

FREEWAY CROSSING PROGRAM

	1	TITL	FREEWAY CROSSING PROGRAM
	2	SAVE	
	3	LOAD	
	4	EVEN	
	5	BRG 100	
100	034413	6 JMS INPUT /MAIN PROGRAM	
101	034703	7 JMS START1 START UP BY INITIALIZING	
102	034312	8 LOOP1 JMS KEYS /CHECK AND ACT ON KEYBOARD	
103	062713	9 LAC #SETFIRE	
104	002001	10 ASZ NO CHANGE IN POSITION UNLESS SET	
105	034126	11 JMS PBS /MODIFY CAR POSITIONS	
106	062714	12 LAC #SCOREINC	
107	032714	13 ISZ #SCOREINC	
110	003021	14 RAR 1	
111	002004	15 LSZ EVERY SECOND LOOP CHANGE SCORE	
112	010116	16 JMP LOOP2-2	
113	062713	17 LAC #SETFIRE	
114	002001	18 ASZ	
115	034606	19 JMS SCOREMOD MODIFY SCORE	
116	035420	20 JMS EXEC EXECUTE DISPLAY	
117	010102	21 JMP LOOP1 /LOOP IF SUBJECT NOT MOVING	
120	034126	22 LOOP2 JMS PBS /MODIFY CAR POSITIONS	
121	034237	23 JMS SUBJECT /MODIFY SUBJECT'S POSITION	
122	035003	24 JMS CRASH /CHECK FOR CRASH, IF SO ACT ON IT	
123	034773	25 JMS END /CHECK IF SUBJECT CROSSED INTERSECTION	
124	035420	26 JMS EXEC /EXECUTE DISPLAY	
125	010120	27 JMP LOOP2 /END OF MAIN PROGRAM,LOOP	
126		28 PBS BSS 1 /GET NEW CAR POSITIONS	
127	004272	29 LAW CARTAB /INDEXING	
130	022715	30 DAC #CARTAB /FOR CAR TABLE	
131	004250	31 LAW RVEL /INDEXING	
132	022716	32 DAC #RVEL /FOR RANDOM VELOCITY	
133	004256	33 LAW VEL /INDEXING	
134	022717	34 DAC #VEL /FOR VELOCITIES	
135	004264	35 LAW POSIT	
136	022720	36 DAC #POSIT /FOR CURRENT POSITIONS	
137	104006	37 LWC 6 /LOOP SIX TIMES	
140	022721	38 DAC #CTR	
141	162716	39 POSLP I LAC #RVEL /GET VELOCITY FOR CAR	
142	102001	40 ASN	
143	010156	41 JMP POSZERO /IF ZERO GO TO NEXT ONE	
144	166720	42 I ADD #POSIT /ADD CURRENT POSITION	
145	002002	43 ASP /SKIP IF POSITIVE, CHECK FOR OFF SCREEN LEFT	
146	034201	44 JMS NEG	
147	072656	45 SUB =2640 /CHECK FOR OFF SCREEN RIGHT	
150	102002	46 ASM	
151	034207	47 JMS PLUS	

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152 066656 48 ADD =2640
53 122720 49 I DAC #POSIT /STORE
154 034222 50 JMS CONVERT
155 122715 51 I DAC #CARTAB
156 032716 52 POSZERO ISZ #RVEL
157 032717 53 ISZ #VEL
160 032720 54 ISZ #POSIT
161 032715 55 ISZ #CARTAB
162 032721 56 ISZ #CTR
163 010141 57 JMP POSLP /LOOP BACK
164 060272 58 LAC CARTAB
165 022617 59 DAC CAR1
166 060273 60 LAC CARTAB+1
167 022623 61 DAC CAR2
170 060274 62 LAC CARTAB+2
171 022627 63 DAC CAR3
172 060275 64 LAC CARTAB+3
173 022633 65 DAC CAR4
174 060276 66 LAC CARTAB+4
175 022637 67 DAC CAR5
176 060277 68 LAC CARTAB+5
177 022643 69 DAC CAR6
200 110126 70 I JMP PBS /RETURN
201 . 71 NEG BSS 1 /TAKE CARE OF OFF LEFT POSITION
202 034214 72 JMS RRRR /GET RANDOM VELOCITY
203 100006 73 CIA
204 122716 74 I DAC #RVEL
205 062657 75 LAC =2637
206 110201 76 I JMP NEG /RETURN
207 . 77 PLUS BSS 1 /TAKE CARE OF OFF RIGHT POSITION
210 034214 78 JMS RRRR /GET RANDOM VELOCITY
211 122716 79 I DAC #RVEL
212 106640 80 LWC 2640
213 110207 81 I JMP PLUS /RETURN
214 . 82 RRRR BSS 1 /SUBROUTINE FOR RANDOM VELOCITIES
215 162717 83 I LAC #VEL /GETS RVEL: VEL>=RVEL>=VEL/2
216 035076 84 JMS RAND
217 166717 85 I ADD #VEL
220 003061 86 SAR 1
221 110214 87 I JMP RRRR /RETURN
222 . 88 CONVERT BSS 1 /CONVERT TO D LXA
223 003061 89 SAR 1
224 022722 90 DAC #TMP
225 004011 91 LAW 11
226 020231 92 DAC +3
227 062722 93 LAC #TMP
230 035214 94 JMS D

231 95 BSS 1
32 003043 96 SAL 3
233 003042 97 SAL 2 /GET MSB PORTION
234 064231 98 ADD •=3 /ADD LSB PORTION
235 066660 99 ADD =11400 /MAKE D LXA
236 110222 100 I JMP CONVERT /RETURN
237 101 SUBJECT BSS 1 /GET POSITION FOR SUBJECT
240 062723 102 LAC #SUBPOS
241 066724 103 ADD #SUBVEL
242 022723 104 DAC #SUBPOS /GET NEW POSITION
243 003041 105 SAL 1
244 034222 106 JMS CONVERT
245 066661 107 ADD =11500 /MAKE D LYA
246 022610 108 DAC CARO /STORE IN DISPLAY
247 110237 109 I JMP SUBJECT /RETURN
250 000040 110 RVEL OCT 40 /STORAGE FOR RANDOM VELOCITIES
251 000040 111 OCT 40
252 000040 112 OCT 40
253 177740 113 OCT 177740
254 177740 114 OCT 177740
255 177740 115 OCT 177740
256 000040 116 VEL OCT 40 /TABLE OF VELOCITIES
257 000040 117 OCT 40
260 000040 118 OCT 40
261 000040 119 OCT 40
262 000040 120 OCT 40
263 000040 121 OCT 40
264 000000 122 POSIT HLT /TABLE OF CURRENT POSITIONS
265 000000 123 HLT
266 000000 124 HLT
267 000000 125 HLT
270 000000 126 HLT
271 000000 127 HLT
272 128 CARTAB BSS 6 /TABLE FOR CARS
300 052053 129 TAB1 D JMS LETTER+45 ZERO
301 051562 130 TAB D JMS B3 /NUMBER TABLE
302 051567 131 D JMS B3+5
303 051575 132 D JMS B3+13
304 051602 133 D JMS B3+20
305 051610 134 D JMS B3+26
306 051615 135 D JMS B3+33
307 051624 136 D JMS B3+42
310 051630 137 D JMS B3+46
311 051640 138 D JMS B3+56
312 139 KEYS BSS 1 /KEYBOARD READ ROUTINE
313 002020 140 KSF /SKIP ON KEYBOARD FLAG
314 110312 141 I JMP KEYS /OTHERWISE RETURN

315	100001	142	CLA
16	001023	143	KRC
317	046662	144	AND =177
320	076663	145	SAM =2 TRANSMIT
321	010352	146	JMP K2
322	062713	147	LAC #SETFIRE
323	002001	148	ASZ SKIP IF ZERO
324	010347	149	JMP K3
325	100005	150	CBA FINISH SETTING
326	022713	151	DAC #SETFIRE
327	062664	152	LAC =<D JMP FIRE
330	022541	153	DAC SET
331	062665	154	LAC =<D NOP
332	022563	155	DAC FIRE
333	062725	156	LAC #SCOREON
334	102001	157	ASN SKIP IF SCORING
335	110312	158	I JMP KEYS RETURN
336	062726	159	LAC #K1
337	020342	160	DAC •+3
340	062724	161	LAC #SUBVEL
341	035130	162	JMS M
342		163	BSS 1
343	100006	164	CIA
344	066727	165	ADD #SCORE SCORE=SCORE-K1*SUBVEL
345	022727	166	DAC #SCORE
346	110312	167	I JMP KEYS RETURN
347	062666	168	K3 LAC =<D JMP CARO FIRING
350	022563	169	DAC FIRE
351	010120	170	JMP LOOP2
352	022722	171	K2 DAC #TMP
353	062713	172	LAC #SETFIRE IF SET CAN'T CHANGE IT
354	002001	173	ASZ
355	110312	174	I JMP KEYS SO RETURN
356	062730	175	LAC #PERMSET SAME HERE
357	002001	176	ASZ
360	110312	177	I JMP KEYS RETURN IF PERMANENT SET OF KEYS
361	062722	178	LAC #TMP
362	076667	179	SAM =4 /DOWN
363	010400	180	JMP K1 /SKIP IF NO
364	062724	181	LAC #SUBVEL
365	076670	182	SAM =1 /SKIP IF MIN
366	010370	183	JMP •+2
367	110312	184	I JMP KEYS /AND RETURN
370	072670	185	SUB =1
371	022724	186	DAC #SUBVEL /DECREMENT VELOCITY
372	062731	187	LAC #VADR
373	072670	188	SUB =1

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374	022731	189	DAC #VADR /DECREMENT TABLE
75	162731	190	I LAC #VADR
376	022616	191	DAC DIGIT /STORE NEW DIGIT IN DISPLAY
377	110312	192	I JMP KEYS /RETURN
400	076671	193	K1 SAM =6 /UP
401	110312	194	I JMP KEYS RETURN IF NO
402	062724	195	LAC #SUBVEL
403	076672	196	SAM =11 /SKIP IF MAX
404	010406	197	JMP .+2
405	110312	198	I JMP KEYS /AND RETURN
406	032724	199	ISZ #SUBVEL /INCREMENT VELOCITY
407	032731	200	ISZ #VADR /AND TABLE ADDRESS
410	162731	201	I LAC #VADR
411	022616	202	DAC DIGIT /STORE NEW DIGIT IN DISPLAY
412	110312	203	I JMP KEYS RETURN
413		204	INPUT BSS 1 INPUT VELOCITIES, ETC.
414	100001	205	CLA
415	022730	206	DAC #PERMSET
416	100041	207	LDA INPUT PERMANENT OR NOT
417	102002	208	ASM
420	010435	209	JMP INSCORE
421	100005	210	CBA
422	022730	211	DAC #PERMSET
423	100041	212	LDA
424	046673	213	AND =17 GET SET SUBJECT VELOCITY
425	102001	214	ASN IF MISTAKE AND SET TO 0, SET TO 1
426	100005	215	CBA
427	022724	216	DAC #SUBVEL STORE VELOCITY
430	004300	217	LAW TAB1
431	066724	218	ADD #SUBVEL
432	022731	219	DAC #VADR
433	162731	220	I LAC #VADR
434	022616	221	DAC DIGIT
435	000000	222	INSCORE HLT INPUT NEXT
436	100001	223	CLA
437	022725	224	DAC #SCOREON
440	022732	225	DAC #SCOREMAX
441	100041	226	LDA
442	102002	227	ASM
443	010475	228	JMP INCAR IF NO SCORING, DON'T INPUT MAXSCORE
444	046674	229	AND =77
445	022733	230	DAC #K2 INPUT K2
446	100041	231	LDA
447	046675	232	AND =77700 INPUT K1
450	003063	233	SAR 3
451	003063	234	SAR 3
452	022726	235	DAC #K1

453 000000 236 HLT
54 100041 237 LDA
455 046676 238 AND =37 NOW INPUT MAXSCORE IN # OF THOUSANDS (DECIM
456 020461 239 DAC +3 MAXIMUM IS 31,000 (INPUT 37 OCTAL)
457 005750 240 LAW 1750
460 035130 241 JMS M
461 242 BSS 1
462 022727 243 DAC #SCORE STORE AS SCORE
463 062733 244 LAC #K2
464 020467 245 DAC +3 ADJUST SCORE FOR FIRST DECREMENT
465 004005 246 LAW 5
466 035130 247 JMS M
467 248 BSS 1
470 022733 249 DAC #K2
471 066727 250 ADD #SCORE
472 022732 251 DAC #SCOREMAX
473 100005 252 CBA
474 022725 253 DAC #SCOREON
475 062677 254 INCAR LAC =B INITIALIZE OUTPUT BUFFER
476 022734 255 DAC #ETA
477 100001 256 CLA
500 022735 257 DAC #CTC
501 062730 258 LAC #PERMSET
502 035315 259 JMS OUTPUT OUTPUT PERMSET
503 062724 260 LAC #SUBVEL
504 035315 261 JMS OUTPUT OUTPUT SET VELOCITY
505 062725 262 LAC #SCOREON (MEANINGLESS IF PERMSET = 0)
506 035315 263 JMS OUTPUT OUTPUT SCOREON
507 062726 264 LAC #K1 (FOLLOWING IS MEANINGLESS IF SCOREON = 0)
510 035315 265 JMS OUTPUT OUTPUT K1
511 062733 266 LAC #K2
512 035315 267 JMS OUTPUT OUTPUT K2
513 062732 268 LAC #SCOREMAX
514 072733 269 SUB #K2
515 035315 270 JMS OUTPUT OUTPUT SCOREMAX
516 000000 271 HLT INPUT CAR SPEEDS
517 004272 272 LAW CARTAB /INDEXING
520 022715 273 DAC #CARTAB /FOR CAR CALLS
521 004250 274 LAW RVEL
522 022716 275 DAC #RVEL /FOR RANDOM VELOCITIES
523 004256 276 LAW VEL
524 022717 277 DAC #VEL /FOR VELOCITIES
525 104006 278 LWC 6
526 022721 279 DAC #CTR /LOOP SIX TIMES
527 100041 280 INL00P LDA /READ DATA SWITCHES
530 102001 281 ASN
531 010534 282 JMP +3

532 062700 283 LAC =<D JMS CAR
33 010535 284 JMP •+2
534 062665 285 LAC =<D NOP
535 122715 286 I DAC #CARTAB /STORE WHETHER SEEN OR NOT
536 100041 287 LDA
537 022722 288 DAC #TMP
540 002002 289 ASP
541 010543 290 JMP •+2 IF NEGATIVE OUTPUT MINUS SIGN
542 010545 291 JMP •+3
543 004055 292 LAW 55 (-)
544 035371 293 JMS WRITE
545 062722 294 LAC #TMP
546 122716 295 I DAC #RVEL /STORE IN CURRENT VELOCITY
547 102002 296 ASM
550 010555 297 JMP INPOS
551 046701 298 AND =77777 /TAKES CARE OF NEGATIVE NUMBERS
552 100006 299 CIA
553 122716 300 I DAC #RVEL /STORE IN CURRENT VELOCITY
554 100006 301 CIA
555 122717 302 INPOS I DAC #VEL /STORE IN VELOCITY
556 035315 303 JMS OUTPUT OUTPUT CAR VELOCITY
557 032715 304 ISZ #CARTAB /INCREMENT INDEXES
560 032716 305 ISZ #RVEL
561 032717 306 ISZ #VEL
562 000000 307 HLT /STOP FOR NEXT INPUT
563 032721 308 ISZ #CTR /INCREMENT COUNTER
564 010527 309 JMP INLOOP
565 060272 310 LAC CARTAB
566 022622 311 DAC CAR1+3
567 060273 312 LAC CARTAB+1
570 022626 313 DAC CAR2+3
571 060274 314 LAC CARTAB+2
572 022632 315 DAC CAR3+3
573 060275 316 LAC CARTAB+3
574 022636 317 DAC CAR4+3
575 060276 318 LAC CARTAB+4
576 022642 319 DAC CAR5+3
577 060277 320 LAC CARTAB+5
600 022646 321 DAC CAR6+3
601 004015 322 LAW 15 CR
602 035371 323 JMS WRITE
603 004012 324 LAW 12 LF
604 035371 325 JMS WRITE
605 010710 326 JMP START4 START
606 327 SCOREMOD RSS 1 ROUTINE TO MODIFY SCORE
607 032736 328 ISZ #TIME INCREMENT TIME IF SETFIRE SET
610 100000 329 NOP

611 062725 330 LAC #SCOREBN
12 102001 331 ASN
613 110606 332 I JMP SCOREMOD RETURN ON NO SCORE DISPLAY
614 062727 333 LAC #SCORE
615 072733 334 SUB #K2
616 002002 335 ASP
617 100001 336 CLA IF NEGATIVE SET TO 0
620 022727 337 DAC #SCORE
621 100001 338 CLA NOW PUT IN DISPLAY
622 022737 339 DAC #BLANK BLANK INDICATOR
623 006533 340 LAW NUM1
624 022740 341 DAC #NUM1
625 004012 342 LAW 12
626 020634 343 DAC SDIV
627 020636 344 DAC SDIV+2
630 020640 345 DAC SDIV+4
631 020642 346 DAC SDIV+6
632 062727 347 LAC #SCORE
633 035214 348 JMS D
634 349 SDIV BSS 1
635 035214 350 JMS D
636 351 BSS 1
637 035214 352 JMS D
640 353 BSS 1
641 035214 354 JMS D
642 355 BSS 1
43 034657 356 JMS INSERT
44 060642 357 LAC SDIV+6
645 034657 358 JMS INSERT
646 060640 359 LAC SDIV+4
647 034657 360 JMS INSERT
650 060636 361 LAC SDIV+2
651 034657 362 JMS INSERT
652 100005 363 CBA
653 022737 364 DAC #BLANK
654 060634 365 LAC SDIV
655 034657 366 JMS INSERT
656 110606 367 I JMP SCOREMOD RETURN
657 368 INSERT BSS 1 SCORE INSERTION ROUTINE
660 102001 369 ASN HANDLE ZEROS SEPARATELY
661 010672 370 JMP INSERT1
662 066702 371 ADD =TAB1
663 022722 372 DAC #TMP
664 162722 373 I LAC #TMP
665 122740 374 I DAC #NUM1
666 032740 375 ISZ #NUM1
667 100005 376 CBA

670	022737	377	DAC #BLANK CHANGE BLANK INDICATOR
71	110657	378	I JMP INSERT RETURN
672	062737	379	INSERT1 LAC #BLANK HANDLE ZEROS
673	002001	380	ASZ DO BLANKS
674	010677	381	JMP +3
675	062703	382	LAC =<D IXM
676	010700	383	JMP +2
677	060300	384	LAC TAB1
700	122740	385	I DAC #NUM1
701	032740	386	ISZ #NUM1
702	110657	387	I JMP INSERT RETURN
703		388	START1 BSS 1 ALTERNATE START LOCATION
704	062677	389	LAC =B
705	022734	390	DAC #ETA INITIALIZE OUTPUT BUFFER
706	100001	391	CLA
707	022735	392	DAC #BTC
710	062730	393	START4 LAC #PERMSET
711	002001	394	ASZ
712	010721	395	JMP START3
713	004301	396	LAW TAB
714	022731	397	DAC #VADR
715	060301	398	LAC TAB
716	022616	399	DAC DIGIT
717	100005	400	CBA
720	022724	401	DAC #SUBVEL
721	062704	402	START3 LAC =<D NOP
722	022514	403	DAC SCORE
723	062725	404	LAC #SCOREON IF NO SCORING, TURN OFF SCORE
724	002001	405	ASZ
725	010752	406	JMP START2
726	062705	407	LAC =<D JMP SET
727	022514	408	DAC SCORE
730	010752	409	JMP START2
731		410	START BSS 1 /INITIALIZATION ROUTINE
732	062724	411	LAC #SUBVEL
733	035315	412	JMS OUTPUT OUTPUT SUBJECT VELOCITY
734	004005	413	LAW 5
735	020740	414	DAC +3 MULTIPLY TIME BY 5 TO GET 1/100'S
736	062736	415	LAC #TIME
737	035130	416	JMS M
740		417	BSS 1
741	035315	418	JMS OUTPUT OUTPUT TIME
742	062727	419	LAC #SCORE
743	035315	420	JMS OUTPUT OUTPUT SCORE
744	062741	421	LAC #CRASH
745	035315	422	JMS OUTPUT OUTPUT CRASH OR NOT
746	004015	423	LAW 15 CR

747 035371 424 JMS WRITE
50 004012 425 LAW 12 LF
751 035371 426 JMS WRITE
752 062706 427 START2 LAC =<D LYA 3100
753 022610 428 DAC CARO /INITIALIZE SUBJEXT
754 100001 429 CLA
755 022723 430 DAC #SUBPOS
756 062665 431 LAC =<D NOP
757 022652 432 DAC CRUNCHO /CRUNCH INVISIBLE
760 022541 433 DAC SET SET VISIBLE
761 062666 434 LAC =<D JMP CARO
762 022563 435 DAC FIRE
763 062732 436 LAC #SCOREMAX
764 022727 437 DAC #SCORE
765 034606 438 JMS SCOREMOD
766 100001 439 CLA
767 022713 440 DAC #SETFIRE
770 022714 441 DAC #SCOREINC
771 022736 442 DAC #TIME
772 010102 443 JMP LOOP1 RETURN
773 444 END BSS 1 /DID THE SUBJECT MAKE IT?
774 062610 445 LAC CARO
775 072707 446 SUB =<D LYA 4700
776 002002 447 ASP
777 110773 448 I JMP END /RETURN IF HE DIDN'T
1000 100001 449 CLA
91 022741 450 DAC #CRASH CRASH INDICATOR = 0= NO
1002 011064 451 JMP CRASHED1 WAIT FOR XMIT, THEN RESTART
1003 452 CRASH BSS 1 /ROUTINE TO CHECK FOR CRASH
1004 102020 453 KSN
1005 001023 454 KRC CLEAR KEYBOARD
1006 004264 455 LAW POSIT /INDEXING
1007 022720 456 DAC #POSIT /FOR POSITIONS
1010 004256 457 LAW VEL
1011 022717 458 DAC #VEL
1012 104006 459 LWC 6
1013 022721 460 DAC #CTR /LOOP COUNTER
1014 004044 461 LAW 44
1015 022742 462 DAC #Y INITIALIZE Y
1016 162717 463 CRASHLP I LAC #VEL CHECK FOR ZERO VELOCITY
1017 102001 464 ASN
1020 011042 465 JMP CRASHOUT JUMP OUT IF ZERO
1021 062742 466 LAC #Y
1022 072723 467 SUB #SUBPOS /GET Y DIFFERENCE
1023 002002 468 ASP
1024 100006 469 CIA /ABSOLUTE VALUE
1025 022743 470 DAC #YDIF

1026	162720	471	I LAC #PMSIT
27	003061	472	SAR 1
1030	072710	473	SUB =550 /GET X DIFFERENCE
1031	002002	474	ASP
1032	100006	475	CIA /ABSOLUTE VALUE
1033	072676	476	SUB =37 /CHECK FOR X OVERLAP
1034	102002	477	ASM
1035	011042	478	JMP CRASHPUT /IF NONE JUMP OUT
1036	062743	479	LAC #YDIF /IF YES, CHECK FOR Y OVERLAP
1037	072676	480	SUB =37 /CHECK FOR CRASH
1040	002002	481	ASP /SKIP IF NONE
1041	011052	482	JMP CRASHED
1042	032720	483	CRASHPUT ISZ #PMSIT /INCREMENT EVERYTHING
1043	032717	484	ISZ #VFL
1044	004044	485	LAW 44
1045	066742	486	ADD #Y
1046	022742	487	DAC #Y
1047	032721	488	ISZ #CTR
1050	011016	489	JMP CRASHLP /LOOP
1051	111003	490	I JMP CRASH /RETURN IF NO CRASH
1052	062711	491	CRASHED LAC =<0 JMS CRUNCH
1053	022652	492	DAC CRUNCH0
1054	100005	493	CBA
1055	022741	494	DAC #CRASH CRASH INDICATOR = 1=YES
1056	062736	495	LAC #TIME
1057	072670	496	SUB =1
1060	022736	497	DAC #TIME DECREMENT TIME (TO TAKE CARE OF SUBROUTINE TIME)
61	100001	498	CLA
1062	022727	499	DAC #SCRF
1063	034606	500	JMS SCRFMMD SET SCORE TO ZERO IF CRASH
1064	102020	501	CRASHED1 KSN CHECK KEYBOARD
1065	011070	502	JMP *+3 /READ KEYBOARD
1066	035420	503	JMS EXEC /DISPLAY IF NO KEY
1067	011064	504	JMP CRASHED1
1070	100001	505	CLA
1071	001023	506	KRC
1072	046662	507	AND =177
1073	076663	508	SAR =2 /CHECK FOR XMIT
1074	011064	509	JMP CRASHED1 IF NOT LOOP
1075	034731	510	JMS START IF YES, START EVER
1076		511	RAND RSS 1 /SUBROUTINE FOR RANDOM NUMBER FROM ZERO TO 1000 /USES 12 WORDS, 14 TOTAL. USES LABEL RAND /LIMIT IN AC. REQUIRES USE OF SUBROUTINES + /RANDOM NUMBER RETURNED IN AC
1077	102001	515	ASN /SKIP IF NONZERO
1100	111076	516	I JMP RAND /RETURN
1101	021105	517	DAC *+4

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1102      035112    518  JMS NR      /GET RANDOM NUMBER 0-77777
03        061127    519  LAC RD      /LOAD IT
1104      035130    520  JMS M       /MULTIPLY BY LIMIT
1105          521  BSS 1
1106      003001    522  RAL 1       /GET BIT 0 IN LINK
1107      061105    523  LAC +2       /LOAD DOUBLEWORD
1110      003001    524  RAL 1       /GET LINK IN BIT 15
1111      111076    525  I JMP RAND   /RETURN
1112          526  NR BSS 1     /RANDOM NUMBER GENERATOR
                           527          /USES 11 WORDS, 13 OCTAL. USES LABELS NR, RI
                           528          /RANDOM NUMBER RETURNED IN AC
                           529          /REQUIRES SUBROUTINE M
                           530          /GIVE STARTING SEED IN RD
                           531          /CURRENT RANDOM NUMBER WILL BE STORED IN RI
                           532          /RANDOM NUMBER IS INTEGER BETWEEN 0 AND 77777
                           533          /ALGORITHM FOLLOWS:
                           534          /B IS THE WORD LENGTH MINUS THE SIGN BIT. E
                           535          /MULTIPLY THE CURRENT RANDOM NUMBER BY 2**B
                           536          /TAKE THE LEAST SIGNIFICANT B BITS OF THIS
                           537          /THAT IS YOUR CURRENT RANDOM NUMBER AND YOU
1113      061125    538  LAC RD+2   /
1114      021117    539  DAC +3
1115      061127    540  LAC RD
1116      035130    541  JMS M
1117          542  BSS 1
1120      102001    543  ASN
21        061126    544  LAC RD+1   /IF ZERO, SET TO 77777 OCTAL
22        045126    545  AND RD+1   /ZERO THE SIGN BIT
1123      021127    546  DAC RD
1124      111112    547  I JMP NR   /RETURN
1125      020003    548  OCT 20003
1126      077777    549  OCT 77777
1127          550  RD BSS 1     /THE RANDOM NUMBER
1130          551  M BSS 1     /MULTIPLY ROUTINE
                           552          /TAKES 52 WORDS CORE, 64 OCTAL. USES LABEL I
                           553          /MULTIPLICAND ASSUMED IN AC
                           554          /MULTIPLIER ASSUMED IN WORD AFTER JDS. RETU
                           555          /BE MADE TO WORD FOLLOWING MULTIPLIER
                           556          /RESULT RETURNED IN AC.
                           557          /LINK SET IF RESULT OUTSIDE RANGE +2**15 TO
                           558          /OVERFLOW WORD RETURNED IN WORD FOLLOWING
                           559          /ALGORITHM FOLLOWS:
                           560          /X:=MULTIPLICAND
                           561          /Q:=MULTIPLIER
                           562          /A:=0
                           563          /MSN:=TRUE
                           564          /IF X<0 THEN BEGIN X:=X

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565           /      MSN:=#MSN; END
566           /IF Q<0 THEN BEGIN N:=-N
567           /      MSN:=#MSN; END
568           /COMMENT IF MSN TRUE ,PRODUCT POS.
569           /      IF MSN FALSE, PRODUCT NEG.
570           /FOR K=-16 STEP 1 UNTIL -1 DO
571           /BEGIN IF BIT 15(N)=1 THEN A :=A+X
572           /      DOUBLEWORDSHFTRIGHTN(BIT(A),9); EN
573           /IF A NE 0 OR BIT 0(N) NF 0 THEN SETLINKN
574           /IF ~MSN THEN N:=-N
575           /COMMENT PRODUCT IN N
1131      100010 576  CLL      /CLEAR LINK
1132      102002 577  ASM      /MULTIPLICAND NEGATIVE?
1133      011136 578  JMP  *+3  /NO
1134      100006 579  CIA      /YES,21'S COMP AC
1135      100020 580  CML      /COMP LINK(REMEMBER SIGN)
1136      021213 581  DAC M+63 /MULTIPLICAND TO X
1137      161130 582  I LAC N  /MULTIPLIER TO AC
1140      102002 583  ASM      /MULTIPLIER NEG?
1141      011144 584  JMP  *+3  /NO
1142      100006 585  CIA      /YES,21'S COMP MULTIPLIER
1143      100020 586  CML      /COMP LINK,1=PROD NEG,C=PROD POS
1144      021206 587  DAC M+56 /MULTIPLIER TO N
1145      100001 588  CLA      /CLEAR AC
1146      021207 589  DAC M+57 /Q TO A
1147      002004 590  LSZ      /LINK ZERO(PROD POS?)
150       100003 591  STA      /NO,PROD NEG,-1 TO MSN
1151      021210 592  DAC M+60 /YES,0 TO MSN
1152      104020 593  LWC R0  /-16 TO AC
1153      021211 594  DAC M+61 /INITIALIZE COUNT
1154      061206 595  LAC M+56 /Q INTO AC
1155      003021 596  RAR 1   /Q(15) INTO LINK
1156      061207 597  LAC M+57 /A INTO AC
1157      102004 598  LSN      /Q(15)=1?
1160      011162 599  JMP  *+2  /NO
1161      065213 600  ADD M+63 /YES,ADD X TO PARTIAL PROD A
1162      021212 601  DAC M+62 /STORE PARTIAL PROD FOR OVERFLOW CHECKOUT
1163      100010 602  CLL      /CLEAR LINK (SET A(0)=0)
1164      003021 603  RAR 1   /DOUBLEWORD
1165      021207 604  DAC M+57 /SHIFT (A)
1166      121130 605  I DAC N  /STORE OVERFLOW WORD IN WORD FOLLOWING UM
1167      061206 606  LAC M+56 /RIGHT (N)
1170      003021 607  RAR 1   /ONE
1171      021206 608  DAC M+56 /BIT
1172      031211 609  ISZ M+61 /INCREMENT COUNTER,=0?
1173      011155 610  JMP M+25 /NO, LOOP
1174      061212 611  LAC M+62 /YES, EXIT LOOP;0=NO, OVER+,NE 0=OVERFLOW(M

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1175	100010	612	CLL	/CLEAR LINK (NO OVERFLOW)
1176	002001	613	ASZ	/TEST FOR OVERFLOW
1177	100030	614	STL	/OVERFLOW, SET LINK
1200	061206	615	LAC M+56	/PRODUCT IN INTO AC
1201	031210	616	ISZ M+60	/TEST PROD SIGN (MSB)
1202	100006	617	CIA	/SIGN PLS, COMP AC
1203	100006	618	CIA	/SIGN NEG, COMP AC
1204	031130	619	ISZ M	/INCREMENT RETURN ADR
1205	111130	620	I JMP M	/RETURN
1206		621	HSS 6	/STORAGE
1214		622	D HSS 1	/DIVIDE ROUTINE
		623		/TAKES 65 WORDS CARE
		624		/DIVIDEND ASSUMED IN AC
		625		/DTIVROR ASSUMED WORD AFTER DMS, RETURN WI
		626		/WORD FOLLOWING DIVISOR
		627		/QUOTIENT LEFT IN AC
		628		/REMAINDER LEFT IN WORD FOLLOWING DMS. BT
		629		/SAME AS THAT OF DIVIDEND
		630		/IF DIVISOR IS ZERO, LINK SET AND DIVIDEND
		631		/LINK ZERO IF EVERYTHING NORMAL
		632		/ALGORITHM FOLLOWS:
		633		/Q:=DIVIDEND
		634		/X:=DIVISOR
		635		/A:=0
		636		/DSN:=TRUE
		637		/IF X<0 THEN BEGIN X:=-X
		638		/ DSN:=FDSN; END
		639		/IF Q<0 THEN BEGIN Q:=-Q
		640		/ DSN:=FDQN
		641		/ DTV:=FALSE; END
		642		/ ELSE DTV:=TRUE
		643		/IF X=0 THEN EXIT
		644		/COMMENT IF DSN TRUE, QUOTIENT PLS, IF DSN
		645		/ IF DIV TRUE THEN DIVIDEND (AND RE
		646		/ IF DIV FALSE THEN DIVIDEND (AND R
		647		/FOR K=-16 STEP 1 UNTIL -1 DO
		648		/BEGIN DOUBLEWORDROTATELEFTTHNEBIT(A,Q)
		649		/ IF A>=X THEN BEGIN A:=A-X; SETBIT15
		650		/IF -DIV THEN A:=-A
		651		/IF -DSN THEN Q:=-Q
		652		/COMMENT QUOTIENT IN Q, REMAINDER IN A
1215	100010	653	CLL	/CLEAR LINK
1216	102002	654	ASM	/DIVIDEND NEGATIVE?
1217	011222	655	JMP *+3	/NO
1220	100006	656	CIA	/YES, 2'S COMP + AC
1221	100020	657	CML	/COMP + LINK (REMEMBER SIGN)
1222	021307	658	UAC D+73	/DIVIDEND IN Q

1223	100003	659	STA	/-1 TO AC
1224	102004	660	LSN	/DIVIDEND NEGATIVE?
1225	100001	661	CLA	/NO, 0 TO DIV(REMAINDER PBS)
1226	021310	662	DAC D+74	/YES, -1 TO DIV (REMAINDER REG)
1227	161214	663	I LAC D	/DIVISOR TO AC
1230	102002	664	ASM	/DIVISOR NEGATIVE?
1231	011234	665	JMP *+3	/NO
1232	100006	666	CIA	/YES, 2'S COMP DIVISOR
1233	100020	667	CML	/COMP LINK(0=POS QUOT, 1=NEG QUOT)
1234	021311	668	DAC D+75	/DIVISOR IN X
1235	002001	669	ASZ	/DIVISOR=0?
1236	011242	670	JMP *+4	/NO
1237	100030	671	STL	/YES, SET LINK
1240	031214	672	ISZ D	/INCREMENT PAST DIVISOR TO RTN ADR
1241	111214	673	I JMP D	/RETURN
1242	100001	674	CLA	/CLEAR AC
1243	021312	675	DAC D+76	/A=0
1244	002004	676	LSZ	/QUOTIENT PBS(LINK 0)?
1245	100003	677	STA	/NO, -1 TO DSN(QUOTIENT NEG)
1246	021313	678	DAC D+77	/YES, 0 TO DSN (QUOTIENT PBS)
1247	104020	679	LWC 20	/-16 TO AC
1250	021314	680	DAC D+100	/INITIALIZE COUNT IN OCT
1251	061307	681	LAC D+73	/0 INTB AC
1252	100010	682	CLL	/CLEAR LINK(SET Q(15)=0)
1253	003001	683	RAL 1	/DOUBLE WORD
1254	021307	684	DAC D+73	/ROTATE (Q)
1255	061312	685	LAC D+76	/LEFT (A)
1256	003001	686	RAL 1	/ONE
1257	021312	687	DAC D+76	/BIT (A)
1260	071311	688	SLB D+75	/SUBTRACT X FROM A
1261	002002	689	ASP	/IS A>X(AC PBS)
1262	011267	690	JMP D+53	/NO, GO ROTATE
1263	021312	691	DAC D+76	/YES, AC NOW A
1264	004001	692	LAW 1	/SET BIT
1265	051307	693	IQR D+73	/15
1266	021307	694	DAC D+73	/OF Q
1267	031314	695	ISZ D+100	/BUMP COUNTER,COUNT=0?
1270	011251	696	JMP D+35	/NO, LOOP AGAIN
1271	102001	697	ASN	/IF DIVIDEND = 0, A (REMAINDER IN ALGORITHM)
1272	011300	698	JMP *+6	/LEAVE WORD AFTER JMS (REMAINDER) UNTOUCHED
1273	061312	699	LAC D+76	/REMAINDER A INTB AC
1274	031310	700	ISZ D+74	/REMAINDER NEG?
1275	100006	701	CIA	/NO PBS, 2'S COMP
1276	100006	702	CIA	/YES 2'S COMP IT
1277	121214	703	I DAC D	/PLACE IT IN WORD AFTER JMS
1300	031214	704	ISZ D	/POINT TO RETURN ADR
1301	061307	705	LAC D+73	/QUOTIENT Q INTB AC

1302	031913	706	1SZ D+77	/QUOTIENT NEG
03	100005	707	CIA	/NO, POS, 2'S COMP IT
1304	100006	708	CIA	/YES, 2'S COMP IT
1305	100010	709	CLL	/CLEAR LINK (DIVISOR NE 0)
1306	111214	710	I JMP D	/RETURN
1307		711	BSS 6	/STORAGE
1315		712	OUTPUT BSS 1	OUTPUT A NUMBER AND A COMMA
1316	022722	713	DAC #TMP	
1317	100001	714	CLA	
1320	022737	715	DAC #BLANK	BLANK INDICATOR
1321	004012	716	LAW 12	CONVERT TO DECIMAL
1322	021330	717	DAC BDIV	
1323	021332	718	DAC BDIV+2	
1324	021334	719	DAC BDIV+4	
1325	021336	720	DAC BDIV+6	
1326	062722	721	LAC #TMP	
1327	035214	722	JMS D	
1330		723	BDIV BSS 1	
1331	035214	724	JMS D	
1332		725	BSS 1	
1333	035214	726	JMS D	
1334		727	BSS 1	
1335	035214	728	JMS D	
1336		729	BSS 1	
1337	035355	730	JMS BUT1	START OUTPUTTING DECIMAL DIGITS
1340	061336	731	LAC BDIV+6	
1341	035355	732	JMS BUT1	
1342	061334	733	LAC BDIV+4	
1343	035355	734	JMS BUT1	
1344	061332	735	LAC BDIV+2	
1345	035355	736	JMS BUT1	
1346	100005	737	CBA	CHANGE BLANK INDICATOR FOR LAST DIGIT
1347	022737	738	DAC #BLANK	
1350	061330	739	LAC BDIV	
1351	035355	740	JMS BUT1	
1352	004054	741	LAW 54	COMMA
1353	035371	742	JMS WRITE	
1354	111315	743	I JMP BUT1 RETURN	
1355		744	BUT1 BSS 1	OUTPUT DIGIT UNLESS BLANK
1356	022722	745	DAC #TMP	
1357	002001	746	ASZ	
1360	011364	747	JMP *+4	
1361	062737	748	LAC #BLANK	
1362	102001	749	ASN	
1363	111355	750	I JMP BUT1 RETURN IF BLANK	
1364	100005	751	CBA	
1365	022737	752	DAC #BLANK	OTHERWISE SET BLANK IND. TO 1

1366	062722	753 LAC #TMP
1367	035371	754 JMS WRITE
1370	111355	755 I JMP #UT1 RETURN
1371		756 WRITE RSS 1 SUBROUTINE TO PACK OUTPUT TO BUFFER B
1372	022744	757 DAC #PTD
1373	062735	758 LAC #PTC FIRST OR SECOND BYTE INDICATOR
1374	032735	759 ISZ #PTC
1375	003021	760 RAR 1
1376	002004	761 LSZ
1377	011406	762 JMP *+7
1400	062744	763 LAC #PTD FIRST BYTE
1401	003043	764 SAL 3
1402	003043	765 SAL 3
1403	003042	766 SAL 2
1404	122734	767 I DAC #PTA PUT IN BUFFER
1405	111371	768 I JMP WRITE RETURN
1406	162734	769 I LAC #PTA SECOND BYTE
1407	066744	770 ADD #PTD
1410	122734	771 I DAC #PTA PUT IN BUFFER
1411	032734	772 ISZ #PTA
1412	100001	773 CLA
1413	122734	774 I DAC #PTA EXTRA ZERO WORD
1414	062734	775 LAC #PTA
1415	076712	776 SAM =10000 RETURN UNLESS BUFFER FULL
1416	111371	777 I JMP WRITE RETURN
1417	000000	778 HLT IF SB STOPS NOW MUST OUTPUT AND RESTART AT
'20		779 EXEC RSS 1 /EXECUTE ONE DISPLAY CYCLE
-21	102010	780 DSN
1422	011421	781 JMP *+1
1423	002200	782 SSF
1424	011423	783 JMP *+1
1425	001071	784 SCF
1426	100041	785 LDA /LOAD DATA SWITCHES
1427	102002	786 ASM /SKIP IF BIT 0 ON
1430	000000	787 HLT /OTHERWISE STOP
1431	006142	788 LAW DIS /GET DISPLAY ADDRESS
1432	001003	789 DLA
1433	003100	790 DON /RUN DISPLAY
1434	111420	791 I JMP EXEC /RETURN
1435	030330	792 LRD1 INC FB30
1436	154330	793 INC BC30
1437	154330	794 INC BC30
1440	154330	795 INC BC30
1441	100131	796 INC D000A131
1442	005000	797 D IXM
1443	005000	798 D IXM
1444	005000	799 D IXM

1445	004040	800 D RUM
46	004200	801 LLD2 D DXM
1447	004200	802 D DXM
1450	030230	803 INC FD30
1451	174370	804 INC R-30-30
1452	174370	805 INC R-30-30
1453	174370	806 INC R-30-30
1454	174111	807 INC -30A111
1455	004200	808 D DXM
1456	004200	809 D DXM
1457	004040	810 D RUM
1460	005000	811 LRD3 D IXM
1461	005000	812 D IXM
1462	030270	813 INC FD-30
1463	154330	814 INC R3030
1464	154330	815 INC R3030
1465	154330	816 INC R3030
1466	154131	817 INC 30A131
1467	005000	818 D IXM
1470	004040	819 D RUM
1471	030370	820 LLD4 INC FR-30
1472	174370	821 INC -30-30
1473	174370	822 INC -30-30
1474	174370	823 INC -30-30
1475	100111	824 INC D00A111
1476	004200	825 D DXM
1477	004200	826 D DXM
00	004200	827 D DXM
1501	004200	828 D DXM
1502	004040	829 D RUM
1503	030330	830 LRS INC FR30
1504	154330	831 INC 3030
1505	154330	832 INC 3030
1506	154131	833 INC 30A131
1507	005000	834 D IXM
1510	004040	835 D RUM
1511	030273	836 CAR INC FD-33 /WORD CAR
1512	124370	837 INC -108-30
1513	170307	838 INC -200-3
1514	143720	839 INC 0-320
1515	154210	840 INC R0010
1516	151713	841 INC R2313
1517	153717	842 INC R-31-3
1520	125370	843 INC D-12R-30
1521	114226	844 INC D302-2
1522	141703	845 INC R0303
1523	154325	846 INC 302-1

1524	142765	847	INC 0-1-2-1
25	174230	848	INC -30D30
1526	153633	849	INC B2-3033
1527	114303	850	INC 30803 /SQUARE
1530	141703	851	INC 0303
1531	141703	852	INC 0303
1532	174370	853	INC -30-30
1533	174370	854	INC -30-30
1534	174370	855	INC -30-30
1535	174370	856	INC -30-30
1536	174370	857	INC -30-30
1537	143707	858	INC 0-30-3
1540	143707	859	INC 0-30-3
1541	143707	860	INC 0-30-3
1542	143707	861	INC 0-30-3
1543	143707	862	INC 0-30-3
1544	154330	863	INC 3030
1545	154330	864	INC 3030
1546	154330	865	INC 3030
1547	154330	866	INC 3030
1550	154330	867	INC 3030
1551	141703	868	INC 0303
1552	141703	869	INC 0303
1553	141571	870	INC 03F
1554	030303	871	UP INC FB03 /LINE GOING UP
1555	141703	872	INC 0303
56	141703	873	INC 0303
1557	141513	874	INC 03A113
1560	004400	875	D IYM
1561	004040	876	D RUM
1562	030210	877	B3 INC ED10 /BNE
1563	150320	878	INC H2020
1564	130303	879	INC D-20803
1565	141702	880	INC 0302
1566	173171	881	INC -2-2F
1567	030203	882	INC FD03 /TWO
1570	101722	883	INC 03B22
1571	150326	884	INC 202-2
1572	167365	885	INC -1-2-2-1
1573	177730	886	INC -3-330
1574	154171	887	INC 30F
1575	030330	888	INC FB30 /THREE
1576	155362	889	INC 32-22
1577	174230	890	INC -30D30
1600	151362	891	INC H22-22
1601	174171	892	INC -30F
1602	030230	893	INC FD30 /FOUR

1603	104303	894	INC D10B03
04	141702	895	INC 0302
1605	177756	896	INC -3-3-1-2
1606	154330	897	INC 3030
1607	074571	898	INC FF
1610	030330	899	INC FB30 /FIVE
1611	154702	900	INC 3102
1612	175370	901	INC -32-30
1613	141730	902	INC 0330
1614	154171	903	INC 30F
1615	030203	904	INC ED03 /SIX
1616	150720	905	INC B2120
1617	153366	906	INC 2-2-2-2
1620	170362	907	INC -20-22
1621	141723	908	INC 0323
1622	150326	909	INC 202-2
1623	074571	910	INC FF
1624	030323	911	INC FB23 /SEVEN
1625	155712	912	INC 3312
1626	174370	913	INC -30-30
1627	074571	914	INC FF
1630	030220	915	INC FB20 /EIGHT
1631	150321	916	INC B2021
1632	141371	917	INC 02-31
1633	175322	918	INC -3222
1634	150326	919	INC 202-2
1635	177375	920	INC -3-2-3-1
1636	143325	921	INC 0-22-1
1637	074571	922	INC FF
1640	030230	923	INC FB30 /NINE
1641	151713	924	INC B2313
1642	141770	925	INC 03-30
1643	173326	926	INC -2-22-2
1644	154171	927	INC 30F
1645	030222	928	CRUNCH INC ED22 /CRUNCH DRAWING ROUTINE
1646	100366	929	INC 00B-2-2
1647	175751	930	INC -33-11
1650	151322	931	INC 2222
1651	153237	932	INC 2-203-3
1652	103703	933	INC 0-3803
1653	141702	934	INC 0302
1654	154336	935	INC 303-2
1655	177370	936	INC -3-2-30
1656	110326	937	INC D20B2-2
1657	153237	938	INC 2-203-3
1660	113607	939	INC 2-30-3
1661	103606	940	INC 0-30-2

1662	177767	941	INC B-3-3-2-3
63	171763	942	INC -23-23
1664	171763	943	INC -23-23
1665	177376	944	INC -3-2-3-2
1666	177376	945	INC -3-2-3-2
1667	145713	946	INC 1313
1670	174771	947	INC -31-31
1671	174771	948	INC -31-31
1672	155332	949	INC 3232
1673	155373	950	INC 32-33
1674	175731	951	INC -3331
1675	154763	952	INC 31-23
1676	171763	953	INC -23-23
1677	156735	954	INC 3-13-1
1700	145713	955	INC 1313
1701	145737	956	INC 133-3
1702	157713	957	INC 3-313
1703	145736	958	INC 133-2
1704	157336	959	INC 3-23-2
1705	151723	960	INC 2323
1706	100111	961	INC 000A111
1707	005000	962	D IXM
1710	005000	963	D IXM
1711	005000	964	D IXM
1712	005000	965	D IXM
1713	030230	966	INC ED30
14	114230	967	INC 3030
15	114230	968	INC 3030
1716	144751	969	INC B11-11
1717	145703	970	INC 1303
1720	170307	971	INC -200-3
1721	147755	972	INC 1-3-1-1
1722	146660	973	INC 1-1D-20
1723	130303	974	INC -20B03
1724	141702	975	INC 0302
1725	103206	976	INC 00-20-2
1726	174370	977	INC B-30-30
1727	101202	978	INC D0202
1730	143707	979	INC B0-30-3
1731	143272	980	INC 0-2D-32
1732	173362	981	INC B-2-2-22
1733	171322	982	INC -2222
1734	151326	983	INC 222-2
1735	135270	984	INC D-32-30
1736	134307	985	INC -30B0-3
1737	143706	986	INC 0-30-2
1740	171363	987	INC -22-23

1741	171707	988	INC -230-3
42	143706	989	INC 0-30-2
1743	135603	990	INC 0-3303
1744	101357	991	INC 028-1-3
1745	167756	992	INC -1-3-1-2
1746	165353	993	INC -12-13
1747	165603	994	INC -13003
1750	101603	995	INC 0303
1751	101603	996	INC 0303
1752	100737	997	INC 0133-3
1753	157733	998	INC 3-333
1754	155727	999	INC 332-3
1755	153727	1000	INC 2-32-3
1756	151723	1001	INC 2323
1757	145327	1002	INC 122-3
1760	153732	1003	INC 2-332
1761	155332	1004	INC 3232
1762	143707	1005	INC 0-30-3
1763	154731	1006	INC 3131
1764	154767	1007	INC 31-2-3
1765	173767	1008	INC -2-3-2-3
1766	157336	1009	INC 3-23-2
1767	157376	1010	INC 3-2-3-2
1770	177337	1011	INC -3-23-3
1771	157770	1012	INC 3-3-30
1772	174370	1013	INC -30-30
1773	147717	1014	INC 1-31-3
74	147772	1015	INC 1-3-32
1775	175372	1016	INC -32-32
1776	167757	1017	INC -1-3-1-3
1777	167773	1018	INC -1-3-33
2000	175767	1019	INC -33-2-3
2001	173767	1020	INC -2-3-2-3
2002	171763	1021	INC -23-23
2003	177777	1022	INC -3-3-3-3
2004	175773	1023	INC -33-33
2005	074571	1024	INC FF
2006	030313	1025	LETTER INC E813 A
2007	145712	1026	INC 1312
2010	147717	1027	INC 1-31-3
2011	147263	1028	INC 1-20-23
2012	174171	1029	INC 3-30F
2013	030232	1030	INC E032 C
2014	114366	1031	INC 308-2-2
2015	170362	1032	INC -20-22
2016	141723	1033	INC 0323
2017	150326	1034	INC 202-2

2020	074571	1035	INC FF
21	030303	1036	INC FB03 D
2022	141702	1037	INC 0302
2023	154325	1038	INC 302-1
2024	147306	1039	INC 1-20-2
2025	167365	1040	INC -1-2-2-1
2026	174171	1041	INC -30F
2027	030303	1042	INC FB30 E
2030	154011	1043	INC 30A11
2031	141302	1044	INC BC202
2032	154270	1045	INC 30D-30
2033	141302	1046	INC BC202
2034	154330	1047	INC 3030
2035	074571	1048	INC FF
2036	030303	1049	INC FB03 H
2037	141702	1050	INC 0302
2040	103605	1051	INC 00-30-1
2041	154330	1052	INC B3030
2042	000703	1053	BCT 703
2043	141702	1054	INC B0302
2044	074571	1055	INC FF
2045	030303	1056	INC FB03 N
2046	141702	1057	INC 0302
2047	153727	1058	INC 2-32-3
2050	153303	1059	INC 2-203
2051	141702	1060	INC 0302
52	074571	1061	INC FF
53	030210	1062	INC ED10 H
2054	150320	1063	INC B2020
2055	145702	1064	INC 1302
2056	165760	1065	INC -13-20
2057	170357	1066	INC -20-1-3
2060	143317	1067	INC 0-21-3
2061	074571	1068	INC FF
2062	030303	1069	INC FB03 P
2063	141702	1070	INC 0302
2064	154335	1071	INC 303-1
2065	143375	1072	INC 0-2-3-1
2066	174171	1073	INC -30F
2067	030303	1074	INC FB03 R
2070	141702	1075	INC 0302
2071	154335	1076	INC 303-1
2072	143375	1077	INC 0-2-3-1
2073	174230	1078	INC -30030
2074	153316	1079	INC B2-21-2
2075	074571	1080	INC FF
2076	030201	1081	INC FD01 S

2077	152730	1082	INC B2-130
00	145771	1083	INC 13-31
2101	174713	1084	INC -3113
2102	154325	1085	INC 302-1
2103	074571	1086	INC FF
2104	030230	1087	INC ED30 T
2105	141703	1088	INC B0303
2106	141010	1089	INC 02A10
2107	154330	1090	INC B3030
2110	074571	1091	INC FF
2111	030303	1092	INC EB03 W
2112	141702	1093	INC 0302
2113	000733	1094	BCT 733
2114	157703	1095	INC B3-303
2115	141702	1096	INC 0302
2116	074571	1097	INC FF
2117	030230	1098	INC ED30 Y
2120	141303	1099	INC B0203
2121	155410	1100	INC 33A10
2122	157571	1101	INC B3-3F
2123	030232	1102	INC FD32 :
2124	140203	1103	INC B00D03
2125	100700	1104	INC DC1B00
2126	074571	1105	INC FF
2127	004000	1106	REST D NEP /DISPLAY WAIT ROUTINE
2130	004000	1107	D NEP
2131	004000	1108	D NEP
2132	004000	1109	D NEP
2133	004000	1110	D NEP
2134	004000	1111	D NEP
2135	004000	1112	D NEP
2136	004000	1113	D NEP
2137	004000	1114	D NEP
2140	004000	1115	D NEP
2141	004040	1116	D RUM /RETURN
2142	006000	1117	DIS D HVC /START OF DISPLAY
2143	004005	1118	D STS 1
2144	011400	1119	D LXA 1400 /DRAW HIGHWAY
2145	024600	1120	D LYA 4600
2146	004000	1121	D NEP
2147	004000	1122	D NEP
2150	004000	1123	D NEP
2151	004000	1124	D NEP
2152	004000	1125	D NEP
2153	051503	1126	D JMS LRS
2154	051503	1127	D JMS LRS
2155	051503	1128	D JMS LRS

2156	051503	1129	D JMS LRS
57	051503	1130	D JMS LRS
2160	051503	1131	D JMS LRS
2161	051503	1132	D JMS LRS
2162	051503	1133	D JMS LRS
2163	051503	1134	D JMS LRS
2164	051503	1135	D JMS LRS
2165	051503	1136	D JMS LRS
2166	051503	1137	D JMS LRS
2167	051503	1138	D JMS LRS
2170	051503	1139	D JMS LRS
2171	051503	1140	D JMS LRS
2172	051503	1141	D JMS LRS
2173	051503	1142	D JMS LRS
2174	051503	1143	D JMS LRS
2175	051503	1144	D JMS LRS
2176	005000	1145	D IXM
2177	005000	1146	D IXM
2200	005000	1147	D IXM
2201	005000	1148	D IXM
2202	051503	1149	D JMS LRS
2203	051503	1150	D JMS LRS
2204	051503	1151	D JMS LRS
2205	051503	1152	D JMS LRS
2206	051503	1153	D JMS LRS
2207	051503	1154	D JMS LRS
10	051503	1155	D JMS LRS
11	051503	1156	D JMS LRS
2212	051503	1157	D JMS LRS
2213	051503	1158	D JMS LRS
2214	051503	1159	D JMS LRS
2215	051503	1160	D JMS LRS
2216	051503	1161	D JMS LRS
2217	051503	1162	D JMS LRS
2220	051503	1163	D JMS LRS
2221	051503	1164	D JMS LRS
2222	051503	1165	D JMS LRS
2223	051503	1166	D JMS LRS
2224	051503	1167	D JMS LRS
2225	004100	1168	D DYM
2226	004100	1169	D DYM
2227	004100	1170	D DYM
2230	004100	1171	D DYM
2231	051471	1172	D JMS LLD4
2232	051471	1173	D JMS LLD4
2233	051471	1174	D JMS LLD4
2234	051471	1175	D JMS LLD4

2235	051471	1176	D	JMS	LLD4
36	051471	1177	D	JMS	LLD4
2237	051471	1178	D	JMS	LLD4
2240	051471	1179	D	JMS	LLD4
2241	051471	1180	D	JMS	LLD4
2242	051471	1181	D	JMS	LLD4
2243	051446	1182	D	JMS	LLD2
2244	051446	1183	D	JMS	LLD2
2245	051446	1184	D	JMS	LLD2
2246	051446	1185	D	JMS	LLD2
2247	051446	1186	D	JMS	LLD2
2250	051446	1187	D	JMS	LLD2
2251	051446	1188	D	JMS	LLD2
2252	051446	1189	D	JMS	LLD2
2253	051446	1190	D	JMS	LLD2
2254	051446	1191	D	JMS	LLD2
2255	004100	1192	D	DYM	
2256	004100	1193	D	DYM	
2257	004100	1194	D	DYM	
2260	004100	1195	D	DYM	
2261	051435	1196	D	JMS	LRD1
2262	051435	1197	D	JMS	LRD1
2263	051435	1198	D	JMS	LRD1
2264	051435	1199	D	JMS	LRD1
2265	051435	1200	D	JMS	LRD1
2266	051435	1201	D	JMS	LRD1
67	051435	1202	D	JMS	LRD1
70	051435	1203	D	JMS	LRD1
2271	051435	1204	D	JMS	LRD1
2272	051435	1205	D	JMS	LRD1
2273	051460	1206	D	JMS	LRD3
2274	051460	1207	D	JMS	LRD3
2275	051460	1208	D	JMS	LRD3
2276	051460	1209	D	JMS	LRD3
2277	051460	1210	D	JMS	LRD3
2300	051460	1211	D	JMS	LRD3
2301	051460	1212	D	JMS	LRD3
2302	051460	1213	D	JMS	LRD3
2303	051460	1214	D	JMS	LRD3
2304	051460	1215	D	JMS	LRD3
2305	004100	1216	D	DYM	
2306	004100	1217	D	DYM	
2307	004100	1218	D	DYM	
2310	004100	1219	D	DYM	
2311	051471	1220	D	JMS	LLD4
2312	051471	1221	D	JMS	LLD4
2313	051471	1222	D	JMS	LLD4

2314	051471	1223	D JMS LLD4
315	051471	1224	D JMS LLD4
2316	051471	1225	D JMS LLD4
2317	051471	1226	D JMS LLD4
2320	051471	1227	D JMS LLD4
2321	051471	1228	D JMS LLD4
2322	051471	1229	D JMS LLD4
2323	051446	1230	D JMS LLD2
2324	051446	1231	D JMS LLD2
2325	051446	1232	D JMS LLD2
2326	051446	1233	D JMS LLD2
2327	051446	1234	D JMS LLD2
2330	051446	1235	D JMS LLD2
2331	051446	1236	D JMS LLD2
2332	051446	1237	D JMS LLD2
2333	051446	1238	D JMS LLD2
2334	051446	1239	D JMS LLD2
2335	004100	1240	D DYM
2336	004100	1241	D DYM
2337	004100	1242	D DYM
2340	004100	1243	D DYM
2341	051435	1244	D JMS LRD1
2342	051435	1245	D JMS LRD1
2343	051435	1246	D JMS LRD1
2344	051435	1247	D JMS LRD1
2345	051435	1248	D JMS LRD1
2346	051435	1249	D JMS LRD1
2347	051435	1250	D JMS LRD1
2350	051435	1251	D JMS LRD1
2351	051435	1252	D JMS LRD1
2352	051435	1253	D JMS LRD1
2353	051460	1254	D JMS LRD3
2354	051460	1255	D JMS LRD3
2355	051460	1256	D JMS LRD3
2356	051460	1257	D JMS LRD3
2357	051460	1258	D JMS LRD3
2360	051460	1259	D JMS LRD3
2361	051460	1260	D JMS LRD3
2362	051460	1261	D JMS LRD3
2363	051460	1262	D JMS LRD3
2364	051460	1263	D JMS LRD3
2365	004100	1264	D DYM
2366	004100	1265	D DYM
2367	004100	1266	D DYM
2370	004100	1267	D DYM
2371	051471	1268	D JMS LLD4
2372	051471	1269	D JMS LLD4

2373	051471	1270	D JMS LLD4
2374	051471	1271	D JMS LLD4
2375	051471	1272	D JMS LLD4
2376	051471	1273	D JMS LLD4
2377	051471	1274	D JMS LLD4
2400	051471	1275	D JMS LLD4
2401	051471	1276	D JMS LLD4
2402	051471	1277	D JMS LLD4
2403	051446	1278	D JMS LLD2
2404	051446	1279	D JMS LLD2
2405	051446	1280	D JMS LLD2
2406	051446	1281	D JMS LLD2
2407	051446	1282	D JMS LLD2
2410	051446	1283	D JMS LLD2
2411	051446	1284	D JMS LLD2
2412	051446	1285	D JMS LLD2
2413	051446	1286	D JMS LLD2
2414	051446	1287	D JMS LLD2
2415	004100	1288	D DYM
2416	004100	1289	D DYM
2417	004100	1290	D DYM
2420	004100	1291	D DYM
2421	051503	1292	D JMS LRS
2422	051503	1293	D JMS LRS
2423	051503	1294	D JMS LRS
2424	051503	1295	D JMS LRS
2425	051503	1296	D JMS LRS
2426	051503	1297	D JMS LRS
2427	051503	1298	D JMS LRS
2430	051503	1299	D JMS LRS
2431	051503	1300	D JMS LRS
2432	051503	1301	D JMS LRS
2433	051503	1302	D JMS LRS
2434	051503	1303	D JMS LRS
2435	051503	1304	D JMS LRS
2436	051503	1305	D JMS LRS
2437	051503	1306	D JMS LRS
2440	051503	1307	D JMS LRS
2441	051503	1308	D JMS LRS
2442	051503	1309	D JMS LRS
2443	051503	1310	D JMS LRS
2444	005000	1311	D IXM
2445	005000	1312	D IXM
2446	005000	1313	D IXM
2447	005000	1314	D IXM
2450	051503	1315	D JMS LRS
2451	051503	1316	D JMS LRS

2452	051503	1317	D JMS LR5
453	051503	1318	D JMS LR5
2454	051503	1319	D JMS LR5
2455	051503	1320	D JMS LR5
2456	051503	1321	D JMS LR5
2457	051503	1322	D JMS LR5
2460	051503	1323	D JMS LR5
2461	051503	1324	D JMS LR5
2462	051503	1325	D JMS LR5
2463	051503	1326	D JMS LR5
2464	051503	1327	D JMS LR5
2465	051503	1328	D JMS LR5
2466	051503	1329	D JMS LR5
2467	051503	1330	D JMS LR5
2470	051503	1331	D JMS LR5
2471	051503	1332	D JMS LR5
2472	051503	1333	D JMS LR5
2473	014000	1334	D LXA 4000
2474	023100	1335	D LYA 3100
2475	052127	1336	D JMS RFST
2476	051554	1337	D JMS UP
2477	051554	1338	D JMS UP
2500	051554	1339	D JMS UP
2501	051554	1340	D JMS UP
2502	051554	1341	D JMS UP
2503	051554	1342	D JMS UP
2504	051554	1343	D JMS UP
2505	051554	1344	D JMS UP
2506	051554	1345	D JMS UP
2507	051554	1346	D JMS UP
2510	051554	1347	D JMS UP
2511	051554	1348	D JMS UP
2512	051554	1349	D JMS UP
2513	051554	1350	D JMS UP
2514	004000	1351	SCORE D NAP
2515	013640	1352	D LXA 3640
2516	026000	1353	D LYA 6000
2517	052127	1354	D JMS REST
2520	052076	1355	D JMS LETTER+70 S
2521	052013	1356	D JMS LETTER+5 C
2522	052053	1357	D JMS LETTER+45 0
2523	052067	1358	D JMS LETTER+61 R
2524	052027	1359	D JMS LETTER+21 E
2525	052123	1360	D JMS LETTER+115 :
2526	013640	1361	D LXA 3640
2527	004100	1362	D DYM
2530	004100	1363	D DYM

2531	052127	1364	D JMS REST
1532	005000	1365	D IXM
2533	005000	1366	NUM1 D IXM
2534	005000	1367	D IXM
2535	005000	1368	D IXH
2536	005000	1369	D IXM
2537	052053	1370	D JMS LETTER+45
2540	014000	1371	D LXA 4000
2541	004000	1372	SET D NRP
2542	013400	1373	D LXA 3400
2543	022000	1374	D LYA 2000
2544	052127	1375	D JMS REST
2545	052076	1376	D JMS LETTER+70 S
2546	052027	1377	D JMS LETTER+21 E
2547	052104	1378	D JMS LETTER+76 T
2550	005000	1379	D IXM
2551	052113	1380	D JMS LETTER+5 C
2552	052006	1381	D JMS LETTER A
2553	052067	1382	D JMS LETTER+61 R
2554	005000	1383	D IXM
2555	052127	1384	D JMS LETTER+70 S
2556	052062	1385	D JMS LETTER+64 R
2557	052027	1386	D JMS LETTER+21 F
2560	052027	1387	D JMS LETTER+21 E
2561	052021	1388	D JMS LETTER+13 D
2562	014000	1389	D LXA 4000
2563	004000	1390	FIRE D NRP
1564	013400	1391	D LXA 3400
2565	022000	1392	D LYA 2000
2566	052127	1393	D JMS REST
2567	052076	1394	D JMS LETTER+70 S
2570	052104	1395	D JMS LETTER+76 T
2571	052006	1396	D JMS LETTER A
2572	052067	1397	D JMS LETTER+61 R
2573	052104	1398	D JMS LETTER+76 T
2574	005000	1399	D IXM
2575	052111	1400	D JMS LETTER+103 W
2576	052036	1401	D JMS LETTER+30 H
2577	052027	1402	D JMS LETTER+21 F
2600	052045	1403	D JMS LETTER+37 N
2601	005000	1404	D IXM
2602	052067	1405	D JMS LETTER+61 R
2603	052027	1406	D JMS LETTER+21 F
2604	052006	1407	D JMS LETTER A
2605	052021	1408	D JMS LETTER+13 D
2606	052117	1409	D JMS LETTER+111 Y
2607	014000	1410	D LXA 4000

2610	023100	1411	CARD D LYA 3100
611	052127	1412	D JMS REST
2612	051511	1413	D JMS CAR
2613	014000	1414	D LXA 4000
2614	022700	1415	D LYA 2700
2615	052127	1416	D JMS REST
2616	051562	1417	DIGIT D JMS B3
2617	011400	1418	CAR1 D LXA 1400
2620	023300	1419	D LYA 3300
2621	052127	1420	D JMS REST
2622	051511	1421	D JMS CAR
2623	011400	1422	CAR2 D LXA 1400
2624	023500	1423	D LYA 3500
2625	052127	1424	D JMS REST
2626	051511	1425	D JMS CAR
2627	011400	1426	CAR3 D LXA 1400
2630	023700	1427	D LYA 3700
2631	052127	1428	D JMS REST
2632	051511	1429	D JMS CAR
2633	011400	1430	CAR4 D LXA 1400
2634	024100	1431	D LYA 4100
2635	052127	1432	D JMS REST
2636	051511	1433	D JMS CAR
2637	011400	1434	CARS D LXA 1400
2640	024300	1435	D LYA 4300
2641	052127	1436	D JMS REST
2642	051511	1437	D JMS CAR
2643	011400	1438	CAR5 D LXA 1400
2644	024500	1439	D LYA 4500
2645	052127	1440	D JMS REST
2646	051511	1441	D JMS CAR
2647	013700	1442	D LXA 3700
2650	022000	1443	D LYA 2000
2651	052127	1444	D JMS REST
2652	004000	1445	CRLNCH0 D NOP
2653	014000	1446	D LXA 4000 /CENTER BEAM AND PALE
2654	024000	1447	D LYA 4000
2655	000000	1448	D HLT
2656		1449	L BSS 1 LITERALS GO HERE
		1450	HRG 3000
3000	032734	1451	ISZ #PTA MODULE TO PRINT OUTPUT DIFFERENT START HERE
3001	062677	1452	LAC =B
3002	022745	1453	DAC #PTB UNPACK COUNTER
3003	100001	1454	CLA
3004	022735	1455	DAC #PTC FIRST OR SECOND BYTE COUNTER
3005	062735	1456	LPP LAC #PTC
3006	032735	1457	ISZ #PTC

3007	003021	1458	RAR 1
3010	162745	1459	I LAC #PTR LOAD PACKED WORD
3011	102004	1460	LSN
3012	013015	1461	JMP *+3
3013	032745	1462	ISZ #PTR
3014	013020	1463	JMP *+4
3015	003063	1464	SAR 3 FIRST BYTE
3016	003063	1465	SAR 3
3017	003062	1466	SAR 2
3020	002100	1467	TSF SECOND BYTE
3021	013020	1468	JMP *+1
3022	001043	1469	TPC TRANSMIT BYTE
3023	062745	1470	LAC #PTR
3024	076734	1471	SAM #FTA CHECK FOR LAST ZERO WORD
3025	013005	1472	JMP IPR
3026	000000	1473	HLT PROGRAM END
3027		1474	B EGS 1 PRINT BUFFER
2656		1475	REL 1 LITERALS
		1476	END

TERALS

2656	002640
2657	002637
2660	011400
2661	011500
2662	000177
2663	000002
2664	062563
2665	004000
2666	062610
2667	000004
2670	000001
2671	000006
2672	000011
2673	000017
2674	000077
2675	077700
2676	000037
2677	003027
2700	051511
2701	077777
2702	000300
2703	005000
2704	004000
2705	062541
2706	023100
2707	024700
2710	000550
2711	051645
2712	010000

YES

2713	SETFIRE
2714	SCOREINC
2715	CARTAB
2716	RVEL
2717	VEL
2720	POSIT
2721	CTR
2722	TNP
2723	SUBPOS
2724	SUBVEL
2725	SCOREBN
2726	K1
2727	SCORE
2730	PERMSET
2731	VADR
2732	SCOREMAX
2733	K2
2734	STA
2735	STC
2736	TINE
2737	BLANK
2740	NUM1
2741	CRASH
2742	Y
2743	YDIF
2744	STD
2745	STD

SYMBOLS

B	003027
BG	001562
CAR	001511
CARTAB	000272
CARU	002610
CAR1	002617
CAR2	002623
CAR3	002627
CAR4	002633
CAR5	002637
CAR6	002643
CONVERT	000222
CRASH	001003
CRASHED	001052
CRASHED1	001064
CRASHLP	001016
CRASHBUT	001042
CRUNCH	001645
CRUNCHO	002652
D	001214
DIGIT	002616
DIS	002142
END	000773
EXEC	001420
FIRE	002563
INCAR	000475
INLEAP	000527
INPOS	000555
INPUT	000413
INSCORE	000435
INSERT	000657
INSERT1	000672
KEYS	000312
K1	000400
K2	000352
K3	000347
L	002656
LETTER	002006
LLD2	001446
LLD4	001471
LBHF1	000102
LBHF2	000120
LPP	003005
LRD1	001435
LRD2	001460
LR5	001503

M	001130
NEG	000201
NR	001112
NUM1	002533
SDIV	001330
SOUTPUT	001315
SUT1	001355
PLUS	000207
PBS	000126
PBS1T	000264
PBSLP	000141
PBSZERO	000156
RAND	001076
RD	001127
REST	002127
RRRR	000214
RVEL	000250
SCORE	002514
SCREMOD	000606
SDIV	000634
SET	002541
START	000731
START1	000703
START2	000752
START3	000721
START4	000710
SUBJECT	000237
TAB	000301
TAB1	000300
UP	001554
VEL	000256
WRITE	001371

ORIGIN 100
ENTRY POINT 70
LITERAL START 2656
SAVE START 2713
FIRST FREE WORD 2746

0 ERRORS
STOP 0
!FIN
!!BEGIN IDLE