

USA Ground Operations CIL Sheet

Critical Item: Antenna, Band, All
NASA Part No: None
Mfg/Part No: E-Systems / 119100-108
System: System

Criticality Category: 1
Total Quantity: 2

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
UNIT 1	1	CLS-BEN	U72-1317-01	554.50	T.O.31R4-2TRN26-2 / 3-36
UNIT 1	1	CLS-BAN	U72-1317-01	554.75	T.O.31R4-2TRN26-2 / 3-36

Function:

Receive interrogation signal from the Orbiter and transmit reply signal back to the Orbiter.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
29CL01-030.015 Fails to Operate	Discrete component failure Unable to receive/transmit guidance/navigational information to and from the Orbiter. This failure could cause loss of life and/or vehicle.	VSWR alarm on the RT unit. Immediate from 250 nautical miles to 20 nautical miles	1

ACCEPTANCE RATIONALE

Design:

- All controls are housed in an environmentally controlled enclosure to prevent premature component failure due to heat and corrosion.
- This system has design features that shield against unwanted RF and lightning strikes.
- The TACAN AN/TRN-26 is a portable tactical air navigation system designed for use at remote landing strips and forward operating areas by the US Air Force.

Test:

- TACAN activation is required T-3 hours before the start of Ground Launch Sequence. This activation will provide assurance that the system is functioning as required.
- TACAN accuracy is verified annually by flight test per NSTS 07700 Vol X, Book 3 para 1.3.1.1.1.
- OMRS File VI requires a system validation test prior to each use of TACAN for Orbiter landing.
- OMRS File VI requires a periodic aircraft flight inspection to verify TACAN signal quality and alignment.
- NSTS 07700, Vol X, requires an annual validation test that verifies proper reception of signal by in flight aircraft to determine ground interference and system alignment quality.

Inspection:

- Prior to TACAN activation a pre-operation checkout (inspection) is performed per OMI Z3109-A.

Failure History:

- Current data on test failures, unexplained anomalies and other failures experienced during ground processing activity can be found in PRACA database. The PRACA database was researched and no failure data was found on this component in the critical failure mode.

a) Problem Report No. PV-6-258412 was written against the Antenna Control Unit 2A1 at Ben Guerir,

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Morocco on November 27, 1993. Problem description was "TACAN Antenna will not come up to speed. Antenna power circuit breaker trips after powered up." Failure cause was antenna drive motor. Motor was removed and replaced.

b) Problem Report No. PV-6-129493 was written against the Antenna Control Unit 2A1 at Ben Guerir on March 15, 1989. Problem description was "Loss of antenna drive." Cause was a cold solder joint on the antenna reference trigger assembly located in the antenna. The assembly was repaired and replaced.

- The above PRs were written against the Antenna Control Unit but the failure was found in the Antenna unit.
- The GIDEP failure data interchange system has been researched and no failure data for this item was found.

Operational Use:

Correcting Action	Timeframe
There is no action which can be taken to mitigate the failure effect.	Since no correcting action is available, timeframe does not apply.