AN/ARN-153(V) ADVANCED DIGITAL TACAN

LIGHTWEIGHT, COMPACT, HIGH PERFORMING

The military standard for tactical airborne navigation

The full-featured Collins AN/ARN-153(V) advanced digital TACAN can support the operational requirements of high-performance aircraft in a lightweight, compact design. Using the knowledge and experience gained through more than 50 years as a leader in TACAN design and production, Collins Aerospace has designed the AN/ARN-153(V) to support the needs of both new and retrofit applications.

The AN/ARN-153(V) supports four modes of operation: receive mode, transmit-receive mode, air-to-air receive mode and air-to-air transmit-receive mode. When used with the optional 938Y-1 rotating antenna and a control unit, the system also provides bearing to an air-to-air TACAN that is transmitting an unmodulated squitter, as well as bearing to DME-only ground stations.

A robust interface design supports a variety of digital and analog interfaces simultaneously. Digital interfaces include dual MIL-STD-1553B buses and ARINC 429, 568 or 582 buses providing range, bearing, frequency, velocity and time to station.

Analog synchro distance and bearing are supplied using patented circuitry that supports loads in any mix of impedance without the “sticking” or “motoring” problems inherent in other solid-state techniques.

An optimized output power design supports operational requirements of high-performance aircraft by providing a minimum 500-watt transmit capability over the full range of environments.

Selecting range ratios of 30:1 or 4:1 is accomplished through the automatic gain control (AGC) enable/disable switch, the 1553 bus or the RNAV (ARINC) input bus.

Enhanced BIT circuitry retains failure information even after the unit has been powered down.

KEY FEATURES AND BENEFITS

- Compatible with all standard TACAN digital and analog interfaces
- X and Y mode channels for surface and air-to-air operations
- 252 channels
- Echo protection
- Mutual suppression interface with other equipment
- High reliability: predicted mean time between failures is 11,000 hours
- Growth option: Rho-Rho DME with DO-178B software certificate

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SPECIFICATIONS

GENERAL

Frequency control	Serial digital MIL-STD-1553B optional
Number of channels	252 (126X and 126Y) provision made for W and Z channels

FREQUENCY RANGE

Receiver	962 to 1213 MHz
Transmitter	1025 to 1150 MHz
Ground interrogator	Per FAA Advisory Circular 00-31 and MIL-STD-291 characteristics
Receiver/decoder	Per FAA Advisory Circular 00-31 and MIL-STD-291 characteristics

PERFORMANCE

Distance range	0 to 390 mi

DISTANCE ACCURACY

Digital	±0.1 mi
Analog	±0.2 mi
Distance acquisition time	2 seconds, 2-sigma probability
Distance memory	15 seconds ±2
Bearing accuracy	
Digital	±0.5 degree
Analog	±1.5 degree
Bearing acquisition time	5 seconds, 2-sigma probability
Bearing memory	3 seconds nominal
Transmitter power	500 W minimum
Receiver sensitivity	-89 dBm (-93 dBm at minimum of bearing modulation)

ENVIRONMENTAL

Vibration	0.04 g2/Hz functional; 0.12 g2/Hz endurance
Service shock	15 g
Crash safety shock	30 g
Altitude	70,000 ft.
Operation temperature	-54 to 71° C
EMI	MIL-STD-461A, Notice 3

POWER REQUIREMENTS

Primary power	28 VDC 1.5 A nominal
Power transients	MIL-STD-704C

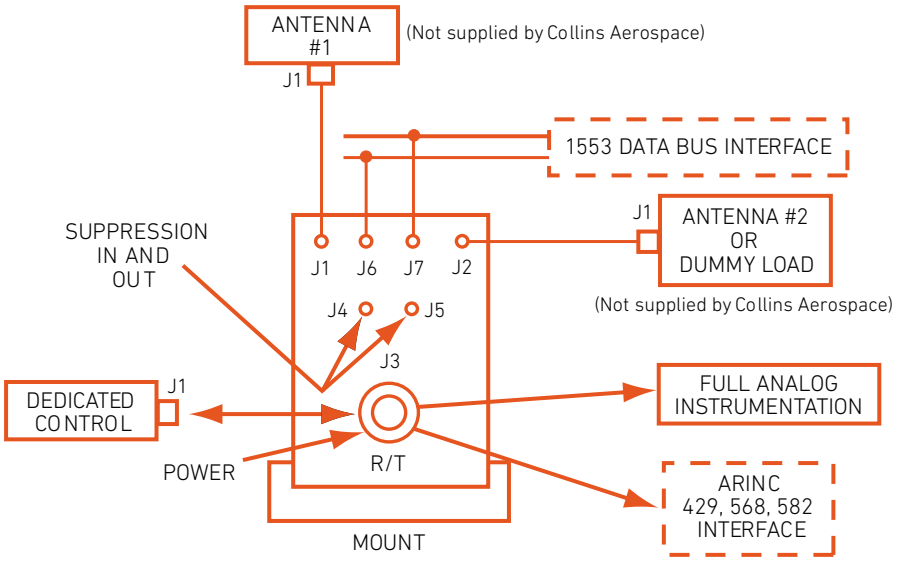
PHYSICAL CHARACTERISTICS

TACAN RECEIVER TRANSMITTER

Weight	6.48 kg (14.3 lbs.)
Height	172.2 mm (6.80 in.)
Width	106.66 mm (4.16 in.)
Length	305.52 mm (12.04 in.)

TACAN CONTROLLER

Weight	.91 kg (2 lbs.)
Height	57.15 mm (2.25 in.)
Width	146.05 mm (5.75 in.)
Length	138.00 mm (5.43 in.)



Simplified interconnect diagram

Specifications subject to change without notice.

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