THE AC-130 GUNSHIP AND ITS VARIANTS

Research from 10/2010

AC-130

The AC-130 gun ship’s primary missions are close air support, air interdiction and armed reconnaissance. Other missions include perimeter and point defense, escort, landing, drop and extraction zone support, forward air control, limited command and control, and combat search and rescue.

These heavily armed aircraft incorporate side-firing weapons integrated with sophisticated sensor, navigation and fire control systems to provide surgical firepower or area saturation during extended periods, at night and in adverse weather. The AC-130 has been used effectively for over thirty years to take out ground defenses and targets. One drawback to using the AC-130 is that it is typically only used in night assaults because of its poor maneuverability and limited orientations relative to the target during attack.

During Vietnam, gun ships destroyed more than 10,000 trucks and were credited with many life-saving close air support missions. AC-130s suppressed enemy air defense systems and attacked ground forces during Operation Urgent Fury in Grenada. This enabled the successful assault of Point Saline’s airfield via airdrop and air land of friendly forces.

The gunships had a primary role during Operation Just Cause in Panama by destroying Panamanian Defense Force Headquarters and numerous command and control facilities by surgical employment of ordnance in an urban environment. As the only close air support platform in the theater, Spectres were credited with saving the lives of many friendly personnel. Both the H-models and A-models played key roles. The fighting was opened by a gunship attack on the military headquarters of the dictator of Panama and the outcome was never in doubt. All objectives were quickly accomplished and democracy was restored to Panama.

During Operation Desert Storm, Spectres provided air base defense and close air support for ground forces. Both the AC-130A and AC-130H gunships were part of the international force assembled in the Persian Gulf region to drive out of Kuwait which Saddam Hussein had invaded in early August 1990. In the following January, the allies launched the actual war known as Desert Storm following the Desert Shield build-up. Victory was accomplished in a few weeks and Kuwait was set free of the foreign invader. Iraq shot down one AC-130H gunship. It resulted in the loss of all 14 crewmembers, the largest single air power loss of the war. Post war restriction on Iraq required the presence of gunships to enforce them.

AC-130s were also used during Operations Continue Hope and United Shield in Somalia, providing close air support for United Nations ground forces. The gunships played a pivotal role during operations in support of the NATO mission in Bosnia-Herzegovina, providing air interdiction against key targets in the Sarajevo area.

The Naval Surface Warfare Center, Dahlgren Division (NSWCDD), on behalf of Air Force Special Operations Command (AFSOC) requested information in 2005 that may lead to the acquisition and qualification of a family of 120mm mortar ammunition for enhancing the AC-130 Gunship Lethality and Survivability. Sources Sought N00178-05-Q-1925 was posted

18 August 2005 to Federal Business Opportunities (FBO). NSWCDD and AFSOC are seeking information on any (guided or conventional) 120mm mortar round that is currently fielded, currently a Program of Record (POR), or technology mature enough to enter into an ACTD or similar demonstration.

The 120mm mortar concept shall offer benefits to the AC-130 fleet through: Employment flexibility through use of munitions currently available; Greater lethality through more fragmentation weight and greater blast damage; Precision strike capability; Increased standoff range and attack altitude while maintaining responsiveness; Reduction in collateral damage; and Reduction in danger close distance when supporting troops in contact.

For the 105-mm gun, 100 rounds weighs 4200 lbs. The recoil load is about 10,900 lbs, with a gun Recoiling Weight of 1,465 lbs. The muzzle pressure is 3,560 psi. It is a legacy system being phased out of the US Army inventory. There is little guided technology ongoing. For the 120-mm mortar, 100 Rounds weighs 3200 lbs. This weapon has a recoil Load of ~5,600 lbs with a gun weight of 1,315 lbs. The muzzle pressure is 1,620 psi. This is the leading FCS fire support weapon and the Stryker Brigade Combat Team fire support weapon. There is a lot of Guided Munitions development work ongoing.

The different variants

AC-130A Spectre

The A-model gunship was the first AC-130 model. The aircraft is 97 feet 9 inches long and 38 feet 3 inches tall. It has a wingspan of 132 feet 7 inches and a wing area of 1,745 sq. feet. Initially, the C-130 had a maximum speed of 384 mph and an un-refueled range of 2,450 miles with maximum load. However, with the aerial refueling modification, the range for the later model gunships was only limited by crew endurance.

The high-wing design of this aircraft and its large capacity made it especially suited as a gunship. The first gunship, the AC-47, with low wings, reduced its field of fire. Having the guns below the wings eliminated the basic problem of the AC-47. Also, the large C-130 could carry more ammunition for its heavier weapons. The AC-47 was equipped with three 7.62mm mini-guns. In contrast the AC-130A carried 7.62mm and 20mm weapons; the AC-130H fired 20mm, 40mm and 105mm guns; and the newest gunship, the AC-130U, is equipped with 25mm, 40mm and 105mm weapons.

The C-130 gunship was a new weapon system in an old airframe. Therefore, there were a number of firsts that one model or another chalked up for the gunship. Spectre was operationally tested at Eglin Air Force Base, Fla., from June to September 1967. It initially deployed to Nha Trang, Republic of Vietnam Sept. 20, 1967, and flew its first combat mission Sept. 27. Its first truck busting mission was flown Nov. 8, 1967, and all A-model gunships were assigned to Detachment 2, 14th Commando Wing. In 1968, Det. 2 was assigned to the 8th Tactical Fighter Wing and became the 16th Special Operations Squadron. At that time the C-130A was renamed the AC-130A.

Spectre suffered it first battle damage from anti-aircraft artillery Sept. 26, 1968. The sturdy C-130 returned to base. In December 1968, F-4 Phantoms first escorted the gunship in an effort to protect it from ground fire. However, the first gunship was lost with two crewmembers May 24, 1969. One was killed when the gunship was hit and the other perished when the plane crashed at home base. Five of the 18 gunships were shot down or crashed while serving in Vietnam. A gunship accomplished an unusual feat, May 8, 1969, when it shot down an enemy helicopter. Thus was born the nickname the "fabulous four engine fighter" to the chagrin of fighter pilots who where having few opportunities for air-to-air kills. Firepower increased when the first 105mm cannon arrived for installation on the gunship Feb. 17, 1972. The artillery piece was first used in combat March 1, 1972.

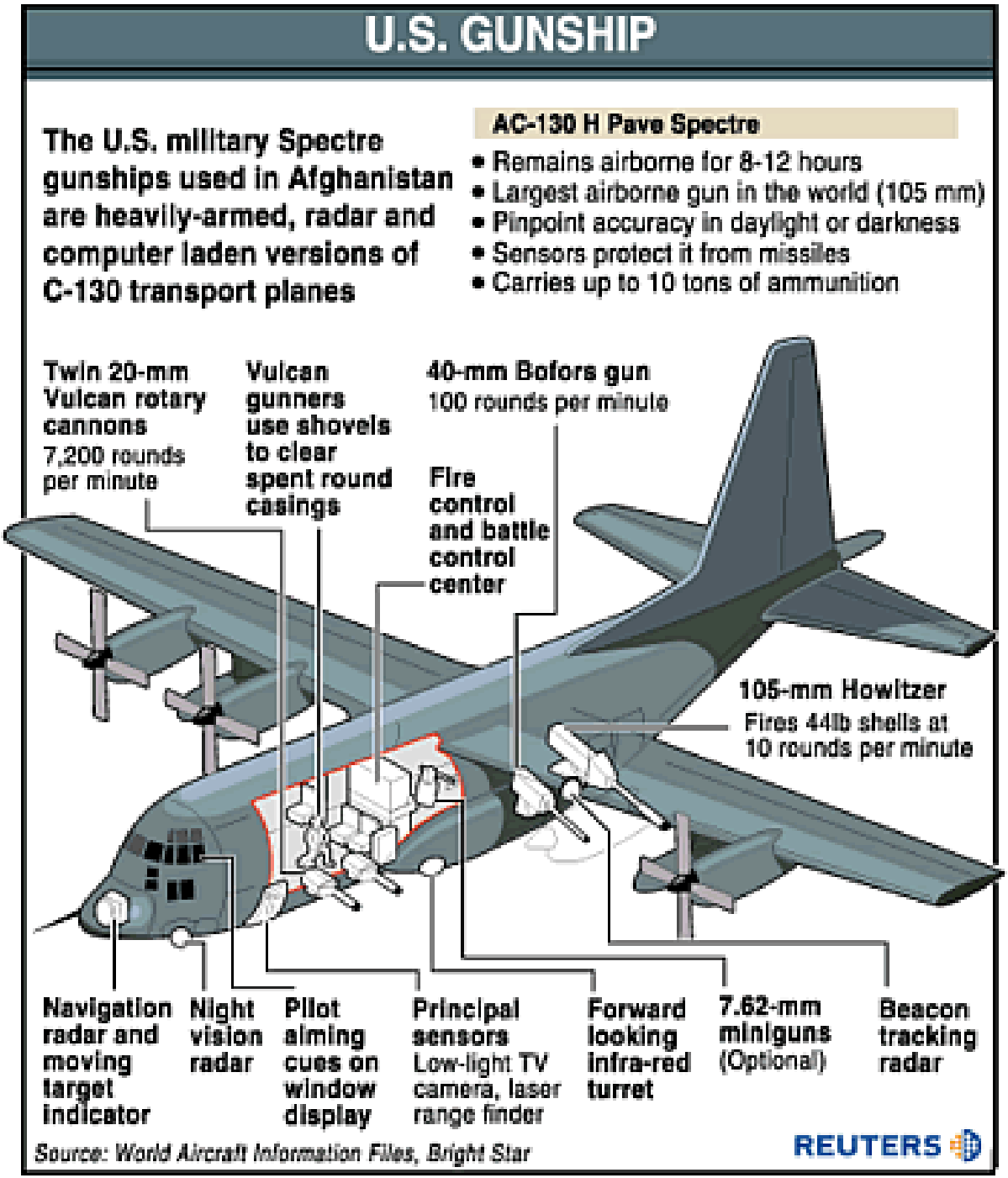
The Air Force commemorated the end of an era 10 September 1995 with the retirement of the first C-130 aircraft to come off a production line. The aircraft, tail number 53-3129, went into production at the Lockheed Aircraft Co. in Marietta, Ga., in 1953 and was the original prototype of what was to become a long line of C-130 Hercules aircraft designed and built by Lockheed. The aircraft, affectionately dubbed "The First Lady," was one of five AC-130A gunship aircraft retired during an official ceremony. While the other four aircraft were sent to the Aerospace Marketing and Regeneration Center at Davis-Monthan Air Force Base, the First Lady went on permanent display at the Eglin Air Force Base Armament Museum. The 919th Special Operations Wing's gunships, all around 40 years old, had reached the age of mandatory retirement. The only other gunships in the Air Force inventory are employed by active-duty members at Hurl Burt Field, which has less than 20 gunships assigned.

AC-130H Spectre

The Vietnam-era AC-130E "Pave Spectre" was an improved version of the AC-130A "PAVE PRONTO" aircraft. The C-130E was equipped with more powerful versions of the Allison T56 turboprop engines. The AC-130E was later upgraded to AC-130H standards under project "Pave Spectre II"

The AC-130 is an excellent fire support platform with outstanding capabilities. With its extremely accurate fire control system, the AC-130 can place 105mm, 40mm and 25mm munitions on target with first round accuracy. The crew of these aircraft are extremely proficient working in military operations in urban terrain [MOUT] environments. Many ground units have begun to use Infra-red (IR) tape either as arm bands or sewn to the top of their ballistic helmet for marking troops and vehicles, especially when working with the AC-130. It only takes a very small piece of IR tape to be distinguished as friend or foe by an AC-130, and anything larger than a one inch by one inch piece is going to white out a large portion of the monitor aboard the aircraft.

Because of the hostage situation in Teheran, Iran, four H-model gunships of the 16th SOS flew nonstop from Hurl Burt Field to Anderson Air Force Base, Guam in 1979 and later were part of the support force during the hostage rescue attempt in 1980.



However, weather and mechanical problems with helicopter forced the mission abort of this heroic effort. In October 1983, the gunships of the 16th SOS played a very significant part in the rescue of American medical students on the island of Grenada. Without the firepower of the AC-130Hs, the invasion of Grenada would have cost more American lives.

From late December 1989 to early January 1990, 23 AF participated in the re-establishment of democracy in the Republic of Panama during Operation JUST CAUSE. Special operations aircraft included active and AFRES AC-130 Spectre gunships, EC-130 Volant Solo psychological operations aircraft from the ANG, HC-130P/N Combat Shadow tankers, MC-130E Combat Talons, and MH-53J Pave Low and MH-60G Pave Hawk helicopters. Spectre gunship crews of the 1 SOW earned the Mackay Trophy and Tunner Award for their efforts.

Both the AC-130A and AC-130H gunships were part of the international force assembled in the Persian Gulf region to drive out of Kuwait which Saddam Hussein had invaded in early August 1990. In the following January, the allies launched the actual war known as Desert Storm following the Desert Shield build-up. Victory was accomplished in a few weeks and Kuwait was set free of the foreign invader. Sadly, the enemy shot down one AC-130H gunship. It resulted in the loss of all 14 crewmembers, the largest singer air power loss of the war.

In March 1994, the price of freedom and the high operations tempo was paid by a 16th Special Operations Squadron AC-130H gunship, call sign Jockey 14. The aircraft was lost due to an in-flight explosion and ditching off the coast of Kenya while supporting Operation CONTINUE HOPE II in Somalia. Eight crewmembers were killed, while six survived.

In April 1996, the aircraft participated in Operation ASSURED RESPONSE, which provided support to the emergency Noncombatant Evacuation (NEO) of more than 2,100 US and foreign citizens from Monrovia, Liberia. Operating in a hostile fire environment, SOF personnel conducted dozens of rotary wing evacuation flights using MH-53Js and overhead fire support sorties in AC-130H Spectres, often vectoring friendly aircraft through heavy small arms and rocket propelled grenade fire.

The AC-130H ALQ-172 ECM Upgrade installs and modifies the ALQ-172 with low band jamming capability for all AC-130H aircraft. It also modifies the ALQ-172 with engineering change proposal-93 to provide increased memory and flight line reprogramming capabilities. The Air Force [WR-ALC/LUKA] issued a sole source, fixed price contract, to International Telephone & Telegraph (ITT) for development of low band jammer and subsequent production. Issue a competitive, firm fixed price contract for the Group A modifications (preparing aircraft to receive jammers).

Currently funded weight reduction and center of gravity (CG) improvements to the AC-130H aircraft include: redesign of 40mm and 105mm ammo racks using lighter weight materials; reverse engineering of 40mm and 105mm trainable gun mounts using lighter weight material; and removal of non-critical armor. These efforts are performed by a sole source contract awarded to Rock Island Arsenal.

AC-130U Spooky

Continuing the distinguished combat history of side-firing AC-130 gunships, the new AC-130U Spectre gunship was fielded as a replacement for the AC-130A aircraft and to supplement the AC-130H gunship fleet. Its mission is to support conventional and joint special operations forces any time, any place. The AC-130U Gunship program initially consisted of 13 [later 17] new Lockheed C-130H airframes, modified by Boeing, which assumed responsibility for the AC-130U contract when it merged with the Rockwell Corporation, the original contractor on the program. The modifications allow the aircraft to perform the full range of special operations and conventional gunships missions. It provides surgical firepower, night and adverse weather operations, and extended loiter time on target in Special Operations Forces (SOF) and conventional roles. The AC-130U is named for the AC-47D and has the "Spooky" nickname rather than the "Spectre" nickname used by all other AC-130 gunships.

The AC-130U was armed with a 25mm Gatling-gun (capable of firing 1800 rounds per minute), a single-barrel, rapid-fire 40mm Bofors cannon, and a 105mm Howitzer. The AC-130U replaced the two 20mm cannon used on the AC-130H with one trainable 25mm cannon while retaining the other weapons. The AC-130U employs the latest technologies and can attack two targets simultaneously.

The U-model gunship is one of the most complex aircraft weapon systems in the world today, containing more than 609,000 lines of software in its mission computers and avionics systems. Although it still uses the venerable Lockheed C-130 airframe, the AC-130U incorporates the latest sensor technology, along with an entirely new fire-control system, to substantially increase the gunship's combat effectiveness. The fire control system offers a dual-target attack capability, whereby two targets up to one kilometer apart can be simultaneously engaged by two different sensors, using two different guns. All light-level television, infrared sensors, and the Hughes APQ-180 radar (also found on the F-15E Strike Eagle) provide night and adverse weather capability. The strike radar provides the first gunship capability for all weather/night target acquisition and strike.

The AC-130U is an excellent platform for working at night. The pilots are proficient with NVGs and the AC-130 carries various systems for working in the dark including FLIR, and LLTV. It has an LST and two laser designators, although these

systems cannot be cued to each other. The APQ-180 fire control radar gives the AC-130 an adverse weather capability. They orbit at approximately 5,000-10,000 AGL around a target area in a 5 nm arc. AC-130U strengths include an excellent loiter time of up to 4 ½ hours. It is a superior platform for Troops in Contact (TIC), and is best used at night to optimize all of its sensors. It also has a superior communications suite. AC-130U weaknesses include decreased maneuverability and survivability in a high tech surface-to-air threat environment. It is a large target with slow speed and should not be used in a high threat environment in daylight. It also has a wide orbit pattern.

All weapons can be slaved to sensors which permit night or adverse weather operations. The AC-130U is a highly integrated weapons system. Within the AC-130U resides the Battle Management Center (BMC) where crew coordination is critical to the success of their missions. This BMC consists of five crew stations which are the Navigator (Nav), Fire Control Officer (FCO), Electronic Warfare Officer (EWO) and two Sensor Operators who control the Infrared Detection Set (IDS) and the All Light Level Television (ALLTV) systems.

To enhance survivability, emphasis has been placed on increasing the stand-off range of the gunship's weapons system and improving first-shot accuracy. In addition, a set of electronic countermeasures has been installed to help defend the AC-130U against modern threats. The AC-130U gunship airframe is integrated with an armor protection system (APS).

The 16th Special Operations Wing at Hurlburt Field received two AC-130U aircraft in mid-1996, giving the Wing a total of 12 AC-130U aircraft. This resulted in an increase of 87 full-time military manpower authorizations.

In August 1998 elements of the 4th Special Operations Squadron from a deployment in the Bosnia-Herzegovina area of operations. During the deployment, the AC-130U Spooky gunships, flown by the 4th SOS, completed more than 230 flights, providing close air support, interdiction and reconnaissance for U.S. and NATO troops implementing the Dayton Peace Accords.

Two 4 SOS AC-130U Spectre gunships arrived at Taegu AB, South Korea, 24 October 1997, following a 36-hour nonstop mission from Hurlburt Field, Florida. The mission brought members of the 4 SOS to participate in Foal Eagle 1997, an annual Joint Chiefs of Staff exercise held throughout South Korea. Members of the 6 SOS, the FID squadron, also participated.

Throughout 1998 AFSOC maintained a constant CSAR alert posture as part of Operation JOINT GUARD, with aircraft and personnel rotating from the 16 SOW and 352 SOG to San Vito, Italy on a routine basis. This role increased significantly in March 1999 during the crisis in Kosovo and Operation ALLIED FORCE. Operation ALLIED FORCE witnessed the employment of the AC-130U to provide armed reconnaissance. All told, AFSOC’s special operators and aircraft played a significant role in bringing the conflict in Kosovo to an end.

EC-130

The Hercules probably is the most versatile tactical transport aircraft ever built. Its uses appear almost limitless: transportation, electronic surveillance, search and rescue, space-capsule recovery, helicopter refueling, landing (with skis) on snow and ice, gun ship and special cargo delivery. It has even landed and taken off from a carrier deck without benefit of arresting gear or catapults.

The EC-130E ABCCC consists of seven aircraft that are used as an Airborne Battlefield Command and Control Center. The EC-130E is a modified C-130 "Hercules"; aircraft designed to carry the USC-48 Airborne Battlefield Command and Control Center Capsules (ABCCC III). These one-of-a kind aircraft include the addition of external antennae to accommodate the vast number of radios in the capsule, heat exchanger pods for additional air conditioning, an aerial refueling system and special mounted rails for uploading and downloading the USC-48 capsule. The ABCCC has distinctive air conditioner intakes fore of the engines ("Mickey Mouse ears"), two HF radio probes-towards the tips of both wings, and three mushroom-shaped antennas on the top of the aircraft - and, of course, numerous antennas on the belly.

The EC-130E Commando Solo (initially known as Volant Solo) is available to commanders for localized targeting of specific avenues of communication. The EC-130E exists in Comfy Levi and Rivet Rider versions. A multi-purpose asset capable of conducting both PSYOP and EW, the EC-130E, Commando Solo, is an airborne platform "primarily designed for PSYOP." Commando Solo can conduct psychological broadcast missions in the standard AM, FM, HF, TV and military communications bands.

In a congressionally directed program, aging EC-130Es are being replaced with new C-130Js, with the current mission equipment being moved from the old aircraft to the new models.

The EC-130H Compass Call is the only US wide-area offensive information warfare platform, Compass Call provides disruptive communications jamming and other unique capabilities to support the Joint Force Commander across the spectrum of conflict. Compass Call is the designation for a modified version of Lockheed corporation's C-130 Hercules aircraft configured to perform tactical command, control and communications countermeasures or C3CM. Targeting command and control systems provides commanders with an immense advantage before and during the air campaign. COMPASS CALL provides a non-lethal means of denying and disrupting enemy command and control, degrading his combat capability and reducing losses to friendly forces.

EC-130E Commando Solo / Rivet Rider

The EC-130E Commando Solo (initially known as Volant Solo) is available to commanders for localized targeting of specific avenues of communication. The EC-130E exists in Comfy Levi and Rivet Rider versions. Senior Hunter aircraft flying the SENIOR SCOUT mission support Commando Solo aircraft. A multi-purpose asset capable of conducting both PSYOP and EW, the EC-130E, Commando Solo, is an airborne platform "primarily designed for PSYOP." Commando Solo can conduct psychological broadcast missions in the standard AM, FM, HF, TV and military communications bands. Missions in Bosnia were flown at maximum altitudes possible to ensure optimum propagation patterns. Highly specialized modifications had been made to the latest version of the EC-130E. These included enhanced navigation systems, self-protection equipment, and the capability of broadcasting color television on a multitude of worldwide standards throughout the TV VHF/UHF ranges.

This weapon system is the mainstay information operations aircraft for peacekeeping and peacemaking operations and humanitarian efforts which comprise a large percentage of today's military missions. Commando Solo conducts psychological operations and civil affairs broadcast missions in the standard AM, FM, HF, TV, and military communications bands. Missions are flown at the maximum altitudes possible to ensure optimum propagation patterns. The EC-130 flies either day or night scenarios with equal success, and is air refuelable. A typical mission consists of a single-ship orbit which is offset from the desired target audience. The targets may be either military or civilian personnel. Secondary missions include command and control communications countermeasures (C3CM) and limited intelligence gathering.

With the capability to control the electronic spectrum of radio, television, and military communication bands in a focused area, the Commando Solo aircraft can prepare the battlefield through psychological operations and civil affairs broadcasts. These modified C-130Es provide broadcasting capabilities primarily for psychological operations missions; support disaster relief operations; and perform communications jamming in military spectrum and intelligence gathering. One oversized blade antenna is under each wing with a third extending forward from the vertical fin. A retractable wire antenna is released from the modified beavertail, with a second extending from the belly and held vertical by a 500 pound weight.

Capabilities include:

- Reception, analysis, and transmission of various electronic signals to exploit electromagnetic spectrum for maximum battlefield advantage
- Secondary capabilities include jamming, deception, and manipulation techniques
- Unrefueled range 2800 NM
- Broadcasts in frequency spectrums including AM/FM radio, short-wave, television, and military command, control and communications channels

Rivet Rider modification includes:

- VHF and UHF Worldwide format color TV
- Infrared countermeasures [chaff/flare dispensers plus infrared jammers]
- Vertical trailing wire antenna
- Fire suppressant foam in fuel tank
- Radar warning receiver
- Self-contained navigation system

The modification added a pair of underwing pylon mounted 23X6 foot equipment pods, along with X-antennae mounted on both sides of the vertical fin. Six aircraft have been modified to the Rivet Rider configuration by the contractor, Lockheed Martin; Ontario, California.

Commando Solo and Senior Scout operations may be long or short range missions with extended orbit delays planned at the aircraft operating ceiling, and may require one or multiple air refuelings. Some missions may require a combat profile, with a low altitude profile enroute to the mission orbit area. The electronic environment may be hostile, with enemy ability to jam all communications radios and electronic transmission systems; to intercept and use intelligence information transmitted over nonsecure electronic systems and radios; and to pinpoint the position of the aircraft emitting any electronic transmission or signal.

Commando Solo supported the operation JOINT GUARD mission by shutting down anti-SFOR propaganda through radio and TV broadcasts over Bosnia-Herzegovina in support of SFOR operations. Three Air National Guard EC130E Commando Solo aircraft were deployed from the 193rd Special Operations Wing in Harrisburg, PA, to a base in Italy, an hour flight across the Adriatic Sea from Sarajevo. This was a direct response to persistent hostile Bosnian-Serb radio and television propaganda from the Karadzic faction. This same wing flew missions into Haiti during Operation UPHOLD DEMOCRACY to broadcast messages under the call sign of Radio Democracy on one AM band and three FM bands.

Operating from Brindisi, Italy, the Commando Solo EC-130Es were equipped with high-power transmitters for TV, AM, and FM radio broadcasting. The plane's EW capabilities also allowed it to operate as a jamming device. In this mode, Commando Solo had the potential to jam Bosnian-Serb hard-liners' television and radio broadcasts or simply overpower their signal and replace propaganda with PSYOP programs. When used to broadcast programming over the adversary

signal, the aircraft is performing a PSYOP function. The aircraft executed three test flights over Bosnia-Herzegovina in September, testing radio broadcasting equipment as a non-violent "show of force" by SFOR.

The show of force was in response to inflammatory anti-NATO and anti-SFOR propaganda broadcasted by Serbian Radio Television (SRT). SFOR had forcibly secured SRT transmitter towers in September 1997, returning them to SRT control after securing written assurances that the propaganda would stop, that more even-handed reporting would follow, and that international programming on the progress of the peace operation would be aired. The SFOR commander warned that failure to follow through on these promises would result in decisive action by SFOR. Commando Solo gave SFOR the non-lethal means of quickly neutralizing SRT transmissions in the case of non-compliance. The Commando Solo successfully relayed broadcast programs from the SFOR radio station "MIR" (Peace) without disruptions.

In mid-October 1997, unidentified elements inside the Bosnian Serb Republic (Republika Serpska or RS) sabotaged television transmitters, taking the legal government's programming off the air in much of the eastern part of the RS. The pro-Karadzic faction resorted to propaganda to claim that the lack of normal programming was due to the "illegal" actions of the Stabilization Force. Shortly afterwards, SFOR used Commando Solo in a live mission to transmit on a frequency normally used by Bosnian Serb TV, actively countering the adversary propaganda by explaining that the absence of normal programming was due to the actions of the Bosnian-Serb leadership.

EC-130J Commando Solo II

In a congressionally directed program, aging EC-130Es are being replaced with new C-130Js, with the current mission equipment being moved from the old aircraft to the new models. Four aircraft have been funded for delivery to the 193rd Special Operations Wing, Harrisburg, PA. The 193rd SOW now flies eight 1960s-vintage EC-130Es that are nearing the end of their planned service life. Funding for one additional aircraft was needed as of early 2000 to complete the unit’s conversion and prevent leaving the unit with a mixed fleet of E and model aircraft. The conversion program, as planned, will take four years to complete.

The first C-130J to be converted into a Commando Solo II psychological warfare aircraft was flown to

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Palmdale, CA in early July 2000. Technicians there carry out the task of converting them into the Commando Solo II platforms. Once modifications are completed, the first EC-130J was delivered for operational service in mid-2001. The remaining three C-130Js initially on contract for conversion were flown to Palmdale at six-month intervals.

The broadcast equipment carried on board the 193rd Special Operations Wing's 1963 and 1964-vintage EC-130Es is up to date and was cross decked into the new EC-130Js. The "green" C-130Js are modified for aerial refueling and receive an upgraded electrical system. After that, up-to-date radio and television broadcast equipment and antennas on the current EC-130E Commando Solo aircraft is cross-decked to the new EC-130Js.

The EC-130J Commando Solo II aircraft is able to conduct airborne radio and color television broadcasting on any frequency and in any format anywhere in the world. Broadcasts from the aircraft are carried out in areas of military or political unrest either to inform or influence both military and civilian personnel in the area.

An Air Force special operations analysis concluded in 2000 recommended the Boeing 767-200 to replace the EC-130E Commando Solo. The 767 is 60 percent longer and has more than twice the range of the EC-130E. But Congress currently is focusing on continued work on the EC-130J Commando Solo II.

Summarized

Which type of AC-130/EC-130 are we dealing with and how we can tell

It cannot be the AC-130A because those were retired in 1995, due to a mandatory retirement policy for military planes reaching 40 years in service.

we know that the AC-130 that’s flying above us, regularly fly’s missions at night and in cloudy/adverse weather conditions, the only one capable of doing this most effectively would be the AC-130U spooky.

After taking a deep look at the EC-130, we can see that it has capabilities to broadcast and jam signals such as radio, television, other civilian and military as well as un protected communications frequencies, therefore I would not rule out its capabilities to receive frequencies such as our mobile networks, calls and txt messages and any other wireless communications.

So we are left with one of two choices, either the AC-130U spooky or the EC-130J Commando Solo II, there is one fundamental difference that will conclude for us as to which one we are dealing with above the skies of Mogadishu, which requires us to look at previous shortfalls of the US military and how they reacted, also their current policies against us;

In September 2000 the US military was using an un-manned drone called the predator, this drone was built in 1995 and originally meant to be just a spy plane without carrying any weapons, they were using it for surveillance operations in

Afghanistan and Pakistan's tribal areas, in the hope that they would find sheikh Osama, they managed to locate sheikh Osama, but by the time they managed to authorize a cruise missile strike he had disappeared (alhamdulillah), therefore after this instance they realized the need to equip their predator drones with weapons, so as to not miss opportunities like that in the future.

As for our situation, lets look at the reason why the plane is above us and what it is doing up there,

- we have seen and heard this plane and sometimes multiple planes for the last 4 years,
- It flies during the day,
- also during the night,
- in rain and cloudy weather,
- sometimes it can be up for days at a time,
- we know that the crews flying these planes are based in Djibouti (the AC-130U's are based in Djibouti however the EC-130's are based in the US)
- it can land and take off from and aircraft carrier,
- but it is not stationed on an aircraft carrier permanently,
- it can refuel in the air
- we know that their primary mission is surveillance, due to the fact that they are not attacking us from the sky
- There's only two possible types of intelligence gathering that the plane could be doing, and the above research confirms that, either be taking video and picture surveillance or communication surveillance or both.

Citing the above and especially the point about the predator drone, we can conclude that if for example the Americans acquired intelligence from their surveillance plane that a high priority target was about to move or go on saffar, they would want to be able to strike that target immediately, not wait for a cruise missile or AC-130 gunship to come from the other side of the world, which would mean that their target could already be long gone by the time they get here, therefore the plane that is flying above us must be the AC-130U spooky, not only does it have all surveillance capabilities that the plane above is showing, but also the weapons and striking capability that is required by the US military in its mission policy for Somalia.

Not to forget that the AC-130 gunship has been used by the US military in Somalia on several occasions previously, in 1994 Mogadishu and afgoye, in January 2007 near afmadow and 2008 in doble.

AC-130U Spooky

What weapon capabilities it has

One 25mm GAU-12 Gatling gun
with 3,000 rounds (1,800 rounds per minute)
Just imagine a zuu that can shoot 1800 bullets per minute!!!

One L60 40mm Bofors cannon
with 256 rounds (100 shots per minute)

One M102 105mm howitzer
with 100 rounds (6-10 rounds per minute)

What surveillance capabilities it has

- All light-level television
- infrared sensors
- Hughes APQ-180 radar (also found on the F-15E Strike Eagle) provide night and adverse weather capability.
- The strike radar provides the first gunship capability for all weather/night target acquisition and strike.
- The AC-130U is an excellent platform for working at night.
- The pilots are proficient with NVGs
- the AC-130 carries various systems for working in the dark including FLIR, and LLTV.
- It has an LST and two laser designators

- The ability to intercept radio communications, such as mobile network frequencies, wireless internet, including our entire current internet service providers, because they are all linked to the internet through satellite broadband internet.
- Also any unsecured (meaning un-coded) communications such as walkie talkies (icoms).

What counter anti-air capabilities does the AC-130U have?

- It has sensors that can pick up enemy radars
- It has sensors that pick up signals from infer-red homing in devices, such as those on the surface-to-air missiles.
- There is a program to upgrade the armor on the AC-130U
- It has infra-red engine suppressors; these are used to suppress the infra-red light coming off the engine that a surface-to-air missile tracking system would home onto.
- It has flare and chaff dispensing system, just incase a missile has locked on and needs to be diverted away from the plane.

Its advantages

The fire control system offers a dual-target attack capability, whereby two targets up to one kilometer apart can be simultaneously engaged by two different sensors, using two different guns

Its disadvantages

- AC-130U weaknesses include decreased maneuverability and survivability in a high tech surface-to-air threat environment.
- It is a large target with slow speed and should not be used in a high threat environment in daylight.
- It also has a wide orbit pattern.
- It can only fly as high as 30,000 ft (9,100m), well within the reach of anti-aircraft artillery

How does this plane affect us?

- They capture and listen into all mobile telecommunications that are in languages other than Somali. This is a known policy of theirs; they do not have the human resources to filter through all the chatter that comes out of Mogadishu in Somali language.
- They capture and read all text messages
- They capture and listen into all un-protected radio frequencies such as all our icom channels. Even though the language spoken on these channels is Somali, I wouldn't be surprised if this intelligence is being passed onto the murtadeen.
- They not only get information from these communication channels, but they also can locate the signals of those transmissions, meaning once they intercept your communication, they note the frequency, which also gives them your mobile number (every mobile number uses a different frequency), then when ever they want they can tap into that line, if you talk on the line long enough they are able to get your location, maybe not pinpoint, but close enough to then send in people on the ground to identify each suspected house and vehicle that are seen in that specific area, it wouldn't take them more then a few weeks at most to know which house the signal is coming from.
- There are many ways in which a call transmission can be located, one that the plane uses is that it has a 5 nautical mile ring that it flies over its mission area, so as the plane goes round in a circle its antennas can tell the direction of the transmission, also as the plane moves the antennas receiving the signals will also move and detect a change in transmission direction, this will help the plane roughly pinpoint the location.
- On several occasions this plane has been used in operations to attack targets in Somalia, there is a high possibility that they would use this type of weapon in attacking targets again, that's if they're sure that they would get there targets, because these days the Americans are very worried about looking stupid when an operations fails, and also they are in the war for hearts and minds.

What we can use as counter measures against this type of threat

- We should look at this from two angles, not just one; we need to know how best to use our capabilities against this threat, and also what not to use, so as not to waste assets and resources that would not benefit us against this threat.
- First of all we need to negate those weapons/tactics that we know the plane has a countermeasure for, such as, heat seeking surface-to-air missiles (SAM7), we know the plane has at least 3 countermeasures for this type of weapon, to mention briefly;

    - infra-red homing alarm
    - infra-red engine suppressors
    - flare and chaff dispensing system

- however there is another type of surface-to-air missile (SAM) called the IGLA also know as the 9K38 Igla, which means needle in Russian, the Americans call this the SA-18 and NATO refers to it as GROUSE. This missile has been developed specifically to counter the anti-air defenses such as flares and infra-red jamming, it has a much strong seeker system to lock onto the target, with much improved speed, it is the missile that will bi-ithnillah be able to take out the AC-130. a more detailed report on the missile will be passed on soon insha'allah.
- we know from the planes performance and specifications that it needs to be within 3 miles (4.8km) of the target, that is the range at which its weapons are highly effective, from this we can know that any gun using 50 caliber or less (DSHK, PKM, AKM) should not be used against this plane, as it would be a waste and would effect the plane at all.
- From the above we can also know that the RPG should not be used, this should be common sense, but we are in a place where every person acts on his own initiative, so we find people doing the strangest things.
- From the planes limitations we know that the highest altitude that it flies at is 30,000 feet, which is 9,100 meters (9.1km), by looking at this we can say that the weapon of choice should be the 37mm anti-aircraft artillery gun, this out of all the guns available in Somalia would be the one most capable of shooting and bringing down the AC-130U plane (bi-ithnillah).
- There is however other possible weapons that we could use, depending on how low the plane would be flying. Such as the SHELKA (14.5mm) and ZUU (23mm), by this I do not mean guess work, but rather calculated estimation as to how high the plane is flying at any one point in time.
- Formula for calculating plane distance
- Sometimes the Americans are more stupid then they look, due to their KIBR and efforts at boasting about their capabilities they often expose their own weaknesses, such as the following; Many ground units have begun to use Infra-red (IR) tape either as arm bands or sewn to the top of their ballistic helmet for marking troops and vehicles, especially when working with the AC-130. It only takes a very small piece of IR tape to be distinguished as friend or

foe by an AC-130, and anything larger than a one inch by one inch piece is going to white out a large portion of the monitor aboard the aircraft. From this we can understand some very important points;

- it is possible to confuse the enemy into thinking we are of their forces, this might only be successful if there are actual Americans on the ground.
- It is possible to disrupt their infra-red monitor screens, if done successfully, we could deny them their night vision capability, for example if we has a sensitive target that they might want to target, we could cover it with large pieces of this infra-red tape, which would mean that if they flew at night and were using their infra-red night vision cameras, they would not be able to gain a clear enough picture or maybe not see anything at all. They might however try to turn down the sensitivity of their cameras, but I doubt that its even possible due to the fact that the infra-red cameras need to be highly sensitive so as to sense and pick up as much light as possible to allow the cameras to see in the dark.

- One very important tactic that works all the time is called 'DETERRENCE', it means to have something or have the capability to do something that involves harming the enemy to such an extent that the enemy cannot and will not risk itself or its assets by. My point is simple; the latest AC-130U SPOOKY costs around $190 million (price in 2002) if we were to put some serious time and effort into planning and carrying out attacks against a plane such as this, and then bi-ithnillah shooting it down, I'm sure that the Americans will think 10 times before sending another one, to know why, we just have to look at the history of those AC-130's that have been shot down previously, as I mentioned before these panes cost a lot of money and as time goes by their sophistication and advances in technology also increase, which means that the cost also increases, during the times that these planes were being shot down, weather it was in Vietnam, Iraq or near Somalia, the cost of the planes at those times were much less (around $40 million) and still it was a burden on the US military to replace them, more so today, if a plane like this is shot down, noting that the US is in recession, and trying its best to cut it defense budget, we can be sure it will be a very heavy blow to the so called 'might' of the US military.

  Another example of how the 'DETERENT' concept can work and is working, is the situation in Iraq, the US air force does not allow its AC-130 gun ships to fly in the daytime, they are only allowed to fly at night, this is not because they are being shot down, but because of the simple fact that there is a possible threat and they 'could' get shot down. As of 2003, when the 2nd gulf war began, initially there was a large number of high caliber anti-aircraft artillery such as the 37mm and 53mm guns being used against the American aircraft, most of which was destroyed when the Americans took over, since that time no 37mm or similar weapon has been seen or used against the Americans the only one which has been seen and used by the mujahideen is the 14.5mm shelka. We should ask ourselves why, when we have access to high caliber anti-aircraft artillery and the capability to acquire sophisticated surface-to-air missiles (from Somaliland and Yemen) do we allow our enemy to fly freely over us day and night.

  In Iraq the AC-130s normally operate at 12,000 feet, or higher. The main reason for operating this high is to hide the loud sound of the AC-130s four turboprop engines (which lets the mujahideen know where the aircraft is), and to keep it out of range of ground fire (small arms and SAM'S) again we need to ask ourselves an important question,

CAN WE HEAR THE AC-130 FLYING ABOVE US? Of course we can hear it, and at night it fly's even lower, that means the plane is flying within our firing range. And the only reason why they would do something is because they feel safe, we don't have to actually shoot it down, but even if we were to harass it and scare it now and again it would not come back insha'allah.

The AC-130 can still hit targets from as far as 20,000 feet up. But the air force is worried about some of Saddam's Old anti-aircraft guns that might be in the hands of the mujahideen. The 14.5mm anti-aircraft machine-gun can hurt aircraft at up to about 15,000 feet, and the 37mm auto-cannon can reach up to 20,000 feet. They said the the AC-130 fly's at 12,000 feet (about 4km) to hide its sound, we know that the 14.5mm and 37mm can reach those distance. And we know that it is definitely flying lower then 12,000 feet when it is over our heads, I can hear the plane as I'm writing this report.

Deadliest Air Force Gunship Losses of the Vietnam War

Date	Killed	Aircraft	Unit	Country	Location
March 29, 1972	14	AC-130	16th	Laos	Muang Phine
Dec. 21, 1972	14*	AC-130	16th	Laos	Ban Laongam
June 18, 1972	12	AC-130	16th	Vietnam	Hue (near)
April 22, 1970	10	AC-130	16th	Laos	Ban Tang Lou
Dec. 17, 1965	9	AC-47	4th	Vietnam	Ban Son Nut-Rang Phau
May 15, 1966	8	AC-47	4th	Laos	Ban Nampa Khon
Feb. 14-15, 1968	8	AC-47	14th	Vietnam	Phan Rang
Sept. 1, 1969	8	AC-47	4th	Vietnam	Bien Hoa (near)
March 13, 1966	7	AC-47	4th	Vietnam	A Ro
Jan. 8-9, 1967	7	AC-47	4th	Vietnam	Duc Pho
March 28-29, 1967	7	AC-47	4th	Vietnam	Hoi An
April 26, 1967	7	AC-47	4th	Vietnam	Cam Ranh Bay
Oct. 2, 1967	7	AC-47	4th	Vietnam	Hue City
May 4-5, 1967	7	AC-47	4th	Vietnam	Pleiku
Dec. 24, 1965	6	AC-47	4th	Laos	Ban Bac
June 3, 1966	6	AC-47	4th	Laos	Ban Pha Kat

** One was a pilot from the 497th Tactical Fighter Squadron, which escorted the 16th SOS.*

***Note:** Prior to 1969, the designation was 4th Air Commando Squadron (ACS). The 16th Special Operations Squadron (SOS) began full-fledged operations mostly in 1969.*

***Source:** Vietnam Air Losses by Chris Hobson (Midland Pub., 2001)*

Losses by Gunship Type

Type	Number Lost	Fatalities	Percent of Total Deaths
AC-47	19	92	57.50%
AC-130	6	52	32.50%
AC-119*	5	16	10%

**Only one AC-119 was lost to enemy action. On May 2, 1972, Stinger 41 of the 18th SOS was shot down over An Loc, sustaining 3 KIA.*

formed the border with Laos, some 60 miles to the east. Crossing the fence signaled to the crews that they had entered hostile territory and to be alert for enemy gunners.

"Flying over the trail could scare the hell out of you," Joe Albright, an AC-130 gunner, told *Vietnam* magazine. "We played a deadly game. The triple A [anti-aircraft artillery fire], predominantly orange in color, looked like Roman candles. The 57mm never came up in a tracer; it would just explode out there.

"If a 57mm started walking in on your orbit, you would just leave the area and go someplace else. The SAMs [surface-to-air missiles] looked like headlights coming at you. They are air breathers. You could see through their intakes to their jet engines, glowing."

'Spectre Shuttle'

Supporting gunners like Albright were the ground crews at Ubon.

"Our job was to certify the other crews on the proper maintenance of the guns and flares, and also to help the gunners if they had problems," said Don C. Newton, who worked in the gun shop at Ubon from November 1971 to November 1972. "My crew helped install and get the first 105mm up and going. When I left, six of the 18 gunships there were armed with 105s."

Also based at Ubon were the "Night Owls" of the 497th Tactical Fighter Squadron, which provided F-4 fighters that accompanied the AC-130s on missions. Working together, the fighters and gunships were called the "Spectre Shuttle."

The fighters provided protection for the Spectres, which would drop ground flares to mark enemy gun emplacements that the F-4s would attack. They formed tight teams.

"The camaraderie and love of the hunt kept me coming back," Albright said of his four tours and 386 missions. "It was a high, literally."

Dodging Anti-Aircraft Fire

While the inherent danger of flying missions in a Spectre gunship was thrilling for some airmen, it was potentially deadly for all. The large, relatively slow moving AC-130 was an inviting target for Communist gunners. In six shoot downs of 16th SOS aircraft between 1969-72, 52 U.S. airmen were KIA.

"When the 37mm was shot into the air, it looked like a glowing baseball," Pat Carpenter, a former Spectre gunner and current president of the Spectre Association, recounted to *Vietnam* magazine. "If you thought you could catch it, you were probably going to be hit. Lots of tracerless [ammunition] was fired at us. If you ran into 23mm, or the 'golden hose,' the best defense was to climb and become as small a silhouette as possible. It really lit up the sky and put a lot of rounds into the air quite rapidly, kind of like a shotgun blast or running into a sprinkler."

The first shoot down of an AC-130 occurred May 24, 1969, during a night mission over southern Laos. The aircraft was checking Routes 914 and 920 and was about to attack a truck convoy near the village of Ban Tanbok, about 20 miles southwest of the A Shau Valley.

As the plane orbited at 6,500 feet, two rounds of 37mm anti-aircraft fire ripped through the tail and fuselage, mortally wounding one crewman. As the pilot nursed the plane back to Ubon, he

How the AC-130 has fared out during previous anti air attacks against itself

This is just some of the AC-130 losses that have been incurred by the US air force, many other instances such as in the first gulf war, Somalia 1994, and the various wars in Asia.