

OCT 21 1994

B/L: 554.50, 554.75
SYS: TACAN

Critical Item: Antenna Control Cable Assembly (2 Items Total, one per site)
Find Number: W17
Criticality Category: 1

SAA No: 29CL01-030	System/Area: TACAN/TALS
NASA Part No: None	PMN/ Name: U72-1317-01/ Antenna Control Cable Assembly
Mfg/ Part No: E-Systems/ 004510	Drawing/ Sheet No: T.O. 31R4-2TRN26-2/ 3-35

Function: Provide electrical signal and control between control transfer group and antenna control Unit 2A1.

Critical Failure Mode/Failure Mode No:

- 1) Fail open/29CL01-030.023
- 2) Fail short/29CL01-030.024

Failure Cause:

- 1) Metal fatigue
- 2) Insulation deterioration

Failure Effect: Loss of power to antenna resulting in loss of azimuth, (DME capability still exists). Each failure could cause loss of life and/or vehicle. Detection method is system alarm. Time to effect is immediate from 250 nautical miles to 20 nautical miles.

ACCEPTANCE RATIONALE

Design:

- All cables are housed in an environmentally controlled enclosure to prevent premature cable failure due to heat and corrosion.
- Cable is overall shielded and consists of teflon coated 12, 16, and 20 AWG copper wire.
- Wire pin connections are soldered.
- Connectors are potted and incorporate a bonding ring for mechanical secureness.
- Connectors are keyed to assure correct pin alignment.

*Attachment
SD50234DK*

- Once installed, these cables remain installed and are not disturbed during normal operation. This will reduce the potential for a failure occurring during operational use.
- 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.
- 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 no failure data was found on this component in the critical failure mode.
- The GIDEP failure data interchange system was researched and no failure data on this component 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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