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Digital Dev. Memo #368

To: Eldon Hall
From: Frank Gauntt
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Subj: Sunburst 206 SELF-CHECK - Additions & Corrections
Ref.: E-2065, Block II AGC SELF-CHECK & SHOW-BANKSUM
By Edwin D. Smally, Dec. '66

The SELF-CHECK routine as found in Sunburst 206 is essentially as described in E-2065 with the exceptions noted below.

A. Initialization of SELF-CHECK Reserved Erasable

Fresh Start does not clear SFAIL or ERCOUNT. ERESTORE is cleared by Fresh Start. Restart does not clear SFAIL.

It may be desirable to clear ERCOUNT, by keyboard, after doing Verb Fresh Start.

B. Alarm Display

A SELF-CHECK initiated program alarm turns on the program alarm light and displays the FAILREG set (Noun 50). The FAILREG set, (FAILREG, FAILREG +1, FAILREG +2), displays the alarm codes of the first, next to last, and last program failure. The alarm code for SELF-CHECK is still 01102. If additional information is desired, the operator may display Noun 31, the ALMCADR set, (ALMCADR, ALMCADR +1, ERCOUNT). The contents of ALMCADR, if SELF-CHECK was the last failure, is equal to 1 + address of the failure (the contents of SFAIL), ALMCADR +1 the contents of BBANK for SELF-CHECK (76002), and ERCOUNT the number of SELF-CHECK failures since ERCOUNT was last cleared. If the contents of ALMCADR +1 is not 76002, due to an intervening failure by a program other than SELF-CHECK, the contents of SFAIL (machine address 01357) could then be displayed directly.

C. ERASCHK

This part of SELF-CHECK makes sure that it is possible to read a "1" and a "0" into and out of each bit position of erasable memory.

In the event that a RESTART occurs in the midst of ERASCHK, the RESTART subroutine does a FRESH START if a set of erasable registers were being checked. The reason for the FRESH START is that ERASCHK has just contaminated two erasable registers, and the EBANK information needed to identify and restore them has been destroyed by the lead in to the RESTART program (this problem has been corrected in the 258 mission program). The RESTART program tests register ERESTORE and if ZERO, proceeds with RESTART, otherwise it goes to DOFSTART (program FRESH START).

The non-special erasable registers are checked for correct addressing and content by placing their own address in two successive registers and making sure there is a difference of -1 when the contents of the

lower address register is added to the complement of the higher address register; if it is not, this subroutine performs a TC to the PRERRORS subroutine. The previous contents of the erasable registers had been preserved and are restored to the two registers by PRERRORS which then performs a TC to the Errors subroutine.

If the difference is -1, the contents of the two registers are complemented and the complement of the lower register added to the contents of the higher register; the result is checked for -1. If the result is not -1, TC to PRERRORS as noted above. If the result is -1, restore the previous contents to the two registers, and proceed to the next iteration. The higher address register of the past iteration becomes the lower address register of the next iteration. The erasable memory banks are checked from zero through seven with common erasable (60-1374) being checked after each erasable bank.

D. Future Reassemblies

Future reassemblies of Sunburst will not be protected by cuss if a bank is loaded to the point of not leaving room for the two TC selfs normally preceeding the Bugger word. The 206 version of SELF-CHECK requires the two TC selfs in order for ROPECHK or SHOWSUM to work with the resulting program. (The 258 version of SELF-CHECK does not require the two TC selfs for ROPECHK or SHOWSUM to work.)

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