

# SPARTA/WRESAT

**History:** In the mid 1960s the American, British and Australian governments co-operated on a project to test the characteristics of vehicles re-entering the atmosphere. The United States provided ten 'Special Anti-missile Research Tests, Australia' (SPARTA) rockets - nine for planned test flights and one in reserve - Britain provided their facilities at Woomera and the Australian government gave its approval to the project and gave some support. The SPARTA rocket comprised a Redstone first stage and two smaller upper stages designed to give the payload more altitude and greater re-entry speed to test the characteristics of re-entry vehicles. The Redstone was based on the German WWII A-4 (V-2) rocket and a logical extension of it because it was designed by the same team of German scientists and engineers. Originally it had been designed as an intermediate range ballistic missile but it had also been used for other purposes including launching satellites. By 1967 it was a highly reliable launch vehicle.

The tests went well and the reliability of the launch vehicles was so good that it looked as though the reserve would not be needed. Apparently the idea came up during a session of Weapons Research Establishment (WRE) staff in one of the bars at Woomera, that if the spare Redstone could be scrounged it could be used to launch an Australian satellite. The notion quickly caught on and an informal meeting with the Americans there found them supportive. A couple of WRE managers went to the Department of Supply in Canberra to sell the idea but found the office empty because everyone had gone off to a Christmas Party. Nevertheless, the government Minister was eventually brought into discussions and agreed to the idea, mainly because it would be good publicity and wouldn't cost very much.

The Americans agreed to give Australia the spare SPARTA launcher and to include its launch in the test program so the American staff would launch the missile for the Australians. The only catch in this was that the project would be completed by the end of 1967 and so all the arrangements and the Australian satellite would have to be ready by then. The very short time-frame limited what could be achieved but WRE decided to use the satellite to continue and extend its experiments into high altitude atmospheric chemistry and the effects of solar radiation. Although there was some scientific value in the project its primary purpose was generally realised to simply be to put an Australian satellite into orbit.

WRESAT was a cone about two metres high. The satellite was basically a light weight metal structure into which the various experiments were fitted. Because it would have taken too long to develop solar panels to power the satellite it was given batteries instead and so its operational life was very short. To control the temperature of the satellite it was painted black on the outside and white inside - a very special paint was imported from the United States at great expense but it turned out that an error in the specifications meant it was nothing more than very expensive house paint.



In addition to the satellite WRE also had to arrange all the tracking, communications and data transmission for the launch and data collection from the orbiting satellite. Because of the tight deadline WRE decided to use 'off-the-shelf' equipment from the United States and one of the scientists went to buy it personally. Because it was so important he packed it in his personal baggage which, of course, got lost on the trip back to Sydney.

Everything came together on 28 November 1967 with everything had been tested and the satellite was mounted on the third stage of the Redstone launcher. Politicians, VIPs and the media had all flown in for the day and the countdown ran normally until the final thirty seconds when one of the units failed to operate. As one person commented, the launch of a million dollar rocket had been aborted because of the failure of a five dollar part. A member of the launch team wanted to climb up the rocket to sort out the problem but he was dissuaded and the launch was put off for a day. The VIPs left and the 'launch' party became an 'abort' party which was a great affair, so great that it saved some people the bother of having to go to bed and get up in the morning for the new countdown.

The Redstone launcher performed as advertised and WRESAT was launched at 2:19pm on 29 November 1967. Australia became only the fourth country to launch a locally made satellite from its own territory (after the USSR, USA and France). WRESAT, still attached to the third stage for simplicity of design, entered a polar orbit and it made 642 orbits before re-entering the atmosphere over the Atlantic Ocean west of Ireland on 10 January 1968. It had broadcast test data for only the first 73 orbits. There were no further plans to develop or launch more Australian satellites from Australia. In April 1990 Woomera township volunteers retrieved the battered but largely intact Redstone first stage from the Simpson Desert and it is now on display in Woomera.

#### **The kit: New Ware Space Kits Series 1/144**

When I was a youngster I used to spend evenings with the rest of the family on the front lawn spotting a satellite or two as they orbited over us. There were also several times when we were awake into the early morning listening to the launch of America's first manned missions; Project Mercury. After that came Project Gemini and then Project Apollo, and then the adventure seemed to go out of space exploration.

I've been looking for decent kits of the early launchers for some time, but there is little on offer. I used to have the very nice Revell set of Mercury and Gemini capsules, but they are in the wrong scale. Then I came across the *New Ware* web site that is full of all kinds of space model kits, mostly 1/144. Among all the other kits I found this oddity. I have vague memories of hearing about it when it was launched but, quite honestly, in 1967 there more interesting things happening than Australia launching a cobbled together satellite with a second hand rocket. The kit was relatively inexpensive so I decided to try it. Since *New Ware* is in the Czech Republic arranging the money transfer was a little time consuming, but it was the most difficult part of the whole process of making this model.

When it arrived the first thing that struck me about this kit was that it was so tiny. It is only 15cm (not quite six inches) long. However it is very nicely moulded in resin with six parts; the upper body, lower body and four fins. The fins are delicate and difficult to release from the resin moulding (so difficult that the exhaust vanes broke off easily and I eventually discarded them all, but you barely notice they're missing). The colour scheme is basically white with a couple of splashes of black and silver. The decal sheet is nice and both decals go on easily. The end result is a nice little model of an unusual subject.

