

# THE 707 IS FIFTY

**An aviation milestone was passed with little ceremony earlier this year when the granddaddy of all American jetliners achieved its half century.**

On 15 July 1954 a prototype four-engined jet transport roared down the runway for the first time at Boeing's Renton Airfield near Seattle and dragged itself into the air, a carpet of brown smoke spewing from its exhausts. Prosaically designated the model 367-80 to confuse any industrial spies who might have been sniffing around the project, the origin of this sleek machine with its swept-



Cunard Eagle 707 approaching runway 28L (as it was) at Heathrow in 1962.

back wings was the United States Air Force (USAF) requirement for a fast new tanker, to enable air-to-air refuelling of its thirsty fighters.

The 'Dash Eighty' project was a private venture gamble for Boeing. The company had prospered during the Second World War and the Cold War period which followed. Heavy Boeing B17 Fortresses and B29 Superfortresses had helped to bomb Germany and Japan into submission in the 1940s and now B47 Stratojets and B52 Stratofortresses would carry nuclear bombs into Soviet territory if the President so ordered. The Dash Eighty, now named 'Stratotanker', drew heavily on the design and construction of Boeing's jet bombers. It was fast and it was strong – one exuberant Boeing test pilot incurred the wrath of his bosses by barrel-rolling the aircraft.

In the arena of civil aviation, Boeing's prowess was unspectacular. Before the war they had sold a few of their Astroliners, unremarkable machines except that they were the first airliners to feature pressurised cabins, allowing them to cruise above 10,000 feet, thereby avoiding low-level weather and also improving fuel mileage. During and immediately after the war the civil airliner market was pretty well wrapped up by the rival Douglas company. The world's air passengers lumbered through the bumpy skies in noisy, pedestrian, propeller-driven DC3s and DC4s. Or if they were lucky, the faster, quieter, pressurised DC6s and DC7s and turboprop British-built Viscounts. Lockheed competed with their elegant Super Constellation and Boeing with their podgy Stratocruiser, a civil variant of the B29 bomber, but sales of the latter were few. On the drawing boards at Douglas was taking shape their first jet airliner, the DC8, remarkably similar in arrangement and expected performance to Boeing's Dash Eighty. The sales force at Douglas did not expect difficulty in persuading their current customers to sign up for the new jet, horrendously expensive though it was.

A collective sigh of relief was heard in Seattle when the USAF ordered more than 250 of Boeing's Stratotankers. It secured the future for the manufacturer and also meant that they could go ahead with development of the civil transport variant of the tanker. This new project now carried the title Boeing 707.

1958 was the year jet airliner travel literally took off. Boeing 707s and Douglas DC8s flew domestically within the USA and reached across the oceans to the continents. In the early years no-one knew which company would win the sales battle and which aircraft would prove superior. Flag carrier Pan Am hedged its bets by ordering both the Boeing and Douglas products. Airlines around the world rushed to join the flying revolution. French manufacturer Sud Aviation found success with their beautiful Caravelle twin-jet medium range aircraft.

In October 1958, British state airline BOAC beat Pan Am in the race to be first across the Atlantic with fare-paying passengers in jets. But the margin was only three weeks and the victory was hollow – BOAC's De Havilland Comet 4s were smaller and slower than the American machines. The original Comet had been a world-beater in the early 1950s, the first commercial jet airliner to enter service. But design flaws – and bad luck – tragically brought down several aircraft in the fleet and the type was grounded. In the hiatus between the demise of the Mark 1 and the gestation of the Mark 4, Britain's advancement in civil aeronautics faltered while Boeing and Douglas pressed ahead. De Havilland generously passed on to the American manufacturers the data on metal fatigue they had painstakingly gathered from their investigations into the Comet crashes.



The author took this photo of BOAC 707 Foxtrot Echo at Heathrow in 1962 (from the top of a blast fence - in those innocent pre-terrorism days no-one minded young reggie-spotters wandering around the maintenance areas). This aircraft came to grief four years later flying near Mount Fuji, Japan. It encountered extreme turbulence and disintegrated, with the loss of all on board.

BOAC lost no time in lobbying the Government for their own fleet of 707s and the politicians, fretting over an economy still struggling to recover after the devastation of war, not to mention the recent Suez crisis, acquiesced only reluctantly. The outflow of dollars was stemmed partially by demanding that BOAC equip their 707s with British Rolls-Royce Conway engines.

Not everyone was enthusiastic about the new era. Anti-noise groups sprang up near airports in communities suddenly

assaulted by the scream of jets, an ear-splitting contrast to the low growl of the old piston-engined propeller types. Suppression of noise and smoke was not a priority among jet turbine engine designers. As a young plane-spotter, this writer considered the sight and sound of the new aircraft thrilling. But my mother, nerves still jangling from her experience as a nurse in London during the Blitz, found them intolerable. My friends and

I would cycle over to Heathrow to log registrations and take photos. The deliciously outrageous cacophony of a BOAC 707 throttling up at the start of its take-off run shook the ground and made the air in your lungs tremble – those monstrous Conways sounded even louder than the Pratt & Witneys fitted in other 707s and DC8s.

Boeing's jet steadily grew in range and performance. Later variants managed to lift 150 tonnes of mass into the air, a good proportion of which was fuel for the profligate engines of the time. The DC8 also developed and sold well enough, but not as strongly as the 707. Douglas was not finished though – their design engineers came up with the highly successful short range DC9 twinjet.

In Britain, Cunard Eagle, the airline part-owned by the famous shipping company, ordered two 707s for its services to the USA. Briefly these aircraft flew in the distinctive Eagle livery but then Cunard sold its interest in Eagle and allied itself with BOAC's operation and the two 707s were subsumed into the state carrier's fleet. One of these machines came to a tragic end at Heathrow in 1968. Just after take-off an engine caught fire and separated from the wing and the aircraft was forced to return immediately for an emergency landing. The cockpit crew did a superb job, successfully landing the fuel-laden aircraft on Heathrow's short runway 05R with no ILS\* guidance to help them. The aircraft burnt to a skeleton but the passengers and crew survived apart from just five fatalities, including a stewardess who was posthumously awarded the George Cross for her selfless devotion to duty, helping her passengers to escape until she was overcome by poisonous smoke and unable to rescue herself.

Although most of the world's 707 fleet has now been recycled into saucepans and other aluminium products, several still earn their keep as freighters. Military versions continue to fly as tankers and transports. In several air forces, 707 variants sporting vast circular radar dishes mounted on their fuselages act as monitors of hostile air activity.

From the 707 evolved two designs which are still the workhorses of today's airlines – the twin-engined 737 and the mighty 747 jumbo, still the largest civil aircraft in the world. Of course, today's Boeing family also includes the 757, 767 and 777, the latter large twin replacing older models of the jumbo. Despite the healthy sales of its DC9, Douglas could not match Boeing's products. Safety scares (to some extent unwarranted) overshadowed the DC10 tri-jet. Merger with military manufacturer McDonnell provided a temporary respite but recovery could not be sustained and eventually the all-powerful rival from Seattle took control. Only one Douglas design is still in production, the MD95 twin-jet, itself a derivative of the old DC9. The height of ignominy for Douglas aficionados, it is marketed today as the Boeing 717.

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\*ILS - instrument landing system: an arrangement of radio beams giving horizontal and vertical guidance to aircraft approaching to land.