The Complete Search & Rescue Solution

New Concept

EH101 is a new helicopter concept designed for civil and military roles without compromise. The design and development of EH101 was fully supported by an extensive programme of government and industry funded research into the future requirements for medium lift helicopters. Designed, developed and produced by AgustaWestland, EH101 has been in operational service since 1999.

Flexible and Cost-effective

EH101 provides the flexibility and cost-effectiveness demanded by its customers through:

- New Technology
- Large Capacity and Long Range
- High Safety Levels
- Superior Performance
- Multi-Role Flexibility
- Total Product Support

Multi-Role Design

Based on a common airframe and core systems, EH101 is configured to meet the multi-role requirements of many diverse customers around the world. It is uniquely capable of mastering the requirements of any role using the same airframe and core systems - a capability unmatched by previous helicopter designs.
Built-In Capability

Search and Rescue

With a typical range of 750 nm (over 1,300 km) and a large capacity cabin, EH101 is the most advanced and capable SAR helicopter available in the world today. EH101 has already demonstrated over 900 nm flying in a SAR evaluation flight.

All Weather Capability

- All weather operational capability from arctic (-45°C) to tropical (+50°C) conditions
- Operational anti-icing / de-icing system for planned flight into known icing conditions
- Exceptional agility for precision flying
- 40 knot crosswind hover capability

Large Cabin

- Large cabin space to meet demanding requirements of long range SAR
- Cabin can be reconfigured in flight to meet mission requirements

Advanced Systems

- Advanced precision navigation system
- Low crew workload cockpit for increased safety
- Fast response – alert to take-off in under 5 minutes

Fully Equipped

Complete range of proven mission role equipment.
**Large Capacity & Long Range**

Cabin Capacity
- Standard cabin capacity – 30 plus survivors, SAR kit and crew
- High density cabin capacity – 40 passengers
- Even with an internal auxiliary fuel tank fitted 25 survivors can be readily accommodated with over water rescue equipment

Volume
- 28 m³ of usable volume

Floor Area
- 15 m² of flat usable cabin floor area
- Modular role equipment for greater flexibility and speedy reconfiguration
Large Capacity & Long Range

Up to five under-floor fuel tanks enable EH101 to perform most missions without additional ferry fuel tanks.

Internal Auxiliary Fuel

Auxiliary fuel tanks extend range further without compromising work space in the cabin.

- 180 USG tank (519 kg)
- 400 USG tank (1,111 kg)

Easy Access

- Large starboard sliding cabin/rescue door (1.80 m x 1.55 m) allows easy access for equipment and SAR operations
- Port sliding or airstair door (0.90 m x 1.70 m)
- Rear ramp opening (2.25 m x 1.95 m) for loading cargo, passengers and vehicle

Generous Cabin Stowage

- Medical equipment racks
- Roof and ramp area stowages

Large Doors

- Ramp
- Cargo
- Personnel
Fully Equipped

Multi-Mission Equipped
- Equipped for over land, over water and mountain rescue
- Two cargo hook installations are available with a load capacity of 3,000 kg or 4,536 kg
- Optional cabin cargo winch, heavy duty floor and roller conveyors
- Large cabin allows carriage of a vehicle internally with survivors and equipment
- High power reserves and agility
- Optional Defensive Aids Suite (DAS) for Peace Keeping operations

Role Equipment
EH101 can be equipped with a complete range of mission and role equipment including:
- Twin rescue hoist and hover trim controller
- NVG cockpit and lighting
- Searchlight
- Bubble windows
- Sliding / rotating crashworthy observer seats
- Sea tray for cabin floor protection
- Emergency flotation gear
- Air-to-air refuelling probe
- Cabin cargo winch
- Roller conveyor for palleted freight
- Twin-wheel landing gear with high flotation tyres
- Wire strike protection system
- Armour protection option
Multi-Mission Flexibility

With the largest capacity cabin in its class, EH101 offers greater mission flexibility.

Transport
- Crashworthy, folding cabin seats for seated survivors
- Large capacity and fast cruise speed ensure high productivity
- Easy access via cabin doors and rear ramp allow rapid loading and unloading
- Large floor area for mixed loads

Casualty Evacuation
- The EH101 cabin can accommodate 16 stretchers and 4 medical attendants
- 1.83 m cabin height allows medical teams to work and move around the cabin in comfort
- Easy access to the cabin by large cabin door or the rear ramp

MEDEVAC
Medical care litters, medical gas and lighting panels plus equipment stowages.
Safety & Survivability

Survivability

- High agility and power margins provide excellent flying characteristics for SAR missions, nap-of-earth (NOE) flying and off-shore operations
- Widely separated engines and critical systems for survivability
- Multiple load paths and high system redundancy greatly increases survivability
- Proven 30 minute gearbox run dry capability after total loss of oil
- Optional self-sealing fuel tanks

Crashworthiness

- Crashworthy fuel system with self-sealing breakaway couplings
- Airframe structure designed to withstand impact without compromising cabin volume
- Crashworthy seats for crew and cabin
- High energy absorption landing gear
- Reinforced cabin floor

Meets Civil and Military Safety Standards

EH101 meets, and in many cases exceeds, the most stringent safety standards laid down by civil and military airworthiness authorities around the world.

Civil Certified by:
- CAA - United Kingdom
- FAA - USA
- RAI/ENAC - Italy
- JCAB - Japan

Military Qualified by:
- United Kingdom
- Italy
- Canada

Safety

- Fully integrated HUMS monitoring of engines and transmission provides advanced warning of any potential failure before safety is compromised
- Cabin windows act as additional emergency exits
- Cabin doors on both sides of fuselage
- Cockpit crew dedicated emergency exits
- Emergency flotation gear keeps aircraft afloat in sea state 6
- Flight data and cockpit voice recorders
- Automatically Deployable Emergency Locator Transmitter (ADELT)
Modern Technology

Low Workload Ergonomic Cockpit
Advanced ‘dark’ cockpit design reduces crew workload by continuously monitoring systems for the crew and only providing warnings if crew action is necessary.

Modern Cockpit & Avionics
- Full colour, integrated electronic instrument system
- Optimum presentation of data for low crew workload
- Single pilot operation
- Fully integrated core avionics system

Comprehensive, Integrated HUMS (Health & Usage Monitoring System)
HUMS ensures the maximum safe life of components is achieved to keep operating costs and maintenance to a minimum.
- Provides real time monitoring of flight critical systems and components
- Gives warnings of potential failures before they become a safety hazard
- In-Built Check Out System (IBCOS)
- Built-In Test Equipment (BITE)

AFCS
Fully coupled digital, dual-redundant automatic flight control system performs:
- Standard search patterns
- Automatic transitions to and from the hover
- Category II approaches
- Normal piloting functions

AFCS modes include:
- Altitude and airspeed hold
- Heading and vertical speed acquire
- Transition down and up
- Hover hold and trim
- Navigation

Sensors
- Search Radar
- FLIR (Forward Looking Infra Red)
- Obstacle Warning System (OWS)
- TCAS

Navigation
- Embedded GPS/INS homing
- Doppler
- Full IFR RADNAV suite

<table>
<thead>
<tr>
<th>System</th>
<th>Health Monitoring</th>
<th>Usage Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airframe</td>
<td></td>
<td>Aircraft Operating Parameter ‘G’</td>
</tr>
<tr>
<td>Avionics</td>
<td>Fault Detection (Parallel Testing)</td>
<td>Low Cycle Fatigue</td>
</tr>
<tr>
<td></td>
<td>(Requested Testing)</td>
<td>Thermal Fatigue</td>
</tr>
<tr>
<td>Engines</td>
<td>Wear Debris Performance</td>
<td>Thermal Creep</td>
</tr>
<tr>
<td>Transmission</td>
<td>Wear Debris Vibration</td>
<td>Torque</td>
</tr>
</tbody>
</table>
Modern Technology

Multiple Load Paths and Damage Tolerance
- Structure designed with multiple load paths for increased safety and damage tolerance
- EH101 main rotor head incorporates multiple load paths

Rotor Head
- Elastometric bearings to reduce maintenance
- 5% hinge offset for greater agility

Composite Blades
- 30% greater efficiency than conventional blades of similar size
- Greater damage tolerance
- Nominal 10,000 hour life
- Reduced maintenance requirements

System Redundancy
- Three hydraulic systems
- Dual electrical generation system with APU generator and battery backup
- Dual fuel booster pumps with fuel tank crossfeed system, so any engine can be supplied from any fuel tank

ACSR (Active Control of Structural Response)
An award winning system that uses computer controlled forces to reduce the helicopter’s basic vibration to very low levels. Effective throughout the flight envelope, ACSR contributes to:
- Reduced life cycle costs
- Reduced structural fatigue
- Greater avionic systems reliability
- Improved crew work environment and survivor comfort
Modern Technology - Typical SAR Helicopter

AIRFRAME
1. Kevlar Nose Cap
2. Composite Glazing Structure
3. Forward Fairing Fixed
4. Main Rotor Head Fairing
5. Rear Fixed Fairing
6. Titanium Driveshaft Fairing
7. Composite Tail Pylon
8. Stabilizer
9. Rear Fuselage
10. Rear Ramp
11. Composite Right Sponson
12. Life Raft Stowage
13. Class 2 Escape Door Rear Compartment
14. Electrically Operated Footstep (Closed)
15. Cargo Door
16. Top Deck Structure
17. SAR Technician’s Bubble Window (Demisted)
18. Avionic Cabinet
19. Forward Lower Structure

ELECTRICAL AVIONIC EQUIPMENT
100. Right Pitot Head
101. Right Forward Flotation Bag
102. External Electrical Power Socket
103. Battery Compartment
104. Right Sponson Flotation Bag Cover
105. Beacon Airfoil Unit
106. Twin Electrical Rescue Hoists
107. Heated Intake
108. Auxiliary Hydraulic Pump
109. Rotor Ice Protection Unit
110. Avionic Cabinet Cooling Exhaust
111. Pitch, Roll Collective Series Actuators
112. Avionic Cooling Inlet
113. Weather Radar
114. Snow and Ice Detector Head
115. Rescue Hoist Floodlight
116. GPS Aerials
Modern Technology - Typical SAR Helicopter

MECHANICAL EQUIPMENT
200 Twin Steerable Nose Wheels with 90° Castor Facility
201 Right Forward Nose Bay Access Panel
202 Windsreen Wash Fill Point
203 Crashworthy Pilot’s Seat
204 Bulkhead 4200 Rear Cockpit
205 Pressure Refuelling Point
206 Flight Engineer’s Seat
207 Main Landing Gear High Energy Absorbing Strut
208 Ground Airstart Connector Access Panel
209 APU Exhaust
210 Intermediate Gearbox
211 Tail Rotor Yaw Servo
212 Tail Rotor Gearbox
213 Auxiliary Power Unit
214 No.3 Engine
215 De-iced Composite Main Rotor Blade with ‘BERP’ Tip
216 MRH Damper

217 No.3 PFCU (Power Flying Control Unit)
218 ACSR Strut (1 of 4) with Protective Blanket
219 Rotor Brake
220 Rotor Brake Engage Actuator
221 External Hydraulic Connectors No.1, 2 & 3 Systems
222 No.3 IHPS Auxiliary Reservoir
223 Fully Rotational SAR Technician’s Seat
224 Wire Strike Protection System
Modern Technology

Modern Airframe
- Simple, modular design
- Fail safe and damage tolerant design
- Large carrying capacity at lowest possible weight
- Extensive corrosion protection
- Crashworthy design
- Low maintenance requirements

Main Rotor Gearbox
- Advanced load sharing design
- Four reduction stages including final epicyclic output
- Damage tolerant mountings
- Dual lubrication circuits
- 30 minute run-dry capability
- Independent load paths for each engine input up to third reduction stage

Powerplants
Engines:
- Three engine configuration
- Superior one engine inoperative (OEI) performance – can safely complete mission with two engines
- Choice of modern engines:
  - Rolls-Royce Turbomeca RTM322
  - General Electric T700

Auxiliary Power Unit:
- Provides air power to start main engines
- Provides electrical and hydraulic power when main engines are not in use

Ice Protection
- Capable of all weather operations including flight into known icing conditions with integrated ice protection system

Lightning Strike Protection
- Tested to worst case, full threat (200,000A) environment
- Immunity to multiple burst and multiple strike effects
- Proven whole aircraft system and test equipment bench tests
Specification
Specification

Airframe

Modular airframe of aluminium alloy and composite construction
Constant cross section cabin
Integral footsteps, handholds, work platforms and walkways for easy access to transmission and rotor system
Sliding fairings and access panels for easy access
Cabin windows – jettisonable for emergency exit
Crashworthy pilot’s and co-pilot’s seats
Active Control Structural Response (ACSR) active vibration control system
Cockpit and cabin environmental control system
Anti-iced windcreens with washing and wiping systems
Retractable tricycle landing gear with steering and braking system
High levels of corrosion protection
Port cabin door (sliding or airstair)
Starboard sliding cabin cargo door
Two easy access avionics cabinets
Two jettisonable cockpit emergency exits
Primary and standby pitot static systems
Cockpit, cabin and avionic bay environmental control systems

Hydraulic System

Three integrated hydraulic power supplies
Emergency accumulator
Hydraulic system control panel

Powerplant and Fuel System

Three RTM322 or T700 engines with integral inlet particle separators
Auxiliary Power Unit for engine start and ground power
Three air starters
Four or five crashworthy fuel tank system with option of self-sealing tanks
Single-point pressure refuelling and defuelling
Gravity refuelling point for each fuel tank
Fuel gauging system
Fuel system control panel
Duplex fuel boost pumps
### Specification

#### Rotors and Controls
- Five-blade composite articulated main rotor system with elastomeric bearings and dual load paths
- Composite main rotor blades with optional de-icing system
- Four-blade cross beam teetering tail rotor
- Three duplex main rotor servo actuators
- One duplex tail rotor servo actuator
- Pilot and co-pilot flying controls

#### Electrical System
- Two 90 kVA generators
- One 25 kVA generator
- One 25 Ah battery
- AC and DC ground power points
- Cockpit lighting
- Cabin lighting
- Anti-collision lights and navigation lights
- Two landing lights, one steerable
- Emergency lighting system
- Electrical generation system control panel

#### Avionics
- Glass cockpit with colour electronic LCD units
- Two flight/navigation display mode selectors
- Two avionic system management computers
- Data transfer module
- Multifunction control and display units
- Dual duplex digital automatic flight control system
- Health and Usage Monitoring System (HUMS)
- Cockpit caution warning system
- Power systems display mode selector
- Standby instruments
- Central warning panel
- Communication and navigation suite
- Cockpit and cabin intercommunication system (ICS)

#### Transmission
- Main gearbox with three engine inputs and dual lubrication system
- Accessory gearbox
- Intermediate gearbox and tail rotor gearbox with interconnecting driveshafts
- Quantitative debris monitors
- Rotor brake
## Specification

### Weights

<table>
<thead>
<tr>
<th></th>
<th>kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum All Up Mass</td>
<td>14600</td>
<td>32187</td>
</tr>
<tr>
<td>Alternate Gross Mass</td>
<td>15600</td>
<td>34392</td>
</tr>
<tr>
<td>Typical Payload</td>
<td>5400</td>
<td>11905</td>
</tr>
<tr>
<td>External Cargo Capacity (Standard)</td>
<td>3000</td>
<td>6600</td>
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<tr>
<td>External Cargo Capacity (Role Fit)</td>
<td>4536</td>
<td>10000</td>
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</table>

### Fuel Capacities

Three standards of fuel tanks are available offering increasing levels of protection

<table>
<thead>
<tr>
<th>Installation</th>
<th>Crash Resistant</th>
<th>Crashworthy</th>
<th>Self-Sealing</th>
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<tbody>
<tr>
<td>4-Tank</td>
<td>Litres</td>
<td>US Gallons</td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>4303</td>
<td>1140</td>
<td>3442</td>
</tr>
<tr>
<td></td>
<td>4160</td>
<td>1100</td>
<td>3328</td>
</tr>
<tr>
<td></td>
<td>4094</td>
<td>1080</td>
<td>3275</td>
</tr>
<tr>
<td>5-Tank</td>
<td>5380</td>
<td>1420</td>
<td>4302</td>
</tr>
<tr>
<td></td>
<td>5211</td>
<td>1380</td>
<td>4169</td>
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<tr>
<td></td>
<td>5120</td>
<td>1350</td>
<td>4095</td>
</tr>
</tbody>
</table>

Optional Auxiliary Cabin Tanks

<table>
<thead>
<tr>
<th>Tank</th>
<th>Litres</th>
<th>US Gallons</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 US Gallon</td>
<td>649</td>
<td>180</td>
<td>519</td>
</tr>
<tr>
<td>400 US Gallon</td>
<td>1389</td>
<td>400</td>
<td>1111</td>
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</table>

### Powerplant Ratings

<table>
<thead>
<tr>
<th>Engine Rating</th>
<th>Engines Operating</th>
<th>RTM322/Mk 250</th>
<th>T700-T6A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min Take-off</td>
<td>3</td>
<td>2270</td>
<td>-</td>
</tr>
<tr>
<td>30 min IRP</td>
<td>3</td>
<td>-</td>
<td>2145</td>
</tr>
<tr>
<td>Max Continuous</td>
<td>3</td>
<td>2150</td>
<td>1604</td>
</tr>
<tr>
<td>2.5 min Contingency</td>
<td>2</td>
<td>2180</td>
<td>1626</td>
</tr>
<tr>
<td>Max Continuous</td>
<td>2</td>
<td>2000</td>
<td>1492</td>
</tr>
</tbody>
</table>

### Transmission Rating

<table>
<thead>
<tr>
<th>Rating</th>
<th>shp</th>
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</thead>
<tbody>
<tr>
<td>30 min Take-off</td>
<td>5304</td>
</tr>
<tr>
<td>Max Continuous</td>
<td>4982</td>
</tr>
<tr>
<td>2.5 min OEI</td>
<td>4149</td>
</tr>
<tr>
<td>Continuous OEI</td>
<td>3720</td>
</tr>
</tbody>
</table>

### Future Growth Engines

RTM322-04/8 and CT7-8E

10% more power for improved Hot and High performance
Performance

All performance is given under ISA, sea level, zero wind conditions at a mass of 14,600 kg, unless specified otherwise.

### All Engines Operating

<table>
<thead>
<tr>
<th>Engines</th>
<th>General Electric T700-T6A1</th>
<th>Rolls-Royce Turbomeca RTM322/Mk 250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Cruise Speed</td>
<td>150 knots</td>
<td>150 knots</td>
</tr>
<tr>
<td>Best Range Speed</td>
<td>123 knots</td>
<td>125 knots</td>
</tr>
<tr>
<td>Best Range Fuel Flow</td>
<td>761 kg/hour</td>
<td>774 kg/hour</td>
</tr>
<tr>
<td>Best Endurance Speed</td>
<td>80 knots</td>
<td>80 knots</td>
</tr>
<tr>
<td>Hover in Ground Effect</td>
<td>7000 ft</td>
<td>7300 ft</td>
</tr>
<tr>
<td>Hover Out of Ground Effect</td>
<td>3700 ft</td>
<td>3700 ft</td>
</tr>
<tr>
<td>Oblique Rate of Climb</td>
<td>1964 ft/min</td>
<td>1964 ft/min</td>
</tr>
</tbody>
</table>

### One Engine Inoperative

| | Maximum Weight to Hover IGE | 14055 kg |
| | Oblique Rate of Climb | 1060 ft/min |

### Cat A (Safe flyaway) Performance

- The three-engine EH101 has 80% of take-off power available for OEI flyaways, compared with 60% for typical two-engine helicopters
- ISA+25°C, Sea Level, Max. Gross Mass 14600 kg
Customer Support

EH101 benefits from the continuous application of an extensive Integrated Logistic Support (ILS) process. The delivered aircraft meets demanding supportability requirements while operators receive efficient, cost-effective product support services.

A comprehensive database of support information generated by Logistic Support Analysis (LSA) is continuously improved by feedback from operators.

Preventative Maintenance

EH101 benefits from:
- Maintenance Planning within LSA using MSG-3 (Maintenance Steering Group 3) logic
- Civil Airworthiness Authorities’ Maintenance Review Board
- Scheduled maintenance tasks performed after a minimum of 200 flying hours
- UK MoD contract for maximum preventative maintenance of 1.7 man hours per flying hour

Interactive Electronic Technical Publications

EH101 IETPs comprise:
- ‘State-of-the-Art’ electronic publishing technology
- Fully validated data held on an extensive modular database
- AECMA 1000D chapter structure and illustrated parts catalogue
- Hyperlinks to electronic ground station download facility

Reliability and Maintainability

EH101 has undergone the most intensive reliability and maintainability development and maturity testing. The results have shown that all targets for the helicopter have been exceeded. It has completed over eight years of operation in a wide range of military and civil roles.
Customer Support

Material Support
The operator’s spares pack is based on:
- Analysis of the defined maintenance tasks
- Specific aircraft configuration
- Innovative, cost-effective support arrangements tailored to operator requirements
Operators can be fully involved in the analysis, which uses the LSA database and a comprehensive Level of Repair Analysis (LORA) based on the European version of the Equipment Designer Cost Analysis System (EDCAS).

Customer Training
EH101 is supported by training centres in the UK and Italy with the latest training technologies, training pilots and maintainers in all aspects of EH101 operations and maintenance.
Our training services include:
- Training needs analysis, course design and media selection
- Development and preparation of courseware and course materials
- Computer Based Training
- Delivery of On-Site Courses
- Comprehensive, long-term Training Services
- Turn-key Training Solutions and Equipment Supply
- Simulators
- Cockpit Procedure Trainers
- Part-Task Trainers

Repair and Overhaul
Factory Repair and Overhaul is supported by comprehensive facilities covering all aspects of the aircraft, including:
- Airframe
- Rotor blades
- Avionics
- Transmissions
- Hydraulics
Repair and Overhaul can also be established at our customers’ own facilities to provide a highly responsive service.
Customer Benefits

EH101 provides unmatched role flexibility, providing customers with a cost-effective solution to a wide range of Search and Rescue mission requirements.

EH101 Offers:

• New technology design with substantial future growth potential
• Growing in-service fleet experience
• Large capacity, 30 plus seat cabin
• Long range; over 900 nm demonstrated
• Configuration fully equipped for over water, over land and mountain rescue
• Testing and qualification to civil and military requirements
• Cost-effective through-life-support and training
Complete Search & Rescue
Multi-Mission
Flexibility
Sales & Marketing

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