

# Lone Fortress in the Stratosphere

**MARTYN CHORLTON** outlines 90 Squadron's brief experience with the Boeing Fortress I from May 1941 to February 1942, earning the unit the Battle Honours Berlin 1941, Channel & North Sea 1941, Fortress Europe 1941, German Ports 1941 and Ruhr 1941

**L**ong before Britain entered into the famous Lend-Lease bill (US Congress Act, HR 1776) which was signed by President Franklin D. Roosevelt on March 11, 1941, the country had already ordered a large number of military aircraft from the USA. Before the bill was passed, Britain had ordered 1,480 different military aircraft and despite the Air Ministry's enthusiasm for the Boeing Model 299 (B-17 Flying Fortress), the grand total only included 20 of them.

This initial order for the Fortress was drawn from an original US Government contract for 38 B-17Cs, an aircraft that was not being received with great enthusiasm by the US Army Air Corps (USAAC). While the USAAC was still keen to get the B-17 into service, it did not feel that the B-17C was combat-ready, while the RAF, which was desperate for bombers, especially those that could fly at high altitude, did.

The RAF's 20 B-17Cs were redesignated as the Fortress I and given the Boeing reference of Model 299T. Modifications to Fortress I standard included the fitment of self-sealing fuel tanks and the addition of some armour plating and a quartet of 1,200 h.p. Wright R-1820 G-205A Cyclone engines. The Fortress I weighed 31,150lb empty and 45,470lb fully loaded with fuel including the maximum 4,400lb bomb load. One of the main attractions for the RAF was that the Fortress I had a service ceiling of 33,300ft and a healthy maximum speed of 320 m.p.h. at 20,000ft. Armed with one 0.303in machine-gun in the nose and four 0.5in machine-guns in ventral, dorsal and beam positions, the numbers, on paper at least, looked promising.

## Building the Atlantic Bridge

The first of the RAF's Fortress Is were completed at Boeing's factory in Seattle, Washington, in September 1940. It was not until December that 30 RAF aircrew began to gather at Uxbridge in preparation for a

journey across the Atlantic by ship, which saw the group arrive in Nova Scotia on December 31. After reporting to the Atlantic Ferry Organisation headquarters in Montreal, Canada, the group, which had been handpicked from a variety of Coastal Command units to train on the B-17C Fortress I, were sent to establishments in the USA.

Several aircrews were transferred to the TWA (Trans-World Airlines) headquarters in the city of Kansas. The airline was flying several Boeing Stratoliners at the time which were said to have very similar handling characteristics to the B-17. The majority of aircrew were dispatched to March Field, California, to be attached to the 93rd Bomb Sqn of the 19th Bombardment Group, specifically for training on the B-17C. However, virtually all of the B-17Cs completed by Boeing were delivered to McChord Field, Tacoma, and it was here that the bulk of the RAF aircrew training was done between January and April 1941 and also where the future RAF machines were painted in USAAC markings and displayed US-style serials.

**LEFT: Boeing Fortress I AM528, while wearing a serial number that, unbeknown to Boeing, was already allocated by Lockheed to a Hudson V. Re-serialised as AN528, the aircraft was lost on the ground at Polebrook on July 3, 1941 after an engine caught fire.**

ALL VIA MARTYN CHORLTON

Prior to being taken over by the RAF which, incidentally, was a cash deal carried out at Portland, Oregon, to avoid

sales tax, the Fortresses were transferred to Wright Field, Ohio, where each aircraft was camouflaged and allocated a serial between AM518 and AM537 (this was later changed to AN518-AN537). Each aircraft was then ferried to Montreal via Floyd Bennett Field, New York, before flying to Gander, Newfoundland.

On April 14, 1941, the first RAF Fortress I, AN521, departed Gander, arriving at Prestwick, Scotland, in a record-breaking 8hr 26min. Carrying Maj Walshe of the USAAC, who would provide technical assistance on the operation of the Fortress I, AN521

later arrived at 37 Maintenance Unit at Burtonwood, where additional RAF standard equipment was fitted. (US servicemen in Britain at this time were

subjected to a great deal of secrecy because their country remained neutral until December 1941.)

## The Fortress I enters service

By 1919, 90 Sqn had already been reformed and disbanded twice despite only being created in October 1917 from the nucleus of 10 Training Sqn at Shawbury. The unit was reformed yet again in March 1937, this time as part of Bomber Command (with which it was destined to stay until 1965), and was briefly equipped with the Hawker Hind before receiving the more long-term Bristol Blenheim. By April 6, 1940, the unit was disbanded again, this time, along



**Fortress Is AN531 and AN534 pictured at Gander prior to their delivery to RAF Burtonwood, via Ayr, in April 1941.**

with 35 Sqn, to form 17 Operational Training Unit (OTU) at Upwood which had been the home of 90 Sqn since September 1939. Ironically, the Blenheims of 17 OTU made use of a new airfield's hard runways during the spring of 1941, located a mere ten miles to the east, because Upwood was suffering from flooding. Polebrook, from June 1941, was destined to be the new home of 90 Sqn, but in the meantime the unit was reformed at Watton on May 3, 1941.

It was at Watton that 90 Sqn took 19 of the 20 Fortress Is on strength. Only AN524 was allocated to the Coastal Command Development Unit, based at Carew Cheriton. After a brief detachment at Great Massingham,

Yorkshire. Of the eight crew on board, there was only one survivor, Flt Lt Steward AFC, a medical officer from the Royal Aircraft Establishment at Farnborough, who was studying the effects of high-altitude flight. He described how the Fortress entered cumulus cloud at 33,000ft, became heavily iced-up, before hailstones came through the open gun ports of the aircraft. Moments later, after dropping to 25,000ft, the port wing broke off and the fuselage broke in half. Steward was a very lucky man, having been sitting in the rear fuselage at the time he managed to escape from the wreckage at 12,000ft. Of the seven who perished, one was Lt Bradley who was on secondment from the USAAC.

## ***"The squadron's task while at Kinloss was to attack the German battleship Admiral Von Scheer which was moored in Oslo harbour"***

90 Sqn moved to West Raynham to continue working up on the Fortress.

It was not long before the squadron began to get a taste of things to come. On June 22, Fortress I, AN522, with Fg Off J.C.M. Hawley at the controls, took off for an air test at 1430hr. Three and half hours later, that Fortress had broken up, scattering itself across a wide area of moorland ten miles north of Catterick in

## ***Polebrook and "ops"***

By late June, 90 Sqn was moved again, this time to Polebrook from where the unit would finally begin operations. After further flying training

and more high-altitude tests, 90 Sqn was declared operational but not before another Fortress was lost, this time without loss of life. On July 3, Fortress I, AN528, was undergoing maintenance at 2310hr when one of the aircraft's Cyclone engines was test run. Unfortunately, the engine caught fire five minutes later and, before the airfield fire service was on the scene, the

**BELOW: Bought by the British Purchasing Commission as Boeing Model 299Ts, ten of the 20 Fortress Is purchased are visible in this image. Nearest to the camera is AM518, one of the survivors which, after service with both 90 and 220 Sqns, was returned to the USAAF on December 1, 1946 and re-serialled 40-2066 (originally AN530).**





**ABOVE:** Fortress I AN529 (ex-40-2065) pictured at Ayr after making an 8hr flight across the North Atlantic from Canada. The bomber was wrecked during a forced-landing near Fort Maddalena in Libya while en route to Shallufa on November 8, 1941.

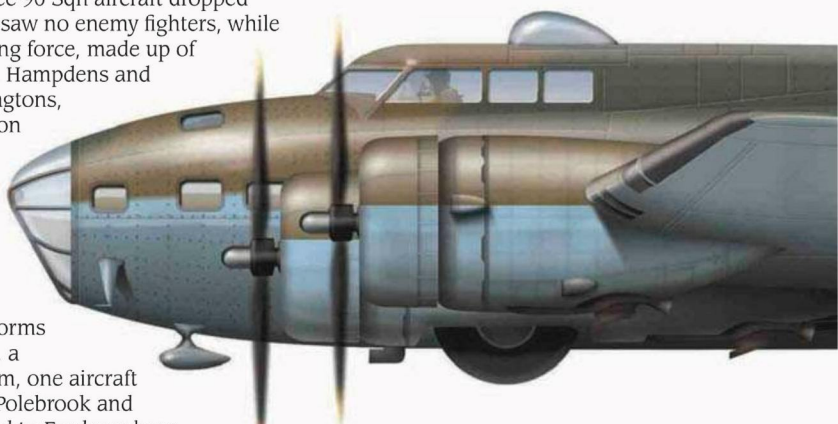
Fortress had gone up in smoke.

The RAF's first Fortress operation took place on July 8, 1941, when three aircraft were detailed to bomb Wilhelmshaven. It was an inauspicious start as only two aircraft were able to drop their bombs, although local reports stated that the dock area had been hit and a large post office had been destroyed. Fourteen were killed and 25 injured, while all three Fortresses returned back to Polebrook safely.

Operations were not planned again until July 23 when three more Fortress Is were detailed to bomb Berlin, but poor weather conditions meant that the raid was scrubbed. The following day, 90 Sqn was called upon to join its first big raid which was an attack on the German battle cruiser *Gneisenau*, berthed in Brest harbour but believed to be about to leave. Three Fortress Is were ordered to attack the warship from 30,000ft which was supposed to achieve the dual purpose of not only bombing the *Gneisenau* but also drawing enemy fighters up and away from the rest of the 150 attacking bombers and escorting

fighters. The three 90 Sqn aircraft dropped their bombs but saw no enemy fighters, while the main attacking force, made up of 18 Handley Page Hampdens and 70 Vickers Wellingtons, claimed six hits on the *Gneisenau*.

July 26 saw a pair of Fortress Is head for Hamburg but, after encountering heavy thunderstorms and severe icing, a recurring problem, one aircraft headed back to Polebrook and the other diverted to Emden where the bomb load was dropped. Two days later, in another accident which replicated what had happened to AN522 on June 22, Fortress I AN534 broke up while carrying out a high altitude test. Not long after taking off from Polebrook at 1700hr, the bomber entered turbulence and this was followed by the failure



of the starboard wing. The aircraft plunged to the ground one mile north of Stoke Albany in Northamptonshire. All seven on board were killed, including 1st Lt L.W. Hendricks of the USAAC.

Three more Fortress Is attacked Bremen and Kiel on August 2, but only the latter was actually bombed. Only light damage on the ground was later reported and one person was killed and nine injured. It was a similarly dreary story four days later when a pair of Fortress Is set out for Brest only to jettison their bombs into the sea.

The squadron's biggest operational day to date with the Fortress took place on August 16, when two aircraft were sent to Brest and two more to Düsseldorf. The results of the attacks are not known, but Plt Off Sturmey and his crew, in AN523, had a tough time over Brest when they were attacked by five German fighters at a height of 32,000ft; the highest recorded interception of the war to date. During the aerial assault, three of the crew, Flt Sgt A. Ambrose, Sgt H. Needle and Sgt M.J. Leahy, were all killed and Flt Sgt Goldsmith was injured. Sturmey managed to nurse the damaged Fortress to Roborough, Plymouth, where a crash-landing was carried out allowing the four surviving crew to escape. This was the first "operational" loss of a Fortress I in RAF service.

No further success was achieved by 90 Sqn for the remainder of August; three turned back from Düsseldorf on August 21, one on August 29 and, on August 31, three aircraft were detailed to attack Hamburg, Kiel and Bremen but only the latter was bombed.

## The twilight operations

Some success was drawn from operations on



**ABOVE:** While an RAF Warrant Officer writes down details of the disembarking crew, the USAAC Sergeant in the foreground looks none too happy to have been caught on camera. He has good reason - the Americans' presence in Britain at the time was secret, the country still being many months from entering the Second World War.

September 2 when one of three Fortress Is caused some serious damage in Bremen while those despatched to Duisburg and Hamburg failed to attack. On September 5, five Fortress Is, AN525, AN532, AN533, AN535 (spare aircraft) and AN536 flew north on detachment to Kinloss in Scotland. The squadron's task while at Kinloss was to attack the German battleship *Admiral Von Scheer* which was moored in Oslo harbour at the time. Four aircraft dispatched on September 6 failed to find the ship, but did manage to bomb a secondary target from 30,000ft with mixed results. A second trip was planned but the eager crews had to wait until a second batch of bombs was transported up from Polebrook. Another four aircraft set out on September 8, only to find heavy cloud over the target and, even at high altitude, a hostile reception. The first aircraft to be attacked was that flown

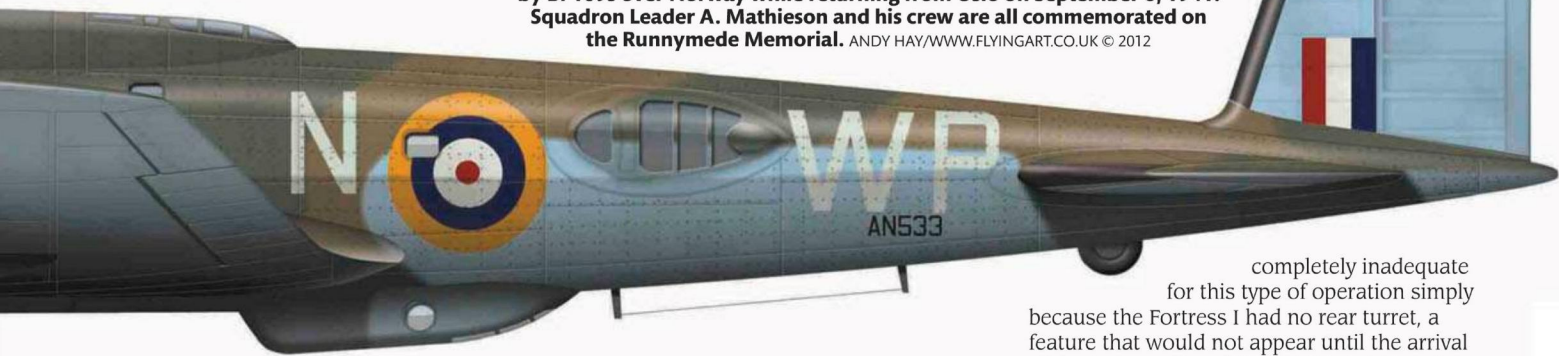
determined air gunners shot down two more Bf 109s. Witnesses in the only aircraft not to be attacked on this raid, AN532, thought Romans had dived away in an attempt to extinguish the flames but, even if this was the case, it was a manoeuvre that was not recovered from and the Fortress was observed to crash in a mountainous region, 60 miles north of Kristiansand.

In an attempt to escape the Bf 109s, Flt Sgt Wood, flying AN535, jettisoned his bombs and put the Fortress into a climb, eventually reaching 34,000ft. However, when the crew in the rear of the aircraft began to suffer with oxygen supply problems, Wood was forced to descend to 24,000ft which gave the enemy the opportunity to attack again. During the ensuing battle, one air gunner was killed, another was injured and the radio operator passed out because of a lack of oxygen when

another managed to bomb Emden five days later, and the final attempt by the RAF to operate the Fortress by day came on September 25. This final operation just about summed up the success that 90 Sqn had experienced with the type, when a single aircraft returned from Emden without dropping a bomb.

During this period of Fortress operations, 90 Sqn had flown 51 sorties of which 25 had been abandoned due to a variety of problems including frozen guns and turbo-superchargers, engine failures at altitude and even difficulties with the aircraft's Norden bomb-sight. The defensive armament, despite some success against enemy fighters, was declared

**BELOW:** Boeing Fortress I AN533/WP-N of 90 Sqn, which was shot down by Bf 109s over Norway while returning from Oslo on September 6, 1941. Squadron Leader A. Mathieson and his crew are all commemorated on the Runnymede Memorial. ANDY HAY/WWW.FLYINGART.CO.UK © 2012



**“The Fortress burst into flames and plummeted earthward, but not before the determined air gunners shot down two more Bf 109s”**

by Fg Off D.A.A. Romans DFC, AN525, at 25,000ft by a pair of Messerschmitt Bf 109s, but the guns of Sgt H. Merrill RCAF and Sgt R.H. Beattie beat the attackers off. Attention was then turned to Sqn Ldr A. Mathieson in AN533, whose gunners also reacted quickly. Two Bf 109s were credited to the air gunners of Mathieson's aircraft before it slipped into some heavy clouds and disappeared without trace with the loss of all seven crew.

The surviving Bf 109s then returned to attack AN525 for a second time, finding their mark. The Fortress burst into flames and plummeted earthward, but not before the

his supply tube was shot through by an enemy round. Two engines were also knocked out, but Wood managed to trade height for distance and crash-landed back at Kinloss. However, the bomber would never fly again.

With morale at an all-time low, what was left of the Kinloss detachment returned to Polebrook. It was increasingly clear to the aircrews, let alone to senior staff, that the Fortress I was not cut out for small formation high-altitude operations.

Only three more operations were flown by 90 Sqn; one on September 15 when a single Fortress I turned back from Cologne,

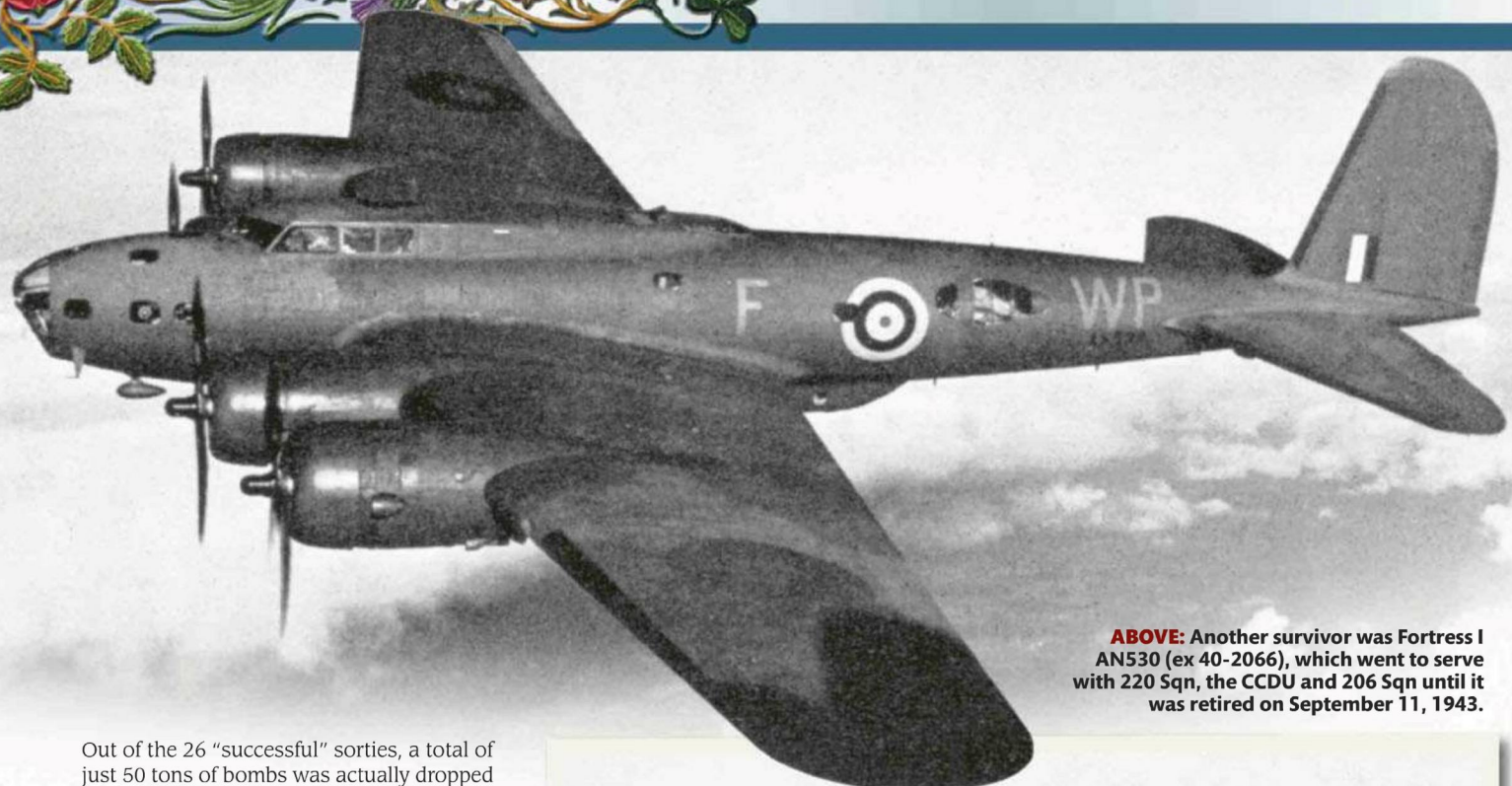
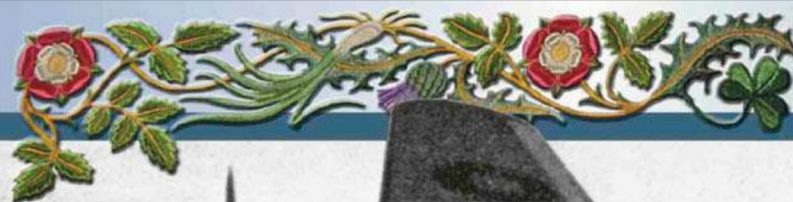
completely inadequate for this type of operation simply because the Fortress I had no rear turret, a feature that would not appear until the arrival of the Fortress II and III (B-17E, B-17F and B-17G), which entered Coastal Command service in April 1942. ▶

**RIGHT:** Originally formed on October 8, 1917, 90 Sqn was reformed a further five times before it was finally disbanded as a Vickers Valiant unit on March 1, 1965.



**BELOW:** One of the few original Fortress Is to enjoy a lengthy career in RAF service was ex-40-2044, AN519. Following service with 90 Sqn, the aircraft passed through the A&AEE, RAE, 206 Sqn, 59 Sqn, 1 OTU and finally 1674 CU before being struck off charge on December 12, 1943.





**ABOVE:** Another survivor was Fortress I AN530 (ex 40-2066), which went to serve with 220 Sqn, the CCDU and 206 Sqn until it was retired on September 11, 1943.

Out of the 26 "successful" sorties, a total of just 50 tons of bombs was actually dropped and later intelligence reports could only confirm that a mere one ton had fallen directly on to the target.

### Fortress I swansong

During late September and throughout October 1941, 90 Sqn spent its time on flying training and fighter affiliation exercises. To keep the unit flying, a few Blenheims were also taken on strength from October. However, during November, the unit was called upon to provide four aircraft for a detachment in the Middle East. Only three of them made it to the final destination of Shallufa in Egypt. Fortress I AN529 crash-landed 80 miles west of Fort Maddalena in Libya on November 8. The survivors were employed on night operations to Benghazi in Libya and various shipping targets across the Mediterranean. On December 1, the 90 Sqn detachment was absorbed into the 220 Sqn detachment, also at Shallufa, a unit which was operating another American-built type, the Lockheed Hudson, from Wick, Scotland.

During January 1942, 220 Sqn arrived on detachment at Polebrook from Nutts Corner, Northern Ireland, and would take over 90 Sqn's remaining Fortress Is. These dropped in number again on January 9, when AN536 broke up in cloud and crashed at Shepreth, near Foxton, in Cambridgeshire, with the loss of all seven crew. By the end of January, 220 Sqn had flown all of 90 Sqn's remaining aircraft back out to Northern Ireland from where, a few weeks later, they would join the detachment at Shallufa.

The same day as 90 Sqn's final Fortress loss, 1653 Conversion Unit (CU) was formed



**The longest serving Fortress I with the RAF was AN531, which was not retired until January 17, 1945. Note one of the many distinctive features of the early Fortress under the rear fuselage. This was a ventral gun blister contained within a metal housing nicknamed the "bathtub turret", which would be replaced by the ball turret in later variants of the B-17.**

at Polebrook, under the control of 8 Group, to convert Consolidated Liberator crews for Middle Eastern squadrons. The majority of aircrew and some ground crew from 90 Sqn were transferred to the CU which remained at Polebrook until June 1942 when it was moved to Burn.

On February 10, 1942, 90 Sqn was officially absorbed into 1653 CU ending the fourth chapter of the bomber unit's history. Reformulated again in November 1942 at Bottesford with the Short Stirling, 90 Sqn went on to make a significant contribution to the Battle of the Ruhr, the destruction of Hamburg and Peenemünde. From May 1944, the Avro Lancaster began to arrive and, by the end of the war, 90 Sqn had dropped 13,433 tons of bombs and laid 2,414 mines since becoming operational again in January 1943.

This latter period of the squadron's history clearly overshadows the frustrating time that it had during 1941 with the Fortress I. A fundamentally sound aircraft, the Fortress I was basically misemployed despite the best efforts and recommendations of USAAC personnel. The aircraft was never designed to operate in such small numbers at such extreme altitudes. The RAF was clearly expecting far too much from an aircraft that was not fully tested in combat, not to mention some basic design flaws which only exposed themselves when the bomber was pushed to the limit. It was a hard lesson to be learned by a single unit in such a short space of time. **A**

**BELOW:** Fortress I AN529, down in the remote desert, 80 miles from Fort Maddalena in Libya.

