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PROGRAM DESCRIPTION

Page 1 of 3

Catalog No. 310003A

IDENTIFICATION: 810A I/O Handler for H. S. Paper Tape, ASR-33,
Card Reader, and Line Printer

AUTHOR: J. P. Dixon, SEL

ACCEPTED: 13 June 1967

PURPOSE: To allow communication with card reader, ASR-33
H. S. Paper Tape and Line Printer

COMPUTER
CONFIGURATION: 810A with ASR-33

SUBROUTINES
REQUIRED: None

STORAGE: 550 octal locations

TIMING: N/A

USE: To read/write to/from the indicated peripherals, the
calling sequence is:

LAA	LOGICAL DEVICE NO.
CALL	H\$WR
DAC	BUF
DATA	N

where BUF is the address of the first location of the
buffer.

N is the number of characters in the buffer

Logical Device No. Is:

1. ASR-33 KEYBOARD
2. HIGH SPEED PAPER TAPE READER/PUNCH
3. CARD READER
4. LINE PRINTER
5. PAPER TAPE READER/PUNCH ON TELETYPE

If the logical device number is positive, data is read; while it is negative data is written.

A line counter is kept for the output to the ASR-33 Keyboard. The count is initially set to -60 and increment from this point. If the user wishes to change this count he may do so by a: STA \$LINE.

If the user wishes to use magnetic tape, disc or drum; see Catalog Nos. 330006A, 360003A or 360004A.

METHOD:

ASR-33 Keyboard - Logical Device 1

Input:

A full ASCII character is stored in users buffer, 1 character per word in bits 8-15. This character is also printed on the ASR-33. A delete ('377), line feed ('212) is ignored. An ↑ ('336) will cause characters in that line to be ignored plus all characters following until a carriage return is typed. This allows user to have another attempt at typing a line which has an error in it. Input is always terminated on a carriage return even if the word count N has not been reached.

Output:

The first character of the buffer is checked to see if it is one of the following characters:

- 1 Output 4 carriage returns and line feeds to simulate a skip to top of page.
- 0 Output 2 carriage returns and line feeds, i. e. space between lines.

H. S. Paper Tape Reader/Punch - Logical Device 2

Input:

The same routine as is used for Keyboard input is used here (TINP). It should be noted that a zero character is also ignored, i. e. paper tape is read until a non-zero character is obtained.

Output (Routine POUT):

No special checks are made, i. e. this can be used for binary output. The 8 bits being obtained from bits 7-15 of the users buffer.

Card Reader - Logical Device 3

Routine CINI handles card input:

Cards are read in binary mode whether the card reader has a BCD mode or not. Thus, a 12 punch causes bit 4 to be set in the computer and while 9 punch causes bit 15 to be set. The resulting card binary code is first translated to BCD and then to full ASCII. The ASCII character is stored in the users buffer. The approximately 2 milliseconds delay between columns is used to do the translation for the previous column.

Line Printer - Logical Device No. 4

Use subroutine PROT.

The first character is checked to see if it is one of the following characters:

- + Print line and exit
- 1 Top of form and fill buffer
Print rest of characters in buffer.
- 0 Space 2 lines before printing next line.

If none of the above control characters are present a feed line is issued before printing a line. Number of lines per page is determined by control tape on printer.

Paper Tape Reader/Punch on Teletype Logical Device Number 5

Input:

This uses the same routine as Keyboard and High Speed paper tape input (TINP).

Output:

This uses the same routine as the High Speed Punch (POUT) and can also be used for binary output.

```

0001 00000 00000000 *
0002 00000 00000000 * JUNE 13 1967
0003 00000 00000000 *
0004 00000 00000000 * PRØGRAMMER JP DIXØN
0005 00000 00000000 *
0006 00000 00000000 * CATALØG NØ 310003A
0007 00000 00000000 *
0008 00000 00000000 * H$WR FØR CARDS PAPER TAPE LINE PRINTER TELETYPE
0009 00000 00000000 *
0010 00000 00000000 * CALLING SEQUENCE
0011 00000 00000000 * CALL H$WR
0012 00000 00000000 * DAC BA
0013 00000 00000000 * DATA WC
0014 00000 00000000 *
0015 00000 00000000 * WHERE BA IS BASE ADDRESS
0016 00000 00000000 * WC IS WØRD CØUNT
0017 00000 00000000 *
0018 00000 00000000 * A REGISTER CØNTAINS LØGICAL DEVICE NUMBER
0019 00000 00000000 * IF PØSITIVE INPUT
0020 00000 00000000 * NEGATIVE ØUTPUT
0021 00000 00000000 *
0022 00000 00000000 * LØGICAL DEVICE NUMBERS
0023 00000 00000000 * LØGICAL DEV. NØ INPUT ØUTPUT
0024 00000 00000000 * 1 KEYBØARD KEYBØARD
0025 00000 00000000 * 2 PAPER TAPE H.S. PAPER TAPE H.S.
0026 00000 00000000 * 3 CARD READER CARD READER
0027 00000 00000000 * 4 SPARE LINE PRINTER
0028 00000 00000000 * 5 PAPER TAPE (TELETYPE) PAPER TAPE ØUT (TELETYPE)
0029 00000 00000000 *
0030 00000 00000000 * 6 MAGNETIC TAPE MAGNETIC TAPE
0031 00000 00000000 *
0032 00000 00000000 *
0033 00000 00000000 * *****00129400
0034 00000 00000000 * *****00129500
0035 00000 00000000 REL
0036 00000 50000000 NAME H$WR,H$WR
0036 00000 00000000
0036 00000 02022027
0036 00000 04420040
    
```

0037	00000	50000475		NAME LINE,LINE		
0037	00000	00000000				
0037	00000	03004416				
0037	00000	01220040				
0038	00000	00000006	MTU	EQU	6	
0039	00000	25400000	H\$WR	DAC	0	CKA
0040	00001	03100550		STA	LDN	SAVE LOGICAL DEVICE NUMBER
0041	00002	00000005		TAB		USE AS INDEX
0042	00003	01100513	LALO	LAA	L025	
0043	00004	03100476		STA	F1	CKA
0044	00005	03100471		STA	FC	FIRST CHARACTER INDICATOR
0045	00006	01300000		LAA*	H\$WR	CKA
0046	00007	03100472		STA	BA	ADDRESS OF BLOCK
0047	00010	14100000		IMS	H\$WR	CKA
0048	00011	01300000		LAA*	H\$WR	NUMBER OF OUTPUT WORDS
0049	00012	00000002		NEG		CKA
0050	00013	03100473		STA	NC	NEGATIVE CHARACTER COUNT
0051	00014	14100000		IMS	H\$WR	CKA
0052	00015	00000023		SAN		CKA
0053	00016	11300000		BRU*	H\$WR	CKA
0054	00017	01100543		LAA	CEUO	CEU 0,W
0055	00020	05500142		AMA	UNIT,1	
0056	00021	03100024		STA	CEUL	
0057	00022	01500125		LAA	DATZ,1	
0058	00023	03100025		STA	DATL	
0059	00024	00000033	CEUL	NØP		
0060	00025	00000033	DATL	NØP		
0061	00026	01100513		LAA	L025	=-2
0062	00027	03100477		STA	WD	NEG CHARS/WORD
0063	00030	00000004		TBA		
0064	00031	00000024		SAP		TEST FOR INPUT/OUTPUT
0065	00032	11100053		BRU	SØUT	OUTPUT
0066	00033	01100541		LAA	AIPO	AIP 0,W
0067	00034	05500142		AMA	UNIT,1	
0068	00035	03100106		STA	AIPC	
0069	00036	00000004		TBA		
0070	00037	02100540		LBA	AØP1	AØP 1,W
0071	00040	00000110		RSA	1	
0072	00041	00000022		SAZ		TEST FOR KEYBOARD INPUT
0073	00042	11100050		BRU	NTU1	

0074	00043	00170501		MØP	1,W	
0075	00044	00106400	CRTN	DATA	'106400	
0076	00045	00170501		MØP	1,W	
0077	00046	00105000	LNFD	DATA	'105000	
0078	00047	11100051		BRU	**2	
0079	00050	02100125	NTU1	LBA	DATZ	
0080	00051	04100111		STB	AØPC	
0081	00052	11100066		BRU	INPT	INPUT
0082	00053	01100542	SØUT	LAA	AØPO	
0083	00054	05500142		AMA	UNIT,1	
0084	00055	03100115		STA	AØPØ	
0085	00056	01300472	W\$W1	LAA*	BA	GET ØNE CHAR FØR ØUTPUT
0086	00057	03100156		STA	CØNV	
0087	00060	02100550		LBA	LDN	LØGICAL DEVICE NØ.
0088	00061	11500156		BRU	CØNV,1	
0089	00062	01100156	SPBØ	LAA	CØNV	GET CHARACTER
0090	00063	12100114		SPB	ØUTP	
0091	00064	12100074		SPB	TEST	TEST FØR WØRD CØUNT ZERØ
0092	00065	11100056		BRU	W\$W1	NØT
0093	00066	12100105	INPT	SPB	INPC	INPUT ØNE CHARACTER
0094	00067	02100550		LBA	LDN	LØGICAL DEVICE NØ.
0095	00070	11500156		BRU	CØNV,1	CØNVERT
0096	00071	03300472	STAB	STA*	BA	STØRE CHARACTER
0097	00072	12100074		SPB	TEST	TEST FØR WØRD CØUNT ZERØ
0098	00073	11100066		BRU	INPT	
0099	00074	00000000	TEST	ZZZ	**	
0100	00075	14100473		IMS	NC	NEG. CHARACTER CØUNT
0101	00076	11100103		BRU	NØTD	NØT DØNE
0102	00077	01100476		LAA	F1	
0103	00100	00000023		SAN		TEST FØR MØRE I/Ø
0104	00101	11300476		BRU*	F1	YES
0105	00102	11300000		BRU*	H\$WR	RETURN
0106	00103	14100472	NØTD	IMS	BA	INCREMENT BASE ADDRESS
0107	00104	11300074		BRU*	TEST	RETURN
0108	00105	00000000	INPC	ZZZ	**	INPUT A CHARACTER
0109	00106	00000033	AIPC	NØP		AIP UNIT,W
0110	00107	03100156		STA	CØNV	SAVE CHARACTER
0111	00110	00001016		LSL	8	PREPARE FØE ØUTPUT
0112	00111	00000033	AØPC	NØP		ØUTPUT IF KEYBØARD INPUT
0113	00112	01100156		LAA	CØNV	LAST CHARACTER INPUT

0114	00113	11300105	BRU*	INPC	RETURN	
0115	00114	00000000	ØUTP	ZZZ **	ØUTPUT A CHARACTER	
0116	00115	00000033	AØPØ	NØP	AØP UNIT,W	
0117	00116	11300114	BRU*	ØUTP	RETURN	
0118	00117	00000000	HLT		NØ MAG TAPE I/Ø	
0119	00120	00002000	DATA	'2000		
0120	00121	00000200	DATA	'200		
0121	00122	00000000	DATA	0		
0122	00123	00004000	DATA	'4000		
0123	00124	00002000	DATA	'2000		
0124	00125	00000033	DATZ	NØP		
0125	00126	00002000	DATA	'2000		
0126	00127	00001000	DATA	'1000		
0127	00130	00004000	DATA	'4000		
0128	00131	00000000	DATA	0		
0129	00132	00004000	DATA	'4000		
0130	00133	00000000	HLT		NØ MAG TAPE I/Ø	
0131	00134	00047733	DATA	'47733	NØP-CEU 0,W	
0132	00135	00000001	DATA	1		CKA
0133	00136	00000005	DATA	5		CKA
0134	00137	00000001	DATA	1		CKA
0135	00140	00000002	DATA	2		CKA
0136	00141	00000001	DATA	1		CKA
0137	00142	25400000	UNIT	DAC 0		CKA
0138	00143	00000001	DATA	1		CKA
0139	00144	00000002	DATA	2		CKA
0140	00145	00000004	DATA	4		CKA
0141	00146	00000001	DATA	1		CKA
0142	00147	00000001	DATA	1		CKA
0143	00150	00047733	DATA	'47733	NØP-CEU 0,W	
0144	00151	11100277	BRU	PØUT	-5 PAPER TAPE ØUT-TELETYPE	00139900
0145	00152	11100304	BRU	PRØT	-4 LINE PRINTER ØUTPUT	00140000
0146	00153	11100236	BRU	TØT2	-3 CARD PUNCH ØUTPUT	
0147	00154	11100277	BRU	PØUT	-2 PAPER TAPE ØUT-BRPE	00140200
0148	00155	11100233	BRU	TØUT	-1 KEYBØARD ØUTPUT	00140300
0149	00156	25400000	CØNV	DAC 0	0	00140400
0150	00157	11100164	BRU	TINP	1 KEYBØARD INPUT	00140500
0151	00160	11100164	BRU	TINP	2 PAPER TAPE INPUT-HSR	00140600
0152	00161	11100340	BRU	CINP	3 CARD READER INPUT	00140700
0153	00162	00000033	NØP		4 SPARE INPUT	00140800

0154	00163	11100164		BRU	TINP	5 PAPER TAPE IN-TELETYPE	00140900
0155	00164	02100225	TINP	LBA	IAD1		
0156	00165	04100476		STB	F1		
0157	00166	00000022		SAZ			
0158	00167	11100171		BRU	**2		
0159	00170	11100066		BRU	INPT	IGNØRE ZERO	
0160	00171	15100514		CMA	L067		
0161	00172	11100174		BRU	**2		
0162	00173	11100066		BRU	INPT	IGNØRE DELETE	
0163	00174	15100534		CMA	L053		
0164	00175	11100177		BRU	**2		
0165	00176	11100066		BRU	INPT	IGNØRE LINE FEED	
0166	00177	15100535		CMA	L052		
0167	00200	11100202		BRU	**2		
0168	00201	11100217		BRU	TCRD	TERMINATE CARD ØN CRRG. RETURN	
0169	00202	15100544		CMA	KDEL		
0170	00203	11100071		BRU	STAB		
0171	00204	11100206		BRU	**2	DELETE LINE ØF INPUT	
0172	00205	11100071		BRU	STAB		
0173	00206	12100105		SPB	INPC	INPUT CHARACTER	
0174	00207	06100535		SMA	L052		
0175	00210	00000022		SAZ			
0176	00211	11100206		BRU	**3		
0177	00212	01100000		LAA	H\$WR		
0178	00213	05100513		AMA	L025		
0179	00214	03100000		STA	H\$WR		
0180	00215	02100550		LBA	LDN		
0181	00216	11100003		BRU	LALO		
0182	00217	01100515	TCRD	LAA	L003		
0183	00220	03300472		STA*	BA		
0184	00221	14100472		IMS	BA		
0185	00222	14100473		IMS	NC		
0186	00223	11100220		BRU	TCRD+1		
0187	00224	11300000		BRU*	H\$WR		
0188	00225	35400226	IAD1	DAC	**1		
0189	00226	12100105		SPB	INPC		
0190	00227	15100535		CMA	L052		
0191	00230	11100226		BRU	**2		
0192	00231	11300000		BRU*	H\$WR		
0193	00232	11100226		BRU	**4		

0194	00233	01100471	TØUT	LAA	FC	FIRST CHARACTER TEST	00146500
0195	00234	00000024		SAP			00146600
0196	00235	11100241		BRU	TØT1	YES	00146700
0197	00236	01100156	TØT2	LAA	CØNV		00146800
0198	00237	00001016		LSL	8		CKA
0199	00240	11100063		BRU	SPBØ+1		
0200	00241	01100156	TØT1	LAA	CØNV		
0201	00242	15100516		CMA	L117		
0202	00243	11100245		BRU	*+2		
0203	00244	11100253		BRU	NWPG	1= NEW PAGE	
0204	00245	15100517		CMA	L074		
0205	00246	11100250		BRU	*+2		
0206	00247	12100261	TWLN	SPB	CRLF	ØUTPUT 2LF,C/R	00148500
0207	00250	12100261		SPB	CRLF	ALL ØTHERS=C/R,LF	00147800
0208	00251	11100236		BRU	TØT2	CØNVERT AND ØUTPUT	00147900
0209	00252	12100502		SPB	CL	CRRG. RET./ LINE FEED	
0210	00253	14100475	NWPG	IMS	LINE	CØUNT DØWN REMAINING LINES	00148100
0211	00254	11100252		BRU	*-2		00148200
0212	00255	12100266		SPB	NPG	ØUTPUT 4 JF	00148300
0213	00256	11100064		BRU	SPBØ+2		
0214	00257	00000000		*-----C/R,LINE FEED AND BØØKKEEP LINE CØUNT			00149700
0215	00257	12100502		SPB	CL	CRRG. RET./ LINE FEED	
0216	00260	11300261		BRU*	CRLF		00149900
0217	00261	11000000	CRLF	BRU	**		00150000
0218	00262	14100475		IMS	LINE		00150100
0219	00263	11100257		BRU	*-4		00150200
0220	00264	12100266		SPB	NPG	NEW PAGE	00150300
0221	00265	11300261		BRU*	CRLF		00150400
0222	00266	11000000	NPG	BRU	**		00150500
0223	00267	01100520		LAA	L077		00150600
0224	00270	03100475		STA	LINE		00150700
0225	00271	01100521		LAA	L018		00150800
0226	00272	03100500		STA	PAGE		00150900
0227	00273	12100502		SPB	CL	CRRG. RET./ LINE FEED	
0228	00274	14100500		IMS	PAGE		00151100
0229	00275	11100273		BRU	*-2		00151200
0230	00276	11300266		BRU*	NPG		00151300
0231	00277	02100536	PØUT	LBA	L100		00151400
0232	00300	04100476		STB	F1		00151500
0233	00301	11100236		BRU	TØT2		00151600

			CRRG. RET./ LINE FEED			
0234	00302	12100502	PØT1	SPB	CL	
0235	00303	11300000		BRU*	H\$WR	CKA
0236	00304	01100471	PRØT	LAA	FC	00151900
0237	00305	00000023		SAN		00152000
0238	00306	11100236		BRU	TØT2	
0239	00307	01100537		LAA	L101	00152500
0240	00310	03100476		STA	F1	00152600
0241	00311	03100471		STA	FC	00152700
0242	00312	01100156		LAA	CØNV	00152800
0243	00313	15100522		CMA	L102	
0244	00314	11100316		BRU	**2	00153100
0245	00315	11100335		BRU	PRØ1	00153200
0246	00316	15100516		CMA	L117	
0247	00317	11100321		BRU	**2	00153900
0248	00320	11100332		BRU	ZØØL	00154000
0249	00321	15100517		CMA	L011	
0250	00322	11100324		BRU	**2	00153500
0251	00323	11100327		BRU	TWØL	00153600
0252	00324	00130105	ØNEL	CEU	5,W	
0253	00325	00002100		DATA	'2100	FEED LINE, FILL BUFFER
0254	00326	11100236		BRU	TØT2	START FILLING BUFFER.
0255	00327	00130105	TWØL	CEU	5,W	CKA
0256	00330	00002000		DATA	'2000	FEED LINE
0257	00331	11100324		BRU	ØNEL	
0258	00332	00130105	ZØØL	CEU	5,W	CKA
0259	00333	00001100		DATA	'1100	PAGE EJECT, FILL BUFFER
0260	00334	11100236		BRU	TØT2	
0261	00335	00130105	PRØ1	CEU	5,W	CKA
0262	00336	00000400		DATA	'000400	CKA
0263	00337	11300000		BRU*	H\$WR	CKA
0264	00340	01100407	CINP	LAA	FRZ9	-9
0265	00341	03100501		STA	FCNT	SHIFT CØUNTER
0266	00342	02100523		LBA	DZRØ	0
0267	00343	01100156		LAA	CØNV	UNITARY CØDED CHAR
0268	00344	15100410		CMA	Ø6TH	TEST FØR QUESTION MARK
0269	00345	11100347		BRU	**2	NØ
0270	00346	11100404		BRU	STB	YES
0271	00347	15100533		CMA	L004	TEST FØR ZERO
0272	00350	11100352		BRU	**2	NØ
0273	00351	11100403		BRU	AMB1	YES

0274	00352	15100512	CMA	EXCL	
0275	00353	11100355	BRU	*+2	NØ
0276	00354	11100402	BRU	AMB4	YES
0277	00355	00000022	SAZ		TEST FØR SPACE
0278	00356	11100361	BRU	*+3	NØ
0279	00357	02100524	LBA	L035	'20
0280	00360	11100404	BRU	STB	
0281	00361	00000416	LSL	4	
0282	00362	00000024	SAP		TEST FØR 12 PUNCH
0283	00363	16100411	AMB	ØSTY	'60
0284	00364	00000116	LSL	1	
0285	00365	00000024	SAP		TEST FØR 11 PUNCH
0286	00366	16100525	AMB	D022	'40
0287	00367	00000116	LSL	1	
0288	00370	00000024	SAP		TEST FØR 0 PUNCH
0289	00371	16100524	AMB	L035	'20
0290	00372	00000116	LSL	LSL 1	
0291	00373	00000023	SAN		TEST FØR NEXT RØW PUNCH
0292	00374	11100377	BRU	IMS	NØ
0293	00375	16100526	AMB	D00	ADJUST TØTAL FØR PUNCH
0294	00376	16100501	AMB	FCNT	
0295	00377	14100501	IMS	IMS FCNT	
0296	00400	11100372	BRU	LSL	NØ
0297	00401	11100404	BRU	STB	YES
0298	00402	16100525	AMB4	AMB D022	'40
0299	00403	16100526	AMB1	AMB D003	'12
0300	00404	12100452	STB	SPB BCDA	
0301	00405	00000004	TBA		
0302	00406	11100071	BRU	STAB	
0303	00407	00177767	FRZ9	DATA -9	
0304	00410	00006000	Ø6TH	DATA '6000	
0305	00411	00000060	ØSTY	DATA 48	
0306	00412	00137661	TABL	DATA '137661	
0307	00413	00131263	DATA	'1234567890=' :>@ /STUVWXYZ ,(#[]-JKL''	
0307	00414	00132265			
0307	00415	00133267			
0307	00416	00134271			
0307	00417	00130275			
0307	00420	00123672			
0307	00421	00137300			

0307	00422	00120257			
0307	00423	00151724			
0307	00424	00152726			
0307	00425	00153730			
0307	00426	00154732			
0307	00427	00120254			
0307	00430	00124243			
0307	00431	00156642			
0307	00432	00126712			
0307	00433	00145714			
0308	00434	00146716	DATA	'MNØPQR \$*[; +ABCDEFGHI+.)%<+''	
0308	00435	00147720			
0308	00436	00150722			
0308	00437	00120244			
0308	00440	00125333			
0308	00441	00135640			
0308	00442	00125701			
0308	00443	00141303			
0308	00444	00142305			
0308	00445	00143307			
0308	00446	00144311			
0308	00447	00125656			
0308	00450	00124645			
0308	00451	00136337			
0309	00452	00000000	BCDA	ZZZ **	
0310	00453	03100467		STA FSAV	
0311	00454	00000003		CLA	
0312	00455	00001713		FLL 15	DIVIDE CØDE BY TWØ
0313	00456	00000006		IAB	
0314	00457	02500412		LBA TABL,1	GET TWØ CØDES
0315	00460	00000024		SAP	BCD CØDE ØDD?
0316	00461	00001013		FLL 8	YES
0317	00462	00000004		TBA	NØ
0318	00463	00001015		RSL 8	
0319	00464	00000005		TAB	
0320	00465	01100467		LAA FSAV	
0321	00466	11300452		BRU* BCDA	
0322	00467	25400000	FSAV	DAC 0	
0323	00470	25400000	SIX	DAC 0	
0324	00471	25400000	FC	DAC 0	

00162500

00162700

0325	00472	25400000	BA	DAC	0			00162800	
0326	00473	25400000	NC	DAC	0			00162900	
0327	00474	25400000	WORD	DAC	0			00163000	
0328	00475	00177720	LINE	DATA	-'60			00163100	
0329	00476	25400000	SCN	DAC	0	0	CKA		
0330	00477	25400000	SUN	DAC	0	0	CKA		
0331	00500	25400000	TUN	DAC	0	0	CKA		
0332	00501	00000476	F1	EQU	SCN		CKA		
0333	00501	00000477	WD	EQU	SUN		CKA		
0334	00501	00000500	PAGE	EQU	TUN		CKA		
0335	00501	00000000	*					00173400	
0336	00501	00000000	*					00173500	
0337	00501	00000000	FCNT	HLT					
0338	00502	00000000	*-----THIS SUBROUTINE OUTPUTS C/R,LF ON SUN.						00148800
0339	00502	11000000	CL	BRU	**			00148900	
0340	00503	01100044		LAA	CRTN				
0341	00504	12100114		SPB	OUTP				
0342	00505	01100046		LAA	LNFD				
0343	00506	12100114		SPB	OUTP				
0344	00507	00000003		CLA				00149400	
0345	00510	03100471		STA	FC				
0346	00511	11300502		BRU*	CL			00149600	
0347	00512	00000000	*					00279300	
0348	00512	00003000	EXCL	DATA	'3000				
0349	00513	00177776	L025	DATA	-2				
0350	00514	00000377	L067	DATA	'377				
0351	00515	00000240	L003	DATA	'240	SPACE			
0352	00516	00000261	L117	DATA	'261				
0353	00517	00000260	L074	DATA	'260				
0354	00520	00177720	L077	DATA	'-60				
0355	00521	00177774	L018	DATA	-4				
0356	00522	00000253	L102	DATA	'253				
0357	00523	00000517	L011	EQU	L074				
0358	00523	00000000	DZR0	DATA	0				
0359	00524	00000020	L035	DATA	16				
0360	00525	00000040	D022	DATA	'40				
0361	00526	00000012	D003	DATA	'12				
0362	00527	00000247	D018	DATA	'247				
0363	00530	00177777	L013	DATA	'177777				
0364	00531	00177773	L050	DATA	-5				

0365	00532	00177660	L001	DATA	-80			
0366	00533	00001000	L004	DATA	'001000	ASR 33 TYPE CODE		00001800
0367	00534	00000212	L053	DATA	'212			00006700
0368	00535	00000215	L052	DATA	'215			00006600
0369	00536	35400302	L100	DAC	P0T1			00009000
0370	00537	35400335	L101	DAC	PR01			00009100
0371	00540	00170101	A0P1	A0P	1,W			
0372	00541	00170300	AIPO	AIP	0,W			
0373	00542	00170100	A0P0	A0P	0,W			
0374	00543	00130100	CEU0	CEU	0,W			
0375	00544	00000336	KDEL	DATA	'336	DELETE A LINE CODE IS THE 'UP ARROR'		
0376	00545	00177622	F110	DATA	-110		FEC	
0377	00546	25401060	FWA	DAC	'1060		FEC	
0378	00547	25401061	BL	DAC	'1061		FEC	
0379	00550	25400000	LDN	DAC	0			00162600
0380	00551	70400000		END				

LALO	0042	0181			
LDN	0379	0040	0087	0094	0180
LINE	0328	0210	0218	0224	
LNFD	0077	0342			
LSL	0290	0296			
L001	0365				
L003	0351	0182			
L004	0366	0271			
L011	0357	0249			
L013	0363				
L018	0355	0225			
L025	0349	0042	0061	0178	
L035	0359	0279	0289		
L050	0364				
L052	0368	0166	0174	0190	
L053	0367	0163			
L067	0350	0160			
L074	0353	0204	0357		
L077	0354	0223			
L100	0369	0231			
L101	0370	0239			
L102	0356	0243			
L117	0352	0201	0246		
MTU	0038				
NC	0326	0050	0100	0185	
N0TD	0106	0101			
NPG	0222	0212	0220	0230	
NTU1	0079	0073			
NWPG	0210	0203			
0NEL	0252	0257			
0STY	0305	0283			
0UTP	0115	0090	0117	0341	0343
06TH	0304	0268			
PAGE	0334	0226	0228		
P0T1	0234	0369			
P0UT	0231	0144	0147		
PR0T	0236	0145			
PR01	0261	0245	0370		
SCN	0329	0332			
SIX	0323				

SØUT	0082	0065					
SPBØ	0089	0199	0213				
STAB	0096	0170	0172	0302			
STB	0300	0270	0280	0297			
SUN	0330	0333					
TABL	0306	0314					
TCRD	0182	0168	0186				
TEST	0099	0091	0097	0107			
TINP	0155	0150	0151	0154			
TØT1	0200	0196					
TØT2	0197	0146	0208	0233	0238	0254	0260
TØUT	0194	0148					
TUN	0331	0334					
TWLN	0206						
TWØL	0255	0251					
UNIT	0137	0055	0067	0083			
WD	0333	0062					
WØRD	0327						
WSW1	0085	0092					
ZØØL	0258	0248					