Nasa puts together a third Shuttle
• Almost 500 thermal-protection tiles have now been removed from Columbia's 31,000 - strong skin. Roughly a half of these were removed for reinforcement, under a previously approved plan. Very few tiles were badly damaged, but about ten did exhibit a new type of failure. Each of the affected tiles lost part of its outer surface, apparently as a result of water absorbtion (see the picture be-low). Water is thought to have got into the tile during one of the thunderstorms Columbia endured, while sitting on the launch pad. It would then have frozen in the cold of space, forcing off part of the tile. Nasa believes that the solution is a redesign of the nozzle used to spray waterproofing into the gaps between tiles.

NASA has begun assembling the elements for the third Space Shuttle flight, currently scheduled for late March. The External Tank was added to the stacked Solid Rocket Boosters in early January, and Orbiiter Columbia will join the com-bination in early February. If all goes well, the third Space Shuttle will be moved to the launch pad in late February.

Preparation of Columbia at the Kennedy Space Centre, Florida, is go-ing well. The pallet-mounted experi-ments, called Oss 1 after Nasa's former Office of Space Science, were installed in Columbia on January 10. Most of the problems from the second flight in November have been solved. The problems included:
• Misbehaviour of one of the fuel cells, which caused the mission to be cut short. The problem has been traced to a deposit of aluminium hydroxide in an aspirator, preventing proper water removal from the cell (a fuel cell produces electricity by com-bining oxygen and hydrogen, with water as a by-product). Manufacturer Pratt & Whitney believes that the de-posit resulted from a speck of aluminium, left in the cell during manufacture. Columbia's two other cells were removed for inspection just before Christmas, and were found to
be unaffected. The cells were re-
installed early this month. Tighter
quality control is to be introduced to
prevent a recurrence of the problem.
An extra cell is already planned.

Above Several of Columbia's thermal-protection tiles suffered a new kind of failure during the secotid Space Shuttle flight. Water freezing inside the tile is believed to have been responsible. Below Columbia approaches a landing after the second flight. Note the wingtip vorticies, and damaged tiles (white spots) near the leading edge of the starboard wing

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Spaceflight

Sri Lanka joins
Inmarsat
SRI LANKA has become the 37th country to join the International mari-time satellite organisation, Inmarsat. Its stake is undecided, but will have to be at least 0-05 per cent—the mini-mum allowed.
Inmarsat is due to take over mari-time communications via satellite on February 1. It will begin by using existing Comsat-owned Marisats, but these will eventually be replaced by two Marecs craft, and transponders aboard several Intelsat Vs (Flight, November 28, 1980, page 1626). In-marsat members represent more than 85 per cent of the world's merchant shipping.

RCA C to add

cable TV capacity
RCA's latest communications satellite, RCA C, was due to have been launched by Delta on January 14. The satellite will be used mainly to increase capacity for cable-television distribu-tion in the USA, and is the first craft whose transponder leases were sold by public auction (Flight, November 21, 1980, page 1548). The auction has yet to be approved by the Federal Communications Commission.
RCA C is also known as Satcom IV, and is intended for a geostationary longitude of 83°W. If all goes well, Satcom IV will become operational in March or April.

Spaceshots...
Matra is to build a second Spot Earth resources satellite, following French Government approval last year. Spot 2 will be completed in June 1985, and will act as a ground spare. Spot 1 is due to fly in June 1984, and should have a useful life of more than four years. So if Spot 1 works as planned, Spot 2 will probably not fly until after 1988.

Aerospatiale is hopeful that the US Senate will approve Ford Aero-space's share in the Arabsat com-
mercial communications satellite.
The Senate reconvenes later this
month, and a decision will be
known 30 days after the topic is
brought up.

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