

OCT 21 1954

SAA29CL01-030

B/L: 554.50, 554.75

SYS: TACAN

Critical Item: RF Monitor Antenna Cable Assembly (2 Items Total, one per site)
Find Number: W3
Criticality Category: 1

SAA No: 29CL01-030

System/Area: TACAN/TALS

NASA

PMN/ U72-1317-01/

Part No: None

Name: RF Monitor Antenna Cable
Assembly

Mfg/ E-System/

Drawing/ T.O. 31R4-ZTRN26-2/

Part No: 008280-03

Sheet No: 3-36

Function: Provide RF connection between monitor antenna Unit 12 and control transfer group Unit 4.

Critical Failure Mode/Failure Mode No:

- 1) Fail open/29CL01-030.029
- 2) Fail short/29CL01-030.030

Failure Cause:

- 1) Metal fatigue
- 2) Insulation deterioration

Failure Effect: Unable to sample RF radiated signal from main antenna. This will impact the 15 and 135 Hz monitor capability resulting in transfer or shut down. 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 an RG 142 B/U single strand overall shielded coaxial.
- Wire pin connections are soldered.
- 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.

*Attachment
5050234DK*

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SAA29GL01-030

- Electrical connectors have a bracket that supports cable connection and minimizes single strand stress, which could result in a cable failure.
- 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.
- NSTR 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
50502342X*