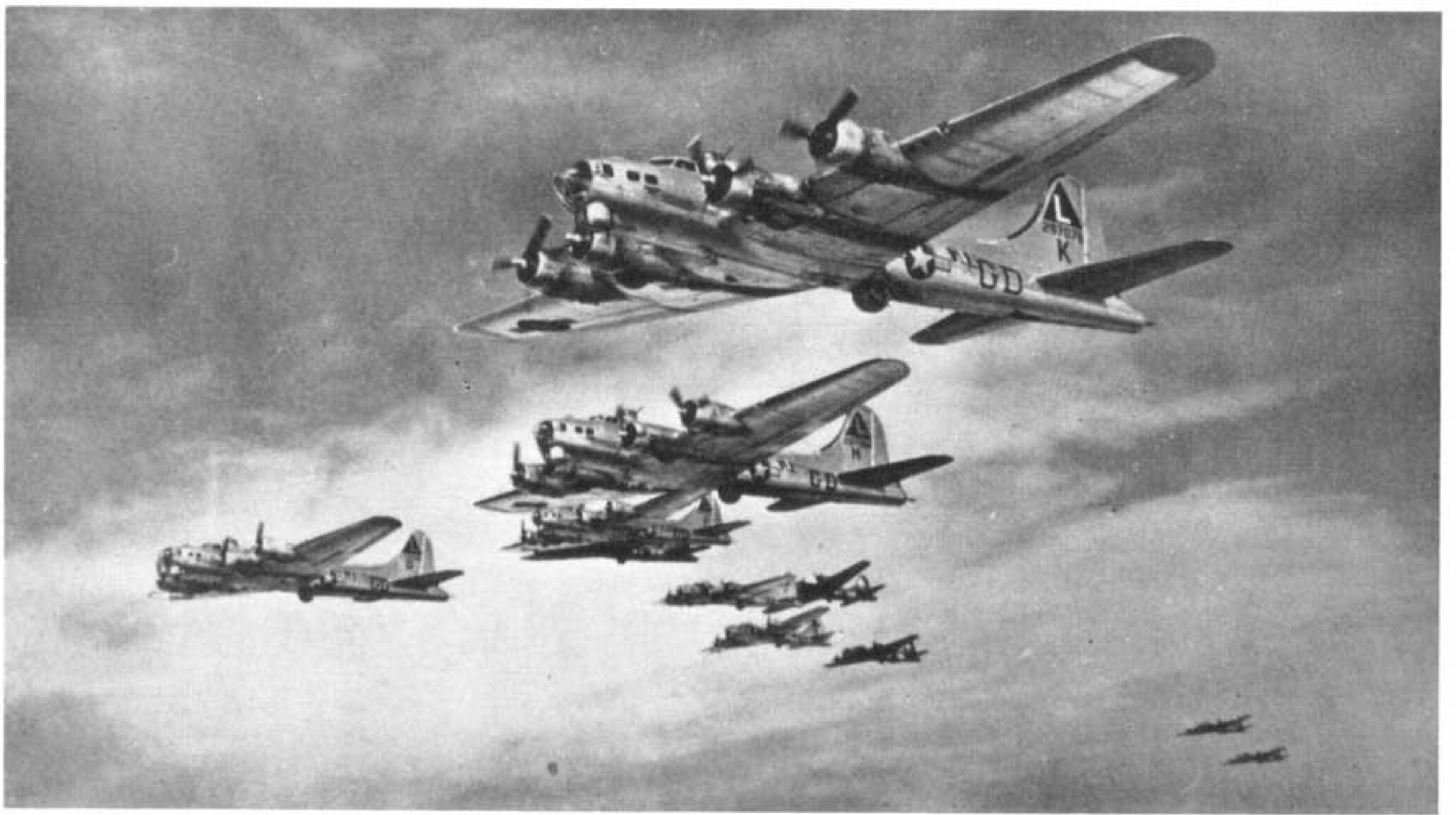


# PROFILE

# 205

## BOEING B-17G FLYING FORTRESS





*Tucked-in close for mutual protection is this 381st BG formation heading towards Germany for another daylight mission.*

(Photo: U.S.A.F.)

## Boeing B-17G Flying Fortress

Roger A. Freeman

THE United States Army Air Forces' mode of aerial bombardment involving heavily-armed aircraft fighting their way in daylight mass formation to a target is epitomised by the Boeing Flying Fortress. Like Britain's Spitfire, this aircraft has become legend with an assured place in the world's history books, possibly to the exclusion of more deserving types, if the criterion is contribution to victory. There are many reasons why the Boeing B-17 has been elevated to this position. The pioneer (World War II) rôle was certainly dramatic and its air crews frequently heroic. Perhaps the greatest boost to fame of the Flying Fortress lies in the sheer magic of its name, a name that proved so apt in battle.

The most fortified and ferocious of all Flying Fortresses was the YB-40; an abortive attempt to provide an aerial destroyer to escort bomber formations. In July 1943, after the YB-40's deficiencies in speed, awkwardness in control and weaknesses in firepower became apparent, General Ira Eaker conveyed his disapproval to his chief in the United States. Nevertheless he told General "Hap" Arnold that the nose turret was a highly thought of item that the men of the Eighth Air Force in England wanted fitted to the standard Flying Fortress. So it was that the power nose turret—or "chin" turret to use the popular term—came to be the distinguishing feature of the last Fortress model from the U.S. plants, the B-17G.

Produced in greater numbers than any other single model of a USAAF bomber, more B-17Gs were also lost in combat than any other single model.

The B-17G was basically an advanced stage in the development of the "big tail"-configuration Flying Fortress introduced with the B-17E. In fact, Boeing did not consider the differences between the B-17E, 'F,\*

\* See Profile Number 77

and 'G warranted a change in their Company designation, all being identified as Model 299 O.

The prototype Boeing B-17F-BO was a B-17F-115-BO (USAAF serial no. 42-30631) taken from the production line and modified to carry the Bendix turret under the nose; plus a few other refinements, chiefly internal. In July/August '43 the B-17G was phased into production at the three plants already manufacturing the Fortress; namely Boeing at Seattle (suffix -BO), Douglas at Long Beach (-DL) and Lockheed-Vega at Burbank (-VE). On September 4, 1943 the first aircraft was turned over to the USAAF.

Early Douglas-built Fortresses with chin turrets were still produced under the B-17F designation, a total of 76 in blocks B-17F-70-DL, '75-DL and '80-DL. Block numbers served to identify the changes incorporated in production at the plants or at modification centres so that, theoretically, aircraft with the same block numbers should have identical components and equipment. However, as far as the Eighth Air Force was concerned these Douglas-built blocks of Flying Fortress were always termed B-17Gs; also, they were usually listed as such in documents. True Douglas B-17Gs started with a solitary B-17G-5-DL; quantity production followed with the B-17G-10-DL.

The Bendix electrically-powered chin turret arose from the need to give the Flying Fortress improved and more positive firepower to meet the successfully evolved head-on attack tactics of the *Luftwaffe* fighters. The earlier B-17F had been modified to take one or a pair of hand-held "fifty-caliber" (0.50-in) machine-guns protruding through the Perspex nose-piece and operated by the bombardier. This installation was wanting in field of fire and was extremely unwieldy. It restricted the bombardier's movements in the nose and, to a



*The first Douglas (-DL) series-production Flying Fortress (B-17F-70-DL) to have the distinctive "chin" turret takes-off from an English airfield Spring 1944. (Photo: U.S.A.F.)*

certain extent, his field of vision. In contrast the chin turret gave excellent cover to the frontal approach area and left the Perspex nosepiece completely unobstructed; thus affording superb all-round visibility. Only the remote-control firing mechanism and gun sight were situated inside the nose. The two Model M-2 Brownings (with 300 rounds per gun), a recoil absorbing mechanism, hydraulic gun chargers and firing solenoids were all housed in the turret body. The entire unit was both neatly streamlined and compact and had little effect on the aerodynamic qualities of the Fortress.

To make way for the accommodation of the turret, the radio compass (DF) loop was re-sited just ahead of the bomb-bay doors and slightly to the left of the body

centreline. Other external changes involved the two pitot-static masts on each side of the B-17F's nose being superseded by a single pitot-pressure mast on the left side and flush-mounted static fittings, one just above the nose entrance door and the other in the same area on the other side of the fuselage.

Internal changes included improvements to the navigator's quarters. A larger table with map shelf above, swivel chair to aid access, and a step beneath the astro-dome to aid taking sights. Rearrangement of the gyro (flux gate) compass, radio-compass, interphones, jack boxes and heated seat rheostats completed the improvements. Advances were also made in the bomb control system by substituting the cable and gear type co-ordinating unit for the former push-pull

*This 91st Bomb Group B-17G (serial 42-37767; code letters LL:D) was classified a total wreck after a wheels-up emergency landing at Cambridge Airport (England) on the afternoon of December 21, 1943. (Photo: U.S.A.F.)*





Compare two types of tail gun installations. Above: A 390th Bomb Group B-17G-15-BO and (below) a 96th BG B-17G-30-DL. The "Cheyenne" gun position in 42-38133 was one of the earliest of this experimental installation. (Photos: U.S.A.F.)



rod system. This provided better safety factors in operation of both bomb racks and doors.

During the 23 months that the B-17G remained in production, refinements were frequently introduced. There were thirteen different block number changes at two plants and ten at the other.\* From a technician's viewpoint the final production B-17Gs were very different from the early versions if outwardly there was little alteration to be observed.

\* A list of B-17G block numbers appear on pages 19 and 20.

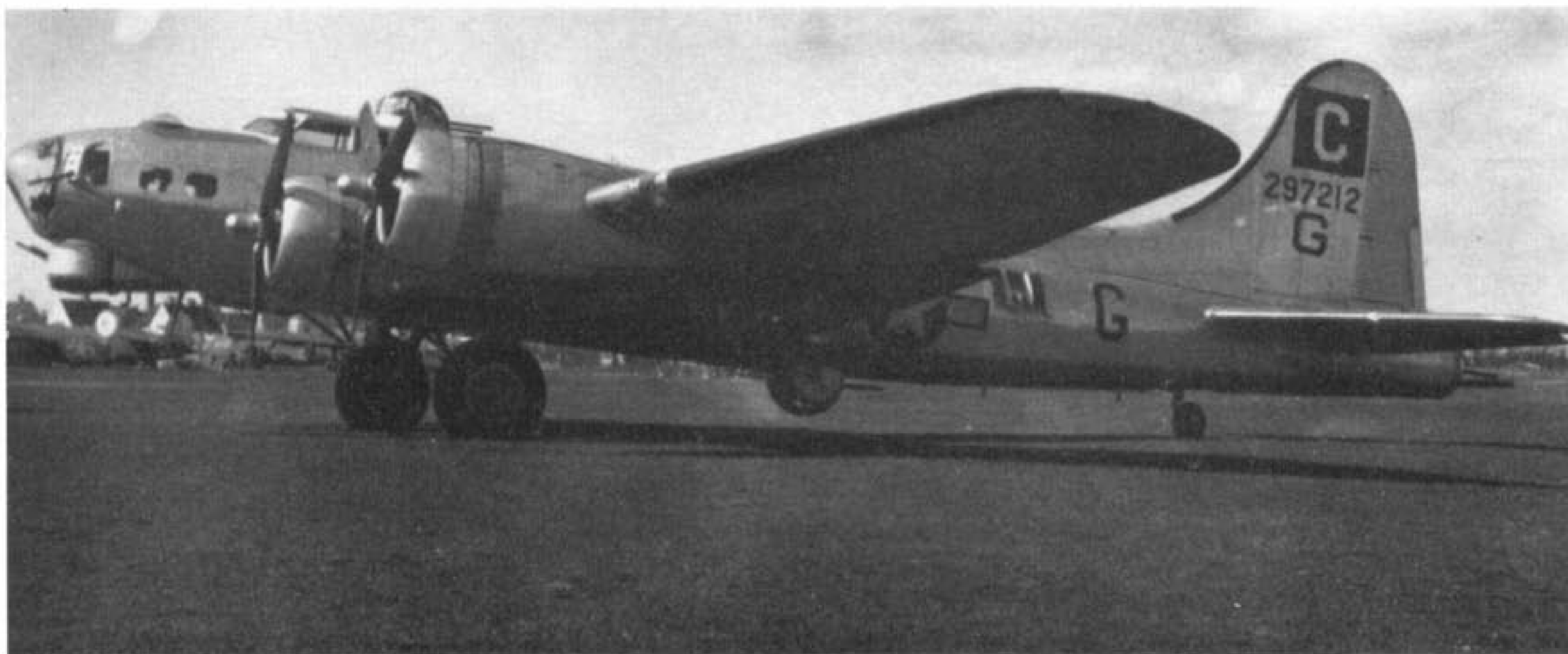
*In a hangar at Bury St. Edmunds (West Suffolk, England) the staggered positions for the "waist" gunners are clearly seen.*  
(Photo: U.S.A.F.)



One change that did affect the B-17G's outline, a new type of tail turret, was introduced on the Boeing line from block '90-BO; the Vega line from block 55-VE and Douglas line from 50-DL. This was unofficially known as the "Cheyenne" turret after the modification centre where experimental work had been carried out. The hand-operated guns could now be manipulated to cover a much larger field of fire and a reflector-sight was substituted for the ring-and-bead type formerly fitted. The new installation gave the gunner more room and better visibility; it also made the B-17G five inches shorter in overall length.

At the end of 1943, in an effort to lessen the discomfort of the gunners in the rear fuselage, fixed glazed "waist" windows were introduced to deflect the icy blast which had previously rushed in at this point. A flexible gun mounting was incorporated, although the swivel limits proved too generous resulting in many cracked windows. This was followed by the staggering of these waist-gun apertures with that on the right side of the fuselage being further forward. Gunners then had more room to work without getting in each others way. Eventually, however, it became common for only one gunner to fly and man both waist window weapons.

Another armament change introduced in the winter of 1944-5 was the deletion of the radio operator's Browning which projected through the upper hatch amidships. The value of this defensive position had always been in doubt because of the relatively poor vantage point.



*For the 96th Bomb Group, an unusual "first". In this case the first "silver" (all-metal finish) B-17G to seek refuge in Sweden following battle damage in a daylight attack on Posen (Poznan, west-central Poland). (Photo: via O. Sundgren)*

Other refinements introduced during the course of production included all-electric controls for the turbo-superchargers (previously hydraulic), more precise cockpit instrumentation, an emergency oil supply for propeller feathering and an improved engine fire extinguisher system.

From the pilot's angle, one of the most welcome additions to the B-17G was the so-called "formation stick" which, as the name suggests, was a device for reducing the physical effort required to fly a heavily-loaded Flying Fortress in relatively tight formation at high altitude. Basically the formation stick was an electrically-motivated power boost for the control column, it was operated by a pistol-grip device attached to the column. This first appeared on B-17G-100-BOs, 70-DLs and 80-VEs in early 1945.

In common with most military aircraft of its day, weight increase went hand in hand with practical development. The average B-17G when empty was 2,135 lb heavier than the B-17F, and consequently its performance fell short in many respects. Maximum speed in level flight at 25,000 ft. was 287 m.p.h. as against the 299 m.p.h. performance of the B-17F. The increase in weight also reduced the service ceiling by nearly 2,000 ft. (to about 35,500 ft.) and, consequently, limited the operational range. However, this drop in performance made little difference to the execution of the type of operations in which the Flying Fortresses were engaged over Europe. In any case, the performance of individual B-17s differed considerably due to the condition of the engines and other factors. The basic requirement was for each B-17G to meet the standard of combat formation including a climb to 25,000 ft. with full bomb and fuel load in two hours and the ability to maintain an average 160 m.p.h. at this altitude for some six hours.

The B-17G's high-altitude performance was improved with the introduction of more powerful turbo-superchargers in the winter of 1944-5. The purpose of turbo-superchargers was to boost manifold pressures for maximum take-off power and to maintain sea-level pressure in the rarified air of high altitude. Apart

from some accessory changes, the B-17G's Cyclone engines remained basically unchanged throughout production.

Handling qualities of the B-17G were little different from the earlier B-17F. Pilots found it equally docile and pleasant to fly outside the confines of a large formation. Formation flying at altitude was always an exhausting and difficult business but the B-17 was far and away more suited to that environment than any of the other contemporaries.

With the war in Europe drawing to a close, production of the B-17G was tapered-off in the spring of 1945. Boeing's Seattle plant, which had been turning out 16 complete Flying Fortresses every 24 hours in the peak production period during the previous summer, was the first to stop, completing its last B-17G, (43-39508) on April 13, 1945. The final B-17G (44-85841) came from the Lockheed Vega plant and passed inspection on July 29, 1945. A grand total of 8,680 B-17Gs had been produced: the largest share by

*A Lockheed-Vega B-17G-VE about to land at Denver (Colorado, U.S.A.) prior to delivery to R.A.F. Bomber Command (serial HB 809). Noteworthy are the retracted H2X radome and the "barred"-type waist window. (Photo: W. T. Larkins, A.A.H.S.)*





*An R.A.F. Fortress III with chin turret replaced by H2S radome. This particular B-17G is believed to have served with No. 214 Squadron in Bomber Command's 100 Group in an RCM (Radio Counter Measures) rôle. (Photo: J. R. Rabbets)*

Boeing, 4,035; 2,395 by Douglas; and 2,250 by Lockheed-Vega.

The cost of a B-17G in 1944 averaged US\$204,370 but, in 1945, production was running smoothly enough for the average to fall to \$187,742 each.

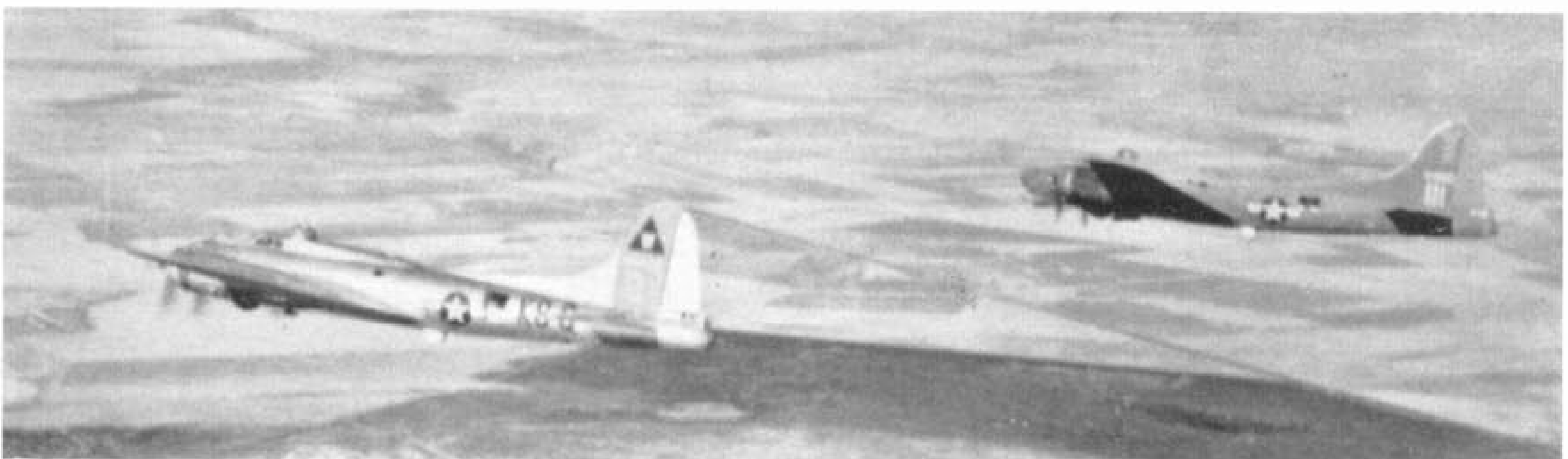
In September 1943, when the first B-17Gs were delivered to the USAAF, Flying Fortress units in combat theatres were almost exclusively assigned to the Eighth Air Force in the United Kingdom and to the 12th Air Force in North Africa. The former had 15 and the latter four Groups, each comprising four Squadrons engaged in a bombardment rôle.\* Early model B-17s operating in the Pacific and South East Asia Theatres or war areas had been largely withdrawn from bombing units in favour of the Consolidated B-24 Liberator which had a much better range capability and was thus more suited to operations that often entailed extremely long distances.

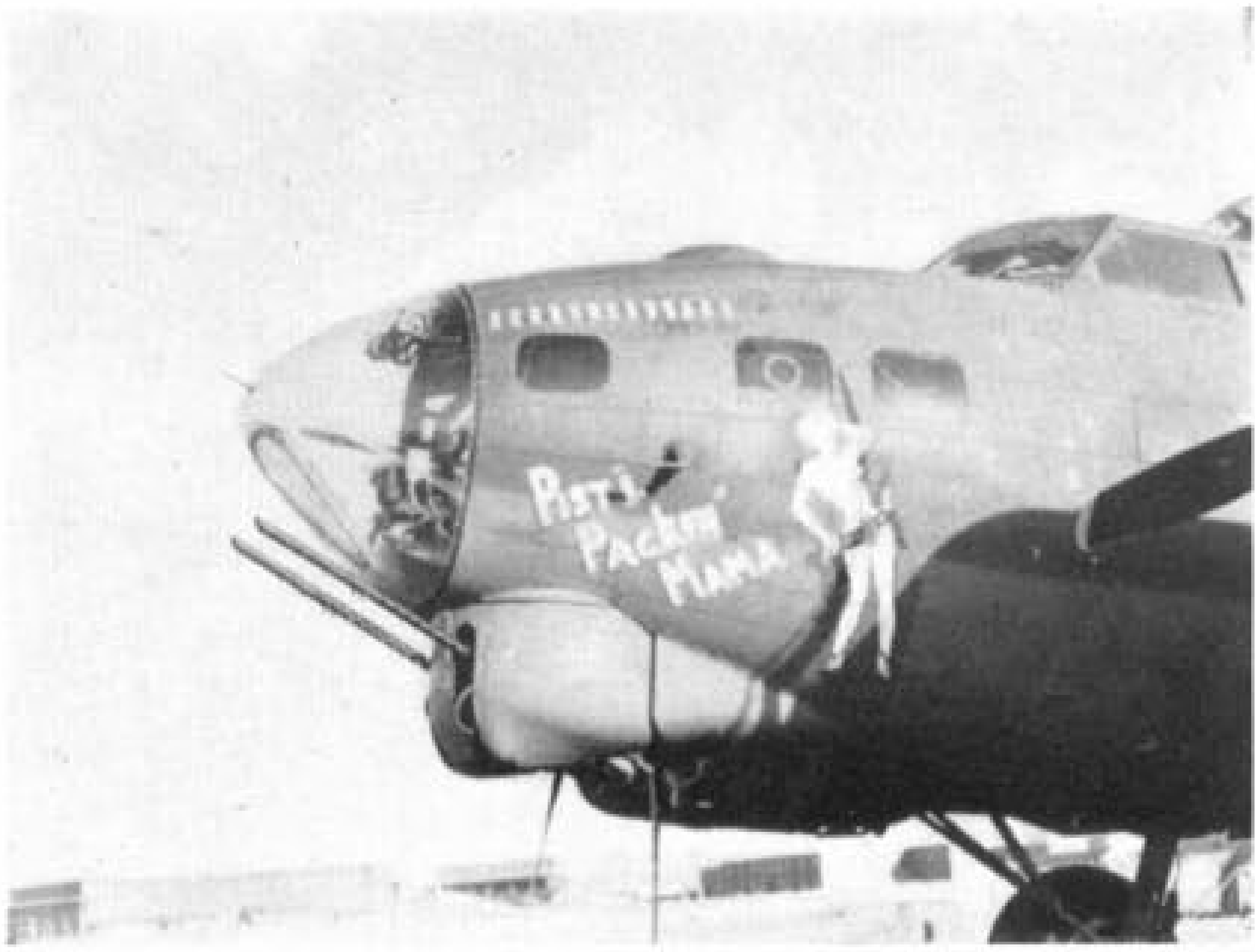
\* The official but clumsy designation "Bombardment Group/Squadron" was commonly shortened to Bomb Group (or BG).

It was to Europe then, and the UK in particular, that the first B-17Gs were sent as replacement aircraft. Douglas-production Flying Fortresses were the first to reach the squadrons, being B-17F-70-DLs, '75-DLs and '80-DLs which, as recorded earlier, were referred to as B-17Gs by the Eighth Air Force. Some were operational on the first October '43 raids and two (42-3516 and 42-37741) failed to return to their respective bases at Bury St. Edmunds and Chelveston after a major mission against the German *Reich* on October 4, 1943. The first Douglas-designated B-17G, (a 'G-5-DL, 42-3563) was assigned to the 381st Bomb Group at Ridgewell. Badly damaged by rocket projectiles on the Ankelm mission (October 9) 42-3563 managed to limp back to Royal Air Force Station Wittering for repair; only to be lost two months later over Bremen.

The existence of the B-17G in 1943 was still

*A rare photograph recording B-17Gs of the Eighth (398th BG) and Fifteenth Air Forces (483rd BG) flying over Italy. Both are BTO (Bombing Through Overcast) radar Flying Fortresses. The 398th BG was based at Nuthampstead (Hertfordshire, England) and the 483rd BG at Sterparone (Southern Italy). (Photo: U.S.A.F.)*





The 91st BG's Pist'l Packin' Mama and Just Plain Lonesome offer comparison between the long and short nose pieces (Douglas and Vega respectively) with the famed Norden bombsight exposed.



Early Douglas-built B-17Gs, like the 388th BG's Little Willie, were hurried into operational service without cheek guns which left scope for unit improvisation as shown with the 94th BG's Friday 13th.

officially secret, although if the Germans had not discovered the wreckage of a nose turret as a result of

"Cheek" gun installations were staggered and the shape of window varied as on this 385th BG B-17G (Boeing) named Off Spring.



the October 9 mission, they were about to be presented with full details from their intelligence agents. The crew of a 96th Bomb Group B-17F-75-DL (42-3543) did not think they could fly their damaged bomber back to Snetterton Heath on this date and sought sanctuary at Bulltofta in neutral Sweden.

The first Boeing-built B-17G to go down did not return from the epic Schweinfurt mission of October 14, although the first B-17G from the Boeing plant survived until May 1944 when it was wrecked in a crash in the UK. Vega's first B-17G (42-38758) was assigned to the 92nd Bomb Group at Podington and was lost on a major mission, January 11, 1944. By February 1944 B-17Gs far outnumbered B-17Fs in the Eighth Air Force and, by June, only a handful of the 'Fs remained for combat operations. In the Mediterranean theatre, the rate of attrition was not so high during the final months of 1943 and the B-17Fs survived a little longer.

The first new group to receive the B-17G as initial combat equipment was the 401st Bomb Group; to which many of the early machines from the Boeing

line were sent just prior to the Group leaving its base at Great Falls (Montana) to fly to the UK. The 401st reached Deenethorpe (Northamptonshire) in early November and the Group was operational before the end of the month. The second group to receive B-17Gs as all-original combat equipment was the 447th Bomb Group which was also sent to the Eighth Air Force, reaching Rattlesden in late November 1943. The 447th was followed by the 452nd and 457th Groups who flew their B-17Gs to the UK in January 1944.

Early in the New Year, the USAAF had abandoned the use of camouflage on most combat aircraft and B-17Gs in the '-35-BO block and from the '-20-VE and '-35-DL blocks appeared in metal finish apart from insignia and olive drab panels on cowlings and nose to protect pilots from glare. The new groups destined for the Mediterranean theatre received many of the early 'silver' Flying Fortresses. These were the 463rd and 483rd Bomb Groups which arrived at Celone and Tortorella, their respective bases in Italy, in March 1944.

The four B-17 groups of the 12th Air Force had been re-assigned to the new 15th Air Force in November



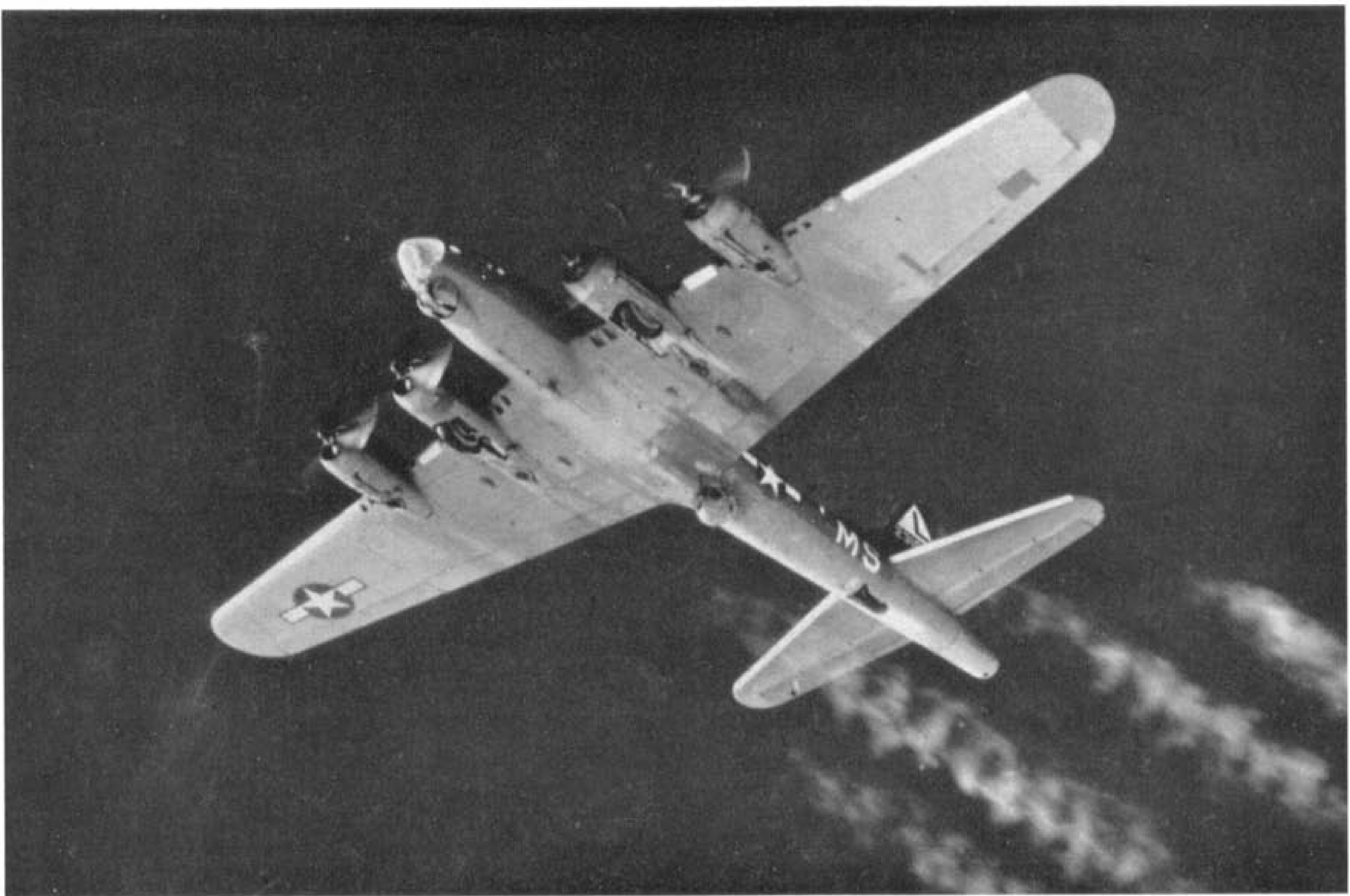
*This 447th BG Flying Fortress Hey Mabel! proves the point that a wheels-up landing usually resulted in the chin turret buckling the nose section.*  
(Photo: U.S.A.F.)

1943 when this was formed to partner the Eighth in the daylight strategic bombing campaign. Located in

*The 452nd Bomb Group in action over Germany using the BTO method, dropping bombs on sky markers (one is visible) dropped by a "pathfinder" lead ship. Contrails to the rear are from the protective cover of escort fighters.*  
(Photo: H. Miller)







A 381st Bomb Group early-production Boeing (-BO) B-17G flying high over enemy territory and casting the characteristic tell-tale vapour trails behind each engine. (Photo: U.S.A.F.)

southern Italy, chiefly around the flat Foggia area, the 15th's field of operations extended in an arc through southern France and Germany and into the Balkans. The majority of the 21 bomb groups the 15th was eventually to have were equipped with Liberators. The six Flying Fortress groups forming a wing (the 5th Bombardment) frequently operated against different targets from those visited by the B-24s.

The last B-17 bomb group sent overseas was the 398th Bomb Group which arrived in England in April 1944. This Group had originally trained replacement crews in the US but was switched to combat duties to make-up the complement of the Eighth Air Force's 1st Wing. The 398th had mostly "silver" B-17G-45-BOs as original equipment.

This, however, was not the limit of the USAAF's B-17 bomber force. The Eighth Air Force's 3rd Bombardment Division was composed partly of Flying Fortresses and partly of Liberators, and this mixture of units proved difficult to operate as a single force. At this date the commanders of the Eighth had come to favour the B-17 as more suited to the campaign they were waging and in consequence the five B-24 groups in 3rd Division were re-equipped with B-17Gs. These were the 486th, 487th, 490th, 493rd and 34th Bomb Groups; the conversion being carried out between July and early September 1944. The 34th Bomb Group was the last USAAF bombardment Group to be equipped with the Flying Fortress.

The B-17G had all the qualities of its predecessors when it came to taking punishment. There is much evidence in the form of photographs showing Fort-

resses that flew several hundred miles back to base with severe damage such as the loss of a stabiliser or most of the fin and rudder, a nose section, or gaping hole in the fuselage.

The greatest hazard with the Flying Fortress was fire; more probably fell victims of blazing wing fires than through any other cause. Otherwise, a Flying Fortress could absorb a great deal of cannon shell, bullet strikes and *flak* fragments and still fly on.

The need for a good bomb pattern—B-17 formations bombed on the sighting and signal of the lead aircraft—necessitated a closely-knit formation. While this had a good defensive advantage through the massed fire-power of many aircraft, it permitted only limited evasive action because of the danger of collisions. Evasive action, however, was one of the best defences against fighters making frontal passes and could also lessen the chance of the enemy fighter pilot scoring hits if the attack was from the rear. Many *Luftwaffe* pilots have remarked on the tendency of B-17s to fly a steady course while under attack, making easy targets. On the other hand, stable flight afforded air gunners a better opportunity of dealing with the attacking fighters. Hitting a fast-moving Messerschmitt Bf109 or Focke-Wulf FW190 with fire from a B-17 turret was extremely difficult; far more so than was ever appreciated during hostilities. Certainly there were some gifted marksmen gunners but they were a small minority; the average standard of gunnery being poor.

During 1944 when USAAF long-range fighter escort was available for the bombers all the way to targets, *Luftwaffe* attacks were usually fast hit-and-run



A B-17G of the 346th Bombardment Squadron, 99th BG dubbed 2nd Patches, on route to the U.S.S.R. from Italy during the first Fifteenth Air Force shuttle mission in June 1944. Largest patches are a new "silver finish" fin and rudder and outer wing panel. Note the red and white shark's mouth around the chin turret. (Photo: U.S.A.F.)

affairs. Attacking from the stern with heavily-armed and -armoured FW190s, the *Luftwaffe* found the most effective means of destroying the hardy Flying Fortress. In such circumstances even the B-17's heavy defensive fire was never a great deterrent.

Formation evasive action (slight changes in altitude and direction) was a highly effective means of escaping *flak* barrages of the radar-controlled anti-aircraft guns that became the chief tormenters of the Flying Fortress in the latter stages of hostilities. In the view of most USAAF aircrew, the 160-180 m.p.h. progress of a Flying Fortress formation through the dangers of the hostile air corridor was uncomfortably slow. This was particularly noticeable in instances where Flying Fortress units were invariably despatched to the more dangerous *flak*-protected targets such as Merseburg, Politz and Bohlen.

Despite heavy losses on many occasions—an average of 60 B-17s a week were being lost in combat or written-off in accidents during the summer of 1944, many individual Flying Fortresses that began operations in the winter of 1943-4 survived to the end of hostilities; several with over 100 missions to their



Tail gun positions in close-up. The experimental "Cheyenne" installation shows reflector sight (the Gunner is Sgt. Frank Domitz of the 483rd BG), while the original Boeing installation is identified by the simple ring-and-bead sight. (Photos: via E. Ferko and G. Zwanenburg)

A "100 Mission" B-17G (42-38084) which survived long enough to be assigned to two Bomb Groups (99th and 2nd). The photograph identifies this B-17's assignment to the 2nd BG (circle Y and single bar on the rudder in black and white) and the symbol under the tail serial confirms the 429th BS.

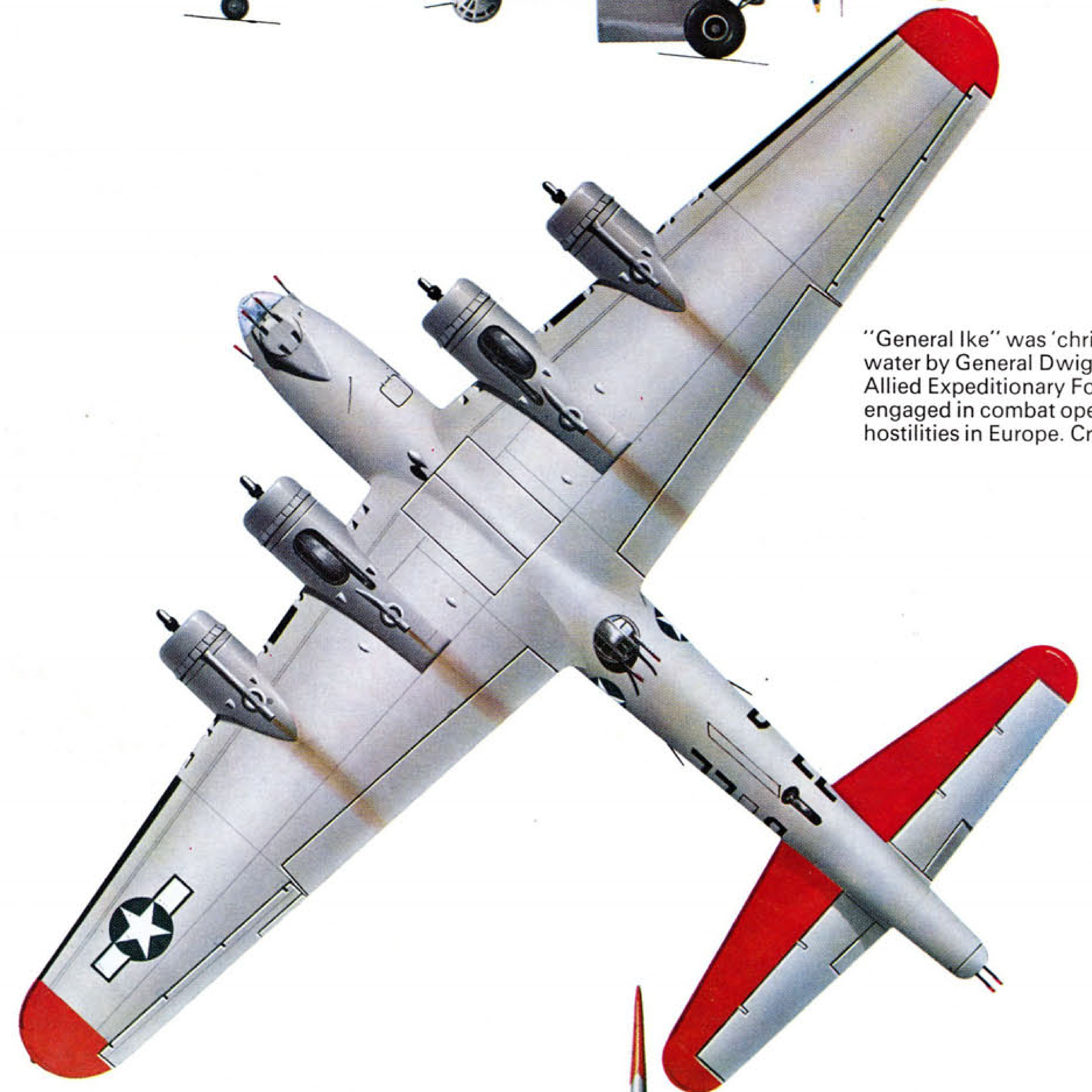
(Photo: R. Cavanagh)

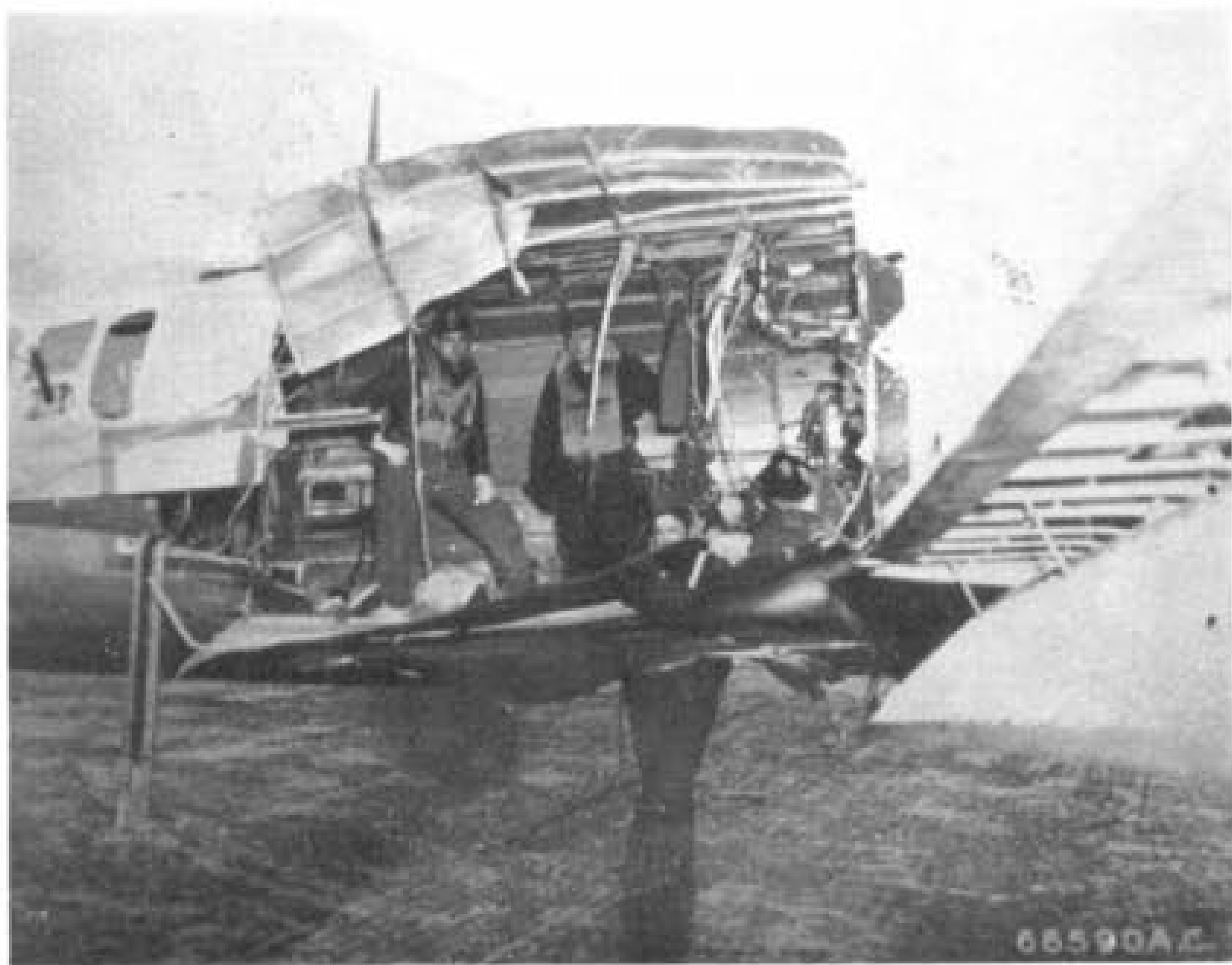


BOEING B-17G-40-BO FLYING FORTRESS of 401st Bombardment Squadron, 91st Bombardment Group, 1st Combat Bombardment Wing, U.S. Eighth Army Air Force. Bassingbourn, Cambridgeshire, England. January 1945.



"General Ike" was 'christened' with a bottle of Mississippi River water by General Dwight Eisenhower, Supreme Commander, Allied Expeditionary Forces, in April 1944. The aircraft was engaged in combat operations from that month until the end of hostilities in Europe. Crew Chief: Master Sergeant McDaniels.





A B-17-G (42-98004) of the 351st BG arrived back successfully despite a direct hit by flak blast which damaged the fuselage and tore away the ball turret. (Photo: U.S.A.F.)



A rocket projectile tore a large hole from the turret of yet another B-17G yet, miraculously, neither the gunner nor the pilots were harmed. (Photo: R. Barnes)

credit and a few with 130—150.

Some of the 100-mission veterans had noteworthy connections; for example, the 379th Bomb Group's *London Avenger* and 381st's *Rotherhithe's Revenge* were "bought" with war savings by London boroughs. Other "Londoners" including *Bermondsey* (384th) and *Tower of London* (91st) were not so lucky in battle. H.R.H. Princess Elizabeth graced the naming ceremony of the 306th's *Rose of York* which was later lost in the North Sea (with a BBC radio correspondent on board) after a mission to Berlin. General "Ike" Eisenhower performed a similar ceremony at Bassingbourn on *General Ike*, which survived the war. Captain William Thissell, USAAF, who piloted *General Ike* on many of its early missions recalled this B-17G "as a good Seventeen with no vices". *General Ike's* narrowest escape was in March 1945 when a flak burst severed the right inner propeller which slashed into the nose, luckily without hitting the occupants.

Numbers of B-17s in service with the USAAF

reached their peak in August 1944 when the inventory showed 4,574. Of these, 2,311 were in the continental USA at storage and modification centres and in some 28 replacement training squadrons. The remainder, 2,263 were overseas with all but 68 based in Europe. The Eighth Air Force had 1,829 on strength and the Fifteenth Air Force had 366. Thereafter B-17 totals in the USA declined both through conversion of training units to other types and the transfer of more B-17Gs to Europe where, by the war's close, some 2,800 were on hand. In the UK were 2,300 and 500 in Italy. At this time there were no fewer than 106 Fortress bombardment squadrons in the UK and 24 in Italy.

### WARTIME MODIFICATION AND ADAPTATION

The B-17G that reached the combat squadrons usually passed through two modification centres after leaving the manufacturing plant. The first was in the USA where the particular requirements specified by an US air force in a theatre of war were catered for and the second centre was a strategic depot in a theatre of war where recent innovations in the light of combat were carried out. While some modifications were external and affected the lines of the aircraft, the majority of alterations were internal and related to equipment. By the end of the war nearly 100 experimental modifications had been carried out on B-17s in the UK alone.

Twelve of the earliest B-17Gs were fitted with a nose radome which accommodated an H2X radar scanner which gave a "double-chin" turret shape. BTO (bombing through cloud) Flying Fortresses then had the ball turret removed and a retractable H2X radome installed in its place; the radar operator being situated in

*Proof that the Flying Fortress could take heavy punishment from flak and fighters. The B-17G serial 42-39789 flew back to base minus a complete stabiliser and mutilated rudder.*

(Photo: I.W.M.)





*The co-pilot's view from the right-hand seat. A rare photograph of the radome fully extended on the "lead ship". Markings identify B-17Gs of the 401st BG. The mission was to bomb Mannheim (Baden-Württemberg, south-west Germany) on February 1, 1945. (Photo: U.S.A.F.)*

the radio room. Many hundreds of B-17Gs had been modified in this way by the end of hostilities.

"Eagle", an improved type of terrain-following radar, was experimentally installed in a few B-17Gs. The scanner (which oscillated on a horizontal plane) was installed in an aerofoil covering resembling a miniature wing under the nose section.

Early in 1945, a vehicle requirement for airborne lifeboats involved the Flying Fortress. The B-17G's good handling characteristics and strong construction made it the most suitable choice for attaching the unwieldy boat. At least a dozen aircraft were modified for this work in Europe and made drops to "ditched" aircrew on a number of occasions from March 1945 onwards. As such these aircraft were designated ALB-17G; a local (theatre) designation.

Like the B-17F, the B-17G could be fitted with external under-wing bomb racks. In the spring of 1944 these were used to carry 1,000-lb glide bombs on an experimental mission and, in the following year, to deliver 4,000-lb rocket bombs. However, apart from these occasions the racks were rarely used by conventional bombing units—or, for that matter, installed.

Five B-17Gs were used in the *Aphrodite* programme as radio-controlled "flying bombs". Lightened by the removal of all armour and normal bombing equipment, they were loaded with 2,000-lb of high explosive. A two-man crew flew the "baby" to altitude, set it on course and passed control to the accompanying radio "mother ship" before bailing out and parachuting to safety. The control B-17G then nursed the "flying

*Seeing is believing! This B-17G managed to make a forced landing in a small ploughed field and, after being repaired, was made ready for an extra-short take-off. This was achieved by mounting 12 rocket-assist units under the wings. The Flying Fortress was airborne after a record 372 ft. (Photo: U.S.A.F.)*





Above and below: *Waiting for the end? A "cannibalised" B-17G sits in the scorching heat of a North African airfield while several thousands of miles to the west another more famous B-17G has the sun beating down on it in the Arizona Desert. This is Five Grand which was the 5,000th Flying Fortress (all variants) manufactured. The entire aircraft is covered with the signatures of the men and women who built Five Grand as well as those air crew who flew this B-17G. A combat record of 78 missions and two enemy fighter claims are inscribed on the fin.*  
 (Photos: I.W.M. and W. T. Larkins, A.A.H.S.)

bomb" to the enemy coast and by radio signal dived it into the selected target. The project was hardly successful from a military point of view although a good deal was learnt about radio control operations. These operations took place during the second half of 1944 and were conducted from airfields in East Anglia. The B-17G "drones" were subsequently identified by the designation BQ-7.

The B-17G was also employed in other rôles, including propaganda leaflet delivery by night, radio counter-measures by day and weather reconnaissance both in the Mediterranean and European theatres. The Flying Fortresses' high-altitude capabilities made them particularly popular for meteorological work.

Equipped with cameras for photographic mapping the B-17G was further designated F-9C. Very few were so modified and their use was chiefly confined to mapping photography in non-combat zones.

Many "War Weary" B-17Gs deemed no longer fit for operations flew out their days as ambulances, target tugs and transports. It was usual, in most instances, for turrets, armament and armour to be removed which led to several B-17Gs having a B-17F look. As transports, the bomb racks were removed and part of the bay blanked-off to give extra storage

facilities. Flying Fortresses in bombardment squadrons occasionally took part in supply dropping and, at the end of hostilities, in carrying food to Dutch civilians and returning prisoners of war to their homelands.

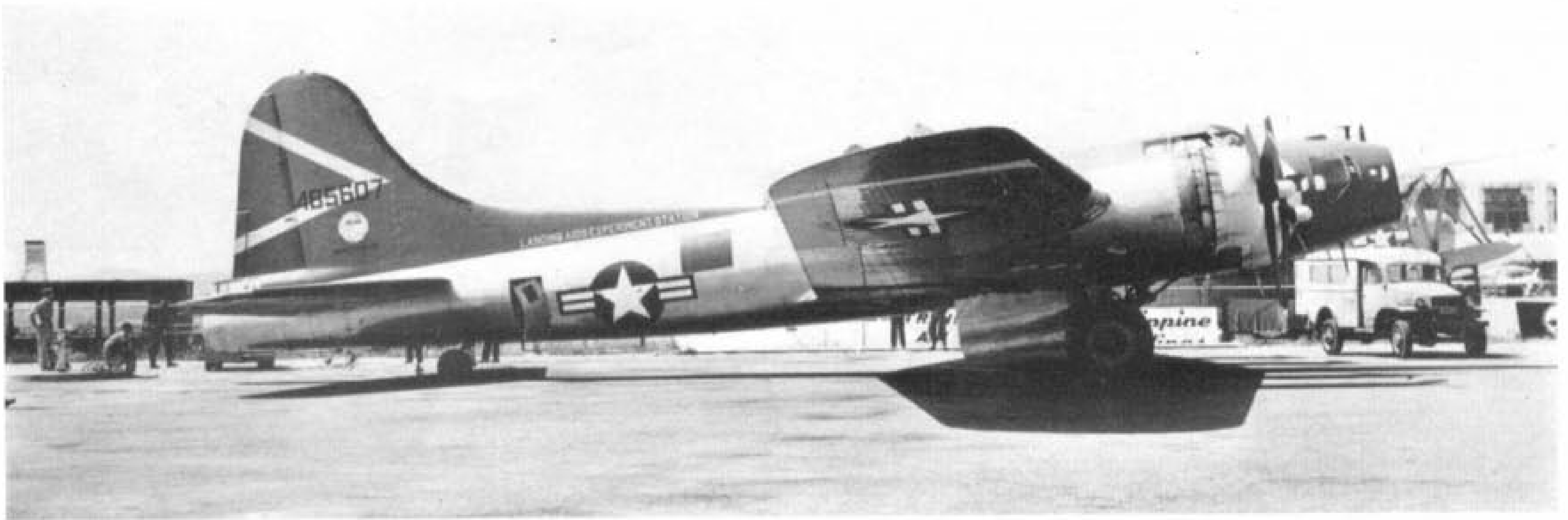
### RAF USAGE

The RAF did not favour the Fortress as a bomber but readily acknowledged its excellent performance at altitude and its good endurance. Thirty Boeing-built B-17Gs and 55 by Lockheed-Vega were acquired in the summer of 1944 plus a few others on transfer from the USAAF in the UK. Some went to RAF Coastal Command squadrons for long-range reconnaissance duties and others to the meteorological units for high-altitude weather reconnaissance. The remainder served with Nos. 214 and 223 Squadrons which conducted radio countermeasures in support of RAF Bomber Command operations. "Mandrel" and other jamming devices were carried to saturate German radar screens during Bomber Command night attacks.

### PEACETIME SURVIVORS

With the defeat of Nazi Germany the majority of B-17s in Europe were flown back to the USA and deposited





*A Vega-built B-17G-100-VE (44-85607) in 1947 when it was assigned to the U.S.A.F. Landing Aids Experiment Station.  
(Photo: W. T. Larkins, A.A.H.S.)*



*The last Boeing PB-1G with SAR (Search and Rescue) radar modifications.*

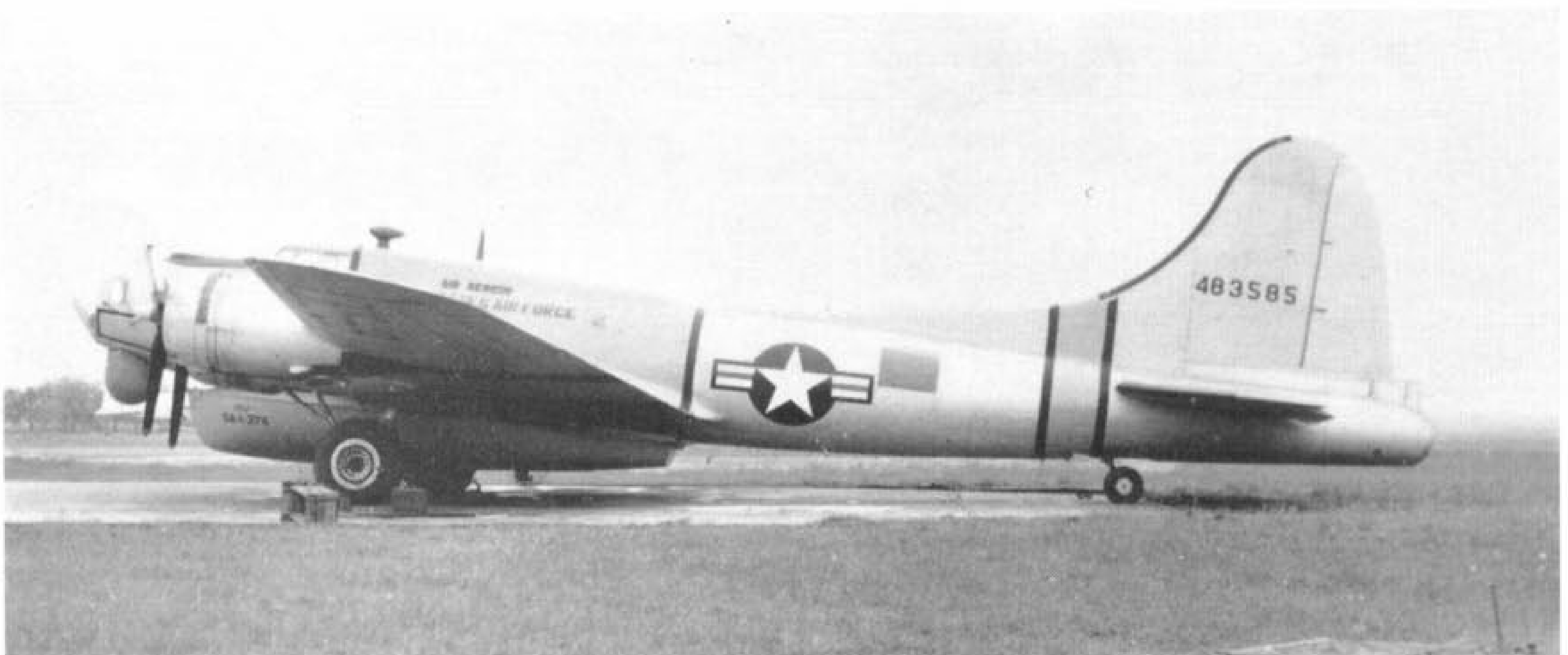
in the vast surplus aircraft parks, notably Kingman (Arizona) where some stood for five years, their markings bleached by the strong sunlight, until the scrap men came to perform the final destructive act.

The USAAF's contribution to the occupation air

forces in Europe included some B-17Gs which were engaged in photographic and transport flights although still assigned to bombardment units. These, too, soon returned to the USA to spend their days on desert scrapheaps. Thus, the odd Flying Fortress still to be

*Boeing SB-17G-85-DL (last of the series constructed) with lifeboat and chin scanner.*

*(Photo: Charles W. Cain/Air-Britain)*



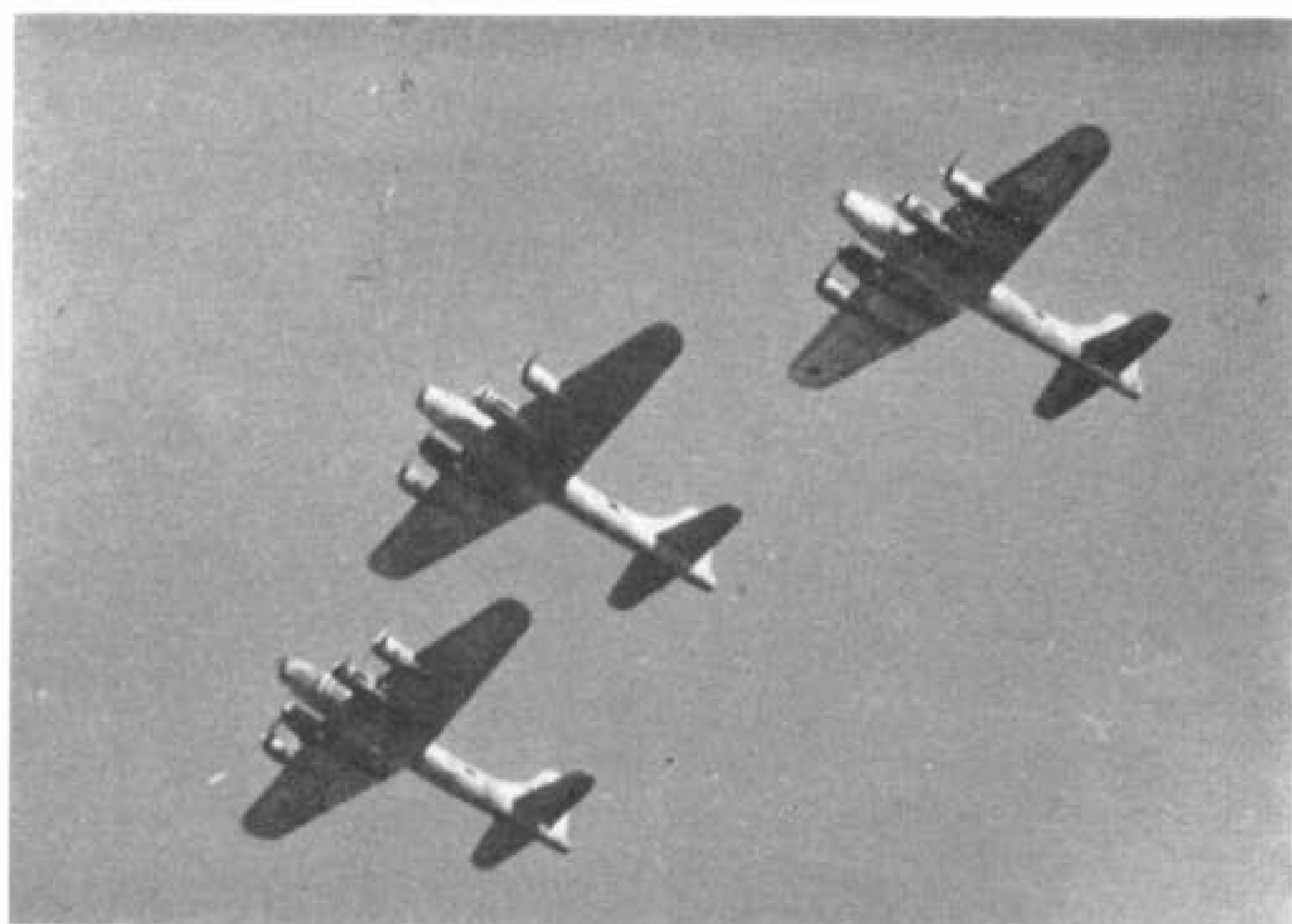
seen over England or Germany was a VIP transport or a search and rescue aircraft.

The inherent stability and weight lifting capability of the Flying Fortress saw those that evaded Kingman given a new lease of life in both military and civilian guise. First the USAAF and then the USAF retained a few, chiefly late production models, under a variety of designations: CB-, DB-, QB-, RB-, SB-, TB-, VB- and ZB- prefixes. In 1945 50 B-17Gs were reworked as B-17H's to carry airborne lifeboats and sea-search radar equipment for rescue duties. The designation was changed to SB-17G in 1948, and these soldiered on until the last (44-83701) was withdrawn from the 57th Air Rescue Squadron in the Azores during 1956. RB-17s fulfilled a reconnaissance rôle with a few regular USAF units until sufficient Boeing RB-29 Superfortresses became available. The CB-17s were aircraft stripped for cargo carrying while the VB-17G provided transport for many a USAF General until the mid-1950s. The T-prefix was for those assigned to training, the Q for radio-controlled "drone" and the D for the Director aircraft that controlled it. It was as QB-17s that the USAF disposed of most of the remaining Flying Fortresses, despatching them as targets for air- and ground-launched missiles. By June 1960 there were no more left to destroy.

The US Navy had taken a liking to the Flying Fortress and in 1945 acquired 47 B-17Gs, chiefly from Douglas production. Redesignating them as PB-1Ws, the USN fitted them out with sea-search radar to serve in an anti-submarine capacity; which they did for a few years. Other Flying Fortresses found their way to the US Coast Guard as PB-1Gs, the last of which (77254) was retired in September 1959.

In a civil capacity the Flying Fortress was to enjoy a varied working career stretching over 25 years. Curtiss-Wright enlisted two as engine test-beds in the late 1940s, one (44-85813) having the giant XT-35 turbo-prop installed in its nose. This aircraft remained with the company until 1966.

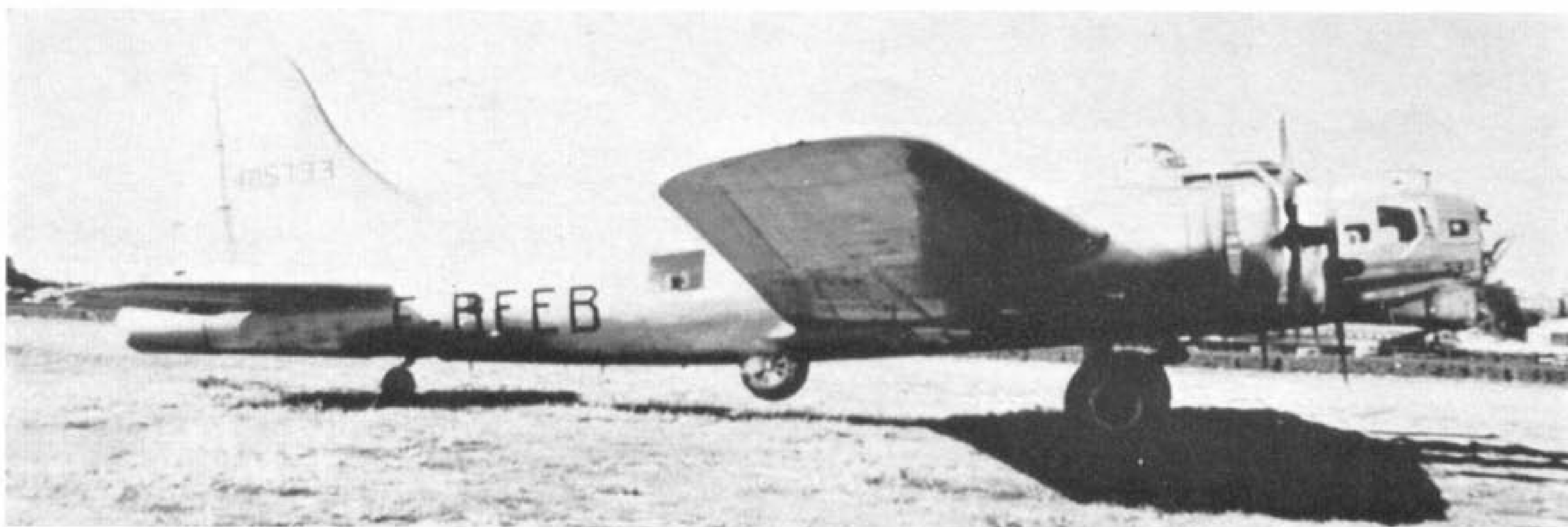
The demobilised Flying Fortress has found particular favour with organisations engaged in aerial survey work. N7227C (ex USN 77235) was employed by Aero Services, Philadelphia and carried two tons of scientific equipment to 31,500 feet over Canada on July 20, 1963 to record the total eclipse of the sun. The B-17's unpressurised state added to its usefulness in that open apertures could be used to obtain clearer photographs. In France, l'Institut Geographique National (IGN) at Creil, near Paris, assembled a dozen



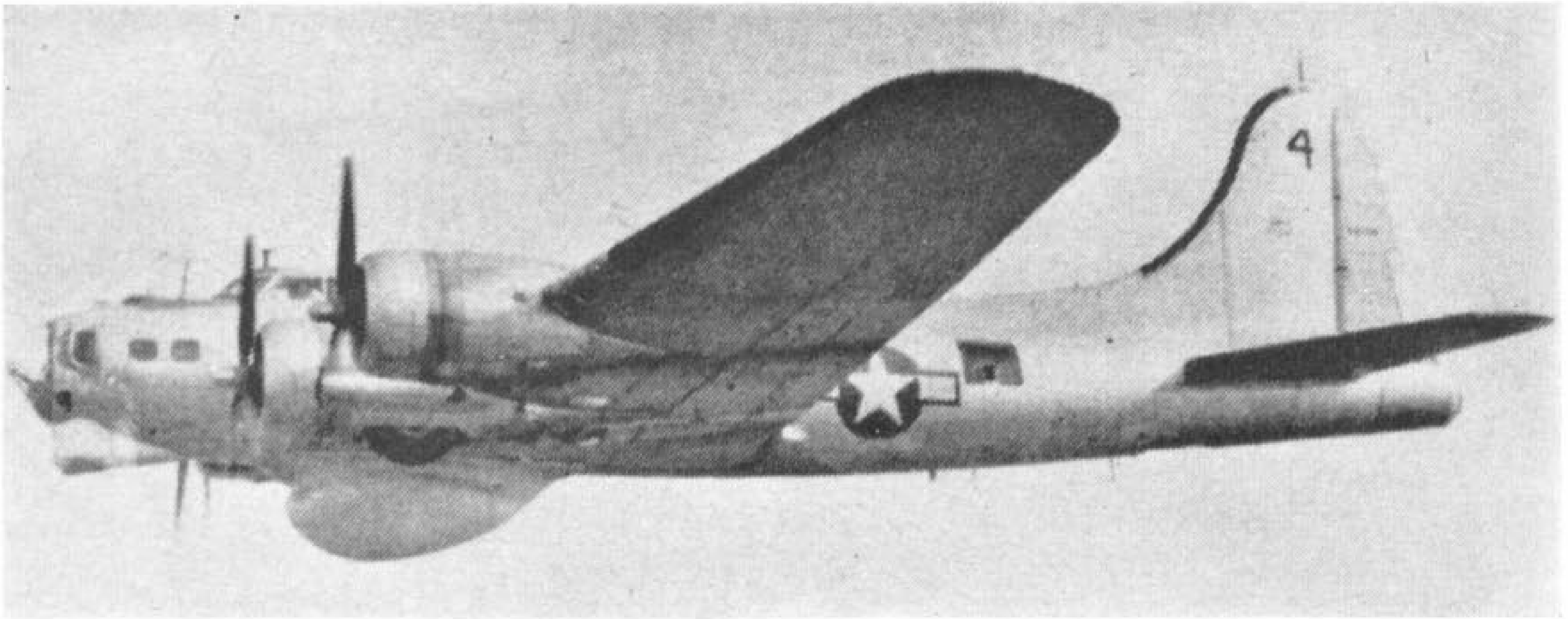
*Three B-17Gs were the main long-range bombing arm of the Israel Defence Forces/Air Forces in the 1950s. The Mickey Mouse contrasts with the extensive camouflage. Note the modified tail gun position. (Photos: I.D.F./A.F. viz C. W. Cain)*



*A Vega-built B-17G displaying U.S.A.A.F. tail number and French civil registration. A photograph taken in 1949 prior to removal of gun positions. (Photo: G. Dufton)*







*A U.S. Navy Boeing PB-1W with sea-search radar appendage.*

(Photo: U.S.N.)

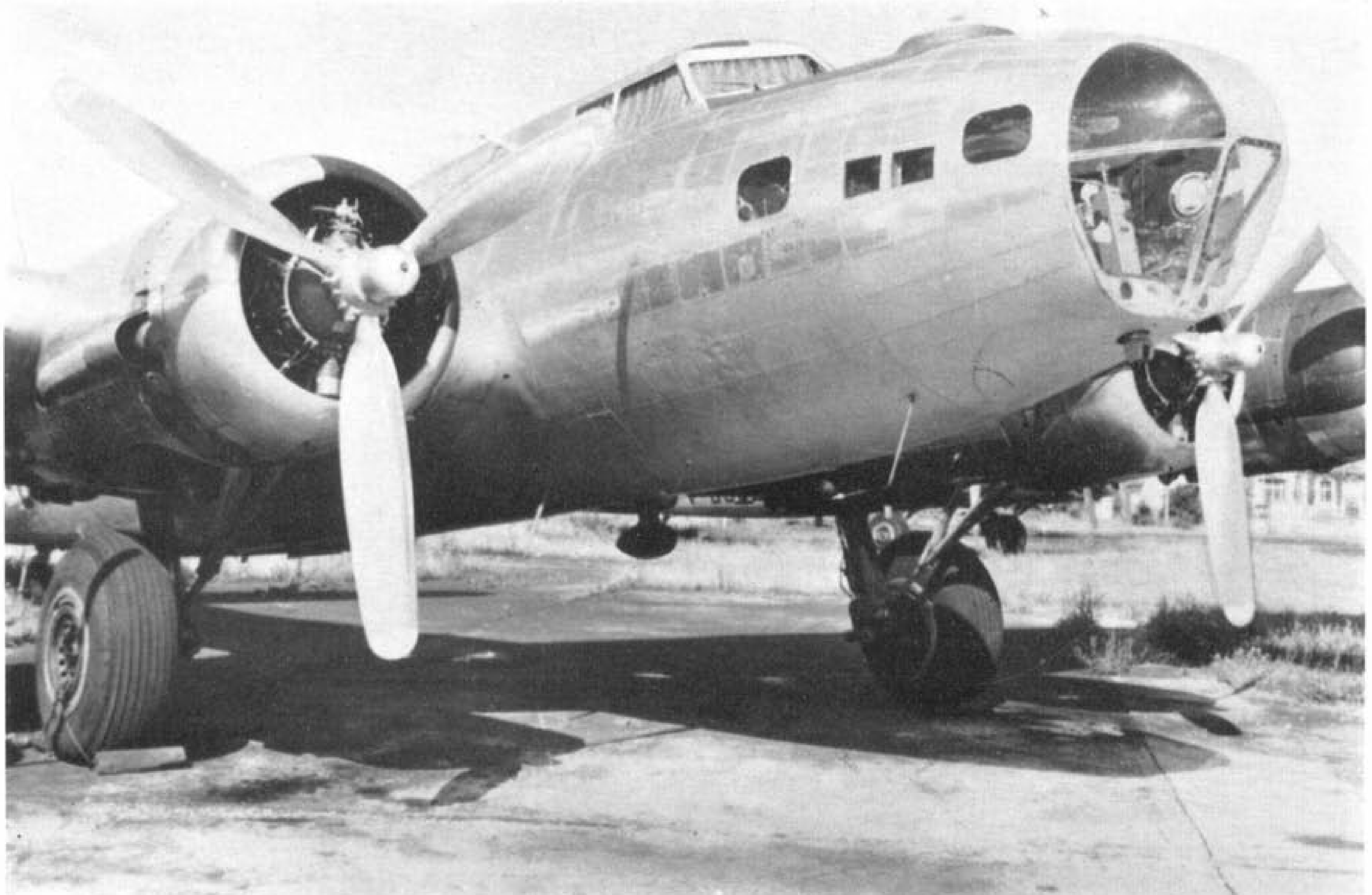
B-17Gs for aero survey work in the 1950s. Photographic, infra-red scanning and ground profile recording radar equipment was installed for use on geophysical and geomagnetic prospecting flights, principally in Europe and Africa. The Institute collected sufficient spares to permit B-17G mapping operations until the late 1970s.

In the USA at least five B-17s were still employed in fire fighting duties at the end of the 1960s. Fitted with fuselage tankage for 2,400 US gallons they usually carry retardant chemicals to release near forest fires. Others have been used for insect control measures, carrying as much as 15,000-lb of granular insecticide

on each flight for use against fire ants, a particularly troublesome orchard pest in south-eastern USA.

The Swedes were the first to convert and use Flying Fortresses as commercial transports. Many B-17 bombers made emergency landings in Sweden during the war and five were presented to the Swedish government for services rendered; a further two were subsequently acquired. Of these four were B-17Gs and one a chin-turreted B-17F. Sweden's SAAB performed the conversion comprising a 3-ft streamlined nose extension, seating for 14 passengers in the rear fuselage (which was also heated and sound proofed), a toilet, and the fitting-out of the bomb bay for 4,400-lb of

*The clean nose-lines of an IGN Fortress, obtained by removal of the chin turret and cheek gun installations.* (Photo: G. Dufton)





A modified B-17G-95-DL (formerly 44-83735) used by IGN. Tail and waist gun positions have been sealed and extra windows made in the fuselage. (Photo: G. Dufton)

freight. These were used by the Swedish carrier SILA on north Atlantic routes during the immediate post-war years.

Several conversions were carried out by US companies in the 1940s and 1950s with the object of using the aircraft for charter work. Many of these found their way to South America where they were particularly suited to operation from airfields in high above sea-level. Lloyd Aereo Boliviano had a small fleet during the late 1950s and 1960s operating from the airfield serving the Bolivian capital, La Paz, which is situated over 13,000-ft in the Andes.

Military forces of other nations used the B-17G in small numbers during the decade following World War 2, odd examples appearing on the inventories of France, Denmark, Portugal, Israel and certain South American nations. The Brazilian Air Force acquired eleven in 1953 for reconnaissance work and assigned them to 7 Grupo de Aviacao at Aerea de Recife.

Another use for the dwindling supply of B-17s has been the recreation of their original rôle for the fictional air war fought out on cinema and television screens. For the memorable *Twelve O'Clock High* (1951) Twentieth Century Fox employed a dozen B-17Gs to create flying and airfield scenes. When the television series of the same name was made some 15 years later the company concerned made use of the Fortress now at the US Air Force Museum, Wright-Patterson Air Force Base. *The War Lover* (Columbia, 1962) demanded that three B-17Gs return to Bovingdon, England, for location work. Only one returned to the USA, the others being broken-up on completion of filming.

In 1944 a thousand Flying Fortresses setting-out for *Festung Europa* was a near every day occurrence; a quarter of a century later the appearance of one ambling B-17 in the sky is a cause for excitement. What was once commonplace has now taken on a

This scene at Creil (1964) is reminiscent of a B-17 dispersal area in England during the Second World War. Two of the Fortresses acquired by l'Institut Geographique National were, in fact, former aircraft of the Eighth Air Force. (Photo: G. Dufton)





A Brazilian Air Force B-17G (tail number B17-5402), one of eleven acquired in 1953 for photographic and search and rescue duties (Photo: B. Mallon)

scarcity value as the few remaining examples are sought by museums and other institutions for the purpose of preservation. Happily, enough B-17s still exist for future generations to be able to see one of the world's truly great piston-engine battleplanes—the aptly-named Flying Fortress.

## SPECIFICATION B-17G

### Wing

Span 103 ft. 9-38 ins. Area 1,420 sq. ft. Root chord 228 ins. Tip chord 106-7 ins. Incidence 3-5 degrees. Dihedral 4-5 degrees.

### Fuselage

74 ft. 9 ins. (74 ft. 4 ins. with 'Cheyenne' tail position) Height 19 ft. 1 in. (to top of fin).

### Landing Gear

Tread 21 ft. 1 1/2 in. Main wheel 55 in. diameter. Tail wheel 26 in. dia.

### Powerplant

Type: 4 x Wright R-1820-97 with GE B-22 Turbo-superchargers (late models). Power rating: 1,200 b.h.p. at take-off. Normal maximum at 25,000 ft. 1,000 b.h.p. @ 2,300 r.p.m.

### Propeller

4 x Hamilton Standard Hydramatic, 3-blades of 11 ft. 7 in. dia. fully feathering, constant speed.

### Fuel Capacity

2,810 US gallons (built in). Maximum 3,630 US gal. (bomb bay tanks)

### Performance

Speed: Top 302 m.p.h. at 25,000 ft. (no war load and emergency power). Normal top 287 m.p.h. at 25,000 ft. Normal cruise 160 m.p.h. with 4,000 lb. bombs at 25,000 ft., landing 90 m.p.h.

Range: Normal maximum 1,800 miles at 160 m.p.h. at 25,000 ft. with 4,000 lb. bombs on 2,810 US gal. fuel. Maximum without war load 3,400 miles at 10,000 ft.

### Weight

Empty 36,135 lb. Equipped 44,560 lb. Normal war load 55,000 lb.

### Bomb Load

Maximum overload 72,000 lb.

### Defensive Armament

Maximum 17,600 lb. (short haul with 6 x 1,600 lb HE internal and 2 x 4,000 lb. external). Normal internal load for long range 4,000 lb.

13 M-2 Browning .50 calibre machine-guns, with up to 6,380 rounds. Positioned: 2 in Bendix power 'chin' turret under nose; 1 hand-held in each 'cheek' mounting either side of nose; 2 in Sperry 'ball' power turret at ventral position; 1 hand-held in radio room hatch (discontinued on late models), 1 in each 'waist' window, hand-held; and 2 in the tail turret, hand-held.

B-17G-1-BO	42-31032	—42-31131	100
B-17G-1-VE	42-39758	—42-39857	100
B-17G-5-DL	42-3563		1
B-17G-5-BO	42-31132	—42-31231	100
B-17G-5-VE	42-39858	—42-39957	100
B-17G-10-BO	42-31232	—42-31331	100
B-17G-10-DL	42-37716		1
B-17G-10-DL	42-37721	—42-37803	83
B-17G-10-VE	42-39958	—42-40057	100

Resplendent in white and blue paintwork, a U.S. transport adaptation of the Fortress. Formerly a U.S. Navy PB-1W (serial 77232), it was sold to a Mexican company. (Photo: W. T. Larkins, A.A.H.S.)





Three B-17Gs were flown to the UK in late 1961 for use in the film version of John Hersey's novel, *The War Lover*. *The Body* (serial 44-83883) shows fake battle damage.

(Photos: R. Mortimer)

B-17G-15-BO	42-31332	—42-31431	100
B-17G-15-DL	42-37804	—42-37893	90
B-17G-15-VE	42-97436	—42-97535	100
B-17G-20-BO	42-31432	—42-31631	200
B-17G-20-DL	42-37894	—42-37988	95
B-17G-20-VE	42-97536	—42-97635	100
B-17G-25-BO	42-31632	—42-31731	100
B-17G-25-DL	42-37989	—42-38083	95
B-17G-25-VE	42-97636	—42-97735	100
B-17G-30-BO	42-31732	—42-31931	200
B-17G-30-DL	42-38084	—42-38213	130
B-17G-30-VE	42-97736	—42-97835	100
B-17G-35-BO	42-31932	—42-32116	185
B-17G-35-VE	42-97836	—42-97935	100
B-17G-35-DL	42-106984	—42-107233	250
B-17G-40-BO	42-97058	—42-97172	115
B-17G-40-VE	42-97936	—42-98035	100
B-17G-40-DL	44-6001	—44-6125	125
B-17G-45-BO	42-97173	—42-97407	235
B-17G-45-DL	44-6126	—44-6250	125
B-17G-45-VE	44-8001	—44-8100	100
B-17G-50-BO	42-102379	—42-102543	165
B-17G-50-DL	44-6251	—44-6500	250
B-17G-50-VE	44-8101	—44-8200	100
B-17G-55-BO	42-102544	—42-102743	200
B-17G-55-DL	44-6501	—44-6625	125
B-17G-55-VE	44-8201	—44-8300	100
B-17G-60-BO	42-102744	—42-102978	235
B-17G-60-DL	44-6626	—44-6750	125
B-17G-60-VE	44-8301	—44-8400	100
B-17G-65-BO	43-37509	—43-37673	165
B-17G-65-DL	44-6751	—44-6875	125
B-17G-65-VE	44-8401	—44-8500	100
B-17G-70-BO	43-37674	—43-37873	200
B-17G-70-DL	44-6876	—44-7000	125
B-17G-70-VE	44-8501	—44-8600	100
B-17G-75-BO	43-37874	—43-38073	200

Civil B-17G N9563Z (formerly 44-83563) returned to the U.S., retaining its warpaint for some weeks to advertise the film. Normally used for freight, this aircraft had a special door at the point where the right waist window was once situated. (Photo: R. C. Mikesh)



B-17G-75-VE	44-8601	—44-8700	100
B-17G-75-DL	44-83236	—44-83360	125
B-17G-80-BO	43-38074	—43-38273	200
B-17G-80-VE	44-8701	—44-8800	100
B-17G-80-DL	44-83361	—44-83485	125
B-17G-85-BO	43-38274	—43-38473	200
B-17G-85-VE	44-8801	—44-8900	100
B-17G-85-DL	44-83486	—44-83585	100
B-17G-90-BO	43-38474	—43-38673	200
B-17G-90-VE	44-8901	—44-9000	100
B-17G-90-DL	44-83586	—44-83685	100
B-17G-95-BO	43-38674	—43-38873	200
B-17G-95-DL	44-83686	—44-83863	178
B-17G-95-VE	44-83864	—44-83885	22
B-17G-100-BO	44-85492	—44-85591	100
B-17G-100-VE	43-38874	—43-39073	200
B-17G-100-VE	44-85592	—44-85691	100
B-17G-105-BO	43-39074	—43-39273	200
B-17G-105-VE	44-85692	—44-85791	100
B-17G-110-BO	43-39274	—43-39508	235
B-17G-110-VE	44-85792	—44-85841	50

#### WHERE FLYING FORTRESSES WERE BASED

USAAF operational bomber bases with B-17G Flying Fortresses as at period September 1944—April 1945.

2nd BG	Amendola, Southern Italy.
34th BG	Mendlesham, Suffolk, England.
91st BG	Bassingbourn, Cambs., England.
92nd BG	Podington, Bedfordshire, England.
94th BG	Bury St. Edmunds, Suffolk, England.
95th BG	Horham, Suffolk, England.
96th BG	Snetterton Heath, Norfolk, England.
97th BG	Amendola, Southern Italy.
99th BG	Tortorella, Southern Italy.
100th BG	Thorpe Abbots, Norfolk, England.
301st BG	Lucera, Southern Italy.
303rd BG	Molesworth, Huntingdonshire, England.
305th BG	Chelveston, Northants, England.
306th BG	Thurleigh, Bedfordshire, England.
351st BG	Polebrook, Northants, England.
379th BG	Kimbolton, Huntingdonshire, England.
381st BG	Ridgewell, Essex, England.
384th BG	Grafton Underwood, Northants, England.
385th BG	Great Ashfield, Suffolk, England.
388th BG	Knettishall, Suffolk, England.
390th BG	Framlingham, Suffolk, England.
398th BG	Nuthampstead, Hertfordshire, England.
401st BG	Deenethorpe, Northants, England.
447th BG	Rattlesden, Suffolk, England.
452nd BG	Deopham Green, Norfolk, England.
457th BG	Glatton, Huntingdonshire, England.
463rd BG	Celone, Southern Italy.
483rd BG	Sterparone, Southern Italy.
486th BG	Sudbury, Suffolk, England.
487th BG	Lavenham, Suffolk, England.
490th BG	Eye, Suffolk, England.
493rd BG	Debach, Suffolk, England.

#### RAF FORTRESS IIIs

**Fortress III (B-17G-40-BO):** HB761-790 (total 30);

**Fortress III (B-17G-VE):** HB791-793; HB795-796; HB799-803; HB805; HB815-820; KC100-125; and KH998-999 (total 50).

**Series Editor: CHARLES W. CAIN**

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206	Supermarine Spitfire Mark IX variants	212	Fairey Swordfish
207	Messerschmitt bf 110 Night Fighters	213	Kawanishi NIKShiden 'George'
208	McDonnell/Douglas F-4 Phantom variants	214	Grumman TBF/Eastern TBM Avenger
209	de Havilland Mosquito Mark IV variants	215	Arado Ar 234 Blitz
210	Mitsubishi G4M 'Betty' and Ohka Bomb	216	Petlyakov PE-2 variants

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