

7.5.4 Actuators (Continued)

When the back-up attitude and orbit control system is activated, the reaction wheel/magnetic torquer system is bypassed and control is performed through the thruster system.

Control during major orbit change burns is also performed through the thrusters, though the logic is implemented in the on-board computer.

7.6 Propulsion

The propulsion subsystem carries 3,000 kg of bi-propellant fuel (Monomethyl Hydrazine, Nitrogen Tetroxide) in four tanks. These tanks feed one high thrust (100 lbf) high efficiency (310 Isp) thruster and twenty low thrust (5 lbf) lower efficiency (285 Isp) thrusters.

Propellant expulsion is performed by Helium pressurant in eight tanks. The system is pressure regulated throughout the life of the spacecraft.

The thrusters are positioned to allow all required attitude control, homing and evasive maneuvers. Their configuration is such that only firing the main (high thrust) engine causes Paxsat to accelerate directly towards the target, and so the likelihood of accidental collision is minimized.

The entire propulsion subsystem is conceived at present to be integrated into the main support structure of the satellite. Access room is allowed to permit refuelling and repressurization in space should this be desired. A concept that has not been pursued, but which could be developed, would allow the propulsion subsystem to be easily detachable as a unit from the rest of the spacecraft, making it replaceable as a module.

7.7 Power Subsystem

7.7.1 Requirements

The power subsystem on-board a spacecraft generates and distributes the power necessary for the spacecraft to function throughout its entire life from launch until the end of its mission life (EOL). The power subsystem