THE DANGER ZONE

352ND SPECIAL OPERATIONS GROUP

Since 1995, RAF Mildenhall in England has been home to the US Air Force's 352nd Special Operations Group (SOG), equipped with MC-130H Combat Talons and MC-130P Combat Shadows. The personnel that operate these aircraft are among the best C-130 aviators in the business — their mission, the most dangerous in the transport community.

report: **Gert Kromhout** photos: **Gert Kromhout and Marco Dijkshoorn**

IT IS FEBRUARY 2002 somewhere over Afghanistan, and the big MC-130P Combat Shadow aerial tanker is in serious trouble. The mission is to refuel a number of MH-47E helicopters on their way to their objectives. The Combat Shadow is flying at 500ft above snow-covered terrain a little more than 10,000ft above sea level on a dark, moonless night. The aircraft is blacked out, and the entire crew of eight is wearing night vision goggles (NVGs).

Moments earlier, the pilot had adapted his speed to match the slower-flying helicopters. The Shadow is fuel-heavy and is now flying at little more than its stall speed. The refuelling does not go well. In fact, the whole sortie so far has been plagued by delays and mission changes.

Buffeted by turbulence, one of the helicopters is having a lot of problems getting on the hose, and time is running out. Then the pilots discover that the ridge at the end of the valley in which they are flying is much higher than expected. There is no room to turn around, and the only way to survive is by going to full power in an attempt to climb over the approaching mountain.

But the height of the ridge is too much for the Combat Shadow and its pilots to handle. The aircraft crashes.

This is a true story. MC-130P call sign 'Ditka 03' crashed on a snow-covered Afghan slope and broke in two. With large quantities of fuel on board, it was a wonder the aircraft did not explode, and a true miracle that none of the crew of eight was killed.

Although 'Ditka 08' was not an aircraft from the 352nd SOG, the mission is a typical example of the hazardous assignments MC-130s perform. These aircraft are flown at the very edge of their capabilities, by crews that are highly skilled and motivated.

The MC-130s are just one part of a much wider collection of special missions aircraft in the Air Force Special Operations Command (AFSOC) inventory, the importance of which has increased significantly in the last decade. Among them are unmanned aircraft, gunships, specialised transports large and small, and tilt-rotors. Apart from these assets, AFSOC includes specialists who are often the first soldiers to set foot on hostile territory in an armed conflict, and advisors who assist and train allies in anti-terrorist warfare. The fleet of aircraft is also utilised by US Army, Navy and Marine Corps special operations units. >

Main image: **Low down in the Lakes. This MC-130P is attached to the 67th SOS, specialists in the art of operating the lumbering Hercules in the most demanding of environments.**

Far right: **A flare dump from an MC-130H. Known as the 'angel fire' or 'angel wing', the effort is intended to decoy heat-seeking missiles.**

352d SPECIAL OPERATIONS GROUP

The SOG at Mildenhall is comprised of four squadrons. The 7th Special Operations Squadron (SOS) is equipped with four MC-130H Combat Talon IIs, while the 67th SOS has five MC-130P Combat Shadows. In popular parlance these types are known as 'Talons' and 'Shadows'. The 321st Special Tactics Squadron consists of the above-mentioned specialists, while the fourth squadron is the 352nd Maintenance Squadron that takes care of the aircraft and ammunition.

The 352nd SOG reports to Special Operations Command Europe, which has Europe, the Middle East and Africa as its area of responsibility. The group maintains a high state of readiness and can execute a variety of high-priority, low-visibility missions in support of special operations forces of the United States or its allies.

After dark

'Cargo pilots fly 90 per cent in daylight and 10 per cent at night, we vice versa', says Capt Jeremy Anderson, a pilot in the 67th SOS. Apart from that, the MC-130s routinely fly much lower. 'Low-level flying in the dark with night vision goggles at 500ft is the most difficult thing we do, but we do it so often that we are comfortable at it.'

Ultimately, there is no other way. The MC-130s cannot operate without the cover of darkness as their large size and relatively slow speeds make them vulnerable when flying in broad daylight.

The two types — Talons and Shadows — have different, partly overlapping, specialties. Helicopter Aerial Refuelling (HAR) and Tilt-rotor Aerial Refuelling (TAR) are the main tasks of the MC-130P. Secondary missions comprise establishing Forward Arming and Refuelling Points (FARPs), infiltration/exfiltration, psychological warfare (dropping leaflets), re-supply and airdrops of supplies and personnel.

In general, the MC-130H has similar missions but with infiltration/exfiltration as the main task. Until spring 2012 the 7th SOS did not perform HAR/TAR, but the upcoming transition of the 67th SOS from the MC-130P to the CV-22B Osprey in 2013 changed that. Compared to the Shadow, the MC-130Hs are equipped with improved refuelling pods for HAR/TAR.

Old Shadows

The Shadows are some of the oldest Hercules in USAF service. Two of the 67th SOS' five aircraft date from Fiscal Year 1965, two others from 1966. The oldest was ordered in FY 1964 and will be 50 years old in two years' time. However, whether it will still be flying at that point is open to question, with the Shadow's successor due soon to enter service.

65-0991 is one of two aircraft still in service that flew in the famous Son Tay raid in 1970 during the Vietnam War. This was intended to free a large number of prisoners of war from the Son Tay prison, located 23 miles from Hanoi. Although the prisoners had been relocated to another location a couple of weeks' prior, the operation was executed successfully.

Lockheed delivered all these C-130s in the second half of the 1960s and all are former HC-130N/P Combat Kings. The initial tasks of the 'Kings' were search and rescue, command and control, and HAR. During the second half of the 1980s a large number of HC-130N/Ps were assigned to special operations missions, and when AFSOC was established in 1990 they automatically came under this command. Finally, in the mid-1990s, AFSOC changed the type designation to MC-130P and assigned its current name. The prefix 'M' refers to multi-mission or special mission, while the letter 'H' is code for the rescue mission.

Veteran aircraft mean old systems, with correspondingly high maintenance demands. In spite of this, the readiness rate of the Shadows remains high. This, according to Capt Anderson, can be attributed to the pride, skill and training of all the personnel. 'We have a phenomenal maintenance department, and the morale within the squadron is high. Nine out of 10 times the aircraft are ready to fly; otherwise we always have a spare.'

The age of the aircraft is immediately apparent once in the cockpit. It seems no space is left unused, it being crammed with a multitude of analogue gauges and switches. The only modern display is for the radar/forward-looking infra-red (FLIR), located in the centre of the instrument panel.

Externally, the Shadow's age is not immediately apparent, but the refuelling pods are a key distinguishing feature. Contrary to more modern systems operated electrically or hydraulically, the Sargent Fletcher 48-000 is hydraulically operated only. A severe limitation of these old pods is that while they can refuel helicopters or tilt-rotors, they can't refuel both types on the same mission, since the drogues differ. The old HAR drogues are not suitable for the higher refuelling speeds of tilt-rotors. Meanwhile, more modern pods have variable-speed hose and drogue pods.

Crew complement

The Shadow typically flies with a crew of no fewer than eight. A flight engineer is seated immediately behind the pilot and co-pilot. To the right of him and slightly behind are two

'My most memorable mission was in Afghanistan. A group of friendlies were under siege and had become very low on supplies and ammunition and had to be re-supplied as quickly as possible. While fighter aircraft did close air support, we had to safely make a pass and deliver the supplies with pinpoint accuracy'

SrA Brandon Underwood

navigators facing starboard. Below in the cargo compartment is a radio operator element, and the rest of the cargo space is the domain of two loadmasters.

While this composition seems old-fashioned, the crews emphasise that it is none too many. The archaic systems and 'old-school' avionics, combined with demanding missions, result in a high workload and make such a crew complement unavoidable. 'Low-level (formation) flying in denied areas at night with night vision devices demands the most from us pilots', contends Capt Anderson, 'particularly when we do HAR/TAR. In order to avoid mishaps or mistakes, we have to concentrate on flying.'

The presence of two navigators is a remarkable feature. At low level, navigation is a demanding and time-consuming profession. Furthermore, MC-130 operations are all about timing and flexibility. Changes to the mission plan during the mission are all too common and the crew has to adapt quickly. Moreover, the navigators also operate the refuelling pods and self-defence systems such as the radar warning receiver and chaff/flare dispensers. Though both navigators are equal, the tasks are clearly defined. One is responsible for the navigation while the other does everything else.

From the moment the aircraft takes off, all external communication is the responsibility of the radio operator. Capt Anderson calls this non-commissioned officer a 'mission manager'. Throughout the flight he talks with air traffic control, combat control, home plate, forward air controllers and other specialists on the ground and in the air.

The flight engineer is responsible for all aircraft systems. Previously, he or she was commonly called a crew chief. Finally, the loadmasters are responsible for loading and unloading cargo, and are on watch during flight operations. In the event of them observing hostile fire they will warn the cockpit crew so that they can initiate appropriate actions. During HAR/TAR, they give signals to the receivers and report the receivers' progress to the cockpit crew.

Combat Talon

Though looking similar to the Shadow at first glance, the Talon is quite a different aircraft. It has integrated navigation and communications systems and a 'glass' cockpit. Though much more modern, its crew still consists of seven. The radio operator is not required and there is only one navigator. The second navigator gives way to the dedicated Electronic Warfare Officer (EWO).

The Talon is much better equipped for infiltration/exfiltration than the Shadow. For this mission, the Talon relies on its AN/APQ-170 terrain-following/terrain-avoidance/ground-mapping radar, specifically developed for the aircraft, and which is allied with an impressive collection of self-defence systems.

The APQ-170 is located behind an elongated nose radome that also incorporates a retractable FLIR on the underside. These two systems combined with NVGs make it possible to fly at 250ft in almost all weathers and to locate small drop and landing zones so that personnel and material can be delivered with great precision, day and night.

For Capt Matthew Nevius of the 7th SOS, their most difficult mission is flying at low level at night in bad weather without seeing the ground. 'If we talk about this with pilots from other countries they just don't believe us. >

Left: **Dusk turns to night — MC-130s train primarily after sunset. This H-model is speeding towards its next mission: dropping paratroopers on the airfield at RAF Fairford.**

Right, clockwise from top: **The cockpit of the MC-130H is modern, dominated by large multi-function displays.**

An image of an MC-130P generated by the forward-looking infra-red sensor of an MC-130H.

The MC-130H's navigator and electronic warfare desks.

A navigator at work in an MC-130P.

COMBAT AIRCRAFT MONTHLY

An MC-130P flying near Loch Ness in Scotland. Low-level flying is practised frequently and the UK offers plenty of opportunities, although the bad weather hinders training from time to time.

It takes a lot of planning and we have to place a lot of trust in our systems and each other'. For such work, the crew primarily rely on the APQ-170.

However thorough mission planning, the cover of darkness and flying at low level do not provide sufficient survivability in hostile areas. Hence the Talon has a comprehensive self-defence suite, comprising the ALR-69 radar warning receiver, ALQ-172 electronic countermeasures system, APR-46 panoramic signal detector, AAQ-24 Directional Infra-Red Countermeasures (DIRCM), AAR-44 infra-red warning receiver, and the ALE-44 chaff/flare dispenser. In addition to these, an ALQ-8 electronic countermeasures pod can be mounted under each wing. As a result of these features, the MC-130H is the only Hercules variant that has an Electronic Warfare Officer.

Quick thinking

MC-130 crew members often choose an assignment with AFSOC because of the unique challenges the mission offers. A passion for aviation led Capt Anderson to the Air Force but he wanted a bigger challenge than flying normal cargo aircraft. 'I wanted to push aviation to its limits. I also wanted to work with the best people, in the air as well as on the ground, and in AFSOC you find the very best that the armed services can offer'. He was in his senior college year to become a teacher but the events of '9/11' saw him decide to join the Air Force. 'I realise that it sounds rather clichéd but that is really how I ended up here. In basic training one of my instructors told me the MC-130 was a great airplane to be on. I didn't know anything at that time and you do what people do when you have no idea at all. I consider myself lucky that I am here now and I love it.'

The 7th SOS' director of operations is navigator Maj Christopher Kapp. He previously flew normal C-130s but wanted to take part in the most difficult missions possible, and the Talon offers that opportunity. 'We have advanced navigation systems and it is up to me, in co-operation with the pilots, to determine the best way to get to where we have to be. I carry a huge responsibility.'

For NCOs too, the challenge of special operation missions is an important motivation. Brandon Underwood of the 67th is a 24-year-old radio operator. 'I am glad I am with AFSOC and not with a rescue unit because I wanted more than flying around in circles. I wanted difficult things like in-flight refuelling and helicopter aerial refuelling at low level, and that is what I got.'

According to Maj Kapp, an MC-130 crew is trained to assess if they can complete a mission and, if so, how best to do it. All crew members report that changes to the mission plan in flight are common. Such changes can be the result of the emergence of certain air defence systems, or a rendezvous with other aircraft or parties that will take place sooner or later or at a different location. 'Adapt or Perish' is the official motto of the 7th SOS, and not without reason. Maj Kapp: 'We have to be able to calculate any threat scenario and possible problems, and we must be able to think quickly to make the right decisions'. Every crew member plays an important role. 'They are all experts and give when necessary their valuable input to the aircraft commander.'

First in, last out

The duties of the special tactics teams (STT) may be little known, but they play a key role in air operations over enemy territory. These teams of battlefield airmen consist of combat controllers, pararescue jumpers (PJs), combat weathermen and Tactical Air Control Parties.

The combat controller's mission is to deploy undetected into combat and hostile environments to establish assault zones or airfields, while simultaneously conducting air traffic control, fire support, command and control, direct action, counter-terrorism, foreign internal defence, humanitarian assistance and special reconnaissance.

The PJ is a paramedic and specialised in combat wounds. They can be employed under almost all conditions anywhere in the world. They won't hesitate to jump from an aircraft into a swirling ocean to save a sailor's life, climb a high mountain in freezing cold to rescue a mountaineer, or bring a wounded soldier to safety from the thick of the fight. 'That others may live' is their motto and medals for bravery are relatively often awarded to these professionals.

The combat weatherman collects data on weather, terrain, water, snow and more in hostile areas. The TACP is assigned to a US Army combat manoeuvre unit and will advise ground commanders on the best use of air power. They also establish and maintain command and control communications, control air traffic and naval gunfire and provide precision terminal attack guidance of US and coalition close air support.

Trained as commandos, STTs survey possible landing zones, and establish landing and drop zones as well as FARPs in denied territories. The MC-130 can drop STTs with a boat into water, or from very low or very high altitudes by parachute. They make use of motorbikes, quad bikes, all-terrain vehicles, mobile navigation beacons and much more specialised equipment. In addition, AFSOC often employs them for civil purposes such as natural disasters. STTs were first to arrive after devastating earthquakes in Haiti and Japan, where they made key airports operational again

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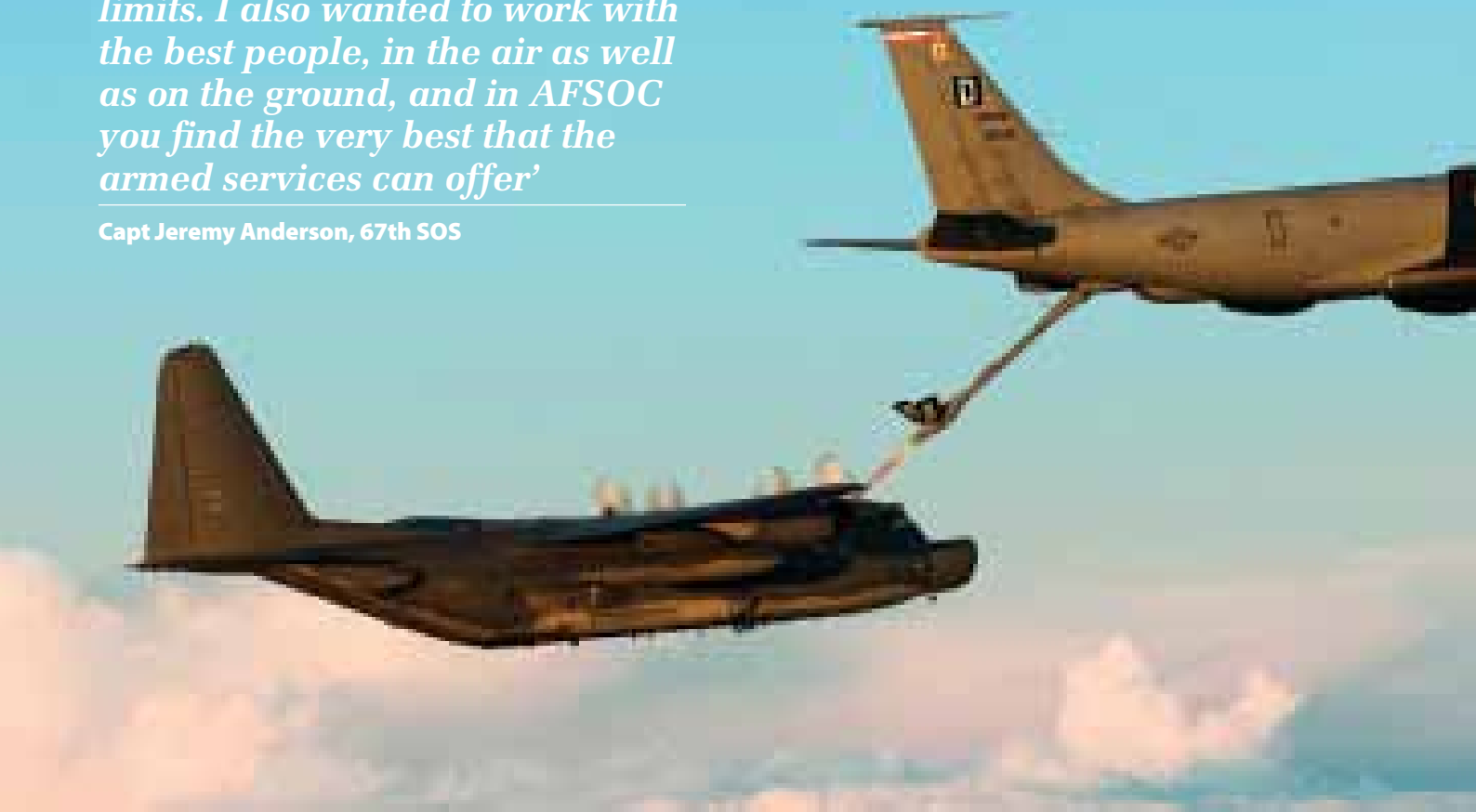
Capt Jeremy Anderson, 67th SOS



and controlled relief flights. Their motto is 'First in, last out.'

FARP

The STTs play an important role in one of the most difficult jobs that the MC-130 is called upon to fulfil: establishing and running a nightly FARP. This is an aspect of the mission that is trained for frequently. During the war in Afghanistan, for example, this job was executed regularly, and sometimes the transports even took AH-6 'Little Bird' helicopters with them in the cargo bay. The MC-130 can accommodate two of these lightweight attack helicopters. Once at the FARP, an MC-130 can refuel three aircraft simultaneously on the ground.

Preferably, a FARP operation is conducted in complete darkness. The cockpit and cargo compartment of both the Shadow and the Talon are fully night vision-compatible. Everybody wears NVGs. 'It is a complex operation with a high difficulty level', says Capt Logan Mancucci of the 67th SOS. 'On the ground we keep the engines running [the MC-130P does not even have an auxiliary power unit so it cannot start its engines without an external starter]. This generates noise, exhaust, heat and dust which makes loading and off-loading cargo a dirty job.'

FARP operations are supported by personnel of the 100th Air Refueling Wing, the host unit at RAF Mildenhall. These refuelling specialists receive dedicated training and must complete a survival course before they can be employed operationally.

In harm's way

The missions of the Shadow and in particular the Talon are hazardous, and the sacrifices made by their crews are significant. Since 2001, five Talons and the Shadow mentioned at the beginning of this story have been lost. One Talon crashed after take-off in Paktika Province, Afghanistan, resulting in three casualties. Another fell victim to a ditch dug by engineers in a runway in Iraq, although the crew escaped unharmed. The fourth aircraft flew into a mountain during a training mission in Albania. There were no survivors from this, or the fifth accident, which occurred during a low-level mission in mountainous terrain in Puerto Rico.

For Capt Anderson, nothing is as dangerous as formation flying in the mountains at night and at 300ft. 'Others think we are crazy but we do this every night and it is our training standard'. The crews did not want to disclose any information about operations over Libya but they were open about Afghanistan and its challenging environment. 'The terrain is everywhere and they are not the most comfortable conditions to fly in. You operate over high elevation that degrades the performance of our aircraft. You do a lot of airdrops against canyon walls and cliffs because that is where the guys on the ground are. A lot of the times you are flying in valleys that are closing in to you but you have to go low to drop the cargo. After the drop you immediately have to climb to get clear of the mountains. Doing this is a total team effort. We do the flying but the navigators have to get us there while the radio operator does all the comms and the loadmasters have to drop at the right time.'

Such missions are difficult for all involved including the radio operator. 'It can get hectic', says SrA Brandon Underwood. 'My most memorable mission was in Afghanistan. A group of friendlies were under siege and had become very low on supplies and ammunition and had to be re-supplied as quickly as possible. While fighter aircraft did close air support, we had to safely make a pass and deliver the supplies with pinpoint accuracy. That takes a lot of co-ordination with all parties involved. The dropping went flawlessly and we were glad we could do something for the besieged people on the ground.'

As far as Maj Kapp is concerned, the real heroes are those who jump out of his aircraft. 'I recall an occasion they told us they wanted us to drop them on a particular spot. They jumped into this compound with nothing more than a little backpack and weapons. They cleaned it up and took some prisoners. They do the real stuff.'

The significance of special operation units such as the 352nd has dramatically increased since September 2001. Operation 'Enduring Freedom' and Operation 'Iraqi Fr eedom' proved that such units are often more effective than larger conventional forces. What's more, they also enable larger conventional forces to be more effective.

It is thus unsurprising that AFSOC has seen its forces expanding massively since 2001, and the future looks bright. Despite the USAF's budget cuts, AFSOC is hardly affected and the 352nd will take advantage. RAF Mildenhall is currently being prepared to receive 10 CV-22Bs. The first examples are expected in March 2013 and will replace the Combat Talons of the 7th SOS. The Osprey will be followed next summer by the MC-130J Commando II, which will supersede the MC-130Ps of the 67th. The aircraft may be much better equipped, but the missions remain as challenging and dangerous as ever, if not more so.

Acknowledgements: **The author would like to thank all the professionals of the 352nd SOG whom without this article could not have been possible, and particular thanks are extended to SSgt Thomas Trower.**

This photo: **The Talon and Shadow (and all other AFSOC C-130 types) are equipped with a receptacle above the cockpit that allows them to refuel in the air. In-flight refuelling is an essential capability that is practised frequently. This Combat Talon is receiving fuel from a KC-135R of the 351st Aerial Refuelling Squadron, also based at RAF Mildenhall.**

Right: **Many MC-130Ps retain modified noses that once accommodated the Fulton Star system, phased out in the 1990s. Using Fulton Star the Hercules could 'snatch' personnel from the ground.**