

Daulat Beg Oldi: Operating from the World's Highest Airfield

Anant G Bewoor



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Introduction

On 23 July 1962, a little more than half a century ago, a C-119G Fairchild Packet piloted by Squadron Leader (later Air Marshal) AKS Raje and fitted with an Orpheus engine known as the Jet Pack, landed at Daulat Beg Oldi (DBO), the highest air strip in the world. Located at an altitude of over 16,000 feet, DBO lies a mere 8 km south and 9 km west of the Line of Actual Control (LAC), and is an airfield of strategic importance. Communication was rudimentary then, photography was archaic and rules prevented carriage of cameras inside IAF aircraft. The citizen, in those early years of independence (India was less than 15 years old), was disinterested in what the air force did and military matters were irrelevant. This neglect by the populace and elected representatives of India would result in the military drubbing at the hands of a not too capable Chinese army in 1962. DBO becomes strategically relevant in this context.

Raje and his crew were some of the finest that the Transport fleet of the IAF had, but the Packet which was to fly to DBO had two Wright Cyclone 3500 piston engines with severely reduced power at 16000 feet, the altitude of DBO. Forty-six years later history was repeated when on 31 May 2008, one AN-32 of No 48 Squadron, powered by two AI-20 D engines, landed at DBO at 0615 hrs on the very same air strip, with Group Captain Chafekar at the controls.

A unique fact quite unknown to the public, then and now, is that the Commanders of the Western Air Command were on board the Packet in 1962 and the AN-32 in 2008, testimony to the mettle of IAF leadership of leading from the front. This is the story of Daulat Beg Oldi, then and now, and how what was considered an impossible task was accomplished.

Daulat Beg Oldi: Strategic and Operational Relevance



An IAF C-130J Hercules landing at DBO in 2013



Daulat Beg Oldie is a small, nondescript campsite lying at the base of the Karakoram Pass. Travellers on the famed Silk Route may have rested at DBO on their way to Constantinople from China and back. Being at the base of the Karakoram Pass has immense strategic implications, and the Indian Army has been at DBO since the late 1950s. DBO is adjacent to the Chip Chap river, with the air distance to the Karakoram pass at just 10 km. It is a bleak landscape with light brown earth, blinding

white snow and is bereft of wild life. There is always an Indian Army contingent at DBO, and this must be supported by air year-round.

When China occupied Tibet in 1950, it led to India and China becoming neighbours for the first time in 2000 years. Boundary delimitation became a primary issue of disagreement. From 1960 the boundary disagreement became a dispute as India discovered that China had occupied Aksai Chin and constructed a main highway connecting Tibet with Xinjiang through Aksai Chin and the Karakoram pass. By 1962 the Indian government decided to establish Advanced Landing Grounds (ALGs) in forward locations that could serve to maintain border posts in inhospitable and high altitude locations in the region. DBO would become the northernmost and the highest ALG in the Himalayas.



Map showing Disputed borders and Regions

Decision to Operationalise DBO – Then and Now



C-119 Fairchild Packet with Jet-pack

1962: C-119 Fairchild Packet readies for DBO. Back in 1962, DBO was just as strategic as it is today. The Packets were able to do a fine job up to about 14,000 feet, but with increasing height, power decreased appreciably. If DBO was to be supplied by landing an aircraft, the Packet would need some "boost". At first, the Indian Air Force decided to fit a J-34 jet engine on top of the aircraft, ordering HAL to do necessary modifications. It was found that even with the J-34, the aircraft was still not adequate for the mountains of Ladakh. The Orpheus 701 jet engine, powering the HAL Gnat, was chosen instead. Precise data was recorded during the operational trials at Palam. Extrapolations using the recorded data indicated that the Jet Pack fitted C-119 could land and take off from DBO with some cargo.



AN-32 over the Himalayas

2008: AN-32 repeats History. After the C-119 landings in the 1960s, the airfield at DBO did not see any more fixed wing aircraft landings for the next four decades. In 1996 an earthquake damaged the DBO airstrip on which the Packet had landed 34 years earlier, restricting operations at DBO to helicopters and supply drop by AN-32. However, from the mid-2000s the IAF and Western Air Command looked at reactivating DBO by landing AN-32s there. Why was it necessary to reactivate DBO with the AN-32, one may well ask? First, its strategic position remained critical. Second, expeditious induction and extraction of troops from DBO was desirable. Thirdly, landing the AN-32 at DBO would supercharge the morale of troops who have no exit during the winter months. Lastly, in the case of engine failure during a supply drop and if crossing the mountains on one engine was not feasible, it would be necessary to validate the possibility of landing at DBO.

48 Squadron took up the challenge of landing an AN-32 at DBO. The squadron had a storied history, raised on Dakotas on 19 Nov 1959 at Srinagar, later flying Packets and then, in 1985, transitioning to the versatile AN-32. The 'Camels' had been flying the Ladakh routes for more than 20 years, and were fondly nicknamed "Himalayan

Lifeline.” The squadron had been involved in numerous civil and military operations – wars Of 1962, 1965 and 1971, IPKF operations in Sri Lanka, Operation Cactus, Operation Safed Sagar, Operation Parakram, as well as relief operations following the Bhuj Earthquake in 2001 and the Indian Ocean tsunami in 2004.

Soil Engineering & Material Testing Division of College of Military Engineering Pune visited DBO to assess if the landing strip would be safe for AN-32 landing. The team found that the soil was not compact enough for a landing. Engineering solutions to make the runway safe for AN-32 operations were taken up, the challenges of loose soil, short runway, the menacing mountains and the proximity of enemy troops on the LAC and LOC notwithstanding.

Landing at 16500 ft: C-119 Packet and AN-32 46 years apart

The Fairchild Packet has had many uncharitable things said about it, both in the USAF and the IAF. However, it was a gem of an aircraft. Pretty with its twin booms, the most powerful piston aero-engines ever made, and a four blade propeller. It is a fact that in its heydays, at any given time between 0400 hrs and 2300 hrs, an Indian Air Force Packet was airborne somewhere in India. Ladakh subsisted and flourished because of the Packets, and till the AN-12s arrived in 1961, they, with the Dakota, were the lifeline for Ladakh and Arunachal Pradesh. The vibrations of the propeller were awful. Sitting in the cargo hold, in line with the engines, the noise and vibrations truly made you wonky at the end of a flight. Paratroopers loved the Packet. Exit was sweet and steady, minimum tumble, and assured deployment of the chute. So it was in keeping with its revered place of the Packet in the IAF Transport Fleet that it should be the first to land at DBO to prove a point.

Packets were finally phased out in 1985, and replaced by the ubiquitous and noisy AN-32, with powerful turbo-props generating 5180 ESHP at sea level and a Torque of 75 kgs / cm. Engines were tucked on top of the wings for good ground clearance, and a swept up tail for easy loading. It was the most appropriate replacement for the Packet. Indeed, today, AN-32s roam the Indian skies just as the Packets did. The vibrations match those of the Packet, the prop noise snuffs out speech, and the whine of the jet is beyond all permissible decibels. The differences

are that the AN-32 flies faster than the Packet, climbs higher than the Packet, and is fully pressurised. It was truly a versatile replacement.

Crew and Aircraft Selection

How the IAF allots tail numbers to various aircraft is a mystery to most pilots. It is rumoured that the initials of engineering officers or logistics officers involved in the technical discussions and actual procurement are used. In 1962, a C-119 Packet with tail number BK 511 was selected to pioneer the landing at DBO. It was a tested airplane, it had done many flights into and out of Ladakh airfields, the engineers had tirelessly and lovingly fine-tuned the Cyclone 3500 and the Orpheus engines. At the controls would be Squadron Leader Raje, with Squadron Leader Phillipose as second pilot, Wing Commander Mukherjee as navigator and Warrant Officer Yadav as Flight Engineer. Adding to this robust and self-assured crew were Air Commodore Ananthanarayanan and with him was late AVM Pinto, then Air Officer Commanding-in-Chief (AOC-in-C), Operational Command, now re-designated Western Air Command (WAC).

Packet Determinants. It was decided to not just land BK 511 at DBO, but because of the prevailing politico-military imperatives, 32 soldiers were also on board along with the AOC-in-C. In those days, technology and simulation was primitive compared to today. So the Packet parameters had to be worked out based on what had been experienced during landings and take-offs at Leh, Thoise, Fukche, Chushul, with intelligent extrapolation, to ascertain if BK 511 would stop on the strip, and take-off safely. The Reverse Thrust on the Packet was very effective, the landing speed would be about 110 knots IAS, the gross weight would be well below the max 72,000 lbs, and the Single Engine performance with Jet Pack was definitely a safe environment .

From Chandigarh to DBO in May 2008. Forty-six years later, the choice for trial landing with AN-32 fell to Group Captain Suryakant Chafekar, CO of No 48 Squadron. With him were Wing Commander Mahesh Aserkar, Wing Commander Ray and Junior Warrant Officer Ram Niwas Verma. In addition Air Marshal Pranab Barbora, the AOC-in-C of WAC, was on board to witness the historic landing at DBO. It looked exactly as it did 46 years ago, in 1962.

Unique Considerations for AN-32. The aircraft selected was K-2755. Extrapolation of performance graphs to 16,500 feet altitude and for the short runway length revealed limitations. Since the Auxiliary Power Unit (APU), used for starting main engines, would not perform above 14,000 ft, the engines would have to be kept running on ground, and fuel for that was to be factored. Tyre pressure was reduced for the soft soil conditions, and that the landing speed would be about 280 km/hr was kept in mind. This was much higher than the usual speed of 200 km/hr, and higher than Max Braking Speed of 250 km/hr. A higher True Air Speed (TAS) due to the high altitude increased the turn radius of the aircraft. DBO was predominantly unprepared and 'kutcha', and a bumpy landing followed by an equally bumpy take-off was expected. The AN-32, being heavier than the Packet, raised further questions: what damage would occur to the soil? How would the Single Isolated Wheel Loading (SIWL) impact the airstrip? High mountains surround DBO on all but the eastern side, and after take-off in a southerly direction, an immediate right turn is the correct way out. To keep weight as low as possible, it was decided that K-2755 would take-off from DBO and land at Thoise for refuelling. Finally, strong winds with mountain waves, unpredictable weather, sudden gusts on the ground are perennial problems in the hilly regions and these have to be studied and catered for. For Chafekar and his crew, these were the factors that would determine how they executed the trial landing and indeed the "trial take-off".

Landings: Then and Now

On 23 July 1962, Squadron Leader Raje gently lifted BK-511 off from Srinagar on a crisp Kashmiri morning with AVM Pinto and 32 soldiers. One wonders what these johnnies were told about the trial landing, and how they were as much pioneers as the Packet and its crew. A right turn towards Zoji La, and thence along the roaring Indus past Dras, Kargil, Nimo, Leh, Thoise, Tri Junction, past Siachen base, and into the DBO bowl. Those who have not flown into Ladakh, will find it difficult to picture the speed with which the sun ascends. The author has had the privilege of flying into Ladakh for more than 15 years on flights originating from Chandigarh/Sarsawa. The colours are vivid, the sky a beautiful azure, snow-capped peaks turning from white to gold and then white again. Raje and his crew were planning their approach and landing, listening intently for the slightest change in engine noise, willing the engine instruments

to remain steady and true. From 22,000 ft they descended to 18,000 over DBO. Raje circled DBO with its cross airstrips at 17,000 ft and made a dummy approach to finally come in for that moment of truth. As he recalls, “ We were now on finals with wheels and flaps down, the edge of the airstrip rushing up towards us, I throttled back, she touched down, Reverse thrust, and I wondered whether she will stop within the length and she did”. Bless the Packet. In typical understated exhilaration, the crew heard, “Good show” from their AOC-in-C. BK -511 was the first aircraft to land at 16,500 ft in the Himalayas, an unmatched feat anywhere. Engines were kept running, soldiers disembarked, hot tea was served by the Army unit, and just to make the event as routine as possible, a few sick jawans were loaded into the Packet for the return journey. Full power opened on all three engines, brakes released and BK 511 lumbered, not accelerating as desired because of the soft ground, engine parameters were normal, as she hit hard surface the aircraft sprang forward, speed built up, Raje lifted her gently, turned right almost immediately, to avoid the hill in front, and smoothly started climbing back towards Srinagar. Aviation history had been rewritten by the Indian Air Force. It was July 1962, cameras were prohibited during forward area operations, satellite imagery was non-existent, digital photography was 30 years away, visuals of that momentous event are sadly unavailable with anyone – just memories and written words.



AN-32 Landing at DBO

Four decades later, Group Captain Chafekar and crew repeated this historic event in an AN-32. Chafekar carried out five trial flights in and around DBO. Circuit patterns were checked, terrain clearances from all directions were proven, single

engine performance during approach and landing were simulated, escape routes in emergencies were determined. The ground reconnaissance showed that the air strip, 2200 metres long and 53 metres wide, had an unpaved surface with loose pebbles at many places, the strip had no markings, and the chosen parking area needed strengthening. At many places PSP sheets would have to be hammered in to obviate tyre burst. Landing would very much be possible after the engineers repaired and strengthened the air strip and the parking area, something 235 Engineering Regiment of the Army assured would be done. Accordingly, the centre line was painted, jerry cans were installed and numbered as the Distance To Go Markers (DTGM) along the Western edge, drained engine oil was liberally sprayed and at times poured to bind the soil and harden it.

On 31 May 2008, K-2755 and a second AN-32 took off from Chandigarh. To reach DBO within acceptable temperatures and get as much power out of the engines, Chafekar had planned take-off from Chandigarh at 0450 hrs. The second AN-32, piloted by Air Commodore Nair, AOC of Chandigarh, was a last minute addition. This was for several reasons. First, to orbit at about 500 ft above DBO and monitor activity from across the LAC. Second, to be able to report any emergency with the trial landing, and finally, to capture on video, the approach and landing for posterity and training of aircrew.

Forward area weather reported cloudy skies but fit for landings and drops. It is pertinent to appreciate that weather forecasting facilities in Ladakh are still quite unreliable despite the technology available. It is the first flight from Chandigarh, called 'Weather Recce' that transmits the actual weather experienced, and it is the captain of the weather recce who clears further flights for landings and or supply drops. Both AN-32s were airborne in quick succession, climbing into a grey navy blue sky over Chandigarh, heading North for the Himalayas. Bright sunshine greeted the aircraft as they made their way past Tso Moriri, Kar Tso, across the Indus heading northwards, east of Leh, over Khardung La, at Tri Junction, past the terminal moraines of Siachen glacier and into the DBO bowl. With landing gear extended and flaps down, Chafekar and his crew brought K-2755 on final approach for RW 01 at DBO. As calculated, the Rate of Descent was twice that at Chandigarh. The aircraft roared across 01 dumb-bell under his steady hands at 280 kmh, throttles were chopped, and exactly fourteen

minutes past six a.m, history had been made when the 27,000 kgs AN-32 touched down on DBO.

Air Marshal Barbora, AOC-in-C stepped out and sweets were presented to the Army unit on the ground in full appreciation of a most magnificent job done in so short a time at these heights. Barbora would later tell the press corps that, “This place is so high and bereft of oxygen, my cigarette lighter refused to light up”. After about 15 minutes it was time to return. Chafekar had kept the engines running, and now lined up on 19 dumb-bell, opened full power which generated just 65% of sea level torque, brakes off, a huge cloud of dust churned up, and a not too encouraging acceleration ensued. Air Speed Indicators register late at altitude and is well known to pilots, but Chafekar wanted a speed to lift off, he got it, and gently eased K-2755 off DBO, and like Raje had 46 years earlier, immediately turned right to avoid the hill in front, and climbed away, with Nair now leading the way back to Thoise.

Aftermath

Jubilations were in order and were indulged. What is pertinent is that a scientific, truly professional methodology was prosecuted in planning and execution of the trial landing of K-2755 at DBO. From the initiation of the idea of activating DBO for AN-32s, through reconnaissance, ground inspections, rebuilding of the air strip, establishing a monitor aircraft overhead, selecting the crew and extrapolating performance graphs, everything was planned and deliberated. For the Army jawans at DBO, the ‘Annabattis’ as they have christened the AN-32s, were now right at their doorstep instead of just flying overhead and dropping parachuted loads. Soon regular flights would be flown into DBO, confirming that reinforcements could be inducted swiftly and assuredly, a morale booster for the Army and strategists. For the international student of matters military, this trial landing is to be noted not as an aggressive posture, but as a confirmation of India’s consistent policy of defending her lands with certainty and determination. DBO is not a launching pad for offensive operations as some may aver – it is not so, it cannot be so. But maintaining DBO by landing AN-32s is indeed the fulcrum for the defence in that sector, and that is what the Indian Air Force has achieved with the Indian Army.

Author: Anant G Bewoor

The author, Gp Capt A G Bewoor VM (Retd), is an IAF veteran with 28 years of service. An exceptional professional with vast operational and instructional experience on heavy transport and trainer aircraft, he was involved in airlift missions in India's IPKF operations in Sri Lanka and in paradrop operations in 'OP Cactus' to rescue the Maldives government from a coup take over.



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