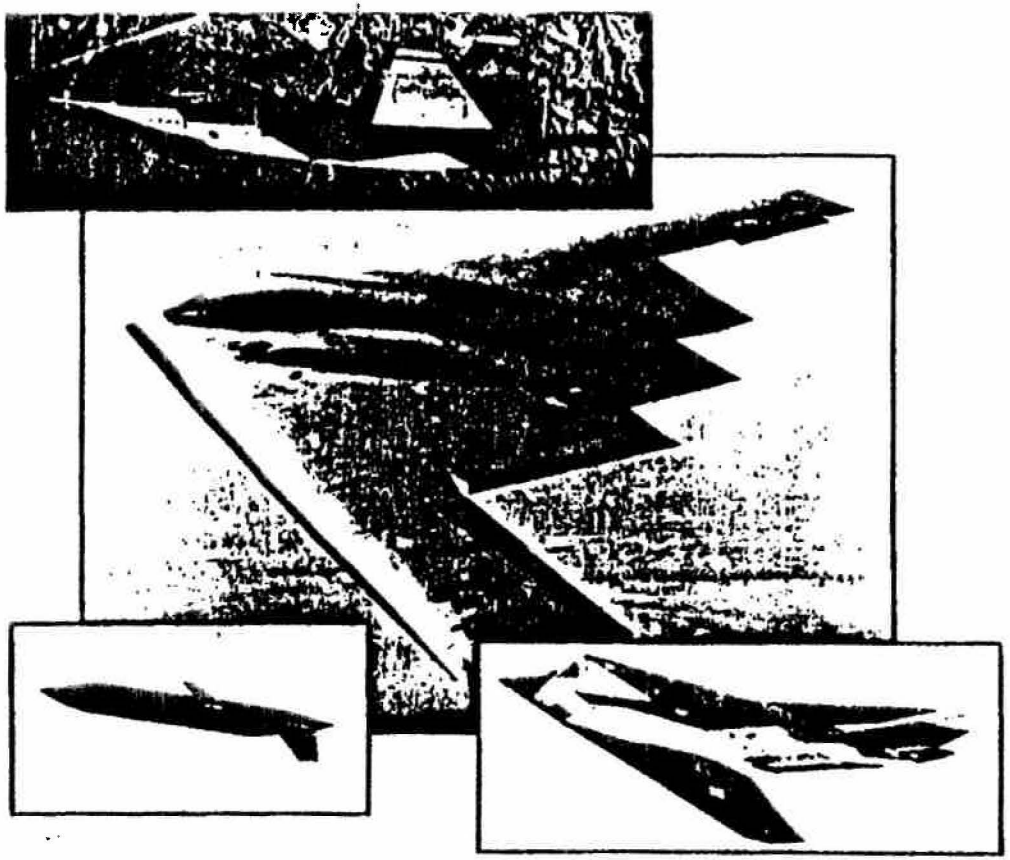
AIR FORCE STEALTH TECHNOLOGY REVIEW



10 - 14 JUNE 1991

#263
53 pg.

STEALTH WEEK
BRIEF BOOK
INDEX

VALUE OF STEALTH BRIEFING	TAB A
F-117 STEALTH FIGHTER	TAB B
B-2 STEALTH BOMBER	TAB C
F-22 STEALTH FIGHTER	TAB D
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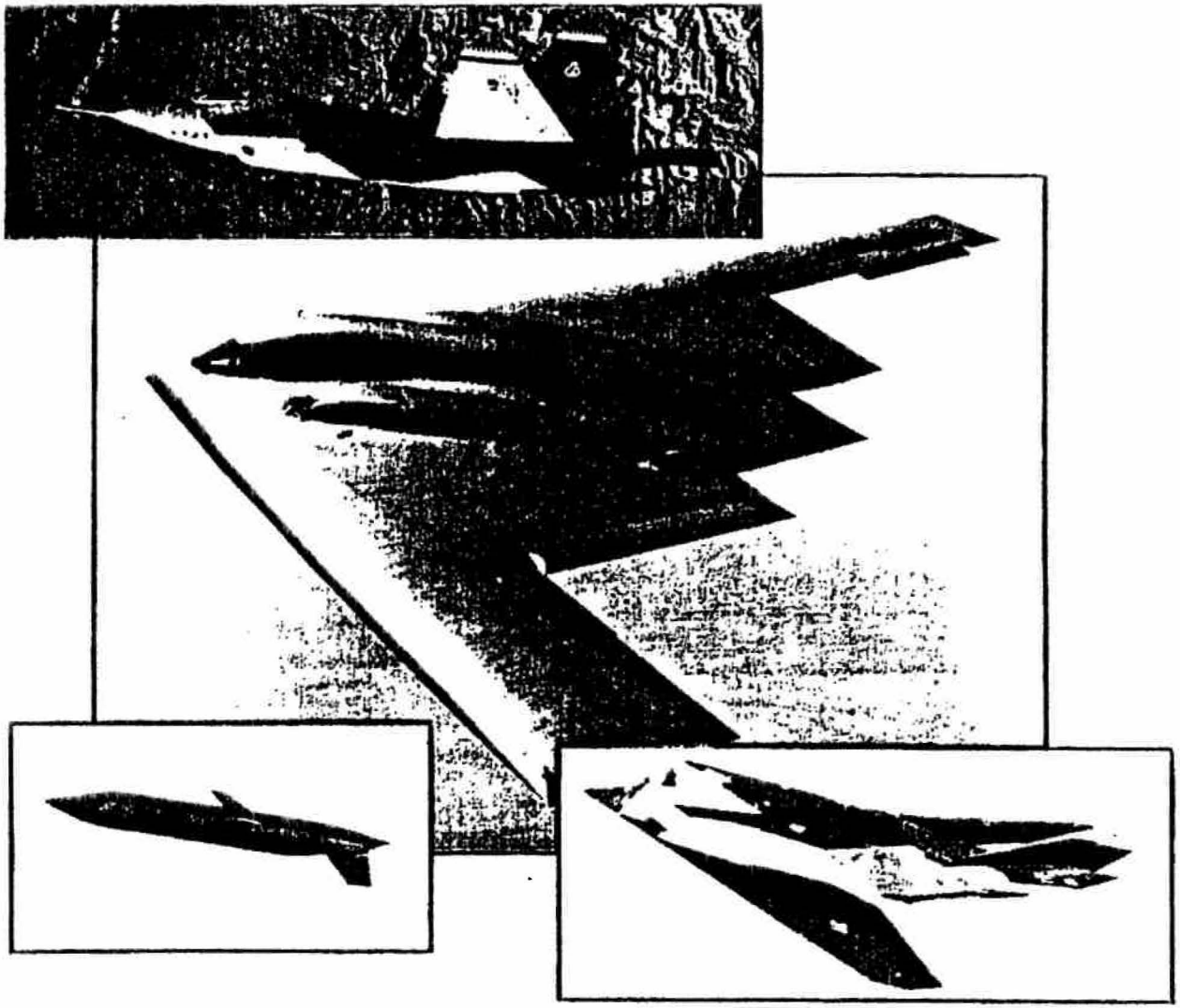
TAB A

VALUE OF STEALTH BRIEFING

VALUE OF STEALTH



IMPACT OF TECHNOLOGY ON SURPRISE

WWI	WWII	KOREA	VIETNAM	IRAQ	?

AIRCRAFT, SUBMARINES ——————————→

RADAR, SONAR ——————————→

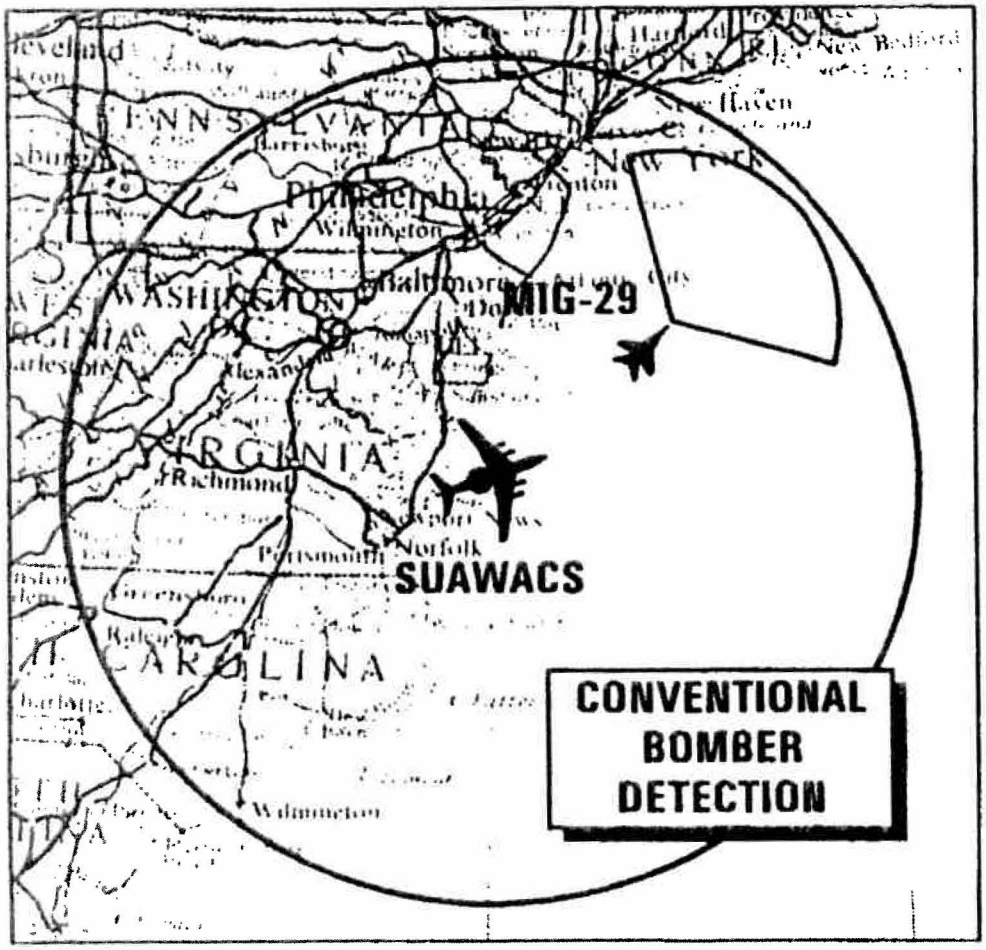
JET ENGINE, NUCLEAR PROPULSION ——→

SMART BOMBS, SLCMs ——→

LOW OBSERVABLE PLATFORMS/SUBQUIETING ——→

- INITIALLY, AIRCRAFT AND SUBMARINES ENJOYED THE BENEFIT OF SURPRISE
- RADAR, SONAR, AND NEW PROPULSION TECHNIQUES CHANGED WARFARE
- LOW OBSERVABLES RESTORED THE ELEMENT OF SURPRISE FOR AIRPLANES
- SURPRISE IS PERISHABLE. OTHER COUNTRIES ARE WORKING HARD TO CATCH UP. THEREFORE, WE MUST CAPITALIZE ON OUR SIGNIFICANT INVESTMENT IN LOW OBSERVABILITY TO ENSURE A LASTING U.S. ADVANTAGE

PENETRATING BOMBER STEALTH EFFECTIVENESS



WHEN COMPARED TO CONVENTIONAL TARGETS, STEALTH GREATLY DECREASES THE EFFECTIVENESS OF OPERATIONAL RADAR SYSTEMS (e.g., SUAWACS, MIG-29)

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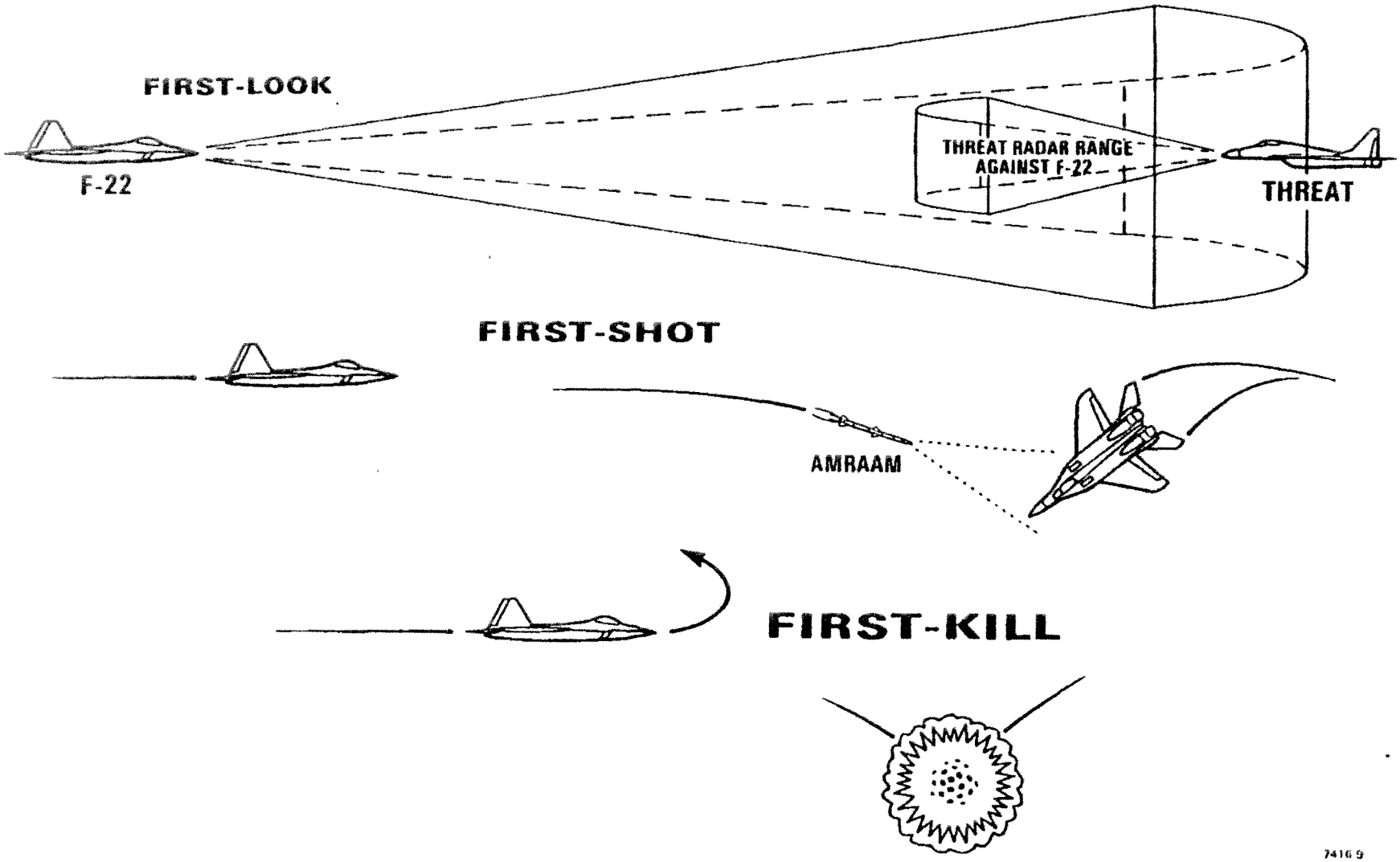
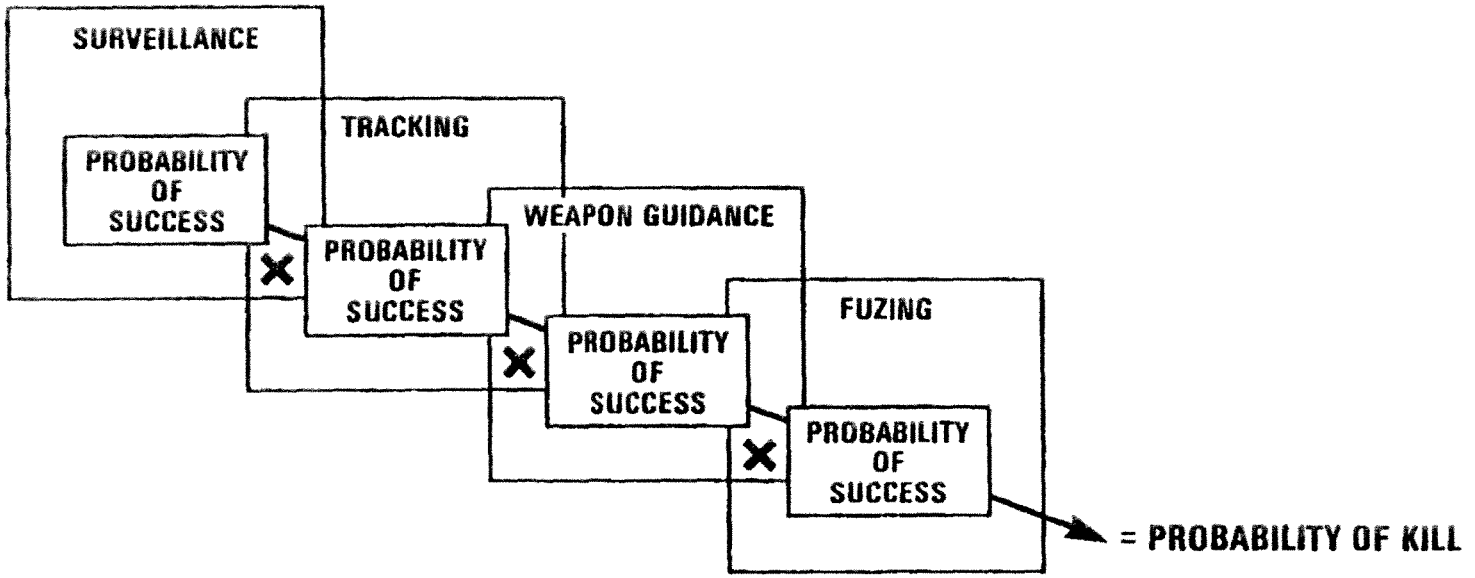
AIR-TO-AIR FIGHTER STEALTH EFFECTIVENESS



74169

STEALTH AND SURVIVABILITY

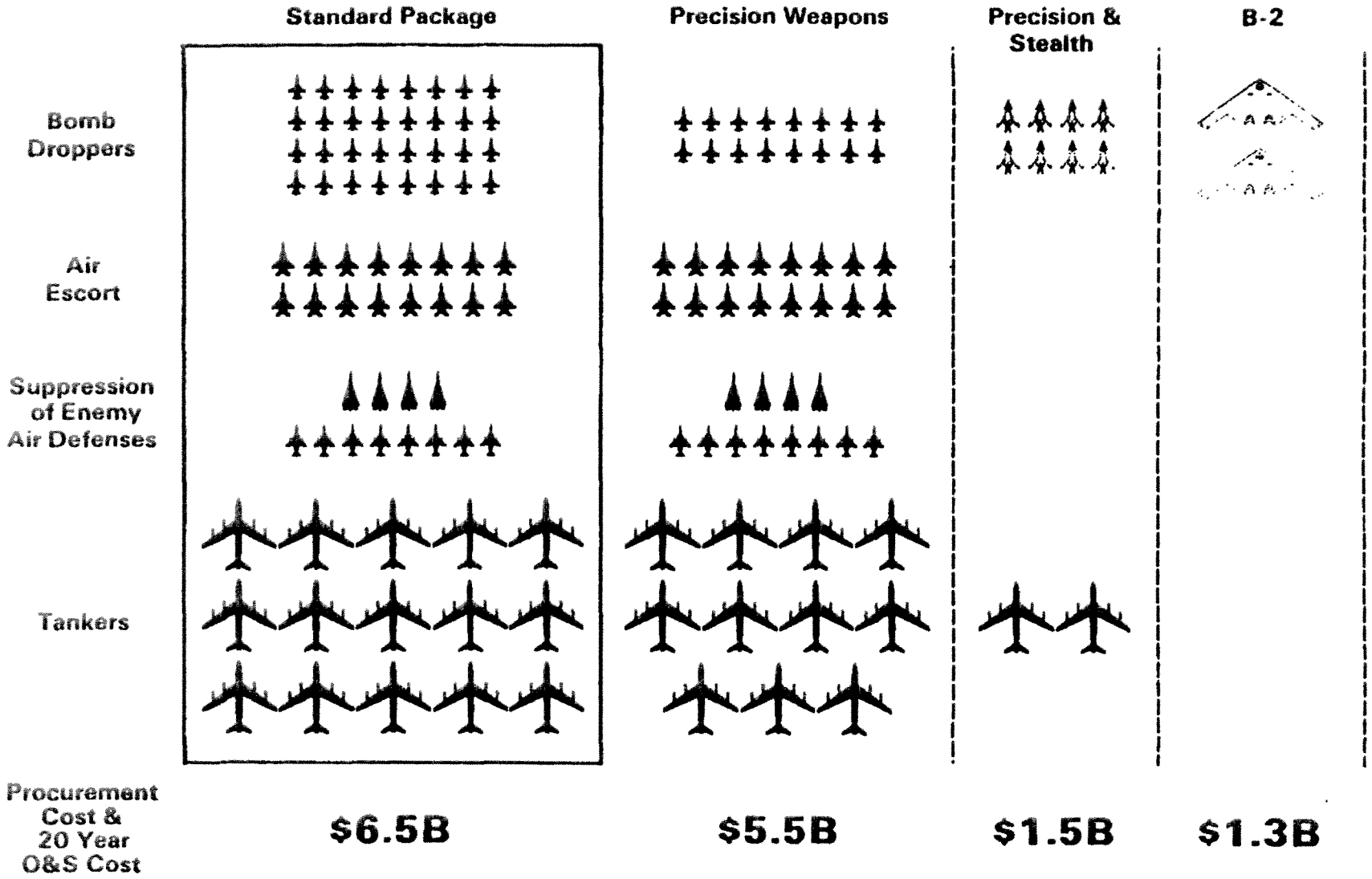
- LOW OBSERVABLE PLATFORMS, NOW COMBAT PROVEN, HAVE DRAMATICALLY CHANGED THE BATTLEFIELD—THEY CRIPPLE THE ENEMY'S EFFORTS TO DETECT, IDENTIFY, ENGAGE, AND DESTROY OUR FORCES
  - —ENEMY'S RETURN ON INVESTMENT IN AIR DEFENSES IS DENIED
- RESTORE THE ELEMENT OF SURPRISE
  - —UNITED STATES CHOOSES THE TIME AND PLACE OF ATTACK
  - —ENEMY CANNOT REACT EFFECTIVELY



SUCCESSFUL AIR DEFENSE IS A PROBLEM IN MULTIPLICATION: STEALTH DRIVES THE PRODUCT TOWARDS ZERO

74166

The Value of Stealth



OPTIMIZATION OF STEALTH

F-117
- SECOND-GENERATION STEALTH
- SIGNATURE OPTIMIZED FOR LIMITED ASPECTS
- MEDIUM-ALTITUDE, NIGHT GROUND ATTACK
- PENALTIES IN AERODYNAMIC AND ENGINE PERFORMANCE TO ACHIEVE A HIGH DEGREE OF STEALTH

ACM
- THIRD-GENERATION STEALTH
- FIRST SUCCESSFUL INTEGRATION OF AERODYNAMIC EFFICIENCY AND STEALTH IN A SMALL VEHICLE

B-2
- FOURTH-GENERATION STEALTH
- REVOLUTIONARY BLENDING OF STEALTH TECHNOLOGY IN LARGE AIRCRAFT WITH HIGH AERODYNAMIC EFFICIENCY AND LARGE PAYLOAD
- BALANCED SIGNATURE FOR OPERATIONS AT BOTH HIGH AND LOW ALTITUDE

F-22
- OPTIMIZED FOR AIR-TO-AIR OPERATIONS
- SIGNATURE OPTIMIZED FOR A FIRST-LOOK/FIRST-KILL CAPABILITY

COMMON DENOMINATOR ACROSS ALL STEALTH PLATFORMS IS EFFECTIVE MISSION PLANNING, WHICH GREATLY ENHANCES MISSION SURVIVABILITY.

STEALTH PAYOFF HIGH

- STEALTHY AIRCRAFT CAN PENETRATE WITH FEWER SUPPORT ASSETS AND PRESERVE SURPRISE
  - —LESS RISK TO CREW MEMBERS
- STEALTHY AIRCRAFT PERMIT MORE RAPID SUPPRESSION OF GROUND-BASED AIR DEFENSES
  - —ELIMINATES REQUIREMENT TO "ROLL BACK" DEFENSES
  - —LESS RISK TO OUR GROUND FORCES PERSONNEL
- STEALTH PERMITS MORE ACCURATE DELIVERY OF MUNITIONS
  - —ELIMINATES NEED FOR EVASIVE ACTIONS—PERMITS CONCENTRATION ON WEAPON DELIVERY
  - —LESS RISK TO NONCOMBATANT PERSONNEL FROM COLLATERAL DAMAGE

STEALTH SAVES LIVES

7416 7

VALUE OF STEALTH IN COMBAT ENVIRONMENT

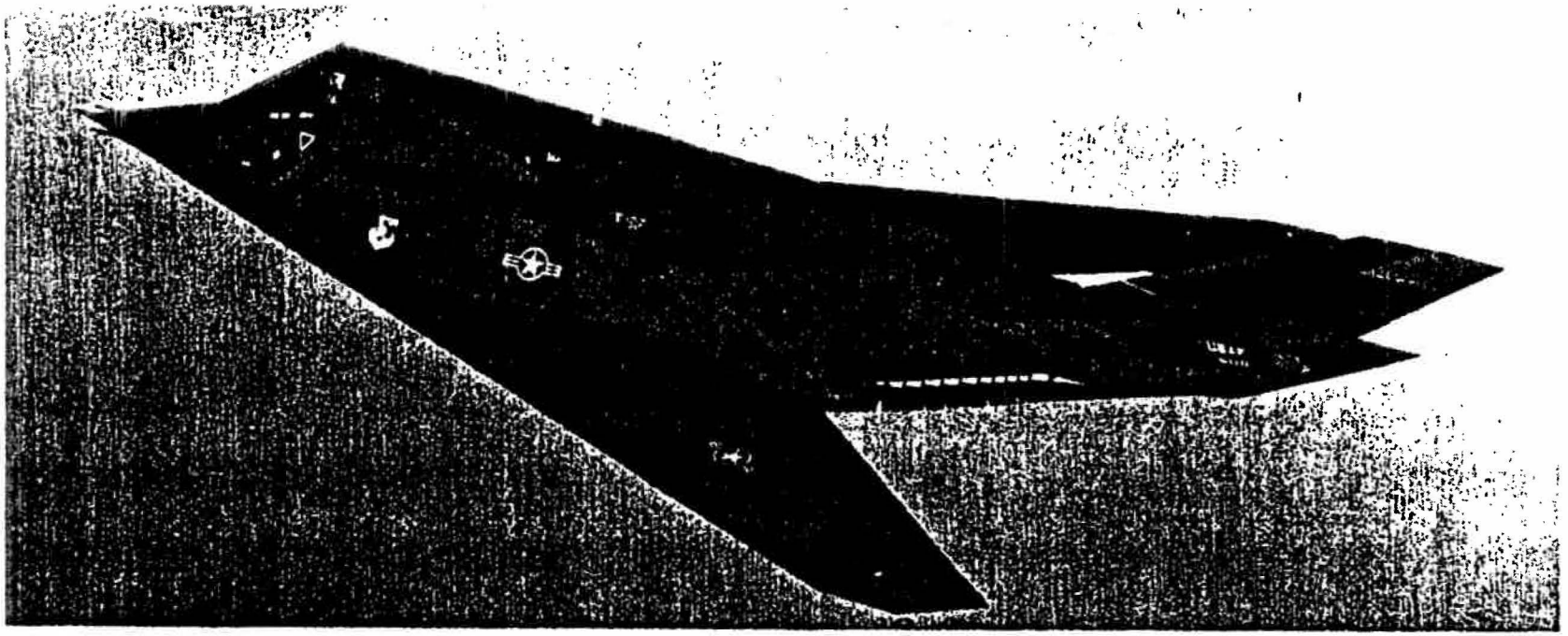
- STEALTH IS KEY ELEMENT
  - —SYNERGISTICALLY COMPLEMENTS OTHER SURVIVABILITY METHODS SUCH AS DEFENSE SUPPRESSION, STANDOFF, AND TACTICS
- STEALTH APPLIED WHERE NEEDED
  - —PART OF OVERALL FORCE PACKAGE OPTIMIZED TO SUIT AIRCRAFT/MISSION

STEALTH ALLOWS US TO MORE EFFECTIVELY USE ALL COMBAT RESOURCES

TAB B

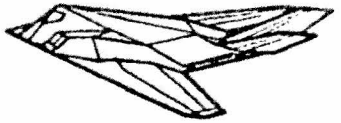
F-117 STEALTH FIGHTER

F-117
STEALTH FIGHTER



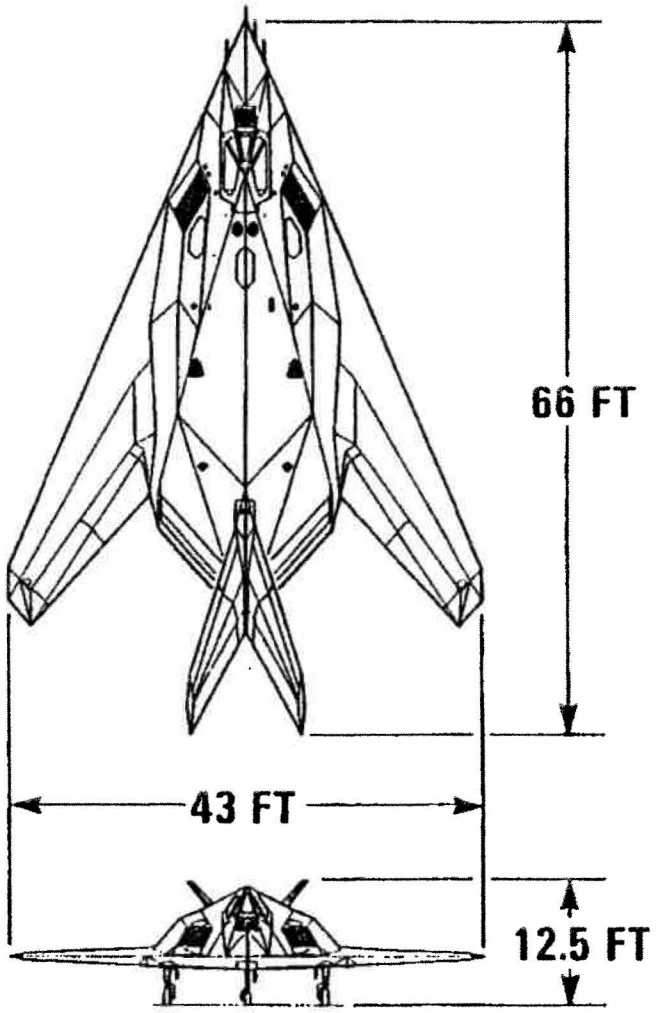
COMBAT-PROVEN STEALTH

F-117A CHARACTERISTICS



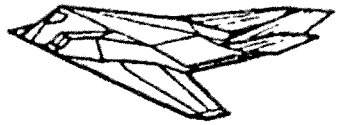
F-117A
Stealth Fighter

- MAX GROSS WEIGHT: 52,500 LB
- SPEED: HIGH SUBSONIC
- CREW: ONE
- UNREFUELED RADIUS: 600 NM
- ARMAMENT: TWO 2,000-LB LASER GUIDED/CONVENTIONAL BOMBS; NUCLEAR CAPABLE
- ENGINES: TWO NONAFTERBURNING GE F-404 TURBOFAN ENGINES



7416-10

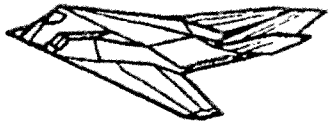
F-117 MISSION



F-117A
Stealth Fighter

- THE F-117A STEALTH FIGHTER IS THE FIRST OPERATIONAL AIRCRAFT CONCEIVED TO EXPLOIT LOW OBSERVABLE STEALTH TECHNOLOGY
- THIS SINGLE-SEAT FIGHTER IS DESIGNED TO PENETRATE DENSE THREAT ENVIRONMENTS AND ATTACK HIGH-VALUE TARGETS WITH PINPOINT ACCURACY

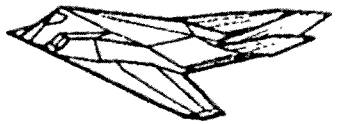
F-117 PROGRAM



F-117A
Stealth Fighter

• FIRST FLIGHT (31 MONTHS AFTER FSD CONTRACT AWARD)	JUN 1981
• FIRST AIRCRAFT DELIVERIES	1982
• INITIAL OPERATIONAL CAPABILITY	OCT 1983
• LAST AIRCRAFT DELIVERY	JUN 1990
• TOTAL AIRCRAFT BUY	59
• AIRCRAFT LOST TO PEACETIME ACCIDENTS	3
• FIRST COMBAT OPERATION	JUST CAUSE (DEC 1989)
• UNIT FLYAWAY COST	$52.5 MILLION (FY 91$)
• TOTAL PROGRAM COST	$8.2 BILLION (FY 91$)

F-117 FACT SHEET
DESERT STORM



F-117A
Stealth Fighter

F-117s DEPLOYED:	42
TOTAL COMBAT SORTIES:	OVER 1,270
TONS OF BOMBS DROPPED:	OVER 2,000
NUMBER OF COMBAT HOURS:	OVER 6,900
MISSION CAPABLE RATE:	OVER 85%

WHILE F-117s FLEW ONLY 2% OF TOTAL COMBAT SORTIES, THEY COVERED APPROXIMATELY 40% OF THE STRATEGIC TARGETS—ONLY SYSTEM TO FLY DOWNTOWN BAGHDAD IN "TEETH" OF DEFENSES

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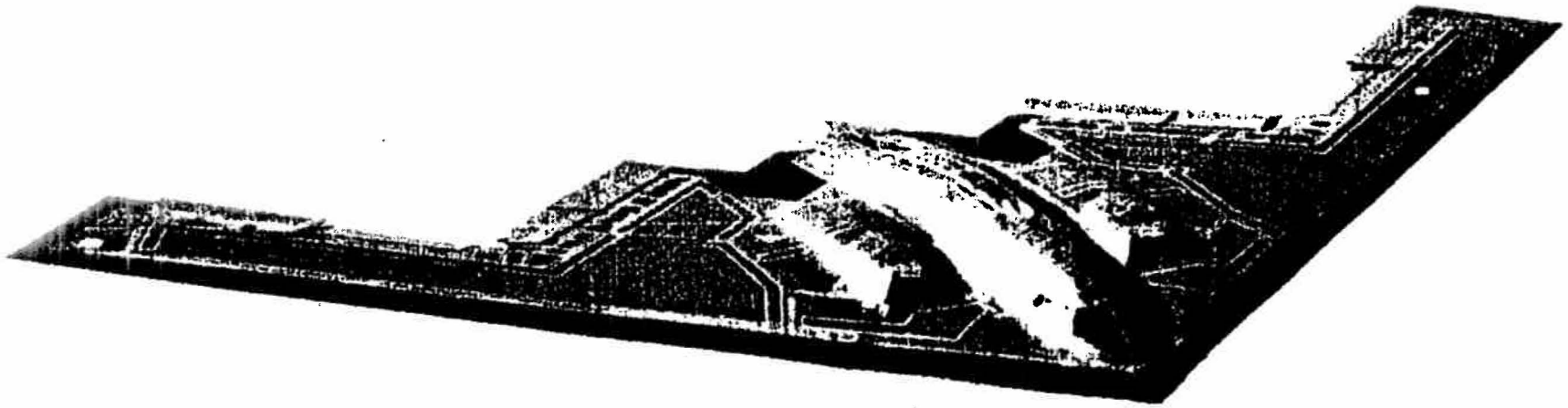
TAB C

B-2 STEALTH BOMBER

B-2
STEALTH BOMBER



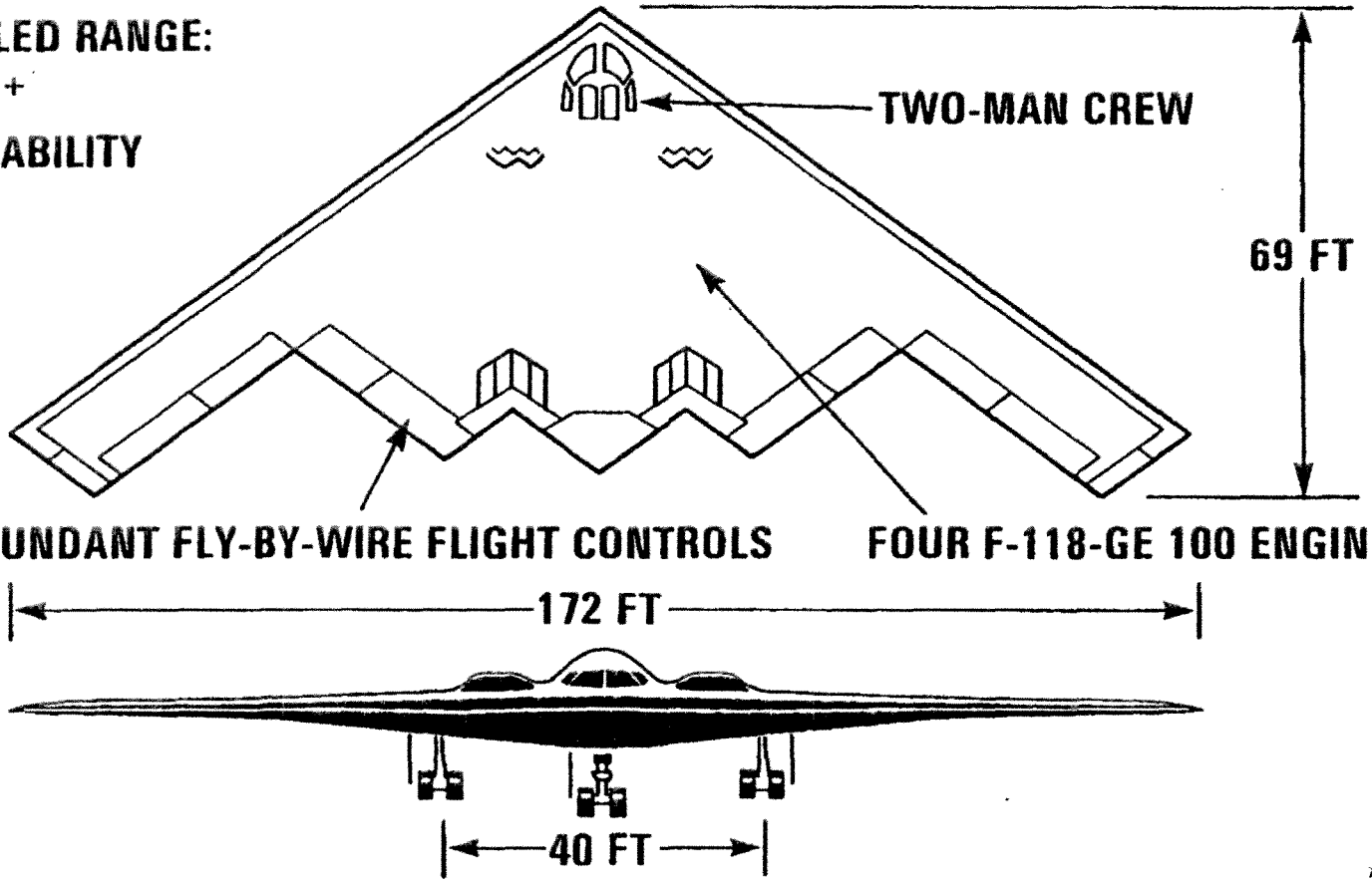
GLOBAL REACH-GLOBAL POWER
FOR THE 21ST CENTURY

B-2 CHARACTERISTICS

B-2
Stealth Bomber

- LARGE NUCLEAR OR CONVENTIONAL PAYLOAD
- PENETRATION SPEED: HIGH SUBSONIC
- ALTITUDE: UP TO 50,000 FEET
- UNREFUELED RANGE: 6,000 NM +
- HIGH RELIABILITY

ALL FEATURES DESIGNED TO MINIMIZE OBSERVABLE, RADAR, INFRARED, VISUAL, AND ACOUSTIC SIGNATURES



THE ORIGINAL B-2 MISSION STATEMENT

B-2
Stealth Bomber

"MISSION: THE ADVANCED STRATEGIC PENETRATING AIRCRAFT (ASPA) SHALL PROVIDE THE CAPABILITY TO CONDUCT MISSIONS ACROSS THE SPECTRUM OF CONFLICT, INCLUDING GENERAL NUCLEAR WAR, CONVENTIONAL CONFLICT, AND PEACETIME/CRISIS SITUATIONS."

IN 1981 THE B-2 WAS KNOWN AS THE ASPA. THE NAME HAS CHANGED, BUT THE MISSION REMAINS THE SAME

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Nuclear Deterrence

Our Number One Priority

B-2 Stealth Bomber

- DETERRENCE HAS PROVIDED THE FOUNDATION FOR U.S. MILITARY STRATEGY FOR OVER 40 YEARS

- SOVIET UNION REMAINS THE ONLY NATION THAT CAN DESTROY THE U.S. – WITHIN 30 MINUTES
  - THE POTENTIAL FOR NUCLEAR EXCHANGE IS AT ITS LOWEST POINT IN 40 YEARS, HOWEVER...
    - THE CONSEQUENCES OF FAILURE TO DETER ARE UNACCEPTABLE
  - SOVIETS CONTINUE MODERNIZING THEIR OFFENSIVE AND DEFENSIVE FORCES

- THE TRIAD IS A TIME-PROVEN HEDGE AGAINST SOVIET TECHNOLOGICAL BREAKTHROUGHS AND U.S. SYSTEM FAILURES

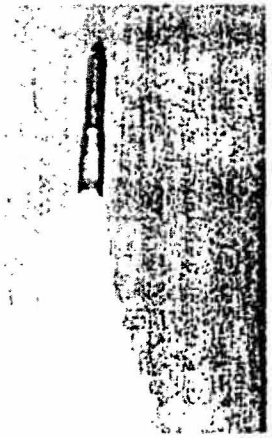
OUR REDUNDANT FORCES ARE A HIGH-VALUE INSURANCE POLICY

The Balanced Triad

B-2 Stealth Bomber

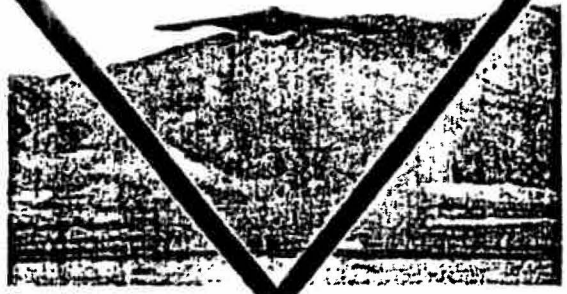
STRATEGIC TRIAD

ICBMs



- Use when deterrence fails
- Low O&S cost
- High day-to-day alert
- Immediate response
- No recall
- No recycle
- No conventional use

BOMBERS



- Demonstrates resolve in crisis before deterrence fails
  - — Most stabilizing
- Relieves decision time pressure
- Man-in-the-loop
- Most efficient weapon delivery
- Survivable
- Recallable
- Reuseable
- Rapid global conventional capability
- Proven in combat

SLBMs

- Use when deterrence fails
- Survivable
- Low cost/warhead
- Prompt response
- No recall
- No recycle
- No conventional use

Each President Has Requested More Options

B-2:
The Next Generation Stealth

B-2 Stealth Bomber

IF YOU LIKE THE F-117, WAIT TILL YOU SEE THE B-2

	PRECISION & STEALTH	B-2
BOMB DROPPERS	▲▲▲▲ ▲▲▲▲	▲ ▲
TANKERS	✈✈	
* COST (FY91$)	$1.5B	$1.3B

- BALANCED LOW OBSERVABLE DESIGN
- HIGH AND LOW ALTITUDE OPERATION
- LONGER RANGE WITH GREATER PAYLOAD
- TERRAIN FOLLOWING RADAR
- FAR LESS TANKER SUPPORT

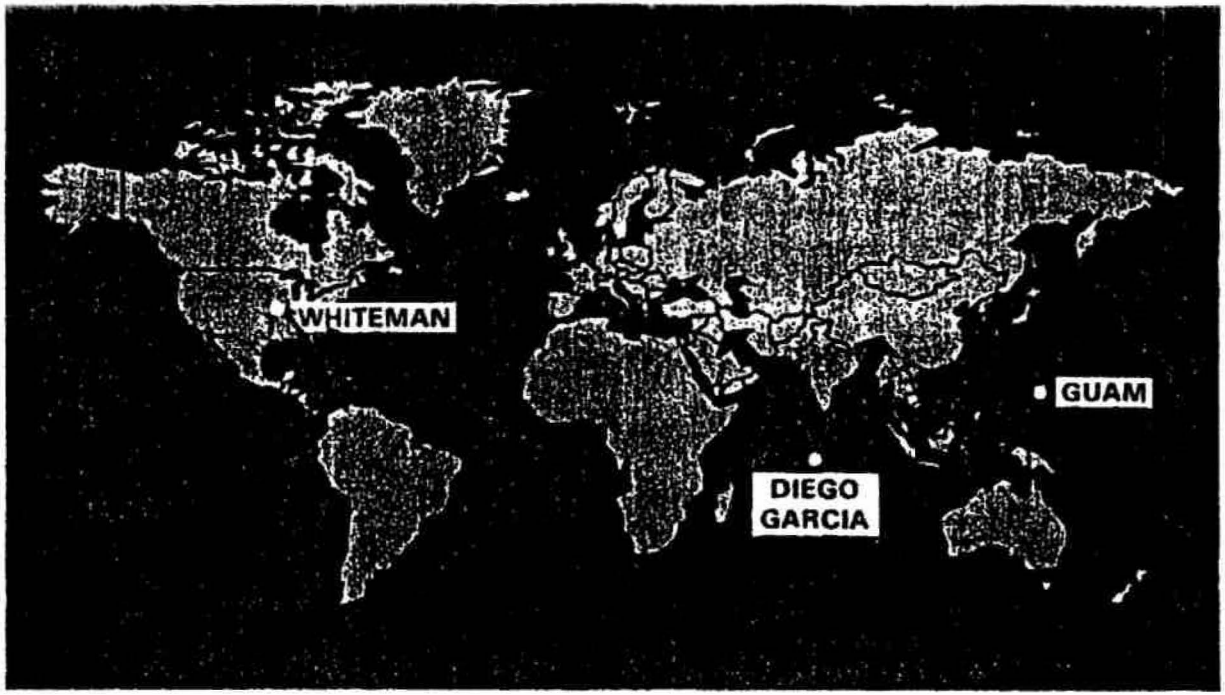
GREATER OPERATIONAL UTILITY

* Procurement and 20 year operations and support

B-2 Conventional Capability
Worldwide Force Projection Capability

B-2 Stealth Bomber

- 40,000 LB PAYLOAD + ONE REFUELING COVERS GLOBAL LANDMASS



B-2 CAN HOLD VIRTUALLY EVERY TARGET IN THE WORLD AT RISK WITHIN 24 HOURS

Cost Effective Force Multiplier

B-2 Stealth Bomber

- THE VALUE OF A B-2 WILL BE ITS ENDURING CONTRIBUTION TO NATIONAL SECURITY FOR MANY YEARS
- THE B-2 LEVERAGES OUR UP-FRONT INVESTMENT IN STEALTH TECHNOLOGY
- IN AN AUSTERE BUDGET ENVIRONMENT, THE B-2 WILL BE THE CENTERPIECE OF A SMALLER, MORE CAPABLE FORCE

Commitment to date	With Termination Cost (15 A/C - THEN STOP)	Additional Cost to go
$30.8B (TY$)	$36.4B (TY$)	$28.4B (TY$)

"WE HAVE INVESTED A HUGE AMOUNT IN THE B-2 ALREADY. WE ARE AT THE STAGE NOW WHERE WE CAN BEGIN TO REAP THE BENEFITS OF THAT INVESTMENT AND WE WANT TO GO FORWARD WITH THE 75 PLANES."

SECRETARY OF DEFENSE

Test Reports

B-2 Stealth Bomber

Block I Testing: Initial Performance Testing

"...from the data available, nothing we have seen would conflict with the expectations that the B-2 should provide a significant capability in range and payload performance and will essentially negate the large investments the Soviets have made in air defense."

Defense Science Board, 20 Jan 1990

"...In general, the B-2 has performed equal to or better than predicted in the areas of performance and flying qualities."

OSD/DOT&E, 11 Jun 1990

Block II Testing: Initial Low Observable Testing

"Based on flight test results to date, there are no indications that basic B-2 aircraft survivability is in jeopardy."

OSD/DOT&E, 25 Feb 1991

"...we found no substantive signature surprises. Based on our review of the test results, we see nothing that would lead us to believe that the B-2 will not be the highly survivable aircraft intended at the start of this important program."

Defense Science Board, 20 Feb 1991

"The early Block 2 flight tests were responsive to the 1991 full performance matrix requirement of taking early measurements of the radar signature. The test objectives were to provide a preliminary assessment of the radar signature for the first B-2 at selected frequencies intended to be representative of threat radars."

General Accounting Office, 15 Apr 1991

"Flight tests for the second B-2 adequately demonstrated some basic flight characteristics beyond those accomplished in Block 1 testing. The tests also demonstrated that new flight control software corrected flight stability problems identified in Block 1 testing."

General Accounting Office, 15 Apr 1991

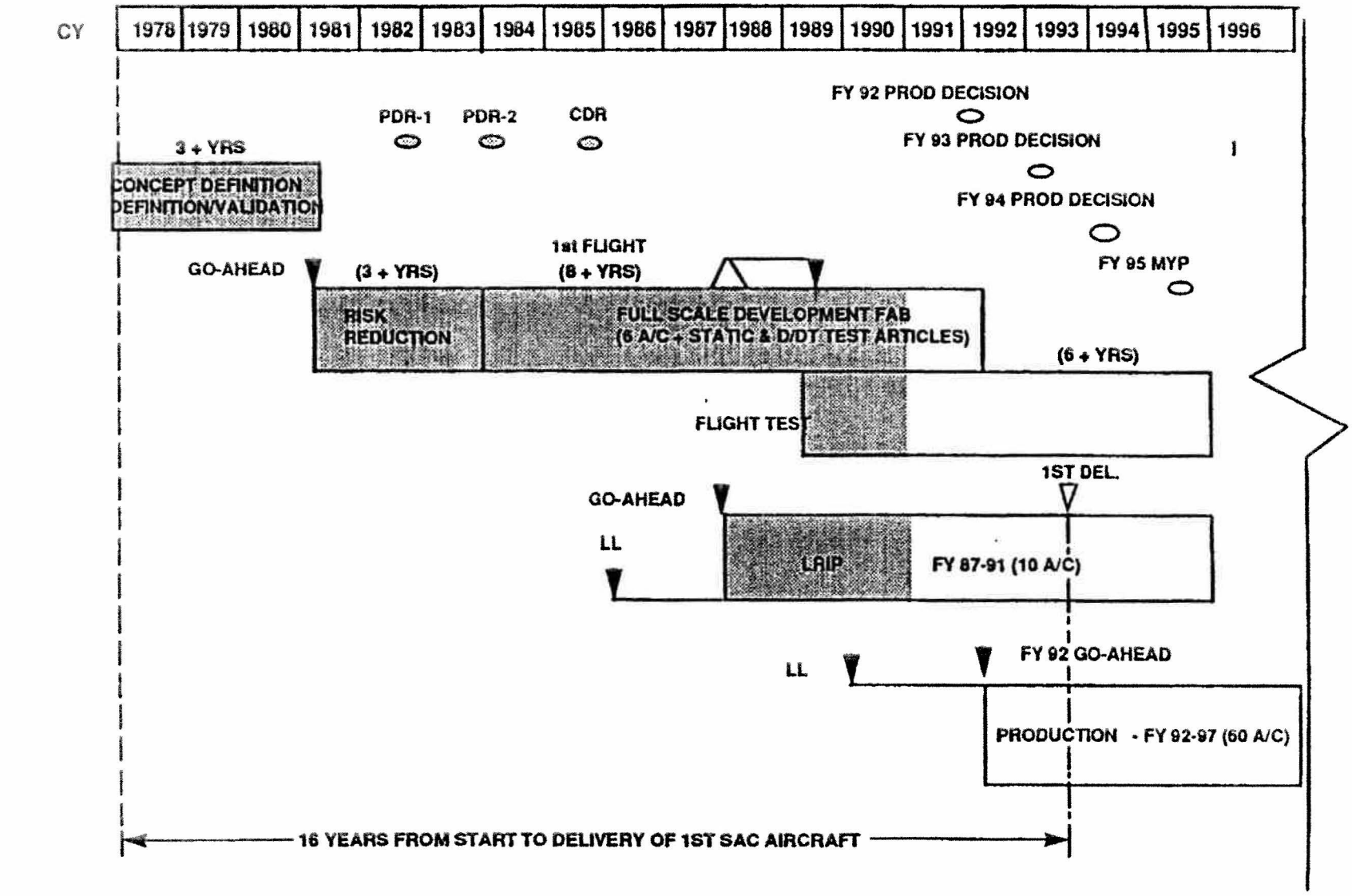
B-2 PROGRAM

B-2
Stealth Bomber

• PROGRAM INITIATION	1981
• FULL SCALE DEVELOPMENT	1983
• LOW RATE PRODUCTION	1987
• FIRST FLIGHT	1989
• FIRST SAC DELIVERY	1993
• TOTAL AIRCRAFT BUY	75 AIRCRAFT; 2 WINGS
• UNIT FLYAWAY COST	$437.4 MILLION (FY 91$)
• TOTAL PROGRAM COST	$60.8 BILLION (FY 91$)
—COMMITMENT TO DATE	$33.2 BILLION (FY 91$)

B-2 Program Schedule

B-2 Stealth Bomber



WHY B-2?

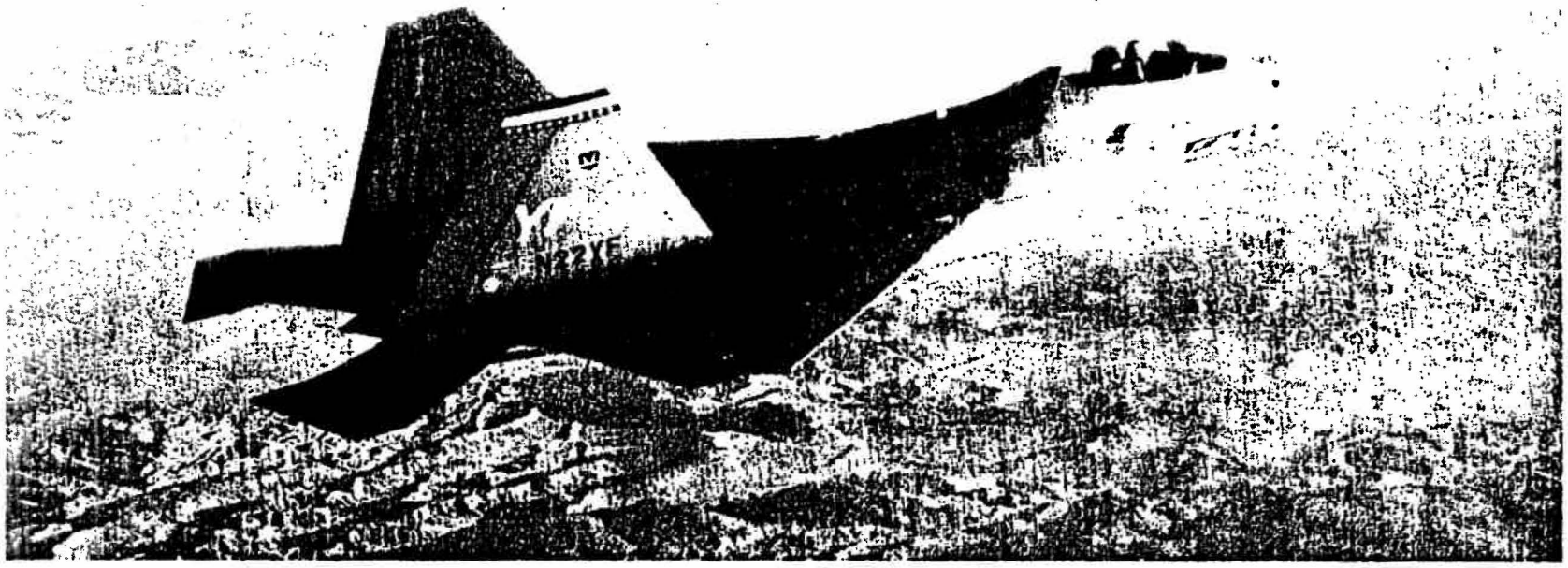
B-2
Stealth Bomber

- **MULTIROLE CAPABILITY**
  - —NUCLEAR DETERRENCE—OUR NUMBER ONE PRIORITY
  - —CONVENTIONAL WARFIGHTING—COMBINES F-117's SURVIVABILITY WITH RANGE/PAYLOAD OF THE B-52
- **STEALTH PAYOFF HIGH**
  - —LESS RISK TO CREW MEMBERS; MORE ACCURATE DELIVERY OF MUNITIONS
- **SUCCESSFUL TEST PROGRAM DEMONSTRATES B-2 WORKS**
  - —RESULTS CERTIFIED BY DEFENSE SCIENCE BOARD, INDEPENDENT TESTERS AND GAO
- **TIME IS RIGHT TO CAPITALIZE ON OUR INVESTMENT AND OUR SUCCESS**

TAB D

F-22 STEALTH FIGHTER

F-22
STEALTH FIGHTER

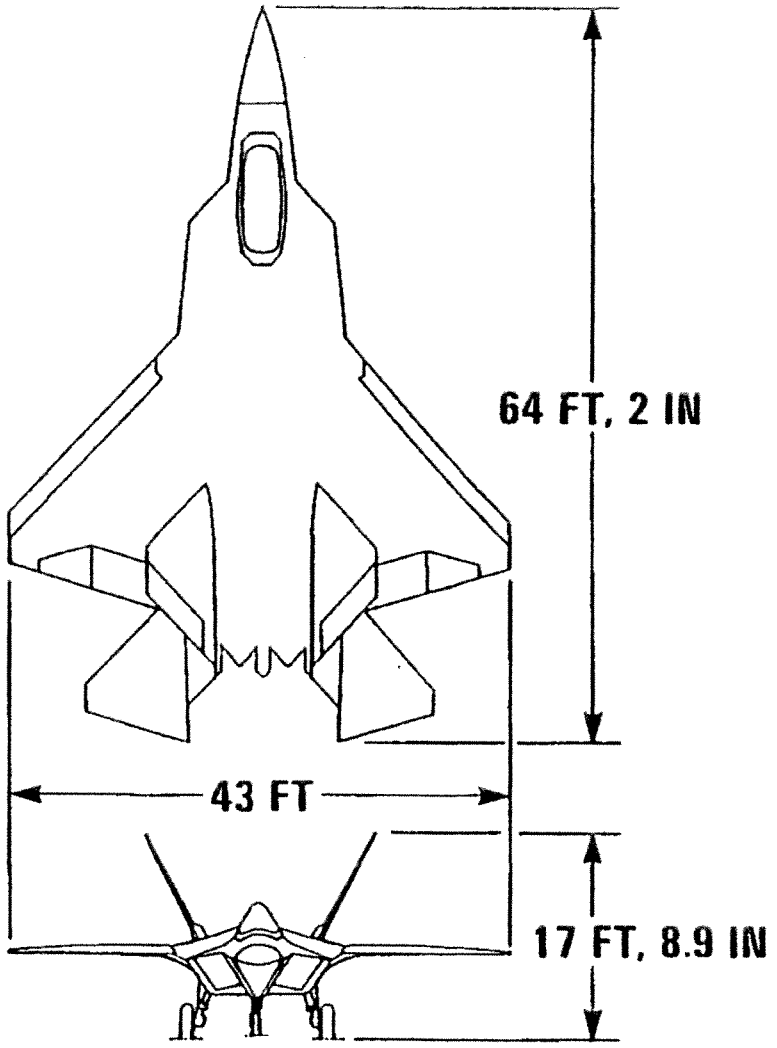


AIR SUPERIORITY FOR THE 21ST CENTURY

F-22 CHARACTERISTICS

F-22
Stealth Fighter

- LOW OBSERVABLE/HIGHLY MANEUVERABLE AIRFRAME
- LONG RADIUS OF ACTION WITH EXCELLENT PAYLOAD
- MACH NUMBER: 1.8 MACH+
- SUPERCRUISE IN MILITARY POWER: 1.4 MACH+
- ALTITUDE: 50,000 FEET
- HIGHLY RELIABLE INTEGRATED AVIONICS
- CREW: ONE
- ENGINES: TWO F119-PW-100
- ARMAMENT: AIM-9 SIDEWINDER
  AIM-120 AMRAAM
  20MM GATLING GUN



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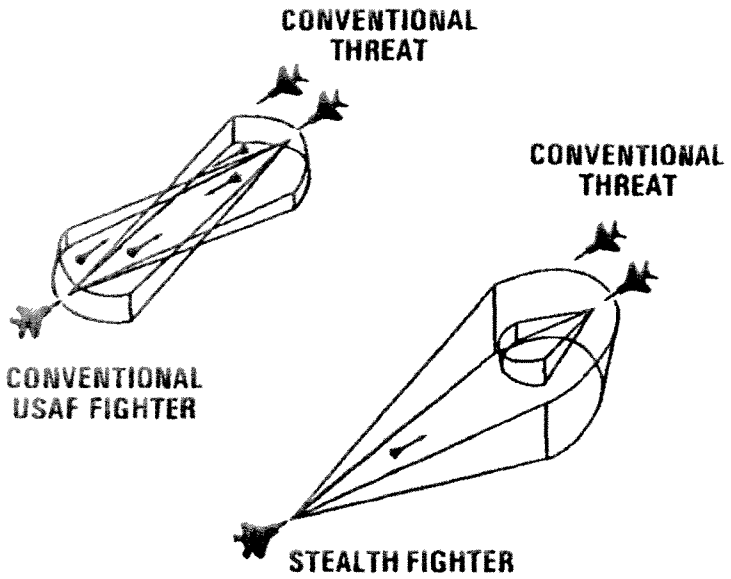
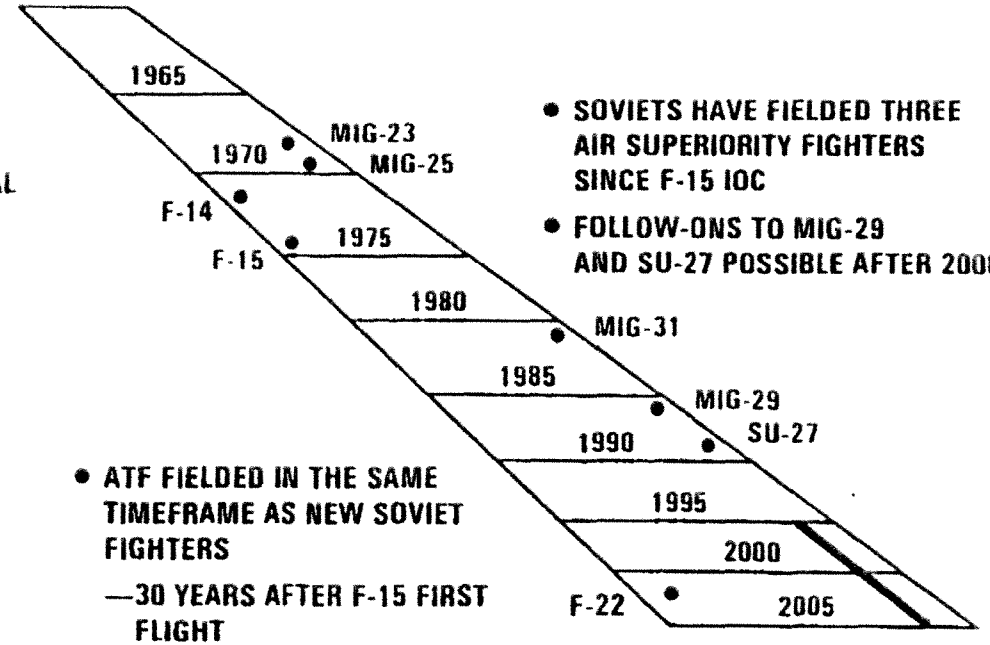
F-22 MISSION

F-22
Stealth Fighter

FIRST-LOOK
FIRST-SHOT
FIRST-KILL



AIR SUPERIORITY FIGHTERS



- SOVIETS HAVE FIELDED THREE AIR SUPERIORITY FIGHTERS SINCE F-15 IOC
- FOLLOW-ONS TO MIG-29 AND SU-27 POSSIBLE AFTER 2000
- ATF FIELDED IN THE SAME TIMEFRAME AS NEW SOVIET FIGHTERS
  - —30 YEARS AFTER F-15 FIRST FLIGHT

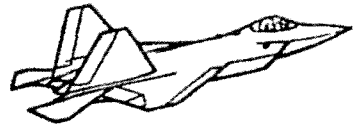
7416 25a

F-22 DEM/VAL
ACHIEVED PERFORMANCE

F-22
Stealth Fighter

- PROTOTYPE AIRCRAFT TESTED IN FOLLOWING AREAS
  - —THRUST VECTORING
  - —MANEUVERING TO 60-DEGREE ANGLE OF ATTACK
  - —AIM-9 AND AIM-120 LAUNCH
  - —MANEUVERING AT MINIMUM AIRSPEED
  - —HANDLING QUALITIES DURING TRACKING
  - —WEAPONS BAY ENVIRONMENT
  - —MACH 1.8+ (WITH F119 ENGINES)
  - —AIR REFUELING
  - —SUPERCRUISE
  - —LIMITED AIR STARTS

F-22 DEM/VAL ACHIEVED PERFORMANCE—Continued



F-22
Stealth Fighter

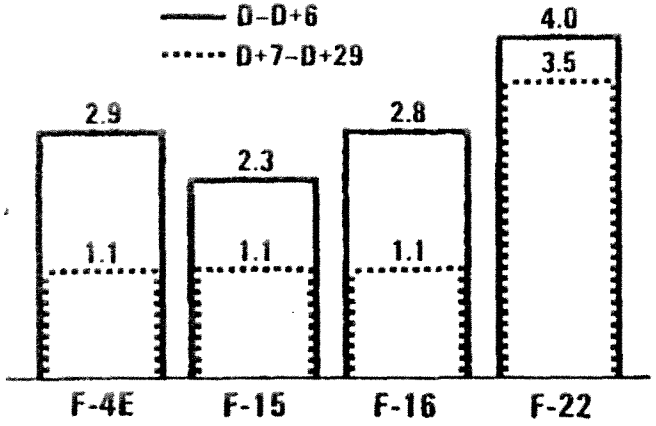
- **FLIGHT CONDITIONS**

—AIR SPEED KCAS	83 TO 630
—MACH NUMBER	0.25 TO 1.8 MACH +
—SUPERCRUISE	1.4 MACH +
—ALTITUDE (FEET)	2,300 TO 50,000
—NORMAL LOAD FACTOR	-1.0 TO 7.7
—ANGLE OF ATTACK (DEGREE)	-5 TO 62
—ANGLE OF SIDESLIP (DEGREE)	1.25 LEFT/RIGHT
—ROLL RATE (DEGREE/SECOND)	200 LEFT/RIGHT

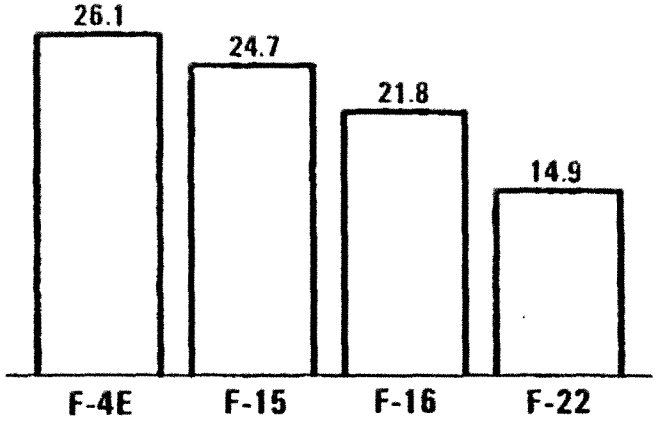
RM&S COMPARISONS

F-22
Stealth Fighter

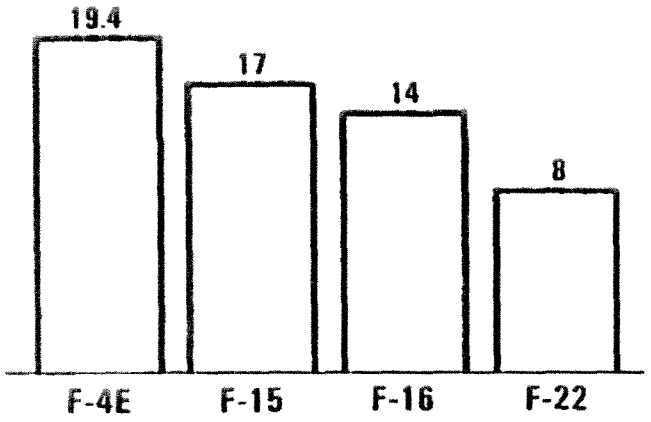
SORTIE GENERATION RATE



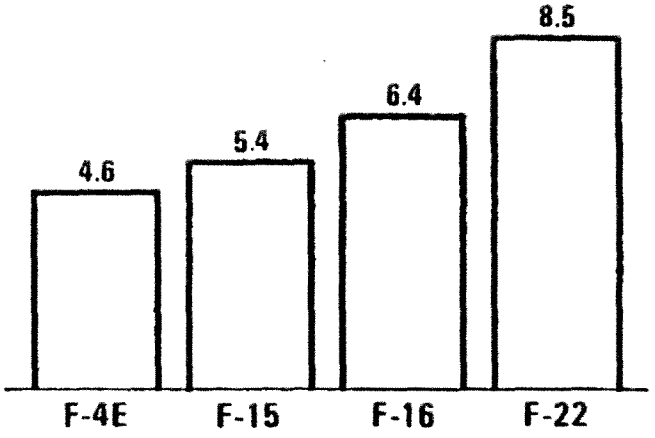
TOTAL MANPOWER SPACES PER AIRCRAFT



C-141s TO DEPLOY A 24 PAA SQDN



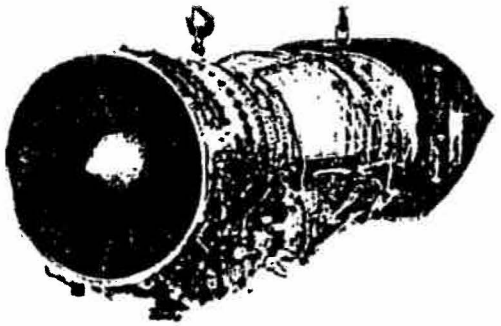
COMBAT RATE: SORTIES BETWEEN MAJOR MAINTENANCE



7419 8

F-22 PRATT & WHITNEY YF119 ENGINE

F-22
Stealth Fighter



TMS: YF119-PW-100

MFR: PRATT & WHITNEY

TYPE: TWIN-SPOOL AUGMENTED TURBOFAN

APPLICATION: ADVANCED TACTICAL FIGHTER

THRUST: 35,000 LB CLASS

ENGINE CONTROL: FULL AUTHORITY DIGITAL ELECTRONIC CONTROL

COMPRESSION SYSTEM: TWIN-SPOOL/COUNTER-ROTATING/ AXIAL FLOW
—3 STAGE FAN
—6 STAGE COMPRESSOR

COMBUSTOR: ANNULAR

TURBINE: AXIAL FLOW/COUNTER-ROTATING
—1 STAGE HIGH-PRESSURE TURBINE
—1 STAGE LOW-PRESSURE TURBINE

NOZZLE: VECTORING TWO-DIMENSIONAL CONVERGENT-DIVERGENT

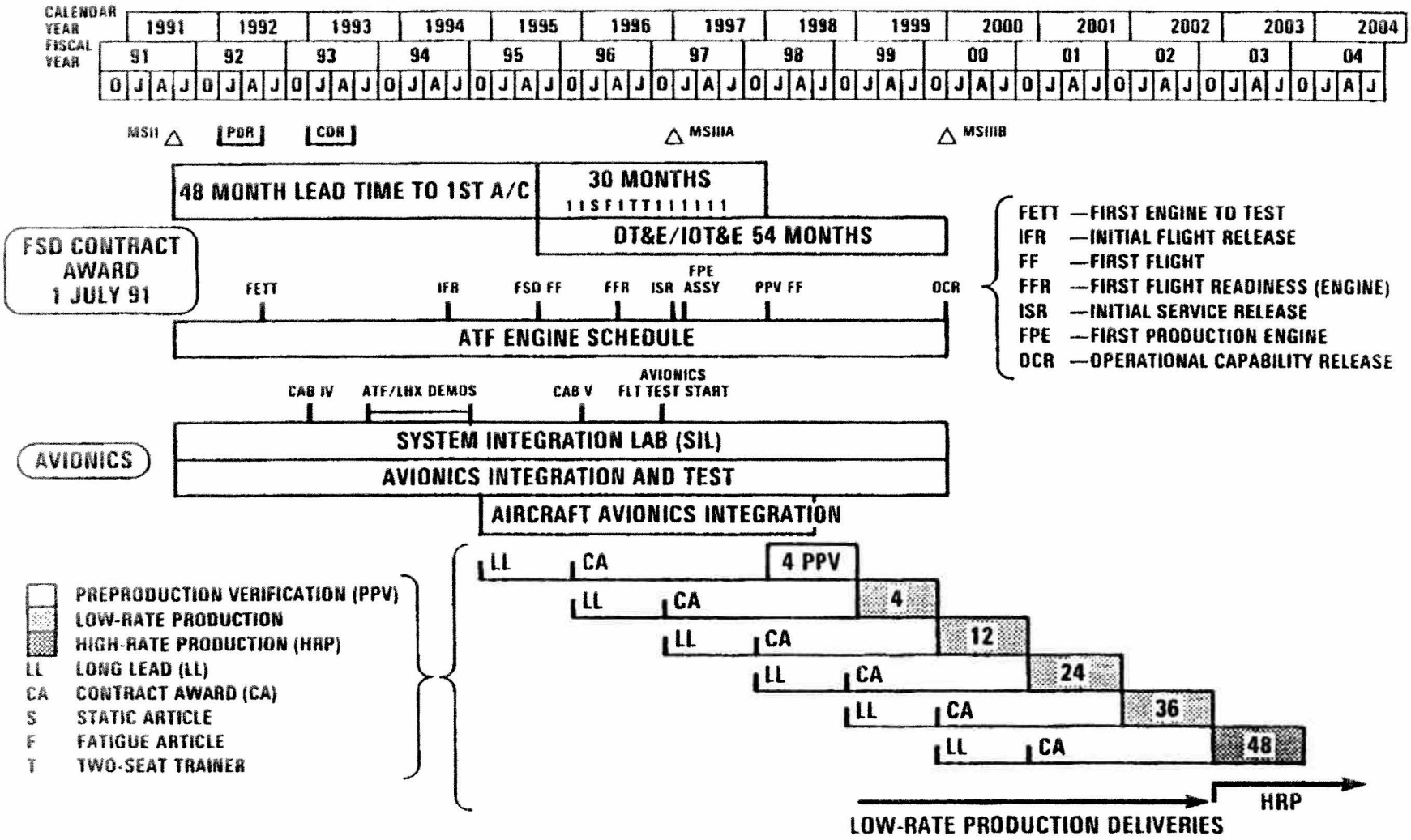
F-22 PROGRAM

F-22
Stealth Fighter

• DEMONSTRATION/VALIDATION PHASE	1986 TO 1991
• REQUEST FOR PROPOSAL RELEASE	1 NOV 1990
• DOWN SELECT	23 APR 1991
• DEFENSE ACQUISITION BOARD	JUN 1991
• ENGINEER MANUFACTURING DEVELOPMENT	JUL 1991
• 48 AIRCRAFT DELIVERED	2002
• TOTAL AIRCRAFT PROCUREMENT	648 AIRCRAFT TO SUPPORT 5.5 TACTICAL FIGHTER WINGS
• UNIT FLYAWAY	$59.4 MILLION (FY 91$)
• TOTAL PROGRAM	$61.5 BILLION (FY 91$)

F-22 FULL-SCALE DEVELOPMENT SCHEDULE

F-22
Stealth Fighter



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WHY F-22?

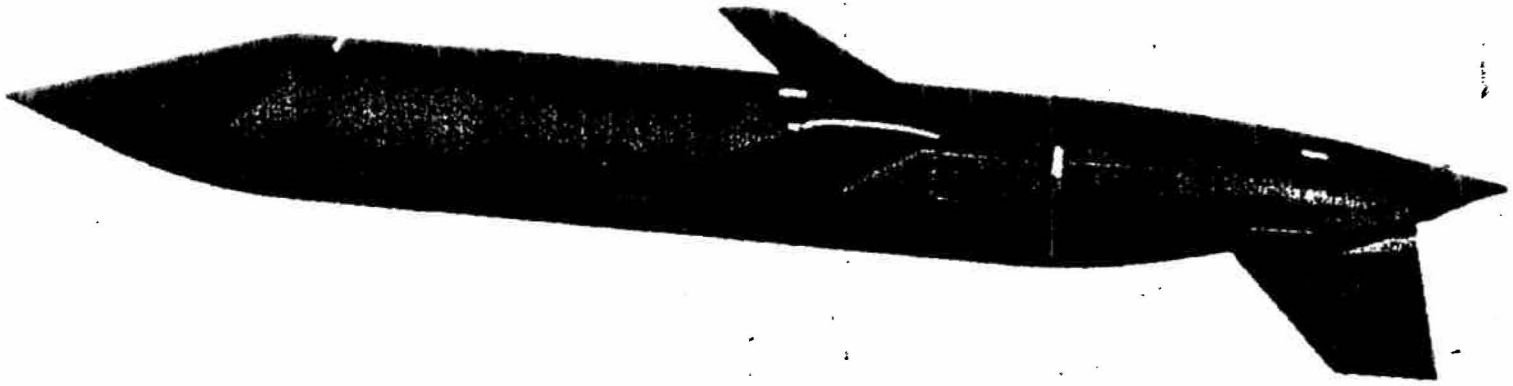
F-22
Stealth Fighter

- FREEDOM OF MANEUVER FOR GROUND, AIR, AND NAVAL FORCES IS A NECESSITY FOR SUCCESSFUL ACCOMPLISHMENT OF MILITARY OBJECTIVES
- AIR SUPERIORITY IS REQUIRED TO PROVIDE THIS FREEDOM OF MANEUVER FOR ALL PHASES OF MILITARY OPERATIONS
  - —PREVENTS ENEMY AIR ATTACK ON FRIENDLY SURFACE FORCES
  - —ALLOWS INTERDICTION AND CLOSE AIR SUPPORT TO PROVIDE EFFECTIVE SUPPORT OF FRIENDLY FORCES
  - —ALLOWS SEALIFT AND AIRLIFT AIRCRAFT FREEDOM TO DEPLOY AND RESUPPLY FRIENDLY FORCES
- THREATS THAT DENY AIR SUPERIORITY?
  - —ENEMY FIGHTER AIRCRAFT
  - —ENEMY SURFACE-TO-AIR MISSILES (SAMs)

TAB E

ADVANCED CRUISE MISSILE

ADVANCED CRUISE MISSILE



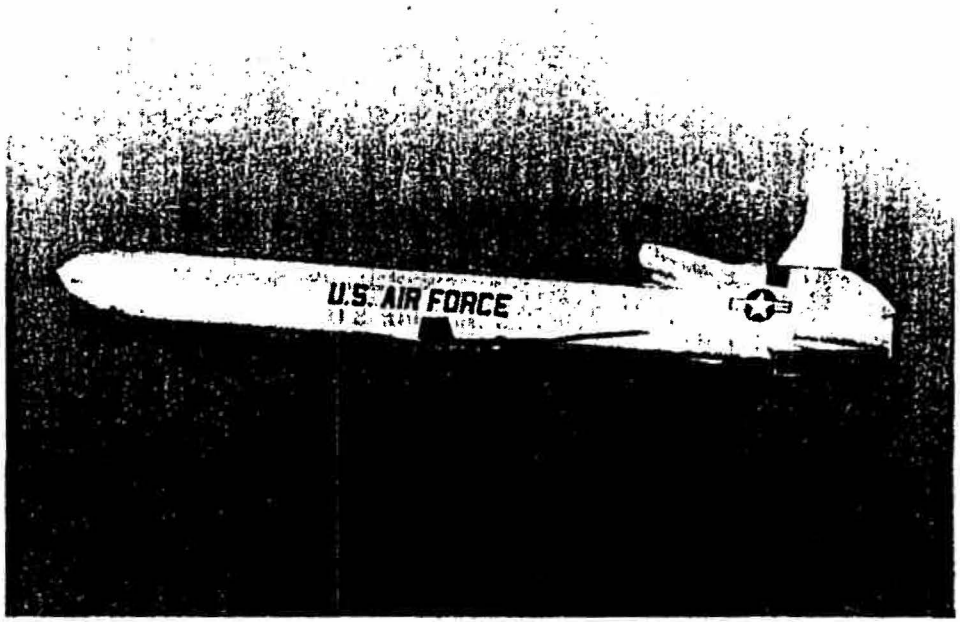
DETERRENCE FOR THIS CENTURY AND THE NEXT

7419 10

CRUISE MISSILE EVOLUTION

Advanced
Cruise Missile

- SLOWLY, AS TECHNOLOGY HAS IMPROVED, THE PERFORMANCE OF CRUISE MISSILES HAS IMPROVED ALSO
- THE FIRST MISSILES ONLY HAD TO FLY A FEW HUNDRED MILES AND BE ABLE TO STRIKE A CITY-SIZED TARGET—AND OFTEN FAILED EVEN IN THAT
- NOW THE MISSILES CAN FLY THOUSANDS OF MILES AND STRIKE WITH GREAT ACCURACY
- THE ADVENT OF NUCLEAR WEAPONS PROVIDES A WARHEAD THAT MAKES A CRUISE MISSILE A SERIOUS DETERRENT

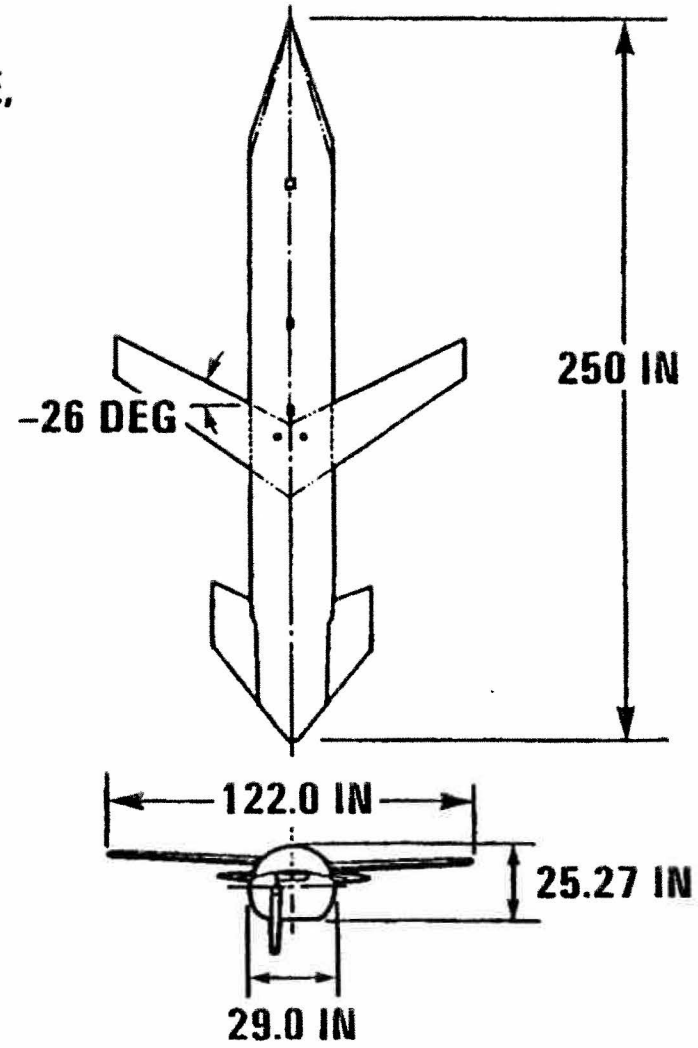


ALCM-B

ADVANCED CRUISE MISSILE CHARACTERISTICS

Advanced
Cruise Missile

- BETTER ACCURACY, RANGE, AND SURVIVABILITY
- HARD TARGET CAPABLE
- COMPLICATES ENEMY AIR DEFENSES
- INCREASED STANDOFF RANGE
  - —IMPROVES BOMBER SURVIVABILITY



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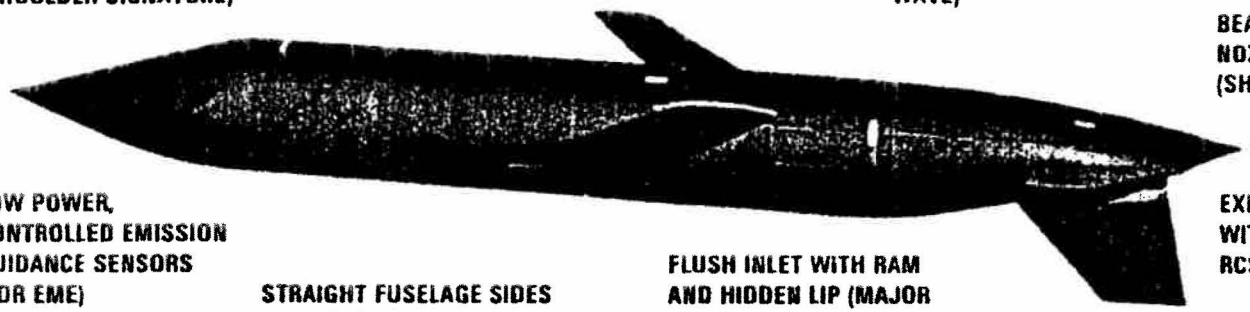
ADVANCED CRUISE MISSILE (AGM-129A)

Advanced
Cruise Missile

SIGNATURE REDUCTION CHARACTERISTICS



LOW-REFLECTANCE PAINT (FOR IR AND VISUAL)

FORWARD SWEPT (LOW FRONTAL RCS)
RADOME-STRUCTURED WINGS (REDUCES LOW-FREQUENCY RCS)

BODY RAM (REDUCES SPECULAR AND TRAVELING WAVE)

CHINES (REDUCES SHOULDER SIGNATURE)

SHARP NOSE CONE (FOR LOW FRONTAL RCS)

BEAVERTAIL NOZZLE SHIELD (SHIELDS IR AND RADAR)

LOW POWER, CONTROLLED EMISSION GUIDANCE SENSORS (FOR EME)

STRAIGHT FUSELAGE SIDES (PROVIDES NARROW BROADSIDE)

FLUSH INLET WITH RAM AND HIDDEN LIP (MAJOR RCS REDUCTION)

EXHAUST MIXER 2-D NOZZLE WITH RAM (LOW AFT END RCS ACOUSTIC AND IR)

RADOME STRUCTURED FINS (REDUCES LOW-FREQUENCY RCS)

7416 18

ADVANCED CRUISE MISSILE MISSION

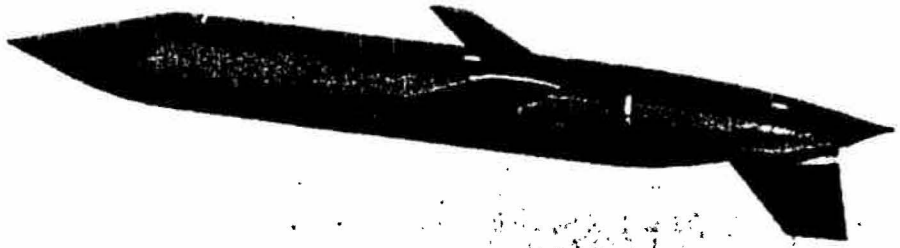
Advanced
Cruise Missile

- ENHANCE THE LONG-TERM EFFECTIVENESS OF THE BOMBER LEG OF THE TRIAD WITH A CRUISE MISSILE CAPABLE OF DEFEATING PROJECTED SOVIET DEFENSES. ACM HAS
  - —GREATER RANGE
  - —IMPROVED SURVIVABILITY
  - —INCREASED ACCURACY
  - —ENHANCED OPERATIONAL FLEXIBILITY
  - —MAXIMUM COMPATIBILITY WITH OTHER STRATEGIC SYSTEMS

ACM UNIQUE CONTRIBUTIONS

Advanced
Cruise Missile

- THE ACM SHARES AN ADVANTAGE WITH THE EARLIEST CRUISE MISSILES: IT GREATLY COMPLICATES ENEMY DEFENSE PLANNING
- CRUISE MISSILES ACT AS A FORCE MULTIPLIER: ONE BOMBER ORIGINATES A DOZEN INDEPENDENTLY FLYING THREATS
- AND THE ACM ADDS ITS OWN UNIQUE TWIST: IT IS NEARLY UNDETECTABLE EXCEPT AT THE VERY CLOSEST OF RANGES



7419 18

ACM F-112-WR-100 TURBOFAN ENGINE

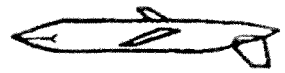
Advanced
Cruise Missile

- LOW BYPASS RATIO TURBOFAN WITH MIXED-FLOW EXHAUST, DEVELOPED ESPECIALLY FOR THE ACM
- MANUFACTURED BY WILLIAMS INTERNATIONAL COMPANY, WALLED LAKE, MICHIGAN

FEATURES

THRUST CLASS:	500-750 POUNDS
WEIGHT:	161 POUNDS
FUEL TYPE:	JP-10
LENGTH:	31 INCHES
DIAMETER:	18.5 INCHES (WITH ACCESSORIES)

ACM GUIDANCE SYSTEM



Advanced
Cruise Missile

- A HIGH-ACCURACY INERTIAL NAVIGATION SYSTEM THAT PROVIDES A SIGNIFICANT IMPROVEMENT OVER ALCM
- MANUFACTURED BY KEARFOTT GUIDANCE AND NAVIGATION CORPORATION, WAYNE, NEW JERSEY

FEATURES

- HIGH-SPEED DIRECT MEMORY ACCESS PROCESSOR WITH 128K OF RANDOM ACCESS MEMORY AND 64K OF ELECTRICAL ERASABLE PROGRAMMABLE READ-ONLY MEMORY
- LASER DOPPLER VELOCIMETER SENSOR THAT MEASURES MISSILE GROUND VELOCITY AFTER LAUNCH
- FOUR-GIMBAL TUNED ROTOR GYROSCOPE INERTIAL GUIDANCE PLATFORM THAT PROVIDES HIGHLY ACCURATE POSITION LOCATION

ADVANCED CRUISE MISSILE PROGRAM

Advanced
Cruise Missile

• FULL-SCALE DEVELOPMENT BEGAN	APR 1983
• FIRST FLIGHT	JUL 1985
• PILOT PRODUCTION	JUL 1985
• TOTAL BUY (INCLUDING 120 SPECIAL VARIANTS)	1,000
• PRODUCTION DECISION	SUMMER 1991
• UNIT FLYAWAY COST	$3.8 MILLION (FY 91$)
• TOTAL PROGRAM COST	$6.4 BILLION (FY 91$)

ACM TODAY AND TOMORROW

Advanced
Cruise Missile

- THE ACM IS NOT JUST DESIGNED TO MEET CURRENT THREATS BUT WILL BE USEFUL WELL INTO THE NEXT CENTURY
- AS MISSILE CARRIER AIRCRAFT AGE AND ARE REMOVED FROM THE CRUISE MISSILE CARRIER OR PENETRATION ROLES, THE ACM CAN BE REDEPLOYED TO EXTEND THE USEFUL LIFE OF AIRCRAFT
- ACM FLEXIBILITY ADDRESSES AIR FORCE STRATEGIC AND BUDGETARY CHALLENGES

ACM TODAY AND TOMORROW

Advanced
Cruise Missile

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