

E7F1	7A 156A	1834	DEC	EBUFCT	-YES, PRINT ONE &% AND RETURN
E7F4	BD E74A	1835	JSR	GTCHRA	
E7F7	7E E918	1836	JMP	EMTEBF	

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	#EBC0	-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		LBLS	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		LBLS	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	DEVOUT	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	DEVOUT	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, EMPTIEY 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 *
2022 *
2023 *      LANGUAGE
2024 *      -----
2025 *      ENGLISH, U.S.
2026 *      AUSTRIAN/GERMAN
2027 *      AUSTRIAN/GERMAN ALTERNATE
2028 *      DANISH/NORWEGIAN
2029 *      DANISH/NORWEGIAN ALTERNATE
2030 *      FINNISH/SWEDISH
2031 *      FINNISH/SWEDISH ALTERNATE
2032 *      FRENCH
2033 *      ITALIAN
2034 *      PORTUGUESE ALTERNATE
2035 *      SPANISH
2036 *      ENGLISH, U.K.
2037 *      BELGIAN
2038 *      INTERNATIONAL
2039 *      JAPANESE/ENGLISH
2040 *      CANADIAN/FRENCH
2041 *      BRAZILIAN
2042 *      CANADIAN BILINGUAL
2043 *
2044 *****
E973 34 10 2045 CVTEBC PSHS X
E975 81 3F 2046 CMPA #3F CONTROL CODE?
E977 22 02 2047 BHI 1$ -NO, PROCESS CHARACTER
2048
E979 86 60 2049 LDA #60 -YES, LOAD UP "-" FOR UNDEFINED
E97B 80 40 2050 1$ SUBA #40 FOLD TABLE (RUNS FROM 00-->BF)
E97D 9E 55 2051 LDX TRNSTR START OF CORRECT TRANS TABLE
E97F BD E986 2052 JSR ADDAX GET ADDRESS OF CHARACTER
E982 A6 84 2053 LDA ,X GET DBC CONVERSION CHARACTER
E984 35 90 2054 PULS X,PC

E986 34 04 2056 ADDAX PSHS B
E988 1F 89 2057 TFR A,B
E98A 3A 2058 ABX
E98B 35 04 2059 PULS B
```


ISIFP CR6809/11 version 10.36.20
TYPE A RS-232 PROGRAM ISIFP.SRC

5-Mar-84 8:49:56

Page 38-1

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 SWCH
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 HLDST 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)

```

		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	STSRN	-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	STSRN	-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	STSRN	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 CONFIGURATION		
		2226	*****		
		2227			
EA3B	8E DF00	2228	VRSION	LDX	#ASCII0 POINT X TO CONFIGURATION TABLE
EA3E	108E F6D3	2229		LDY	POINT Y TO ASCII TO D.B.C TABLE
EA42	BD F1E6	2230		JSR	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	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

EA66	BD F1E6	2252	*****	
EA69	8E F6A4	2253	*	'ERRPRT' PRINTS THE CONTENTS OF THE ERRCOD BYTE *
EA6C	BD EC1D	2254	*****	
EA6F	25 10	2255		
EA71	8E 143D	2256	ERRPRT	JSR EOL
EA74	BD EC2C	2257		LDX #MESSGO
EA77	25 08	2258		JSR PMSG
EA79	8E F6A8	2259		BCS 1\$
EA7C	BD EC1D	2260		LDX #ERRCOD PRINT ERROR CODE BYTE
EA7F	25 00	2261		JSR OUT4HS
EA81	7E F1E6	2262		BCS 1\$
		2263		LDX #MSG1
		2264		JSR PMSG
		2265		BCS 1\$
		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
2282      INC      DMPFLG
EA90 7C 1578    2283      JSR      GETSW      GET TST SWITCH VALUE
EA93 BD E0C1    2284      STB      HEXSAV     INITIALIZE SWITCH SAVE FOR ABORT
EA96 D7 42      2285      LDA      #RDYLED    TURN READY LED OFF
EA98 86 FE      2286      JSR      LEDOFF
EA9A BD F3DF    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 EB0F    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

```


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	
EAFB	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\$	ORCC	#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		

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		CMPI	#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		CMPI	,S+	
EBFB	26 0F	2481		BNE	4\$	
EBFD	30 01	2482		LEAX	1,X	
EBFF	8C 0FFF	2483		CMPI	#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		

		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	OUTH1	
EC3E	25 E3	2534		BCS	PRTN	
EC40	A6 80	2535		LDA	0,X+	
EC42	7E EC49	2536		JMP	OUTH1	
		2537				
EC45	44	2538	OUTH1	LSRA		
EC46	44	2539		LSRA		
EC47	44	2540		LSRA		
EC48	44	2541		LSRA		
		2542				
EC49	84 0F	2543	OUTH1	ANDA	#\$0F	

EC4B	8B 20	2544	ADDA	#\$20
EC4D	81 29	2545	CMPA	#\$29
EC4F	102F 05BA	2546	LBLE	OUTCHR
		2547		
EC53	8B 76	2548	ADDA	#\$76
EC55	7E F20D	2549	JMP	OUTCHR

```

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 *                - NO, CONTINUE
EC5F  81 02 2558      CMPA   #$02  - COUNT=2?
EC61  26 32 2559      BNE    SCSERR - NO, ERROR.
2560
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!+0C  TURN ON SENSE DATA BYTE
EC9C  BD E39C 2599      JSR    SBITON IN STATUS BYTE
EC9F  7E F652 2600      JMP    ABOPRT
2601

```



```

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   #!N(CBIT)    CLEAR CARRY
ECCC  35 92      2641 60$     PULS    A,X,PC        & RETURN

```


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	#FFEB CD	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

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	LUI DIR
EDAF	BD E74A	2767		JSR	GTCHRA
EDB2	4D	2768		TST	A
EDB3	27 2B	2769		BEQ	50\$
		2770			
EDB5	97 3C	2771		STA	COUNTR
EDB7	81 02	2772		CMPA	#\$02
EDB9	22 05	2773		BHI	10\$
EDBB	34 02	2774		PSHS	A
EDBD	7E EDD3	2775		JMP	30\$
		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
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
EDDB	26 03	2791		BNE	50\$
		2792			
EDDD	7C 1588	2793		INC	LUI DIR
EDE0	B6 1588	2794	50\$	LDA	LUI DIR
EDE3	97 37	2795		STA	DULCAS
		2796			
EDE5	35 96	2797	60\$	PULS	A,B,X,PC
					RETURN

SET PRINT DIRECTION = FORWARD
GET COUNT BYTE
COUNT = 0 ?
-YES, DONE

-NO, COUNT <= 2 ?

-NO, EAT UP COUNT # OF BYTES & RETURN

SAVE DIRECTION BYTE

DIRECTION BYTE = REVERSE ?
-NO, LEAVE FORWARD
-YES, CHANGE DIRECTION TO REVERSE
UPDATE FORWARD/BACKWARD FLAG

		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	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	LU1LN	
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?	
EEC0	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 FDBE	2956	LBHI SCSERR	-YES, SCS ERROR	
		2957			
EED7	97 33	2958	STA LMARGN	STORE IN LEFT MARGIN COUNTER	
EED9	97 30	2959	STA HP1	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			
EEEA	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?	

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

Address	Hex	Label	Op1	Op2	Comment
		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
EF40	27 0D	3028		BEQ	2\$
		3029			NEW TAB=0?
					-YES, DONE SEARCHING
EF42	A1 80	3030		CMPA	0,X+
EF44	24 F8	3031		BHS	1\$
		3032			NEW TAB > CURRENT LINE OR COLUMN (=ACCA)?
					-NO, CHECK NEXT TAB
EF46	E1 E4	3033		CMPB	0,S
EF48	24 F4	3034		BHS	1\$
		3035			NEW TAB < ACTIVE TAB?
					-NO, CHECK NEXT TAB
EF4A	E7 E4	3036		STB	0,S
EF4C	7E EF3E	3037		JMP	1\$
		3038			-YES, NEW ACTIVE TAB FOUND
EF4F	35 04	3039	2\$	PULS	B
EF51	C1 FF	3040		CMPB	#\$FF
EF53	26 03	3041		BNE	3\$
		3042			ANY ACTIVE TABS?
					-YES, RETURN
EF55	1F 89	3043		TFR	A,B
EF57	5C	3044		INCB	
EF58	39	3045	3\$	RTS	
					-NO, SET ACTIVE TAB=CURRENT POSITION+1
EF59	0D 36	3047	LF1SUB	TST	SOFTFF
EF5B	1026 028C	3048		LBNE	PLF
		3049			SOFT FORM FEED SELECTED?
					-NO, DO ONLY 1 LF
EF5F	96 16	3050		LDA	LUI1LN
EF61	91 1A	3051		CMPA	BMARGIN
EF63	102C 000B	3052		LBGE	FF1
		3053			-YES, DO AN LUI1 LINE FEED
					AT BOTTOM MARGIN?
EF67	0C 16	3054		INC	LUI1LN
EF69	7E F1EB	3055		JMP	PLF
					-YES, DO A FORM FEED
					-NO, JUST A LINE FEED
EF6C	BD EF97	3057	FF1SUB	JSR	CR1SUB
EF6F	24 01	3058		BCC	FF1
EF71	39	3059		RTS	
		3060			DO AN LUI1 CR W/LEFT MARGIN
EF72	0D 36	3061	FF1	TST	SOFTFF
					DONE IF PRINTER HUNG
					SOFT LUI1 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	LUI1LN	
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	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

```

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    #$0F      -YES, MASK OFF UPPER 4 BITS
EFD4  8E C196    3132      LDX     #CONFIG  POINT TO MICR CHAR. TABLE
EFD7  30 88 1D   3133      LEAX    MCRTAB,X
EFDA  E6 80      3134      LDB     ,X+      GET SEQ. COUNT
EFDC  D7 3C      3135      STB     COUNTR
EFDE  3D         3136      MUL
EFD F  30 85     3137      LEAX    B,X      DERIVE OFFSET = (CHAR. #) X (COUNT)
EFE1  A6 80      3138 10$     LDA     ,X+    POINT TO PROPER SEQ.
EFE3  4D         3139      TST     A      OUTPUT 'COUNT' # OF CHARACTERS
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
EF FE  4D         3155      TST     A      -YES, BIT 8 SET ?
EF FF  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

```

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	BITB	50\$ #11000000	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	JSR	DEVOUT	OUTPUT 1ST CHAR.
F03D	C4 C0	3191	ANDB	100\$ #11000000	CONTROL = C1-CHAR-C2 ?
F03F	C1 C0	3192	CMPB	#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	DEVOUT	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	10\$	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	10\$	LDA	,X+
F094	81 FF	3255		CMPA	#\$FF
F096	27 07	3256		BEQ	20\$
		3257			
F098	BD F080	3258		JSR	DEVOUT
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)
F0A1	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	MSD FIRST
FOA9	22 15	3268		CMPA	#\$90	MSD OK?
		3269		BHI	BADBCD	-NO, DONE
		3270				
FOAB	44	3271		LSRA		
FOAC	44	3272		LSRA		
FOAD	44	3273		LSRA		
FOAE	44	3274		LSRA		MOVE HIGH NIBBLE DOWN TO LOW NIBBLE POSITION
		3275				
FOAF	C6 0A	3276		LDB	#\$0A	
FOB1	3D	3277		MUL		MULT MOST SIGNIFICANT BCD # BY 10
		3278				
FOB2	A6 E4	3279		LDA	,S	
FOB4	84 0F	3280		ANDA	#\$0F	LSD NOW
FOB6	81 09	3281		CMPA	#\$09	LSD OK?
FOB8	22 06	3282		BHI	BADBCD	-NO, DONE
		3283				
FOBA	34 04	3284		PSHS	B	-YES, ADD B TO A AND DONE
FOBC	AB E1	3285		ADDA	,S++	AND CLEAR CARRY, POP A OFF STACK
FOBE	35 84	3286		PULS	B,PC	
		3287				
FOC0	1A 01	3288	BADBCD	ORCC	#CBIT	SET CARRY
FOC2	35 86	3289		PULS	A,B,PC	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 TIMEOUT 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	
F100	35 82	3345	50\$	PULS	A,PC	CLEAR IR IN STATUS BYTE

```

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
3369 BITA #HLDBIT -NO, STILL IN HOLD ?
F116 85 08 3370 BNE 30$
F118 26 16 3371
3372 JSR DEVTST
F11A BD E9B8 3373 BNE 20$ -NO,DON'T ENABLE TIL DEVICE READY
F11D 26 08 3374
3375 LDA #RDYLED TURN ON THE READY LED ON ENABLE
F11F 86 FE 3376 JSR LEDON
F121 BD F3E9 3377 JMP 80$
F124 7E F169 3378
3379 20$ PSHS A
F127 34 02 3380 LDA #HLDLED -YES, LEAVE HOLD LED ON
F129 86 FB 3381 JSR LEDON
F12B BD F3E9 3382 PULS A
F12E 35 02 3383 30$ BITA #PEBIT PAPER EMPTY ?
F130 85 01 3384 BEQ 40$ -NO
F132 27 0B 3385
3386 LDA LEDREG -YES, BEEN INDICATED ?
F134 96 58 3387 BITA #!N(CHKLED)
F136 85 02 3388 BEQ 40$ -YES
F138 27 05 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 LU1 MODE ?
F149	81 06	3397		CMPA	#LU1	
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  LEDON
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  #!N(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 #!N(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
3513          JSR  SBT0FF      -YES, CLEAR IT & SET CARRY
F1CC  BD E3A5 3514          ORCC  #CBIT
F1CF  1A 01  3515          JMP  20$
F1D1  7E F1D6 3516
3517 10$  ANDCC  #!(CBIT)      -NO, CLEAR CARRY
F1D4  1C FE  3518 20$  PULS  A,PC      RETURN
F1D6  35 82

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 LU1	*
		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 LU1 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
F211	27 31	3587		BEQ	3\$
		3588			CK FOR PAPER MOTION COMMANDS TO SIGNAL
		3589		CMPA	#CR
F213	81 05	3590		BEQ	3\$
F215	27 2D	3591			
		3592		CMPA	#FF
F217	81 02	3593		BEQ	6\$
F219	27 32	3594			
		3595		CMPA	#LF
F21B	81 06	3596		BEQ	6\$
F21D	27 2E	3597			
		3598		LDB	INCNT
F21F	D6 5A	3599		CMPB	#253
F221	C1 FD	3600		BEQ	3\$
F223	27 1F	3601			OUTPUT BUFFER FULL?
		3602		JSR	SPCCHK
F225	BD F263	3603		BCS	5\$
F228	25 37	3604			CHECK FOR SPECIAL CASES
		3605		JSR	STORNC
F22A	BD F2B0	3606		TST	BIPRNT
F22D	7D 1589	3607		BNE	4\$
F230	26 2D	3608			DOING BIDIRECTIONAL PRINTS?
		3609	2\$	JSR	DEVTST
F232	BD E9B8	3610		BNE	4\$
F235	26 28	3611			PRINTER READY?
		3612		JSR	FTCHPC
F237	BD F2A3	3613		BNE	4\$
F23A	26 23	3614			-NO, RETURN
		3615		JSR	OUTCH
F23C	BD F31F	3616		BCS	5\$
F23F	25 20	3617		JMP	2\$
F241	7E F232	3618			IF NO ERROR, OUTPUT CHARACTER
		3619	3\$	JSR	STORLC
F244	BD F2DD	3620		JSR	EMPTYBF
F247	BD F2E6	3621		JMP	5\$
F24A	7E F261	3622			RETRUN WITH VALID CC STATUS
		3623	6\$	LDB	INCNT
F24D	D6 5A	3624		JSR	STORLC
F24F	BD F2DD	3625		LDA	#CR
F252	86 05				SAVE INCNT TO SPACE OUT LATER
					STORE THE LAST (CONTROL) CHAR