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COLOSSUS Memo #68

To: Distribution
From: M. Hamilton
Date: 26 June 1968
Subject: COLOSSUS Revision 217

Revision 217 was BAD with 1 cuss.

Major Changes Incorporated into Revision 217

- 1) MDOT has been changed from an erasable to a fixed constant. This fix will save 2 erasables and also be consistent with the Chap. 5 GSOP. Previous references to MDOT now refer to MDOTHI and MDOTLO.
- 2) The V06N85 static display before blanking in P41 was changed to be a dynamic display as shown in GSOP section 4. This was done by hooking up the calculation and the redisplay of V06N85 to CLOCKJOB.
- 3) Changes went into P40 and the TVC MASSPROP to convert over to the CSM103 file.
- 4) A new noun 99 was added for the W-MATRIX V97.
- 5) Descriptions for T4RUPT ALARMS were updated.
- 6) A change was added to T4RUPT to give a different ALARM for an ICDU fail, an IMU fail or a PIPA fail if an ISS warning takes place.
- 7) Eight unnecessary instructions were deleted from V37.
- 8) A new restart 4.75SPOT was added to protect SPSOFF97 in P40.
- 9) The call to MRKLEES was deleted from R21. MRKLEES was turning off the optics when only the marking should have been turned off at the end of R21.
- 10) A minus no. was stored into MRKBUF2 at the end of SERVICER to prevent leftover incorporation of marking after a burn.

- 11) The TVC executive now calls FIXCW instead of MASSPROP to save time. This will help to relieve the DOWNRUPT lost problem.
- 12) A fix was made in the first pass of R22 to zero VHFCNT when the W-MATRIX is initialized.
- 13) If engine fail has occurred, the TVC interface no longer updates mass. This will prevent the erroneous resetting of V97VCNTR by the DAP which would result in incorrect mass.
- 14) The P63FLAG was set to -1 in P63 to assure that the EXO-ATM DAP will not call P63 out of sequence in P66 (KEPLER). This could happen if the flag was left at +1 by the DAP (PCN 467).
- 15) V97VCNTR was moved to be used exclusively by the TVC DAP. This prevents the problem which occurred for a burn less than .4 sec. ENGINOFF would occur before TVCDAPON with the result that V97VCNTR was garbage left over from RCS usage.
- 16) The comments on ERADFLAG were updated to include its definition when the planet is the moon.
- 17) V97VCNTR is now set to zero in IMPLBURN in case ENGINOFF occurs before TVCDAPON. See no. 15 above.
- 18) The check for engineon and enginoff in IGNITION and SPSOFF was removed since the need for it was considered unnecessary. Its purpose was to prevent the TEVENT being set more than once during a restart.
- 19) Several restart phase changes were changed from type B to table restarts to help relieve the RUPTLOCK and DOWNRUPT lost problem in P40.

Known Problems in Revision 217

- 1) V74 does not need to do a TESTXACT since there are no displays and there is no problem of JOBS and TASKS stacking up.
- 2) The comments in the erasable area (including the FLAGWRD section) should be updated. Also, FLAGWRD bits should be given tags for cross referencing purposes.
- 3) The tag JAMIT in SXTMARK should be moved up one location since JAMIT now picks up QPRET without indexing by MARKSTAT.
- 4) Some extended verbs have mark displays and normal displays mixed. If a normal display occurs after a mark display the bit 1 of FLAGWRD4 which is set by a mark display will lock out a normal display.
- 5) Extended verb 78 does both a GOPIN and an ENDEXT. The GOPIN is done too soon. The ENDEXT shouldn't be done at all since no TESTXACT is done at the beginning.

- 6) If a V37 is selected in between the time a DOWNLIST ID and the second word of that list sent out, the list following will belong to the new DOWNLIST contrary to the ID.
- 7) There are cases when a burn program or R32 could be selected before the incorporation of a mark is finished. When R22 resumes (if after a burn this would be after a V37 selection of P20 or a tracking program) the rest of a mark could be incorporated on the new state vector.
- 8) There are some leftover SETMAXDB's at the end of the burn programs. These should be removed now that V37 and GOTOPOOH restore the deadband to the state last set in R03.
- 9) Extended V82 does a V04N06 display and so do P21, P52, P38 and P37. This results in an erasable conflict because both the extended verbs and the normal programs use the same erasables for N06.
- 10) N51 has not been hooked up to PINBALL for R05.
- 11) ~~RTEVGAM~~ ^{5.3.56} ~~PBIAS~~ and ~~YBIAS~~ (10 words) are now in fixed memory but the GSOP specifies them as erasables. **THIS AROSE OUT OF CONFUSION**
- 12) PINBALL does not wake up displays sleeping due to astronaut use on any loads. Either a change should be made to PINBALL or in **GSOP NAME** ASTRONAUT decks will have to be changed. **TO DO KEY RELEASE AFTER LOAD.**
- 13) UNITW should be 4 pad loaded erasables, not 6. The coding would need to be changed to go along with this saving of erasables. **5Y 8ZB**
- 14) The two verb lights appear on the DSKY during UPLINK when all displays should be locked out. **which are obsolete Saturn Parameters**
- 15) The polynomial fit for T(X) in TFF should be changed to include a wider hyperbolic range. **P.5.3-26**

RE V37 only

Has been placed in erasable under tag RTEDZ

GSOP NEEDS UPDATING

Contemplated Changes

- 1) CMOONFLG and LMOONFLG will be moved to a flagword which is located outside of the SWINIT area in FRESH START. They will be initialized as part of the state vector loads and left untouched in a FRESH START.
- 2) The check for bad CDUS in SXTMARK will be bypassed during P22 since the vehicle could be moving at very high rates.

Potential Problems

- 1) If an attempt is made to start up Self Test after performing SUMCHECK, restarts and other strange things have been happening (STL).
- 2) P03 does not always drive the OPTX trunnion to the correct angle for target no. 2 after a good mark is made on target no. 1 (STL).
- 3) The optics stops test in T4RUPT does not initialize Z1 on the first pass (RG).

Statistical Summary for COLOSSUS 217

1) Number of modification changes	27
2) Number of cards	230
3) Total fixed memory change	+8

Note: Disregard major change no. 22 in COLOSSUS Memo #67.