



THE A-10 THUNDERBOLT II & THE GAU-8 AVENGER

JANUARY IN AVIATION HISTORY

Many Warfighters that have returned from the front lines will tell you of the importance of close-air-support (CAS). The A-1 *Skyraider* fulfilled this role in the Korean War, entering service a year too late for World War II. By the Vietnam War, the F-4 Phantom II had adopted this role with its heavier payload and faster speeds. By the time the Vietnam War ended, the Air Force was looking for a better solution to provide CAS to ground forces while allowing an aircraft to break deep into enemy territory to attack a target.

The Air Force was also concerned about the *Phantom's* inability to stay near ground forces, as jet engines meant the aircraft had poor staying power. Attack helicopters were considered as well, but the poor armoring and limited payload made them insufficient. The result was the A-X Program, ordered on 8 September 1966. By 1972, two prototypes were ready to fly, both of which were built around the GAU-8 30 mm cannon. The first of these was the Northrop YA-9A. The second was what would become the A-10 *Thunderbolt II* - the "*Warthog*." The plane first flew against the YA-9 in May of 1972, and with various testing and revisions to the fire control systems, was introduced finally in October of 1977.

The signature sound of the GAU-8 30 mm cannon is the calling card of the A-10. Designed to be specifically fitted to the winner of the A-X Program, the GAU-8 gun was designed to be an aerial ordnance system. The idea and concept of the aerial ordnance and artillery platform originated from a U.S. Army Weapons Command (WECOM) concept generated in the 1950s

which called for both a fixed wing, variable wing, and rotary wing artillery weapons platform. These evolved into the A-10 Thunderbolt, the V-22 Osprey and AC-130 Gunship, and the AH-64 *Apache* designs - respectively. The GAU-8 *Avenger* was longer than a Volkswagen Beetle automobile and was about as tall (see photo at the end of this article). The GAU-8 composes the majority of the total weight of the A-10, and is the anchor for the planes center of gravity.

When the A-10 was in its prototype phase, the *Avenger* was not yet available. As a result of this, Fairchild engineers substituted the 30 mm Avenger with the 20 mm *Vulcan*. When the plane entered production, all planes were fitted with the Avenger we know of today. The next largest weapons system, the *Vulcan*, appears on the F-16 *Falcon*.

To date, no other aircraft use a full-sized GAU-8 system. This is despite an attempt by the Air Force to include a scaled down GAU-8 system in a pod on the F-15, F-16, and the A-7. Even the AC-130 only uses a partial system, saving weight for larger artillery pieces on-board. The A-10 is the only aircraft to deploy the original GAU-8 in its fully functional size.

Designed to withstand a beating, the *Warthog* is capable of surviving direct hits from armor-piercing and high explosive projectiles. It is even capable of withstanding a direct hit from surface-to-air missiles (SAMs). The hydraulic system is redundant, enabling manual override of the hydraulics if the system fails. The pilot is protected in the cockpit by heavy duty armor. Called "the tub", the

cockpit has been tested against rounds up to 57 mm. The GAU-8 cannon, and the sound of the two GE TF-34 turbofans are signature sounds that any Soldier who has been at the front will tell you "sounds like an angel." With the ability to attack deep into enemy territory, protect forces on the front line, and return with only half of its airframe intact, it is no wonder that the *Warthog* has remained in service by demand of all military services.

REFERENCES

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1942 FDR authorizes the largest armaments production buildup in the history of the United States.

1943 The Pentagon is dedicated in Washington, D.C. and designated as the HQ for the War Department.

1966 The Palomares Incident occurs over the Mediterranean Sea off the coast of Spain.

1994 The F-4G *Wild Weasel V* flies its last mission. It will be replaced by the F-16CJ and the *Wild Weasel VI* mission.

2009 The Miracle of the Hudson takes place after US Airways flight 1549 makes an emergency landing in the Hudson River.

