

STC Description Sheet

Superior Weather Awareness - The Honeywell IntuVue™ RDR-7000 Weather Radar offers rotorcraft operators the lightest weight and most technically advanced radar available.

Honeywell is delighted to introduce the Honeywell IntuVue™ RDR-7000 Weather Radar upgrade for the Textron 550 Citation Bravo, Textron 560 Citation Ultra, and Embraer Legacy 600/650 aircraft replacing the aging Primus® 880 series radar.

This STC provides an off-the-shelf, certified, weather radar upgrade solution to all Honeywell-approved Channel Partners and operators with existing Primus® 880 Weather Radars installed to address obsolescence and provide new and enhanced features (refer to System Functionality and Modes of Operation).

This STC requires no aircraft structural work. The design incorporates the existing radar mounts and cable feedthrough used for the legacy Primus® 880 series radar system. Installation Kits are produced under a Parts Manufacturing Approval (PMA), allowing any MRO to install without Part 145 certification.



Approvals

STC Number	STC Type	Holder	Authority	Initial Issuance
ST04473CH	STC	Honeywell International Inc.	FAA / CASA (*)	22 February 2022
10077188	Validation	Honeywell International Inc.	EASA	20 April 2022
2022S11-03	Validation	Honeywell International Inc.	ANAC	1 November 2022

(*) the Australian market (CASA) is automatically covered by the FAA STC (as per regulation 21.114).

Approved Aircraft Models:

Manufacturer	Type - Model	Modifiers	Specifics
Textron Aviation	550	Citation Bravo (Primus 1000)	Applicable to MSN 550-0801 and on
Textron Aviation	560	Citation Ultra (Primus 1000)	Applicable to MSN 560-0260 to 560-0538
Embraer	EMB-135BJ	Legacy 600 (Primus 1000)	Applicable to MSN 145412, 145462 and on
Embraer	EMB-135BJ	Legacy 650 (Primus 1000)	Applicable to MSN 1451115 and on

Customer Configuration Questionnaire:

A customer questionnaire, 450429-1134, can be made available upon request to installers/end customers to help determine if their existing configuration is compatible with this STC without deviations.

Right to Use (RTU) Fees:

STC is being offered to Honeywell Authorized dealers and operators. For orders and pricing, consult Sales focal below for the latest applicable Honeywell Sales Bulletin.

Contacts:

Contact us at stcrtu@honeywell.com for additional information regarding this STC, for support regarding upgrade requirements, or to purchase STC rights to use.

Honeywell Defence - Adam Gavrich (adam.gavrich2@honeywell.com)

Honeywell BGA - Steven Gomez (steven.gomez@honeywell.com)

Contents:

For each approved model, the STC package consists of: Aircraft Flight Manual Supplement (AFMS), Instruction for Continued Airworthiness (ICA), Drawing List (MDL), Aircraft Maintenance Manual (AMM) Supplement, Master Minimum Equipment List (MMEL) Supplement, Weight & Balance / Electrical Loads Reports, Installation Instructions, Installation and Wiring Diagrams/Drawings, Parts & Install Kits BOM, and Configuration Drawings.

Limitations/Conditions:

This STC is applicable to the aircraft models and serial numbers listed in the “Approved Aircraft Models” section above.

As a prerequisite for the RDR-7000 weather radar installation, an existing Primus® 880 Series weather radar system must be installed. This STC has some limitations regarding approved aircraft LRUs for the 550 and 560 (see “Installation Prerequisites”).

System Functionality / Product Description:

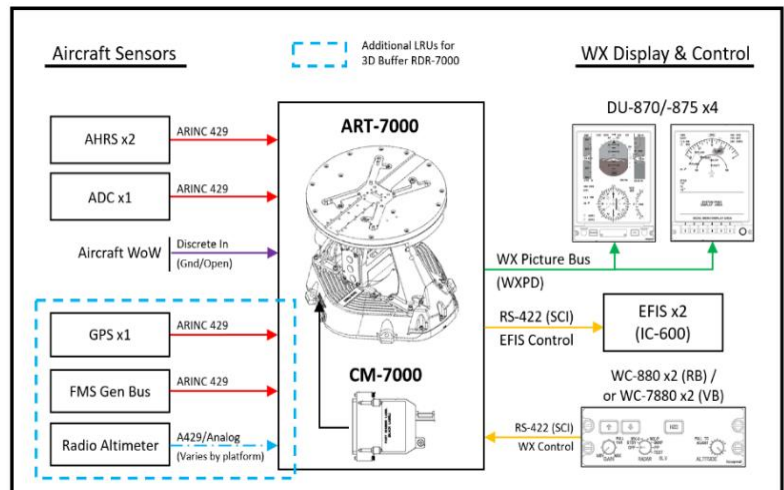
The RDR-7000 system consists of three LRUs: the ART-7000, FP-7000, and CM-7000.

The ART-7000 Antenna Receiver & Transmitter is the main LRU which performs all signal and interface processing, including the interface with the aircraft flight deck control and displays. It hosts the antenna gimbal and drive system, and the transmit/receive circuitry.

The FP-7000 is the Flat Plate antenna which focuses the radar energy into a narrow beam.

The CM-7000 back shell houses the configuration module, which characterizes how the aircraft I/O is configured and provides the ability to turn on and off customizable features.

To the left is a context diagram representing the aircraft system architecture when the RDR-7000 system is integrated to the existing Primus® 1000 avionics system. 3D Buffer RDR-700 installations require additional LRU wiring, as seen in the blue hashed box.



Operating Modes

This STC allows for installation of the RDR-7000 in two general modes of operation, which are enabled and selected by the Base Configuration file and Installation Kit parts purchased (see list of parts for each platform and mode of operation below). These modes of operation are:

1. Real Beam weather processing – “P-880 Retro mode”
2. 3D Buffer weather processing – “VB mode”

(1) Standard features for Real-Beam RDR-7000 installations

- Real-Beam weather (WX) detection and display
- Real-Beam turbulence detection and display (out to 40 NM)
- Real-Beam ground mapping
- WX-Ahead Alerting (when armed and in a WX display mode)
- Altitude-Compensated Tilt with crew-adjustable tilt control for weather and ground map analysis

(2) Standard features for 3D Buffer RDR-7000 installations

- Automatic Weather display mode (WX-ALL) -- Off-Path / Non-relevant weather is cross-hatched
- Manual Altitude display mode (WX-MAN) -- Pilot-selectable altitude slices by 1000 ft
- Built-in Ground Clutter Suppression using internal topography database
- Enhanced Turbulence detection & display (out to 40 NM)
- 3D-Volumetric Ground Mapping with built-in Weather Clutter Reduction
- 3D-Volumetric REACT detection & display -- Works even in Variable Gain mode
- Automatic WX-Ahead (TGT) Alerting – Always on. Works even in GMAP and Variable Gain modes

(2) Optional feature upgrades for 3D Buffer RDR-7000 installations

- On-Path Weather display mode (WX-PATH) -- Off-Path weather is removed / de-cluttered
- Extended-Range Turbulence detection & display (out to 60 NM)
- Predictive Hail & Lightning detection & display using overlaid pre-rendered icons

See the product web page [IntuVue RDR-7000 Weather Radar](#) or visit us at www.aerospace.honeywell.com for more information.

Installation Kit Contents:

The STC offers multiple Installation Kit variants, each consisting of wire harness subassemblies, fixings, and relevant airworthiness approval tags (i.e., 8130-3). These are required by the STC for the RDR-7000 installation and are specific by aircraft model and RDR-7000 operating mode. For orders and pricing information, consult the latest applicable Honeywell Sales Bulletin.

Applicable Models	Radar Mode	Installation Kit Part No.	Installation Kit Content Part Nos. & Descriptions	
550 Citation Bravo 560 Citation Ultra	3D Buffer (VB)	ATEC-077-241-0002-1	ATEC-077-241-0020-2	4 ft. wire harness, radar-side, w/ side-exit CM-7000 back shell & config module
			ATEC-077-241-0020-3	10 ft. wire bundle, LRU-side
			Various Loose Parts	Circuit Breaker, 22 AWG Wires, Cable Ties, Crimp Sockets, etc.
	Real-Beam (RB)	ATEC-077-241-0002-2	ATEC-077-241-0020-2	4 ft. wire harness, radar-side, w/ side-exit CM-7000 back shell & config module
			Various Loose Parts	Circuit Breaker, 22 AWG Wires, Cable Ties, Crimp Sockets, etc.
EMB-135BJ	3D Buffer (VB)	E20055-3442-L002-01	E20055-3442-A001-01	3 ft. wire harness, radar-side, w/ rear-exit CM-7000 back shell & config module
			E20055-3442-A002-01	10 ft. wire kit, LRU-side
			Various Loose Parts	Crimp Sockets, Shield Terminators, etc.
	Real-Beam (RB)	E20055-3442-L002-02	E20055-3442-A001-02	3 ft. wire harness, radar-side, w/ rear-exit CM-7000 back shell & config module

Parts List / BOM:

This STC installs the following LRU equipment. Note that some equipment is specific to aircraft model.

Part No.	Description	Applicable Models	Comments
Base Hardware			
69003810-101	ART-7000 – Antenna Receiver/Transmitter	All	
69003831-001	FP-7000 – 12 “ Flat Panel Antenna	All	
7008471-407	WC-880 – Weather Radar Controller	All	Existing WC-880 Used with Real-Beam RDR-7000
7008471-7407	WC-7880 – Weather Radar Controller	All	Drop-in replacement for WC-880 Used with 3D Buffer RDR-7000
ATEC-077-241-0002-1	RDR-7000 Installation & Wiring Kit	550 Citation Bravo 560 Citation Ultra	For 3D Buffer RDR-7000 on 550 & 560 Citations. See “Kit Contents”
ATEC-077-241-0002-2	RDR-7000 Installation & Wiring Kit	550 Citation Bravo 560 Citation Ultra	For Real-Beam RDR-7000 on 550 & 560 Citations. See “Kit Contents”
E20055-3442-L002-01	RDR-7000 Installation & Wiring Kit	EMB-135BJ	For 3D Buffer RDR-7000 on EMB- 135BJ. See “Kit Contents”
E20055-3442-L002-02	RDR-7000 Installation & Wiring Kit	EMB-135BJ	For Real-Beam RDR-7000 on EMB- 135BJ. See “Kit Contents”
RTU60007976-002	STC RTU Letter & Installation Data Package	550 Citation Bravo	Specific to 550 Citation Bravo
RTU60007976-003	STC RTU Letter & Installation Data Package	560 Citation Ultra	Specific to 560 Citation Ultra
RTU60007976-003	STC RTU Letter & Installation Data Package	EMB-135BJ	Specific to EMB-135BJ
Optional Hardware			
7008471-405	WC-880 – Weather Radar Controller	EMB-135BJ	Existing WC-880 w/ LSS (Real-Beam RDR-7000)
7008471-7405	WC-7880 – Weather Radar Controller	EMB-135BJ	Drop-in replacement for WC-880 w/ LSS (3D Buffer RDR-7000)
Base Software			
SW69003810-504	ART-7000 Application Software	All	Required for all installations Must be field loaded via SD card
996-1232-547	Topography PDI	All	Required for 3D Buffer RDR-7000 Comes factory-loaded into ART-7000
SWM69003869-502	MagVar Coefficient PDI	All	Required for 3D Buffer RDR-7000 Must be field loaded via SD card
CF69003862-012	RDR-7000 Base Configuration PDI	550 Citation Bravo 560 Citation Ultra	Required for 3D Buffer RDR-7000 Must be field loaded via SD card
CF69003862-013	RDR-7000 Base Configuration PDI	550 Citation Bravo 560 Citation Ultra	Required for Real-Beam RDR-7000 Must be field loaded via SD card
CF69003862-008	RDR-7000 Base Configuration PDI	EMB-135BJ	Required for 3D Buffer RDR-7000 Must be field loaded via SD card
CF69003862-009	RDR-7000 Base Configuration PDI	EMB-135BJ	Required for Real-Beam RDR-7000 Must be field loaded via SD card
Optional Software			
CU69003862-101	RDR-7000 User Options Configuration PDI	All	Enables 3D Buffer billable features Optional; field loaded via SD card

Installation:

Prerequisites

- Existing P-880 radar and controller installed.
- Standard Tools for the Aircraft Type required for Installation.
- Existing Textron 550 & 560 installations must have interfacing LRUs which meet the conditions specified in Appendix A of the STC's Installation Instructions for Volumetric Buffer RDR-7000, EB60010497, or Installation Instructions for Real-Beam RDR-7000, EB60010516.

Installation time

~32 hours per aircraft including access, remove/replace, testing and RTS, when performed by an experienced crew. Estimated aircraft grounded time: ~4 days

- 8 hours: Remove existing legacy radar and wiring
- 16 hours: Install new RDR-7000 and wiring
- 8 hours: Configure and test RDR-7000

Major Installation Steps

Real-Beam RDR-7000 installations

- Remove the existing Primus® 880 R/T and disconnect the connecting cable
- Remove and discard the existing radar-side wire harness between weather radar and radar wall
- Replace the existing bulkhead connector with new radar wall bulkhead connector (included in kit)
- Install the RDR-7000 R/T and flat-plate antenna
- Install the new wire harness between weather radar and radar wall (included in kit)
- Replace the weather radar circuit breaker (included in kit)
- Perform electrical ring out of all modified weather radar wiring prior to engaging circuit breakers or applying of power.
- Install the software using the SD Card (remove SD Card prior to flight).

3D Buffer RDR-7000 installations

- Remove the existing Primus® 880 R/T and disconnect the connecting cable
- Remove the existing WC-880 WX control panel
- Remove and discard the existing radar-side wire harness between weather radar and radar wall
- Replace the existing bulkhead connector with new radar wall bulkhead connector (included in kit)
- Install the RDR-7000 R/T and flat-plate antenna
- Install the new wire harness between weather radar and radar wall (included in kit)
- Install the radar wall to LRU wire harness and terminate aircraft wires
- Install the WC-7880 WX control panel
- Replace the weather radar circuit breaker (included in kit)
- Perform electrical ring out of all modified weather radar wiring prior to engaging circuit breakers or applying of power.
- Install the software using the SD Card (remove SD Card prior to flight).

Revision History

Revision	Date	Comments
0	14 November 2022	Initial Revision

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