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Gravity Probe B Relativity Mission

PROCEDURE FOR INSTALLING READOUT CABLE TO GYROSCOPE

GP-B P0370 Rev -

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P0370 Rev -
INSTALLING READOUT CABLE TO GYROSCOPE

Purpose:

To install a readout cable to a gyroscope that is ready for Science Mission Commissioning.

Process Conditions:

- Micro Detergent
- Readout cable assembly jig
- Retaining "E" ring installation tool
- Non-magnetic tweezer
- Gyroscope has completed all Ti - Cu -Ti coatings, low temperature / adhesion testing, electrical testing, visual inspections, and thorough cleaning.
- Readout loop on Gyroscope has been visually inspected and its resistance recorded.
- Readout cable has been visually inspected and resistance's recorded.
- Readout Cable kit 25000-201 is available and passed magnetic testing.
- Reference drawing 25000-201.
- Travel sheet for Gyroscope Assembly
- Authorized personnel only to perform cable installation
- Use a calibrated DVM

Procedure:

1. In Class 100 cleanroom, at the Gyro cleaning facility, inspect and clean readout cable. Wipe Readout cable first with acetone and next with alcohol using a clean lint free wipe. Next, clean cable with DI water and Micro detergent. Rinse cable in Dump - Rinser four cycles. Let cable thoroughly dry on clean bench. Put cable into clean nylon bag.
2. Clean readout cable Kit parts with DI water and Micro detergent in ultrasonic bath. Store clean parts in dry box.
3. In Class 100 cleanroom, at the Gyro cleaning facility, have a clean readout cable assembly kit 25000-201, readout cable assembly jig, assembly tools and a "Readout Half" gyro that is ready for cable assembly.
4. At the Gyro assembly clean bench, feed cable assembly into bore at parting plane used to secure cable to gyroscope.

5. Using non-magnetic tweezers, install flat washer (25007-101), curved washer (25007-102) over end of cable towards threads at gyroscope.
6. Slide the slotted nut (25006-101) over cable and tighten finger tight.
7. Holding gyro horizontal with one hand, install Kapton washer (25401-101) and align over two outside readout loop contact holes.
8. Feed one contact pin (25011-101) through the eye of the shorter end of cable. Slip contact pin into closest readout loop contact hole. Push pin completely through.
9. Feed the second contact pin (25011-101) through the eye of the longer end of cable. Push pin through farthest readout loop contact hole.
10. Install gyroscope half to readout cable assembly jig.
11. Using non-magnetic tweezers, install one sleeve (25014-101) over each contact pin.
12. Using non-magnetic tweezers, install one spring (25013-101) over each contact pin.
13. Using non-magnetic tweezers, again install one sleeve (25014-101) over each contact pin.
14. Using “E” ring installation tool, slip over contact pin (25011-101) and place one retaining “E” ring (25555-101) behind slot of installation tool. Using non-magnetic tweezers, push “E” clip ring towards contact pin until it snaps into place.
15. Repeat step 14 for the second contact pin.
16. Remove from readout cable assembly jig.
17. Check resistance of readout cable connection to readout loop using DVM multimeter and record in Table FGT 1. Typical resistances are 5 - 7 kΩ.
18. Readout half of gyroscope is ready for final cleaning per GP-B procedure P0001.