

Massachusetts Institute of Technology  
C. S. Draper Laboratory  
Cambridge, Massachusetts

COLOSSUS Memo #292

To: Distribution  
From: N. Brodeur  
Date: 8 October 1970  
Subject: Revisions 59 and 60 of ARTEMIS

Revision 60 was BAD with 1 cuss.

Major Changes Incorporated into Revision 59:

- 1) The Erasable log section was modified by further cleanup of unused registers. Tag END-E7 was restored as it is needed for edit dumps. (ACB A-18)
- 2) The "Check Equals List" log section was updated.
- 3) The  $\Delta V$  criterion for SPS selection was changed from  $\geq |15 \text{ fps}|$  to  $\geq |7 \text{ fps}|$ . Coding was added to P52 to request Please Perform Plane Change Pulse torquing if in the MINKEY sequence. This allows crew option to bypass pulse torquing in which case P41 is automatically selected for the plane change burn. "Please Perform" list in the Assembly and Operation Information log section was updated to include "00020-Perform MINKEY Plane Change Pulse Torquing." Alarm code 402 was redefined to be "Crew must honor 2nd MINKEY Torque request." If the first pulse torquing has been done then the second must be done; otherwise the above alarm condition exists. (PCR 1078)
- 4) The V37 lockout during optics zeroing was eliminated due to the fact that the implementation of PCN 994 eliminated the optics lock-out

problem. This check caused the MINKEY automatic selection of programs via V37 to generate erroneous 1520 alarms. (PCN 1084)

- 5) A new tag POSTPOLY was appended in P11 for edit dumping.
- 6) Erasable definition THAM was deleted as it is no longer used in MINKEY. (PCR 1049) ✓
- 7) P51G (eleven words) was moved from bank 14 to bank 6.

#### Major Changes Incorporated into Revision 60:

- 8) The following brief description of the new P15 (TLI Initiate/Cutoff Program) appears as remarks at the beginning of the P15 log section and is repeated below for convenience.

P15 uses noun 33 to display Time of SIVB Injection Sequence Start (TB6). It establishes T6SET via LONGCALL to be executed at TB6 and sets Time of Ignition to TB6 +9 min 37.6 secs. The newly defined N14 displays Inertial Velocity Magnitude at TLI Cutoff. CLOKTASK is set up to display the newly defined N95 (Time from Ignition, Velocity to be Gained and Inertial Velocity Magnitude). T6SET sets the SIVB Injection Sequence Start bit, establishes T6RESET via a 10 sec TWIDDLE and turns on the Uplink Activity Light. T6RESET clears the SIVB Injection Sequence Start bit and turns off the Uplink Activity Light. P40S/SV was generalized to use a newly defined erasable (AVEGDT) in determining when AVERAGEG is to start. P40/41 was adjusted to reflect the above change. P15 uses P40S/SV to call MIDTOAV1 to integrate the CSM State Vector to TLITIG -100 secs. It establishes TIGBLNK via LONGCALL to be executed at TLITIG -105 secs. TIGBLNK blanks the DSKY for 5 secs and establishes TIGAVEG via TWIDDLE for TLITIG -100 secs. TIGAVEG starts READACCS and redisplay N95 (VG and V now dynamics). SIVBCOMP is called via AVEGEXIT every 2 secs. It updates VG and V and after TLITIG +10 secs calculates TGO and

changes the N95 R1 display to TFC, <sup>W</sup>hen TGO < 4 secs, SIVBCOMP establishes SIVBOFF via TWIDDLE. SIVBOFF shuts down the SIVB and calls POSTTLI which flashes N95 to indicate TLI is completed.

The Assembly and Operation Information log section and Pinball Noun Tables were updated to reflect the new nouns. The following erasable registers were defined for P15: AVEGDT, VPAST, TLITMP, VNOW, DTP and VC/O (the last two are pad loads). (PCR 320)

- 9) Comments in the Erasable Assignment Log section were updated.
- 10) FLAGTABL +6 was altered to discontinue the clearing of the non-existent R57FLAG in INITSUB. (PCR 868)
- 11) Coding was added to restart protect VN1645. (PCR 1049) ✓
- 12) The setting of the AUTOSEQ flag was added to P79 to enable the proper selection of P79 via V37 with P20 running in the background. (PCR 1049)
- 13) R52 code was modified to eliminate the possibility of using a rejected mark (negative time) in updating landmark coordinates by P24. (COM 46)

### GSOP Impact

The following items should be examined for possible impact on the various GSOP sections:

Section 1: Item 8

Section 2: Items 4, 8, 12

Section 4: Items 3, 4, 8

Section 5: Items 3, 8