

# Flight of the Phoenix

## Doomed for scrap, but F-111 flies again

FILTON bid farewell to a familiar landmark recently when F-111 no. 68-043 departed for Upper Heyford after spending the last three years at the site.

The USAF fighter/bomber arrived at Filton on July 27 1987 to undergo routine maintenance. During a structural survey, however, a crack was detected in the wing carry-through box. This is the piece

of structure which runs across the centre of the fuselage and effectively holds the two wings together.

To replace such a major component the aircraft needs to be strapped down in a jig to hold the structure steady. The jig required had to be sent over from the aircraft's manufacturer — General Dynamics in Fort Worth.

Filton managed to obtain two wing carry-through boxes that were available from C-type F-111s. The best one was

selected and then refitted to the aircraft. This refit, though, was delayed considerably due to difficulty in obtaining taper-lock bolts which secure the component.

Once the refit was completed the aircraft was jacked up and the original build jig was removed. The F-111 then had its undercarriage refitted and underwent a normal programme of periodic maintenance. This programme included a structural test in the cold

proof chamber, where the aircraft was subjected to temperatures of -40 degrees centigrade, and submitted to a series of tests designed to highlight any imperfections in its structure. The aircraft passed the test with flying colours.

Last month 68-043 finally lifted off Filton's runway and left to resume squadron service at Upper Heyford — 646 working days after it arrived at the site.

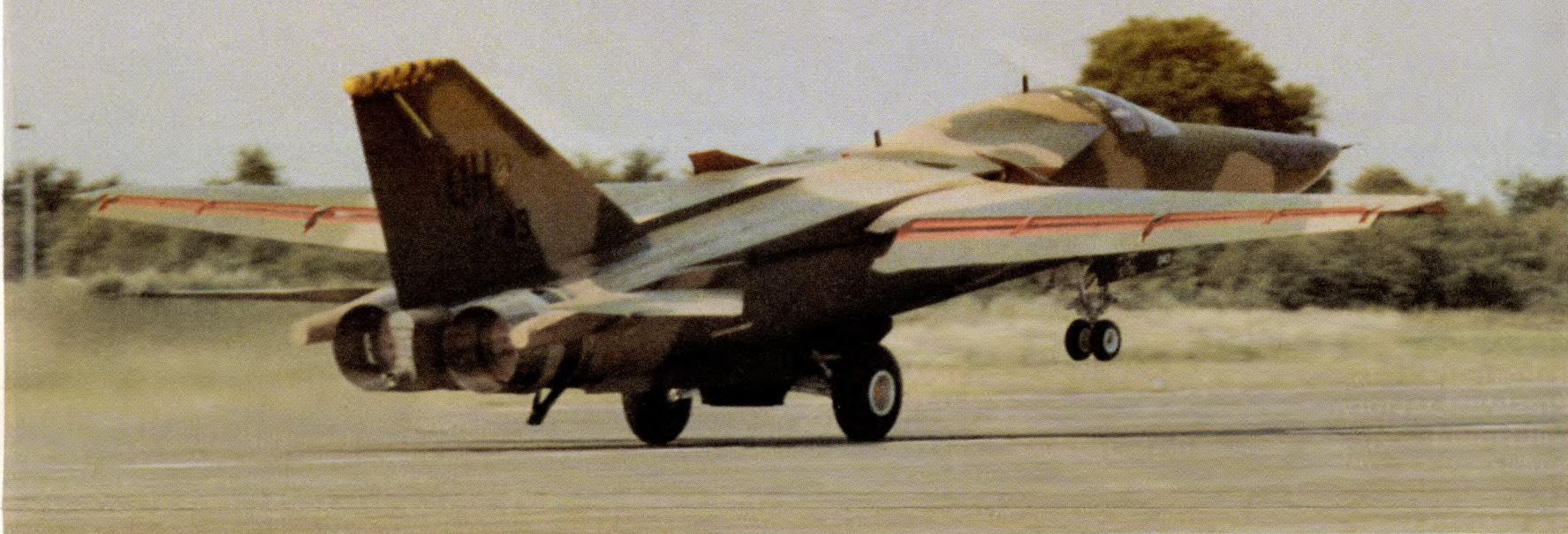
During its long stay at Filton, the aircraft acquired the affectionate nickname "the hangar queen"!

### Challenge

F-111 Programme Manager Charles Exley told *Flightpath*: "There is no doubt that when the crack was detected, the aircraft was considered scrap."

"In rising to the tremendous challenge of replacing the wing carry-through box and successfully accomplishing the task, we have in effect increased the operational strength of the F-111 by one."

"Our customer is very pleased with the outcome, and every congratulation should go to those involved."



ABOVE: Ready once again for action, the "hangar queen" takes off from Filton.

## FLIGHTPATH CROSSWORD No 9

### ACROSS

- 1 Spring as defined by a type of jet (4)
- 3 Reach Eden — making, for example, conformity to regulations? (9)
- 9 Try to be a certain type of pilot (4)
- 10 Descriptive of some types of Theatre and the happenings that might be found there (10)
- 12 Came back and one consumed but reduce weight considerably (8)
- 13 Communication medium also known as 1 Down's latter half (1,5)
- 14 Tranship no Roan — transposed for an important staging point of yesteryear (7,7)
- 18 Wizard prang, Old Boy: Likely to be a big West End draw (1,5,4,4)
- 20 Wolfing endlessly mirroring what might be the means of an accumulation (6)
- 22 Squawk to reveal it! (8)
- 24 The locals at Omaha's Strategic Air Command? (10)
- 25 What a pert young girl! (4)
- 26 Perused then chose: apparently chose again... (9)
- 27 Saying the man takes off in the Old Kent road —referring to himself and another? (4)

### DOWN

- 1 Aircraft VHF equipment designed for the "in" people (3,3)
- 2 A favourite adornment of the 18 Across brigade (9)
- 4 Echo & Alpha made Siamese Twins and begins to name a maker of some 21 Down's! (9)
- 5 You're in it at 14 Across (4)
- 6 Come into a quiet spring form of entrepreneurial capability (12)
- 7 CPL starts to make an uproar and presumably goes IMC (5)
- 8 Fighters? — maybe! Gigolos? — could be! (7)
- 11 Align lots and used it when 13 Across went U/S (6,2,4)
- 15 An empty space found in front of a Northern Established Church: undertaken by moving to star-board (9)
- 16 Sing, O! Zion to make for improving the environment (9)
- 17 How brave of Vickers (7)
- 19 Types of wild feline capable of swift vertical movements? (6)
- 21 Loud — and competent to construct an unlikely tale (5)
- 23 Type of waveform distance defined by what the little girl does at play (4)

WINNERS of Crossword Number 8 were Gerry Croxford, Inspection, Hatfield; F. Edmondson, ETF Materials Test Dept, Woodford; and W.B. Dickinson, retiree from Chester.

The first three correct entries drawn for Crossword Number 9 will win dictionaries or books which help with crossword puzzle solving. The closing date is Monday October 1.

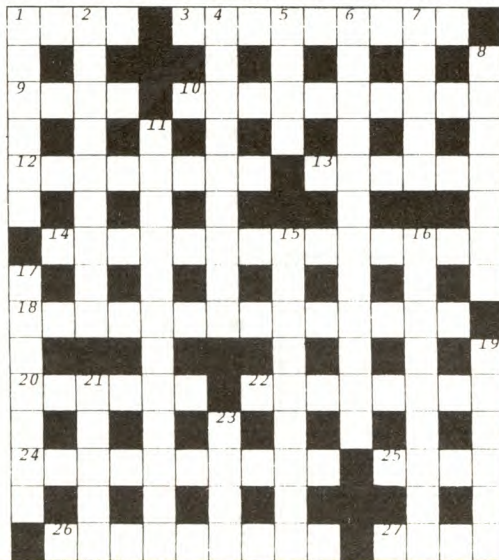
Please send your completed grid and your full name and department or address to the Flightpath Office, British Aerospace, Broughton, near Chester CH4 0DR.

Name .....

Factory .....

Dept .....

Compiled by Cullen (Use Chambers English Dictionary)



### LAST MONTH'S SOLUTION

ACROSS: 1, Fly off the handle; 9, Long run; 10, Rereads; 11, Omega; 12, Oar; 14, Vroom; 15, Hyssop; 17, Alaska; 18, Rotates; 21, Mirage; 24, Truer; 25, Awe; 27, Porto; 28, Madeira; 29, Barrier; 30, Sir Frank Whittle.  
DOWN: 1, Fall on hard times; 2, Yankees; 3, Farrago; 4, Tango; 5, Error; 6, Arrival; 7, Deacons; 8, Epsom Racecourse; 13, Airflow; 16, Pie; 17, Arm; 19, Thunder; 20, Terrier; 22, Imperii; 23, Airlift; 25, Again; 26, Elbow.

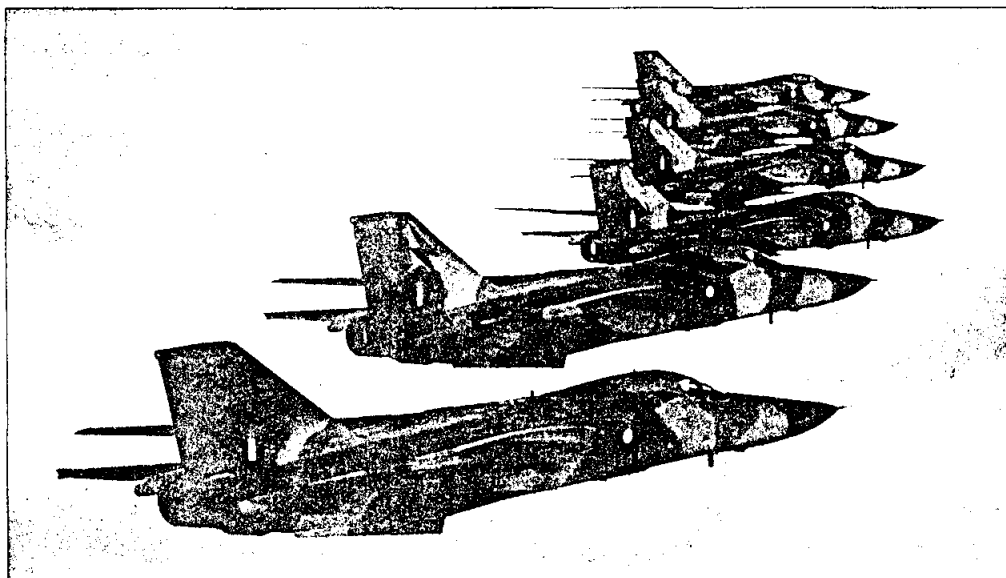
### BY NICK BRITTON PICTURES: DAVID CHARLTON

BELOW: Dave Woolmington (left) Head of Aircraft Servicing Operations at Filton, passes the aircraft into the hands of Pilots Gary Pickett and Wayne McCormack (in cockpit). In the centre is Major David Mason, Head of the USAF detachment responsible for overseeing the re-living of F-111s at Filton.





# F-111C update detailed



The Royal Australian Air Force (RAAF) has disclosed details of the substantial update programme for its F-111Cs (above). Modernisation of Australia's entire F-111 fleet is estimated to total A\$403 million (\$320 million), which includes the A\$210 million awarded on 20 August to Rockwell, winner of the competition for prime contractorship.

The Avionics Update Programme (AUP) will keep Australia's 18 F-111Cs and four RF-111Cs flying beyond 2010, said Air Cdre Ian Whisker, Director General Materiel for the RAAF. The aim behind the AUP is to replace the aircraft's costly and failure-prone 1960s-vintage analogue avionics with digital systems tied to a 1553B databus. "Maintainability and supportability are at the heart of the AUP," Cdre Whisker said.

The RAAF has been aware of the need for an AUP since the mid-1970s, but budget difficulties delayed the final go-ahead.

RAAF analysis revealed that the A\$9.6 million unit cost of the AUP far outweighed options to buy replacement aircraft. The air force calculated that buying Tornados would cost "in the

## AUSTRALIA

vicinity" of A\$70 million per aircraft, while unit cost of the F/A-18, already in RAAF service, was estimated at A\$40 million. "Both these examples are less capable in terms of range and payload," an RAAF report concluded.

The Australian Government's endorsement of the AUP reflects the RAAF's view that the F-111C/RF-111C fleet represents a "unique force in regional terms." Its roles remain unchanged: primarily strike and interdiction for both land and maritime operations.

The AUP was driven by growing problems associated with maintaining F-111C/RF-111C avionics. Without an upgrade the aircraft would have become unsupportable by the mid-1990s, the air force said.

Poor reliability of the RAAF F-111s accounted for a 3.6 hour mean time between failure (MTBF) rate. This will rise to 20.9 hours after the AUP.

The RAAF F-111 update parallels moves by USAF, which is implementing an Avionics Modernisation Programme

(AMP) of its own across selected F-111 marks. USAF's decision to launch its own F-111 AMP upgrade, coupled with a high degree of commonality between the two air forces, was a driving factor behind the go-ahead for the Australian programme.

Key features of the RAAF F-111C are the Pave Tack electro-optic/laser designator and the ability to carry the AGM-84 Harpoon anti-ship missile.

The four RF-111Cs have been deemed a vital strategic asset, representing Australia's only air-

borne reconnaissance capability.

Under the terms of the contract, a prototype AUP F-111C will be modified in the USA and flown in August next year. Australian industry will manufacture 21 modification kits for installation in the remaining aircraft in Australia. The contract will be completed by late 1995.

Principal Australian involvement comes through Hawker de Havilland Victoria, Honeywell Australia, C3, AWA Defence Industries and IBM Australia.

As major overseas supplier, Rockwell International is committed to providing offsets to the tune of 30 per cent of the imported content of the contract price.

Among systems replaced will be the attack radar system (ARS), the terrain following radar (TFR), the navigation and weapon aiming system and the HF radio.

Additions will include digital flight controls, a Global Positioning System, secure voice communications and a data transfer system. A new stores management system is required primarily to integrate the Harpoon anti-ship missile with the RF-111C variant.

Contracts worth A\$64 million for modification kits for the General Electric ARS and Texas Instruments TFR were awarded last year.

## VDS/GIAT team up on MBTs

### INDUSTRY

Vickers Defence Systems of the UK and GIAT Industries of France have concluded a joint agreement under which the two companies are to collaborate.

The project areas will include the armour, mobility and firepower aspects of tank technology, the aim being to maintain and strengthen both companies' competitive position in export markets.

Both manufacturers have been competitors in the MBT export

market and this will continue, but in some areas a joint effort will now be possible.

Vickers Defence Systems with the Challenger 2 and GIAT Industries with the Leclerc are competing for the British Army's Chieftain Replacement Programme. Challenger 2 already incorporates some French components in its turret.







