Launch and recovery

The Shadow is controlled by an automatic takeoff and landing system. It uses a rail compressed nitrogen gas powered catapult for launches. Emergency landings are by use of a parachute which is deployed after the engine has been shut down to minimize the danger to ground personnel. The Shadow has standard aircraft red and green positions lights, a white anti-collision strobe light arrangement, and GPS navigation. Navigation can be preprogrammed, programmed during flight, or direct navigation by the vehicle operator. Recovery and landing is typically performed autonomously by the Tactical Automated Landing System (TALS), a process similar to an Instrument Landing System approach for manned aircraft. A tail hook/arresting cable system is used for rolling recoveries. Primary and secondary arresting cables are used to recover. In the rare event that Shadow does not catch on either arresting cable, an arresting net is preplaced to stop the aircraft. An AO located in the Ground Control Station (GCS) controls the air vehicle, continually monitoring system status, and maneuvers the air vehicle as desired. The downlink data includes a display of health and status parameters such as attitude, magnetic heading, indicated airspeed, GPS position, barometric altitude, rate of climb, engine instrumentation, and warnings and cautions.

Ingress. The using unit launches an RQ-7 Shadow Unmanned Aircraft (UA) from inside restricted area R-6601 depending on direction of the prevailing winds, climbing at a rate of 500' per minute to' MSL inside the boundaries of the established TALS Loiter coordinates, R-6601 restricted airspace is controlled by Range control on Ft. AP Hill, VA. The using unit will utilize trained observers with binoculars to maintain positive visual contact with the UA. The Mission Commander (MC) will maintain communication with range control until the UA has landed at A.P. Hill.

Egress. The UAS proceeds to the Return Home Point (RHP), programmed in the GCS by the unit during pre flight, within R-6601 at A.P Hill and approx. a half kilometer outside the designated TALS loiter point. The using unit will have trained observers with binoculars to maintain positive visual contact with the UAS until the UAS is on the ground. The Mission Commander (MC) will notify AP Hill range Control when the UAS is in TALS orbit. The Mission Commander (MC) will then notify AP Hill Range Control when the AC is on the ground.