

CAPABILITY MATRIX
Air transport and regional aircraft

In today's ever-changing environment, keeping your platform current is critical to improving operational efficiency. We offer a wide range of cost-effective upgrades that significantly improve reliability, functionality and operational performance. We apply our engineering expertise to develop solutions that align with your operational objectives and extend the life cycle of your platform.

Product type	Part number	Service bulletin or kit number	Solution
329B-8J	722-5005	See Performance Solutions parts list	Engineering-developed preventive maintenance plan that greatly increases reliability (MTBUR), maximizes the life and minimizes the life cycle costs of this electromechanical device. Improves reliability by as much as 50% and is backed by a 3-year full-unit warranty.
ADF-900	822-0299	SB 11	Adds circuit change to reduce possibility of aircraft circuit breaker tripping most prominent with B777 platform.
CMU-900	822-1239-101	A See BRS BBJ sales bulletin BRS-110106	Converts product to 822-1239-151, adding increased memory and throughput to support additional functionalities, including those related to Aeronautical Telecommunications Network (ATN) operation. ATN capabilities are necessary to support Link2000, a Eurocontrol program that is based upon Controller-Pilot Data Link Communications (CPDLC). Compliance to Link2000 by aircraft operating within Eurocontrol airspace is expected to be mandated by 2015.
CPL-920D	822-0987	SB 501	Converts unit to 822-0987-004 configuration, adding 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. This modification is available for all Boeing platforms, but is recommended specifically for 737NG and 777 aircraft due to higher levels of composite material used on these aircraft.
DU-1000	622-8047	SB 18	Installation of this modification implements a new APU page, additional crew procedure alerts, as well as other monitors and engine limits.
EDU-766/776C/D	622-5047 622-7998 622-5046 622-7999	N/A	Engineering-developed preventive or proactive maintenance plan that enables maintenance cost control and minimizes operational impacts for aging CRT-based displays.
FAC-1000	622-7478-411	SB 15	Installation of this modification will allow existing FAC-1000 units (CPN 622-7478-411), that are currently being utilized in the Fokker 100 aircraft to be upgraded for use on both the Fokker 70 and Fokker 100 aircraft.
FAC-1000	622-7478-501	SB 17	During alpha mode (speed less than V min), autothrottle override is currently not allowed. This prevents forward throttle movement during alpha mode unless a force greater than the slip clutch force is applied to the levers. The new software allows forward throttle movement during alpha mode with normal force applied to the levers.

FCC-1000	622-7476	SB 18	Allows FCC-1000 units to perform coupled and flight director approaches on a nominal glideslope beam angle of 5.5 degrees when selected. Also allows forward throttle movement during alpha mode with normal force applied to the levers.
FCC-701	622-4591	SB 501	<p>Converts from CPN 622-4591-5XX (FCC-701) to CPN 822-1261-102 (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>This modification is required as part of 767 winglet upgrade (as offered through Aviation Partners Boeing). This upgrade results in annual aircraft fuel savings of up to 7%.</p>
FCC-702	622-8757	SB 501	<p>Converts from CPN 622-8757-10X (FCC-702) to CPN 822-1261-101 (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>This modification is required as part of 767 winglet upgrade (as offered through Aviation Partners Boeing). This upgrade results in annual aircraft fuel savings of up to 7%.</p>
GLU-920	822-1152	SB 503	<p>Converts to GLU-925 (CPN 822-1821-330), adding the following capabilities:</p> <ul style="list-style-type: none"> • Compliance to ADS-B output requirements for aircraft position accuracy • Improved RNP availability performance increases accessibility to preferred airspace and destination airports thereby reducing airline operational cost • Supports GPS capabilities for highly accurate satellite-based landing system for new airports and runways (Cat I GLS) <p>Growth to Cat II and III GLS capabilities</p>
GLU-920	822-1152	SB 504	<p>Converts to GLU-925 (CPN 822-1821-001), adding the following capabilities:</p> <ul style="list-style-type: none"> • Compliance to ADS-B output requirements for aircraft position accuracy • Improved RNP availability performance increases accessibility to preferred airspace and destination airports thereby reducing airline operational cost <p>Positions unit for software-only upgrade path for GLS capabilities</p>
GLU-920	822-1152	SB 505	<p>Converts from 822-1152-002/-003 to 822-1152-004/-005. Adds selective availability =off algorithm to GLU-920 in support of:</p> <ul style="list-style-type: none"> • Compliance to ADS-B output requirements for aircraft position accuracy • Improved RNP availability performance increases accessibility to preferred airspace and destination airports thereby reducing airline operational cost <p>Certified on Boeing 737, 747-400, 757, 767 and 777 platforms</p>
GLU-920	822-1152	SB 507	<p>Converts GLU-920 (822-1152 121/122/130/131) to GLU-925 (CPN 822-1821-430).</p> <p>GLU-920 units will be converted to GLU-925 units, allowing for the installation of enhanced GNSS, ILS, and SysP hardware and software, which enables the use of GLS (LAAS) functionality.</p>

GLU-925	822-1821	SB 501	Conversion of GLU-925 (822-1821-001) to GLU-925 (CPN 822-1821-330). Enables the use of GLS (LAAS) functionality.
HFS-900D	822-0990	SB 21	Improves data link performance for -003 status, including shorter search times upon initial log on and better tracking of HFDL performance by data link service providers.
HFS-900D	822-0990	SB 502	Converts to 822-0990-004 for Boeing customers. This modification improves data link performance and is recommended in conjunction with airlines that are adding HF data link capability to their fleet.
LRA-900	822-0334	SB 6	Reduces potential for intermittent RA flag occurrence.
MAT-980	822-0998	SB 501	Converts from 822-0998-101 to 822-0998-102. Provides a means to repair a Cert 3 MAT-980 that would otherwise be unrepairable. Single board computer failure is non-repairable and non-procurable. This is accomplished by converting a Cert 3 MAT-980 to a Cert 4 MAT-980 equivalent.
MCDP-701	622-4593	SB 7	Required in conjunction with upgrading to flight control computers to FCC-703 configuration. Added functionality includes ability to display FCC-703 part number. Converts 622-4593-XXX to 622-4593-508.
MCP-730	822-1567	SB 501	Adds altitude and speed intervention capabilities which allow pilots to change the speed and altitude bugs directly through the FCC without having to go through the FMS.
RMDI-743 RMI-733	622-5001 622-5002	010-5045-001 (RDMI) 010-5046-001 (RMI)	Preventative maintenance/proactive replacement of electro-mechanical units, which contain motors, gears and bearings. These are wear items with known MTBF values - scheduled maintenance would reduce the risk of AOGs. Improves reliability by as much as 80% and is backed by a 3-year full-unit warranty.
TPR-901	822-1338	SB 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.
TTR-921	822-1293	SB 9	Installation of this modification incorporates new software that will eliminate the potential for Traffic Advisory (TA) and Resolution Advisory (RA) annunciations when the aircraft is on the ground or at low altitude.
WCP-702	622-5130	SB 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 SB 501 listed below.
WMA-701X	622-5135	SB 14	"Microstep" mod reduces noise of operation and improves reliability of unit.
WMA-701X	622-5135	SB D	Installation of this modification enables Weather Radar MultiScan capability related to WRT-701X SB BN and 501 listed below.
WMA-702X	622-5136	SB 14	"Microstep" mod reduces noise of operation and improves reliability of unit.
WMA-702X	622-5136	SB 501	Installation of this modification enables Weather Radar MultiScan capability related to WRT-701X SB BN and 501 listed below.
WMA-701X/702X	622-5135 622-5136	010-5047-001	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.

<p>WRT-701X</p>	<p>622-5132-62X</p>	<p>SB BM</p>	<p>Converts to 622-5132-623. Created to meet new customer requirements for an EGPWS-compatible and FLW-certified weather radar with the latest functionalities and algorithm enhancements (Kansai).</p> <p>Expected benefits of modification:</p> <ul style="list-style-type: none"> • Installation of this modification verifies installation of SBs 201 through 208, 210, 212, 214, 215 and 218 • Adds additional features • Converts 622-5132-620, -621 and -622 to 622-5132-623 <p>The differences between the 622-5132-623 compared to the 622-5132-620, -621, -622 units are as follows:</p> <ul style="list-style-type: none"> • Provides additional ARINC label 075 on the system's Hazard Bus to make it compatible with the new EGPWS integration requirements. • Adds a new A34 CPU card with higher throughput and a new label filtering UART. • Separates the fail lamp from the trickle charger circuit such that without an external jumper, the fail lamp will not be ON if the circuit breaker is OPEN. • Modifies the GROUND GEAR DOWN input pin to provide the input current, preventing intermittent dry contact on the gear sensors. • Allows top level software loading without removing unit's cover. • Provides more stable and synchronized reset scheme for DSPs. • Extends the sampling range of the analog pitch and roll circuit. • Modifies the fail lamp circuit to ensure that the fail lamp will not turn on momentarily at power up. • Improves the set up time of the 2nd IF to accommodate the fast boot capability. • Routes 429 BITE receive bus to the CPU for fault logger's date and time stamp. • Lengthens the RTO's fault indication delay out to about 5 seconds to eliminate uncaptured fault indications by the CPU. • Contains new top level software that accommodates new customer requirements for windshear operation, improves W/S detection algorithm that eliminates false alarms caused by the return signature associated with Kansai bridge and adds non-volatile fault logging capability to the R/T. <p>Add terminations to a buffer unused inputs on DSP A32.</p>
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<p>WRT-701X</p>	<p>622-5132-633</p>	<p>SB BN</p>	<p>SB BN (Boeing) converts units to 822-1710, adding MultiScan weather capabilities and providing the following benefits:</p> <ul style="list-style-type: none"> • Turbulence detection: 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: <ul style="list-style-type: none"> - <i>Enhanced turbulence detection:</i> uses updated and improved algorithms to enhance the Doppler turbulence detection Rockwell Collins introduced to the industry in the 1980s - <i>OverFlight Protection:</i> prevents low reflectivity thunderstorm tops from falling off the radar display during cruise when they are a threat to the aircraft - <i>Enhanced OverFlight Protection:</i> warns of thunderstorms growing into the aircraft flight path and predicts the clear air turbulence above the growing storm • Strategic 320 NM weather detection: enables more economical diversions: 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>Lightning detection: 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>
<p>WRT-701X</p>	<p>622-5132-XXX</p>	<p>SB 78 See Performance Solutions bulletin (2014-0946)</p>	<p>Applicable to serial numbers 6606 and lower, this "technology insertion" significantly improves system reliability by:</p> <ul style="list-style-type: none"> • Reducing total RF part count in A4/A5 assemblies by over 65% • Reducing power consumption by > 85 watts from current 720 watts • Reducing average operating temperature in WRT-701X by > 10°C <p>Other benefits include:</p> <ul style="list-style-type: none"> • 35% reduction in transmitter adjustments • Reduced transmitter adjustment complexity, thereby greatly reducing tuning time <p>Elimination of transmitter power drift due to phase drift in the A5 module</p>

WRT-701X	622-5132-623	SB 501	<p>SB BN (Airbus) converts units to 822-1710, adding MultiScan weather capabilities and providing the following benefits:</p> <ul style="list-style-type: none"> • Turbulence detection: 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: <ul style="list-style-type: none"> - <i>Enhanced turbulence detection:</i> uses updated and improved algorithms to enhance the Doppler turbulence detection Rockwell Collins introduced to the industry in the 1980s - <i>OverFlight Protection:</i> prevents low reflectivity thunderstorm tops from falling off the radar display during cruise when they are a threat to the aircraft - <i>Enhanced OverFlight protection:</i> warns of thunderstorms growing into the aircraft flight path and predicts the clear air turbulence above the growing storm • Strategic 320 NM weather detection: enables more economical diversions: 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>Lightning detection: 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>
WRT-2100	822-1710	SB 6	<p>Robustness enhancements to reduce unscheduled removals of radar system components and reduction of No Trouble Found.</p>
WRT-2100	822-1710	SB 7	<p>Improvement to the MultiScan™ Radar System to implement minor refinements.</p> <p>Expected benefits of modification:</p> <ul style="list-style-type: none"> • Improved consistency and accuracy of displayed weather • Improved low altitude weather display • Improved turbulence display throughout the entire altitude range • Improved weather detection in mountainous regions. • Enable faster antenna auto alignment function • Removal of display artifacts which are occasionally seen at the end of a sweep <p>Elimination of nuisance antenna fault that may occur at extreme tilt values</p>

WRT-2100	822-1710	SB 502	<p>Converts WRT-2100 (CPN 822-1710-202) to WRT-2100 (CPN 822-1710-203).</p> <ul style="list-style-type: none"> • Improved consistency and accuracy of weather display • Reduced undesirable or unconfirmed faults to improve the no fault found rate • Added weather assessment capabilities to display weather that is important to the flight path and not display insignificant weather • Expanded geographic weather correlation to achieve more consistent operation world-wide • Revised automatic gain to improve low altitude weather detection and improve display accuracy at longer ranges <p>Improved tilt control laws in mountainous regions</p>
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Rockwell Collins delivers smart communication and aviation electronic 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.

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