Attachment 3 Ground Control Station

The ground hardware employed includes a small suitcase referred to as the ground control station or GCS. The GCS has its own microprocessor dedicated to management of communications with the vehicle. A standard JR 2.4 GHz hand-held radio interface for remote control piloting is attached to the GCS with a "trainer" cable or wirelessly. The GCS also has a GPS receiver so that the location of the GCS can be properly located on map displays. When selected as a specific hardware option, this receiver can also be used to provide the vehicle with differential GPS corrections.

The GCS normally runs from a 120 V AC power input, or a 12V DC input, and has an internal battery backup system. The GCS also requires a GPS antenna, and a data link antenna. The system is managed by an operator with a laptop computer connected serially to the GCS and running application software known as the Avenger Command Center. This software enables the operator to plan and store missions, to configure the vehicle sensors, actuators and control system, to monitor mission execution and system health, to display the vehicle state on various map and photo overlays, and to store the telemetry data to disk. Because the communications are managed by the GCS, and not the application software employed by the operator on a PC, the PC, which may also be running other application software, can become corrupted and be rebooted without disrupting the flight operation. It is also possible in this design for multiple copies of the Command Center to be running on multiple PCs, all networked together, and for all of them to share vehicle data and potentially be used issue commands to the vehicle.