

# North American X-15A-2

**History:** The X-15 was one of the series of purely experimental aircraft developed in the United States from the mid 1940s, starting with the Bell X-1 that was the first aircraft to break the sound barrier. By the early 1950s later X-craft were beginning to explore the speed range around mach 2 and the need began to emerge for a far more advanced aeroplane to push aeronautical knowledge into the hypersonic range, up to around mach 6. Planning for the X-15 began in June 1952 when the United States National Advisory Committee for Aeronautics (the forerunner of NASA) began studying the problems associated with very high speed and manned space flight. By 1954 it had decided it needed an aeroplane to explore flight operations at very high speeds and altitudes including construction techniques and materials that could be used in high temperature hypersonic airframes. The United States Air Force and Navy were brought into the project because they too needed to know more about very high performance flight and by the end of 1954 they had arrived at basic design criteria for an aeroplane capable of flying at 6637 km/h (4125 mph), attaining an altitude of 76 200 metres (250 000 feet) and withstanding temperatures of 1200 degrees F. Four companies responded to the invitations to build the aeroplane and North American won the contract by a narrow margin over Douglas. Separate specifications for the rocket engine were issued and the contract was won by Reaction Motors for an engine that could develop up to 25 878 kg (57 000 lbs) of thrust and could be throttled by the pilot from 40 to 100 per cent. In addition, because the X-15 would be air-launched, two B-52Bs were converted to carry them.

X-15 construction began in September 1956 and three were constructed in all. As often happens, the rocket motor development took longer than the airframe so the first X-15 (56-6670) was initially powered by two much smaller XLR11 rocket motors. The first X-15 flight was made on 10 March 1959 while it was still connected to its B-52 mothership, it's first gliding flight occurred on 8 June and its first powered flight occurred on 17 September 1959, easily exceeding mach 2. The more powerful XLR99 motor was installed in the second X-15 (56-6671) that made its first flight with that engine on 6 December 1960. The final flight with the less powerful engines occurred in February 1961 and after that all three X-15s settled down to a long and fruitful experimentation program, often and regularly setting new records for the speeds and altitudes they achieved.

On 9 November 1962 the second X-15 (56-6671) crash landed after a motor malfunction and was severely damaged. It was returned to North American which reconstructed it in a more advanced form called the X-15A-2 with the fuselage lengthened by 0.74 metres (2ft 5in) and external fuel tanks added that gave it the capability of running the rocket motor at full thrust for 145 seconds rather than 86 seconds. This allowed it to reach higher performance standards and to trial an ablative coating which was supposed to reduce the heat stress on hypersonic aircraft but proved to be impracticable after it was tested on the X-15. This occurred on 3 October 1967 when the X-15A-2 reached mach 6.72, over 7273km/h (4520 mph) at 31 120 metres (102 100ft).



Airframe heat reached above 2800 degrees that burned a hole in the skin. The ablator coating was in such a terrible condition that it was never tried again, the X-15 was restored to its former condition but did not fly again.

On 15 November 1967 the third X-15 was lost during a test flight and the pilot was killed. It was the only major setback of the entire X-15 project although there has been some highly sensational moments along the way. The final X-15 flight occurred 24 October 1968 with 199 flights having been made. Several attempts were made to fly the 200<sup>th</sup> mission but they were unsuccessful, suggesting how hazardous X-15 flights could be. The end result of the X-15 program was aeronautical research. By May 1968 766 technical reports had been published on the X-15 program, 276 relating to the X-15 and its development, 290 related to the X-15 flight test program and 200 were general research studies inspired by the X-15. The two remaining X-15s are on display in museums in the United States.

**Data:** high speed rocket powered test aeroplane. *Engine* one Reaction Motors XLR-99 rocket motor of 25 855kg (57 000lb) thrust. *Wing span* 6.71m (22ft). *Length* 15.24m (50ft). *Maximum take-off weight* 15422kg (34000lb). *Maximum speed* 6693km/h (4159mph). *Flight crew* 1.

### **The kit: Monogram 1:72**

Anyone who hasn't made a model of the X-15 doesn't have a sense of aviation history or an aesthetics bone in their body. Who could fail to find this little black aeroplane interesting and attractive to look at? The only excuse could be that this is not an easy-to-find kit, so far as I am aware there was an ancient Revell kit and a more recent Monogram kit. I've made the old Revell kit and the more modern Monogram kit twice.

The Revell kit is one of those things designed to fit into a box so it has no particular scale and, beside that, it's not a terribly good kit if my memory stretches back to the 1960s accurately. The reason I made the Monogram kit twice was because I made a mess of the finish on the first one when I made it in 1996 (which is difficult to do so we'll say no more about it) but since the kit disappeared from the shop shelves very quickly I had to keep it because I do have a sense of aviation history and several aesthetic bones as well so my collection could not be without it. However, a year ago I managed to pick up another Monogram kit at a swap & sell and that gave me the opportunity to have a second go at it.

There is nothing complicated about this kit. It is well moulded with a very nice little cockpit that is invisible through the tiny window. The only problem of any note is the fit of the cockpit which is a little off and needs some filling and sanding. The gaps between the fuselage and the wings need a little filling too, but all that is hardly an evening's work. The challenge comes with getting the look of the machine right because, while the X-15s were painted black and were very well maintained, their finish got quite worn by the time they stopped flying. It also seems that at various times they also wore white calibration markings and changed around some of their markings at times with, for example, the NASA logo not appearing until that organisation was created.

The instructions are more than a little vague about the location of some of the decals and some of the detailed painting such as the steel ball nose and the rocket exhaust. There are, however, some good photos of the X-15A-2 afloat around the internet that help out in that direction. I gave the airframe a single coat of semi-gloss black and by the time I handled it a bit while applying the decals it didn't look too bad and I used the wheels and tanks from my previous attempt because they were quite acceptable. What a little beauty it is.

