

STC : ST04477CH (FAA)

## RDR-7000 WEATHER RADAR

*Aircraft Models Approved:* Textron Aviation Model 680 Citation Sovereign

*Global Certification Approvals:* EASA/CASA: 10077192; ANAC: 2021S11-09 (Brazil) / CTS 2212.17(A) (Argentina)

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

Honeywell is pleased to announce the availability of the Honeywell IntuVue™ RDR-7000 Weather Radar upgrade for the Model 680 Citation Sovereign aircraft model.

This upgrade replaces the aging Primus® 880 Series radars, is available to all Honeywell-approved channel partners and operators, offers new and enhanced features (as listed in the System Functionality and Modes of Operation), and requires no aircraft structural work.

The design of the upgrade reuses the radar mounts and cable feedthrough from the legacy Primus® 880 Series radar systems, and installation kits are produced under a Parts Manufacturing Approval (PMA), allowing for installation by any Maintenance, Repair, and Overhaul (MRO) facility without the need for Part 145 certification.



**Data Package Contents:** Aircraft Flight Manual Supplement (AFMS), Instruction for Continued Airworthiness (ICA), Drawing List (MDL), Weight & Balance Statement, Electrical Load Amendment (ELA), Installation Instructions, Installation and Wiring Diagrams/Drawings, Hardware/Software Configuration Drawings, and Functional Checkout Plan (FCP).

**Effectivity and Limitations / Conditions:** This STC is applicable to Textron Aviation Model 680 serial numbers 680-0001 through 680-0500. The installer must determine whether this design change is compatible with previously approved modifications.

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 Textron Model 680 (see “Installation Prerequisites” section).

Note: Honeywell no longer accepts orders for new Primus® 880 Series weather radars and has announced an end of repair support by Q2-2023. Refer to SIL D201909000028 for more information.

**Right-To-Use (RTU) Fees:** This STC is being offered to all Honeywell Authorized dealers and operators under P/N RTU60007976-013. For orders and pricing, consult Tech Sales focal below for the latest applicable [Honeywell Sales Bulletin](#) or proposal.

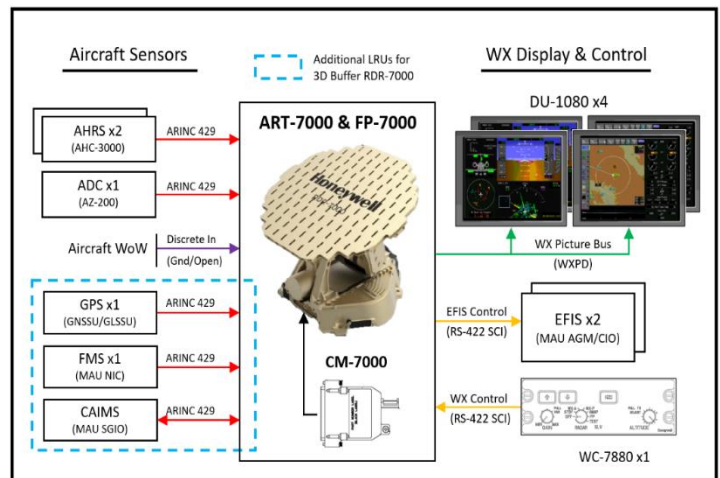
**Contact Us:** At [stcrtu@honeywell.com](mailto:stcrtu@honeywell.com) for additional information regarding this STC, for support regarding upgrade requirements, or to purchase the STC rights-to-use and data package. Honeywell Sales: Steven Gomez [steven.gomez@honeywell.com](mailto:steven.gomez@honeywell.com)

A customer questionnaire, doc number 450429-1134, is available upon request to installers/operators to determine if this STC is usable for the existing configuration on their aircraft.

**Product / System Information:** 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 right is a context diagram representing the aircraft system architecture when the RDR-7000 system is integrated to the existing Primus® EPIC avionics system. 3D Buffer RDR-7000 installations require additional LRU wiring, as seen in the blue hashed box. See next section for details on RDR-7000 operating modes and included features.



**Operating Modes and Configurations:** 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 and 2) “3D Buffer” weather processing.

- 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 (ACT) -- 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
- 3) 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](http://www.aerospace.honeywell.com) for more information.

**Parts List / BOM:** This STC installs the following LRU equipment. Note that some equipment is specific to aircraft model.

Part No.	Part Description	Comments
Base Hardware		
69003810-101	ART-7000 – Antenna Receiver/Transmitter	Required
69003831-001	FP-7000 – 12” Flat Panel Antenna	Required
7008471-7417	WC-7880 – Weather Radar Controller	Required; drop-in replacement for WC-880
ATEC-077-241-0010-1	RDR-7000 Installation & Wiring Kit	Required for 3D Buffer RDR-7000 installations; see “Kit Contents”
ATEC-077-241-0010-2	RDR-7000 Installation & Wiring Kit	Required for Real-Beam RDR-7000 installations; see “Kit Contents”
Optional Hardware		
7008471-7415	WC-7880 – Weather Radar Controller w/ LSS	Optional; drop-in replacement for WC-880 w/ LSS knob
Base Software		
SW69003810-504	ART-7000 Application Software	Required for all installations; must be field loaded via SD card
996-1232-547	Topography PDI	Required for 3D Buffer RDR-7000; comes factory-loaded into ART-7000
SWM69003869-502	MagVar Coefficient PDI	Required for installations using AHRS; must be field loaded via SD card
CF69003862-042	RDR-7000 Base Configuration PDI	Required for 3D Buffer RDR-7000 installations; must be field loaded via SD card
CF69003862-043	RDR-7000 Base Configuration PDI	Required for Real-Beam RDR-7000 installations; must be field loaded via SD card
Optional Software		
CU69003862-101	RDR-7000 User Options Configuration PDI	Enables “Optional feature upgrades” for 3D Buffer RDR-7000 installations; must be field loaded via SD card

**Installation Kit Contents:** The STC offers multiple Installation Kit variants, each containing wire harness subassemblies, fixings, and relevant airworthiness approvals (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.

Radars Mode	Installation Kit Part No.	Installation Kit Content Part Nos. & Descriptions	
3D Buffer (VB)	ATEC-077-241-0010-1	ATEC-077-241-0020-2	4 ft. wire harness, radar-side. Includes PN 69003850-001 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-077-241-0010-2	ATEC-077-241-0020-2	4 ft. wire harness, radar-side. Includes PN 69003850-001 side-exit CM-7000 back shell & config module
		Various Loose Parts	Circuit Breaker, 22 AWG Wires, Cable Ties, Crimp Sockets, etc.

**Installation Prerequisites:** This STC allows for installation of the RDR-7000 weather radar on the aircraft models and serial numbers listed in the “STC Effectivity, Limitations, and Conditions” section with the following configurations:

- Honeywell Primus® 880 Weather Radar system and controller installed
- Existing Textron 680 installations must have interfacing LRUs which meet the conditions specified in Appendix A of the Installation Instructions for Real-Beam RDR-7000, EB60010499, or Installation Instructions for Volumetric Buffer RDR-7000, EB60010517.

**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

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

**Major Installation Steps:** The sequence of installation steps can be performed in any order depending on available parts, manpower and accessibility to the aircraft. An example sequence of operations is listed below:

#### 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).