PA-59K

The AirGeep was one of three winners of an Army competition for an "invisible" aerial vehicle in nap-of-the-earth flight, and the only one to be field tested.

Called the "Flying geep", "Sky car", or "Airgeep" the PA-59K was designed to research this concept. Vertical lift, propulsion, and control was derived from two ducted horizontal rotors in tandem. The PA-59 could fly up to 75 mph close to the terrain and was not dependent on ground effect, permitting flight between trees, buildings and other obstacles. It could also hover, land and travel as a ground vehicle on its three wheels.

Two 200 hp piston engines were mounted between the two rotor ducts. Differential collective pitch of the rotors provided longitudinal control with laterally disposed vanes in the duct to assist propulsion. Lateral cyclic pitch change of the rotors, plus longitudinally disposed vanes, provide side force for lateral roll control these longitudinal vanes, moved differentially, provided yaw control.

The pilot was positioned on the starboard side of the vehicle to keep his collective pitch control lever away from the open side of the machine. This also permitted the pilot to look down over his right arm giving him precise clues of the machine’s motion relative to near obstructions. The enclosed rotors made flight close to ground personnel feasible without danger of injury. The downwash was surprisingly different than the helicopter and gave the pilot clear local visibility in flying over sand, water, and snow, unlike the blinding recirculation characteristics of a helicopter rotor.