W. W. Hansen Experimental Physics Laboratory
STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305-4085

Gravity Probe B Relativity Mission

MISSION OPERATIONS CENTER

MOC Switch from POD D to POD E

P0993 Rev –

July 21, 2003

Prepared By:

_____Date:_____
Ric Campo
Flight Director

Checked By:

_____Date: _____
Rob Nevitt
Senior Engineer

Approvals:

_____Date: _____
Ron Sharbaugh
Software Manager

_____Date: _____
Marcie Smith
Mission Operations Manager

_____Date: _____
Kelly Burlingham
Quality Assurance

REVISION RECORD

REVISION	ECO	PAGES	DATE
—	—	**Initial Release**	**7/21/03**

Equipment Required:

TQSM Logbook and Blank D-Log page.

Definition:

POD D is defined as the prime command and telemetry POD. PODs E is defined as a backup POD.

Scope:

In the event POD D fails, the first step should be to try to restart POD D using procedure P0994. If POD D cannot be restarted this procedure details how to switch to POD E. This procedure is equally applicable for switching to POD G.

Applicability:

This procedure applies to all personnel involved MOC operations. The requirements outlined in this document are mandatory.

Quality Assurance:

A D-log shall be generated upon the failure of POD D. No other notification to QA is required.

Background:

Each POD has a fixed IP address that is used by both the SN and GN sites to configure their respective PTP (Programmable Telemetry Processors) desktops to receive commands and relay telemetry. The GN and SN set up their PTPs differently and thus losing the Prime POD, defined as POD D, has slightly different implications.

SN

The Space Network uses either SWSI or UPS for scheduling TDRSS contacts. Imbedded in each schedule is information that defines which PTP desktop to use for the forward (commanding) and return (telemetry) link. The PTP desktop will listen for command data from a Fixed IP Address to route command data to the appropriate WSGT or SGLT terminal as well as route telemetry from that terminal to a Fixed IP address as called out in the schedule. Thus, for any confirmed events listing there is an implied POD, normally POD D. In the event POD D were to fail, all SN contacts would have to be rescheduled with a new POD so that the PTPs could be automatically configured with the

appropriate desktop to reach the new active POD. The routing of schedule information to WDISC (which resides at White Sands and contains the PTPs) to select the desktop is automatic. Rescheduling events can be done, in theory, very quickly, and the desktops for any given contact are only made active seconds prior to AOS.

GN

The Ground Network is scheduled through WOTIS. Unlike the SN, WOTIS does not relay information to configure the PTPs or select desktops at the Ground Network Sites: AGS, SGS, WGS, MGS. Each station has only one desktop which has only the IP Address of POD D hard coded. In the event POD D is lost the GN Station Manager must be contacted via SCAMA to bring up the GUI Module to change the IP address manually for every contact until POD D can be restored. Every station has a list of the alternate POD addresses by name on site. In the event that POD D will be offline for a great deal of time, arrangements should be made with each station to redefine the default IP Address to the desired alternate POD. In the event a failure of POD D occurs close to the time of a contact the following times are helpful to know:

1. SSBs (Station Status Blocks) start 8 minutes prior to contact.
2. The PTP desktop is loaded 1 minute 30 seconds prior to contact.

Unlike the SN, all GN contacts should occur automatically since all vehicle configurations are executed from SPCs (Stored Program Commands). Thus, if POD D were to fail during a contact, commanding would be lost, but all data, both 32k VC0 and SSR playback VC1and2, will be available via the normal post pass route through SAFS.

Responsibilities:

Flight Director or Lead Controller_____ Date/Time _____

- Follow the steps below: CHECK

10	Notify the system administrator on duty or on call immediately of the problem with Pod D. Document the problem in the logbook and a D-log.	
20	Use Procedure P0994 in order to attempt to restart POD D. If POD D was recovered go to 90.	
30	If Pod D went down during or just before a support that had any critical commanding such as: - Ping/pong load and enable if it was the last opportunity before current sequence expires - Setting of a GV if there isn't another support already	

	scheduled that can be used to set it before it is required - A PPCR for special commands - A Ping/Pong Load with an real-time requirement (abort/continue/monitor) Contact the Mission Director immediately. If no critical commanding was lost, there is no need to contact the Mission Director.	
40	If the mission planning team is on site, notify them that all upcoming SN events must be rescheduled for support by POD E rather than POD D for the duration that POD D is expected to be down. Go to 60.	
50	If the mission planning team is not on site, notify the appropriate person over the SCAMA that POD D is not operational and that the GP-B desktop for the next support will have to be replaced with the one for POD E. For Launch Day: Notify appropriate Network Operations Manager (GN-NOM or SN-NOM). Otherwise, For SN support: Notify CSC# (see passplan checklist) For GN support: Notify site directly (Alaska, Norway, or Wallops)	
60	Bring up POD E with Pod_Setupa procedure (FOH 3.4.2.3)	
70	Ensure that all appropriate procedures and loads are on POD E. Check the loads directory and procs directory. Check upcoming passplans to find what will be needed. If any needed files are not there, check the loads binder to find their location on the moc-server and copy them into the loads directory. Procedures are located in /projects/procedures.	
80	When an estimate of the time that POD D will be back up is available, notify the Mission Planning Team to return the schedule to POD D since POD E as prime is never the desired configuration.	

90	Recovery of Loss of Telemetry: GN If POD E could not be made prime in time for a contact, the GN station manager can be asked to verify the receipt of VC0 and VC1and2 data. If there is a problem it may be necessary to use procedure 3.3.1.3.1.5 Loss of Playback. SN If the SN pass could not be configured prior to contact, the event is most likely completely lost since the blind acquisition commands were never sent. If POD D were lost during an SN contact, use procedure P0998, MOC Replay FrameX from SN Archive to recover the missing 2k or 1k data.	

Signatures:

Flight Director: _____ Date:_____
(Person running procedure)

Summary:

Incorporation of the items in this procedure will ensure that the immediate implications of losing a Pod are identified and corrected as quickly as possible.