

# No. 37 Squadron 70<sup>th</sup> Anniversary



# Media Pack

**AIR FORCE** 

## Celebrating the 70<sup>th</sup> anniversary of No. 37 Squadron

July 2013 marks the 70<sup>th</sup> anniversary of No. 37 Squadron's establishment at RAAF Base Laverton in Victoria.

Today, the squadron is located at RAAF Base Richmond, where it operates the C-130J Hercules in the tactical airlift role.

Aside from an 18-year hiatus from 1948-1966, No. 37 Squadron has a proud history of conducting safe, effective and reliable airlift operations. It has accomplished this both within Australia and internationally, for the Royal Australian Air Force.

Its activities are often linked to global crises, flying to some of the toughest environments in the world, and accomplishing significant outcomes for the benefit of Australia.

This is an effort of which all past and present members of No. 37 Squadron should be justifiably proud.

Their work – and considerable sacrifice, with frequent short notice deployments taking them away from home, family and friends for long periods – has ensured the unit's great achievements.

During No. 37 Squadron's support to humanitarian operations, its importance has been felt firsthand by the public. These include airlift missions during natural disasters, which has in recent times have included floods in Queensland, cyclones in the South Pacific, and earthquakes in New Zealand and Indonesia.

A great deal of the squadron's effort however goes towards the day-to-day work of the Australian Defence Force, ensuring that personnel and cargo get to where they need to be, on time.

This work is often unrecognised, but remains essential to the functioning of Defence.

The 70<sup>th</sup> anniversary of No. 37 Squadron is therefore an opportunity for Air Force to publicly acknowledge these achievements.

This is an opportunity to celebrate the history of this unit, to acknowledge those who made it all possible, and to shine a light on the capability provided by the squadron today.

As part of this anniversary, a number of private and public activities will be conducted, including a reunion for past members, and activities with the media.



## Celebrating an anniversary

No. 37 Squadron is a proud flying unit with a rich history spanning wars, famines, floods, cyclones and rescues at sea.

It is important in a busy flying unit such as ours to pause, reflect and celebrate the collective achievements of the unit over such a significant period of time.

2013 sees the unit acknowledging its eleventh consecutive year of Operations in the Middle East, a commitment unparalleled in our Air Force's history.

This commitment has been the focus for the men and women of No. 37 Squadron for a long period, yet our support of other operations has continued with vigour.



The squadron's birthday comes amidst participation in Exercise Talisman Sabre – held in Queensland biennially – where troop and equipment insertions are being rehearsed through airdrop or airland missions by day and night.

The squadron has come a long way from its humble beginnings but owes much to those who came before us and developed the tactics, techniques and procedures that serve us so well.

The anniversary itself will be a memorable gathering of C-130 aircrew, maintainers and support staff that have served the unit and our country with pride.

There will be much story telling (some of it no doubt exaggerated), but it will provide a great opportunity to share the camaraderie associated with flying the venerable C-130 Hercules.

As we look far forward to our centenary, we realise that the air domain is a rapidly changing environment.

One thing that will remain constant is the commitment of the men and women who serve in units such as No. 37 Squadron and the wonderful experiences we share daily.

A handwritten signature in black ink, appearing to read 'Darren Goldie'. The signature is stylized and fluid, with a large initial 'D' and 'G'.

**Wing Commander Darren Goldie, CSC**  
**Commanding Officer**  
**No. 37 Squadron**



## Today's No. 37 Squadron

**No. 37 Squadron is based at RAAF Base Richmond, approximately 55 kilometres northwest of Sydney. It has a workforce of 437 personnel and a fleet of 12 C-130J Hercules transports.**

The squadron forms part of No. 84 Wing, which is also located at RAAF Base Richmond, falling under the aegis of the Royal Australian Air Force's Air Lift Group.

No. 37 Squadron's primary role is to provide medium tactical airlift with the C-130J. This entails the following missions:

- Air logistics support.
- Airlift of cargo and troops.
- Airdrop of cargo and paratroops.
- Search and Rescue.
- Aero-medical evacuation.

The versatility of the C-130J is such that No. 37 Squadron is often called out at short notice to perform these roles both domestically and internationally, fulfilling a tactical airlift role between Army's rotary-wing fleet (specifically the CH-47 Chinook) and Air Force's C-17A Globemaster III.

The current workforce structure of No. 37 Squadron comprises of four aircrew flights; administration and operations; and maintenance support. The No. 37 Squadron maintenance workforce provides a range of functions, including:

- Before Flight/After Flight preparation.
- Post Flight maintenance.
- Routine aircraft maintenance including changing of major components (engines, propellers, tyres).
- Phased Servicing up to and including Level R30 (six-weeks in duration, requiring further inspections).
- Aircraft Life Support, including servicing of life rafts and rescue equipment used during Search and Rescue operations.

A deployment of two C-130J Hercules is currently operated from Al Minhad Air Base in the United Arab Emirates. This deployment conducts frequent support flights in the Middle East Area of Operations, supporting Australian and Coalition personnel across Afghanistan in support of Australian. This deployment can surge to a third C-130J in theatre when required.



## A History of No. 37 Squadron

### Formation

No. 37 Squadron was formed at RAAF Base Laverton, 10 kilometres southwest of Melbourne, on 15 July 1943.

The majority of Air Force's wartime transport squadrons had been formed the previous year, but by 1943, the focus of their efforts increasingly fell on supporting the frontline in New Guinea. Back in Australia, there was still demand for military personnel to be flown to bases around the country. To cover this need, No. 37 Squadron was established, and soon received a fleet of Lockheed C-60A Lodestars (**pictured above**) from the United States. The Lodestar was a military transport adapted from an airliner built by Lockheed, and the aircraft equipped a number of RAAF units throughout the War.

The interior of the Lodestar was relatively comfortable – if a little cramped – for a military transport of its era. It had seating for 18 passengers, with space in the nose and tail for limited items of cargo. No. 37 Squadron typically flew with a crew of two pilots and a

navigator/wireless radio operator. Powered by two 1200-horsepower radial engines, the Lodestar could cruise at a stately 322 kilometres per hour, with a range of more than 4000 kilometres. No. 37 Squadron flew courier flights from Laverton (and later Essendon in Melbourne's north) to Western Australia, visiting airfields and air bases along the route. Courier flights along Australia's eastern coast and in to New Guinea were soon added.

The role of No. 37 Squadron was to fly VIPs and Defence personnel around Australia and in to New Guinea. Alternatively, some Lodestars were utilised in the aero-medical evacuation role, bringing home wounded Diggers from New Guinea for treatment in Australia.

The main dangers confronted by No. 37 Squadron were not from enemy attack, with the majority of their flying being done away from the frontline. Instead, No. 37 Squadron was frequently challenged by austere airstrips and primitive conditions which challenged crews attempting to take off or land their aircraft.

Similarly, the vast continent of Australia made life difficult for crews and their passengers if they encountered troubles during their flight.

On one occasion in January 1944, a No. 37 Squadron Lodestar carrying nine passengers encountered a thunderstorm in the middle of the Australian outback. The aircraft's engines began losing power, and the crew were forced to land the Lodestar 50 kilometres south of Barrow Creek in the Northern Territory. Landing on the north/south highway between Adelaide and Darwin, the aircraft hit a tree branch with its left wing, but the occupants were safe.

No. 37 Squadron was also equipped with a variety of other aircraft which had been pressed in to Air Force service at the outbreak of the war in the Pacific. They included a Stinson Reliant and Tiger Moth, along with a Northrop Delta transport, a single-engine aircraft that could carry nine passengers. The Delta was destroyed in a crash on take off in September 1943.



## New Equipment

As the war progressed, greater numbers of more suitable military aircraft became available to the Royal Australian Air Force from the United States.

In February 1945, No. 37 Squadron began equipping itself with the Douglas C-47 Dakota transport (**pictured above**), a larger aircraft than the Lodestar, and one that had already been in service with a number of other RAAF transport units since 1943. The Dakota had a slower cruise speed than the Lodestar - 257 kilometres per hour - but had a larger fuselage that could carry 28 troops, as well as larger items of cargo up to three tonnes in weight.

Just as it did with the Lodestar, No. 37 Squadron flew courier missions with the Dakota, flying twice-weekly services to Morotai in the Dutch Indies (present day Indonesia) via Parafield (in South Australia) and Darwin.

On 2 September 1945, Japanese forces unconditionally surrendered to the Allies. In response, RAAF transport squadrons (including No. 37 Squadron) dispatched their aircraft and crews to Singapore, to

assist in the liberation of Prisoner of War camps and repatriate Australians back home.

By August 1946, Air Force had relocated Nos. 36, 37 and 38 Squadron) to RAAF Station Schofields, North West of Sydney, with its other transport squadrons being disbanded. The surviving transport units concentrated their efforts on supporting the Commonwealth Occupation Force in Japan.

In conjunction with the other transport units, No. 37 Squadron flew a three-times-a-week courier service to Japan. The courier was flown with an aircraft departing Schofields for Melbourne, then on to Adelaide, Alice Springs and Darwin, before heading with a fresh aircraft to Morotai, the Philippines, Okinawa, Iwakuni, and finally Tokyo, before conducting a return journey along the same route. Each courier mission took a crew two weeks and more than 80 flying hours to complete, with the return journey totalling 20,900 kilometres.

Such routes today are flown by aircraft at high altitudes, equipped with weather radars and modern

navigation systems. The RAAF's Dakotas had none of these systems, flying what was then the longest route for a twin-engine transport in the world. By December 1947, Air Force flew its final courier service to Japan, with responsibility for following courier flights transferred to Qantas.

This transition led to No. 37 Squadron being disbanded in February 1948. Much of No. 37 Squadron's aircraft and personnel were absorbed by Nos. 36 and 38 Squadron, which over the coming year would go on to provide service in numerous airlift operations including the Berlin Airlift, Malayan Emergency, the Korean War, and humanitarian relief missions at home.

## Re-emergence

In February 1966, No. 37 Squadron was re-established at RAAF Base Richmond. The move had followed a rapid resurgence in Defence spending in the early 1960s, in line with the commitment of Defence units to the Vietnam War.

The re-establishment of No. 37 Squadron was preceded in November 1964 by the decision to



purchase a fleet of 12 C-130E Hercules (**pictured above**) for Air Force. These would be the second squadron of Hercules for Air Force, following the introduction of 12 C-130As for No. 36 Squadron in 1958.

The new C-130Es would be powered by four 4500 horsepower turboprop engines, which offered more power than the C-130As. This would allow No. 37 Squadron to carry heavier payloads over longer distances, leading them to take on a greater share of long-range strategic airlift tasks for Air Force. Shorter-range domestic and tactical tasks for the Hercules would be largely left to No. 36 Squadron.

The Hercules was a significant contrast to the Dakotas previously flown by No. 37 Squadron. It carried a crew of five – two pilots, a navigator, a flight engineer who monitored the aircraft's systems during the flight, and a loadmaster responsible for loading and unloading of cargo and passengers. Supplementary crew could be carried depending on the task, and bunks in the cockpit and cabin allowed some limited opportunity for crew rest.

Each aircraft could carry up to 19 tonnes of payload, which was easily loaded and unloaded via a rear cargo ramp. Alternatively, the C-130E could carry more than 90 passengers, and was also able to conduct aero-medical evacuation of patients.

The first C-130Es were delivered from the United States to Australia in August 1966, with the final aircraft arriving in January 1967. A new two-storey headquarters for No. 37 Squadron was constructed at Richmond, and a cockpit simulator was also delivered to allow aircrew to practice procedures and emergency responses.

All aircrew for the C-130E, along with operational and administration staff, would be governed by No. 37 Squadron. The technicians for the C-130E would come under control of No. 486 Squadron, with this workforce also responsible for supporting the C-130A fleet.

Almost immediately, No. 37 Squadron was tasked to fly courier missions from Australia to South Vietnam, flying to Vung Tau from RAAF Base Richmond via RAAF Base Darwin. The C-130Es were

also quickly given the task of flying all aero-medical evacuations for wounded Australian (and many New Zealand) soldiers from Vietnam.

Australia's regional commitments – which included a considerable presence in Malaysia – saw No. 37 Squadron conduct routine international courier missions as well. Humanitarian assistance missions were flown, including relief flights to India in July 1971. At the time, an the influx of Bangladeshi refugees to the West Bengal region of India led to an international effort to deliver foodstuffs, with No. 37 Squadron delivering food rations to Calcutta.

In late January 1971, Pochentong Airport in the Cambodian capital of Phnom Penh was attacked by Communist Forces, leading No. 37 Squadron to assist an American-led effort to resupply the Cambodian Government with arms and ammunition. Four C-130Es arrived to a scene of chaos in Phnom Penh, with no air traffic control services and burning hangars and aircraft on the ground. Each C-130E crew offloaded their cargo at



Pochentong with their engines still running, before hastily departing.

When the Australian Government announced its withdrawal of its combat forces from South Vietnam in August 1971, No. 37 Squadron Hercules played a key role in the return, flying the final courier mission to Vietnam in March 1972. In December 1972, the Australian Army Training Team – the first Australian unit deployed to South Vietnam in August 1962 - was returned home, again by No. 37 Squadron.

#### After Vietnam

No. 37 Squadron continued to carry cargo of national importance following the Vietnam War, although sometimes of a more diplomatic purpose. The first landing by a RAAF aircraft to the People's Republic of China was made on 1 November 1973, when a No. 37 Squadron C-130E delivered a Murray Grey stud bull to Beijing, via Melbourne, Darwin, Hong Kong and Guangzhou. Coinciding with a visit by Prime Minister Gough Whitlam to the People's Republic of China, No. 37 Squadron delivered the 567-kilogram bull, named 'Saber

Bogong', in its specially created enclosure.

Following the purchase by the Australian National Gallery of Jackson Pollock's contemporary painting *Blue Poles* in 1973, the task of transporting the piece around Australia for a national tour fell on No. 37 Squadron. The painting's dimensions – 2.1 metres by 4.9 metres – meant that it could just be accommodated within the Hercules' cargo compartment.

One of the most intense periods of activity in No. 37 Squadron history came in the summer and autumn of 1974-75. It began on Christmas Day 1974, with the biggest peacetime humanitarian operation ever conducted by Defence being launched in response to the devastation of Darwin by Cyclone Tracy.

At 3pm on December 25<sup>th</sup>, the first C-130E from No. 37 Squadron departed RAAF Base Richmond for Darwin, configured for aero-medical evacuation and carrying an ABC Television crew. Diverting to Mount Isa to collect the Minister for the Northern Territory, the C-130E arrived in Darwin at 10pm, the runway being marked by flares

amidst weather so poor that the No. 37 Squadron crew could only find the runway by using the aircraft's radar. A second C-130E arrived at dawn on December 26, as the first aircraft carried a load of injured patients out of Darwin.

In the days that followed, No. 37 Squadron supported a wider Defence effort that included delivering medical personnel and supplies, generators, shelters, and fresh water; and evacuating homeless residents and injured patients. It was not uncommon for No. 37 Squadron crews to work shifts of 36 hours or more. Throughout the relief effort, No. 37 Squadron C-130Es flew 980 tonnes of stores and equipment, 4,990 passengers and 210 medical evacuees.

In the wake of Cyclone Tracy, No. 37 Squadron's efforts were drawn abroad. The 1975 Spring Offensive by North Vietnamese Communist Forces led to the rapid fall of the South Vietnamese government in early 1975, and four C-130Es from No. 37 Squadron were dispatched as part of a wider Air Force effort called 'Detachment S', to provide





humanitarian airlift in South Vietnam.

The first mission came on April 2, with more than 1100 refugees evacuated from Phan Rang airfield to Can Tho, south of Saigon. In one incident, a rocket exploding on Phan Rang airfield led a crowd of refugees to mob a C-130E. To control the crowd, a South Vietnamese soldier fired his pistol into the air, inadvertently shooting the tail of the RAAF C-130E above him.

From April 4, Detachment S helped to fly 194 war orphans from Saigon to Bangkok under the so-called 'Operation Babylift' (pictured above). Another 77 orphans were transported on April 17. Detachment S also flew relief flights to the island of An Thoi, near the border with Cambodia, where 40,000 refugees had fled to from Communist forces.

Landing on a short, slippery runway, and dealing with tight parking spaces at An Thoi, No. 37 Squadron and other RAAF transport crews won high praise for their efforts – from both the Vietnamese refugees and the United Nations. Roger Beck, a

United Nations representative in Saigon leading the relief efforts, said "When we had a problem, we went to the RAAF – then it ceased to be a problem."

On 25 April 1975, security in Saigon had become untenable, and three Hercules from Detachment S evacuated the Australian Embassy in Saigon and a small Air Force security detail were evacuated on board three Hercules, making No. 37 Squadron the last Air Force aircraft in Saigon before the fall of South Vietnam.

Despite this, there was still more work in Vietnam awaiting No. 37 Squadron. In late April 1975, 'Detachment N' was established to deliver relief supplies to Cambodia and Laos for the United Nations, with many of the supplies destined for Hanoi in North Vietnam. Throughout May 1975, two C-130Es carried relief supplies from Malaysia, Singapore, and Hong Kong. By the end of the deployment, Detachment N had carried 450 tonnes of relief supplies, flying 91 sorties over 207 flying hours, returning to Australia in early June after having

evacuated Australian Embassy staff from Laos.

In the coming years, No. 37 Squadron would support a number of other RAAF units conducting United Nations support missions abroad. From March 1975 until December 1978, they supported No. 38 Squadron Caribous on the India Pakistan Border; and from July 1976 to October 1979, they supported the Air Force Iroquois helicopters in the Sinai Desert, monitoring the ceasefire between Israel and Egypt.

During two sustainment flights to the Sinai deployment in early 1979, No. 37 Squadron Hercules were called on to evacuate Australian and international diplomatic staff from Tehran, which was gripped by the Iranian Revolution. The first aircraft, arriving on January 6, was met by Iranian soldiers suspicious of the crew's intentions until Australian diplomatic staff could reassure them of their intentions. The C-130E boarded 33 passengers, which included Australian, New Zealander and Canadian diplomatic staff and their families. Another similar evacuation flight



into Tehran was made by No. 37 Squadron in February.

In 1979, it was announced that No. 37 Squadron would receive two ex-Qantas Boeing 707s. This was intended to increase Air Force's strategic transport capability, whilst also enabling a VIP transport capability when required. The two Boeing 707s arrived at RAAF Base Richmond in April 1979, and in their first year with No. 37 Squadron, they transported Defence personnel and their families to their postings in Malaysia; flew the Prime Minister and his staff to the Commonwealth Heads of Government Meeting in Nigeria; and carried Australian Defence Force personnel for the Commonwealth Monitoring Force in Rhodesia (present-day Zimbabwe).

The C-130E likewise supported long-distance strategic transport, flying vehicles and supplies for the same deployment in Rhodesia, and transporting these personnel to South Africa in March 1980 for their return home by Boeing 707, with the C-130Es transporting home the vehicles. In 1981, the Boeing 707s were transitioned to a newly-established No. 33 Flight.

In 1982, the Australian Government reinstated its support of the United Nations mission in the Sinai, again deploying the UH-1 Iroquois with the C-130E. The deployment was completed in 1986, with 26 of the 27 resupply flights from Australia flown by No. 37 Squadron. In 1986, Pope John Paul II's tour of Australia saw No. 37 Squadron transport His Holiness's 'Popemobiles' around the country. In May 1986, a pair of C-130Es from No. 37 Squadron took Iroquois helicopters from No. 5 Squadron to Honiara in the Solomon Islands, following Cyclone Namu. A wider RAAF response brought in Caribous and C-130Hs, and additional tasks included returning Australian tourists who'd been stranded by the disaster.

In 1988, No. 37 Squadron celebrated 200,000 accident-free flying hours on the Hercules. In August 1989, No. 37 Squadron joined other Air Force transport units to support Operation Immune, the Federal Government's response to the Domestic Airline Pilot's Dispute. No. 37 Squadron conducted flights

around Australia with fare-paying civilian passengers until the strike was resolved in December 1989.

In January 1993, three C-130Es from No. 37 Squadron collected troops and equipment for an advance party bound for Somalia under Operation Solace, aimed to bring relief to the country's starving population. Supported by a No. 36 Squadron C-130H, they flew to Mogadishu to deliver the Army personnel, and conducted resupply flights until the Australian withdrawal in May 1993. By 1994, the C-130E was approaching its 30 years of service, and a decision was required to either replace or extend the life of the aircraft.

### A New Era

In December 1995, the Australian Government announced its decision to purchase a fleet of 12 C-130J Hercules transports (**pictured above**). These aircraft would be intended to replace the C-130E with No. 37 Squadron. Delivery of the first of these new Hercules was delayed until September 1999, with the remaining 12 aircraft arriving in Australia over the course of the



following two years. As with the C-130E, the C-130J was intended for use as a strategic transport by Defence. Australia would become the second international operator of the C-130J (after the United Kingdom).

The final two C-130Es were retired in November 2000. Of the 12 aircraft, one was preserved at the Air Force Museum in Point Cook; four airframes were kept as training aids in Australia; and the remainder returned to the United States for resale by Lockheed Martin.

The arrival of the C-130J to No. 37 Squadron coincided with an extremely busy period for Australian operations abroad. In 1999, Australia made a major commitment of personnel and equipment to peacekeeping in the former Indonesian province of Timor-Leste, as it transitioned in to nationhood. In 2002, Australian Defence Force personnel joined a Coalition effort to destroy Al Qaeda training bases in Afghanistan and remove the ruling Taliban party from power. In 2003, Australia also joined the Allied effort to remove the Ba'ath Party regime in Iraq and restore

democracy to that country. While the C-130Hs of No. 36 Squadron provided airlift to the frontline on most of these operations, No. 37 Squadron provided the airlift support 'behind the scenes' for these operations, whilst at the same time attempting to introduce the C-130J in to service as smoothly and quickly as possible.

A considerable learning curve was embarked upon by No. 37 Squadron with the new Hercules, which featured new systems and a different crewing arrangement which were radical departures from how previous C-130 variants had been operated. On top of this, the ongoing pressure on No. 36 Squadron's C-130Hs to provide tactical airlift led to a decision in late 2003 to expand the C-130J's operations from purely strategic in nature, to the more tactical.

To accomplish this, Electronic Warfare Self-Protection systems were installed on the C-130J, and No. 37 Squadron conducted crew training to familiarise itself with tactical airlift operations. Two C-130Js from No. 37 Squadron were deployed to the Middle East in September 2004, allowing for the C-130Hs to be rotated out of

theatre. Responsibility for airlift in the Middle East would be rotated between the C-130H and C-130J until mid-2008.

In the Middle East, No. 37 Squadron supported missions in to Iraq and Afghanistan, as well as being called on to fly humanitarian missions. In 2006, it transported Australian civilians from Cyprus to Turkey, after they had fled fighting in Lebanon.

Throughout this, No. 37 Squadron continued to support Defence activities and other humanitarian relief operations, in Australia and internationally. It supported the aero-medical evacuation of Australian tourists injured during the 2002 Bali Bombings in Indonesia; and transported humanitarian relief to the city of Bam in Iran after an earthquake on Boxing Day 2003. Following the 2004 Boxing Day Tsunami in 2004, No. 37 Squadron joined other Defence units to deliver humanitarian aid to Sumatra, and evacuate civilians from tsunami-stricken areas. The squadron again supported aero-medical evacuation of Australians injured following the Bali Bombings of 2005. That same year, No. 37



Squadron's headquarters relocated to a brand new two-storey building at RAAF Base Richmond.

Australia's experiences with these humanitarian relief operations, as well as Defence operations in the Middle East and Timor Leste, led to a considerable change to the Air Force airlift fleet and structure. In November 2006, responsibility for all Hercules – C-130Hs and C-130Js – came under No. 37 Squadron. This enabled No. 36 Squadron to relocate personnel to RAAF Base Amberley and begin operating the C-17A Globemaster in the strategic airlift role. A single C-17A could carry up to four times the payload of a C-130, making a significant contribution to strategic airlift support.

The changes had made No. 37 Squadron the largest flying squadron in the Air Force, with (initially) 24 Hercules and a workforce of more than 600 personnel. From 2006 until 2008, the C-130H fleet was reduced from 12 to eight aircraft, and the final C-130H rotation to the Middle East was completed in mid-2008. The C-130J became the mainstay of intra-theatre airlift in the Middle

East for Australia, with support from the larger C-17A as required.

In November 2008, No. 37 Squadron celebrated the 50<sup>th</sup> anniversary of C-130 operations in the Royal Australian Air Force. The combined C-130H and C-130J fleet supported missions to Papua New Guinea in 2007 following Cyclone Guba; to Indonesia in 2009 after the devastation of the Padang Earthquake; and closer to home in 2011, when they transported groceries and other supplies throughout Queensland during heavy floods. When Cyclone Yasi bore down on Cairns in February 2011, a pair of No. 37 Squadron C-130s joined a pair of No. 36 Squadron C-17As to evacuate almost 200 hospital patients to Brisbane. In the wake of the cyclone, the C-130 provided critical airlift of supplies to affected areas.

In November 2012, the final remaining C-130H Hercules was retired from Air Force after a 34-year career. This once again left No. 37 Squadron to solely operate the C-130J Hercules. In 2013, No. 37 Squadron will mark the 70<sup>th</sup> anniversary of its formation.

During this anniversary year, it has been kept exceptionally busy – providing key Search and Rescue functions during the rescue of French solo yachtsman Alain Delord in January; evacuating Bundaberg Hospital patients to Brisbane as that city was threatened by floods; and continuing to support other Defence units.

Significantly, No. 37 Squadron continues to provide a presence in the Middle East Area of Operations, where Australian C-130s have provided tactical airlift for over ten years of unbroken operations. The role of No. 37 Squadron has shifted considerably, as the need for it to fly strategic airlift missions has been almost completely taken over by the fleet of six C-17A Globemasters at No. 36 Squadron.

Providing a dedicated tactical airlift with the C-130J, No. 37 Squadron will be supplemented in this role from 2015 when fellow Richmond-based unit No. 35 Squadron receives its first of 10 C-27J Spartan aircraft. The C-130J fleet is therefore expected to continue flying with No. 37 Squadron until a planned withdrawal date of 2030.



## Lockheed Martin C-130J Hercules

**The C-130J is the latest variant in the Hercules transport aircraft series produced by Lockheed Martin. Since the first flight of the C-130J in April 1996, more than 270 have been produced, and are in service with 15 nations.**

The origins of the Hercules date back to the Korean War, during which a number of Air Forces (including the RAAF) continued to persevere with World War Two-era transport aircraft to carry cargo, personnel, and wounded soldiers. These transports were typified by radial engines which offered little performance (in speed, range and take off), as well as limited cargo space.

In 1951, the United States Air Force requested a new tactical airlifter which would be powered by turboprops engines, which would allow the aircraft to fly higher, faster and further than existing piston-engine transports. It would need a cargo bay that could be easily loaded and unloaded, and have a pressurised fuselage to allow wounded patients to be carried in relative

comfort. The new transport also needed to support troops closer to the frontline, and would therefore operate from semi-prepared airstrips with a minimum of local infrastructure to load and unload the aircraft. Aircraft manufacturer Lockheed proposed a transport aircraft whose cargo dimensions were based on a railroad boxcar – dimensions inside which the majority of the United States Army's vehicles and equipment could fit. Selected as the successful bidder, Lockheed flew its first YC-130A prototype in August 1954.

Called the 'Hercules', the new transport entered United States Air Force service the following year. It has since become the most successful modern military transport in history. Including the C-130J, more than 2300 Hercules have been constructed, and delivered to 66 countries.

The Royal Australian Air Force became the first foreign operator of the Hercules in 1958, receiving 12 C-130A variants in 1958 for its No. 36 Squadron. In 1966, 12 C-130E variants were delivered to

No. 37 Squadron. In 1978, Australia replaced the 'A-models' with C-130Hs, and in 1999, the C-130Es were replaced by the C-130Js that are in service today.

Externally, the C-130J appears similar in many respects to the Hercules variants which came before it. Beneath its skin however, the C-130J flown by No. 37 Squadron today is considerably different.

One crucial difference is the powerplants, which are four Rolls Royce AE2100D3 turboprops. These replace the Allison T56 turboprops used on earlier Hercules variants, and each produce 4600 shaft horsepower.

The AE2100D3 drives a six-bladed propeller built from composites, whose pitch can be adjusted to allow for a reverse in thrust, enabling the aircraft to 'back up' on runways and taxiways. The greater power of the AE2100D3 allows the C-130J to use less runway space for take off, and cruise at higher speeds. Their fuel efficiency means Australia's C-130Js do not carry an external fuel



tank beneath the wing, as was the case with previous Hercules variants.

The C-130J is operated by a crew of three – two pilots and a loadmaster – although additional pilots or loadmasters may be carried, depending on the mission requirements. Computer systems in the C-130J provide navigation and aircraft ‘health’ monitoring functions that were performed by the flight engineer and navigator on earlier C-130 variants.

In the cockpit, the pilots are aided by a Heads-Up Display which provides them with essential flight data whilst allowing them to keep a lookout of the windscreen. Numerous multi-function displays across the cockpit can be configured to provide engine performance data, navigation, and other critical information. Computer control of many systems in the Hercules allows for maintenance personnel to ‘download’ aircraft data and create a picture of its performance post-mission. Australia has contributed significant expertise to the international C-130J community about how to best utilise this data to improve aircraft reliability.

The ‘focus’ of the C-130J’s work is in its cargo bay, which is longer than previous Australian Hercules variants. Two ‘fuselage extensions (2.54m forward of the wing; 2.03m aft of the wing) provide additional volume for cargo. The C-130J can carry a single Black Hawk helicopter; or vehicles, including a Unimog, Mercedes G-Wagon, or Landrovers. The cargo bay floor can be configured with rollers to allow easier loading of pallets; or can be made ‘flat’ to allow rolling stock onboard. Loadmasters can also configure the aircraft with seats for passengers, or racks of litters for carrying injured or wounded patients.

Along with Air Movements personnel, Loadmasters must calculate the weight of cargo and its position within the cargo bay, to ensure the aircraft remains ‘balanced’ during the flight. This data is programmed in to a flight computer in the aircraft’s cockpit.

As per previous Hercules variants, cargo and passengers can be loaded or dispatched via a ramp in the tail of the aircraft. Two ‘paradoors’ at the rear of the fuselage also allow for paratroops to be dispatched from the aircraft,

and a small flap on each side of the Hercules’ fuselage can be extended in front of the paradoor to allow ‘clear air’ for the paratrooper to safely exit the aircraft.

Australia’s C-130Js are party to an international ‘Block’ upgrade program to replace obsolescent systems, add extra features for the crew, and improve the ‘hardware’ on the aircraft throughout its life. In 1999, Australia’s C-130Js were delivered in a Block 5.1 configuration, and as of July 2013, they are now in a Block 6.1 configuration, with further Block Upgrades are planned.

A number of Electronic Warfare Self-Protection (EWSP) systems have been fitted to Australia’s C-130Js, including countermeasures dispensers in 2004 and Radar Warning Receivers in 2012. Further EWSP upgrades are planned, to allow the C-130J to continue providing tactical airlift in high-threat areas. This includes the fitment of a Large Aircraft Infra-Red Countermeasures (LAIRCM) system, which will provide greater protection from infra-red missile attack.



## C-130J Hercules - General characteristics

**Crew:** Three - two pilots and one loadmaster. Supplementary crew can be carried depending on mission requirements.

**Capacity:** 128 passengers; 92 paratroops; 8 pallets of cargo; 97 litters patients; three Mercedes G-Wagons; one S70A Black Hawk helicopter.

- Payload: 19,958 kg of cargo.

### Dimensions

- Length: 34.36 m
- Wingspan: 40.41 m
- Height: 11.84 m
- Wing area: 1,745 ft<sup>2</sup> (162.1 m<sup>2</sup>)
- Empty weight: 34,274 kg
- Maximum takeoff weight: up to 175,000 lb (79,378 kg)

### Powerplant

- Engine: Four x Rolls-Royce AE 2100D3 turboprop, 4,637 shp (3,458 kW) each
- Propellers: Dowty R391 6-blade composite propeller

### Performance

- Maximum speed: 671 km/h (362 knots; 417 mph)
- Cruise speed: 643 km/h (348 knots; 400 mph)
- Range: 5,250 km (2,835 nmi, 3,262 mi)
- Service ceiling: 8,615 m (28,000 ft) with 19,090 kilograms (42,000 pounds) payload
- Takeoff distance: 953 m (3,127ft) at 70,300 kg (155,000 lb) gross weight.