

SYSTEMS ENGINEERING LABORATORIES PROGRAM LIBRARY

SOFTWARE DESCRIPTION

CATALOG NO. 300001F

DATE 1 April 1971

PROGRAM TITLE: SYSTEMS 810A/B STANDARD LOAD/ DUMP PACKAGE

PURPOSE: To provide capability for:

- (1) Loading relocatable object programs generated by the SYSTEMS 810A/B Macro-Assembler or SYSTEMS 810A/B FORTRAN IV Compiler;
- (2) Dumping selected areas of memory in absolute binary format;
- (3) Loading object modules generated by the absolute dump function,

CONFIGURATION: SYSTEMS 810A/B with ASR-33, High Speed Paper Tape Reader/Punch, and 7-track or 9-track Magnetic Tape/BTC 1.

SOFTWARE: Stand-Alone

PROGRAM LANGUAGE: SYSTEMS 810A/B Assembler Language

SIZE: 2000₈

LOADING PROCEDURE:

Use of this package assumes a memory configuration of greater than 4K; otherwise, the SYSTEMS STANDARD BOOTSTRAP PACKAGE (Catalog No. 300000F) will provide similar Load/Dump capabilities.

The procedure required to load this package includes:

- (1) MASTER CLEAR the computer;
- (2) Load the SYSTEMS 810A/B STANDARD BOOTSTRAP PACKAGE (Catalog No. 300000) as specified in the program description;
- (3) Position the SYSTEMS 810A/B STANDARD LOAD/DUMP PACKAGE (Catalog No. 300001) in the desired input device;
- (4) If the input device is ASR-33 reader control switch 0 (zero) should be reset; if the input device is High Speed Paper Tape Reader, control switch 0 (zero) should be set;
- (5) Enter 006007_8 into the P-Counter ($006006_8 / 810B$);
- (6) Enter the relocation base for the STANDARD LOAD/DUMP PACKAGE into the A-Accumulator; this is the load address for the package;
- (7) Depress START twice - the STANDARD LOAD/DUMP PACKAGE will be loaded as specified;
- (8) The following will be printed on the ASR-33 teletypewriter:

```
LC
EJ
XXXXX      00001
```

Indicating loading complete, end-of-job code processed, the memory high load address, and the next available map zero location.

USE:

The SYSTEMS 810A/B STANDARD LOAD/DUMP PACKAGE may be used to load object programs in relocatable binary format; to dump selected areas of memory in absolute binary format; and to load object modules in absolute binary format.

I - RELOCATABLE LOADER

The procedure required to use the relocatable loader portion of the STANDARD LOAD/DUMP PACKAGE includes:

(1) Position the relocatable binary object program to be loaded in the desired input device;

(2) Make the following manual entries:

- A-Accumulator = Relocation Base for program
- B-Accumulator = Map Zero Starting Location
- P-Counter = Relocatable Loader Starting Location
(000007₈ + Loader Relocation Base/810A)
(000006₈ + Loader Relocation Base/810B)

(3) Set the appropriate control switches as follows:

- Control Switch 0 Set = Input from High Speed Paper Tape Reader
- Control Switch 0 Reset = Input from ASR-33 Reader
- Control Switch 1 Set = List all subroutines referenced by program
- Control Switch 2 Set = List all unloaded subroutines referenced by program
- Control Switch 3 Set = Input from magnetic tape
- Control Switch 4 Set = List all intermap references
- Control Switch 5 Set = Inset map bit on map zero references
- Control Switch 6 Set = 9-Track Magnetic Tape Input (If Switch 3 is set)
- Control Switch 6 Reset = 7-Track Magnetic Tape Input (If Switch 3 is set)
- Control Switch 7 Set = Binary Magnetic Tape Input (created under an 810B RTX System - If Switch 3 is set)
- Control Switch 10-15 = Used to specify which logical unit number designates magnetic tape. An entry must be made if magnetic tape input is desired. Example: Switches 13-15 would be set to designate logical Unit 7.

NOTE

For input from 7 or 9 track magnetic tape, the loader assumes BTC1. Thus, programs loaded from magnetic tape must not alter the contents of locations 1060₈ & 1061₈ (It is suggested that they be loaded above 1061.). If a different BTC is desired, the FWA BTC memory location may be manually loaded into relocation base + 1415₈ in the Load/Dump Program.

NOTE

In loading SYSTEMS 810A/B FORTRAN IV Compiler generated object programs, the map zero starting location (B-Accumulator) must be greater than 10₈ if any library subroutines have been called by the source program.

- (4) Depress START twice - the program will be loaded;
- (5) If "EJ" only is printed on the ASR-33 teletypewriter, the relocatable loader is awaiting further input to satisfy external subroutines referenced by the loaded program. In this instance, position the unloaded external program(s) in the proper input device and depress START once;

NOTE

Do not MASTER CLEAR the computer prior to loading external subroutines.

- (6) When loading is complete, the following will be printed on the ASR-33 teletypewriter:

LC
EJ
XXXXX YYYYYY , where

XXXXX - indicates the highest memory location used by the program;
YYYYYY - indicated the next available map zero location

- (7) To execute the loaded program:
 - (a) MASTER CLEAR the computer;
 - (b) Enter the starting location of the program into the P-Counter;
 - (c) Depress START twice to begin program execution.

II - ABSOLUTE DUMP

The procedure required to use the Absolute Dump portion of the STANDARD LOAD/DUMP PACKAGE includes:

(1) Set the appropriate control switches as follows:

- Control Switch 0 Set = Dump to High Speed Paper Tape Punch
- Control Switch 0 Reset = Dump to ASR-33 Paper Tape Punch
- Control Switch 1 Set = Dump Intermap References after dumping program

(2) Make the following manual entries:

<u>Location</u>	<u>Entry</u>
<i>001776</i> → 001776 ₈ + Loader Relocation Base	End of Dump Address
<i>001777</i> → 001777 ₈ + Loader Relocation Base	Start of Dump Address

(3) Enter ^{*001561*} 001561₈ + Loader Relocation Base ^{*06*} (810A) or (001560₈ + Loader Relocation Base/810B) into the P-Counter. This is the start address for the Absolute Dump portion of the STANDARD LOAD/DUMP PACKAGE;

(4) Depress START once - a dump of the specified memory locations will be generated in absolute binary format acceptable to the Absolute Loader portion of this package (below).

III - ABSOLUTE LOADER

The procedure required to use the Absolute Loader portion of the STANDARD LOAD/DUMP PACKAGE includes:

- (1) Position the absolute binary object module to be loaded in the the desired input device;
- (2) Set the appropriate control switches as follows:
 - Control Switch 0 Set = Input from High Speed Paper Tape Reader
 - Control Switch 0 Reset= Input from ASR-33 Reader
 - Control Switch 1 Set = Load intermap references after loading program
- (3) Enter $(001673_8 + \text{Loader Relocation Base}/810A)$ or $(001672_8 + \text{Loader Relocation Base}/810B)$ into the P-Counter. This is the start address for the Absolute Loader portion of the STANDARD LOAD/DUMP PACKAGE;
- (4) Depress START twice - the core-image contents of the absolute binary input module will be loaded into the same portion of memory from which originally dumped.

METHOD:

(1) RELOCATABLE LOADER

- (a) Tape format consists of blocks of 111 frames. Each block contains a start code, thirty-six 24-bit words, and a 16-bit check sum. A complete block is read by the loader before the first word in the block is processed;
- (b) If loader input is from magnetic tape, tape is read from Tape Transport Number 2/Binary Format (556 BPI, 3 characters/word for 7-track, and 800 BPI, 2 characters/word for 9-track).
- (c) If a parity error occurs during input, five attempts are made to read the record before the loader message "R" is printed on the ASR-33 teletypewriter, and the Computer HALTS. Clearing the HALT will cause the record to be accepted.
- (d) The following messages are output by the relocatable loader:
 - CK - Check sum Error
 - MO - Memory Overflow into Area of Core Used by Loader
 - CM - Common Request prior to Common Definition
 - LC - Loading Process Complete
 - EJ - End of Job

(2) ABSOLUTE DUMP

Tape format consists of a start code, a 16-bit starting address, and a 16-bit negative word count followed by blocks of 66 frames each. The last block may have less than 66 frames. Each block is terminated with a 16-bit check sum.

(3) ABSOLUTE LOADER

- (a) Tape format consists of a start code, a 16-bit starting address, and a 16-bit negative word count followed by blocks of 66 frames each. The last block may have less than 66 frames. Each block is terminated with a 16-bit check sum. Words are stored into core as they are read.
- (b) If a check sum error is encountered during the loading process, the loader message "K" will be printed on the ASR-33 teletypewriter, and the computer will HALT. Clearing the HALT will cause the record to be accepted.

```

0001 * 300001F 810A/B STANDARD LOAD/DUMP PACKAGE 1
0002 * 2
0003 * 3
0004 ***** 4
0005 * SW 0- 0N - INPUT FROM HIGH SPEED READER 5
0006 * OFF- INPUT FROM TELETYPE TAPE READER 6
0007 * SW 1- 0N - LIST ALL SUBROUTINES 7
0008 * SW 2- 0N - LIST ALL UNLOADED SUBROUTINES 8
0009 * SW 3- 0N - INPUT FROM MAGNETIC TAPE - TRANSPORT 2 9
0010 * SW 4- 0N - LIST INTERMAP SOURCES 10
0011 * SW 5- 0N - INSERT MAP BIT 0N (MAP ZERO)-(MAP ZERO) REFERENCES 11
0012 * SW 6- 0N - 9 TRACK MAGNETIC TAPE INPUT (WITH SW 3) 12
0013 * OFF- 7 TRACK MAGNETIC TAPE INPUT (WITH SW 3) 13
0014 * SW 7- 0N - BINARY MANETIC TAPE INPUT CREATED UNDER RTX (WITH SW 3) 14
0015 * OFF- BINARY MANETIC TAPE INPUT NOT CREATED UNDER RTX 15
0016 * 16
0017 * SW 10-15 - MAGNETIC TAPE OCTAL UNIT NUMBER (MUST BE SPECIFIED IF 17
0018 * MAGNETIC TAPE INPUT). EXAMPLE: SET SWITCHES 13 AND 14 18
0019 * FOR UNIT SIX. 19
0020 * 20
0021 * 21
0022 * 22
0023 * 23
0024 * N O T E : 24
0025 * 25
0026 * IF RELOCATABLE INPUT IS FROM MAGNETIC TAPE BTC 1 MUST NOT BE 26
0027 * 27
0028 * ALTERED OR DESTROYED. THUS, IT IS SUGGESTED THAT MAGNETIC 28
0029 * 29
0030 * TAPE INPUT BE LOADED ABOVE 1061. 30
0031 * 31
0032 * 32
0033 * 33
0034 * 34
0035 * *****NOTE----- 35
0036 * 36
0037 * -----TO LOAD COMPILER/ASSEMBLER OUTPUT----- 37
0038 * SET A=0 OR RELOCATION BASE 38
0039 * SET B= MAP 0 STARTING LOCATION <MUST 39
0040 * BE GREATER THAN '10 IF LIBRARY 40

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Address	Code	Label	Operation	Comments	Time	Mode	Page
0041		*		ROUTINES HAVE BEEN CALLED			41
0042		*****		*****			42
0043	00000	00001060	BTC EQU '1060	ASSUMES BTC 1	12/70	RLD *E	43
0044	00000	00000000	REL				44
0045	00007	70000007	ARG 7		12/70	RLD *E	45
0046		*					46
0047	00007	03100724	LOAD STA BASE	<i>Relocatable Loader Stand</i>	12/70	RLD *F	47
0048	00010	03300702	STA* ILH				48
0049	00011	03100744	STA RPL	*****			49
0050	00012	12100156	SPB MPZR			DPC	50
0051	00013	03100727	STA NFLG	SET NAME FLAG OFF <NON ZERO0			51
0052		*					52
0053		*		IF MAG TAPE, DETERMINE IF 7 OR 9 TRACK AND WHICH OCTAL UNIT NUMBER			53
0054		*					54
0055	00014	00130403	SNS 3	MAG TAPE INPUT?	12/70	RLD *E	55
0056	00015	11100017	BRU **2	YES	12/70	RLD *E	56
0057	00016	11100056	BRU 000N+1	NO	12/70	RLD *E	57
0058	00017	00130406	SNS 6	9 TRACK TAPE?	12/70	RLD *E	58
0059	00020	11100035	BRU **13	YES	12/70	RLD *E	59
0060	00021	01100024	LAA STT	556 BPI, TRANSPORT 2, 3 CHARACTERS	12/70	RLD *E	60
0061		*		PER WORD	12/70	RLD *E	61
0062	00022	11100036	BRU **12		12/70	RLD *E	62
0063	00023	00000222	NTT DATA '222	9 TRACK TAPE	12/70	RLD *E	63
0064	00024	00000123	STT DATA '123	7 TRACK TAPE	12/70	RLD *E	64
0065	00025	35401353	L0C1 DAC CEU1+1		12/70	RLD *E	65
0066	00026	35401352	L0C2 DAC CEU1		12/70	RLD *E	66
0067	00027	35401360	L0C3 DAC CEU2		12/70	RLD *E	67
0068	00030	35401401	L0C4 DAC BSPC		12/70	RLD *E	68
0069	00031	35401363	L0C5 DAC TEU1		12/70	RLD *E	69
0070	00032	35401366	L0C6 DAC TEU2		12/70	RLD *E	70
0071	00033	35401355	L0C7 DAC TRY3		12/70	RLD *E	71
0072	00034	00177700	MASK DATA '177700		12/70	RLD *E	72
0073	00035	01100023	LAA NTT	800 BPI, TRANSPORT 2, 2 CHARACTERS	12/70	RLD *E	73
0074		*		PER WORD	12/70	RLD *E	74
0075	00036	03300025	STA* L0C1	CEU1+1	12/70	RLD *E	75
0076	00037	01300026	LAA* L0C2	CEU1	12/70	RLD *E	76
0077	00040	02100034	LBA MASK		12/70	RLD *E	77
0078	00041	00000027	ABA		12/70	RLD *E	78
0079	00042	00000005	TAB		12/70	RLD *E	79
0080	00043	00000031	LCS		12/70	RLD *E	80
0081	00044	00001216	LSL 10		12/70	RLD *E	81

0082	00045	00001215	RSL 10	STRIP TO DETERMINE OCTAL UNIT NO.	12/70	RLD	*E	82
0083	00046	00000030	ØBA		12/70	RLD	*E	83
0084	00047	03300026	STA* LØC2	CEU1	12/70	RLD	*E	84
0085	00050	03300027	STA* LØC3	CEU2	12/70	RLD	*E	85
0086	00051	03300030	STA* LØC4	BSPC	12/70	RLD	*E	86
0087	00052	05100710	AMA K9	'200 - CONVERT TO TEU INSTRUCTION	12/70	RLD	*E	87
0088	00053	03300031	STA* LØC5	TEU1	12/70	RLD	*E	88
0089	00054	03300032	STA* LØC6	TEU2	12/70	RLD	*E	89
0090	00055	03300033	GØØN STA* LØC7	TRY3	12/70	RLD	*E	90
0091			*					91
0092			*	ESTABLISH START OF COMMON POOL				92
0093			*					93
0094	00056	01100744	LAA RPL				DPC	94
0095	00057	00000214	FRL 2	ISOLATE BANK BIT		DPC	8/69	95
0096	00060	00001613	FLL 14	REPOSITION		DPC	8/69	96
0097	00061	16100202	AMB S374	CONVERT TO UPPERMOST COMMON POSSIBILITY		DPC	8/69	97
0098	00062	04400000	STB 0,1	STORE TO TEST MEMORIES EXISTANCE		DPC	8/69	98
0099	00063	01400000	LAA 0,1	RELOAD IT		DPC	8/69	99
0100	00064	00000022	SAZ	TEST		DPC	8/69	100
0101	00065	11100070	BRU *+3	GØØD		DPC	8/69	101
0102	00066	16100204	AMB SM1	NØ-GØØD, TRY 4K LØWER				102
0103	00067	11100062	BRU *-5			DPC	8/69	103
0104			*			DPC	8/69	104
0105	00070	04100717	STB CØMN	SAVE IN FINAL DESTINATION (TEMP, MAYBE)		DPC	8/69	105
0106	00071	01100715	LAA K25	NØRMAL CØMMØN START		DPC	8/69	106
0107	00072	15100744	CMA RPL	CHECK FOR LOADING ABOVE LØADER		DPC	8/69	107
0108	00073	11100100	BRU *+5	LOADING ABOVE LØADER, CØMN ØK		DPC	8/69	108
0109	00074	00000033	NØP			DPC	8/69	109
0110			*					110
0111	00075	15100717	CMA CØMN			DPC	8/69	111
0112	00076	03100717	STA CØMN	LOADING BELØW LØADER AND CØMN		DPC	8/69	112
0113	00077	00000033	NØP			DPC	8/69	113
0114	00100	01100717	LAA CØMN					114
0115	00101	03100720	STA CØMI	SET INITIAL CØMMØN TO PRESENT CØMMØN				115
0116			*					116
0117	00102	02100716	LBA BEGN	START OF NAME TABLE				117
0118	00103	04100721	STB END	SET END OF NAME TABLE				118
0119	00104	00000003	CLA					119
0120	00105	03100722	STA LØDF	LOAD FLAG ØN				120
0121	00106	03100723	STA CALS	NØ, ØF UNDEFINED SUBR, CALLS = 0				121
0122	00107	03400001	STA 1,1	INIT. FRST NAME TØL ENTRY				122

0123	00110	01100712	LX10	LAA	K17	-1	123
0124	00111	03100726		STA	WCNT	INPUT WORD COUNT = -1	124
0125	00112	03100725		STA	FFSW	FLIP FLOP SWITCH <READ INPUT0	125
0126	00113	01100670	L10	LAA	A10		126
0127	00114	03100730		STA	J	SET SWITCH J TO ADDRESS L10	127
0128	00115	12300672		SPB*	I1	READ 24-BIT WORD	128
0129	00116	03100731		STA	T1	UPPER 8 BITS	129
0130	00117	04100732		STB	T2	LOWER 16 BITS	130
0131	00120	02100704		LBA	K2	= '36	131
0132	00121	00000027		ABA			132
0133	00122	03100737		STA	OP	OPERATOR <BITS 12-150	133
0134	00123	02100732		LBA	T2	ADDRESS <BITS 2-160	134
0135	00124	00001717		FLA	15	F.E.C. 8-30-66	135
0136	00125	03100740		STA	ADDR	ADDRESS <BITS 1-160	136
0137	00126	01100731		LAA	T1		137
0138	00127	00001713		FLL	15		138
0139	00130	00001615		RSL	14		139
0140	00131	03100741		STA	XI	INDEX, INDIRECT BITS <15-160	140
0141	00132	12100410		SPB	XIDC	CONSTRUCT XIAD DPC 3/18/69	141
0142	00133	03100742		STA	XIAD	INDEX, INDIRECT, 14-BIT ADR	142
0143	00134	01100731		LAA	T1		143
0144	00135	00000610		RSA	6		144
0145	00136	00000005		TAB		SET CODE BITS INTO INDEX	145
0146	00137	11500140		BRU	++1,1	BRANCH TO CODE PROCESSOR	146
0147	00140	11100207		BRU	L20	...ABSOLUTE DATA	147
0148	00141	11100246		BRU	L40	...MEMORY REFERENCE	148
0149	00142	11100426		BRU	L80	...SUBROUTINE/COMMON	149
0150	00143	01100742	L60	LAA	XIAD	IF X = 1, THIS ENTRY IS A	150
0151	00144	00000023		SAN		LITERAL AND IS PROCESSED	151
0152	00145	11100172		BRU	L62	AS A MEMORY REF INST	152
0153	00146	00000003		CLA			153
0154	00147	03100735		STA	T5		154
0155	00150	01100732		LAA	T2	USE UNMODIFIED ADDR DPC 4/4/69	155
0156	00151	03100740		STA	ADDR	DPC 4/4/69	156
0157	00152	12300673		SPB*	I2	ADD BASE TO ADDR IF RELATIVE	157
0158	00153	12300674		SPB*	I3	CHECK LOAD FLAG DPC 4/4/69	158
0159	00154	01100740		LAA	ADDR	DPC 4/4/69	159
0160	00155	11100310		BRU	L43B	DPC 4/4/69	160
0161			*				DPC 161
0162			*		INITIALIXE BASE MAP		DPC 162
0163			*				DPC 163

0164	00156	25400000	MPZR	DAC	**			DPC	164
0165	00157	04100754		STB	LZ			DPC	165
0166	00160	04100755		STB	LZB			DPC	166
0167	00161	01100706		LAA	K5			DPC	167
0168	00162	00000027		ABA				DPC	168
0169	00163	03100667		STA	KCML	LOWER END OF NEW MAP ZERO		DPC	169
0170	00164	05100703		AMA	K1	MAP LENGTH = '1000		DPC	170
0171	00165	03100666		STA	KCMH	UPPER END OF NEW MAP ZERO		DPC	171
0172	00166	01100707		LAA	K7			DPC	172
0173	00167	03400000		STA	0,1	ESTABLISH FIRST MAP ZERO ENTRY		DPC	173
0174	00170	14100754		IMS	LZ			DPC	174
0175	00171	11300156		BRU*	MPZR	RETURN		DPC	175
0176			*						176
0177	00172	01100737	L62	LAA	ØP				177
0178	00173	00000115		RSL	1				178
0179	00174	00000005		TAB					179
0180	00175	11300176		BRU	**+1,1	BRANCH ON CODE BITS IN ØP			180
0181	00176	11100542		BRU	L100	....<000 LOAD POINT			181
0182	00177	11100614		BRU	L110	....<010 END JUMP			182
0183	00200	11100756		BRU	L120	....<020 9-BIT STRING			183
0184	00201	35401250	I6	DAC	TYPØ			DPC	184
0185	00202	00037774	S374	DATA	'37774			DPC	185
0186	00203	11100235		BRU	L170	NEW MAP ZWRØ		DPC	186
0187	00204	00170000	SM1	DATA	-'10000	4K		DPC 8/69	187
0188	00205	11100646		BRU	L190	....<070 SET LOAD FLAG ON			188
0189	00206	11300700		BRU*	19	....<100 END-ØF-JØB			189
0190				*****	STØRE ABSØLUTE DATA	<000			190
0191	00207	01100732	L20	LAA	T2				191
0192	00210	02100744	L21	LBA	RPL				192
0193	00211	03400000		STA	0,1	*****			193
0194	00212	12300674	L22	SPB*	I3	CHECK LOAD FLAG			194
0195	00213	14100744		IMS	RPL	*****			195
0196	00214	01100744		LAA	RPL	*****			196
0197	00215	15300702		CMA*	ILH	IS THIS GREATER THAN CURRENT HIGH			197
0198	00216	00000033		NØP					198
0199	00217	11100221		BRU	**+2	NØ			199
0200	00220	03300702		STA*	ILH				200
0201	00221	15100720		CMA	CØMI	CHECK FØR ØVERFLØW INTO CØMMØN			201
0202	00222	15100717		CMA	CØMN				202
0203	00223	11100226		BRU	**+3	ØK			203
0204	00224	11100226		BRU	**+2				204

0205	00225	11100232	BRU	LMØ	STØRAGE INTØ CØMMØN	205
0206	00226	15100753	CMA	IE41	EAC ENDJ	206
0207	00227	15100721	CMA	END	START ØF NAME TABLE	207
0208	00230	11300730	BRU*	J		208
0209	00231	11300730	BRU*	J		209
0210	00232	12300675	LMØ	SPB* I4	-TYPE-	210
0211	00233	00146717	DATA	'MØ'		211
0212	00234	11300701	BRU*	I10	TØ HALT	212
0213			*			213
0214			*	MAP ZERO PRØCESSØR		DPC 214
0215			*			DPC 215
0216	00235	12300674	L170	SPB* I3	CHECK LØAD FLAG	DP 216
0217	00236	12300675		SPB* I4		217
0218	00237	00146732	DATA	'MZ'		218
0219	00240	01100754	LAA	LZ		219
0220	00241	12300201	SPB*	I6		220
0221	00242	12300673	SPB*	I2	RELØCATEAD FLAG	DP 221
0222	00243	00000005	TAB		SETUP FØR MPZR	DPC 222
0223	00244	12100156	SPB	MPZR		223
0224	00245	11100113	BRU	L10		DPC 224
0225			*			225
0226			*****MEMORY REFERENCE PRØCESSØR <Ø10			226
0227	00246	01100737	L40	LAA ØP	EXTEND SIGN TØ SIGN BIT	227
0228	00247	06100705	SMA	K4	IF DAC <'130	228
0229	00250	00000022	SAZ			229
0230	00251	11300751	BRU*	L4ØI		230
0231	00252	01100740	L4ØZ	LAA ADDR		231
0232	00253	00000116	LSL	1		232
0233	00254	00000110	RSA	1		233
0234	00255	03100740	L4ØB	STA ADDR		234
0235	00256	12300673	L4ØA	SPB* I2	ADD BASE TØ ADDR. IF RELATIVE	235
0236	00257	01100737	L41	LAA ØP		236
0237	00260	15100704	CMA	K2	=136	237
0238	00261	11100263	BRU	**2		238
0239	00262	11100417	BRU	L50	BRANCH IF A 15-BIT DAC	239
0240	00263	15100705	CMA	K4	=126	240
0241	00264	11100266	BRU	**2		241
0242	00265	11100406	BRU	L48	BRANCH IF A 14-BIT DAC	242
0243	00266	01100740	LAA	ADDR		243
0244	00267	12100651	SPB	MZCM	TEST TØ SEE ØF IN MAP ZERO	244
0245	00270	11100354	BRU	L46	REFERENCE TØ MAP ZERO	245

0246	00271	01100740	L42	LAA	ADDR			DPC	246
0247	00272	12100342		SPB	SMMP	SEE IF IN SAME MAP AS RPL	DPC 3/14/69		247
0248	00273	01100707		LAA	K7	=1			248
0249	00274	03100735		STA	T5				249
0250	00275	12300674	L43	SPB*	I3	CHECK LOAD FLAG			250
0251			*						251
0252	00276	00130404		SNS	4	SENSE SWITCH 4 (LIST INTERRUPT REF SOURCES)		DPC	252
0253	00277	11100301		BRU	**2	LIST		DPC	253
0254	00300	11100307		BRU	**7	BYPASS LIST	DPC 8/69		254
0255	00301	12300675		SPB*	I4	CARRIAGE RETURN, LINE FEED		DPC	255
0256	00302	00144715		DATA	'IM'				256
0257	00303	01100744		LAA	RPL	LIST LOCATION REQUIRING INTERMAP		DPC	257
0258	00304	12300201		SPB*	I6			DPC	258
0259	00305	01100740		LAA	ADDR		DPC 8/69		259
0260	00306	12300201		SPB*	I6	LIST LOCATION REFERED TO	DPC 8/69		260
0261			*						261
0262	00307	12100410		SPB	XIDC	CONSTRUCT XIAD	DPC 3/18/69		262
0263	00310	03100742	L43B	STA	XIAD	LITERAL ENTRY INTO MAP ZERO ENTRY		DPC 4	263
0264	00311	02100754	L43A	LBA	LZ	DPC 3/14/69			264
0265	00312	03400000		STA	0,1	DPC 3/14/69			265
0266	00313	02100755		LBA	LZB	FIRST ZERO MAP LOC.			266
0267	00314	01100742	L44	LAA	XIAD				267
0268	00315	15400000		CMA	0,1	TEST FOR = ENTRY MAP ZERO			268
0269	00316	11100320		BRU	**2	NO MATCH			269
0270	00317	11100322		BRU	L45	MATCH FOUND			270
0271	00320	16100707		AMB	K7	=1			271
0272	00321	11100314		BRU	L44	TEST NEXT ENTRY			272
0273	00322	00000004	L45	TBA					273
0274	00323	03100733		STA	T3	T3 = ZERO MAP ENTRY			274
0275	00324	15100754		CMA	LZ				275
0276	00325	11100327		BRU	**2				276
0277	00326	14100754	L45A	IMS	LZ	LZ = LZ + 1			277
0278	00327	03100740		STA	ADDR				278
0279	00330	03100732		STA	T2				279
0280	00331	01100711		LAA	K10				280
0281	00332	02100731		LBA	T1				281
0282	00333	00000030		ØBA		SET RELOCATABLE			282
0283	00334	03100731		STA	T1				283
0284	00335	02100735		LBA	T5				284
0285	00336	04100741		STB	XI				285
0286	00337	01100754		LAA	LZ	CHECK FOR LZ OVERFLOW			286

0287	00340	12100651	SPB	MZCM	TEST TØ SEE ØF IN MAP ZERØ	287
0288	00341	11100257	BRU	L41		288
0289			*			289
0290			*	CHECK FØR RPL SAME AZ ADDR	DPC 3/14/69	290
0291			*			291
0292	00342	25400000	SMMP	DAC **	DPC	292
0293	00343	02100706	LBA	K5	DPC	293
0294	00344	00000027	ABA		DPC	294
0295	00345	03100733	STA	T3	DPC	295
0296	00346	01100744	LAA	RPL	*****	296
0297	00347	00000027	ABA			297
0298	00350	15100733	CMA	T3	DPC	298
0299	00351	11300342	BRU*	SMMP	DPC	299
0300	00352	11100424	BRU	L52	DPC	300
0301	00353	11300342	BRU*	SMMP	DPC	301
0302			*			302
0303			*	*****REFERENCE TØ MAP ZERØ		303
0304			*			304
0305	00354	02100706	L46	LBA K5	=177000	305
0306	00355	00000027	ABA		MASK FØR REAL MAP ZERØ TEST	306
0307	00356	00000022	SAZ			307
0308	00357	11100365	BRU	L46B	NØT REAL MAP ZERØ	308
0309			*		REAL MAP ZERØ	309
0310	00360	01100707	LAA	K7	=1	310
0311	00361	15100741	CMA	XI	TEST FØR INDEXED	311
0312	00362	11100372	BRU	L47A	INDEXED MAP ZERØ, NØ MAP BIT	312
0313	00363	00000033	NØP			313
0314	00364	00130405	SNS	5	TEST INTER MAP ZERØ MAP BIT ØPTION	314
0315			*			315
0316	00365	12100342	L46B	SPB SMMP	TEST FØR SAME MAP (NEED FØR MAP BIT)	316
0317	00366	01100707	LAA	K7	=1	317
0318	00367	15100741	CMA	XI	TEST FØR INDEXED	318
0319	00370	11100274	BRU	L42+3		DPC 319
0320	00371	00000033	NØP			320
0321			*			321
0322	00372	00000003	L47A	CLA	RESET MAP BIT D.P.C. 3/6/69	322
0323	00373	02100740	L47	LBA ADDR	ADDR	323
0324	00374	00000613	FLL	6		324
0325	00375	00000615	RSL	6	MAP	325
0326	00376	00000112	FRA	1		326
0327	00377	01100741	LAA	XI	INDIRECT	327

0328	00400	00000212	FRA	2			328
0329	00401	00000113	FLL	1			329
0330	00402	01100737	LAA	ØP	ØP-INDEX BITS		330
0331	00403	00000115	RSL	1			331
0332	00404	00001413	FLL	12			332
0333	00405	11100210	BRU	L21			333
0334			*				334
0335			*****14 BIT DAC				335
0336	00406	12100410	L48	SPB	XIDC	CONSTRUCT XIAD DPC 3/18/69	336
0337	00407	11100210	BRU	L21		STARE INTØ RPL	337
0338			*				338
0339			*		CONSTRUCT XIAD FROM ADDR AND XI		339
0340			*				340
0341	00410	25400000	XIDC	DAC	**	DPC 3/18/69	341
0342	00411	01100740	LAA	ADDR		DPC 3/18/69	342
0343	00412	02100741	LBA	XI		DPC 3/18/69	343
0344	00413	00000216	LSL	2		DPC 3/18/69	344
0345	00414	00001614	FRL	14		DPC 3/18/69	345
0346	00415	00000004	TBA			DPC 3/18/69	346
0347	00416	11300410	BRU*	XIDC		DPC 3/18/69	347
0348			*				348
0349	00417	02100740	L50	LBA	ADDR		349
0350	00420	01100731	LAA	T1			350
0351	00421	00001716	LSL	15			351
0352	00422	00000030	ØBA				352
0353	00423	11100210	BRU	L21		STØRE INTØ RPL	353
0354			*				354
0355			*****REFERENCE TO CURRENT MAP				355
0356	00424	01100707	L52	LAA	K7	=1 <SET MAP BIT = U10	356
0357	00425	11100373	BRU	L47		MERGE WITH XI,ØP.ADDR AND STØRE	357
0358			*				358
0359			*****SUBROUTINE/COMMON REFERENCE				359
0360	00426	12300672	L80	SPB*	I1	READ 24-BIT WØRD	360
0361	00427	03100743	STA	CD		COMMON FLAG, DEFINITION FLAG	361
0362	00430	01100740	LAA	ADDR			362
0363	00431	00000002	NEG				363
0364	00432	00000006	IAB			BIT 0 ØF A = N	364
0365	00433	00000024	SAP				365
0366	00434	04100740	STB	ADDR		ADDR=- ADDR IF N = 1	366
0367	00435	12300672	SPB*	I1		READ 24-BIT WØRD	367
0368	00436	00001013	FLL	8			368

0369	00437	03100746	STA	S1S2	FIRST 2 CHAR. OF NAME	369
0370	00440	04100747	STB	S3S4		370
0371	00441	12300672	SPB*	I1	READ 24-BIT WORD	371
0372	00442	05100747	AMA	S3S4		372
0373	00443	03100747	STA	S3S4	SECOND 2 CHAR. OF NAME	373
0374	00444	04100750	STB	S5S6	LAST 2 CHAR. OF NAME	374
0375	00445	02100716	LBA	BEGN	INDEX=START OF SUBR. NAME TABLE	375
0376	00446	00000004	L83	TBA		376
0377	00447	15100721	CMA	END	DPC 4/7/69	377
0378	00450	11100452	BRU	*+2	DPC 4/7/69	378
0379	00451	11100550	BRU	LJ1		379
0380	00452	01400001	LAA	1,1	FIRST 2 CHAR OF NAME	380
0381	00453	06100746	SMA	S1S2		381
0382	00454	00000022	SAZ			382
0383	00455	11100546	BRU	L83A	NØ MATCH	DPC 383
0384	00456	01400002	LAA	2,1	SECOND 2 CHAR OF NAME	384
0385	00457	06100747	SMA	S3S4		385
0386	00460	00000022	SAZ			386
0387	00461	11100546	BRU	L83A	NØ MATCH	DPC 387
0388	00462	01400003	LAA	3,1	LAST 2 CHAR OF NAME	388
0389	00463	06100750	SMA	S5S6		389
0390	00464	00000022	SAZ			390
0391	00465	11100546	BRU	L83A	NØ MATCH	DPC 391
0392	00466	01100743	L95	LAA	CD	COMMON FLAG, DEFINITION FLAG
0393	00467	00000022	SAZ			393
0394	00470	11100525	BRU	L98		394
0395			*			395
0396			*****	SUBROUTINE DEFINITION	<CD=000	396
0397	00471	03100727	STA	NFLG	SET NAME FLAG ON	397
0398	00472	03100722	STA	LØDF		398
0399	00473	01400000	L97	LAA	0,1	CHECK DEFINITION FLAG
0400	00474	00000023	SAN			400
0401	00475	11100522	BRU	LL1	SUBROUTINE ALREADY LOADED	401
0402	00476	03100736	STA	TPY		402
0403	00477	01100740	LAA	ADDR		403
0404	00500	06100714	SMA	K24	'077777	404
0405	00501	00000022	SAZ			405
0406	00502	11100504	BRU	*+2		406
0407	00503	11100517	BRU	L97A		407
0408	00504	01100736	LAA	TPY		408
0409	00505	00000020	ASC			409

0410	00506	03400000		STA	0,1		410
0411	00507	00001712		FRA	15	INDEX=ZERO MAP POINTER ADDR.	411
0412	00510	12300673		SPB*	I2	ADDR=RELATIVE ENTRY POINT	412
0413	00511	00000216		LSL	2		413
0414	00512	00000215		RSL	2	DPC 3/20/69	414
0415	00513	03400000		STA	0,1	SET RPL INTO ZERO MAP POINTER	415
0416	00514	01100723		LAA	CALS		416
0417	00515	06100707		SMA	K7	=1	417
0418	00516	03100723		STA	CALS	CALS = CALS-1	418
0419	00517	00000003	L97A	CLA			419
0420	00520	03100722		STA	L0DF	SET LOAD FLAG ON	420
0421	00521	11100113		BRU	L10	READ NEXT CODE WORD	421
0422	00522	01100522	LL1	LAA	*		422
0423	00523	03100722		STA	L0DF		423
0424	00524	11100113		BRU	L10		424
0425				*			425
0426	00525	15100710	L98	CMA	K9	=1200 <BRANCH ON CDO	426
0427	00526	11100533		BRU	L99	<010 SUBR. CALL/ EXT. VAR. CALL	427
0428	00527	11100113		BRU	L10	<100 COMMON DEFINITION <IGNORED	428
0429	00530	01400000		LAA	0,1	<110 COMMON REQUEST	429
0430	00531	05100740		AMA	ADDR	ADD ANY DEFLECTION	430
0431	00532	11100534		BRU	**2		431
0432	00533	01400000	L99	LAA	0,1	LOC. OF ZERO MAP POINTER	432
0433	00534	00000116		LSL	1	EXTRACT OFF SIGN BIT	433
0434	00535	00000115		RSL	1		434
0435	00536	03100740	L99A	STA	ADDR		435
0436	00537	01100737		LAA	0P		436
0437	00540	00000022		SAZ			437
0438	00541	11100257		BRU	L41	STORE INTO MEMORY	438
0439				*****	L0AD POINT SET		439
0440	00542	12300674	L100	SPB*	I3	CHECK LOAD FLAG	440
0441	00543	12300673		SPB*	I2	ADD BASE TO ADDR. IF REQUESTED	441
0442	00544	03100744		STA	RPL	*****	442
0443	00545	11100113		BRU	L10	DON'T UPDATE RPLH (DUE TO EQU S)	443
0444				*			444
0445	00546	16100711	L83A	AMB	K10		445
0446	00547	11100446		BRU	L83		446
0447				*			447
0448	00550	01100743	LJ1	LAA	CD		448
0449	00551	00000022		SAZ			449
0450	00552	11100563		BRU	LLF1		450

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0451          ***** PROCESS SUBR. NAME NOT PREVIOUSLY CALLED          451
0452 00553 01100727          LAA  NFLG          452
0453 00554 00000022          SAZ                    453
0454 00555 11100557          BRU  **2          454
0455 00556 11100113          BRU  L10          455
0456 00557 03100722          STA  L0DF          SET LOAD FLAG NON ZERO 456
0457 00560 00000003          CLA                    457
0458 00561 03100727          STA  NFLG          SET NAME FLAG ON      458
0459 00562 11100113          BRU  L10          459
0460 00563 12300674  LLF1  SPB* I3          CHECK LOAD FLAG      460
0461 00564 01100743          LAA  CD                    461
0462 00565 15100710          CMA  K9                    = '200                462
0463 00566 11100602          BRU  L90          <010 INITIAL SUBROUTINE CALL 463
0464 00567 11100574          BRU  L86          <100 INITIAL COMMON DEFINITION 464
0465 00570 12300675          SPB* I4          <110 INITIAL COMMON REQUEST 465
0466 00571 00141715          DATA 'CM''          COMMON REQUEST BEFORE BEING DEFINED 466
0467 00572 11300701          BRU* I10          TO HALT                467
0468          *                    468
0469 00573 11300410          BRU* XIDC          DPC 3/18/69          469
0470          *                    470
0471          *****15 BIT DAC          471
0472 00574 01100717  L86  LAA  C0MN          ....INITIAL COMMON DEFINITION 472
0473 00575 06100740          SMA  ADDR          473
0474 00576 03100717          STA  C0MN          INCREMENT ADDR        474
0475 00577 03100740          STA  ADDR          475
0476 00600 12300676  L88  SPB* I5          ENTER INTO NAME TABLE  FLNT 476
0477 00601 11100113          BRU  L10          COMMON DEFINITION    477
0478          *                    478
0479 00602 01100754  L90  LAA  LZ          ....INITIAL SUBR. CALL 479
0480 00603 03100740          STA  ADDR          480
0481 00604 14100723          IMS  CALS          INCR. NO. OF CALLS   481
0482 00605 00000020          ASC                    SET BIT 1 TO 1        482
0483 00606 12300676          SPB* I5          ENTER INTO TABLE    483
0484 00607 01100707          LAA  K7                    484
0485 00610 02100754          LBA  LZ          DPC 3/14/69          485
0486 00611 03400000          STA  0,1          DPC 3/14/69          486
0487 00612 14100754          IMS  LZ                    487
0488 00613 11100257          BRU  L41          ENTER CALL INTO MEMORY 488
0489          *                    489
0490          *                    490
0491          *****END JUMP          491

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0492			*						492
0493	00614	12300674	L110	SPB*	I3				493
0494	00615	01100740		LAA	ADDR	IF ADDR NOT EQUAL TO			494
0495	00616	06100706		SMA	K5	'77000 GØTØ L114	DPC 3/20/69		495
0496	00617	00000216		LSL	2	FØR '3M000	SUB CØDE		496
0497	00620	00000022		SAZ					497
0498	00621	11100636		BRU	L114				498
0499	00622	01100622	L112	LAA	*				499
0500	00623	03100727		STA	NFLG	SET NAME FLAG ØFF<NØN ZERØØ			500
0501	00624	00000003		CLA					501
0502	00625	03100722		STA	LØDF	TURU LØAD FLAG ØN			502
0503	00626	01100744		LAA	RPL	*****			503
0504	00627	03100724		STA	BASE	BASE = RPL			504
0505	00630	01100723		LAA	CALS	IF CALS NOT EQUAL TO 0,			505
0506	00631	00000022		SAZ		GØ TØ L10			506
0507	00632	11100110		BRU	LX10				507
0508	00633	12300675		SPB*	I4	<TYPEØ			508
0509	00634	00146303		DATA	'LC'				509
0510	00635	11100110		BRU	LX10				510
0511	00636	12300673	L114	SPB*	I2	RELØCATE			511
0512	00637	01100727		LAA	NFLG				512
0513	00640	00000022		SAZ					513
0514	00641	11100643		BRU	**2	SET ENDJ			514
0515	00642	11100622		BRU	L112	DØ NOT SET ENDJ FØR SUBRØUTINES			515
0516	00643	01100740		LAA	ADDR				516
0517	00644	03300752		STA*	II41	ENDJ			517
0518	00645	11100622		BRU	L112				518
0519			*						519
0520			*			9-BIT ADD-TØ REMØVED	MDL 1/10/69 *C		520
0521			*			14-BIT ADD-TØ REMØVED	MDL 1/10/69 *C		521
0522			*			15-BIT ADD-TØ REMØVED	MDL 1/10/69 *C		522
0523			*						523
0524			*						524
0525			*						525
0526			*			*****SET LØAD FLAG			526
0527	00646	00000003	L190	CLA					527
0528	00647	03100722		STA	LØDF	SET LØAD FLAG FØR LØADING <=ØØ			528
0529	00650	11100113		BRU	L10				529
0530			*						530
0531	00651	00000000	MZCM	HLT		TEST ADDRESS IN A ACCUM, F.E.C. 8-30-66			531
0532	00652	15100667		CMA	KCML	TØ SEE IF IN MAP ZERØ	F.E.C. 8-30-66		532

0533	00653	11100662	BRU	ZCHK	BELOW VIRTUAL MAP ZERO, CHECK REAL MAP ZERO	D.	533
0534	00654	11300651	BRU*	MZCM	F.E.C. 8-30-66		534
0535	00655	15100666	CMA	KCMH	F.E.C. 8-30-66		535
0536	00656	11300651	BRU*	MZCM	F.E.C. 8-30-66		536
0537	00657	00000033		NOP	F.E.C. 8-30-66		537
0538	00660	14100651	SKIP	IMS MZCM	F.E.C. 8-30-66		538
0539	00661	11300651	BRU*	MZCM	F.E.C. 8-30-66		539
0540	00662	15100703	ZCHK	CMA K1	CHECK FOR REAL MAP ZERO	DPC 3/6/6	540
0541	00663	11300651	BRU*	MZCM	YES, IMMEDIATE RETURN	DPC 3/6/6	541
0542	00664	11100660	BRU	SKIP	NO, SKIP IMMEDIATE RETURN	DPC 3/6/6	542
0543	00665	11100660	BRU	SKIP	NO, SKIP IMMEDIATE RETURN	DPC 3/6/6	543
0544	00666	00000000	KCMH	HLT	F.E.C. 8-30-66		544
0545	00667	00000000	KCML	HLT	F.E.C. 8-30-66		545
0546			*****	ADDRESS CONSTANTS			546
0547	00670	35400113	A10	DAC L10			547
0548	00671	35401053	A11	DAC L130			548
0549	00672	35401261	I1	DAC READ			549
0550	00673	35401211	I2	DAC RELF			550
0551	00674	35401171	I3	DAC CHEC			551
0552	00675	35401224	I4	DAC TYPE			552
0553	00676	35401176	I5	DAC FLNT			553
0554	00677	35401013	I7	DAC L123		12/70 RLD *F	554
0555	00700	35401071	I9	DAC L200			555
0556	00701	35401073	I10	DAC L300			556
0557	00702	35401776	ILH	DAC RPLH			557
0558			*				558
0559			*****	DATA CONSTANTS			559
0560	00703	00001000	K1	DATA '1000			560
0561	00704	00000036	K2	DATA '36	DPC 3/29/69		561
0562	00705	00000026	K4	DATA '26			562
0563	00706	00077000	K5	DATA '77000	D.P.C. 3/6/69		563
0564	00707	00000001	K7	DATA 1			564
0565	00710	00000200	K9	DATA '200			565
0566	00711	00177774	K10	DATA -4			566
0567	00712	00177777	K17	DATA -1			567
0568	00713	00001777	K21	DATA '1777			568
0569	00714	00077777	K24	DATA '077777			569
0570	00715	37400003	K25	EAC LOAD-4	B	DPC	570
0571	00716	37400000	BEGN	EAC LOAD-7		DPC 3/28/69	571
0572			*				572
0573			*****	VARIABLES			573

0574	00717	25400000	C0MN	DAC	0					574
0575	00720	27400000	C0MI	EAC	**					575
0576	00721	25400000	END	DAC	**					576
0577	00722	25400000	LWDF	DAC	**			L0C. 0F LAST SUBR. NAME ENTRY		577
0578	00723	25400000	CALS	DAC	**			LOAD FLAG <0=L0AD0		578
0579	00724	25400000	BASE	DAC	**			NUMBER 0F UNDEFINED CALLS LEFT		579
0580	00725	25400000	FFSW	DAC	**			PR0GRAM BASE		580
0581	00726	25400000	WCNT	DAC	**			UNPACK FLIP FL0P SW		581
0582	00727	25400000	NFLG	DAC	**			P0INTER <INPUT BUFFER0		582
0583	00730	25400000	J	DAC	**			NAME FLAG		583
0584	00731	25400000	T1	DAC	**			ADDRESS SWITCH		584
0585	00732	25400000	T2	DAC	**			TEMP. CELLS		585
0586	00733	25400000	T3	DAC	**					586
0587	00734	25400000	T4	DAC	**					587
0588	00735	25400000	T5	DAC	**					588
0589	00736	25400000	TPY	DAC	**					589
0590	00737	25400000	0P	DAC	**			0PERATOR <BITS 12-150		590
0591	00740	25400000	ADDR	DAC	**			ADDRESS <BITS 2-160		591
0592	00741	25400000	XI	DAC	**			INDEX,INDIRECT <BITS 15,160		592
0593	00742	25400000	XIAD	DAC	**			INDEX,INDIRECT,14 BIT ADDR.		593
0594	00743	25400000	CD	DAC	**			C0MM0N/DEFINED FLAG		594
0595	00744	27400000	RPL	EAC	**			*****		595
0596	00745	25400000	SIZE	DAC	**			C0MM0N BL0CK SIZE		596
0597	00746	25400000	S1S2	DAC	**			SUBR0UTINE NAME		597
0598	00747	25400000	S3S4	DAC	**			SUBR0UTINE NAME		598
0599	00750	25400000	S5S6	DAC	**			SUBR0UTINE NAME		599
0600	00751	35401061	L40I	DAC	L40J					600
0601	00752	35401777	II41	DAC	ENDJ					601
0602	00753	37401777	IE41	EAC	ENDJ				DPC 3/28/69	602
0603	00754	27400000	LZ	EAC	**			MAP ZERO P0INTER		603
0604	00755	27400000	LZB	EAC	**			PERM MAP ZERO START		604
0605			*****		9-BIT STRING					605
0606	00756	12300674	L120	SPB*	I3			CHECK LOAD FLAG		606
0607	00757	01100671		LAA	A11			SET SWITCH J T0 L130		607
0608	00760	03100730		STA	J					608
0609	00761	01100744		LAA	RPL					609
0610	00762	03100745		STA	SIZE				DPC	610
0611	00763	12300673		SPB*	I2			RELJ	DPC	611
0612	00764	03100744	L132	STA	RPL				DPC	612
0613	00765	00000005		TAB				*****		613
0614	00766	01400000		LAA	0,1			*****		614

0615	00767	02100713	LBA	K21						615
0616	00770	00000027	ABA							616
0617	00771	03100734	STA	T4				12/70	RLD *E	617
0618	00772	02100745	LBA	SIZE				12/70	RLD *E	618
0619	00773	04100740	STB	ADDR				12/70	RLD *E	619
0620	00774	00000022	SAZ							620
0621	00775	11100777	BRU	**2				12/70	RLD *F	621
0622	00776	11300677	BRU*	I7				12/70	RLD *F	622
0623	00777	01100734	LAA	T4		IF T4 .GT. W1000		12/70	RLD *F	623
0624	01000	70001000	ORG	'1000				12/70	RLD *F	624
0625	01000	15301535	CMA*	II15						625
0626	01001	11101034	BRU	L126						626
0627	01002	00000033	NOP							627
0628	01003	01301540	L124 LAA*	II17		T4 = RPL<3=70, T4<8=160				628
0629	01004	00000716	LSL	7						629
0630	01005	00000005	TAB							630
0631	01006	01301551	LAA*	IRPL		*****				631
0632	01007	00000116	LSL	1					DPC	632
0633	01010	00001215	RSL	10					DPC	633
0634	01011	00001113	FLL	9						634
0635	01012	03301540	STA*	II17						635
0636	01013	02301551	L123 LBA*	IRPL		*****				636
0637	01014	01400000	LAA	0,1		*****				637
0638	01015	00000416	LSL	4						638
0639	01016	00001615	RSL	14						639
0640	01017	03301534	STA*	II14						640
0641	01020	02301551	L125 LBA*	IRPL		*****				641
0642	01021	01400000	LAA	0,1		*****				642
0643	01022	00001415	RSL	12						643
0644	01023	00000116	LSL	1						644
0645	01024	03301533	STA*	II13						645
0646	01025	00000022	SAZ							646
0647	01026	11101030	BRU	**2						647
0648	01027	11301555	BRU*	L48A						648
0649	01030	06101616	SMA	K4A						649
0650	01031	00000022	SAZ							650
0651	01032	11301556	BRU*	L42B						651
0652	01033	11301555	BRU*	L48A						652
0653	01034	01301551	L126 LAA*	IRPL		*****				653
0654	01035	06301535	SMA*	II15						654
0655	01036	00000024	SAP							655

0697	01103	11101106	BRU	**3	LOADED ALREADY	697
0698	01104	00130402	SNS	2	SKIP IF NOT SET	698
0699	01105	11101111	BRU	L315-1	PRINT NAME OF MISSING SUB	699
0700	01106	00130401	SNS	1		700
0701	01107	11101111	BRU	**2		701
0702	01110	11101131	BRU	NØ		702
0703	01111	12101224	SPB	TYPE	TYPE-ØUT	703
0704	01112	00040000	L315 DATA	'40000	NULL	704
0705	01113	01400000	LAA	0,1		705
0706	01114	00000021	SAS		MDL 1/10/69 *C	706
0707	01115	00000003	CLA		MDL 1/10/69 *C	707
0708	01116	11101121	BRU	L318		708
0709	01117	02400000	LBA	0,1		709
0710	01120	01400000	LAA	0,1		710
0711	01121	12101250	L318 SPB	TYPØ	TYPE IN ØCTAL NØ IN A REG	711
0712	01122	02301525	LBA*	II3	T3	712
0713	01123	01400001	LAA	1,1	TYPE NAME	713
0714	01124	12101156	SPB	FIX		714
0715	01125	01400002	LAA	2,1		715
0716	01126	12101156	SPB	FIX		716
0717	01127	01400003	LAA	3,1		717
0718	01130	12101156	SPB	FIX		718
0719	01131	16301526	NØ AMB*	II5	--4	719
0720	01132	00000004	TBA		CHECK FOR END OF TABLE	720
0721	01133	06301527	SMA*	II6	END	721
0722	01134	00000022	SAZ			722
0723	01135	11101100	BRU	L310	MØRE NAMES REMAINING	723
0724	01136	01101424	ØRRR LAA	CRLF		724
0725	01137	12101243	SPB	TYP A		725
0726	01140	01101776	LAA	RPLH	HIGHEST CORE LOCATION USED	726
0727	01141	12101250	SPB	TYPØ		727
0728	01142	01301552	LAA*	ILZ	HIGHEST IN MAP ZERO	728
0729	01143	12101250	SPB	TYPØ		729
0730	01144	00000000	HLT			730
0731	01145	01301530	L320 LAA*	II7	CHECK IF SUBROUTINES REQUIRED	731
0732	01146	02101777	LBA	ENDJ	SET INDEX TO START	DPC 3/28/69 732
0733	01147	00000021	SAS			DPC 3/28/69 733
0734	01150	00020000	IK1 DATA	'20000		734
0735	01151	11400000	BRU	0,1	BRANCH TO LOADED PROGRAM	DPC 3/28/69 735
0736	01152	01101772	LAA	IKM1		736
0737	01153	03301547	STA*	II29	-1 TO WCNT	737

0738	01154	03301550	STA*	II35				738
0739	01155	11301531	BRU*	II8				739
0740	01156	25400000	FIX	DAC	0	CONVERT TO FULL ASCII AND OUTPUT		740
0741	01157	12101163	SPB	FIX1		DO LEFT CHAR		741
0742	01160	00001016	LSL	8				742
0743	01161	12101163	SPB	FIX1		DO RIGHT CHAR		743
0744	01162	11301156	BRU*	FIX				744
0745	01163	25400000	FIX1	DAC	0			745
0746	01164	15101150	CMA	IK1		'20000		746
0747	01165	05101112	AMA	IK2		'40000		747
0748	01166	00000033	NOP					748
0749	01167	00170101	AOP	1,W				749
0750	01170	11301163	BRU*	FIX1				750
0751	01171	00001112	IK2	EQU	L315			751
0752			*****	CHECK	LOAD FLAG			752
0753	01171	25400000	CHEC	DAC	**			753
0754	01172	01301541	LAA*	II21		LOAD FLAG	L0DF	754
0755	01173	00000022	SAZ					755
0756	01174	11301531	BRU*	II22		FLAG IS OFF	L10	756
0757	01175	11301171	BRU*	CHEC		FLAG IS ON <EXIT0		757
0758			*					758
0759			*					759
0760			*****	SUBR.	TO MAKE A NAME TABLE ENTRY			760
0761	01176	25400000	FLNT	DAC	**			761
0762	01177	03400000	STA	0,1				762
0763	01200	01301542	LAA*	II23			S1S2	763
0764	01201	03400001	STA	1,1				764
0765	01202	01301543	LAA*	II24			S3S4	765
0766	01203	03400002	STA	2,1				766
0767	01204	01301544	LAA*	II25			S5S6	767
0768	01205	03400003	STA	3,1				768
0769	01206	16301526	AMB*	II5		--4		769
0770	01207	04301527	STB*	II6				770
0771	01210	11301176	BRU*	FLNT		EXIT		771
0772			*					772
0773			*****	RELATIVISE	SUBROUTINE			773
0774	01211	25400000	RELF	DAC	**			774
0775	01212	01301545	LAA*	II26		CHECK R BIT	T1	775
0776	01213	00001216	LSL	10				776
0777	01214	00000024	SAP				MDL 1/10/69 *C	777
0778	01215	11101220	BRU	**+3			MDL 1/10/69 *C	778

0779	01216	01301532	LAA*	II10		MDL	1/10/69	*C	779
0780	01217	11301211	BRU*	RELF		MDL	1/10/69	*C	780
0781	01220	01301532	LAA*	II10	ADD BASE TO OPERAND	ADDR.		ADDR	781
0782	01221	05301546	AMA*	II27		BASE			782
0783	01222	03301532	STA*	II10		ADDR			783
0784	01223	11301211	BRU*	RELF	EXIT				784
0785			*						785
0786			*****	SUBROUTINE TO TYPE THE NEXT WORD					786
0787	01224	25400000	TYPE	DAC	**				787
0788	01225	01101424	LAA	CRLF					788
0789	01226	12101243	SPB	TYP A					789
0790	01227	01301224	LAA*	TYPE					790
0791	01230	12101243	SPB	TYP A					791
0792	01231	14101224	IMS	TYPE	INCREMENT RETURN				792
0793	01232	11301224	BRU*	TYPE	EXIT				793
0794			*						794
0795			*****	SUBROUTINE TO SHIFT AND TYPE B REGISTER					795
0796	01233	25400000	TYPB	DAC	**				796
0797	01234	00000003	CLA						797
0798	01235	00000317	FLA	3					798
0799	01236	00000516	LSL	5					799
0800	01237	00000317	FLA	3					800
0801	01240	05101427	AMA	K15	'00'				801
0802	01241	12101243	SPB	TYP A	TYPE ACCUMULATOR				802
0803	01242	11301233	BRU*	TYPB	EXIT				803
0804			*						804
0805			*****	SUBROUTINE TO TYPE CONTENTS OF ACC. REGISTER					805
0806	01243	25400000	TYP A	DAC	**				806
0807	01244	00170101	AOP	1,W				CKA	807
0808	01245	00001016	LSL	8				WES	808
0809	01246	00170101	AOP	1,W				CKA	809
0810	01247	11301243	BRU*	TYP A	EXIT				810
0811			*						811
0812			*	SUBROUTINE TYPES A REG IN OCTAL					812
0813			*						813
0814	01250	00000000	TYPØ	***	**				814
0815	01251	00000116	LSL	1					815
0816	01252	00000115	RSL	1					816
0817	01253	00001412	FRA	12					817
0818	01254	05101425	AMA	K12					818
0819	01255	12101243	SPB	TYP A					819

0820	01256	12101233	SPB	TYPE			820
0821	01257	12101233	SPB	TYPE			821
0822	01260	11301250	BRU*	TYPE			822
0823			*				823
0824			*****	READ 24 BIT	LOADER INPUT WORD		824
0825			*				825
0826	01261	25400000	READ	DAC	**		826
0827	01262	14301547	IMS*	II29		WCNT	827
0828	01263	11101321	BRU	RD20			828
0829	01264	00130403	SNS	3		FEC	829
0830	01265	11101341	BRU	MAGT	MAG TAPE INPUT	FEC	830
0831	01266	01101771	LAA	AIP1	AIP 1,W		831
0832	01267	00130400	SNS	0	TEST FOR H.S. INPUT		832
0833	01270	11101274	BRU	**4			833
0834	01271	00130101	CEU	1,W	SELECT ASR-33 FOR READER		834
0835	01272	00004000	DATA	'4000	MODE		835
0836	01273	11101277	BRU	**4			836
0837	01274	06101772	SMA	IKM1	INCREMENT UNIT NUMBER		837
0838	01275	00130102	CEU	2,W	SELECT HIGH SPEED READER		838
0839	01276	00001000	DATA	'1000			839
0840	01277	03101303	STA	AA3			840
0841	01300	03101763	STA	A4			841
0842	01301	03101677	AMA	D1	ADD IN MERGE BIT		842
0843	01302	03101765	STA	A5			843
0844	01303	00000033	AA3	NOP	AIP UNIT, W		844
0845	01304	06101672	SMA	0377	SKIP TO START		845
0846	01305	00000022	SAZ				846
0847	01306	11101303	BRU	*-3	NOT START CODE		847
0848	01307	02101430	LBA	K16			848
0849	01310	12101762	AA4	SPB	INWD	READ ONE WORD FROM UNIT	849
0850	01311	03501524	STA	IBUF+55,1			850
0851	01312	00000026	IBS		TEST FOR 1 BLOCK READ		851
0852	01313	11101310	BRU	AA4	NOT FINISHED		852
0853	01314	11101405	BRU	MAG1	GO COMPUTE CHECKSUM		853
0854	01315	00000022	TELI	SAZ	CHECKSUM OK		854
0855	01316	11101416	BRU	TPCK	CHECKSUM BAD		855
0856	01317	02101431	LBA	K22	=-54		856
0857	01320	04301547	STB*	II29		WCNT	857
0858	01321	02301547	RD20	LBA*	II29	WCNT	858
0859	01322	14301550	IMS*	II33	IF FFSW GOES ZERO, FETCH FFSW		859
0860	01323	11101332	BRU	RD30	WORD FROM LEFT POSITION		860

0861	01324	01501524	LAA	IBUF+55,1					861
0862	01325	02501523	LBA	IBUF+54,1					862
0863	01326	00001014	FRL	8					863
0864	01327	00001016	RD25	LSL	8				864
0865	01330	00001015	RSL	8					865
0866	01331	11301261	BRU*	READ		RETURN	EXIT		866
0867	01332	01101772	RD30	LAA	IKM1				867
0868	01333	03301550	STA*	II33		RESET	FFSW	FFSW	868
0869	01334	01501523	LAA	IBUF+54,1					869
0870	01335	02501524	LBA	IBUF+55,1					870
0871	01336	14301547	IMS*	II29				WCNT	871
0872	01337	00000033	NOP						872
0873	01340	11101327	BRU	RD25					873
0874	01341	01101413	MAGT	LAA	IND1			FEC	874
0875	01342	00130407	SNS	7		RTX OUTPUT?		12/70 RLD *F	875
0876	01343	05101432	AMA	K3		YES, IBUF-2 (57 WORDS)		12/70 RLD *F	876
0877	01344	02101415	LBA	FWA		LOAD INDEX TO CURRENT ADDRESS REGISTER		DPC 3/28/	877
0878	01345	03400000	STA	0,1				DPC 3/28/69	878
0879	01346	01101414	LAA	IND2				FEC	879
0880	01347	00130407	SNS	7		RTX OUTPUT?		12/70 RLD *F	880
0881	01350	06101432	SMA	K3		YES, 57 WORDS (ADD TWO)		12/70 RLD *F	881
0882	01351	03400001	STA	1,1				DPC 3/28/69	882
0883	01352	00130000	CEU1	CEU	0			12/70 RLD *E	883
0884	01353	00000000	DATA	0				12/70 RLD *E	884
0885	01354	11101352	BRU	*-2				12/70 RLD *E	885
0886	01355	00130200	TRY3	TEU	0			12/70 RLD *E	886
0887	01356	00100000	DATA	'100000				12/70 RLD *E	887
0888	01357	11101355	BRU	*-2				12/70 RLD *E	888
0889	01360	00130000	CEU2	CEU	0			12/70 RLD *E	889
0890	01361	00104400	DATA	'104400				12/70 RLD *E	890
0891	01362	11101360	BRU	*-2				12/70 RLD *E	891
0892	01363	00130200	TEU1	TEU	0			12/70 RLD *E	892
0893	01364	00100000	DATA	'100000				12/70 RLD *E	893
0894	01365	11101363	BRU	*-2				12/70 RLD *E	894
0895	01366	00130200	TEU2	TEU	0			12/70 RLD *E	895
0896	01367	00002100	DATA	'2100				12/70 RLD *E	896
0897	01370	11101372	BRU	*+2					897
0898	01371	11101405	BRU	MAG1					898
0899	01372	02301526	LBA*	II5					899
0900	01373	00000026	IBS						900
0901	01374	11101401	BRU	BSPC					901

0902	01375	00170501	NDP	1,W					902
0903	01376	00151240	DATA	'R'					903
0904	01377	00000000	HLT						904
0905	01400	11101405	BRU	MAG1					905
0906	01401	00130000	BSPC	CEU	0			12/70 RLD *E	906
0907	01402	00004040	DATA	'4040				12/70 RLD *E	907
0908	01403	11101401	BRU	*-2				12/70 RLD *E	908
0909	01404	11101355	BRU	TRYS					909
0910	01405	02101431	MAG1	LBA	K22				910
0911	01406	01101435	LAA	IBUF				FEC	911
0912	01407	05501524	AMA	IBUF+55,1				FEC	912
0913	01410	00000026	IBS					FEC	913
0914	01411	11101407	BRU	*-2				FEC	914
0915	01412	11101315	BRU	TELI				FEC	915
0916	01413	37401435	IND1	EAC	IBUF	INPUT BUFFER POINTER		10/70 RLD *E	916
0917	01414	00100067	IND2	DATA	'100067	55 WORDS		10/70 RLD *E	917
0918	01415	27401060	FWA	EAC	BTC				918
0919			*						919
0920			*****	TYPE CHECK	<CK0	ON BAD CHECK SUM			920
0921	01416	12101224	TPCK	SPB	TYPE				921
0922	01417	00141713	DATA	'CK'					922
0923	01420	00000000	HLT						923
0924	01421	00130403	SNS	3					924
0925	01422	11101317	BRU	TELI+2					925
0926	01423	11101264	BRU	READ+3		RETRY READ EXCEPT ON MTU			926
0927			*						927
0928	01424	00106612	CRLF	DATA	'106612				928
0929	01425	00120260	K12	DATA	'120260	'KSP00'			929
0930	01426	00000010	OC10	DATA	'10				930
0931	01427	00130260	K15	DATA	'130260				931
0932	01430	00177711	K16	DATA	-55				932
0933	01431	00177712	K22	DATA	-54				933
0934	01432	00177776	K3	DATA	-2			12/70 RLD *F	934
0935	01433	00000002	BSS	2		FOR START CODE ON MAG TAPE			935
0936	01435	00000067	IBUF	BSS	55	INPUT BUFFER			936
0937			*						937
0938			*****	ADDRESS CONSTANTS					938
0939	01524	35400716	II2	DAC	BEGN				939
0940	01525	35400733	II3	DAC	T3				940
0941	01526	35400711	II5	DAC	K10				941
0942	01527	35400721	II6	DAC	END				942

0943	01530	35400723	II7	DAC	CALS	943
0944	01531	35400113	II8	DAC	L10	944
0945	01532	35400740	II10	DAC	ADDR	945
0946	01533	35400737	II13	DAC	ØP	946
0947	01534	35400741	II14	DAC	XI	947
0948	01535	35400703	II15	DAC	K1	948
0949	01536	35400255	L40K	DAC	L40B	949
0950	01537	35400252	L40L	DAC	L40Z	950
0951	01540	35400734	II17	DAC	T4	951
0952	01541	35400722	II21	DAC	LØDF	952
0953	01542	00001531	II22	EQU	II8	953
0954	01542	35400746	II23	DAC	S1S2	954
0955	01543	35400747	II24	DAC	S3S4	955
0956	01544	35400750	II25	DAC	S5S6	956
0957	01545	35400731	II26	DAC	T1	957
0958	01546	35400724	II27	DAC	BASE	958
0959	01547	35400726	II29	DAC	WCNT	959
0960	01550	35400725	II33	DAC	FFSW	960
0961	01551	35400744	IRPL	DAC	RPL	961
0962	01552	00001527	II39	EQU	II6	962
0963	01552	35400754	ILZ	DAC	LZ	963
0964	01553	35400755	ILZB	DAC	LZB	964
0965	01554	35400667	ICML	DAC	KCML	965
0966	01555	35400406	L48A	DAC	L48	966
0967	01556	35400271	L42B	DAC	L42	967
0968	01557	35400745	SIZEF	DAC	SIZE	968
0969	01561	70001561	ØRG		'1561	969
0970	01561	01101671	GØ1	LAA	AØP1	970
0971	01562	00130400		SNS	0	971
0972	01563	11101565		BRU	**2	972
0973	01564	11101570		BRU	**4	973
0974	01565	06101772		SMA	IKM1	974
0975	01566	00130102		CEU	2rw	975
0976	01567	00004000		DATA	'4000	976
0977	01570	03101655		STA	A1	977
0978	01571	03101657		STA	A2	978
0979	01572	01101772		LAA	IKM1	979
0980	01573	03101770		STA	TIME	980
0981	01574	12101662		SPB	LDR	981
0982	01575	01101672	LAAØ	LAA	Ø377	982
0983	01576	12101653		SPB	WDØT	983

AF Soluto Dumps Start

DPC

0984	01577	01101777	LAA	ENDJ	BASE ADDRESS	984
0985	01600	12101653	SPB	WDOT		985
0986	01601	00000005	TAB			986
0987	01602	06101776	SMA	RPLH		987
0988	01603	05101772	AMA	IKM1		988
0989	01604	03101773	STA	NWCT		989
0990	01605	12101653	SPB	WDOT	OUTPUT NEG WORD COUNT	990
0991	01606	01101732	ØNIT	LAA	M100	991
0992	01607	03101774	STA	WDCT		992
0993	01610	00000003	CLA		INITIALIZE CHECK SUM	993
0994	01611	03101775	STA	MYCS		994
0995	01612	01400000	ØPUT	LAA	0,1	995
0996	01613	12101653	SPB	WDOT		996
0997	01614	05101775	AMA	MYCS		997
0998	01615	03101775	STA	MYCS		998
0999	01616	00000026	K4A	IBS		999
1000	01617	00000000	ZZZ1	HLT		1000
1001	01620	14101773	IMS	NWCT		1001
1002	01621	11101623	BRU	**2		1002
1003	01622	11101625	BRU	CSUM		1003
1004	01623	14101774	IMS	WDCT		1004
1005	01624	11101612	BRU	ØPUT		1005
1006	01625	01101775	CSUM	LAA	MYCS	1006
1007	01626	12101653	SPB	WDOT	OUTPUT CHECK SUM	1007
1008	01627	01101773	LAA	NWCT		1008
1009	01630	00000024	SAP			1009
1010	01631	11101606	BRU	ØNIT		1010
1011	01632	12101662	ENDD	SPB	LDR	1011
1012	01633	14101770	IMS	TIME		1012
1013	01634	11101637	BRU	**3		1013
1014	01635	00130401	SNS	1		1014
1015	01636	11101646	BRU	DMPØ		1015
1016	01637	00130400	SNS	0		1016
1017	01640	11101642	BRU	**2		1017
1018	01641	11101644	BRU	**3		1018
1019	01642	00130102	CEU	2,W		1019
1020	01643	00002000	DATA	'2000		1020
1021	01644	00000000	HLT			1021
1022	01645	11101561	BRU	GØ1	MDL 1/10/69 *C	1022
1023	01646	01301553	DMPØ	LAA*	ILZB	1023
1024	01647	03101777	STA	ENDJ		1024

1025	01650	01301552		LAA*	ILZ
1026	01651	03101776		STA	RPLH
1027	01652	11101575		BRU	LAAK
1028	01653	00000000	WDOT	ZZZ	**
1029	01654	03101617		STA	ZZZ1
1030	01655	00000033	A1	NOP	
1031	01656	00001016		LSL	8
1032	01657	00000033	A2	NOP	
1033	01660	01101617		LAA	ZZZ1
1034	01661	11301653		BRU*	WDOT
1035	01662	00000000	LDR	ZZZ	**
1036	01663	02101732		LBA	M100
1037	01664	00000003		CLA	
1038	01665	12101653		SPB	WDOT
1039	01666	00000026		IBS	
1040	01667	11101665		BRU	*-2
1041	01670	11301662		BRU*	LDR
1042	01671	00170101	AOP1	AOP	1,W
1043	01672	00000377	0377	DATA	'377
1044	01673	01101771	CHAN	LAA	AIP1
1045	01674	00130400		SNS	0
1046	01675	11101701		BRU	**4
1047	01676	00130101		CEU	1,W
1048	01677	00004000	D1	DATA	'4000
1049	01700	11101704		BRU	**4
1050	01701	06101772		SMA	IKM1
1051	01702	00130102		CEU	2,W
1052	01703	00001000	IK8	DATA	'1000
1053	01704	03101712		STA	A3
1054	01705	03101763		STA	A4
1055	01706	05101677		AMA	D1
1056	01707	03101765		STA	A5
1057	01710	01101772		LAA	IKM1
1058	01711	03101770		STA	TIME
1059	01712	00000033	A3	NOP	
1060	01713	00000022		SAZ	
1061	01714	11101716		BRU	**2
1062	01715	11101712		BRU	*-3
1063	01716	12101762		SPB	INWD
1064	01717	03101777		STA	ENDJ
1065	01720	00000005		TAB	

ABSOLUTE Loads

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1066	01721	12101762		SPB	INWD				1066
1067	01722	03101773		STA	NWCT				1067
1068	01723	01101732	INIT	LAA	M100				1068
1069	01724	03101774		STA	WDCT				1069
1070	01725	00000003		CLA					1070
1071	01726	03101775		STA	MYCS				1071
1072	01727	12101762	INPT	SPB	INWD				1072
1073	01730	03400000		STA	0,1				1073
1074	01731	00000026		IBS					1074
1075	01732	00177700	M100	DATA	-64				1075
1076	01733	05101775		AMA	MYCS				1076
1077	01734	03101775		STA	MYCS				1077
1078	01735	14101773		IMS	NWCT				1078
1079	01736	11101740		BRU	**2				1079
1080	01737	11101742		BRU	CSML				1080
1081	01740	14101774		IMS	WDCT				1081
1082	01741	11101727		BRU	INPT				1082
1083	01742	12101762	CSML	SPB	INWD				1083
1084	01743	15101775		CMA	MYCS				1084
1085	01744	11101746		BRU	CK				1085
1086	01745	11101751		BRU	ØK				1086
1087	01746	00170501	CK	MØP	1,W				1087
1088	01747	00145640		DATA	'IKI'				1088
1089	01750	00004000		DATA	'004000		HLT INDEX FOR DUMP		1089
1090	01751	01101773	ØK	LAA	NWCT				1090
1091	01752	00000024		SAP					1091
1092	01753	11101723		BRU	INIT				1092
1093	01754	14101770		IMS	TIME				1093
1094	01755	11101760		BRU	**3				1094
1095	01756	00130401		SNS	1				1095
1096	01757	11101712		BRU	A3				1096
1097	01760	00004000		DATA	'4000		HLT		1097
1098	01761	11101673		BRU	CHAN				1098
1099	01762	00004000	INWD	DATA	'004000				1099
1100	01763	00000033	A4	NØP					1100
1101	01764	00001016		LSL	8				1101
1102	01765	00000033	A5	NØP					1102
1103	01766	11301762		BRU*	INWD				1103
1104	01767	35400764	I132	DAC	L132			DPC	1104
1105	01770	00004000	TIME	DATA	'004000				1105
1106	01771	00170301	AIP1	AIP	1,W				1106

```
1107 01772 00177777 IKM1 DATA -1
1108 01773 25400000 NWCT DAC 0
1109 01774 25400000 WDCT DAC 0
1110 01775 25400000 MYCS DAC 0
1111 01776 25400000 RPLH DAC 0
1112 01777 25400000 ENDJ DAC 0
1113 02000 70400007      END LOAD
ERRORS 0000      00000
```

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1107
1108
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1111
1112
1113
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AGE 29 810A/B STANDARD LOAD/DUMP PACKAGE 300001F 04/01/71

...EXTERNALS...

...SYMBOLICS...

A1	977	* 1030								
A10	126	* 547								
A11	* 548	607								
A2	978	* 1032								
A3	1053	* 1059	1096							
A4	841	1054	* 1100							
A5	843	1056	* 1102							
AA3	840	* 844								
AA4	* 849	852								
ADDR	136	156	159	231	234	243	246	259	278	
	323	342	349	362	366	403	430	435	473	
	475	480	494	516	* 591	619	945			
AIP1	831	1044	* 1106							
AOP1	970	* 1042								
BASE	47	504	* 579	958						
BEGN	117	375	* 571	939						
BSPC	68	901	* 906							
BTC	* 43	918								
CALS	121	416	418	481	505	* 578	943			
CD	361	392	448	461	* 594					
CEU1	65	66	* 883							
CEU2	67	* 889								
CHAN	* 1044	1098								
CHEC	551	* 753	757							
CK	1085	* 1087								
CØMI	115	201	* 575							
CØMN	105	111	112	114	202	472	474	* 574		
CRLF	724	788	* 928							
CSML	1080	* 1083								
CSUM	1003	* 1006								
D1	842	* 1048	1055							
DMPØ	1015	* 1023								
END	118	207	377	* 576	942					
ENDD	* 1011									
ENDJ	601	602	732	984	1024	1064	* 1112			
FFSW	125	* 580	960							
FIX	714	716	718	* 740	744					
FIX1	741	743	* 745	750						
FLNT	553	* 761	771							

IKM1	736	837	867	974	979	988	1050	1057	* 1107
ILH	48	197	200	* 557					
ILZ	728	* 963	1025						
ILZB	* 964	1023							
IND1	874	* 916							
IND2	879	* 917							
INIT	* 1068	1092							
INPT	* 1072	1082							
INWD	849	1063	1066	1072	1083	* 1099	1103		
IRPL	631	636	641	653	663	672	* 961		
J	127	208	209	* 583	608				
K1	170	540	* 560	948					
K10	280	445	* 566	941					
K12	818	* 929							
K15	801	* 931							
K16	848	* 932							
K17	123	* 567							
K2	131	237	* 561						
K21	* 568	615							
K22	856	910	* 933						
K24	404	* 569							
K25	106	* 570							
K3	876	881	* 934						
K4	228	240	* 562						
K4A	649	* 999							
K5	167	293	305	495	* 563				
K7	172	248	271	310	317	356	417	484	* 564
K9	87	426	462	* 565					
KCMH	171	535	* 544						
KCML	169	532	* 545	965					
L10	* 126	224	421	424	428	443	455	459	477
	529	547	944						
L100	181	* 440							
L110	182	* 493							
L112	* 499	515	518						
L114	498	* 511							
L120	183	* 606							
L123	554	* 636							
L124	* 628	656							
L125	* 641	667							
L126	626	* 653							

L130		548	*	668		
L132	*	612		1104		
L170		186	*	216		
L190		188	*	527		
L20		147	*	191		
L200		555	*	687		
L21	*	192		333	337	353
L22	*	194				
L300		556	*	689		
L310	*	694		723		
L315		699	*	704	751	
L318		708	*	711		
L320	*	731				
L40		148	*	227		
L40A	*	235				
L40B	*	234		949		
L40I		230	*	600		
L40J		600	*	677		
L40K		684	*	949		
L40L		680	*	950		
L40Z	*	231		950		
L41	*	236		288	438	488
L42	*	246		319	967	
L42B		651	*	967		
L43	*	250				
L43A	*	264				
L43B		160	*	263		
L44	*	267		272		
L45		270	*	273		
L45A	*	277				
L46		245	*	305		
L46B		308	*	316		
L47	*	323		357		
L47A		312	*	322		
L48		242	*	336	966	
L48A		648	*	652	* 966	
L50		239	*	349		
L52		300	*	356		
L60	*	150				
L62		152	*	177		
L80		149	*	360		

Ø377	845	982	* 1043							
ØC10	677	* 930								
ØK	1086	* 1090								
ØNIT	* 991	1010								
ØP	133	177	227	236	330	436	* 590	946		
ØPUT	* 995	1005								
ØRRR	692	* 724								
RD20	828	* 858								
RD25	* 864	873								
RD30	860	* 867								
READ	549	* 826	866	926						
RELF	550	* 774	780	784						
RPL	49	94	107	192	195	196	257	296	442	
	503	* 595	609	612	961					
RPLH	557	726	987	1026	* 1111					
S1S2	369	381	* 597	954						
S374	97	* 185								
S3S4	370	372	373	385	* 598	955				
S5S6	374	389	* 599	956						
SIZE	* 596	610	618	968						
SIZEF	671	* 968								
SKIP	* 538	542	543							
SM1	102	* 187								
SMMP	247	* 292	299	301	316					
SIT	60	* 64								
T1	129	137	143	281	283	350	* 584	957		
T2	130	134	155	191	279	* 585				
T3	274	295	298	* 586	940					
T4	* 587	617	623	951						
T5	154	249	284	* 588						
TELI	* 854	915	925							
TEU1	69	* 892								
TEU2	70	* 895								
TIME	980	1012	1058	1093	* 1105					
TPCK	855	* 921								
TPY	402	408	* 589							
TRY3	71	* 886	909							
TYP A	725	789	791	802	* 806	810	819			
TYP B	* 796	803	820	821						
TYPE	552	687	703	* 787	790	792	793	921		
TYP Ø	184	711	727	729	* 814	822				

W	749	807	809	834	838	902	975	1019	1042
	1047	1051	1087	1106					
WCNT	124	* 581	959						
WDCT	992	1004	1069	1081	* 1109				
WDOT	983	985	990	996	1007	* 1028	1034	1038	
XI	140	285	311	318	327	343	* 592	947	
XIAD	142	150	263	267	* 593				
XIDC	141	262	336	* 341	347	469			
ZCHK	533	* 540							
ZZZ1	* 1000	1029	1033						