

RotorBreeze

Q2 • 2011



Introducing the

bell
407GX

bell Helicopter
A Textron Company

Photo by Sheldon Cohen

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by Gabriel Léveillé, Product Support Engineering

Introduction to the **Bell** 407GX

The following information introduces the 407GX and familiarizes the reader with the technical aspects of the product.



The two main cockpit screen displays are known as GDUs (Garmin Display Units). The GDUs are interchangeable from one side to the other. When a GDU is positioned on the left hand side it becomes or acts as a MFD (Multifunction Display). When a GDU is positioned on the right hand side it becomes or acts as a PFD (Primary Flight Display).

Focusing on the left hand screen, the MFD. On this side, the screen provides all engine and systems instruments parameters including transmission and engine oil pressures/temperatures, generator output, fuel quantities, and fuel burn rates. Also included on this display are the flight planning and cockpit management tools required by the flight crew.



On the bottom right corner of the MFD is a double action knob to access the various screen displays and functionalities. Think of its usage similar to flipping open a book, one portion of the knob selects the chapters and the other selects the pages within each individual sections (chapters) selected. The following sets of pages (chapters) are available: waypoint pages, auxiliary pages, flight plan pages, engine indication pages and so forth. The engine indication page provides an enlarged display of the PSI (Power Situation Indicator) that can be displayed automatically in the event of an autorotation.



Now for the right hand screen, the PFD (Primary Flight Display). This is the crew members' visual reference screen for in-flight display of all required information. At the bottom left corner of the PFD is the Power Situation Indicator (PSI). The PSI provides the flight crew with a power available indicator based on engine torque (Q), measured gas temperature (MGT), and gas producer rotation speed (NG). The resultant needle position is then reflected on the power indicator gauge scale of 0 to 10, with 10 representing maximum continuous power (MCP) operation limit. Beyond the MCP limit mark, a yellow arc extends beyond the point representing the remaining 5-minute take off power margins available. The colors on the engine monitoring displays change by design from green to yellow to red during operations, matching the flight manuals approved limitations.



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EDITORIAL STAFF

Ross Johnson, Publisher
Leslie Ferry, Editor

ADVISORY COMMITTEE

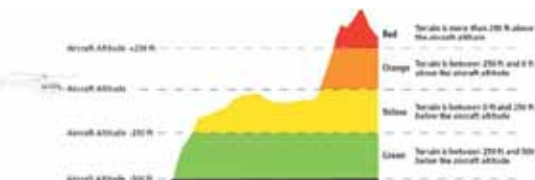
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The Bell 407 helicopter has a new variant; the 407GX with glass cockpit integration. At Heli-Expo 2011 in Orlando, Florida, attendees had the opportunity to see the 407GX unveiled, many even had the chance to catch a flight in the demonstration aircraft. At first glance, the 407GX appears very similar to a standard 407. However, once inside the crew seating area, the dramatic difference is apparent in the Garmin G1000HTM series glass cockpit arrangement.



The screen background provides SVS (Synthetic Vision System); this includes land contours, upcoming towers,

flight paths and more. When combined with HTAWS (Helicopter Terrain Awareness



Warning System) and TIS (Traffic Information System), Synthetic Vision System capabilities take on new dimensions on the screen; including terrain obstacle proximity and traffic aural warnings, the screen's colors displayed change from green to yellow to red dependent on altitude versus terrain obstacles. When landing in a remote location, the PFD screen display steadily changes to advisory colors based on rate of descent and the aircraft's projected path as terrain or obstacle proximity gradually approaches. This feature greatly improves safety situational awareness and aids in reducing controlled flight into terrain obstacle.

There is no longer a need for a cockpit light illuminated caution warning panel. All warnings, cautions or advisory



messages during flight are now displayed on the PFD with an audible chime. If the message is a recordable warning or caution type of alert, the anomaly is logged and can be consulted

by the maintenance crew by accessing the MFD. As an example, if the fault originated from the ECU, selecting the AUX - OEM Diagnostics page with the bottom right hand knob on the MFD, will display the fault code on the screen. This replaces the traditional caution panel flashing light sequence for troubleshooting. For ECU interaction with a PC, this feature remains unchanged.

A basic 407GX comes equipped with dual VHF Communication radios providing Comm 1 and Comm 2 features accessible through both the MFD and PFD display units.

Dual NAV communication radios and dual GPS receivers are also part of the basic 407GX configuration. This feature provides en route and airport guided approaches that can be coupled to an auto pilot system that is planned for development.

Flight data inputs to the screens are provided by individual independent sources such as the ADC (Air Data Computer) which provides airspeed, altitude and temperature information, the AHRS (Attitude and Heading Reference System) and transponder mode "S", to name a few.

In the hat rack area, a new avionics shelf has been added to accommodate for the installation of the AHRS. This system coupled with the magnetometer that is mounted in the tailboom area provides the necessary inputs to support the display of the flight attitudes and directional features on the PFD. Also located on the shelf is the engine signal conditioner which serves as back up in the event that one or more inputs from the ECU would fail. The primary source to display primary engine parameters in the cockpit is from the ECU, with the exception of Torque. Having all these engine parameters readily available led the team to incorporate a one touch power check function that is compatible with both the basic flight manual charts and the plus power performance charts.

Combined with this latest technology, the need for uploading software into the G1000HTM will become a common maintenance practice. This can be accomplished by downloading the approved 407GX software loader image files to an SD memory card and inserted into the forward face of the PFD screen. From there, the updated field loadable software can be uploaded to all Garmin's LRUs. As an example, with future field loadable software, additional features and system improvements such as automatic speech recognition, hover performance, weight and balance can be added. It is Bell Helicopter's plan at this time to have the revised loader images available for download from the website.

There are a number of kits that are available for 407GX;

continued page 13



Bell Helicopter Continues Its Commitment to Reducing Maintenance Costs

by Lorenz Jessen – Customer Support and Services Regional Sales Manager for Canada and Western Europe

Last year in the 2Q 2010 edition of RotorBreeze, Bell Helicopter first introduced its commitment to reducing direct maintenance costs on its aircraft. The following will serve as an update for owners and operators on Bell Helicopter’s efforts to reduce maintenance costs, and our continued commitment to our valued 429 customers. The Bell 429 program continues fatigue testing on components and has allowed for several revisions to the Maintenance Manual over the past year, as testing is completed. One of the more significant items was discontinuation of the daily tail rotor inspection requirements, which was achieved in November 2010. With this change, tail rotor blades now are inspected visually as per the Flight Manual walk-around, resulting in a significant maintenance cost reduction.

Additionally, Bell Helicopter has redesigned some components that did not meet desired life criteria. For example, the tail rotor idler link; note “qty 2” listed in table 4-1 of the Maintenance Manual. Previously, part number 429-012-115-101 would not test with a safe life past 3500 hours. For that reason Bell Helicopter redesigned the part. Operators will notice that the dash -105 now has an unlimited life. Other components are already in redesign to achieve similar enhancement of life limits. It is Bell Helicopter’s goal to provide 429 operators with best-in-class maintenance costs for an IFR Light Twin.

The at right is a list of achievements to date. Details can always be found in the Maintenance Manual at each revision:

Basic Manual	19 Jun 2009	Original release of the Maintenance Manual
Rev 1.	07 Dec 2009	Airframe parts life increase...final goal will be unlimited for airframe
Rev 2.	28 Jan 2010	Life limit increase and the removal of 43 items from table 4-1
Rev 3.	10 May 2010	Life limit increase, Bell Helicopter was committed to keep testing ahead of in service flying hours.
Rev 4.	19 Aug 2010	Life limit increase again
Rev 5.	N/A	This revision covered other parts of the Maintenance Manual
Rev 6.	05 Jan 2011	This revision introduced all life limits items for emergency floatation
Rev 7.	04 Mar 2011	Life limit increase on approximately 12 parts and additional 12/13 items came out that went unlimited life, as a result of long term testing.

Future revisions will address inspections, and increase inspection intervals, as well as take out a number of additional life-limited parts. The goal is for Bell 429 customers to realize between 12 to 15 life-limited parts remaining in table 4-1, showing our commitment to lowering maintenance costs (DMC) on Bell aircraft.

Proper Engine Maintenance Leads to Less Costly Downtime

Maintaining a proper schedule of maintenance is vital to keeping aircraft in the air and engines running properly. Parts can wear out and cause major damage to other parts in the engine, as well as lead to costly downtime for any operator/owner.

For this very purpose, engine manufacturers closely monitor the wear and tear of the engine and suggest various levels of maintenance. In the case of the Honeywell T53 engine, the original equipment manufacturer (OEM) recommends the following schedule of inspections and maintenance on the engine:

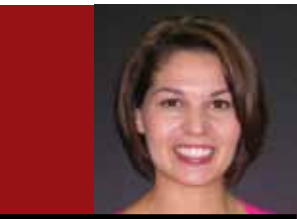
Honeywell Engine Application	Scheduled Maintenance	Hours
COMMERCIAL		
Model T53-13B	Standard Overhaul	
	Internal Hot End Inspection	1200 Hrs
	Internal Hot End Inspection	2400 Hrs
	Overhaul	3500 Hrs
	Overhaul in Accordance with SB5313B/17-0122 – TBO	
	Hot Section Inspection	1250 Hrs
	Mid-Point Inspection	2500 Hrs
	Hot Section Inspection	3750 Hrs
Model T5317 Series	Standard Overhaul	
	Internal Hot End Inspection	1000 Hrs
	Internal Hot End Inspection	2000 Hrs
	Overhaul	3000 Hrs
BCV Model is only manufactured w/SB0122 Compliance	Overhaul in Accordance with SB5313B/17-0122 – TBO	
	Hot Section Inspection	1250 Hrs
	Mid-Point Inspection	2500 Hrs
	Hot Section Inspection	3750 Hrs
	Overhaul	5000 Hrs
MILITARY		
Model T533-L-13B	Standard Overhaul	
	Internal Hot End Inspection	1200 Hrs
	Overhaul	2400 Hrs
	Overhaul in Accordance with T53-0172 & 0173 – TBO	
	Hot Section Inspection	1250 Hrs
	Mid-Point Inspection	2500 Hrs
	Hot Section Inspection	3750 Hrs
Model T53-L-703	Standard Overhaul	
	Internal Hot End Inspection	1200 Hrs
	Internal Hot End Inspection	2400 Hrs
	Overhaul	3000 Hrs
	Overhaul in Accordance with T53-0169 & 0171 – TBO	
	Hot Section Inspection	1250 Hrs
	Mid-Point Inspection	2500 Hrs
	Hot Section Inspection	3750 Hrs
SERVICE INSPECTIONS FOR ALL ENGINE MODELS	Fuel Manifold Flow & Functional Inspection	600 Hrs
	Starter Gear Drive Spline Inspection	300 Hrs
	Fuel Control Silicone Oil Level Inspection	1000 Hrs



For additional information or questions about this schedule or any other issue regarding T53 engines, contact Ralph Guerra, McTurbine Customer Service Support at 361-851-1290.

A Better, Faster, Smarter Maintenance Tracking System

by Elizabeth Howard, Training Manager – SkyBOOKS



The ongoing economic downturn has challenged customers to do more for less. As a result, SkyBOOKS has reached out to its customers to gather feedback which continues to drive the SkyBOOKS product road map. With that feedback in mind, SkyBOOKS released the light program

for a fraction of competitors' cost. In March, SkyBOOKS alleviated the stress associated with new Airworthiness Directives (AD) notifications. And more recently customers have requested Safari compatibility, the ability to further customize reports, and the ability to complete tasks with fewer mouse clicks. SkyBOOKS tended to the customers' request with release v4.5, expected in May.

Better

Release v4.5 upgraded SkyBOOKS to be compatible with additional internet browsers. SkyBOOKS certifies compatibility with Internet Explorer 7 and 8 family for Windows users, and Safari for Apple users. FireFox, iPad, and Google Chrome users will also benefit, though not yet fully certified.

Faster

SkyBOOKS also created a reports fly-out feature tab, giving users access to any report from any screen. Grids have been standardized and are now easier and faster to navigate and reports can be further customized with sorting capabilities. These new features allow users the ability to spend less time tracking maintenance and more time performing maintenance activities.

Smarter

In March Release v4.4.2.4 focused on alleviating the stress of AD compliance by directing maintainer and operator attention to newly issued ADs. The new AD alerting system gives pilots a sense of security knowing they will not overfly an AD without being notified first. Maintainers will have visibility of the AD as soon as it is issued, giving them ample time to order parts and schedule maintenance.

FAR 91.417 requires owners and operators to keep a record of the current status of applicable ADs, the method of compliance, AD number, revision date, and the recurring action. SkyBOOKS Release 4.4.2.4 makes it easy for customers to keep track of ADs and required maintenance by loading the AD and applicable information. The system then sends an email notifying the customer of the newly issued AD. Once logged in, the user's attention is drawn to the newly added AD.



SkyBOOKS also updated document archiving and the Document Vault. As documents are attached throughout the application, they are automatically archived in the appropriate document vault folder for historical purposes. All file types are compatible to upload. Account holders are able to assign user roles for functions such as: read only, add, transfer, and rename documents. Users are able to print audit trails to track user activity in the Document Vault and are able to preview documents without opening them. Additionally, users are able to customize their file structure by building their files.

What Next?

SkyBOOKS is working on developing automated task cards and sign-off capability, automated log book entries, next interval resets from tasks compliance, inventory module enhancements, and much more.

For more helpful tips and record keeping information, contact SkyBOOKS at 866.929.8700 or email sales@skybooks.com.

Identifying One-Time Glitches and Maintenance Concerns

by Greg Argyle, Senior Military Technical Support Field Engineer

Those who deal with helicopters regularly may have experienced an unrepeatabe gripe that cannot in any way, shape or form be duplicated after it first shows itself. This usually leads to very interesting conversations between a pilot and the maintainer; especially so if they're one and the same.

Modern technology has given the helicopter a varied ability to register its own complaints. Fault registers, warning indicators or fail lights have been around since the earliest days of aviation. These days Built-In-Test (BIT) features, condition reporting and health monitoring systems are not only prevalent, but fast becoming standard items. Newer helicopters and their airborne systems are constantly poking and prodding themselves to find out "where it hurts".

Even with the knowledge that computers glitch and circuits cross, it is important for operators to pay special attention to these types of reporting indicators when in the air. However, once back on the ground, these indications should be held in some suspicion.

While often trustworthy, initial BIT results should be considered only as an indicator of a possible problem. Look for secondary indications if applicable. Make certain all settings and supporting systems are correctly powered and/or selected. Repeat the test. Did the same thing fail in the same way? Again, are there secondary indicators available to back up the result? If you find that it is repeatable or otherwise supported, it can then be considered a valid problem. If it cannot be repeated or supported, it could be either an anomaly if unrepeatabe, or the testing feature itself that may be at fault. Anomalies should be noted for future reference. If it happens again, it's no longer a singular event.

Condition reporting and health monitoring systems are another aspect of this concern. Condition reporting and health monitoring systems come with many names and capabilities. They usually have a time stamp feature, and they might cover a single aircraft system or the over-all aircraft. Singular type systems or combined type systems can be used.

Some conditions reporting, or health monitoring systems, use the "fault" in their title or message logs, most use words or phrases to report the condition message, while some use alphanumeric codes in separate logs. Others might mix the two for reporting. No matter the name, capacity, or style; while an important aspect of helicopter maintenance, the simple truth is that conditions reporting and health monitoring systems are largely event logs. An event in this sense is a change in a monitored condition that has a targeted reporting value such as signal on, signal off and signals above or below a specific point.

This can mean that operators may see the report stating that gearbox pressure was low or zero, which could indicate a large problem. Upon further review the operator may see that it posted this event twenty seconds after turning on the aircraft battery switch. These systems are not overly intuitive, and while in this case the system noted the reading to be below a certain value and reported it, the system didn't know that the operator was still tapping the gas gauge to see if the needle was stuck and had not begun to start engines. Operators should consider the timing and circumstances that surround any posting in an event log, including the other indicators, before determining an actual fault indication.

Like most on-board systems, these too may experience glitches and need repair, whenever in doubt contact the Product Support Engineering team.



Those who deal with helicopters regularly may have experienced an unrepeatabe gripe that cannot in any way, shape or form be duplicated after it first shows itself. This usually leads to very interesting conversations between a pilot and the maintainer; especially so if they're one and the same.



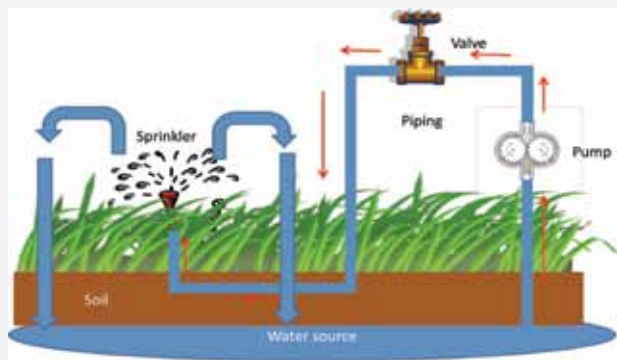
The Importance of Electrical Grounds

by Jimmy Caron, Product Support Engineering

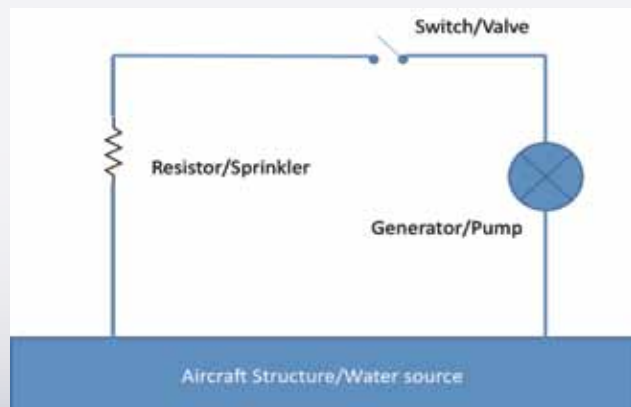
Electrical circuit notions and the importance of electrical grounds can be a complex topic, the following is an example, using a lawn sprinkler system to demonstrate the basics of this electrical concept and its behavior. First, it is important to compare components that are used in both types of circuits, hydraulic and electrical. The generator is the pump in the electrical system, wires are the tubes and the resistor is the restrictor for the electrical system. In the electrical system, resistance could be anything such as a motor, light bulb and/or any connection terminals. In hydraulic systems, resistance/restrictor could be a valve, flow meter, actuator and/or any connection fitting.

The following is a comparison of both systems:

The Hydraulic system: a pump sucks water from a reservoir (water source), pushes it through a control valve and different components such as sprinklers (in this case) and then water drops on the ground through the grass and soil and then back to the reservoir (water source).



The Electrical system: a generator pumps electrons from the aircraft structure, pushes them through control switches and different components such as a light bulb, motor and/or actuator. Then the electrons go back to the aircraft structure (to the ground).



What is common in both circuits? In both cases, the circuits are called "Closed Loop." Closed loop means that everything that is pumped from a source should go back to the source. (Kirchhoff's Law: The directed sum of the electrical potential differences (voltage) around any closed circuit is zero.)

Any weak point in that loop will cause a misconduct of the system design; consequently, a good connection between components is as important as a good ground, especially when lots of current is flowing through it. Many mistakenly consider the ground connection insignificant; however, the same amount of electrons flow through ground connections as the output of the generator connections. "Nothing is lost, nothing is created, all is transformed," Antoine Laurent Lavoisier (1743 - 1794). Meaning that a weak ground connection (resistance) will cause a loss of power, resulting in heat buildup.

Past experience has shown that many generator misbehaviors were resolved by improving ground connections. Every connection in the loop system is as important as the ground connections, but the number of electrons that go through these connections, the environment in which the aircraft operates, and the age of the aircraft are just a few elements that will eventually affect ground connections. Good maintenance of these grounds should be part of your day-to-day agenda.

BHT-ELECT-SPM provides information on how to clean and prepare ground connection (bonding).

Remember, any loose connections will affect the system's operating effectiveness. Think about it: a lawn sprinkler works a lot better when the fittings are tight and leak-free.

For more information or for questions, contact Bell Helicopter Product Support Engineering.



Bell Selects UNIFLIGHT for *206* Retrofit

Bell Helicopter has entered into an agreement with Uniflight LLC to provide data for the development and installation of the Rolls-Royce RR500 engine into the Bell Helicopter 206 series aircraft. This new engine retrofit Supplemental Type Certificate (STC), called the 206-500, will be approved for both the 206B JetRanger (the 206B-500) and the 206L (the 206L-500). Bell Helicopter's decision to select Uniflight for this program is another example of the company's overall strategy to promote the Customer Service Facility (CSF) network and provide additional business growth opportunities through this network.

Uniflight will develop, test, certify (through the FAA) and hold the 206-500 STC, while Bell Helicopter will provide data (intellectual property) to assist in the certification. Uniflight, based at Grand Prairie Municipal Airport (KGPM), in Grand Prairie, Texas, is a full-service Federal Aviation Administration (FAA) Part 145 certificated Customer Service Facility authorized to conduct field maintenance, repairs and component overhauls on the majority of Bell Helicopter's current production and legacy aircraft fleet.

Bell Helicopter is assisting in the development of this STC to enhance the capabilities of the 206B series aircraft and 206L1/206L3 models, and to provide upgrade alternatives for these out of production aircraft. This type of arrangement is intended to benefit 206 operators and create opportunities for other future upgrade alternatives that will continue to make these aircraft increasingly mission-capable.

The model RR500 is being developed and certified by Rolls-Royce as a larger version of the model RR300 engine, with increased power. This engine is being designed using advances in manufacturing as well as design and perfor-

mance. Performance will be increased (vs. RR250-C20) in the hot/high operating environments with an overall lower acquisition cost and operating cost per flight hour. Power ratings have been increased to 475SHP for take-off and 400 SHP for continuous operations. The engine's overall footprint is very similar to the current Rolls-Royce R250-C20 series engine, making it an ideal candidate retrofit into the Bell 206 series.

The 206-500 STC also includes as standard equipment an 8" multi-function display (MFD) for engine instruments to replace "steam" gauge indicators.

Incorporation of an inlet barrier and inducer bleed filter will benefit the operator by reducing compressor erosion with the potential of having the engine compressor moved to an "on-condition" replacement status. Engine monitoring units; generator control units (for cooler starts); engine mounts sized for 12G crash conditions; a fire detection system; and new engine cowl to improve access and serviceability will be included in the STC. Most noticeable on the aircraft with the 206-500 STC installed will be the incorporation of a new exhaust stack designed to reduce the impact of exhaust emissions on the tail boom and tail rotor assembly.

Approval will also be sought to include the OH-58A/C aircraft which are military variants of the commercial 206B series helicopter. STC certification is targeted for mid-2013 following the type certification of the RR500 engine. During the development and certification of the RR500 STC, Uniflight will issue periodic updates and press releases to the targeted 206B fleet and industry.



At Heli-Expo 2011, Bell Helicopter recognized 14 Customer Service Facilities (CSFs) for achieving Platinum-level.



CSFs recognized were Air Asia Company Ltd. (Taiwan), Alpine Aerotech Ltd. (British Columbia, Canada), Arrow Aviation Co. LLC (Broussard, Louisiana), Aviafta Helicopter Maintenance Ltd. (Alberta, Canada), Fuji Heavy Industries Ltd. (Tochigi, Japan), Helipark Taxi Aereo E Manutencao Aeronautica Ltda. (Sao Paulo, Brazil), Motorflug Baden-Baden GmbH (Rheinmuenster, Germany), Northwest Helicopters LLC (Olympia, Washington), Patria Helicopters AB (Stockholm, Sweden), Rotorcraft Support, Inc. (Van Nuys, California), Servicio Tecnico Aereo De Mexico (Mexico City, Mexico), Sikorsky Helitech (Queensland, Australia), and Uniflight LLC (Grand Prairie, Texas).



Bell 214 Users Collaborate to Ensure Future Success

by Shawn Long, *Customer Support and Services Legacy Program Manager*

Previous issues of *RotorBreeze* have re-emphasized the role of Customer Support and Services (CSS) in terms of supporting Legacy aircraft. The new Legacy Program Management and Spares department within Customer Support and Services is dedicated to finding innovative solutions for supporting these aircraft both now and for the long term.

This is clearly evident in the Bell 214 Users' Group, which over the past year organized and became the 214 LLC (Limited Liability Company). Bell Helicopter and 214 operators realized that the clear way to keep their fleet flying was to work closely together and encourage dialogue, not just with Bell Helicopter, but amongst the entire 214 operator network. To this end, any 214 operator is encouraged to participate in monthly teleconferences, and if not available, voice their concerns to LLC representatives to speak on their behalf. The highly interactive dialogue at these monthly discussions results in "Action Items" for both Bell Helicopter and the LLC.

The 214 LLC can now speak with "one voice" in relation to spares procurement, with the goal to reduce cost as a result of economic ordering quantities and lead-time away ordering. Additionally,

the concept of the 214 LLC has resulted in a Master Data Agreement to allow release of Intellectual Property (IP) in certain conditions. An example would be a non-stock active, non-flight critical part with an unreasonable lead-time and cost. The 214 LLC would apply through the Commercial Aftermarket Customizing Data Request (CACDR) process, and provided all requirements are met, would purchase the IP from Bell Helicopter. The part in question could then be manufactured through the LLC for their use only.

Similarly, Bell Helicopter is looking into another new concept to support these aircraft by stocking specific engine parts for the Honeywell T5508D. Bell Helicopter will be working with license holder Transwest Helicopters Ltd. to manufacture and stock these parts. This will ensure engine spares availability for 214B/B1 operators. Product Support Engineering for the 214 fleet remains intact under the direction of Jim Sprinkle.

Finally, as we anticipate success with the 214 Users' Group, Bell Helicopter will be assessing other small Legacy fleets (222/230/430/427) to determine whether this same approach would be appropriate. Any feedback in this regard is appreciated.

Bell Helicopter Now Distributing 206 Series Composite Tail Rotor Blade

Bell Helicopter has signed a distribution agreement with Van Horn Aviation to distribute the 206 series composite tail rotor blade Supplemental Type Certificate (STC). This STC, No. SRO2249LA, will allow the installation of the Van Horn composite tail rotor blade onto the Bell 206B and 206L series aircraft.

Currently available and sold exclusively through Aeronautical Accessories (part number 2062200-301); this STC tail rotor blade be used in lieu of Bell Helicopter part numbers 206-016-201-131 and 206-016-201-135. The approved blade is easily identifiable with its three black visibility stripes similar to the metal blade it replaces and is also approved for use in Canada.

The 206B and 206L Series composite tail rotor STC offers customers:

- Lower direct maintenance costs
- 2 times the life of a metal blade (5,000 hours versus 2,500 hours)
- Increase in tail rotor authority at higher altitudes
- Reduction in tail rotor noise signature
- Lower pedal forces, reducing pilot fatigue
- A 3 year, 1,500 hour non-prorated limited warranty
- Corrosion resistant composite material

As an original equipment manufacturer, Bell Helicopter is continually apprehensive when it comes to replacing flight critical parts, especially when the replacement is with an STC or Parts Manufacturing Approval (PMA) part. Bell Helicopter firmly believes that all flight critical parts installed on Bell aircraft should meet Bell Helicopter's stringent requirements and expectations for safety and reliability. Hence the decision to approve an STC distribution through the Bell Helicopter network was not taken lightly.

All FAA-approved data used in the design and certification of this STC was thoroughly reviewed by multiple

» *This STC offers a significant cost savings from a per hour perspective and will potentially add performance enhancements.*



functional groups within Bell Helicopter, including but not limited to rotor design, fatigue and fracture, manufacturing and legal, as part of the due diligence to meet all necessary requirements.

Operators now have an option when replacing 206 series tail rotor blades. This STC offers a significant cost savings from a per hour perspective and will potentially add performance enhancements. The addition of this STC, combined with the added value it brings to the aircraft is another example of Bell Helicopter's Legacy Program Support group's commitment to expanding our customers' mission capabilities.

Bell Helicopter understands that cost-effective replacement parts are paramount to the success of its customers' continued operations and is committed to offering them innovative products, whether through internal development or teaming with strategic industry partners.

The Van Horn Aviation composite tail rotor blade can be procured through Aeronautical Accessories. For more information, please contact Aeronautical Accessories at
Phone: 800-251-7094
Email: sales@aero-access.com
Website: www.aero-access.com



Aeronautical Accessories is the worldwide leader in the development of FAA/STC rotorcraft products. The professional team at Aeronautical Accessories designs, manufactures, warehouses, and distributes helicopter parts and accessories through a global network in over 110 countries. A Bell Helicopter Textron Inc. brand, Aeronautical Accessories has been designing and producing the most advanced helicopter replacement parts and accessories for the industry since 1979. Aeronautical Accessories produces an annual product catalog that is available by request in print, CD, and flash drive, or viewable online at www.aero-access.com.



Increasing Leadership in Helicopter Maintenance Training

by Trey Wade, Director – Bell Training Academy

The Bell Helicopter Training Academy has long been renowned for being the preeminent maintenance training school in the helicopter industry. Over the last 60 years, a vast majority of the world's leading helicopter technicians sharpened their knowledge of maintaining Bell aircraft while in the classrooms and training hangers of the Training Academy. Bell Helicopter's technical training program today boasts more than 90 active training classes covering every technical aspect of its commercial product line. The instructional staff is made up of a cadre of seasoned, multi-lingual Airframe and Power plant (A&P) mechanics who are experts in blending official Bell Helicopter engineering and regulatory direction with their considerable real-world lessons learned and transferring this knowledge to others.

Instruction is further augmented by 14 dedicated maintenance training aircraft, or "trainers," which allow students to immediately apply their classroom knowledge in a hands-on learning environment using actual components and airframes—an investment that no other organization in the industry comes close to matching. All of these factors combine to create an unparalleled depth and breadth of training. Training, that one of the more enthusiastic customers recently referred to as the "Disney World for helicopters."

Despite its successes, the Bell Helicopter Training Academy refuses to rest on its laurels. Recognizing that Bell Helicopter operators compete in a marketplace that is both dynamic and challenging, and that many are asked to do more with less, and in a safer manner, Bell Helicopter has made significant investments in further improving our world class training offerings and has many additional improvements planned for the future.

Recently, the Bell Helicopter Training Academy pursued approval as a European Aviation Safety Agency (EASA) Part 147 Maintenance Training Organization and is now qualified to provide approved training on every Bell aircraft currently in production, as well as the model 427. While this achievement alone is sig-

nificant, recent accomplishments do not stop there. In a momentous move for the training world, the Bell Helicopter Training Academy received not only "theory" approval from EASA but was awarded "practical" approval as well, making the Bell Helicopter Training Academy the first training school anywhere in the world to receive practical training approval from EASA. This approval was granted as a result of the significant amount of time that customers spend on maintenance trainers. Practical approval will drastically reduce the amount of on-the-job proficiency demonstration that customers need in order to become certified as a mechanic under European regulations.

In today's world one of the largest barriers to obtaining training is simply access. Bell Helicopter customers perform their mission around the world and cannot always afford the time and expense to travel to Fort Worth to get needed training. To alleviate this issue, the Bell Helicopter Training Academy has embarked on a number of different initiatives that will bring its world-class training solutions directly to the customer. The Bell Helicopter Training Academy now offers regional "remote" training classes in areas of high fleet concentration around the globe including the Middle East, Western Canada, South America, Africa, and the Far East. Hosted in neutral locations (usually a trade school, an Independent Representative or Customer Service Facility), remote training classes are designed as mini-, local- Training Academies that offer a variety of courses taught by the same highly experienced instructional staff from Bell Helicopter Training Academy. Previous graduates also have the option to sign up for on-line refresher courses that allow them to renew and refresh their knowledge at their convenience. Future improvements to the maintenance training program will include the introduction of fault insertion trainers, greater (and more permanent) international access, increased on-line training, improved hands-on training for off-site classes, greater regulatory approvals, and an expanded curriculum that includes broader coverage on needed topics such as vibration analysis and troubleshooting.

QUICK NOTES:

Bell Helicopter Welcomes... Gary Morgan



Bell Helicopter is pleased to introduce its newest Customer Support Representative, Gary Morgan. Gary will support the United Kingdom along with other countries in the European region. Gary started his career in helicopters at Air Hanson Engineering Limited, working his way from trainee to Crew Chief. Later at PremiAir Aircraft Engineering Limited, promotion to hangar supervisor led him to the supervision of maintenance on a 40 helicopter fleet.

Throughout his career he has taken on roles of increasing responsibility. At the top of the list for Gary were the five summers he spent as crew chief with three pilots operating helicopters servicing mega-yachts from the Athens International Airport in Greece.

Gary can be reached at gmorgan@bellhelicopter.textron.com or at 44-758-431-8673.

Supply Center Leadership Announcement



Mike Griese has been promoted to the position of Managing Director at the Bell Helicopter Supply Center in the Netherlands. Mike was originally hired at Bell Helicopter in May 2001 as a Regional Sales Manager. Mike has successfully contributed to sales growth in the Europe, Middle East, and Africa regions; his continued focus on providing superior customer support will have an immediate impact to the organization.

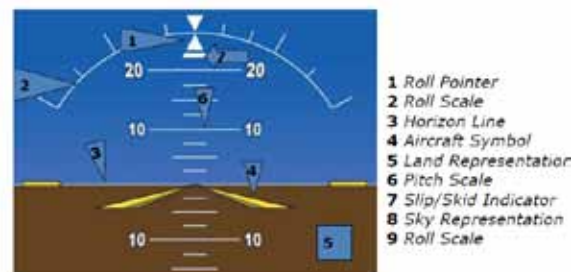
Special Thank You!

A Special THANK YOU to all of our customers who recently participated in the *Professional Pilot Magazine* Product Support Survey. For the 17th Year in a row, you have voted Bell Helicopter #1 in Product Support!



Bell 407GX

continued from 3



including but not limited to; Wi-Fi transmitting capabilities for instant flight data download upon landing at the base, in flight satellite telephone, call pick up and text messaging capabilities, XM radio including en route weather monitoring possibilities, and more. The GDUs can project local traffic when coupled with a TAS (Traffic Avoidance System) and the basic design is ADS-B (Automatic Dependent Surveillance-Broadcast) ready for gulf shore operators.

The 407GX also comes with LED lighting for the landing, taxi, position and collision lights to reduce required maintenance replacing bulbs.

There are now two flight manuals, the Bell 407 reference remains as "BHT-407-FM-1" and the 407GX will be referenced as "BHT-407-FM-2." All flight manual supplements are applicable to both models unless the reference number ends with 407-FMS-XX.1 for the Model 407 and with 407-FMS-XX.2 for the GX.



The 407GX fresh out of paint in preparation for HAI Heli-Expo in March 2011.

For further information please feel free to contact Product Support Engineering at 1-800-243-6407 or 1-800-363-8023.

Maintainers & Operators
M&O
Conference 2011
Bell Helicopter
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The following Maintainers and Operators (M&O) Conferences are scheduled for the remainder of the year.

- May 12-13.....Caracas, Venezuela
- May 17-18.....Bogota, Colombia
- September 7-8Dallas/Fort Worth, Texas
- September 19-20Philadelphia, Pennsylvania
- October 13-14Amsterdam, The Netherlands
- November 7-8Kelowna, British Columbia

These conferences provide an opportunity for all owners, operators, maintenance personnel, pilots, etc. to interact with specialists from Bell Helicopter Product Support Engineering, Engine Manufacturers and Bell Helicopter Affiliates to get the latest technical information on Bell aircraft.

The conference is free of charge to attend for Bell maintainers and operators. The only expense to attendees will be per diem, travel, lodging expenses, etc.

If you are interested in attending one of these conferences, please contact your Customer Support Representative (CSR) or Leslie Ferry at lferry@bellhelicopter.textron.com.

SHOP *Talk*

Q: We had an incident that caused some damage to our tailboom which is not covered by the SRM. What other repair options are there?

A: You can repair the damage by replacing all the damaged parts, or using the guidelines in Information Letter Gen-04-96, or you can request Product Support Engineering (PSE) to provide an FAA-approved repair. For a timely response, please ensure that you provide all the relevant details and remember although we do our best to provide repairs not everything is repairable.

Q: We are carrying out Alert Service Bulletin (ASB) 212-76-6 - Inspection of Flight Control Tubes. There is an argument as to which control tubes are to be inspected.

A: The Flight Control Tube inspection has been added to the 212 Maintenance Manual, Chapter 5, Special Inspection. This lists the control tubes and the sub-assemblies that require the inspection. In any case, where you are not sure, please contact PSE for advice.

Q: On our 412HP we have found gaps between the exhaust ejectors and the engine firewall. What can we do to fix this?

A: Bell Helicopter released BHT-412-SI-53 specifically to cover this problem. Kit 412-704-036-101 contains laminated shims which are installed to close the gaps.

Q: While performing ultrasonic grip inspection on part number

Bell Helicopter CSRs Recently Voted #1



The Bell Helicopter Customer Support Representatives (CSRs): This team was recently voted #1 in the "Tech Rep" category by Professional Pilot readers in the 2011 Product Support Survey.

204-011-121-009/121 as per applicable ASB, we had a crack indication. Does that mean that the grip must be scraped and removed from service?

A: Not necessarily, we recommend sending the grip to Bell Helicopter Piney Flats using the Bell Helicopter Customer Property Return (CPR) process. Bell Helicopter will press the bushing out of the grip and perform additional inspection and provide a more accurate result to determine if the grip can be returned to service. Refer to General Information Letter GEN-04-98 rev C.

Q: Is it mandatory to mark the mast as "reworked" when the damage found is less than .001 inch and well within the Component Repair and Overhaul (CR&O) limits?

A: Generally speaking, when material is removed, it is considered a rework and the mast must be identified as "reworked."

That being said, based on the picture provided, it appears that polishing would have been sufficient to remove



the damage therefore it might not be necessary to mark this particular mast as reworked.

Q: While replacing the service deck on a 412 can we replace solid monel rivets with steel cherry rivets at the

door track due to limited access?

A: Bell Helicopter does not recommend substituting the solid monel rivets with steel cherry rivets required at this location while replacing service deck.

Q: Where can we get the Bell 212 Master Minimum Equipment List (MMEL) and can we use it to continue flight operations with inoperative equipment?

A: The MMEL is a FAA document and is currently available from their website <http://fsims.faa.gov/PICResults.aspx?mode=Publication&doctype=MEL>. It is used as the basis for operators to develop their own individual Minimum Equipment List (MEL) taking into consideration their particular helicopter equipment, configuration and operating conditions. If the conditions in the MEL are met, the FAA permits continued operation with inoperative equipment.

Q: Our 205A-1 is missing the leveling plate. Is there an alternate way of leveling the aircraft for re-weighing until we obtain a new plate?

A: If the leveling plate is not available, it is acceptable to use the crew seat rails and a calibrated Inclinator/Digital Protractor on the Models 205, 212 and 412.

Q: I am replacing a skid tube saddle on my 412EP. Where can I find information for the oversize fasteners to be used to replace the blind rivets part number OSR-10C?

A: In the new BHT-ALL-SRM, go to Paragraph 3-3-4 "INSTALLATION AND REPLACEMENT OF BLIND BOLTS — GENERAL" for instructions and information.

Got Other Technical Questions?

Please contact
Product Support Engineering

Bell 206

Phone: 450.437.2862 or
800.363.8023
FAX: 450.433.0272
E-Mail: pselight@bellhelicopter.textron.com

Bell 407

Phone: 450.971.6407 or
800.243.6407
FAX: 450.433.0272
E-Mail: pselight@bellhelicopter.textron.com

Bell 222, 230, 427, 429 or 430

Phone: 450.437.2077 or
800.463.3036
FAX: 450.433.0272
E-Mail: pseinter@bellhelicopter.textron.com

Bell 204, 205, 212 or 412

Phone: 450.437.6201 or
800.363.8028
FAX: 450.433.0272
E-Mail: psemedium@bellhelicopter.textron.com

Bell 210/214B/214ST

Phone: 817.280.3548
E-Mail: MTS-Medium@bellhelicopter.textron.com

Bell TH-57/TH-67/OH-58

Phone: 817.280.3548
E-Mail: MTS-Light@bellhelicopter.textron.com

Bell UH-1H/UH-1N/Huey II

Phone: 817.280.3548
E-Mail: MTS-Medium@bellhelicopter.textron.com

Bell AH-1W/AH-1Z/UH-1N/UH-1Y

Phone: 817.280.3548
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**Bell Helicopter
Customer Support
& Services**

ATTN: LESLIE FERRY

P.O. Box 482
Fort Worth, TX 76101

FAX: (817) 278-0053

or email:

laferry@bellhelicopter.textron.com