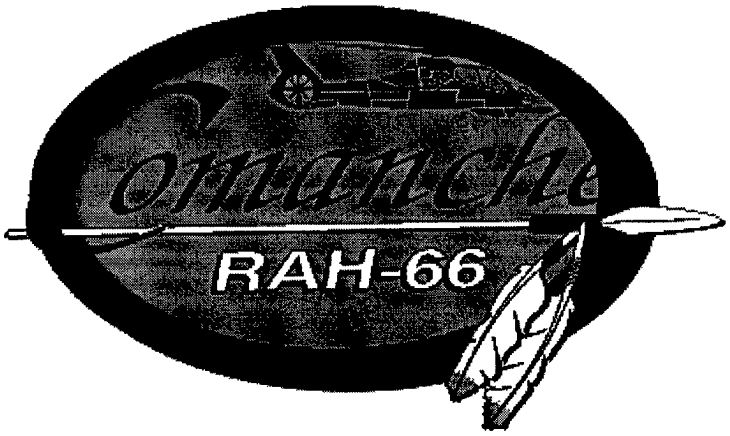

21st Century Multi-Mission Helicopter

The end of the Cold War did not bring an end to the challenges facing the defense of the United States. In fact, the world has become more unstable with the dismantling of the Soviet Union.

The flow of sophisticated arms to anyone with hard currency has increased regional instability. Ethnic and religious strife has re-emerged. And as the armed forces of small countries acquire high technology weapons, the threat of eventual American involvement increases.

Shrinking American defense budgets and reduced U.S. presence overseas will require a smaller, highly mobile Army. An Army that can rapidly deploy to trouble spots around the globe, find and defeat a wide range of threats, and be supportable in the field without a burdensome logistics tail.

DoD studies reveal that battlefield success is heavily contingent on good reconnaissance.

And Desert Storm proved that satellite and fixed wing reconnaissance assets cannot provide the close battle target information needed in highly fluid tactical situations. Neither can the Army's current light helicopter fleet.

The OH-58, OH-6, and AH-1 light helicopters are over 30 years old when the first Comanche is fielded. They lack range, speed, payload, and agility. They are expensive to operate, especially in harsh desert environments. They lack low observable features necessary to operate and survive on the modern battlefield, and are vulnerable to ground fire. They cannot operate safely at night or in adverse weather. And, they cannot be upgraded to meet the challenges the U.S. will face in the future.

Only RAH-66 Comanche has been designed to fulfill these requirements and enhance the effectiveness of Army Force Projections.

America needs Comanche.

Now.. more than ever.

- ***Boeing Sikorsky Team Members***
- ***The Comanche Courier***
- ***Why Comanche?***
- ***Tactical Reconnaissance and More...***
- ***Capability***

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- *Affordability*
- *Specifications*
- *RAH-66 is a key part of the US Army's 21st Century Modernization Plan*

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Creation By: **Driven By:**

DynTech Dynamic Technology, Inc.

NETSCAPE ENHANCED

Team Comanche Members

Team Comanche is led by Boeing Rotocraft in Philadelphia, PA., and United Technologies' Sikorsky Aircraft, Inc., Stratford, Conn.

BOEING SIKORSKY
RAH-66 TEAM COMANCHE

- **Boeing - Philadelphia** -- Mission Equipment Package integration, flight controls, and supportability system.
- **UTC Sikorsky Aircraft**
- **U.S. Army** -- Requirement validation, operational test and evaluation
- **Hamilton Standard Corporation, Division of United Technologies Corporation** -- Environmental control system
- **Harris Corp.** -- 3D digital map, controls and displays, and super high-speed fiber optic data buses
- **General Dynamics** -- 20mm gun
- **Hughes Training** -- Integrated Training System
- **Kaiser Electronics** -- Helmet mounted display/electronics
- **Lear Astronics** -- Flight control computer, controller grips
- **LHTEC** -- T-800 engines
- **Litton Guidance and Control** -- Inertial navigation sensors
- **Lockheed Martin** -- Night Vision Pilotage System and Target Acquisition/Designation System
- **Moog, Inc.** -- Flight control actuators
- **Sundstrand Electrical Power Systems** -- Power generation, control and distribution system
- **TRW Avionics Systems Division** - Integrated Communication Navigation and Identification system
- **Northrop Grumman** -- Signal and data processors, Aided Target Detection/Classification systems
- **Williams International** -- Secondary Power Unit

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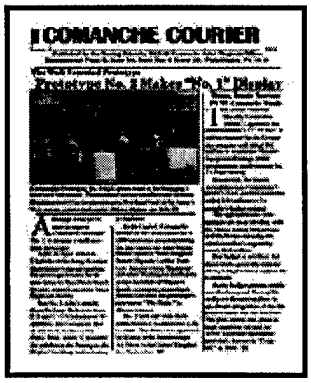

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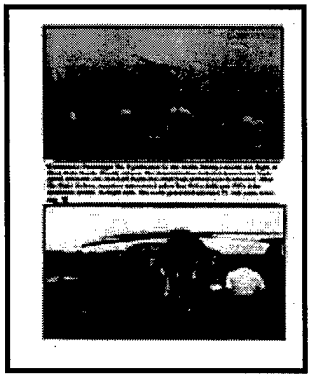

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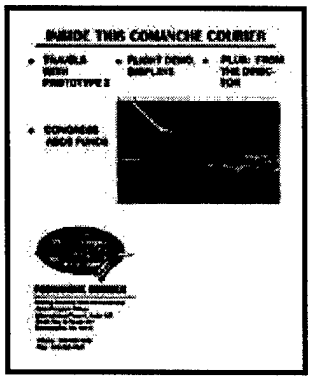

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THE COMANCHE COURIER

Issue 2 — 1998

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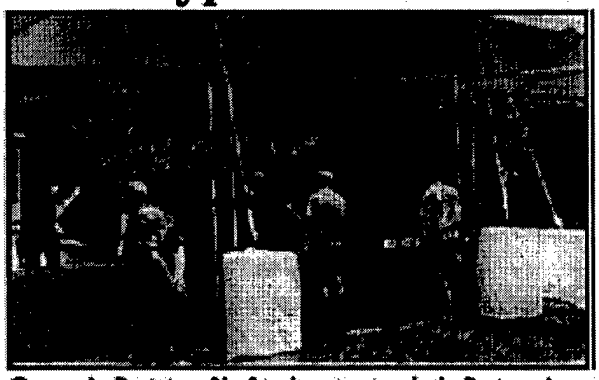
The Well-Traveled Prototype

Prototype No. 2 Makes "No. 1" Display



Comanche Prototype No. 2 took center stage in the Pentagon's courtyard last month. Thousands of service members and Defense Department civilian employees got a first-hand look at the Army's 21st century combat helicopter. (More photos, pp. 2-3) □

Although it has yet to start an engine, Comanche Prototype No. 2 is already a well traveled helicopter.

After its April debut in Charlotte at the Army Aviation Association's annual meeting, the prototype headed for its new home in West Palm Beach, Florida, at the Comanche Team flight test facility.

But No. 2 didn't remain there for long. With help from C-5 and C-17 Globemaster III airlifters, the Comanche flew to and from Andrews Air Force Base, where it prepared for exhibits at the Pentagon, the Capitol building, and a display at Andrews.

At the Capitol, Comanche served as the centerpiece for a USO ceremony commemorating the late movie star John Wayne. House Speaker Newt Gingrich, Senate Majority Leader Trent Lott, Senator Strom Thurmond and other Washington luminaries joined members of Wayne's family as country singer Garth Brooks unveiled the prototype's new name, "The Duke," in Wayne's honor.

No. 2 will add even more miles before it is scheduled to fly in 1999. The Army has approved its display at the Farnborough Air Show in the United Kingdom this September. □

House, Senate Increase FY'99 Comanche Funds

The House National Security Committee (HNSC) approved the administration's FY'99 $367.8-million request for the Comanche program and added $62 million to accelerate Mission Equipment Package (MEP development and Prototype No. 2's flight testing.

Meanwhile, the Senate Armed Services Committee's (SASC) Air/Land Subcommittee added $24 million to Comanche's budget request.

The appropriations committees are more divided, with the House adding $24 million and the Senate reducing the administration's request by nearly $19 million.

The budget is not final, but these marks generally indicate strong Congressional support for Comanche.

As the budget process continues, the Army and Boeing Sikorsky are discussing plans to accelerate integration of the fire control radar into the RAH-66. The plan would also phase in high capability aircraft for Army's planned digitization exercises, known as "Corps 04," in 2004. □

Boeing Sikorsky RAH-66 Comanche

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FROM THE DIRECTOR

Thanks to renewed support from our Army customer and Congress, the Comanche program looks stronger than ever.

Both House and Senate authorization committees have approved the administration's full request for Fiscal Year 1999 and, in an exceptionally tight budget year, have provided additional funds to accelerate the program.

The House appropriators followed suit, but the Senate has broken ranks, calling for a reduction in our request. We hope and expect this disparity will resolve itself in our favor in conference.

Letters and calls to Congress reflecting Team concerns will be especially useful now. Statements of support are key to assuring we achieve an "add-on" for FY 99.

The Army is also considering methods to reduce program costs without sacrificing capability.

Technology advances in several areas are generating promised savings.

At the same time, we are working with the Army to align RAH-66 development more directly to the Army's Corps '04 digitization exercises, enabling us to demonstrate the full range of Comanche capabilities in the 21st century battlespace environment.

The Army will plan to develop Comanche tactics, techniques and procedures based on fully functional aircraft used in their future testing and to enhance support system development in several critical areas.

These initiatives will be considered and implemented with potential cost efficiencies in mind. We are confident that we will meet or exceed our performance requirements within stringent cost expectations.

None of these developments would have been possible, however, without exceptional performance from our team members.

Getting the program to this point has been an uphill battle, but these efforts appear to be paying off.

In the future, maintaining excellent performance will be an absolute requirement to ensure we solidify our program gains. □

– Art Linden

Country singer Garth Brooks (in hat) unveils Prototype No. 2's new name, "The Duke," in honor of actor John Wayne. Wayne's children (behind podium) and House Speaker Newt Gingrich, Senate Majority Leader Trent Lott, and Army Secretary Mike Walker (l. to r.) look on at USO ceremony as press photographers snap pictures. □

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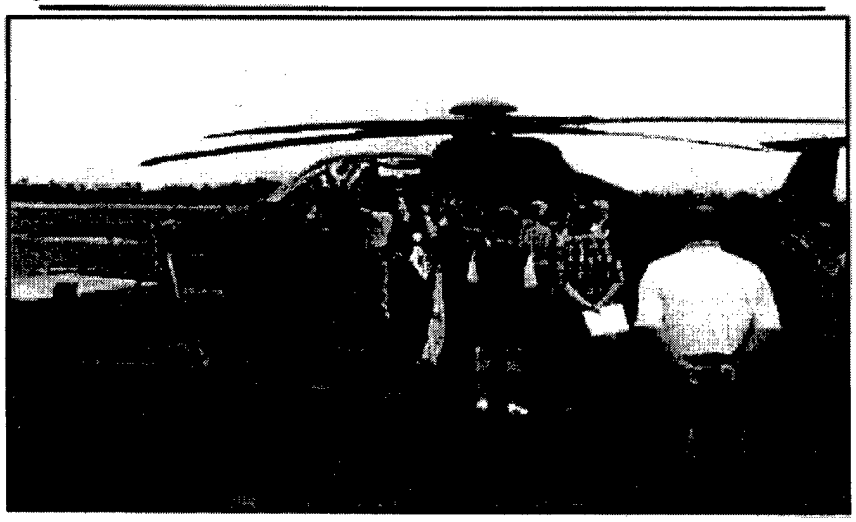
Comanche Prototype No. 1 performed for the media during a recent test flight in West Palm Beach, Florida (above). The demonstration included hover turns, high-speed sideward and rearward flight and other high performance maneuvers. After the flight (below), reporters interviewed pilots Rus Stiles (left) and CW4 John Armbrust (center, in flight suit). The event generated national TV and press coverage. ☐



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- FLIGHT DEMO, DISPLAYS
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- CONGRESS ADDS FUNDS

COMANCHE COURIER

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Comanche Overview

Comanche meets the Armed Reconnaissance challenge

- Gives battle commanders the information needed to direct firepower on high value targets
- Seven times quicker in visually detecting and classifying targets
- Minimizes "friendly fire" fratricide casualties
- Designed for the digital battlefield

Comanche sees without being seen

- Better Night Vision & Pilotage Systems:
  - 100% Greater Resolution
  - 50% Greater Detection Range
  - 40% Greater Identification Range
  - 35% Wider Field of View
- Low Detectability:
  - 200 to 600 times lower radar signature
  - 2 to 4 times lower IR signature
  - 2 to 6 times less detectable by humans (aural) and acoustic sensors (electronic)

Comanche drives down Operation and Support costs.

- Simplied maintenance:
  - Portable intelligent maintenance aid
  - Built-in diagnostics/prognostics
  - Modular design
  - Needs only 2-level maintenance
  - Only 49 flight line maintenance tools
- Simplified air and ground crew training:
  - Aircraft-embedded training systems
  - Initial and sustaining simulation-based aircrew training
  - Theory classes presented by an Electronic Information Delivery System
  - No maintenance training aircraft required
  - Onboard mission rehearsal system
  - Hands-on maintenance training using hardware devices

Comanche is Flexible

- Designed for armed reconnaissance, attack, and air-combat missions
- 1292 Comanches will replace 3100 Vietnam-era light helicopters
- Self-deploys to Europe, Africa, Asia, the Caribbean, and Central and South America
- Rearms and refuels in under 15 minutes

Comanche is Survivable

- Low detectability
- Effective onboard countermeasures
- Ballistically-tolerant composite airframe, flight controls, fuel system, and rotors
- Redundant, self-healing electronics
- Crashworthy airframe, landing gear, crew seats, and fuel system
- Can operate in Nuclear, Biological, and Chemical (NBC) environments

Comanche is Lethal

- Three-barrel turreted 20mm gun with 500 rounds
- Internal and external missile stations
- Advanced technology aided target detection and classification
- Compatible with most US/NATO missiles and rockets

Comanche enhances American Technology

- Will help the US maintain its Worldwide lead in helicopter and electronic technologies
- Only new US helicopter development in the foreseeable future
- Comanche-developed technologies have far-reaching applications for upgrading other defense systems
- The cornerstone of Army modernization ensures military preparedness for the 21st century
- 17 major aerospace manufacturers participate in the Comanche program

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Multi-Mission and More...

The RAH-66 Comanche is the key tactical player on the 21st century joint reconnaissance attack team that includes strategic, operational, and tactical reconnaissance resources.

The Comanche flies low and deep into enemy territory to overcome the enemy's use of terrain and weather, camouflage, and deception which limit the capability of space and high-flying strategic surveillance systems.

The Comanche has integral armament to develop the situation by fire, execute counterrecon missions, and provide security for ground forces.

21st Century Joint Surveillance/Reconnaissance Team

	Surveillance			Reconnaissance
Intelligence Source	Satellites	JSTARS	UAV's	RAH-66
Strategic (National Security)	✓	✓		
Operational (Theater Commander)	✓	✓		
Tactical (Battle Commander)			✓	✓
- Armed Reconnaissance				✓
- Counterrecon				✓
- Battle Damage Assessment				
Imagery			✓	✓
Man in the Loop				✓
- Screen, Cover, Guard Missions				✓
- Direct Target Handover				✓

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Capability

The U.S. Army is developing the RAH-66 Comanche incorporating passive low observable, advanced long-range sensors, and massive processing power to give it unprecedented survivability and situational awareness.

The power of integrated technology is essential in performing 21st century tactical reconnaissance missions. Comanche's system integration pays off in many important ways:

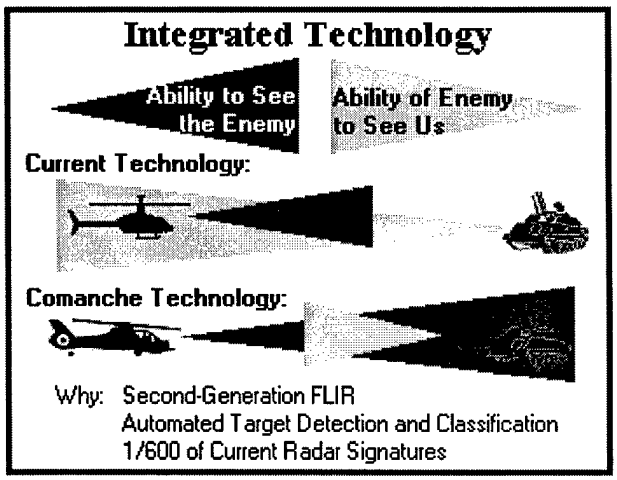
- The combination of low observables, 2nd-generation FLIR, and automated target classification and priority allows the Comanche to penetrate deep, acquire detailed intelligence and target data, and remain undetected.

- It can hand off precise target positions directly to the shooters in seconds.

- Comanche provides accurate battle damage assessments with man-in-the-loop validity.

- Its interoperability with JSTARS/AWACS allows the battle commander to utilize Comanche to see the battlefield, understand ' the enemy and shape conditions to permit decisive opeations.

- It is the only system that can successfully operate in, detect, and report biological and chemical contaminants.



- Its secure digital software configured communications capability makes Comanche interoperable with coalition and joint forces and is the critical node in the Army's digitized battlefield network.

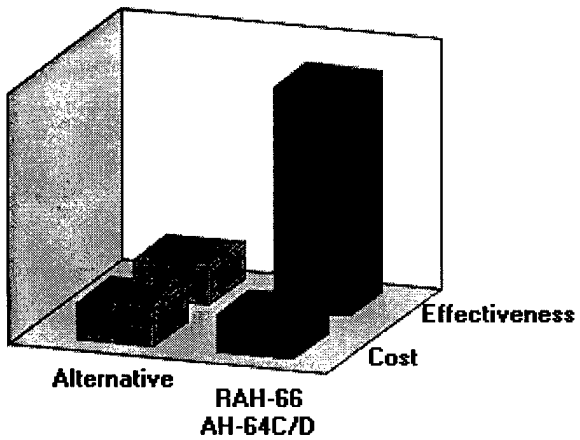
- It can operate 24 hours around the clock in night, adverse weather, and battlefield obscurant conditions.

RAH-66 integrates battlefield sensors, shooters, and the tactical command and control system. The Comanche's tactical role is both offense and defense acquiring and distributing target information and battlefield intelligence to joint services intelligence, maneuver, and fire support elements, including armor, artillery, infantry, aviation, and USAF and Navy strike systems and applying combat power to ensure operations achieve intended results with minimum/no U.S. or Alllied casulties.

Affordability

The RAH-66 program consumes only 4.4 percent of the U.S. Army's research, development, and acquisition (RDA) budget during the development phase (1995-2003).

More importantly, the 20-year life-cycle costs of a Comanche force is within 30 percent less than an upraged current fleet while providing 5.4 times the effectiveness.



- RAH-66 provides a reduction in operating and support costs, a saving of $20 billion over 20 years.
- A Comanche force would represent a fleet cost savings of $1 million per flight hour.
- 19 major studies and three COEA's have come to the same conclusion: RAH-66 is the most cost-effective weapons system for armed recon and attack.

The Comanche Courier	Why Comanche?	Specifications	Reconnaissance and More...
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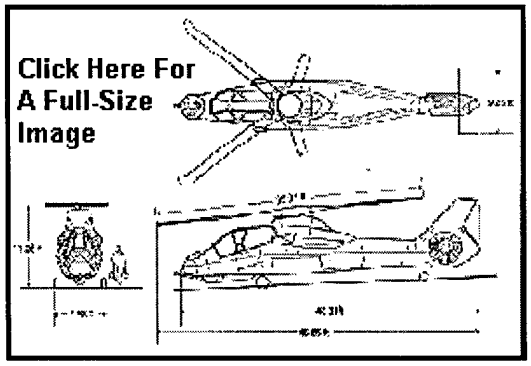
Specifications



Performance

Dash speed	175 knots
Cruise speed	165 knots
Vertical rate of climb	1,418 feet/minute
Maximum range	1,260 nautial miles

Power Plant

Engine type	Turboshaft (2)
Maximum rated power	1,432 shaft horsepower (each)

Weight

Empty	8,690 pounds
Primary mission	10,597 pounds

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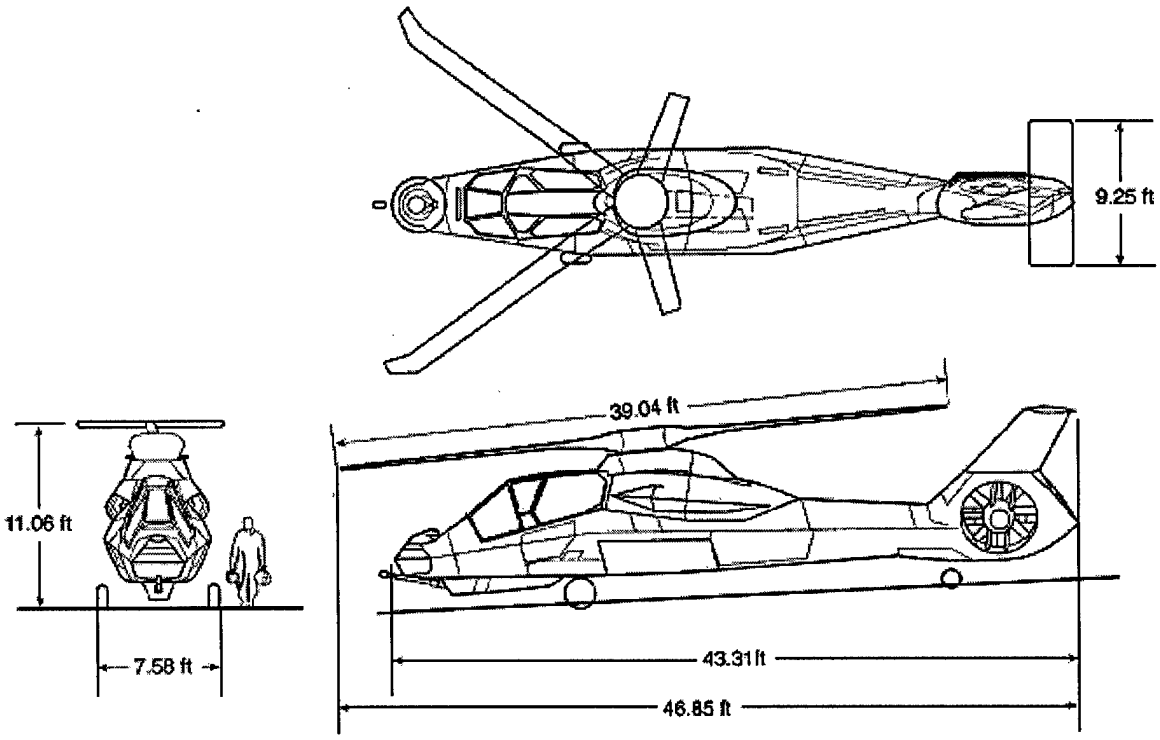

RAH-66 is a key part of the U.S. Army's 21st century modernization plan

- The RAH-66 supports all five Army modernization objectives.

- RAH-66 Comanche is the intelligence and targeting data source for joint services and Army combined arms team strike systems.

- The RAH-66 has the flexibility to operate as a multi-service stealthy scout, DoD future attack, or special operations aircraft.

- The RAH-66 is the key to the Army aviation modernization which reduces the fleet by 50 percent while maintaining the Army's support, attack, and reconnaissance capability.

"When you genuinely look at the spectrum of missions that the Army will be doing with Force XXI -- ranging form the Rwanda-type operations to major regional conflicts -- I don't know of anything that will provide in a responsive manner to the Army commander what Comanche offers: Stealth and automated target acquisition capabilities, day or night, and in adverse weather."

Gilbert C. Decker
Assistant Secretary of the Army
for Research, Development,
and Acquisition

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