F-18: US Navy Air Combat Fighter

In about one week’s time a Defence Systems Acquisition Review Council (DSARC) is due to give the full go-ahead for development of the US Navy Air Combat Fighter. CHARLES GILSON looks at the trials and tribulation involved in finding an F-4 and A-7 replacement and describes the proposed McDonnell Douglas/Northrop F-18, finally chosen in May to do the job.

If anyone needed further proof that it is still nigh-impossible to derive a satisfactory carrier-borne fighter from a land-based one, then the McDonnell Douglas/Northrop F-18 is probably that proof. So comparatively few years after McNamara’s TFX near-disaster, it might seem strange that Congress should ask American industry (or at least the lucky USAF Air Combat Fighter competitors and their industrial partners) to attempt exactly the same process; yet that is what Congress did in October 1974 in directing the US Navy to choose a derivative of the Air Force’s Air Combat Fighter. What then became known as the Navy Air Combat Fighter (NACF) was thus a Congressional interpretation of, or perhaps an imposition on, studies of a so-called VFX which had been going on for upwards of a year. Whatever the intentions of Congress in making that imposition the well known result was, of course, that the USAF chose the General Dynamics F-16 while the USN chose the Northrop YF-17 as modified by partners McDonnell Douglas and General Electric. It could thus safely be said that technology from the USAF programme had been substantially used—nevertheless the F-18 is, as we shall see, a very different beast from the YF-17, and not surprisingly so.

Before the Service and Congress fully realised the cost of the F-15 programme and the huge potential of foreign sales (spurred on by the business recession and oil crisis), there was precious little sign that the USAF had a requirement for a fighter the size of the F-16. The extent to which it is a “Congress-designed” aeroplane is perhaps unprecedented. The Navy, on the other hand, seems against the odds to be ending up with an aircraft closer to earlier requirements than it might itself have expected.

The US Navy is in the process of a reduction to 12 carrier air wings with a total of 24 fighter squadrons; small brother Marine Corps is maintaining 12 fighter squadrons in three wings. In addition there are four Navy and two Marine Corps reserve fighter squadrons. In August last year Secretary of Defence Schlesinger established a force level of 18 F-14 Tomcat squadrons and approved plans for the procurement of a total of 390 Tomcats. Of this total the Navy was to operate 14 squadrons and the USMC four. The remainder of the fighter squadrons were to be composed of F-4B and F-4J Phantoms—these were to go through refit in order to extend their Service lives by some six to eight years.

Unlike the USAF Air Combat Fighter, the F-18 will carry Sparrow missiles for out-of-visual-range engagements and the radar will be required to have a greater acquisition range as a result. As an attack aircraft to replace the A-7, the F-18 is likely to have a limited all-weather capability. If the missiles fail, and a dogfight develops, stabilised combat manoeuvring ceiling for the F-18 is estimated at just over 49,000ft.

These plans have now changed a little since it was announced on August 1 by the commandant of the US Marine Corps, Gen Wilson, that the USMC will not get its four squadrons of F-14s (48 aircraft plus about a dozen for training). Instead it will receive four squadrons of F-18s, in addition to the eight already anticipated. USMC crews had already started conversion to the Tomcat and were expecting to have the first squadron operational by the end of this year, but they have now been transferred back to F-4s. The shortfall in fighters will be made up with Phantoms from the Navy which will still go through the life-extending refit so that USMC Phantoms will eventually all be F-4Ns and F-4Ss. The Navy will be taking up the extra four squadrons of F-14s, Congress permitting, so that costs and numbers of both F-14 and F-18 programmes should remain unaffected.

It has nevertheless been estimated by the Navy that there will be an overall shortage of fighters amounting to about 45 aircraft in 1980, increasing to about 75 by 1981. According to Vice-Admiral W. D. Houser, deputy chief of Naval Operations (Air Warfare), the maintenance of an adequate fighter force is thus one of the most pressing tactical air problems in the Navy.

Very much behind this problem are the difficulties experienced with the F-14 contract and the limitation in the procurement rate to 50 aircraft per year; up to 96 a year had been planned. During 1973 there was a plan to “fly off” a lower-cost version of the F-14 with a naval version of the F-15 and an improved F-4, but Congress rejected the proposal as too expensive and not worthwhile. The so-called Navy Fighter Study IV was then organised to compare variants of the F-14, naval versions of the F-15...