LAUNCHER FUNCTIONAL DESCRIPTION

The Shadow 200 TUAV System LAU accomplishes AV launch by using stored energy from a nitrogen accumulator powering a hydraulic launch cylinder (see Figure 2). The launch cylinder applies acceleration forces to the AV by a shuttle assembly, guided during launch by a guide rail, and inclined approximately 10 degrees relative to the ground. During launch, the AV, mounted on the LAU shuttle, accelerates up the guide rail pulled by a steel cable run through a series of pulleys at a five-to-one ratio from the rod end of the hydraulic launch cylinder. When the shuttle is in the pre-launch position, a positive latching shuttle release mechanism holds it in place. Shear pins are installed to hold the AV onto the shuttle. Upon receiving the launch signal, the shuttle release mechanism releases the shuttle, and the shuttle and AV accelerate up the guide rail. Acceleration forces hold the AV in the shuttle until near the end of the launch stroke, where the shuttle engages the shuttle-arresting strap causing the shuttle shear pins to break, freeing the AV for launch. At that point, forward motion sends the AV airborne at an inertial 70-knot airspeed. Deactivating the LAU with the Launcher Hand Control Unit (LHCU) causes automatic venting of residual launch pressure to the LAU hydraulic reservoir, which renders the system safe at launch stroke completion. Following each launch completion, the shuttle is returned to the pre-launch position and latched into the shuttle release mechanism. To simplify LAU transport and storage, the guide rail is divided into four sections to permit rail folding and stowing.

Shadow Recovery.

The Shadow 200 TUAV recovers to the runway or a designated ramp area at Polk Army Airfield. The vehicle has an automated recovery and landing system that controls the approach and landing. The operator is in direct communication with Fort Polk ATCT and can disengage from the automated recovery system and follow ATC instructions. An arresting system is used to slow and stop the vehicle.