# Mesa
## by the numbers

**1**
ranking of Boeing Mesa's business among all Arizona manufacturers

**382**
acres (155 hectares) comprising the Mesa site

**576**
number of Boeing suppliers or vendors in Arizona

**1982**
year Mesa site was established by Hughes Helicopters

**4,500**
approximate number of employees

**8,300**
hours volunteered by employees in 2010

**1,900,000**
dollars given by Boeing Mesa and employees in charitable contributions during 2010

**2,000,000**
square feet (186,000 square meters) of area in site's facilities

**PHOTO:** An Apache maneuvers over the desert hills outside Mesa.

The hot desert air above Mesa, Ariz., frequently pulses with the sound of Apache attack helicopters as the intimidating machines are put through their paces after emerging from the Boeing production line.

It's a sound that's become familiar over the nearly 30 years that the Mesa site has built Apaches for the U.S. Army and a growing number of international customers. And Mesa employees are justly proud of the site's most famous product.

"Just to hear those things fly above … It gives you a sense of accomplishment and pride to know you had a hand in something that was worthwhile," said Ramon Pena Jr., an electrical and mechanical assembler who has spent 26 years working on the Apache.

Mesa's flagship line is rolling out the first of the next-generation Apache Block III production models this fall. The U.S. Army plans to order nearly 700 newly built or remanufactured Block III helicopters, which will keep the Mesa site busy for at least the next decade.

But there's more to Mesa than the Apache line. Working alongside the rotorcraft program employees, a contingent of more than 175 Boeing Test & Evaluation employees is instrumental in rotorcraft development, engineering and flight-test activities. Additionally, Mesa's composites and electrical fabrication centers are making a growing array of components for multiple Boeing aircraft.

"We've gone from producing Block II Apaches two years ago to having three and soon four production lines here today," said Dave Koopersmith, Boeing Military Aircraft's vice president of Attack Helicopter Programs and Mesa senior site executive, referring to the two Apache production lines, A160T Hummingbird unmanned system assembly and the anticipated AH-6i light attack/reconnaissance helicopter line. "We've had a long-term investment strategy here with an incredible foundation provided by the Apache line."

The Mesa rotorcraft facility, located on the edge of Falcon Field Airport, marks its 30th anniversary in 2012. Originally constructed by Hughes Helicopters, the

# ‘Sports car’ feel

Since the delivery of the first AH-64A Apache attack helicopter in 1984, the addition of new technology and refinement of its design have kept the helicopter a cutting-edge tool to support ground soldiers. And the new Block III program for the Apache AH-64D takes that evolution to another level.

Improvements include an enhanced digital electronic engine control unit, which improves the responsiveness of the rotorcraft’s twin GE T700-701D engines, along with composite main rotor blades and more powerful computer systems that even allow pilots to remotely control unmanned aircraft. The changes aren’t trivial, said Col. Shane Openshaw, Apache Program manager for the U.S. Army.

“What the pilots are going to notice almost immediately is flat-out performance. It’s faster, has more range, more payload and more maneuverability,” Openshaw said. “It brings back the ‘sports car’ feel to this model.”

Boeing Mesa delivered the first Block III Apache to the Army last month. The Army plans to acquire 690 Block III Apaches between now and 2027. Of those, 56 will be newly built rotorcraft. The rest will be remanufactured Block I and Block II models.

*– Eric Fetters-Walp*

**PHOTO:** An Apache Block III test helicopter (foreground) and an H-6U helicopter prepare to land at Boeing Mesa.

site became part of McDonnell Douglas two years later—and has assembled Apache helicopters ever since. In addition to building new Apaches, the site remanufactures earlier models into the latest version, rebuilding the aircraft from the inside out.

Jules Maddon, a manufacturing process technician on the Apache line, said she enjoys the hands-on nature of assembling the Apache. “I love crawling all over my helicopter and doing what needs to be done,” Maddon said. “I enjoy the people I work with and the product I work on.”

In the same building where the Apache is assembled is Mesa’s Electrical Strategic Fabrication Center, where employees upstairs bundle the crucial wire harnesses used in Boeing’s F-15 Eagle and the F/A-18 Super Hornet fighters. Downstairs, wiring bundles for the Apache and C-17 Globemaster III transport are put together.

Van Abbl, a longtime electrical technician with Boeing, said it takes concentration and focus—along with steady hands and good eyes—to accomplish the job, which involves manually stringing huge wires across schematic boards. One resource that assists is her laptop, which helps team members keep track of their work and allows them to call up wiring diagrams when needed. “It’s a good team. Everyone helps each other out,” Abbl said.

In a nearby building, Mesa’s newest assembly line is producing the unmanned A160T Hummingbird, a rotorcraft with an operating range of 2,590 miles (4,170 kilometers), more than twice that of other unmanned rotorcraft. It also set a record carrying a 300-pound (140-kilogram) payload for 18.7 hours without refueling, landing with 90 minutes of fuel onboard.

The Hummingbird production line, recently moved from Irvine, Calif., already has seen its production time reduced from 40 days to just 12 days. Two of the first three Hummingbirds built in Mesa are going to the U.S. Marine Corps for testing, said Jeff Shelton, manager of Business Development for Boeing Unmanned Airborne Systems in Mesa.

Bill Brady, a composite assembly technician working on the A160T line, said working on the mostly composite unmanned vehicle has been both challenging and exciting. “We’re anxious to get them out and in the field.” Brady said. “People are pretty optimistic. I think there’s a big need for this airframe and its capabilities.”

Mesa also has developed and is testing an unmanned version of its AH-6i light attack/reconnaissance helicopter. Boeing recently provided the U.S. Army, which is looking for an unmanned vertical-takeoff-and-landing aircraft, with information about the capabilities of the H-6U Unmanned Little Bird, which performed its first flight at Mesa in 2004. The company provided information on the A160T as well.

The site also modifies the S-100 Camcopter, a smaller unmanned rotorcraft that Boeing markets with Austria’s Schiebel Corp.

Tony Ham, Mesa site leader and Operations director, said Mesa’s growing capabilities in a number of products makes it a valuable part of Boeing Defense, Space & Security. At the same time, he said, the site has retained a “small-site feel” over the years, with strong camaraderie among its teams. Ham added that mentoring and employee development are high priorities at Mesa, as the site potentially faces its first big wave of retirements by longtime employees.

“Our lines are growing, and we’re hiring. It’s going in a good direction,” Ham said.

Gary Blazich, operational security with Shared Services Group, said he has long appreciated that close-knit feeling at the Mesa site. “It’s not hard to get up in the morning for work with this atmosphere and the people,” said Blazich, who has worked more than 25 years for Boeing. “We have a history here of getting things done, and that’s exciting.” ■

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# More than *Apaches*

When the first production A160T Hummingbird unmanned system rolled off Mesa's production line earlier this year, the event spotlighted the composite capabilities of the site.

Mesa's Strategic Composites Fabrication Center built about 60 percent of the Hummingbird's composite parts. The center already is a supplier of composite parts for Boeing's F/A-18 Super Hornet, E/A-18G Growler and P-8A Poseidon aircraft, as well as for the Apache helicopter.

"What gets lost in the shuffle sometimes is all of what we do in Mesa. It's more than the Apaches," said Tony Jones, production manager for composite radomes at Mesa. "We do things for lots of programs in the company."

That includes making critical components for both Super Hornets and Growlers, such as their Leading Edge Flap Antenna and Leading Edge Extension Antenna. The center also makes radomes for the P-8 Poseidon and bonded braces for the 787 Dreamliner, and it is developing a bond brace for the forthcoming 787-9 jetliner model.

For the Apache, the Composites unit makes several components, including the main rotor blades for the new Block III

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**PHOTOS: (Above)** Mike Williams, left, and Mike Frazier, both of A160T final assembly, work on a metal structure that is part of the primarily composite aircraft. The Mesa A160T assembly line rolled out its first aircraft in March. **(Insets, from left)** From the A160T production line in Mesa are Bill Brady, Mike Blust, a view of the production line, Mike Frazier and Mike Williams.

Apache model, which also can be retrofitted to earlier versions of the attack helicopter. Nearly all of the parts outside the Apache's core fuselage are composite, said Diana Conner, a longtime manufacturing technician in Composites. The tools she and her co-workers now use to create composite pieces are much improved from when she started.

"It's still improving," Conner said. "We're always striving for better ways to do it."

Staff in the Composites center, Jones said, is scheduled to nearly double—from 60 to more than 100—as production ramps up on the new Apache rotor blades.

*– Eric Fetters-Walp*



**PHOTOS: (Above)** Flight-test technicians Austin Perkins, left, and Keith Sucher prepare an AH-6i light attack/reconnaissance helicopter for a flight. Developed in less than one year, the AH-6 is being marketed internationally and domestically. **(Insets, from left)** In the AH-6i facility in Mesa are Keith Sucher; Christine Cameron and Austin Perkins; a frontal view of the AH-6i; Sucher; and Cameron and Perkins. Safety glasses are not required in this work area.

# Model of *excellence*

The Mesa site is best-known for producing world-class rotorcraft products, but employee efforts to improve manufacturing processes and reduce the site's environmental footprint have won significant recognition over the past decade.

"The people make the site—how they work together and how they're concerned with the condition of the site," said Tony Ham, site leader and Operations director for the Boeing Global Strike site. "People want to be here, and they want to produce a quality product the first time."

This year, the Arizona Manufacturers Council named Boeing Mesa as the Manufacturer of the Year in recognition of the site's products, operational excellence, managerial philosophy and the effort the company makes to enhance manufacturing in the state. Boeing Mesa won the same honor in 2000 and 1997.

"You look at the great products you build here, but also, every time you hear Boeing gets a contract, 80 or 90 suppliers benefit. It's incredibly important," said Steve Macias, chairman of the Arizona Manufacturing Council. "Boeing's the big name in the defense industry in Arizona. It's not just the daily work that emanates from Boeing but also all the technology."

As the Apache helicopter evolved from

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**PHOTOS: (Above)** Technicians Joe Bakonyi, left, and Mike Trexler discuss task instructions in the Apache pre-modification area. **(Insets, from left)** Cristobal Garcia, Colandros Robinson, Diane Feeney, Ramon Pena Jr. and Vinton Poblano.

the first production model in 1983 through the newest AH-64D Apache Block III model, the manufacturing process has advanced as well. In 2005, the program won the Shingo Prize, presented by Utah State University's Jon M. Huntsman School of Business, for excellence in Lean manufacturing.

Mesa employees' attention to foreign object debris and damage (FOD) also has received notice. The U.S. Defense Contracts Management Agency gave the site a "Blue" rating, its top rating, for FOD control in 2010 and 2006, to date a feat achieved only by Mesa.

In the past five years, Boeing Mesa has received numerous environmental awards from federal, state and regional agencies, mostly for reducing single-vehicle employee commutes and improving air quality. The site also has installed active solar-tracking skylights in its maintenance building to increase natural lighting and reduce energy use, and replaced its central cooling plant to improve efficiency.

*– Eric Fetters-Walp*

**PHOTOS: (Above)** In the first production Apache Block III helicopter, crew members get the OK for engine start before a test flight. **(Insets, from left)** David Jacques, left, engineering flight-test mechanic, and Mike Dudley, Unmanned Airborne Systems integration engineer, in the pilot's station of an Apache; the Apache's information display screens, part of the rotorcraft's system that gives pilots situational awareness; instructor pilot Bill Lee, left, and U.S. Army Chief Warrant Officer 5 Art Payton; Boeing test pilots Dave Guthrie, left, and Dave Bauer; and Bauer, aft, and Guthrie.