

VC POLICY

HEAD UP DISPLAYS

The German ALPA / Vereinigung Cockpit (VC) supports the installation of Head up Display systems (HUD) in modern aircraft. HUD represent a significant contribution to the pilot's situational awareness when used according to its design.

Certain aspects need to be considered when installing a HUD in any aircraft:

- VC demands a Dual-System-Dual-Display-Installation. It shall not replace an autopilot certified for autoland-operation.
- A HUD should be continuously available for use during the entire flight, irrespective of weather conditions. Cabling, size and weight should not restrict pilot access to instruments and controls, their seat, nor degrade pilot's view or comfort.
- The basic symbols of the HUD should match the symbols used on other displays as far as possible. The symbology used on the HUD should present the same information content as on other displays and must not restrict the usability of the System itself, e.g. due to clutter effects.
- Thrust parameters should either be displayed by a symbol representing the energy state and/or primary engine indications, however sole use of an energy symbol does not account for spool-up-time awareness.
- The brightness adaption should be sufficient for all phases of operation, manual override of an automatic brightness control must be available.
- Automatic and manual declutter modes should be made available to the crew.
- The field of view should be sufficient in both horizontal and vertical direction for larger drift and pitch angles.
- Crosswind landing procedures need to consider the use of an installed HUD. Crosswind component may be limited when lateral drift angles cannot be displayed on the HUD due to a limited field of view.
- Operational credit (e.g. lower minima) can only be received with enhanced vision systems (EVS) that display electronic real-time images of the actual external scene on a HUD or combined vision systems (CVS).

- It remains at the pilot's discretion to use installed HUD installations if not necessary for regulatory requirements (e.g. to meet applicable minima).
- Pilots should maintain currency in both the use of HUDs and Vision Systems, as well as in the use of Head-Down indication systems, in all flight phases.
- Due to the design of the HUD, pilots should consider that a different scan needs to be developed.
- Crew awareness should be given to not displayable information on the HUD, e.g. weather radar information, TCAS¹, EGPWS² and other Warning systems.
- Crews should be made aware of possible obscuring of outside details (Clutter) and of the danger of missing out on outside cues by eye-fixation on the HUD (e.g. runway incursion).
- Crews must be instructed on the symbology of the installed HUD and its additional control options (e.g. brightness and declutter modes).
- Significant low-visibility operation needs to be trained (e.g. manual CAT II approaches).
- Upset and stall recovery procedures need to be adopted for HUD operation.
- When operating aircraft with and without a HUD as a result of mixed fleet flying, the related risks should be addressed and mitigated.

¹ Traffic Alert and Collision Avoidance System

² Enhanced Ground Proximity Warning System