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SACO COS System		SACO COS System Worksheet	
Brief Title	747 Flap Control Unit Replacement		

Aircraft Certification Service

Transport Airplane Directorate "Short" Domestic Worksheet

FAA-04-18999-4

DOCKET NUMBER:  
TECH WRITER:

Manufacturer's Service Information/Revision/Date (Attach 2 clean copies):  
Boeing Alert Service Bulletin 747-27A2386, March 13, 2003.

PROPOSED CORRESPONDING ACTION:

<input type="checkbox"/> Emergency AD	<i>Is this action one of the following?</i>
<input type="checkbox"/> Immediately Adopted AD	<input type="checkbox"/> Supersedure of AD (Docket No. TBD)
<input checked="" type="checkbox"/> Notice of Proposed Rulemaking	<input type="checkbox"/> Revision of AD (Docket No. TBD)
<input type="checkbox"/> Final rule after NPRM <i>(If FRAN, complete Attachment A.)</i>	<input type="checkbox"/> Supplemental NPRM (Docket No. TBD) <i>(If any of the above is checked, complete Attachment B.)</i>
<input type="checkbox"/> Other (No-Notice Final Rule)	

ACO Project Engineer Name/Title: Doug Tsuji/Aerospace Engineer  
 Branch: ANM-130S Telephone: (425) 917-6487  
 Backup Engineer: Ken Fairhurst Telephone: (425) 917-6466

1. Model, Applicability, # Airplanes (both U.S. & worldwide) - Refer to SB; state any differences for this AD:

Model: 747-400/400D/400F  
Applicability: Line Number 696 through 1307, 1309 through 1312, and 1314.

# U.S. airplanes: 87 # worldwide airplanes: 614  
Source: Boeing Service Bulletin 747-27A2386, March 13, 2003

AD Summary and Discussion Sections:

2. What has the manufacturer told the FAA? "The FAA has received reports indicating that..."  
Describe background/events that prompted the AD in 1-2 sentences. Refer to SB 'Reason.'

The FAA has received one report where, after takeoff, a 747-400 was required to make an air turnback because the autopilot disengaged. Upon selecting Flaps for landing, there was no indication of the flap setting, requiring landing using Alternate Flaps Mode. The airplane landed safely without further incident. The root cause has been determined to be that the Flight Control Units (FCU) are susceptible to certain external failures in the Leading Edge (LE) position switch circuit (switch, switch actuator, LE Flap Drive Unit (LEFDU) wiring or airplane wiring). These failures can cause a cyclical input to the FCU, which can cause the FCU to shut down.

3a. What is the unsafe condition AND its cause? "These actions are intended to prevent..."  
Describe unsafe condition and its cause in 2-3 sentences (non-technical terms). Refer to SB 'Reason.'

These actions are intended to prevent disengagement of all three FCUs, which can result in the loss of the primary flaps control and loss of flaps position indication.

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**3b. What is the end-level effect on the airplane?** “...which could result in...”  
 Provide a 1-sentence description; use non-technical terms.

Flight without the aid of primary flaps control and flaps indication can result in operation of flaps in alternate mode and no position data for the pilot. This can result in high speed landings (>200 kts) with the potential for a runway overrun or veeroff resulting in increased pilot workload.

**AD Relevant Service Information Section:**

**4. (Yes or No) Is the corrective action required in this AD considered to be interim action?**

No.

**5. (Yes or No) Is this action considered ‘sensitive’, or is it related to a Safety Recommendation?**  
 (If yes, state why sensitive, and/or provide copy of FAA/NSTB Safety Recommendation.)

No.

**6. Does the referenced service document include reference to an “operator’s equivalent procedure?”**  
 [If yes, specify whether that procedure employed by the operator (even if not technically ‘equivalent’) adequately addresses the identified unsafe condition and provides an acceptable level of safety.]

No.

**7. AD Differences Section (if needed):** “This AD differs from the SB ...”  
 Check if: Flight with Cracks  Mandate Terminating Action  Contact Mgr, FAA   
 Compliance time  Mandate AFM Action   
 Describe any other differences between service bulletin and this proposed FAA AD.

This AD differs from the SB in the Model Applicability. The SB incorrectly omitted ~~400D and 400F~~<sup>2</sup> configurations. The AD sets a requirement for L/N 696 and on, that a minimum of one FCU with P/N 285U0011-208 must always be installed (see Spares Section). \* Just clarification, not difference

**AD Cost Impact Section:**

**8a. Work hours for corrective action(s) required: (List hours or reference SB ‘Manpower’).**

1 hour for removal and replacement of the FCU. 7.5 hours for modification of the existing FCU, Boeing P/N 285U0011-207, into the upgraded FCU, P/N 285U0011-208. For certain airplanes, it is required to accomplish Boeing Service Bulletin 747-27-2319 prior to accomplishing 747-27A2386. 747-27-2319 converts older configuration FCUs (P/N 285U0011-205 and -206) into 285U0011-207s. It is estimated it will take 1 hour per FCU for removal and replacement and 42 hours for the actual conversion.   
*appr 10 hrs for modification per FCU* *slts: per day FCU parts: 78,550 concurrent FCU mod: 42 x 3 = 126 hrs*

**8b. Parts Cost, if any: (List costs or reference SB ‘Material - Cost and Availability’).**

Not applicable.

**9. AD Body Section:**

**For EACH corrective action, mark up SB, if usable -OR- fill out Corrective Action Table below.**

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**9a: Action # 1**

**What is the corrective action?** Replace a minimum of one existing FCU with an upgraded FCU with Boeing P/N 285U0011-208 per Boeing Alert Service Bulletin 747-27A2386. Boeing Service Bulletin 747-27-2319 must be incorporated on airplanes with L/N 696 through 830, inclusive, and 834 prior to Boeing Alert Service Bulletin 747-27A2386. 747-27-2319 converts older configuration FCUs (P/N 285U0011-205 and -206) into a 285U0011-207.

**What is its compliance time?** Within 60 months, 25,000 flight hours, or 4,000 flight cycles, whichever comes first.  
**(Add grace period if not available)**

**What is repetitive interval?** None.

**9b: Action # 2**

**What is the corrective action?**  
**What is its compliance time?**  
**(Add grace period if not available)**  
**What is repetitive interval?**

**10. (Yes or No) Should corrective action(s) required in this AD to be applied to spares as well?**

Yes. After the effective date of the AD, replacement of an FCU with an older version will be allowed provided that a minimum of one FCU with P/N 285U0011-208 is installed on the airplane. <sup>-205, -206, -207</sup>

**11. Should a ferry flight permit be:  Permitted  Permitted with limitations\*  Prohibited**   
 \*List limitations.

**12a. With whom outside the FAA has this proposal been discussed (i.e. ATA, RAA, ALPA, etc.)?**  
**NOTE: This item should be completed prior to submission of the AD Proposal Worksheet.**

<u>Organization</u>	<u>Person Contacted</u>	<u>Date</u>	<u>Reaction</u>
Boeing	Bang-Co Nguyen (425) 717-2484	12/4/02	Agrees with FAA action. Boeing Compliance Recommendation.
ATA	Joe White (202) 626-4036	3/6/03	Agrees with FAA action.

**12b. (Yes or No) Was the lead airline process used in developing the requirements of this action?**

No.

**13. Check the appropriate response:**  
**Yes  No  Does this action affect the Presidential fleet?**  
**Yes  No  Does this action affect the FAA fleet?**  
**Yes  No  Was this action prompted by the use of suspected unapproved parts (SUP)?**

**14. Check the category that best describes the cause of the unsafe condition addressed by this AD:**

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<input checked="" type="checkbox"/> Design Problem	<input type="checkbox"/> Unapproved Parts	<input type="checkbox"/> Operational
<input type="checkbox"/> Maintenance	<input type="checkbox"/> Quality Control Problem**	<input type="checkbox"/> Other (specify): _____
	<input type="checkbox"/> **Reporting Reqt Needed?	_____