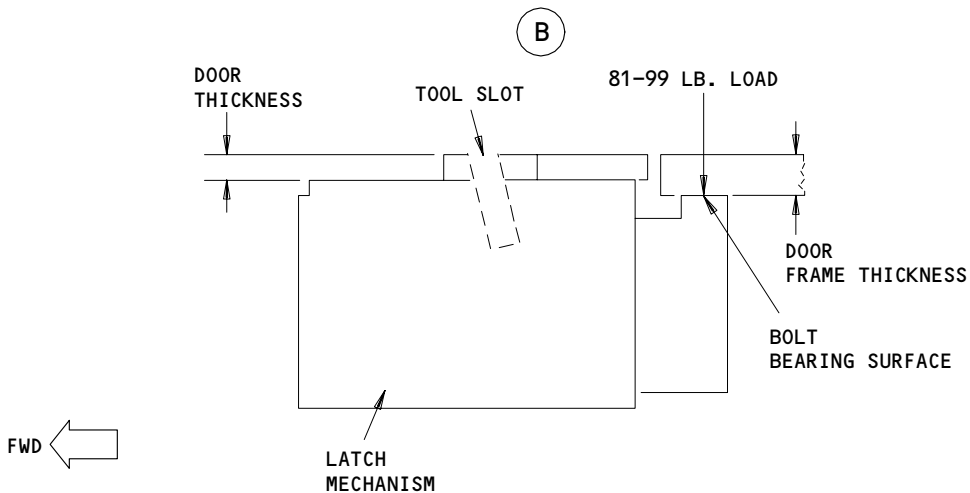
54-52-02

01

Page 502
Sep 01/81



FORWARD FAIRING
AFT SECTION



PRESSURE - RELIEF DOOR LATCH
LOAD LOCATION
A-A

Forward Fairing Latches Adjustment
Figure 501 (Sheet 2)

EFFECTIVITY	
ALL	

54-52-02

- (f) Replace the defective latches (AMM 54-52-02/401).
- (g) If it is necessary, install the tape.
- (h) Do this procedure: Thrust Reverser Activation (Ref 78-31-00).

S 725-003

- (2) Do a test to measure the force to close the hook latches (Fig. 501).

NOTE: Do this procedure when the force to close the latch is not at the given limits.

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (Ref 78-31-00).
- (b) Measure the force on the latches.
 - 1) Put a screwdriver into the tool slot and move rearward. This will release the latch.

CAUTION: WHEN YOU CLOSE THE LATCH, USE THE DIAL PUSH-PULL GAUGE USING HAND PRESSURE ONLY. DO NOT USE A SCREW DRIVER OR OTHER TOOLS TO CLOSE THE LATCH. DAMAGE TO THE LATCH AND FAIRING CAN OCCUR.

- 2) Push on the dial push-pull gage by hand only.
- 3) Make sure that the force necessary to close the latch is 30-70 pounds with the opposite latch open.
- 4) Do the check again with the other latch closed.
- 5) The force necessary to close the latch must be in limits when the latches are open or closed.
- (c) If the force is not in the given limits, do the steps that follow to adjust the hook latch.
 - 1) Remove the lock ring.
 - 2) Adjust the hook bolt in one-half turn increments.
 - 3) Turn the bolt counterclockwise to lower the force or clockwise to increase the force.
 - 4) Make sure that the force necessary to close the latch is 30-70 pounds when the latches are open or closed.
 - 5) Install the lock ring.
- (d) Make sure the latches are closed.
- (e) Do this procedure: Thrust Reverser Activation (Ref 78-31-00).

S 725-004

- (3) Do a test on the pin latches

EFFECTIVITY

ALL

54-52-02

02

Page 504
Aug 22/08

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (Ref 78-31-00).
- (b) Make sure that the force necessary to open the latch is 3-5 pounds.
- (c) The force is applied vertical to the handle.
- (d) Replace the defective latches (Ref 54-52-02).
- (e) Do this procedure: Thrust Reverser Activation (Ref 78-31-00).

EFFECTIVITY

ALL

54-52-02

01

Page 505
Feb 10/91

FORWARD FAIRING LATCHES - REPAIRS

1. General

- A. There are two pin latches on the middle section of the forward fairing.
If the pin latches are not easy to close, use this repair.

TASK 54-52-02-328-001

2. Repair the Latch on the Forward Fairing

A. References

- (1) AMM 54-52-01/401, Strut Fairing

(2) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones
431 Forward Nacelle Strut Fairing
441 Forward Nacelle Strut Fairing

C. Repair the holes in the bushings

S 048-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for ground Maintenance (Ref 78-31-00).

S 018-004

- (2) Remove the forward fairing (AMM 54-52-01/401).

S 228-005

- (3) Examine the pin latches on the forward fairing.
(a) The latch pin is 0.311/0.312 inch in diameter and the inner diameter of the bushings is 0.312/0.314 inch.

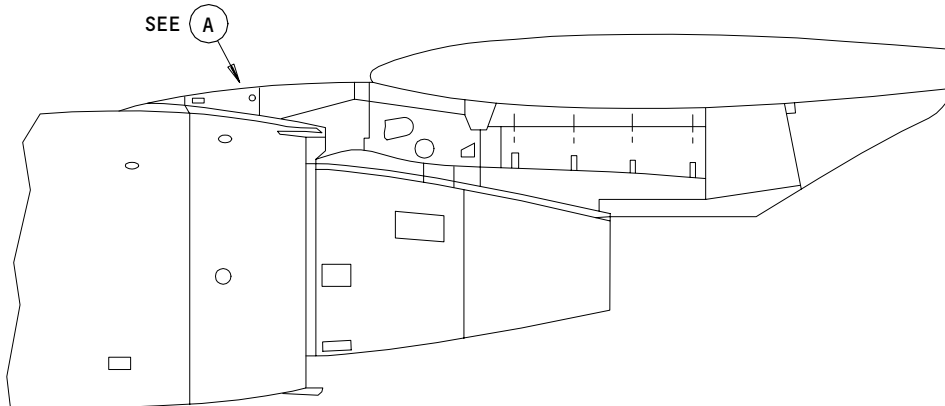
EFFECTIVITY

ALL

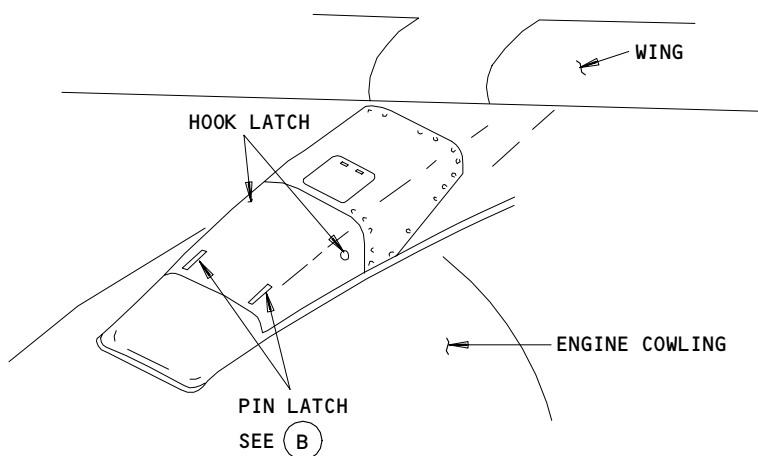
54-52-02

04

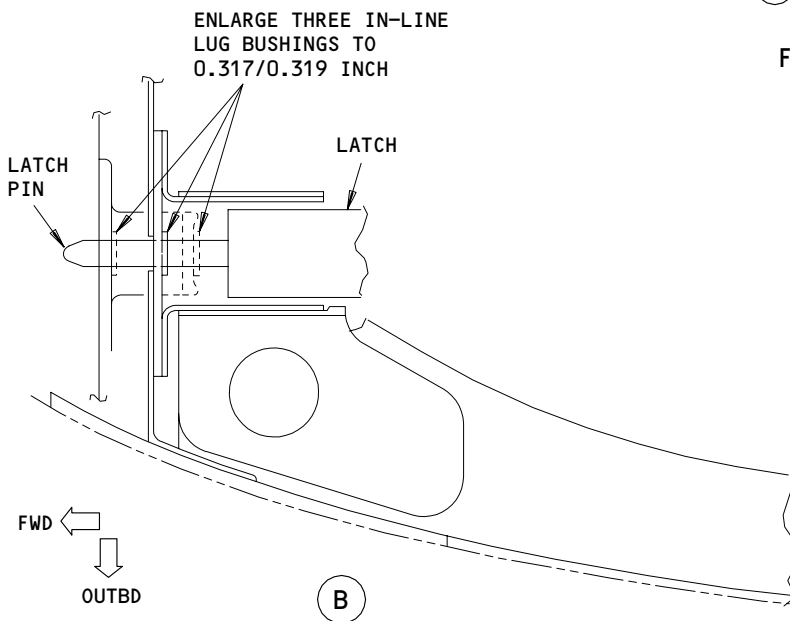
Page 801
Nov 10/95



STRUT FAIRING



FORWARD FAIRING



Forward Fairing Mid Section Pin Latch Binding Repair
Figure 801

EFFECTIVITY	
	ALL

54-52-02

01

Page 802
Feb 01/85

 **BOEING**
767
MAINTENANCE MANUAL

(b) If the latch pin does not move freely, make the hole larger in the inner diameter of the bushings to 0.317/0.319 inch.

S 418-007

(4) Install the forward fairing (Ref 54-52-01).

S 448-008

(5) Do this procedure: Thrust Reverser Activation (Ref 78-31-00).

EFFECTIVITY

ALL

54-52-02

04

Page 803
Nov 10/95

FORWARD FAIRING PRESSURE RELIEF DOOR – REMOVAL/INSTALLATION

1. General

- A. This procedure removes and installs the pressure relief door on the forward fairing.

TASK 54-52-03-004-001

2. Remove the Pressure Relief Door on the Forward Fairing

A. References

- (1) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones

431 Forward Nacelle Strut Fairing
441 Forward Nacelle Strut Fairing

- C. Remove the pressure relief door (Fig. 401)

S 044-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 014-004

- (2) If it is necessary, remove the tape from the latches.

S 014-007

- (3) Put a screwdriver into the tool slot and move rearward. This will release the latch.

S 024-008

- (4) Remove the bolts, nuts, washers, and bonding jumper that attach the hinges to the fairing.

S 024-009

- (5) If the latch striker is damaged, remove the nuts, bolts, and shims from the striker.

TASK 54-52-03-404-010

3. Install the Pressure Relief Door on the Forward Fairing

A. Consumable Materials

- (1) C00259 Primer – BMS 10-11, Type 1 (Ref 20-30-03)
(2) G00117 Tape, Aluminum Foil-Permacel P11, P12 or equivalent (Ref 20-30-07)

B. References

- (1) AMM 54-51-01/201, Strut

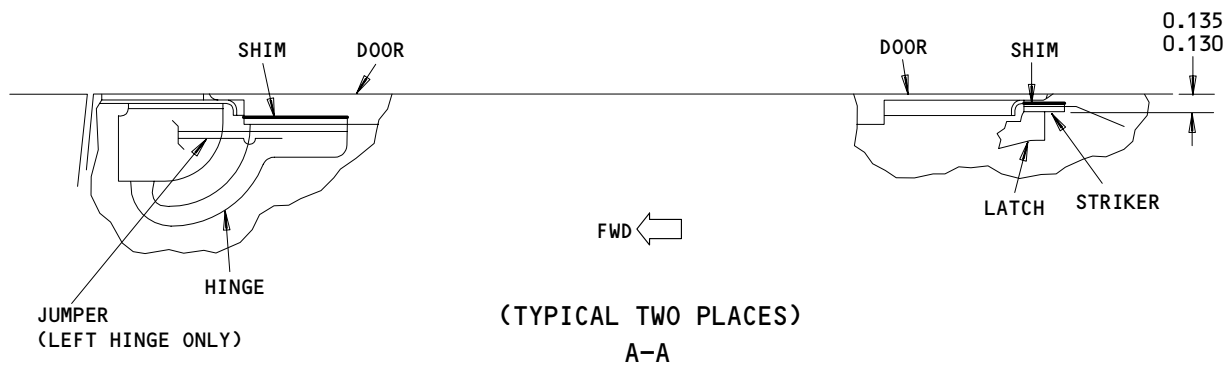
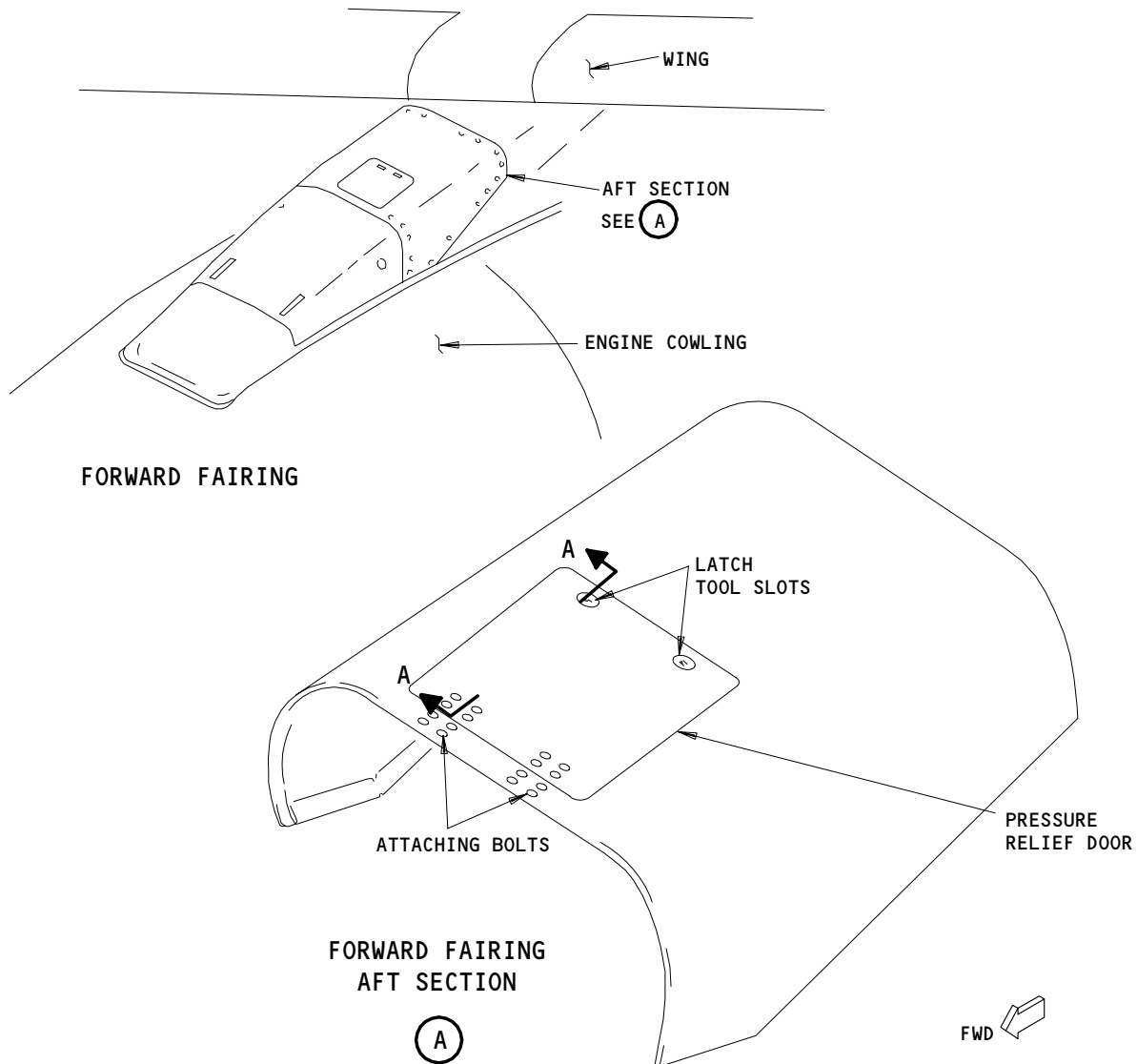
EFFECTIVITY

ALL

54-52-03

08

Page 401
Feb 10/91



Forward Fairing Pressure Relief Door Installation
Figure 401

EFFECTIVITY	
ALL	

54-52-03

- (2) AMM 78-31-00/201, Thrust Reverser System
- C. Access
 - (1) Location Zones
 - 431 Forward Nacelle Strut Fairing
 - 441 Forward Nacelle Strut Fairing
- D. Install the pressure relief door (Fig. 401)
 - S 424-011
 - (1) Align the door above the bolt holes for the hinges.
 - S 424-012
 - (2) Install the door with the bolts, nuts and washers.
 - (a) On the left hinge, install the bonding jumper with one washer on each side of the jumper.
 - S 224-013
 - (3) Make sure the door is smooth (AMM 54-51-01/201).
 - (a) If it is necessary, adjust the door with shims.
 - (b) Add or remove layers of the shim to get the correct thickness.
 - (c) Apply a primer to the shim.
 - S 424-029
 - (4) If the latch striker was removed, install the striker with the shims, bolts, nuts, and washers.
 - (a) If it is necessary, add or remove layers of the shim to get the correct thickness.
 - (b) Make the thickness of the door sill 0.130-0.135 inch.
 - (c) Apply 2 layers of primer to the shim.
 - S 414-017
 - (5) If it is necessary, install the tape.
 - S 444-020
 - (6) Do this procedure: Thrust Reverser Activation (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-52-03

08

Page 403
Nov 10/95

FORWARD FAIRING PRESSURE RELIEF DOOR – INSPECTION/CHECK

1. General

A. This procedure examines the pressure relief door on the forward fairing.

TASK 54-52-03-226-001

2. Door Inspection Check

A. References

- (1) AMM 54-51-01/201, Strut
- (2) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones
 - 431 No./1 Forward Nacelle Strut Fairing
 - 441 No./2 Forward Nacelle Strut Fairing

C. Examine the door

S 046-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 226-003

- (2) Make sure the door and latches are smooth (AMM 54-51-01/201).

S 216-004

- (3) Make sure the bolts that attach the hinge and latch are not loose.

S 446-005

- (4) Do this procedure: Thrust Reverser Activation (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-52-03

01

Page 601
Feb 10/91

AFT FAIRING STRUT SEAL – REMOVAL/INSTALLATION

TASK 54-52-04-004-001

1. Remove the Strut Seal on the Aft Fairing

A. References

- (1) 78-11-01/401, Turbine Exhaust Sleeve

B. Access

(1) Location Zones

- 437 Aft Nacelle Strut Fairing
- 447 Aft Nacelle Strut Fairing

C. Remove the seal (Fig. 401)

S 014-002

- (1) Remove the turbine exhaust sleeve (Ref 78-11-01).

S 024-003

- (2) Remove the bolts that attach the bulb seal to the skirt fairing on the aft fairing.

S 024-004

- (3) Remove the bulb seal and the retainer.

TASK 54-52-04-404-005

2. Install the Strut Seal on the Aft Fairing

A. References

- (1) 78-11-01/401, Turbine Exhaust Sleeve

B. Access

(1) Location Zones

- 437 Aft Nacelle Strut Fairing
- 447 Aft Nacelle Strut Fairing

C. Install the seal (Fig. 401)

S 424-006

- (1) Put the bulb seal and the retainer on the skirt fairing for the aft fairing.

S 424-007

- (2) Install the bolts.

S 414-008

- (3) Install the turbine exhaust sleeve (Ref 78-11-01).

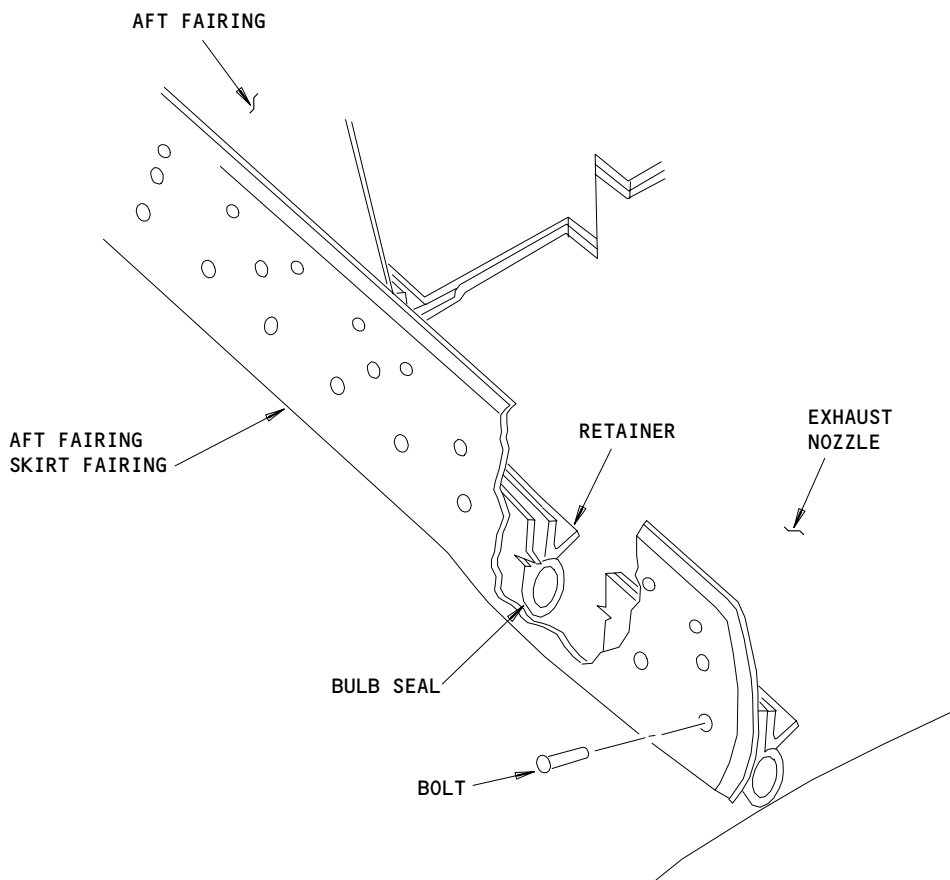
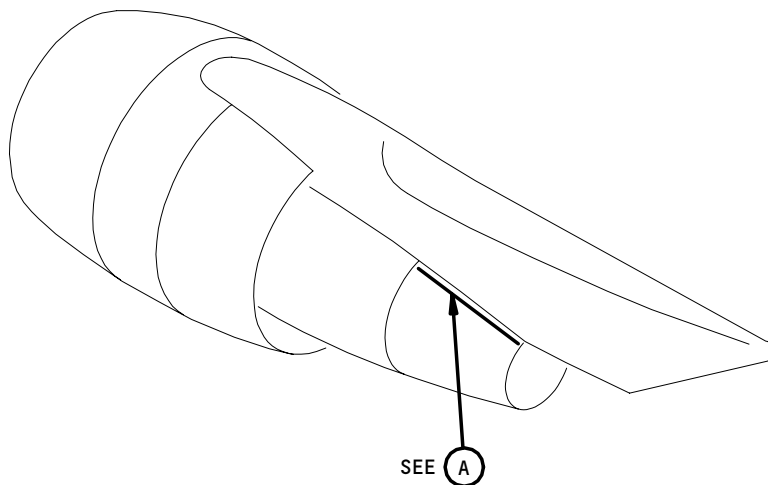
EFFECTIVITY

ALL

54-52-04

02

Page 401
Nov 10/90



TYP (2 PLACES)

A

Aft Fairing Strut Seal Installation
Figure 401

EFFECTIVITY	
	ALL

54-52-04

01

Page 402
Nov 01/86

235522

STRUT ACCESS DOORS AND PANELS – DESCRIPTION AND OPERATION

1. General
 - A. The strut and aft fairing have access doors and panels to provide access to strut attachment points and airplane systems.
 - B. The strut has pressure relief doors which will open if the internal pressure of the strut suddenly becomes too high.
2. Component Details (Fig. 1)
 - A. Aft Fairing Access Panel
 - (1) The aft fairing access panel provides access to the hydraulic equipment, wire bundles and diagonal brace.
 - (2) The aft fairing access panel is a hinged panel with four latches. The latches are released by pressing the trigger on the latch and pulling the handle down. A hold-open rod is used to keep the door open.
 - (3) AIRPLANES WITHOUT SB 54-0050;
The hold-open rod is located on the inside of the aft fairing access panel. When not in use, the hold-open rod is stowed in the retainer which is also on the aft fairing door.
 - (4) AIRPLANES WITH SB 54-0050;
The hold-open rods are located below the diagonal brace inside the aft fairing panel. When not in use, the hold-open rods are stowed in the flip-lock clamps, below the diagonal brace.
 - B. Strut Doors Numbered 1-4
 - (1) The four forward doors (1-4) in the strut provide access to electric and hydraulic systems. The fan duct cowl and thrust reverser must be opened to gain access to doors (1-2). The thrust reverser fairing must be removed to gain access to doors (3-4).
 - C. Strut Doors Numbered 5-6
 - (1) The pressure relief doors (5-6) provide access to the bleed air valve.
 - D. Strut Doors Numbered 7-8
 - (1) The doors (7-8) provides access to inspect the bleed air duct.
 - E. Strut Doors Numbered 9-10
 - (1) The aft access doors (9-10) provide access to inspect the engine mounts.

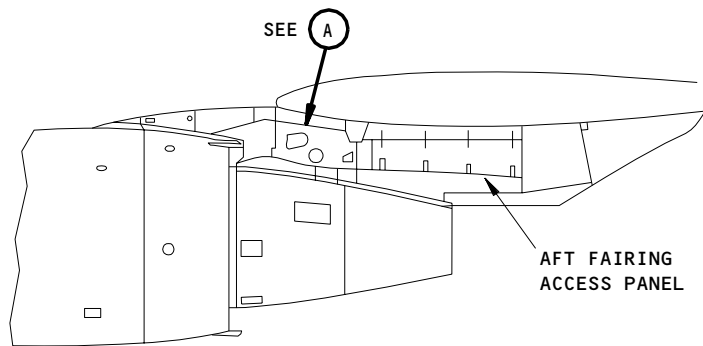
EFFECTIVITY

ALL

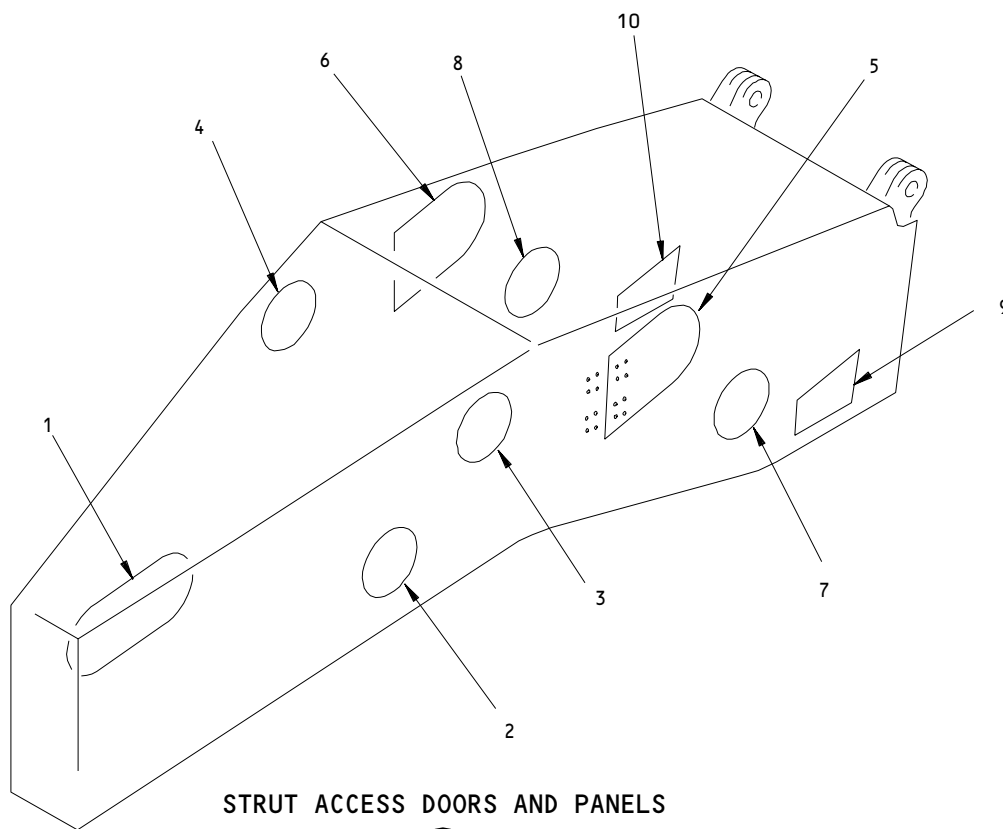
54-53-00

15

Page 1
May 10/95



NACELLE



(A)

KEY

- 1-4 HYDRAULIC AND ELECTRIC ACCESS DOORS
- 5-6 BLEED AIR VALVE ACCESS - PRESSURE RELIEF DOORS
- 7-8 BLEED AIR DUCT ACCESS DOORS
- 9-10 ENGINE MOUNT ACCESS DOORS

Strut Access Doors and Panels
Figure 1

EFFECTIVITY	ALL
-------------	-----

54-53-00

STRUT PRESSURE RELIEF AND ACCESS DOORS – REMOVAL/INSTALLATION

1. General

- A. There are two types of access doors. The first type are pressure relief doors which are opened with latches. The latches open when the internal pressure is more than a given limit. The second type are access doors which are held on by fasteners. This procedure removes and installs these doors.

TASK 54-53-01-004-001

2. Remove the Pressure Relief and Access Doors

A. References

- (1) AMM 27-81-11/401, Leading Edge Slats Power Drive Unit Components
- (2) AMM 54-52-01/401, Strut Fairings
- (3) AMM 71-11-04/201, Fan Cowl Panels
- (4) AMM 71-11-06/201, Core Cowl
- (5) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones
 - 432/442 Forward Torque Box
 - 434/444 Mid Torque Box
 - 436/446 Aft Torque Box

C. Remove the Doors (Fig. 401).

S 044-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure:
Thrust Reverser Deactivation for Ground Maintenance
(AMM 78-31-00/201).

S 044-003

WARNING: INSTALL LOCKS IN THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE SLATS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the leading edge slats in the retracted position (AMM 27-81-11/401).

S 024-004

- (3) On the right side of the strut, remove the pressure relief door.
 - (a) Put a screwdriver into the tool slot and move it rearward. This will release the latch.
 - (b) Remove the bolt, washer, and jumper from the top hinge.
 - (c) Remove the bolts, nuts and washers from the hinges.

EFFECTIVITY

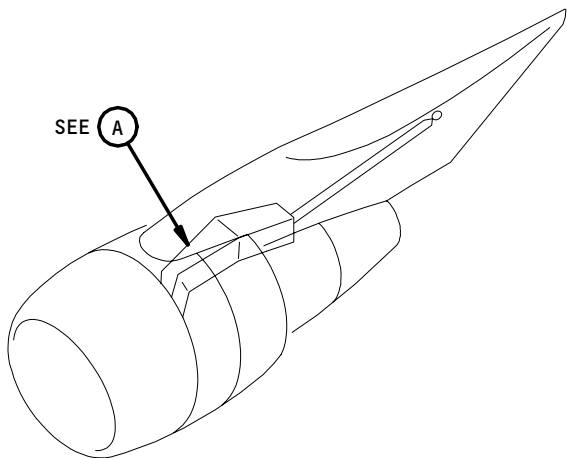
ALL

54-53-01

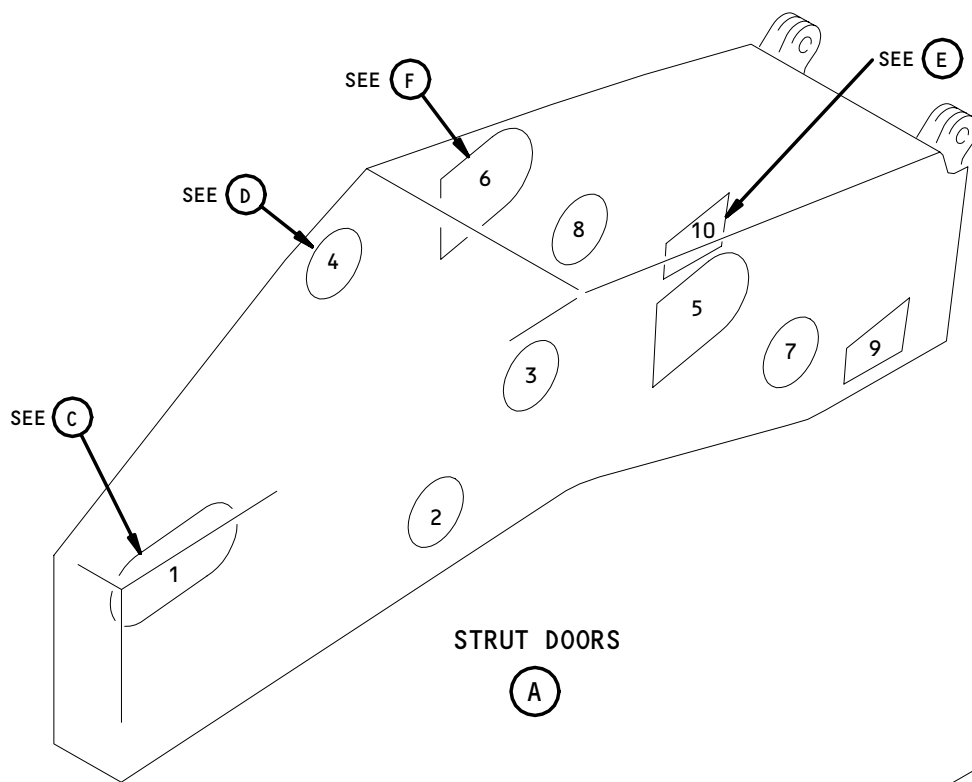
01

Page 401
Apr 22/05

BOEING
767
MAINTENANCE MANUAL

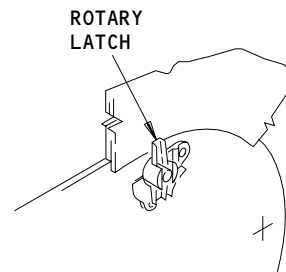


EQUIPMENT ACCESS	DOOR	ID NUMBER	
		L ENG	R ENG
HYDRAULIC AND ELECTRICAL COMPONENTS	1	416BR	426BR
	2	432AL	442AL
	3	432BL	442BL
	4	432BR	442BR
BLEED AIR VALVE, PRESSURE RELIEF DOOR	5	434AL	444AL
	6	434AR	444AR
BLEED AIR DUCT	7	436AL	446AL
	8	436AR	446AR
ENGINE MOUNT	9	436BL	446BL
	10	436BR	446BR



STRUT DOORS

(A)



(B)

Strut Pressure Relief and Access Doors Installation
Figure 401 (Sheet 1)

EFFECTIVITY

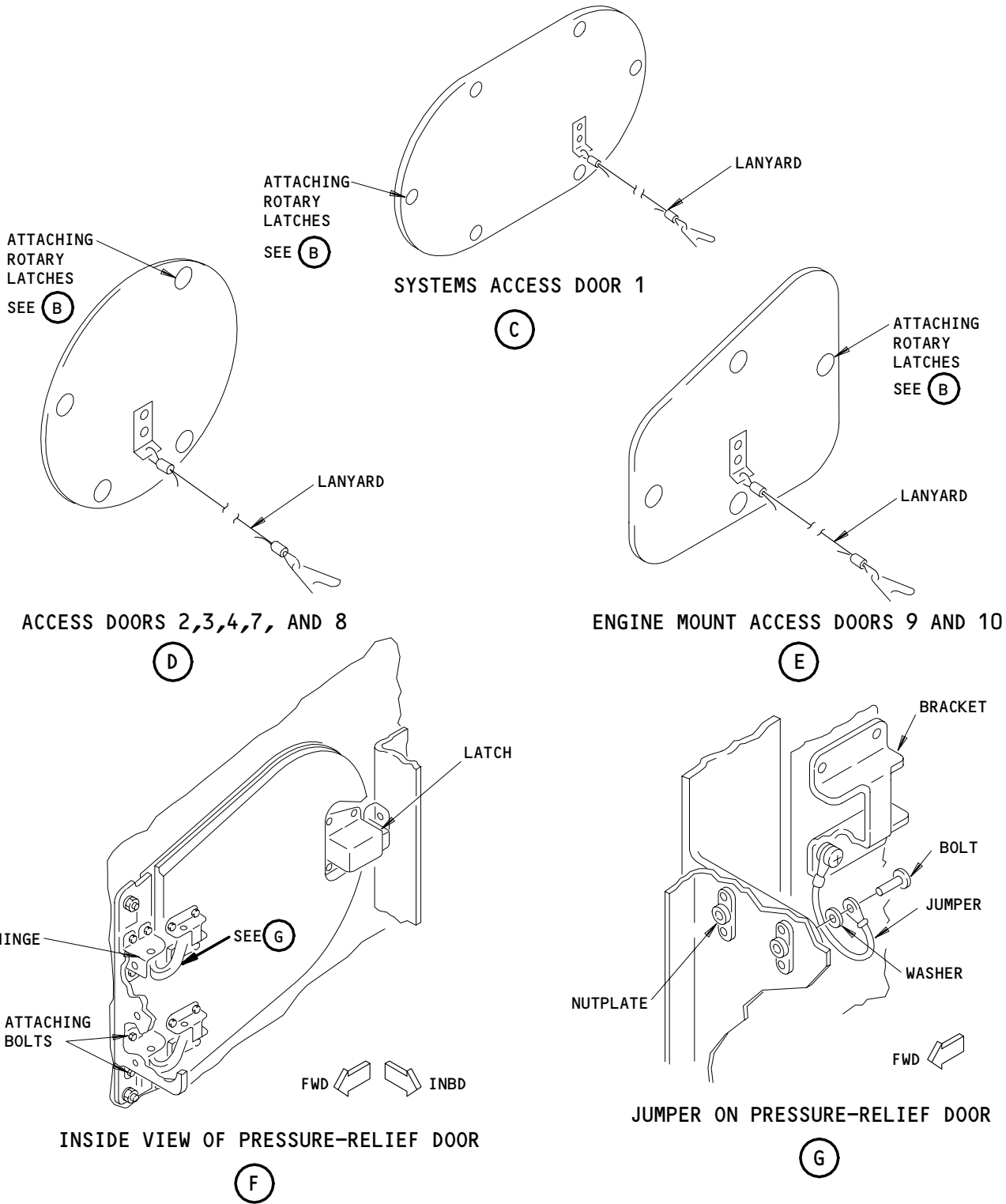
ALL

54-53-01

09

Page 402
Aug 10/88

331395



Strut Pressure Relief and Access Doors Installation
Figure 401 (Sheet 2)

EFFECTIVITY	
	ALL

54-53-01

09

Page 403
Nov 10/87

CAUTION: DO NOT APPLY TOO MUCH FORCE TO THE ROTARY LATCH MECHANISM WHEN YOU OPEN THE DOORS. THE LATCH FLANGES CAN BEND AND CAUSE LOSS OF THE DOOR.

- (d) Remove the strut access doors, as required (Fig. 401).
- (e) Turn the latches a 1/4 turn.
 - 1) Make sure the indicator grooves are parallel to the door edge.
- (f) Open the fan cowl panel (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (g) Do this procedure:
Thrust Reverser Deactivation for Ground Maintenance
(AMM 78-31-00.201).
- (h) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT MAY OCCUR.

- (i) Open the thrust reverser (AMM 78-31-00/201).
- (j) Remove the forward access doors (Door 1 on LH, Door 2 on RH).
- (k) Do the steps that follow when you remove the forward access doors (Door 3 on LH, Door 4 on RH).
 - 1) Remove the fairing for the thrust reverser (AMM 54-52-01).

NOTE: You can close the thrust reverser to give better access to the doors.

TASK 54-53-01-404-007

3. Install the Pressure Relief and Access Doors

A. Consumable Materials

- (1) A00091 Silicone Rubber Sealant - Dow Corning 93-006

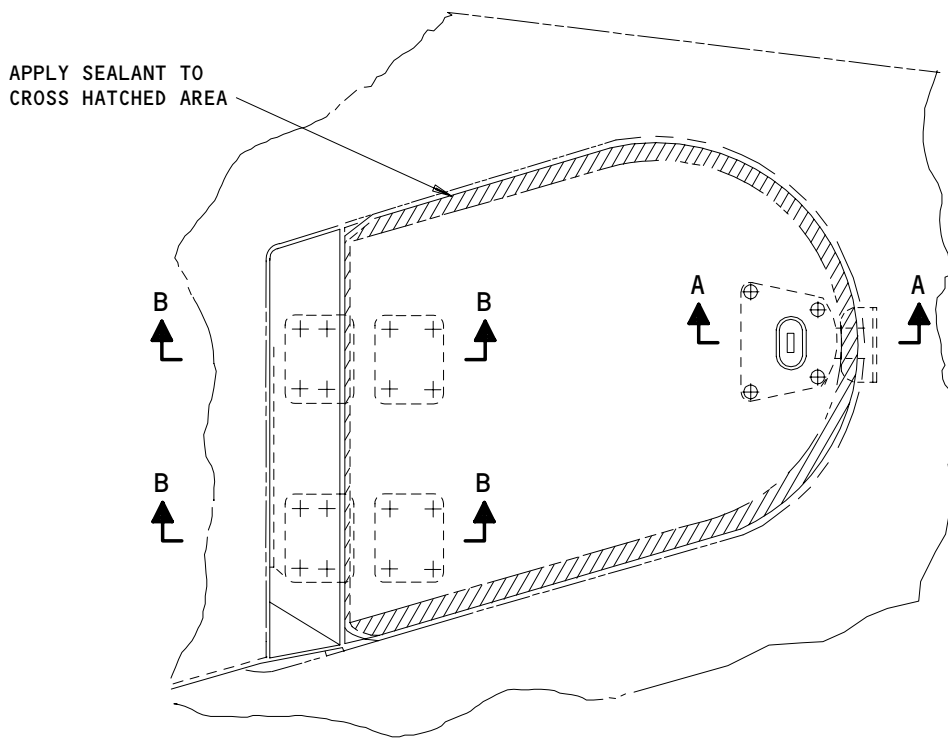
EFFECTIVITY

ALL

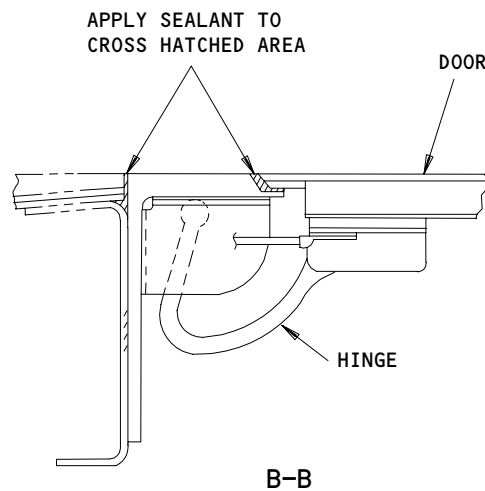
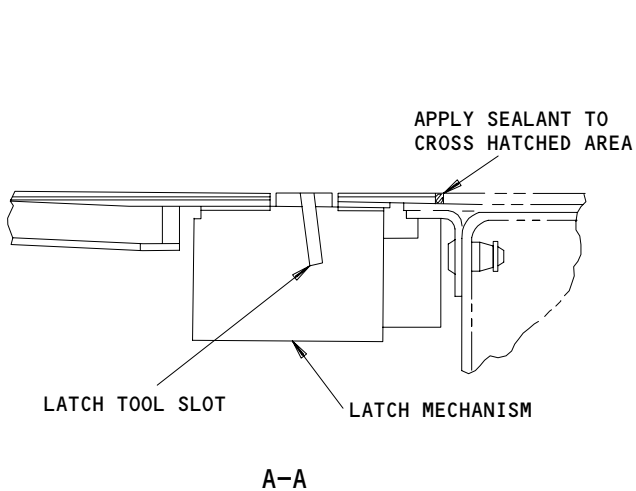
54-53-01

14

Page 404
Apr 22/05



PRESSURE RELIEF DOOR



Sealant Installation for Pressure Relief Door
Figure 402

EFFECTIVITY	ALL
-------------	-----

54-53-01

01

Page 405
May 01/87

 **BOEING**
767
MAINTENANCE MANUAL

- (2) G02185 Parting Agent (AMM 20-30-07)
- (3) C00259 Primer - BMS 10-11, Type 1 (AMM 20-30-03)

B. References

- (1) AMM 27-81-11/401, Leading Edge Slats Power Drive Unit Components
- (2) AMM 54-51-01/201, Strut
- (3) AMM 54-52-01/401, Strut Fairings
- (4) AMM 54-53-01/501, Strut Pressure Relief and Access Doors
- (5) AMM 71-11-04/201, Fan Cowl Panels
- (6) AMM 71-11-06/201, Core Cowl
- (7) AMM 78-31-00/201, Thrust Reverser System

C. Access

- (1) Location Zones
 - 432/442 Forward Torque Box
 - 434/444 Mid Torque Box
 - 436/446 Aft Torque Box

D. Install the doors (Fig. 401).

S 424-008

- (1) On the right side of the strut, install the pressure relief door.

CAUTION: DO NOT TAPE OR HOLD THE PRESSURE RELIEF DOORS CLOSED.
DAMAGE TO THE STRUT CAN OCCUR FROM TOO MUCH PRESSURE.

- (a) Install the bolts, nuts and washers in the hinge assembly.
- (b) Install the jumper with the bolt and washer.

NOTE: Put the washer adjacent to the angle.

- (c) Do a test of the door (AMM 54-53-01/501).
 - 1) If it is necessary, adjust the shims below the hinge to make the door smooth (AMM 54-51-01/201).
 - a) Apply a primer to the shims after delamination.
 - 2) If it is necessary, adjust the shims below the latch to make the door smooth (AMM 54-51-01/201).
 - a) Apply a primer to the shim and install.
- (d) Apply a sealant and parting agent around all the edges of the door (Fig. 402).
 - 1) If the hinge is replaced, apply a sealant and parting agent between the hinge and angle (Fig. 402).

S 424-009

- (2) Install the strut access doors.
 - (a) Observe these procedures to minimize possible loss of access doors:
 - 1) Install only door assemblies in good condition and with serviceable rotary latches.

EFFECTIVITY

ALL

54-53-01

10

Page 406
Apr 22/05

- 2) Replace any door that has excessive wear at the latch position.
- 3) Use only non-powered hand tools to operate the rotary latches.
- 4) Avoid excessive torque on the latch bolts after the door has been properly seated.
- 5) Replace any door if the latch nuts have insufficient self-locking capability.

S 414-032

CAUTION: DO NOT APPLY TOO MUCH FORCE TO THE ROTARY LATCH MECHANISM WHEN YOU CLOSE THE DOOR. THE LATCH FLANGES CAN BEND AND CAUSE THE DOOR TO FALL OFF.

- (3) Turn the latches to lock the door.
 - (a) Tighten the latches to 20-40 inch-pounds (2.3-4.5 N-m).
 - 1) The indicator grooves on the latch will be vertical to the edge of the door.

S 224-010

- (4) Make sure the doors are smooth (AMM 54-51-01/201).

S 014-011

- (5) Open the fan cowl panel (AMM 71-11-04/201).

S 044-022

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (6) Do this procedure:
Thrust Reverser Deactivation for Ground Maintenance
(AMM 78-31-00/201).

S 014-013

- (7) Open the core cowl panel (AMM 71-11-06/201).

S 014-014

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

- (8) Open the thrust reverser (AMM 78-31-00/201).

S 424-015

- (9) Install the thrust reverser fairing (AMM 54-52-01/401).

EFFECTIVITY

ALL

54-53-01

02

Page 407
Dec 22/08

S 414-016

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

(10) Close the thrust reverser (AMM 78-31-00/201).

S 414-017

(11) Close the core cowl panel (AMM 71-11-06/201).

S 444-018

(12) Remove the locks from the Leading edge slats (AMM 27-81-00/201).

S 444-019

(13) Do this procedure:
Thrust Reverser Activation (AMM 78-31-00/201).

S 414-021

(14) Close the fan cowl panel (AMM 71-11-04/201).

EFFECTIVITY

ALL

54-53-01

01

Page 408
Apr 22/05

STRUT PRESSURE RELIEF AND ACCESS DOORS – ADJUSTMENT/TEST

1. General

- A. This procedure contains one task. The task is the test and adjustment of the strut pressure relief and access doors.
- B. There are two types of access doors. The first type is a pressure relief door which is attached with latches. The latches open when the force from the internal pressure is too much. The second type is an access door which is attached with fasteners.

TASK 54-53-01-735-001

2. Do a Test and Adjust the Pressure Relief and Access Doors

A. References

- (1) AMM 54-51-01/201, Strut
- (2) AMM 54-53-01/401, Strut Pressure Relief and Access Doors
- (3) AMM 78-31-00/201, Thrust Reverser System

B. Equipment

- (1) B71044-28, Load Test Adapter – Pressure Relief Door Latch (Recommended)
- (2) B71044-10, Load Test Adapter – Pressure Relief Door Latch (Alternative)

C. Access

- (1) Location Zones
 - 432/442 Forward Torque Box
 - 434/444 Mid Torque Box
 - 436/446 Aft Torque Box

D. Procedure

S 865-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 285-014

- (2) Airplanes with pressure relief doors that have spring loaded over center release hinges (Fig. 501), do a release load check.

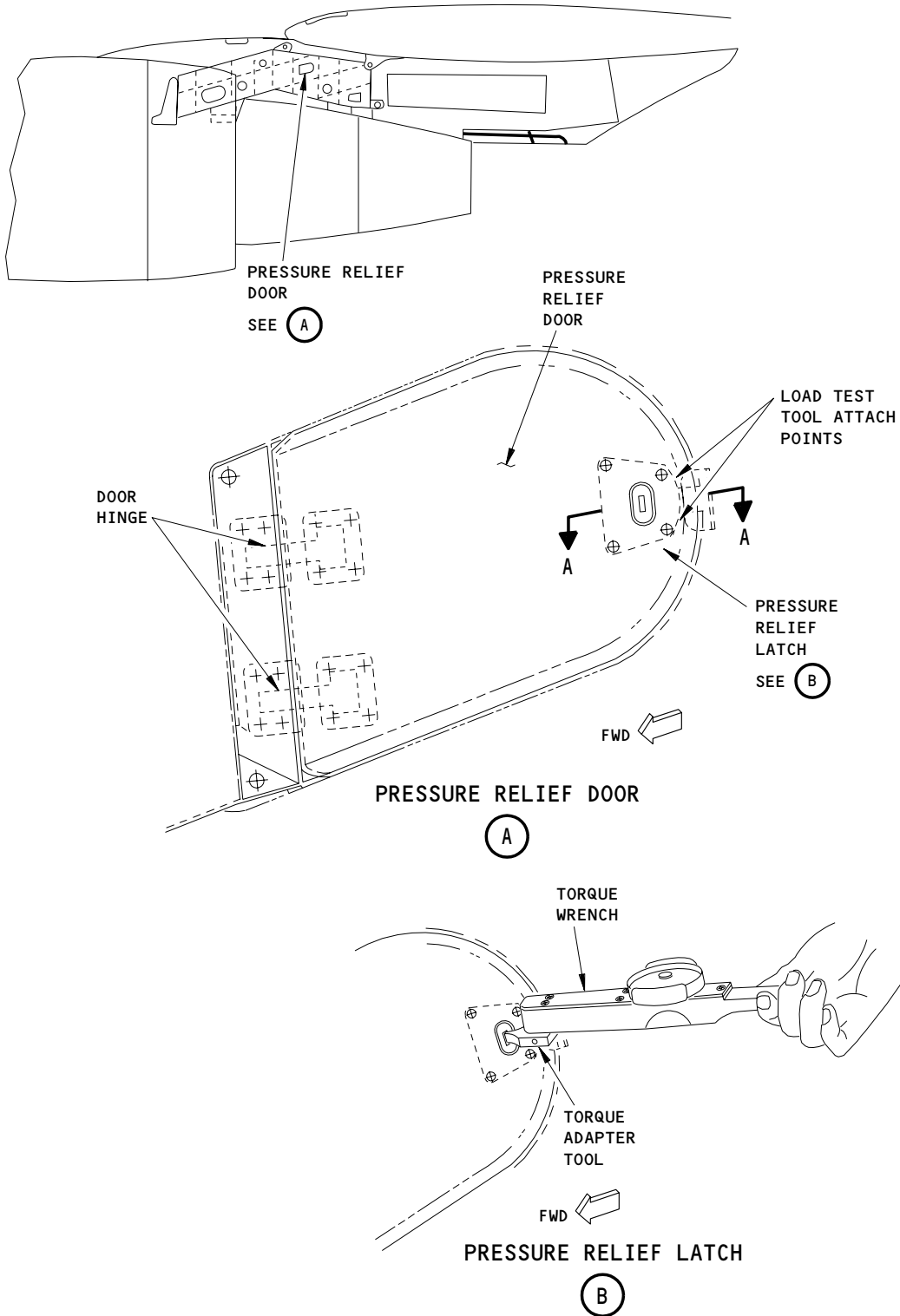
EFFECTIVITY

ALL

54-53-01

01

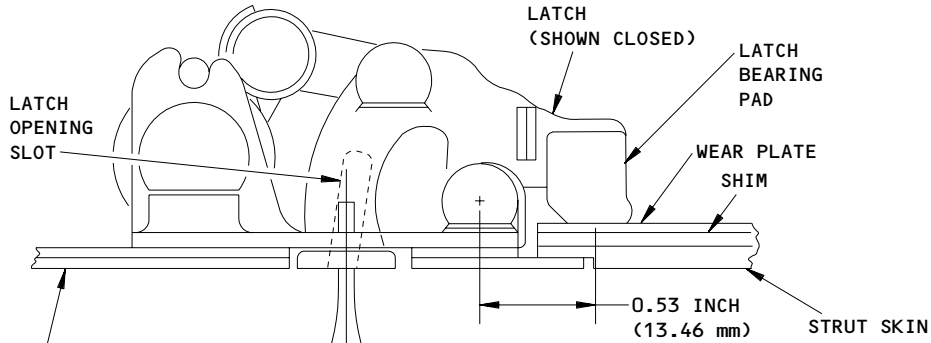
Page 501
Apr 22/08



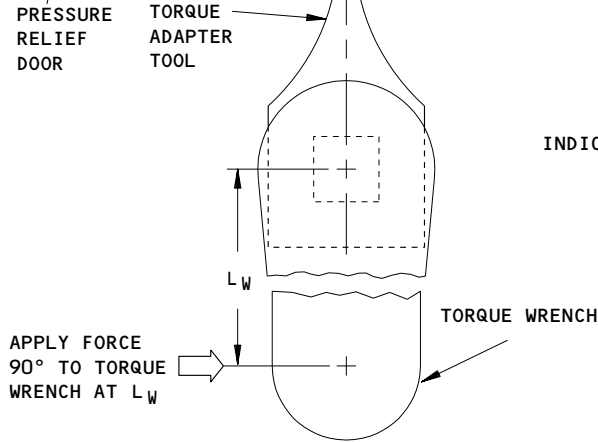
Nacelle Strut Access Door - Adjustment/Test
Figure 501 (Sheet 1)

EFFECTIVITY	
ALL	

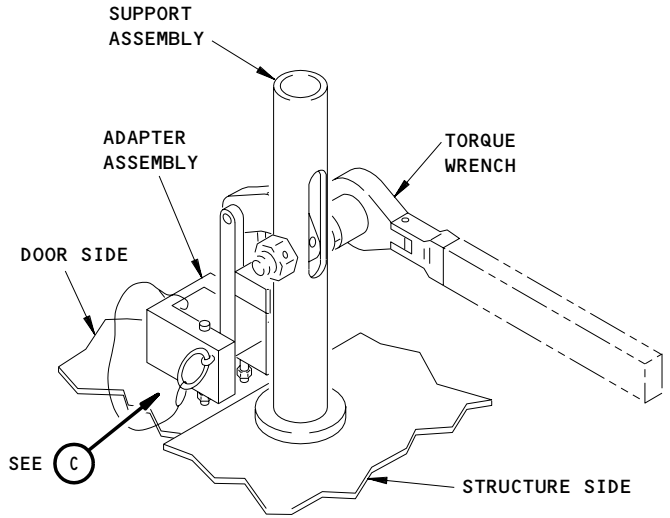
54-53-01



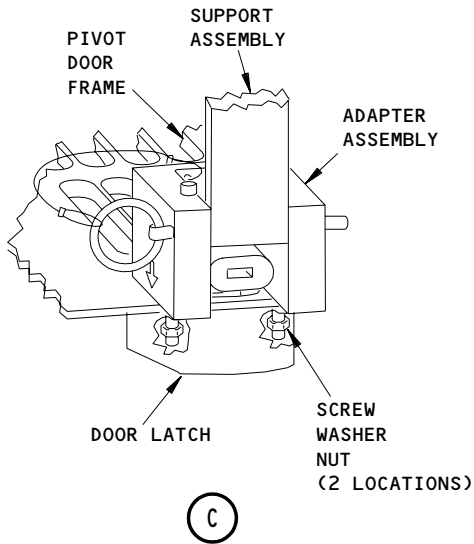
$$\text{INDICATED TORQUE} = \frac{(0.53)(L_w)}{(L_w + 1.5)} (P)$$



**PRESSURE RELIEF LATCH
LATCH RELEASE TEST
(TORQUE ADAPTER)
A-A**



**PRESSURE RELIEF LATCH
(B71044-10 LOAD TEST TOOL INSTALLATION)**



**Nacelle Strut Access Door - Adjustment/Test
Figure 501 (Sheet 2)**

EFFECTIVITY	
	ALL

54-53-01

- E. Do the test of the latch with a Torque Adapter and Pivot Support Assembly.

NOTE: The torque adapter tool will apply a torque value that is two times the load necessary to open the latch. To apply a latch opening load of 50 lbs (222.4 Newtons), set the torque wrench to 100 inch-lbs (11.3 Nm).

S 435-015

- (1) Attach the tool adapter assembly to the pressure relief door latch with two screws, washers and nuts finger tight (Fig. 501).

S 435-016

- (2) Attach the pivot support assembly and torque wrench to the adapter assembly.

S 725-017

- (3) With the torque wrench handle parallel to door edge, turn the handle until the latch releases, noting the torque required.

S 725-018

- (4) Compare the torque just noted with the requirements (below).

NOTE: The torque adapter tool will apply a torque value that is two times the load required to open the latch. For example, to apply a latch opening load of 50 lbs (222.4 Newtons), set the torque wrench to 100 in-lbs (11.3 Nm)

- (a) The latch opening load range is 135-165 pounds (600-734 Newtons).

S 355-024

CAUTION: YOU MUST REPLACE OR REPAIR ALL DOOR LATCHES THAT DO NOT RELEASE CORRECTLY. TOO MUCH FORCE ON THE LATCH CAN CAUSE DAMAGE TO THE DOORS.

- (5) If the release load is not within limits, replace the latch or replace the door.

S 435-020

- (6) To replace the latch, do these steps:

S 035-023

- (7) Remove the bolts, washers and nuts that attach the latch, wear plate and shim pack to the door.

EFFECTIVITY

ALL

54-53-01

02.1

Page 504
Aug 22/09

- S 435-021
- (8) Put the replacement latch, shims and wear plate on the door sill.
- (a) Make sure the finished side of the wear plate is against the shims.
 - (b) Install the bolts, washers and nuts.
 - (c) Do a release check of the repaired door assembly.
- S 415-022
- (9) If the load is within limits, close the door.
- S 215-006
- (10) Make sure the fasteners on all of the access doors are not loose.
- S 215-007
- (11) Make sure the doors are smooth with the strut contour (AMM 54-51-01/201).
- S 865-008
- (12) Do this procedure: Thrust Reverser Activation (AMM 78-31-00/201).

EFFECTIVITY

ALL

54-53-01

01.101

Page 505
Aug 22/09

AFT FAIRING ACCESS PANEL – REMOVAL/INSTALLATION

1. General

- A. This procedure removes and installs the access panel on the aft fairing.
- B. It is recommended that the removal and installation of the aft fairing access panel be done by two people.

TASK 54-53-02-004-002

2. Remove the Access Panel on the Aft Fairing

- A. References
 - (1) AMM 78-31-00/201, Thrust Reverser System
- B. Access
 - (1) Location Zones
 - 437 Aft Nacelle Strut Fairing
 - 447 Aft Nacelle Strut Fairing
- C. Remove the access panel (Fig. 401)

S 044-001

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

NOTE: For PW4000 engines, you will have to close the access panel in the installation task. It is recommended to lock out the thrust reverser valve with lockwire. The B78001 tool prevents the access panel from completely closing.

S 014-002

- (2) Push on the trigger on the latch to release the latch handle.

NOTE: If it is necessary, you can carefully use the protected, blunt end of a screwdriver to operate the trigger.

S 014-003

- (3) Pull the handles out to release the latch.

S 414-004

- (4) With the panel open, close the latch.

NOTE: Put a pad on the end of the latch which extends beyond the edge of the door.

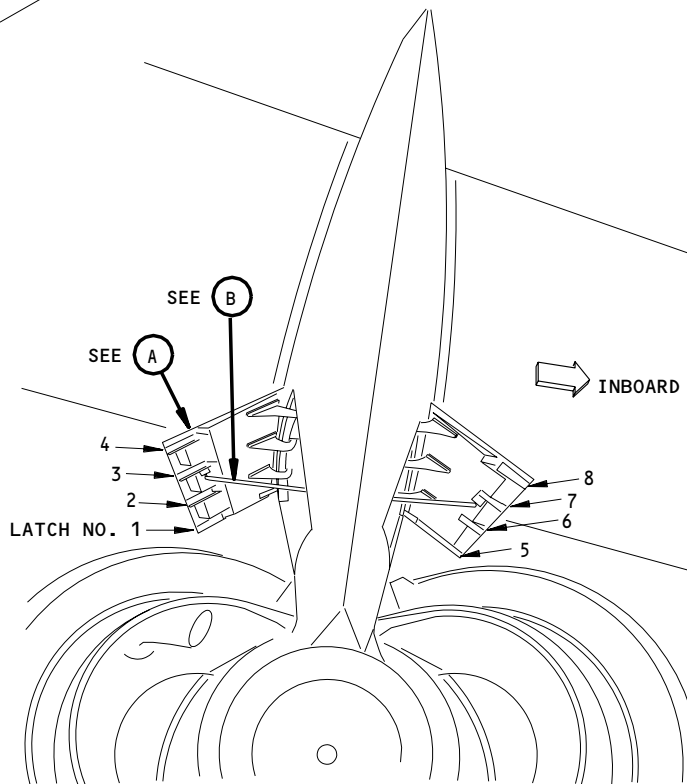
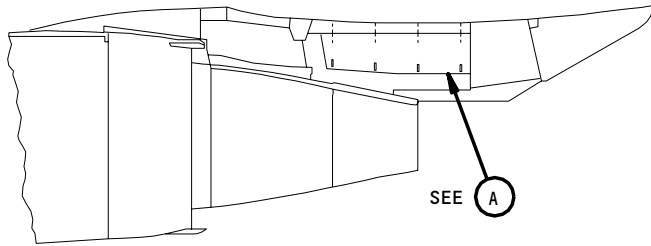
EFFECTIVITY

ALL

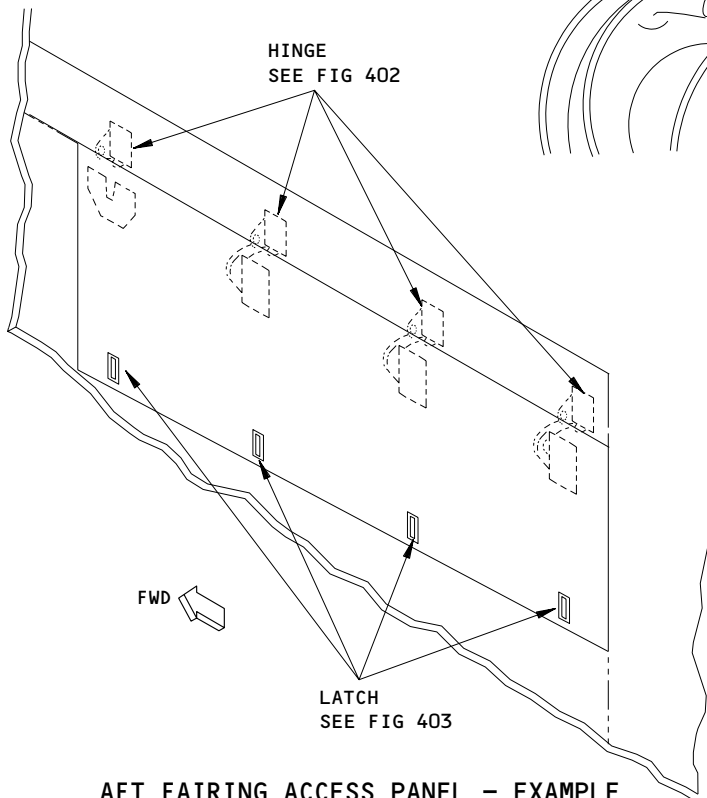
54-53-02

05

Page 401
Nov 10/95



LEFT ENGINE
(RIGHT, OPPOSITE)



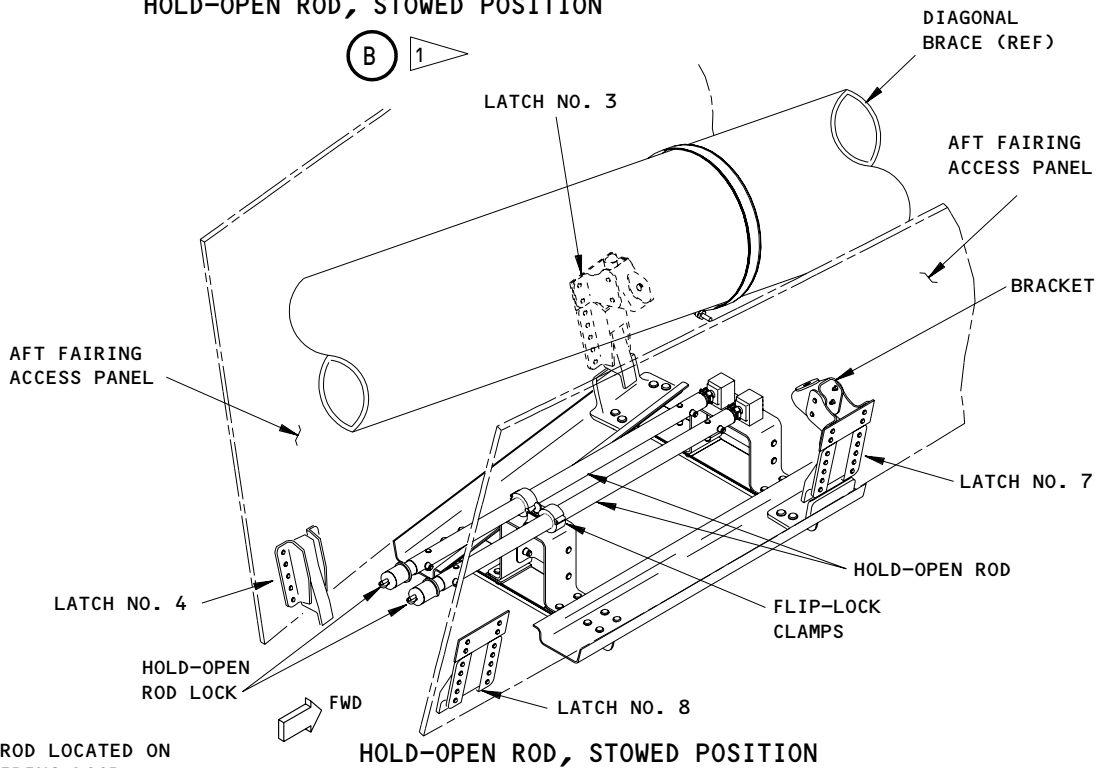
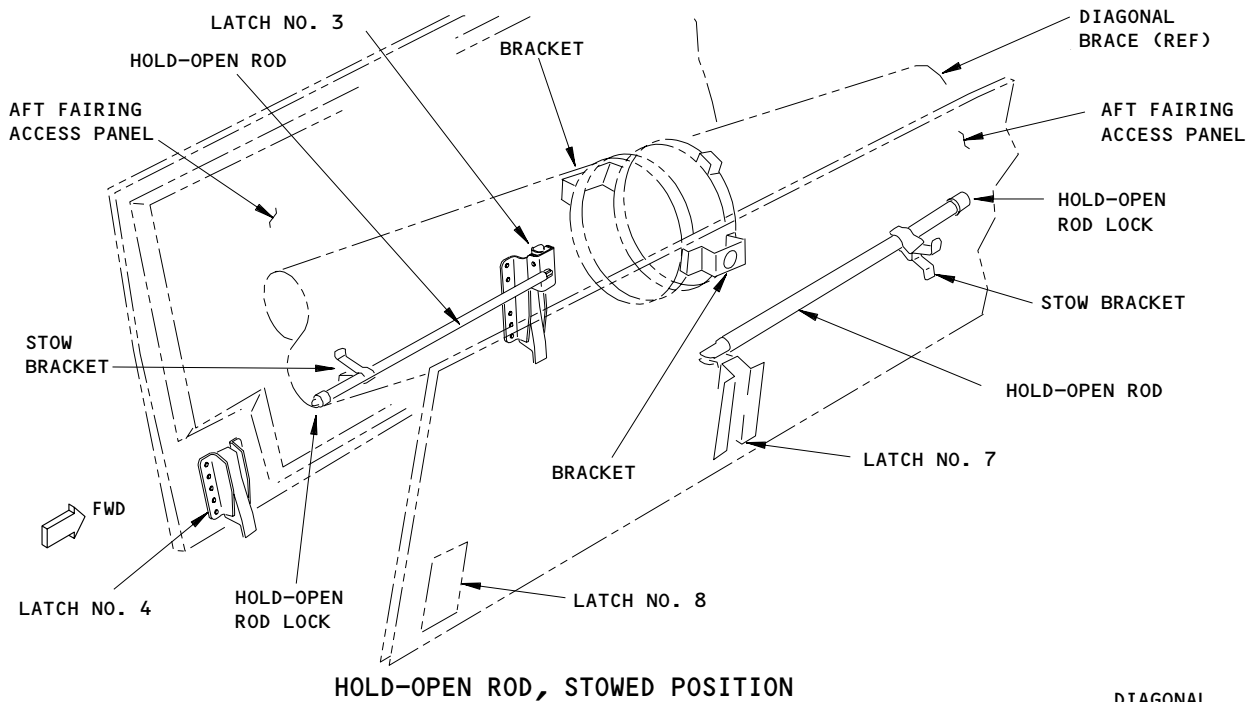
AFT FAIRING ACCESS PANEL - EXAMPLE
(CLOSED POSITION)

(A)

Aft Fairing Access Panel
Figure 401 (Sheet 1)

EFFECTIVITY	ALL
-------------	-----

54-53-02



- 1 HOLD-OPEN ROD LOCATED ON THE AFT FAIRING DOOR.
- 2 HOLD-OPEN ROD LOCATED INSIDE THE FAIRING.

Aft Fairing Access Panel
Figure 401 (Sheet 2)

EFFECTIVITY

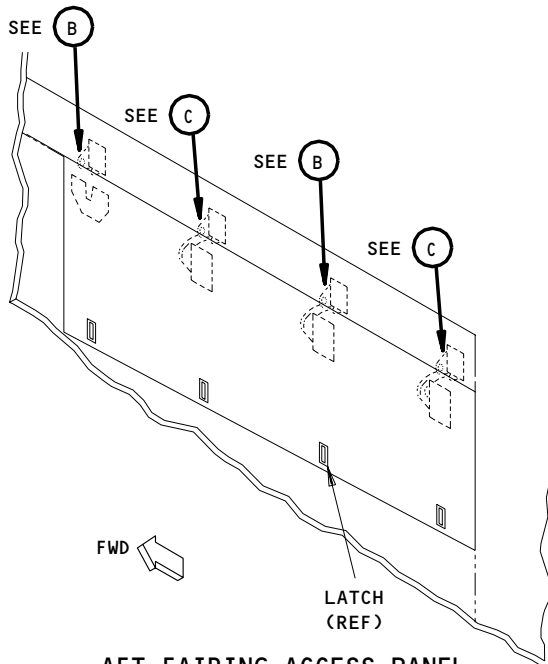
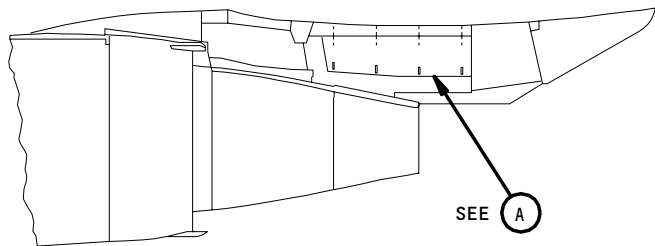
ALL

54-53-02

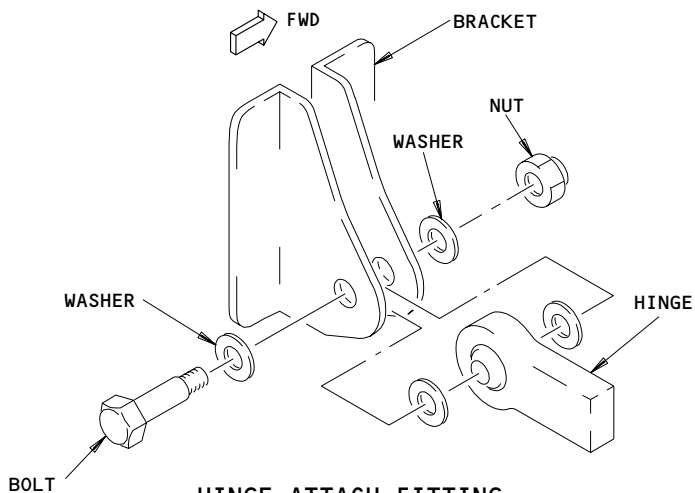
02

Page 403
Dec 22/07

E99068

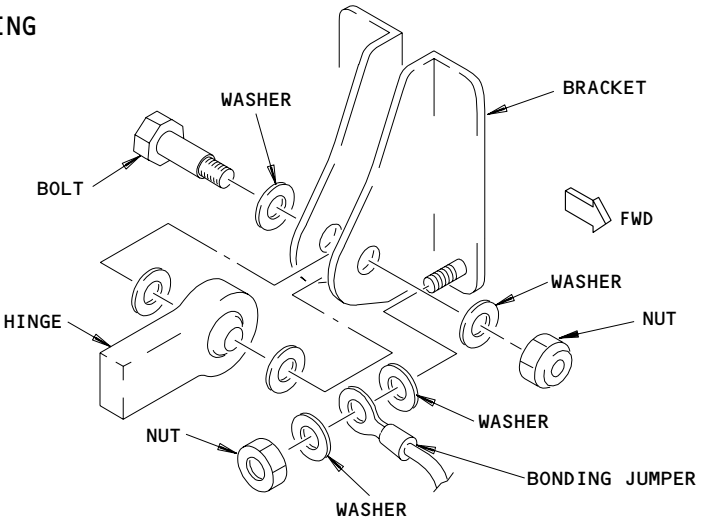


**AFT FAIRING ACCESS PANEL
(EXAMPLE)**



HINGE ATTACH FITTING

(B)



HINGE ATTACH FITTING AND BONDING JUMPER

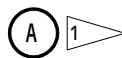
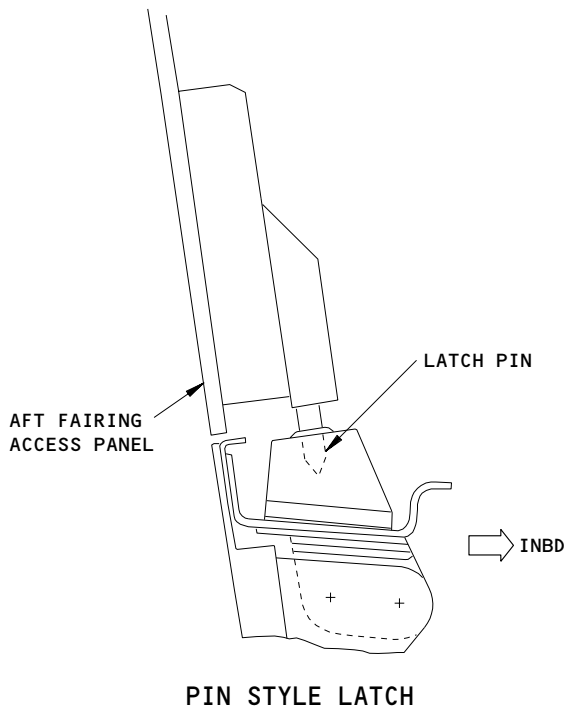
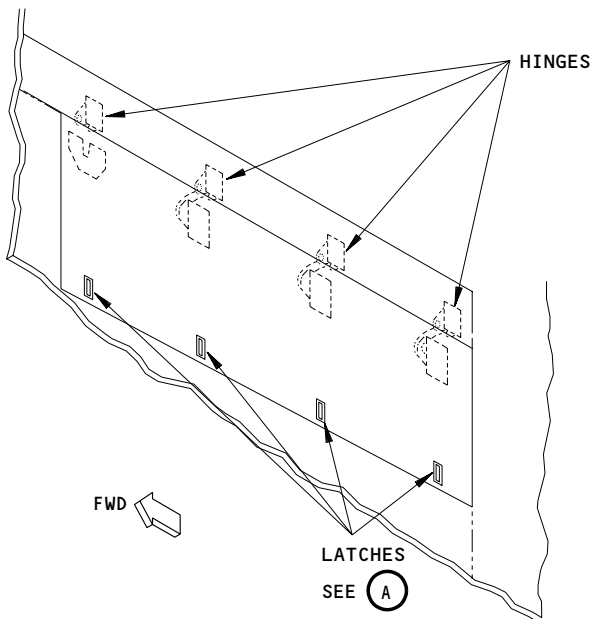
(C)

**Aft Fairing Access Panel Hinges
Figure 402**

EFFECTIVITY	
	ALL

54-53-02

13892



1 AIRPLANES PRE-SB 54-0109

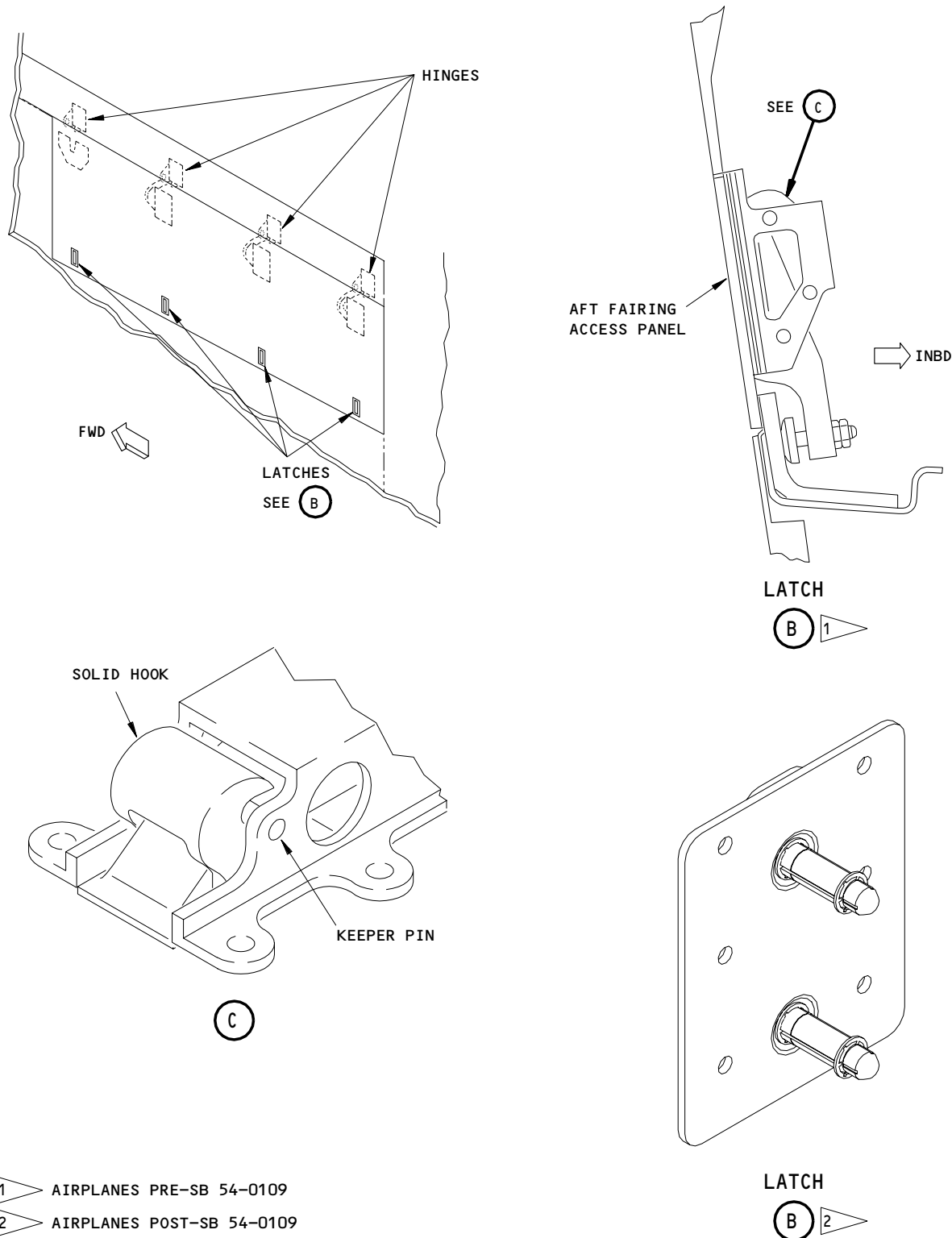
Aft Fairing Access Panel Latches
Figure 403 (Sheet 1)

EFFECTIVITY
AIRPLANES WITHOUT SB 54-15
AND WITHOUT SB 54-68

54-53-02

02

Page 405
Apr 22/07



Aft Fairing Access Panel Latches
Figure 403 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH SB 54-15

54-53-02

- S 214-005
- (5) HOLD-OPEN ROD LOCATED ON THE AFT FAIRING DOOR;
Make sure the hold-open rod is stowed in the spring clip on the door.
- S 214-006
- (6) HOLD-OPEN ROD LOCATED INSIDE THE AFT FAIRING;
Make sure the hold-open rod is stowed in the flip-lock clamp below the diagonal brace.
- S 984-008

WARNING: SUPPORT THE AFT FAIRING ACCESS PANEL BEFORE YOU REMOVE THE HINGE BOLTS. THE ACCESS PANEL CAN CLOSE RAPIDLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Support the free edge of the panel.
- S 034-003
- (8) For hinge positions 1, 3, 5, and 7, remove the nuts, washers, bolts and bonding jumpers.
- S 034-004
- (9) For hinge positions 2, 4, 6, and 8, remove the nuts, washers, and bolts.
- S 024-004
- (10) Remove the panel.

TASK 54-53-02-404-006

3. Install the Access Panel on the Aft Fairing

A. References

- (1) AMM 54-51-01/201, Strut
(2) AMM 54-53-02/501, Aft Fairing Access Panel
(3) AMM 78-31-00/201, Thrust Reverser System
(4) IPC 54-53-01

B. Access

- (1) Location Zones
- | | |
|-----|---------------------------|
| 437 | Aft Nacelle Strut Fairing |
| 447 | Aft Nacelle Strut Fairing |

C. Install the access panel (Fig. 401)

- S 424-006
- (1) Put the access door in a position that aligns the hinge arms of the door with the hinge fitting brackets.

EFFECTIVITY

ALL

54-53-02

03

Page 407
Dec 22/07

S 424-007

- (2) For hinge positions 1, 3, 5, and 7, install the nuts, washers, bolts and bonding jumper.

NOTE: If it is necessary, remove all the corrosion, paint or grease from the components of the bonding jumper terminals.

- (a) Make sure that the gap between the washer and the hinge is 0.03 inches maximum.

S 424-008

- (3) For hinge positions 2, 4, 6, and 8, install the nuts, washers, and bolts.
 - (a) Make sure that the gap between the washer and the hinge is 0.03 inches maximum.

S 424-018

- (4) Torque the bolts to 100-150 inch-pounds.

S 284-009

- (5) Do a check that measures the electrical resistance between the bolt that holds the bond strap to the door hinge and the terminal of the bond strap installed on the door hinge. The measured resistance must not be more than 0.001 ohms.

S 834-012

- (6) Do the adjustment procedure for the panel latches (AMM 54-53-02/501).

D. Put the Airplane Back to Its Usual Condition

S 444-009

- (1) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 214-011

- (2) Make sure all tools and unwanted materials are removed from the aft fairing.

S 414-012

- (3) Close and latch the aft fairing access panels.

EFFECTIVITY

ALL

54-53-02

AFT FAIRING ACCESS PANEL – ADJUSTMENT/TEST

1. General

- A. This procedure gives the adjustment and the test of the trigger latches on the access panel of the aft fairing.

TASK 54-53-02-715-001

2. Aft Fairing Access Door Adjustment Test (Fig. 501)

- A. Equipment
(1) Gage – Force, Multi-Capacity (100 pound capacity)
- B. Consumable Materials
(1) DC93-006-1, Dow Corning Sealant
(2) BMS5-63 TYPE II Class B-1/2, Sealant (Alternative)
- C. References
(1) AMM 54-51-01/201, Strut
(2) AMM 54-53-02/601, Aft Fairing Access Panel
- D. Access
(1) Location Zones
437 Aft Nacelle Strut Fairing
447 Aft Nacelle Strut Fairing
- E. Prepare to Adjust the Latches

S 015-013

WARNING: MAKE SURE YOU STAY OUT OF THE WAY OF THE THURST REVERSER. THE THRUST REVERSER CAN EXTEND RAPIDLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Open the aft fairing access panel.

S 215-014

- (2) Examine the aft fairing access panel for damage (AMM 54-53-02/601).

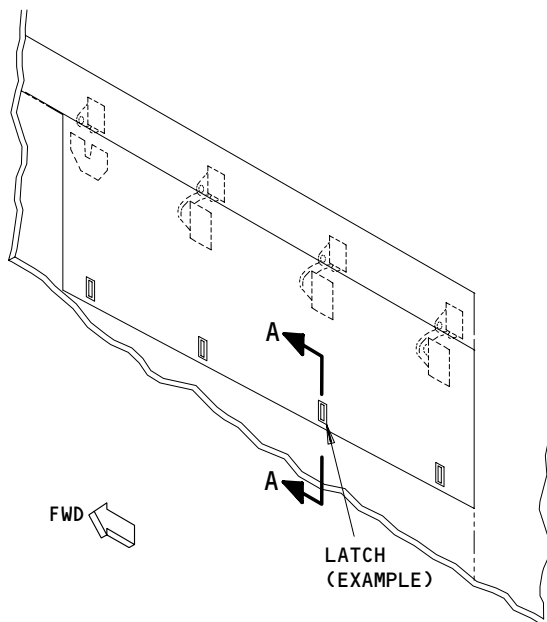
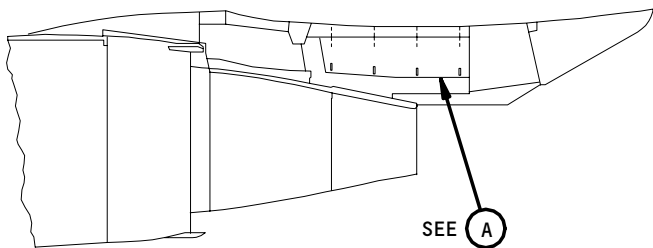
NOTE: To get the proper closing force on the latch, the door and surrounding panels must be in good condition.

S 215-015

- (3) Make sure the striker plate is clean and not damaged.

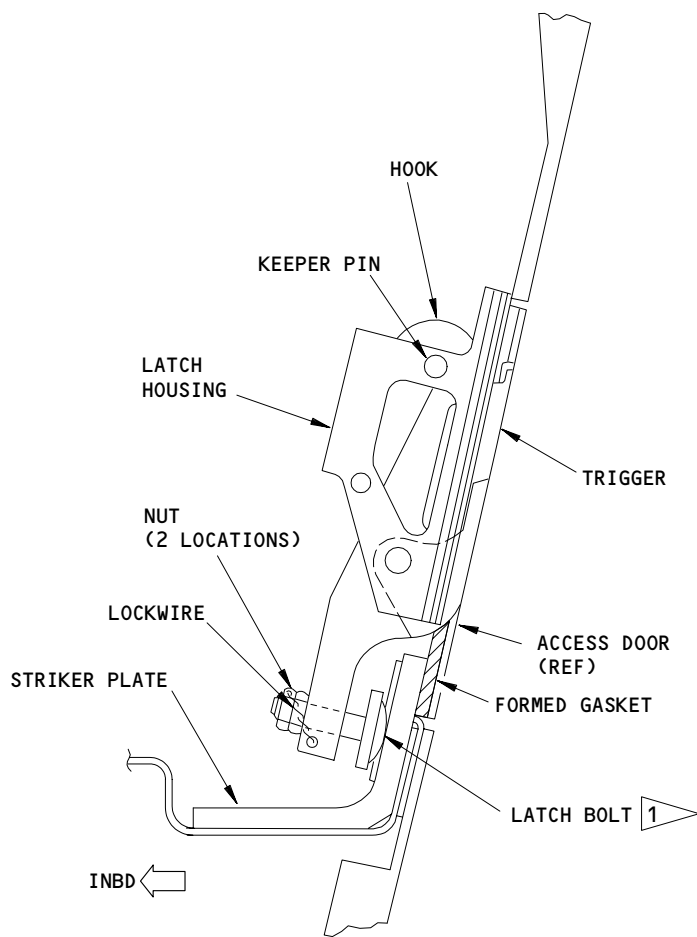
S 215-016

- (4) Make sure the bulb seal which supports the aft fairing access panel is not damaged.



AFT FAIRING ACCESS PANEL

(A)



A-A

1 THE CONFIGURATION OF THE BOLT HEAD CAN BE DIFFERENT

Aft Fairing Access Door Trigger Latches
Figure 501

EFFECTIVITY
AIRPLANES PRE SB 54-0109

54-53-02

S 215-017

- (5) Make sure the formed gasket (on the outside of the striker plate) is still in place.
- (a) If formed gasket is damaged, follow steps to repair:
- 1) Remove damaged formed gasket from panel with either hardwood or plastic scraper.
 - 2) Clean surface with Isopropyl alcohol and clean rag.
 - 3) Apply new formed gasket using Dow Corning DC93-006-1 or equivalent sealant per BAC 5000.

S 415-018

- (6) Close the aft fairing access panel.

S 215-019

- (7) Make sure that all the trigger latches are completely latched.

S 225-003

- (8) Make sure the panel has the proper aerodynamic clearance limits (AMM 54-51-01/201).

NOTE: This will make sure the door is properly centered before you adjust the latches. The panel edge rests against a bulb seal which is compressed when the door is latched. If you change the load the latch closes with, you can change the contour with the adjacent panels.

F. Do the Adjustment Procedure for the Latches.

S 725-020

- (1) Do a check of the force necessary to close the latch.
- (a) Open one latch.

CAUTION: DO NOT USE TOO MUCH FORCE TO CLOSE THE LATCH HANDLE ON THE ACCESS PANEL. IF YOU USE TOO MUCH FORCE, DAMAGE TO THE ACCESS PANEL OR STRUCTURE CAN OCCUR.

MAKE SURE THE END OF THE GAGE IS PROTECTED. THE GAGE CAN SLIP AND CAUSE DAMAGE TO THE ACCESS PANEL OR STRUCTURE.

- (b) AIRPLANES WITH THE SMALL HOOK LATCH;
Close the latch with the gage.

NOTE: You should apply the force perpendicular to the handle and 0.50 inch from the end of the handle.

EFFECTIVITY
AIRPLANES PRE SB 54-0109

54-53-02

 **BOEING**
767
MAINTENANCE MANUAL

- (c) AIRPLANES WITH THE SOLID HOOK LATCH;
Close the latch with the gage.

NOTE: You should apply the force perpendicular to the handle and 0.90 inch from the end of the handle.

- (d) Make sure the force necessary to close the latch is 22-32 pounds.
(e) If the force is not within the limits, adjust the latch bolt to increase or decrease the force required to close the latch.
(f) Do the above steps again for the remaining latches.

S 715-006

- (2) Repeat the above check until all four latches close correctly.

NOTE: If you had to adjust the latch bolt on any of the latches, you can change to load on the adjacent latches.

S 835-023

- (3) Make sure the panel is in the aerodynamic smoothness and clearance limits (SRM 51-10-01).

NOTE: This makes sure the door is still centered and has the correct contour with the adjacent panels.

S 015-024

- (4) Open the aft fairing access panel.

S 215-025

- (5) Make sure the latch nuts are have lockwire installed.

G. Put the Airplane Back to Its Usual Condition.

S 215-021

- (1) Make sure all tools and unwanted materials are removed from the aft fairing and aft fairing access panel.

EFFECTIVITY
AIRPLANES PRE SB 54-0109

54-53-02

- S 415-022
(2) Close the aft fairing access panel.

EFFECTIVITY
AIRPLANES PRE SB 54-0109

54-53-02

AFT FAIRING ACCESS PANEL – INSPECTION/CHECK

1. General

- A. This procedure examines the aft fairing access panel for damage.
- B. The latches and the hold-open rod can be examined with the panel on or off the aft fairing. The bushings in the panel hinges are examined by removing the panel from the aft fairing. The examination for aer smoothness can only be done with the access panel installed.
- C. The aft fairing access panel is made of laminations of aramid epoxy (Kevlar). Each panel contains a non-metallic (Nomex) honeycomb core to make it rigid.

TASK 54-53-02-226-002

2. Aft Fairing Access Panel Inspection Check

A. References

- (1) AMM 54-51-01/201, Strut
- (2) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones
 - 437 Aft Nacelle Strut Fairing
 - 447 Aft Nacelle Strut Fairing

C. Prepare to Examine the Aft Fairing Access Panel

S 216-008

- (1) Make sure the access panel of the aft fairing is closed.

S 046-003

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

NOTE: For PW4000 engines, to install and adjust the aft fairing panel, you have to close the panel. It is recommended to lock out the thrust reverser valve with the lockwire tool. The B78001 tool prevents the access panel from completely closing.

D. Do the Inspection of the Aft Fairing Access Panel (Fig. 601).

S 836-004

- (1) Make sure the panel is in the aerodynamic smoothness and clearance limits (AMM 54-51-01/201).

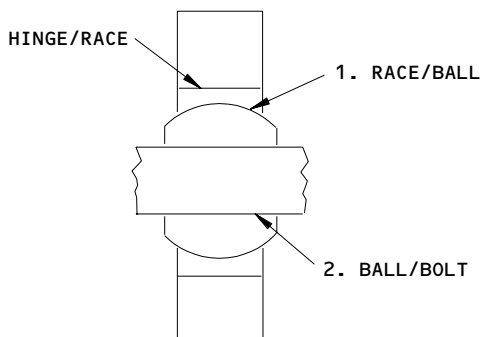
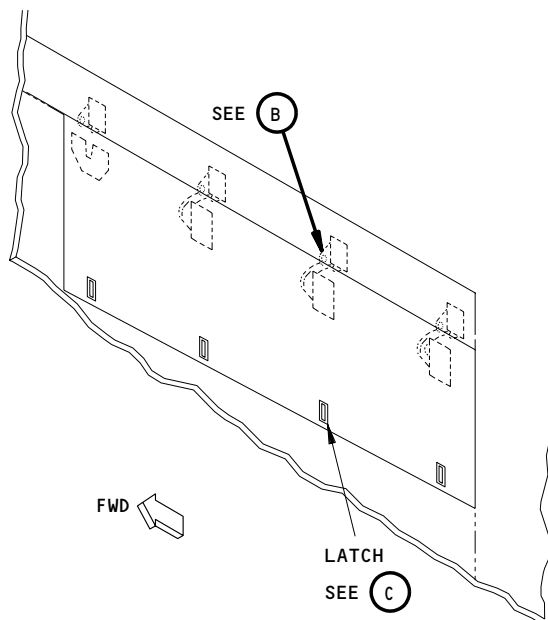
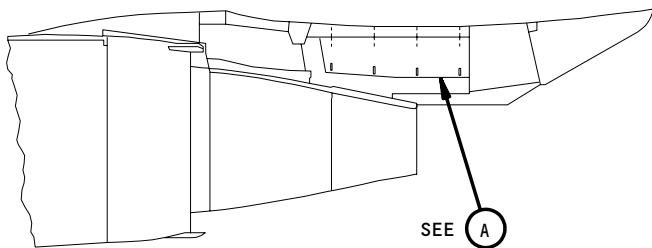
EFFECTIVITY

ALL

54-53-02

03

Page 601
May 10/95



(8 LOCATIONS)

B

AFT FAIRING ACCESS PANEL

A

INDEX NO.	PART NAME	DIM.	DESIGN LIMITS		WEAR LIMITS		REPLACE WORN PART	REPAIR WORN PART
			DIAMETER		ALLOWED WEAR DIM.	MAX DIAM CLEAR-ANCE		
			MIN	MAX				
1	RACE	ID	0.5775	0.5780	0.5810	1		
	BALL	OD	0.5760	0.5765	----			
2	BALL	ID	0.3120	0.3125	0.3136	1		
	BOLT	OD	0.3110	0.3120	0.3099		2	

1 BOLT-TO-BALL AND BALL-TO-RACE COMBINED MAX CLEARANCE = 0.006 (RADIAL) + 0.008 (AXIAL)

2 SEE AIPC 54-53-01

Aft Fairing Access Panel Wear Limits
Figure 601 (Sheet 1)

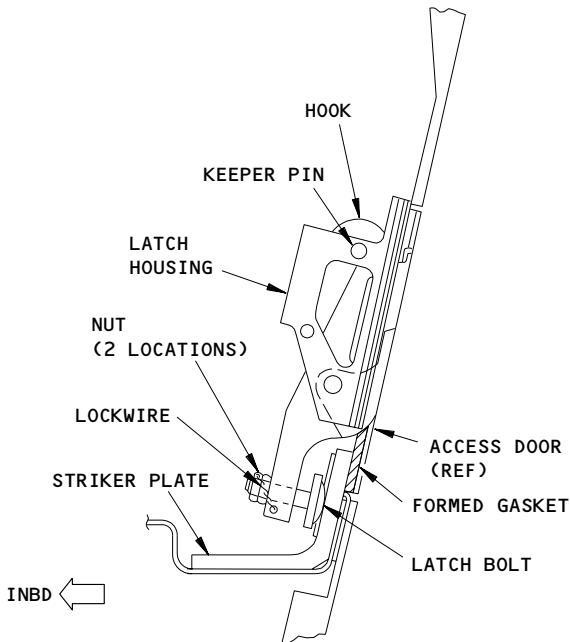
EFFECTIVITY

ALL

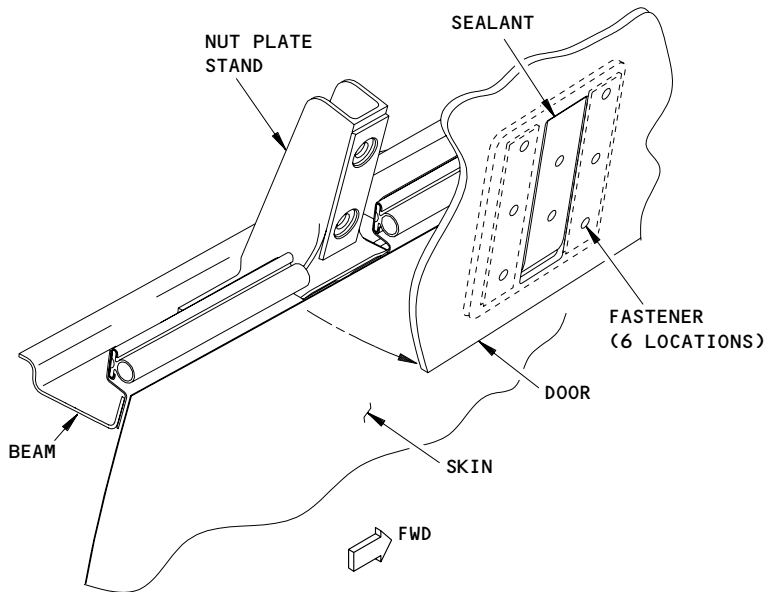
54-53-02

01

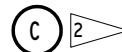
Page 602
Apr 22/05



AFT FAIRING ACCESS PANEL LATCH
(EXAMPLE)



AFT FAIRING ACCESS PANEL LATCH
(EXAMPLE)



- 1 AIRPLANES PRE-SB 54-0109
- 2 AIRPLANES POST-SB 54-0109

Aft Fairing Access Panel Wear Limits
Figure 601 (Sheet 2)

EFFECTIVITY	ALL
-------------	-----

54-53-02

01

Page 603
Apr 22/07

E99211

S 016-005

- (2) HOLD-OPEN ROD ATTACHED TO THE DOOR;
Open the aft fairing access panel.

NOTE: A hold-open rod is attached to the inner side of the door. The hold-open rod engages with a bracket on the diagonal brace.

S 016-006

- (3) HOLD-OPEN ROD LOCATED INSIDE THE FAIRING;
Open the aft fairing access panel.

NOTE: A hold-open rod is below the diagonal brace, close to latch positions 3 and 7. The hold open rod engages with the bracket on the access panel.

S 016-008

- (4) Examine the hold-open rod for damage. Look for corrosion, worn areas, bent or broken components, and loose fasteners. The hold-open rod must move freely.

S 016-009

- (5) If necessary, examine the door panel for damage (SRM 54-53-70).
(a) Make sure the formed gasket is in place and not damaged.

S 216-010

- (6) Examine the latch for damage. Look for corrosion, worn areas, bent or broken components, and loose fasteners.
(a) Visually examine the keeper pin in the latch housing, the hook, the striker plate and the latch bolt for worn areas, bent or broken components, and corrosion.

S 216-011

- (7) Examine the hinge for damage. Look for corrosion, bent or broken components, and loose fasteners. The door hinges must move freely.

NOTE: To examine the bushings in the hinge for wear, you must remove the aft fairing access panel (AMM 54-53-02/401). Use the chart (Fig. 601) when you examine the hinges for worn surfaces.

- (a) Make sure the bonding jumper is attached.

E. Put the Aiplane Back to its Usual Condition

S 416-012

- (1) Put the aft fairing access panel on the aft fairing, if it was removed (AMM 54-53-02/401).

EFFECTIVITY

ALL

54-53-02

01

Page 604
Dec 22/07

- S 446-006
(2) Do the activation procedure for the thrust reverser
(AMM 78-31-00/201).

EFFECTIVITY

ALL

54-53-02

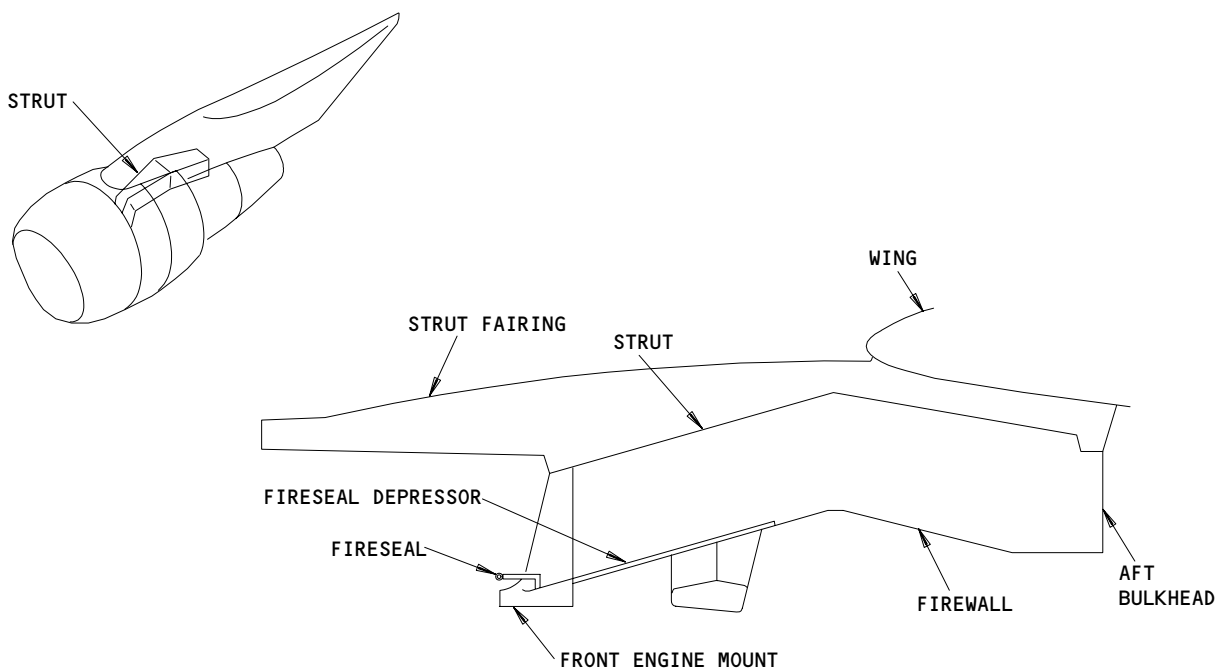
05

Page 605
Apr 22/05

STRUT FIRESEAL AND FIREWALL – DESCRIPTION AND OPERATION

1. General (Fig. 1)

- A. The strut fireseal and firewall protect the wing and upper strut systems from exposure to high temperature and fire damage.
- B. The fireseal is comprised of bulb seals and depressors. The thrust reverser bulb seals mate with depressors mounted on the lower edge of the strut. The strut bulb seals mate with the intermediate case.
- C. The firewall is installed on the underside of the strut. It extends from the front engine mount along the midspar and lower spar to the aft bulkhead.
- D. The firewall is constructed of stainless steel with thermal insulation blankets attached to create a fire barrier between the strut and engine.



Strut Fireseal and Firewall
Figure 1

EFFECTIVITY	ALL
-------------	-----

54-54-00

 **BOEING**
767
MAINTENANCE MANUAL

- E. Access to the firewall is gained through access doors in the strut and by removing core cowl skirt fairing.

EFFECTIVITY

ALL

54-54-00

02

Page 2
Aug 01/86

STRUT FIRESEAL AND FIREWALL - INSPECTION/CHECK

1. General

- A. Examine the strut fire seal and the firewall. Make sure the fire seal and the firewall are clean, that the structure and the sealant are not damaged, and that they drain correctly.

TASK 54-54-00-216-002

2. Strut Fire Seal and Firewall Inspection Check

A. References

- (1) 27-81-00/201, Inboard LE Slats
- (2) 54-52-01/401, Strut Fairings
- (3) 54-53-01/401, Strut Pressure Relief and Access Doors
- (4) 78-31-01/401, Thrust Reverser

B. Access

(1) Location Zones

210	Control Cabin
413/423	Fan Cowl Panel Left
414/424	Fan Cowl Panel Right
415/425	Thrust Reverser Left
416/426	Thrust Reverser Right
417/427	Core Cowl Left
418/428	Core Cowl Right
432/442	Forward Torque Box
434/444	Mid Torque Box
436/446	Aft Torque Box
512/612	Slat No. 6 Left, 7 Right
522/622	Slat No. 5 Left, 8 Right

C. Prepare for the inspection

S 046-021

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE SLAT LOCKS OF THE LEADING EDGE TO PREVENT THE OPERATION OF THE LEADING EDGE SLATS. ACCIDENTAL OPERATION OF THE LEADING EDGE SLAT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do this procedure: Leading Edge Slats Deactivation in the Retracted Position (Ref 27-81-00).

S 016-004

- (2) Remove the thrust reverser fairings (Ref 54-52-01).

S 016-005

- (3) Remove the skirt fairings of the core cowl (Ref 54-52-01).

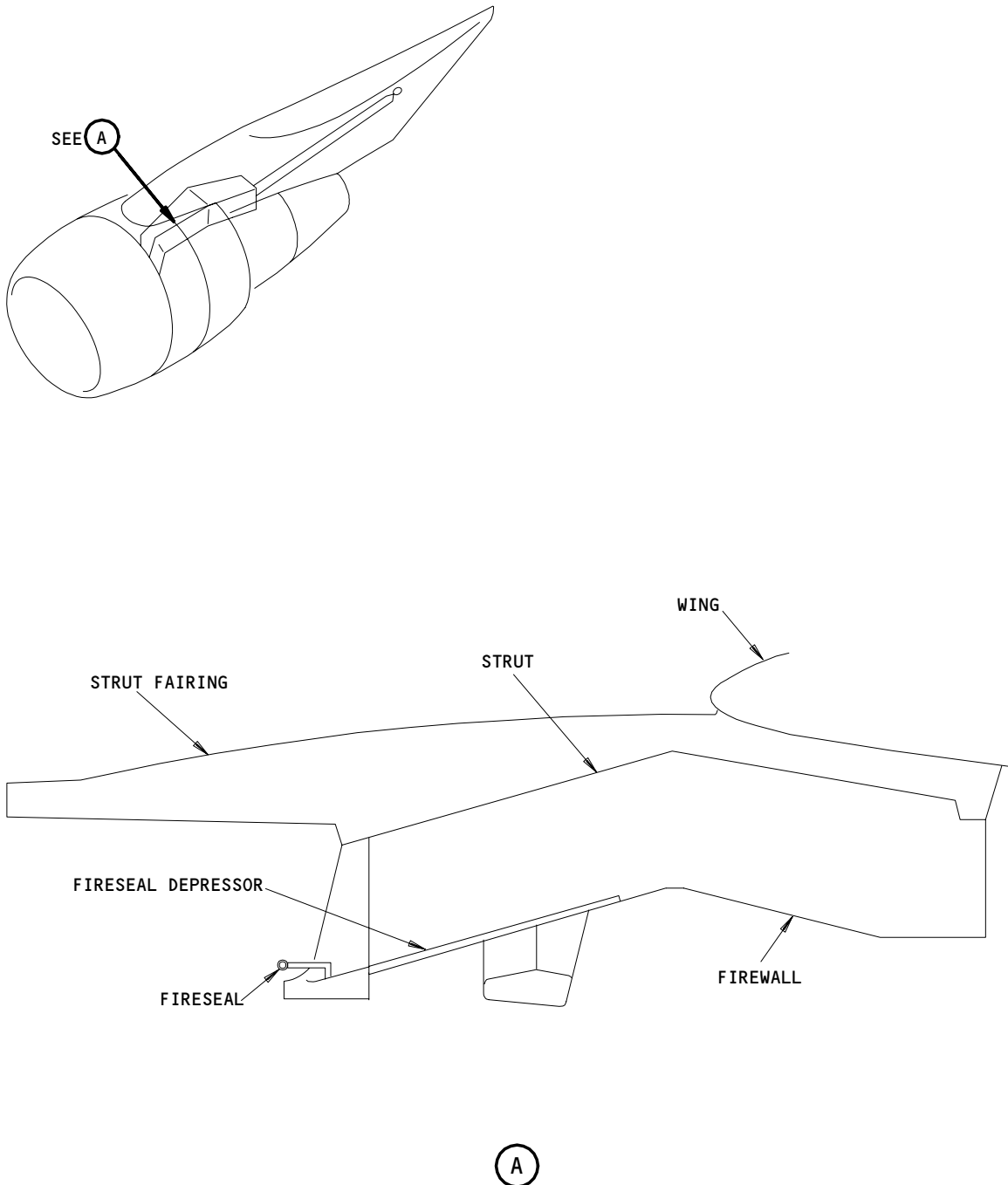
EFFECTIVITY

ALL

54-54-00

07

Page 601
Feb 10/93



Strut Fireseal and Firewall Inspection
Figure 601

EFFECTIVITY	
	ALL

54-54-00

01

Page 602
Aug 10/87

S 016-006

- (4) Remove the strut pressure relief and access doors (Ref 54-53-01).

D. Examine the strut fire seal (Fig. 601)

S 216-007

- (1) Examine the fire seal on the strut. Look for cracks, tears, damage, deterioration, parts which are loose or gone.

S 216-008

- (2) At the front end of the engine mount, make sure that the seal depressor bracket is attached. Also make sure that the seals on the bracket are not damaged.

E. Examine the strut firewall (Fig. 601)

S 216-010

- (1) Examine the structure for cracks, nicks, dents or other damage.

S 216-011

- (2) Examine the top surface for contamination and clogged drains.

S 216-014

- (3) Examine the insulation blankets on the firewall. Look for insulation which is loose, damaged or gone.

F. Put the Airplane Back to its Usual Condition.

S 416-016

- (1) Install the skirt fairings of the core cowl (Ref 54-52-01).

S 416-017

- (2) Install the strut pressure relief and access doors (Ref 54-53-01).

S 416-019

- (3) Install the thrust reverser fairings (Ref 54-52-01).

S 446-020

- (4) Remove the locks for the leading edge slats (Ref 27-81-00).

EFFECTIVITY

ALL

54-54-00

09

Page 603
Nov 10/96

STRUT FIRE SEAL - REMOVAL/INSTALLATION

1. General

A. This procedure removes and installs the strut fire seal.

TASK 54-54-01-004-017

2. Remove the Strut Fire Seal

A. References

- (1) 54-54-00/601, Strut Fire Seal and Firewall
- (2) 71-11-04/201, Fan Cowl Panel
- (3) 71-11-06/201, Core Cowl Panel
- (4) 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

413/423	Fan Cowl Panel Left
414/424	Fan Cowl Panel Right
415/425	Thrust Reverser Left
416/426	Thrust Reverser Right
417/427	Core Cowl Left
418/428	Core Cowl Right
432/442	Forward Torque Box

C. Remove the fire seal

S 014-003

- (1) Open the fan cowl panels (AMM 71-11-04).

S 044-002

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00).

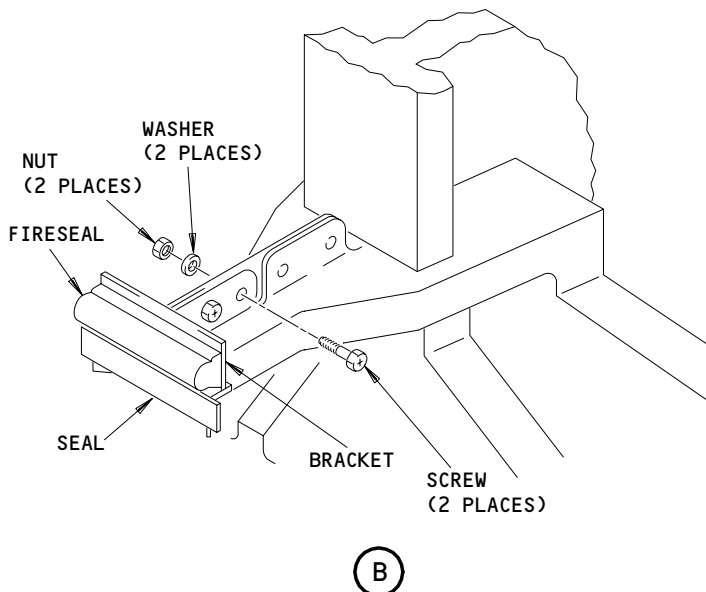
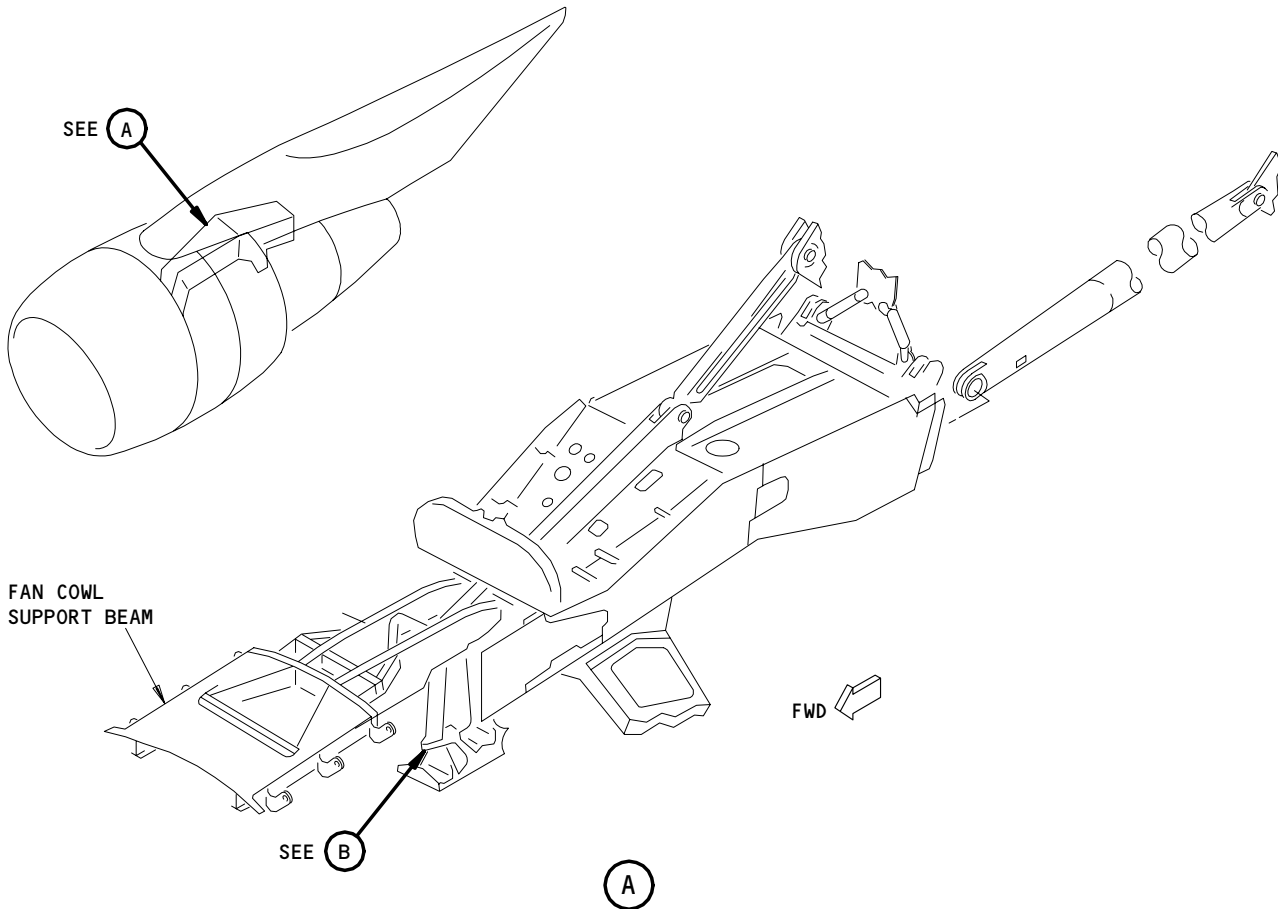
EFFECTIVITY

ALL

54-54-01

01

Page 401
Aug 22/01



Strut Fireseal Installation
Figure 401

EFFECTIVITY	
	ALL

54-54-01

S 014-008

- (3) Open the core cowl panels (AMM 71-11-06).

S 014-001

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Open the thrust reversers (AMM 78-31-00).

S 024-009

- (5) Remove the screws that attach the bracket to the strut.

S 024-010

- (6) Remove the bracket with the seals.

S 214-011

- (7) Examine the seals (AMM 54-54-00).

TASK 54-54-01-404-012

3. Install the Strut Fire Seal

A. References

- (1) 71-11-04/201, Fan Cowl Panel
- (2) 71-11-06/201, Core Cowl Panel
- (3) 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

413/423	Fan Cowl Panel Left
414/424	Fan Cowl Panel Right
415/425	Thrust Reverser Left
416/426	Thrust Reverser Right
417/427	Core Cowl Left
418/428	Core Cowl Right
432/442	Forward Torque Box

C. Install the fire seal (Fig. 401)

S 424-013

- (1) Put the bracket on the strut.

S 424-016

- (2) Install the bracket with the screws, washers and nuts.

EFFECTIVITY

ALL

54-54-01

05

Page 403
Aug 22/01

S 414-004

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Close the thrust reversers (AMM 78-31-00).

S 414-005

(4) Close the core cowl panels (AMM 71-11-06).

S 444-006

(5) Do this procedure: Thrust Reverser Activation (AMM 78-31-00).

S 414-007

(6) Close the fan cowl panels (AMM 71-11-04).

EFFECTIVITY

ALL

54-54-01

01

Page 404
Aug 22/01

STRUT INSULATION BLANKET - REMOVAL/INSTALLATION

1. General

- A. This procedure contains two tasks, the removal and the installation of the Strut Insulation Blanket.

TASK 54-54-03-004-001

2. Strut Insulation Blanket Removal

A. References

- (1) AMM 36-11-15/401, Air Supply Precooler
- (2) AMM 71-00-02/401, Power Plant
- (3) AMM 71-11-04/201, Fan Cowl Panels
- (4) AMM 78-11-01/401, Turbine exhaust sleeve
- (5) AMM 78-31-00/201, Thrust Reverser System

B. Access

- (1) Location Zones
 - 430 Nacelle Strut Left
 - 440 Nacelle Strut Right

C. Remove the strut insulation blanket

S 014-004

- (1) Optional Task - Remove the applicable engine (AMM 71-00-02/401).

NOTE: The air supply precooler and the strut insulation blanket can be removed and installed while the engine is installed on the wing, but the operation is easier if the engine is removed. The time required to remove and install the engine balances with the additional time required to remove the air supply precooler and the blanket while the engine is installed.

S 014-003

- (2) Remove the turbine exhaust sleeve (AMM 78-11-01/401).

S 024-005

- (3) Remove the strut insulation blanket.

TASK 54-54-03-404-002

3. Strut Insulation Blanket Installation

A. Consumable Materials

- (1) Lockwire

B. References

- (1) AMM 36-11-15/401, Air Supply Precooler
- (2) AMM 71-00-02/401, Power Plant

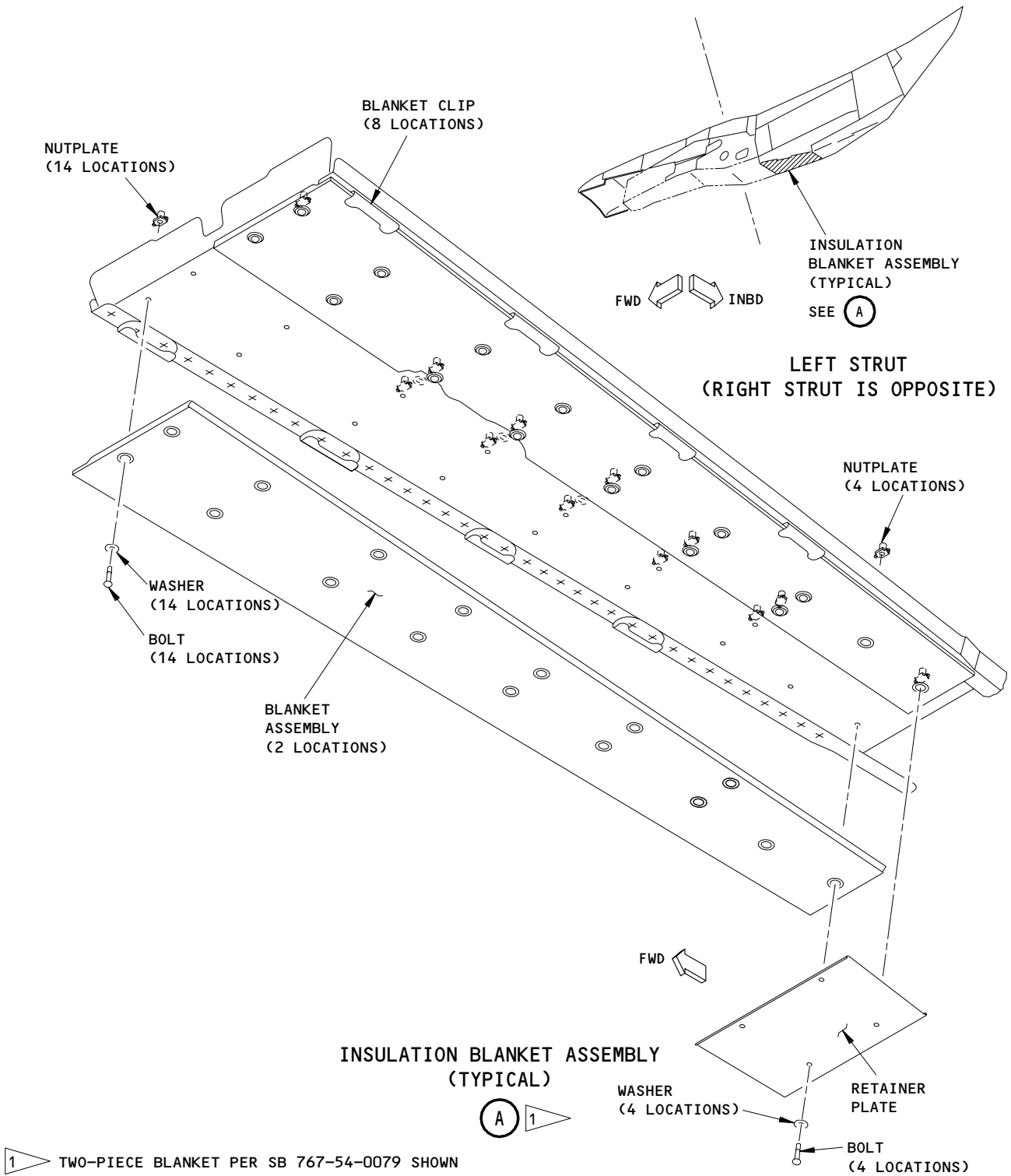
EFFECTIVITY

ALL

54-54-03

01

Page 401
Aug 22/03



Insulation Blanket Installation
Figure 401

EFFECTIVITY	
	ALL

54-54-03

03

Page 402
Aug 22/03

- (3) AMM 71-11-04/201, Fan Cowl Panels
- (4) AMM 78-11-01/401, Turbine exhaust sleeve
- (5) AMM 78-31-00/201, Thrust Reverser System

C. Access

- (1) Location Zones
 - 430 Nacelle Strut Left
 - 440 Nacelle Strut Right

D. Procedure

S 424-006

- (1) Install the strut insulation blanket:
 - (a) Put the insulation blanket in its correct position on the strut.
 - (b) Make sure that the capstans go through the grommets in the the insulation blanket.
 - (c) Use the double twist method to install the lockwire that hold the insulation blanket to the capstans.
 - 1) Make sure that the lockwire makes a minimum of one complete turn around each of the capstans.

S 414-007

- (2) Install the turbine exhaust sleeve (AMM 78-11-01/401).
 - (a) Make sure that the precooler duct aligns with, and holds the strut insulation blanket.

S 414-008

- (3) If it was removed, install the engine (AMM 71-00-02/401).

EFFECTIVITY

ALL

54-54-03

01

Page 403
Aug 22/03

STRUT INSULATION BLANKETS – REPAIR PROCEDURE

1. General

A. This procedure has one task:

- (1) Repair of minor damage to strut insulation blanket

TASK 54-54-03-358-001

2. Strut Insulation Blanket Repair

A. Equipment and Materials

- (1) AMA 138 Precured Aluminized fiberglass cloth (Style 112)
Hi Temp Insulation, Inc., Camarillo, CA 93010 (805) 484-2774
- (2) Abrasive paper or cloth (280 grit)
- (3) C00334 Nextel 312 flameproof ceramic fabric (or equivalent)
Hexel Corp., 1913 N. King, Sequin, TX 78155
- (4) A00433 Sealant – RTV 60 (RTV 106 Alternative)
- (5) B00178 Solvent – MPK, acetone or equivqlent
- (6) Stitching – 0.0018 Diameter, Class C
- (7) G00034 Wipers – cheesecloth, gauze or lint free equivalent

B. References

- (1) AMM 71-00-02/401, Power Plant
- (2) SRM 51-70-15
- (3) SRM 54-50-02

C. Access

- (1) Location Zone
 - 500 Left Nacelle
 - 600 Right Nacelle

D. Insulation Blanket Limitations

S 968-002

- (1) Signs of moisture or fluid contamination inside the insulation layer requires replacement of the blanket.

S 358-003

- (2) Total repairs of torn or damaged fabric (not including delaminated or torn aluminum foil) shall not exceed 10 percent of the blanket surface.

S 358-004

- (3) Repairs involving repair of the delaminated or torn aluminum foil covering (not including the fiberglass under layer) does not have a repair limit.

EFFECTIVITY

ALL

54-54-03

01

Page 801
Dec 22/07

E. Repair of delaminated and/or torn aluminum foil:

S 218-005

- (1) Remove areas of damaged or delaminated aluminum foil.
 - (a) If the foil is firmly bonded in the repair area, carefully scrape it off the underlying fabric layer.
 - (b) Lightly sand the foil to remove the gloss surrounding the area of repair to provide one inch of overlap.
 - (c) Solvent clean the repair area with MPK or acetone.
 - (d) Prime the repair area with DC1200.
 - (e) Allow a minimum of 30 minutes and maximum of 2 hours curing time before applying RTV sealant.
 - (f) Apply a 0.005 to 0.010 inch coat of RTV 60 sealant to the repair surface.
 - (g) Apply a repair patch of AMA 138 precured aluminized fiberglass cloth (style 112) to the repair area.
 - (h) Cover the repair area with release film and apply weight (sand bags) to ensure that the edges of the repair patch are firmly bonded.
 - (i) Allow sufficient time to cure, depending on the catalyst mix ratio.

S 358-006

- (2) Alternative repair procedure:
 - (a) Alternative to applying RTV 60 and AMA 138 patch is to apply 0.010 coat of RTV 60 or RTV 106 to the repair area, overlapping at least 0.50 inch.
 - (b) Allow time to cure prior to returning blanket to service.

NOTE: Depending on conditions, it may take 24 hours or more for RTV 106 to cure adequately.

F. Repair of torn or damaged fabric covering

S 158-007

- (1) Remove the foil two inches back from damaged area by peeling and scraping the foil.
 - (a) Foil that is firmly bonded may be sanded to eliminate gloss.

S 358-008

- (2) Sew a flame proof ceramic fabric patch (Nextel or Astro-quartz) over the damaged area with a one inch overlap.

S 358-009

- (3) Ensure that the stitching loops through both fabric layers, and use a minimum of 3 stitches per inch.

EFFECTIVITY

ALL

54-54-03

01

Page 802
Dec 22/07

- S 118-010
- (4) Solvent clean the repair area (MPK or acetone).
- S 378-011
- (5) Prime the repair area with DC1200.
- S 358-012
- (6) Allow 30 minutes to two hours for the primer to cure.
- S 358-013
- (7) Apply a 0.005 to 0.010 inch coat of RTV 60 to the repair area.
- S 348-014
- (8) Apply a repair patch of AMA 138 aluminumized fiberglass cloth (style 112).
- S 358-015
- (9) Cover the repair area with release film and apply weight (sand bags) to make sure that the edges of the repair patch are firmly bonded.
- (a) Allow time to cure, depending on the catalyst mix ratio.
- G. Put the airplane back to its usual condition.

S 168-016

CAUTION: MAKE SURE YOU REMOVE ALL TOOLS AND UNWANTED MATERIALS FROM THE STRUT CAVITIES. IF OBJECTS ARE IN THE STRUT COMPARTMENTS, THEY CAN STOP THE REMOVAL OF THE FLUIDS THROUGH THE STRUT DRAINS. IF YOU DO NOT REMOVE THE UNWANTED MATERIALS, YOU CAN CAUSE DAMAGE TO THE STRUT.

- (1) Put the blanket on the strut.

S 028-017

- (2) Remove all tools and unwanted materials from the strut cavities before you install the access doors.

S 418-018

- (3) Install the access doors on the strut, if they have been removed (AMM 54-53-01/401).

EFFECTIVITY

ALL

54-54-03

01

Page 803
Dec 22/07