HGS™-6000 with Enhanced Flight Vision System for the Boeing 737

WHEN CONDITIONS ARE AT THEIR WORST, YOU’RE AT YOUR BEST

Real-time, eyes-forward capability that enhances safety and operations
Twice the performance: Dual HUD available

- Provides both pilots with the same high-fidelity flight information previously only available on the left side of the flight deck
- Eases the promotion process from first officer to captain
- Avoids waiting time for Low Visibility Operations (LVO) qualifications that lead to costly delays, diversions and disruptions
Collins Aerospace’s Head-Up Guidance System, HGS™-6000, is the latest head-up display technology available for Boeing 737 fleets.

The HGS™-6000 can decrease operational costs and maximize on-time performance with:

- Low Visibility Takeoff (LVTO)
- CAT I - III Approach Guidance
- Rollout guidance
- Autonomous flare
- Tailstrike avoidance

**BETTER VISION, GREATER PRECISION**

**Head up, eyes forward**

- Provides a conformal display
- Shows the flight path in all flight stages
- Enables greater awareness of the aircraft energy state

**FLIGHT PATH INDICATOR**
- Inertially derived
- Instantaneous indication of where the aircraft is going

**GUIDANCE CUE**
- Uses landing aid (ILS, GLS) and IRS to compute and position cue

**ENERGY MANAGEMENT**
- FAST, BUT DECELERATING
- SLIGHTLY SLOW & DECELERATING
- STABLE

**Seamless extension of the pilot:**

**Pilot in the loop**

- Enables eyes-forward flying, reducing reaction time
- Provides the best aircraft feedback system
- Enables approach visualization
- Improves training methods
- Increases situational awareness
EFVS: Exceeding human vision

- See through weather and low visibility conditions
- Reduced minima: Enhanced Flight Vision System (EFVS) Approach and EFVS Landing/Rollout
- Lower the risk of runway incursions and excursions

HGS reduced operating minima (RVR)

<table>
<thead>
<tr>
<th>CAT</th>
<th>US</th>
<th>EUROPE/BRAZIL</th>
<th>CHINA</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1800 ft</td>
<td>550 m</td>
<td>550 m</td>
</tr>
<tr>
<td>SA I</td>
<td>1400 ft DH 150 ft</td>
<td>450 m</td>
<td>450 m DH 45 m</td>
</tr>
<tr>
<td>II</td>
<td>1000 ft</td>
<td>300 m</td>
<td>300 m</td>
</tr>
<tr>
<td>III</td>
<td>600/400 ft</td>
<td>200 m</td>
<td>–</td>
</tr>
<tr>
<td>Takeoff</td>
<td>300 ft</td>
<td>75 m</td>
<td>200 m CAT I</td>
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EFVS expanded minima – bringing CAT I to new lows

<table>
<thead>
<tr>
<th>FAA</th>
<th>FAA CFR</th>
<th>CS AWO</th>
<th>EXPANDED MINIMA</th>
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</thead>
<tbody>
<tr>
<td>EFVS Approach System</td>
<td>91.176B</td>
<td>EFVS-Approach</td>
<td>Utilizes EFVS to 100 ft</td>
</tr>
<tr>
<td>EFVS Landing System</td>
<td>91.176A</td>
<td>EFVS-Landing</td>
<td>Utilizes EFVS to landing</td>
</tr>
</tbody>
</table>

Vertically guided approach required (ILS, GLS, LPV, RNP)

HGS and EVS: Verified value for safety and your bottom line

- Fewer diversions
  - Save on fuel, passenger accommodations, etc.

- Improved safety
  - Eliminate/reduce tailstrikes, hard landings and runway excursions
  - Prevent obstacle collisions on runways

- Maintenance savings
  - Reduced wear and tear on wheels, tires, brakes, flaps and engines
Vertically guided approach required (ILS, GLS, LPV, RNP)

- Real-time, eyes-forward capability
- Improves safety
- Enhances operations
- Maximizes the efficiency of pilot training
- Economic benefit

Fly and land with greater confidence

* Single and dual HUDs, as well as EFVS, are available for all Boeing 737NG and 737 MAX models.

**Flight Safety Foundation