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## **Munitions History**

**Start of Air Force Munitions History:** Munitions Groups, Squadrons, Flights, and Elements are rich in tradition and heritage that parallel the history of the Air Force and United States. When the Air Force separated from the Army Air Corps on September 8, 1947, the Shell and Flame insignia was display on Munitions Airmen's uniform until 1950. The Shell and Flame was never adopted as an official Air Force insignia. A proposed Munitions Badge was sent to Air Staff for approval in 1978 timeframe. The Air Staff redesigned the badge to a Maintenance Badge and adopted the badge for use.

**Air Force History of Munitions Shell and Flame:** When the Air Force separated from the Army Air Corps on September 8, 1947, the Shell and Flame insignia was display on Munitions Airmen's uniform until 1950. The Shell and Flame was never adopted has an official Air Force insignia. A proposed Munitions Badge was sent to Air Staff for approval in 1978 timeframe. The Air Staff redesigned badge to a Maintenance Badge and adopted the badge for use. See page 21 for early history of Munitions Shell and Flame.

**Munitions Technical Training History:** The US Army Schooling for Ordnance officers and enlisted was consolidated by 1940 at Aberdeen Proving Ground that established a single location where all Ordnance education would occur. Air Force Munitions officers and airmen attended until 1950.

When the Air Force separated from the Army Air Corps on September 8, 1947, the Air Force brought over the U.S. Army Military Occupational Specialties (MOS). MOS stayed until 1950, when the transitioned into Air Force Specialty Codes (AFSC). Since that time, Munitions AFSCs have grown, split, and merged to the current Munitions 2W0X1 career field.

When the Air Force transition from MOS to AFSC the first munitions AFSC were 50501, Armament Technician. In August 1950, the Air Force changed AFSC 50501 to 461X0.

On June 24, 1948, Lowry Field was renamed Lowry Air Force Base as a result of the United States Air Force becoming a separate branch of the Armed Forces of the United States. On August 26, 1948, the 3415th Technical Training Wing (TTW) was established at Lowry to begin the development of munitions courses. In 1950, the first airmen graduated from tech school. With the start of Korean War, the 3415 TTW expanded their training program. Numerous new technical courses were established. Missile courses trained airmen on Matador, Falcon, Rascal, Snark, Navaho, Bomarc and guidance units. In late 1955, develop an intercontinental ballistic missile training course that munitions airmen attended. At the same time, all of the 3415 TTW prepared training plans for new Air-to-Air and Air Ground missiles and Laser Guided Bombs in development. In 1958, 3415 TTW started Nuclear Weapons Training that included munitions airmen.

In 1993, Lowry prepared to end 56 years of munitions technical training. While training continued, Lowry's command structure planned to implement the closure in an efficient manner. The Air Force inactivated the 3400th Technical Training Group on April 27, 1994. All munitions technical training courses moved to Sheppard AFB, Texas. In 1980, the maintenance and inspection of tactical air-to-air and air-to-ground missiles was transferred to the AFSC 461X0 Munitions career field.

Since creation of the USAF, munitions accountability was performed by the Supply career field personnel who worked alongside the munitions systems specialist. In March 1966, the Air Forces created AFSC 645X0A Munitions Supply Specialist to improve munitions accountability, command and control over munitions resources and increase the efficiencies of reporting munitions

availability to higher headquarters. In 1986, Munitions Supply personnel were moved from the General Category to the Maintenance Category and became AFSC 465X0 Munitions Operations specialists. In July 1989, there were 842 465X0 assigned to the AFSC. In January 1992 AFSC 461X0 and 465X0 merged. In October 1993 AFSC 461X0 changed to 2W0X1.

Upon graduation from Air Force Basic Military Training at Lackland Air Force Base, San Antonio, Texas airmen assigned to the Munitions Specialist Career Field attend an 8-week tech school at Sheppard Air Force Base, Texas. Upon graduation from tech school, the new AMMO apprentice is sent to their assigned duty station. Upon arrival at the first base, the AMMO apprentice should be provided an AMMO Challenge Coin by munitions flight or element Chief.

**Air Force Combat Ammunition Center (AFCOMAC):** AFCOMAC is a United States Air Force training course developed to provide the Air Force munitions community with advanced training in mass combat ammunition planning and production techniques. It uses a combination of in-depth classroom instruction combined with a four-day intensive practical exercise (IRON FLAG) using live munitions in a realistic, bare-base scenario. AFCOMAC was established in 1985 at Sierra Army Depot, California, as a response to a perceived degradation in the USAF's ability to rapidly produce ammunition for air combat operations during combat. AFCOMAC's intensive training effort from 1986 through 1991 helped prepare USAF munitions personnel for their role in the first Gulf War. Later AFCOMAC moved to Beale AFB, California.

#### **AFCOMAC offers three courses:**

**CAPP** (Combat Ammunition Planning and Production) Course: a three-week course (two weeks of academics and one week of exercise) with a class size of 70 people in the grade of senior airman thru captain. This course awards five credit hours towards CCAF and is a 7- and 9-level upgrade training requirement for all 2W0 personnel. Nine classes per fiscal year are taught.

**SOO** (Senior Officer Orientation) Course: a companion class to CAPP and is conducted during the IRON FLAG practical exercise. This course combines hands-on training (in conjunction with the CAPP course) with seminar sessions to provide senior logistics and operations officers (major and above/civilian equivalents) with an appreciation and practical knowledge of mass munitions build-up operations. Nine classes per fiscal year are taught.

**AMMOS** (Advanced Maintenance/Munitions Officers School): uses AFCOMAC as the ideal means to teach its six-day munitions block of this 5.5 month class. This course combines hand-on training (in conjunction with the CAPP course) with seminar sessions and coursework to provide maintenance/logistics captains with the expertise in the application of expeditionary logistics as it applies to the Ammo career field. Two classes per fiscal year are taught.

**Munitions Challenge Coin:** Munitions challenge coins come in many shapes and sizes. Normally they are a large metal coin with munitions appropriate related graphics and phrases either printed or stamped on both sides.

Once a person becomes airmen the individual is presented a Challenge Coin for Life. The Munitions Challenge Coin must be carried by airmen on their person at all times, on duty and off duty, for the rest of their life. Airmen who are "coin checked" shall present their Munitions Challenge Coin.

Failure by challenged airmen to present their coin results in challenged airmen shall buy the challenger a beverage. When the airmen being challenged possess their coin, the challenger shall buy the airmen a beverage.

Airmen who requests a coin check shall place their coin on a table or even purposely drop coin on the ground. All airmen shall present their coin. Airmen who fail to present their coin shall buy the

airmen who successfully presented their coin a beverage. When all airmen present their coin, the challenger shall buy all airmen a beverage.

**Munitions Flag:** The Munitions Shell and Flame Flag are displayed above a yellow scroll inscribed with 'Munitions FOR PEACE', the official motto. The background of the flag is crimson and the fringe is yellow. Crimson and yellow have been the colors of the Ordnance and Munitions throughout its history, except for a short period between 1902 and 1921, when the official colors were black and scarlet.

**Munitions Museums:** The Museums of Armament, Munitions and Ordnance fundamental goals are: to acquire and preserve a wide array of inert munitions Bombs, Missiles, Ammunition, Combat arms and other artifacts relating to armament, Munitions and Ordnance history. The Air Force Museums are located at Wright Patterson AFB, Ohio and Eglin AFB, Florida. The Army Ordnance Museum is located at Fort Lee, Virginia holds one of the largest and most comprehensive Ordnance collections in the United States, containing millions of rare photographs and negatives, a world-class library, tens of thousands of artifacts, and inert ordnance. The Army Ordnance Museum stores the artifacts inside a climate-controlled facility.

### **Air Force Munitions Wartime History:**

**Korean War Munitions History:** When the Korean War ended on July 27, 1953, over 21,000 Air Force munitions sorties were flown. Munitions airmen at multiple locations built over 167,000 tons of bombs that were dropped on targets by Air Force Fighters and Bombers.

**Vietnam War Munitions History:** Munitions war effort came under control of 7AF with the parent command at HQ PACAF. New munitions challenges existed because of counter-insurgency nature of the war. Munitions units were spread thin; there were more bases to support than existed in World War I, II or Korea. The one-year rotational policy produced personnel shortages in munitions career field. Early in war, a majority of airmen who completed the Vietnam or Thailand tour were involuntarily PCS to other bases within the PACAF AOR. As overseas imbalanced AFSC, many personnel were rapidly cross-trained into career field for deployments overseas only to be returned to their original AFSC after their overseas tour. In the early years of the war, munitions, equipment, spare parts and personnel availability were low. Despite these challenges, munitions airmen increased operational readiness, bomb assembly, delivery, receiving and shipping rates. By 1969, airmen exceeded those rates of all previous wars efforts.

Over 7 million tons of bombs were dropped during the Vietnam War with the vast majority built by USAF Munitions airmen. In contrast, during World War I 16,000 tons of bombs, World War II 1.6 million tons of bombs and Korean War 167,000 tons.

A US B-17 Flying Fortress over Germany in World War II carried about 10 airmen and approximately 17 bombs. A B-52D flying over North Vietnam carried 6 crewmen and could carry 108 500 or 750 pound bombs. ONE Vietnam War B-52 was equal to about SIX World War II B-17s. One F-4 Phantom jet fighter manned by two crewmen could carry as many bombs as a World War II B-17 bomber.

**7 AF:** Reactivation on March 28, 1966, Seventh Air Force was designated a combat command at Tan Son Nhut Air Base to oversee the operations of the ten primary USAF bases in the Republic of Vietnam. From April 1966 until 1973, the command assumed responsibility for most Air Force operations in Vietnam and shared responsibility with the 13AF for operations conducted from Thailand as 7/13AF.

The 7AF Munitions staff was directly responsible to plan and execute call forward actions to support resupply for USAF bases in Thailand and Vietnam. In addition, the munitions staff operated the Ammunition Control Point, make commands and controls over intra munitions

movements, and other important day-to-day duties and responsibilities. There were approximately 19 ships in pipeline loaded with munitions at all time to support the Vietnam War.

In March 29, 1973, the command transferred to Nakhon Phanom Royal Thai Air Base Thailand, where it accepted dual responsibility as the US Support Activities Group and Seventh Air Force. 7AF controlled air assets and operations in Thailand. On June 30, 1975, 7AF was deactivated and 13AF assumed their responsibilities and duties. Munitions airmen from 400 MMS (T) were sent to augment 13AF Munitions staff at Clark AB, Philippines.

#### **Facts Vietnam War Munitions Storage Areas Explosions:**

**Cam Ranh Bay Munitions Storage Area:** This view of the below picture is looking generally East from Cam Ranh Bay Air Base hooch area. The fires burning and explosions are in the Tri-Service Munitions Storage Area night of August 25, 1971. About a mile away hooch area sappers gained entrance to Munitions Storage Area and initiated the explosions. The explosions continued for most of the evening and the fires burned for several days. The Stand Off and Sapper attack resulted in the destruction of 6,000 tons of munitions valued in 1971 dollars in excess of \$10,300,000. CBU's were spread over a 2 miles of Tri-Service Munitions Support Area.



A few Cam Ranh Bay Tri- Service Munitions Storage Area, MK82 Bomb revetments withstood the explosions and fire. See below picture of MSA explosion and revetments.



**Munitions Storage Area at Bien Hoa Air Base:** On the east ramp, shipments of munitions came to Bien Hoa port on a daily basis. The goal was to ship the munitions forward on the same day that it arrived but, most of times the goal was never achieved. This, in turn, required movement of munitions to Munitions Storage Area until shipment.

In transit munitions were stored in MSA in ten revetments. Revetments are simply areas of ground surrounded on three sides by earthen blast walls, as shown in this photo. The walls were angled so that if there ever was an explosion, the shock wave and debris would be thrown upwards. You can also see a very heavily constructed metal blast wall to the left. It was actually two metal walls about a yard apart. The space in between the walls was filled with sand.



A sapper attack took place on January 12, 1972 resulting in the explosion of Bien Hoa AB Munitions Storage Area. On that fateful night, in an MSA was covered with unexploded bombs and munitions — lots of 40 mm, cluster bomblets and rockets. When munitions response team entered a revetment that hadn't been destroyed, a Viet Cong satchel-charge wedged between stored munitions. Below is picture of Bien Hoa Munitions Storage Area explosion.



**DaNang Munitions Storage Area:** In April 27, the DaNang Marine and Air Force Munitions Storage Area explosion started. A Vietnamese national was burning trash on that morning. The trash set the grass on fire, and the grass fire swept a short distance to the U.S. Marine Munitions Storage Area. Explosions were ever where, the air was filled with smoke and metal objects. Some of the bombs were flown across the roads that started secondary explosions in the Air Force MSA.

The explosion continued for 15 hours. The Marine MSA consisted 332 acres, while the Air force MSA approximately 100 acres. Munitions were separated revetments, areas approximately 40 yards

square and surrounded on three sides by high, thick walls of dirt. There were 215 revetments in the Marine MSA while Air Force MSA consisted of 60 revetments. Over half of Marine and Air Force MSA munitions stockpile was destroyed. See below picture of Da Nang MSA explosion.







**Korat Royal Thai Air Base Thailand Munitions Storage Area:** Next time you visit Vietnam Memorial in Washington DC or traveling wall take the time to place your hand on A1C James E. Francis, James W. Reese and Frank A. Uhlic Jr. names. On March 11, 1968 at Korat Royal Thai Air Base Thailand a low order detonation of M117 750 lb. bombs in a storage revetment occurred. The detonation killed munitions specialist, A1C Reese. A1C Uhlic subsequently died of his injuries on March 15, 1968 in the Air Force hospital at Clark AB, Philippines. Air Force Security Policeman A1C Francis who entered the revetment in attempt to save A1C Reese and A1C Uhlic, Jr. was also killed. In mid 1980s, A1C Francis, Reese, and Uhlic names were added to the Vietnam War Memorial Wall. A1C Francis is on Wall at Panel 44E, Line 14, A1C Reese Panel 44E, Line 19 and A1C Uhlic Jr. Panel 45E, Line 4.

MAP of Vietnam and Thailand USAF Bases:



Ilyushin IL-28 Beagle Bomber

Origin: Russia

Max Speed 486kt / 560 mph

Max Range 2,180 km / 1,355 miles

Bombload up to 3,000 kg (16,614 lbs)

**Notable Operations:**

<b>Operation</b>	<b>Dates</b>	<b>Description</b>
Farm Gate	Oct. 1, 1961-July 28, 1963	Training and support for South Vietnamese Air Force.
Ranch Hand	Jan. 7, 1962-Jan. 7, 1971	Defoliation of jungle to expose Viet Cong sanctuaries, movements, and ambushes.
Barrel Roll	Dec. 14-April 17, 1964	Support of ground forces in northern Laos.
Flaming Dart	Feb. 7-11, 1965	Precursor to Rolling Thunder. Air strikes against North Vietnam in reprisal for Viet Cong attacks on US bases.
Rolling Thunder	March 1965-Oct. 31, 1968	Sustained air campaign over North Vietnam.
Steel Tiger	April 3, 1965-Feb. 21, 1973	Interdiction of Ho Chi Minh Trail.
Arc Light	June 18, 1965-Aug. 15, 1973	Strategic Air Command B-52 strikes in Southeast Asia.
Bolo	Jan. 2, 1967	“MiG Sweep” in which seven North Vietnamese aircraft are shot down in 12 minutes.
Eagle Thrust	Nov. 17-Dec. 29, 1967	Huge airlift of troops and cargo from Ft. Campbell, Ky., to Bien Hoa.
Commando Hunt	Nov. 1, 1968-March 30, 1972	Intensified air strikes in southern Laos.
The “Menus”	March 18, 1969-May 1970	Breakfast, Lunch, Dinner, Snack, Supper, and Dessert Covert bombing of Cambodia; series of missions named
Linebacker I	Nov. 1, 1968-March 1972	Massive air strikes on Hanoi and Haiphong.
Linebacker II	Dec. 18-29, 1972	Resumed bombing of North Vietnam, almost four years after end of Rolling Thunder

### USAF Attack Sorties:

In North Vietnam USAF	1966 44282	1967 54316	1968 41057	1969 213	1970 699	1971 1195	1972 16785	1973 729
In South Vietnam USAF	70646	116560	134890	96524	48064	11842	40332	1303
SEA Laos, Cambodia	48469	44450	75274	144343	125120	116790	45608	5751
B-52	5,235	9686	20568	19498	15103	12,554	28380	2709

### Linebacker II:

Dec. 18-29 1972 Linebacker II operations against Hanoi and Haiphong in 1972 are associated in popular memory almost exclusively with the B-52s, but other aircraft flew almost half the Air Force sorties.

### Linebacker II Air Force Sorties by Aircraft:

A-7 - 226

F-4 - 274

F-111 - 140

B-52 - 724

Total 1,364

**Andersen AB, Guam Munitions Maintenance Squadron Role in Vietnam War:** Andersen's B-52 Stratoforresses and Munitions airmen role in Vietnam is legendary. Starting on June 18, 1965, 27 B-52 were launched from its runway. These flights began Operation Arc Light, bombing missions against Viet Cong base operations, troop concentrations and supply lines. In early 1972, Munitions airmen provided munitions support to 153 B-52s that lined the airfield in a surge of Arc Light missions called Bullet Shot. It took five miles of ramp space to park the aircraft. Flight line and Munitions line delivery airmen had to ensure their orderly movement not to block taxiway that could have proven a mission-crippling event.

Later that year Operation Linebacker II got underway when, on Dec. 18, 1972, 87 B-52s were launched from Andersen in one hour and 43 minutes. Throughout the 11-day operation, Andersen-based B-52s flew 379 of the 729 sorties. Linebacker II led to the renewal of the Paris Peace Talks and, on January 28, 1973, the signing of a cease-fire agreement with the government of North Vietnam.

**Facts of Arc Light Munitions Support from Anderson AB Guam and U-Tapao Royal Thai AB Thailand:** Munitions airmen stationed at Andersen AB, Guam built the first Arc Light mission load on flown June 18, 1965 when Guam-based B-52s were used to attack a Viet Cong jungle stronghold

with conventional 750-pound and 1,000-pound bombs. Munitions airmen support for B-52s were used primarily in saturation bombing of Viet Cong base areas. Munitions airmen directly supported the B-52s also were used in direct tactical support of operations such as the Marine Corps' Operation Harvest Moon and the First Cavalry Division's fight in the Ia Drang Valley. In 1966, operations were mostly against targets in South Vietnam, but expanded to include approaches to the Mu Gia Pass in North Vietnam on April 12 – 26, 1966, to interdict the northern Ho Chi Minh Trail. Munitions assembly increased tremendously in 1967, almost doubling the number of B-52 sorties flown in 1966, supporting ground troops and attacking enemy troop concentrations and supply lines in the A Shau Valley.

Munitions airmen support of the 1968 defense of Khe Sanh was the largest and most significant air campaign munitions wise to date in Southeast Asia, helping to break the siege on Khe Sanh and force the North Vietnamese to withdraw. In 1969, munitions airmen supported the B-52 conventional bombing operations in Southeast Asia continued at a steady pace with greater emphasis on harassment and disruption of enemy operations than in previous years, particularly around Saigon. Munitions support for B-52s also continued to hit enemy supply dumps, base areas, troop concentrations, and the Ho Chi Minh Trail in Laos. The number of munitions sorties flown in support of Arc Light bombing operations declined from November 1969 until ceasing temporarily in August 1970.

Raids were not only flown out of Andersen AFB and U Tapao, but from Kadena AB on Okinawa, where B-52Ds had been sent to counter aggressive North Korean actions. Munitions airmen from the 400 MMS built numerous munitions loads to support B-52D sorties from Kadena AB. The fact that Kadena was performing raids on South east Asia was kept secret to keep from inflaming Japanese public opinion. The Japanese had been on the receiving end of American heavy bomber strikes only a few decades before, and it took no great wisdom to realize they would find even passive involvement in such activities very disagreeable.

**Facts of Operation Menu Munitions Support March 18, 1969 – 26 May 1970:** During the Menu series of raids, munitions airmen built 100,000 tons of bombs that were flown and dropped on 3360 B-52 sorties. Individual missions in the Menu series were named Breakfast, Supper, Lunch, Dessert, and Snack, thus the name Menu bombing. Menu raids continued until May 26, 1970, when the bombing campaign was exposed by the New York Times after the start of the Cambodian Incursion by ground troops.

**Facts Linebacker I Munitions Support April 6 - October 23, 1972:** The aerial interdiction campaign against North Vietnam's Easter Offensive began on April 6, 1972 with attacks in the southern part of the country, and then expanded rapidly. Munitions airmen built the Bombs and Munitions to support B-52s, escorted by fighter and aircraft mission for specializing in electronic countermeasures and suppression of surface-to-air missiles, bombed the fuel storage tanks at Haiphong, setting fires that, reflected from cloud and smoke, were visible from 110 miles away. Shortly afterward, carrier aircraft joined Air Force fighter-bombers in battering a tank farm and a warehouse complex on the outskirts of Hanoi. When these attacks failed to slow the offensive, naval aircraft began mining the harbors on May 8, 1972 and two days later the administration extended the aerial interdiction campaign, formerly known as Freedom Train but now designated Linebacker, throughout all of North Vietnam. When Linebacker drove the North Vietnamese back to the peace talks in October, the bombing was halted. After several months, the North Vietnamese again left the peace talks.

**Facts Linebacker II December 18 – 29, 1972 Munitions Support:** The primary objective of Linebacker II was to once again coerce North Vietnam to re-enter into the peace negotiations to end the war in Vietnam. The operation employed almost unrestricted strategic and tactical air power, night and day, against major strategic targets in the Hanoi and Haiphong areas. In the eleven days of the campaign, U.S. planes dropped over 49,000 tons of bombs by build munitions airmen from bases with PACAF AOR, devastating North Vietnam. They returned to the talks at the end of

December and the Peace Agreement was signed in January 1973, bringing U.S. involvement in the Vietnam War to a close.

**Facts BLU-82/B Bomb (Daisy Cutter) 15, 000 Pound Munitions Support History:** Bomb was essentially a large thin-walled tank (1/4-inch steel plate) filled with a 12,600-lb. "slurry" explosive mixture". BLU-82/B replaced the World War II 10,000-pound M121 Bomb. Munitions airmen support for the BLU-82/B first began in Vietnam on March 23, 1970. This bomb was used in Vietnam to clear vegetation while creating little or no crater, and it cleared landing zones about 260 feet in diameter - just right for helicopter operations.

Throughout the rest of the Vietnam War the USAF used them for tactical airlift operations called "Commando Vault." After the war, the BLU-82/B was used during the Mayaguez rescue in May 1975.

In the 1980's a premature explosion of three BLU-82/B at Sierra Army Depot, Herlong, California resulted in the decision to destroy all Vietnam era Bombs. BLU-82/B stockpile were stored at Clark AB, Philippines and Sierra Army Depot respectively. Clark AB munitions airmen assisted EOD in the destruction of BLU-82/B. The BLU-82s were sawed in half and munitions airmen shovel the "slurry" explosive mixture" into 20MM empty cans for transport to range for destruction.

Eleven BLU-82s were dropped during Operation Desert Storm, all from special operation MC-130 Combat Talon aircraft. As of 2001, four BLU-82s were dropped in the Afghanistan War to destroy Taliban and Al-Qaeda to demoralize personnel and to destroy camps, underground and cave complexes.

**Munitions Support for SS Mayaguez:** The crisis began on the May 12, 1975, when Khmer Rouge seized American container ship SS Mayaguez and vessel crew. Munitions airmen from various bases provided support to SS Mayaguez rescue mission. The Air Force aircraft involved in consisted of HH-53, C-130H gunship, B-52's, fighters, and C-130 aircraft. Munitions provided include but not limited to 7 - BL-82-s, bombs, flares, aircraft gun ammunition, small arms, grenades, rockets, etc.

**Munitions Support AC-130 Gunship:** The AC-130 gunship has a combat history dating to Vietnam. Munitions airmen provided gunships munitions to destroy more than 10,000 trucks and were credited with many life-saving close air support missions.

During Operation Urgent Fury in Grenada in 1983, munitions airmen provided support to AC-130s to suppress enemy air defense systems and attacked ground forces enabling the successful assault of the Point Salines Airfield via airdrop and air land of friendly forces. AC-130s also had a primary role during Operation Just Cause in Panama in 1989 when they destroyed Panamanian Defense Force Headquarters and numerous command and control facilities.

**Munitions Support for Libya Attack:** President Ronald Reagan ordered a strike on Libya on April 14, 1986. The attack began at 0200 hours (Libyan time) and lasted about twelve minutes. Munitions airmen from RAF Lakenheath built a large tonnage of munitions with over 60 tons of munitions dropped on Tripoli airfield, a frogman training center at a naval academy, and the Bab al-Azizia barracks in Tripoli. Eighteen F-111 bombers supported by four EF-111 electronic countermeasures aircraft flying from the United Kingdom bases dropped the bombs on Libya.

Munitions airmen built 48 GBU-10 2000 LB Laser Guided Bombs, 180 MK82 500 LB Bombs, 72 500 LB Cluster Bombs, 36 Harm and 12 Shrikes Missiles.

**2705 Air Munitions Wing (AMW) Hill AFB, Utah:** On January 8, 1960, HQ Air Force Logistics Command activated the 2705 AMW at Hill AFB, Utah. The 2705 AMW was deactivated on November 1, 1969.



**Facts of Establishing USAF Ammunition Point with Enlisted Munitions Airmen:** In 1985 the Air Staff implemented the decision to assign munitions enlisted airmen to establish USAF Ammunition Control Point. The first munitions airmen arrived in July 1985. This group consisted of three dedicated munitions enlisted airmen. These enlist airmen worked long hours, but through their knowledge, skills, and abilities were catalyst to have USAF ACP operational by November 1985.

These individuals won the respect and admiration of civilian workforce. This group of airmen set standard that all enlisted munitions airmen who work in USAF ACP must meet or exceed.

The dedicated munitions airmen of USAF ACP have provided combat munitions support dating back to Libya Attack on April 14, 1986 through current combat operations.

**Munitions Support for Near Term Proposition Force (NTPF) now Maritime Prepositioning Ships (MPF):** The three current MPS squadrons, composed of 16 ships, with some of ships are loaded with Air Force Munitions. These ships provide a unique, strategic warfighting capability. Employment of MPS assets during Operation Desert Storm, Operation Vigilant Sentinel, Operation Enduring Freedom and Operation Iraqi Freedom against Afghanistan and Iraq, and Operation Restore Hope and Operation Continue Hope in Somalia, demonstrated the value of these expeditionary assets.

From July 1980 to August 1981 the Air Force added three pre-positioned munitions ships to Near Term Preposition Force (NTPF) now the MPS. The responsible for maintenance and inspection cycle of Air Force rest with munitions airmen of the Air Force.

In February 1982, the first offload and on load operation, maintenance and inspection cycle of SS American Champion was conducted at Subic Bay Naval Base, Philippines. The Clark AB, Philippines munitions men and women with limited munitions support from 400 MMS Kadena AB, Japan completed this operation. In the 1980's, the Clark munitions airmen completed several other offload and on load operations, maintenance and inspections on SS Green Valley and SS Austral Lighting at Subic Bay Naval Base.

During one such operation, in September 1984, Subic Bay had a hit direct hit by typhoon. A number of munitions laden barges broke free mooring sunk or floating in Subic Bay loaded with CBU-58s. Because of the excessive corrosion, the CBU-58s were sent to Clark AB for Cope Thunder live drop exercises.

During another operations, simultaneously the Clark munitions airmen had support an Operation Readiness Inspection at Clark AB, deployed to Osan AB, Korea, participated Air Force directed 30-

day computer outage exercise, completed a Combat Sage and Thunder exercise plus off load, on load operations and maintenance and inspection cycle at Subic Naval Base.

Over the years, the names of NTPF force has changed, but dedicated munitions women and men continue to support his critical offload, on load operation and maintenance and inspection cycles at various locations throughout the world. Munitions airmen are the bit of spear that keeps our Air Force munitions serviceability and ready for immediate use by warfighter and keeps this nation free from our enemies.

**STAMP – Stand Ammunitions Packages and TARRP—Tactical Air Munitions Rapid Response Package:** Rapidly provides war fighting commanders with aircraft munitions and weapons release equipment to meet worldwide contingencies and conflicts. STAMP enables pre-selected or notional tasked tactical air units to deploy to locations without prepositioned munitions or until sustained re-supply lines can be established. STAMP assets may also be tasked for surface movement (truck, rail, or vessel) to meet planned sustaining requirements when logistics lead-times allow such activity.

In August 1975, STAMP was formed at SAALC DET 40 Medina Annex, Lackland AFB, Texas. The 2005 BRAC decision moved Standard STAMP/Standard Tank, Rack, Adaptor, and Pylon Packages (STRAPP) from Lackland Air Force Base, Medina Annex to 184 Munitions Squadron (ANG) McConnell AFB, Kansas. In 2008, Det 40 was deactivated.

STAMP Packages are current stored at Hill AGB, Utah and McConnell AFB, KS. The TARRP is similar to STAMP, but is strictly for PACAF AOR. The TARRP is stored at Kadena AB, Japan.

Over the years, munitions airmen from these units have executed numerous shipments in support of warfighters with always meeting the required in placed dates which is truly outstanding.

**Kosovo and Macedonia U.S. and Allied Military Operations Munitions Support:** On March 24, 1999, NATO began air operations, code-named Operation Allied Force, against targets primarily in Serbia and Kosovo. During the 78-day air campaign, U.S. and Allied total, NATO aircraft flew over 35,000 sorties about one-third of which were strike sorties, launching about 23,000 munitions. Initially, cloudy weather over Kosovo severely hampered attack aircraft equipped with laser-guided munitions. NATO forces relied mostly upon the U.S. proven effectiveness of Air Force the F-16, F-15, F-117, B-2s and B-52s. The American B-2 Spirit stealth bomber also saw its first successful combat role in Operation Allied Force, all while striking from its home base in the continental United States. Munitions airmen from various bases built the munitions to support fighter and bomber aircraft.

**Iraq War Munitions Support Operations:** In the past 22 years, munitions airmen have engaged in three sustained operations in the Middle East which tested the career field ability to adapt by streamline processes, procedures and instructions. In Operation Desert Storm, munitions airmen supported the largest air operation in American history. Operation Iraqi Freedom and Operation Enduring Freedom called for airmen to overcome a long-term insurgency campaign.

Most of the munitions used in Iraq since 2003 has been PGM's (Precision Guided Munitions), by a ratio of about 2 to 1. Approximately 20,000 thousand PGM devices were dropped in 2003 and 2004; and approximately 10,000 non-smart weapons during the same time period. Although figures are still evolving, current usage appears to be under the approximate 80,000 thousand tons expended during Operation Desert Storm in January and February 1991. The vast majority of munitions were built by Air Force munitions airmen.

**Afghan War Munitions Support Operation:** The Munitions Airmen outstanding support for Afghan War is still being written. The next following paragraphs reflect their accomplishments to sustain the munitions sortie rates.

By the end of November 2001, the US Air Force had flown more than 15 percent of the combat missions in support of Operation Enduring Freedom. Aircraft employed included the B-1, B-2, B-52, F-15E, F-16 and AC-130H/U. These aircraft had dropped approximately 10,000 tons of munitions, amounting to more than 75 percent of the Operation Enduring Freedom total. More than 75 percent of the munitions expended were precision guided. By the end of November 2001, a total of 600 cluster bombs had been dropped, consisting of 450 BLU-103 and 150 BLU-87 munitions.

By the end of November 2001, the eight B-1s and ten B-52s operating from Diego Garcia had reportedly dropped most of the 4,700 tons of munitions delivered by the Air Force, comprising 47 percent of the war's total by that time. The B-1 force generated four sorties per day, while five B-52s were flying daily.

In the first 76 days of operations, from 7 October to 23 December 2001, when sustained air operations slowed, the US flew about 6,500 strike missions over Afghanistan. About 17,500 munitions were expended on over 120 fixed target complexes and over 400 vehicles and artillery guns. A total of 57 percent of the weapons delivered were precision guided. The Air Force, flying 25 percent of the sorties, delivered 12,900 weapons, over 70 percent of the total delivered. The B-1 and B-52 bombers flew 10 percent of the strike sorties, and delivered 11,500 of the 17,500 total munitions expended. The B-1 bombers reportedly dropped more bombs on Afghanistan than any other aircraft, and received recognition as a critical workhorse of the conflict. 4600 of 12,900 weapons expended were reportedly the Joint Direct Attack Munitions.

Operation Anaconda, the largest reported American ground action to date in the Afghan war, was launched on March 1, 2002. The aircraft flying daily missions over the battlefield, 10 long-range bombers, 30 to 40 fighters and two to four AC-130 gunships, were more than half the size of the force used in strikes across Afghanistan in the fall of 2001. More than 350 bombs and missiles had been dropped on targets during the first four days of fighting. US aircraft dropped 190 bombs on March 3, 2002, more than twice as many as on March 2, 2002. From 6:30 AM Afghan time Saturday through Sunday, more than 270 bombs had been dropped in support of Afghan, US and coalition forces. As of 5 March 2002, over 450 bombs had been dropped. By the end of continuous operations in late March, nearly 3,500 bombs had been dropped.

#### **Vietnam and Thailand Munitions Maintenance Squadrons Pictures:**

##### **DaNang Air Base RVN:**

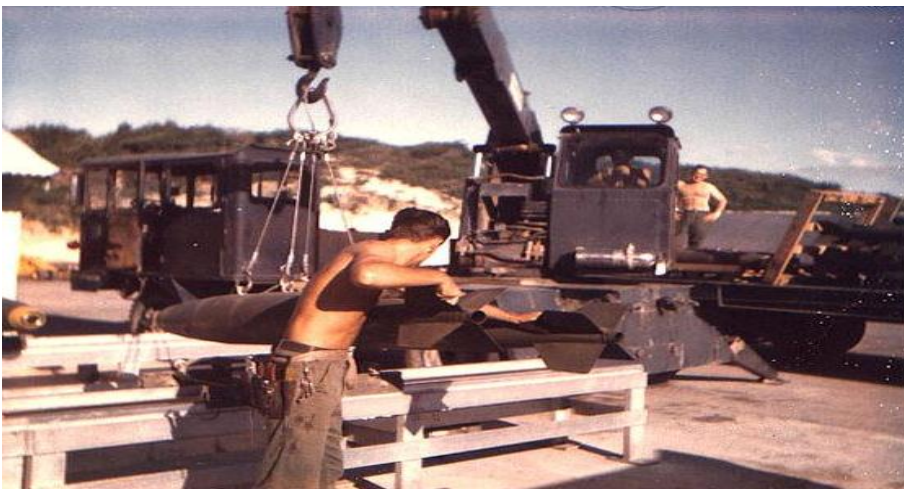






**Cam Ranh Bay Air Base RVN:**





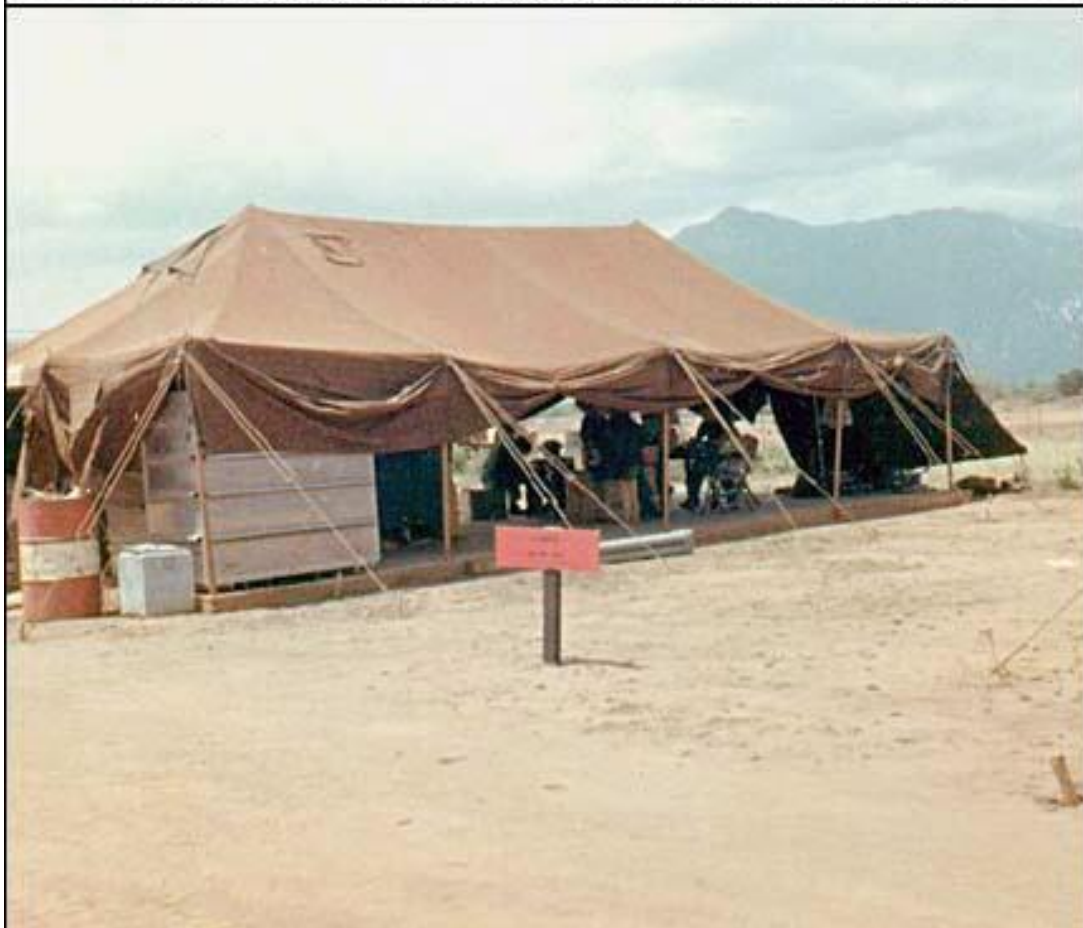
**Bien Hoa Air Base RVN:**



## Phan Rang Air Base RVN:



Napalm heading for the munitions transfer point on the flight line. Note the smooth graded road leading out of the munitions storage area. (1966)



Another photo of the munitions storage area maintenance and supply office tent. The tent was replaced with a permanent Quonset building shortly prior to the end of my Phan Rang tour. (1966)



Phan Rang munitions storage area under construction. Note the revetments and completed storage sheds within them. (1966)



A munitions maintenance vehicle parked in a revetted storage area in the munitions storage area. (1966)



Phan Rang munitions storage area revetments, roads, and storage buildings, under construction. (1966)



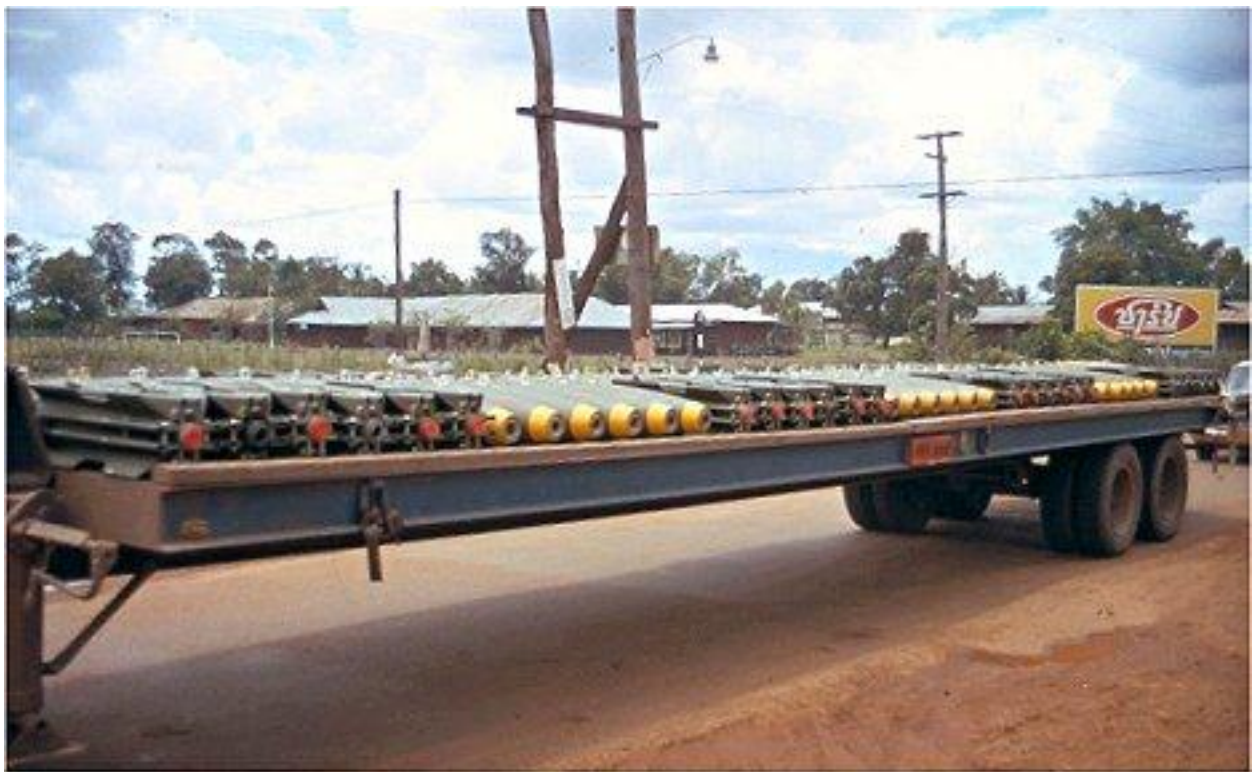
Munitions supply personnel (L-R) A1C Jordan and A1C Anderson preparing the daily base munitions status report for 2nd Air Division/7th Air Force at Saigon. (1966)

**Korat Royal Thai Air Base**



**Thailand:**





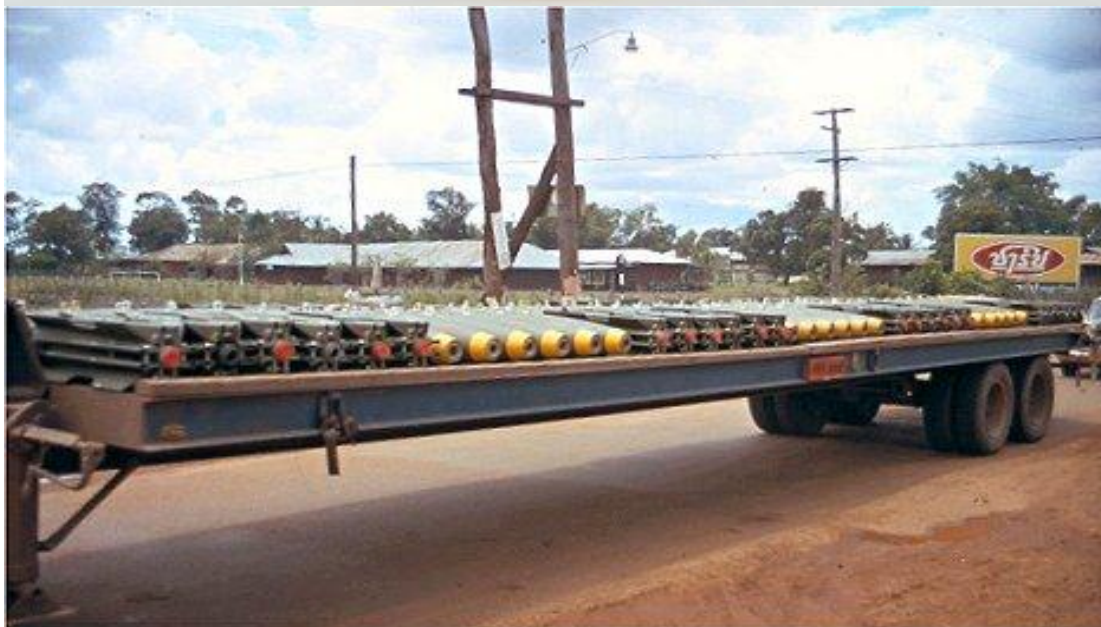
**Takhili Royal Thai Air Base Thailand:**



**Nakhon Phanom Royal Thai Air Force Base Thailand:**



**UBon Royal Thai Air Base Thailand:**





U-Patao Royal Thai Air Base Thailand:







**UDorn Royal Thai Air Base Thailand:**



**PHU CAT Air Force Base RVN:**





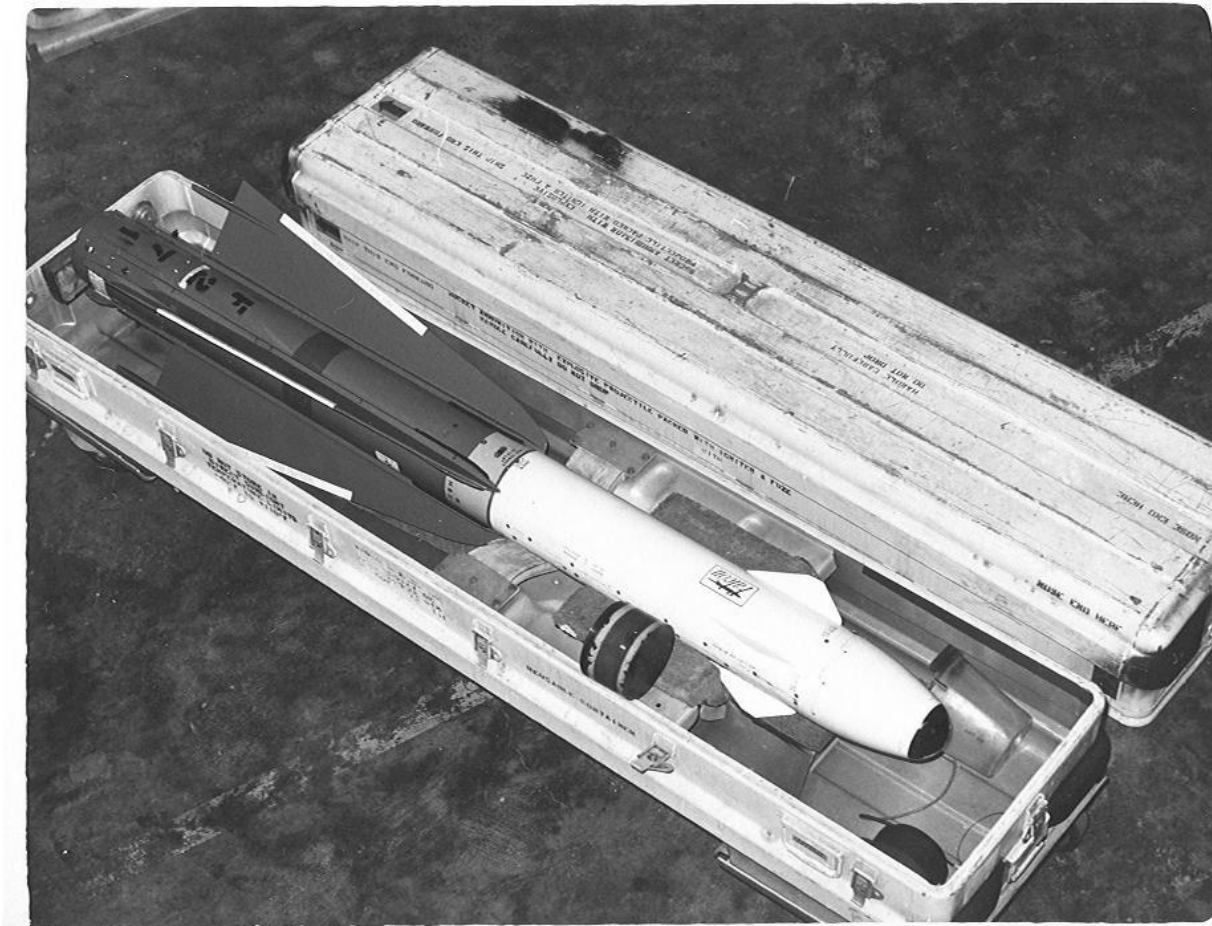


**Pleiku Air Base RVN:**



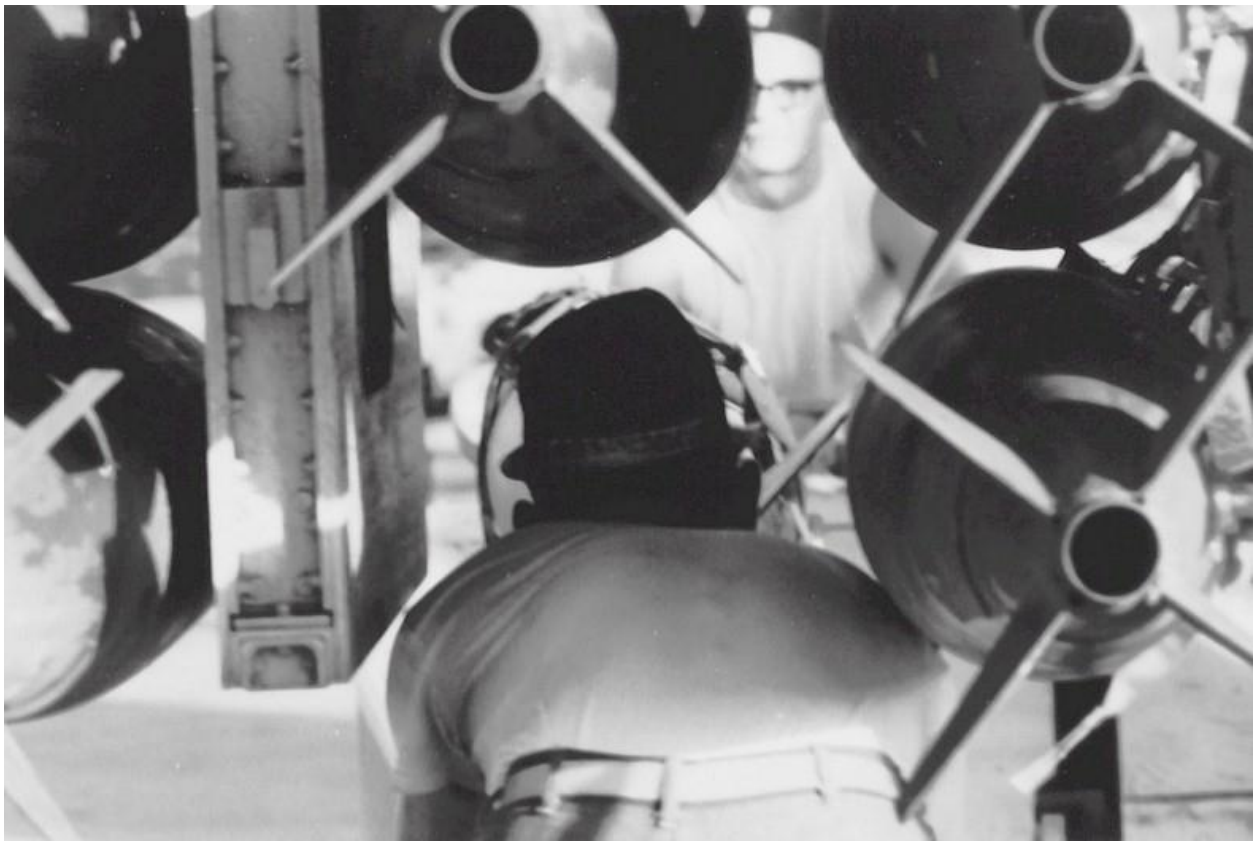
**Clark Air Base Philippines:**





**Andersen Air Base Guam:**









18 MMS Kadena AB, Japan:



**Early Ordnance History:** The Munitions units are one of the oldest organizations of the Armed Forces, founded on May 14, 1812. The duties and responsibilities of the profession date back to the colonial era. In 1629, the Massachusetts Bay Colony appointed Samuel Sharpe as the first Master Gunner of Ordnance. Just sixteen years later, the Massachusetts Bay Colony had a permanent Surveyor of Ordnance. His responsibility was to deliver powder and ammunition to selected towns, recover weapons from militia members, receive payment from those who lost weapons, and provide periodic reports to government officials to guide the purchase of firearms, powder, and shot. Although, each colony developed a militia system in which members were required to provide their own weapons and initial amount of gunpowder and shot, colonial Ordnance officials provided a logistical depth for any type of sustained operations.

The American Revolution established the general outlines of the future Ordnance Department. General George Washington, the commander of the Continental Army, appointed Ezekiel Cheever, a civilian, to the Commissary of Military Stores to provide Ordnance support to his army in the field in July 1775. By mid-1779, all the field armies had Ordnance personnel travelling with them. These men, civilians and soldiers, served as conductors of a travelling forge for maintenance, ammunition wagon, and an arms chest. Each conductor led a section of 5-6 armories to repair small arms.

The Continental Congress' Board for War and Ordnance created the Commissary General for Military Stores to establish and operate Ordnance facilities in an effort to alleviate the dependence on foreign arms purchases. Colonel Benjamin Flower led the Commissary from his appointment in January 1777 until his death in May 1781. Ordnance facilities were established at Springfield, MA, and Carlisle, PA, for the production of arms, powder, and shot. After the war, the sustainment elements were disbanded and the authority for procurement and provision of all things military was transferred to the Office of the Purveyor of Public Supplies located within the Treasury Department.

In the first half of the 19th Century, the Ordnance Department played a crucial role in the burgeoning Industrial Revolution and helped to establish the "American System of Manufacturing". One of the most significant achievements was the establishment of two federal armories; Springfield Armory in 1795 and Harpers Ferry in 1798. Per congressional direction from 1794, each armory staffed a civilian superintendant and a master armorer. These two armories served as a nucleus for technological innovation for the young republic. Inventors such as Eli Whitney and Simeon North developed the methods and means for mass production through interchangeable parts and refined technology in milling machinery.

By the dawn of the War of 1812, the Secretary of War recognized the need for a distinct branch to manage the procurement, research, and maintenance of Ordnance materiel. Decius Wadsworth, previously superintendant of West Point, was appointed a Colonel and given the title Commissary General of Ordnance, later changed to Chief of Ordnance. His ambition, during the war years and afterward, was to simplify and streamline Ordnance materiel management. His staff worked to reduce the variety of small arms and artillery pieces to a few efficient models. In addition, he aimed to develop a cadre of highly trained Ordnance officers who could dedicate their inventive ingenuity to their profession. This effort created a tradition of technological innovation in the Ordnance Department and resulted in a generation of 'soldier-technologists'; inventors such as Alfred Mordecai, George Bomford, Thomas J. Rodman, and John H. Hall. Indeed, assignment to the Ordnance branch was one of the most sought-after assignments following graduation at West Point.

In 1832, Congress authorized the rank of Ordnance Sergeant. This rank filled the Army's need to have a highly-trained and experienced Ordnance soldiers at the increasing number of frontier posts and coastal defensive forts. To apply, a soldier had to have at least 8 years of service, 4 of which had to be as a non-commissioned officer, and pass a series of examinations, to include mathematics and writing. Their responsibilities included the maintenance of arms and ammunitions at army installations and the provision of those supplies to armies in the field. This rank continued until the Army Reorganization Act of 1920. Ten of the fifteen Medal of Honor awardees would serve as Ordnance Sergeants during their enlistment.

The Mexican War provided the first real test of the Ordnance Department's system of armories and arsenals. In 1841, there were two armories and twenty arsenals. Without difficulty, it met the needs of the Army for equipment and supplies to support the multiple campaigns of the Mexican War. Consequently, it did not undergo any major reorganization following the war. In addition to its support role, the Ordnance Department established the Rocket and Howitzer Battery, the only unit in Ordnance history raised specifically for combat duty.

The 105 officers and enlisted men were the only ones with the experience to operate the new M1841 12-pound Howitzer and the latest Hale War Rocket. These weapons were still in the testing phase and had not been distributed to the artillery branch for field use. The unit suffered 6 killed and 22 wounded. At the close of the Mexican War, the department numbered 1 colonel, 1 lieutenant colonel, 4 majors, 12 captains, 15 first lieutenants, and 10 second lieutenants, along with several hundred enlisted personnel and approximately 1000 civilians at the armories and arsenals.

During the Civil War, the Ordnance Department was called upon to arm and equip an army of unprecedented size. It furnished 90 million pounds of lead, 13 million pounds of artillery projectiles, and 26 million pounds of powder for a Union Army of 1 million soldiers. To achieve these impressive amounts, the Ordnance Department civilian staff increased from 1,000 to 9,000 by war's end. Women were especially sought after to work in the ammunition plants due to the contemporary perception that a woman's nimble and petit fingers worked better at assembling paper rifle cartridges. Consequently, when there was an explosion (i.e. Allegheny Arsenal in 1862 or Washington Arsenal in 1864), the percentage of female fatalities was very high. In the Allegheny Arsenal explosion, 78 civilian workers were killed, 71 were women.

Despite the massive expansion of the army, the official staffing of the Ordnance Department remained small. At the peak of the war, the Department numbered 64 officers and 600 enlisted. Ordnance officers were assigned to divisions and above. For lower echelons, Ordnance responsibilities were tasked out to soldiers who had previous training in smithing or some other Ordnance-related skill. These soldiers remained with their units, but were provided a set of tools from the Ordnance Department. Consequently, thousands of soldiers were detailed to perform Ordnance duties during the war.

A few Ordnance officers accepted line commands, such as Major Generals Oliver O. Howard who won the Medal of Honor at the Battle of Fair Oaks in 1862, and Jesse Reno who was killed at the Battle of South Mountain in September 1862. Most officers, however, remained in the Ordnance Department and rose in rank to serve as Ordnance officers for their commands, to include the Army of the Potomac and other field armies. As was common in other branches of the Army, a considerable number resigned their commissions and joined the Confederate Army (interestingly, most enlisted soldiers remained with the Union Army).

Captain Josiah Gorgas resigned his commission and assumed a majority in the Confederate Army on 8 April 1861. He was given charge of the new Confederate Ordnance Department based in Richmond, Virginia and would rise to Brigadier General by the end of the Civil War. He is recognized as one of the most able administrators in the Confederate government due to his ability in marshalling an impressive amount of materiel and distributing it to the Confederate Army.

It is interesting to note that it was widely anticipated Alfred Mordecai, who was regarded as the most brilliant officer in the Ordnance Department, would quickly rise up the ranks. However, his family was devoted to the Confederacy and he could not consciously think that he was constructing materiel to be used against them. After his request for transfer to California was denied, he resigned his commission. The Confederacy offered him a position, but he denied that as well and spent the war years teaching mathematics at a private college in the north.

Between the Civil War and World War I, the Army Ordnance Department did not expand to any great extent. Modest improvements in the organization of the Ordnance Department were implemented and scientific research continued, but a general lack of preparedness grew. A full-fledged proving ground was dedicated at Sandy Hook, New Jersey in 1874 and a federal cannon foundry was established at Watervliet Arsenal in 1887.

With the arrival of the Spanish-American war in 1898, the Ordnance Department, however, did not have the time to catch up to the swiftness of mobilization and had to 'muscle through' its support issues. The department faced a similar problem it faced in 1861; how to arm and equip all the soldiers during such a sudden increase in size, an approximately ten-fold increase. Regular army troops were equipped with smokeless, bolt-action Krag-Jorgensen rifles, but most volunteer units had the single-shot, breech loading, black powder M1873 Springfield. In a report following the war, Chief of Ordnance Brigadier General Daniel W. Flagler urged that funds be allocated to establish an adequate stock of war reserve munitions, but his recommendations went unheeded. Thus, the United States would have even greater challenges mobilizing for World War I.

Even though World War I had been raging in Europe for nearly three years, the Ordnance Department had to play catch-up when the United States entered the war in April 1917. With only 97 officers and 1,241 enlisted soldiers, the department had a myriad of problems to overcome; no system below the Office of the Chief of Ordnance to coordinate with industry, no plan for mobilizing industry, an inadequate proving ground, no system of echeloned maintenance, a lack of sufficient schooling for enlisted soldiers, and only six armories and manufacturing arsenals at Watervliet, New York; Watertown and Springfield, Massachusetts; Frankford, Pennsylvania; Rock Island, Illinois; and Picatinny, New Jersey.

As the war progressed, the department overcame the lag and matured as an organization and adapted to modern warfare. By the end of the war, the Ordnance Department numbered 5,954 officers and 62,047 enlisted soldiers, with 22,700 of those officers and soldiers serving in the American Expeditionary Force in France.

The Ordnance Department established 13 Ordnance districts across the country which had the authority to deal directly with industry and award contracts. By the end of the war, almost 8,000 plants were working on Ordnance contracts. To offset industry's reluctance to build new plants, the U.S. government established a system of constructing the factories, but contracting out its operation. By the war's end, 326 government facilities were operating under the auspices of contractors. This practice was even more successfully employed during World War II.

A new proving ground was established at Aberdeen, Maryland. In November 1917, construction began. By September 1918, 304 officers, 5,000 enlisted, and 6,000 civilians were conducting tests on a wide range of munitions. With the experience it gained from the Punitive Expedition in Mexico in 1916, the Ordnance Department established an embryonic system of echeloned maintenance. For major repairs, it established a system of Ordnance repair base shops in France.

For maintenance support to the field, the Ordnance Department fielded the Mobile Ordnance Repair Shops (MORS) and Heavy Artillery Mobile Ordnance Repair Shops. These units moved with the division and provided a wide array of support to the line. To train the new Ordnance soldiers, the Ordnance Department established schools at a wide-array of locations, to include universities, civilian factories, armories, arsenals, and field depots. Eventually, much of the training was consolidated at the Ordnance Training Camp at Camp Hancock, Georgia. By war's end, more than 55,000 officers and soldiers had been trained at one of these locations, including the six Ordnance schools in France.

The story for the Ordnance Department between World War I and World War II is filled with both good news and bad news. The decreased budgets limited the amount of money it spent on research, in lieu of maintaining war reserves. In spite of this, several legendary weapons were developed; including the M-1 Garand and the 105mm Howitzer (although, tank development significantly lagged). The development of the Ordnance school system is another success story during the interwar years. Schooling for Ordnance officers and enlisted was streamlined during the period and consolidated by 1940 at Aberdeen Proving Ground at The Ordnance School, a single location where all Ordnance education would occur. This location would be center of the soul of the Ordnance Branch for the next 68 years.

The Ordnance Department swelled exponentially in World War II and applied the lessons it learned in World War I. The Ordnance Department was responsible for roughly half of all Army procurement during World War II, \$34 billion dollars. President Franklin Delano Roosevelt's 'Arsenal of Democracy' depended on the Ordnance Department to become a reality.

In January 1944, the Ordnance Department accounted for 7 manufacturing arsenals, 7 proving grounds, 45 depots, and 77 government-owned, contractor operated (GOCO) plants and works. Of the 77, all of them focused on ammunition and explosives except one. The Detroit Tank Arsenal was built in eight months while engineers simultaneously designed a new medium tank, the M3. By the end of the war, the Detroit Tank Arsenal built over 22,000 tanks, roughly 25 percent of the country's tank production during the war. The Arsenal continued to operate as the Detroit Army Tank Plant until 2001.

Ordnance Department strength increased from 334 to 24,000 officers, 4,000 to 325,000 enlisted, and 27,088 to 262,000 civilians, all in an army of approximately 8 million. Women Ordnance Workers (WOWs) accounted for approximately 85,000 of all civilian employees. Ordnance soldiers and civilians worked across the globe, in places as diverse as Iceland, Iran, the Pacific Islands, Africa, Europe, and the Middle East. Aberdeen Proving Ground expanded exponentially and headquartered The Ordnance School, the Ordnance Replacement Training Center, the new Bomb Disposal School, and the Ordnance Unit Training Center.

The Ordnance mission in the field operated on a scale never experienced previously by the Ordnance Department. During World War II, the Ordnance Branch gained its third core competency, Bomb Disposal (renamed Explosive Ordnance Disposal after World War II) added to its previous missions of ammunition handling and maintenance. By war's end, there were more than 2,200 Ordnance units of approximately 40 types, ranging in size from squads to regiments.

The Ordnance Department applied the maintenance lessons it learned in World War and devised a five-echelon maintenance system ranging from base shop maintenance to organizational maintenance, all in an effort to return materiel to operational status as near to the front line as possible. To complicate the maintenance mission, in 1942, the responsibility for motor transport was shifted from the Quartermaster Branch to the Ordnance Department. The complexity of maintenance for such a wide variety of vehicles spawned several innovations which continue to the present; a system of preventative maintenance and the publication of Army Motors, renamed PS Magazine in 1951. This maintenance challenge remained one of the largest hurdles in World War II.

**Early History of Munitions Shell and Flame:** The Munitions Shell and Flame (a.k.a. Flaming Bomb) has been used by European armies for several centuries before adoption by the U.S. Army. In fact, it is still used by many countries in Western Europe, i.e. the Grenadier Guards in Britain. The insignia represents not a bomb, but an iron hand grenade with a powder charge and a fuse which had to be lit before throwing.

The Shell and Flame is considered the oldest branch insignia in the Armed Forces. The use of the Shell and Flame by the Ordnance Branch dates back to 1832. It was also used by the Artillery Branch until 1834 when the Artillery branch adopted the crossed-cannons as its branch insignia.

The Shell and Flame continued to be used by a wide variety of Army organizations, not just the Ordnance branch until 1851 when the new 1851 Uniform Regulations dictated the Ordnance Branch would be the sole users of the Shell and Flame.

Despite its sole ownership by the Ordnance Branch, multiple designs of the Shell and Flame existed. Different designs accompanied different uniforms. The 1851 Uniform Regulations, in addition, granted enlisted personnel the opportunity to wear the Shell and Flame, previously only Officers wore the emblem. The dress uniform, the forage cap, the enlisted uniform, and many other uniforms had their unique design. Most Officers emblems were sewn onto their uniform, while enlisted soldiers had brass insignia affixed onto theirs.

The multiplicity of designs continued through World War I. Indeed, with the deployment of the American Expeditionary Forces in France and the advent of collar disks with branch insignia, a dizzying array of designs existed. Even today, it is still unknown how many different designs were produced. Designs in the U.S. had tenure of approximately ten years before a new insignia was designed for a particular uniform. In France, however, soldiers employed a wide-array of French manufacturers to make their uniform items.

In 1936, the Army Institute of Heraldry redesigned and standardized the design of the Shell and Flame. This stylized Shell and Flame remains the current version. Interestingly, all older versions were allowed to be grandfathered out of use. It is not uncommon to see photos of WWII Ordnance soldiers still wearing the pre-1936 design.

For Air Force history of Munitions Shell and Flame see page 1.

### **Ordnance Troops Awarded the Medal of Honor:**

#### **Civil War**

Brig. Gen. Oliver Otis Howard Battle of Fair Oaks, Virginia 1862

Capt. Horace Porter Battle of Chickamauga 1863

Capt. William Sullivan Beebe Alexandria, LA 1864

Pvt. Timothy Spillane Hatchers Run, Virginia 1865

**Western War:** The following ten noncommissioned officers and enlisted men were awarded the Medal of Honor for actions in the Western United States. All of them were either serving as Ordnance Sergeants when the Medal of Honor was awarded to them or later retired with that rank. All were members of infantry or cavalry units.

Albert Knaak Arizona Territory 1868

Solon D. Neal Little Washita River, Texas 1870

John Kelly Upper Washita, Texas 1874

John Mitchell Upper Washita, Texas 1874

Zachariah Woodall Washita River, Texas 1874

Michael McGann Rosebud River, Montana 1876

Henry Wilkens Little Muddy Creek, Montana 1877 Camas Meadow, Idaho

Milden H. Wilson Big Hole, Montana 1877

Moses Williams Cuchillo Negro Mountains, New Mexico 1881

Frederick E. Toy Wounded Knee Creek, South Dakota 1890

## **World War II**

Sgt. Hulon Brocke Whittington, France 1944

**Ordnance/Munitions Creed:** As an Ordnance/Munitions U.S. Armed Forces member I shall use every available talent and means to ensure that superior mobility, firepower, and communications are advantages enjoyed by the United States over our enemies. I fully understand my duty to perform under adverse conditions. I shall continually strive to perfect my skills. I will remain flexible that I can meet any emergency. In my conduct, I shall abide by the Armed Forces Code in support craft and mission. I shall always be tactically and technically proficient. As an Armed Forces Member, I have no greater task.

At US Army Ordnance soldiers class graduation ceremony this creed is recited by every ordnance soldier in attendance. The Ordnance/Munitions Creed has never been adopted for Air Force use.

**Ordnance/Munitions Prayer:** Our Father, we pray for the strength of mind, heart and body to continue to serve our Ordnance/Munitions field and our Nation. Help us remember and emulate the heritage of excellence set by those who established, nurtured and led field before us. May the shell and flame continue to light the way toward selfless service, dedicated professionalism and passionate patriotism as we support our Nation's role as a leading force toward peace and liberty in the world.

Oh Lord, we ask that you provide us the wisdom to continually take charge of change and shape field to provide service to the line, on the line, on time. Guide us as we seek to establish our own heritage of courage and honor through our daily duties. Give us the strength to accept our responsibility to our fellow airmen as we seek to fix and arm the force.

Oh God of Our Fathers, bless our efforts to provide the "Ordnance/Munitions for Peace" and protect us if we must answer the call to arms to defend our faith, our liberty and our freedom. Teach us not to mourn those who have died in the service of our Armed Forces, but rather to gain strength from the fact that such heroes have lived. Teach us to stand together in Your Name so that we may remain strong and that the Field shall remain the architect of readiness for our Armed Forces and our National History of the Shell and Flame.

At US Army Ordnance soldiers class graduation ceremonies this prayer is recited aloud by every ordnance soldier in attendance. The Ordnance/Munitions prayer has never been adopted for Air Force use.

**Munitions Spouse Keeper of Shell and Flame Award:** Throughout Ordnance/Munitions history, military spouses have made immeasurable and irreplaceable contributions to our Air Force. In addition to keeping their own "home fires burning", during long duty days and even longer

deployments, they willingly dedicate countless hours of hard work in the support of Armed Forces members, families and their military community.

Without question, Munitions spouses' devoted service to our Armed Forces and the country is distinctive and deserving of our undying gratitude. To this end, recommend each Munitions Squadron, Flight or Element should establish a "Keeper of the Flame and Shell" award to deserving munitions spouse. This award should be present by Munitions Flight Chief to the spouse upon retirement or separation from the Air Force.

The Air Force has never adopted the Munitions Spouse Keeper of Shell and Flame Award.