



UNDER THE RAVENS CLAW

The forward air controller commands the combined firepower of offensive airborne platforms on the battlefield – making him the most powerful pilot in the skies

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Even before the Wright brothers made the first tentative leap into the sky at Kitty Hawk a little more than 100 years ago, man – in his pursuit of technological advantage in warfighting – had turned to aircraft to give him the edge on the battlefield. As early as 1863, during the American Civil War, the first

successful aerial bombing raid was recorded when Confederate forces destroyed two pontoon bridges on the Rapidan River, using dirigible airships.

Reconnaissance – ground attack – air defence – insertion – extraction – even pilotless aircraft – the list of battlespace adaptations for flying machines just keeps growing. Experimentation is

rife – as long as there are wars to fight, governments with money to spend and commanders demanding technological advantage, the aviation industry will keep pumping out bigger, smaller, faster, lighter, better ways to dominate the skies over our war zones.

But at the end of the day, it's the soldier on the

battlefield who will seize and hold ground – and win or lose the war.

“The most important lesson for me was that war has to be won on the ground and that the air war must contribute to that end,” says former RAAF pilot David Robson.

Dave Robson was a breed of pilot – a specialist – known as a forward air controller (FAC) who saw action close up and personal in Vietnam.

Although the popularity of, or emphasis on, forward air controlling as a capability seems to ebb and flow – especially in Australia – it is certainly in favour with the ADF at the moment.

Forward Air Control Development Unit (FACDU) didn't exist three years ago. Today it is a vibrant small unit with a big job ahead of it. Not only is it charged with guiding, developing and testing the doctrine behind the FAC capability for Australia's air-to-ground combat assets – including Tiger helicopter – but it is also just about to take on a major expansion in the ground-based control of air assets as well.

But what is FAC?

Forward air control, as a legitimate method of targeting sophisticated air assets, is popularly

thought to have had its first real genesis during the D-Day invasions in northern France 60 years ago. However, Australian pilots of the RAAF's No. 4 and 5 Squadrons, operating over the jungles of Papua New Guinea, employed classic FAC tactics as early as 1943. Flying Wirraway and Boomerang aircraft, these pilots guided precision strikes by faster Beaufighters, in close support of ground troops holding out against the Japanese advance.

The basic theory behind FAC is the control and precision employment of offensive air assets to attack ground targets that are often in close proximity to friendly forces.

In this regard, FAC was extensively and famously employed in the jungles of South Vietnam where Australian pilots, like Dave Robson, were seconded to specialist American units in support of Australia's ground troops.

All Vietnam-bound Aussie forward air controllers underwent FAC training in Australia at the Joint Warfare School at RAAF Base Williamstown, north of Sydney.

With about 1000 hours fighter-pilot experience on Sabres and Mirage behind him, Flying Officer Robson underwent further training in-country at



CESSNA 0-2A OSCAR DUCE

Max speed	192kts
Cruise speed	140kts
Ceiling	18,000ft
Range	1422 miles
Engines	Twin Pratt and Whitney Continental IO-360-D, Flat-six piston, 210hp each
Propellers	McCaughey constant speed, 6ft 6in
Empty weight	3226lbs
Max takeoff weight	4850lbs
Wing span	38ft
Length	29ft 2in
Height	9ft 5in



CALLSIGN JADE 07

Dave Robson learned lessons in Vietnam – none more valuable than looking after the bloke on the ground.

We watched the news from the US and were shocked about the protest marches and how we servicemen were seemingly blamed for the war. Between missions, morale was generally low, but airborne was a different matter – we each had a job to do.

We looked for whatever fun or joy we could find in each day. Flying was a pleasure compared to being on the ground. We drank too much and slept too little. We played card games. We told dirty jokes. We listened endlessly to Glenn Campbell on the

jukebox and we drooled over the centrefolds of Playboy magazine. That was what we were fighting for – the freedom to enjoy our way of life, and to return home to our loved ones.

In our area we experimented with air power in direct support of the troops and how to maximize the result with minimal resources – we needed accuracy, safety and low-cost weapons.

I developed a technique where I fired a pair of willy-petes [white phosphorous rockets] on a marking pass – one a little short and one

over the target. Initially I used it for the Aussie Canberra bombers so the pilot, and navigator, could line up for their bomb run.

The two smokes provided two references – a line for the fighters to set their attack direction, and a distance reference for aim-off.

Each fighter pilot had very different estimates of distance and, if you wanted to move an aim point say 100 metres left of the previous bomb, the result would vary from 50 to 150 metres. By using two smokes I could use proportional distance, which was consistent for all pilots. It worked very well. "Hit my smoke" became "split my smokes".

The most important lesson for me was that war has to be won on the ground and that the air

war must contribute to that end.

Also, the will to win is more important than any other weapon of war.

I was disillusioned by the reaction of our people to the servicemen who served in Vietnam.

Our R&R was a week home in Australia. We were warned not to wear uniform at home as point had been thrown over some servicemen on leave and fights had broken out. I suddenly felt that what I was doing was not appreciated and would achieve nothing in the long term. I went back to the war zone with one intention – to protect my troops on the ground to the best of my ability and to ignore the political and media crap.



RADIO

No coms, no bombs – radio is the most powerful weapon on the battlefield.

the 504 Theatre Indoctrination School (TIS - FAC U), Phan Rang, before being assigned to 19TASS, Bien Hoa and, from there, deployed to support the Australian task force at Nui Dat.

He was based at the coastal airfield of Vung Tau and at Luscombe Field (Nui Dat) where his unit maintained a TACP [tactical air control party] in support of the First Australian Task Force (1ATF).

The FACs in support of 1ATF – to which there was usually one Australian attached – were assigned the callsign Jade.

Originally equipped with Cessna O-1s, the Jade callsigns were upgraded, in 1969, to the Cessna O-2A – 'Oscar Duce'. Robson flew the Cessna O-2A exclusively during his tour of

duty from June 1969 to February 1970 and flew a total of 240 missions over 333 flying hours calling in more than 80 air strikes.

Flying the Oscar Duce was a huge change for Robson. Not only was he stepping down from the fast jets of a substantial fighter career, but had the extra burden of switching master hand.

“Every airplane I had flown was operated with a joystick by the right hand. The throttle, radios, speed brakes and so on were operated by the left,” he says.

“On top of that, I was left-handed. “To fly the O-2, I had to change to a left-hand operated yoke in an airplane with sluggish response – compared to a fighter – and to writing with my right hand.

“It certainly was a learning experience.” Recalling the following mission, Dave Robson can give us a reasonable insight into the role and importance of the FAC to the ground forces he was there to support.

“An ARVN convoy, with US Army advisers, was in transit to their fire-support base. The VC detonated mines under the lead and tail-end APCs, trapping the entire column on an elevated road with rice paddies on either side. They were totally exposed and trapped – there was no escape.

Then the VC opened fire from lines of trees on both sides of the rice paddies.

It was a well-planned ambush. The convoy was pinned down and very vulnerable. They called for immediate air (air-strike support).

AS I ROLLED IN TO MARK THE TARGET I SAW MUZZLE FLASHES DIRECTED AT ME FROM THE TREE-LINE TO THE WEST

I was already airborne on a visual reconnaissance (VR) mission several clicks to the east. The fighters were called as I was on the way and we arrived in short time.

We cleared the Aussie helicopter gunships in first – callsign Bushranger.

As I briefed the first flight of fighters – F4s – and rolled in to mark the target, I saw muzzle flashes directed at me from the tree-line to the west. As I pulled off the marking run, a US Army officer on the ground warned there was ground fire coming at me from the tree-line to the east. I called for more air support while I directed the first set of fighters onto the target.

It was an easy target for the fighters as the tree-lines were clearly defined and there was a

RAVENS ON THE RISE

With its popularity rising, the future of forward air control as a deadly force on the battlefield is in capable hands

After the birth of forward air control in WWII, Australia didn't employ the tactic again until Vietnam. Although Australians flew Mustangs and Meteors in Korea, FAC had fallen off the scope. In Vietnam, although the capability was not our own, Australian pilots learned a lot

about forward air control while seconded to specialist American FAC units. But again, post war, the popularity of FAC as a precision tool on the battlefield waned. The corporate memory for the capability was invested in just three pilots, flying Winjeel, who were at various times configured as a C Flight in, first, No. 76 Squadron, then 77 Squadron and, for a period, were an independent flight. Eventually, as Winjeel was replaced by PC9, a fourth pilot and fourth

aircraft was added and, in 2001, Forward Air Control Development Unit was raised and invested with a substantial and important charter. Today it trains forward air controllers (FACs) and terminal attack controllers (TACs – army personnel who fulfil essentially the same role but from the ground). FACDU has an establishment of four full-time FAC pilots and three reserve pilots plus maintenance and support personnel. It also currently has two attached army personnel charged with developing and increasing the TAC capability. This latter cell is about to grow to 22 personnel in the very near future. FACDU is also the capability standards unit for the ADF, responsible for delivering training, developing and refining tactics, testing and introducing equipment and refining inter-service and inter-agency procedures.



FACDU OC Squadron Leader Danny Carroll says forward air control is definitely no longer a single-service capability. "Today, the Air Force and the Army work hand-in-glove to provide a means of controlling very sophisticated air assets. "The modern battlefield is a very complex, highly technical and potentially lethal environment, and the Forward Air Control Development Unit is at the forefront of developing procedures and tactics to make the best use of our assets in a joint environment."



WE NEED TO ACHIEVE MAXIMUM DAMAGE TO THE ENEMY BUT AT THE SAME TIME MINIMISE THE DANGER TO FRIENDLIES

must be working to the same timeline. Artillery may need to be lifted – but not too early – and the friendly unit engaged with the enemy will certainly want to know when to expect bombs down range.

The total flow of the mission could be anywhere up to 15 minutes from first contact with the offensive air, but the actual mission from "go" to impact is exactly six minutes – and that's usually accurate to just seconds either way. Onboard computers on the fast jet will let the pilot know at all times exactly what speed he needs on every phase of his run to achieve that exact window.

What we try to achieve is an extremely quick process because generally the reason we are there in the first place is that our guys on the ground are being attacked while all this is happening.

Once the jet is on its final approach for the weapons-delivery pass, I am talking to the pilot constantly – one-on-one – to make 100 per cent sure he is aiming for the right target. We need to

achieve maximum damage to an enemy, but at the same time, with minimum danger to the friendlies. Remembering that I own that weapon and that aircraft – I am legally responsible for the damage it causes. I will not give him, "Clear, hot" until I'm sure he has acquired the right target.

Once the bombs have been delivered, I observe the target for weapons effect and determine if a second attack is required.

Mission complete, the ground unit hands me back to the area controlling agency and I either move on to another mission or depart the area through an exit control point, and then back to base where ground-crew repair the aircraft if required, and prep it for the next mission.

I will then complete a comprehensive post-mission debrief, submit a written report and contact numerous relevant agencies, reporting on

Flying in and out of the battlespace is all done tactically with designated entry and exit points that are strictly controlled by ground-based agencies using encoded messages.

Once in the area, I will do some reconnaissance to familiarise myself with the features of the area and commence map preparation.

At this stage I would typically be handed from the controlling agency to the ground unit I'm there to support and begin a comms flow to fine-tune the exact mission.

Sometimes the offensive air support will already be in the area – in a holding pattern – and other times I simply wait for them to arrive.

Once they are on the scene, I own them. My job is to give them the data they'll need to prepare their weapons systems to the configuration required to take out the target. The type of weapon to be dropped, the direction and angle of attack, the altitude I want them to drop from and the exact time I want the bombs delivered are all determined by me and passed on to the fast-jet pilots.

A mission might call for a high-level attack from 25 or 30,000ft or it might require a low-level pass at just 250ft, or it might be some form of dive-bombing – the decision is mine, but was, most likely, made in the planning stage back at base.

Timing is a critical factor – all players



PILATUS PC-9/A(F)

Type designation	A23
Wing span	10.24m
Length	10.18m
Height	3.28m
Empty weight	1700kg
Max takeoff weight	3200kg
Max speed	593km/h
Max ferry range	2700km
Max combat radius	650km
Service ceiling	25,000ft
Engine	Pratt and Whitney PT6A-62 turbo prop, 950shp (limited)
Propeller	Hartzell constant speed, 2000rpm

Australia type scenario. The role in war would, in theory, be left to an F/A18-borne FAC, although, with limited modification, Hawk could be adapted.

Describing a typical deployment on today's training battlefield, Commanding Officer FACDU at RAAF Base Williamtown, Squadron Leader Danny Carroll conveys a sense of the complexity and workload placed on an FAC during a modern training mission.

"In Australia, FACDU will deploy – for example on Exercise Pitch Black – as a unit to somewhere like RAAF Base Tindal in the Northern Territory and set up an operations cell at the airfield.

Much of what we do these days is aided by computers – on the ground and in the air.

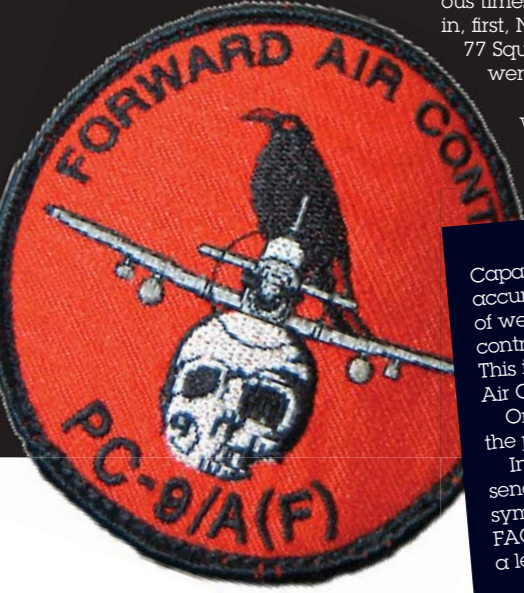
In preparation for a mission, we will get intelligence feeds, ground-threat scenarios and, eventually, a tasking message. Once we have these three pieces of guidance, we formulate a plan.

Mission planning is generally done at least 24 hours and sometimes up to 72 hours in advance.

Once the plan is made, the unit goes into a domestic cycle to make sure the aircraft is on line, full of gas and bombed up to the configuration I want for the mission profile. After pre-flighting the aircraft and configuring the cockpit to suit the task, I will fly to the area of operations.

THE BADGE

Capable and trained in the direct and accurate application of a vast array of weapons, the modern forward air controller truly is a harbinger of death. This is reflected in the badge of Forward Air Control Development Unit. On the back of a PC9 stands a raven, the pair atop a skull. In mythology, the raven is the messenger of death. The inference in this symbology is that if an enemy finds an FAC above him, he can shortly expect a lethal rain of ordnance on his position.



clear area of rice paddies between the trees and the friendlies. The fighters could make a clear run along the tree-lines with high-draws and napalm.

I continued the first flight of fighters on the eastern side with 20mm cannon passes as the second flight arrived. As I briefed the second flight – F100s – and marked the western tree-line, we were able to keep Charlie's head down in the meantime with cannon fire.

The action ended as quickly as it had started. The guns went silent. Charlie had retreated – perhaps wounded – and I was able to provide top cover until relieved by another FAC – and until additional ground support arrived.

Dust-off helicopters collected some wounded."

A forward air controller is a lone-wolf type of operator on the battlefield with arguably the greatest firepower of any individual at his disposal. Apart from offensive airpower – F/A18, F-111, B1, B2, B52 and so on – he can also call upon or be asked to control naval gunfire support (NGS), artillery, mortars, heavy machineguns or even main battle tanks.

Australian FACs currently ply their trade using the Pilatus PC9 turboprop aircraft. It has three external hardpoints – two for smoke-grenade dispensers and the third for external fuel.

To mark a target, the FAC drops fist-sized Mark 18 smoke grenades of various colours that simply freefall from under the aircraft.

But this method requires the target to be directly overflown by the FAC, thereby exposing himself to a certain level of danger.

Such danger can be mitigated, however, by either flying above the operational envelope of the anti-aircraft weapons known to be on the battlefield or by flying so low as to take advantage of natural cover like hills, exposing himself only for the briefest time possible.

His PC9, too, affords him a reasonable level of agility to escape from enemy attention. With excess power he can go vertical to increase height, or full throttle in the horizontal or a dive will chew up kilometres in short order.

It has a good speed range, capable of loitering on the battlefield at 120kts to conserve fuel or, opened up, can transit at up to 300kts [555km/hr].

The PC9, however, is employed in Australia purely as a training and capability-development aircraft. It will never be used on operations, except in a desperate defence-of-

GPS

Global positioning system – accurate navigation aid to reduce human error



AIR CONTROL

Middleton VC

VC WINNER FLYING STILL

The four aircraft of FACDU are named in honour of four Australian aviators who have won the Victoria Cross.

Squadron Leader Danny Carroll's plane is named in memory of Flight Sergeant Rowdon Hume Middleton who on 28 November 1942 took off on his 29th bombing operation, for Italy. His Stirling bomber was struck by flak over the target, one shell exploded in the cockpit almost killing him, and wounding the second pilot and wireless operator. As Middleton lost consciousness, the second pilot brought the plane under control just 800ft from the ground.

When Middleton regained consciousness he resumed control for the long flight back to England.

Over English soil and with only five minutes of fuel left, five of the crew safely bailed out. Two others, who delayed their exit to help Middleton head the plane back out to sea, drowned.

Middleton then crashed the Stirling into the sea and was killed.

For his actions, he was posthumously awarded the RAAF's first Victoria Cross.

The RAAF's other VC winners were Flying Officer William Ellis Newton and Wing Commander Hughie Idwal Edwards. Lieutenant Frank Hubert McNamara of the Australian Flying Corps was the first Australian pilot VC winner, in 1917.



FORWARD AIR CONTROL IS A CHALLENGING AND REWARDING, SELF-SUPERVISED JOB – THE CLASSIC LONE-WOLF OPERATOR

is perfect – fast, aerobatic and, above all, very cheap to run, at least compared to the pure jets.

Pilots attracted to FAC as the next step in an established flying career are relatively experienced. Most are second- or third-tour pilots with up to 1200 hours experience – at an average age of 24.

"In military speak, a guy at 24-years-old is an experienced pilot. He could have walked through the door at 18 and been qualified on something before he turns 19," Squadron Leader Carroll says. "And by the time he comes here he's done two or three flying tours."

So why would a young pilot want to join Forward Air Control Development Unit?

That's an easy question for Danny Carroll – "Simply because it's great fun, the aircraft is great fun and, unless he's been a fighter pilot, he won't have had the opportunity to fly an acrobatic aircraft. He'll get to fly at very low altitudes a lot and drop things off the aircraft. He'll also get to see and control an awesome range of weaponry that most people will never get near. He will also get to travel all over Australia – enough to be fun but, unlike many Defence jobs, not enough to be a drag."

But, Squadron Leader Carroll says, forward air control is ultimately a very challenging and rewarding, self-supervised job – the classic lone-wolf operator.

the weapons expended, weapons effects, damage to the aircraft or injury to aircrew, among other things. Any intelligence gathered is passed on for dissemination to interested battlefield agencies."

Whether in training or on operations, the FAC pilot will attempt to play his game of death as safely – for himself – as possible. The main reason, apart from the obvious self-preservation, is capability preservation. "If we're out there too gung-ho and get shot down, then we're no good to man or beast," Squadron Leader Carroll says.

As a training aircraft, the PC9

RANGEFINDER

Laser range finder connected to GPS for metre-accurate grid references

