

E7F1 7A 156A
E7F4 BD E74A
E7F7 7E E918

1834
1835
1836

DEC
JSR
JMP

EBUFCT
GTCHRA
EMTEBF

-YES, PRINT ONE &% AND RETURN

E7FA	81 D3	1838	CKFRLN	CMPA	#EBCL	CHAR. L ?
E7FC	26 29	1839		BNE	CKMICR	-NO, CHECK FOR MICR SEQUENCE
E7FE	BD E908	1840		JSR	STEBUF	-YES, STORE IT
E801	BD E74A	1841		JSR	GTCHRA	
E804	BD E948	1842		JSR	VLDHEX	NEXT CHAR. VALID HEX ?
E807	1025 010D	1843		LBCS	EMTEBF	-NO, EMPTY BUFFER & RETURN
E80B	BD E908	1844		JSR	STEBUF	-YES, STORE IT
E80E	BD E74A	1845		JSR	GTCHRA	
E811	BD E948	1846		JSR	VLDHEX	NEXT CHAR. VALID HEX ?
E814	1025 0100	1847		LBCS	EMTEBF	-NO, EMPTY BUFFER & RETURN
E818	BD E960	1848		JSR	GTNUM1	-YES, CONVERT HEX CHARACTERS
E81B	BD E6CC	1849		JSR	FRMLEN	SET FORMS LENGTH
E81E	BD E93E	1850		JSR	EBINIT	
E821	BD E74A	1851	CKDON2	JSR	GTCHRA	
E824	1C FE	1852	CKDONE	ANDCC	#!N(CBIT)	CLEAR C IF NO ACTION TAKEN IN CKESC1
E826	39	1853	CKDON1	RTS		RETURN
E827	81 D4	1855	CKMICR	CMPA	#EBCM	CHAR. = 'M' ?
E829	26 43	1856		BNE	CKSLD	-NO, CHECK FOR SLD SEQ.
		1857				
E82B	BD E908	1858		JSR	STEBUF	-YES, STORE 'M'
E82E	BD E74A	1859		JSR	GTCHRA	GET NEXT CHAR.
E831	81 F1	1860		CMPA	#EBC1	CHAR. = '1' ?
E833	26 19	1861		BNE	10\$	
		1862				
E835	BD F2E6	1863		JSR	EMTYBF	-YES, EMPTY OUTPUT BUFFER
E838	1025 FFEA	1864		LBCS	CKDON1	C SET MEANS PRINTER DEAD
		1865				
E83C	B7 1587	1866		STA	MCRFLG	SET MICR FLAG
E83F	8E C196	1867		LDX	#CONFIG	SEND MICR ON SEQ.
E842	30 0B	1868		LEAX	MCRON,X	
E844	BD F090	1869		JSR	OUTX	
E847	1025 FFDB	1870		LBCS	CKDON1	C SET MEANS PRINTER DEAD
		1871				
E84B	7E E821	1872		JMP	CKDON2	& RETURN
		1873				
E84E	81 F0	1874	10\$	CMPA	#EBCO	-NO, CHAR. = '0' ?
E850	1026 00C4	1875		LBNE	EMTEBF	-NO, EMPTY ESCAPE BUFFER & RETURN
		1876				
E854	BD F2E6	1877		JSR	EMTYBF	-YES, EMPTY THE OUTPUT BUFFER
E857	1025 FFCB	1878		LBCS	CKDON1	C SET MEANS PRINTER DEAD
		1879				
E85B	7F 1587	1880		CLR	MCRFLG	CLEAR MICR FLAG
E85E	8E C196	1881		LDX	#CONFIG	SEND MICR OFF SEQ.
E861	30 88 12	1882		LEAX	MCROFF,X	
E864	BD F090	1883		JSR	OUTX	
E867	1025 FFBB	1884		LBCS	CKDON1	C SET MEANS PRINTER DEAD
		1885				
E86B	7E E821	1886		JMP	CKDON2	& RETURN

E86E	81 D5	1888	CKSLD	CMPA	#EBCN	CHAR. = 'N' ?
E870	1026 006C	1889		LBNE	CKHEX	
		1890				
E874	BD E908	1891		JSR	STEBUF	-YES, STORE 'N'
E877	BD E74A	1892		JSR	GTCHRA	GET NEXT CHAR.
E87A	81 EF	1893		CMPA	#\$EF	VALID DECIMAL CHAR. ?
E87C	1023 0098	1894		LBSL	EMTEBF	
		1895				
E880	81 FA	1896		CMPA	#\$FA	
E882	1024 0092	1897		LBHS	EMTEBF	
		1898				
E886	BD E908	1899		JSR	STEBUF	-YES, STORE IT
E889	BD E74A	1900		JSR	GTCHRA	NEXT CHAR. VALID DECIMAL ?
E88C	81 EF	1901		CMPA	#\$EF	
E88E	1023 0086	1902		LBSL	EMTEBF	
		1903				
E892	81 FA	1904		CMPA	#\$FA	
E894	1024 0080	1905		LBHS	EMTEBF	
		1906				
E898	80 F0	1907		SUBA	#\$F0	-YES, CONVERT 2ND EBCDIC TO DECIMAL
E89A	34 02	1908		PSHS	A	SAVE IT
E89C	BE 156B	1909		LDX	EBUFPT	
E89F	A6 82	1910		LDA	, -X	CONVERT 1ST EBCDIC TO DECIMAL
E8A1	80 F0	1911		SUBA	#\$F0	
E8A3	C6 0A	1912		LDB	#\$0A	MULT. (ACCB X '0A')
E8A5	3D	1913		MUL		
E8A6	EB E0	1914		ADDB	, S+	ADD IN 1ST CHAR.
E8A8	C1 10	1915		CMPB	#\$10	SLD <= 16 ?
E8AA	23 02	1916		BLS	5\$	
		1917				
E8AC	C6 06	1918		LDB	#\$06	-NO, DEFAULT TO 6
E8AE	BD F2E6	1919	5\$	JSR	EMTYBF	EMPTY OUTPUT BUFFER
E8B1	1025 FF71	1920		LBCS	CKDON1	
		1921				
E8B5	8E C1D2	1922		LDX	#\$SLDTAB	POINT TO SLD TABLE
E8B8	A6 80	1923		LDA	, X+	
E8BA	97 3C	1924		STA	COUNTR	
E8BC	A6 80	1925	10\$	LDA	, X+	
E8BE	BD F080	1926		JSR	DEVQUT	OUTPUT FIXED SLD SEQUENCE
E8C1	1025 FF61	1927		LBCS	CKDON1	
		1928				
E8C5	0A 3C	1929		DEC	COUNTR	
E8C7	26 F3	1930		BNE	10\$	
		1931				
E8C9	A6 80	1932	20\$	LDA	, X+	
E8CB	97 3C	1933		STA	COUNTR	
E8CD	3D	1934		MUL		
E8CE	30 85	1935		LEAX	B, X	
E8D0	A6 80	1936	30\$	LDA	, X+	
E8D2	BD F080	1937		JSR	DEVQUT	OUTPUT VARIABLE SEQUENCE
E8D5	1025 FF4D	1938		LBCS	CKDON1	
		1939				

E8D9	0A 3C	1940	DEC	COUNTR	
E8DB	26 F3	1941	BNE	30\$	
		1942			
E8DD	7E E821	1943	JMP	CKDON2	& DONE

E8E0	BD E948	1945	CKHEX	JSR	VLDHEX	VALID HEX CHAR. ?
E8E3	1025 0031	1946		LBCS	EMTEBF	-NO, EMPTY BUFFER & RETURN
		1947				
E8E7	BD E908	1948		JSR	STEBUF	-YES, STORE IT
E8EA	BD E74A	1949		JSR	GTCHRA	
E8ED	BD E948	1950		JSR	VLDHEX	NEXT CHAR. VALID HEX ?
E8F0	1025 0024	1951		LBCS	EMTEBF	-NO, EMPTFY BUFFER & RETURN
		1952				
E8F4	BD E960	1953		JSR	GTNUM1	-YES, CONVERT TO HEX
E8F7	BD F2E6	1954		JSR	EMTYBF	EMPTY OUTPUT BUFFER
E8FA	1025 FF28	1955		LBCS	CKDON1	CARRY SET = TIME OUT EXCEEDED
E8FE	BD F080	1956		JSR	DEVOUT	OUTPUT CHAR.
E901	1025 FF21	1957		LBCS	CKDON1	CARRY SET MEANS PRINTER DEAD
		1958				
E905	7E E821	1959		JMP	CKDON2	RETURN

E908	9F 53	1961	STEBUF	STX	XSAV	STORE CHAR. IN ESCAPE BUFFER
E90A	BE 156B	1962		LDX	EBUFPT	
E90D	A7 80	1963		STA	,X+	
E90F	BF 156B	1964		STX	EBUFPT	
E912	7C 156A	1965		INC	EBUFCT	
E915	9E 53	1966		LDX	XSAV	
E917	39	1967		RTS		

E918	34 06	1969	EMTEBF	PSHS	A,B	SAVE CURRENT CHAR
E91A	F6 156A	1970		LDB	EBUFCT	ESCAPE BUFFER EMPTY?
E91D	27 1D	1971		BEQ	20\$	-YES, LEAVE
E91F	8E 156D	1972		LDX	#EBUFBG	-NO, INIT. POINTER
E922	BF 156B	1973		STX	EBUFPT	
E925	BE 156B	1974	10\$	LDX	EBUFPT	
E928	A6 80	1975		LDA	,X+	GET NEXT CHAR
E92A	BF 156B	1976		STX	EBUFPT	
E92D	BD E973	1977		JSR	CVTEBC	CONVERT CHAR
E930	BD F1FA	1978		JSR	PRINTA	OUTPUT CHAR
E933	25 07	1979		BCS	20\$	CARRY SET MEANS PRINTER DEAD
E935	7A 156A	1980		DEC	EBUFCT	BUFFER EMPTY YET?
E938	26 EB	1981		BNE	10\$	-NO, GET NEXT CHAR
E93A	1C FE	1982		ANDCC	#!N(CBIT)	CLEAR CARRY
E93C	35 86	1983	20\$	PULS	B,A,PC	

E93E	7F 156A	1985	EBINIT	CLR	EBUFCT	INIT. ESCAPE BUFFER
E941	8E 156D	1986		LDX	#EBUFBG	
E944	BF 156B	1987		STX	EBUFPT	
E947	39	1988		RTS		
E948	81 C0	1990	VLDHEX	CMPA	#\$C0	
E94A	23 0C	1991		BLS	10\$	
E94C	81 C6	1992		CMPA	#\$C6	
E94E	23 0D	1993		BLS	30\$	
E950	81 EF	1994		CMPA	#\$EF	
E952	23 04	1995		BLS	10\$	
E954	81 F9	1996		CMPA	#\$F9	
E956	23 05	1997		BLS	30\$	
E958	1A 01	1998	10\$	ORCC	#CBIT	
E95A	7E E95F	1999	20\$	JMP	40\$	
E95D	1C FE	2000	30\$	ANDCC	#!N(CBIT)	CLEAR CARRY
E95F	39	2001	40\$	RTS		
E960	BD E6EA	2003	GTNUM1	JSR	DECOD1	CONVERT SECOND CHAR
E963	34 02	2004		PSHS	A	
E965	BE 156B	2005		LDX	EBUFPT	
E968	A6 82	2006		LDA	,-X	
E96A	BD E6EA	2007		JSR	DECOD1	CONVERT 1ST CHAR
E96D	35 04	2008		PULS	B	
E96F	BD E6DF	2009		JSR	PACKA	PACK INTO ACCUMULATOR A
E972	39	2010		RTS		

```

2012 *****
2013 *
2014 * 'CVTEBC' CONVERTS LUI EBCDIC CODE TO DEVICE BUFFER *
2015 * CODE (UPPER LOWER CASE). *
2016 *
2017 * CONVERSION IS DEPENDENT ON FRONT PANEL *
2018 * DIP SWITCH SETTING FOR MULTIPLE CHAR. *
2019 * SETS AS FOLLOWS. *
2020 *
2021 * S7 ON PCB 1091 *
2022 * SWITCH SETTING *
2023 * LANGUAGE 5 4 3 2 1 *
2024 * ----- *
2025 * ENGLISH, U.S. 0 0 0 0 0 *
2026 * AUSTRIAN/GERMAN 0 0 0 0 1 *
2027 * AUSTRIAN/GERMAN ALTERNATE 0 0 0 1 0 *
2028 * DANISH/NORWEGIAN 0 0 0 1 1 *
2029 * DANISH/NORWEGIAN ALTERNATE 0 0 1 0 0 *
2030 * FINNISH/SWEDISH 0 0 1 0 1 *
2031 * FINNISH/SWEDISH ALTERNATE 0 0 1 1 0 *
2032 * FRENCH 0 0 1 1 1 *
2033 * ITALIAN 0 1 0 0 0 *
2034 * PORTUGUESE ALTERNATE 0 1 0 0 1 *
2035 * SPANISH 0 1 0 1 0 *
2036 * ENGLISH, U.K. 0 1 0 1 1 *
2037 * BELGIAN 0 1 1 0 0 *
2038 * INTERNATIONAL 0 1 1 0 1 *
2039 * JAPANESE/ENGLISH 0 1 1 1 0 *
2040 * CANADIAN/FRENCH 0 1 1 1 1 *
2041 * BRAZILIAN 1 0 0 0 0 *
2042 * CANADIAN BILINGUAL 1 0 0 0 1 *
2043 *

```

```

E973 34 10
E975 81 3F
E977 22 02

E979 86 60
E97B 80 40
E97D 9E 55
E97F BD E986
E982 A6 84
E984 35 90

```

```

2044 *****
2045 CVTEBC PSHS X
2046 CMPA #3F CONTROL CODE?
2047 BHI 1$ -NO, PROCESS CHARACTER
2048
2049 LDA #60 -YES, LOAD UP "-" FOR UNDEFINED
2050 1$ SUBA #40 FOLD TABLE (RUNS FROM 00-->BF)
2051 LDX TRNSTR START OF CORRECT TRANS TABLE
2052 JSR ADDAX GET ADDRESS OF CHARACTER
2053 LDA ,X GET DBC CONVERSION CHARACTER
2054 PULS X,PC

```

```

E986 34 04
E988 1F 89
E98A 3A
E98B 35 04

```

```

2056 ADDAX PSHS B
2057 TFR A,B
2058 ABX
2059 PULS B

```

E98D 39

2060

RTS

ADDITION OF A TO X COMPLETE

```
2062 *****
2063
2064 *          MISC. TIMING ROUTINES
2065
2066 *****
E98E  BD E996 2067 XTIMER JSR DLY2MS
E991  30 1F 2068 LEAX -1,X
E993  26 F9 2069 BNE XTIMER
E995  39 2070 RTS

2072 ***** DLY2MS DOES A 2.5 MILLISECOND DELAY
E996  34 02 2073 DLY2MS PSHS A
E998  4F 2074 CLRA
E999  4C 2075 1$ INCA
E99A  26 FD 2076 BNE 1$
E99C  35 82 2077 PULS A,PC

E99E  34 20 2079 YTIMER PSHS Y
E9A0  BD E996 2080 JSR DLY2MS
E9A3  BD F50E 2081 JSR SWTCH
E9A6  35 20 2082 PULS Y
E9A8  31 3F 2083 LEAY -1,Y
E9AA  26 F2 2084 BNE YTIMER
E9AC  39 2085 RTS

E9AD  BD E996 2087 YTIMR2 JSR DLY2MS
E9B0  BD F4CC 2088 JSR HLDTST CHECK TO SEE IF HLDPRNT HAS BEEN PRESSED
E9B3  31 3F 2089 LEAY -1,Y
E9B5  26 F6 2090 BNE YTIMR2
E9B7  39 2091 RTS
2092
```

```
2094 *****  
2095 * 'DEVTST' LOOKS FOR DEVICE READY  
2096 *  
2097 * EXIT: Z = 1 READY  
2098 * Z = 0 NOT READY  
2099 *  
2100 *****  
E9B8 34 02 2101 DEVTST PSHS A  
E9BA BD E9CA 2102 JSR DVSTSA GET STATUS  
E9BD 84 0F 2103 ANDA #$0F  
E9BF 35 82 2104 PULS A,PC
```

```

2106 *****
2107 *      'DVSTSA'      GETS THE RS-232 STATUS AND FORMATS IT
2108 *                               AS FOLLOWS.
2109 *
2110 *
2111 *                               DEVICE                LOGICAL                BIT
2112 *                               -----
2113 *                               HOLD PRINT            HOLD                3
2114 *
2115 *                               DCD                  BUSY                2
2116 *                               CTS
2117 *                               XMT REG EMPTY*
2118 *                               XFLAG
2119 *
2120 *                               ----                FAULT                1
2121 *
2122 *                               ----                PAPER EMPTY            0
2123 *
2124 *
2125 *
2126 *
2127 *                               EXIT:  ACCA          STATUS
2128 *                               OTHERS   NOT MODIFIED
2129 *****
E9C1  34 02      2130 DVSTSB  PSHS   A
E9C3  BD E9CA   2131          JSR    DVSTSA
E9C6  1F 89     2132          TFR    A,B
E9C8  35 82     2133          PULS   A,PC

E9CA  34 14     2135 DVSTSA  PSHS   X,B
E9CC  BD F4CC   2136          JSR    HLDTST      TURN ON HOLD LED IF HOLD PRINT PRESSED
E9CF  8E 4800   2137          LDX    #RDSTAT
E9D2  BD EA30   2138          JSR    RDSTSA      READ & DEBOUNCE TOP BOARD SOP BIT
E9D5  84 40     2139          ANDA   #SOP        & CLEAR LOGICAL STATUS
2140
E9D7  8E 4C01   2141          LDX    #ACIARS
E9DA  BD EA27   2142          JSR    RDSTSB      READ & DEBOUNCE STATUS
2143 *
2144 * CHECK CONDITIONS
2145 *
2146 *      (NONE)
2147 *
2148 *
2149 * PAPER EMPTY CONDITIONS
2150 *
2151 *      (NONE)
  
```

E9C1 34 02
 E9C3 BD E9CA
 E9C6 1F 89
 E9C8 35 82

E9CA 34 14
 E9CC BD F4CC
 E9CF 8E 4800
 E9D2 BD EA30
 E9D5 84 40
 E9D7 8E 4C01
 E9DA BD EA27

```

2153 *
2154 * BUSY CONDITIONS
2155 *
E9DD C5 20 2156 BITB #DCDBT DCD LINE OK ?
E9DF 26 31 2157 BNE 70$ -NO, INDICATE BUSY
2158
E9E1 C5 40 2159 BITB #DSRBT -YES, CTS LINE OK ?
E9E3 26 2D 2160 BNE 70$ -NO, INDICATE BUSY
2161
E9E5 C5 10 2162 BITB #TDREBT -YES, XMIT DATA REG. EMPTY ?
E9E7 27 29 2163 BEQ 70$ -NO, INDICATE BUSY
2164
E9E9 C5 08 2165 BITB #RDRFBT RECEIVED A CHAR. ?
E9EB 27 20 2166 BEQ 60$ -NO CHECK XFLAG
2167
E9ED C5 07 2168 BITB #(PERRBT!+FERRBT!+OVRNBT) -YES, ANY ERRORS ?
E9EF 27 06 2169 BEQ 20$
2170
E9F1 F6 4C00 2171 LDB ACIADT -YES, READ DATA REG.
E9F4 7E EA0A 2172 JMP 50$
2173
E9F7 F6 4C00 2174 20$ LDB ACIADT -NO, READ CHAR.
E9FA C1 13 2175 CMPB #XOFF CHAR. = XOFF ?
E9FC 26 08 2176 BNE 30$
2177
E9FE C6 01 2178 LDB #01 -YES, SET XFLAG
EA00 F7 1566 2179 STB XFLAG
EA03 7E EA0D 2180 JMP 60$
2181
EA06 C1 11 2182 30$ CMPB #XON -NO, CHAR. = XON ?
EA08 26 03 2183 BNE 60$ -NO, OTHER CHARS. HAVE NO EFFECT
2184
EA0A 7F 1566 2185 50$ CLR XFLAG -YES, CLEAR XFLAG
EA0D F6 1566 2186 60$ LDB XFLAG XFLAG SET ?
EA10 27 02 2187 BEQ 80$ -NO CHECK HOLD
2188
EA12 8A 04 2189 70$ ORA #BSYBIT -YES, INDICATE BUSY

```

```
2191 *
2192 * HOLD CONDITIONS
2193 *
EA14 D6 58 2194 80$ LDB LEDREG HOLD PRINT BEEN PRESSED ?
EA16 C5 04 2195 BITB #!N(HLDLED)
EA18 26 0B 2196 BNE STSRTN -NO, DONE
2197
EA1A 8A 08 2198 ORA #HLDBIT -YES, SET HOLD
EA1C 0D 35 2199 TST OVRFLG HOLD/PE OVERRIDE SET ?
EA1E 27 05 2200 BEQ STSRTN -NO, RETURN STATUS AS IS
2201
EA20 84 F6 2202 ANDA #!N(HLDBIT!+PEBIT) -YES, DON'T RETURN HOLD OR PE
EA22 BD F4F2 2203 JSR HITST FINISH DEBOUNCING SWITHCES
EA25 35 94 2204 STSRTN PULS B,X,PC RETURN
```

```
2206 *****
2207 * 'RDSTSA' READS & DEBOUNCES (3 READS) THE MEMORY
2208 * LOCATION POINTED TO BY THE X REG.
2209 *****
EA27 34 02 2210 RDSTSB PSHS A
EA29 BD EA30 2211 JSR RDSTSA
EA2C 1F 89 2212 TFR A,B
EA2E 35 82 2213 PULS A,PC

EA30 A6 84 2215 RDSTSA LDA 0,X 1ST READ
EA32 A1 84 2216 CMPA 0,X 2ND SAME AS 1ST ?
EA34 26 FA 2217 BNE RDSTSA -NO, START OVER
2218
EA36 A1 84 2219 CMPA 0,X -YES, 3RD SAME AS 1ST ?
EA38 26 F6 2220 BNE RDSTSA -NO, START OVER
2221
EA3A 39 2222 RTS -YES, DONE
```

```
2224 *****
2225 * 'VRSION' PRINTS THE CONFIGUATION
2226 *****
2227
EA3B 8E DF00 2228 VRSION LDX #ASCII0 POINT X TO CONFIGUATION TABLE
EA3E 108E F6D3 2229 LDY #ASCDBC POINT Y TO ASCII TO D.B.C TABLE
EA42 BD F1E6 2230 JSR EOL CR,LF
2231
EA45 A6 80 2232 5$ LDA ,X+
EA47 81 FE 2233 CMPA #$FE DONE ALL LINES ?
EA49 26 07 2234 BNE 10$
2235
EA4B BD F1E6 2236 JSR EOL -YES, CR,LF
EA4E BD F2E6 2237 JSR EMTYBF EMPTY OUTPUT BUFFER
EA51 39 2238 RTS & RETURN
EA52 81 FF 2239 10$ CMPA #$FF -NO, END OF LINE ?
EA54 26 04 2240 BNE 20$
2241
EA56 86 03 2242 LDA #03 -YES, LOAD D.B.C NL
EA58 20 02 2243 BRA 30$
2244
EA5A A6 A6 2245 20$ LDA A,Y CONVERT ASCII TO D.B.C.
EA5C BD E9B8 2246 30$ JSR DEVTST WAIT FOR DEVICE READY
EA5F 26 FB 2247 BNE 30$
2248
EA61 BD F20D 2249 JSR OUTCHR OUTPUT CHAR.
EA64 20 DF 2250 BRA 5$ & LOOP
```

```
2252 *****  
2253 * 'ERRPRT' PRINTS THE CONTENTS OF THE ERRCOD BYTE *  
2254 *****  
2255  
EA66 BD F1E6 2256 ERRPRT JSR EOL  
EA69 8E F6A4 2257 LDX #MESSGO  
EA6C BD EC1D 2258 JSR PMSG  
EA6F 25 10 2259 BCS 1$  
EA71 8E 143D 2260 LDX #ERRCOD PRINT ERROR CODE BYTE  
EA74 BD EC2C 2261 JSR OUT4HS  
EA77 25 08 2262 BCS 1$  
EA79 8E F6A8 2263 LDX #MSG1  
EA7C BD EC1D 2264 JSR PMSG  
EA7F 25 00 2265 BCS 1$  
EA81 7E F1E6 2266 1$ JMP EOL RETURN TO TEST SWITCH ROUTINE
```

```

2268 *****
2269 * 'HEXDMP' - 132 COLUMN PRINTERS -
2270 * PRINTS THE CONTENTS OF THE RAM IN *
2271 * HEX, 16 BYTES WIDE, WITH A SPACE *
2272 * BETWEEN EACH BYTE'S CODE. *
2273 * 12 PITCH, 8 LPI TO FIT ALL PAPER *
2274 *****
2275
EA84 34 40 2276 HEXDMP PSHS U SAVE ALL REGISTERS AT TIME OF HEXDUMP
EA86 CE 1585 2277 LDU #DMPSAV+12 SO THAT THEY ARE JUMPED ALSO
EA89 36 FF 2278 PSHU PC,S,Y,X,DP,B,A,CC.
EA8B 35 40 2279 PULS U
EA8D FF 1585 2280 STU DMPSAV+12
2281
EA90 7C 1578 2282 INC DMPFLG
EA93 BD E0C1 2283 JSR GETSW GET TST SWITCH VALUE
EA96 D7 42 2284 STB HEXSAV INITIALIZE SWITCH SAVE FOR ABORT
EA98 86 FE 2285 LDA #RDYLED TURN READY LED OFF
EA9A BD F3DF 2286 JSR LEDOFF
2287
2288 * ** DUMP BUFFER **
2289
EA9D BE 1564 2290 LDX BUFPT3
EAA0 96 37 2291 LDA DULCAS
EAA2 34 12 2292 PSHS X,A SAVE GLOBALS THAT HEXDUMP MUST USE
EAA4 0F 37 2293 CLR DULCAS ALWAYS DUMP L_TO_R
EAA6 BD EA3B 2294 JSR VRSION
EAA9 BD EA66 2295 JSR ERRPRT
EAAC BD EBOF 2296 JSR HEXHEAD PRINT HEX DUMP HEADING
2297
EAAF 8E 1000 2298 LDX #$1000 ALWAYS DUMP 4K BUFFER
EAB2 9F 4F 2299 STX ENDMP
EAB4 8E 0000 2300 LDX #0000
EAB7 BD EAD3 2301 JSR DUMP
2302
2303 * ** DUMP STACK AND SCRATCHPAD **
2304
EABA 8E 1800 2305 LDX #(STACK+1)
EABD 9F 4F 2306 STX ENDMP
EABF 8E 1400 2307 LDX #SCRATCH
EAC2 BD EAD3 2308 JSR DUMP
EAC5 BD F2E6 2309 JSR EMTYBF GET LAST LINE OUT
2310
EAC8 7F 1578 2311 CLR DMPFLG FLAG "NO LONGER DUMPING"
EACB 35 12 2312 PULS A,X
EACD BF 1564 2313 STX BUFPT3
EAD0 97 37 2314 STA DULCAS RESTORE GLOBALS
EAD2 39 2315 RTS

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EAD3	34 10	2317	DUMP	PSHS	X	X POINTS TO LINE TO DUMP
EAD5	BD EB37	2318		JSR	DMPCHK	CONTINUE DUMPING?
EAD8	27 33	2319		BEQ	DONE	-NO, DONE
		2320				
EADA	BD EB4D	2321		JSR	NULSCN	LINE ALL NULLS?
EADD	26 0D	2322		BNE	DMPLIN	-NO, PRINT IT
		2323				
EADF	BD F1E6	2324		JSR	EOL	YES, LEAVE A BLANK LINE AND CHECK THE NEXT LINE
EAE2	BD EB37	2325	1\$	JSR	DMPCHK	
EAE5	27 26	2326		BEQ	DONE	
		2327				
EAE7	BD EB4D	2328		JSR	NULSCN	SUPPRESS ALL NULL LINES
EAEA	27 F6	2329		BEQ	1\$	
		2330				
EAEC	AF E4	2331	DMPLIN	STX	,S	UPDATE POINTER TO LINE TO BE PRINTED
EAEF	1F 41	2332		TFR	S,X	
EAF0	BD EC2C	2333		JSR	OUT4HS	PRINT ADDRESS OF LINE TO BE PRINTED
EAF3	AE E4	2334		LDX	,S	
EAF5	BD EB80	2335		JSR	HEXLIN	PRINT IN HEX
EAF8	AE E4	2336		LDX	,S	
EAFB	BD EB98	2337		JSR	LU3LIN	PRINT IN DBC
EAFD	AE E4	2338		LDX	,S	
EAFF	BD EB8C	2339		JSR	LU1LIN	PRINT IN EBCDIC
EB02	BD F1E6	2340		JSR	EOL	
EB05	AE E1	2341		LDX	,S++	
EB07	30 88 10	2342		LEAX	16,X	MOVE POINTER TO NEXT LINE
EB0A	7E EAD3	2343		JMP	DUMP	AND START OVER
		2344				
EB0D	35 90	2345	DONE	PULS	X,PC	
EB0F	8E F6AA	2347	HEXHEAD	LDX	#MSG2	
EB12	BD EC0D	2348		JSR	PNLMSG	/ADDR/
EB15	C6 17	2349		LDB	#23	
EB17	BD E56A	2350		JSR	SPACES	
EB1A	8E F6AF	2351		LDX	#MSG3	/HEX/
EB1D	BD EC1D	2352		JSR	PMSG	
EB20	C6 1E	2353		LDB	#30	
EB22	BD E56A	2354		JSR	SPACES	
EB25	8E F6B3	2355		LDX	#MSG4	/LU3/
EB28	BD EC1D	2356		JSR	PMSG	
EB2B	C6 0E	2357		LDB	#14	
EB2D	BD E56A	2358		JSR	SPACES	
EB30	8E F6B7	2359		LDX	#MSG5	
EB33	BD EC24	2360		JSR	PMSGNL	/LU1/
EB36	39	2361		RTS		

EB37	BD E0C1	2363	DMPCHK	JSR	GETSW	
EB3A	D1 42	2364		CMPB	HEXSAV	ROTARY SWITCH CHANGED?
EB3C	26 0C	2365		BNE	1\$	-YES, ABORT HEXDUMP
		2366				
EB3E	9C 4F	2367		CMPX	ENDMP	ALL LINES DUMPED?
EB40	24 08	2368		BHS	1\$	-YES, ABORT HEXDUMP
		2369				
EB42	7D 1578	2370		TST	DMPFLG	CANCEL ACTUATED?
EB45	27 03	2371		BEQ	1\$	-YES, ABORT HEXDUMP
		2372				
EB47	1C 04	2373		ANDCC	#ZBIT	CONTINUE DUMPING
EB49	39	2374		RTS		
		2375				
EB4A	1A 04	2376	1\$	DRCC	#ZBIT	TERMINATE DUMP
EB4C	39	2377		RTS		
EB4D	34 10	2379	NULSCN	PSHS	X	
EB4F	C6 10	2380		LDB	#16	
EB51	6D 80	2381	1\$	TST	,X+	NULL?
EB53	26 06	2382		BNE	2\$	-NO, DONE
		2383				
EB55	5A	2384		DECB		16 CONSEQUITIVE NULLS?
EB56	26 F9	2385		BNE	1\$	-NO, KEEP TESTING
		2386				
EB58	32 62	2387		LEAS	2,S	-YES, X POINTS TO NEXT LINE
EB5A	39	2388		RTS		
		2389				
EB5B	35 90	2390	2\$	PULS	X,PC	X POINTS TO BEGINNING OF LINE
EB5D	BD E44B	2392	LU3CHR	JSR	TSTCHR	GET A CHARACTER
EB60	24 09	2393		BCC	5\$	PRINTABLE CHARACTER
EB62	26 05	2394		BNE	3\$	CONTROL CHARACTER
EB64	86 10	2395		LDA	#SPDBC	NULL BECOMES A SPACE
EB66	7E EB6B	2396		JMP	5\$	
EB69	86 BF	2397	3\$	LDA	#DBCAST	PRINT AS STAR
EB6B	39	2398	5\$	RTS		

EB6C	A6 80	2400	LU1CHR	LDA	0,X+	GET A CHARACTER
EB6E	4D	2401		TSTA		NULL?
EB6F	26 05	2402		BNE	6\$	-NO
EB71	86 40	2403		LDA	#SPEBC	-YES, PRINT A SPACE
EB73	7E EB7C	2404		JMP	7\$	
EB76	81 3F	2405	6\$	CMPA	#\$3F	CONTROL CHAR. ?
EB78	22 02	2406		BHI	7\$	-NO, PRINT IT
EB7A	86 5C	2407		LDA	#EBCAST	-YES, PRINT A STAR
EB7C	BD E973	2408	7\$	JSR	CVTEBC	TRANSLATE IT
EB7F	39	2409		RTS		
		2410				
		2411				
EB80	C6 10	2412	HEXLIN	LDB	#16	
EB82	BD EC31	2413	1\$	JSR	OUT2HS	PRINT BYTE IN HEX
EB85	5A	2414		DECB		
EB86	26 FA	2415		BNE	1\$	16 TIMES
		2416				
EB88	BD F1F5	2417		JSR	PSPAC	ADD A SPACE
EB8B	39	2418		RTS		
EB8C	C6 10	2420	LU1LIN	LDB	#16	
EB8E	BD EB6C	2421	1\$	JSR	LU1CHR	PRINT BYTE AS EBCDIC
EB91	BD F20D	2422		JSR	OUTCHR	
EB94	5A	2423		DECB		16 TIMES
EB95	26 F7	2424		BNE	1\$	
		2425				
EB97	39	2426		RTS		
EB98	BF 1564	2428	LU3LIN	STX	BUFPT3	
EB9B	C6 10	2429		LDB	#16	
EB9D	BD EB5D	2430	1\$	JSR	LU3CHR	PRINT BYTES AS DBC
EBA0	BD F20D	2431		JSR	OUTCHR	
EBA3	5A	2432		DECB		16 TIMES
EBA4	26 F7	2433		BNE	1\$	
		2434				
EBA6	BD F1F5	2435		JSR	PSPAC	ADD A SPACE
EBA9	39	2436		RTS		

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EBAA  BD F1E6      2439  MEMTST JSR    EOL
EBAD  8E F6BB      2440          LDX    #MSG9  PRINT "MEMORY TESTS"
EBB0  BD EC1D      2441          JSR    PMSG
EBB3  25 2B        2442          BCS    4$
                2443
EBB5  BD EBE3      2444          JSR    TSTMEM TEST THE MEMORY, IS IT OK?
EBB8  26 09        2445          BNE    1$
                2446
EBBA  8E F6C3      2447          LDX    #MSG10 -YES, PRINT "OK"
EBBD  BD EC1D      2448          JSR    PMSG
EBC0  7E EBE0      2449          JMP    4$
                2450
EBC3  8E F6CA      2451  1$    LDX    #MSG11 -NO, PRINT "BAD AT"
EBC6  BD EC1D      2452          JSR    PMSG
EBC9  25 15        2453          BCS    4$
                2454
EBCB  1F 41        2455          TFR    S,X
EBCD  BD EC2C      2456          JSR    OUT4HS PRINT BAD ADDRESS
EBD0  25 0E        2457          BCS    4$
                2458
EBD2  BD EC31      2459          JSR    OUT2HS
EBD5  25 09        2460          BCS    4$
                2461
EBD7  BD EC39      2462          JSR    OUT2H
EBDA  8E F6A8      2463          LDX    #MSG1
EBDD  BD EC1D      2464          JSR    PMSG
                2465
EBE0  7E F1E6      2466  4$    JMP    EOL          DO END OF LINE FUNCTION
                2467
                2468  *    TEST AND CLEAR MEMORY
                2469
EBE3  86 55        2470  TSTMEM LDA    #55
EBE5  43           2471  1$    COMA
EBE6  8E 0050      2472          LDX    #0050
EBE9  A7 84        2473  2$    STA    0,X
EBEB  30 01        2474          LEAX  1,X
EBED  8C 0FFF      2475          CMPX  #BUFEND-1
EBF0  26 F7        2476          BNE   2$
EBF2  8E 0050      2477          LDX   #0050
EBF5  E6 84        2478  3$    LDB   0,X
EBF7  34 04        2479          PSHS  B
EBF9  A1 E0        2480          CMPA  ,S+
EBFB  26 0F        2481          BNE   4$
EBFD  30 01        2482          LEAX  1,X
EBFF  8C 0FFF      2483          CMPX  #BUFEND-1
EC02  26 F1        2484          BNE   3$
EC04  5D           2485          TSTB
EC05  2B DE        2486          BMI   1$
EC07  86 FF        2487          LDA   #FF
EC09  5D           2488          TSTB
EC0A  26 D9        2489          BNE   1$
EC0C  39           2490  4$    RTS
  
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2492 *****
2493 * "PMSG" PRINTS A MESSAGE THAT IS POINTED TO BY THE X REG. *
2494 * THE MESSAGE MUST END IN $FF. PMSG HAS TWO SPECIAL ENTRY POINTS *
2495 * THAT ALLOW EITHER : *
2496 * 1. NEW LINE, MESSAGE -PNLMSG- *
2497 * 2. MESSAGE, NEW LINE -PMSGNL- *
2498 * IF THE NORMAL "PMSG" ENTRY IS USED, NO NEW LINE CONTROL *
2499 * CHARACTERS WILL BE INSERTED AT THE BEGINNING OR END OF THE *
2500 * MESSAGE, AND IT WILL APPEAR AT THE CURRENT PRINT POSITION. *
2501 *****
2502
EC0D BD F1E6 2503 PNLMSG JSR EOL NEW LINE, MESSAGE ENTRY POINT
EC10 25 11 2504 BCS PRTN ERROR RETURN
EC12 7E EC1D 2505 JMP PMSG
2506
EC15 BD E973 2507 PMSG1 JSR CVTEBC CONVERT TO PRINTER CODE
EC18 BD F20D 2508 JSR OUTCHR SEND TO PRINTER
EC1B 25 06 2509 BCS PRTN
EC1D A6 80 2510 PMSG LDA 0,X+ GET NEXT CHAR.
EC1F 81 FF 2511 CMPA #$FF END OF MESSAGE?
EC21 26 F2 2512 BNE PMSG1 -NO, PRINT THE CHAR.
EC23 39 2513 PRTN RTS
2514
EC24 BD EC1D 2515 PMSGNL JSR PMSG MESSAGE, NEW LINE ENTRY POINT
EC27 25 FA 2516 BCS PRTN ERROR RETURN
EC29 7E F1E6 2517 JMP EOL
2518
2519 **** PRINTS 2 BYTES IN HEX AND A SPACE
2520
EC2C BD EC39 2521 OUT4HS JSR OUT2H
EC2F 25 F2 2522 BCS PRTN
2523
2524 **** PRINTS 1 BYTE IN HEX AND A SPACE
2525
EC31 BD EC39 2526 OUT2HS JSR OUT2H
EC34 25 ED 2527 BCS PRTN
EC36 7E F1F5 2528 JMP PSPAC
2529
2530 **** PRINTS 1 BYTE IN HEX
2531
EC39 A6 84 2532 OUT2H LDA 0,X
EC3B BD EC45 2533 JSR OUTHL
EC3E 25 E3 2534 BCS PRTN
EC40 A6 80 2535 LDA 0,X+
EC42 7E EC49 2536 JMP OUTHR
2537
EC45 44 2538 OUTHL LSRA
EC46 44 2539 LSRA
EC47 44 2540 LSRA
EC48 44 2541 LSRA
2542
EC49 84 0F 2543 OUTHR ANDA #$0F
  
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EC4B	8B 20	2544	ADDA	#\$20
EC4D	81 29	2545	CMPA	#\$29
EC4F	102F 05BA	2546	LBLF	OUTCHR
		2547		
EC53	8B 76	2548	ADDA	#\$76
EC55	7E F20D	2549	JMP	OUTCHR

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2551 *****
2552 *      SET LINE DENSITY ROUTINE
2553 *
EC58  BD E74A 2554 SLDSUB JSR      GTCHRA  GET COUNT FIELD
EC5B  81 01 2555        CMPA    #$01    COUNT=1?
EC5D  27 27 2556        BEQ     SLD6    - YES, SET LPI=6
2557 *
EC5F  81 02 2558        CMPA    #$02    - NO, CONTINUE
EC61  26 32 2559        BNE     SCSERR - COUNT=2?
2560        BNE     SCSERR - NO, ERROR.
EC63  BD E74A 2561        JSR     GTCHRA  -YES, GET DISTANCE BYTE
EC66  81 00 2562        CMPA    #$0     DISTANCE=0/
EC68  27 1C 2563        BEQ     SLD6    - YES, SET LPI=6
EC6A  81 0C 2564        CMPA    #$0C    DISTANCE=$0C?
EC6C  27 18 2565        BEQ     SLD6    - YES, LPI=6
2566
EC6E  81 09 2567        CMPA    #$09    DISTANCE=$09?
EC70  26 04 2568        BNE     12$    - NO, CHECK FOR 4 LPI
2569
EC72  C6 08 2570        LDB     #$08    -YES, OUTPUT 8 LPI DEVICE SEQ.
EC74  20 12 2571        BRA     SLDCHK
2572
EC76  81 12 2573 12$    CMPA    #$12    DISTANCE=$12?
EC78  26 04 2574        BNE     18$    - NO, CHECK FOR 3 LPI
2575
EC7A  C6 04 2576        LDB     #$04    -YES, OUTPUT 4 LPI DEVICE SEQ.
EC7C  20 0A 2577        BRA     SLDCHK
2578
EC7E  81 18 2579 18$    CMPA    #$18    DISTANCE=$18?
EC80  26 13 2580        BNE     SCSERR
2581
EC82  C6 03 2582        LDB     #$03    -YES, OUTPUT 3 LPI DEVICE SEQ.
EC84  20 02 2583        BRA     SLDCHK
2584
EC86  C6 06 2585  SLD6  LDB     #$06    OUTPUT 6 LPI DEVICE SEQ.
EC88  7D C197 2586  SLDCHK TST     CONFIG+1  SLD SUPPORTED ?
EC8B  26 04 2587        BNE     10$
EC8D  1C FE 2588        ANDCC  #!N(CBIT)  -NO, CLR CARRY AND RETURN
EC8F  20 03 2589        BRA     SLDRTS
2590
EC91  BD ECA2 2591 10$    JSR     SLDOUT  -YES, OUTPUT SEQUENCE
EC94  39 2592  SLDRTS RTS     RETURN
2593
2594 *      SCSERR - SUBROUTINE TO SET INPUT CODE BYTE TO REFLECT PARAM. ERROR
2595
EC95  86 02 2596  SCSERR LDA    #$02    SET INVALID PARAMETER
EC97  B7 0003 2597        STA    SENSE  IN INPUT CODE BYTE
EC9A  86 24 2598        LDA    #SDT!+OC  TURN ON SENSE DATA BYTE
EC9C  BD E39C 2599        JSR    SBITON  IN STATUS BYTE
EC9F  7E F652 2600        JMP    ABOPRT
2601

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2603 *****
2604 *
2605 *      ROUTINE TO OUTPUT TABLE SEQUENCES TO
2606 *      THE DEVICE FOR SETTING OF LINE DENSITY
2607 *
2608 *      CALL:          &%NXX (EITHER MODE)
2609 *                   SLD (SCS MODE)
2610 *                   OPTION SW. = 8 LPI AT POR
2611 *
2612 *      ENTRY:        ACCA    ---
2613 *                   ACCB    LINE DENSITY (DECIMAL)
2614 *
2615 *      EXIT:         C SET   DEVICE DEAD
2616 *                   C CLR   OK
2617 *****
ECA2  34 12      2618  SLDOUT  PSHS   A,X
ECA4  8E C1D2    2619          LDX    #SLDTAB      POINT TO SLD TABLE
ECA7  A6 80      2620          LDA    ,X+
ECA9  97 3C      2621          STA    COUNTR
ECAB  A6 80      2622  10$    LDA    ,X+
ECAD  BD F080    2623          JSR    DEVOUT      OUTPUT FIXED SLD SEQUENCE
ECB0  1025 0018  2624          LBCS   60$
                2625
ECB4  0A 3C      2626          DEC    COUNTR
ECB6  26 F3      2627          BNE    10$
                2628
ECB8  A6 80      2629  20$    LDA    ,X+
ECBA  97 3C      2630          STA    COUNTR
ECBC  3D         2631          MUL
ECBD  30 85      2632          LEAX   B,X
ECBF  A6 80      2633  30$    LDA    ,X+
ECC1  BD F080    2634          JSR    DEVOUT      OUTPUT VARIABLE SEQUENCE
ECC4  25 06      2635          BCS    60$
                2636
ECC6  0A 3C      2637          DEC    COUNTR
ECC8  26 F5      2638          BNE    30$
                2639
ECCA  1C FE      2640  50$    ANDCC  #!(CBIT)  CLEAR CARRY
ECCC  35 92      2641  60$    PULS   A,X,PC    & RETURN

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ECCE	81 15	2643	CNTRL1	CMPA	#NLEBCD	NEW LINE CODE?
ECD0	1027 02D0	2644		LBEQ	NL1SUB	-YES, DO IT
		2645				
ECD4	81 1E	2646		CMPA	#IRS	IRS CODE? (IRS DEFAULTS TO LUI LINE FEED)
ECD6	1027 02CA	2647		LBEQ	NL1SUB	-YES, DO A LINE FEED
		2648				
ECDA	81 25	2649		CMPA	#LFEB CD	LINE FEED CODE?
ECDC	1027 0279	2650		LBEQ	LF1SUB	-YES, DO IT
		2651				
ECE0	81 04	2652		CMPA	#VCS	VERTICAL CHANNEL SELECT?
ECE2	26 06	2653		BNE	TSTCR	-NO, CONTINUE SCS CONTROL TESTS
		2654				
ECE4	BD E74A	2655		JSR	GTCHRA	-YES, SKIP VCS OP CODE
ECE7	7E EF59	2656		JMP	LF1SUB	AND DEFAULT IT TO A LINE FEED
		2657				
ECEA	81 0D	2658	TSTCR	CMPA	#CREBCD	CARRIAGE RETURN?
ECEC	1027 02A7	2659		LBEQ	CR1SUB	-YES, DO IT
		2660				
ECF0	81 0C	2661		CMPA	#FFEBCD	FORM FEED CODE ?
ECF2	1027 0276	2662		LBEQ	FF1SUB	-YES, DO IT
		2663				
ECF6	81 05	2664		CMPA	#HT	HORIZONTAL TAB CODE?
ECF8	1027 022B	2665		LBEQ	HTSUB	-YES, DO IT
		2666				
ECFC	81 0B	2667		CMPA	#VT	VERTICAL TAB CODE?
ECFE	1027 0172	2668		LBEQ	VTSUB	-YES, DO IT
		2669				
ED02	81 16	2670		CMPA	#BCKSPC	BACK SPACE CODE?
ED04	1027 02A5	2671		LBEQ	BKSSUB	-YES, DO IT
		2672				
ED08	81 35	2673		CMPA	#TRN	TRANSPARENT FIELD?
ED0A	26 1D	2674		BNE	TSTBEL	
ED0C	BD E74A	2675		JSR	GTCHRA	-YES, GET COUNT OF FIELD LENGTH
ED0F	97 3B	2676		STA	TRNCNT	STORE IN TRANSPARENT COUNTER
ED11	96 3B	2677		LDA	TRNCNT	COUNT=0?
ED13	27 11	2678		BEQ	20\$	-YES, RETURN
ED15	BD E74A	2679	10\$	JSR	GTCHRA	-NO, GET NEXT CHAR
ED18	BD E973	2680		JSR	CVTEBC	CONVERT AND PRINT
ED1B	BD F1FA	2681		JSR	PRINTA	
ED1E	1025 007C	2682		LBCS	ALDON1	
		2683				
ED22	0A 3B	2684		DEC	TRNCNT	END OF TRN FIELD?
ED24	26 EF	2685		BNE	10\$	-NO, DO NEXT CHAR
ED26	7E ED9F	2686	20\$	JMP	ALDON2	-YES, RETURN
		2687				
ED29	81 2F	2688	TSTBEL	CMPA	#BEL	BELL CODE?
ED2B	26 08	2689		BNE	TSTINP	
ED2D	86 7F	2690		LDA	#ALARM	
ED2F	BD F3E9	2691		JSR	LEDON	FOR BELL, RING ALARM CONTINUOUSLY TILL HOLD PRINT
ED32	7E ED9F	2692		JMP	ALDON2	
		2693				
ED35	81 24	2694	TSTINP	CMPA	#\$24	INHIBIT PRESENTATION?

ED37	26 03	2695		BNE	TSTENP		
ED39	7E ED9F	2696		JMP	ALDON2	-YES, IGNORE IT	
		2697					
ED3C	81 14	2698	TSTENP	CMPA	#\$14	ENABLE PRESENTATION ?	
ED3E	26 03	2699		BNE	TSTGE		
ED40	7E ED9F	2700		JMP	ALDON2	-YES, DO NOTHING	
		2701					
ED43	81 08	2702	TSTGE	CMPA	#\$08	GRAPHIC ESCAPE ?	
ED45	27 5B	2703		BEQ	HYPHEN	-YES, PRINT 'HYPHEN'	
		2704					
ED47	81 28	2705	TSTSA	CMPA	#\$28	SET ATTRIBUTE ?	
ED49	26 09	2706		BNE	TSTMLT		
		2707					
ED4B	BD E74A	2708		JSR	GTCHRA	-YES, GET 'TYPE'	
ED4E	BD E74A	2709		JSR	GTCHRA	" 'VALUE'	
ED51	7E ED9F	2710		JMP	ALDON2	RETURN	
		2711					
ED54	81 2B	2712	TSTMLT	CMPA	#\$2B	1ST BYTE OF AN SCS SEQUENCE?	
ED56	26 4A	2713		BNE	HYPHEN	-NO, PRINT A HYPHEN FOR UNDEFINED CONTROL CODE	
		2714					
ED58	34 02	2715		PSHS	A	SAVE "2B"	
ED5A	BD E74A	2716		JSR	GTCHRA	- YES, GET 2ND BYTE	
ED5D	81 D1	2717		CMPA	#\$D1	CHANGE DIRECTION SEQUENCE ?	
ED5F	26 08	2718		BNE	TSTSHF		
		2719					
ED61	35 02	2720		PULS	A	-YES, HANDLE IT	
ED63	BD EDAA	2721		JSR	DIRCTN		
ED66	7E ED9F	2722		JMP	ALDON2		
ED69	81 C1	2723	TSTSHF	CMPA	#\$C1	SET HORIZONTAL FORMAT ?	
ED6B	26 08	2724		BNE	TSTSVF		
		2725					
ED6D	35 02	2726		PULS	A		
ED6F	BD EEA7	2727		JSR	SHFSUB	-YES, HANDLE IT	
ED72	7E ED9F	2728		JMP	ALDON2		
		2729					
ED75	81 C2	2730	TSTSVF	CMPA	#\$C2	-NO, SET VERTICAL FORMAT?	
ED77	26 08	2731		BNE	TSTSLD		
		2732					
ED79	35 02	2733		PULS	A		
ED7B	BD EDE7	2734		JSR	SVFSUB	-YES, GO HANDLE IT	
ED7E	7E ED9F	2735		JMP	ALDON2		
		2736					
ED81	81 C6	2737	TSTSLD	CMPA	#\$C6	-NO ,SET LINE DENSITY?	
ED83	35 04	2738		PULS	B		
ED85	26 06	2739		BNE	5\$		
ED87	BD EC58	2740		JSR	SLDSUB		
ED8A	7E ED9E	2741		JMP	ALDON1		
		2742					
ED8D	34 02	2743	5\$	PSHS	A		
ED8F	BD EDA2	2744		JSR	HYPHEN	PRINT A "-" FOR THE "2B"	
ED92	24 05	2745		BCC	10\$		
ED94	35 02	2746		PULS	A	PRINTER DEAD	

ED96	7E ED9E	2747		JMP	ALDON1	
ED99	35 02	2748	10\$	PULS	A	RESTORE NEXT CHAR
ED9B	7C 1574	2749		INC	MLTFNC	AND RETURN
		2750				
ED9E	39	2751	ALDON1	RTS		
		2752				
ED9F	1C FE	2753	ALDON2	ANDCC	#!N(CBIT)	
EDA1	39	2754		RTS		
EDA2	86 60	2756	HYPHEN	LDA	#HYPEBC	-NO, UNDEFINED CODE PRINTS AS A HYPHEN
EDA4	BD E973	2757		JSR	CVTEBC	
EDA7	7E F1FA	2758		JMP	PRINTA	

```

2760 *****
2761 *      'DIRCTN'      PROCESSES LUI CONTROL CODES FOR
2762 *                      SETTING FORWARD OR REVERSE PRINT
2763 *                      DIRECTION.
2764 *****
EDAA  34 16      2765 DIRCTN  PSHS   X,B,A
EDAC  7F 1588    2766          CLR   LUIDIR   SET PRINT DIRECTION = FORWARD
EDAF  BD E74A    2767          JSR   GTCHRA  GET COUNT BYTE
EDB2  4D         2768          TST   A        COUNT = 0 ?
EDB3  27 2B      2769          BEQ   50$     -YES, DONE
                2770
EDB5  97 3C      2771          STA   COUNTR
EDB7  81 02      2772          CMPA  #$02     -NO, COUNT <= 2 ?
EDB9  22 05      2773          BHI   10$
EDBB  34 02      2774          PSHS  A
EDBD  7E EDD3    2775          JMP   30$     -NO, EAT UP COUNT # OF BYTES & RETURN
                2776
EDC0  0A 3C      2777 10$    DEC   COUNTR
EDC2  BD E74A    2778          JSR   GTCHRA
EDC5  0A 3C      2779          DEC   COUNTR
EDC7  BD E74A    2780          JSR   GTCHRA
EDCA  34 02      2781          PSHS  A        SAVE DIRECTION BYTE
EDCC  0A 3C      2782          DEC   COUNTR
EDCE  27 07      2783          BEQ   40$
                2784
EDD0  BD E74A    2785 20$    JSR   GTCHRA
EDD3  0A 3C      2786 30$    DEC   COUNTR
EDD5  26 F9      2787          BNE   20$
                2788
EDD7  35 02      2789 40$    PULS  A
EDD9  81 5A      2790          CMPA  #$5A     DIRECTION BYTE = REVERSE ?
EDDB  26 03      2791          BNE   50$     -NO, LEAVE FORWARD
                2792
EDDD  7C 1588    2793          INC   LUIDIR   -YES, CHANGE DIRECTION TO REVERSE
EDE0  B6 1588    2794 50$    LDA   LUIDIR
EDE3  97 37      2795          STA   DULCAS  UPDATE FORWARD/BACKWARD FLAG
                2796
EDE5  35 96      2797 60$    PULS  A,B,X,PC RETURN
  
```

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2799 *****
2800 * THE SUBROUTINES TO SET AND PERFORM VERTICAL/HORIZONTAL FORMATTING *
2801 * IN LUI MODE. TABS ARE NOT CUMULATIVE; IE. NEW TABS ENTERED ERASE *
2802 * OLD TABS PREVIOUSLY ENTERED. *
2803 *****
2804
2805 *****
2806 * SUBROUTINE TO PERFORM THE SVF COMMAND *
2807 *****
2808
EDE7 BD EE54 2809 SVFSUB JSR VTDFLT SET DEFAULT VALUES
EDEA BD E740 2810 JSR GTCHRB B HAS COUNT
EDED 5A 2811 DECB IF COUNT IS 1, DONE
EDEE 1027 005B 2812 LBEQ 2$
2813
EDF2 C1 16 2814 CMPB #22 NUMBER OF PARAMS GT 22?
EDF4 1022 FE9D 2815 LBHI SCSERR -YES, AREA FOR TABS HAS BEEN EXCEEDED
2816
EDF8 BD E74A 2817 JSR GTCHRA GET MPL, (MPL LE 255, IE. 1 BYTE PARAM)
EDFB 4D 2818 TSTA MPL1 = 0?
EDFC 27 0A 2819 BEQ 4$ -YES, USE DEFAULT VALUES
2820
EDFE 81 66 2821 CMPA #102 MPL1 > 102?
EE00 1022 FE91 2822 LBHI SCSERR -YES, ERROR
2823
EE04 97 1A 2824 STA BMARGN DEFAULT BM TO MPL1
EE06 97 18 2825 STA MPL1 STORE IN PAGE LENGTH COUNTER
2826
EE08 5A 2827 4$ DECB END OF SEQUENCE?
EE09 27 42 2828 BEQ 2$ -YES, DONE
2829
EE0B BD E74A 2830 JSR GTCHRA GET TM
EE0E 4D 2831 TSTA TM=0?
EE0F 27 08 2832 BEQ 5$ -YES, USE THE DEFAULT TM
2833
EE11 91 18 2834 CMPA MPL1 TM GT PAGE LENGTH?
EE13 1022 FE7E 2835 LBHI SCSERR -YES, SCS ERROR
2836
EE17 97 19 2837 STA TMARGN STORE IN TOP MARGIN COUNTER
2838
EE19 5A 2839 5$ DECB SEQUENCE FINISHED?
EE1A 27 31 2840 BEQ 2$ -YES, DONE
2841
EE1C BD E74A 2842 JSR GTCHRA GET BOTTOM MARGIN
EE1F 4D 2843 TSTA BM=0?
EE20 27 0E 2844 BEQ 6$ -YES, USE DEFAULT BM
2845
EE22 91 18 2846 CMPA MPL1 BM GT MPL1?
EE24 1022 FE6D 2847 LBHI SCSERR YES, ERROR
2848
EE28 91 19 2849 CMPA TMARGN BM LT TM?
EE2A 1025 FE67 2850 LBLG SCSERR -YES, ERROR, DONE

```

EE2E	97 1A	2851				
EE30	5A	2852		STA	BMARGN	STORE IN BOTTOM MARGIN COUNTER
EE31	27 1A	2853	6\$	DECB		END OF SEQUENCE ?
		2854		BEQ	2\$	-YES, LEAVE
		2855				
EE33	8E 1400	2856		LDX	#VTAB	ONLY 19 TAB STOPS ARE ALLOWED
EE36	BD E74A	2857	1\$	JSR	GTCHRA	GET NEXT TAB STOP
EE39	4D	2858		TSTA		TAB = 0?
EE3A	27 0E	2859		BEQ	3\$	-YES, IGNORE IT
		2860				
EE3C	91 19	2861		CMPA	TMARGN	TAB LT TM?
EE3E	1025 FE53	2862		LBLO	SCSERR	- YES, ERROR
		2863				
EE42	91 1A	2864		CMPA	BMARGN	TAB GT BM?
EE44	1022 FE4D	2865		LBHI	SCSERR	PARAM ERROR, DEFAULT VALUES
		2866				
EE48	A7 80	2867		STA	,X+	STORE IN TAB SAVE AREA
EE4A	5A	2868	3\$	DECB		GOT ALL TAB STOPS?
EE4B	26 E9	2869		BNE	1\$	-NO, GO DO NEXT ONE
		2870				
EE4D	86 01	2871	2\$	LDA	#1	
EE4F	97 1B	2872		STA	SVFFLG	
EE51	1C FE	2873		ANDCC	#!N(CBIT)	CLEAR CARRY
EE53	39	2874		RTS		
EE54	34 10	2876	VTDFLT	PSHS	X	
EE56	C6 14	2877		LDB	#20	
EE58	8E 1400	2878		LDX	#VTAB	
EE5B	6F 80	2879	1\$	CLR	,X+	CLEAR ALL TABS
EE5D	5A	2880		DECB		
EE5E	26 FB	2881		BNE	1\$	
		2882				
EE60	86 01	2883		LDA	#1	
EE62	97 19	2884		STA	TMARGN	DEFAULT TM
EE64	97 16	2885		STA	LUILN	
EE66	97 15	2886		STA	VP1	
EE68	0D 1B	2887		TST	SVFFLG	PREVIOUS SVF?
EE6A	26 02	2888		BNE	2\$	-YES, DEFAULT MPL1=1
		2889				
EE6C	96 17	2890		LDA	MPL3	-NO, DEFAULT MPL1=MPL3
		2891				
EE6E	97 18	2892	2\$	STA	MPL1	
EE70	97 1A	2893		STA	BMARGN	BM=MPL1
		2894				
EE72	35 90	2895		PULS	X,PC	

EE74	0D 36	2897	VTSUB	TST	SOFTFF	SOFTWARE FORM FEED SELECTED?
EE76	27 05	2898		BEQ	3\$	
		2899				
EE78	86 07	2900		LDA	#\$07	-NO, DO AN ASCII VERT. TAB
EE7A	16 0390	2901		LBRA	OUTCHR	
EE7D	34 10	2902	3\$	PSHS	X	-YES, DO A VTAB
EE7F	96 16	2903		LDA	LUILN	
EE81	8E 1400	2904		LDX	#VTAB	
EE84	BD EF3A	2905		JSR	FNDTAB	FIND ACTIVE TAB
EE87	34 02	2906		PSHS	A	
EE89	E0 E0	2907		SUBB	0,S+	ACCB = LINES TO BE MOVED
EE8B	1F 98	2908		TFR	B,A	
EE8D	9B 16	2909		ADDA	LUILN	ACCA=NEW VERT. POS.
EE8F	91 1A	2910		CMPA	BMARGN	WILL WE EXCEED BM?
EE91	23 06	2911		BLS	5\$	-NO, SPIT OUT LF'S
		2912				
EE93	BD EF72	2913		JSR	FF1	-YES, DO A FF INSTEAD
EE96	7E EEA3	2914		JMP	20\$	
		2915				
EE99	0C 35	2916	5\$	INC	OVRFLG	NO HOLD/PE DURING VERT. TAB
EE9B	BD EF59	2917	10\$	JSR	LF1SUB	SPIT OUT LINE FEED
EE9E	25 03	2918		BCS	20\$	
EEA0	5A	2919		DECB		ANY MORE TO DO?
EEA1	26 F8	2920		BNE	10\$	-YES, REPEAT
		2921				
EEA3	0F 35	2922	20\$	CLR	OVRFLG	-NO, CLEAR OVERRIDE FLAG
EEA5	35 90	2923		PULS	X,PC	RETURN

EEA5 35 90

2923

PULS X,PC

RETURN

```

2926 *****
2927 *      SUBROUTINE TO PERFORM THE SHF COMMAND      *
2928 *****
2929
EEA7  BD EFOC      2930 SHFSUB JSR      HTDFLT      SET DEFAULT VALUES
EEAA  BD E740      2931 JSR      GTCHRB      B HAS COUNT
EEAD  5A           2932 DECB           IF COUNT IS 1, DONE
EEAE  1027 0057    2933 LBEQ      2$
2934
EEB2  C1 16        2935 CMPB      #22        NUMBER OF PARAMS GT 22?
EEB4  1022 FDDD    2936 LBHI      SCSERR      -YES, AREA FOR TABS HAS BEEN EXCEEDED
2937
EEB8  BD E74A      2938 JSR      GTCHRA      GET MPP1
EEBB  4D           2939 TSTA      MPP1 = 0?
EEBC  27 0A        2940 BEQ      4$          -YES, USE DEFAULT VALUES
2941
EEBE  81 84        2942 CMPA      #132       MPP1 > 132?
EECO  1022 FDD1    2943 LBHI      SCSERR      -YES, ERROR
2944
EEC4  97 34        2945 STA      RMARGN      DEFAULT RM TO MPP1
EEC6  97 32        2946 STA      MPP1        STORE IN LINE LENGTH COUNTER
2947
EEC8  5A           2948 4$ DECB           END OF SEQUENCE?
EEC9  27 3E        2949 BEQ      2$          -YES, DONE
2950
EECB  BD E74A      2951 JSR      GTCHRA      GET LM
EECE  4D           2952 TSTA      LM=0?
EECF  27 0A        2953 BEQ      5$          -YES, USE THE DEFAULT LM
2954
EED1  91 32        2955 CMPA      MPP1        LM GT LINE LENGTH?
EED3  1022 FDDB    2956 LBHI      SCSERR      -YES, SCS ERROR
2957
EED7  97 33        2958 STA      LMARGN      STORE IN LEFT MARGIN COUNTER
EED9  97 30        2959 STA      HPI         NEW HORIZ. POS = LM
2960
EEDB  5A           2961 5$ DECB           SEQUENCE FINISHED?
EEDC  27 2B        2962 BEQ      2$          -YES, DONE
2963
EEDE  BD E74A      2964 JSR      GTCHRA      GET RIGHT MARGIN
EEE1  4D           2965 TSTA      RM=0?
EEE2  27 08        2966 BEQ      6$          -YES, USE DEFAULT RM
2967
EEE4  81 84        2968 CMPA      #132       RM GT PHYSICAL LINE LENGTH?
EEE6  1022 FDAB    2969 LBHI      SCSERR      YES, ERROR
2970
EEEE  97 34        2971 STA      RMARGN      STORE IN RIGHT MARGIN COUNTER
EEEC  5A           2972 6$ DECB           END OF SEQUENCE ?
EEED  27 1A        2973 BEQ      2$          -YES, LEAVE
2974
EEEF  8E 141C      2975 LDX      #HTAB       ONLY 19 TAB STOPS ARE ALLOWED
EEF2  BD E74A      2976 1$ JSR      GTCHRA      GET NEXT TAB STOP
EEF5  4D           2977 TSTA      HORIZ. TAB = 0?

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EEF6	27 0E	2978		BEQ	3\$	-YES, IGNORE IT
		2979				
EEF8	91 33	2980		CMPA	LMARGN	TAB LT LM?
EEFA	1025 FD97	2981		LBLO	SCSERR	- YES, ERROR
		2982				
EEFE	91 32	2983		CMPA	MPP1	TAB GT LOGICAL LINE LENGTH?
EF00	1022 FD91	2984		LBHI	SCSERR	PARAM ERROR, DEFAULT VALUES
		2985				
EF04	A7 80	2986		STA	,X+	STORE IN TAB SAVE AREA
EF06	5A	2987	3\$	DECB		GOT ALL TAB STOPS?
EF07	26 E9	2988		BNE	1\$	-NO, GO DO NEXT ONE
		2989				
EF09	7E EF97	2990	2\$	JMP	CR1SUB	RESET CARRIAGE TO LEFT MARGIN
EF0C	34 10	2992	HTDFLT	PSHS	X	
EF0E	C6 14	2993		LDB	#20	
EF10	8E 141C	2994		LDX	#HTAB	
EF13	6F 80	2995	1\$	CLR	,X+	CLEAR ALL TABS
EF15	5A	2996		DECB		
EF16	26 FB	2997		BNE	1\$	
		2998				
EF18	86 01	2999		LDA	#1	
EF1A	97 33	3000		STA	LMARGN	DEFAULT LM
EF1C	97 30	3001		STA	HP1	
EF1E	B6 C198	3002		LDA	MAXLEN	DEFAULT MPP1=MPP3
		3003				
EF21	97 32	3004	2\$	STA	MPP1	
EF23	97 34	3005		STA	RMARGN	RM=MPP1
		3006				
EF25	35 90	3007		PULS	X,PC	
EF27	34 10	3009	HTSUB	PSHS	X	
EF29	96 30	3010		LDA	HP1	
EF2B	8E 141C	3011		LDX	#HTAB	
EF2E	BD EF3A	3012		JSR	FNDTAB	FIND ACTIVE TAB
EF31	34 02	3013		PSHS	A	
EF33	E0 E0	3014		SUBB	0,S+	ACCB = SPACES TO BE MOVED
EF35	BD F693	3015		JSR	BLANKB	SPIT OUT SPACES = HTB
EF38	35 90	3016		PULS	X,PC	-YES, RETURN

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3018 *
3019 * ** FNDTAB RETURNS ACTIVE TAB IN ACCB. THE ACTIVE TAB IS THE SMALLEST
3020 * TAB GREATER THAN ACCA (LUI1LN OR LUI1COL). IF THERE ARE NO ACTIVE
3021 * TABS, ACCB=ACCA+1. THE TAB SEARCH IS TERMINATED WHEN A TAB STOP
3022 * OF ZERO IS FOUND (INVALID TAB STOP)
3023
EF3A C6 FF 3024 FNDTAB LDB # $FF
EF3C 34 04 3025 PSHS B
3026
EF3E E6 84 3027 1$ LDB 0,X NEW TAB=0?
EF40 27 0D 3028 BEQ 2$ -YES, DONE SEARCHING
3029
EF42 A1 80 3030 CMPA 0,X+ NEW TAB > CURRENT LINE OR COLUMN (=ACCA)?
EF44 24 F8 3031 BHS 1$ -NO, CHECK NEXT TAB
3032
EF46 E1 E4 3033 CMPB 0,S NEW TAB < ACTIVE TAB?
EF48 24 F4 3034 BHS 1$ -NO, CHECK NEXT TAB
3035
EF4A E7 E4 3036 STB 0,S -YES, NEW ACTIVE TAB FOUND
EF4C 7E EF3E 3037 JMP 1$
3038
EF4F 35 04 3039 2$ PULS B
EF51 C1 FF 3040 CMPB # $FF ANY ACTIVE TABS?
EF53 26 03 3041 BNE 3$ -YES, RETURN
3042
EF55 1F 89 3043 TFR A,B -NO, SET ACTIVE TAB=CURRENT POSITION+1
EF57 5C 3044 INCB
EF58 39 3045 3$ RTS
3046
EF59 0D 36 3047 LF1SUB TST SOFTFF SOFT FORM FEED SELECTED?
EF5B 1026 028C 3048 LBNE PLF -NO, DO ONLY 1 LF
3049
EF5F 96 16 3050 LDA LUI1LN -YES, DO AN LUI LINE FEED
EF61 91 1A 3051 CMPA BMARGN AT BOTTOM MARGIN?
EF63 102C 000B 3052 LBGE FF1 -YES, DO A FORM FEED
3053
EF67 0C 16 3054 INC LUI1LN -NO, JUST A LINE FEED
EF69 7E F1EB 3055 JMP PLF
3056
EF6C BD EF97 3057 FF1SUB JSR CR1SUB DO AN LUI CR W/LEFT MARGIN
EF6F 24 01 3058 BCC FF1
EF71 39 3059 RTS DONE IF PRINTER HUNG
3060
EF72 OD 36 3061 FF1 TST SOFTFF SOFT LUI FF?
  
```

EF74	27 08	3062		BEQ	5\$	-YES
		3063				
EF76	86 02	3064		LDA	#FF	-NO, DO DBC FF
EF78	BD F20D	3065		JSR	OUTCHR	
EF7B	7E EF8E	3066		JMP	20\$	
		3067				
EF7E	D6 18	3068	5\$	LDB	MPL1	LF1SUB ENTRY POINT !!!
EF80	D0 15	3069		SUBB	VP1	
EF82	DB 19	3070		ADDB	TMARGN	ACCB CONTAINS # OF LINES TO BE MOVED
		3071				
EF84	0C 35	3072		INC	OVRFLG	NO HOLD/PE DURING FORM FEED
EF86	BD F1EB	3073	10\$	JSR	PLF	DO EQUIVALENT # OF LINE FEEDS
EF89	25 03	3074		BCS	20\$	
EF8B	5A	3075		DECB		DONE YET?
EF8C	26 F8	3076		BNE	10\$	-NO, CONTINUE
		3077				
EF8E	0F 35	3078	20\$	CLR	OVRFLG	OK TO HOLD
EF90	D6 19	3079		LDB	TMARGN	INITIALIZE LUI POINTERS
EF92	D7 15	3080		STB	VP1	
EF94	D7 16	3081		STB	LUILN	
EF96	39	3082		RTS		
EF97	C6 01	3084	CR1SUB	LDB	#1	
EF99	D7 30	3085		STB	HP1	RESET LUI COLUMN COUNT
EF9B	BD F1F0	3086		JSR	PCR1	DO A CARRIAGE RETURN
EF9E	D6 33	3087		LDB	LMARGN	
EFA0	5A	3088		DECB		
EFA1	7E F693	3089		JMP	BLANKB	SPACE OUT TO LEFT MARGIN AND RETURN
EFA4	BD EF97	3091	NL1SUB	JSR	CR1SUB	
EFA7	25 03	3092		BCS	1\$	
		3093				
EFA9	BD EF59	3094		JSR	LF1SUB	
EFAC	39	3095	1\$	RTS		
EFAD	7C 1574	3097	BKSSUB	INC	MLTFNC	TELL LUIPRT THAT ON RETURN ACCA HAS NEW CHR
EFB0	D6 30	3098		LDB	HP1	
EFB2	5A	3099		DECB		ADJUST HORIZ. POS (COL1=0)
		3100				
EFB3	5D	3101	1\$	TSTB		BACKED UP TO COL. 1 YET?

EFB4	27 01	3102		BEQ	2\$	-YES, DON'T GO FURTHER
		3103				
EFB6	5A	3104		DECB		COUNT THE BACKSPACE
EFB7	BD E74A	3105	2\$	JSR	GTCHRA	
EFBA	81 16	3106		CMPA	#BCKSPC	ANOTHER BACKSPACE?
EFBC	27 F5	3107		BEQ	1\$	-YES, KEEP COUNTING
		3108				
EFBE	34 02	3109		PSHS	A	-NO, SAVE NEW EBCDIC FOR FURTHER PROCESSING
EFC0	BD F1F0	3110		JSR	PCR1	SET DEVICE TO COLUMN 1
EFC3	86 01	3111		LDA	#1	
EFC5	97 30	3112		STA	HP1	UPDATE HP1
EFC7	BD F693	3113		JSR	BLANKB	SPACE BACK OUT
EFCA	35 82	3114		PULS	A,PC	RETURN

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3116 *****
3117 *
3118 *      'OUTASC'      CONVERTS D.B.C. TO PRINTER ASCII
3119 *                      AND OUTPUTS THE CHARACTER(S)
3120 *                      USING THE TWO BYTE TABLE (LU3TAB)
3121 *                      (SEE TABLE AREA FOR SPECS)
3122 *
3123 *                      OUTPUTS CHAR. SEQUENCES IF MICR
3124 *                      CHAR'S ARE FOUND.
3125 *
3126 *****
EFCC  34 36      3127 OUTASC  PSHS   Y,X,B,A
EFCE  81 F0      3128          CMPA   #$F0          CHAR. = MICR ?
EFD0  25 1E      3129          BLO    30$          -NO, HANDLE NORMAL
                                     3130
EFD2  84 0F      3131          ANDA   #$0F          -YES, MASK OFF UPPER 4 BITS
EFD4  8E C196    3132          LDX    #CONFIG    POINT TO MICR CHAR. TABLE
EFD7  30 88 1D   3133          LEAX   MCRTAB,X
EFDA  E6 80      3134          LDB    ,X+          GET SEQ. COUNT
EFD8  D7 3C      3135          STB    COUNTR
EFDE  3D         3136          MUL           DERIVE OFFSET = (CHAR. #) X (COUNT)
EFD9  30 85      3137          LEAX   B,X          POINT TO PROPER SEQ.
EFE1  A6 80      3138 10$    LDA    ,X+          OUTPUT 'COUNT' # OF CHARACTERS
EFE3  4D         3139          TST    A
EFE4  27 03      3140          BEQ    25$          DON'T OUTPUT NULLS
                                     3141
EFE6  BD F080    3142          JSR    DEVOUT    OUTPUT TO DEVICE
EFE9  0A 3C      3143 25$    DEC    COUNTR
EFEB  26 F4      3144          BNE    10$
                                     3145
EFED  7E F06F    3146          JMP    140$          RETURN
                                     3147
EFF0  C6 FF      3148 30$    LDB    #$FF          SET LOOP FLAG
EFF2  34 04      3149          PSHS   B
EFF4  BD F071    3150          JSR    CVTASC    CONVERT D.B.C. TO ASCII (TWO BYTES)
EFF7  34 04      3151          PSHS   B          SAVE 2ND
EFF9  7D C196    3152          TST    CONFIG    DEVICE = MICR PRINTER ?
EFFC  27 25      3153          BEQ    50$
                                     3154
EFFE  4D         3155          TST    A          -YES, BIT 8 SET ?
EFFF  2A 0F      3156          BPL    40$
                                     3157
F001  34 02      3158          PSHS   A
F003  86 1B      3159          LDA    #$1B          -YES, OUTPUT ESCAPE 1ST
F005  BD F080    3160          JSR    DEVOUT
F008  35 02      3161          PULS   A
F00A  1025 005F  3162          LBCS   130$
                                     3163
F00E  84 7F      3164          ANDA   #$7F          MASK OFF BIT 8
F010  BD F080    3165 40$    JSR    DEVOUT    -YES, OUTPUT 1ST CHAR.
F013  1025 0056  3166          LBCS   130$
3167

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F017	A6 E4	3168	LDA	0,S	
F019	BD F080	3169	JSR	DEVOUT	OUTPUT 2ND CHAR.
F01C	1025 004D	3170	LBCS	130\$	
		3171			
F020	7E F06B	3172	JMP	125\$	
F023	C5 C0	3173	50\$ BITB	100\$	ANY PRE CHAR. CONTROL ?
F025	27 13	3174	BEQ	100\$	-NO, OUTPUT 1ST CHAR.
		3175			
F027	34 06	3176	PSHS	B,A	
F029	8E C180	3177	LDX	#PRECHR	-YES, POINT TO PRE CHAR. TABLE
F02C	4F	3178	CLR	A	
		3179+	LSLD		
F02D	58	3180A	LSLB		
F02E	49	3181A	ROLA		
		3182+	LSLD		
F02F	58	3183A	LSLB		
F030	49	3184A	ROLA		
F031	A6 86	3185	LDA	A,X	GET CONTROL CHAR.
F033	BD F080	3186	JSR	DEVOUT	OUTPUT IT
F036	35 05	3187	PULS	B,A	
F038	25 33	3188	BCS	130\$	CARRY SET = BUSY TIME OUT
		3189			
F03A	BD F080	3190	100\$ JSR	DEVOUT	OUTPUT 1ST CHAR.
F03D	C4 C0	3191	ANDB	100\$ #11000000	CONTROL = C1-CHAR-C2 ?
F03F	C1 C0	3192	CMPB	100\$ #11000000	
F041	26 09	3193	BNE	120\$	-NO
		3194			
F043	86 04	3195	LDA	#00000100	-YES, GET C2
F045	A6 86	3196	LDA	A,X	
F047	BD F080	3197	JSR	DEVOUT	OUTPUT IT
F04A	25 21	3198	BCS	130\$	CARRY SET = BUSY TIME OUT

F04C	6C 61	3200	120\$	INC	1,S	2ND TIME THRU LOOP ?
F04E	26 1B	3201		BNE	125\$	-YES, DONE
		3202				
F050	E6 E4	3203		LDB	0,S	-NO, ANY 2ND CHAR. ?
F052	C4 0F	3204		ANDB	00001111	
F054	27 15	3205		BEQ	125\$	-NO, DONE
		3206				
F056	8E C185	3207		LDX	#BACKSP	-YES, OUTPUT BACK SPACE
F059	A6 84	3208		LDA	0,X	
F05B	BD F080	3209		JSR	DEVOUT	
F05E	25 0D	3210		BCS	130\$	CARRY SET = BUSY TIME OUT
F060	30 01	3211		LEAX	1,X	POINT TO 2ND CHAR. TABLE
F062	A6 85	3212		LDA	B,X	
F064	E6 E4	3213		LDB	0,S	
		3214				
F066	58	3215		ASLB		
F067	58	3216		ASLB		
F068	7E F023	3217		JMP	50\$	-YES, REENTER LOOP
		3218				
F06B	1C FE	3219	125\$	ANDCC	#!N(CBIT)	CLEAR CARRY
F06D	32 62	3220	130\$	LEAS	2,S	
F06F	35 B6	3221	140\$	PULS	A,B,X,Y,PC	RETURN

```

3223 *****
3224 *      CONVERT D.B.C. TO ASCII (TWO BYTES)
3225 *
3226 *      ENTRY:          ACC A  -      DBC CHAR.
3227 *
3228 *      EXIT:           ACCA   -      ASCII CHAR.
3229 *                    ACCB   -      CONTROL INFORMATION
F071  34 20      3230 CVTASC PSHS   Y
F073 108E C000  3231      LDY   #LU3TAB
F077 1F 89      3232      TFR   A,B
F079 4F         3233      CLR   A
                3234+     LSLD
F07A 58         3235A     LSLB
F07B 49         3236A     ROLA
F07C EC AB     3237      LDD   D,Y
F07E 35 A0     3238      PULS  Y,PC

                3240 *      OUTPUT A CHAR TO THE ACIA
F080 34 02     3241 DEVOU  PSHS   A
F082 4F         3242      CLR   A
F083 BD F191   3243      JSR   BSYCHK          FAULT OR BUSY TIME OUT /
F086 35 02     3244      PULS  A
F088 25 05     3245      BCS   10$
                3246
F08A B7 4C00   3247      STA   ACIADT          -NO, TRANSMIT CHAR.
F08D 1C FE     3248      ANDCC #!N(CBIT)
F08F 39        3249      RTS

                3251 *      'OUTX' OUTPUTS A SEQUENCE POINTED TO BY X UNTIL 'FF'.
                3252 *      NO PRINTING IS DONE, NO COLUMN MOVEMENT
F090 34 02     3253 OUTX  PSHS   A
F092 A6 80     3254      LDA   ,X+
F094 81 FF     3255      CMPA  #$FF
F096 27 07     3256      BEQ   20$
                3257
F098 BD F080   3258      JSR   DEVOU
F09B 24 F5     3259      BCC   10$
F09D 20 02     3260      BRA   30$          C SET MEANS PRINTER DEAD
                3261
F09F 1C FE     3262      20$  ANDCC #!N(CBIT)
FOA1 35 82     3263      30$  PULS  A,PC
  
```

FOA3	34 06	3265			
FOA5	84 F0	3266	BCDBIN	PSHS	A,B
FOA7	81 90	3267		ANDA	#\$F0
FOA9	22 15	3268		CMPA	#\$90
		3269		BHI	BADBCD
		3270			
FOAB	44	3271		LSRA	
FOAC	44	3272		LSRA	
FOAD	44	3273		LSRA	
FOAE	44	3274		LSRA	
		3275			
FOAF	C6 0A	3276		LDB	#\$0A
FOB1	3D	3277		MUL	
		3278			
FOB2	A6 E4	3279		LDA	,S
FOB4	84 0F	3280		ANDA	#\$0F
FOB6	81 09	3281		CMPA	#\$09
FOB8	22 06	3282		BHI	BADBCD
		3283			
FOBA	34 04	3284		PSHS	B
FOBC	AB E1	3285		ADDA	,S++
FOBE	35 84	3286		PULS	B,PC
		3287			
FOC0	1A 01	3288	BADBCD	DRCC	#CBIT
FOC2	35 86	3289		PULS	A,B,PC

MSD FIRST
MSD OK?
-NO, DONE

MOVE HIGH NIBBLE DJWN TO LOW NIBBLE POSITION

MULT MOST SIGNIFICANT BCD # BY 10

LSD NOW
LSD OK?
-NO, DONE

-YES, ADD B TO A AND DONE
AND CLEAR CARRY, POP A OFF STACK

SET CARRY
DONE

```

3291 *****
3292 *
3293 *      'DEVCHK'      THIS ROUTINE CHECKS THE DEVICE AND
3294 *                      HANDLES THE FOLLOWING TIMEOUTS.
3295 *
3296 *                      HOLD PRINT      -      10 MIN.
3297 *                      PAPER EMPTY    -      1 MIN.
3298 *                      BUSY           -      30 SEC.
3299 *
3300 *                      EXCEEDING ANY TIMEOUT CAUSES IR TO BE
3301 *                      SET IN THE STATUS BYTE. DEVICE READY
3302 *                      CAUSES IR TO BE CLEARED.
3303 *
3304 *
3305 *                      EXIT:  C SET  -      TIME OUT EXCEEDED
3306 *                              OR IR CLEARED IN STATUS
3307 *
3308 *                      C CLEAR -      DEVICE READY
3309 *
3310 *****
FOC4  34 02 3311 DEVCHK PSHS  A
FOC6  BD E9B8 3312 5$ JSR  DEVTST  DEVICE READY ?
FOC9  27 32 3313 BEQ  40$  -YES, CLEAR IR & RETURN
3314
FOCB  BD E9CA 3315 JSR  DVSTSA
FOCE  85 02 3316 BITA #FLTBIT  -NO, FAULTED ?
FOD0  26 23 3317 BNE  30$  -YES, SET IR --- DONE
3318
FOD2  85 08 3319 BITA #HLDBIT  -NO, HOLD ?
FOD4  27 08 3320 BEQ  10$
3321
FOD6  BD F102 3322 JSR  HLDCHK  -YES, ENTER HOLD PRINT
FOD9  25 1A 3323 BCS  30$  DONE IF HOLD TIMEOJT EXCEEDED
FODB  7E F0C6 3324 JMP  5$  OTHERWISE START OVER
3325
FODE  85 01 3326 10$ BITA #PEBIT  -NO, PAPER EMPTY ?
FOE0  27 08 3327 BEQ  20$
3328
FOE2  BD F16D 3329 JSR  PECHK  -YES, TIME PAPER EMPTY
FOE5  25 0E 3330 BCS  30$  DONE IF TIME OUT EXCEEDED
FOE7  7E F0C6 3331 JMP  5$  OTHERWISE START OVER
3332
FOEA  85 04 3333 20$ BITA #BSYBIT  -NO, BUSY ?
FOEC  27 D8 3334 BEQ  5$  -NO, RESTART CHECK SEQUENCE
3335
FOEE  86 09 3336 LDA  #(HLDBIT!+PEBIT) -YES, SET BITS TO EXIT BUSY
FOF0  BD F191 3337 JSR  BSYCHK  -YES, TIME BUSY
FOF3  24 D1 3338 BCC  5$  RESTART SEQUENCE IF NOT BUSY
3339
FOF5  BD F1D8 3340 30$ JSR  SETIR  SET IR IF ANY TIME OUT EXCEEDED
FOF8  1A 01 3341 ORCC #CBIT  SET CARRY TO INDICATE TIME
FOFA  7E F100 3342 JMP  50$  OUT EXCEEDED

```

		3343				
F0FD	BD F1BE	3344	40\$	JSR	CLRIR	CLEAR IR IN STATUS BYTE
F100	35 82	3345	50\$	PULS	A,PC	

```
3347 *****
3348 *
3349 *      'HLDCHK'      THIS ROUTINE IS ENTERED IF THE HOLD LED
3350 *                      IS ON AND THE PRINTER IS AT THE END OF
3351 *                      A PRINT LINE. HOLD PRINT TIME OUT IS
3352 *                      10 MIN.
3353 *
3354 *
3355 *                      EXIT:  C SET  -      TIME OUT EXCEEDED
3356 *
3357 *                      C CLEAR -      RETURN TO ENABLED
3358 *
3359 *****
F102 34 36 3360 HLDCHK PSHS Y,X,B,A
F104 BD F4F2 3361 JSR HITST DEBOUNCE HOLD SWITCH
F107 8E 03E8 3362 LDX #1000 HOLD TIME OUT = (.0025 X 400) X 600 = 10 MIN.
F10A 86 7F 3363 LDA #ALARM TURN OFF THE ALARM ON ENTERING HOLD
F10C BD F3DF 3364 JSR LEDOFF
F10F BD E9CA 3365 10$ JSR DVSTSA GET DEVICE STATUS
F112 85 02 3366 BITA #FLTBIT DEVICE FAULTED ?
F114 26 4E 3367 BNE 70$ -YES, SET CARRY & RETURN
3368
F116 85 08 3369 BITA #HLDBIT -NO, STILL IN HOLD ?
F118 26 16 3370 BNE 30$
3371
F11A BD E9B8 3372 JSR DEVTST
F11D 26 08 3373 BNE 20$ -NO, DON'T ENABLE TIL DEVICE READY
3374
F11F 86 FE 3375 LDA #RDYLED TURN ON THE READY LED ON ENABLE
F121 BD F3E9 3376 JSR LEDON
F124 7E F169 3377 JMP 80$
3378
F127 34 02 3379 20$ PSHS A
F129 86 FB 3380 LDA #HLDLED -YES, LEAVE HOLD LED ON
F12B BD F3E9 3381 JSR LEDON
F12E 35 02 3382 PULS A
F130 85 01 3383 30$ BITA #PEBIT PAPER EMPTY ?
F132 27 0B 3384 BEQ 40$ -NO
3385
F134 96 58 3386 LDA LEDREG -YES, BEEN INDICATED ?
F136 85 02 3387 BITA #!N(CHKLED)
F138 27 05 3388 BEQ 40$ -YES
3389
```

F13A	86 7D	3391		LDA	#(CHKLED!.ALARM)	
F13C	BD F3E9	3392		JSR	LEDON	-NO, TURN ON CHECK & ALARM
		3393				
F13F	108E 0190	3394	40\$	LDY	#400	DELAY 1.0 SEC
F143	BD E99E	3395		JSR	YTIMER	
F146	B6 0011	3396		LDA	MODE2	IN LUI MODE ?
F149	81 06	3397		CMPA	#LUI	
F14B	26 11	3398		BNE	60\$	
		3399				
F14D	86 01	3400		LDA	#!N(RDYLED)	-YES, FLASH THE READY LED
F14F	95 58	3401		BITA	LEDREG	
F151	26 07	3402		BNE	50\$	
		3403				
F153	43	3404		COMA		
F154	BD F3DF	3405		JSR	LEDOFF	
F157	7E F15E	3406		JMP	60\$	
		3407				
F15A	43	3408	50\$	COMA		
F15B	BD F3E9	3409		JSR	LEDON	
F15E	30 1F	3410	60\$	LEAX	-1,X	DEC HOLD COUNT
F160	1026 FFAB	3411		LBNE	10\$	LOOP TIL COUNT = 0
		3412				
F164	1A 01	3413	70\$	ORCC	#CBIT	TIME OUT EXCEEDED SET CARRY
F166	7E F16B	3414		JMP	90\$	& RETURN
		3415				
F169	1C FE	3416	80\$	ANDCC	#!N(CBIT)	CLEAR CARRY
F16B	35 B6	3417	90\$	PULS	A,B,X,Y,PC	RETURN

```
3419 *****
3420 *
3421 *      'PECHK' THIS ROUTINE IS ENTERED IF THE DEVICE IS
3422 *      FOUND TO BE OUT OF PAPER AND NOT IN HOLD
3423 *      PRINT.
3424 *
3425 *      ENTRY:  CHECK & ALARM TURNED ON
3426 *
3427 *      EXIT:   C SET   -   PAPER EMPTY TIME OUT > 1 MIN.
3428 *             C CLEAR -   HOLD PRINT PRESSED < 1 MIN.
3429 *
3430 *****
F16D 34 32 3431 PECHK  PSHS  Y,X,A
F16F 86 7D 3432          LDA  #(CHKLED!.ALARM)      TURN ON CHECK & ALARM
F171 BD F3E9 3433          JSR  LEDDN
F174 8E 1770 3434          LDX  #6000          SET TIMER = (.01 SEC. X 6000) = 1.0 MIN.
F177 108E 0004 3435 10$  LDY  #4
F17B BD E9AD 3436          JSR  YTIMR2      CALL TIMER & CHECK HOLD SWITCH
F17E 96 58 3437          LDA  LEDREG      HOLD PRINT BEEN PRESSED ?
F180 85 04 3438          BITA #!(HLDLED)
F182 27 09 3439          BEQ  20$          -YES, CLEAR CARRY & RETURN
3440
F184 30 1F 3441          LEAX -1,X          -NO, DECREMENT COUNT
F186 26 EF 3442          BNE  10$          LOOP TIL COUNT = 0
3443
F188 1A 01 3444          ORCC #CBIT      TIME OUT EXCEEDED, SET CARRY
F18A 7E F18F 3445          JMP  30$
3446
F18D 1C FE 3447 20$  ANDCC #!(CBIT)      CLEAR CARRY
F18F 35 B2 3448 30$  PULS  A,X,Y,PC      RETURN
```

```

3450 *****
3451 *
3452 *      'BSYCHK'      CHECKS FOR BUSY (AND ONLY BUSY).
3453 *
3454 *
3455 *
3456 *      ENTRY:  ACC A      HOLDS BITS TO EXIT ON IF
3457 *                                FOUND SET IN LOGICAL STATUS
3458 *
3459 *      EXIT:   C SET  -    BUSY TIME OUT EXCEEDED
3460 *                                ( 10 MIN. )
3461 *                                OR FAULTED
3462 *
3463 *                                C CLEAR -    DEVICE NOT BUSY
3464 *                                OR HIGHER PRIORITY
3465 *                                STATUS ADDED
3466 *
3467 *****
  
```

F191	34 36	3468	BSYCHK	PSHS	Y,X,B,A	
F193	C6 14	3469		LDB	#20	
F195	8E 0BB8	3470	5\$	LDX	#3000	BUSY TIMER = (.01 SEC X 3000) X 20 = 10 MIN.
F198	BD E9CA	3471	10\$	JSR	DVSTSA	GET DEVICE STATUS
F19B	85 02	3472		BITA	#FLTBIT	FAULTED ?
F19D	26 16	3473		BNE	15\$	-YES, SET CARRY & RETURN
		3474				
F19F	85 04	3475		BITA	#BSYBIT	-NO, BUSY ?
F1A1	27 17	3476		BEQ	20\$	-NO, CLEAR CARRY & RETURN
		3477				
F1A3	A5 E4	3478		BITA	0,S	-YES, ANY EXIT BITS FOUND ?
F1A5	26 13	3479		BNE	20\$	-YES, RETURN
		3480				
F1A7	108E 0004	3481		LDY	#4	
F1AB	BD E9AD	3482		JSR	YTIMR2	-NO, CALL TIMER & CHECK HOLD SW.
F1AE	30 1F	3483		LEAX	-1,X	DEC COUNT
F1B0	26 E6	3484		BNE	10\$	LOOP TIL COUNT = 0
		3485				
F1B2	5A	3486		DEC	B	
F1B3	26 E0	3487		BNE	5\$	
		3488				
F1B5	1A 01	3489	15\$	ORCC	#CBIT	TIME OUT EXCEEDED SET CARRY & RETURN
F1B7	7E F1BC	3490		JMP	30\$	
		3491				
F1BA	1C FE	3492	20\$	ANDCC	#!N(CBIT)	CLEAR CARRY
F1BC	35 B6	3493	30\$	PULS	A,B,X,Y,PC	

```
3495 *****
3496 *
3497 *      'CLRIR' CLEARS INTERVENTION REQUIRED BIT
3498 *           IN THE STATUS BYTE AND INDICATES
3499 *           IF IR WAS SET.
3500 *
3501 *
3502 *           EXIT:  C SET   -      IR WAS SET
3503 *                  C CLEAR -      IR WAS CLEAR
3504 *
3505 *****
F1BE  34 02      3506 CLRIR  PSHS  A
F1C0  86 FD      3507          LDA  #CHKLED      TURN OFF THE CHECK LED
F1C2  BD F3DF    3508          JSR  LEDOFF
F1C5  86 08      3509          LDA  #IR
F1C7  B5 0000    3510          BITA STATUS      IR SET IN STATUS ?
F1CA  27 08      3511          BEQ  10$
3512
F1CC  BD E3A5    3513          JSR  SBTOFF      -YES, CLEAR IT & SET CARRY
F1CF  1A 01      3514          ORCC #CBIT
F1D1  7E F1D6    3515          JMP  20$
3516
F1D4  1C FE      3517 10$   ANDCC #!(CBIT)      -NO, CLEAR CARRY
F1D6  35 82      3518 20$   PULS  A,PC          RETURN

3520 *****
3521 *      'SETIR' SETS INTERVENTION REQUIRED IN THE
3522 *           STATUS BYTE.
3523 *****
F1D8  86 08      3524 SETIR  LDA  #IR
F1DA  BD E39C    3525          JSR  SBITON
F1DD  BD E3B1    3526          JSR  EBITON      NOTE IN ERROR CODE
F1E0  86 FE      3527          LDA  #RDYLED     TURN OFF THE READY LED
F1E2  BD F3DF    3528          JSR  LEDOFF
F1E5  39         3529          RTS
```

		3531			
		3532	****	PRINT CARRIAGE RETURN, LINE FEED	
		3533			
F1E6	86 03	3534	EOL	LDA #NLDBC SEND NEW LINE	
F1E8	7E F20D	3535		JMP OUTCHR	
		3536			
		3537	****	PRINT LINE FEED	
		3538			
F1EB	86 06	3539	PLF	LDA #LF	
F1ED	7E F20D	3540		JMP OUTCHR AND OUTPUT LF	
		3541			
		3542	****	PRINT CARRIAGE RETURN	
		3543			
F1F0	86 05	3544	PCR1	LDA #CR	
F1F2	7E F20D	3545		JMP OUTCHR	
		3546			
		3547	****	PRINT A SPACE	
		3548			
F1F5	86 10	3549	PSPAC	LDA #SPDBC	
F1F7	7E F20D	3550		JMP OUTCHR	
		3552	*****	*****	
		3553	*	'PRINTA' TESTS FOR ROOM TO PRINT ON CURRENT LINE, AND	*
		3554	*	THEN PRINTS THE CHARACTER IF THERE IS ROOM. IF NO ROOM,	*
		3555	*	IT STARTS A NEW LINE THEN DOES THE PRINT.	*
		3556	*	THIS ROUTINE SHOULD ALWAYS AND ONLY BE USED FOR LUI	*
		3557	*	GRAPHICS !!!	*
		3558	*****	*****	
		3559			
		3560			
F1FA	34 02	3561	PRINTA	PSHS A	
F1FC	96 32	3562		LDA MPP1	
F1FE	91 30	3563		CMPA HP1	MPP BEEN EXCEEDED?
F200	24 07	3564		BHS 3\$	-NO, JUST PRINT IT
		3565			
F202	BD EFA4	3566		JSR NL1SUB	-YES, DO AN LUI NEW LINE FIRST
F205	24 02	3567		BCC 3\$	
		3568			
F207	35 82	3569		PULS A,PC	RETURN WITH CARRY SET IF NL FAILED
		3570			
F209	0C 30	3571	3\$	INC HP1	UPDATE COLUMN POSITION
F20B	35 02	3572		PULS A	FALL INTO OUTCHR

```

3574 *****
3575 * 'OUTCHR' PRINTS THE NEW CHARACTER (NC) SENT IN ACCA. IT USES A *
3576 * CIRCULAR BUFFER TO STORE CHARACTERS TO BE PRINTED IF THE PRINTER *
3577 * IS NOT READY TO ACCEPT ANOTHER CHARACTER. WHEN THE OUTPUT BUFFER *
3578 * IS FULL, IT WAITS UNTIL PRINTER IS READY, THEN SENDS THE WHOLE *
3579 * OUTPUT BUFFER TO THE PRINTER. IF PRINTER NOT READY AND BUFFER NOT*
3580 * FULL, OUTCHR STORES THE NC AND RETURNS TO MAIN PROGRAM FOR A NEW *
3581 * CHARACTER TILL THE BUFFER IS FULL. NOTE THAT OUTCHR IS NOT REEN- *
3582 * TRANT BECAUSE IT USES GLOBAL POINTERS AND SAVES X INSTEAD OF PSHX*
3583 * FOR THE SAKE OF HIGHER SPEED. *
3584 *****
F20D 34 16 3585 OUTCHR PSHS A,B,X
F20F 81 03 3586 CMPA #NLDBC CK FOR PAPER MOTION COMMANDS TO SIGNAL
F211 27 31 3587 BEQ 3$ LINE BUFFER FULL
3588
F213 81 05 3589 CMPA #CR
F215 27 2D 3590 BEQ 3$
3591
F217 81 02 3592 CMPA #FF
F219 27 32 3593 BEQ 6$
3594
F21B 81 06 3595 CMPA #LF
F21D 27 2E 3596 BEQ 6$
3597
F21F D6 5A 3598 LDB INCNT
F221 C1 FD 3599 CMPB #253 OUTPUT BUFFER FULL?
F223 27 1F 3600 BEQ 3$ -NO
3601
F225 BD F263 3602 JSR SPCCHK CHECK FOR SPECIAL CASES
F228 25 37 3603 BCS 5$ C SET MEANS PRINTER DEAD
3604
F22A BD F2B0 3605 JSR STORNC
F22D 7D 1589 3606 TST BIPRNT DOING BIDIRECTIONAL PRINTS?
F230 26 2D 3607 BNE 4$ -YES, BUFFER MUST BE FULL BEFORE PRINTING
3608
F232 BD E9B8 3609 2$ JSR DEVTST PRINTER READY?
F235 26 28 3610 BNE 4$ -NO, RETURN
3611
F237 BD F2A3 3612 JSR FTCHPC ANYTHING TO PRINT?
F23A 26 23 3613 BNE 4$ -NO, RETURN
3614
F23C BD F31F 3615 JSR OUTCH IF NO ERROR, OUTPUT CHARACTER
F23F 25 20 3616 BCS 5$
F241 7E F232 3617 JMP 2$
3618
F244 BD F2DD 3619 3$ JSR STORLC STORE THE LAST (CONTROL) CHAR
F247 BD F2E6 3620 JSR EMTYBF
F24A 7E F261 3621 JMP 5$ RETRUN WITH VALID CC STATUS
3622
F24D D6 5A 3623 6$ LDB INCNT SAVE INCNT TO SPACE OUT LATER
F24F BD F2DD 3624 JSR STORLC STORE THE LAST (CONTROL) CHAR
F252 86 05 3625 LDA #CR
  
```