









Mission ready

Right now, hundreds of helicopters around the world are flying with Heli-One modifications. Operators who provide Offshore transportation, Search & Rescue, Emergency Medical Services, Utility roles, and Military and Law Enforcement protection have worked with Heli-One to optimize their aircraft for their mission profiles.

Heli-One is the world's largest independent provider of helicopter maintenance, repair and overhaul services. Our world-leading helicopter modification and upgrade capabilities are based on our expertise gained from real operational knowledge. Customers partner with our design team, which tailors modifications and upgrades to specific mission requirements.

This brochure brings together a small selection of the most popular modifications making a real difference to specialist customer missions.

International Approvals

We offer a significant turnaround advantage to our customers through our authority to approve STCs in-house for airworthiness jurisdictions around the world. Heli-One's international design team includes an EASA Part 21 J Design Organization Approval (DOA) in Stavanger, Norway, and a Transport Canada CAR 521-approved Design Approval Organization group (DAO) in Delta, British Columbia.



Flight Management System

Flight Management System (FMS) with advanced and versatile functionality for both military and civil aircraft

This piece of equipment reduces workload of the system pilot while at the same time enhancing situational awareness. The CMA-9000 is a modern FMS from CMC electronics. It provides a variety of functions and interface possibilities, including RNAV Routes, Standard Arrival Routes (STARs), Standard Instrument Departures (SIDs), Airways and GPS instrument direct navigation, improved holding patterns and procedure turns, time and fuel management, transition to hover, search patterns, and much more.



Wire Strike Protection System

Essential for low altitude operations in both rural and urban environments

Wire Strike Protection Systems (WSPS) protect helicopters during collisions with wires. When flying in unfamiliar airspace at low altitudes, WSPS provide pilot and crew with peace of mind. Power lines, telephone lines or guy wires for a tower all pose major threats to safe operation of an aircraft. The WSPS reduces the severity of a wire obstacle collision by diverting the wire into cutter blade assemblies.

Searchlight

The Nightsun SX-16 provides a 30 million-candle power controllable searchlight

This modification provides provisions for the installation of the Spectrolab SX-16 Searchlight. The SX-16 provides a mobile, high-intensity light source in all environmental conditions. To date it has been installed on over 30 different airframes. The number one helicopter Searchlight for Law Enforcement entities, border patrol agencies and Emergency Medical Services (EMS) organizations.

AN/ARC-210 Talon Programmable Digital Communication System

The Rockwell Collins Talon receiver-transmitter features a digital radio architecture that allows easy re-programming with different waveforms and operating modes

Keeping pilots and crews connected during Law Enforcement missions is crucial. The V/UHF Transceiver provides multi-mode voice and data communications in normal, secure or jam-resistant modes over the V/UHF (30-400 MHz) range. It is compatible with multiple ECCM options including Have Quick I/II (STANAG 4246), SATURN (STANAG 4372), TALON & TALON II waveforms (country unique identifier), SINCGARS, Harris Quicklook 1A (30-108MHz). By offering a fully digital architecture, the TALON radio can be easily reprogrammed in the field with different waveforms and operating modes through the use of the latest signal processors.

Satellite Tracking System

The SkyTrac ISAT-200 transceiver provides total situational awareness

The SkyTrac ISAT-200 SatCom system possesses features which enable sophisticated strategic operations planning and execution. The system delivers global flight following, two-way voice, email and messaging between aircraft and the ground and aircraft to aircraft. For Law Enforcement operators, it renders crews able to integrate with other emergency services to combine intelligence of cross-services assets.

Loud Hailer

Provides the pilot with a system to communicate with people on the ground

An essential piece of kit, the loud hailer is an effective warning and alert system. It consists of a PA controller AA21-401, power amplifier and a speaker. The control unit and amplifier are located in the avionics bay, whilst the speaker is mounted in the landing gear bay area. The speaker will be activated only when the console-mounted toggle switch operates the system in 'siren/yelp' mode. Both the pilot and the co-pilot can activate the switch in case of emergency.





Weather Radar System

The Honeywell Primus 660 offers the performance of a high power radar with the reliability and features of modern weather radars

The Primus 660 weather radar system is a lightweight, high-power, X-band digital radar designed for weather detection. The primary purpose of the system is to detect storms along the flight path, giving pilots a visual indication of rainfall intensity. The advantages of the P660 are its 2.5-300 NM range, 10KW transmit power, integrated receiver/transmitter/antenna unit and enhanced BITE functions. In addition, it increases the available nose shelf space and the display can also be used to display EGPWS/TAWS terrain maps.



FLIR

Forward-Looking Infrared camera systems allow tracking of heat signals to neutralize the effect of darkness or poor weather conditions

From Law Enforcement missions tracking unusual heat signals to SAR missions in the dark – FLIR cameras provide a step-change in capability. FLIR Ultra Force II EP thermal imaging systems consist of an IR camera and a CCD daylight camera with 18 x zoom. A spotter scope can give 0.4° field of view. Options like laser range finder, laser illuminator and laser pointer can be offered, as well as synchronization with searchlight or radar. The camera is qualified to MIL-STD. Associated equipment like Console, LED display, digital recorder and video downlink is also available.



Dual Hoist

The Goodrich Dual Hoist is a reliable hoist system with a back-up option

The system consists of a Goodrich Hydraulic Hoist P/N 76368-500 and one Goodrich Electric Standby Hoist P/N 76371. This upgrade will give a reliable hoist system with back-up option if the main hoist fails. Rescue hoist Model 76368-500 is an externally mounted, hydraulically powered hoist that utilizes a unique cable guide management system with patented cable tension and carbon braking systems that allow unlimited duty cycle. This new version of variable hoist is whiplash resistant with large angles and includes a cable guide system that allows 30 degree fleet angles.



Sea Tray

For SAR and EMS operations in wet conditions, a protective covering for the aircraft floor and lower interior is imperative

This Sea Tray installation allows protection against vast quantities of water, as well as easy post-mission flushing and cleaning. A rapid and easy change of roles is a prime requirement for many operators, especially for the ambulance and SAR configurations. In the SAR role it is very likely that significant quantities of water could be introduced into the cabin. This would be via the starboard door (when opened for winching), the winchman, and any rescued persons during wet operations. It is therefore necessary to cover the floor and some part of the lower interior for protection.

EuroNav System

An essential modification for those operating at sea, this MFD installation includes the EuroNav moving map system

The MFD EuroNav upgrade improves your helicopter's marine navigation capabilities. The modification consists of installing the EuroNav moving map system and Multi Function Displays (MFD)/Radar Converters into the aircraft.



Second LDG Light

A Second LDG Light improves search and landing light capabilities and visibility

Applying a Luminator Aerospace 930-500-25-1 as a second landing light improves search/landing light capabilities for SAR operations in night conditions; reducing the time it takes for rescue missions to locate an emergency. Rugged and reliable, Luminator lights are available in various configurations, and are selected by major OEMs as original equipment and by military forces as standard use.

Emergency Medical Services

Helicopter EMS crews receive calls for immediate launches that involve life and death situations. Often flying to and landing in unfamiliar locations, crews have to load critical patients and transport them to hospitals as quickly as possible. Optimal awareness for difficult scene landings is just as important as rapid patient loading and unloading.

International flight safety bodies are increasingly recommending that helicopter EMS operators adopt the latest safety-enhancing avionics to manage risks to crew and patients. When customizing a helicopter for EMS missions, Heli-One knows that obstacle, weather and terrain awareness is key – as well as being able to analyse flight data after the mission.

Heli-One support ensures mission readiness for Lufttransport AS National Air Ambulance Service AW139s in Norway.

Medical Equipment Rack

A removable rack that holds medical equipment, installed to be convenient for access

Heli-One can design and install versatile Medical Equipment Racks to many different types of helicopters. The rack is placed so the equipment is located close to the patient lying on the stretcher, and within sight and reach of medical staff in the cabin. The equipment installed on the rack is a Laerdal Suction unit, a defibrillator, components for the GSM and Iridium phone systems, a flexible 'gooseneck' light, 220V outlet sockets for charging equipment while on the ground, and retaining systems to hold 2 oxygen bottles.



Medevac

Essential for rescue operations, Heli-One's comprehensive Medevac customizes an aircraft to the requirements of an EMS crew

For rapid transport of seriously injured persons from the scene of an accident to the medical center, a helicopter needs a custom interior. Heli-One's Medevac installation can consist of: standard seat track pattern installation; NATO Stretcher installation; LSTAT medical stretcher installation; Sicma single seats installation; improved cabin lighting; floor protection covering; interior trim upgrades; and installation of medical equipment and power outlets.



Flight Management System

The UNS-1Fw Flight Management System (FMS) allows EMS crews access to local hospitals' instrument flight rules (IFR) approaches

Universal Avionics UNS-1Fw FMS W/NMS enables speedier and safer delivery of patients to hospital helipads. Pilots using the WAAS/SBAS-capable FMS have access to all RNAV (GPS) approach types. LPV approach capability provides ILS-like guidance down to near CAT I ILS minimums (as low as 200-feet with ½-mile visibility).



Polycon Radio

This hands-free wireless intercom system allows crew members to communicate with each other

Essential for SAR, EMS and Law Enforcement operatives, but also used by operators in a wide range of sectors. Crew members can talk to one another, share information and alert one another to changing mission requirements – which can happen very fast in an emergency situation. The Polycon is connected to the ICS system as an extra headset, and uses the voice-operated intercom without using any external PTT function.

Enhanced Ground Proximity Warning System

Enables crews to fly through rough terrain safely, even in poor weather and visibility conditions

The Honeywell Enhanced Ground Proximity Warning System (EGPWS) is a protection tool which provides independent monitoring of an aircraft's position relative to surrounding terrain. It processes aircraft inputs such as position, attitude, airspeed and glideslope, which are used in conjunction with an internal terrain/obstacle/runway database to predict a potential conflict between the aircraft's flight path and terrain or an obstacle.





Cargo Compartment Access Allows for easily accessible storage of medical equipment

EMS missions require helicopters to carry a large amount of equipment. During years of operating SAR and EMS missions, Heli-One knows that cabin space can sometimes need to be optimized in certain aircraft models. Making an access door in the rear bulkhead of the cabin allows for access to the extended cargo compartment. Extra equipment can then be stored along with key equipment such as stretchers for

allows for access to the extended cargo compartment. Extra equipment can then be stored along with key equipment such as stretchers for hoists. Heli-One can advise on design and configuration options for your aircraft.



In-flight Entertainment

Infrared technology now means your passengers can enjoy music through their headsets without the need for cables. Increasing passenger comfort, the system operates independently of the aircraft

The SIHS 2000NG is a cordless infrared means of communication, designed for fixed and rotary wing aircraft with the purpose of providing passenger headsets with music. The system operates independently of the aircraft and PA amplifier, PA amplifier failure will not hinder the satisfactory operation of the SIHS 2000NG.



Emergency Locator Transmitter

Transmits the location of the helicopter in distress across multiple frequencies

Essential for operators in a variety of sectors working in remote and harsh environments — especially for offshore missions. The Artex C406-N HM ELT system functions as a locator beacon and provides automatic transmission of the aircraft identification and position in the event of an emergency. The ELT is designed to operate at 121.5, 243.0 and 406 MHz. In addition, the aircraft GPS system provides present position data via ARINC 429 communication.



Shuttle Timer

Accurately monitor your aircraft's flight time – a vital addition for those operating shuttle helicopters for short and frequent flights

Some helicopters are used extensively in the role of shuttle helicopter, and are needed for relatively short but numerous flights. As a consequence the deck time for these aircrafts will amount to a large proportion of their time in use. Installation of a Shuttle Timer will accurately account for the actual flight time.



Belly Mounted Life Raft Release

For offshore operations the Belly Mounted Life Raft Release provides a more accessible release mechanism in an event of an emergency

It is increasingly mandatory for offshore operational aircraft to be equipped with an accessible release mechanism for emergency life rafts in the event that the helicopter is floating up-side down. This is not the case for many original OEM life raft installations, where if the helicopter were to flip over the closest release handle would be below the water line. We offer a modification to the life raft release mechanism to provide a belly mounted release handle.

Triple Seat Configuration

Provide increased security and comfort for your passengers with installation of 3-place seats to replace existing 4-seater rows

This configuration allows for improved movement within the helicopter cabin for passengers – increasing comfort as well as improving access to exits in an emergency. Our modification can use MacCarthy Interiors 2455001-1 Triple Seat Kits with headrests.



Emergency Exit Lighting System

The EXIS lighting system is an emergency escape lighting system that highlights the pilot, co-pilot, cabin doors and popout windows

This Heli-One design provides illumination of emergency exit doors and windows for at least 10 minutes following activation, giving the passengers enough time to evacuate the aircraft in case of emergency. Using Locktite brand 'electroluminescent' lighting strips, the system supplements the OEM emergency lighting system. The lighting strips around the pilot door, co-pilot door and the windows each have their own power supply that consists of a rechargeable battery and an inverter.



Light Weight Interior Trim

The Light Weight Interior Trim has been designed to reduce overall weight by using advanced composite materials for your aircraft

Heli-One offers light weight interior trim installations with the latest LED light technology. The interior is designed using advanced composite materials to make the interior as light as possible. The interior trim has options for integrated public address speakers in the ceiling panels, and each passenger has their own reading light and air gasper connected to the aircrafts fresh air/airconditioning system.





Traffic Advisory System

Excellent situational awareness of surrounding air traffic: the Traffic Advisory System is essential when flying near other aircraft

Meeting the requirements of TSO-C147, the TAS 620 actively monitors the airspace around your helicopter by interrogating the transponder of nearby aircraft. The range and bearing of all transponder equipped aircraft is displayed on one of three optional displays (Garmin 400/500 series, Multi-Hazard Display or ½ ATI display). Various levels of proximity alerts are provided both visually and aurally with this system.



Night Vision

Improve visibility during night-time operations with this comprehensive modification for external and internal lights

Heli-One offers installation of NVIS (Night Vision Goggle compatible lighting for external and internal lights). The modification consists of replacing existing external lights (anti-collision light, position lights, pilot's searchlight, co-pilot's searchlight, formation lights, two infrared landing lights). The cockpit lighting is then modified by adding filters to some lights, instruments, switches and indicators, and adding bezels above some of the instruments. Two overhead lights, a flexible light and instrument panel flood lights are installed, and pilot and co-pilot goosenecks are replaced with those that are NVG-compatible.

Ballistic Protection

Maximizes protection for crew and passenger safety.

Installed around existing equipment and access requirements, and enables interchangeability of armor panel units

The ballistic panels are installed on the cockpit floor, pilots' seats and the doors. In the cabin the panels are installed on the floors, the walls and the cabinets. Panels cover the maximum available area, taking into consideration any existing installations, equipment and access required – such as the pedals and the stick in the cockpit, seat tracks on the cabin floor and access to connectors on the walls. All panels are installed using templates to enable interchangeability.



Infrared Suppression System

Provides enhanced safety while operating VFR and IFR in environments where shoulder-launched or other heat seeking missiles may be in hostile hands

Developed by Heli-One's partner Davis Engineering, the Infrared Suppression System is an exhaust cooling system that decreases the IR visible exhaust plume of the rotorcraft by about 90% while not decreasing engine power measurably; only decreasing maximum speed of the machine by 2 knots and not affecting handling at all. The installation involves a small modification to the aft transmission housing to install a structural frame to which the exhaust ducts attach, as well as modification to the engine tail pipe and installation of mounting brackets on the fuselage.



Electronic Warfare System

The EWS provides essential built-in defense features for your helicopter, capable of detecting enemy missiles and improving situational awareness when under threat

The Electronic Warfare System (EWS) is an integrated self-protection system, which includes Missile Approach Warning and Countermeasures Dispensing functions. The EWS is designed to provide situational awareness of the utilization of the electromagnetic spectrum by enemy as well as friendly forces. The particular area of the electromagnetic spectrum that is catered for by the EWS is UV emissions from missile motors. The situational awareness provided by the EWS enhances the survivability of the aircraft against launched missiles en route to the aircraft.

Iridium Aerophone

The Iridium AeroPhone provides worldwide telephone coverage wherever your location and operational environment

The Iridium AeroPhone system provides airborne voice communication through the Iridium satellite network to the on-ground telephone system. AeroPhone is easily installed, connecting directly to the primary intercom system and incoming call annunciations. The cockpit dial panel enables the flight crew to control the system and place calls. The small antenna allows easy installation on all types of helicopters.





Deployment Boom

Versatile modification which equips for specialist power line maintenance missions

With its flexible and easy-to-install design, a deployment boom installation will equip your rotorcraft for maintaining power lines. The booms are equipped with Quick Connect features allowing for easy attachment of optional external equipment. These equipment options include two different manned work stands, ballast support arm assembly and two payload arms which enable the delivery of maintenance cargo, tool buckets and maintenance carts onto power lines.



Cabin Bubble Window

The bubble-shaped window enhances visibility and provides unrivalled views compared to normal-shaped windows
Bubble windows can be installed on the left and right side of the aircraft. Bubble windows are used to let crew and passengers have increased range of vision from the aircraft interior. While also useful for SAR missions where the crew need to survey the ground below – bubble windows are also popular for tour operators. The windows are manufactured using 5mm thick Perspex material and are formed using a mold and vacuum forming process. The windows are ventilated with their own gasper supplying air into the bubble.



Lead Acid Batteries

An alteration that will keep you running more efficiently for longer – reducing maintenance costs and increasing reliability. Unlike the original NiCad batteries, the new sealed lead acid batteries are not affected by thermal runaway. This kit consists of two installations. Each battery is a 24-volt, 42-ah RG-type valve regulated lead acid battery, which power for limited ground operation and engine starting when external power is not available. The alternate battery is connected in parallel with the primary battery to the essential DC bus through a separate battery relay.



Cockpit Voice & Flight Recorder

Comply with the latest standards of in-flight safety with a CVFDR installation, allowing a customized recording solution for your aircraft

The CVFDR system consists of a cockpit voice recorder (CVR) part and a flight data recorder (FDR) part. The CVR part records audio from cockpit area microphone and from the pilot's and co-pilot's headset and cabin ICS headset. The FDR part records flight parameters; i.e. what the pilot sees (indications) and what the pilot does (flight controls and other selections).

Vertical Reference Door

Enhances both safety and capability for pilots handling sling loads, when visibility beneath the aircraft is essential

This simple vertical reference door provides a large protruding window to improve the downward vision of the pilot. The door consists of a steel peripheral frame which supports an acrylic 'bubble' window. A horizontal member can be attached to the lower part of the door to support an arm rest. The door does not affect the performance of the rotorcraft significantly.



External Cockpit Mirror

Application of an adjustable externally-mounted mirror to provide an extended view and help with spatial visibility when manoeuvring

Adaptable for many aircraft types, external cockpit mirrors consist of a mirror assembly and a holder arm. The holder assembly is welded stainless steel tubes and the mirror assembly is manufactured of a ball bracket, reinforcement plate and a mirror. This will secure and allow the ball bracket to freely rotate in the clamp plate with the use of minimum force and still allow adjustment of the mirror angle for optimum adjustment and viewing angle for the pilot/co-pilot.





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