

THE CHARLES STARK DRAPER LABORATORY
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COLOSSUS Memo # 296

TO: Distribution
FROM: N. Brodeur
DATE: October 28, 1970
SUBJECT: Revisions 61 and 62 of ARTEMIS

Revision 62 was GOOD.

Major Changes Incorporated into Revision 61:

1. P5IG (eleven words) was moved from bank 6 to bank 11; Subroutine ROTATE from bank 5 to bank 7.
2. The description of N90 was corrected in the Assembly and Operation Information and the Pinball Noun Tables Log Sections.
- 3a. Coding was added to T4RUPT to protect against optics switch failure (bits 4 and 5 of channel 33). The erasable C31FLWRD (of the form $AXXBX_8$) is examined. If the astronaut desires to bypass the channel 33 representation, he should load "B" of C31FLWRD via V21N01 or via V25N07 to the following values, being careful to not change "A".

<u>B value</u>	<u>Meaning</u>
0 or 4	bits 4 and 5 of channel 33 are valid.
1 or 5	OPTICS Mode CMC
2 or 6	OPTICS Mode ZERO
3 or 7	OPTICS Mode MANUAL

"B" must be pad-loaded as zero. (PCR 1076)*

* see COLOSSUS Memo #291; Note that item 33 of COLOSSUS Memo #286 is partially obsolete.

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3b. FAILBIT, defined in the Service Routines Log Section, was redefined to be compatible with the implementation and use of C31FLWRD in PCR 1076. If the astronaut desires to bypass the channel 31 representation of bits 13, 14, 15, he should load "A" of C31FLWRD via V21N01 or via V25 N07 to the following values, being careful to not change "B":

<u>A Value</u>	<u>Meaning</u>
0 or 4	bits 13, 14, and 15 of channel 31 are valid.
1 or 5	G & N control FREE
2 or 6	G & N control ATT. HOLD
3 or 7	G & N control AUTO

4. PIOS Ephemeris data and Star Tables were updated for 1971-1972 Ephemeris Year. (PCR 1082.1)
5. Comments were updated in P15 and Display Interface Log Sections.
6. P15 downlink was changed from Coast and Align to Powered Flight. (PCR 320)
7. To avoid discontinuity in vehicle rates, V37 was modified to bypass STOPRATE and RESTORDB if P20 is active and is to be continued. (PCR 1062)
8. Coding was added to POODOO aborts to reset the UTFLAG, the RNDVZFLG and the TRACKFLG and thus kill P20 properly. (COM 47)
- 9a. A new tag AUTOCIK1 was appended in Fresh Start and Restart log section to by-pass a test of the AUTOSEQ bit when branching from P20. (PCR 1049)
- 9b. The MINKEY controller in Fresh Start was modified to set TCSI equal to TCSI2 if $N \geq 2$ and to call P31 when $N = 2$ and P36 when $N = 1$. (PCR 1049)
10. A redundant check of UTFLAG was deleted from R23. (PCR 1051)
11. The resetting of 3AXISFLG was deleted from V37 logic and R60. Coding was added to P40 to reset it. It is left to the user to insure proper setting. (PCN 1090)

Major Changes Incorporated into Revision 62

12. 3CSECS (two words) was moved from bank 13 to bank 5 and REND13A (ten words) was moved from bank 24 to bank 34.
13. T4RUPT was modified to set the shaft rate to zero to prevent automatic rate drive in manual optics if the desired shaft position cannot be achieved due to shaft stops. (PCR 1086)
14. A superfluous clearing of TARG1FLG in P51 was deleted. (PCR 1057)
15. Coding was added to R53 to turn on the operator light if a STARCODE of 77777₈ (-0) is detected on the response to N70 or N71. (COM 45)
16. Comments in the Display Interface Log section were updated.
17. Coding was added to the controller to initiate the MINKEY sequence properly when P79 is called via V37. (PCR 1049)
18. GOTOPPOOH was modified to reset AUTOSEQ and fall through to MNKGOPOO which tests AUTOSEQ and returns to the sequence controller if set and flashes V37 if not set. RLGOTOPU has been eliminated and replaced by GOTOPPOOH as is the normal V34 (terminate) response to a display. A test of REFSMBIT in V37 prevents the initiation of a MINKEY sequence if REFSMMAT is invalid but allows the selection of a targetting program without P20 in the background. (PCR 1049)

NOTE

In item 8 of COLOSSUS Memo #292, under the list of newly defined P15 erasables - DTP should be DTF.

GSOP Impact

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

- Section 1: Item 3
- Section 2: Items 6, 11, 14, 18
- Section 3: Items 3, 7
- Section 4: Items 7, 18
- Section 5: Items 4, 9b