

OCT 21 1954

B/L: 554.50, 554.75  
SYS: TACAN

**Critical Item:** RF Main Antenna Cable Assembly (2 Items Total, one per site)  
**Find Number:** 1W5, 1W6, 1W7  
**Criticality Category:** 1

|  |  |
|--|--|
| <b>SAA No:</b> 29CL01-030                                      | <b>System/Area:</b> TACAN/TALS                                   |
| <b>NASA Part No:</b> None                                      | <b>PMN/ Name:</b> U72-1317-01/<br>RF Main Antenna Cable Assembly |
| <b>Mfg/ Part No:</b> E-System/<br>119718-100, 119719-100, -101 | <b>Drawing/ Sheet No:</b> T.O. 31R4-2TRN26-2/<br>3-36            |

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

**Critical Failure Mode/Failure Mode No:**

- 1) Fail open/29CL01-030.027
- 2) Fail short/29CL01-030.028

**Failure Cause:**

- 1) Metal fatigue
- 2) Insulation deterioration

**Failure Effect:** Unable to receive/transmit guidance/navigation information. Each failure could cause loss of life and/or vehicle. Detection method is VSWR alarm on the RT unit. 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.
- RG 142 B/U single strand overall shielded coaxial cable.
- 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  
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- Electrical connectors have a backshell that supports cable connection and minimizes angle strain and 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.
- NSTRS 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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