

SEL PROGRAM LIBRARY

PROGRAM DESCRIPTION

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Catalog No. 310002B

IDENTIFICATION: Paper Tape Reproducer/Verifier
AUTHOR: S. R. Brandt, SEL
ACCEPTED: 3 March 1967
PURPOSE: To reliably reproduce paper tape of any size, within a minimum amount of core storage.

COMPUTER CONFIGURATION: Any 810A computer; High Speed Paper Tape optional.

SUBROUTINES REQUIRED: None

STORAGE: 146510

TIMING: N/A

USE: 1. Load with Relocatable Loader

2. Options

SNS 0 - Input Option

- a. OFF - read from ASR-33
- b. ON - read from High Speed Paper Tape

SNS 1 - Output Option

- a. OFF - punch on ASR-33
- b. ON - punch on H.S.P.T.

Above two switches may be used in any combination.

SNS 2 - ON to read source tape through continuously (no stopping) to obtain accurate verification counts.

A REGISTER - clear it and press start to re-verify a tape that did not verify correctly the first time.

Put
2000 in
A Accum.

1. put start code on tape
2. Change Loc 262 NDA
2273 CPU 1W
2274 DATA 4000

To verify w/o punching
Master Clear after 1st Pass
2275 - CPU 1W
2276 - DATA 4000
START at 2275

3. It is a requirement of this program that the input or source tape contain a stop code at the very end. This stop code consists of three (3) consecutive "colon" characters (full ASCII code 272). This stop code is reproduced into the new tape.
4. Operating Procedure:
 - a. Load the Tape Copy/Verify Program with relocatable loader.
 - b. Set Sense Switches 0 and 1 as desired. off
 - c. Set Sense Switch 2 ON to read the original tape through to obtain verification counts.
 - d. Ready the original tape on the appropriate device.
 - e. Press START; tape will read through continuously until the Stop Code is encountered.
 - f. Reset Sense Switch 2 to OFF.
 - g. Ready the original tape again.
 - h. Press START and new tape will be punched out; when punching is completed, the program compares verification counts taken when reading the original tape in continuously against the same counts taken when alternately reading and punching 1000 frame segments. This verifies, effectively, the original tape. If the counts agree, the message "READY TO VERIFY" will type out. If the counts disagree the message "INPUT TAPE DOES NOT VERIFY" types out. If this occurs, throw away the newly punched tape and return to step c. Otherwise, continue.
 - i. Ready the newly punched tape on the reader and press START. The tape will read through continuously until the Stop Code is encountered and counts will be taken. If these counts agree with the counts taken from the original tape, the message "NO ERR" types out.
 - j. If tape does not verify, a message as to the kind of error will type out, i.e., FR ERR for frame error or T1 ERR, T2 ERR etc. up to T8 ERR for from one to eight longitudinal track errors, or A1 ERR, A2 ERR etc. up to A8 ERR, or B1 ERR, B2 ERR, etc. up to B8 ERR for from one to sixteen possible diagonal or bias count errors.

SEE Note: to verify
w/o punching

A frame error occurs when the frame count has been reached and the character just read in was

not the Stop Code. The other errors occur when any one of twenty-four different counts taken on the source tape disagrees with its corresponding count taken on the new tape during verification.

- k. If the tape did not verify correctly and it is desired to re-verify the tape, clear the A-register to all zeros and return to step f.
- l. To make another copy of the same original, return to step g.
- m. To copy a different tape return to step c.

METHOD:

The source tape is first read in continuously with no stopping, until the stop code is reached. High Speed Tape Reader errors most commonly occur when the read operation is completed and the tape motion must come to an abrupt halt. If the tape does not stop quickly enough a frame can slip by the read station. Therefore, the tape is read through continuously to avoid this type of error and obtain accurate verification counts. These counts are taken as follows: as each character is read, one is added to an input frame count. Then, the eight character bits are added into eight longitudinal track counts, bit one in track count one, bit two in track count two, etc. The eight character bits are also added into eight arbitrarily defined "A-Bias" counts and eight "B-Bias" counts, so that altogether the eight character bits are added into twenty-four separate counts, any given track bit adding into three different counts. (The A and B Bias counts are explained subsequently.) When the stop code has been read in and counted, this phase is completed.

The source tape is then read back in, a thousand characters at a time; as each character is read, it is shifted to the left and stored in a thousand word buffer. When the buffer is filled, it is then punched out. As each character is punched one is added to a frame count and eight character bits are counted the same as above. When the Stop Code has been punched out, the two frame counts and the two sets of twenty-four counts are compared and appropriate messages issued.

Once the output tape has been completed, it is verified by reading it back in and keeping a frame count plus another twenty-four counts, the same as above. Then,

when the Stop Code has been reached, the frame counts are compared and, if not equal, a frame error message is issued. This will catch the adding or dropping of all-zero frames. If this check is passed, each of the original twenty-four counts is compared against its corresponding verify count. Each unequal comparison is noted via the typewriter.

The A and B Bias counts are kept as follows: each A-Bias count has all eight track bits added to it every eight frames, one different track bit per frame and the pattern repeating again on every ninth frame. For example, A-Bias counter A1 has successively added to it track bits 8, 7, 6, 5, 4, 3, 2, 1, 8, 7, 6, ... etc. on down the tape. Counter A2 begins with track bit 7, counter A3 with track bit 6, etc. to counter A8 beginning with track bit 1. The B-Bias counters are kept the same, except that the progression of track bit order is reversed, i.e., counter B1 has successively added to it track bits 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, ... etc. By this method, any given bit on the tape is added into three different counts; which three particular counts out of the twenty-four depends upon the frame count. The purpose of these bias counts is to catch the dropping and adding of punches within the same track, which just the track counts alone would not detect.

0001	00000	00000000	REL		
0002	00000	00000000	*		
0003	00000	00000000	*	810-A	TAPE COPY/VERIFY PROGRAM
0004	00000	00000000	*	* * *	AUTHOR- S.R. BRANDT * * *
0005	00000	00000000	*		
0006	00000	01100713	STRT	LAA	AIP1
0007	00001	00130400	SNS	0	
0008	00002	11100006	BRU	++4	
0009	00003	00130101	CEU	1,W	
0010	00004	00004000	DATA	'4000	
0011	00005	11100011	BRU	++4	
0012	00006	00130102	CEU	2,W	
0013	00007	00001000	DATA	'1000	
0014	00010	00000001	AMA	=1	
0015	00011	03100502	STA	AIP	
0016	00012	01100714	LAA	AOP1	
0017	00013	00130401	SNS	1	
0018	00014	11100016	BRU	++2	
0019	00015	11100021	BRU	++4	
0020	00016	00130102	CEU	2,W	
0021	00017	00004000	DATA	'4000	
0022	00020	00000001	AMA	=1	
0023	00021	03100505	STA	AOP	
0024	00022	00130402	SNS	2	
0025	00023	11100025	BRU	++2	
0026	00024	11100133	BRU	STR2	
0027	00025	02077746	LBA	=-26	
0028	00026	00000003	CLA		
0029	00027	03500563	STA	RF+26,1	
0030	00030	00000026	IBS		
0031	00031	11100027	BRU	*-2	
0032	00032	01077770	LAA	=-8	
0033	00033	03100710	STA	HLD1	
0034	00034	03100711	STA	HLD2	
0035	00035	12100501	SPB	READ	
0036	00036	00000022	SAZ		
0037	00037	11100042	BRU	++3	
0038	00040	11100035	BRU	*-3	

* PICK UP INSTRUC- AIP 1,W

* INPUT OPTION SWITCH

* SELECT ASR-33 READER MODE

* ENABLE HSPT READER

* CHANGE TO AIP 2,W

* STORE IN READ SUBRTNE.

* PICK UP INSTRUC- AOP 1,W

* OUTPUT OPTION SWITCH

* TURN ON HSPT PUNCH

* CHANGE TO AOP 2,W

* STORE IN PUNCH SUBRTNE.

* RESET MASTER VERIFIC. COUNTS

0039	00041	12100501	STR1	SPB	READ		
0040	00042	00001016		LSL	8		
0041	00043	14100531		IMS	RF		* INCRMNT INPUT FRAME CNT
0042	00044	11100046		BRU	*+2		
0043	00045	14100532		IMS	RF+1		
0044	00046	03100712		STA	TEMP		
0045	00047	02077770		LBA	==8		
0046	00050	00000024	ØUT6	SAP			
0047	00051	14500543		IMS	RT1+8,1		* ADD INTØ 8 LONGITUDINAL TRACK COUNTS
0048	00052	00000033		NØP			* FØR ØVFLØ
0049	00053	00000116		LSL	1		
0050	00054	00000026		IBS			
0051	00055	11100050		BRU	ØUT6		
0052	00056	01077770		LAA	==8		
0053	00057	03100664		STA	LØØP		
0054	00060	01100712		LAA	TEMP		
0055	00061	02100710		LBA	HLD1		
0056	00062	00000024	ØT1A	SAP			
0057	00063	14500553		IMS	RA1+8,1		* ADD TØ A-BIAS CNTS
0058	00064	00000033		NØP			* FØR ØVFLØ
0059	00065	00000116		LSL	1		
0060	00066	14100664		IMS	LØØP		
0061	00067	11100071		BRU	*+2		
0062	00070	11100075		BRU	ØT2A		
0063	00071	00000026		IBS			
0064	00072	11100062		BRU	ØT1A		
0065	00073	02077770		LBA	==8		
0066	00074	11100062		BRU	ØT1A		
0067	00075	04100710	ØT2A	STB	HLD1		
0068	00076	01077770		LAA	==8		
0069	00077	03100664		STA	LØØP		
0070	00100	02100711		LBA	HLD2		
0071	00101	00000026		IBS			
0072	00102	11100104		BRU	*+2		
0073	00103	02077770		LBA	==8		
0074	00104	04100711		STB	HLD2		
0075	00105	01100712		LAA	TEMP		
0076	00106	00000024	ØT1B	SAP			
0077	00107	14500563		IMS	RB8+8,1		* ADD TØ B-BIAS CNTS

0078	00110	00000033	NOP		* FØR ØVFLØ
0079	00111	00000116	LSL	1	
0080	00112	14100664	IMS	LØØP	
0081	00113	11100115	BRU	*+2	
0082	00114	11100121	BRU	*+5	
0083	00115	00000026	IBS		
0084	00116	11100106	BRU	ØT1B	
0085	00117	0207770	LBA	=-8	
0086	00120	11100106	BRU	ØT1B	
0087	00121	01100712	LAA	TEMP	
0088	00122	15100663	CMA	STØP	* CHK FØR CØLØN CHARAC.
0089	00123	11100125	BRU	*+2	
0090	00124	11100130	BRU	*+4	
0091	00125	0107775	LAA	=-3	
0092	00126	03100616	STA	SCNT	
0093	00127	11100041	BRU	STR1	
0094	00130	14100616	IMS	SCNT	
0095	00131	11100041	BRU	STR1	
0096	00132	00000000	HLT		
0097	00133	0207745	STR2 LBA	=-27	
0098	00134	00000003	CLA		
0099	00135	03500616	STA	VF+27,1	
0100	00136	00000026	IBS		
0101	00137	11100135	BRU	*-2	
0102	00140	01100707	LAA	BR1	
0103	00141	03100212	STA	ØUT3	
0104	00142	0107770	LAA	=-8	
0105	00143	03100710	STA	HLD1	
0106	00144	03100711	STA	HLD2	
0107	00145	00000003	CLA		
0108	00146	02077160	LBA	=-400	
0109	00147	12100504	SPB	PØCH	* RUN ØUT LEADER
0110	00150	00000026	IBS		
0111	00151	11100147	BRU	*-2	
0112	00152	12100501	SPB	READ	* READ LEADER
0113	00153	00000022	SAZ		
0114	00154	11100156	BRU	*+2	
0115	00155	11100152	BRU	*-3	
0116	00156	02076030	LBA	=-1000	

0117	00157	11100164	BRU	INP2	
0118	00160	00000026	INP4	ISS	
0119	00161	11100163	BRU	INP1	
0120	00162	11100201	BRU	OUT1	
0121	00163	12100501	INP1	SPB	READ * READ A FRAME
0122	00164	00001016	INP2	LSL	8
0123	00165	03502565	STA	BUF+1000,1	
0124	00166	15100663	CMA	STOP	* CHK FOR COLON CHARAC.
0125	00167	11100171	BRU	*+2	
0126	00170	11100174	BRU	*+4	
0127	00171	01077775	LAA	=-3	
0128	00172	03100616	STA	SCNT	
0129	00173	11100160	BRU	INP4	
0130	00174	14100616	IMS	SCNT	* CHK FOR 3 CONSECUTIVE COLON CHARACS.
0131	00175	11100160	BRU	INP4	
0132	00176	01102670	LAA	NOP	* SNS 3 ON- FIX TO END COPYING
0133	00177	03100212	STA	OUT3	
0134	00200	04100705	STB	TMP1	* CONTROLS INCOMPLETE BUFFER WHEN PUNCHING
0135	00201	01076030	OUT1	LAA	=-1000
0136	00202	03102667	STA	IR1	
0137	00203	02102667	OUT2	LBA	IR1
0138	00204	01502665	LAA	BUF+1000,1	* FETCH NEXT CHARACTER
0139	00205	12100504	SPB	PUNCH	* PUNCH A FRAME
0140	00206	14100563	IMS	VF	
0141	00207	11100211	BRU	*+2	
0142	00210	14100564	IMS	VF+1	
0143	00211	12100422	SPB	VFCT	
0144	00212	11100220	OUT3	BRU	OUT4
0145	00213	01102667	LAA	IR1	* SEE IF DONE PROCESSING INCOMPLETE BUFFER
0146	00214	05100705	SMA	TMP1	
0147	00215	00000022	SAZ		
0148	00216	11100220	BRU	*+2	
0149	00217	11100224	BRU	OUT5	
0150	00220	14102667	OUT4	IMS	IR1
0151	00221	11100203	BRU	OUT2	
0152	00222	02076030	LBA	=-1000	* BUFFER EXHAUSTED
0153	00223	11100163	BRU	INP1	
0154	00224	02077470	OUT5	LBA	=-200
0155	00225	00000003	CLA		

0156	00226	12100504	SPB	PNCH	* TRAILER
0157	00227	00000026	IBS		
0158	00230	11100226	BRU	*-2	
0159	00231	01100563	LAA	VF	
0160	00232	15100531	CMA	RF	* VERIFY INPUT TAPE
0161	00233	11100242	BRU	ERR1	
0162	00234	11100236	BRU	*+2	
0163	00235	11100242	BRU	ERR1	
0164	00236	01100564	LAA	VF+1	
0165	00237	15100532	CMA	RF+1	
0166	00240	11100242	BRU	*+2	
0167	00241	11100254	BRU	CHK1	
0168	00242	12100523	ERR1 SPB	CRLF	
0169	00243	0207763	LBA	=-13	
0170	00244	01500661	LAA	MSG2+13,1	
0171	00245	00170101	AOP	1,W	
0172	00246	00001016	LSL	8	
0173	00247	00170101	AOP	1,W	
0174	00250	00000026	IBS		
0175	00251	11100244	BRU	*-5	
0176	00252	12100523	SPB	CRLF	
0177	00253	11100351	BRU	HALT-1	
0178	00254	12100365	CHK1 SPB	CHK	
0179	00255	01100615	LAA	ECNT	
0180	00256	00000022	SAZ		
0181	00257	11100242	BRU	ERR1	
0182	00260	00130401	SNS	1	
0183	00261	11100263	BRU	*+2	
0184	00262	11100275	BRU	PAWS NOP	
0185	00263	12100523	SPB	CRLF	
0186	00264	02077770	LBA	=-8	
0187	00265	01500644	LAA	HMSG+8,1	
0188	00266	00170101	AOP	1,W	* MESSAGE- "READY TO VERIFY"
0189	00267	00001016	LSL	8	
0190	00270	00170101	AOP	1,W	
0191	00271	00000026	IBS		
0192	00272	11100265	BRU	*-5	
0193	00273	00130102	CEU	2,W	CEU 1,W
0194	00274	00002000	DATA	2000	DATA 4000

0195	00275	00000000	PAWS	HLT		
0196	00276	00000000	*			
0197	00276	00000000	*	VERIFICATION	SEGMENT	
0198	00276	00000000	*			
0199	00276	00000003		CLA		
0200	00277	020//745	AGAN	LBA	==27	* RESET ONLY VERIFY COUNTS
0201	00300	03500616		STA	VF+27,1	
0202	00301	00000026		IBS		
0203	00302	11100300		BRU	*-2	
0204	00303	0107//770	VERFY	LAA	==8	
0205	00304	03100710		STA	HLD1	
0206	00305	03100711		STA	HLD2	
0207	00306	12100501		SPB	READ	* READ LEADER
0208	00307	00000022		SAZ		
0209	00310	11100313		BRU	*+3	
0210	00311	11100306		BRU	*-3	
0211	00312	12100501	NXT	SPB	READ	
0212	00313	00001016	VR1	LSL	8	
0213	00314	14100563		IMS	VF	
0214	00315	11100317		BRU	*+2	
0215	00316	14100564		IMS	VF+1	
0216	00317	12100422		SPB	VFCT	
0217	00320	01100712		LAA	TEMP	
0218	00321	15100663		CMA	STOP	
0219	00322	11100324		BRU	*+2	
0220	00323	11100327		BRU	*+4	
0221	00324	01077775		LAA	==3	
0222	00325	03100616		STA	SCNT	
0223	00326	11100312		BRU	NXT	
0224	00327	14100616		IMS	SCNT	
0225	00330	11100312		BRU	NXT	
0226	00331	01100632		LAA	ERRK	
0227	00332	03100630		STA	MHLD+1	* STORE CNSTANT- ERR - IV MSSGE HØLD
0228	00333	01100633		LAA	ERRK+1	
0229	00334	03100631		STA	MHLD+2	
0230	00335	01100563		LAA	VF	
0231	00336	15100531		CMA	RF	
0232	00337	11100346		BRU	ERR2	
0233	00340	11100342		BRU	*+2	

0234	00341	11100346	BRU	ERR2	
0235	00342	01100364	LAA	VF+1	
0236	00343	12100332	CMA	RF+1	
0237	00344	11100346	BRU	*+2	
0238	00345	11100356	BRU	FCØK	
0239	00346	01100661	ERR2 LAA	FR	
0240	00347	03100627	STA	MHLD	
0241	00350	12100307	SPB	MSG	
0242	00351	01100277	LAA	AGAN	* MAKE A-REG NON-ZERØ
0243	00352	00000000	HALT HLT		
0244	00353	00000022	SAZ		* RE-VERIFY ØPTION
0245	00354	11100000	BRU	STRT	
0246	00355	11100277	BRU	AGAN	
0247	00356	12100365	FCØK SPB	CHK	
0248	00357	01100615	LAA	ECNT	
0249	00350	00000022	SAZ		* TEST ERRØR FLAG
0250	00361	11100352	BRU	HALT	
0251	00362	01100662	LAA	NØ	
0252	00363	03100627	STA	MHLD	
0253	00364	11100350	BRU	HALT-2	
0254	00365	25400000	CHK DAC	**	
0255	00366	02077770	ØK1 LBA	=-8	* CHK LØNGITUDINAL TRACK CNTS
0256	00367	01500343	LAA	RT1+8,1	
0257	00370	12500375	CMA	VT1+8,1	
0258	00371	11100373	BRU	*+2	
0259	00372	11100377	BRU	CHKA	
0260	00373	01500627	LAA	MT1+8,1	
0261	00374	03100627	STA	MHLD	
0262	00375	12100307	SPB	MSG	
0263	00376	14100615	IMS	ECNT	
0264	00377	01500353	CHKA LAA	RA1+8,1	* CHK A-BIAS CNTS
0265	00400	12500605	CMA	VA1+8,1	
0266	00401	11100403	BRU	*+2	
0267	00402	11100407	BRU	CHKB	
0268	00403	01500675	LAA	MA1+8,1	
0269	00404	03100627	STA	MHLD	
0270	00405	12100307	SPB	MSG	
0271	00406	14100615	IMS	ECNT	
0272	00407	01500363	CHKB LAA	RB8+8,1	* CHECK B-BIAS CNTS

0273	00410	13500615		CMA	VB8+8,1	
0274	00411	11100413		BRU	*+2	
0275	00412	11100417		BRU	OK2	
0276	00413	01500705		LAA	MB1+8,1	
0277	00414	03100627		STA	MHLU	
0278	00415	12100507		SPB	MSG	
0279	00416	14100615		IMS	ECNT	
0280	00417	00000026	OK2	IBS		
0281	00420	11100367		BRU	OK1+1	
0282	00421	11300365		BRU*	CHK	
0283	00422	25400000	VFCT	DAC	**	
0284	00423	03100712		STA	TEMP	
0285	00424	04102666		STB	SAVB	
0286	00425	02077770	CONT	LBA	=-8	* ADD TO LONGITUDINAL TRACK CNTS
0287	00426	01100712		LAA	TEMP	
0288	00427	00000024	VR2	SAP		
0289	00430	14500575		IMS	VT1+8,1	
0290	00431	00000033		NOP		
0291	00432	00000116		LSL	1	
0292	00433	00000026		IBS		
0293	00434	11100427		BRU	VR2	
0294	00435	01077770		LAA	=-8	* ADD TO A-BIAS CNTS
0295	00436	03100664		STA	L00P	
0296	00437	01100712		LAA	TEMP	
0297	00440	02100710		LBA	HLD1	
0298	00441	00000024	VR3	SAP		
0299	00442	14500605		IMS	VA1+8,1	
0300	00443	00000033		NOP		* FOR OVFLD
0301	00444	00000116		LSL	1	
0302	00445	14100664		IMS	L00P	
0303	00446	11100450		BRU	*+2	
0304	00447	11100454		BRU	VAD2	
0305	00450	00000026		IBS		
0306	00451	11100441		BRU	VR3	
0307	00452	02077770		LBA	=-8	
0308	00453	11100441		BRU	VR3	
0309	00454	04100710	VAD2	STB	HLD1	
0310	00455	01077770		LAA	=-8	* ADD TO B-BIAS CNTS
0311	00456	03100664		STA	L00P	

0312	00457	02100711	LBA	HL02	
0313	00460	00000026	IBS		
0314	00461	11100463	BRU	*+2	
0315	00462	02077770	LBA	=-8	
0316	00463	04100711	STB	HL02	
0317	00464	01100712	LAA	TEMP	
0318	00465	00000024	VR4	SAP	
0319	00466	14500615	IMS	VB8+8,1	
0320	00467	00000033	NOP		* FOR ØVFLØ
0321	00470	00000116	LSL	1	
0322	00471	14100664	IMS	LØP	
0323	00472	11100475	BRU	*+3	
0324	00473	02102666	LBA	SAVB	
0325	00474	11300422	BRU*	VFCT	
0326	00475	00000026	IBS		
0327	00476	11100465	BRU	VR4	
0328	00477	02077770	LBA	=-8	
0329	00500	11100465	BRU	VR4	
0330	00501	25400000	READ	DAC	**
0331	00502	00170302	AIP	AIP	2,N * INPUT A CHAR
0332	00503	11300501	BRU*	READ	* EXIT
0333	00504	25400000	PNCH	DAC	**
0334	00505	00170102	AØP	AØP	2,N * ØUTPUT A CHAR
0335	00506	11300504	BRU*	PNCH	* EXIT
0336	00507	25400000	MSG	DAC	**
0337	00510	04102666	STB	SAVB	
0338	00511	12100523	SPB	CRLF	
0339	00512	02077775	LBA	=-3	
0340	00513	01500632	MSG1	LAA	MHLD+3,1
0341	00514	00170101	AØP	1,N	
0342	00515	00001016	LSL	8	
0343	00516	00170101	AØP	1,N	
0344	00517	00000026	IBS		
0345	00520	11100513	BRU	MSG1	
0346	00521	02102666	LBA	SAVB	
0347	00522	11300507	BRU*	MSG	* EXIT
0348	00523	25400000	CRLF	DAC	**
0349	00524	00170501	MØP	1,N	
0350	00525	00106400	DATA	'106400	

0351	00526	00170301	MOP	1,4	
0352	00527	00105000	DATA	'105000	
0353	00530	11300523	BRU*	CRLF	
0354	00531	00000002	RF	BSS	2
0355	00533	00000010	RT1	BSS	8
0356	00543	00000010	RA1	BSS	8
0357	00553	00000001	RB8	BSS	1
0358	00554	00000001	RB7	BSS	1
0359	00555	00000001	RB6	BSS	1
0360	00556	00000001	RB5	BSS	1
0361	00557	00000001	RB4	BSS	1
0362	00560	00000001	RB3	BSS	1
0363	00561	00000001	RB2	BSS	1
0364	00562	00000001	RB1	BSS	1
0365	00563	00000002	VF	BSS	2
0366	00565	00000010	VT1	BSS	8
0367	00575	00000010	VA1	BSS	8
0368	00605	00000001	VB8	BSS	1
0369	00606	00000001	VB7	BSS	1
0370	00607	00000001	VB6	BSS	1
0371	00610	00000001	VB5	BSS	1
0372	00611	00000001	VB4	BSS	1
0373	00612	00000001	VB3	BSS	1
0374	00613	00000001	VB2	BSS	1
0375	00614	00000001	VB1	BSS	1
0376	00615	00000000	ECNT	DATA	0
0377	00616	00000001	SCNT	BSS	1
0378	00617	00152270	MT1	DATA	'T8T7T6T5T4T3T2T1''
0378	00620	00152267			
0378	00621	00152266			
0378	00622	00152265			
0378	00623	00152264			
0378	00624	00152263			
0378	00625	00152262			
0378	00626	00152261			
0379	00627	00000003	MHLU	BSS	3
0380	00632	00120305	ERRK	DATA	'ERR''
0380	00633	00151322			
0381	00634	00151305	HMSG	DATA	'READY TO VERIFY''

* 8 INPUT LONGITUDINAL TRACK CNTS

* INPUT A-BIAS CNTS

* INPUT B-BIAS CNTS

*

* 8 VERIFY LONGITUDINAL TRACK CNTS

* VERIFY A-BIAS CNTS

* VERIFY B-BIAS CNTS

0381	00635	00140704		
0381	00636	00154640		
0381	00637	00152317		
0381	00640	00120326		
0381	00641	00142722		
0381	00642	00144706		
0381	00645	00154640		
0382	00644	00144716	MSG2 DATA	'INPUT TAPE DOES NOT VERIFY'
0382	00645	00150325		
0382	00646	00152240		
0382	00647	00152301		
0382	00650	00150305		
0382	00651	00120304		
0382	00652	00147705		
0382	00653	00151640		
0382	00654	00147317		
0382	00655	00152240		
0382	00656	00153305		
0382	00657	00151311		
0382	00660	00143331		
0383	00661	00143322	FR DATA	'FR'
0384	00662	00147317	NØ DATA	'NØ'
0385	00663	00135000	STØP DATA	'135000'
0386	00664	00000000	LØØP DATA	Ø
0387	00665	00140661	MA1 DATA	'A1A2A3A4A5A6A7A8'
0387	00666	00140662		
0387	00667	00140663		
0387	00670	00140664		
0387	00671	00140665		
0387	00672	00140666		
0387	00675	00140667		
0387	00674	00140670		
0388	00675	00141270	MB1 DATA	'B837B6B5B433B2B1'
0388	00676	00141267		
0388	00677	00141266		
0388	00700	00141265		
0388	00701	00141264		
0388	00702	00141263		
0388	00703	00141262		

0388	00704	00141261				
0389	00705	00000000	TMP1	DATA	0	
0390	00706	00000000	TMP2	DATA	0	
0391	00707	11100220	BR1	BRU	OUT4	
0392	00710	00177770	HLD1	DATA	-8	
0393	00711	00177770	HLD2	DATA	-8	
0394	00712	00000000	TEMP	DATA	0	
0395	00713	00170301	AIP1	AIP	1,W	
0396	00714	00170101	AOP1	AOP	1,W	
2715 0397	00715	00001751	BUF	BSS	1001	
2716 0398	02666	00000001	SAVB	BSS	1	
2717 0399	02667	00000000	IR1	DATA	0	
3000 0400	02670	00000033	NOP	NOP		
3001 0401	02671	70400000	END	STRT		

AGAN	0200	0242	0246						
AIP	0331	0015							
AIP1	0395	0006							
AOP	0334	0023							
AOP1	0396	0016							
BR1	0391	0102							
BUF	0397	0123	0138						
CHKA	0264	0259							
CHKB	0272	0267							
CHK	0254	0178	0247	0282					
CHK1	0178	0167							
CNT	0286								
CRLF	0348	0168	0176	0185	0338	0353			
ECNT	0376	0179	0248	0263	0271	0279			
ERRK	0380	0226	0228						
ERR1	0168	0161	0163	0181					
ERR2	0239	0232	0234						
FCOK	0247	0238							
FR	0383	0239							
HALT	0243	0177	0250	0253					
HLD1	0392	0033	0055	0067	0105	0297	0309		
HLD2	0393	0034	0070	0074	0106	0206	0312	0316	
HMSG	0381	0187							
INP1	0121	0119	0153						
INP2	0122	0117							
INP4	0118	0129	0131						
IR1	0399	0136	0137	0145	0150				
L0OP	0386	0053	0060	0069	0080	0295	0302	0311	0322
MA1	0387	0268							
MB1	0388	0276							
MHLD	0379	0227	0229	0240	0252	0261	0269	0277	0340
MSG	0336	0241	0262	0270	0278	0347			
MSG1	0340	0345							
MSG2	0382	0170							
MT1	0378	0260							
N0P	0400	0132							
N0	0384	0251							
NXT	0211	0223	0225						

