



Tempest Forecast

Darren Harbar reports on an exciting warbird project at North Weald



Hawker's final piston-engined fighter, the Sea Fury, has been a familiar sight at European, American and Australian airshows for decades. The same cannot be said for its forebear, the Tempest, but that gap looks set to be filled: after many years of restoration a Tempest II is well on its way back to flying in the UK.

The team at Weald Aviation Services, based at North Weald in Essex, has taken on the task of making the dream a reality. As with any return to flight project, particularly a new 'breed', there is still significant work to be done on MW763.

The 1945-built fighter was supplied to the Indian Air Force in 1948 and may well have flown through to the mid-1950s. Like

many others, this machine became an airfield decoy, parked out on the perimeter of the air base at Poona to confuse intelligence-gathering, or distract, enemy aircraft. (See panel on page 97.)

In 1979 the Indian Government offered for tender eleven Tempest II airframes, nine of which were at Poona. All were derelict, some intact and others lacked wings. Six returned to the UK in the hands of Warbirds of Great Britain, the late Doug Arnold's company. It is believed the other five were scrapped on site, deemed to be in too poor a condition to transport.

Much-travelled project

By the early 1980s, Tempest MW763 was acquired by well-known restorer and warbird pilot Nick Grace. Following his untimely death in 1988, the project was then taken on by Brian Angliss who moved it to Brooklands and registered it as G-TEMT in 1989. Restoration to flight started at Brooklands, but after a number of years MW763 was on the road again.

It was trucked to Lincolnshire in November 1996, eventually settling at the former RAF bomber base at Wickenby. Ownership transferred to Tempest Two Ltd in January 1997 and further work was carried out. MW763

progressed and, to the untrained eye, it looked close to flying status. But as readers of *FlyPast* will know, the final 'push' can be the longest!

The project moved once more on May 14 last year, arriving at the Weald Aviation hangar. It has been acquired by Canfield Hunter Ltd - that's not a 'typo', the company gets its name from an Essex village and not the Bedfordshire airfield. As its name implies, Canfield Hunter already has a Hawker connection, owning a pair of the classic jets: airworthy T.7 WV372 (G-BXFI) and restoration project T.8 WV322 (G-BZSE).

Taking stock

A lot has happened since the Tempest's arrival at North Weald, not least the construction of



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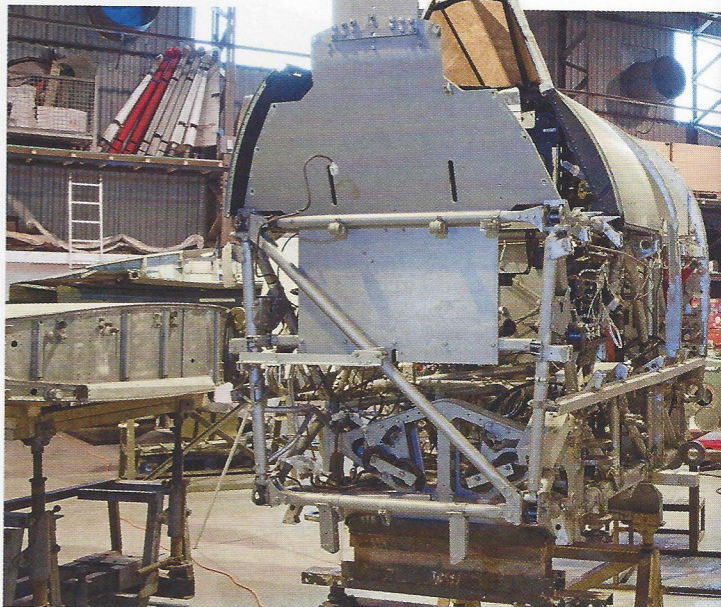
The rebuilt rear fuselage.



Considerable work is being carried out in the cockpit, including replacing the control column casting.



"The cockpit instruments and controls will all be removed and refurbished before being reinstalled"



a dedicated restoration area in the Weald Aviation hangar. The fighter has been dismantled for a structural survey, the process revealing what work is required to make it airworthy.

Russ Smith, Weald Aviation's Accountable Manager, is overseeing the project. He outlined progress so far: "The tail section and rear fuselage have been stripped of paint and the tail has been placed in a purpose-built jig, which has allowed some of the components to be removed for detailed inspection. During this process we've uncovered a number of sub-standard historic repairs in a key structural area adjacent to the tailplane spars.

"There was also a lot of riveting

in need of rework, along with some significant corrosion issues discovered as the unit was dismantled. Replacement parts are therefore being manufactured, using the originals as patterns, which is a job Weald Aviation has already outsourced.

"A few of the frames have already been completed and returned to North Weald, ready to be fitted. Once all the frames and ribs are checked, treated or replaced, the tail section will be re-skinned.

"The next stage is to tackle the 'monocoque' rear fuselage section which, despite being re-skinned at some point in its life, will need additional work. Some minor corrosion has been found in the rear fuselage stringers; these and the



The forward fuselage of Tempest MW763 in its North Weald workshop in early 2015.



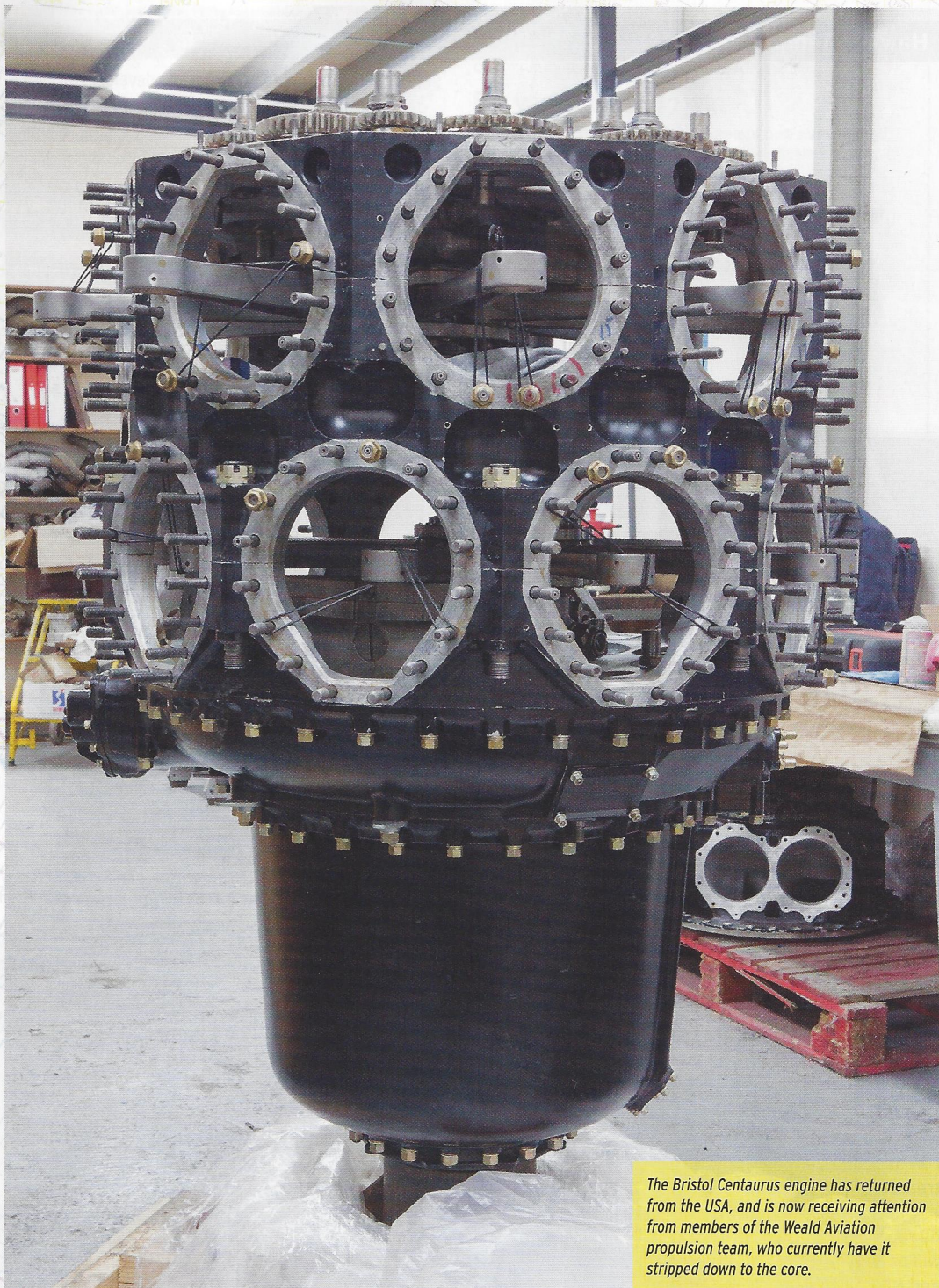
skins will need replacing. The plan is to have the rear fuselage back together by the end of the year."

Hurricane roots

The team is also progressing with the cockpit area and wings. The front section of the Tempest II is similar to the tubular construction of the Hurricane, and the tubes will all undergo non-destructive testing (NDT) to ensure the integrity of the structure.

Russ continued: "The cockpit instruments and controls will all be removed and refurbished before being reinstalled. Upon removing the control column, corrosion was found in the casting that holds the column and rudder bars in place. This has necessitated a replacement: a new casting is now being manufactured.

"The wings are a similar design to those of the Sea Fury, so the team have some experience with these. However, a new set of jigs is likely to be needed in order to restore the wings. The team has some original photographs of ➡

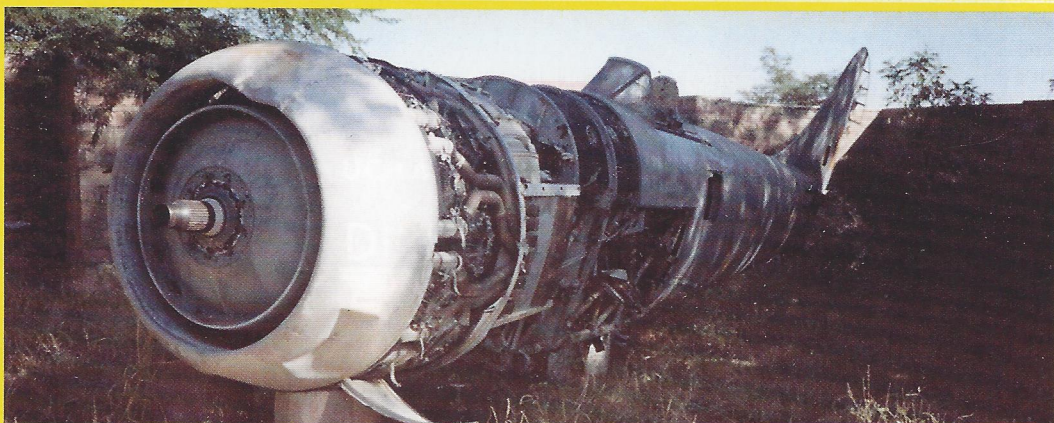


The Bristol Centaurus engine has returned from the USA, and is now receiving attention from members of the Weald Aviation propulsion team, who currently have it stripped down to the core.

Tempest II MW763

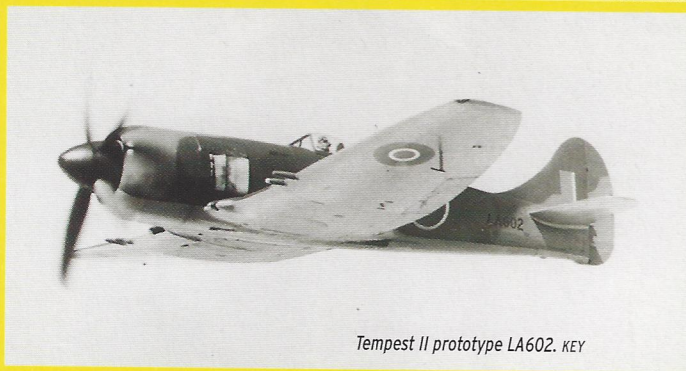
Built in early 1945 and flight tested at Langley, Tempest II MW763 served with the RAF's 183, and then 54, Squadrons. By 1947 it was surplus to requirements and was held in store at 20 Maintenance Unit, Aston Down. It was transferred to the Indian Air Force as HA586 in May 1948, having been refurbished by a Hawker working party. By 1953 it had been withdrawn from use, becoming a decoy at Poona.

One of the Tempests shortly before being recovered at Poona. PETER ARNOLD COLLECTION





Hawker Tempest II



Tempest II prototype LA602. KEY

The Tempest was a development of the Typhoon with an elongated fuselage and a thin, laminar-flow wing. Two versions went into the production - the Mk.II, powered by the Bristol Centaurus radial, and the Mk.V, with a 2,200hp (1,641kW) Napier Sabre IIB 24-cylinder H-format sleeve-valve engine.

The prototype Tempest II took its maiden flight on June 28, 1943. A total of 452 were manufactured, all but 50 at Langley, the rest being built by Bristol at Weston-super-Mare.

Tempest IIs first became operational in August 1945 with 183 Squadron at Chilbolton. Mk.IIs went on to serve the RAF in India, Malaya and West Germany, the final aircraft being retired in June 1951. The Indian Air Force took on more than 100 examples from 1947 and Pakistan acquired a batch of new-build Tempests in 1948. Both countries had withdrawn the type by the mid-1950s.



The custom-built jig around the original tail section. Note where the team has marked up the skins to show the various rib identities and locations.

wing production at the Hawker factory showing a number of helpful elements, including some detailed images of the jigs.

"The leading edges will need re-skinning and have already been removed to expose the main spars. Subsequent paint stripping of the spars and ribs has revealed corrosion which will all now be treated.

"Once in a jig, the spar webs will be replaced, but the spar caps will need further visual checking and NDT before a decision can be made on what's required. It's estimated there's at least a year's work required on just the wings, but it's possible this will happen alongside the fuselage work.

"It's expected the aircraft will come together very quickly once these major components are completed. At that stage, the process of refitting and testing the systems can commence."

Magnificent radial

Arriving separately from the airframe was the Tempest's 2,520hp (1,878kW) 18-cylinder, two-row, air-cooled, sleeve-valve Bristol Centaurus V radial engine and cache of spares. Partially

overhauled by a specialist workshop in the USA it is now progressing apace in the Weald Aviation engine shop.

The team has acquired two additional Centaurus engines, one of which is a very rare, original Tempest II powerplant found in the USA. The plan is to have a spare airworthy engine, the third being used as a source of spares.

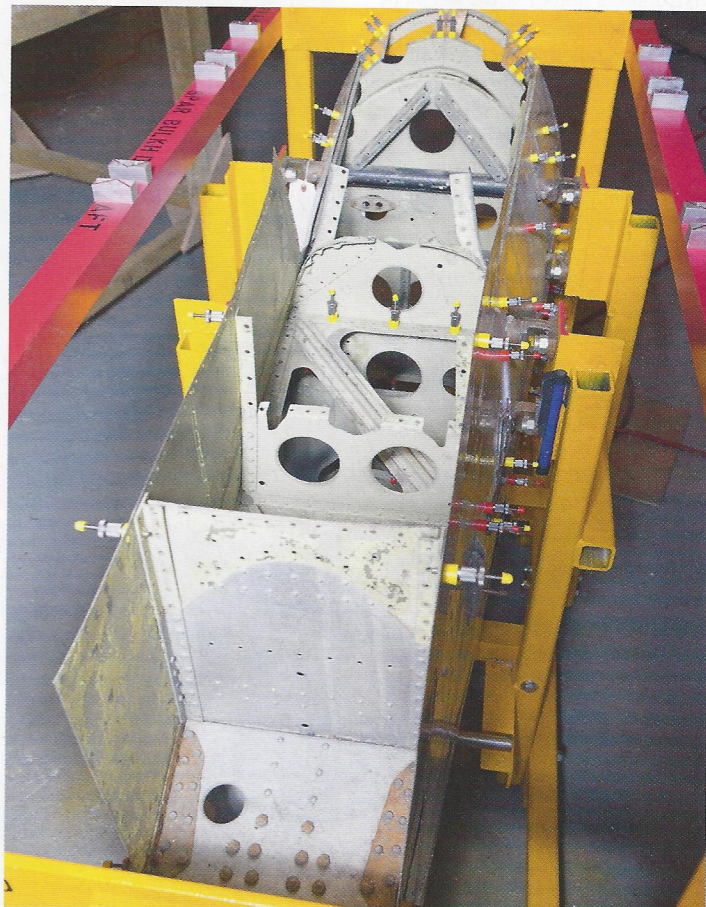
Locating a propeller has not been easy. During the time the Indian Air Force was using Tempests as airfield decoys, the propellers were removed to make the aircraft appear to be jets from the air. None of these airscrews survived. Hub components have been sourced and a new set of blades is being manufactured.

This aircraft will be a special addition to the UK warbird population and the team at Weald Aviation is investing significant time and effort in the project. The chance of seeing a Tempest II flying once again moves ever closer.

Thanks to Russ Smith and his Weald Aviation team for their support during the production of this feature. ●



As part of the restoration, a number of new frames have been produced using the originals as a pattern. Illustrated is an old unit from the tail section assembly alongside a new component for comparison.



The tail fin, revealing the ribs and frames that support the tail planes. Frames are being removed and replaced one by one in order to keep the structural positioning within the jig.