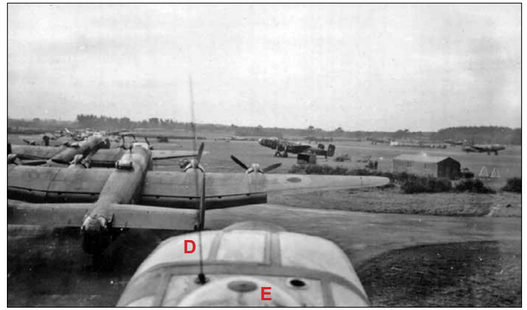


Above: The Halifaxes of 171 and 199 Squadron were equipped with the ARI.5672 Mandrel Mk.III jamming system, and as seen here beneath the nose of 'Jolly Roger', unlike the earlier Mandrel Mk.I 'Spitfire type' blade aerials Mandrel Mk.III used unpainted, tapered tubular metal aerials (A). The 60 in Type 201 GEE whip aerial (B) was a standard fit on all Halifax Mk.IIIs, as was the Type L SBA dipole.

Inset top right: A passive radar warning receiver which indicated when the parent aircraft was being tracked by enemy radar, Boozer Mk.I originally used a short 1/4 wave dipole beneath the rear turret angled forwards at 45 degrees, but this was eventually replaced by a Type 315A stub dipole which on 192 Squadron aircraft was installed near the H2S blister. With the preferred location beneath the rear turret unavailable due to the installation of Monica (and later AGLT), the Boozer Mk.III Type 323 aerial system was instead mounted on a large mast above the turret. In the absence of the reflective qualities of the aircraft's metal skin the vertically polarized Type 338 half wave dipole (C) was fitted with a passive reflector element (D). The single receiver Mk.I (also known as 'Yellow Boozer') indicated a Lichtenstein B/C night fighter radar contact while the dual receiver Mk.III ('Red Boozer') could additionally detect Würzburg flak and night fighter control radar, the red and yellow indicator lights being mounted on the pilot's instrument panel immediately above the blind flying panel.

Inset above right: Aircraft of 462 Squadron were equipped with three AN/APT-2 Carpet III Würzburg radar jammers, whose three AS-69/APT crossed-dipole 'Fishhook' antennae were mounted inside protective Plexiglas covers on the forward section of the port inner bomb door. In service the covers were usually finished in Night black (see page 62), and the unpainted examples seen in the image on page 61 may have been an experimental or post-war installation.



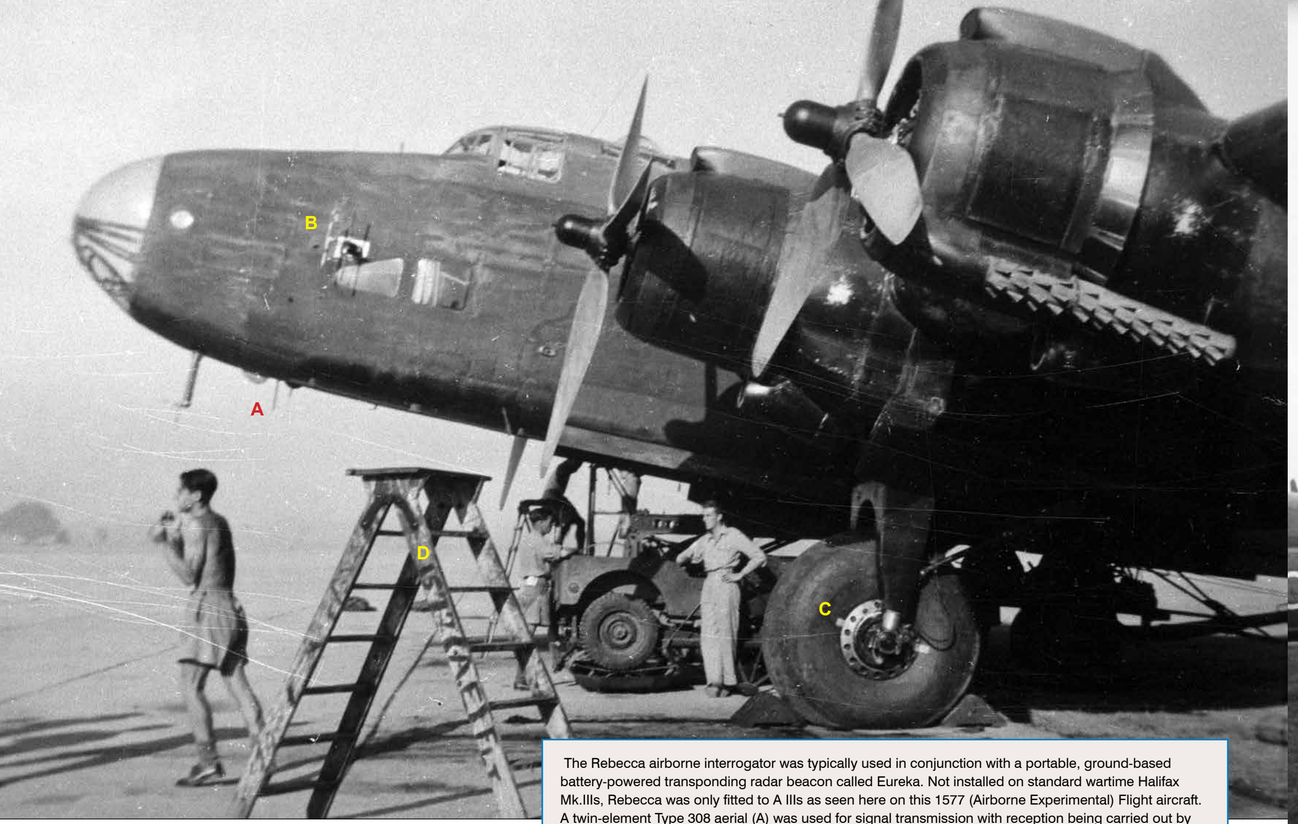




Above: Mandrel was designed to blunt Freya long range early warning radar, and here an ARI.5171 Mandrel Mk.I system 26 inch aerial (A) is just visible beneath the rear fuselage. On standard Halifaxes an 18 inch IFF Mk.III common transmission/reception Type 90 blade aerial (B) was located beneath the rear fuselage, however on A IIIs and Mandrel equipped aircraft such as this 420 Squadron Mk.III, the IFF aerial was relocated forward and to port out of harm's way for parachute operations and to prevent interference between IFF and Mandrel. The port and starboard static vents (C) were thin oval brass plates 5 inch by 2 ½ inch with a central ¼ inch diameter vent hole and a stencilled warning 'DO NOT PAINT'.

Top right: Installed on all Halifax Mk.IIIs, Standard Beam Approach (SBA) was based on the pre-war German Lorenz blind approach system and used two aerials; a 7 ft 6 inch long Type L Marker Beacon signal reception dipole beneath the nose and a Type 137 whip aerial (D) for receiving the Main Signal Left-Right Morse Code transmission. Also visible in the top of the astrodome is attachment bracket (E) for a Mk.IX bubble sextant.

Right: The Halifax's Type 3 D.F. loop was remotely controlled by the wireless operator using a hand wheel, flexible drive cable and bearing indicator. Following the deletion of the forward aerial mast on the Halifax Mk.II Series 1A, an attachment point for the main fixed aerials (referred to by Handley Page as 'V aerials') was added on top of the Marconi manufactured 12 inch diameter, 3 ft long three-piece Bakelite housing. Here a wireless mechanic is checking the cable tensions and insulators, the forward sections of the port and starboard V aerials being connected to the T.1154 transmitter/R.1155 receiver and TR.1196 HF transceiver respectively. On aircraft without a D.F. loop housing the forward ends of the V aerials were attached to insulated lead-ins mounted on the fuselage skin.

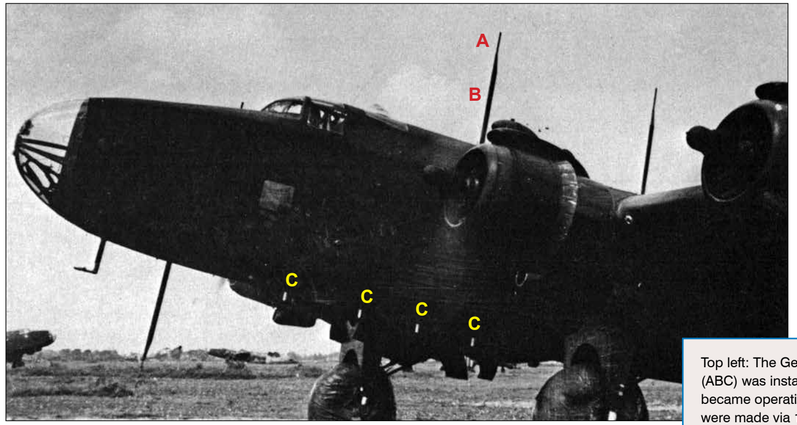


The Rebecca airborne interrogator was typically used in conjunction with a portable, ground-based battery-powered transponding radar beacon called Eureka. Not installed on standard wartime Halifax Mk.IIIs, Rebecca was only fitted to A IIIs as seen here on this 1577 (Airborne Experimental) Flight aircraft. A twin-element Type 308 aerial (A) was used for signal transmission with reception being carried out by the port and starboard Type 184 radar beacon aerials (B). Other points of note include the 1 ½ inch x 3 inch white painted mainwheel tyre creep marks (C) and '1577 (AE) FLT' (D) painted on the ladder.

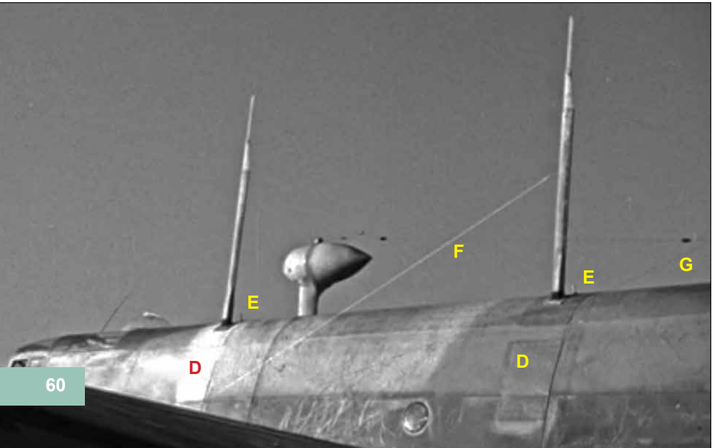
RADIO COUNTER-MEASURES



Beginning in October 1944 the Halifax Mk.III was used for enemy radar jamming operations by North Creake-based 171 Squadron. Six ARI.5672 Mandrel Mk.III transmitters were installed to cover as much of the Freya radar frequency range as possible, and three of the six Mandrel Mk.III aerials (A) are just visible in this post-war shot of former 171 Squadron aircraft MZ971 6Y-E 'I'm Easy' in storage at Rawcliffe. Most RCM Halifaxes had a dedicated, manually operated Window dispenser installed to the rear and starboard of the ventral turret/H2S mounting ring, a large three-louvre cowl (B) being fitted over the aperture to aid the effective dispersal of the metallized strips. Due to the increased size of the Window strips and the quantity required for a typical jamming sortie, a large storage rack was also mounted adjacent to the dispenser. Three Halifax A IIIs are visible to the left complete with glider towing bridles.



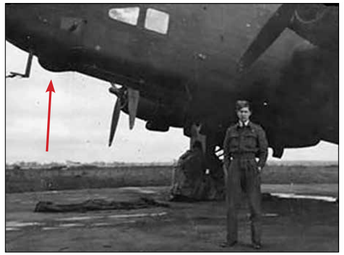


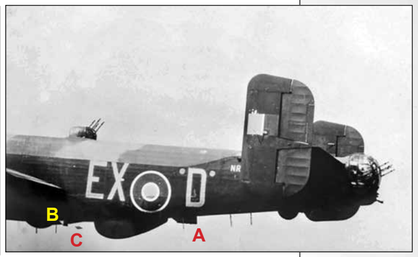


Top left: The German night fighter VHF control jamming system Airborne Cigar (ABC) was installed on 462 Squadron Halifaxes by St. Athan-based 32 MU and became operational with 462 on 13/14 March 1945. Jamming transmissions were made via 12 inch aerial elements (A) which were interchangeable to permit coverage of different frequency bands. To function correctly the elements had to be mounted a sufficient distance from the metal airframe and so they were screwed into the ends of three 72 inch Type 313 masts (B). This image also shows an alternative Carpet III jamming transmitter aerial installation of four AS-33/APT-2 aerials (C), one being fitted next to the trailing aerial fairing and three mounted on the port inner bomb door.

Left: Due to their considerable size and the aerodynamic loads imposed on them the hollow ABC masts were braced inside the fuselage and required large external skin reinforcing plates (D), stub aerials (E) also being installed adjacent to each mast. The cable (F) connected the wireless operator's T.1154 transmitter and R.1155 receiver to the port 'V' aerial while the TR.1196 HF transceiver was connected to the starboard 'V' aerial by a short cable (G).

Above: Two of 462 Squadron's Australian pilots 'B' Flight Commander S/L Alan Swann & F/O Owen O'Malley lend scale to an unpainted forward ABC mast (H). Reception for the jamming system's panoramic scanning receiver was via a 60 inch Type 117 whip aerial installed aft of the mid-upper turret. Also visible in this shot are two components of the American-produced AN/APT-2 (ARI.5722) Carpet III jamming system; the black-painted plastic cover (I) on the forward end of the port inner bomb door which protected the forward-most Carpet III aerial, and an AS-33/APT-2 antenna comprising a ¼ wave stub aerial inside a 4 inch long, 1 inch diameter white plastic housing (J).





Above left: The aerial fit of 192 Squadron Halifaxes varied somewhat and for searching the 300 – 600 MC/s band, a ¼ wave cone aerial within a black painted protective Perspex cover (arrowed) was sometimes installed beneath the nose, the cover being slightly offset to starboard. All RCM Halifaxes carried an eighth crew member to operate the Window dispenser or electronic jamming/recording equipment, the latter of which on 192 Squadron Halifaxes were all mounted on racks installed in place of the starboard rest bed in the centre section. Regardless of the additional crew member's actual role they were always referred to as the 'Special Duties Operator', 'Spec Op' or 'SO'.

Above right: The Halifax Mk.III was used in the Mandrel and Window jamming role by 199 Squadron commencing in February 1945. As with 171 Squadron Halifaxes, Window dispensers (A) and six Mk.III Mandrel sets were installed, some of the ventral aerials for which are visible in this shot of English Electric-built NR243 of 199 Squadron. The aircraft was used to test a bomb bay mounted, electrically-powered Mk.Ia Window dispenser whose chute (B) protruded through a cut out in the bomb doors, a Window bundle (C) having just been released. Although successfully tested the Mk.Ia dispenser is not believed to have been used operationally (see page 65).

Right: What is believed to be a 462 Squadron Halifax bristles with an unusual (and possibly experimental) set of antennae which includes five Mk.III Mandrel aerials (D) and seven Type 315A stub dipoles (E). Installed on 462 Squadron Halifaxes beginning in early March, three Carpet III jamming transmitters are fitted, the AS-69/APT crossed-dipole 'Fishhook' aerials for which (F) are visible inside their clear plastic covers (see page 56). Believed to be a wide band AT-49/APR-4 antenna, the aerial (G) beneath the nose comprised an 8 inch diameter 60-degree metallic cone mounted on a truncated, light brown coloured fibreglass support cone.

