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LUMINARY Memo #224

To: Distribution
From: C. W. Schulenberg, P. Rye
Date: 22 June 1971
Subject: Revision 1 of Erasable Memory Program for Backup of DSKY Keys

References:

1. LUMINARY Memo #220, "Erasable Memory Program for LUMINARY Rev. 210 to Provide Backup for DSKY Keys", C. W. Schulenberg, 4 June 1971.
2. LUMINARY Memo #223, "Correction to LUMINARY Memo #220", C. W. Schulenberg, 17 June 1971.

The erasable memory program described in this memo is intended to supercede the earlier version that was presented in References 1 and 2. This new version affords the following advantages over its predecessor:

1. Requires less memory space. The new program fits entirely within VAC Area 5.
2. Requires less CPU time. The new program requires a basic 1.46% slice of CPU time as compared to the 2.63% of the earlier version.
3. Requires two fewer V71 uplink sequences.

These improvements were made possible as a result of a change in the restart protection logic that was suggested by P. Rye of the Draper Laboratory. Most of the narrative contained within Reference 1 is still applicable and will not be repeated here.

Loading, Activation, and Etc.

		Memory Location
Load 1	V 71 E	
	20 E	
	660 E	
	E	660
	34746 E	661
	54660 E	662
	34734 E	663
	6 E	664
	2032 E	665
	56703 E	666
	10000 E	667
	672 E	670
	712 E	671
	10703 E	672
	712 E	673
	34346 E	674
	5063 E	675
	V1 N1 E 660 E	
	if R1 = 660,	
	V 33 E	
Load 2	V 71 E	
	20 E	
	676 E	
	2057 E	676
	60101 E	677
	30730 E	700
	74337 E	701
	710 E	702
	400 E	703
	E	704
	E	705
	E	706
	E	707
	50064 E	710
	54154 E	711
	10752 E	712
	731 E	713
	V 33 E	
Load 3	V 71 E	
	22 E	
	714 E	
	5355 E	714
	7011 E	715
	77777 E	716

722 E	717
10100 E	720
731 E	721
34746 E	722
54660 E	723
30727 E	724
54335 E	725
5263 E	726
661 E	727
KK E	730
34770 E	731
26320 E	732
3532 E	733
V 33 E	

KK:

01 = "1"	20 = "0"
02 = "2"	21 = "VERB"
03 = "3"	22 = "ERROR RESET"
04 = "4"	31 = "KEY RELEASE"
05 = "5"	32 = "+"
06 = "6"	33 = "-"
07 = "7"	34 = "ENTER"
10 = "8"	36 = "CLEAR"
11 = "9"	37 = "NOUN"

To activate: V21 N1 E 335 E 661 E

To monitor for operation: V11 N1 E 320 E
(examine REDOCTR)

To alter Keycode: V21 N1 E 730 E KK E

To deactivate: V21 N1 E 335 E 3532 E
then select some program via V37 to disengage hardware restart protection

Program Code

Location	Tag	Code		Octal
		Vac Area 5		
660	VAC5USE	OCT	0	00000
661		CA	ZERO	34746
662		TS	VAC5USE	54660
663		CA	BIT9	34734
664		EXTEND		00006
665		RAND	CHAN32	02032
666		XCH	MULTFLAG	56703
667		CCS	A	10000

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670                     TC          +2              00672
671                     TC          CHKPHASE        00712
672                     CCS         MULTFLAG        10703
673                     TC          CHKPHASE        00712
674                     CA          PRIO30          34346
675                     TC          NOVAC           05063
676                     2CADR       CHARIN          02057
677                                                 60101
700                     CA          KEYBKUP         30730
701                     MASK        LOW5            74337
702                     TC          AFTGOLOC        00710
703     MULTFLAG        OCT         400             00400

704     GOLOC -1
705     GOLOC           Erasable locations used by
706     GOLOC +1        RESTARTS routine
707     GOLOC +2

710     AFTGOLOC        INDEX       LOCCTR          50064
711                     TS          MPAC            54154
712     CHKPHASE        CCS         PHASE1          10752
713                     TC          COMMEXIT        00731
714                     TC          PHASCHNG        05355
715                     OCT         7011            07011
716                     OCT         77777           77777
717                     OCT         722             00722
720                     OCT         10100           10100
721                     TC          COMMEXIT        00731
722                     CA          ZERO            34746
723                     TS          VAC5USE         54660
724                     CA          EPROGAD         30727
725                     TS          DNTMGOTO        54335
726                     TC          TASKOVER        05263
727     EPROGAD         OCT         661             00661
730     KEYBKUP         OCT         KK              000KK
731     COMMEXIT        CA          1SEC            34770
732                     ADS         REDOCTR         26320
733                     TC          DNPHASE2        03532
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