SAFETY ASPECTS AND SYSTEM IMPROVEMENTS FOR PERSONAL AIR TRANSFORMATIONAL SYSTEM

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Abstract: Several European supported projects like EPATS (European Personal Air Transportation System), PPLANE (Personal Plane) and some Hungarian national projects as SafeFly develop the air transportation system using by individual (owners, renters) persons. One of the most important problem of the Personal Transportation system (PATS) is the safety. Generally many different operational concept can be developed from the free flight in uncontrolled airspace until the full automation or flights controlled by professional pilots from the ground. Principally the safety aspects can be identified from the operational concepts. In any case the personal planes will be piloted by the less-skilled individual pilots or by professionals (from ground) may shown soft skills. So, the solutions of the safety problems need new and original ideas, deployment of new technologies.

The lecture tries to identify the safety aspects, safety problems of the developing PATS and develops their possible solutions. The aircraft systems must be considerably redefined and improved compared to the general aviation aircraft. The philosophical approach to flight safety of personal air transportation system can be characterized by

- application of automatic adjustment system for automatic set up of the best flying configuration, condition (for example centre of gravity adjustment)
- simplifying the control system, which cannot be more complicated than ordinary car control (computer assisted control system with automatic limitations on critical regimes, integrated engine and aircraft control, connecting the roll and yaw control into one channel),
- pilot assessment system (including automatic voice checklist, pilot load condition estimation, work-load monitoring, etc.),
- ride control system for increasing the passengers' comfort (because the personal aircraft will be used at altitude 2 – 4 km, which is a most turbulent region of air).

Keywords: *PATS (Personal Air Transportation System), safety, aircraft systems*