

~~OFFICIAL: SENSITIVE~~**Aviation Safety Occurrence Report (ASOR) - Full Details****Defence Aviation Safety Authority**

Defence Flight Safety Bureau

Reference Number: **ASOR: 2FTS-078-2006**

Workflow Phase	Historical	Classification	Incident
Occurrence Date	5 July 2006	Occurrence Time	10:30
Location	Pearce	Location Details	
		-	
Parachute Incident Report	NO	Movements Incident Report	NO
Physiological Incident Report	NO		
DDAAFS	NO	ATSB	NO

Weather

Light Conditions	Day	Meteorological Conditions	Visual Meteorological Conditions
Environmental Facts	N/A		

Aviation Unit:

2 Flying Training School

Keywords:

Keyword L1	Keyword L2
Materiel	Engine

Aircraft Details:

Aircraft: PC9/A

Tail Number: A23-021

NVD Aided	External NVG	Search NVG	Strobe Lights On	Landing Lights On	Anti Collision Lights On	Helmet Mounted Device	Engine Shut Down	Engine Mission Abort	Speed (KIAS)	Altitude (Feet AMSL)	Flight Path	Flight Phase
No	No	No	Yes	Yes	No	No	No	No	100 to 200	Greater than 2000	Clear	N/A

Aircraft: PC9/A

Tail Number: A23-021

Fuel Dump	Fuel Dump Detail
No	-

Title:

EFCU failure

Narrative:

On an IF syllabus ride with the student in the rear cockpit a practice engine failure was initiated by the QFI in the front seat at 3000 AMSL. Both the student and QFI selected the ELS isolate/emergency fuel switch to isolate/arm. The student then toggled up to 32 psi after a simulated 'no response' from the PCL. The students intention was to conduct the ILS to RWY18

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at Pearce on the EFCU. ATC was contacted and a climb was given to 5000'. When the QFI instructed the student to increase power for the climb the student said he was toggling without response. The QFI took over and tried toggling from the front seat, without success. The QFI instructed the student to toggle at the same time as the QFI, again without success (in both directions). The QFI then checked engine response with the PCL and the engine responded normally above 32 psi. The QFI and student covered the ELU checklist and discussed checking all circuit breakers. Both circuit breaker panels were visually checked. The QFI then attempted two idle resets of the ELS without success. A third unsuccessful attempt was conducted with the PCL at approximately 32 psi. Power was not able to be reduced below 32 psi. The duty executive was consulted and the aircraft was positioned overhead Pearce at 8500.

Following consultation with the duty executive a visual approach was requested to RWY 18 via a 10 nm final. The aircraft was positioned to the north of Pearce where the aircraft captain selected the inertial separator on and ECS to high. The aircraft was then slowed using bank and 'G' to get the speed below 150KIAS. The aircraft was then configured by selecting both land flap and landing gear. The aircraft was then tracked via a straight in approach from 10nm. The engine was shutdown over the threshold, immediately followed by the firewall shutoff handle being pulled. Minimal braking was used on the landing roll and the aircraft came to a stop approaching taxiway Charlie. The after landing checks were completed and the crew exited the aircraft on the runway without further incident.

Investigation Details:

Investigation Status:	Completed	Investigator:	s47E(d)
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Analysis:

Reference No.	Agency	Title	Comment
1	2 Flying Training School	Maintenance	An inspection of the EFCU Actuator was carried out, it was noted during the inspection that the actuator was in the midway position, this position was abnormal as the actuator should return to the decrease position, the cockpit EFCU switch was in the OFF position. The EMER FCU circuit breaker was also found to have tripped, inspection of all the system wiring and electrical connectors was carried out, there was nil evidence of damage found during the inspection, the circuit breaker was reset and functional checks of the aircraft system was carried out. The system could not be faulted during the functional checks. An unserviceable EFCU Actuator was identified as the most probable cause of the fault, the actuator was removed and replaced with a serviceable item IAW AAP7212.007-2. The aircraft was assessed as serviceable and released for a test flight, the aircraft was test flown as serviceable. Defect AIP 94/06 has been raised for the actuator.
2	2 Flying Training School	EFCU Circuit breaker	UASO - The most likely cause of the EFCU ceasing to function in this incident is the tripping of the EFCU circuit breaker. Had the EFCU circuit breaker tripped whilst the EFCU toggle switch was activated, all of the indications detailed in the narrative would have followed. It is assumed that the flying pilot did not check the circuit breaker panel thoroughly enough to find the EFCU circuit breakers tripped. Maintenance detected the circuit breaker was tripped during maintenance procedures.
3	2 Flying Training School	CRM	The CRM employed by the duty executive in assisting the captain for recovery was conservative and sound. The aircraft was recovered safely. However, it is of interest that several experienced pilots in the Cage did not direct the captain to specifically check the EFCU circuit breaker in an attempt to resolve the problem. This oversight is likely the result of inexperience with this malfunction and is unlikely to recur with current 2FTS staff. The details of this incident may be of interest to FAC and CFS staff.

Findings:

Reference No.	Title	Comment
1	EFCU Failure	The EFCU circuit breaker tripping was the most likely cause of the EFCU failure.
2	EFCU Failure Procedure	The PC9 Flight Manual does not contain an EFCU failure procedure.
3	Maintenance	Maintenance staff found the EFCU actuator to be half extended and the EFCU circuit breaker to be tripped.
4	CRM	The conservative handling of this unusual malfunction resulted in a safe recovery of the aircraft.

Contributing Factors:

Run by: s47E(d)
Run at: 25/03/2025 : 4:47:32 PM

Page: 2

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Contributing Factor Level 1	Contributing Factor Level 2	Contributing Factor Level 3	Contributing Factor	Contributing Factor Priority	Contributing Factor Other
Preconditions for Unsafe Acts	Substandard Conditions	Equipment	Unreliable/ Faulty	Most important (or equal most important) contributing factor	-

Defences:

Defences Level 1	Defences Level 2	Defences	Defences Other
Detection - How was the problem revealed?	Detection - How was the problem revealed?	Aircrew	-
What, if anything, limited the consequences of the occurrence?	Philosophy	Crew Resource Management	-

Risk Management:

Strategies:	The 'stuck PCL' procedure was effectively employed in returning the aircraft to land.	Effective:	Yes
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Risk Management Narrative:

Nil

Unit Actions:

Reference No.	Agency	Status	Actionee	Assigned Date	Completed Date	Title	Details	Response
1	2 Flying Training School	Completed	s47E(d)	14/09/2006	14/09/2006	UASO - Brief	Unit aircrew will be briefed on this incident.	-

Unit Recommendations:

-

HTA Actions:

-

HTA Recommendations:

-

Damage Details:**Supervisor Comments:**

I concur with the comments in part 3 of the analysis. This incident was handled appropriately given that the pilot believed he had conducted a thorough check of the c/b panel. Notwithstanding the fact that it appears likely the c/b was popped, circuit breakers usually pop for a reason and it is not certain that normal functionality would have returned following a reset of the c/b. The wisdom of resetting circuit breakers that have popped is open for debate. A safe and conservative outcome from an unusual situation.

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CO Comments:

It is a known problem in the PC-9/A that a visual check of CCT BKR's may not reveal a popped CCT BKR and therefore it is prudent that a physical check is also conducted. Notwithstanding this facet, the incident and the subsequent RTB was well handled by the crew.

Board Review:

Closed IAW HQATW 117/4/AIR Pt 3 (26)

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