20-21st July

Bodie

H32-6127

FOR OFFICIAL USE ONLY

9 JUL 1981

87

ACTION	INFO
	CC
SE	
LGMQ	LGMC
LGMO	LGMAJ
	LGMAS
CC	
LGMCI	
LG	

9 JUL 81 02 07Z

RTAUZYUW RUCIPBA5004 1900035-UUUU--RUCIFJA.
ZNR UUUUU
P 0823302 JUL 81
FM ADTAC LANGLEY AFB VA//CD//
TO AIG 9382//CC/LG/DO/SE//
RUCIPBA/HQ TAC LANGLEY AFB VA//SE//
RUCIPBA/48FIS LANGLEY AFB VA//CC/LG/DO/SE//
BT
UNCLAS FOUO
SUBJ: F-106 FLIGHT CONTROL MALFUNCTIONS
1. TWO RECENT CLASS A MISHAPS INVOLVING FLIGHT CONTROL MALFUNCTIONS REVEAL A NEED TO CONDUCT ON INDEPTH ANALYSIS OF THE FLIGHT CONTROL SYSTEM. AIRCRAFT EXPERIENCING FLIGHT CONTROL MALFUNCTIONS, INCLUDING THOSE FOUND DURING GROUND OPERATION, WILL BE IMPOUNDED IAW TACR 66-20 IMMEDIATELY FOLLOWING IMPOUNDMENT UNIT MUST CONTACT ADTAC LG TO DISCUSS FLIGHT CONTROL PROBLEM. IF CONDITIONS WARRANT, A TEAM OF PERSONNEL FROM AFLC AND ADTAC WILL BE SENT TO PERFORM INVESTIGATION OF FLIGHT CONTROL MALFUNCTIONS. IF MALFUNCTION IS DETERMINED NOT TO WARRANT A DEPOT TEAM THEN AIRCRAFT WILL BE RELEASED TO UNIT FLIGHT CONTROL MAINTENANCE TEAM TO BE WORKED IAW TACR 66-20.
2. ADDITIONALLY, IN ORDER TO ISOLATE AND IDENTIFY SPECIFIC PROBLEM AREAS AND OBTAIN DATA UPON WHICH TO BASE CORRECTIVE ACTIONS, WE ARE

PAGE 02 RUCIPBA5004 UNCLAS FOUO
ESTABLISHING A PROGRAM WHEREIN F-106 UNITS PROVIDE INFORMATION ON FLIGHT CONTROL SYSTEM MALFUNCTIONS TO A CENTRAL COLLECTION AGENCY (ADTAC/LG/SE). F-106 UNITS WILL FORWARD A SYNOPSIS OF ALL MALFUNCTIONS, BY MESSAGE EACH TUESDAY COVERING THE PREVIOUS WEEK, TO ADTAC/LG AND SE. DATA SHOULD INCLUDE: AC TYPE (A OR B); TAIL NUMBER: OPERATING CONDITIONS WHEN ENCOUNTERED (I.E., GROUND OR FLIGHT PARAMETERS); DESCRIPTION OF MALFUNCTION INCLUDING AFCS MODES ENGAGED; AND MAINTENANCE ACTIONS TAKEN TO CORRECT THE DISCREPANCY. THESE REPORTS ARE NECESSARY TO COMBINE DATA FROM ALL UNITS AND ARE IN ADDITION TO THE REQUIREMENT TO SUBMIT HIGH ACCIDENT POTENTIAL MISHAPS (HAP) REPORTS WHEN APPROPRIATE.
3. TO INITIATE OUR ANALYSIS A COMPLETE INSPECTION OF THE FLIGHT CONTROL SYSTEM ON ONE AIRCRAFT WILL BE CONDUCTED AT EACH F106 UNIT. (AK 054)
THIS WILL INCLUDE MECHANICAL, HYDRAULIC, ARTIFICIAL FEEL, TRIM, AND AUTOMATIC FLIGHT CONTROL SYSTEMS. ALL DISCREPANCIES NOTED DURING THIS INSPECTION WILL BE REPORTED TO ADTAC LG NOT LATER THAN 16 JULY 81.
4. REQUEST NGB SUPPORT OF THIS PROGRAM.
ET
#5204

22/16

Billy Marshall

TASK 5-202 ELEV Friction ½; Feel ok

6 A 10 B 28

7 A 10 B 0

8 A .4 B .6 & LB7 full

9 A 6 B 3 1 RB

13 A 20 B 46

14 A 18 B — 2 LBS

1635

18 A 6 B 14 0 LBS.

19 A 6 B —

20 A 6 B 15 0.5 LBS

21 A 6.5 B —

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TASK 4-201 Steps 1-6 No Readings (Both Lt & Rt Hep Valves)

step 7b got 22 Volts DC

Steps 8 Milliamps L. 2 R. 5.6

Step 9 L. 3.8 R 3.8

Step 10 Surface did Kick) - Gauge read 75 Milliamps

Step 11 Maximum Milliamps & Surface Moved 3/4°,

step 12 Surface moved 3/4° from Neutral

step 13 Surface stayed in Neutral

step 14 Surface stayed in neutral

Step 15 Milliamps L. 3.8 R. 3.8 - Surface was Controlable by Current adjust knob. - LOCKOUT EXTENDED LIGHT ON LOCKOUT RETRACTED LIGHT OUT - Current indicated 150 Milliamps

Step 16 When Surface stopped the was a .3 milliamps of imbalance

step 17 See above step

step 18 With 5.3 imbalance surface moved 3/4° from neutral - when current reverse switch was put on.

Step 19 No Reading

Step 20 with Voltage no how surface still moved 3/4° from Neutral.

Step 21-24 No readings

ACFT 59-051 10 July, 1981 0800
Shelly unit pressure cks.
Field barometric pressure - 28.82

	Desired output press.	output press.	T.O. Limits
0.84	.70	.80	.60-.80
3.46	3.00	3.40	2.55-3.45
8.12	7.00	8.00	5.95-8.05
11.50	9.80	11.20	8.33-11.27
15.60	13.40	13.70	11.39-15.44
18.00	13.70	14.15	11.65-15.75
20 80	11.50	12.25	9.78-13.22
23.50	10.00	10.75	8.50-11.50
13 psi	8.80	9.60	7.48-10.12
19 psi	7.80	7.90	6.62-8.90

Rudder Feel Regulator ops. ck. good
ACFT charged to 3000 psi
and o Q intake press. gage Reading 100 psi
Q intake press. 3.90 gage press: 400 T.O. Limits
390 +20 -38.
Q press. 12.80 gage Reading 1400
T.O. Limits 1420 +95 -75

Task 3-201
4.a. L+R elevons 24½ degrees (25 ± .5 degrees)
b. LT. AFT STOP contacts pad on bellcrank
c. .042 gap on stick Fwd. stop Bolt. (.060 ± .030)
5. elevons Returned to neutral
6.a. R.+L elevons dn. 8 degrees (8 ± .5)
b. LT. Fwd. stop Bolts contacts bellcrank stop
c. .040 gap on stick AFT stop Bolt (.060 ± .030)
7. elevons RETURN TO NEUTRAL

Task 3-202
4.a RT. elevon up 7 LT. dn. 7 (7 and 7)
b. RT. Aft stop bolt contacts pad on bellcrank
5. elevons Returned to neutral
6a. LT. elevon up 7 RT. dn. 7 (7 and 7)
b. RT. fwd. stop contacts pad on bellcrank

Task-3-203
ckOF Combined elevator and Aileron controls (All good)

Task 3-205
ck. oF Rudder control system (All ck good)

Task 3-204 Rudder friction + artificial feel
ck good. AT 150 lbs pedal pressure Rudder
Travel RT. & LT. was 15¼ degrees (12-16 degrees)

levon Rig ck good Task 3-404

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TASK 4-202 Steps 1-6 No Readings (HRP VALVE TEST)

Step 7 Pilot Light ON 22 Volts DC Power

Step 8 Milliampis L. 2.1 R. 5.3

Step 9 Milliampis L. 3.7 R. 3.7

Step 10 Rudder Kicked but Stayed at Neutral - Current indicated 75 Milliampis

Step 11 an imbalance of .1 Milliampis

Step 12 an imbalance of 6.1 Milliampis - Ruder Moved 1° from Neutral either direction

Step 13 With Voltage Low Rudder Moved 4° either direction from Neutral - Current indicated 50 Milliampis

Step 14 Rudder responded & Stayed in Neutral

Step 15 Rudder did Move with imputs from Current adjust knob. THIS CALLED FOR REJECTION OF HRP VALVE

AS FURTHER PROOF: the AFCS Mode was put in direct Manual and Control Stick was moved from side to side (Aileron Movement) and the Rudder Surface Moved by itself (aprox. 1° from Neutral either direction.

IE106k 2-71 Jul 14/81

TASK 4-202 Steps 1-6 No Readings (HRP VALVE TEST)

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Step 11 an imbalance of .1 Milliampes

Step 12 imbalance of 5.1 Milliampes - Rudder Moved 4° from Neutral either direction

Step 13 With Voltage Low Rudder moved 4° either direction from Neutral - Current indicated 50 Milliampes

Step 14 Rudder responded & stayed at Neutral.

Step 15 Rudder did not move or respond to Signal inputs as required

Steps 16-18 No readings

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Task 4-203 Steps 1-6 No Readings (HYSTERESIS CK. HRP VALVE)

Step 7 When Elevons went thru full travel Rudder Moved 2/64 (1/32)"

Task 4-204 Steps 1-6 No Readings

Step 7 When Aileron imputs were selected Rudder Moved less than 2/64 (1/32)"

While checking travel on HRP VALVE noticed that during full left travel of Rudder Actuator it got hung up on HRP VALVE Filter housing - after inspecting problem I found the clamp on Filter housing installed backwards (making the Filter set outboard to far). By turning clamp on Filter around the Filter was pulled back inboard away from the HRP VALVE, thus allowing the HRP VALVE To operate full left + Right travel.