The AC-130W is no longer equipped with wing refueling pods to act as a tanker, but it can receive fuel from a boom-equipped tanker, such as the KC-135R as shown. USAF/A1C Victor J. Caputo

When the US Air Force needed to boost the numbers in its gunship fleet it turned to converted C-130Hs, giving rise to the potent AC-130W, better known as the Stinger II.

report: **Ashley Wallace**

SECRETIVE STINGERS

AS FAR BACK as 2004, the US Air Force was looking to boost the 'legacy' C-130 fleet of its Special Operations Command (AFSOC). This came about partly because of delays in wholesale fleet renewal with brand-new 'special ops' C-130J derivatives.

The result was a plan to convert 12 'vanilla' C-130Hs to special operations MC-130H Combat Talon II configuration to augment the existing fleet. Initially, the converted aircraft were known as the MC-130W Combat Spear. The first examples were converted by a team that included Lockheed Martin, L3 Communications and Boeing. They were upgraded to a standard that would permit both low-level and in-flight refueling tanker missions using Mk32B-902E refueling pods.

The initial converted MC-130W was re-delivered on June 28, 2006, but by the time the last of the dozen aircraft (serial 87-9288) was returned to the Air Force in March 2010 plans were already afoot to begin equipping the MC-130Ws with a palletized gunship capability to supplement the AC-130 fleets.

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The newly converted Combat Spears were delivered to the 27th Special Operations Wing (SOW) at Cannon Air Force Base, seven miles south-west of Clovis, New Mexico. In 2006, the 73rd Special Operations Squadron (SOS) was reactivated at Cannon to operate these MC-130Ws, which had already started to adopt a new official name — Dragon Spear. By May 2012, both the designation and the name had changed yet again. With the focus for these aircraft turning to the gunship role they became the AC-130W Stinger II.

When the final AC-130H Spectre gunships were retired by the 16th SOS in May 2015, the AC-130Ws moved across to the 16th SOS — also known as 'Spectre' — and which today has all 12 airframes on strength.

Fearsome gunships

AFSOC's AC-130 gunship fleet is one of the most feared assets in the combat inventory, known for its ability to unleash devastating firepower both day and night and in all weathers. Lessons learned from combat operations — particularly in Afghanistan — led to a modified plan reflecting the near-term needs of US

Special Operations Command (SOCOM). In July 2007, SOCOM declared a requirement to expand the gunship fleet. The preferred intent was to augment the existing combat capability of AC-130H Spectre and AC-130U Spooky gunships in the short term, before eventually replacing a portion of these. The long-term option was revised to a full recapitalization with the brand-new AC-130J Ghostrider, based on Lockheed Martin's much improved Super Hercules airframe.

The AC-130W stems from that short-term plan. It was designed to both plug the gap left by AC-130H retirement and to take the raw cannon armament of the Spectre and Spooky a step further.

The main difference between the now-retired AC-130H and the AC-130W is that the former was always a gunship, whereas the AC-130Ws started out as cargo 'Hercs' modified to accommodate the Precision Strike Package (PSP). The PSP includes smart munitions as well as a roll-on/roll-off side-firing gun, as Capt Jena Desmet, a Stinger II combat systems officer (CSO), confirmed. 'The designation was changed from MC-130 to AC-130 when the airplane was modified with stand-off precision-guided weapons and the 30mm gun.'

The objective of the AC-130W Stinger II project was to increase precision attack capacity for overseas contingency operations through the addition of the semi-modular PSP kit. The package introduced for the AC-130W was very similar to, but ultimately more elaborate than, the US Marine Corps' KC-130J Harvest HAWK kit.

It took less than 18 months to turn the AC-130W Stinger II concept into reality. The idea was to create a gunship with minimal airframe alterations while introducing a precision attack capability**.** What resulted was more of a flying arsenal and sensor platform than a traditional gunship.

The Stinger II has some other significant differences when compared with the recently retired AC-130H, as Maj Jeffrey Gosselin, an AC-130W pilot with the 16th SOS, explains. 'In the early stages of the AC-130W's evolution, the idea was to develop an aircraft that could fill the void left by the AC-130H. However, as the program developed [it] introduced new systems and capabilities, which enhanced the mission capabilities of the gunship.'

Capt Desmet adds: 'The AC-130H employed a 105mm and 40mm gun [and featured] a crew of 13. This consisted of a pilot, co-pilot, flight engineer, navigator, fire control officer, electronic warfare officer, two sensor operators, a loadmaster and four aerial gunners. A typical crew in the AC-130W consists of 10: two pilots,

two CSOs, one flight engineer, two special mission aviators and three gunners.'

Senior military officials and the squadron itself realized the AC-130W program offered much more than originally anticipated. 'The development and capabilities learned from the updated AC-130W have proved so important for the development of the AC-130J,' commented Maj Gosselin.

AC-130W arsenal

Despite not being conceived from the outset as a gunship, the Stinger II represents a step up from the AC-130H on many levels. The aircraft has a pair of AN/AAQ-38 forward-looking infra-red (FLIR) turrets, one under the nose and one on the port main undercarriage fairing. When it comes to the sideways-firing guns, the standard configuration includes the Bushmaster GAU-23 30mm cannon located in the forward port side of the fuselage. AFSOC is in the process of a retrofit that adds a 105mm howitzer. This project started in 2016, and although it currently only involves a few aircraft it will be completed by 2018. This mirrors plans for the new AC-130Js, which will also now feature the 105mm cannon.

However, it's the additional capability of carrying up to eight Boeing GBU-39 Small Diameter Bombs (SDBs) on BRU-61 racks on the outer wing stations that really differentiates the Stinger II from its predecessors.

'Even without the addition of the 105mm, these gunships are without doubt the most lethal in history', enthuses

> *'The 16th SOS is extremely busy training all of its crew members to be familiar with the new 105mm weapon system and we currently have roughly five aircraft allotted for training with plans to convert more'*
>
> **MAJ JEFFREY GOSSELIN**

This image: **A pair of Stinger IIs on the ramp at Cannon AFB. Both feature the new 105mm howitzer.** Ashley Wallace

Inset far left: **Pilot Maj Jeffrey Gosselin stands in front of AC-130W 88-1301.** Ashley Wallace

Left top to bottom: **The 30mm GAU-23 Bushmaster cannon on the port side of the AC-130W.** Ashley Wallace

The recently added 105mm howitzer gun on AC-130W 88-1301. Ashley Wallace

GBU-39 Small Diameter Bombs can be carried on the wing pylons. USAF

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An AC-130W Stinger II takes off from Hurlburt Field, Florida, during Exercise 'Emerald Warrior'. USAF/SrA Jasmonet Jackson

Gosselin. 'As well as enhanced weapon capability, the AC-130W has a modular battle management system [BMS] and advanced communications, including the latest video and information datalinks. [These] are fitted to a series of missionized control stations mounted inside the cargo hold. The 16th SOS is extremely busy training all of its crew members to be familiar with the new 105mm weapon system and we currently have roughly five aircraft allotted for training with plans to convert more.'

The AC-130W's real sting in the tail comes from a configuration known as 'Gunslinger'. This incorporates the ability to employ Raytheon's AGM-176 Griffin air-to-ground missiles or GBU-44 Viper Strike munitions mounted on the rear cargo ramp. A dispenser for 10 of these munitions can be mounted and deployed from the ramp, with further magazines stored in the main cargo hold until needed.

While the advent of new precision-guided weapons is obviously a major development for both the AC-130W and for the forthcoming AC-130J, it is worth noting how the 105mm gun was originally discounted for both gunships. Its reinstatement recognizes the fact that the howitzer is extremely accurate and offers a relatively low-cost, yet highly accurate, capability compared with expensive 'smart' weapons.

Another interesting development in the pipeline for the AC-130W is a SOCOM funding request for the Fiscal Year 2018 budget to begin modifying an AC-130W with a new high-energy laser capability. AFSOC chief Lt Gen Brad Webb anticipates the service could begin the modifications as early as 2020 if the budget is approved.

The AC-130 gunship community may be little reported, but it is in high demand.

This image shows clearly the two AN/AAQ-38 FLIR turrets and the 30mm GAU-23 cannon fitted to the port side of the AC-130W. Ashley Wallace

MISSION CREW

Top: **Special mission aviators at work at the AC-130W's control work-station.** USAF/SSgt Matthew B. Fredericks

Above: **A gunner peers out of the small window as the 30mm GAU-23/A delivers its lethal force.** USAF/SSgt Douglas Ellis

AC-130W 88-1304, callsign 'Spectre 61', with engines running and ready to taxi out for the morning mission at Cannon AFB. Ashley Wallace

The Stinger II has been heavily involved in recent conflicts, including the ongoing Operation 'Inherent Resolve'.

While the specific details of weapons used in combat and mission accounts are withheld, Gosselin says: 'We continue to be busy and squadron members spend a great deal of their year away from home. The world is extremely uncertain currently, and our responsibility as the 16th SOS is to be ready to execute the mission of the AC-130W at a moment's notice as our leadership directs.'

The Stinger II offers a versatile and cost-effective solution to the urgent needs of SOCOM, while at the same time paving the way for new technologies for the future AC-130J. Gosselin sums up: 'The leadership continues to be excited about the continued operational success of the AC-130W. Within the squadron, we continue to learn and execute our mission with the AC-130W as if we will be flying the aircraft for the next 10 years.'