

# The Royal Air Force Benevolent Fund's International Air Tattoo 91



**RAF FAIRFORD  
20-21 JULY**



It is indeed a pleasure to welcome you to the International Air Tattoo (IAT) 91. The men and women of RAF Fairford and the United States Air Forces in Europe are proud that we can support this important RAF Benevolent Fund event again this year. Our support is given, in sincere appreciation, to those RAF members and families who have given so much of their country. This year's theme, 'A Gulf Salute', gives us the opportunity to honour those brave men and women of both our services who fought so valiantly to defend freedom in the Gulf region. I am sure that you will have a wonderful time viewing the many ground and air displays, but more importantly, you will be helping the RAF Benevolent Fund relieve hardship and distress of former and present members of the Royal Air Force. Thank you for attending IAT 91, and we hope that you enjoy your visit to RAF Fairford.

*Tommy C. Graves*

Lt Col Tommy C. GRAVES, USAF Commander



Welcome to the 1991 International Air Tattoo, a very special Air Tattoo for Shell as it reflects a 20 year relationship in support of the Royal Air Force Benevolent Fund, an association of which we are proud.

This year's Tattoo hosts two very significant events, a tribute in the form of a Gulf Salute to all those who took part in the Gulf War, and the 30th Anniversary Meet of the NATO Tiger Association to which the Association has extended invitations to other navy, army and air force squadrons throughout the world.

I am sure that once again the International Air Tattoo will be an undoubted success, thanks to the dedication of the IAT staff and volunteers.

May I take this opportunity of wishing you a most enjoyable day.

*Jerry Tapp*

JERRY TAPP, Aviation Manager, Shell UK Oil



Once again, I am extremely pleased that the Alliance & Leicester Building Society has been able to give active support to the RAF Benevolent Fund and, in particular, to the Gulf Salute at RAF Fairford.

Events in the Gulf over the past year have brought home to us how much Britain and other nations across the globe owe to the Royal Air Force and to the brave men and women who participated in the Gulf War.

I am sure that you will enjoy an exciting day, and that your enjoyment will be enhanced by the knowledge of the support you are giving to serving and past members of the Royal Air Force and to their dependents through the RAF Benevolent Fund.

*Scott Durward*

A S DURWARD, Group Chief Executive, Alliance & Leicester Building Society



# International Air Tattoo 91

# FLYING DISPLAY PROGRAMME



## SATURDAY 20 JULY

1000

**2 Super Stearmans**  
*Cadbury's Crunchie Flying Circus*  
Gloucestershire Airport

**Alpha Jet**  
7 Squadron  
Belgian Air Force

**Hunter GA11**  
FRADU  
RNAS Yeovilton

**4 Pilatus PC-7s**  
*Ecco Display Team*  
Dijon, France

**Wessex HC2**  
No 22 Sqn  
RAF Chivenor

1100

**Tornado F3**  
No 25 Sqn  
RAF Leeming

**Spitfire, Hurricane and Lancaster**  
*Battle of Britain Memorial Flight*, RAF Coningsby

**Hawk T1A**  
No 4 FTS/3 Sqn  
RAF Valley

**7 CASA Aviojets**  
*Team Aguila*  
Spanish AF Display Team

1200

**Super Etendard**  
17F Landvisiau  
French Navy

**2 F-5E Tiger IIs**  
*Tigers*  
11 Sqn  
Swiss Air Force

**P-3C Orion**  
321 Sqn  
Royal Netherlands Navy

**F-16A Fighting Falcon**  
31 Sqn  
Belgian Air Force

**L59 Albatros**  
Czech and Slovak Air Force

1300

**4 Alouette IIs**  
*The Grasshoppers*  
Royal Netherlands Air Force  
Helicopter Display Team

**Jet Provost T5B**  
No 6 FTS/LLADTS  
RAF Finningley

**Gazelle HT2**  
705 NAS, RNAS Culdrose

**Tucano T1**  
No 7 FTS/1 Sqn  
RAF Church Fenton

**Aeritalia/Aermacchi/  
Embraer AMX**  
Reparto Sperimentale Volo  
Italian Air Force

**EF-18 Hornet**  
Ala 15, Spanish Air Force

1400

**Vulcan B2**  
Vulcan Display Flight  
RAF Waddington

**9 Aermacchi MB339s**  
*Il Frecce Tricolori*  
Italian Air Force Aerobatic  
Display Team

**Atlantic**  
21F, Nimes-Garons  
French Navy

**IAT'S GULF SALUTE**

**B-52G Stratofortress**  
97 BMW, USAF  
Eaker AFB, USA

**Tornado GR1**  
TWCU/No 45 Sqn  
RAF Honington

1500

**Nimrod MR2P**  
No 42 Sqn, RAF St Mawgan

**2 F-16C Fighting Falcons**  
86 TFW, USAF  
Ramstein AB, Germany

**Boeing 707**  
Anglo Airlines, Gatwick Airport

**Mirage 2000C**  
EC 2/2, French Air Force

**WC-135B Stratotanker**  
10 ACCS, USAF  
RAF Mildenhall

**A-10A Thunderbolt II**  
81 TFW, USAF  
RAF Bentwaters

1600

**F-4G Phantom & F-16C  
Fighting Falcon**  
52 TFW, USAF  
Spangdahlem AB, Germany

**F-15C Eagle**  
36 TFW, USAF (Tigers)  
Bitburg AB, Germany

**MC-130 Hercules**  
7 SOS, USAF  
Rhein-Main AB, Germany

**End of Gulf Salute**

**6 Hunter F58s**  
*Patrouille Suisse*  
Swiss Air Force  
Display Team

**F-16A Fighting Falcon**  
322/323 Sqn  
Royal Netherlands Air Force

1700

**RAF Falcons**  
Parachute Display Team  
RAF Brize Norton

**4 Phantom FGR2s**  
No 74 Sqn (Tigers)  
RAF Wattisham

**Harrier GR5**  
No 233 OCU  
RAF Wittering

**DH98 Mosquito**  
British Aerospace  
Chester

**MiG-29 Fulcrum**  
11th Fighter Regt  
Czech and Slovak Air Force

1800

**9 Hawk T1As**  
*The Red Arrows*  
RAF Aerobatic Team  
RAF Scampton

## SUNDAY 21 JULY

1000

**9 MB339s**  
*Il Frecce Tricolori*  
Italian Air Force Aerobatic  
Display Team

**2 Super Stearmans**  
*Cadbury's Crunchie Flying Circus*  
Gloucestershire Airport

**Alpha Jet**  
7 Squadron  
Belgian Air Force

**Hunter GA11**  
FRADU  
RNAS Yeovilton

1100

**Tornado F3**  
No 25 Sqn  
RAF Leeming

**Hawk T1A**  
No 4 FTS/3 Sqn  
RAF Valley

**Spitfire, Hurricane and Lancaster**  
*Battle of Britain Memorial Flight*  
RAF Coningsby

**RAF Falcons**  
Parachute Display Team  
RAF Brize Norton

**EF-18 Hornet**  
Ala 15  
Spanish Air Force

1200

**7 CASA Aviojets**  
*Team Aguila*  
Spanish Air Force Display  
Team

**Super Etendard**  
17F Landvisiau  
French Navy

**P-3C Orion**  
321 Sqn  
Royal Netherlands Navy

**F-16A Fighting Falcon**  
31 Sqn  
Belgian Air Force

**L59 Albatros**  
Czech and Slovak Air Force

1300

**4 Alouette IIs**  
*The Grasshoppers*  
Royal Netherlands Air Force  
Helicopter Display Team

**Jet Provost T5B**  
No 6 FTS/LLADTS  
RAF Finningley

**Gazelle HT2**  
705 NAS  
RNAS Culdrose

**Tucano T1**  
No 7 FTS/1 Sqn  
RAF Church Fenton

**Aeritalia/Aermacchi/  
Embraer AMX**  
Reparto Sperimentale Volo  
Italian Air Force

**Vulcan B2**  
Vulcan Display Flight  
RAF Waddington

1400

**9 Alpha Jet**  
*Patrouille de France*  
French Air Force Aerobatic  
Team

**Atlantic**  
21F, Nimes-Garons  
French Navy

**IAT'S GULF SALUTE**

**B-52G Stratofortress**  
97 BMW, USAF  
Eaker AFB, USA

**Tornado GR1**  
TWCU/No 45 Sqn  
RAF Honington

**Nimrod MR2P**  
No 42 Sqn  
RAF St Mawgan

1500

**2 F-16C Fighting Falcons**  
86 TFW, USAF  
Ramstein AB, Germany

**Boeing 707**  
Anglo Airlines  
London (Gatwick) Airport

**Mirage 2000C**  
EC 2/2  
French Air Force

**A-10A Thunderbolt II**  
81 TFW, USAF  
RAF Bentwaters

**WC-135B Stratotanker**  
10 ACCS, USAF  
RAF Mildenhall

**F-4G Phantom & F-16C  
Fighting Falcon**  
52 TFW, USAF  
Spangdahlem AB, Germany

**MC-130 Hercules**  
7 SOS, USAF  
Rhein-Main AB, Germany

1600

**F-15C Eagle**  
36 TFW, USAF (Tigers)  
Bitburg AB, Germany

**End of Gulf Salute**

**6 Hunter F58s**  
*Patrouille Suisse*  
Swiss Air Force Display Team

**F-16A Fighting Falcon**  
322/323 Sqn  
Royal Netherlands Air Force

**4 Phantom FGR2s**  
74 Sqn (Tigers)  
RAF Wattisham

1700

**Harrier GR5**  
No 233 OCU  
RAF Wittering

**Wessex HC2**  
No 22 Sqn  
RAF Chivenor

**2 F-5E Tiger IIs**  
*Tigers*  
11 Sqn  
Swiss Air Force

**DH98 Mosquito**  
British Aerospace  
Chester

**MiG-29 Fulcrum**  
11th Fighter Regt  
Czech and Slovak Air Force

1800

**9 Hawk T1As**  
*The Red Arrows*  
RAF Aerobatic Team  
RAF Scampton

The Organisers cannot be held responsible for any alterations in the Programme through circumstances beyond their control. Any such alterations will be notified via the Public Address system.



# STATIC AIRCRAFT ON DISPLAY

It is hoped that many of the following aircraft will be on view in the static displays on the south side of the airfield. Aircraft parked on the northern aprons can be viewed from the Photobus only.



## GULF SALUTE

**ROYAL AIR FORCE**  
BAe125 CC2  
Buccaneer S2B  
Chinook HC1  
Hercules C1/C3  
Jaguar GR1A  
Nimrod MR2P  
Phantom FGR2  
Puma HC1  
Tornado GR1/GR1A  
Tornado F3  
VC10 K2/3  
Victor K2

**CANADIAN FORCES**  
CF-18 Hornet

**FRENCH AIR FORCE**  
Mirage 2000C

**FRENCH ARMY**  
SA342 Gazelle

**ITALIAN AIR FORCE**  
Tornado IDS

**ROYAL NEW ZEALAND AIR FORCE**  
C-130H Hercules

**USAF - EUROPE**  
A-10A Thunderbolt II  
HC-130 Hercules  
F-4G Phantom  
F-15C Eagle  
F-16C Fighting Falcon  
F-111E/F Aardvark  
EF-111A Raven

**USAF - AIR NATIONAL GUARD**  
KC-135E

**USAF - MILITARY AIRLIFT COMMAND**  
C-5B Galaxy  
C-130 Hercules  
C-141B Starlifter

**USAF RESERVE**  
KC-135E

**USAF - STRATEGIC AIR COMMAND**  
B-52H Stratofortress  
KC-10A Extender  
KC-135A/R Stratotanker  
Lockheed TR-1A

**US MARINE CORPS**  
KC-130T Hercules

**US NAVY**  
EA-3B Skywarrior  
EP-3E Orion  
KC-130F Hercules  
P-3C Orion

## TIGER MEET

**ROYAL AIR FORCE**  
Canberra T4  
Jaguar GR1A  
Phantom FGR2  
Puma HC1  
Tornado F3  
Tornado GR1A  
Harrier GR3

**ROYAL NAVY**  
Sea King HAS6

**BELGIAN AIR FORCE**  
F-16 Fighting Falcon

**CANADIAN FORCES**  
CF-18 Hornet

**CZECH AND SLOVAK AIR FORCE**  
MiG-29 Fulcrum

**FRENCH AIR FORCE**  
AS.555 Ecureuil 2  
Magister  
Mirage 2000C  
Mirage F1C

**GERMAN AIR FORCE**  
Alpha Jet  
RF-4E Phantom  
Tornado

**ITALIAN AIR FORCE**  
F-104ASA Starfighter  
Tornado IDS

**PORTUGUESE AIR FORCE**  
Fiat G-91R  
Fiat G-91T

**ROYAL NETHERLANDS AIR FORCE**  
F-16 Fighting Falcon

**ROYAL NORWEGIAN AIR FORCE**  
F-5A Freedom Fighter  
F-5B Freedom Fighter

**SPANISH AIR FORCE**  
EF-18 Hornet  
Mirage F1

**SWISS AIR FORCE**  
F-5E Tiger II

**TURKISH AIR FORCE**  
F-104 Starfighter  
TF-104 Starfighter

**USAF - EUROPE**  
F-15C Eagle  
F-111E Aardvark

**USAF - AIR NATIONAL GUARD**  
F-16A Fighting Falcon

## HAWKER HUNTER 40TH ANNIVERSARY

Hunter T7 - Inst of Aviation Medicine  
Hunter T7 - ETPS  
Hunter T7 - No 12 Sqn, RAF  
Hunter F58 - Swiss AF

## STATIC DISPLAY

**ROYAL AIR FORCE**  
Andover E3  
Bulldog T1  
Chipmunk T10  
Dominie T1  
Hawk T1/T1A  
Jet Provost T5A  
Jetstream T1  
Sentry AEW1  
Tornado F3  
Tristar KC1  
Tucano T1

**ROYAL NAVY**  
Jetstream T2

**MINISTRY OF DEFENCE (PROCUREMENT EXECUTIVE)**  
Andover C1  
Basset  
BAC 1-11  
Canberra  
Comet 4C  
Gazelle HT3  
Harvard T2B  
Hawk T1  
Jaguar T2  
Jet Provost T5  
Lynx AH7  
Meteor D16  
Navajo Chieftain  
Scout AH1  
Sea King 4  
Tornado GR1

**CANADIAN FORCES**  
CT-133 Silver Star  
CH-136 Kiowa  
CP-140 Aurora

**CZECH AND SLOVAK AIR FORCE**  
Antonov An-12  
L59 Albatros  
MiG-23 Flanker  
Tupolev Tu-134

**FRENCH AIR FORCE**  
Xingu

**FRENCH NAVY**  
Atlantic II  
Etendard IVM  
Super Frelon

**GERMAN AIR FORCE**  
Antonov An-26  
Canberra B2  
F-4F Phantom  
Transall  
UH-1D Iroquois

**GERMAN ARMY**  
UH-1D Iroquois  
Sikorsky CH-53G  
MBB Bo 105M

**GERMAN NAVY**  
Atlantic  
Lynx Mk 88  
Tornado

**ITALIAN AIR FORCE**  
Aeritalia G222

**NATO**  
E-3A AWACS

**PORTUGUESE AIR FORCE**  
A-7P Corsair  
TA-7P Corsair  
CASA 212EW

**ROYAL AUSTRALIAN AIR FORCE**  
Boeing B707  
C-130E Hercules

**ROYAL DANISH AIR FORCE**  
F-16A Fighting Falcon

**ROYAL NETHERLANDS AIR FORCE**  
Alouette III  
MBB Bo 105CB  
F-16A Fighting Falcon

**ROYAL NORWEGIAN AIR FORCE**  
F-16A Fighting Falcon  
F-16B Fighting Falcon

**ROYAL OMANI AIR FORCE**  
BAC 1-11

**SPANISH AIR FORCE**  
Aviatech CN235  
CASA 212

**SWISS AIR FORCE**  
Vampire T55

**USAF - AIR NATIONAL GUARD**  
A-7 Corsair  
C-130A Hercules  
EC-130E Hercules  
KC-135E Stratotanker

**USAF - EUROPE**  
C-130E Hercules  
EC-135H Stratotanker  
F-16C Fighting Falcon

**USAF - MILITARY AIRLIFT COMMAND**  
C-9A Nightingale  
UH-1N Huey

**USAF - HQ USEUCOM**  
Beech C-12  
C-21 Learjet  
UH-1H Huey

**USAF RESERVE**  
C-130B Hercules  
HC-130P Hercules

**USAF - STRATEGIC AIR COMMAND**  
Rockwell B-1B

**USAF - TACTICAL AIR COMMAND**  
F-15C Eagle

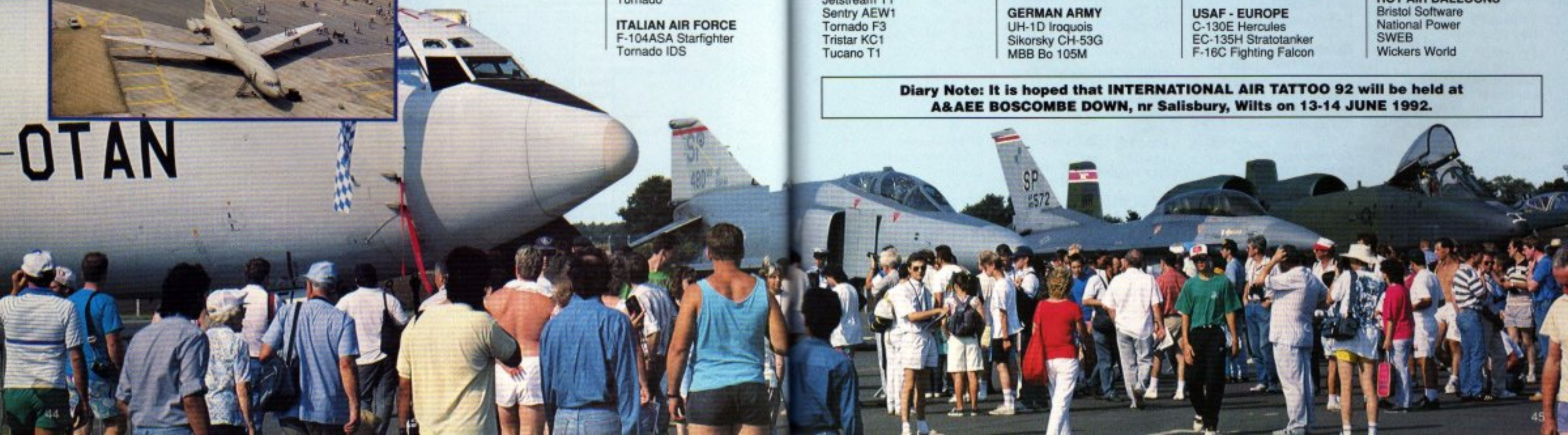
**US NAVY**  
P-3C Orion

**CIVILIAN**  
BAe 125 (GEC Ferranti)  
Boeing Stearman (Vic Norman)  
Boeing 727 (Sovereign)  
Cessna 182/210  
(Homeguard RDAF)  
Cessna 340 (B Stocker)  
Cessna 414 (Atlantic Reconnaissance)  
Dassault Falcon 20  
(FR Aviation)  
DH104 Sea Devon (W Gentle)  
DH104 Dove (RSJ Aviation)  
DH82A Tiger Moth (J Norris)  
Douglas DC-3 (Atlantic Reconnaissance)  
Douglas DC-6 (Atlantic Reconnaissance)  
Ilyushin IL-18 (B-Air)  
Pilatus PC-7 (ITPS)  
Piper PA-31 Navajo  
(Homeguard RDAF)  
Robinson R-22 (Sloane)  
Swearingen Metro II (NLR)  
Taylorcraft F21 (John Waller)

**HOT AIR BALLOONS**  
Bristol Software  
National Power  
SWEB  
Wickers World

**Diary Note: It is hoped that INTERNATIONAL AIR TATTOO 92 will be held at A&AEE BOSCOMBE DOWN, nr Salisbury, Wilts on 13-14 JUNE 1992.**

OTAN





# GULF Salute



Hunter T7 XL564 flies with the Empire Test Pilots School

## HUNTER

40 YEARS AND GOING STRONG

Sue J Bushell

It's hard to believe that the Hawker Hunter, arguably Sir Sydney Camm's most elegant design, celebrates its 40th birthday this month. Once a world airspeed record holder and one of the British aircraft industry's finest export successes, the Hunter still has a place in today's Royal Air Force, performing an important task. It is used for the initial operational training of Buccaneer pilots at RAF Lossiemouth and, as no Buccaneer trainers exist, it will continue performing this usual duty as long as the Buccaneer remains in service.

Although the International Air Tattoo cannot boast a line-up as spectacular as

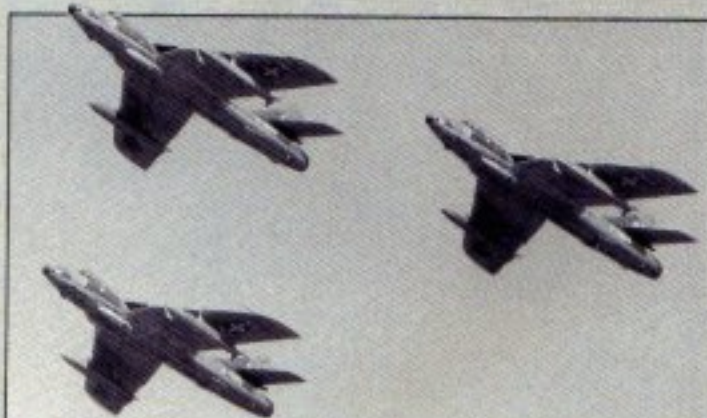
that in 1976, when 25 aircraft assembled for the 25th anniversary, it has managed to locate and bring to RAF Fairford an interesting selection of Hunters. There are examples from the Swiss Air Force, the *Patrouille Suisse* aerobatic team, which will take part in the flying display each afternoon. Switzerland has been a major Hunter user for the past three decades, having bought over 150 aircraft.

The Ministry of Defence is responsible for other Hunters on display. The type is used by the Royal Aerospace Establishment and the Aeroplane and Armament Experimental Establishment for a variety of duties,

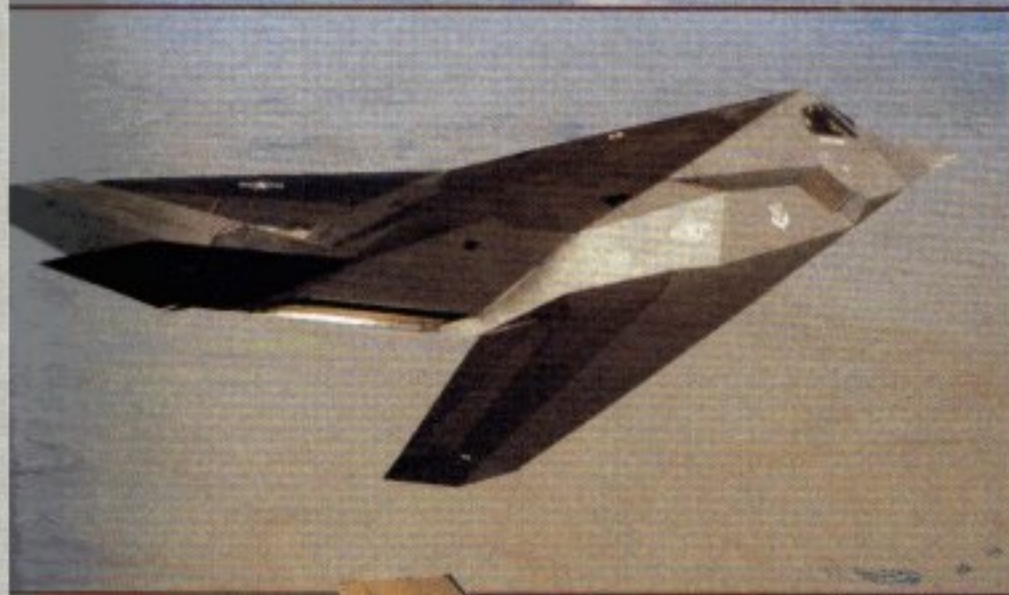
including testing, acting as photographic aircraft and participating in Royal Air Force exercises throughout the year.

The Royal Navy continues to use the Hunter at RNAS Yeovilton where No 899 Squadron, the Sea Harrier training unit has a pair of specially modified aircraft. The Fleet Requirements and Direction Unit, also at Yeovilton, flies single-seat GA11s and two-seat T7/8s as 'target' aircraft.

As the Hunter enters its fifth decade, the aircraft that first flew in 1951 and took part in the Suez campaign in 1956, is still making an important contribution and will continue to do so for some years to come.



Above left: The Royal Navy continues to fly Hunters like this GA11 with FRADU at Yeovilton. Above right: The 'Patrouille Suisse' will be performing at this year's IAT. Below: The prototype Hunter WB188, first flown 40 years ago.



Shortly before midnight on Wednesday 16 January 1991, the first of a wave of singleton F-117A 'Stealth' fighters released its 2,000lb laser-guided bombs against a key communication facility in Baghdad. Shortly afterwards, large Allied air power 'force packages' - which had been forming up outside enemy radar cover - broke through the Iraqi air defences and struck at their targets. It was the start of an air campaign of unprecedented scale and intensity.

The Allied air campaign plan was divided into four distinct phases. Phase 1 - planned to last for seven to ten days - was designed primarily to achieve overall air supremacy and damage Iraqi strategic capabilities. Phase 2 - the suppression of the Iraqi surface-to-air defences within the Kuwait theatre of operations (KTO) - was planned to be brief and lead directly into Phase 3. In this phase the Allies intended to concentrate their attacks against the Iraqi Army in the KTO with the aim of destroying (in just over three weeks) half of its 'battle winning equipment': ie tanks, armoured personnel carriers and artillery. The prime aim of the fourth and final phase was to provide direct support for the Allied land force offensive.

To carry out this plan the Allies had built up a formidable air power force. By 16 January it numbered some 2,430 aircraft based either within the Gulf region or close enough to project air power into it. American air assets dwarfed the contributions made by the Coalition forces. The RAF, the second largest participant, had the following aircraft

Top: Tornado GR1s and Jaguar GR1As provided the RAF's main attack force throughout the air campaign. Middle: The Gulf air war was opened by USAF F-117A 'Stealth' fighter bombers hitting significant Iraqi targets with precision. Above: Veteran Buccaneers provided laser designation for Tornados operating from Bahrain and Muharraq.





Top: All nine VC10 tankers of No 101 Squadron were based in Saudi Arabia, refuelling RAF and Coalition aircraft on missions into Iraq. Middle photos: Puma and Chinook helicopters provided essential support for the Army by day and night. Above left: Hercules C1 seen operating from a desert airstrip in support of the ground forces. Above right: Nick-named the 'Pink Pig', this TriStar K1 played a key role in providing air-to-air refuelling alongside the VC10 and Victor tankers.

involved at the outset: 18 Tornado F3 fighters, 46 Tornado GR1/1A attack and recon aircraft, 12 Jaguar fighter-bombers, nine VC10, six Victor and two TriStar tankers, three Nimrod maritime patrol aircraft, 31 Chinook and Puma support helicopters, one BAe 125 and seven Hercules transports. In addition Hercules, VC10s and TriStar transports brought urgent supplies and personnel from Europe. Not far away a Nimrod R1 reconnaissance aircraft and air defence Phantom FGR2s also participated in the total RAF operation.

The strength of the Allied air forces continued to grow as the campaign progressed, and by the start of the land attack it had reached 2,790. RAF reinforcements during this period included 12 Buccaneers and additional Tornado GR1s.

The Allies launched between 2,000-3,000 sorties a day throughout the conflict; on average one Allied bombing sortie took

place every minute of every day. By the start of the land battle the Allied Air Forces had mounted nearly 100,000 sorties and achieved outstanding success. The Iraqi Air Force had been swept from the sky, its integrated surface-to-air defence system had been crippled and its surviving aircraft had fled either to Iran or been dispersed in woods and villages around their air bases. Much of Iraq's strategic installations – nuclear, chemical and biological weapon plants, oil refineries and power generation facilities, transport infrastructure and high command and control centres – lay in ruins.

In the field, the Iraqi Army had been grievously wounded. Physical losses included 1,560 tanks, 1,508 artillery pieces and 1,210 armoured personnel carriers, representing respectively 37%, 49% and 42% of these equipment categories deployed within the KTO. Of no less importance, were the consequential effects of dislocation and demoralisation. Battered day and night from the air, cut off

from much of its supplies and with its command and control in shreds, the Iraqi Army was reduced to a collection of isolated and dispirited units which in many cases were eager to surrender. The subsequent 100-hour so-called 'Ground War' was in reality a highly integrated land-air operation in which the air and land forces operated together as equal partners providing each other with mutual support and mutual opportunities.

When the ceasefire came into effect on 3 March, the Allied Air Forces had flown 110,000 sorties. Of these the RAF flew over 6,100, the largest number flown by any nation except the US and more than two and a half times that flown by our French friends. Some 88,500 tons of bombs were dropped, of which some 7,400 tons were precision-guided.

The effects were quite literally devastating. Nearly 350 of Iraq's combat aircraft (50% of its total) had been either destroyed or driven into exile. Half of



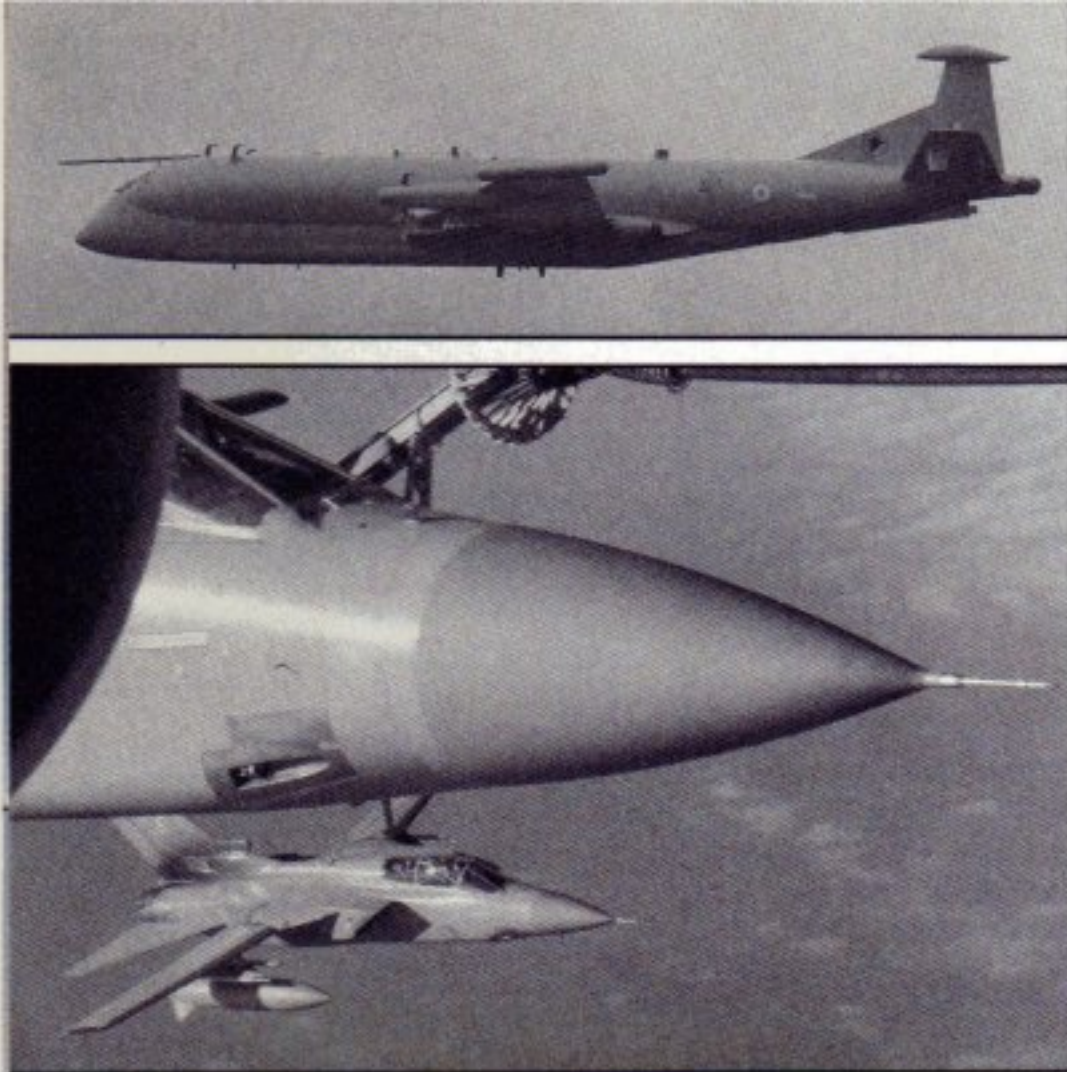
Below: F-15E Strike Eagles saw their operational debuts in the air war, forming a key component of the USAF's air power.



Top: Fairford based B-52 Stratofortress bombers hit at targets in Iraq and Kuwait. Above: The US Army's AH-64 Apache proved to be an efficient battlefield helicopter, destroying Iraqi armour with its missiles.







Top: This Nimrod R1 of No 51 Squadron flew in the Gulf theatre on electronic information gathering missions. Above: The squadron of Tornado F3s based at Dhahran flew combat air patrols throughout the conflict but did not encounter any Iraqi aircraft.

Iraq's airfields needed major repairs to their operating surfaces, while a further number were damaged to lesser degrees; some 64% of Iraq's hardened aircraft shelters suffered major damage. Iraqi nuclear, biological and chemical weapon production plants and the country's electrical generation capacity had been all but destroyed, and a wide range of other strategic facilities had suffered varying degrees of damage.

Within the KTO, Iraqi losses included 43 divisions (69% of those deployed), 3,700 tanks (87%), 2,400 armoured personnel carriers (84%), 2,600 artillery pieces (84%), 14 warships (87%) and 11 auxiliary vessels (40%). Human costs remain difficult to assess; the Iraqis may have suffered 100,000 casualties, with a further 100,000 plus being taken prisoner. Allied combat losses were less than 500. By any standards it was a decisive victory.

Like every war in history, the Gulf War will probably prove to be unique. It is highly unlikely that the same type of conflict will ever be exactly repeated. The Gulf War was – as General McPeak the US Air Force Chief of Staff pointed out – “the first time in history that a field army had been defeated by air power”. Here at IAT91 we salute all the men and women of the Coalition Forces who brought about that significant achievement with the presentation of representative aircraft from the participating air arms.

A detailed account of the **AIR WAR IN THE GULF** has been published in an RAF Yearbook Special on sale here at RAF Fairford, price £2.95.

# BATTLE OF BRITAIN

# AUCTION

Want to buy a MiG-21PF? . . . That was one of the questions which you would have been asked at the Royal Air Force Benevolent Fund's Gala Auction Evening at RAF Bentley Priory on 13th September last! Five hundred ticket holders and guests enjoyed a virtuoso performance from Michael Bentine, who then assisted by auctioning the first item, an RFC brooch. To round off a splendid occasion, supper was served to musical accompaniment provided by a Royal Air Force Central Band Ensemble.

Following the Fund's most successful worldwide appeal for WW2 and aeronautical memorabilia and other saleable items of interest during the summer, Phillips, the Fine Art Valuers and Auctioneers, put together two catalogues for September. Some 600 individual donors provided over 1,000 items producing 300 lots. The second Auction was held in Phillips' own Sale Rooms at 101 New Bond Street on 21st September.

The collection notched up, not only one, but in fact two MiG-21s, one from the Czechoslovakian Air Force and the second from the people of Hungary. In addition, a 1911 Bleriot XI, various propellers and Spitfire parts, RFC and RAF memorabilia were offered, along with medals, uniforms, jewellery, porcelain, silverware and pictures.

Christopher Hawkings, the Deputy Chairman of Phillips, conducted both sales and he and his staff at Phillips very kindly gave their full range of professional services free for the benefit of the Fund. The Fund would also like to pay tribute to the work of the personnel of the Royal Air Force Career Offices, who took in the donations from the general public, and Securicor, who delivered countless packages to London at no cost. To date, as a result of the Auctions, the Fund has benefitted to the sum of over £200,000.

So many people have given so generously to the Auction Appeal; many items arrived after the closing date for the Sale Catalogues and, in fact, items are still



The two MiG-21s donated to the auction by the Hungarian Air Force (top) and the Czechoslovak Air Force (above).

arriving. It is therefore the intention to hold a third Battle of Britain Auction Sale later in the year. Among the lots on offer will be a Trabant motor car from the DDR, a piece of the Berlin Wall, many pictures, posters, a considerable amount of memorabilia, and yes . . . a two-seater Vampire T55 aeroplane, presented to the Royal Air Force by the Swiss Air Force and Anti-Aircraft Command and passed to the Fund for auction.

The Auction office at the Fund's International Air Tattoo premises at RAF Fairford is still open and will be pleased to answer enquiries and receive any further donations.

Contact Peter Hanglin, IAT Auction Co-ordinator, Building 1108, RAF Fairford, Cirencester, Glos GL7 4DL. Telephone (0285) 713300, Fax (0285) 713268.



Michael Bentine examines an item presented for sale at the Battle of Britain Auction.

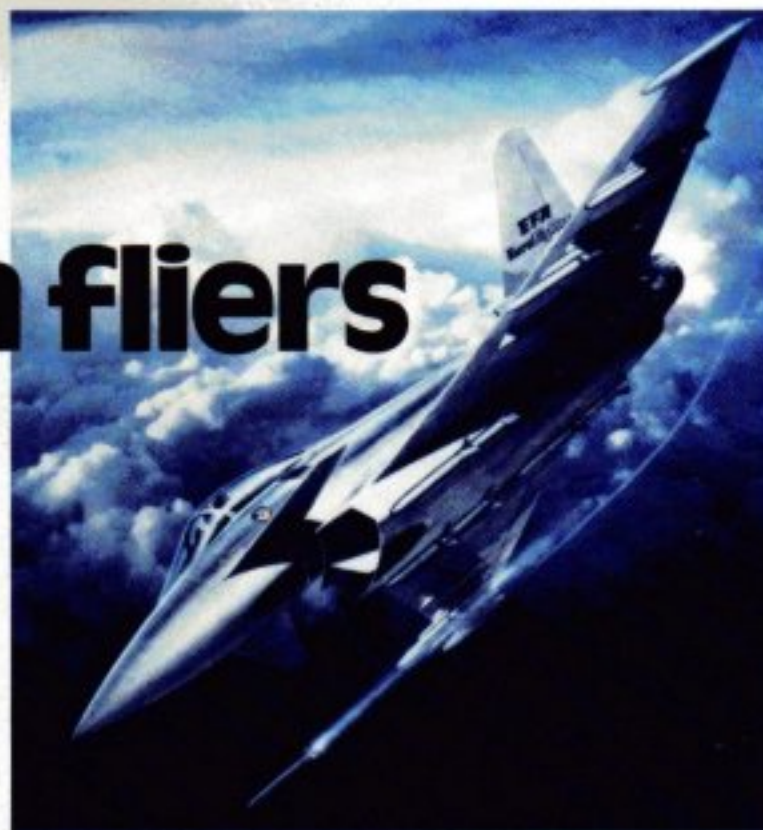
Below left: A Trabant motor car from the DDR, to be auctioned later in the year. Below: The Swiss Air Force Vampire T55.



**Normalair-Garrett is an established aerospace and defence company of international repute and a leader in environmental control and life support systems**

# We're high fliers too!

- Specialist suppliers of rugged electronic data recorders, data acquisition and management systems
- Heat transfer components
- Hydraulic solenoid and servo control valves
- Comprehensive customer and product support service



## Normalair-Garrett Limited

Yeovil · Somerset · England · Tel: 0935-75181 · Fax: 0935-27600

Normalair-Garrett is a Westland Technologies Company. A member of Westland Group plc



# Bufs

*in action*

Arnold Edwards



The 806th Bombardment Wing (Provisional), Strategic Air Command performed operations out of RAF Fairford from 1 February to 5 March 1991. During this period, the wing's performance directly advanced US national interests as part of a United Nations (UN) Coalition force brought together to liberate Kuwait from Iraqi aggression as part of Operation Desert Storm. Flying B-52G Stratofortresses from RAF Fairford, the wing accomplished 60 highly effective combat sorties, dropping 1,158 tons of munitions against strategic and tactical targets in Iraq and the Kuwait Theatre of Operations (KTO).

The success of the 806th BMW (Provisional) began with an 8th Air Force warning order dated 1 February 1991 tasking the 97th Bombardment Wing, Eaker AFB, Kansas to deploy to Royal Air Force Fairford, England. Wing personnel formed the core of the new provisional bombardment wing with a mission to conduct conventional bombing operations. A total of eight B-52Gs were sourced and ferried from Griffiss AFB, New York; Wurtsmith AFB, Michigan; Castle AFB, California; and Barksdale AFB, Louisiana to RAF Fairford. Additionally 26 KC-135, eight KC-10s, 15 C-9s and two C-130 aircraft plus a Civil Reserve Air Fleet (CRAF) L-1011 TriStar transported 370 tons of equipment and over 1,100 personnel from 20 different bases throughout the Continental United States

and Europe. This combined force was designated as the 806th BMW(P) on 5 February 1991.

The task of finding a home for all equipment and personnel moved quickly and smoothly. Equipment was downloaded and sorted out to go to various locations on the station and arriving personnel found billeting in such unlikely places as the gymnasium, maintenance hangars and work stations. To provide longer term housing, 75 portable cabins were set up along with 16 latrines and shower units. The diverse staff quickly became an operational team to integrate efforts towards mission accomplishment.

Daily target tasking was received from CENTAF in Riyadh, Saudi Arabia. The entire staff worked extensive hours to provide the aircrews with a quality product (i.e. target weaponeering, target routes, axis of attack, flight plans, bomb forms, bombing coordinates, etc). Maintenance hustled to provide the aircrews with the same high quality airframes and weapons. Munitions began arriving on day two and 2,500 tons of CRUs, Mk 82s and M117s were stockpiled and ready to go. After much hard work, long hours, superb coordination and teamwork, the 806th was ready to fight on 8 February 1991, only four days after arrival in the UK. The first sorties were launched on 9 February 1991. Over the next 19 days, 60 combat sorties were successfully completed involving 975.7hr

of total flying time, an average of 16.3hr per sortie. The 806th BMW(P) B-52s unloaded 13.2 million pounds of fuel during approximately 120 hours of air-to-air refuelling from KC-135 tankers from the 807th AREFS(P), Mont de Marsan, France and the 803rd AREFS(P) at Athens-Hellinon, Greece. The fuel enabled the crews to deliver over 1,158 tons of munitions on the assigned targets. Battle Damage Assessment (BDA) reports and imagery received graphically portrayed a high degree of success for missions flown by the 806th's *Bufs*.

Strong maintenance support was crucial to achieving these exceptional results. Using the concept of Integrated Combat Turns (ICT), the 806th Consolidated Aircraft Maintenance Squadron (CAMS) significantly reduced aircraft 'turn around' times from an average of five and a half hours to a record time of an hour and 28 minutes. Overall, the 806th BMW(P) accomplished the extraordinary task of moving 1,157 people and 370 tons of equipment into a base which was in caretaker status and then rapidly moulding personnel and material into a cohesive, well-disciplined and highly effective combat unit. The actions taken to successfully initiate and conduct offensive bombing operations directly contributed to the swift conclusion of the Iraqi campaign.

The reception received from the local British people was overwhelming. The

outpouring of support and hospitality helped to make the long days much more bearable. Many people welcomed us into their homes and treated us as if we were one of the family. The super reception we received from the British people and the Ministry of Defence helped us greatly in achieving the combat readiness we needed to accomplish our mission. We cannot thank the British people enough for the outstanding support they gave us.

## B-52 STATISTICS

### OPERATIONS

It is estimated that SAC B-52s were responsible for nearly half of the 55,000 tons of bombs dropped by coalition forces during Desert Storm.

- During one three-day period in January 1991, 76 B-52 sorties dropped 1,240 tons of explosives on the Republican Guard.
- B-52s were used to attack Scud targets and on several occasions secondary explosions were sighted.
- One B-52 was lost during Desert Storm combat operations, not due to hostile fire, over the Indian Ocean on 2 February 1991. Three of the six crew members were subsequently rescued.

### BASES

Every B-52 base in the US deployed aircraft and aircrew to Operation Desert Storm: Barksdale, Carswell, Castle, Eaker, Fairchild, Loring, Minot, K I Sawyer and Wurtsmith.



B-52Gs of the 806th Bombardment Wing flew a total of 60 combat sorties over Iraq and Kuwait whilst deployed to RAF Fairford. Photographs Jeremy Flack/API



# TIGERS' ANNIVERSARY



Main picture: A participant at the 1987 Tiger Meet was this specially painted Portuguese AF Fiat G91 of Esquadra 301.



Dassault Super Mystere of EC 1/12 French AF at Tiger Meet '77.



Canadian Forces CF-104 of 439 Squadron at Tiger Meet '77.



The 79th TFS, a founder member of the Tiger Association, operates F-111Es.

Tiger Meet 91, the theme of international Air Tattoo 91 (IAT 91) commemorates the 30th Anniversary of the NATO Tiger Association. The first Tiger Meet in 1961 was a response to a request by the French Minister of Defence in 1960 for a closer relationship and co-operation between the military units of France and the nations of the NATO Alliance.

### NATO TIGER ASSOCIATION

The 79th Tactical Fighter Squadron, United States Air Force, which proudly displays a tiger emblem in the squadron badge, had already established a firm bond of

friendship with No 74 (Tiger) Squadron of the Royal Air Force in the 1950s. Inspired by the tiger badge and mindful of the great tiger hunting parties of earlier generations in India and elsewhere, 79th TFS, with the support of the Commander, United States Forces in Europe, invited Escuadron de Chasse 1/12 of the French Air Force, to Woodbridge in Suffolk where the three squadrons held a one-day Tiger Meet in June 1961. By the end of 1961, eight tiger squadrons had become members of the Association.

The NATO Tiger Association is now well established and continues to thrive with enthusiastic multi-national membership of

squadrons operating a wide range of both rotary and fixed wing aircraft and with diverse operational roles. Nevertheless, all are united by a common emblem – the tiger – a symbol of strength, determination and efficiency. Their unique association creates a bond of friendship and co-operation, encourages the exchange of professional knowledge and experience and develops a spirit of unity and pride.

### TIGER MEET

Tiger Meets are hosted annually by each squadron in turn. In 1990, representatives of 13 squadrons from air arms in nine countries were welcomed by the 79th TFS, based at Upper Heyford in Oxfordshire. A typical programme for a Meet includes tactical exercises, mission planning, mutual briefings and discussion on the various operational roles and environments of participating units. A concours d'elegance gives each squadron an opportunity to display its aircraft and it is not unusual for the aircraft to be presented in some form of tiger livery.

Social activities are an important feature of a Meet and provide opportunities for

more informal discussions, friendly rivalry and exchanges of souvenirs and badges.

### TIGER MEET 91

At this time of political change and new found freedom in many countries of the world, it is appropriate to seek to extend the principles of the Tiger Association beyond the bounds of NATO. When agreeing that their Tiger Meet in 1991 should be held at IAT 91, the Association also unanimously accepted a proposal to offer honorary membership during this Meet commemorating their 30th anniversary to other naval, army and air force squadrons throughout the world which show a tiger in the unit badge or have some other 'big cat' connection. Accordingly, worldwide enquiries have been made to ensure that all eligible units are aware of this unique offer at Tiger Meet 91.

The Tiger Association has a special enclosure throughout IAT 91 – the Tigers' Lair – in a prominent position adjacent to the dedicated Tiger Meet aircraft line-up. These aircraft, many in Tiger livery, are a distinctive feature of the main static aircraft display and crew members will be

at their aircraft to meet the public.

At the time of writing, over 70 aircraft from 16 countries are expected in the Tiger Meet display. Of particular interest is the MiG-29 Fulcrum aircraft flown in by the Tiger Squadron of the Czechoslovakian Air Force, which can be seen in front of the Tigers' Lair.

### PROGRAMME

The aircraft for Tiger Meet 91 arrived at RAF Fairford on Wednesday 17 July. Some 300 air and groundcrew personnel have been involved in preparing their aircraft for display and taking part in the various events in the Tiger Meet programme. These included a 'Meet and Greet' reception and briefing on arrival and a full day symposium entitled 'The Changing World'.

The next day was spent on ground competitions in which teams of three were required to complete tasks appropriate to ground and air aspects of the operation of aircraft. At the same time, an international panel of judges was assessing the standard of preparation and presentation of the aircraft for the Concours d'Elegance.



74 Squadron, RAF



79th TFS, USAF



1/12 Squadron, French AF



439 Squadron, Canadian Forces



No 74 Squadron Lightning F1A.



The final activity was the formal Tiger Meet 30th Anniversary Dinner followed by the presentation of the competition trophies. The trophies which are retained by the winners are:

- Cheltenham Park Hotel Trophy** – The crew which travelled the greatest distance to attend
  - Ian Allan Trophy** – Best aircraft recognition
  - Peugeot Trophy** – Best ground exercise by a UK entry
  - Thorn EMI Trophy** – Best ground exercise by an overseas entry
  - Rolls-Royce Trophy** – Skill at Arms
  - Rolls-Royce Trophy** – Overall winner – ground competition
  - Lockheed Trophy** – Special Mention – Concours d'Elegance (Fixed Wing)
  - Sloane Helicopters Trophy** – Special Mention – Concours d'Elegance (Rotary Wing)
  - Page Aerospace Trophy** – Winner – Concours d'Elegance
- The **Graviner Spirit of the Meet Trophy** is a perpetual trophy held by the winner for two years which is awarded for the most outstanding contribution to the aims and 'Spirit of the Meet' by a crew, group or individual. It was last won during Sea Search 89 by No 37 Squadron, Royal Australian Air Force.

The 26 Tiger Association members are:

- |                |                 |
|----------------|-----------------|
| 816 Squadron   | Australia       |
| 31 Squadron    | Belgium         |
| 439 Squadron   | Canada          |
| 1/12 Squadron  | France          |
| 5/330 Squadron | France          |
| 11 Squadron    | France          |
| 52 Squadron    | Germany         |
| 431 Squadron   | Germany         |
| 335 Squadron   | Greece          |
| 21 Squadron    | Italy           |
| 313 Squadron   | The Netherlands |
| 336 Squadron   | Norway          |
| 301 Squadron   | Portugal        |
| 142 Squadron   | Spain           |
| 11 Squadron    | Switzerland     |
| 192 Squadron   | Turkey          |
| 74 Squadron    | UK              |
| 230 Squadron   | UK              |
| 814 Squadron   | UK              |
| 79th TFS       | USA             |
| 23rd TFW       | USA             |
| 37th BS        | USA             |
| 53rd TFS       | USA             |
| 141st TFS      | USA             |
| 393rd BS       | USA             |
| VP-8           | USA             |

A member of each crew participating in Tiger Meet 91 will be at the aircraft in the Tiger Meet static display and will be pleased to explain the aircraft and the squadron's role and activities to members of the public. Many of the squadrons were involved in the Gulf war and have other aircraft in the 'Gulf Salute' line to the west of the Tiger Meet display. It is regretted that for security reasons members of the public are not permitted to cross the barriers surrounding the aircraft.

All members of the Tiger Association and of the Tiger Meet organising team send greetings and best wishes to everyone attending IAT 91 and hope that all will have an interesting and enjoyable day.

Main picture: Mirage 2000, EC 5/330, French AF.



Below: RF-4E Phantom, 52 AKG, German AF. Bottom: Alpha Jet, 431 Staffel, German AF.



Above: Westland Puma HC1, No 230 Sqn, RAF.



Below: Northrop F-5E, Swiss AF.



Above: F-4J Phantom, No 74 Sqn, RAF. Below: MiG-29, Czechoslovak AF.



230 Squadron, RAF



192 Squadron, Turkish AF



301 Squadron, Portugese AF



142 Squadron, Spanish AF





the F-4 Phantom and F-8 Crusader) came to naught while its first appearance over Vietnam in March 1968 resulted in three of the six aircraft being lost due to fatigue in the tailplane control system. Later, the F-111's problems were progressively overcome and eventually 562 were built, in seven models, including 24 for the Royal Australian Air Force - the only foreign customer for the type. Some examples were constructed for the Royal Air Force as a TSR-2 replacement order for 46 aircraft but this was later cancelled and the completed airframes were used for ground instruction in the United States.

The F-111E with which the 79th TFS is equipped was ordered in FY67 and FY68 and a total of 94 was built, most of which have at some time served with the 20th TFW, the only wing to utilise the variant. Deliveries were completed in May 1971.

The 20th TFW's F-111Es and, since February 1984, the co-located EF-111A Ravens of the 42nd Electronic Countermeasures Squadron (ECS), 66th Electronic Countermeasures Wing (ECW), fly long-range all-weather tactical fighter and electronic combat missions in support of NATO, with operational control passing to the 2nd Allied Tactical Air Force at Rheindahlen in the event of hostilities. Both conventional and nuclear armament can be carried if required to a maximum of 29,000lb, partly inside the capacious bomb bay and partly on eight underwing stores pylons, four of which swivel with the wings. The 79th TFS's F-111Es did not see combat action until January 1991, when they were involved in Operation Desert Storm in January 1991, flying missions over Iraq from bases in Turkey. Recent announcements that Upper Heyford will close as an active base by 1993 could bring to an end a long and distinguished association with the United Kingdom that will by then have lasted for more than 40 years without a break.

in the air and a further 232 on the ground. It had flown more operational flying hours than any other Group within the 8th Air Force. Soon after the close of hostilities the group returned to the United States and in October 1945 it was de-activated for a short time.

More powerful equipment for the 79th arrived in 1948 when the unit became a Fighter Bomber Squadron, equipped with the Republic F-84G Thunderjet, and it was with this type that the squadron returned to Europe on 1 June 1952. The 20th Fighter Bomber Group had been chosen to make up part of the United States Air Forces Europe contingent within NATO, and its headquarters was initially based at RAF Wethersfield, although there was not enough room at that base for all three component squadrons so the 79th became resident at RAF Woodbridge. Here it remained for the next 22 years. The Thunderjet gave way to the F-84F Thunderstreak and thence to the North American F-100 Super Sabre in 1957.

Eventually the elderly Super Sabres were replaced by the new General Dynamics F-111E, the first examples of which arrived on 12 September 1970 at RAF Upper Heyford, to which location the 20th TFW had moved in December 1969. Here, the 79th TFS became the first fully-operational F-111 squadron in the world and continues to fly the type today, having a complement of 18 aircraft.

One of the most controversial aircraft of its time, the variable-geometry F-111 first flew in December 1964 and was originally intended to be all things to all men. Its US Navy career (with which it was to replace

were exchanged for the Bell P-39 Airacobra and by late 1941 and the Japanese attack on Pearl Harbor it was flying the Curtiss P-40 Warhawk. After the entry of the USA into WW2, the 79th was involved in patrols over the San Francisco Bay area, searching for enemy shipping. January 1943 saw another move, this time to March Field (now March AFB), where the 79th, now a Fighter Squadron, began training on the Lockheed P-38 Lightning, and it was with this type that the unit began what would be a long association with Europe. In August of that year the Group was transferred to the 8th Air Force and sent to Kings Cliffe in Northamptonshire, where it was tasked with providing escorts for medium and heavy bombers striking targets in enemy occupied territory. These duties continued until March 1944, when tactics changed slightly and the 79th began to sweep target areas after the departure of the bombers, destroying railway rolling stock - eventually a total of 193 locomotives were obliterated, earning the 79th the title of 'Loco Squadron'.

The 20th Fighter Group's contribution at the D-Day landings in June 1944 was the protection of allied shipping involved in the invasion. When in a period of five days the 79th Fighter Squadron launched 180 sorties per day, providing coverage of the area for 19 hours in each 24. Soon after this, the Lightnings were traded-in for the faster North American P-51 Mustang, and continued to provide air support, this time to the 3rd Army as it advanced in Europe.

By the close of WW2, the 20th Fighter Group had destroyed 211 enemy aircraft

The Tiger Association, formed in 1961 and this year celebrating its 30th anniversary with a static display here at RAF Fairford, brings together units from around the world with one thing in common - a tiger in their insignia. Since 1961 the 20th Tactical Fighter Wing's 79th Tactical Fighter Squadron (TFS) based at RAF Upper Heyford, Oxfordshire, which was instrumental in setting up the association, and is currently one of its 26 members, has participated in Tiger Meets throughout the world. The F-111E operator has hosted the annual assembly of the Tiger Association three times - following the one-day event on 19 July 1961, the 1977 meet (held at Greenham Common due to runway resurfacing work at Upper Heyford) and the small 1990 event.

Today's 79th TFS can trace its history back 73 years to February 1918 when, as the 79th Aero Service Squadron, it was activated for aerial gunnery support flying the Curtiss Jenny. At the close of WW1 it was de-activated but re-appeared again in October 1927 when it was chosen to become a reconnaissance unit. However, it did not receive any aircraft before again being re-designated, this time as the 79th Pursuit Squadron, part of the 20th Pursuit Group, in May 1929. It has remained part of this group ever since, along with the 55th and 77th Pursuit Squadrons (now TFS). When it was activated in April 1933 the 79th flew the Boeing P-12 Peashooter and continued to use the type until 1938, flying from Barksdale Field in Louisiana.

The 79th moved with the Group to Hamilton Field in California to re-equip with the Boeing P-26 in 1938. Later, these



Sue J Bushell

# AMERICAN TIGERS



Top: The first F-111Es for the 79th TFS arrive at Upper Heyford in September 1970. Above: 79th TFS F-111E on a bombing sortie.





One of the three founder members of the Tiger Association is the RAF's No 74 (Fighter) Squadron based at Wattisham, Suffolk flying Phantom FGR2s. Here at IAT91 the squadron will mark the 30th anniversary

of this unique organisation with a formation display in the flying programme.

No 74 Squadron was first formed at Northolt on 1 July 1917 as a Royal Flying Corps training squadron for pilots and observers. In the spring of 1918 due to the German offensive it became an operational unit and went to France on 20 March equipped with 19 SE5a aircraft. Throughout this initial period of active service the squadron distinguished itself with the number of enemy aircraft destroyed and by low level bombing and strafing attacks against the enemy frontline. For the aggressive spirit displayed by its pilots the squadron was nicknamed "Tiger Squadron".

On its return to England in July 1919 No 74 Squadron was disbanded. Some 16 years later, on 1 September 1935, it was reformed and accorded the Tiger's head in the squadron badge, with the motto "I fear no man". Now flying Hawker Demons No 74(F) Squadron was sent to Malta during the Abyssinian crisis, returning to England during August 1936. Over the next three years a number of different types of aircraft were operated - Gladiators and Gauntlets being replaced by the Supermarine Spitfire I in February 1939.

The squadron was in action over

Dunkirk in May 1940 and through the Battle of Britain. Spitfire IIAs were introduced in September 1940 followed by the Mk VB in May 1941 and the Spitfire IX in October 1943, as it operated around Britain and from June 1942 in the Middle East. Many famous pilots and aces, including Stephens, Mungo-Park and "Sailor" Malan flew with No 74 Squadron.

Returning to the UK in April 1944 it was engaged in fighter-bomber missions over Normandy, the Netherlands and into Germany until just before the end of the war when it re-equipped with Gloster Meteors at Colerne, moving to Horsham St Faith a year later. In March 1957 No 74's Meteor F8s were replaced by Hunter F4s which were flown until July 1960 when the squadron was selected to be the first unit to receive the Lightning F1 single seat all-weather fighter which was operated from Coltishall.

In 1961 the squadron became a founding member of the NATO Tiger Association, and at this time flew an aerobatic display team with its aircraft emblazoned with the tiger's badge. Three years later, now flying the Lightning F3, it moved north to Leuchars, Scotland. In November 1966 the Lightning F6 replaced the earlier mark in

No 74 Squadron operated Lightnings (below) until 1971. Re-formed in 1974 with F-4J(UK) Phantoms, it recently re-equipped with Phantom FGR2s (bottom and inset).



# RAF TIGER SQUADRON

readiness for deployment to RAF Tengah, Singapore, where No 74 was to remain until August 1971.

No 74(F) Squadron was re-formed again in October 1984, at RAF Wattisham, equipped with former US Navy F-4J(UK) Phantoms; ostensibly as a temporary measure following the Falklands War. These were withdrawn in December 1990 and replaced by surplus Phantom FGR2s, with which the squadron today provides a commitment to UK air defence.



# CANADIAN TIGERS

Very noticeable in the Tiger Meet line up and featuring in the Gulf Salute and Static Aircraft display lines are the CF-18 Hornets from 439 Tactical Fighter Squadron, Canadian Forces Base Baden-Soellingen, Germany.

No 439 Squadron first arrived in England at Bournemouth in December 1943 as the overseas successor to 123 Army Cooperation Training Squadron. After a short stay at Wellingore, the Squadron moved to Ayr, Scotland in January 1944 (it was in Ayr that 439 joined 143 Wing of the Royal Canadian Air Force). Three months later the Tigers moved to Hurn, on the south coast of England. Throughout these deployments, 439 carried out operational training in the ground attack role on Hurricane IVs and Typhoons.

The Squadron carried out pre D-Day operations from Hurn and Funtington. On June 27 they moved across the Channel to Lantheuil, France. During the Battle of Normandy the Squadron flew 1,065 sorties on Typhoons in support of the ground forces. Later on in the war, 439 saw a series of deployments to: St André de l'Eure (France), Amiens (France), Meisbroek (Belgium), Eindhoven (Holland), Goch (Germany), Celle (Germany) and

Flensburg (Germany). The Squadron finally returned to England on 22 August 1945 and was officially disbanded. In all twelve Squadron pilots had won DFCs.

439 Squadron was reactivated in 1951 at Uplands Air Force Base in Ottawa, Canada. Only one year was spent flying the new CF-86 Sabre Mk II in preparation for an overseas deployment. In May 1952 the Ferry operation, dubbed *Leap Frog I*, saw 439 move to North Luffenham, England. Three years later the Squadron took its new Sabre Mk Vs to Marville, France - their newest home. Mk Vs replaced their predecessors one year later and were used until the squadron was deactivated in 1963.

439 Squadron was not in retirement for long. In March 1964, again in Marville, the Tigers acquired the new CF-104 Starfighter. Working in conjunction with other NATO forces, 439 flew the reconnaissance/attack role. The squadron remained at Marville until March 1967, at

which time it moved to Lahr, West Germany. In July 1970, 439 moved to Baden-Soellingen, West Germany and assumed the role of ground attack in July 1972.

November 29, 1984 signified the end of an era for 439 Squadron as it ceased operations with Starfighters. During the following year the Tigers converted to the CF-18 Hornet at 410 Operational Training Squadron at CFB Cold Lake, Alberta. On November 29, 1985 439 reformed at CFB Baden-Soellingen as part of Canada's contribution to NATO in Europe. The Squadron is presently employed in both the air-to-air and air-to-ground roles.

The squadron, augmented by the Lynx squadron, deployed to Qatar in December 1990 to take part in the Gulf War. The *Desert Cats* distinguished themselves in the versatility and combat effectiveness, never missing a single mission. The squadron flew bomber escort, Gulf fleet defence and ground attack missions.





The Czechoslovak Air Force (Ceskoslovenske Vojenske Letectvo) was created by enthusiasts within a few days of the founding of an independent Czechoslovak Free State on 28 October 1918. This day is celebrated every year as a state holiday. The new state emerged from the Bohemian, Moravian and Slovakian regions of the former Austro-Hungarian monarchy which was disbanded in the final stages of WW1. The Czech language has existed since the Bohemian Kingdom back in the middle ages when the crowned lion was selected for the state coat of arms. Later the double cross on triple hill was added for Slovakia.

After 1918, the young Czechoslovak Air

Force, with its main task of maintaining state and airspace sovereignty, was armed with a wide variety of different types of aircraft, mainly of Austro-Hungarian, German, French and Russian origin. The first three Czech aircraft factories in Prague began work in 1919-1920. They were: The Military factory for Aircraft, later named Letov Letnany, Aero and Avia. Forthcoming Czech aircraft designs were both biplanes and monoplanes, mostly powered by Walter, Avia and Skoda engines and armed with Czech guns and bombs. In the early 1920s the first President of Czechoslovakia, Professor Thomas Garrigue Masaryk, founded the annual Aviation Speed Race. The Masaryk

Aviation League (MLL) was established in 1926 as a paramilitary organisation to educate the Czech Youth in aviation.

The first three Aviation Regiments were established in the late 1920s and early 1930s and these had famous names. The 1st Letecký pluk (Lp) T G Masaryka was based at Kbely airfield on the outskirts of Prague. The 2nd Lp Edvarda Benese was based at Olomouc City in Moravia (Dr E Benese was the first Czech Foreign Minister and subsequently became President). The 3rd Lp M R Stafanika was established at Nitra City in Central Slovakia (General Stafanika was the first Czech Minister of Defence but was killed in an Italian air crash near Bratislava City on 4 May 1919).

Currently the 3rd Air (School) Regiment is based at the Slovakian Spa Piestany; the 2nd Aviation School (or elementary training is located at Kosice, where the hub of the Aviation Military Academy is centred, and the 1st Aviation School Fighter Regiment is based at Pnerov in Moravia.

All three Lps report to VVLS Kosice.

The high standards of military pilot training were well illustrated in the 1920s and '30s, when Czech aerobatic pilots took part in international aerobatic competitions throughout Europe, particularly at the Berlin Olympic Games of 1936 and the Curych Air Meet in 1937.

After the Munich Crisis of September 1938 a large part of Czechoslovakia was annexed by the Nazis and on 15 March 1939 the rest of Bohemia and Moravia was occupied by Germany. However, many Czech airmen escaped, mainly through Poland to France, joining with the Allies to fight against the Nazis. Later a considerable number reached Britain to join the Royal Air Force.

On 10 July 1940 the first Czechoslovak Squadron, No 310 was formed at RAF Duxford as a fighter unit with Hurricane Is and became operational on 18 August 1940 and took part in the Battle of Britain. It was re-equipped with Hurricane IIAs in March 1941, moving on to Spitfire IIAs in

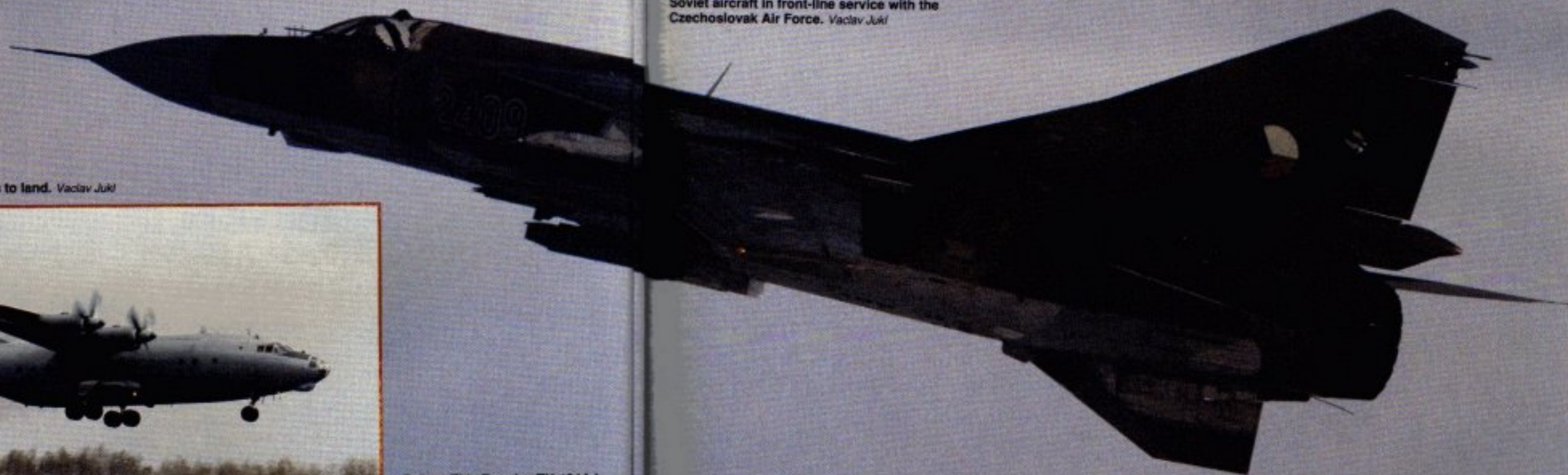
October. It progressed through Mk VB/VCs (Nov 1941-Aug 1944), VIs (Jul-Sep 1943) and IXs (Jan 1944-Feb 1946). Its bases ranged from Cornwall to Scotland and as part of the 2nd Tactical Air Force supported the Normandy landings. No 310 Squadron flew to Czechoslovakia in August 1945 and was disbanded as an RAF squadron in February 1946.

No 312 Squadron was formed at RAF Duxford on 29 August with Czechoslovak personnel. Equipped with Hurricane Is it was sent to Liverpool-Speke to defend Merseyside, but returned south, to Kenley, in May 1941 for defensive operations. Flying Hurricane IIBs from May 1941 to December 1942, Spitfire VB/VCs until Feb 1944 and Mk IXs for the remainder of its RAF service, the squadron had a similar wartime history to No 310 Squadron.

The third Czech fighter squadron, No 313 Squadron was formed at RAF Catterick on 10 May 1941. Equipped throughout the war with Spitfires (Mks I,IIA,VB,VC,VI,VII and IX) it moved to

# CZECHOSLOVAK AIR FORCE

Pavel Tye



Main picture: The MiG-23 is one of many Soviet aircraft in front-line service with the Czechoslovak Air Force. Vaclav Jukl

Antonov An-12 heavy transport on finals to land. Vaclav Jukl



Below: This Tupolev TU-134A is used for long-range and VIP transport. Vaclav Jukl



Below: Sukhoi Su-26K Frogfoot, single-seat ground-attack aircraft, in service with the Czechoslovak Air Force. Vaclav Jukl





Cornwall in August to fly defensive patrols and sweeps over France. Like the other two squadrons it had numerous bases in south-east England and as far afield as the Orkneys before departing to Prague on 24 August 1945 before being disbanded the following February.

In contrast to the foregoing, No 311 Squadron was formed at RAF Honington on 29 July 1940 as a Czechoslovak-manned heavy bomber unit. Equipped with Wellington IAs and ICs it took part in night raids until transferred to Coastal Command in April 1942 for the next three years. Its Wellingtons were replaced by Liberator Vs in July 1943 and VIs from March 1945, being based at Beaulieu, Hants. Predannack, Cornwall and Tain in N. Scotland during this time. No 311's Liberators were switched to Transport Command in August 1945 and were used for flights to Prague until it was disbanded on 15 February 1946. No 68 Night Fighter Squadron had a flight of Czech aircrew when it operated with Beaufighters from Catterick, High Ercall and Coltishall.

In February 1944, 20 Czechoslovak flyers departed from the UK for Russia. On 17 September 1944, 21 fighters of the 1st Fighter Regiment in USSR landed at a grass airfield at Zolna, located in central Slovakia behind enemy lines for combat support for the Slovak National uprising. More than 560 combat missions were undertaken by ex-RAF and Slovak AF pilots up to 25 October 1944 when the unit was temporarily withdrawn.

In April 1945 the 1st Fighter Regiment Zvolensky and 3rd Attack Regiment Ostravsky were at full strength and involved in the Battle of Ostrava-Opava in Northern Moravia-Silesia Gate. A total of 567 combat missions were flown by Czech pilots as part of 2,589 missions by the 8th Soviet Air Army. During WW2 over 600 Czech airmen were killed on operations in the West and East for the freedom of Czechoslovakia.

In the liberated city of Kosice, on 5 April



Spitfire VC in the markings of No 310 Squadron. Peter R March

1945, the government announced plans to rebuild Czechoslovakia following the end of WW2. In February 1948 the Communists came to power resulting in the Czech Air Force being extensively equipped with Soviet weapons, adopting orders of battle and operating procedures. Many Czech ex-RAF veterans suffered as a consequence of the Communist regime.

New jet fighters, including the MiG-15, MiG-15UTI, MiG-15bis, MiG-19s and MiG-21F were manufactured under licence by Letov, Aero Vodochody and Let Kunovice. The latter two manufacturers have, since 1961, been involved in the production of the Aero L-29 Delfin primary and basic jet trainer, powered by the Czech Walter-Motorlet M-701 engine. A total of 3,568 L-29s were built. Its successor, the Aero L-

39 Albatross, is currently being produced by Aero Vodochody together with the L-39MS and L-59. The development of the Czech jet trainers was initiated at the Military Flight Test Centre, which stems from the old Science Institute which was founded by the Czech AF in the 1920s.

The Velvet Valkyrian V-Revolution of 17 November 1989 was a marker for a new future for the Czech and Slovak people and all those connected with that event. From the military point of view the milestone was disbanding the military structure of the Warsaw Pact organisation on 31 March 1991 after 36 years of continuous existence - it was only six years younger than NATO. The challenges for the future are great as we emerge into a new era.

# DISPLAY AIRCRAFT



Dassault Mirage 2000C - French Air Force



Aeritalia Aermacchi/Embraer AMX



Boeing WC-135B Stratotanker - USAF

An advanced and operational trainer, the Czech built Aero L-39 has been built in large numbers by Aero Vodochody. Mel James





Lockheed P-3C Orion – Royal Netherlands Navy



Boeing B-52G Stratofortress – USAF



Avro Lancaster – Battle of Britain Memorial Flight



Avro Vulcan B2 – Vulcan Display Flight



McDonnell Douglas F-15C Eagle – USAF



Dassault Super Etendard – French Navy



Panavia Tornado F3 – RAF



HS Nimrod MR2P – RAF



General Dynamics F-16A Fighting Falcon – Belgian Air Force



BAe Hawk T1A – RAF



Fairchild A-10A Thunderbolt II – USAF



De Havilland Mosquito – British Aerospace



Jet Provost T5B – RAF



Westland Wessex HC2 – RAF



BAe Harrier GR5 – RAF



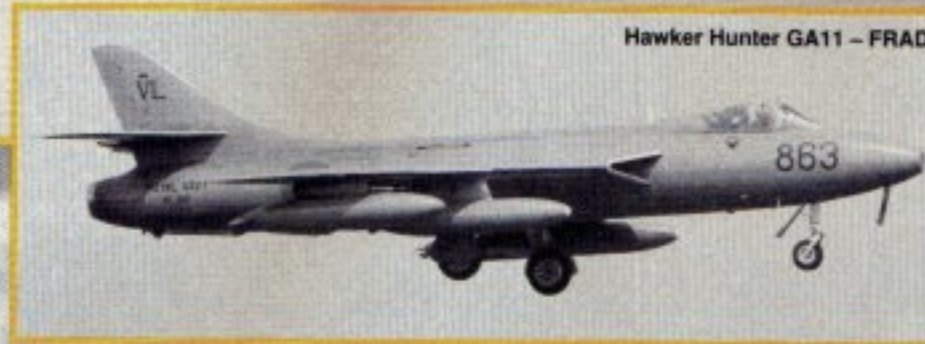
Breguet Atlantic – French Navy



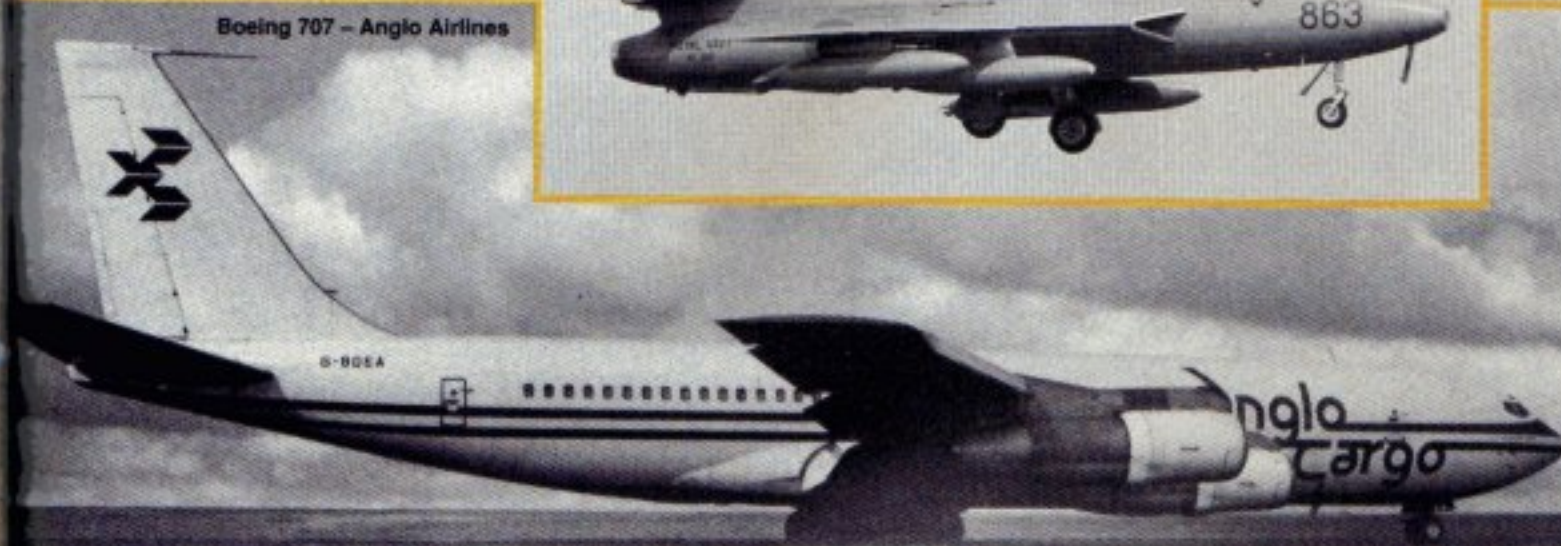
Dornier Alpha Jet – Belgian Air Force



Hawker Hunter GA11 – FRADU



Boeing 707 – Anglo Airlines





# CZECHOSLOVAK AIR FORCE ON DISPLAY



Above: MiG-29 from the 11th SLP, 3rd Air Defence Division, 7th Air Army, Zatec. Vaclav Jukl



MiG-29 display pilot Vaclav Vasek. Vaclav Jukl



Above: Aero L39 ZA Albatros. Vaclav Jukl

# TORNADO F3 ON DISPLAY

The RAF's display Tornado F3 is presented by a new 'team' for 1991. The pilot is Flight Lieutenant Archie Neill with Flight Lieutenant Jim Brown as navigator, coming from No 25 (Fighter) Squadron at RAF Leeming.

Flight Lieutenant Archie Neill, aged 30 and married with one son, was educated at Ross High School in East Lothian before going on to study mathematics at Edinburgh University. It was there that he received his first taste of service flying on the Bulldogs of the University Air Squadron.

Archie joined the RAF in 1983, and after training became a first tour Qualified Flying Instructor on the Hawk T1 at No 4 FTS RAF Valley, gaining over 1100 hours on type. In 1989 he completed his operational conversion onto the Tornado F3 and went on to join No 25 (Fighter) Squadron at RAF Leeming where he is currently serving a three-year tour. This is Archie's first season as the F3 display pilot.

In his spare time Archie enjoys walking in the moors and dales of North Yorkshire, or knocking a ball around the local golf course. He also plays squash, is a keen skier and, when in the mood for something less energetic, tries his hand at painting in oils, mainly specialising in aviation art.

Aged 29, Flight Lieutenant Jim Brown was educated at Central Grammar School in Birmingham and joined the RAF in 1983. Jim's first operational tour was on the Tornado GR1 with No 16 Squadron at RAF Laarbruch, Germany.

Jim made the conversion from ground attack to air defence in 1988 and on completion of the Tornado F3 operational

conversion course joined No 25(F) Squadron at RAF Leeming. This is his first season as the Tornado F3 display navigator.

No 25 Squadron formed in 1915 flying fighter reconnaissance patrols over the

Western Front. In the inter-war years, flying Hawker Furies, the squadron achieved fame with a spectacular display of tied-together aerobatics at Hendon. Just prior to WW2 it became the first ever squadron to be equipped with air interception radar, and went on to fly night fighter and intruder missions with Beaufighter and Mosquitos. In the post war years the squadron converted to jet aircraft flying Vampires, Meteors and then Javelins carrying air-to-air missiles for the first time. The squadron then spent some time as a Bloodhound missile unit before re-equipping in 1989 with Tornado F3s at Leeming where it now serves in the air defence role.

Left: Flt Lt Archie Neill (right) with Flt Lt Jim Brown as navigator.





# AEROBATIC TEAMS



Patrouille de France – French Air Force



Team ECCO – Dijon, France



The Falcons – RAF Parachute Display Team



Cadbury's Crunchie Flying Circus



The Grasshoppers – Royal Netherlands Air Force

The Red Arrows – RAF







Team Aguila - Spanish Air Force



Below and right: Patrouille Suisse - Swiss Air Force



# International Air Tattoo 1991 AWARDS



At IAT 91, participants in the flying display on Sunday 21 July will be eligible for one of the following awards:

## SIR DOUGLAS BADER TROPHY

*Presented by SHELL UK OIL for the best overall flying demonstration.*

Shell UK Oil's perpetual trophy, presented in memory of Sir Douglas Bader (President of IAT from 1976 to 1982), will be awarded at the International Air Tattoo for the best overall flying demonstration. The Trophy will be presented to the pilot or team leader who, in the opinion of the Judges, gives the best overall flying demonstration on Sunday 21 July.

All participants, excluding aerobatic teams of more than six aircraft, and solo jet demonstrations that qualify for the Superkings Solo Jet Trophy, will be eligible for the Sir Douglas Bader Trophy.

Participants will be assessed by the Judges on the presentation of their aircraft, the orientation of the display and accuracy of each manoeuvre.

**The Sir Douglas Bader Trophy was won at IAT 89 by Lieutenant Colonel Giovanni Ammoniaci of the Italian Air Force flying an Aeritalia G222.**



## SUPERDRUG INTERNATIONAL DISPLAY SWORD

*Presented by SUPERDRUG STORES PLC for the best flying demonstration by an overseas participant.*

Superdrug Stores Plc will present a Wilkinson Crusader Sword to the pilot/team leader who, in the opinion of the Judges, gives the best flying demonstration by an overseas participant on Sunday 21 July.

All overseas participants will be eligible for this award and will be judged, as before, on the presentation of their aircraft, the orientation of display and accuracy of each manoeuvre.

**The International Display Sword was won at IAT 89 by the Chilean Air Force Aerobatic Display Team 'The Halcones' flying Pitts Specials.**



## SUPERKINGS SOLO JET AEROBATIC TROPHY

*Presented by IMPERIAL TOBACCO PLC for the best solo jet demonstration.*

Imperial Tobacco Plc generously donated a Solo Jet Trophy in 1972, to be awarded at the International Air Tattoo for the best solo jet demonstration.

All single/two seat jet demonstrations in the flying programme on Sunday 21 July, will be considered for the award of the Superkings Solo Jet Aerobatic Trophy.

Participants will be assessed by the Judges on the same criteria as for the Sir Douglas Bader Trophy.

**The Superkings Solo Jet Aerobatic Trophy was awarded to Flight Lieutenant Simon Meade, RAF of No 2 Tactical Weapons Unit, RAF Chivenor for his display in a Hawk T1A at IAT 89.**

