

SUBJECT: Note on First Look at Thornton DSO Data on 41-G

The evening of 13 October we received 2 complete sets of bowel sound recorders, two complete B.P. recorders, a Holter type 447 recorder, 2 sets of color chips, 4 tape cassettes and spare batteries.

Bowel Sounds - The crew did an outstanding job with early and late inflight recordings on 4 subjects. Only 3 of 8 recordings were technically normal while the remainder had the (R) channel missing entirely with the (L) at reduced amplitude. Both microphone belts were normal, as were recorder settings except for a mechanically mislocated volume control with slightly reduced record gain setting on S.N. 002 - This same recorder functioned normally on playback but would not record on the right channel and only at reduced level on the left. Apparently it recorded 1 tape side normally in flight. Quality was excellent on the normal tapes and will fill another previously blank square in our matrix. It may be possible to partially salvage the tapes from the failed recorder by filtered amplification. The graphics recorder for analysis was unusable and analysis will be delayed until it is servicable.

BP Recorder - Both P-111 recorder's installed batteries were discharged (per schedule - 7 day max installed life) and both uninstalled batteries and P-111's functioned normally. Apparently one recorder had been connected to a subject but without replacing the battery per instructions and C.L. for there was a note that it did not function. This is normal without a battery replacement. As noted it did function normally, both record and playback, with either fresh battery - no record.

EKG Recordings - The Holter was still functioning normally on return and the tape replayed uneventfully with a number of inflight recordings and calibration recordings present. Time signals were lost from some since they were shorter than 60 secs but no difficulty in ID and analysis is expected when the data log is received. This log also contains the temperature data.

Conclusions/Future

BP (P111) - A cue card should be attached directly to the recorder.

Bowel Sounds - This was a severe loss caused by my 1) over confidence in equipment which had never failed in very extensive usage and 2) over simplification of crew procedures in an effort to minimize operations. The first insurance against a repeat is to add a two or three line test/malf procedure to the existing procedures, since checkout before each recording is simple.

A failure analysis will be completed by me in the next few days. It appears to be an electronic (probably chip) failure but if mechanical failure is present some restriction on training with flight units may be imposed.

Preflight QA and checkout both of this unit and in general will be reviewed but appeared satisfactory, however immediate prelaunch cal. tapes have to be replayed.