

## 7.2 Configuration (Continued)

Modularization occurs at the subsystem level. Each subsystem (except the structure and thermal subsystems) is housed in its own module which can be removed from the spacecraft with a minimum of effort and replaced by an new module (as would be done, for example, during an in-orbit repair). Figure 7-4 illustrates the Paxsat concept block diagram from which the major subsystems are identified.

### 7.2.1 Orientation in Flight During Stand-Off Observation

There are three distinct orbits based on the hour angle orbital parameter in which Paxsat must be capable of operating (see Figure 7-2). They are:

- (a) Equatorial
- (b) Dawn-Dusk
- (c) Noon-Midnight

In each case, the following functions must be carried out:

- (a) The payload face of Paxsat must be kept pointed at the target.
- (b) The solar arrays must be kept as closely as possible to being perpendicular to the sun vector.
- (c) The high gain antenna (used for transmitting the data gathered) must be kept pointing at the earth.
- (d) Thermal control must be maintained.
- (e) The attitude control system must be able to gain sufficient sensed information to operate.

To achieve this, two flying attitudes are seen to be necessary. The first, to be used for equatorial and noon-midnight orbits, orients the solar arrays perpendicular to the orbit plane, and so is referred to as the out-of-plane orientation. The second, called the zenith orientation, is to be used in dawn-dusk orbits