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I.S.S. Memo # 186

To: John E. Miller  
From: Mark D. Birnbaum  
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Subject: Proposal of System Tests of Block II ECDU

1. The following test points are being brought out of the ECDU for system tests.
  - a. Fine errors (I, M, O, S, T )
  - b. Coarse errors (I, M, O, S, T ) (no T in for CSM CDU)
  - c. + 4 VDC

II. The following tests intended as preliminary guides. They will check proper operation of all ECDU functions. The tests are not necessarily in the order shown. All gimbal positioning is assumed to be done by DSKY control via the Coarse Align Mode. Tests are referenced to the CSM IMU CDU's. Similar tests can be performed on the OPTX CDU's, and the RR CDU's in LEM.

1. General read function - read out via DSKY, position via CA loop.
  - a. CDU zero and read in each quadrant
  - b. CDU zero and read near 225°  
(ambiguity check)
  - c. Read time to null - speed check  
(look at coarse & fine errors on scope)

TVC Enable

S/C Control of Saturn

D/A Enable (OPTX)  
(Slightly different in LFM)

7. Failure Detection (Must have AGC program to allow fail light during CDU zero)
  - a. Coarse Align out to 90°
  - b. CDU zero
  - c. AGC lights lamp - due to coarse error
  - d. Repeat to 5° - get failure due to fine error
  - e. Coarse Align to selected angle (between 0 and 11.25°)
  - f. CDU zero
  - g. AGC lights lamp - due to COS ( $\theta - \theta$ )  
(possible not checkable)
  - h. Hang load on LX
  - i. AGC lights lamp due to CDU oscillation

NOTE: 14V fail is checked at Black Box level

8. Turn-On Mode from 225° results in zeroing of gimbals

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