THE OFFICIAL MONTHLY MAGAZINE OF THE 177th FIGHTER WING

THE CONTRAIL

THE OFFICIAL MONTHLY MAGAZINE OF THE 177th FIGHTER WING

THE CONTRAIL

On the cover: Two U.S. Air Force F-16 Fighting Falcons, from the New Jersey Air National Guard's 177th Fighter Wing, fly in formation over Bulgaria during Thracian Star on July 20, 2015. (ANG/Master Sgt. Andrew J. Moseley)

AUGUST 2015, VOL. 49 NO. 8

THE CONTRAIL STAFF

177TH FW COMMANDER	COL. JOHN R. DiDONNA
CHIEF, PUBLIC AFFAIRS	CAPT. AMANDA BATIZ
PUBLIC AFFAIRS SUPERINTENDENT	MASTER SGT. ANDREW J. MOSELEY
PHOTOJOURNALIST	TECH. SGT. ANDREW J. MERLOCK
PHOTOJOURNALIST	SENIOR AIRMAN SHANE S. KARP
EDITOR/PHOTOJOURNALIST	SENIOR AIRMAN AMBER POWELL
AVIATION HISTORIAN	DR. RICHARD PORCELLI

WWW.177FW.ANG.AF.MIL

On desktop computers, click Ctrl+L for full screen. On mobile, tablet, or touch screen device, tap or swipe to flip the page.

For back issues of The Contrail, and other multimedia products from the 177th Fighter Wing, please visit us at DVIDS!

COMMANDER'S COLUMN

Thracian Star 2015

by Lt. Col. Timothy Hassel, 119th Fighter Squadron commander

The Jersey Devils, with 9 jets and 150 personnel, returned from Thracian Star at Graf Ignatievo AB near the end of July. For those in the Wing unfamiliar with this exercise, it was created as a NATO exercise in Bulgaria designed to integrate the Bulgarian Air Force and other former Warsaw Pact nations into NATO as well as enhance USAF Dissimilar Air Combat Training (DACT) since Bulgaria flies Former Soviet Union (FSU) aircraft such as the MiG-21 Fishbed and the MiG-29 Fulcrum.

Thracian Star is a choice exercise for any active or guard unit, since the pilots have the opportunity to test their tactics against aircraft they most likely had only ever trained against in simulations. However, this year and for the Jersey Devils, it was much more because we also took members of our Wing's 227th, Air Support Operations Squadron, and expanded the exercise to include air to surface operations and integration. The Tactical Air Control Party (TACP) members from the ASOS controlled the Su-25 Frogfoot aircraft from the Bulgarian Air Force as well as familiarized the Bulgarians on various strike control procedures with regards to Forward Airborne Controllers (FAC-A).

Furthermore, this exercise was a huge opportunity for many of the Wing's support functions to participate in training operations in a NATO construct- which so few in our wing have seen since the bulk of their military experience overseas has been to CENTCOM and combat operations in the Middle East Theater. On this trip, Graf Ignatievo AB was nearly a 'bare base' operation, requiring us to bring many of the support functions that usually already exist at host training bases stateside. Therefore, we had a robust compliment of Security Forces, Communications, Finance, Contracting and Fire Department personnel in addition to the Aviation Package- which in some cases only goes to training locations with a small support group outside of Operations and Maintenance personnel. This trip not only required the integrated support of so many Wing personnel, but also gave them the opportunity to observe many different unique training situations. Various FSU helicopters loaded up 177th personnel on a daily base to take them out to the bombing range and observe firsthand our ASOS, the Bulgarian and other NATO forces conducting simulated air strikes.

Additionally, our Wing's 177th OSS Intel Flight was able to visit several FSU surface to air battalions and witness their operations, to include several high tech Former Soviet Surface-to-Air missiles.

I think I speak for everyone when I say that every member of this 150 person deployment learned an immense amount about some of our newest NATO partners. The Bulgarian Air Force demonstrated they are a truly professional force and strongly desire to be a US ally and a reliable NATO partner. The 177th Fighter Wing equally showed how much we value our coalition partners. Each individual on the team demonstrated amazing professionalism, dedication, and sense of mission accomplishment.

Although the individual efforts of many were critical to this deployment's success, our unit cohesion and Jersey Devil 'mission first' attitude is what overcame adversity such as the significantly delayed airlift. I am very proud of this Wing and the great things it has accomplished as a team both in combat and as a team partner in an exercise such as this one. The Jersey Devils represented the United States admirably!

177th MDG at Spangdahlem AB

Story and photos by Senior Airman Shane Karp

U.S. Air Force Airmen from the New Jersey Air National Guard's 177th Fighter Wing Medical Group enter the Spangdahlem Air Base Medical Clinic for the first time, Aug. 3, during their two-week training mission with the 52nd Medical Group.

More than 20 Airmen from the New Jersey Air National Guard's 177th Fighter Wing Medical Group deployed July 30 to Spangdahlem Air Base, Germany, for a temporary duty assignment with the U.S. Air Force's 52nd Medical Group.

Dentists and dental assistants, physicians, nurses, aerospace medical technicians, healthcare administrators, public health technicians and bioenvironmental engineers all made the trip from the 177th MDG, and working with their active-duty counterparts offers Guardsmen experience and training opportunities that may be unavailable to them at their home unit.

"It's great for these Airmen to come here and have the chance to do their jobs on a daily basis", said Senior Airman Jocelyn Martinez, a diagnostic imaging technician with the 52nd Medical Group. "A lot of these jobs, if you don't do it every day, it is easy to forget some things."

Master Sgt. Patricia Hughes, a public health technician with the 177th, was able to complete food-safety inspections of several on-base restaurants here on Spangdahlem Air Base.

"Back at home, I only get to do one or two inspections every quarter," said Hughes. "That's why it's so useful to have this refresher training here."

Airmen from the 177th MDG also tested water samples of local German schools, administered immunizations to locals military members and their families, participated in ambulance services training, assisted with medical procedures, conducted pest and vector surveillance to detect the potential of disease transmission of local insects, and participated in scenario-based inspections.

"At a stand-alone Air National Guard base, we are often battling a lack of time, resources, or sometimes, both -- so the opportunity to train at an active-duty treatment facility is priceless to these Airmen," said Chief Master Sgt. Wayne Miller, superintendent of the 177th MDG.

The active-duty base, given its resources, allows Air National Guard Airmen to utilize skills that are not used during unit training assemblies, and the collaborative work environment with the active-duty force ensures complete mission readiness, Miller said.

"When deployed, it does not matter if you are National Guard or active duty, everyone is expected to be ready," said Lt. Col. Robert Desipio, 177th MDG commander, "That is what this training is all about."

Master Sgt. Ronald Paulin, right, practices proper sling technique with Senior Airman Melissa Seel, both aerospace medical technicians from the 177th Medical Group, during wartime skills training on Spangdahlem Air Base, Germany, Aug. 10, 2015.

Left: Senior Airman Taylor Binet, an aerospace medical technician with the New Jersey Air National Guard's 177th Medical Group, conducts ambulance service training on Spangdahlem Air Base, Germany, Aug. 4. Airmen practiced on a dummy to be prepared in a real-life event when someone is unconscious, unresponsive and their breathing is compromised.

Right: Lt. Col. Robert Desipio, left, the New Jersey Air National Guard's 177th Medical Group commander, collects a water sample at an elementary school in Bitburg, Germany, as Senior Airman Chloe Anthony observes, Aug. 5. The school where they were doing testing is the schoolhouse for dependents of military members on Spangdahlem Air Base.

Left: Master Sgt. Patricia Hughes, a public health technician with the New Jersey Air National Guard's 177th Medical Group, ensures meat is of the proper temperature during an inspection at one of the restaurants on Spangdahlem Air Base, Germany, Aug. 4. Restaurants on base are inspected about once per month to ensure the facilities are operating properly.

4,000 FLIGHT HOURS

Story and photos by Master Sgt. Andrew Moseley

A New Jersey Air National Guard pilot reached an impressive 4,000th hour flying in an F-16 Fighting Falcon while deployed to Bulgaria on July 24, 2015.

U.S. Air Force Lt. Col Himley, an F-16 pilot with the 177th Fighter Wing, reached the impressive milestone during a training mission at Thracian Star 2015, a bilateral training exercise designed to enhance interoperability with the Bulgarian air force and to bolster readiness to conduct combined air operations, at Graf Ignatievo Air Base, Bulgaria.

“I have had the great fortune to fly my entire career in the best fighter aircraft in the world”, said Himley. “Such a great honor and privilege to be able to serve for the last 28 years. It is a testament to our fantastic maintenance personnel and programs that keep these aircraft in combat-ready shape day in and day out.”

Himley flew combat missions in Operations Desert Shield/Desert Storm in 1991, graduated from the University of Michigan ROTC Program with a Bachelor of Science in Aerospace Engineering in 1987 and went on to receive a Master’s Degree in Business Administration from Auburn University in 1998.

“Wow, I could not have dreamed of a better place, or of a better sortie, to achieve 4,000 hours in an F-16,” Himley said, “Thracian Star provides such a tremendous realistic training opportunity”. The Bulgarians are professionals who were such great hosts. It was an honor to share this milestone with them.

A 4,000 hour F-16 Falcon patch worn by Lt. Col. Thor Himley after the closing ceremony of Thracian Star 2015.

U.S. Air Force Lt. Col Thor Himley, F-16 fighter pilot, runs through post engine start ground checks prior to an incentive flight in an F-16D Fighting Falcon at Graf Ignatievo Air Base, Bulgaria on July 17, 2015.

SIMULATED FUEL SPILL

Airmen from the 177th MDG assist 52nd MDG in simulated fuel spill on Spangdahlem AB

Story and photos by Senior Airman Shane Karp

Tech. Sgt. Melissa Blackledge, left, and Senior Airman Melissa Seel, aerospace medical technicians from the New Jersey Air National Guard's 177th Medical Group, discuss operation strategy during a simulated fuel spill on Spangdahlem Air Base, Germany, Aug. 7, 2015.

Airmen from the New Jersey Air National Guard's 177th Medical Group worked alongside more than 25 Airmen from the 52nd Medical Group in a scenario-based inspection at Spangdahlem Air Base, Germany, Aug. 7, in order to ensure mission readiness.

The exercise scenario was part of an annual Defense Logistics Agency requirement to observe the base's response to a fuel-related spill.

"The medical group is involved so we can inspect our response timing in case of an emergency," said U.S. Air Force Lt. Col. Jane Free, chief nurse of the 52nd MDG, and wing-inspection team lead. "We just want them to show they're capable and ready. They need to be fully operational in 20 minutes."

During the exercise, a simulated fuel geyser caused several mock injuries which required medical assistance, including fuel in one victim's eyes, splash burns to the face and hands of another individual, as well as a third victim who suffered a fractured ankle during the event.

U.S. Air Force Senior Airman Melissa Seel, an aerospace medical technician with the 177th MDG, arrived to the exercise-training scene in an ambulance -- ready to transport victims of the simulated spill.

"It's good to see how the active-duty force responds to an event like this," Seel said. "If something like this were to happen in a real-world setting back home, I would definitely feel more comfortable assisting."

U.S. Air Force Tech. Sgt. Melissa Blackledge, an aerospace medical technician with the 177th MDG, was embedded with the 52nd MDG wing-inspection team, and also saw great value working hand-in-hand with the active-duty force.

"It's crucial for us to be able to integrate with active-duty Airmen." Blackledge said. "There should be no difference between us. We should all train the same, we should all know the same, and we should all do the same."

U.S. Air Force Staff Sgt. Carolina Haviland, a bioenvironmental engineer with the 177th MDG, was tasked with helping set up a decontamination staging area for the simulation.

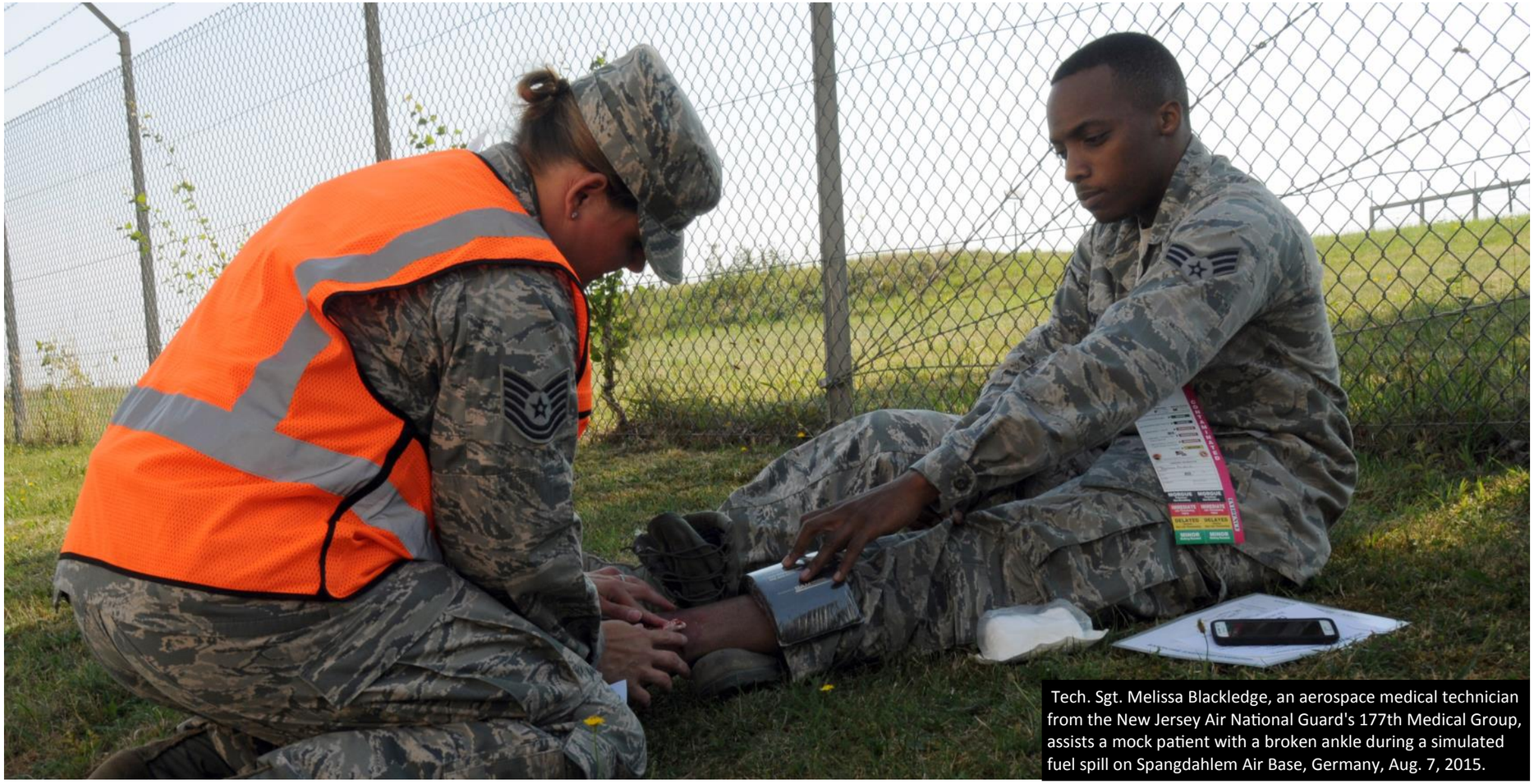
"I was really impressed with how the decontamination was set up," Haviland said. "Everyone knows their own job and their own task, so everything runs smoothly. It was very well organized."

The simulated fuel spill that the 177th responded to on Spangdahlem is something that could possibly happen back at home, and Haviland said she plans on bringing some of what she learned back to the 177th.

"I asked for all of the 52nd's checklists and guides that makes their job easier, or prevents any errors or misunderstandings, and they have been very helpful in sharing," Haviland said. "They have a system in place that already works -- there's no reason to try and reinvent the wheel. I am very thankful, and enjoy working with this team."

The opportunity to train is appreciated not only by the members of the 177th MDG, but by the 52nd MDG as well, Free said.

We know that having the 177th here in the clinic setting is very beneficial -- it helps us out, Free said. In turn, we hope that having the Air National Guard with us during our training is valuable to them as well.



Tech. Sgt. Melissa Blackledge, an aerospace medical technician from the New Jersey Air National Guard's 177th Medical Group, assists a mock patient with a broken ankle during a simulated fuel spill on Spangdahlem Air Base, Germany, Aug. 7, 2015.

The F-100 Super Sabre—The Last of the Line

Story by Dr. Richard V. Porcelli

The first pre-production YF-100A is shown in flight over Edwards AFB. (USAF photo)

In the past few issues of The Contrail, we have related the history of North American Aviation's iconic F-86 Sabre and as well the use of the F-86E and F-86H versions by our 119th FS. In September 1965 the 119th FS began its perhaps most significant transition to the last descendent of the Sabre, the F-100 Super Sabre. As will be told in this and the subsequent article, its significance to the New Jersey ANG's 119th FS is based on a number of factors. Firstly, it was the Air Force's first production jet fighter that could break the sound barrier in level flight! As such, it was the Air National Guard's first supersonic fighter. It was also, in retrospect, what we could describe as the "first, second-generation" jet fighter. It was also the first member of what was popularly referred to as "The Century Series" of fighters, the name for a group of USAF fighter aircraft representing models designated between F-100 and F-106 that went into full production. Perhaps the most important distinction for the 119th FS, however, is the unit's combat record flying the F-100C Super Sabre during the Vietnam War.

More than one year before its famous predecessor, the F-86A Sabre, entered combat in the skies of Korea, North American Aviation's engineers began work on the design of its replacement! Their primary design goal, which they ultimately achieved with remarkable success, was supersonic speed in level flight. They recognized based on test data from the F-86 Sabre that to reach this goal, two requirements had to be met. First, the engine had to be much more powerful than the 5900 pounds static thrust J-47 turbojet engine powering the Sabre and afterburning was felt to be the necessary enabler to surmount the power limitations. Second, they realized that only a more sharply swept wing could overcome the aerodynamic limits inherent in the original Sabre's design. They selected a 45-degree wing sweep angle (compared to the 35-degree sweep of the F-86) – hence the official company designation of NA-180 began to be known as the "Sabre-45." This sweep angle was the result of wind tunnel testing, verified by flight-testing of an early YF-86D Sabre modified with 45-degree swept wings.

In January 1951 North American Aviation made an unsolicited submission of its preliminary design for the Sabre-45 to the Air Force as a day fighter. Just 9 months later the Air Force made the go-ahead decision, and a month later inspected a mock-up at North American's Los Angeles factory. While over 100 changes were recommended by the Air Force inspection board, enthusiasm was high and the new jet gained the official Air Force designation of the F-100 Super Sabre.

At the time, the Air Force was alarmed by the appearance of the very capable MiG-15 in Korea and had greater fear that the Russian's next generation fighters, especially the rumored MiG-19, would give them air superiority over the USAF. This anxiety and resulting urgency to get the F-100 into service quickly fostered a decision to order it in quantity prior to the completion of flight-testing of the two YF-100A pre-production test aircraft, which were ordered in January 1952. These early contracts, concluded before the first flight of the aircraft, included production orders for 23 F-100As in February and a further 250 in August 1952. In this buying in advance of first flight, known as the Cook-Craigie Policy, it was assumed that advanced aeronautical engineering and wind tunnel testing would provide for the rapid development of the new fighter, allowing it to be flown "directly off the drawing board into squadron service" with minimal flight testing. Note that in light of this Air Force decision to build production F-100s while testing was still on going, the first aircraft were "pre-production" rather than experimental "prototype" aircraft, hence the "Y" prefix rather than the customary "X" prefix. The current procurement of the F-35 actually follows a similar strategy.

In June 1952, a final Air Force inspection of the modified mockup led to further changes, including the revisions to the air intake to give the nose its flattened (rather than round) cross-section with a flat lip; a low mounted, "all-flying" tail with irreversible power-assisted flight controls based on successful development on the F-86E and F-86F Sabre versions; and the addition of a 16-foot diameter drag chute to aid in stopping the heavier and faster landing jet on existing Air Force runways. In a further change that proved to have severe repercussions, the height of the vertical tail for production F-100As was reduced by a foot from the original 14 foot 10 inch design. The first two pre-production test aircraft, however, retained the originally designed taller tail.

The heart of the Sabre-45 was the novel Pratt & Whitney J-57 turbojet engine. Much longer and wider than the General Electric J-47 that powered the F-86, the new engine used a two-spool, 16-stage axial flow compressor that gave a higher compression ratio and lower fuel consumption while putting out more thrust, becoming the first turbojet rated at greater than 10,000 pounds of static thrust. To achieve supersonic flight, an afterburner boosted maximum thrust to 16,000 pounds. But unlike present day modulated afterburners, the unit on the F-100 gave a single, massive punch that was either "on" or "off".

Over the next years, Pratt & Whitney built 21,000 J-57 turbojet engines, which ultimately powered the Air Force McDonnell F-101 Voodoo, Convair F-102 Delta Dagger fighters; the Lockheed U-2 Dragon Lady spy plane; the B-57 Canberra light bomber; and the KC-135 Stratotanker refueling aircraft. The Navy used it to power its carrier-based Douglas A3D Skywarrior

bomber; and Douglas F-4D Skyray and Vought F-8 Crusader fighters. Known as the JT3C in civilian service, the same turbojet engine powered versions of the Boeing 707, 720 and Douglas DC-8 jetliners. The prestigious Collier Trophy for 1952 was awarded to Pratt & Whitney's Leonard Hobbs for his role in the design of the J-57.

Due to the need for a long nose intake duct to control supersonic airflow to the J-57 engine and the engine's greater length including the afterburner, the F-100's airframe was more than 10 feet longer (and 15,000 pounds heavier) than its predecessor, the F-86 Sabre. Incidentally, the F-100 was the last Air Force fighter designed with a nose intake; subsequent generations of fighters featured side (as in the F-105 and F-106) or bottom (F-16) mounted intakes.

The same Air Force urgency based on the perceived advances in Soviet jet fighters caused them to encourage North American to push the design of the F-100 beyond conventional technology as far as possible. As a result, the Air Force's original order for two prototypes also funded design and manufacturing advances including milling and forging machines and the first extensive use of the new, "miracle" metal, titanium. This strong, lightweight metal has greater heat resistance than aluminum, but is much more difficult to work with. Special tools along with cutting and welding procedures had to be developed at North American's factory. Titanium is also much more costly. The Super Sabre's fuselage was assembled from two "barrels", each stretched-pressed from a single piece of metal – another first for aircraft manufacturing. The F-100's rear fuselage, which held the powerful J-57 turbojet, was made entirely of titanium, with the rest of the airframe mostly aluminum with steel attachments and fittings. (Photos of unpainted F-100s clearly show the line of demarcation between the two metals. When camouflage paint was later added, the difference in adhesion of the paint on titanium compared to aluminum was also readily apparent.) Despite titanium's higher cost, at its peak Super Sabre production rate, North American Aviation consumed more than 80% of the nation's output of this metal.

The tapered wing skins were milled to have integral stiffeners, rather than the conventional structure based on separate upper and lower wing panels riveted or welded to spars and wing ribs. The result was a lighter, simpler wing structure with fewer parts. The wings of early version F-100s did not have flaps or any internal fuel. The so-called "fineness ratio", or the ratio of wing thickness to the average chord (distance from wing's leading edge to trailing edge) was only 0.07 – the lowest of any aircraft up to that date. The wings did have powered inboard ailerons to overcome the phenomenon of "control reversal" mentioned in a previous article in The Contrail; this phenomenon was a problem with thin wings twisting under the aerodynamic loads imposed by outboard ailerons. While the highly swept wings allowed for a higher top speed, they also caused problems at low speeds required for landings. Automatic Kruger slats were attached to the wings' leading edges to improve low-speed handling and reduce landing speeds. Interestingly the wingspan was less than two feet longer than the F-86, but the F-100's wing area was over 100 ft2 greater. The wings, as well as the horizontal stabilizers, were mounted on the bottom of the fuselage and had no dihedral.

Armament, based on lessons being learned in the Korean War, was four, 20-mm T-160 cannon made by the Pontiac Division of General Motors. (They later would be redesignated the M39 cannon). The cannon, each with a capacity of 275 rounds, were mounted under the nose. The fire control system was based on the standard of the day, the AN/APG-30 gun-ranging radar linked to a Sperry A-4 lead computing gun sight. Designed as a day fighter, there was one pylon on each wing for drop tanks only. Combat-ready weight of the early model F-100 was 25,300 pounds.

After more than a million man-hours of design and construction at North American's Inglewood plant (adjacent to today's Los Angeles International Airport), the first pre-production YF-100A (serial 52-5754) was completed on April 24, 1953, disassembled and trucked to Edwards AFB in the Mojave Desert for testing. The first flight, piloted by George "Wheaties" Welch, occurred 7 months ahead of schedule on May 25, 1953, using an early, low-power test version of the XJ-57 engine. After a half hour of testing basic handling qualities, Welch received the company go-ahead and went supersonic in level flight. A second test flight the same day repeated the accomplishment, reaching Mach 1.05 in level flight despite being powered by a de-rated, pre-production engine. As an indication of the rapid time scale, the first production F-100A flew for the first time on October 29, 1953, just five months after the first flight of the YF-100A. On that same day, Col. Everest established a world speed record of 755.149 mph in a YF-100A, but again pointed out stability issues at high speeds, with control very difficult during the record-breaking speed run at only 150 ft above the desert floor.

After 100 hours of Phase I testing, the two YF-100As were turned over to Air Force pilots, including the legendary Chuck Yeager and Peter Everest, for Phase II testing starting in July 1953. By September, Phase II testing ended with the observation that "…the YF-100A outperforms any other production fighter…" but with the ominous caution that it lacked direction stability at high Mach numbers and under high G forces. Follow-up testing with production F-100As showed that the stability problem was even worse as the shorter tail/rudder could not deal with the pitch and yaw forces when the aircraft was rolled. Chuck Yeager was the first test pilot to point out this deficiency, arguing vehemently that the poor stability was an issue making the new jet unsuitable for combat! Pete Everest supported Yeager and went on to complain about the high landing speed, as well as

An early production of the F-100A (note the short tail) leaps into the air from a Los Angeles airport runway. North American's Inglewood factory was located on the eastern edge of the airport. (USAF photo)

slow engine responsiveness and unpredictable roll control at low speeds (like in a landing approach) – problems that would daunt the F-100 throughout its Air Force career. The decision was made to lengthen the rudder back to its original specification in future production, but due to the concurrency of production and testing, the first 70 production examples of the F-100A were built with the short vertical tail height.

Despite the growing chorus of concerns about stability issues, the Air Force rushed the first 60 Inglewood built F-100As (all with the short tail) into service with the 479th Fighter Wing at George AFB, California. Despite the fact that many of the pilots were experienced Korean War veterans and aces, the stability problems quickly emerged with a loss of control which the pilots had difficulty describing, but would later be attributed to inertial coupling. It got so bad a few squadron pilots refused to fly the Super Sabre and turned in their wings.

In fact, this defect would claim the life of no less than the most experienced North American Aviation test pilot, George Welch. On October 12, 1954 Welch was killed while testing the 9th production F-100A (serial 52-5764) in a series of maximum G, maximum speed dives over Palmdale, California, when it broke apart and crashed. Photographs of the fatal flight and a similar incident two days earlier proved that the concerns over the height of the vertical tail and rudder were justified, as the short tail failed during an uncontrolled supersonic yaw at Mach 1.4 under a force of 7+ Gs.

The tragic loss of Welch, as well as five additional fatal crashes of the early production aircraft, finally stimulated Air Force action. All F-100As were grounded immediately and remained grounded until they were retrofitted with the taller tail (at North American Aviation's expense). North American also added "black boxes" into the pitch and yaw control axis to eliminate stability and control problems at certain speeds. Still, despite these deficiencies, the F-100A was so advanced and important to national defense that President Eisenhower personally presented the 1954 Collier Trophy to North American Aviation chairman James "Dutch" Kindelberger for his company's efforts.

A total of 203 F-100As were eventually produced for the Air Force when production ended in April 1955. In 1958, after suffering almost 50 serious accidents, the F-100A began leaving Air Force service with 47 going to the Air National Guard (starting with New Mexico's 188th FIS) and 15 to the Republic of China (Taiwan). In 1960 a further 65 went to the Taiwanese while the total ANG inventory reached 70 that same year.

While still in Air Force service, despite its deficiencies, the decision was made to extend the F-100A's service life. Therefore in a strange historical quirk, after ANG units flying the F-100A were recalled to active duty because of the 1962 Berlin Crisis, the Air Force retained control of these aircraft after the Guard units were returned to state control. Air Force squadrons flew these aircraft until 1964, with some used in pilot training, remaining until 1970. Eventually all surviving F-100As from the Air National Guard and Air Force were transferred to Taiwan, bringing their total inventory to 118 aircraft.

Early in the development of the F-100A day fighter, Air Force needs were re-directed towards a day fighter with secondary fighter-bomber capability including delivering nuclear weapons; this led to the introduction of the F-100C. One of the fundamental changes was a request for greater range and the change of the wing design to make the entire wing structure a sealed fuel cell. Subsequently, the Air Force requested a further change with the addition of the capability to carry under-wing ordinance. This led to what was referred to as the "beefed up, wet-wing" which held fuel and had a total of 6 under-wing hard points. In reflection of its intended fighter-bomber

This photo gives a good comparison of a F-100A modified with the tall tail/rudder, with an unmodified early production version, right.

Trailing its drag chute, the first pre-production (there were no prototypes) YF-100A lands at Edwards AFB after its first flight on May 25, 1953. George Welch had just piloted the jet to Mach 1.05 in level flight, a first for the USAF and the world. (USAF photo)

use, other changes included a new MA-2 Low Altitude Bombing System (LABS) for toss bombing of nuclear weapons, the M-1 Fire Control System, and eventually the ASC-17 ranging radar unit. The F-100C could carry up to 5000 pounds of ordinance including bombs, rockets, additional fuel tanks or Mk.7 nuclear weapons. The F-100C ended up weighing 2600 pounds more than the F-100A day fighter version.

The first F-100C flew in March 1954, with production

examples accepted by the Air Force starting in April 1955. A total of 476 F-100Cs would subsequently be produced by North American Aviation, with production split between at their Inglewood, CA, plant (F-100C-NA production blocks) and their Columbus, OH, (F-100C-NH blocks) factories.

A significant addition was the capability of in-flight refueling through a long, straight probe attached to the underside of the starboard wing's leading edge for use in the "drogue and probe" refueling system. The original probe was short and straight and pilots complained they could not see the tip of probe during in-flight refueling attempts. North American then lengthened the probe, but this still required the pilot to look down, away from the direction of flight, to see the probe. Whether it be fact or fiction, it is reported that on a dark and stormy day, while attempted to aerial refuel his Super Sabre from a KC-97 tanker, the pilot inadvertently bent his probe upward into an "S" shape in a failed attempt to plug his probe into the basket. Surprisingly, the pilot found that he could more easily guide his damaged probe into the drogue (basket) for a successful refueling. Subsequently, the Air Force authorized North American to change all F-100C refueling probes to the bent S shape accidentally discovered by this pilot!

In the next issue of The Contrail we will relate the combat history of the F-100C in Air Force and Air Guard units, including the intense participation of the 119th FS/177th FW in the Vietnam War.

Blood Drive:

The gift that keeps on giving

Story and photos by Senior Airman Shane Karp

More than 100 Airmen from the New Jersey Air National Guard gathered, Aug. 29, to donate blood as part of a blood drive sponsored by the Community Blood Council of New Jersey.

The blood drive was coordinated by U.S. Air Force Lt. Col. Diana Brown, deputy mission support group commander at the 177th Fighter Wing, alongside Tony DeLuccio, director of recruiting, public relations and marketing for the Community Blood Council of New Jersey, and a retired Veteran with 22-years' service in the New Jersey Air National Guard.

> "Each unit of blood collected can save up to three lives."

"We've been doing this on base for two years now," said Brown. "We have a community-based mission, so we knew the Community Blood Council of New Jersey was perfect for us -- since all the blood donated stays in the New Jersey hospitals."

Within those two years of blood drives, the record was 86 donations, but Brown said this years' total toppled over the century mark, with an unofficial-final count of 103 Airmen donating.

"I'm very competitive," Brown said. "Right now, we lead the state in military units for most blood donated. My goal is always to do better than the last time."

That lead is due in part to Airmen like U.S. Air Force Airman 1st Class Brandon Staines, an egress specialist with the 177FW.

"It's really just a few minutes out of my day, but knowing how many lives it can save, it's definitely worth it," Staines said.

"Our goal here is to maximize the units of blood collected, and to save as many lives as we can within the state of New Jersey," DeLuccio said. "Each unit of blood collected can save up to three lives."

DeLuccio mentioned the success of the blood drive was not necessarily a shock to him, citing his more-than 20 years' experience in the Guard.

"The Guard always takes care of New Jersey … so taking care of the hospital systems within the state like this is not surprising," said DeLuccio. "They really are the most giving people I have ever met."

When asked if he thought the desire to get out of work for a few hours may have been an influencer for some donors, DeLuccio said, "whatever it takes … every day, these men and women have the potential to have to go out there and save lives, and by coming in here to give blood, they did just that."

Those looking for more information on blood drives sponsored by the Community Blood Council of New Jersey can reach DeLuccio at 609-883-9750, or visit www.GiveBloodNJ.org for more information.

A U.S. Air Force Airman from the New Jersey Air National Guard's 177th Fighter Wing squeezes an object while giving blood during a blood drive on Atlantic City Air National Guard Base, N.J., Aug. 29, 2015. The objects are given out for donors to squeeze in order to help blood flow.

From left, U.S. Air Force Airman 1st Class Matthew Baruffi, Airman 1st Class Brandon Staines, Senior Airman Ian VanVranken and Tech. Sgt. Gary Apel, all members of the New Jersey Air National Guard's 177th Fighter Wing relax as they give blood during a blood drive on Atlantic City Air National Guard Base, N.J., Aug. 29, 2015.

PARADOCS

By Dr. Andrew Savicky, 177th Fighter Wing
Director of Psychological Health

The famous psychiatrist Dr. Viktor Frankl is the author of the bestselling book Man's Search for Meaning, in which he reviews his experiences as a prisoner in a World War II Nazi Concentration camp. In the book, Dr. Frankl discusses how it is possible to find real meaning in a life that is filled with pain, loss, suffering and general day to day difficulties. A dedicated student of his teachings, Alex Pattakos, Ph.D. in his book, Prisoners of Our Thoughts, (2010) recommends the following:

1. Use your freedom to choose your attitude: In all situations, no matter how desperate they may appear or actually be, you always have the ultimate freedom to choose your attitude. In other words, each of us is empowered to be positive or negative with our attitude.

2. Recognize that each of us has a need for a meaning in our life: Now is the time to identify meaningful values and goals that you can fulfill. It feels good to be working towards goals that are worth working for.

3. Take the time to reflect on the meaning of life's moments: Only you can answer for your own life. You do it by recognizing the meaning of each moment in our life and delight in the masterpiece each of us has created. Yes we are each an artist of the portrait of life we create.

4. Stop working against yourself: The trap of becoming so obsessed or fixated on some outcome measurement can actually work against your successful outcome. Fear of failure is by definition a focus on a failure. Remember the problem that occurs, when the coach demands that a player not fumble.

5. See yourself from a distance: We all have the capacity to look at ourselves from a distance and see how foolish we can be and act and laugh at ourselves. It was Ralph Waldo Emerson who said it best: "It is one of the blessings of old friends that you can afford to be stupid with them!"

6. Take your focus of attention and shift the gear: Shift your attention from a problem gear and go to another gear which will engender your ability to cope with stress and the inevitable change that takes place all around us. We are like tomatoes, either growing or dying. You decide what is taking place and how fast and far to go, because your perception is owned by you and not by others.

7. There is more to life than just yourself: We function best when we do for others and see the benefits of focusing on others. Consider this rule to live by. It is hard to be depressed or anxious, if you are improving the life or lives of others.

Prisoners of Our Thoughts: Viktor Frankl's Principles at Work
By Alex Pattakos Published by Berrett-Koehler Publishers, Inc. ISBN: 1-57675-288-7

Around the Wing

HONOR GUARD MARCH IN PARADE

The 177th Fighter Wing's Honor Guard marched in the Puerto Rican Heritage Celebration Festival in Vineland, NJ on July 26, 2015. (Courtesy of The Daily Journal/Sean M. Fitzgerald)

For more awards photos, check out the 177th Fighter Wing Facebook page!

CUB SCOUTS TOUR BASE

177th Fire House Capt. Brian Bramhall show equipment to cub scouts from Mullica Township Pack 53 during a tour of the Wing Aug. 21, 2015. (ANG/Senior Airman Amber Powell)

VETERANS TOUR BASE

Veterans from the local area visited the 177th Fighter Wing of the New Jersey Air National Guard in Egg Harbor Township, NJ on July 30, 2015.

FAA AVIATION ENRICHMENT SYMPOSIUM

The Federal Aviation Administration visited the 177th Fighter Wing as part of their Aviation Enrichment Symposium on August 13, 2015. Employees of the FAA and their families visited various aviation sites in the local community.

FINAL PHOTO

OPEN WIDE

Tech. Sgt. Valorie Chiola, a dental assistant from the New Jersey Air National Guard's 177th Medical Group, cleans and polishes the teeth of an Airman assigned to the 52nd Fighter Wing at the dental clinic on Spangdahlem Air Base, Germany, Aug. 11, 2015. (ANG/Senior Airman Shane S. Karp)