Ariane in space

What next?

Last week's failure of the fifth Ariane flight is bound to have repercussions on the launcher's commercial prospects. But officials at the European Space Agency (ESA) are still hopeful that the fault that caused the failure in the rocket's third stage will prove to be no more than a manufacturing error, thus reassuring customers of Ariane's basic soundness. Three previous successful flights are taken as testimony that the fault probably does not lie with the design.

ESA is keen to point out that the rocket's first and second stages worked perfectly. But the third stage, which was carrying two satellites into geostationary transfer orbit, suddenly lost power after about 4 seconds and brought the satellites back down to Earth. A preliminary analysis of telemetry data recorded at a station in north-east Brazil has revealed a sudden failure in a gear controlling the flow of cryogenic propellant from the liquid oxygen and liquid hydrogen pumps. Nobody yet knows, however, precisely what went wrong with the gear.

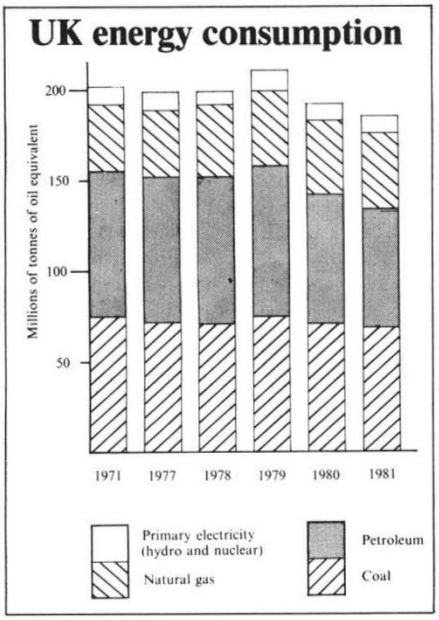
Whether the failure was due to a simple error or to a more ominous design fault, sorting it out is bound to delay the future Ariane launch programme. A lengthy delay could postpone the launch of Exosat, ESA's X-ray astronomy observatory, from its scheduled date of next November to June or July next year. Exosat can only be launched during specific launch windows around December and midsummer.

Although a delay to Exosat could upset Europe's hard-done-by X-ray astronomers, ESA is bound to be more worried about the effects of delay and uncertainty over Ariane's reliability on the launcher's potential commercial customers. Intelsat, the international owner of the Intelsat series of telecommunications satellites, for example, is due to launch three of the Intelsat 5 series on Ariane next year. Although the organization has made little response yet to last week's failure it will be watching the next Ariane launch keenly before making any firm commitments.

Meanwhile, ESA is having to decide how to make amends for Marecs B and Sirio 2, the two satellites lost last week. Sirio 2, a telecommunications satellite of primarily Italian design was uninsured, but the insurance money from Marecs B could be used to assemble quickly Marecs C, possibly for launch at the end of 1983 or the beginning of 1984. Inmarsat, the International Maritime Satellite Organization which had planned to lease channels on Marecs B for maritime communications in the Pacific, says that it can continue its present service in the area with the US Marisat satellite. But it is likely to take up ESA's offer to assemble and launch as quickly as possible the Marecs C replacement.

Amendments to the launch programme could delay the transition of the Ariane programme from ESA's control to that of Arianespace arranged before last week for July or August next year. Arianespace seems likely to take longer than expected before earning money. The company's prospects also seem to depend more than it must have hoped on the success or otherwise of the space shuttle, due to make its fifth (and first operational) flight in November.

Judy Redfearn



Spina bifida

Trials ahead

The Medical Research Council (MRC) is soon to start trials to investigate the role of folic acid and other multivitamin supplements in the prevention of neural tube defects (NTD). The programme is controversial because of its ethical implications. Women invited to participate will already have conceived one spina bifida baby and are therefore at risk of conceiving another. In order to understand the effects of dietary supplements, women in the control group will not be given multivitamin and folate supplements.

The government is to give £300,000 for the first three years of the trials. Although many scientists and doctors believe that multivitamin supplementation is important in the reduction of NTD, MRC says that new trials are necessary because previous experiments have not provided strong enough evidence for such a link. Experiments on folate and multivitamin supplementation at the Universities of Cardiff and Leeds are considered not to have been properly randomized. The women who participated were mainly from the middle classes and therefore at lower risk anyway.

The MRC programme will involve 3,000 women at 20 centres. There will also be centres in Israel and Australia. The women will be offered full antenatal screening facilities and the centres will have to be approved by local ethical councils. The volunteers, who are planning a pregnancy (pills are taken before and after conception), will be randomized and divided into four groups. The first will receive pills containing minerals plus multivitamins, the second minerals, multivitamins and folate, the third minerals and folate and the control group minerals only. This design will permit a comparison between the multivitamin effect and the folic acid effect.

The National Childbirth Trust has written to the Minister of Health, Mr Kenneth Clarke, expressing its worries about the trials. It says that there is already sufficient evidence to link folic acid deficiency with spina bifida and point out that the women participants will have a one in four chance of being in the control group and therefore at risk. In Britain one in 20 women who have already conceived an NTD baby conceive another.

Ethical worries about the trial's implications hang on how well the women will be briefed. The Association of Spina Bifida and Hydrocephalus (ASBAH) agrees that there is a need for more scientific evidence and that this cannot be done without further trials. Its support is qualified, however, by the proviso that the participants must be adequately briefed. At present MRC decides what information is given to women volunteers.

Dr Nicholas Wald of the Radcliffe Infirmary in Oxford, who is to coordinate the trials, stresses that the women will be invited to participate. But he points out that even if they were not fully briefed the trials would not necessarily be unethical. He argues that the trial is ethical primarily because there is a broad balance between the likely good of the treatment and the possible harm.

No one is willing to be explicit about what volunteers will be told. While women in the control group will not receive multivitamin or folate supplements, it should however be pointed out that such supplements would not necessarily be recommended by a general practitioner or by ASBAH in any case. ASBAH hopes that the MRC trials will establish what dietary advice should be given to women at risk who plan to become pregnant again.

Jane Wynn

Helsinki agreement

Monitoring stops

The formal disbanding, last week, of the Moscow "Helsinki Monitoring Group" is little more than an acknowledgement of a *fait accompli*. Since its foundation, six years ago, to monitor Soviet observance of the Helsinki Accords, the group has been subject to ever-increasing official pressure. In 1978, its founder and original chairman, Dr Yurii Orlov the physicist, was sentenced