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Space vehicle
manufacture
Spacelab Aeritalia is responsible for the design and test-
ing of the Spacelab pressurised module, pallet and airlock
and for their thermal control system. The first flight unit
is nearly complete. One of the two development units is at Bremen for integration by programme manager Erno, while the other remains at Turin. The first operational model, now delivered by Aeritalia, will be used for final qualification trials. The first launch, by Space Shuttle, is expected at the end of 1980.
Aeritalia has specialised in satellite structures and thermal controls. Spacelab, with its manned module, is by far the largest and most ambitious spacecraft structure tackled in Europe. Aeritalia designed the structure and completed all the analysis and testing. The thermal control system for both module and pallet includes both passive and active elements; Microtecnica contributed many of the components for the active system. A second Spacelab is now to be acquired, while the US National Aeronautics and Space Administration sees a need for three or four, each making 50 flights, if the planned Spacelab/Shuttle schedule, with a 15-day turnround interval between missions, is to be met.

Aeritalia is supporting studies of Spacelab follow-ons. The company believes that increasing US interest in Spacelab missions and the prospect of large space stations and structures make it essential for Europe to maintain the momentum of this programme. A number of stages are proposed, ranging from the simple extension of Space-lab's power capacity and endurance to the development of sortie and free-flying versions of both pallet and module. On its own initiative Aeritalia is developing the Hexait concept, under which large space stations would be assembled from Spacelab modules. Both planar and three-dimensional assemblies are envisaged, and individual modules would be fitted out with life-support, cargo, transfer and docking, payload, data-management, and safety and escape systems. Beyond this lie schemes for automatic assembly of the very large space structures now being proposed for the collection of solar energy for use on Earth.

Sirio Italy's own national communications satellite was launched at long last by Scout last summer and is now in geostationary orbit. It is being used to investigate tele-communications and television retransmission using 12GHz for the down-link and 18GHz for the up-link. Sirio was sponsored by the Italian scientific research council and managed by the Compagnia Nazionale Aerospaziale (CNA), of which Aeritalia, Selenia, Fiat and Montedel are members. Aeritalia contributed the structure, thermal control, VHF aerials, attitude and orbit-control electronics, hybrid aerial for VHF, temperature sensors, pressure transducers, inertial measurement unit, and the titanium case of the apogee motor. CNA integrated the satellite and provide check-out and launch assistance.

Italsat Sirio 2 Italian manufacturers are keen to extend their experience of telecommunications satellites, which they see as a source of major commercial possibilities. A national television satellite has been proposed and a government decision is expected by the end of this year. Sirio 2 would cover Italy only, projecting a narrow beam. The national space consortium, CNA, might manage the project. Aeritalia has recently made a strong plea for a national five-year space budget of L50,000 million a year (about £30 million), which would allow for the national television satellite.

In parallel with these proposals, Germany's MBB offered Italy a share in the German TVSat for direct television broadcast, and a formal feasibility study is in prospect. The Italsat designation covers this area of activity, though the national space committee, the responsible ministry and the Italian Parliament still have to approve.

OTS/ECS/Marecs As a member of the Mesh consortium with British Aerospace Dynamics, Matra, Erno, Saab, Fokker-VFW, Inta and TRW, Aeritalia is sharing in the development and manufacture of the OTS, ECS and Marecs telecommunications satellite systems. Aeritalia partici-pated in the design of the OTS attitude and orbital control system, and produced the electronic ground support system. For ECS and Marots Aeritalia is producing satel-lite structure and the electronic ground support equip-ment, and is participating in the design of the attitude and orbital control system. Snia Viscosa is providing apogee motors for these and other programmes.

Ariane Aeritalia, Laben and Selenia are responsible for the Ariane launcher's technological capsule, which rep-resents between four and five per cent of the programme. Snia Viscosa makes the stage-separation motors. The cap-sule will fly in all four development Arianes, providing
a record of trajectory, orbital and environmental data, and carrying up to three experimental satellites. The capsule is 2-4m (7ft 9in) high, weighs 1,600kg (3,5201b) and simu-lates the inertia and stiffness of future operational satel-lites. Acceptance tests have been completed. Snia Viscosa is producing the apogee motor. B.

Above The Italian technological capsule for ESA's Ariane launcher. Below Spacelab module structure manufactured by Aeritalia