442 MAINTENANCE SQUADRON

MISSION

LINEAGE

442 Maintenance Squadron, Troop Carrier, Medium constituted, 10 May 1949
Activated in the Reserve, 27 Jun 1949
Redesignated 442 Maintenance Squadron, 1 Mar 1950
Ordered to Active Service, 10 Mar 1951
Inactivated, 12 Mar 1951
Activated in the Reserve, 15 Jun 1952
Redesignated 442 Field Maintenance Squadron, 8 Nov 1954
Inactivated, 14 Apr 1959

442 Consolidated Aircraft Maintenance Squadron constituted, 5 Dec 1958
Activated in the Reserve, 14 Apr 1959
Ordered to Active Service, 1 Oct 1961
Relieved from Active Duty, 27 Aug 1962
Discontinued, and inactivated, 17 Jan 1963
Activated in the Reserve, 1 Jul 1976

442 Field Maintenance Squadron and 442 Consolidated Aircraft Maintenance Squadron consolidated, 22 Oct 1984. Consolidated unit designated 442 Consolidated Aircraft Maintenance Squadron.

Redesignated 442 Maintenance Squadron, 1 Feb 1992

STATIONS

Fairfax Fld, KS, 27 Jun 1949
NAS Olathe, KS, 27 May 1950-12 Mar 1951
NAS Olathe, KS, 15 Jun 1952
Grandview (later, Richards-Gebaur) AFB, MO, 3 Apr 1955-17 Jan 1963
Richards-Gebaur AFB, MO, 1 Jul 1976
Whiteman AFB, MO, 1 Apr 1984

ASSIGNMENTS
442 Maintenance and Supply Group, 27 Jun 1949-12 Mar 1951
442 Maintenance and Supply Group, 15 Jun 1952
442 Troop Carrier Wing, 14 Apr 1959-17 Jan 1963
442 Tactical Airlift Wing, 1 Jul 1976
442 Tactical Fighter Group, 1 Oct 1982
442 Tactical Fighter (later, 442 Fighter) Wing, 1 Feb 1984
442 Logistics Group, 1 Aug 1992
442 Maintenance Group

COMMANDERS
Maj Christina Manning, 7 Nov 2010

HONORS
Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations
Air Force Outstanding Unit Awards
1 Jun 1987-31 Jul 1988
1 Nov 1989-31 Oct 1991
1 Oct 1997-31 Aug 1999

EMBLEM

On a disc parted per fess enarched Azure and Gules, a plate Silver Gray, charged with a gunstone encircled by an annulet within seven gunstones in orle Sable, between two stylized wings elevated to chief Argent, detailed of the fourth and flanking a grenade Proper, enflamed Or. In base, a wrench fesswise of the third, all within a narrow border Yellow. Attached above the disc, a Blue scroll edged with a narrow Yellow border and inscribed 'EXCELLENCE IN ALL WE DO" in Yellow letters. Attached below the disc, a Blue scroll edged with a narrow Yellow border and inscribed "442D MAINTENANCE SQ" in Yellow letters. **SIGNIFICANCE:** Ultramarine blue and Air Force yellow are the Air Force colors. Blue alludes to the sky, the primary theater of Air Force operations. Yellow refers to the sun and the excellence required of Air Force personnel. The arched background indicates land base maintenance and air operations. The winged Gatling gun in the middle associates the unit with its wing and the wing's fighter mission. The grenade in chief signifies the weapon systems the unit maintains. The wrench in base shows the foundation of all maintenance operations. (Approved, 11 Mar 2003)

MOTTO

OPERATIONS

442 Consolidated Aircraft Maintenance Squadron mission is to accomplish organizational and field level maintenance for 24 unit assigned aircraft. In addition, the 442 CAMS also accomplished C-130 fuel cell rework as a central repair facility for all AFRES assigned C-130 a and other C-130 modification as dictated by command priorities. At the present time, the 442 CAMS is also supporting a Depot Field Team which is performing aircraft modification on all AFRES assigned aircraft.

2006 Tucked away in the southwest corner of the 442nd Fighter Wing's five-bay hangar, Airmen from the 442nd Maintenance Squadron's aircraft metals technology and structural maintenance shops toil to ensure the wing's A-10s keep their "beautiful" shape and structural integrity. With "attention to detail" more of a daily commandment than a trite phrase to be inserted in an enlisted performance report, these troops are an important reason why 442nd aircraft can be counted as the best maintained, and best looking, A-10s in the Air Force. Senior Master Sgt. Mark Mock, 442nd MXS, Fabrication Flight chief, has responsibility over the two shops and he knows

exactly the kind of efforts expended by the reservists in both of them. “A lot of people have said our jets look nice,” Sergeant Mock said. What they don’t realize is there a lot of things that go into making them that way.”

He feels the aircraft put off a professional image that is a reflection of those that maintain them. It’s an image that comes from that attention to detail and he offers something seemingly insignificant as a case in point from the structures shop. “(They) paint screws,” Sergeant Mock said. “After the screws are put a holder, they paint the heads of them so that when the screws are installed on our planes, the screw heads are gray and not silver.

They look a lot nicer.” The same thing is done for any other part the shop sends out to be placed on the aircraft. When the 442nd deploys elsewhere with another A-10 unit, as it recently did in Afghanistan, it’s something their counterparts in other wings have been heard to marvel about. The structural maintenance shop handles anything on the aircraft made of metal, fiberglass or composite material. Panels, covers, a variety of tubing and other materials both integral and incidental to the aircraft structure make up the world of the structures shop.

“Whether the aircraft takes a bird strike, a ding or just normal wear-and-tear, they take care of it,” Sergeant Mock said about the “Structures Shop.” Seventeen Structures troops, Air Reserve Technicians and traditional reservists, fill the ranks of the shop and are led by Master Sgt. Brian Bass, an ART. According to Sergeant Mock, the Structures troops are a mechanically- inclined group, able to look at a component, visualize how to take it apart and then put it back together again. After completing a 16-week technical school, new shop members are trained to face a daunting list of tasks required of each of them to be fully qualified in their career field. The aircraft metals technology shop, known among the maintainers as M-Tech, focuses on the air frame repairing aircraft components when they break, often manufacturing items such as brackets and bushings, which are no longer available from other sources.

On the unit training assembly weekend, Air Reserve Technician Master Sgt. Larry Randolph keeps the M-Tech machinery and troops working and, during the week, he is assisted by Tech. Sgt. Calvin Carter, another ART. Replacing damaged fasteners, repairing threaded inserts, welding certain engine parts and even manufacturing or repairing maintenance support equipment, such as the myriad stands all 442nd maintainers use, are standard fare for these metals technologists. The reservists also manufacture special tools and other maintenance aids specific to the A-10.

A project currently occupying MTech is the creation of a fixture for replacing canopies on A-10s. “The canopy fixture is built so that when you pull the canopy you can then change the glass,” Sergeant Carter said. “It holds the back bow at the right angle … 81 degrees and 30 minutes … for there to be an accurate seal (to keep the aircraft pressurized).” M-Tech’s “toolbox” includes special equipment such as the plasma cutter, which cuts through some metals like butter; TIG and MIG – Tungsten Inert Gas and Metallic Inert Gas – welders, each designed to weld metals and leave minimal impurities, a must for aircraft; machine lathes, where tolerances are measured with a micrometer; and a variety of other specialty tools needed to work on the wing’s A-10s.

Besides having a good head for algebra and trigonometry and also attending a lengthy technical school, the metals technicians need to be able to read machine drawings and quickly visualize how things are supposed to fit together. “Being a visionary is very important,” Sergeant Carter said. “It’s important to be able to look at a drawing and then at a blank piece of metal and have a vision of a finished product ... to be able to see the end.”

When Air Force reservists from the 442nd Fighter Wing arrived home from a four-month deployment to Afghanistan in September, they were given timeoff to recuperate and adjust to life back home. The Air Force calls this time-off period "reconstitution." The same is true for the wing's A-10 Thunderbolt II attack aircraft. Before they can be put back in a regular rotation of flying, the planes must be reconstituted after spending time in the combat zone. "The deployment does put wear and tear on an airplane," said Tech. Sgt. Randy Magnuson, an A-10 crew chief whose job is to make sure A-10, number 201, receives the required maintenance it needs and is ready to fly in combat.

His name is painted on the nose of the aircraft, which, in his mind, is like putting his signature on number 201 every day. The first thing crew chiefs do when their aircraft return from a combat deployment is inspect every facet of the jet and clean out four-months worth of dirt and grime that Sergeant Magnuson calls "desert residue." He pointed to the floor underneath the pilot's ejection seat, where beige, powdery dust had accumulated in the corners and recesses of the aircraft frame. This is common to planes coming back from Afghanistan where the wind blows constantly, filling cracks and crevices with the dust carried through the air. "It's a matter of unit pride," Sergeant Magnuson said. "We keep our planes neat and clean and in show-room condition." Besides pride, there are two other reasons to be concerned about the "health" of the wing's A-10s.

"It's a limited resource," Sergeant Magnuson said. The company that built the A-10 is no longer in existence so replacement planes aren't exactly rolling off the assembly line. "They're relatively old," he said. "So you have to work hard to extend the service lives." The other factor is the human being sitting in the seat flying the airplane, the Sergeant said. "No matter what we do, we're always cognizant that there's a human life, a pilot, who's going to take this thing up in the air." The job of keeping track of the health and well-being of the wing's 26 A-10s falls Above, Tech. Sgt. Randy Magnuson, an A-10 crew chief, checks the accelerometers of an A-10 Thunderbolt II following a night combat sortie in support of Operation Enduring Freedom at Bagram Airfield, Afghanistan, in July 2006. Sergeant Magnuson deployed to Bagram during the summer. All of the wing's aircraft used in Afghanistan were thoroughly inspected upon their return to Whiteman for maintenance problems, which may have developed during the deployment.

"There are 76 parts installed on every aircraft that have a different frequency of when they have to be replaced, as well as 57 special, time-sensitive inspections," Sergeant Turner said. If you do the math, that's 1,976 parts and 1,482 separate inspections the plans and scheduling office must keep track of – even while the airplanes are deployed to a combat zone. The job of reconstituting the wing's A-10s began even before the planes left in May, according to Sergeant Turner. "We monitored, on a daily basis, what was going on maintenance- wise in Afghanistan," she said.

The NCOs use a computer program called the Integrated Maintenance Data System to track repairs, inspections and flying hours to the wing's airplanes no matter where they might be. "By keeping track of the aircraft in Afghanistan we maintain the integrity of our maintenance plan," Sergeant Goodhart said. She and Sergeant Turner maintain a detailed plan to predict maintenance activities three months into the future and forecast some maintenance activities that occur every 13 years. "We specialize in preventative maintenance," Sergeant Goodhart said. "The more we prevent the less we have to fix. "We prevent a tire from going bald so something

bad doesn't happen during landing," she said. "We prevent an ejection seat actuator from going bad so if (the pilot) has to use it, it will work." The six A-10s deployed to Afghanistan flew more than 3,912 hours, the equivalent of one airplane flying non-stop for five-and-ahalf months.

"We flew more hours in four months than the entire 442nd fleet flies in one year," Sergeant Goodhart said. When the planes arrived back at Whiteman, crew chiefs and other maintenance specialists pored over the planes for a week before they were allowed back into circulation for home-station training missions, according to Sergeant Turner. Sergeant Magnuson spent three days inspecting A-10 number 201. "We want to get back here and find those spots where the desert has eaten away the O-rings and replace them," he said. The rings, made of rubber, seal connectors to hydraulic lines so the fluid inside doesn't leak. Every 400 hours of flight time, an A-10 is torn apart for a "phase inspection" where the aircraft are closely inspected for defects, worn parts and fluid leaks. Normally it takes a 442nd A-10 18 months to fly that amount of time. During the 120-day deployment to Afghanistan, two of the wing's planes required two phase inspections.

Sergeant Magnuson's plane, number 201, is currently undergoing another phase inspection. After 201's new grey paint job, which makes it look like it just rolled off the factory floor, Citizen Airmen of the 442nd Maintenance Group are examining every square inch of the plane to keep the 26-year-old jet ready for the next time it may have to deploy.

USAF Unit Histories
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Sources
Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.
The Institute of Heraldry. U.S. Army. Fort Belvoir, VA.
Air Force News. Air Force Public Affairs Agency.