AIR WARFARE COURSE

THE COLD WAR: TWO SUPERPOWERS

THE COLD WAR

THE COLD WAR
COURSE OBJECTIVES

- **Ensure USAFX Personnel obtain, understand and remember Information of U.S. and Soviet and their allies:**
  - **Major Concepts**
  - **Theories**
  - **Actions**
  - **Type Assets and Aircraft**

  that were used during this period in Air Warfare History.

REFERENCE:

The Encyclopedia of 20th Century Air Warfare

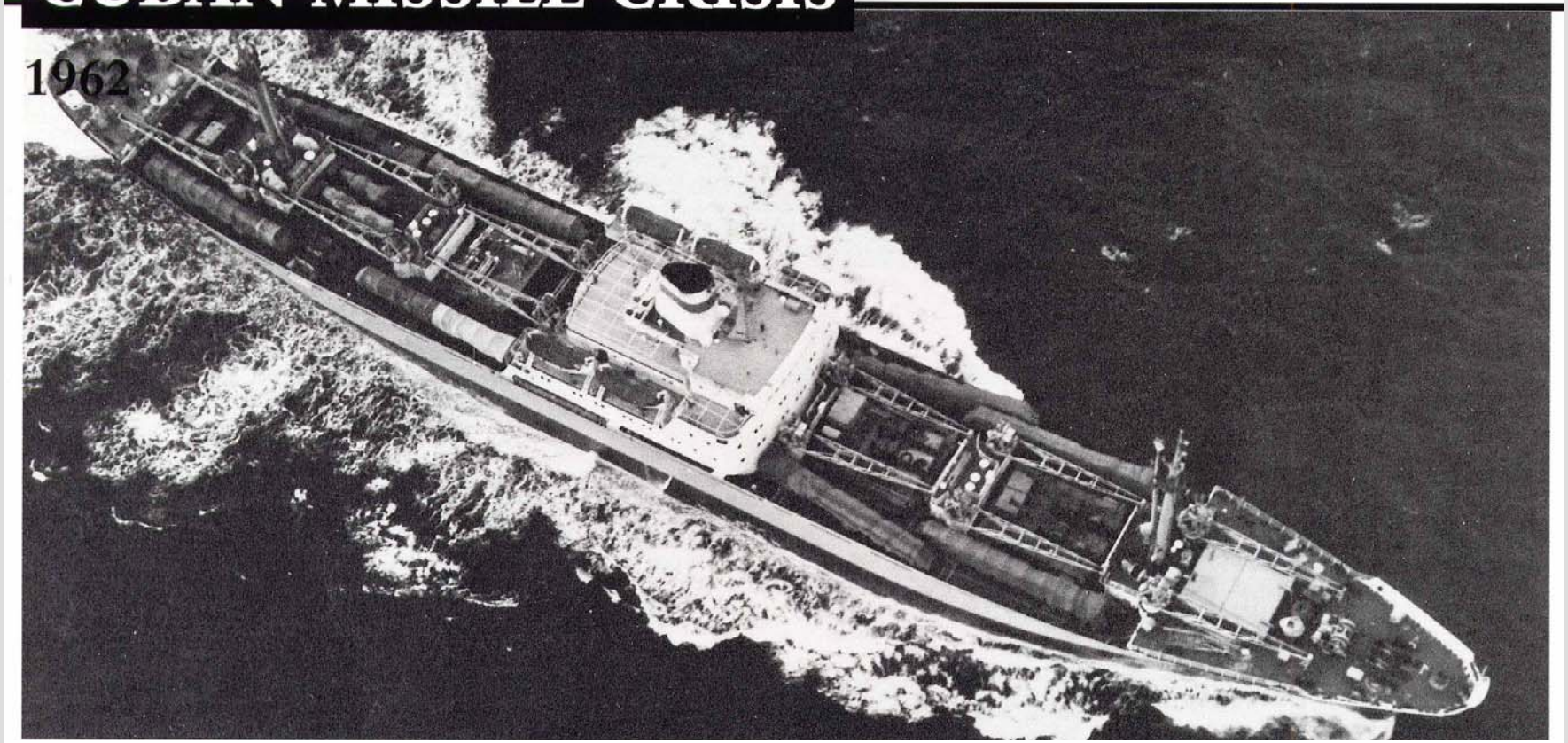
The Cold War

COURSE TOPICS

1. Iron curtain Descends
2. Strategic Air Command
3. Birth of NATO + WARSAW Pact
4. Cold War over the Ocean
5. ELINT, Spies & Ferrets
6. SAC: The B-52 years
7. Britain's V-Force
8. Cold War Air Defences
9. Aerial Intelligence:U-2 Yrs.
10. Cuban Missile Crisis
11. Central Front Confrontation
12. Spies in the Skies
13. Anti-Submarine Warfare
14. SAC's Last Years
15. Last Cold War Defenders
16. Post Soviet Conflicts
17. Yugoslavia Falls Apart
18. Bosnia

CUBAN MISSILE CRISIS

1962



U.S. Navy patrol aircraft kept up a vigil over the waters around Cuba to monitor all vessels and enforce a US-imposed embargo. Here the Soviet ship Anosov is leaving Cuba with eight missile transporters on board at the end of the crisis. The date was 7 November 1962.

THE COLD WAR
10 – CUBAN MISSILE CRISIS

MAIN TOPICS COVERED

1. PRE MISSILE CRISIS
2. MORE RECONNAISSANCE
3. SOVIETS BACK DOWN

CUBAN MISSILE CRISIS

PRE MISSILE CRISIS

- When the two major superpowers came to the brink of nuclear war, it wasn't in Europe, but in America's back yard.
- Corrupt Bastista regime had power (1952-1958).
- Revolutionary movement by exiled Fidel Castro landed at Las Coloradas in Oriente with 81 men & popular support.
- After Bastista fled, Castro quickly aligned itself firmly with the Soviet Union.

Cuba's ageing air force

The Communist state of Cuba was only three years old when the Missile Crisis loomed, and it had not yet received fighters from the Soviet Union. The air force relied on a handful of aircraft which were left over from the days of the Batista regime. Later the island state was the recipient of MiG-17s and MiG-21s from the Soviet Union, posing a further threat to the US dominance over the Caribbean region.

Douglas A-26 Invader

Right: The most potent attack aircraft available to the Cubans in 1962 was the Invader. Several had been operated prior to the revolution, and more had been seized when left behind after the Bay of Pigs fiasco. This post-revolution A-26 wears the FAR (Fuerza Aérea Revolucionara) markings carried post-1959.

Hawker Sea Fury

Left: Cuba had no military jet equipment, and its best defence rested on the Sea Fury. While this type was adequate for fighting against fighters of similar vintage which abounded in the region even in the early 1960s, it was clearly no match for US types.

CUBAN MISSILE CRISIS

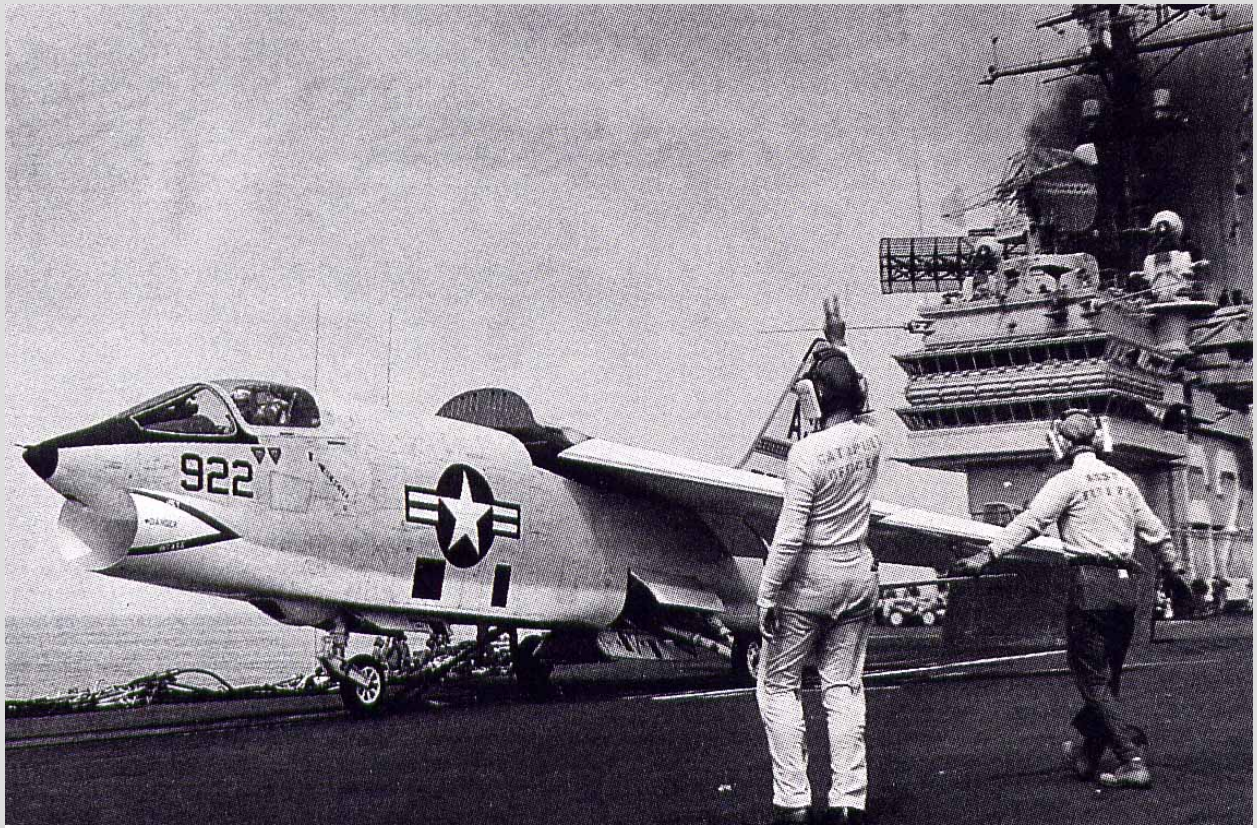
PRE MISSILE CRISIS

- Pres. Kennedy tried a Castro overthrow operation, but was unsuccessful.
- 1,400 Cuban exiles landed at Bahia de Cochinas (The Bay of Pigs) with CIA support on 17 April 1961.
- They had some success, but wound up with 120 dead and 1200 captured.
- This humiliation & tensions over building Berlin Wall, was Kennedy's toughest trial.
- Cuba requested more Soviet arms to protect itself.
- By August 1962, CIA became aware of significant arms shipments & large presence of Soviet Advisors in Cuba.

CUBAN MISSILE CRISIS

MORE RECONNAISSANCE

- CIA U-2 flights stepped up.
- USAF / USN patrols paid special attention to Soviet shipping.
- U-2 Flight – 29 Aug 62, photographed two SA-2 sites on Cuba, w/ six more under construction.
- Soviets used these to protect Strategic Missiles.
- 4 Sep 62 – Kennedy warned Khrushchev that USA would not tolerate offensive weapons in Cuba.
- Khrushchev replied they had no need to place them in Cuba.

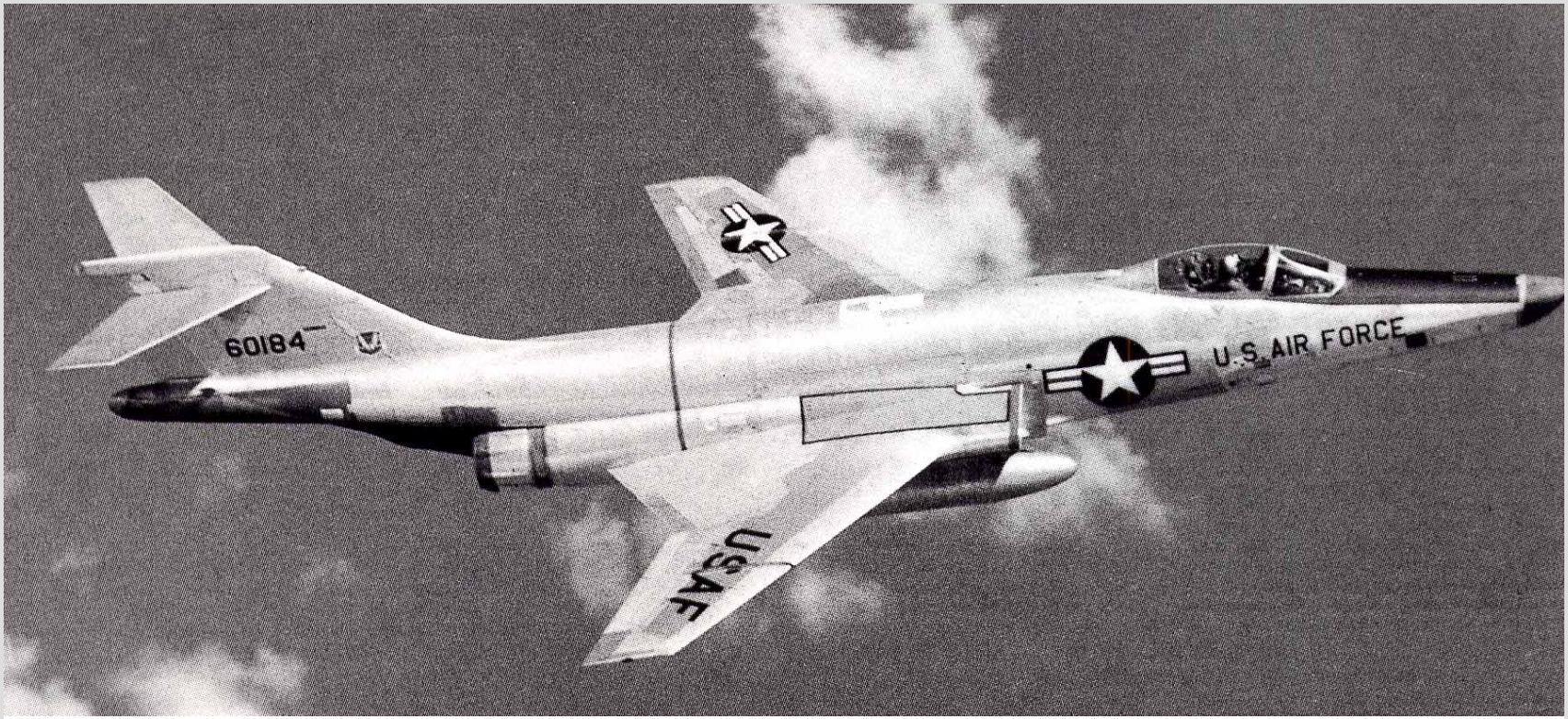


U.S. Navy's contribution to the tactical reconnaissance effort was handled by the Vought RF-8As of VFP-62, although they flew from bases in Florida rather than carrier decks. Marine squadron VMCj-2 also flew photo-Crusaders on missions over Cuba.

CUBAN MISSILE CRISIS

MORE RECONNAISSANCE

- 4 Days later, Lockheed Neptune P-2 photographed the freighter Omsk heading toward Havana carrying with large oblong canisters on its deck.
- The 4080th SRW assuming responsibility for overflights from CIA using U-2E variants with ECM equipment.
- 14 Oct 62, a U-2 in 6 min. took 928 pictures at 2 sites.
- It clearly showed SS-4 'Scandal' medium range missiles in an advanced state of preparation.
- Low-level flights by RF-101 Voodoos (29 TRS), showed more missile sites at Guanajay and Remedios.
- At same time, Soviets were pressuring for removal of 45 Jupiter & 60 Thor IRBM's from Italy, Turkey, and England.



Workhorse of the low-level mission over Cuba was the McDonnell RF-101 Voodoo. Relying on speed and surprise for its defence, it was very successful in maintaining a steady flow of photographs to the US Command.

CUBAN MISSILE CRISIS

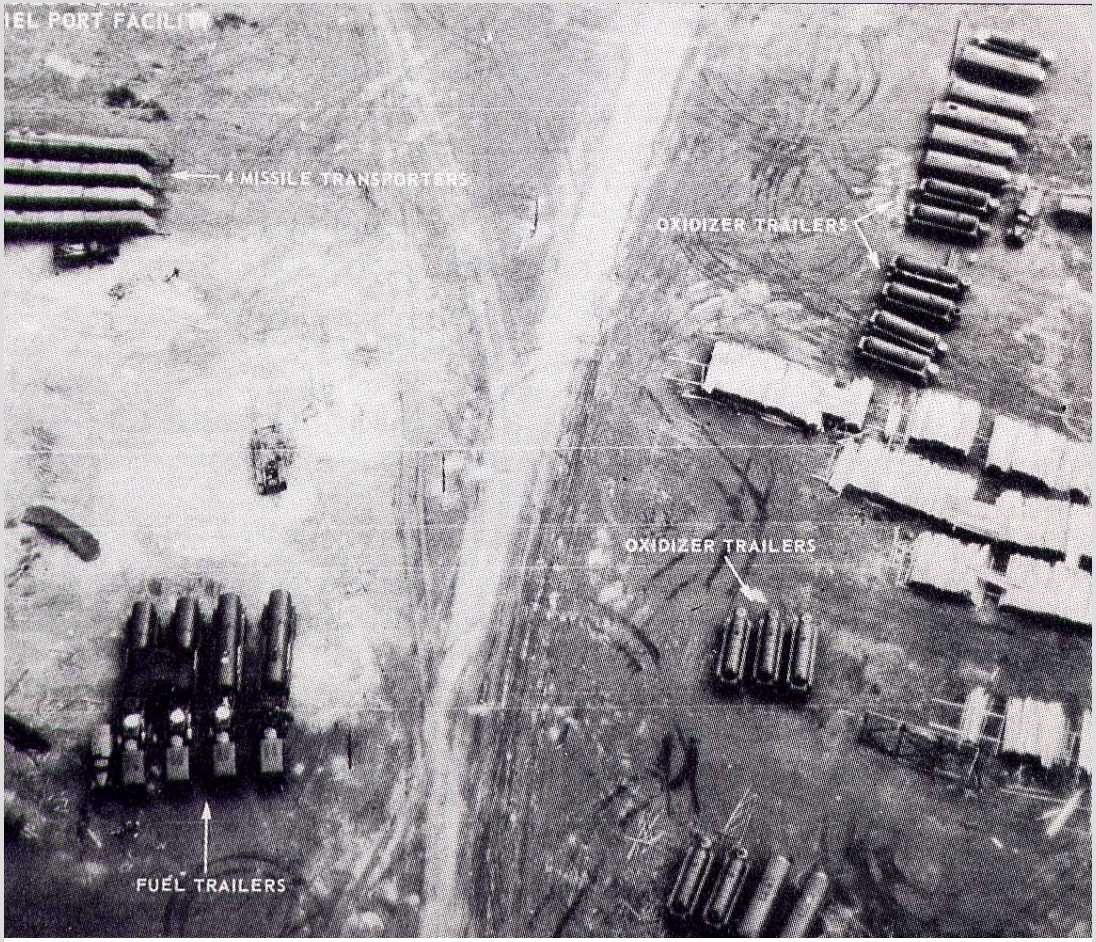
MORE RECONNAISSANCE

- 22 Oct 62:
  - a blockade of Cuba was announced.
  - SAC was put on full alert w/ Bombers dispersed throughout civilian airports.
  - Naval ships raced to enforced blockade.
  - ADC / TAC moved units to Southern Florida.
  - 8,000 more Marines were moved to reinforce Guantanamo.
  - Task Force 135 was established to secure the base with 3 Carrier Groups.

CUBAN MISSILE CRISIS

SOVIETS BACK DOWN

- 26 Oct 62 – Khrushchev wrote to Kennedy accepting terms for removal of offensive weapons, IF American removal of Thors, which Kennedy previously ordered.
- 22 Ilyushin Il-28 bombers were now assembled in San Julian.
- 27 Oct 62 – a Major Anderson was killed by SA-2 overflying naval installation at Banes.
- Soviet ICBM's came to full alert at another U-2 flyover in Siberia.



Shot on 4 November 1962, this picture shows the Mariel port facility, complete with four missiles transporters (top left), four fuel trailers (bottom left) and a series of oxidizer trailers (right). This kind of photography came courtesy of RF-8s or RF-101s working at low level.

CUBAN MISSILE CRISIS

SOVIETS BACK DOWN

- 28 Oct 62 – Crisis ended as Soviets agreed to dismantle missiles under inspection.
- Il-28 bombers were still being assembled and quarantine not lifted until 20 Nov 62.
- 1st aircraft departed Cuba in crates on 15 Dec aboard the Freighter Kasimov.
- 14 Oct – 6 Dec: USAF flew 102 U-2 sorties over Cuba, but low level flights is what attributed to observation of removals.
- Following year the famous Washington – Moscow hotline telephone link was set up. And a test-ban treaty was signed in August 1963. (which started a thaw in relations),

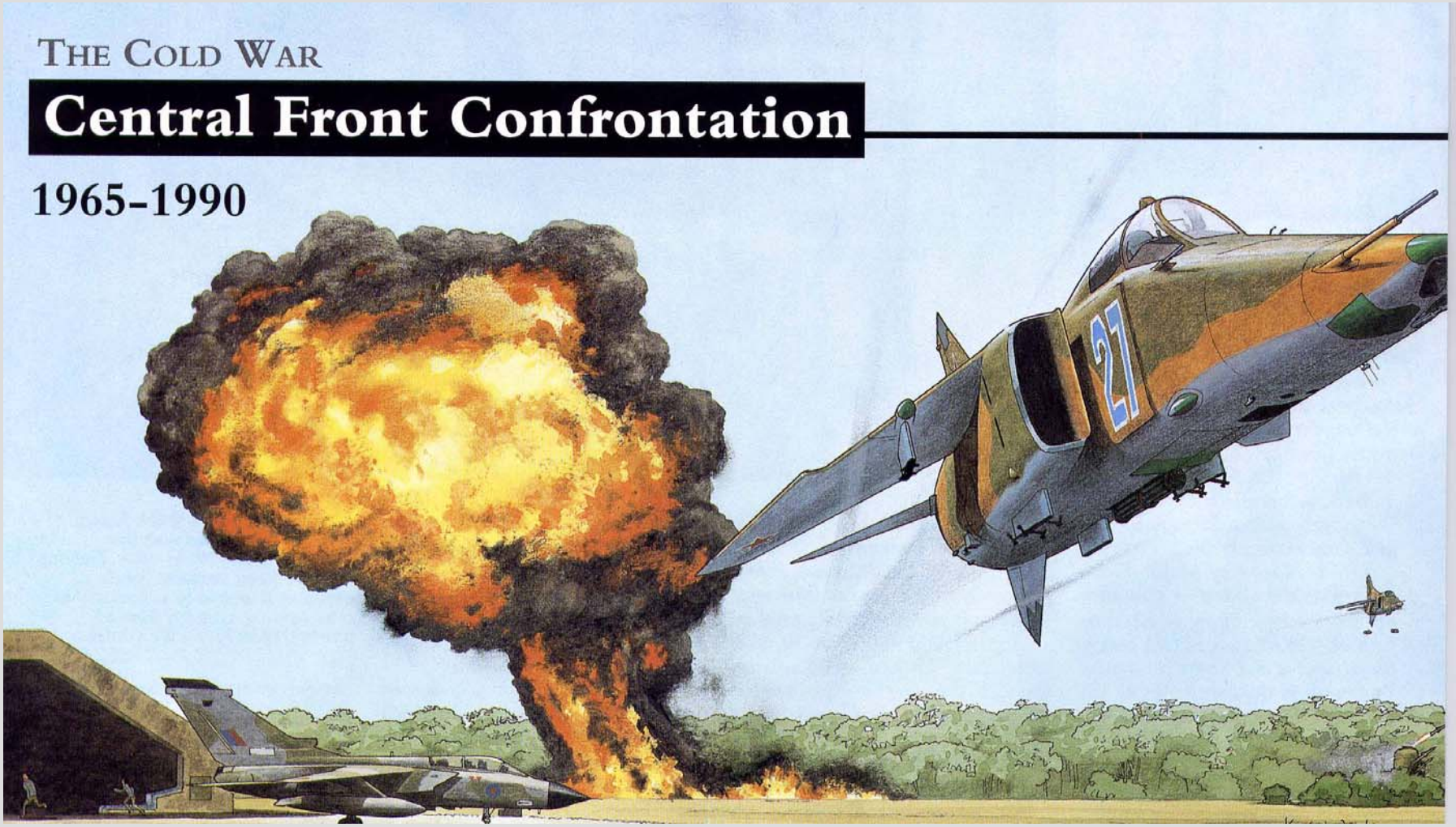
THE COLD WAR

Cuban Missile Crisis

END

of

CHAPTER 10


THE COLD WAR
Central Front Confrontation
1965–1990
27

THE COLD WAR
11 – CENTRAL FRONT CONFRONTATION

MAIN TOPICS COVERED

1. CENTRAL FRONT PRECURSOR
2. QUALITY AND QUANTITY
3. SKILL AND TECHNOLOGY
4. CANADIAN CONTRIBUTION
5. BENELUX CO-OPERATION

CENTRAL FRONT CONFRONTATION

PRECURSOR

- For 4-Decades, world stood on brink of nuclear destruction – two competing world views.
  - UNITED STATES VS SOVIET UNION
- Mostly manifested itself obviously in the heartland of Europe.
  - TWO TITANTIC MILITARY ALLIANCES
  - NATO VS WARSAW PACT
- Fortunately Human Race never exploded in battle.
- Cold war rivalry was still the dominant influence in military technology.
- Weapons development boomed in the 1950's, speeded through the 1960-1970's.

Soviet attackers like this Sukhoi SU-7 'Fitter' were crude by comparison with their Western counterparts, but might well have been devastatingly effective, since they could have overwhelmed NATO defences by sheer weight of numbers.

Warsaw Pact forces were well-versed in the art of airborne assault, and large numbers of Mil Mi-8's were available. Unlike NATO's assault helicopters, Soviet Mi-8's carried heavy armament to put down suppression fire.

CENTRAL FRONT CONFRONTATION

PRECURSOR

- Soviet tactics for any invasion dictated on 22 June 1941.
  - Hitler invaded his former ally – Soviet Union
  - Luftwaffe established massive air superiority above advancing German Army.
  - These tactics almost annihilated Soviet Air and land forces.
  - In the minds of post-war Soviet planning, it was the most effective.
- Should Warsaw Pact have marched against Western Europe, it would have had aggressor's privilege of time of attack.
  - ON OR SHORTLY BEFORE WEEKEND
  - UNLESS BUILD-UP OF DIPLOMATIC EFFORTS ALLOW NATO FORCES TO BE PLACED ON FULL ALERT.

CENTRAL FRONT CONFRONTATION

PRECURSOR

- Battles to be taken place on Western Europe ground or on Warsaw Pact, but not in Russia.
- Soviet Doctrine: offensive only basic form of combat action. “Only by a resolute attack conducted at great tempo and in great depth is the destruction of the enemy achieved.”

Although it was the nuclear threat which held sway over the Central Front, the menace of chemical and biological warfare was never far away. Here a MiG-21 is seen spraying water during a chemical warfare trial.

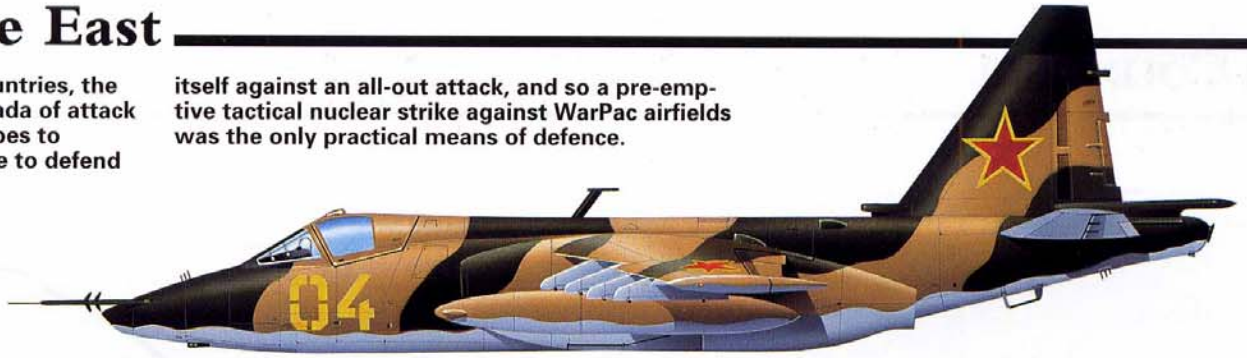
CENTRAL FRONT CONFRONTATION

PRECURSOR

- **Soviet tactics for NATO War:**
  - **As Soviet armies moved forward – main role for air power, eliminate threats before they could materialize.**
  - **Strike bombers (like Sukhoi SU-24 'Flanker' would penetrate enemy defences to destroy key military targets).**
    - **Command and Control centres, airfields, runways**
  - **Other Tac Acft, in early days… MiG-15's 17's, + SU-22's would have ranged the rear areas.**
    - **Destroy enemy reserves, cutting comm. & supply lines, block reinforcements.**

Threat from the East

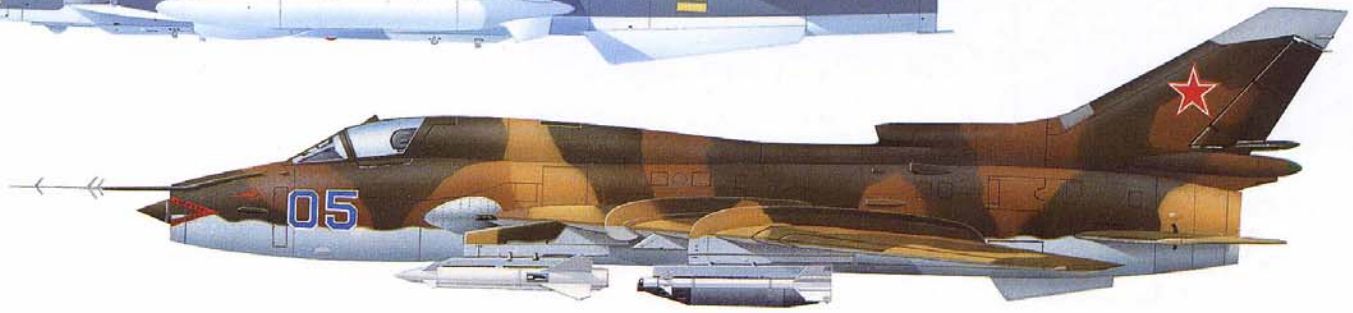
Forward-based in the Warsaw Pact countries, the Soviet Union possessed a mighty armada of attack aircraft, ranging from close support types to nuclear bombers. NATO could not hope to defend itself against an all-out attack, and so a pre-emptive tactical nuclear strike against WarPac airfields was the only practical means of defence.



Sukhoi Su-25 'Frogfoot'
Right: Forged in battle over Afghanistan, the Su-25 could carry a heavy weapons load, and was ideal for close support and helicopter escort operations. Most were forward deployed in East Germany, located close to the potential front-line.

Sukhoi Su-24 'Fencer'
Left: WarPac's equivalent of the F-111 or Tornado, the Su-24 regiments were based in eastern East Germany and western Poland. From these bases they would have struck deep into NATO territory, hitting airfields and other key installations.

Sukhoi Su-17 'Fitter'
Right: A variable-geometry version of the earlier Su-7, the Su-17 was a far more capable attacker, offering limited precision-guided missile capability. Two regiments were in East Germany, with others further back from the front-line.



CENTRAL FRONT CONFRONTATION

QUALITY and QUANTITY

- Soviet employed the 1970's period of 'détente' with the West, to build up Frontal Aviation.
- By 1980's, Soviet has powerful tactical air arm at is disposal.
- Optimised for support of advancing army, w/ additional capability to attack targets well behind enemy lines, and by its size and composition – it emulated the success of the Blitzgrieg form of attack.

The SU-25 was the Soviet answer to the A-10, but it was considerably faster (although not as capable), rendering it less vulnerable over the Central Front battlefield. Most Soviet attack aircraft had rough-field capability.

One of the most feared weapons in the land war was the Mil Mi-24 'Hind' armed assault helicopter. Its heavy weapon load, including anti-tank missiles, made it a powerful gunship, while its internal cabin could be used to carry up to eight troops. 'Hinds' were based throughout East Germany, flying along side Mi-8's in assault regiments.

CENTRAL FRONT CONFRONTATION

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CENTRAL FRONT CONFRONTATION

QUALITY and QUANTITY

- By the early 1980's... Frontal Aviation operated:
  - 5,000 fixed-wing aircraft
  - 3,250 helicopters – (70% based in Eastern Europe + Western most part of Soviet Union)

- Soviets great believers in confusing enemy:
  - Parachute attacks big part of plans
  - Airborne troops – confusing behind enemy lines, seizing port facilities, airfields (for guaranteeing reinforcements)

Mass procurement of US types by the European NATO nations went some way to redressing the imbalance of numbers. The Republic F-84F was the standard ground attack platform for many years, able to carry tactical nuclear weapons.

CENTRAL FRONT CONFRONTATION

QUALITY and QUANTITY

- Though air units could inflict considerable damage – main purpose in combined arms offensive:
  - Prepare for main attack of fast-moving armoured vehicles
  - supported by ground-attack aircraft and
  - Heavy artillery
  - Assaults to pressed in army strength or larger along several axes.
- Speed was considered to be of essence.

CENTRAL FRONT CONFRONTATION

QUALITY and QUANTITY

- For Speed, main punch of assault:
  - Armoured forces
  - Paratroopers and heliborne assault troops
  - Troops supported by gunship helicopters
  - Close-support aircraft for mobility
- Meanwhile… fast-moving flanking forces were to go around enemy force, attacking from side or rear cutting off communication.
- The large numbers assault + gunship helicopters (1970's) meant such attacks could have pressed home much faster than w/ land or vehicle based troops.

CENTRAL FRONT CONFRONTATION

QUALITY and QUANTITY

- Soviet planning, expected all elements to work together
- Main assault troops… supported by large numbers of artillery pieces.
- Once engaged… their most flexible, responsive weapon was close air support
  - Provided by ground-attack fighters of Frontal Aviation
  - By Army's own helicopter gunships.

Reforger exercises demonstrated the speed with which US forces could be deployed to Europe in the time of tension. However, the deployment was mainly by sea, and would not have been quick enough to help in the face of a full-scale surprise attack.

CENTRAL FRONT CONFRONTATION

SKILL and TECHNOLOGY

- Hopelessly outnumbered – NATO allies relied on Skill and technology to address the balance.
  - *Highly-trained aircrew*
  - State-of-the-art aircraft
  - Electronics and weapons produced very impressive displays anti-tank firepower
    - But they were also vulnerable.
- Big question for Western Planners…
  - Will enough weapons survive WarPac's initial strikes and massive battlefield air defence system????

CENTRAL FRONT CONFRONTATION

SKILL and TECHNOLOGY

- About the numbers…
  - In early 1980's, there were some 25,000 main battle tanks, stationed in central Europe – 18,000 were east of the Iron Curtain.
  - Nato = 7,000 battle tanks, outnumbered 2.5 to 1.
  - Warsaw Pact = 10,200 helicopter or vehicle=mounted anti-tank guided weapon systems.

CENTRAL FRONT CONFRONTATION

SKILL and TECHNOLOGY

- European strategy…took several forms.
- Germany, played key role (some French objections)... set-up forming fighting forces in mid-1950's.
- Luftwaffe was reborn in Sept, 1956, w/ large build-up within four years had:
  - 62,000 personnel
  - 375 Republic F-84F Thunderstreaks (5 Wings)
  - 108 RF-84F Thunderflashes (2 Wings)
  - 225 North American F-86 Sabres (3 Wings)
  - Plus Training, support wings

CENTRAL FRONT CONFRONTATION

SKILL and TECHNOLOGY

- Lockheed new F-104G (Super Starfighter)
  - (multi-role version)
  - New avionics, Mach 2 capability
  - Adopted for fighter-bomber, nuclear strike, reconnaissance roles.
  - F-104 = also for Belgium, Canada, Denmark, Greece, Italy, Netherlands, Norway & Turkey.

CENTRAL FRONT CONFRONTATION

SKILL and TECHNOLOGY

- 2nd Major plank in NATO defences:
  - Commitment of large American Forces to Europe's defence.
  - Late 1950's:
    - North American F-100 Super Sabres
    - McDonnell F-101 Voodoos
    - Douglas B-66 Destroyers
  - 1960's- 1970's:
    - McDonnell F-4 Phantoms
    - General Dynamic F-111
    - General Dynamic F-16 Fighting Falcon
  - Regular deployment Exercises (US based forces)
    - REFORGER (Reinforcement of Forces in GERmany), GALANT HAND others
    - Massive Airlift Exercises: C-141's, C-5's (wartime mostly by Sea)

Following the F-84F as NATO's principal strike platform was the Lockheed F-104 Starfighter, which also undertook the fighter and reconnaissance missions. West Germany was the larger user, with four wings dedicated to the nuclear strike, two for reconnaissance, two for maritime strike and tow for interception.

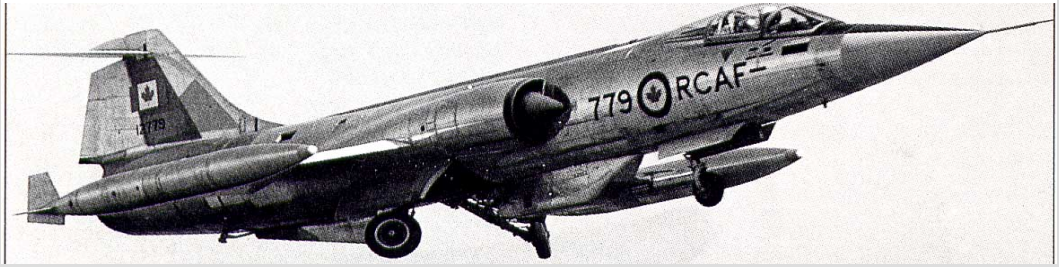
In the face of huge numbers, NATO could respond only by increasing capability. The F-4 Phantom was an advanced interceptor, but those purchased by West Germany were hampered by the political decision to carry only short-range Sidewinder missiles.

CENTRAL FRONT CONFRONTATION

CANADIAN CONTRIBUTION

- Canada w/affiliations to UK and France was represented in Europe:
  - 200 CF-104 Starfighters
  - Candair/North America F-86 Sabres
  - Canadair CF-100 Canucks (from 1962)
  - Later: McDonnell Douglas CF-18 Hornets

Canada maintained a strong presence in the 4ATAF area with CF-104 Starfighters. The Canadian aircraft were optimized for nuclear strike, carrying a single US-owned B57 weapon which was held under a dual-key arrangement.



France's Dassault Mirage IIIC was a potent interceptor which was later evolved into the multi-role Mirage IIIE.

CENTRAL FRONT CONFRONTATION

CANADIAN CONTRIBUTION

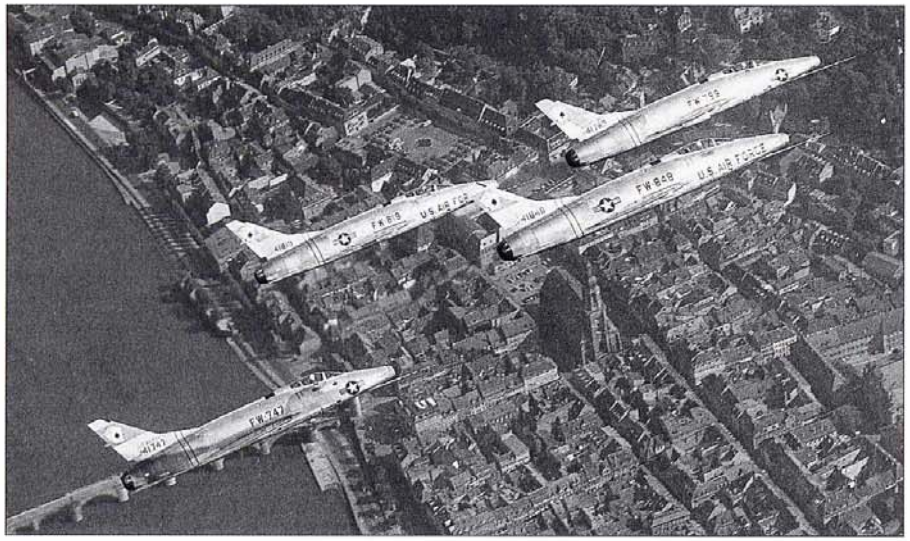
- France major component at start, then discharged its duties under 4-power air traffic agreement covering access to Berlin.
- France pioneered Mirage III (1962) – Mach 2 fighter bomber and interceptor.
- Formed backbone of French tactical and air defence commands.
- Had Nuclear deterrent which restored status in World. But left NATO in March, 1966.

CENTRAL FRONT CONFRONTATION

CANADIAN CONTRIBUTION

- English side of channel:
  - UK added forces to NATO
  - UK was vital to NATO as rear depot for assembling forces and holding reserves.
  - Assigned entire RAF Strike Command to NATO.
  - Remainder of UK's combat aircraft joined those of RAF Germany.
  - RAFG (1960) equipped w/ Hunters & Canberras
  - Later equipped w/ V/STOL Harriers, Jaguars, F-4 Phantoms, Tornadoes.

USAF in Europe



The cornerstone of NATO's defence in Central Europe were the United States Air Forces in Europe (USAFE). Fighters, fighter-bombers and reconnaissance platforms were based in sizeable numbers in West Germany and France (until 1964) as part of the 4th ATAF, backed up by longer-range nuclear bombers in the United Kingdom, which never really lost its tag of being the Americans' permanent aircraft-carrier off the coast of Europe. Additional USAFE assets guarded the Southern Flank, being based in Spain and Italy.

Left: Qualitatively superior to their Soviet counterparts, USAFE tactical aircraft were flown by well-trained and highly-motivated crews. European-based aircraft were regularly bolstered by transatlantic deployments. This quartet of F-100Cs is seen over a German city.

Below left: The F-4E Phantom became the backbone of USAFE during the 1970s. It could fly the fighter and strike roles with equal ease. This machine is from the Ramstein-based 86th TFW.

Below: Two wings of General Dynamics F-111s were stationed in England. These were central to NATO's Follow-on Forces Attack concept of deep (nuclear) interdiction.

NATO ANTI-TANK HELICOPTERS

For the British the Westland Lynx AH.Mk1 was available for anti-armour missions, armed with eight TOW missiles. It also had a capacious cabin, allowing it to reposition Milan anti-tank teams.

Demonstrating its ability to hide in the vegetation this Aerospatiale SA 342 Gazelle is armed with four HOT anti-tank missile tubes.

King of the anti-armour helicopters was the Bell AH-1 Cobra, armed with eight TOWS. The type had originated as a pure gunship for close support, but matured as an anti-tank weapon.

West Germany's Heeresflieger adopted the MBB BO105 as it PAH-1 anti-armour helicopter. Six HOT missiles could be carried and the type was also a useful scout.

CENTRAL FRONT CONFRONTATION

RE ANTI-ARMOUR HELICOPTERS

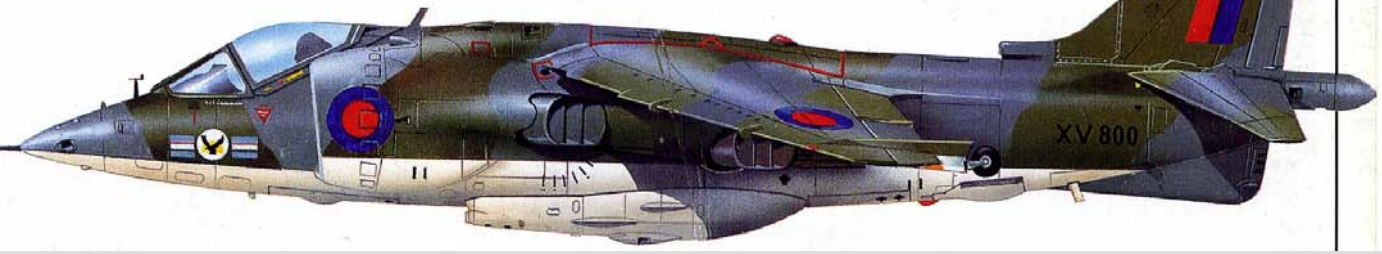
- With a huge disparity in tank numbers, NATO rapidly seized on the specialist anti-armour helicopter as a means of restoring some parity. Naturally the US Army led the way, deploying large numbers of Bell AH-1 Cobras (augmented by AH-64 Apaches in the final years of the Cold War).

- The employment of anti-armour helicopters was intended to bottle up the Warsaw Pact armoured thrusts in key chokepoints, enabling other weapon systems to be brought to bear on the halted columns. After the Cold War, most Western military officers privately questioned anything short of a massive, preemptive tactical nuclear strike could have halted the Red Army.

Britain's 'Jump-jet'

The fact that airfields would be high on the list for attack on Day One of any central European war vexed military commanders on both sides of the Iron Curtain. While WarPac invested heavily in dispersed-base operations, with all key infrastructure being mobile and with highway strips ready prepared, NATO toyed with vertical take-off as a means of continuing the war when there were no airfields left. The Harrier was the only practical outcome of this line of thinking.

Hawker Siddeley Harrier
Right: Developed with the Central Front in mind, the Harrier was designed to operate from woods, supermarket car parks or literally anywhere it could find cover and a flat place to land and take off. Three squadrons (including No. 20, illustrated) were deployed to West Germany, based close to the front-line



CENTRAL FRONT CONFRONTATION

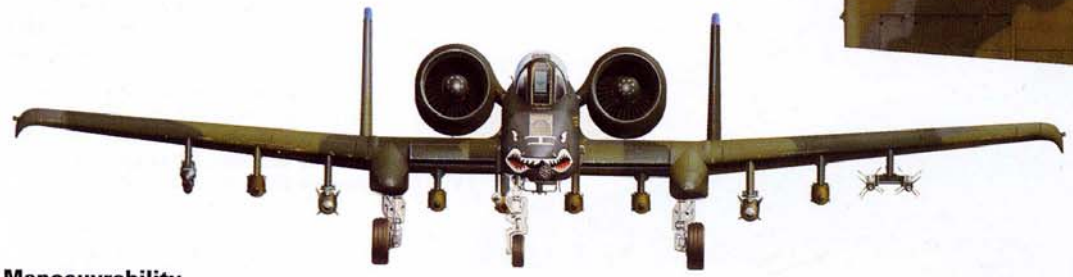
BENELUX CO-OPERATION

- Smaller nations continued to assign bulk of their forces to mutual defence.

- Belgium / Netherlands / Luxembourg:
  - (Late 1960's) replaced F/RF-84's with
  - Dassault Mirage 5's / Canadair-Northrup NF-5's
  - Licensed to produce the F-16.
  - Approved by NATO, produced the AMF (Allied Command's Europe Mobile Force), became multi-national, variable content force sent on short notice
    - Known as "NATO Fire Brigade"

Fairchild A-10A

Although officially christened the Thunderbolt II, the A-10 was known universally as the 'Warthog'. Its mission was primarily anti-armour, and a six-squadron wing was established in the UK, each squadron having a forward operating location in West Germany. A-10 pilots regularly flew from the FOLs, becoming familiar with the landmarks that they would encounter if they ever had to go to war.



Manoeuvrability
Relatively large and slow, the A-10 relied on rapid jinking and low-level agility for its defence. The aircraft was designed with neutral stability and large control surfaces to make it highly responsive to any control inputs.

Survivability
The A-10 was expected to sustain groundfire hits over the battlefield and was designed accordingly. System and structure redundancy were key features, as was the huge titanium 'bath' that protected the pilot and the ammunition.

Avenger cannon
The weapon with which the A-10 was most associated was its massive General Electric GAU-8/A cannon. This was fitted with seven 30-mm barrels and fired depleted uranium (non-radioactive) rounds of great density, interspersed with high explosive. The gun itself was mounted slightly offset to port, so that the firing barrel was on the aircraft's centreline. Firing at up to 4,200 rounds per minute, the gun could easily decelerate the aircraft alarmingly if used for too long a burst.

Missile armament
The AGM-65 Maverick was the main weapon of the A-10, available with either a TV or infra-red seeker head. This presented an image on a cockpit screen, using which the pilot could acquire and designate the target with movable cross-hairs. Once locked on, the missile was launched and used its own auto-tracker equipment to guide itself to the target. This allowed the A-10 to take evasive action as soon as the missile had been launched.

THE COLD WAR

Central Front Confrontation

END

of

CHAPTER 11