

HEAD-UP GUIDANCE SYSTEM (HGS®)

Clearly guiding the way, anytime – day or night





Set your sights on safer flights

At Rockwell Collins, we have designed and developed our Head-up Guidance System (HGS®) to a higher standard, providing our customers with industry-leading technology, integrity and reliability. Many of the world's premier airlines, business and regional operators, military tanker/transport and flight training companies rely on HGS precision flight path guidance and energy management to ensure mission success. NASA's Langley and Ames research centers also employ HGS to conduct research in low-visibility operations. Our unsurpassed experience and proven performance provides our HGS customers with operational and economical advantages, including enhanced low-visibility operations, schedule reliability, improved energy management and increased safety.

Your window of opportunity

Proven value. That's why leading airlines are investing in Rockwell Collins' HGS technology. Enabling the aircraft to land and takeoff on time results in increased schedule reliability – while providing an added margin of safety throughout all phases of flight.

By effectively eliminating the need for pilots to continually transition from head-down instruments to head-up, out-the-window view during critical phases of flight, HGS provides enhanced situational awareness and energy management in VFR and IFR flight conditions. With eyes focused out in front of the aircraft viewing the presentation of flight path, flight path acceleration, visual glideslope angle and the runway aim point, pilots can achieve greater precision and situational awareness at all times.

Sixth generation HGS

Rockwell Collins' newest Head-Up Guidance System, the HGS-6000 series, will be featured on various new and retrofit corporate, military and air transport aircraft as standard or optional equipment.

The Rockwell Collins HGS-6000 features the latest Active Matrix Liquid Crystal Display (AMLCD), Light Emitting Diode (LED) and optics technologies to provide both the brightest image and the widest Head-Up Display (HUD) field-of-view in the industry while improving pilot/projector head clearance by more than 50 percent.

The new all-digital display will allow the pilot to see an integrated and conformal display of flight information and an infrared image from an Enhanced Flight Visual System (EFVS) for operations in almost all weather conditions. The HGS-6000 is also designed for the future with growth capacity to support emerging technologies such as Synthetic Vision Systems (SVS) and Surface Guidance Systems (SGS™) to further improve safety and operational capabilities.

This advanced HGS-6000 HUD presents the critical flight information in the pilot's forward field-of-view. Aircraft flight path, attitude, airspeed, altitude and other symbology appear overlaying the outside scene, enhancing situational awareness, improving energy management and increasing touchdown precision.

Dual HUD Capability

Dual HGS installations are also available on several aircraft types, providing both pilots the benefit of situational awareness improvements the Head-up Guidance System brings. Available on the Boeing 737NG, Embraer E-Jets, standard on Lockheed C130J, C130 AMP, and soon to be on the Boeing 787 Dreamliner, the dual HGS configuration is gaining growing market enthusiasm as HGS benefits – including low-visibility operations and safety – are realized.



Enhancing situational awareness



Traffic Collision Avoidance System (TCAS) Resolution Advisory

HGS provides a flight path guidance that corresponds to the TCAS vertical speed command, providing the flight path required to achieve the rate of climb or descent to avoid traffic. All the pilot needs to do is fly to the command position while maintaining an outside vigil for traffic.



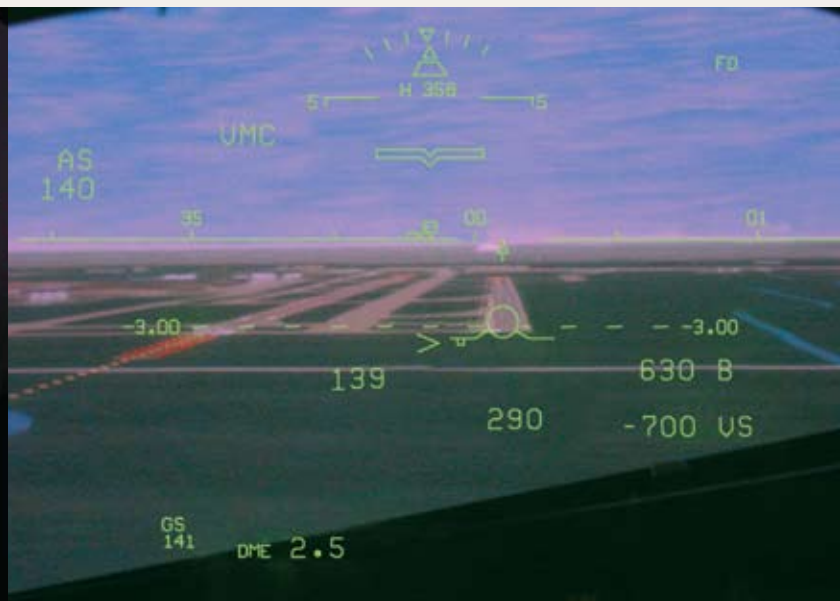
Tailstrike Avoidance

The indication of a potential tailstrike, during the takeoff or landing phase of flight, provides ample time to correct airplane attitude and reduce the risk of aircraft damage.



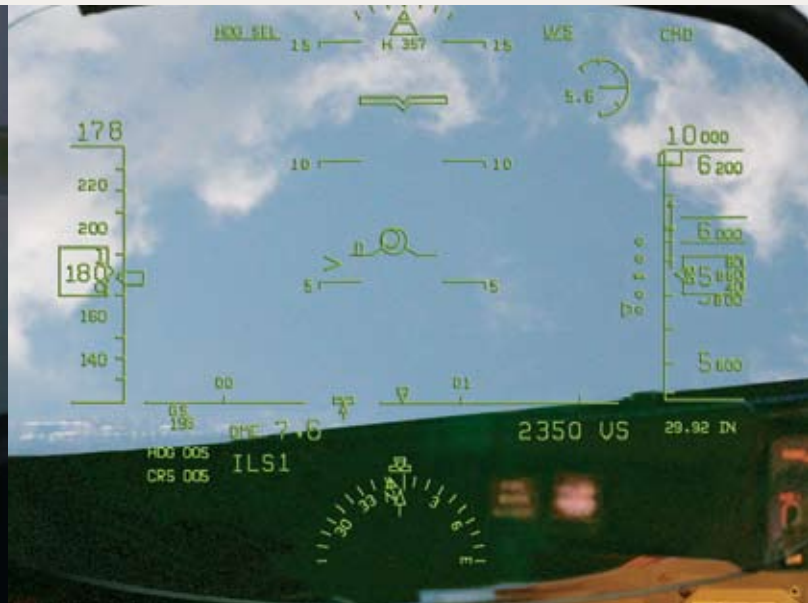
IMC Mode

IMC mode provides navigation guidance from the airplane flight control computer and displays it as a flight director command. IMC is used for CAT I and CAT II precision approaches and non-precision approaches including RNAV on the final approach segment.



VMC Mode

The VMC mode allows the pilot to construct a visual glideslope to the runway touchdown point. It provides stable vertical path control in all visual conditions. The VMC mode is a standout feature for night approaches, blackhole approaches and any runway that does not afford a visual slope indicator for a runway.



Low Visibility Takeoff Mode

The Low Visibility Takeoff mode is displayed via the PRIMARY mode. It provides precise navigation guidance for takeoff in low-visibility conditions and enjoys the lowest regulatory takeoff minima credit available.

Primary Mode

The Primary mode is used from takeoff to the final approach phase.



All Mode with Crosswind

The All mode provides the pilot with precise Category II and III guidance for manual flight control in low visibility. The unique All guidance generated from the HGS computer provides a greater degree of precision in lateral and vertical guidance assuring the pilot of an accurate landing footprint.

Rollout Guidance

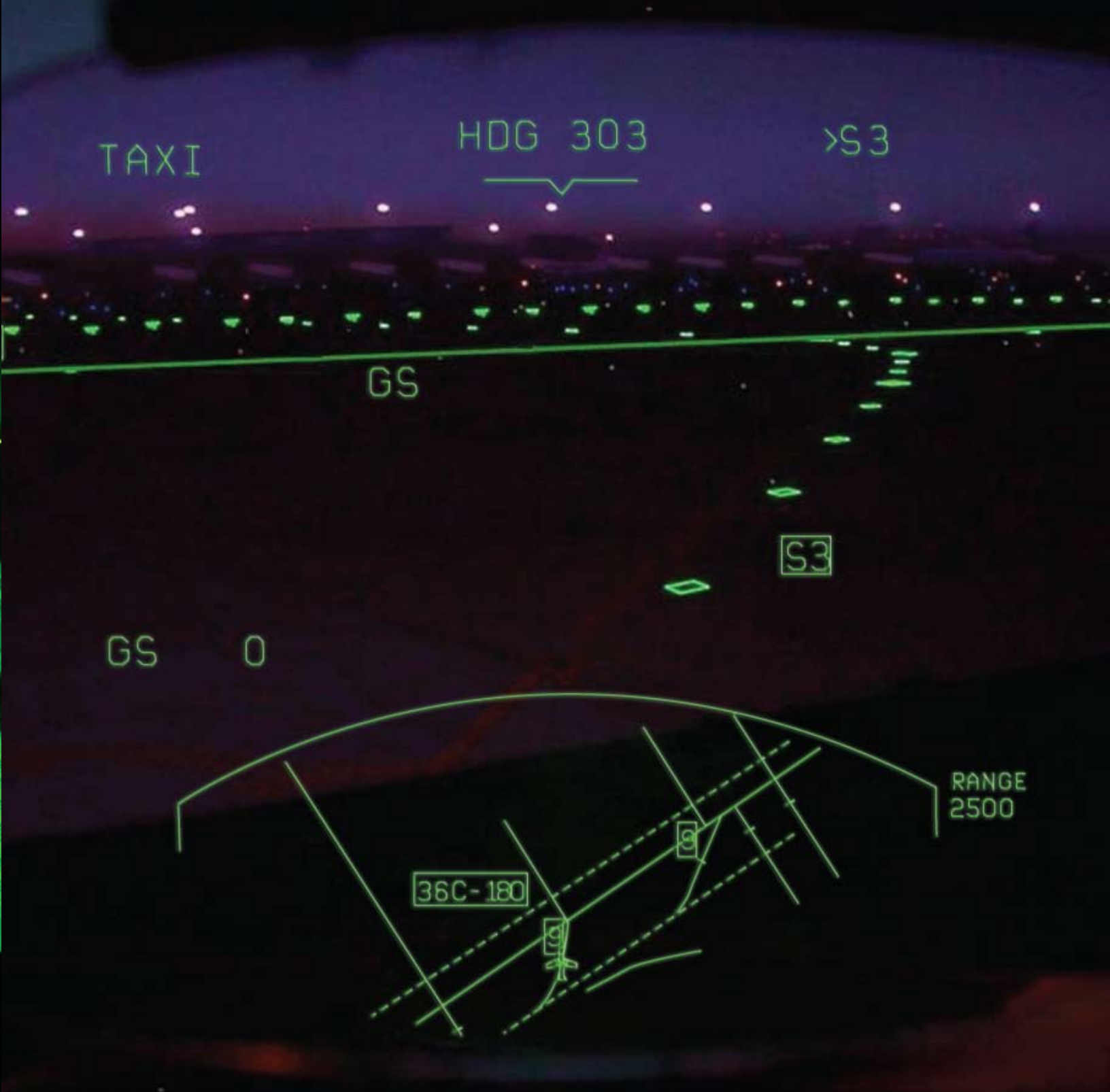
Rollout Guidance provides the basis for reduced landing minima in the All mode. It allows the pilot to use the guidance to steer the airplane throughout the complete landing in low-visibility conditions.

Expanding operational capability



Enhanced Flight Visual System (EFVS)

At Rockwell Collins, we recognize that safety and operational capabilities are intertwined and form the core objective of our HGS development programs. Our HGS coupled with an Enhanced Flight Visual System (EFVS) further improves a pilot's situational awareness in degraded visibility and night conditions. This enables the pilot to see and avoid terrain, obstacles, runway incursions or other hazards that would not be otherwise visible; and to clearly identify the runway environment and touchdown zone earlier on the approach. This enhanced pilot's situational awareness allows a pilot to descend to lower minimums, provided the visual references to the intended runway are visible using the EFVS.



Surface Guidance System (SGS)

Rockwell Collins is developing a new system and symbology format that will help pilots navigate better on airport taxiways and runways. This Surface Guidance System (SGS) uses an airport database to identify the centerline and edges of the current runway or taxiway the aircraft is operating on, and display virtual centerline, edge-lines, signs and other symbols that overlay the actual airport taxiways, runways and signage. With this extra situational awareness, pilots will be able to navigate more confidently and the potential for runway incursions will be minimized.

Total service solutions you can count on.

At Rockwell Collins, we have earned a reputation as an industry leader in supplying head-up display systems. Critical to that success is our unwavering commitment to keeping customers satisfied in the air and on the ground.

From initial delivery and throughout your products life cycle, we offer comprehensive service and support solutions. Capabilities address total service solutions from maintenance, repair and overhaul, training and simulation solutions, to supply chain asset management services. All backed by a worldwide support network, operators are assured of industry leading support wherever they fly.

Rockwell Collins delivers best value life cycle solutions, anywhere, anytime – every time.

Building trust every day.

Rockwell Collins delivers smart communication and aviation electronics solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

For more information, contact:

Rockwell Collins
400 Collins Road NE
Cedar Rapids, Iowa 52498
319.295.4085
email: csmarketing@rockwellcollins.com
www.rockwellcollins.com

**Rockwell
Collins**

Building trust every day