



Mystery Markings

Arguably one of the least known-about tactical markings ever employed on Luftwaffe aircraft - Paul Lucas looks at the 'bar' markings employed on Kampflieger bombers during the period September - November 1940, in the Battle of Britain

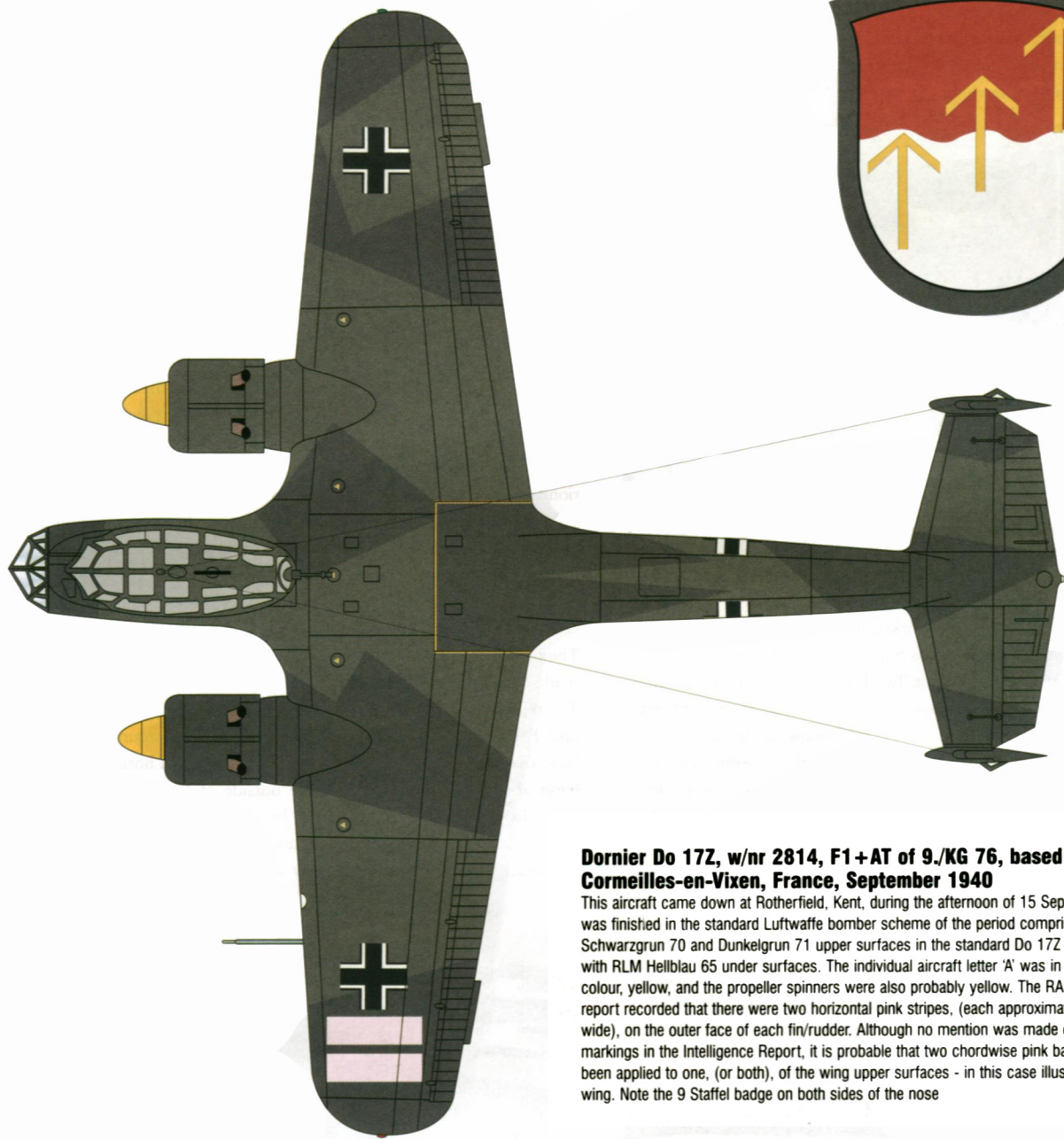
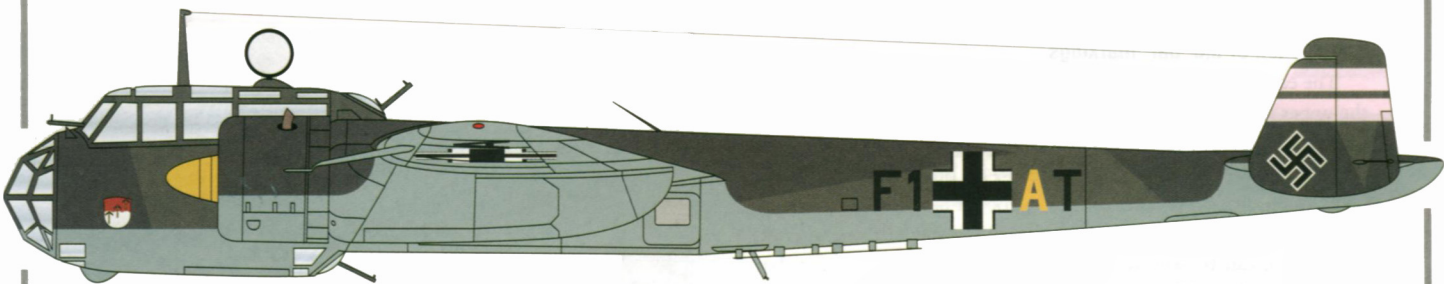
■ In the September issue of 'Model Aircraft Monthly', the article 'Enigmatic Emils' examined the questions raised about the camouflage applied to Messerschmitt Bf 109Es in the Battle of Britain. The origin of this article lay in research conducted with the aim of producing a book which was to deal with the camouflage and markings of Luftwaffe aircraft engaged in the Battle of Britain. It was intended that the Luftwaffe book would examine all the operational types involved, including bombers.

As part of this research, a number of preserved RAF Intelligence reports dealing with shot-down Luftwaffe aircraft were examined as these were found to often mention the camouflage and markings carried by the aircraft concerned at the time of their demise. One of the markings which featured in several of the RAF Intelligence

reports specifically dealing with Dornier Do 17s and Heinkel He 111s, was found to be what might arguably be one of the most interesting tactical markings ever employed on Luftwaffe aircraft, the 'bar' markings applied to Do 17s, He111s and Ju 88s during the period of the big daylight raids on London which took place from the beginning of September 1940.

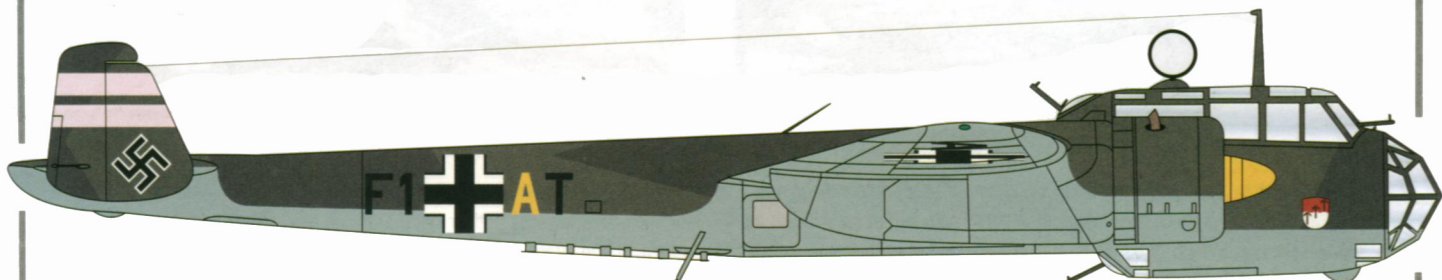
For some reason there do not appear to be any reports dealing with Junkers Ju 88s which mention these markings even though they are known to have been carried by this type during this period. However, those reports which do mention these 'bar' markings sometimes highlight a most interesting fact which has only been picked up on by a very small number of authors in the past but still does not seem to be widely acknowledged today.

ABOVE Formation of He 111H-2s of KG 53 on their way to bomb London in September 1940. Note the three bars on the rudder of the aircraft nearest the camera.



Dornier Do 17Z, w/nr 2814, F1+AT of 9./KG 76, based at Cormeilles-en-Vixen, France, September 1940

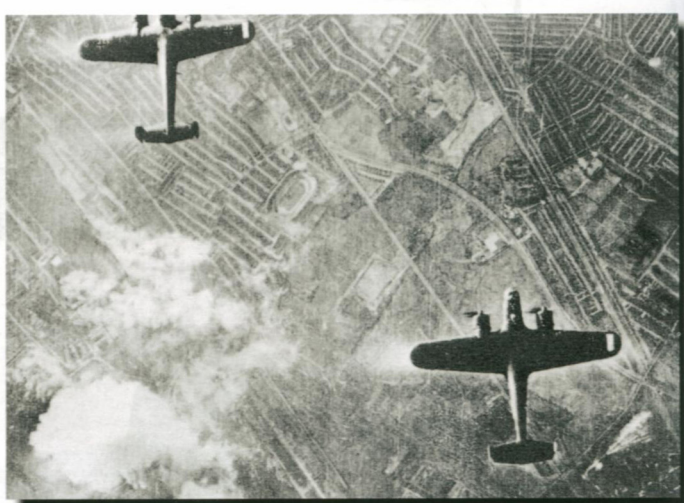
This aircraft came down at Rotherfield, Kent, during the afternoon of 15 September 1940. It was finished in the standard Luftwaffe bomber scheme of the period comprising RLM Schwarzgrun 70 and Dunkelgrun 71 upper surfaces in the standard Do 17Z splinter pattern with RLM Hellblau 65 under surfaces. The individual aircraft letter 'A' was in the 9 Staffel colour, yellow, and the propeller spinners were also probably yellow. The RAF Intelligence report recorded that there were two horizontal pink stripes, (each approximately 12 inches wide), on the outer face of each fin/rudder. Although no mention was made of any wing markings in the Intelligence Report, it is probable that two chordwise pink bars may have been applied to one, (or both), of the wing upper surfaces - in this case illustrated on the port wing. Note the 9 Staffel badge on both sides of the nose



Introduction of the 'bar' markings

The earliest recorded use of these markings which were applied to the upper surfaces of the wings and sides of the fin and/or rudder, is in a photograph of two Do 17s of KG 76, reputedly taken over London during the evening of 7 September 1940. Both the aircraft in the photograph display a chordwise bar outboard of the national marking on the upper surface of the starboard wing whilst one aircraft, (coded 'G'), can be seen to be also carrying a single horizontal bar across the starboard fin and rudder.

The date of the photograph may be significant in that 7 September 1940, was the date on which the Luftwaffe moved the focus of its attacks on Britain away from the airfields of RAF Fighter Command and onto the city of London, for which it employed large formations of bombers flying in daylight. It has long been thought that these



what colour the 'bar' markings were, but it is apparent from the photographs that it was a 'light colour' which stood out clearly from the two-tone dark green RLM 70 and RLM 71 camouflage scheme applied to the upper surfaces of Luftwaffe bombers of the period. For some reason it appears that the assumption has almost always been made that these 'bar' markings were white in colour. However, there is a body of documentary evidence contained within the RAF Intelligence reports which states that this was not always the case!

Following the onset of the daylight attacks on London, a number of aircraft carrying such markings were lost over Britain which became the subjects of RAF Intelligence reports, many of which mention the presence of these 'bar' markings on the wreckage. Many of the reports were written on aircraft lost during the Luftwaffe's operations on 15 September, which is now accepted as the climax of the daylight air battles over Britain in 1940.

For example, two Do 17Zs of KG 76 which were lost on the afternoon of 15 September, were the subjects of RAF Intelligence reports. The first was Werknummer 2555, coded F1+FS of 8./KG 76 which made a forced landing at Lullington Castle, Shoreham, at 1300hrs. The report recorded that the aircraft was coded F1+FS with the second 'F' outlined in white; that there was a red band around the fuselage; that the spinners were red, and that there was a horizontal pink band about 12 inches wide on the outside of both rudders. Photographs of the wreck indicate that by using the term 'rudders' the report's author actually meant 'fin and rudder'. The photographs of the wreck of this aircraft also show a chordwise bar inboard of the

'bar' markings were applied as some kind of aid to formation flying, although to the best of this author's knowledge, no really convincing explanation of how the system worked has ever been published.

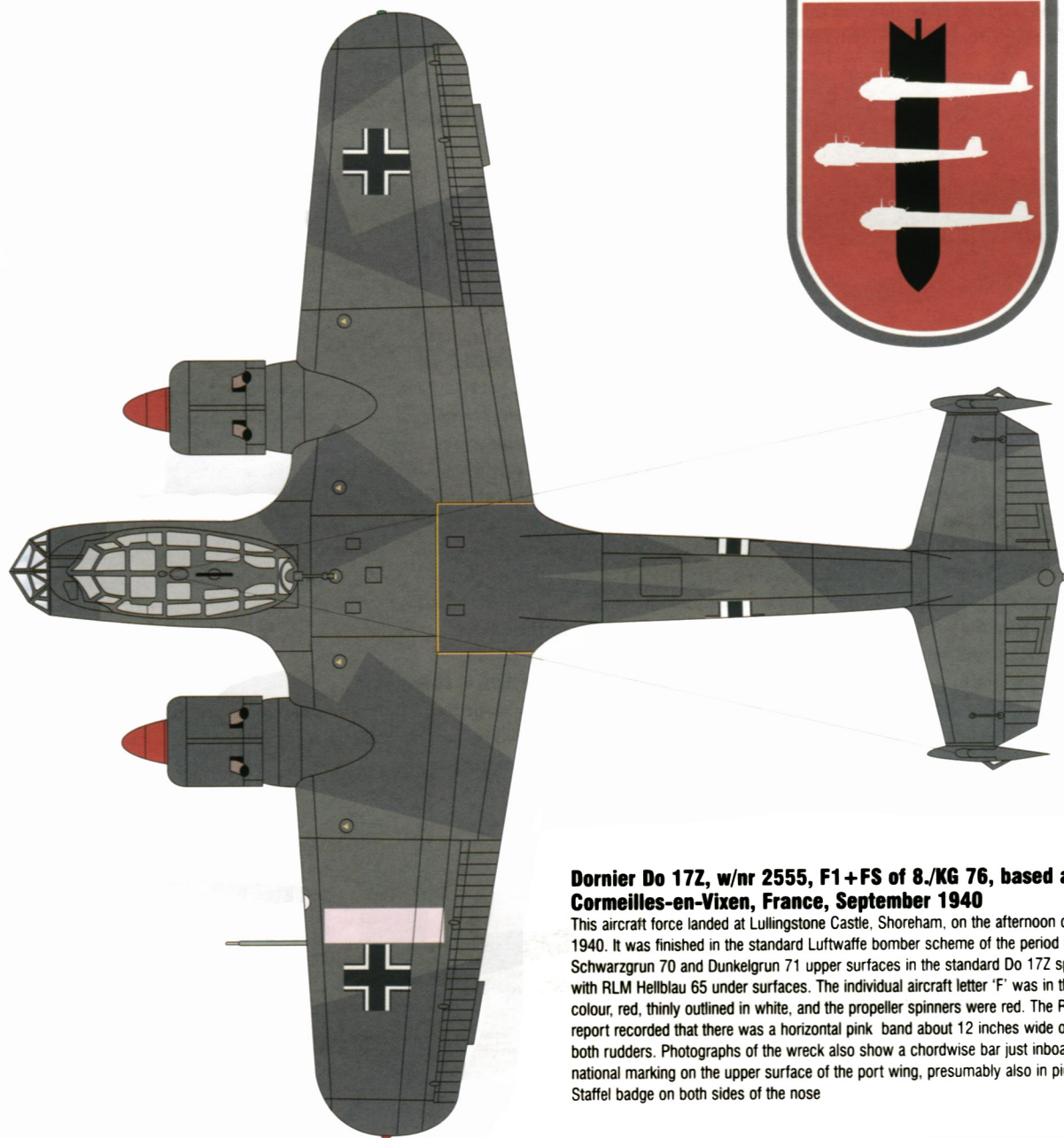
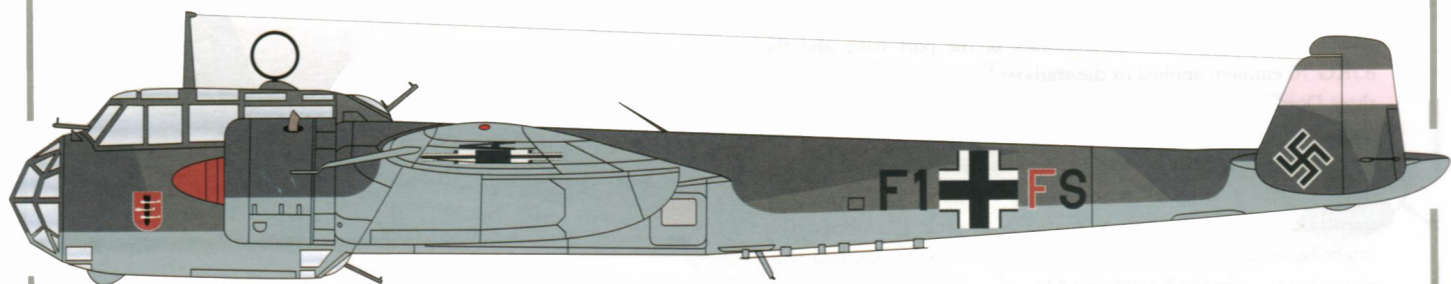
The latest work, (which it was hoped would throw some light on the subject), 'Kampfflieger Volume Two Bombers of the Luftwaffe July 1940 - December 1941' published by Classic Publications, unfortunately has little to say on the subject, simply following the current, and widely accepted view, in claiming that these markings were white and were either used to identify unit leaders or to allow crews to easily identify aircraft of their Gruppe whilst operating in close formation. No attempt is made to describe the many apparent variations in how these markings were applied to individual aircraft or the system, (assuming that there was a system), to which the markings conformed.

RAF Intelligence reports

The interesting fact highlighted by the RAF Intelligence reports referred to above, regards the colour of the 'bar' markings. From a black and white photograph it is of course impossible to tell exactly

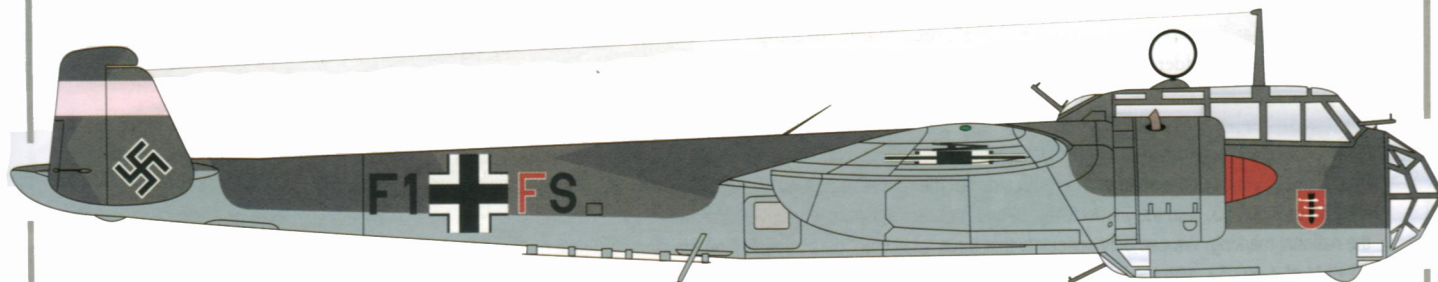


TOP Two photos of a pair of Dornier Do 17Zs, purportedly photographed on 7 September 1940, flying over London Docks heading for Woolwich Arsenal. Note that both aircraft have 'light coloured chordwise bars', outboard of the national markings on the upper surfaces of their starboard wing tips. **ABOVE** Two photos of Dornier Do 17Z, F1+FS of 8./KG 76, which force landed at Lullington Castle, Shoreham, on the afternoon of 15 September 1940. The RAF Intelligence report recorded that the aircraft had red spinners, a red band around the fuselage and that there was a horizontal pink band about 12 inches wide on the outside of both rudders. In the left hand photo note the chordwise bar just inboard of the national marking on the upper surface of the port wing.



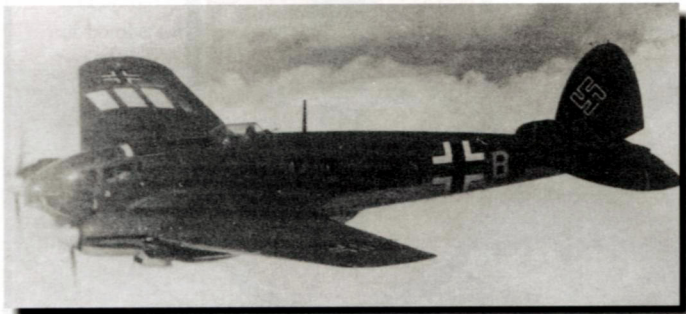
Dornier Do 17Z, w/nr 2555, F1 +FS of 8./KG 76, based at Corneilles-en-Vixen, France, September 1940

This aircraft force landed at Lullingstone Castle, Shoreham, on the afternoon of 15 September 1940. It was finished in the standard Luftwaffe bomber scheme of the period comprising RLM Schwarzgrun 70 and Dunkelgrun 71 upper surfaces in the standard Do 17Z splinter pattern with RLM Hellblau 65 under surfaces. The individual aircraft letter 'F' was in the 8 Staffel colour, red, thinly outlined in white, and the propeller spinners were red. The RAF Intelligence report recorded that there was a horizontal pink band about 12 inches wide on the outside of both rudders. Photographs of the wreck also show a chordwise bar just inboard of the national marking on the upper surface of the port wing, presumably also in pink. Note the 8 Staffel badge on both sides of the nose



national marking on the upper surface of the port wing and the 8./KG 76 emblem applied to the starboard side of the nose with the three Dornier profiles thereon pointing forward, although neither of these markings are mentioned in the report.

The failure of the report to mention these markings serves to illustrate that the RAF Intelligence reports are not infallible and frequently do not mention all the markings present on a wreck. This might be because there does not seem to have been a standard template used to assist the Intelligence Officers in compiling their reports and as a result the different Officers who wrote the reports appear to have noticed and commented on different things. Some Officers evidently thought the markings were important whilst others did not.

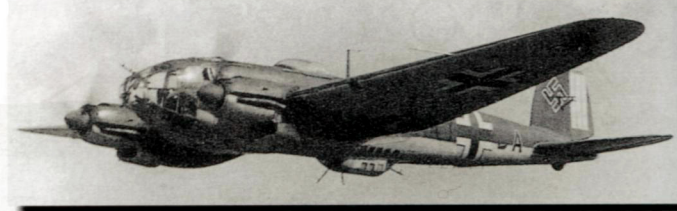


The second KG 76 Dornier 17Z to fall on the afternoon of 15 September, which was subject of an RAF Intelligence report was WNr 3322 coded F1+DT, of 9./KG 76, which came down at Underriver, Shipbourne at 1330hrs. The intelligence report on this aircraft stated that of the codes, the letter 'D' was in yellow and there was a yellow band around the fuselage. The port wing had the national marking and a letter 'D' on the under surface but only a national marking and pink stripe on the upper surface. A pink stripe was also found on both rudders which again can probably be safely assumed to mean fin and rudders.

With the benefit of the post-war research which has been made on Luftwaffe markings, we now know how the alpha-numerical Gruppe/Staffel code system applied to bomber aircraft worked. There is no space here to go into detail of how this system worked but it can be said that when these RAF Intelligence reports are checked against what we now know of Luftwaffe marking practice, it can be said that the red and yellow markings described are appropriate for the aircraft code combinations recorded. This is discussed in slightly more detail below. Given that these colour descriptions are correct, there is no reason to doubt that the colour of the bar markings which was described as being 'pink' on both aircraft is also accurate.

One other unidentified Do 17 which came down on Barn Hurst Golf Course, Bexley, at 1430hrs on 15 September, was found to have similar markings which the intelligence report describes as, "pink stripe on wingtip and rudder". The only other marking which was apparently visible was a white letter 'C' which was presumably found on the upper surface of one of the wings.

Later in the afternoon of 15 September, at 1600hrs, He 111 WNr 2771, coded A1+AN of 5./KG 53, came down on West Malling aerodrome. Upon examination this aircraft was found to have the second letter 'A' outlined in white, red spinners and three vertical pink stripes on what the report calls, "both rudders", presumably meaning both sides of the rudder. No mention is made of any wing markings.



Whether this is because none were present, because the Officer compiling the report simply did not notice them, or alternatively did not think them worth mentioning, is not known.

Besides these crash reports which I have seen, other secondary sources, (that is to say a number of books and magazine articles), which have over the years mentioned the use of 'pink' for these markings, have claimed the following aircraft had the following 'pink markings':-

Do 17Z-2 WNr 3457, 5K+JM of 4./KG 3, which crashed at Bexley in Kent at 1200hrs 15 September 1940, which had, "a pink stripe on the wingtip and rudder". Which wingtip, port or starboard, had the stripe on it is not stated.

Do 17Z WNr 2814, F1+AT of 9./KG 76, which came down at Rotherfield, Kent during the afternoon of 15 September 1940, and was found to have two horizontal pink stripes, each 12 inches wide on each rudder. No mention is made of any wing markings.

He 111H-2 WNr 5718, A1+LN of 5./KG 53, which was shot down near Hornchurch at 1435hrs and was found to have three vertical pink stripes on the rudder. Again, no mention is made of any wing markings.

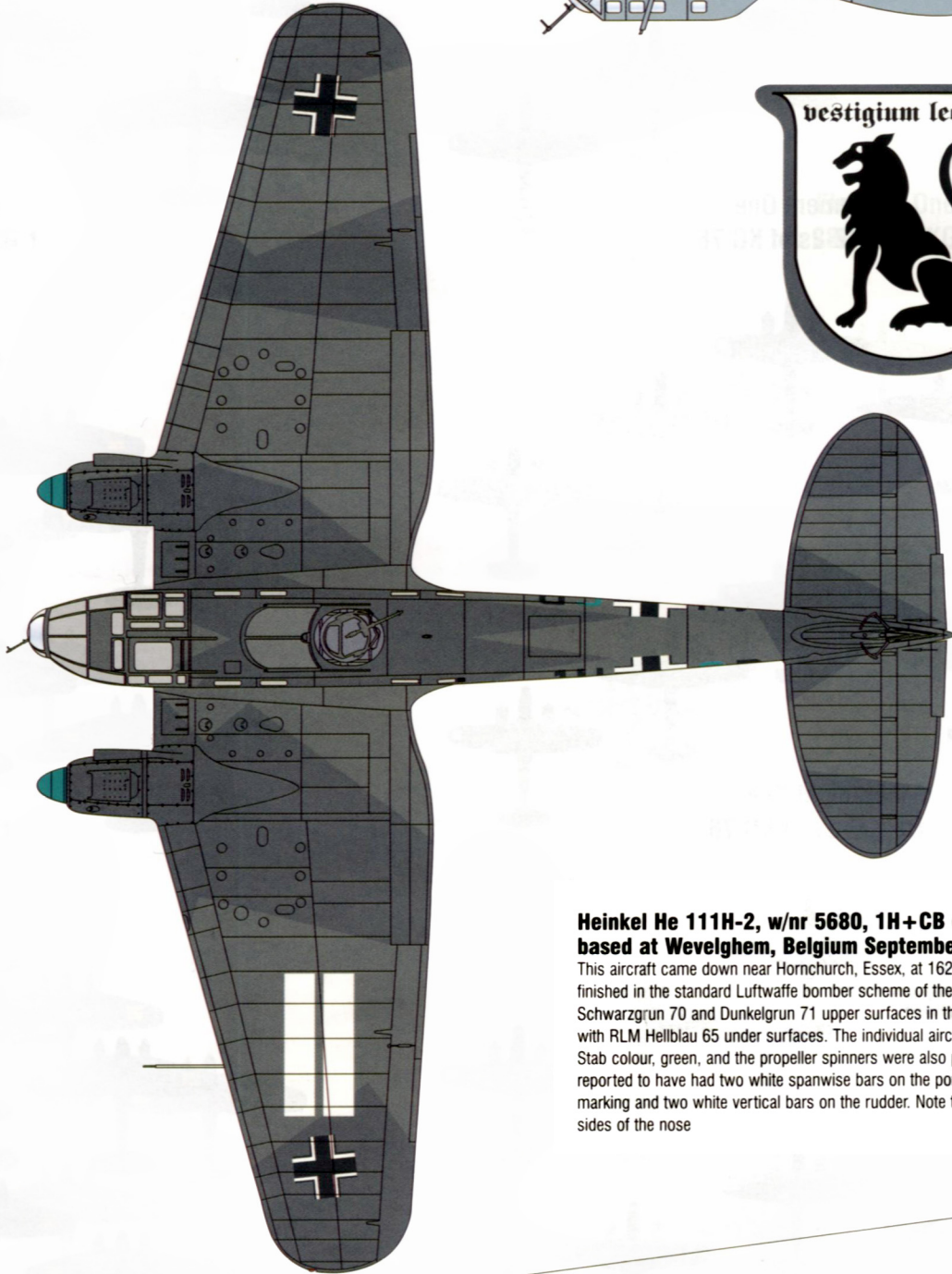
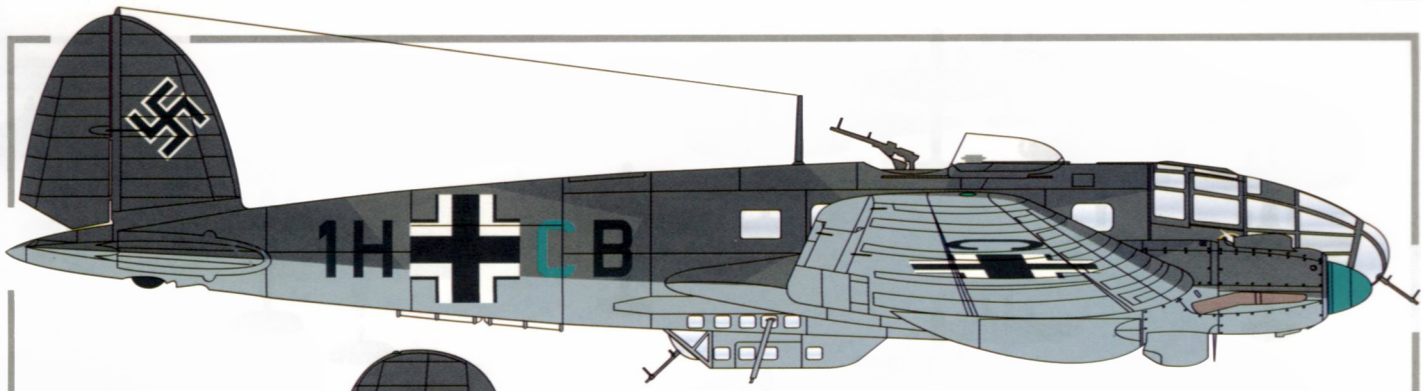
The bar markings appear to have been continued to be used through October as shown by the wreckage of Do 17 WNr 2544, 5K+CH of 1./KG 3, which crashed at 0200hrs on 28 October 1940, at Boughton Malherbe in Kent. Upon examination, all the codes were found to be black and a large pink horizontal stripe was found on the rudder.

A question of colour

As can be seen, all the RAF Intelligence reports referred to above describe the bar markings as being 'pink', (not white), in colour. Whether this is in any way related to the fact that most of the aircraft

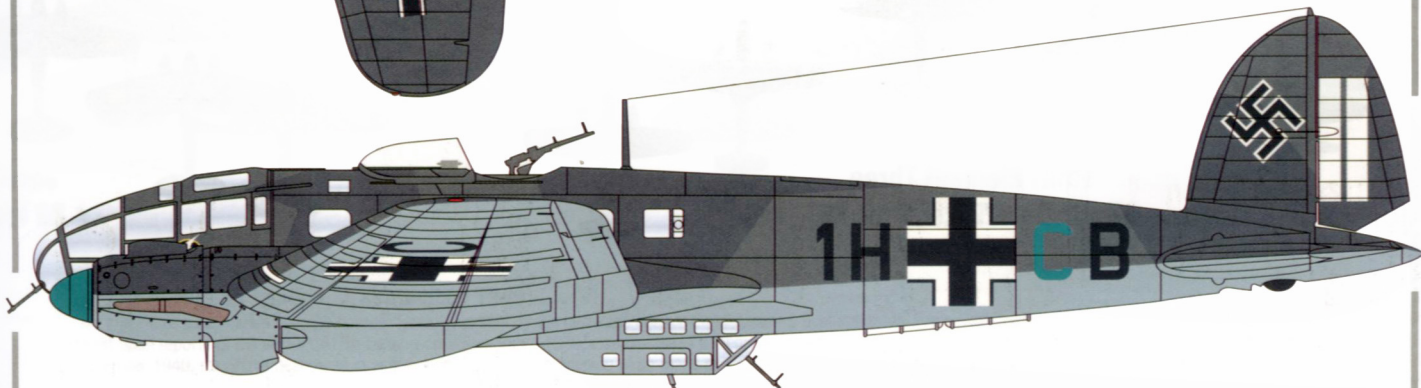


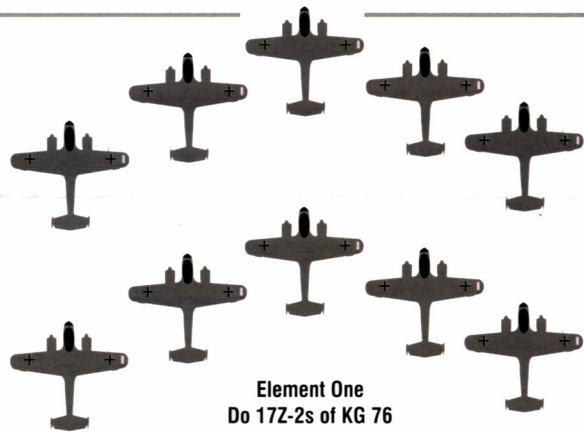
TOP He 111H-2, coded A1+BA of the Geschwaderstab KG 53, (with the 'Staffel' letter 'A' outlined in blue), and three vertical, 'light coloured' bars, on the rudder. Again, whether these bars appeared on both sides of the rudder or any wing markings were carried is unfortunately not known. **MIDDLE** He 111H-2, coded A1+BT of 9./KG 53, with the Staffel letter 'B' and propeller spinners in yellow. Three large 'light coloured' bars can be seen on the starboard wing, just inboard of the national marking. We can only speculate that three 'matching' bars appeared on the starboard side of the rudder. **BOTTOM** He 111H-1, probably coded A1+LM of 4./KG 53, with the individual aircraft letter 'L' outlined in white. Note the three vertical pink (?) bars on the rudder. Whether these bars appeared on both sides of the rudder or whether any wing markings were carried is not known.



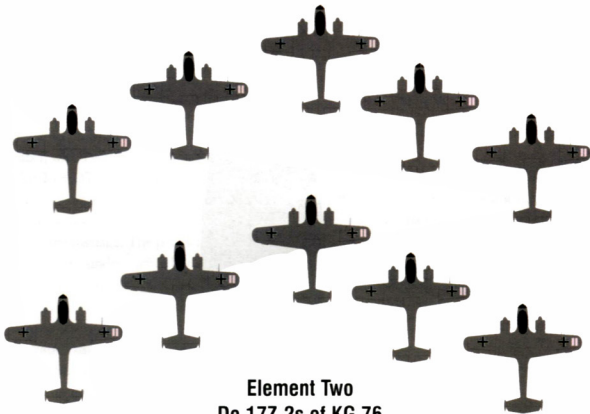
Heinkel He 111H-2, w/nr 5680, 1H+CB of I Gruppe Stab/KG 26, based at Wevelghem, Belgium September 1940

This aircraft came down near Hornchurch, Essex, at 1620hrs on 11 September 1940. It was finished in the standard Luftwaffe bomber scheme of the period comprising RLM Schwarzgrun 70 and Dunkelgrun 71 upper surfaces in the standard He 111H splinter pattern with RLM Hellblau 65 under surfaces. The individual aircraft letter 'C' was in the I Gruppe Stab colour, green, and the propeller spinners were also probably green. This aircraft was reported to have had two white spanwise bars on the port wingtip, inboard of the national marking and two white vertical bars on the rudder. Note the I Gruppe KG 26 badge on both sides of the nose

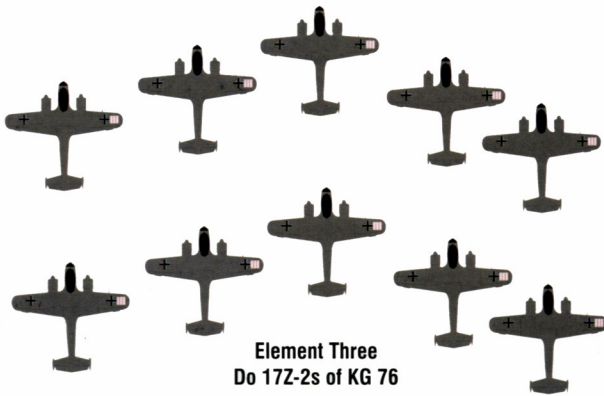




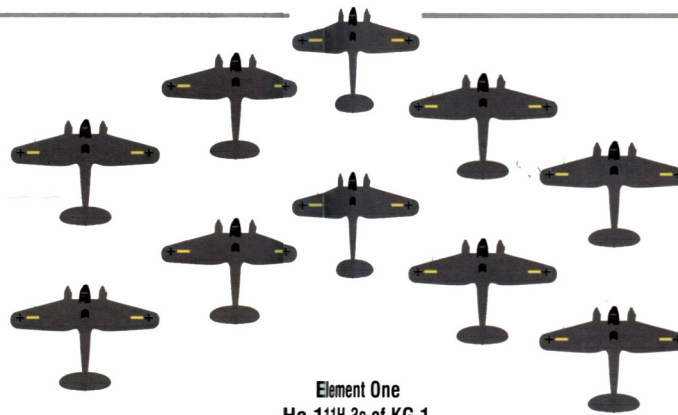
Element One
Do 17Z-2s of KG 76



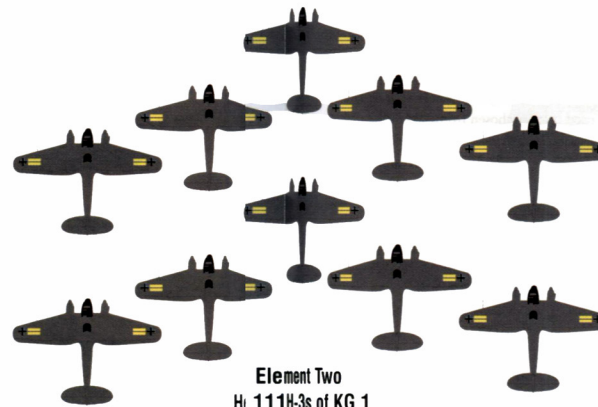
Element Two
Do 17Z-2s of KG 76



Element Three
Do 17Z-2s of KG 76



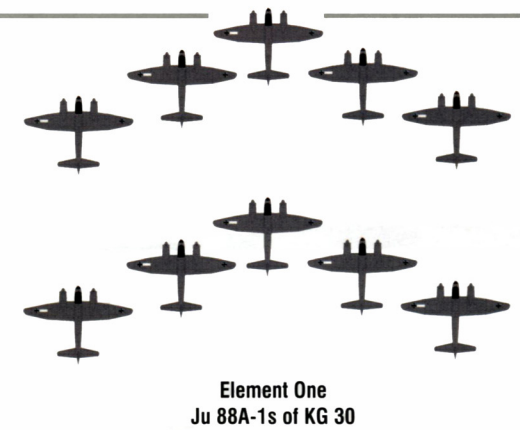
Element One
He 111H-3s of KG 1



Element Two
He 111H-3s of KG 1



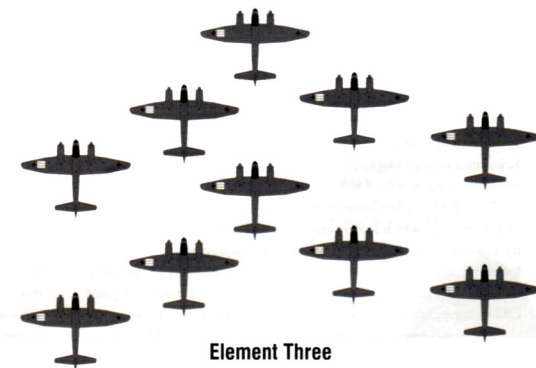
Element Three
He 111H-3s of KG 1



Element One
Ju 88A-1s of KG 30



Element Two
Ju 88A-1s of KG 30



Element Three
Ju 88A-1s of II/KG 76

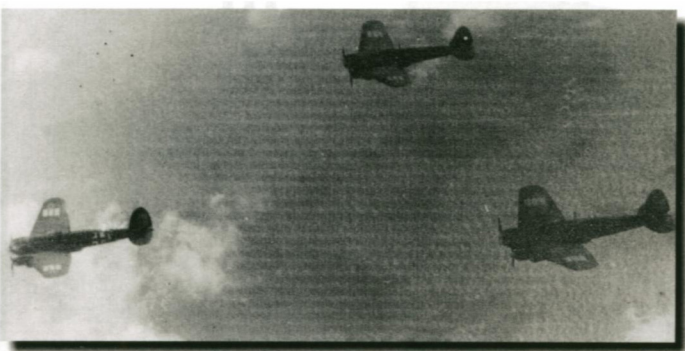
Luftwaffe raid on London, 7 September 1940

This schematic view shows how the bomber formations sent by the Luftwaffe against London during September 1940 may have looked. This, admittedly speculative, illustration, based upon reports of the actual raid on London on 7 September 1940, also illustrates a theory of how the 'mysterious bar markings' applied to so many Luftwaffe bombers during September 1940, may have been used in assisting in the formation keeping of so many aircraft from many different units and bases



found to have pink markings were lost on 15 September 1940 is not known, nor is the reason why pink was used.

Exactly where this pink paint came from is also unknown, as there is currently no known RLM designation for a pink colour. As mentioned previously, in last month's 'Enigmatic Emils' article, one, (if not the), major problem in carrying out research into Luftwaffe camouflage and markings is the lack of documentary evidence. This lack arises out of orders given in the last days of the war for the Luftwaffe's records to be destroyed to prevent their capture by the Allies. Despite this however, much documentation has survived, but it would appear to be widely scattered and too often in private hands where, for one reason or another, it is inaccessible to researchers.



Some of the surviving documents would appear to suggest that many of the early colours selected circa 1935-36 for use by the Luftwaffe, to both camouflage and mark its aircraft, came from an existing RAL standard. Reference to a 'Paint shop Handbook' issued in 1944, reveals that besides the Luftwaffe, both the Wehrmacht and Kriegsmarine also adopted camouflage and marking colours from the same Standard, ie RAL 840R.

The RAL, (Reichsausschuss für Lieferbedingungen und Gutesicherung, which loosely translates as 'Reich's Institute for Quality Control'), was founded in 1925 as a private venture which followed an initiative by the Weimar Republic's Ministry of Industry. From 1927, the RAL was responsible for forming a palette of paint colours for industrial applications which took the form of some forty colours which were registered under the designation RAL 840. By 1939, this range of colours is said to have grown to about 100 hues

and the range was revised under the designation RAL 840R. It is therefore possible that the pink colour used for the wing and tail markings could have been a previously unknown RLM colour which might, or might not, have been chosen from RAL 840?

Without documentary evidence, (such as a copy of a 1940 edition of RAL 840 for example), we can only speculate as to the origin and precise hue of the pink used for these markings. Given that it is known that the Wehrmacht also used colours chosen from RAL 840, it is interesting to note that pink was used as an 'Arm of Service' colour on Command Pennants in Panzer units. The pink paint could therefore possibly have been obtained from Wehrmacht supplies. Alternatively, it is possible that the pink paint could have been mixed at unit level by some means.

The only hard evidence found thus far which sheds any light on the hue of the pink markings, is in a report dated 20 November 1940, on an anonymous Do 17 which crashed at 2355hrs on 15 November 1940, at Rye Hill near Harlow in Essex. The only decipherable marking found on the wreckage was what the report describes as, "a large Salmon Pink square", on the upper surface of the starboard mainplane.

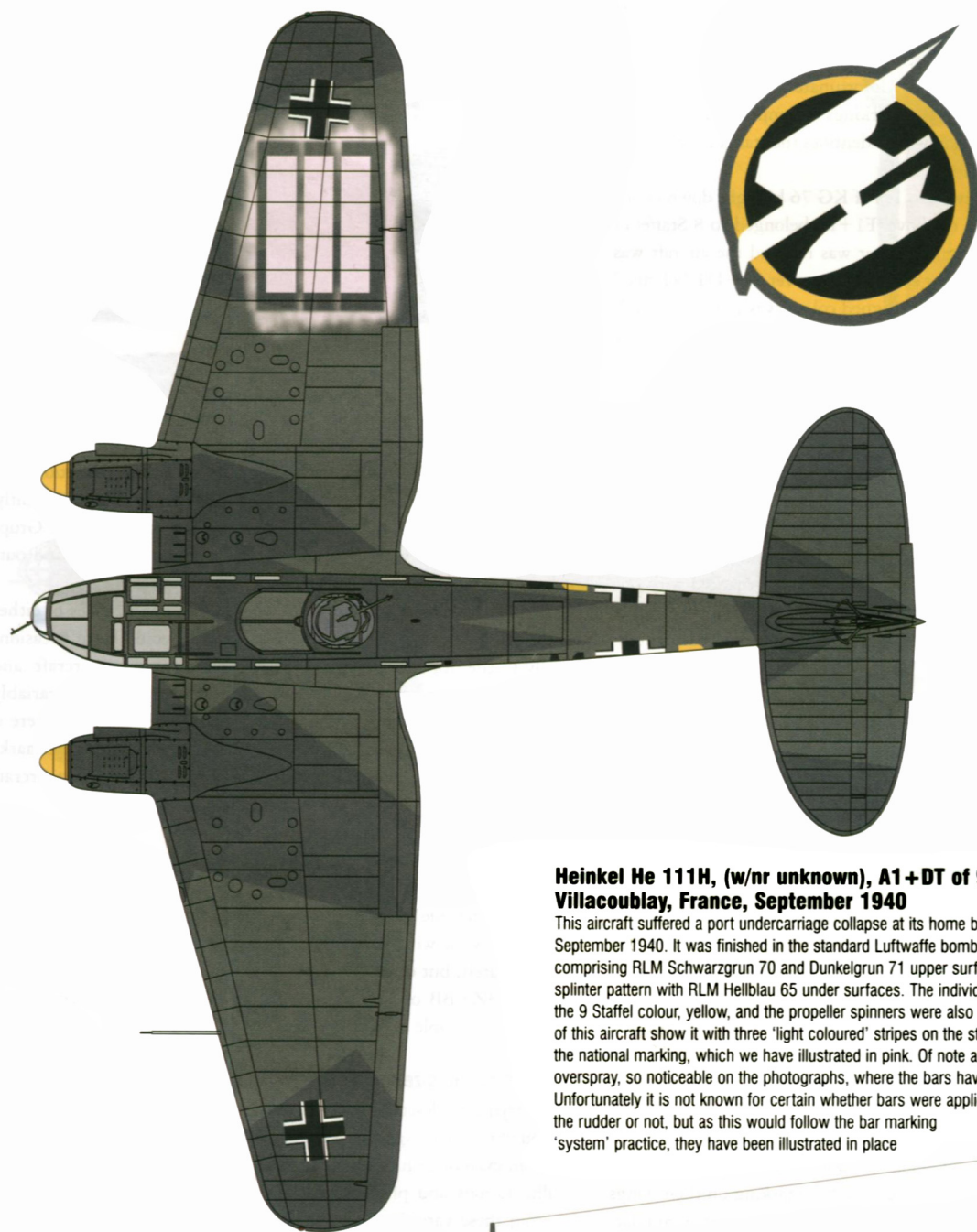
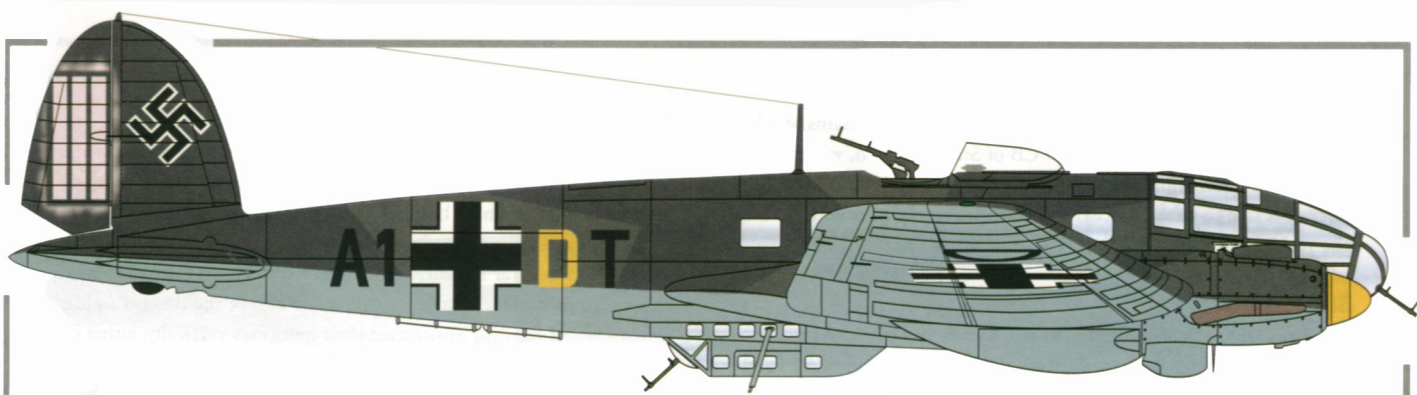
The Methuen Handbook of Colour defines 'Salmon Pink' as the colour of the flesh of a fresh Salmon and gives the colour reference as 6 A4. The closest FS 595B reference to this colour is FS 21670. Unfortunately, given the subjective nature of the original description of this colour this is far from being conclusive evidence as to the exact hue of pink used for these markings!

White Stripes

Whilst on the evidence of the RAF Intelligence reports mentioned above, pink would appear to have been the most commonly used colour for the bar markings applied to Luftwaffe aircraft, white is also known to have been used.

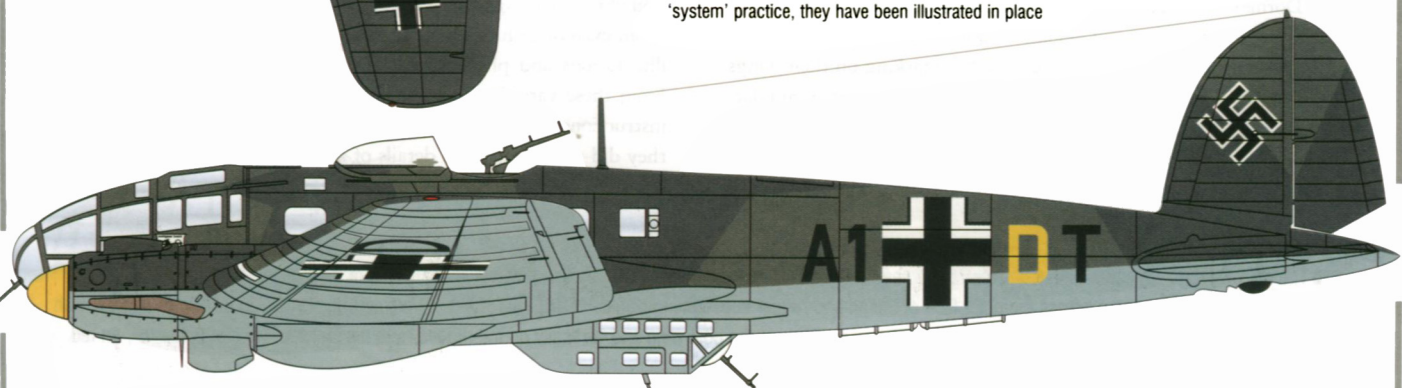
White 'bar' markings were found on a He 111 of 1./KG 26 which is said to have come down at Asplin Head on Foulness Island at 1530hrs on 15 September 1940. The aircraft was said to be coded 1H+IH with the individual letter 'I' and spinners in white. Although it is not certain, this aircraft might actually been coded 1H+JH. Two white stripes ran vertically on the starboard side only of the fin and one stripe was found to run vertically on each side of the rudder, each stripe being about 13 inches wide. No mention is made of any wing markings.

TOP He 111H-2, coded A1+DT of 9./KG 53, with three 'light coloured' stripes on the starboard wing, just inboard of the national marking. Note the areas of overspray where the bars have been masked out. Unfortunately, as the rudder is slightly offset to the right, it is impossible to tell whether bars were applied on the starboard side of the rudder or not. **BOTTOM** Despite its relatively poor quality, this photograph of a Kette of He 111Hs, (unit unknown), is one of the very few photographs showing bars on *both* wing tips - inboard of the national markings. Unfortunately the shadow cast across the fins and rudders has made it impossible to tell whether bars were carried or not.



Heinkel He 111H, (w/nr unknown), A1+DT of 9./KG 53, based at Villacoublay, France, September 1940

This aircraft suffered a port undercarriage collapse at its home base of Villacoublay, France in September 1940. It was finished in the standard Luftwaffe bomber scheme of the period comprising RLM Schwarzgrun 70 and Dunkelgrun 71 upper surfaces in the standard He 111H splinter pattern with RLM Hellblau 65 under surfaces. The individual aircraft letter 'D' was in the 9 Staffel colour, yellow, and the propeller spinners were also probably yellow. Photographs of this aircraft show it with three 'light coloured' stripes on the starboard wing, just inboard of the national marking, which we have illustrated in pink. Of note are the large areas of overspray, so noticeable on the photographs, where the bars have been masked out. Unfortunately it is not known for certain whether bars were applied on the starboard side of the rudder or not, but as this would follow the bar marking 'system' practice, they have been illustrated in place



White was also said to have been found on the remains of a He 111H-3, WNr 5680, coded 1H+CB of Stab I/KG 26, which came down near Hornchurch at 1620hrs on 11 September 1940. This aircraft is said to have had two white stripes on the port wingtip and the rudder.

Staffel colours?

In the past, it has been claimed that yellow was also used to apply these 'bar' markings to the wings and tail, but none of the RAF Intelligence reports seen by this author, (at the time of writing), can confirm this. However, this would, if true, raise the possibility that the markings could have been applied in the three common staffel colours - especially if the assumption was made that 'pink' was a more highly visible equivalent to red. Unfortunately, this theory breaks down when the colour of the bar markings is compared with the last code letter in the combination which identifies the staffel to which the aircraft was assigned.

Take for example the two Do 17s of KG 76 brought down on 15 September 1940, referred to above. F1+FS belonged to 8 Staffel of III Gruppe. 8 Staffel's assigned colour was red and the aircraft was marked with a pink bar. So far so good. However F1+DT belonged to 9 Staffel of III Gruppe whose assigned colour was yellow. F1+DT however was also marked with a single pink bar. The first part of the mystery therefore, is what, if anything, did the use of two, possibly three different colours signify?

One, two or three bars?

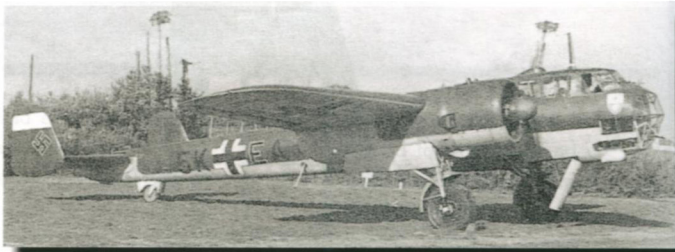
The second part of the mystery concerns the number of bars which could be applied to an individual aircraft.

It is apparent from photographic and documentary evidence that either one, two or three bars could be carried by an individual aircraft. Photographs have been found which show aircraft marked with one and three bars, but aircraft with two bars seem to have been rather 'camera shy' as I have never seen a photograph of one. Fortunately,

Variations in location of tail and wing markings

This brings us to the third part of the mystery, the variations in the location on the airframe of the bars between individual aircraft. It is thought that all three bomber types under discussion here carried bar markings on the vertical tail surfaces and the upper surface of the wings. As a general rule, it would appear that Do 17s carried their tail markings horizontally across the outer face of the fin and rudder whilst He 111s and Ju 88s carried their markings vertically, either on the fin, on the rudder or on both the fin and the rudder.

Contrary to popular belief, these markings do not appear to have always been applied to both sides of the tail surfaces of an aircraft. It would appear that the markings were frequently applied to one side of the aircraft only!



Wing markings

Photographic evidence suggests that Do 17s usually carried their wing bars chordwise, outboard of the national markings, whilst He 111s and Ju 88s carried their wing markings spanwise, inboard of the national markings. As usual however, there were many variations and it is possible to find photographs of these types marked differently. For example the Ju 88A-1, WNr 4136, coded 3Z+BB of I Gruppenstab KG 77, had its upperwing bar applied spanwise and outboard of the national marking on the port wing!

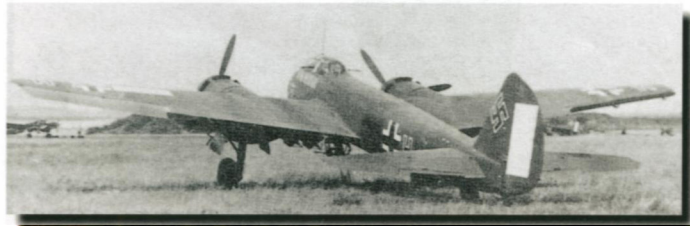
The bar markings were applied to the upper surfaces of either the port wing or the starboard wing, and it would seem occasionally to the upper surfaces of both wings on the same aircraft, and the number of bars on the upper surface of the wing invariably corresponded to the number of bars marked on the tail. There is no record, nor photographs known to the author, of similar markings appearing on the under surfaces of the wings of any aircraft at any time.

A correlation between wing and tail markings?

It is interesting to note that where the tail markings were applied to only one side of the tail, this was invariably the same side of the aircraft as the wing markings. This would appear to have been done deliberately, but exactly 'why' still remains unknown. The Ju 88A-1 coded 3Z+BB of Gruppenstab I/KG 77, mentioned previously, is just one example of this practice.

Variations in size and proportion

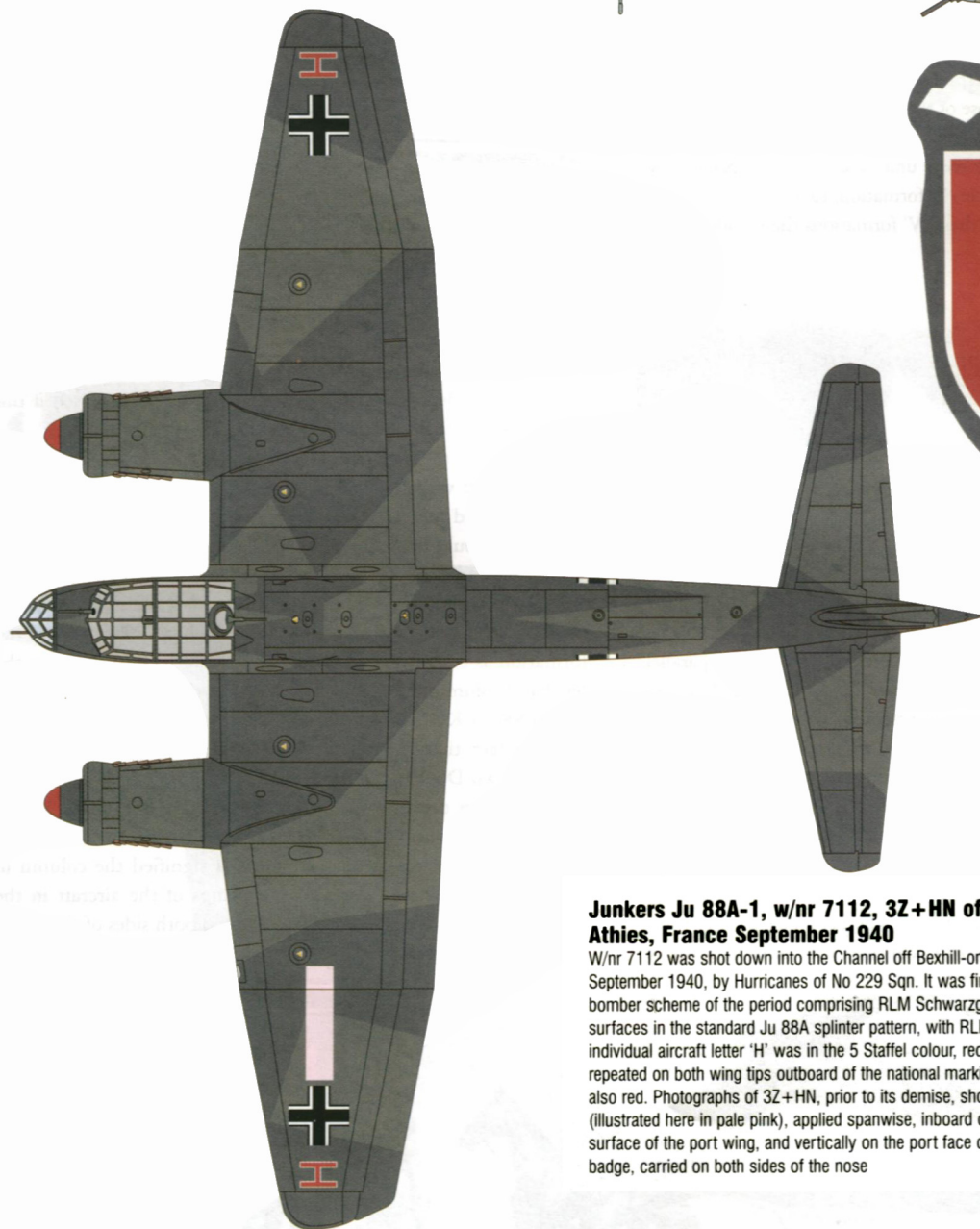
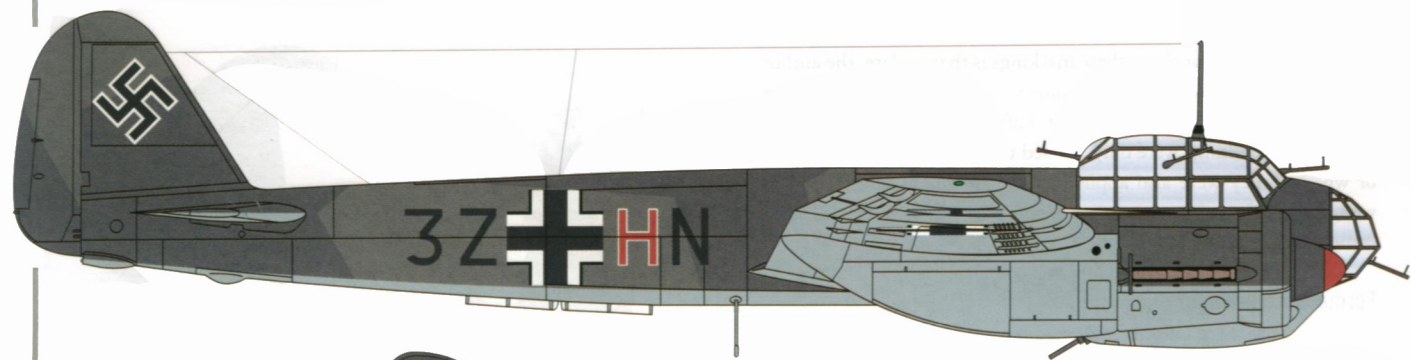
Trying to describe all the apparent variations in size and proportion of the markings which are visible in photographs in words would be an exercise in futility, so readers are referred to the accompanying illustrations and photographs to see the variations for themselves. From these variations it might be possible to deduce that whatever instructions were issued to cover the introduction of the markings, they did not give precise details of all aspects of how and where the markings were to be applied.



two of the RAF Intelligence reports referred to above, document the use of two bars on two separate aircraft, two pink bars being found on a Dornier 17 and two white bars being found on a Heinkel 111, so it would appear that some aircraft did indeed carry two bars.

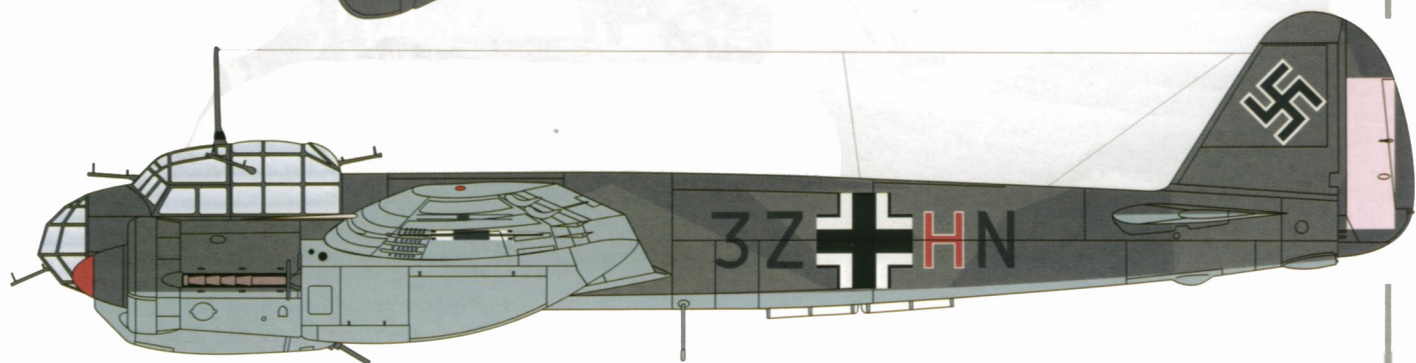
What the different number of bars signified is unknown, as there does not appear to be any relationship between the number of bars applied and the Gruppe to which the aircraft belonged within a Geschwader, which has been suggested in the past. For example, the two Dornier 17s of KG 76 mentioned previously, were both brought down on 15 September and belonged to different Staffeln within III Gruppe, but both only carried one pink bar marking on their wings and tails. Had the number of bars marked on the aircraft been related to the Gruppe, would not both aircraft have carried three bars? Additionally, two Heinkel He 111s of 5 Staffel, II Gruppe of KG 53, are recorded as having three pink stripes on their rudders.

TOP The bar markings appear to have continued to be used well into October as shown by this view of Do 17Z, 5K+EA of the Geschwaderstab KG 3, which has a pink (?) horizontal stripe across the outer face of the fin and rudder above the swastika. **BOTTOM** Ju 88A-1, (Werknummer 7112), 3Z+HN of 5/KG 77, with a large pale pink bar applied spanwise inboard of the national marking on the port wing and vertically on the rudder. Note the individual aircraft letter 'H', (in red with a white outline), on both wing tips outboard of the national markings.



Junkers Ju 88A-1, w/nr 7112, 3Z+HN of 5./KG 77, based at Laon-Athies, France September 1940

W/nr 7112 was shot down into the Channel off Bexhill-on-Sea, Kent, on the afternoon of 27 September 1940, by Hurricanes of No 229 Sqn. It was finished in the standard Luftwaffe bomber scheme of the period comprising RLM Schwarzgrun 70 and Dunkelgrun 71 upper surfaces in the standard Ju 88A splinter pattern, with RLM Hellblau 65 under surfaces. The individual aircraft letter 'H' was in the 5 Staffel colour, red, thinly outlined in white, and repeated on both wing tips outboard of the national markings. The propeller spinners were also red. Photographs of 3Z+HN, prior to its demise, show it with a large light coloured bar, (illustrated here in pale pink), applied spanwise, inboard of the national marking on the upper surface of the port wing, and vertically on the port face of the rudder. Note the II/KG 77 badge, carried on both sides of the nose



One curious thing about these markings is that to date, the author has only seen photographs and documents which link these markings to the Kampfflieger Geschwader of Luftflotte 2. Whether this is because the markings were only applied to the aircraft of Luftflotte 2 or whether they were also applied to the aircraft of Luftflotte 3 as well, but neither photographs or documents which show this have come to light, is unknown.

Formation markings?

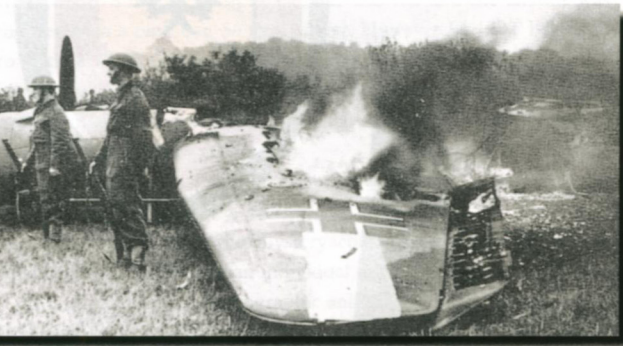
Quite how these markings worked has never really been satisfactorily explained either. Given the three suggested variations in their colour, the number of bars applied, and also their differing positions on the aircraft, the only interpretation seen by the author which attempts to explain the purpose of these markings, suggests that the number and positioning of the bars was related to the standard Luftwaffe bomber formation. The basic unit is said to have been some twenty or so aircraft in a double 'V' formation, each 'V' consisting of ten aircraft. Extended lines of these 'V' formations then made up the mass formation.



two column formation was the most common which would explain the lack of evidence for the third colour, yellow, being used if this colour was habitually assigned to the middle column.

Thus, when the formation as a whole was viewed from above and astern, aircraft with the markings applied to the port side would fly in the left hand column and aircraft which were marked on the starboard side would fly in the right hand column where the markings would be visible to each other and the aircraft in the middle column.

This interpretation is partly supported by one account of the opening attack on 7 September 1940, which describes part of the formation as consisting of... "the Do 17Zs of KG 76 flying in the left hand column, the He 111s of KG 1 in the middle column and the Ju 88s of KG 30 and II./KG 76 in the right hand column...", and the fact that the photographs referred to earlier, allegedly showing two Do 17s of KG 76, show both aircraft to be marked with a bar on the starboard wing. There is of course no way of telling what colour these markings were. If the side of the aircraft to which the bar markings were applied signified the column in which the aircraft was to fly, the markings of the aircraft in the middle column were presumably carried on both sides of the tail as well as both wing tips.

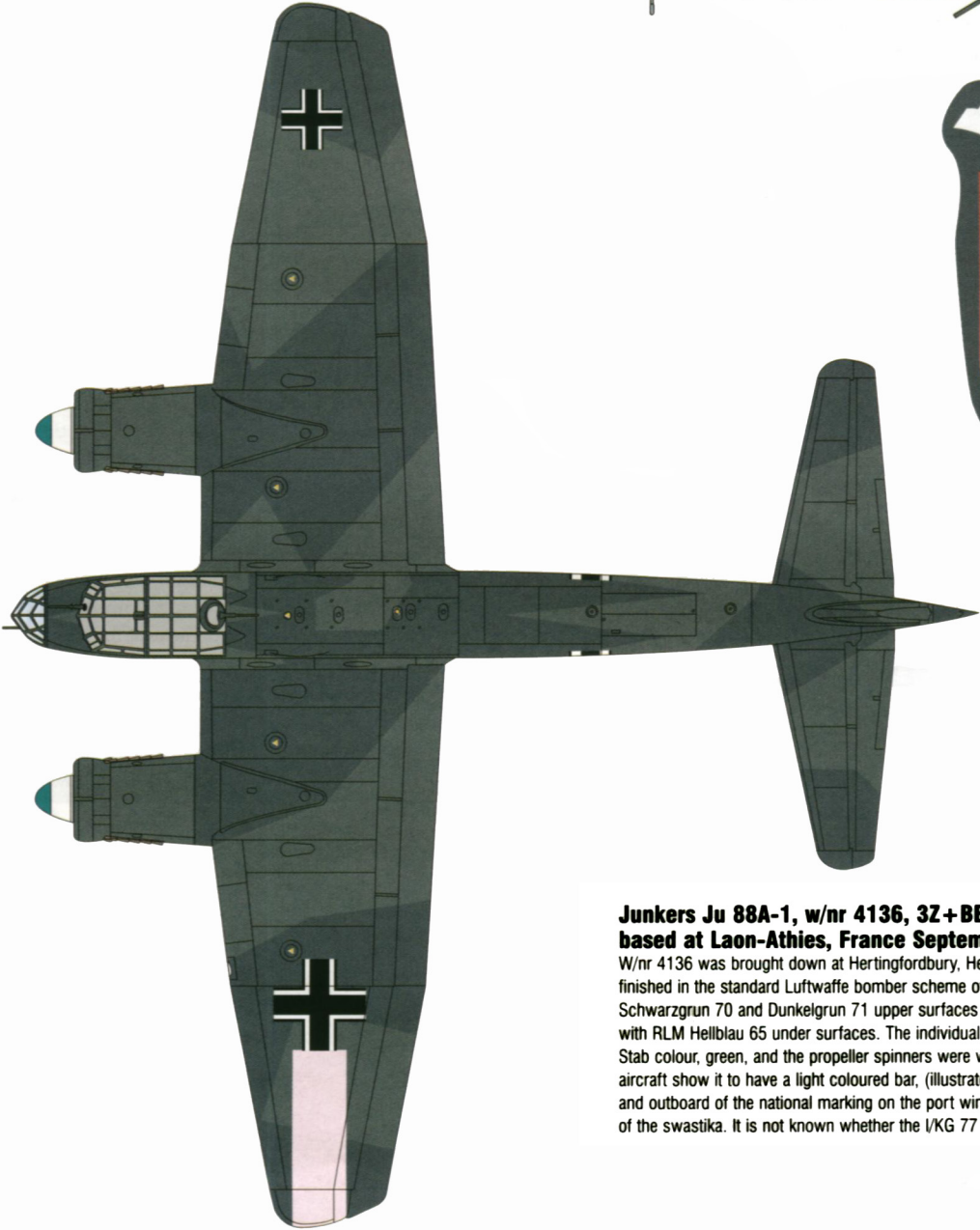
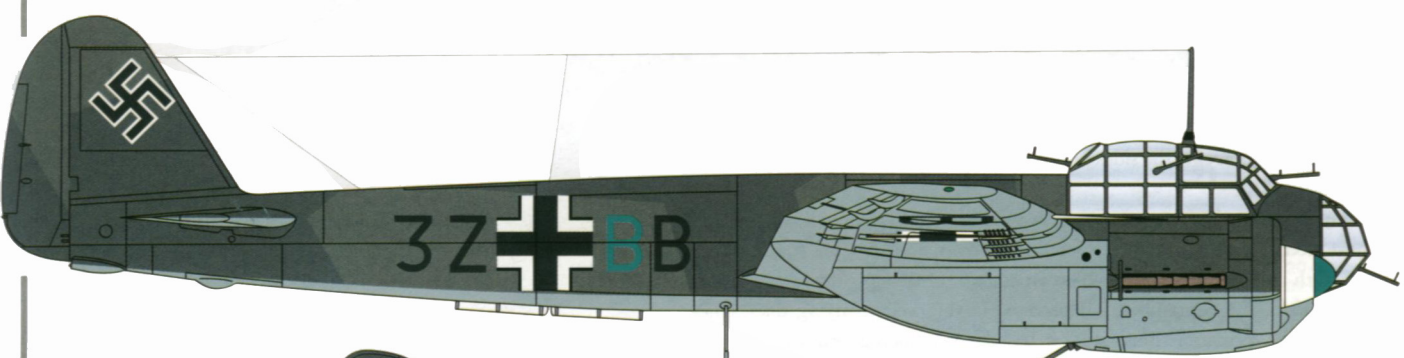


The interpretation referred to suggested that three parallel columns might each be allocated a colour and that the leading element would carry one bar, the second element two bars and the rear element three bars, and these markings would be changed before every operation. If this interpretation is correct, it could go some way to explaining the lack of correlation between colour and staffel number and Gruppe and the practice of marking just one side of the aircraft according to which side of the formation it was to fly on.

The colour assigned to each column could also be changed from one operation to another, depending on whether a one, two, or three column formation was to be flown. This raises the possibility that a

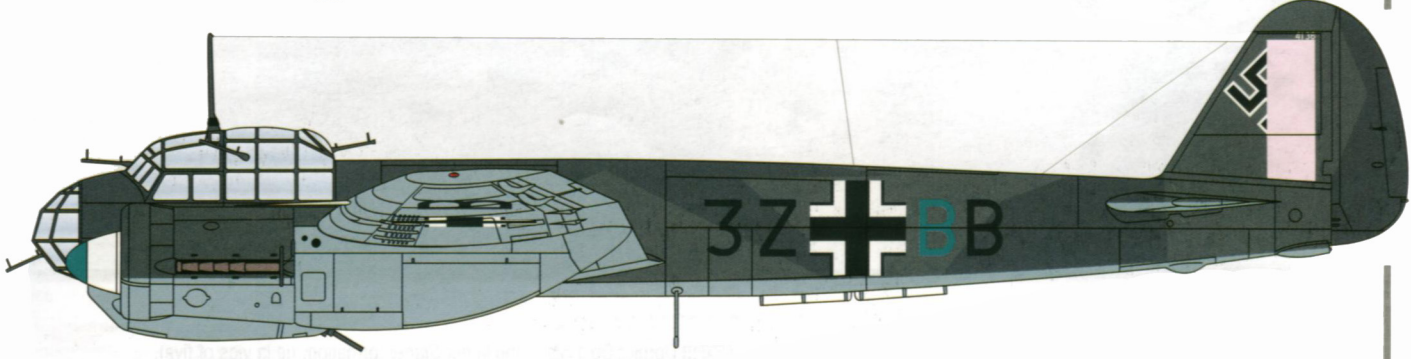


ABOVE Three views of Ju 88A-1, (Werksnummer 4136), 3Z+BB of I Gruppe Stab/KG 77, brought down at Hertingfordbury, Hertfordshire, on 3 October 1940. This aircraft had a large pale pink bar applied spanwise and outboard of the national marking on the port wing and vertically on the fin, obscuring part of the swastika!



Junkers Ju 88A-1, w/nr 4136, 3Z+BB of I Gruppe Stab/KG 77, based at Laon-Athies, France September 1940

W/nr 4136 was brought down at Hertingfordbury, Hertfordshire, on 3 October 1940. It was finished in the standard Luftwaffe bomber scheme of the period comprising RLM Schwarzgrun 70 and Dunkelgrun 71 upper surfaces in the standard Ju 88A splinter pattern, with RLM Hellblau 65 under surfaces. The individual aircraft letter 'B' was in the I Gruppe Stab colour, green, and the propeller spinners were white with green tips. Photographs of this aircraft show it to have a light coloured bar, (illustrated here as pale pink), applied spanwise and outboard of the national marking on the port wing and vertically on the fin, obscuring part of the swastika. It is not known whether the I/KG 77 badge was carried on this aircraft



One photograph has been published of a He 111, supposedly taken during the raid of September 7, which does not appear to show any bars on either wing. Unfortunately, the view is from directly above which prevents the sides of the fin and rudder from being seen.

A provisional interpretation of how these bar markings might have been applied to a three-Geschwader formation at almost full strength in three columns based on an account of the opening attack on London of 7 September, is illustrated in the accompanying diagram. The formation illustrated is based on a photograph which shows the aircraft in a Staffel formation known to have been used in daylight over the UK towards the end of August, as it has been impossible to find photographic evidence of the twenty aircraft in a double 'V' formation described above.

It would appear that the whole scheme would entail a lot of hard work for the ground staff if the markings had to be changed for whatever reason before each mission. Presumably the material used to apply these markings would have been lacquer 7120, a water washable distemper. If the markings were not changed, the whole idea would appear to be tactically inflexible with some units presumably having to occupy the same place in the formation on several missions. No bad thing perhaps for aircraft in the middle of the formation, which might be more difficult for the RAF fighters to get at and inflict casualties upon, but possibly a different story for those on the periphery of the formation which were perhaps more vulnerable. Perhaps many of the aircraft carried their tail markings on both sides of the tail permanently with only the wing markings being changed before a mission, but even then, the question of altering the number on the tail would have to be addressed.

The markings would however appear to be very flexible and would allow for casualties inflicted on the Luftwaffe by the RAF and/or the inevitable periodic unserviceability for whatever reason, of an individual aircraft. The markings could be altered to allow each Geschwader to operate the maximum number of aircraft available or required for each sortie without having to adhere to a rigid system dictated by the Staffel or Gruppe to which the aircraft actually belonged.

Thus ultimately, the reason why a cohesive system cannot be identified might be because one does not exist, as the markings were



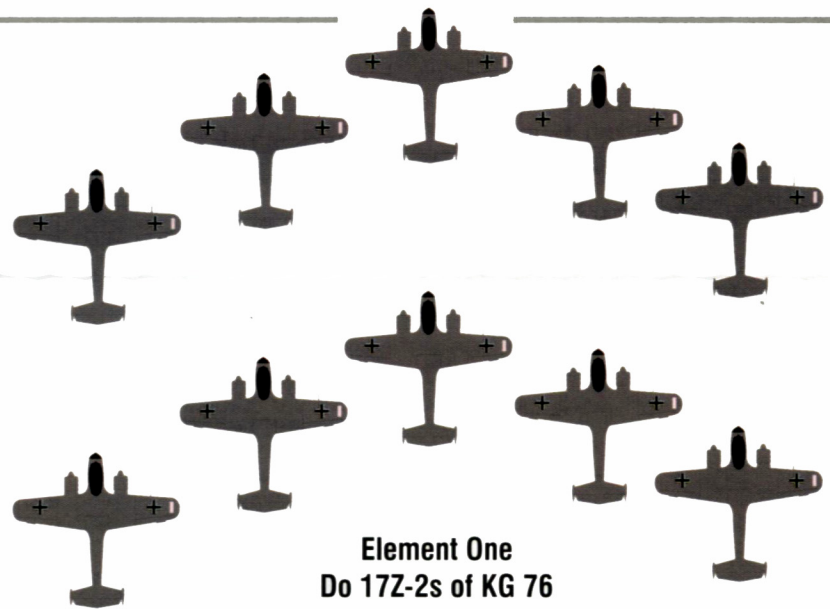
changed from one sortie to the next and the only way of pinning the system down would be to find some kind of record which would tell us which Geschwader flew how many aircraft in which column on a specific operation on a specific day.

It might be possible to shed more light on the subject if more photographs were available so that a more comprehensive idea could be obtained of which units marked their aircraft with one, two or three bars, and on which side of the aircraft such markings were applied and on what date. However, most of the photographs which have appeared in print tend to be the same ones, reproduced repeatedly, with no indication of the exact date, and these very seldom tell us all of what we need to know in any case as we can never see both sides of the upper surfaces of the same aircraft at the same time. It would thus seem that these markings will retain an element of mystery for the foreseeable future.

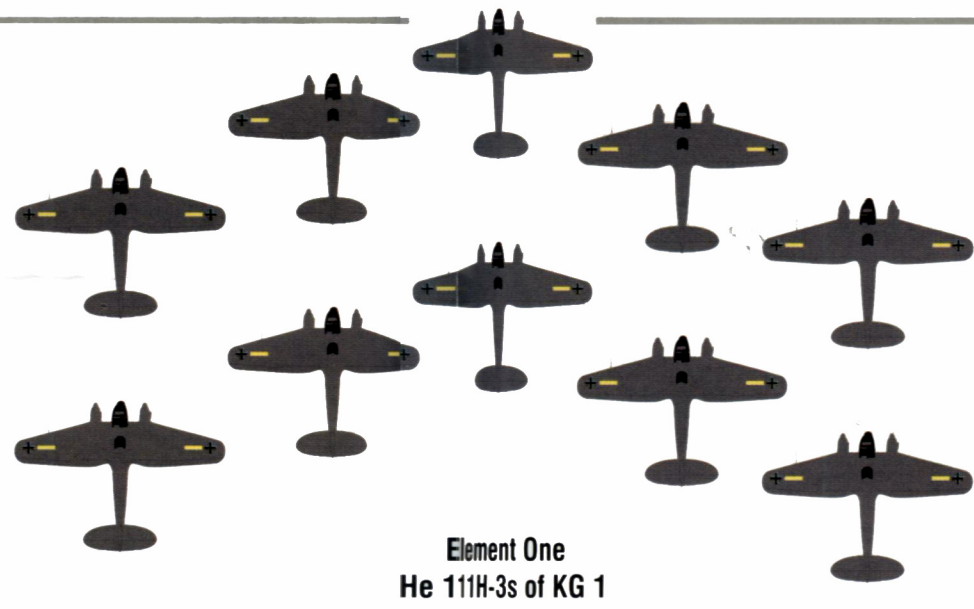
Needless to say, if anyone reading this actually knows how this system, (assuming indeed that it was a system), worked, either from personal knowledge or research from primary sources, we at 'Model Aircraft Monthly' would like to hear from you as we can throw no further light on the matter at the time of writing. **AM**



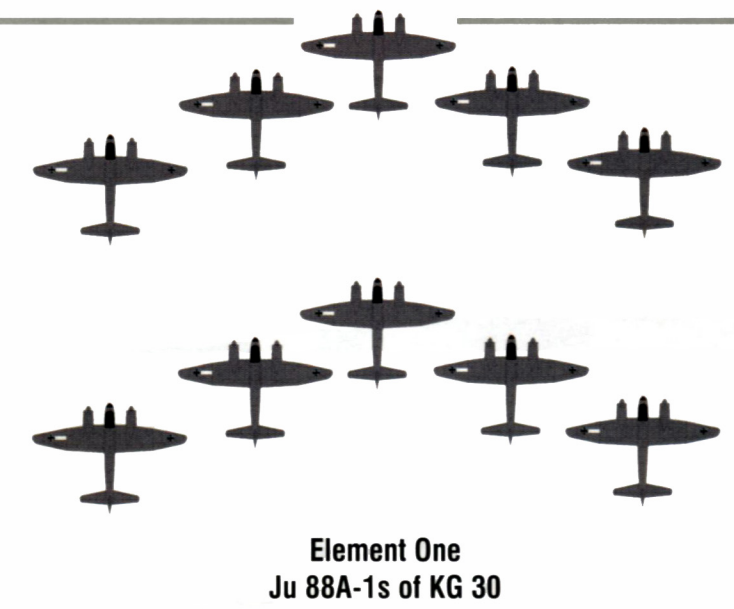
TOP Dornier Do 17Zs in the standard *Kette* formation, (ie in vics of three). **BOTTOM** Dornier Do 17Zs in the larger *Staffel* formation, (ie in vics of five).



Element One
Do 17Z-2s of KG 76



Element One
He 111H-3s of KG 1



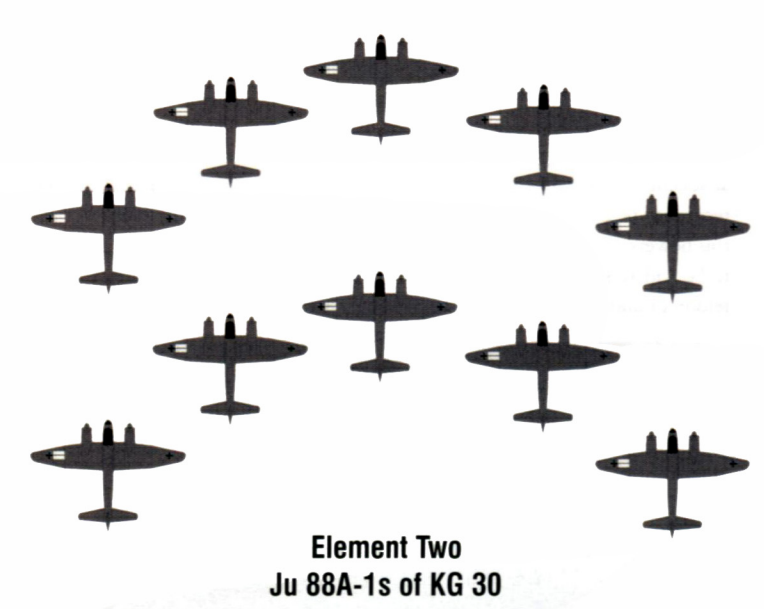
Element One
Ju 88A-1s of KG 30



Element Two
Do 17Z-2s of KG 76



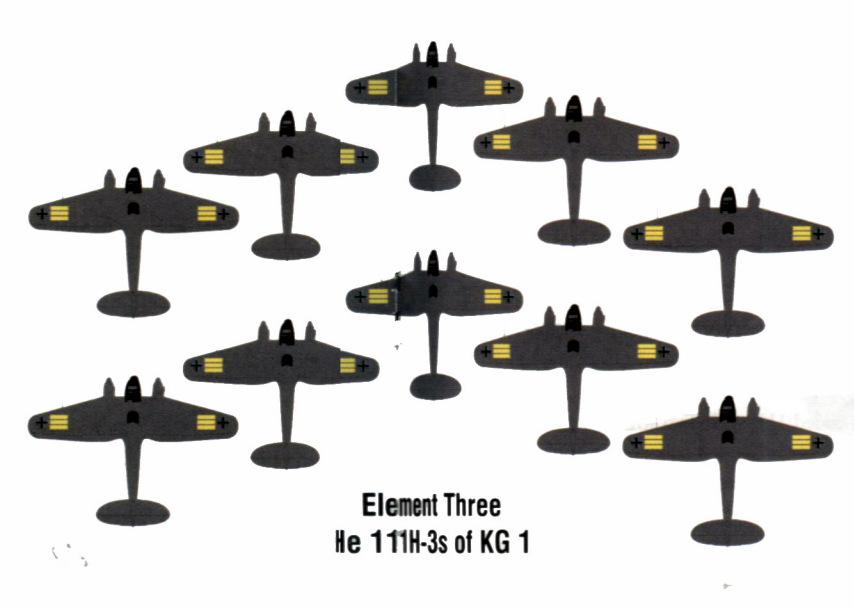
Element Two
He 111H-3s of KG 1



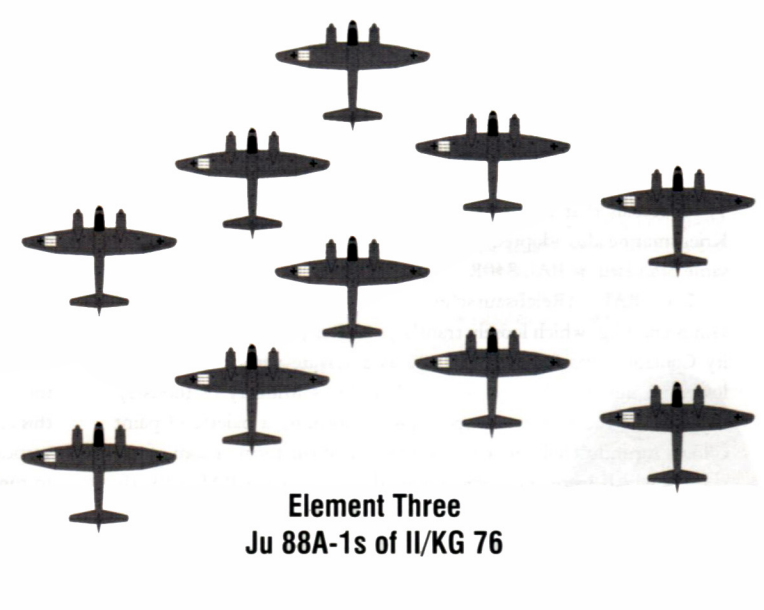
Element Two
Ju 88A-1s of KG 30



Element Three
Do 17Z-2s of KG 76



Element Three
He 111H-3s of KG 1



Element Three
Ju 88A-1s of II/KG 76

Luftwaffe raid on London, 7 September 1940

This schematic view shows how the bomber formations sent by the Luftwaffe against London during September 1940 may have looked. This, admittedly speculative, illustration, based upon reports of the actual raid on London on 7 September 1940, also illustrates a theory of how the 'mysterious bar markings', applied to so many Luftwaffe bombers during September 1940, may have been used in assisting in the formation keeping of so many aircraft from many different units and bases