

## Performance Solutions

### CAPABILITY MATRIX

#### Air Transport and Regional Aircraft

In Performance Solutions offerings, we continually look for solutions that align with your operational objectives and give a return on your investment. By applying our engineering knowledge and experience, we extend the performance and reliability and enhance the features and functions, to deliver on our promise of lifecycle value.

Product Type	Part Number	Solution
329B-8J	772-5005-XXX	Engineering-developed preventative maintenance plan that greatly increases reliability (MTBUR), maximizes the life, and minimizes the life cycle costs of this electromechanical device.
331A-8L	522-2782-XXX	Engineering-developed preventative maintenance plan that greatly increases reliability (MTBUR), maximizes the life, and minimizes the life cycle costs of this electromechanical device.
CMU-900	822-1239-101	Service Bulletin-A Converts product to 822-1239-151 to add increased memory for supporting additional requirements, including those associated with ATN. ATN capabilities are necessary to support Link2000, a Eurocontrol program that is based upon Controller-Pilot Datalink Communications (CPDLC). Compliance to Link2000 by aircraft operating within Eurocontrol airspace is expected to be mandated within the next 3-5 years.
CPL-920D	822-0987-XXX	Converts unit to 822-0987-004 configuration. Adds additional lightning and static discharge protection to safeguard against CPL-920D and HFS-900D damage related to aircraft lightning strikes or other high energy discharges. Available for all Boeing platforms and recommended specifically for 737NG and 777 aircraft due to higher levels of composite material used on these aircraft.
DU-1000	622-8047-XXX	Service Bulletin-18 converts product to 622-8047-421. Installation of this modification implements a new APU page, additional crew procedure alerts, and other monitors and engine limits.
EDU-766/776/C/D	622-5047-XXX 622-7998-XXX 622-5046-XXX 622-7999-XXX	Engineering-developed preventative or proactive maintenance schedule that enables maintenance cost control and minimizes operational impacts for aging CRT-based displays.

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FCC-701	622-4951-XXX	<p>Converts to FCC-703 for fleet commonality, significant technology change, reliability gains, added capability. Includes additional memory and processing to support features such as GPS Landing System (GLS), Integrated Area Nav (IAN), Go Around to LNAV Auto Transition and Heads-Up Display (HUD). Also significantly reduces electronic components thereby resulting in spare slots for future functionality and reduced LRU weight (~ 7 pounds). Improves reliability by 400%.</p> <p>Additionally, required as part of 767 winglet upgrade (as offered through Aviation Partner-Boeing). This upgrade results in annual aircraft fuel savings of up to 7%.</p>
FCC-702	622-8757-XXX	<p>Service Bulletin-A Converts to FCC-703 for fleet commonality, significant technology change, reliability gains, added capability. Includes additional memory and processing to support features such as GPS Landing System (GLS), Integrated Area Nav (IAN), Go Around to LNAV Auto Transition and Heads-Up Display (HUD). Also significantly reduces electronic components thereby resulting in spare slots for future functionality and reduced LRU weight (~ 7 pounds). Improves reliability by 67%.</p> <p>Additionally, required as part of 767 winglet upgrade (as offered through Aviation Partner-Boeing). This upgrade results in annual aircraft fuel savings of up to 7%.</p>
GLU-920	822-1152-XXX	<p>Service Bulletin-503 converts to GLU-925 (CPN 822-1821-330) and adds following capabilities:</p> <ul style="list-style-type: none"> <li>• Compliance to ADS-B output requirements for aircraft position accuracy</li> <li>• Improved RNP availability performance increases accessibility to preferred airspace and destination airports thereby reducing airline operational cost.</li> <li>• Supports GPS capabilities for highly accurate satellite-based landing system for new airports and runways (Cat I GLS).</li> <li>• Growth to Cat II and III GLS capabilities.</li> </ul>
GLU-920	822-1152-XXX	<p>Service Bulletin-504 converts to GLU-925 (CPN 822-1821-001) and adds following capabilities:</p> <ul style="list-style-type: none"> <li>• Compliance to ADS-B output requirements for aircraft position accuracy</li> <li>• Improved RNP availability performance increases accessibility to preferred airspace and destination airports thereby reducing airline operational cost.</li> <li>• Positions unit for software-only upgrade path for GLS capabilities.</li> </ul>

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GLU-920	822-1152-XXX	<p>Service Bulletin-505 converts product to GLU-925 (822-1821-004/005). Adds Selective Availability = Off algorithm to GLU-920 in support of:</p> <ul style="list-style-type: none"> <li>• Compliance to ADS-B output requirements for aircraft position accuracy.</li> <li>• Improved RNP availability performance increases accessibility to preferred airspace and destination airports thereby reducing airline operational cost.</li> </ul>
GPS-4000A	822-1377-XXX	<p>Service Bulletin-501 converts from GPS-4000A to GPS-4000S which adds navigation augmented by Satellite-Based Augmentation System (SBAS) as well as S/A=Off capabilities. This adds the following operational benefits:</p> <ul style="list-style-type: none"> <li>• Increases accessibility to preferred airspace, primary and alternate airports through improved RNP accuracy, integrity and availability of navigation data; thereby reducing airline operational cost.</li> <li>• Streamlines preflight preparation for U.S. RNAV routes by removing requirement to conduct predictive RAIM availability along the intended route.</li> <li>• Positions operators utilizing Rockwell Collins Flight Management Systems (FMS) to take advantage of Localizer Performance with Vertical guidance (LPV) approach capabilities upon upgrade of FMS options (available in late 2008).</li> <li>• Offers improved stability of ground speed output while the aircraft is stationary.</li> <li>• Compliance to future ADS-B output mandate.</li> </ul>
HFS-900D	822-0990-003	<p>Service Bulletin-21 Improves datalink performance for -003 status including shorter search times upon initial log-on and better tracking of HF DL performance by datalink service providers.</p>
HFS-900D	822-0990-XXX	<p>Service Bulletin-502 Converts product to 822-0990-004 for Boeing customers. Improves datalink performance and is recommended in conjunction with airlines that are adding HF datalink capability to their fleet.</p>
RMI-733 RDMI-743	622-5002-XXX 655-5001-XXX	<p>Preventative maintenance/ Proactive replacement of electro-mechanical units. These units contain motors gears, and bearings. These are wear items with known MTBF values. Scheduled maintenance would reduce risk of AOGs. Improves reliability by as much as 80% and is backed by a 3 year full unit warranty.</p>

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SAT-906 w/HPA-901	SYSTEM	<p>Service Bulletin adds SwiftBroadband capabilities by:</p> <ul style="list-style-type: none"> <li>- Replacing HPA-901 with HPA-901B</li> <li>- Adding software update to SAT-906</li> <li>- Adding HST-2110B LRU</li> <li>- Adding HCM-2100B LRU</li> </ul> <p>The higher rates provided by SwiftBroadband provides the ability to access email and internet services in the aircraft while maintaining voice/fax channels.</p>
SAT-906 w/HPA-901A and HST-2120 or -2110	SYSTEM	<p>Service Bulletin adds SwiftBroadband capabilities by:</p> <ul style="list-style-type: none"> <li>- Updating HPA-901A with HPA-901B (hardware)</li> <li>- Adding software update to SAT-906</li> <li>- Replacing HST-900/2100 with HST-2110B</li> <li>- Adding HCM-2100B LRU</li> </ul> <p>The higher rates provided by SwiftBroadband provides the ability to access email and internet services in the aircraft while maintaining voice/fax channels.</p>
SAT-906 w/HPA-901A and HST-900/2100	SYSTEM	<p>Service Bulletin adds SwiftBroadband capabilities by:</p> <ul style="list-style-type: none"> <li>- Updating HPA-901A with HPA-901B (hardware)</li> <li>- Adding software update to SAT-906</li> <li>- Replacing HST-900/2100 with HST-2110B</li> <li>- Adding HCM-2100B LRU</li> </ul> <p>The higher rates provided by SwiftBroadband provides the ability to access email and internet services in the aircraft while maintaining voice/fax channels.</p>
TPR-901	822-1338-XXX	<p>Service Bulletin-502 This Service Bulletin is in response to European Regulatory mandate to add Elementary Surveillance and Enhanced Surveillance capability. Although not mandated, Extended Squitter functionality is provided. This Service Bulletin is required in order for the TPR-901 transponder to be in compliance with ARINC 718A, DO-181C, and DO-260.</p>
VHF-900B	822-1047-XXX	<p>Converts Boeing units to VHF-920 (VHF Datalink Mode 2 and Mode A Functionality 822-1250-xxx). Mode 2 data rates are over 20 times faster than Mode A and is required by EuroControl Link2000 initiative.</p>
VHF-900B	822-1047-XXX	<p>Service Bulletin-501 converts Airbus units to VHF-920 (VHF Datalink Mode 2 and Mode A Functionality 822-1250-xxx). Mode 2 data rates are over 20 times faster than Mode A and is required by EuroControl Link2000 initiative.</p>

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Product Type	Part Number	Solution
WCP-702	622-5130-021	Service Bulletin-501 installation of this modification will convert a WCP-702 CPN 622-5130-021 Control Panel (Airbus) into CPN 622-5130-820 Control Panel with toggle switch to enable Weather Radar MultiScan capability related to WRT-701X SB BN and 501 listed below.
WMA-701/2X	622-5135/5136	"Microstep" mod reduces noise of operation, and improves reliability of unit.
WMA-702X	622-5136-XXX	Installation of this modification enables Weather Radar MultiScan capability related to WRT-701X SB BN and 501 listed below.
WMA-702X	622-5135-XXX 622-5136-XXX	Engineering-developed preventive maintenance plan that greatly increases reliability (MTBUR), maximizes the life, and minimizes the life cycle costs of this electromechanical device. Backed by a 3 year full unit warranty.
WRT-701X	622-5132-XXX	<p>Service Bulletin-78 Applicable to serial numbers 6606 and lower. This "technology insertion" service bulletin significantly improves system reliability by:</p> <ul style="list-style-type: none"> <li>• Reducing total RF part count in A4/A5 assemblies by over 65%.</li> <li>• Reducing power consumption by over 85 watts from current 720 watts.</li> <li>• Reducing average operating temperature in WRT-701X by &gt; 10° C.</li> </ul> <p>Other benefits include:</p> <ul style="list-style-type: none"> <li>• 35% reduction in transmitter adjustments</li> <li>• Reduced transmitter adjustment complexity thereby greatly reducing tuning time.</li> <li>• Elimination of transmitter power drift due to phase drift in the A5 module.</li> </ul>

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WRT-701X	622-5132-633 622-5132-623	<p>Service Bulletin-BN (Boeing) Service Bulletin-501 (Airbus)</p> <p>Converts units to 822-1710 to add multiscan weather capabilities and provide the following benefits:</p> <p><b>Turbulence Detection:</b> The MultiScan Hazard Detection System utilizes several methods for determining weather related turbulence. In addition, MultiScan predicts the clear air turbulence associated with growing thunderstorms. As much as 60% of unexpected turbulence encounters are weather related and can be detected as follows:</p> <ul style="list-style-type: none"> <li>• Enhanced Turbulence Detection: Multiscan uses updated and improved algorithms to enhance the Doppler Turbulence detection Rockwell Collins introduced to the industry in the 1980's.</li> <li>• Overflight Protection: Overflight Protection prevents low reflectivity thunderstorm tops from falling off the radar display during cruise when they are a threat to the aircraft.</li> <li>• Enhanced Overflight Protection: Warns of thunderstorms growing into the aircraft flight path and predicts the clear air turbulence above the growing storm.</li> </ul> <p><b>Strategic 320 NM Weather Enables More Economical Diversions:</b> Multiscan's 320 NM strategic weather detection allows more efficient fuel savings diversions. While most pilots make diversion decisions at approximately 80 NM due to traditional radar limitations, Multiscan often allows diversion decisions to be made at 160 NM, thereby reducing total distance covered and aircraft fuel consumption.</p> <p><b>Lightning Detection:</b> The MultiScan Hazard Detection System alerts flight crews to the potential of lightning. While lightning strike frequencies vary by location, statistics show that most aircraft will receive at least two strikes during the lifetime of the aircraft.</p>

### Building trust every day.

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

For more information on this solution and others, contact either your trusted Rockwell Collins Dealer or your preferred Rockwell Collins Service Center location.

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