

OCT 21 1994

B/L: 554.50, 554.75
SYS. TACAN

Critical Item: Antenna Control (2 Items Total, one per site)
 Find Number: Unit 2A1
 Criticality Category: 1

SAA No:	29CL01-030	System/Area:	TACAN/TALS
NASA		PMN/	U72-1317-01/
Part No:	None	Name:	Antenna Control
Mfg/	E-Systems/	Drwng/	T.O.31R4-2TRN26-2/
Part No:	005522-02	Sheet No:	3-36

Function:

- 1) Inverts 28V dc to 3-phase, 208V ac for antenna drive motor.
- 2) Amplifies 15, 135 and 1350 Hz trigger pulses from antenna.

Critical Failure Mode/Failure Mode No: No/low output/29CL01-030.013

Failure Cause: Discrete component failure.

Failure Effect: Loss of power to antenna will result in loss of azimuth signals. This failure could cause loss of life and/or vehicles. Detection method is system alarm. Time to effect is immediate from 250 nautical miles to 20 nautical miles.

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.
- Basic logic network utilize solid state components mounted on printed circuit board for increased reliability in component mounting and electrical connections.
- 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.

*Attachment
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SAA29CL01-030

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.
- OMRS File VI requires a system validation test prior to each use of TACAN for Orbiter landing.
- 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 the following 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, 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 GIDEP failure data interchange system has been researched and no data for this item was found.

Operational Use:

- Correcting Action:

There is no action which can be taken to mitigate the failure effect.
- Timeframe:

Since no correcting action is available, timeframe does not apply.

*Attachment
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