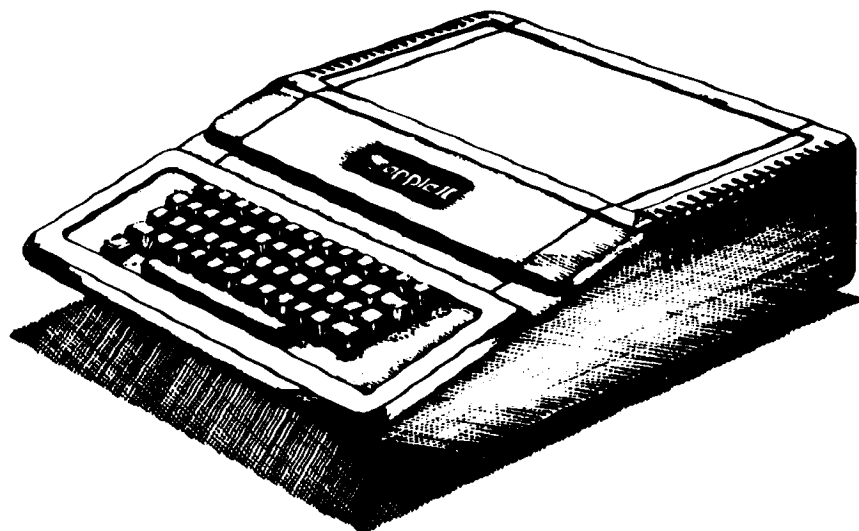


🍏 Apple 2 Computer Technical Information 🍏



Apple II Computer Family Information

AppleSoft BASIC Source Listing

Aug. 1983 (see also docs: 49, 194)

Document #

7

Ex Libris David T. Craig

Apple II Computer

AppleSoft BASIC Interpreter Source Code Listing

Language: 6502 Assembly
Author: Microsoft and Apple Computer
Date: August 1983



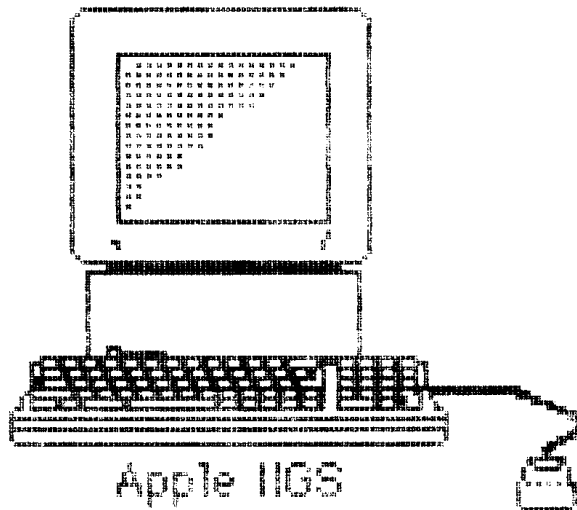
Apple II
Apple II+



Apple IIe



Apple IIc



Apple II GS

Pages: 145

Comments about the AppleSoft BASIC Source Code Listing

by David T. Craig - 28 Dec 1994

People

Token Table: p. 11
Error Messages: p. 13

Randy Wigginton (p. 2)

John Arkley (p. 2)

J. R. Huston (p. 2) "LOLLY" = Apple IIc

Stere Wozniak (p. 124)

Misc.

- Location KIMY (p. 4, line 90) seems to use the name "KIM" which was the 1st 6502-based computer from the mid-1970's.
- The Microsoft programmer may have been British (or European) since the Latin "N.B." (Nota Bene) is used (p. 5, line 126)

[illegible]

[illegible]

```

;TRACE ON/OFF
;FOR FLASH, NORMAL, INVERSE
;DISPLAY MODES.

```

```

;PLACE FOR ERROR. DURING ERROR.
;SAVE STACK POINTER
;FOR EVERY TIME.
;RUN-ONLY PROGRAM?

```

"DTCA2DOC-007-004.PICT" 197 KB 2001-03-26 dpi: 250h x 250v pix: 1975h x 2523v

"DTC A2DOC-007-005.PICT" 196 KB 2001-03-26 dpi: 250h x 250v pix: 2005h x 2529v

"DTCA2DOC-007-006.PICT" 226 KB 2001-03-26 dpi: 250h x 250v pix: 2000h x 2564v

```
00 00000000
00 00000000
:: :::::
456789AABCADEFAFJ
00000000000000000000
```

455078901233334507890
222222222222222222222222

[illegible]

0 ARGUMENT

;;SOMETHING FOR 'SHIFTR' TO USE.
(XED) ----;

```

A SIGN REFLECTING THE RESULT.
OVERFLOW BYTE OF THE FAC DESCRIPTOR.
POINTER TO A STRING OR DESCRIPTOR.
POINTER TO A FBUFFER USED BY FOUT.
POINTER TO BUUF USED BY CRUNCH.
POINTER TO STRING OR DESC.
POINTER INTO POLYNOMIAL COEFFICIENTS.
ABSOLUTE LINEAR INDEX IS FORMED HERE.

```

B200002
A3A4A5
000000
000000

"DTCA2DOC-007-008.PICT" 139 KB 2001-03-26 dpi: 250h x 250v pix: 2010h x 2282v

```

02 ROMSOFT0      ISPATCH TABLES, RESERVE
0017:  NEXT      287
0000:  65        FILE
0002:  65        288
0004:  F8        289
0008:  B1        290
000A:  30        291
000E:  E8        292
0010:  98        293
0012:  98        294
0014:  E0        295
0016:  D4        296
001A:  21        297
001E:  31        298
0020:  07        299
0022:  E8        300
0024:  E8        301
0026:  0E        302
002A:  0E        303
002E:  57        304
0030:  52        305
0032:  23        306
0034:  34        307
0036:  34        308
0038:  F4        309
003A:  72        310
003C:  76        311
003E:  45        312
0040:  55        313
0042:  55        314
0044:  85        315
0046:  AC        316
0048:  17        317
004A:  F4        318
004C:  F4        319
004E:  F4        320
0050:  F4        321
0052:  61        322
0054:  61        323
0056:  F0        324
0058:  F0        325
005A:  F0        326
005C:  F0        327
005E:  F0        328
0060:  F0        329
0062:  F0        330
0064:  F0        331
0066:  F0        332
0068:  F0        333
006A:  F0        334
006C:  F0        335
006E:  F0        336
0070:  F0        337
0072:  F0        338
0074:  F0        339
0076:  F0        340
0078:  F0        341
007A:  F0        342
007C:  F0        343
007E:  F0        344
0080:  F0        345
0082:  F0        346
0084:  F0        347
0086:  F0        348
0088:  F0        349
008A:  F0        350
008C:  F0        351
008E:  F0        352
0090:  F0        353
0092:  F0        354
0094:  F0        355
0096:  F0        356
0098:  F0        357
009A:  F0        358
009C:  F0        359
009E:  F0        360
00A0:  F0        361
00A2:  F0        362
00A4:  F0        363
00A6:  F0        364
00A8:  F0        365
00AA:  F0        366
00AC:  F0        367
00AE:  F0        368
00B0:  F0        369
00B2:  F0        370
00B4:  F0        371
00B6:  F0        372
00B8:  F0        373
00BA:  F0        374
00BC:  F0        375
00BE:  F0        376
00C0:  F0        377
00C2:  F0        378
00C4:  F0        379
00C6:  F0        380
00C8:  F0        381
00CA:  F0        382
00CC:  F0        383
00CE:  F0        384
00D0:  F0        385
00D2:  F0        386
00D4:  F0        387
00D6:  F0        388
00D8:  F0        389
00DA:  F0        390
00DC:  F0        391
00DE:  F0        392
00E0:  F0        393
00E2:  F0        394
00E4:  F0        395
00E6:  F0        396
00E8:  F0        397
00EA:  F0        398
00EC:  F0        399
00EE:  F0        400
00F0:  F0        401
00F2:  F0        402
00F4:  F0        403
00F6:  F0        404
00F8:  F0        405
00FA:  F0        406
00FC:  F0        407
00FE:  F0        408
00FF:  F0        409
0100:  F0        410
0102:  F0        411
0104:  F0        412
0106:  F0        413
0108:  F0        414
010A:  F0        415
010C:  F0        416
010E:  F0        417
0110:  F0        418
0112:  F0        419
0114:  F0        420
0116:  F0        421
0118:  F0        422
011A:  F0        423
011C:  F0        424
011E:  F0        425
0120:  F0        426
0122:  F0        427
0124:  F0        428
0126:  F0        429
0128:  F0        430
012A:  F0        431
012C:  F0        432
012E:  F0        433
0130:  F0        434
0132:  F0        435
0134:  F0        436
0136:  F0        437
0138:  F0        438
013A:  F0        439
013C:  F0        440
013E:  F0        441
0140:  F0        442
0142:  F0        443
0144:  F0        444
0146:  F0        445
0148:  F0        446
014A:  F0        447
014C:  F0        448
014E:  F0        449
0150:  F0        450
0152:  F0        451
0154:  F0        452
0156:  F0        453
0158:  F0        454
015A:  F0        455
015C:  F0        456
015E:  F0        457
0160:  F0        458
0162:  F0        459
0164:  F0        460
0166:  F0        461
0168:  F0        462
016A:  F0        463
016C:  F0        464
016E:  F0        465
0170:  F0        466
0172:  F0        467
0174:  F0        468
0176:  F0        469
0178:  F0        470
017A:  F0        471
017C:  F0        472
017E:  F0        473
0180:  F0        474
0182:  F0        475
0184:  F0        476
0186:  F0        477
0188:  F0        478
018A:  F0        479
018C:  F0        480
018E:  F0        481
0190:  F0        482
0192:  F0        483
0194:  F0        484
0196:  F0        485
0198:  F0        486
019A:  F0        487
019C:  F0        488
019E:  F0        489
01A0:  F0        490
01A2:  F0        491
01A4:  F0        492
01A6:  F0        493
01A8:  F0        494
01AA:  F0        495
01AC:  F0        496
01AE:  F0        497
01B0:  F0        498
01B2:  F0        499
01B4:  F0        500
01B6:  F0        501
01B8:  F0        502
01BA:  F0        503
01BC:  F0        504
01BE:  F0        505
01C0:  F0        506
01C2:  F0        507
01C4:  F0        508
01C6:  F0        509
01C8:  F0        510
01CA:  F0        511
01CC:  F0        512
01CE:  F0        513
01D0:  F0        514
01D2:  F0        515
01D4:  F0        516
01D6:  F0        517
01D8:  F0        518
01DA:  F0        519
01DC:  F0        520
01DE:  F0        521
01E0:  F0        522
01E2:  F0        523
01E4:  F0        524
01E6:  F0        525
01E8:  F0        526
01EA:  F0        527
01EC:  F0        528
01EE:  F0        529
01F0:  F0        530
01F2:  F0        531
01F4:  F0        532
01F6:  F0        533
01F8:  F0        534
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01FC:  F0        536
01FE:  F0        537
0200:  F0        538
0202:  F0        539
0204:  F0        540
0206:  F0        541
0208:  F0        542
020A:  F0        543
020C:  F0        544
020E:  F0        545
0210:  F0        546
0212:  F0        547
0214:  F0        548
0216:  F0        549
0218:  F0        550
021A:  F0        551
021C:  F0        552
021E:  F0        553
0220:  F0        554
0222:  F0        555
0224:  F0        556
0226:  F0        557
0228:  F0        558
022A:  F0        559
022C:  F0        560
022E:  F0        561
0230:  F0        562
0232:  F0        563
0234:  F0        564
0236:  F0        565
0238:  F0        566
023A:  F0        567
023C:  F0        568
023E:  F0        569
0240:  F0        570
0242:  F0        571
0244:  F0        572
0246:  F0        573
0248:  F0        574
024A:  F0        575
024C:  F0        576
024E:  F0        577
0250:  F0        578
0252:  F0        579
0254:  F0        580
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025C:  F0        584
025E:  F0        585
0260:  F0        586
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026C:  F0        592
026E:  F0        593
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028E:  F0        609
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02B0:  F0        626
02B2:  F0        627
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02BE:  F0        633
02C0:  F0        634
02C2:  F0        635
02C4:  F0        636
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02C8:  F0        638
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02CC:  F0        640
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02D2:  F0        643
02D4:  F0        644
02D6:  F0        645
02D8:  F0        646
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02E2:  F0        651
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02EC:  F0        656
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02F2:  F0        659
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02FC:  F0        664
02FE:  F0        665
0300:  F0        666
0302:  F0        667
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0306:  F0        669
0308:  F0        670
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030C:  F0        672
030E:  F0        673
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031A:  F0        679
031C:  F0        680
031E:  F0        681
0320:  F0        682
0322:  F0        683
0324:  F0        684
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0328:  F0        686
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032E:  F0        689
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033E:  F0        697
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034C:  F0        704
034E:  F0        705
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0352:  F0        707
0354:  F0        708
0356:  F0        709
0358:  F0        710
035A:  F0        711
035C:  F0        712
035E:  F0        713
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0362:  F0        715
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0368:  F0        718
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036C:  F0        720
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0378:  F0        726
037A:  F0        727
037C:  F0        728
037E:  F0        729
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0388:  F0        734
038A:  F0        735
038C:  F0        736
038E:  F0        737
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039C:  F0        744
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03BE:  F0        761
03C0:  F0        762
03C2:  F0        763
03C4:  F0        764
03C6:  F0        765
03C8:  F0        766
03CA:  F0        767
03CC:  F0        768
03CE:  F0        769
03D0:  F0        770
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03E4:  F0        780
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03E8:  F0        782
03EA:  F0        783
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03EE:  F0        785
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03F2:  F0        787
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03FE:  F0        793
0400:  F0        794
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041C:  F0        808
041E:  F0        809
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042C:  F0        816
042E:  F0        817
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043E:  F0        825
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0442:  F0        827
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044C:  F0        832
044E:  F0        833
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046C:  F0        848
046E:  F0        849
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0474:  F0        852
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0488:  F0        862
048A:  F0        863
048C:  F0        864
048E:  F0        865
0490:  F0        866
0492:  F0        867
0494:  F0        868
0496:  F0        869
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049C:  F0        872
049E:  F0        873
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04A4:  F0        876
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04A8:  F0        878
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04AE:  F0        881
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04B2:  F0        883
04B4:  F0        884
04B6:  F0        885
04B8:  F0        886
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04BC:  F0        888
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04C6:  F0        893
04C8:  F0        894
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04CC:  F0        896
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04E8:  F0        910
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051A:  F0        935
051C:  F0        936
051E:  F0        937
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0522:  F0        939
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052A:  F0        943
052C:  F0        944
052E:  F0        945
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0534:  F0        948
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0538:  F0        950
053A:  F0        951
053C:  F0        952
053E:  F0        953
0540:  F0        954
0542:  F0        955
0544:  F0        956
0546:  F0        957
0548:  F0        958
054A:  F0        959
054C:  F0        960
054E:  F0        961
0550:  F0        962
0552:  F0        963
0554:  F0        964
0556:  F0        965
0558:  F0        966
055A:  F0        967
055C:  F0        968
055E:  F0        969
0560:  F0        970
0562:  F0        971
0564:  F0        972
0566:  F0        973
0568:  F0        974
056A:  F0        975
056C:  F0        976
056E:  F0        977
0570:  F0        978
0572:  F0        979
0574:  F0        980
0576:  F0        981
0578:  F0        982
057A:  F0        983
057C:  F0        984
057E:  F0        985
0580:  F0        986
0582:  F0        987
0584:  F0        988
0586:  F0        989
0588:  F0        990
058A:  F0        991
058C:  F0        992
058E:  F0        993
0590:  F0        994
0592:  F0        995
0594:  F0        996
0596:  F0        997
0598:  F0        998
059A:  F0        999
059C:  F0        1000
059E:  F0        1001
05A0:  F0        1002
05A2:  F0        1003
05A4:  F0        1004
05A6:  F0        1005
05A8:  F0        1006
05AA:  F0        1007
05AC:  F0        1008
05AE:  F0        1009
05B0:  F0        1010
05B2:  F0        1011
05B4:  F0        1012
05B6:  F0        1013
05B8:  F0        1014
05BA:  F0        1015
05BC:  F0        1016
05BE:  F0        1017
05C0:  F0        1018
05C2:  F0        1019
05C4:  F0        1020
05C6:  F0        1021
05C8:  F0        1022
05CA:  F0        1023
05CC:  F0        1024
05CE:  F0        1025
05D0:  F0        1026
05D2:  F0        1027
05D4:  F0        1028
05D6:  F0        1029
05D8:  F0        1030
05DA:  F0        1031
05DC:  F0        1032
05DE:  F0        1033
05E0:  F0        1034
05E2:  F0        1035
05E4:  F0        1036
05E6:  F0        1037
05E8:  F0        1038
05EA:  F0        1039
05EC:  F0        1040
05EE:  F0        1041
05F0:  F0        1042
05F2:  F0        1043
05F4:  F0        1044
05F6:  F0        1045
05F8:  F0        1046
05FA:  F0        1047
05FC:  F0        1048
05FE:  F0        1049
0600:  F0        1050
0602:  F0        1051
0604:  F0        1052
0606:  F0        1053
0608:  F0        1054
060A:  F0        1055
060C:  F0        1056
060E:  F0        1057
0610:  F0        1058
0612:  F0        1059
0614:  F0        1060
0616:  F0        1061
0618:  F0        1062
061A:  F0        1063
061C:  F0        1064
061E:  F0        1065
0620:  F0        1066
0622:  F0        1067
0624:  F0        1068
0626:  F0        1069
0628:  F0        1070
062A:  F0        1071
062C:  F0        1072
062E:  F0        1073
0630:  F0        1074
0632:  F0        1075
0634:  F0        1076
0636:  F0        1077
0638:  F0        1078
063A:  F0        1079
063C:  F0        1080
063E:  F0        1081
0640:  F0        1082
0642:  F0        1083
0644:  F0        1084
0646:  F0        1085
0648:  F0        1086
064A:  F0        1087
064C:  F0        1088
064E:  F0        1089
0650:  F0        1090
0652:  F0        1091
0654:  F0        1092
0656:  F0        1093
0658:  F0        1094
065A:  F0        1095
065C:  F0        1096
065E:  F0        1097
0660:  F0        1098
0662:  F0        1099
0664:  F0        1100
0666:  F0        1101
0668:  F0        1102
066A:  F0        1103
066C:  F0        1104
066E:  F0        1105
0670:  F0        1106
0672:  F0        1107
0674:  F0        1108
0676:  F0        1109
0678:  F0        1110
067A:  F0        1111
067C:  F0        1112
067E:  F0        1113
0680:  F0        1114
0682:  F0        1115
0684:  F0        1116
0686:  F0        1117
0688:  F0        1118
068A:  F0        1119
068C:  F0        1120
068E:  F0        1121
0690:  F0        1122
0692:  F0        1123
0694:  F0        1124
0696:  F0        1125
0698:  F0        1126
069A:  F0        1127
069C:  F0        1128
069E:  F0        1129
06A0:  F0        1130
06A2:  F0        1131
06A4:  F0        1132
06A6:  F0        1133
06A8:  F0        1134
06AA:  F0        1135
06AC:  F0        1136
06AE:  F0        1137
06B0:  F0        1138
06B2:  F0        1139
06B4:  F0        1140
06B6:  F0        1141
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06BC:  F0        1144
06BE:  F0        1145
06C0:  F0        1146
06C2:  F0        1147
06C4:  F0        1148
06C6:  F0        1149
06C8:  F0        1150
06CA:  F0        1151
06CC:  F0        1152
06CE:  F0        1153
06D0:  F0        1154
06D2:  F0        1155
06D4:  F0        1156
06D6:  F0        1157
06D8:  F0        11
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ISPATCH TABLES, RESERVE
344 LET-1
345 GOTO-1
346 RUN-1
347 IF-1
348 RESTOR-1
349 $3F4
350 GOSUB-1
351 RETURN-1
352 REM-1
353 STOP-1
354 ONGOTO-1
355 FNWAIT-1
356 LOLLY
357 $3F4
358 $3F4
359 LOAD-1
360 SAVE-1
361 FIN
362 PLIST
363 OFF
364 ELSE
365 FIN
366 DOT
367 ELSE
368 FIN
369 DEF-1
370 POK-1
371 PRINT-1
372 CONT-1
373 LIST-1
374 CLEAR-1
375 GET-1
376 SCRATH-1
377 SGN
378 INT
379 ABS
380 USRPOK
381 ERROR
382 PDLHNDL
383 POS
384 SQR
385 RND
386 LOG
387 EXP
388 COS
389 SIN
390 TAN
391 ATN
392 PEEK
393 LEN
394 STR$
395 VAL
396 ASC
397 CHR$
398 LEFT$
399 RIGHT$
400 MID$
401 FADDT-1

;WHY THE HELL NOT

;UNSUPPORTED IN LOLLY, DO & HOOK

;FILL W/ GET ADDR.

;DUMMY FILL FOR SCRNC().
    
```

```

02 ROMSOFTA
0054:45 DA
0056:30 DA
0058:11 DA
005A:C8 DA
005C:E4 DA
005E:20 DA
0060:0A DA
0062:0B DA
0064:0B DA
0066:0B DA
0068:E8 DA
006A:E8 DA
006C:F4 DA
006E:F4 DA
0070:
0070:
0070:
0070:
0072:12
0074:7A
0076:05
0078:A4
007A:0F
007C:9F
007E:40
0080:23
0082:2F
0084:04
0086:12
0088:1C
008A:8E
008C:8E
008E:8E
0090:8E
0092:8E
0094:8E
0096:8E
0098:8E
009A:8E
009C:8E
009E:8E
00A0:8E
00A2:8E
00A4:8E
00A6:8E
00A8:8E
00AA:8E
00AC:8E
00AE:8E
00B0:8E
00B2:8E
00B3:8E
    
```

"DTCA2DOC-007-011.PICT" 120 KB 2001-03-26 dpi: 250h x 250v pix: 1990h x 2091v

FOR DISK HOOKS.

"DTCA2DOC-007-013.PICT" 134 KB 2001-03-26 dpi: 250h x 250v pix: 1995h x 2297v

"DTCA2DOC-007-014.PICT" 93 KB 2001-03-26 dpi: 250h x 250v pix: 2000h x 2111v

"DTCA2DOC-007-015.PICT" 167 KB 2001-03-26 dpi: 250h x 250v pix: 1995h x 2358v

"DTCA2DOC-007-016.PICT" 176 KB 2001-03-26 dpi: 250h x 250v pix: 1985h x 2408v

"DTCA2DOC-007-018.PICT" 147 KB 2001-03-26 dpi: 250h x 250v pix: 1975h x 2267v

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;COMPUTE NEGATIVE LENGTH.
;COMPUTE NEW VARTAB.
;SET LOW OF TRANS TO.
;COMPUTE HIGH OF VARTAB.
;COUTE NUMBER OF BLOCKS TO MOVE.

;COMPUTE OFFSET.
;IF VARTAB-LE-LOWTR, AND
;DECR DUE TO CARRY, AND
;DECREMENT STORE SO CARRY WORKS.

;FOR LATER ADC.

;BLOCK DONE?

;DO ANOTHER BLOCK. ALWAYS.
;SEE IF LINE HAD ANY CONTES.
;IF NOT, DON'T INSERT.

;SETUP HIGHTR.
;ADD LENGTH OF LINE TO INSERT.
;THIS GIVES DEST ADDR.
;SAME FOR HIGH ORDERS.

;POSITION THE BINARY LINE NUMBER
;IN FRONT OF BUF

(LOWTR),Y
VARTAB
VARTAB
INDEX2
VARTAB+1
#255
VARTAB+1
LOWTR+1

LOWTR
VARTAB
QDECT1
INDEX2+1
INDEX1
MLOOP
INDEX1+1
(INDEX1),Y
(INDEX2),Y
MLOOP
INDEX1+1
INDEX2+1
MLOOP
BUF
FINI
MEMSI
MEMSI+1
FRETOP
FRETOP+1
VARTAB
HIGHTR
COUNT
HIGHDS
VARTAB+1
HIGHTR+1
NODELC
HIGHDS+1
BLTU
LINNUM
LINNUM+1
BUF-2
BUF-2+1
STREND
STREND+1
VARTAB
VARTAB+1
COUNT
BUF-5,Y
(LOWTR),Y

SBC
CLC
ADC
STA
LDA
SBC
TAX
SEC
LDA
TAY
BCS
INX
DEC
CLC
ADC
BCC
DEC
CLC
LDA
STY
INX
BNE
INC
DEX
LDA
BEQ
LDA
STY
LDA
STY
ADC
STY
LDA
STY
BCC
INX
STY
JSR
LDA
LDY
STY
LDA
LDY
STY
LDA
LDY
STY
LDA
LDY
STA

```



```

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RROR HANDL
158 INCRIS:
159 ;OF THE TEXT
160 ;AFTER TXTPTR HAS BEEN SETUP TO POINT INTO BUF
161 ;BUFOFS
162 ;DO
163 ;LST
164 ;FIN
165 ;LST
166 ;LST
167 ;LST
168 ;LST
169 ;LST
170 ;LST
171 ;LST
172 ;LST
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212 ;LST
213 ;LST
214 ;LST
215 ;LST

0200
0000

056:29 7F
058:60
059:A6 B8
05A:40 04
05B:40 13
05C:84 08
05D:24 08
05E:10 08
05F:68 65
060:20 02
061:40 02
062:E8
063:20 85
064:00 01
065:00 08
066:20 85
067:00 01
068:00 08
069:20 85
070:00 01
071:00 08
072:20 85
073:00 01
074:00 08
075:20 85
076:00 01
077:00 08
078:20 85
079:00 01
080:00 08
081:20 85
082:00 01
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206:00 08
207:20 85
208:00 01
209:00 08
210:20 85
211:00 01
212:00 08
213:20 85
214:00 01
215:00 08

AND
RTS
POINTERS TO GET TO BUF
;END OF INCHR.
;SETUP TO POINT INTO BUF
PLIST
ON
TXTPTR
;SETUP SOURCE POINTER.
;SET DESTINATION OFFSET.
;ALLOW CRUNCHING.
;RUN ONLY?
;NO SUBROUTINES IN
;GO TO IT!
;AND RUN!!
*
LOLLY
UPSHFT2
BUFOFS,X
DORES
NOSPCS
#040
SLOOP
ENDCHR
OTHER QUOTE APPEARS.
;IS IT A SPACE TO SAVE?
;YES, IGNORE IT.
;IF IT'S A QUOTE, THIS WILL
;QUOTE SIGN?
;YES, DO SPECIAL STRING HANDLING.
;NO CRUNCH, JUST STORE.
;A QMARK?
;YES, STUFF A "PRINT" TOKE
;ALWAYS GO TO STUFFH.
;SKIP NUMERICS.
;:" AND " ARE ENTERED STRAIGHTAWAY.
;SAVE BUFFER POINTER.
;FOR INDIRECT.
;HI BYTE
;LOAD RESLST POINTER.
;ALSO CLEAR COUNT.
;SAVE TEXT POINTER FOR LATER USE.
*

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"DTCA2DOC-007-022.PICT" 157 KB 2001-03-26 dpi: 250h x 250v pix: 1995h x 2317v

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*+4
FAC+1
A
NTHIS1
(FAC),Y
RESCON
LOLLY
UPSHIFT3
;END OF TABLE?

BUFOFS,X
;YES, END OF TABLE. GET 1ST CHR.

GETBPT
BUF-3,Y
LOOK LIKE END OF
TXTPTR+1
#BUF-1
TXTPTR
PLIST
OFF

BNE
INC
BCC
LDA
BNE
DO
JSR
ELSE
LDA
FIN
BPL
STA
WILL
DEC
LDA
STA
RTS
DO
LST
ELSE
FIN
;FNOLIN SEARCHES THE PROGRAM TEXT FOR THE LINE
;WHOSE NUMBER IS PASSED IN "LINNUM".
;THERE ARE TWO POSSIBLE RETURNS:
;1) CARRY SET. POINTS TO THE LINK FIELD IN THE LINE
;WHICH IS NOT SET. LOWTR POINTS TO THE LINE IN THE
;2) CARRY NOT SET. LOWTR POINTS TO THE LINE IN THE
;LINE NOT GREATER THAN THE ONE SOUGHT AFTER.
;FNOLIN: LDA TXITAB
;FNOLNC: LDX TXITAB+1
;#1
LOWTR
LOWTR+1
(LOWTR),Y
FLINRT

LINNUM+1
(LOWTR),Y
FLNRIS
FNDL01
AFFRTS
LINNUM
(LOWTR),Y
FLNRIS
FLNRIS
(LOWTR),Y
(LOWTR),Y
FNDLNC
;ALWAYS BRANCHES.
;C MAY BE HIGH.

RROR HANDL
274 0604
275 05FD
276 05FD
277 0548
278 0001
279 08
280 08
281 08
282 08
283 08
284 08
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287 08
288 08
289 08
290 08
291 08
292 08
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981 08
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991 08
992 08
993 08
994 08
995 08
996 08
997 08
998 08
999 08
1000 08

```

"DTCA2DOC-007-024.PICT" 162 KB 2001-03-26 dpi: 250h x 250v pix: 1985h x 2347v

;SETUP TEXT POINTER.

#255 TR
TXTTA8+1
#255 TR+1
PLIST
ON

```

ADC
STA LDA
LADC STA
RTS
DO
ELSE
FIN

```

RROR HANDL

0123456789
9999999999
MMM3MMM

0000

[illegible]

Source: David T Craig

"DTCA2DOC-007-027.PICT" 139 KB 2001-03-26 dpi: 250h x 250v pix: 1917h x 2275v

"DTCA2DOC-007-028.PICT" 170 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2456v

```

03 ROMSOFTB      00
078D:20 81 00
07C0:20 87 00
07C3:20 82 EB
07C6:20 15 DE
07C9:45 80
07CC:48 95
07CE:48 81
07CF:49 81
07D1:48
07D2:

HE "FOR" S
575
576
577 ONEON:
578
579
580
581
582
583 NEXTCON:
584
585 ; BNEA NEWSTT

JSR
JSR
JSR
LDA PHA
LDA PHA
LDA PHA
LDA PHA
FORPNT
FORPNT+1
FORPNT
#FORTK
;SIMULATE BNE TO NEWSTT. JUST FALL IN.
;YES: ADVANCE POINTER.
;READ THE STEP.
;GET SIGN IN ACCA.
;PUSH FAC ONTO STACK (THRU A).
;PUT PNTR TO VARIABLE ON STACK.
;PUT A FORTK ONTO STACK.

```

"DTCA2DOC-007-030.PICT" 159 KB 2001-03-26 dpi: 250h x 250v pix: 2013h x 2406v


```

03  ROMSOFTB      ESTO
049:38          658  RESTOR:
04A:A5          659
04B:E9          660
04C:A4          661
04D:80          662
04E:80          663
04F:85          664
050:85          665
051:84          666
052:85          667
053:85          668
054:84          669
055:60          670
056:80          671
057:80          672
058:AD          673
059:C9          674
05A:F0          675
05B:01          676
05C:01          677
05D:01          678
05E:01          679
05F:01          680
060:01          681
061:01          682
062:01          683
063:01          684
064:01          685
065:01          686
066:01          687
067:01          688
068:01          689
069:01          690
06A:01          691
06B:01          692
06C:01          693
06D:01          694
06E:01          695
06F:01          696
070:01          697
071:01          698
072:01          699
073:01          700
074:01          701
075:01          702
076:01          703
077:01          704
078:01          705
079:01          706
07A:01          707
07B:01          708
07C:01          709
07D:01          710
07E:01          711
07F:01          712
080:01          713
081:01          714
082:01          715
083:01          716
084:01          717
085:01          718
086:01          719
087:01          720
088:01          721
089:01          722
08A:01          723
08B:01          724
08C:01          725
08D:01          726
08E:01          727
08F:01          728
090:01          729
091:01          730
092:01          731
093:01          732
094:01          733
095:01          734
096:01          735
097:01          736
098:01          737
099:01          738
09A:01          739
09B:01          740
09C:01          741
09D:01          742
09E:01          743
09F:01          744
0A0:01          745
0A1:01          746
0A2:01          747
0A3:01          748
0A4:01          749
0A5:01          750
0A6:01          751
0A7:01          752
0A8:01          753
0A9:01          754
0AA:01          755
0AB:01          756
0AC:01          757
0AD:01          758
0AE:01          759
0AF:01          760
0B0:01          761
0B1:01          762
0B2:01          763
0B3:01          764
0B4:01          765
0B5:01          766
0B6:01          767
0B7:01          768
0B8:01          769
0B9:01          770
0BA:01          771
0BB:01          772
0BC:01          773
0BD:01          774
0BE:01          775
0BF:01          776
0C0:01          777
0C1:01          778
0C2:01          779
0C3:01          780
0C4:01          781
0C5:01          782
0C6:01          783
0C7:01          784
0C8:01          785
0C9:01          786
0CA:01          787
0CB:01          788
0CC:01          789
0CD:01          790
0CE:01          791
0CF:01          792
0D0:01          793
0D1:01          794
0D2:01          795
0D3:01          796
0D4:01          797
0D5:01          798
0D6:01          799
0D7:01          800
0D8:01          801
0D9:01          802
0DA:01          803
0DB:01          804
0DC:01          805
0DD:01          806
0DE:01          807
0DF:01          808
0E0:01          809
0E1:01          810
0E2:01          811
0E3:01          812
0E4:01          813
0E5:01          814
0E6:01          815
0E7:01          816
0E8:01          817
0E9:01          818
0EA:01          819
0EB:01          820
0EC:01          821
0ED:01          822
0EE:01          823
0EF:01          824
0F0:01          825
0F1:01          826
0F2:01          827
0F3:01          828
0F4:01          829
0F5:01          830
0F6:01          831
0F7:01          832
0F8:01          833
0F9:01          834
0FA:01          835
0FB:01          836
0FC:01          837
0FD:01          838
0FE:01          839
0FF:01          840
000:01          841
001:01          842
002:01          843
003:01          844
004:01          845
005:01          846
006:01          847
007:01          848
008:01          849
009:01          850
00A:01          851
00B:01          852
00C:01          853
00D:01          854
00E:01          855
00F:01          856
010:01          857
011:01          858
012:01          859
013:01          860
014:01          861
015:01          862
016:01          863
017:01          864
018:01          865
019:01          866
01A:01          867
01B:01          868
01C:01          869
01D:01          870
01E:01          871
01F:01          872
020:01          873
021:01          874
022:01          875
023:01          876
024:01          877
025:01          878
026:01          879
027:01          880
028:01          881
029:01          882
02A:01          883
02B:01          884
02C:01          885
02D:01          886
02E:01          887
02F:01          888
030:01          889
031:01          890
032:01          891
033:01          892
034:01          893
035:01          894
036:01          895
037:01          896
038:01          897
039:01          898
03A:01          899
03B:01          900
03C:01          901
03D:01          902
03E:01          903
03F:01          904
040:01          905
041:01          906
042:01          907
043:01          908
044:01          909
045:01          910
046:01          911
047:01          912
048:01          913
049:01          914
04A:01          915
04B:01          916
04C:01          917
04D:01          918
04E:01          919
04F:01          920
050:01          921
051:01          922
052:01          923
053:01          924
054:01          925
055:01          926
056:01          927
057:01          928
058:01          929
059:01          930
05A:01          931
05B:01          932
05C:01          933
05D:01          934
05E:01          935
05F:01          936
060:01          937
061:01          938
062:01          939
063:01          940
064:01          941
065:01          942
066:01          943
067:01          944
068:01          945
069:01          946
06A:01          947
06B:01          948
06C:01          949
06D:01          950
06E:01          951
06F:01          952
070:01          953
071:01          954
072:01          955
073:01          956
074:01          957
075:01          958
076:01          959
077:01          960
078:01          961
079:01          962
07A:01          963
07B:01          964
07C:01          965
07D:01          966
07E:01          967
07F:01          968
080:01          969
081:01          970
082:01          971
083:01          972
084:01          973
085:01          974
086:01          975
087:01          976
088:01          977
089:01          978
08A:01          979
08B:01          980
08C:01          981
08D:01          982
08E:01          983
08F:01          984
090:01          985
091:01          986
092:01          987
093:01          988
094:01          989
095:01          990
096:01          991
097:01          992
098:01          993
099:01          994
09A:01          995
09B:01          996
09C:01          997
09D:01          998
09E:01          999
09F:01          1000
0A0:01          1001
0A1:01          1002
0A2:01          1003
0A3:01          1004
0A4:01          1005
0A5:01          1006
0A6:01          1007
0A7:01          1008
0A8:01          1009
0A9:01          1010
0AA:01          1011
0AB:01          1012
0AC:01          1013
0AD:01          1014
0AE:01          1015
0AF:01          1016
0B0:01          1017
0B1:01          1018
0B2:01          1019
0B3:01          1020
0B4:01          1021
0B5:01          1022
0B6:01          1023
0B7:01          1024
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0BA:01          1027
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0C0:01          1033
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0C5:01          1038
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0DF:01          1064
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0E3:01          1068
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0EA:01          1075
0EB:01          1076
0EC:01          1077
0ED:01          1078
0EE:01          1079
0EF:01          1080
0F0:01          1081
0F1:01          1082
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0FB:01          1092
0FC:01          1093
0FD:01          1094
0FE:01          1095
0FF:01          1096
000:01          1097
001:01          1098
002:01          1099
003:01          1100
004:01          1101
005:01          1102
006:01          1103
007:01          1104
008:01          1105
009:01          1106
00A:01          1107
00B:01          1108
00C:01          1109
00D:01          1110
00E:01          1111
00F:01          1112
010:01          1113
011:01          1114
012:01          1115
013:01          1116
014:01          1117
015:01          1118
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017:01          1120
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019:01          1122
01A:01          1123
01B:01          1124
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01F:01          1128
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029:01          1138
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02C:01          1141
02D:01          1142
02E:01          1143
02F:01          1144
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039:01          1154
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03C:01          1157
03D:01          1158
03E:01          1159
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049:01          1170
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04B:01          1172
04C:01          1173
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057:01          1184
058:01          1185
059:01          1186
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05B:01          1188
05C:01          1189
05D:01          1190
05E:01          1191
05F:01          1192
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062:01          1195
063:01          1196
064:01          1197
065:01          1198
066:01          1199
067:01          1200
068:01          1201
069:01          1202
06A:01          1203
06B:01          1204
06C:01          1205
06D:01          1206
06E:01          1207
06F:01          1208
070:01          1209
071:01          1210
072:01          1211
073:01          1212
074:01          1213
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076:01          1215
077:01          1216
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079:01          1218
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07B:01          1220
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07D:01          1222
07E:01          1223
07F:01          1224
080:01          1225
081:01          1226
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084:01          1229
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089:01          1234
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08B:01          1236
08C:01          1237
08D:01          1238
08E:01          1239
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094:01          1245
095:01          1246
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097:01          1248
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099:01          1250
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09B:01          1252
09C:01          1253
09D:01          1254
09E:01          1255
09F:01          1256
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0A1:01          1258
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0A8:01          1265
0A9:01          1266
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0AD:01          1270
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0AF:01          1272
0B0:01          1273
0B1:01          1274
0B2:01          1275
0B3:01          1276
0B4:01          1277
0B5:01          1278
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0B8:01          1281
0B9:01          1282
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0BB:01          1284
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0C0:01          1289
0C1:01          1290
0C2:01          1291
0C3:01          1292
0C4:01          1293
0C5:01          1294
0C6:01          1295
0C7:01          1296
0C8:01          1297
0C9:01          1298
0CA:01          1299
0CB:01          1300
0CC:01          1301
0CD:01          1302
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0D6:01          1311
0D7:01          1312
0D8:01          1313
0D9:01          1314
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0DE:01          1319
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0E2:01          1323
0E3:01          1324
0E4:01          1325
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0F8:01          1345
0F9:01          1346
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0FB:01          1348
0FC:01          1349
0FD:01          1350
0FE:01          1351
0FF:01          1352
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001:01          1354
002:01          1355
003:01          1356
004:01          1357
005:01          1358
006:01          1359
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009:01          1362
00A:01          1363
00B:01          1364
00C:01          1365
00D:01          1366
00E:01          1367
00F:01          1368
010:01          1369
011:01          1370
012:01          1371
013:01          1372
014:01          1373
015:01          1374
016:01          1375
017:01          1376
018:01          1377
019:01          1378
01A:01          1379
01B:01          1380
01C:01          1381
01D:01          1382
01E:01          1383
01F:01          1384
020:01          1385
021:01          1386
022:01          1387
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025:01          1390
026:01          1391
027:01          1392
028:01          1393
029:01          1394
02A:01          1395
02B:01          1396
02C:01          1397
02D:01          1398
02E:01          1399
02F:01          1400
030:01          1401
031:01          1402
032:01          1403
033:01          1404
034:01          1405
035:01          1406
036:01          1407
037:01          1408
038:01          1409
039:01          1410
03A:01          1411
03B:01          1412
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03D:01          1414
03E:01          1415
03F:01          1416
040:01          1417
041:01          1418
042:01          1419
043:01          1420
044:01          1421
045:01          1422
046:01          1423
047:01          1424
048:01          1425
049:01          1426
04A:01          1427
04B:01          1428
04C:01          1429
04D:01          1430
04E:01          1431
04F:01          1432
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052:01          1435
053:01          1436
054:01          1437
055:01          1438
056:01          1439
057:01          1440
058:01          1441
059:01          1442
05A:01          1443
05B:01          1444
05C:01          1445
05D:01          1446
05E:01          1447
05F:01          1448
060:01          1449
061:01          1450
062:01          1451
063:01          1452
064:01          1453
065:01          1454
066:01          1455
067:01          1456
068:01          1457
069:01          1458
06A:01          1459
06B:01          1460
06C:01          1461
06D:01          1462
06E:01          1463
06F:01          1464
070:01          1465
071:01          1466
072:01          1467
073:01          1468
074:01          1469
075:01          1470
076:01          1471
077:01          1472
078:01          1473
079:01          1474
07A:01          1475
07B:01          1476
07C:01          1477
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07E:01          1479
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088:01          1489
089:01          1490
08A:01          1491
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08C:01          1493
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090:01          1497
091:01          1498
092:01          1499
093:01          1500
094:01          1501
095:01          1502
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097:01          1504
098:01          1505
099:01          1506
09A:01          1507
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09C:01          1509
09D:01          1510
09E:01          1511
09F:01          1512
0A0:01          1513
0A1:01          1514
0A2:01          1515
0A3:01          1516
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0A5:01          1518
0A6:01          1519
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0A9:01          1522
0AA:01          1523
0AB:01          1524
0AC:01          1525
0AD:01          1526
0AE:01          1527
0AF:01          1528
0B0:01          1529
0B1:01          1530
0B2:01          1531
0B3:01          1532
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0B7:01          1536
0B8:01          1537
0B9:01          1538
0BA:01          1539
0BB:01          1540
0BC:01          1541
0BD:01          1542
0BE:01          1543
0BF:01          1544
0C0:01          1545
0C1:01          1546
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0C3:01          1548
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0C5:01          1550
0C6:01          1551
0C7:01          1552
0C8:01          1553
0C9:01          1554
0CA:01          1555
0CB:01          1556
0CC:01          1557
0CD:01          1558
0CE:01          1559
0CF:01          1560
0D0:01          1561
0D1:01          1562
0D2:01          1563
0D3:01          1564
0D4:01          1565
0D5:01          1566
0D6:01          1567
0D7:01          1568
0D8:01          1569
0D9:01          1570
0DA:01          1571
0DB:01          1572
0DC:01          1573
0DD:01          1574
0DE:01          1575
0DF:01          1576
0E0:01          1577
0E1:01          1578
0E2:01          1579
0E3:01          1580
0E4:01          1581
0E5:01          1582
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0E7:01          1584
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0E9:01          1586
0EA:01          1587
0EB:01          1588
0EC:01          1589
0ED:01          1590
0EE:01          1591
0EF:01          1592
0F0:01          1593
0F1:01          1594
0F2:01          1595
0F3:01          1596
0F4:01          1597
0F5:01          1598
0F6:01          1599
0F7:01          1600
0F8:01          1601
0F9:01          1602
0FA:01          1603
0FB:01          1604
0FC:01          1605
0FD:01          1606
0FE:01          1607
0FF:01          1608
000:01          1609
001:01          1610
002:01          1611
003:01          1612
004:01          1613
005:01          1614
006:01          1615
007:01          1616
008:01          1617
009:01          1618
00A:01          1619
00B:01          1620
00C:01          1621
00D:01          1622
00E:01          1623
00F:01          1624
010:01          1625
011:01          1626
012:01          1627
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017:01          1632
018:01          1633
019:01          1634
01A:01          1635
01B:01          1636
01C:01          1637
01D:01          1638
01E:01          1639
01F:0
```

29-MAR-84 08:16 PAGE 33
;RETURN TO CALLER.

03 ROMSOFT3
D8AF:60
D880: 0000
D880:
D880:
EST0
716 CONTKT:
717
718
719
720
RTS
00
LST
ELSE
FIN
PLIST
ON


```

03 ROMSOFT8
090F:
D912:
0003
0AD AND SAVE SUBROUTINES.
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BIT
BPL
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DOTHEREST: JMP
VARTIO: LDA
LDY
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RTS
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LDY
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LDA
LDY
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FIN
DO
ELSE
FIN
PRGEND
TXTTAB
POKER
PRGEND+1
TXTTAB+1
POKER+1
VARTIO
C-COUT
PROGIO
C-COUT
VARTIO
C-CSIN
TXTTAB
POKER
VARTAB
VARTAB+1
POKER+1
VARTAB+1
POKER+2
RNONLY
PROGIO
C-CSIN
RNONLY
DOTHEREST
RUNC
FINI
#POKER
#<POKER
@74
@74+1
#POKER+2
@76
@76+1
RNONLY
TXTTAB
TXTTAB+1
@74
@74+1
VARTAB
VARTAB+1
@76
@76+1
PLIST
OFF
;FILL REMAINDER WITH BREAKS FOR LOLLY
;CALCLUATE PROGRAM SIZE IN POKER
;GET ACTUAL END OF PROGRAM
;WRITE PROGRAM SIZE POK
;WRITE PROGRAM.
;READ SIZE OF PROGRAM INTO POKER
;CALCULATE VARTAB FROM SIZE AND
;TXTTAB
;HAHA!! FUCKED HIM OVER!
;READ PROGRAM.
;IS THIS A SPECIAL PROGRAM?
;REGULAR SAVE...

```

"DTCA2DOC-007-036.PICT" 154 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2442v

```

04 ROMSOFTC
UN,GOTO,GOSUB,
30 ;NEVER GETS MATCHED.
31 JSR FNDFOR
32 TXS
33 CMP
34 BEQ
35 LDX
36 DFB
37 LDX
38 JMP
39 PLA
40 PLA
41 CPY
42 BEQ
43 STA
44 PLA
45 STA
46 STA
47 STA
48 TXTPTR
49 TXTPTR+1
50 DATA:
51 ;SINCE WHEN STACK, STUCK THE TEXT PNTR
52 ;ONTO THE STACK, THE LINE NUMBER ARG
53 ;HADN'T BEEN READ YET.
54 ADDN:
55 CLC
56 ADC
57 STA
58 BCC
59 INC
60 RTS
61 LDX
62 DFB
63 LDX
64 STX
65 LDY
66 LDA
67 LDX
68 STX
69 LDA
70 BEQ
71 CMP
72 BEQ
73 CMP
74 BNE
75 PLA
76 PLA
77 PLA
78 PLA
79 PLA
80 DOPOP:
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29-MAR-84 08:16 PAGE 38
;EVALUATE A FORMULA.
;GET CURRNT CHARACTER.
;IS TERMINATING CHARACTER A GOTOTK?
;YES.
;NO, IT MUST BE 'THEN'.
;O=FALSE. ALL OTHERS TRUE.
;TRUE.
;SKIP REST OF STATEMENT.
;WILL ALWAYS BRANCH.
;WILL CURRENT CHARACTER.
;IF A NUMBER, GOTO IT.
;INTERPRET NEW STATEMENT.

```

```

FRMEVL
CHRGOT
#GOTOTK
#GOTOTK
#THENTK
SYNCHRP
FACEXP
DOCOND
REMN
ADON
CHRGOT
DOCO
GOTO
GONE3

```

```

JSR
CMP
BEQ
LDA
JSR
LDA
BNE
JSR
BEQ
JSR
BCS
JMP

```

```

IF ... THEN
IF:
897
898
899
900
901
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903
904
905
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04 RMSOFTC
D9C9:20 7B DD
D9CC:20 87 00
D9CF:C9 AB
D9D1:F0 05 D9D8
D9D3:A9 C4 DE
D9D5:20 C0
D9D8:A5 05 D9E1
D9DA:00 A9 D9
D9DC:F0 87 00 D9E9
D9DE:20 87 00 D9E9
D9E1:80 03 3E D8
D9E4:4C
D9E6:3E D8
D9E9:4C

```

Source: David T Craig

```

29-MAR-84 08:16 PAGE 40
; LINE GET' READS A LINE NUMBER FROM CURRENT TEXT POSITION
; LINE NUMBER RANGE FROM 0 TO 64000-1.
; THE ANSWER IS RETURNED IN LINNUM.
; TXTPTR IS UPDATED TO POINT TO THE TERMINATING CHARACTER
; AND A = THE TERMINATING CHARACTER WITH CONDITION
; CODES SET UP TO REFLECT ITS VALUE.
; INITIALIZE LINE NUMBER TO ZERO.
; IT IS NOT A DIGIT.
; -1 SINCE C=0.
; SAVE CHARACTER.
; LINE NUMBER WILL BE .LT. 64000?
; MULTIPLY BY 10.
; ADD IN DIGIT.

120 INGET -- READ AINE NUMBER INTO
121 ; 'LINE GET' READS A LINE NUMBER FROM CURRENT TEXT POSITION
122 ; LINE NUMBER RANGE FROM 0 TO 64000-1.
123 ; THE ANSWER IS RETURNED IN LINNUM.
124 ; TXTPTR IS UPDATED TO POINT TO THE TERMINATING CHARACTER
125 ; AND A = THE TERMINATING CHARACTER WITH CONDITION
126 ; CODES SET UP TO REFLECT ITS VALUE.
127 ; INITIALIZE LINE NUMBER TO ZERO.
128 ; IT IS NOT A DIGIT.
129 ; -1 SINCE C=0.
130 ; SAVE CHARACTER.
131 ; LINE NUMBER WILL BE .LT. 64000?
132 ; MULTIPLY BY 10.
133 ; ADD IN DIGIT.
134
135 LDX #0
136 STX LINNUM
137 STX LINNUM+1
138 STX ONGRS
139 SBC #0-1
140 STA CHARAC
141 LDA LINNUM+1
142 STA INDEX
143 STX #25
144 SNERR3
145 LDA LINNUM
146 ASL
147 ROL
148 ASL
149 ROL
150 STA LINNUM
151 LDA LINNUM+1
152 ASL
153 ROL
154 STA LINNUM+1
155 LDA CHARAC
156 STA NXTLGC
157 INCB LINNUM+1
158 JSR MORLIN
159 JMP

```

[illegible]


```

04 RCM$OFTC
DAB0:20 D4 00 E5
DAB3:A9 90
DAB5:A0 8C
DAB7:35 8C
DAB9:84 8D E6
DABB:20 35
DABE:AD 00
DAC0:B1 3C
DAC2:91 85
DAC4:C8 3C
DAC5:B1 85
DAC7:91 85
DAC9:C8 8C
DACA:B1 85
DACC:91 85
DACE:60

LET 215
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COPY.C:
;FREEING UP ANY STRING SPACE.
MOVINS
#DSCIMP
#<DSCIMP
DSCPNT+1
FREIMS
#0
(DSCPNT),Y
(FORPNT),Y
(DSCPNT),Y
(FORPNT),Y
(DSCPNT),Y
(FORPNT),Y

JSR LDA
LDY LDA
STY STA
STY INY
JSR LDA
LDY LDA
STY STA
STY INY
RTS

;POINT TO STRING PNTR.
;GET POINTER TO OLD DESCRIPTOR.
;REMEMBER POINTER TO DESCRIPTOR.
;FREE UP THE TEMPORARY WITHOUT.
;COPY IT.
29-MAR-84 08:16 PAGE 42

```

"DTCA2DOC-007-043.PICT" 147 KB 2001-03-26 dpi: 250h x 250v pix: 1998h x 2502v

"DTCA2DOC-007-044.PICT" 148 KB 2001-03-26 dpi: 250h x 250v pix: 2018h x 2336v

```

04  ROMSOFTC
DB67:29 7F
DB69:48 F1
DB6A:A5 A8 FC
DB6C:20
DB6F:68
DB70:60

RINT CODE.
350
351
352
353
354 GETRIS:
355

AND
PHA
LDA
JSR
PLA
RTS

#2177
SPOBYT
WAITNOW

29-MAR-84 08:16 PAGE 45
;GET A BACK FROM APPLE.
;NOW DELAY FOR SPEED=

```

"DTCA2DOC-007-046.PICT" 165 KB 2001-03-26 dpi: 250h x 250v pix: 1998h x 2385v

29-MAR-84 08:16 PAGE 48

04 ROMSOFTC

INPUT AND READ CODE

```

DC4C:85 DE
DC4E:A5 B8
DC50:A4 B9
DC52:99 00
DC54:90 01
DC56:C8
DC57:20 ED
DC5A:20 30
DC5D:20 73
DC60:20 72
DC63:48
DC64:AD 00
DC67:F0 30
DC69:68 4A
DC6A:20 12
DC6D:A5 63
DC6E:20 B7
DC72:20 87
DC77:20 02
DC79:F0 03
DC7B:4C 71
DC7E:A5 B8
DC80:85 B9
DC82:85 B7
DC84:85 87
DC88:85 87
DC8A:85 87
DC8E:20 B8
DC91:20 B9
DC93:20 B7
DC99:20 B8
DC9B:20 B8
DC9D:20 B8
DC9E:20 B8
DC9F:20 B8
DC9G:20 B8
DC9H:20 B8
DC9I:20 B8
DC9J:20 B8
DC9K:20 B8
DC9L:20 B8
DC9M:20 B8
DC9N:20 B8
DC9O:20 B8
DC9P:20 B8
DC9Q:20 B8
DC9R:20 B8
DC9S:20 B8
DC9T:20 B8
DC9U:20 B8
DC9V:20 B8
DC9W:20 B8
DC9X:20 B8
DC9Y:20 B8
DC9Z:20 B8

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474 STA
475 LDA
476 ADC
477 ACC
478 INY
479 JSR
480 IF NECESSARY.
481 JSR
482 ST2TXT
483 INPCOM
484 STRDN2
485 BUF
486 MAYBAD
487 PLA
488 JSR
489 LDA
490 INIFLG
491 QINTGR
492 CHRGOT
493 TRMOK
494 #44
495 #45
496 TRMOK
497 TXTPTR+1
498 TXTPTR+1
499 INPPTR+1
500 INPPTR+1
501 VARTXT+1
502 VARTXT+1
503 TXTPTR+1
504 CHRGOT
505 VAREND
506 CHKCOM
507 INLOOP
508 INPFLG
509 NUMINS2
510 TRMNO1-1
511 JMP
512 TO FIND DATA
513 THE EXECUTION CODE FOR DATA TO
514 START WORD OF EACH STATEMENT
515 EACH NEW LINE NUMBER
516 IS STORED IN DATA LINE. SO THAT IF AN ERROR OCCURS
517 WHILE READING DATA THE ERROR MESSAGE CAN GIVE THE LINE
518 NUMBER OF THE ILL-FORMATTED DATA.
519 DATLOP:
520 JSR
521 INY
522 TAX
523 BNE
524 LDY
525 LDA
526 BEQ
527 INY
528 LDA
529 STY
530 LDA

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ENDCHR
TXTPTR
TXTPTR+1
#0
NOWGE1
STRLI2
NECESSARY.
ST2TXT
INPCOM
STRDN2
BUF
MAYBAD
FIN
INIFLG
QINTGR
CHRGOT
TRMOK
#44
#45
TRMOK
TXTPTR+1
TXTPTR+1
INPPTR+1
INPPTR+1
VARTXT+1
VARTXT+1
TXTPTR+1
CHRGOT
VAREND
CHKCOM
INLOOP
INPFLG
NUMINS2
TRMNO1-1
JMP
TO FIND DATA
THE EXECUTION CODE FOR DATA TO
START WORD OF EACH STATEMENT
EACH NEW LINE NUMBER
IS STORED IN DATA LINE. SO THAT IF AN ERROR OCCURS
WHILE READING DATA THE ERROR MESSAGE CAN GIVE THE LINE
NUMBER OF THE ILL-FORMATTED DATA.
DATLOP:
JSR
INY
TAX
BNE
LDY
LDA
BEQ
INY
LDA
STY
LDA
TXTPTR),Y
ERRGOS
TXTPTR),Y
DATLIN
TXTPTR),Y

```

```

;C IS SET PROPERLY ABOVE.
;MAKE A STRING DESCRIPTOR FOR VALUE
;SET TEXT POINTER.
;DO ASSIGNMENT.
;BLANK INPUT?
;GET VALUE.
;SET CODES ON FLAG.
;GO DECIDE ON FLOAT.
;READ LAST CHARACTER.
;: OR EOL IS OK.
;A COMMA?
;SAVE FOR MORE READS.
;POINT TO VARIABLE LIST.
;LOOK AT LAST VARIABLE LIST CHARACTER.
;THAT'S THE END OF THE LIST.
;NOT END. CHECK FOR COMMA.
;THE EXECUTION CODE FOR DATA TO
;START WORD OF EACH STATEMENT
;EACH NEW LINE NUMBER
;SO THAT IF AN ERROR OCCURS
;THE ERROR MESSAGE CAN GIVE THE LINE
;SKIP SOME TEXT.
;END OF LINE?
;SHOW AIN.T.
;YES = "NO DATA" ERROR.
;GET HIGH BYTE OF LINE NUMBER.
;GET LOW BYTE.

```

"DTCA2DOC-007-049.PICT" 81 KB 2001-03-26 dpi: 250h x 250v pix: 1958h x 2260v


```

04 04 RMMSOFTL
HE NEX
561 : A 'FOR' ENTRY ON THE STACK HAS THE FOLLOWING FORMAT:
562 : LOW ADDRESS
563 : TOKEN (FOR TK) 1 BYTE
564 : A POINTER TO THE LOOP VARIABLE 2 BYTES
565 : A STEP 4+ADPPRC BYTES
566 : A BYTE REFLECTING THE SIGN OF THE INCREMENT 1 BYTE
567 : THE UPPER VALUE (PACKED) 4+ADPPRC BYTES
568 : THE LINE NUMBER OF THE 'FOR' STATEMENT 2 BYTES
569 : A TEXT POINTER INTO THE 'FOR' STATEMENT 2 BYTES
570 : HIGH ADDRESS
571 : TOTAL 16+2*ADPPRC BYTES.
572 : NEXT:
573 GETFOR
574 #0
575 STXFOR
576 PTRGET
577 FORPNT+1
578 FNDFOR
579 HAVFOR
580 #ERRNF
581 ERRG04
582
583 INX
584 INX
585 INX
586 INX
587 INX
588 INX
589 INX
590 INX
591 INX
592 INX
593 INX
594 INX
595 INX
596 INX
597 INX
598 LDA
599 STA
600 FORPNT
601 FORPNT+1
602 FADD
603 MOVVF
604 #1
605 FCOMP
606
607 SEC
608 SBC
609 OF (CURRENT VALUE-FINAL VALUE).
610 THEN LOOP IS DONE.
611
612 LDA
613 STA
614 LDA
615 STA
616 LDA
617 STA
618 LDA
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04 ROMSOFTC	HE NEX		29-MAR-84 08:16 PAGE 51
DD50:85 B9	619	TXIPTR+1	
DD52:4C D2 D7	620	NEWSTT	
DD55:8A 11	621	#15+2	;PROCESS NEXT STATEMENT.
DD56:69 11	622		;ADDS 16 WITH CARRY.
DD58:AA	623		
DD59:9A B7 00	624	CHRGOT	;NEW STACK PNTR.
DD5A:20 2C	625	#44	;COMMA AT END?
DD5D:C9 F1 00	626	NEWSGO	
DD5F:D0 81 00	627	CHRGOT	
DD61:20 81 00	628	CHRGOT	
DD64:20 FF DC	629	GETFOR	
DD67:20 FF DC	630	JSR	;DO NEXT BUT DON'T ALLOW BLANK VARIABLE
	631	JSR	;DO NEXT BUT DON'T ALLOW BLANK VARIABLE
	632	JSR	;DO NEXT BUT DON'T ALLOW BLANK VARIABLE

"DTCA2DOC-007-052.PICT" 176 KB 2001-03-26 dpi: 250h x 250v pix: 1993h x 2486v

```

29-MAR-84 08:16 PAGE 53
;NOT AN OPERATOR.
;NOT AN OPERATOR.
;C=1.
;ONLY IF A=0 AND VALTYP=-1 (A STR).
;GET BACK ORIGINAL A.
;MULTIPLY BY 2.
;BY THREE.
;SET UP FOR LATER PRECEDENCE.
;IS OLD PRECEDENCE GREATER OR EQUAL?
;YES, GO OPERATE HERE.
;CAN'T BE STRING HERE.
;SAVE OLD PRECEDENCE.
;SET A RETURN ADDRESS FOR OP.
;PULL OFF PREVIOUS PRECEDENCE.
;GET POINTER TO OP.
;THAT'S A REAL OPERATOR.
;DONE?
;DONE!
;GET VALUE TYP INTO 'C'.
;PUT VALTYP INTO LOW ORDER BIT OF MASK.
;DECREMENT TEXT POINTER.
;MAKE YREG POINT AT OPERATOR ENTRY.
;SAVE THE OPERATION MASK.
;SAVE IT ALL. BR ALWAYS.
;LAST PRECEDENCE IS GREATER?
;YES, GO OPERATE.
;NO, SAVE ARGUMENT AND GET OTHER OPERAND.
;DISP ADDR GOES ONTO STACK.
;SAVE FAC ON STACK UNPACKED.
;ACCA MAY BE MASK FOR REL.
;GO TO AN ERROR.
;GET HIGH PRECEDENCE STACK.
;GET POINTER INTO STACK.
;START WITH SIGN SET UP.
;PUT ROUNDED FAC ON STACK.
;ENY POINT TO SKIP STORING SIGN.

```

05	RJMSOFTD	FORMULA EVALUATION CODE.	OP	VALTYP	CHKNUM	DOPRE1	OPPTR	QPRE1	QOPGO	PULSTK	VALTYP	FINREL:	FINRE2:	QPREC1:	DOPRE1:	SNERR5:	PUSHF1:	PUSHF:	STORE FAC ON	FORPSH:
008	B0	BCC	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
009	B1	ADC	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
010	B2	BCC	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
011	B3	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
012	B4	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
013	B5	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
014	B6	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
015	B7	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
016	B8	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
017	B9	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
018	BA	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
019	BB	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
020	BC	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
021	BD	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
022	BE	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
023	BF	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
024	C0	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
025	C1	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
026	C2	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
027	C3	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
028	C4	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
029	C5	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
030	C6	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
031	C7	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
032	C8	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
033	C9	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
034	CA	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
035	CB	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
036	CC	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
037	CD	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
038	CE	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
039	CF	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
040	D0	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
041	D1	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
042	D2	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
043	D3	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
044	D4	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
045	D5	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
046	D6	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
047	D7	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
048	D8	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
049	D9	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
050	DA	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
051	DB	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
052	DC	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
053	DD	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
054	DE	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
055	DF	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
056	E0	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
057	E1	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
058	E2	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
059	E3	BNE	QOP	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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FORMULA EVALUATION CODE.

05 ROMSOFTD

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8 25:48: A0
DE26:48: A0
DE28:48: 9F
DE29:48: 9E
DE2B:48: 9D
DE2C:48: 0001
DE2E:48: 00
DE30:48: FF
DE32:48: 23
DE34:48: 64
DE36:48: 03
DE38:48: 87
DE3A:48: 16
DE3C:48: A5
DE3E:48: A6
DE40:48: A7
DE42:48: A8
DE44:48: A9
DE46:48: AA
DE48:48: AB
DE4A:48: 9D
DE4C:48: 00
DE4E:48: 11
DE50:48: B3
DE52:48: 04
DE54:48: 7D
DE56:48: 64
DE58:48: 2E
DE5A:48: 49
DE5C:48: 53
DE5E:48: C7
DE60:48: 2F
DE62:48: B8
DE64:48: A5
DE66:48: C0
DE68:48: 90
DE6A:48: 85
DE6C:48: 80
DE6E:48: 75
DE70:48: 60
DE72:48: 45
DE74:48: 30
DE76:48: 15
DE78:48: 00
DE7A:48: FF
DE7C:48: 23
DE7E:48: 64
DE80:48: 03
DE82:48: 87
DE84:48: 16
DE86:48: A5
DE88:48: A6
DE8A:48: A7
DE8C:48: A8
DE8E:48: A9
DE90:48: AA
DE92:48: AB
DE94:48: 9D
DE96:48: 00
DE98:48: 11
DE9A:48: B3
DE9C:48: 04
DE9E:48: 7D
DEA0:48: 64
DEA2:48: 2E
DEA4:48: 49
DEA6:48: 53
DEA8:48: C7
DEAA:48: 2F
DEAC:48: B8
DEAE:48: A5
DEB0:48: C0
DEB2:48: 90
DEB4:48: 85
DEB6:48: 80
DEB8:48: 75
DEBA:48: 60
DEBC:48: 45
DEBE:48: 30
DEC0:48: 15
DEC2:48: 00
DEC4:48: FF
DEC6:48: 23
DEC8:48: 64
DECA:48: 03
DECC:48: 87
DECE:48: 16
DECF:48: A5
DED0:48: A6
DED2:48: A7
DED4:48: A8
DED6:48: A9
DED8:48: AA
DEDA:48: AB
DEDC:48: 9D
DEDE:48: 00
DEDF:48: 11
DEE0:48: B3
DEE2:48: 04
DEE4:48: 7D
DEE6:48: 64
DEE8:48: 2E
DEEA:48: 49
DEEC:48: 53
DEEE:48: C7
DEEF:48: 2F
DEF0:48: B8
DEF2:48: A5
DEF4:48: C0
DEF6:48: 90
DEF8:48: 85
DEFA:48: 80
DEFC:48: 75
DEFE:48: 60
DEFF:48: 45
D000:48: 30
D002:48: 15
D004:48: 00
D006:48: FF
D008:48: 23
D00A:48: 64
D00C:48: 03
D00E:48: 87
D010:48: 16
D012:48: A5
D014:48: A6
D016:48: A7
D018:48: A8
D01A:48: A9
D01C:48: AA
D01E:48: AB
D020:48: 9D
D022:48: 00
D024:48: 11
D026:48: B3
D028:48: 04
D02A:48: 7D
D02C:48: 64
D02E:48: 2E
D030:48: 49
D032:48: 53
D034:48: C7
D036:48: 2F
D038:48: B8
D03A:48: A5
D03C:48: C0
D03E:48: 90
D040:48: 85
D042:48: 80
D044:48: 75
D046:48: 60
D048:48: 45
D04A:48: 30
D04C:48: 15
D04E:48: 00
D050:48: FF
D052:48: 23
D054:48: 64
D056:48: 03
D058:48: 87
D05A:48: 16
D05C:48: A5
D05E:48: A6
D060:48: A7
D062:48: A8
D064:48: A9
D066:48: AA
D068:48: AB
D06A:48: 9D
D06C:48: 00
D06E:48: 11
D070:48: B3
D072:48: 04
D074:48: 7D
D076:48: 64
D078:48: 2E
D07A:48: 49
D07C:48: 53
D07E:48: C7
D080:48: 2F
D082:48: B8
D084:48: A5
D086:48: C0
D088:48: 90
D08A:48: 85
D08C:48: 80
D08E:48: 75
D090:48: 60
D092:48: 45
D094:48: 30
D096:48: 15
D098:48: 00
D09A:48: FF
D09C:48: 23
D09E:48: 64
D0A0:48: 03
D0A2:48: 87
D0A4:48: 16
D0A6:48: A5
D0A8:48: A6
D0AA:48: A7
D0AC:48: A8
D0AE:48: A9
D0B0:48: AA
D0B2:48: AB
D0B4:48: 9D
D0B6:48: 00
D0B8:48: 11
D0BA:48: B3
D0BC:48: 04
D0BE:48: 7D
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"DTCA2DOC-007-056.PICT" 157 KB 2001-03-26 dpi: 250h x 250v pix: 1998h x 2356v

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233390      PHA
233391      JMP
233392      JSR
233393      PLA
233394      TAY
233395      LDA
233396      STA
233397      LDA
233398      STA
233399      JSR
233400      JMP
233401      CHKNUM
233402      ARGEXP
233403      FACEV1
233404      ARGEXP
233405      GIVEO
233406      FACEV1
233407      GIVEO
233408      LDY
233409      DFB
233410      LDY
233411      JMP
233412      SNGFLT
233413      TIME TO PERFORM A RELATIONAL OPERATOR.
233414      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233415      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233416      ; DOREL:
233417      JSR
233418      BCS
233419      LDA
233420      ORA
233421      AND
233422      STA
233423      LDA
233424      LDY
233425      JSR
233426      TAX
233427      JMP
233428      LDA
233429      DEC
233430      JSR
233431      STX
233432      STY
233433      LDA
233434      JSR
233435      STX
233436      TAX
233437      SEC
233438      BEQ
233439      LDA
233440      BCC
233441      DFB
233442      LDY
233443      DFB
233444      LDY
233445      JMP
233446      SNGFLT
233447      TIME TO PERFORM A RELATIONAL OPERATOR.
233448      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233449      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233450      ; DOREL:
233451      JSR
233452      BCS
233453      LDA
233454      ORA
233455      AND
233456      STA
233457      LDA
233458      LDY
233459      JSR
233460      TAX
233461      JMP
233462      LDA
233463      DEC
233464      JSR
233465      STX
233466      STY
233467      LDA
233468      JSR
233469      STX
233470      TAX
233471      SEC
233472      BEQ
233473      LDA
233474      BCC
233475      DFB
233476      LDY
233477      DFB
233478      LDY
233479      JMP
233480      SNGFLT
233481      TIME TO PERFORM A RELATIONAL OPERATOR.
233482      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233483      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233484      ; DOREL:
233485      JSR
233486      BCS
233487      LDA
233488      ORA
233489      AND
233490      STA
233491      LDA
233492      LDY
233493      JSR
233494      TAX
233495      JMP
233496      LDA
233497      DEC
233498      JSR
233499      STX
233500      STY
233501      LDA
233502      JSR
233503      STX
233504      TAX
233505      SEC
233506      BEQ
233507      LDA
233508      BCC
233509      DFB
233510      LDY
233511      DFB
233512      LDY
233513      JMP
233514      SNGFLT
233515      TIME TO PERFORM A RELATIONAL OPERATOR.
233516      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233517      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233518      ; DOREL:
233519      JSR
233520      BCS
233521      LDA
233522      ORA
233523      AND
233524      STA
233525      LDA
233526      LDY
233527      JSR
233528      TAX
233529      JMP
233530      LDA
233531      DEC
233532      JSR
233533      STX
233534      STY
233535      LDA
233536      JSR
233537      STX
233538      TAX
233539      SEC
233540      BEQ
233541      LDA
233542      BCC
233543      DFB
233544      LDY
233545      DFB
233546      LDY
233547      JMP
233548      SNGFLT
233549      TIME TO PERFORM A RELATIONAL OPERATOR.
233550      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233551      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233552      ; DOREL:
233553      JSR
233554      BCS
233555      LDA
233556      ORA
233557      AND
233558      STA
233559      LDA
233560      LDY
233561      JSR
233562      TAX
233563      JMP
233564      LDA
233565      DEC
233566      JSR
233567      STX
233568      STY
233569      LDA
233570      JSR
233571      STX
233572      TAX
233573      SEC
233574      BEQ
233575      LDA
233576      BCC
233577      DFB
233578      LDY
233579      DFB
233580      LDY
233581      JMP
233582      SNGFLT
233583      TIME TO PERFORM A RELATIONAL OPERATOR.
233584      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233585      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233586      ; DOREL:
233587      JSR
233588      BCS
233589      LDA
233590      ORA
233591      AND
233592      STA
233593      LDA
233594      LDY
233595      JSR
233596      TAX
233597      JMP
233598      LDA
233599      DEC
233600      JSR
233601      STX
233602      STY
233603      LDA
233604      JSR
233605      STX
233606      TAX
233607      SEC
233608      BEQ
233609      LDA
233610      BCC
233611      DFB
233612      LDY
233613      DFB
233614      LDY
233615      JMP
233616      SNGFLT
233617      TIME TO PERFORM A RELATIONAL OPERATOR.
233618      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233619      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233620      ; DOREL:
233621      JSR
233622      BCS
233623      LDA
233624      ORA
233625      AND
233626      STA
233627      LDA
233628      LDY
233629      JSR
233630      TAX
233631      JMP
233632      LDA
233633      DEC
233634      JSR
233635      STX
233636      STY
233637      LDA
233638      JSR
233639      STX
233640      TAX
233641      SEC
233642      BEQ
233643      LDA
233644      BCC
233645      DFB
233646      LDY
233647      DFB
233648      LDY
233649      JMP
233650      SNGFLT
233651      TIME TO PERFORM A RELATIONAL OPERATOR.
233652      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233653      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233654      ; DOREL:
233655      JSR
233656      BCS
233657      LDA
233658      ORA
233659      AND
233660      STA
233661      LDA
233662      LDY
233663      JSR
233664      TAX
233665      JMP
233666      LDA
233667      DEC
233668      JSR
233669      STX
233670      STY
233671      LDA
233672      JSR
233673      STX
233674      TAX
233675      SEC
233676      BEQ
233677      LDA
233678      BCC
233679      DFB
233680      LDY
233681      DFB
233682      LDY
233683      JMP
233684      SNGFLT
233685      TIME TO PERFORM A RELATIONAL OPERATOR.
233686      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233687      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233688      ; DOREL:
233689      JSR
233690      BCS
233691      LDA
233692      ORA
233693      AND
233694      STA
233695      LDA
233696      LDY
233697      JSR
233698      TAX
233699      JMP
233700      LDA
233701      DEC
233702      JSR
233703      STX
233704      STY
233705      LDA
233706      JSR
233707      STX
233708      TAX
233709      SEC
233710      BEQ
233711      LDA
233712      BCC
233713      DFB
233714      LDY
233715      DFB
233716      LDY
233717      JMP
233718      SNGFLT
233719      TIME TO PERFORM A RELATIONAL OPERATOR.
233720      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233721      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233722      ; DOREL:
233723      JSR
233724      BCS
233725      LDA
233726      ORA
233727      AND
233728      STA
233729      LDA
233730      LDY
233731      JSR
233732      TAX
233733      JMP
233734      LDA
233735      DEC
233736      JSR
233737      STX
233738      STY
233739      LDA
233740      JSR
233741      STX
233742      TAX
233743      SEC
233744      BEQ
233745      LDA
233746      BCC
233747      DFB
233748      LDY
233749      DFB
233750      LDY
233751      JMP
233752      SNGFLT
233753      TIME TO PERFORM A RELATIONAL OPERATOR.
233754      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233755      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233756      ; DOREL:
233757      JSR
233758      BCS
233759      LDA
233760      ORA
233761      AND
233762      STA
233763      LDA
233764      LDY
233765      JSR
233766      TAX
233767      JMP
233768      LDA
233769      DEC
233770      JSR
233771      STX
233772      STY
233773      LDA
233774      JSR
233775      STX
233776      TAX
233777      SEC
233778      BEQ
233779      LDA
233780      BCC
233781      DFB
233782      LDY
233783      DFB
233784      LDY
233785      JMP
233786      SNGFLT
233787      TIME TO PERFORM A RELATIONAL OPERATOR.
233788      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233789      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233790      ; DOREL:
233791      JSR
233792      BCS
233793      LDA
233794      ORA
233795      AND
233796      STA
233797      LDA
233798      LDY
233799      JSR
233800      TAX
233801      JMP
233802      LDA
233803      DEC
233804      JSR
233805      STX
233806      STY
233807      LDA
233808      JSR
233809      STX
233810      TAX
233811      SEC
233812      BEQ
233813      LDA
233814      BCC
233815      DFB
233816      LDY
233817      DFB
233818      LDY
233819      JMP
233820      SNGFLT
233821      TIME TO PERFORM A RELATIONAL OPERATOR.
233822      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233823      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233824      ; DOREL:
233825      JSR
233826      BCS
233827      LDA
233828      ORA
233829      AND
233830      STA
233831      LDA
233832      LDY
233833      JSR
233834      TAX
233835      JMP
233836      LDA
233837      DEC
233838      JSR
233839      STX
233840      STY
233841      LDA
233842      JSR
233843      STX
233844      TAX
233845      SEC
233846      BEQ
233847      LDA
233848      BCC
233849      DFB
233850      LDY
233851      DFB
233852      LDY
233853      JMP
233854      SNGFLT
233855      TIME TO PERFORM A RELATIONAL OPERATOR.
233856      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233857      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233858      ; DOREL:
233859      JSR
233860      BCS
233861      LDA
233862      ORA
233863      AND
233864      STA
233865      LDA
233866      LDY
233867      JSR
233868      TAX
233869      JMP
233870      LDA
233871      DEC
233872      JSR
233873      STX
233874      STY
233875      LDA
233876      JSR
233877      STX
233878      TAX
233879      SEC
233880      BEQ
233881      LDA
233882      BCC
233883      DFB
233884      LDY
233885      DFB
233886      LDY
233887      JMP
233888      SNGFLT
233889      TIME TO PERFORM A RELATIONAL OPERATOR.
233890      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233891      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233892      ; DOREL:
233893      JSR
233894      BCS
233895      LDA
233896      ORA
233897      AND
233898      STA
233899      LDA
233900      LDY
233901      JSR
233902      TAX
233903      JMP
233904      LDA
233905      DEC
233906      JSR
233907      STX
233908      STY
233909      LDA
233910      JSR
233911      STX
233912      TAX
233913      SEC
233914      BEQ
233915      LDA
233916      BCC
233917      DFB
233918      LDY
233919      DFB
233920      LDY
233921      JMP
233922      SNGFLT
233923      TIME TO PERFORM A RELATIONAL OPERATOR.
233924      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233925      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233926      ; DOREL:
233927      JSR
233928      BCS
233929      LDA
233930      ORA
233931      AND
233932      STA
233933      LDA
233934      LDY
233935      JSR
233936      TAX
233937      JMP
233938      LDA
233939      DEC
233940      JSR
233941      STX
233942      STY
233943      LDA
233944      JSR
233945      STX
233946      TAX
233947      SEC
233948      BEQ
233949      LDA
233950      BCC
233951      DFB
233952      LDY
233953      DFB
233954      LDY
233955      JMP
233956      SNGFLT
233957      TIME TO PERFORM A RELATIONAL OPERATOR.
233958      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233959      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233960      ; DOREL:
233961      JSR
233962      BCS
233963      LDA
233964      ORA
233965      AND
233966      STA
233967      LDA
233968      LDY
233969      JSR
233970      TAX
233971      JMP
233972      LDA
233973      DEC
233974      JSR
233975      STX
233976      STY
233977      LDA
233978      JSR
233979      STX
233980      TAX
233981      SEC
233982      BEQ
233983      LDA
233984      BCC
233985      DFB
233986      LDY
233987      DFB
233988      LDY
233989      JMP
233990      SNGFLT
233991      TIME TO PERFORM A RELATIONAL OPERATOR.
233992      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
233993      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
233994      ; DOREL:
233995      JSR
233996      BCS
233997      LDA
233998      ORA
233999      AND
234000      STA
234001      LDA
234002      LDY
234003      JSR
234004      TAX
234005      JMP
234006      LDA
234007      DEC
234008      JSR
234009      STX
234010      STY
234011      LDA
234012      JSR
234013      STX
234014      TAX
234015      SEC
234016      BEQ
234017      LDA
234018      BCC
234019      DFB
234020      LDY
234021      DFB
234022      LDY
234023      JMP
234024      SNGFLT
234025      TIME TO PERFORM A RELATIONAL OPERATOR.
234026      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234027      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234028      ; DOREL:
234029      JSR
234030      BCS
234031      LDA
234032      ORA
234033      AND
234034      STA
234035      LDA
234036      LDY
234037      JSR
234038      TAX
234039      JMP
234040      LDA
234041      DEC
234042      JSR
234043      STX
234044      STY
234045      LDA
234046      JSR
234047      STX
234048      TAX
234049      SEC
234050      BEQ
234051      LDA
234052      BCC
234053      DFB
234054      LDY
234055      DFB
234056      LDY
234057      JMP
234058      SNGFLT
234059      TIME TO PERFORM A RELATIONAL OPERATOR.
234060      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234061      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234062      ; DOREL:
234063      JSR
234064      BCS
234065      LDA
234066      ORA
234067      AND
234068      STA
234069      LDA
234070      LDY
234071      JSR
234072      TAX
234073      JMP
234074      LDA
234075      DEC
234076      JSR
234077      STX
234078      STY
234079      LDA
234080      JSR
234081      STX
234082      TAX
234083      SEC
234084      BEQ
234085      LDA
234086      BCC
234087      DFB
234088      LDY
234089      DFB
234090      LDY
234091      JMP
234092      SNGFLT
234093      TIME TO PERFORM A RELATIONAL OPERATOR.
234094      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234095      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234096      ; DOREL:
234097      JSR
234098      BCS
234099      LDA
234100      ORA
234101      AND
234102      STA
234103      LDA
234104      LDY
234105      JSR
234106      TAX
234107      JMP
234108      LDA
234109      DEC
234110      JSR
234111      STX
234112      STY
234113      LDA
234114      JSR
234115      STX
234116      TAX
234117      SEC
234118      BEQ
234119      LDA
234120      BCC
234121      DFB
234122      LDY
234123      DFB
234124      LDY
234125      JMP
234126      SNGFLT
234127      TIME TO PERFORM A RELATIONAL OPERATOR.
234128      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234129      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234130      ; DOREL:
234131      JSR
234132      BCS
234133      LDA
234134      ORA
234135      AND
234136      STA
234137      LDA
234138      LDY
234139      JSR
234140      TAX
234141      JMP
234142      LDA
234143      DEC
234144      JSR
234145      STX
234146      STY
234147      LDA
234148      JSR
234149      STX
234150      TAX
234151      SEC
234152      BEQ
234153      LDA
234154      BCC
234155      DFB
234156      LDY
234157      DFB
234158      LDY
234159      JMP
234160      SNGFLT
234161      TIME TO PERFORM A RELATIONAL OPERATOR.
234162      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234163      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234164      ; DOREL:
234165      JSR
234166      BCS
234167      LDA
234168      ORA
234169      AND
234170      STA
234171      LDA
234172      LDY
234173      JSR
234174      TAX
234175      JMP
234176      LDA
234177      DEC
234178      JSR
234179      STX
234180      STY
234181      LDA
234182      JSR
234183      STX
234184      TAX
234185      SEC
234186      BEQ
234187      LDA
234188      BCC
234189      DFB
234190      LDY
234191      DFB
234192      LDY
234193      JMP
234194      SNGFLT
234195      TIME TO PERFORM A RELATIONAL OPERATOR.
234196      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234197      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234198      ; DOREL:
234199      JSR
234200      BCS
234201      LDA
234202      ORA
234203      AND
234204      STA
234205      LDA
234206      LDY
234207      JSR
234208      TAX
234209      JMP
234210      LDA
234211      DEC
234212      JSR
234213      STX
234214      STY
234215      LDA
234216      JSR
234217      STX
234218      TAX
234219      SEC
234220      BEQ
234221      LDA
234222      BCC
234223      DFB
234224      LDY
234225      DFB
234226      LDY
234227      JMP
234228      SNGFLT
234229      TIME TO PERFORM A RELATIONAL OPERATOR.
234230      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234231      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234232      ; DOREL:
234233      JSR
234234      BCS
234235      LDA
234236      ORA
234237      AND
234238      STA
234239      LDA
234240      LDY
234241      JSR
234242      TAX
234243      JMP
234244      LDA
234245      DEC
234246      JSR
234247      STX
234248      STY
234249      LDA
234250      JSR
234251      STX
234252      TAX
234253      SEC
234254      BEQ
234255      LDA
234256      BCC
234257      DFB
234258      LDY
234259      DFB
234260      LDY
234261      JMP
234262      SNGFLT
234263      TIME TO PERFORM A RELATIONAL OPERATOR.
234264      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234265      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234266      ; DOREL:
234267      JSR
234268      BCS
234269      LDA
234270      ORA
234271      AND
234272      STA
234273      LDA
234274      LDY
234275      JSR
234276      TAX
234277      JMP
234278      LDA
234279      DEC
234280      JSR
234281      STX
234282      STY
234283      LDA
234284      JSR
234285      STX
234286      TAX
234287      SEC
234288      BEQ
234289      LDA
234290      BCC
234291      DFB
234292      LDY
234293      DFB
234294      LDY
234295      JMP
234296      SNGFLT
234297      TIME TO PERFORM A RELATIONAL OPERATOR.
234298      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234299      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234300      ; DOREL:
234301      JSR
234302      BCS
234303      LDA
234304      ORA
234305      AND
234306      STA
234307      LDA
234308      LDY
234309      JSR
234310      TAX
234311      JMP
234312      LDA
234313      DEC
234314      JSR
234315      STX
234316      STY
234317      LDA
234318      JSR
234319      STX
234320      TAX
234321      SEC
234322      BEQ
234323      LDA
234324      BCC
234325      DFB
234326      LDY
234327      DFB
234328      LDY
234329      JMP
234330      SNGFLT
234331      TIME TO PERFORM A RELATIONAL OPERATOR.
234332      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234333      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234334      ; DOREL:
234335      JSR
234336      BCS
234337      LDA
234338      ORA
234339      AND
234340      STA
234341      LDA
234342      LDY
234343      JSR
234344      TAX
234345      JMP
234346      LDA
234347      DEC
234348      JSR
234349      STX
234350      STY
234351      LDA
234352      JSR
234353      STX
234354      TAX
234355      SEC
234356      BEQ
234357      LDA
234358      BCC
234359      DFB
234360      LDY
234361      DFB
234362      LDY
234363      JMP
234364      SNGFLT
234365      TIME TO PERFORM A RELATIONAL OPERATOR.
234366      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234367      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234368      ; DOREL:
234369      JSR
234370      BCS
234371      LDA
234372      ORA
234373      AND
234374      STA
234375      LDA
234376      LDY
234377      JSR
234378      TAX
234379      JMP
234380      LDA
234381      DEC
234382      JSR
234383      STX
234384      STY
234385      LDA
234386      JSR
234387      STX
234388      TAX
234389      SEC
234390      BEQ
234391      LDA
234392      BCC
234393      DFB
234394      LDY
234395      DFB
234396      LDY
234397      JMP
234398      SNGFLT
234399      TIME TO PERFORM A RELATIONAL OPERATOR.
234400      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234401      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234402      ; DOREL:
234403      JSR
234404      BCS
234405      LDA
234406      ORA
234407      AND
234408      STA
234409      LDA
234410      LDY
234411      JSR
234412      TAX
234413      JMP
234414      LDA
234415      DEC
234416      JSR
234417      STX
234418      STY
234419      LDA
234420      JSR
234421      STX
234422      TAX
234423      SEC
234424      BEQ
234425      LDA
234426      BCC
234427      DFB
234428      LDY
234429      DFB
234430      LDY
234431      JMP
234432      SNGFLT
234433      TIME TO PERFORM A RELATIONAL OPERATOR.
234434      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234435      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234436      ; DOREL:
234437      JSR
234438      BCS
234439      LDA
234440      ORA
234441      AND
234442      STA
234443      LDA
234444      LDY
234445      JSR
234446      TAX
234447      JMP
234448      LDA
234449      DEC
234450      JSR
234451      STX
234452      STY
234453      LDA
234454      JSR
234455      STX
234456      TAX
234457      SEC
234458      BEQ
234459      LDA
234460      BCC
234461      DFB
234462      LDY
234463      DFB
234464      LDY
234465      JMP
234466      SNGFLT
234467      TIME TO PERFORM A RELATIONAL OPERATOR.
234468      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234469      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234470      ; DOREL:
234471      JSR
234472      BCS
234473      LDA
234474      ORA
234475      AND
234476      STA
234477      LDA
234478      LDY
234479      JSR
234480      TAX
234481      JMP
234482      LDA
234483      DEC
234484      JSR
234485      STX
234486      STY
234487      LDA
234488      JSR
234489      STX
234490      TAX
234491      SEC
234492      BEQ
234493      LDA
234494      BCC
234495      DFB
234496      LDY
234497      DFB
234498      LDY
234499      JMP
234500      SNGFLT
234501      TIME TO PERFORM A RELATIONAL OPERATOR.
234502      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234503      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
234504      ; DOREL:
234505      JSR
234506      BCS
234507      LDA
234508      ORA
234509      AND
234510      STA
234511      LDA
234512      LDY
234513      JSR
234514      TAX
234515      JMP
234516      LDA
234517      DEC
234518      JSR
234519      STX
234520      STY
234521      LDA
234522      JSR
234523      STX
234524      TAX
234525      SEC
234526      BEQ
234527      LDA
234528      BCC
234529      DFB
234530      LDY
234531      DFB
234532      LDY
234533      JMP
234534      SNGFLT
234535      TIME TO PERFORM A RELATIONAL OPERATOR.
234536      ; DOMASK CONTAINS THE BITS AS TO WHICH RELATIONAL
234537      ; OPERATOR IT WAS. CARRY BIT ON=STRING COMPARE.
23453
```



```

;MAP 0 TO 0. ALL OTHERS TO 1.
;FLOAT THE ONE-BYTE RESULT INTO FAC.
;GET X= PDL#

```

"DTCA2DOC-007-059.PICT" 190 KB 2001-03-26 dpi: 250h x 250v pix: 1998h x 2340v

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05 ROMSOFTU      81
032:05          81
033:05          81
034:05          80
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036:05          82
037:05          14
038:05          23
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040:05          14
041:05          14
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070:05          14
071:05          14
072:05          14
073:05          14
074:05          14
075:05          14
076:05          14
077:05          14
078:05          14
079:05          14
080:05          14
081:05          14
082:05          14
083:05          14
084:05          14
085:05          14
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099:05          14
100:05          14

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TURNON:
STRNAM:
GARRAY:
STXFND:
LOPFND:
LOPFN:
NOTIT:
ISLETC:
ISLRTS:
NOTFNS:
LDZR:

VARNAM
VARNAM
#128
CHRGET
VARNAM+1
SUBFLG
#40
*+5
ISARY
SUBFLG
*+4
GARRAY
#0
SUBFLG
VARTAB
VARTAB+1
#0
LOWTR+1
LOWTR
ARYTAB+1
LOPFN
ARYTAB
NOTFNS
VARNAM
(LOWTR)+Y
NOTIT
VARNAM+1
(LOWTR)+Y
FINPTR
LOWTR
#5+1
LOPFND
STXFND
LETTER, / CARRY OFF= NOT A LETTER.
#A, LETTER.
#A, LETTER.
#Z, +1
#100-'Z'-1
#ISVRET-1
NOTEVL
255,X
#<ISVRET
NOTEVL
#ZERO
#<ZERO

;TURN ON BOTH HIGH BITS.
;TURN ON MSB OF SECOND CHARACTER.
;GET CHARACTER AFTER $.
;STORE AWAY SECOND CHARACTER.
;ADD FLAG WHETHER TO ALLOW ARRAYS.
;CHECK FOR '()' WON'T MATCH IF SUBFLG SET.
;IT IS!
;IN STORE OR RECALL?
;IN CASE OF USER FUNCTIONS
;ALLOW SUBSCRIPTS AGAIN.
;PLACE TO START SEARCH.
;AT END OF TABLE YET?
;YES. WE COULDN'T FIND IT.
;COMPARE HIGH ORDERS.
;NO COMPARISON.
;AND THE LOW PART?
;THAT'S IT! THAT'S IT!
;MAKES NO DIF AMONG TYPES.
;ALWAYS BRANCHES.
;IF LESS THAN 'A', RET.
;RESET CARRY IF A.GT. 'Z'.
;RETURN TO CALLER.
;CHECK WHO'S CALLING.
;RESTORE MT.
;IS EVAL CALLING?
;NO, CARRY ON.
;SET UT PNTR TO SIMULATED ERO.

```

```

05 ROMSOFTD
0099: 60
009A: 00
009B: 00
009C: 6B
009D: A5
009E: A5
009F: A5
00A0: A5
00A1: A5
00A2: A5
00A3: A5
00A4: A5
00A5: A5
00A6: A5
00A7: A5
00A8: A5
00A9: A5
00AA: A5
00AB: A5
00AC: A5
00AD: A5
00AE: A5
00AF: A5
00B0: A5
00B1: A5
00B2: A5
00B3: A5
00B4: A5
00B5: A5
00B6: A5
00B7: A5
00B8: A5
00B9: A5
00BA: A5
00BB: A5
00BC: A5
00BD: A5
00BE: A5
00BF: A5
00C0: A5
00C1: A5
00C2: A5
00C3: A5
00C4: A5
00C5: A5
00C6: A5
00C7: A5
00C8: A5
00C9: A5
00CA: A5
00CB: A5
00CC: A5
00CD: A5
00CE: A5
00CF: A5
00D0: A5
00D1: A5
00D2: A5
00D3: A5
00D4: A5
00D5: A5
00D6: A5
00D7: A5
00D8: A5
00D9: A5
00DA: A5
00DB: A5
00DC: A5
00DD: A5
00DE: A5
00DF: A5
00E0: A5
00E1: A5
00E2: A5
00E3: A5
00E4: A5
00E5: A5
00E6: A5
00E7: A5
00E8: A5
00E9: A5
00EA: A5
00EB: A5
00EC: A5
00ED: A5
00EE: A5
00EF: A5
00F0: A5
00F1: A5
00F2: A5
00F3: A5
00F4: A5
00F5: A5
00F6: A5
00F7: A5
00F8: A5
00F9: A5
00FA: A5
00FB: A5
00FC: A5
00FD: A5
00FE: A5
00FF: A5

IMENSION AN
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ZERO:
NOTEVL:
QSTAVR:
VAROK:

NOTEVE:
;NOTE Y,A

FINPTR:
FINNOW:

RTS
DFB
EQU
LDA
LDY
STY
LDA
LDY
STY
CLC
ADC
BCC
INY
STY
JSR
HAS
LDY
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LDA
LDY
INY
STY
STY
STY
STY
STY
STY
LDA
ADC
LDY
BCC
INY
STY
RTS

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```

29-MAR-84 08:16 PAGE 61
;R STRINGS OR NUMERIC.
;AND FOR INTEGERS TOO.

;LOWEST THING TO MOVE.
;GET HIGHEST ADDR TO MOVE.

;PLACE TO STUFF IT.
;MOVE IT ALL.

;AND SET UP

;NEW START OF ARRAY TABLE.
;GET ADDR OF VARIABLE ENTR.

;STORE NAME OF VARIABLE.

;FOURTH ERO FOR DEF FUNG.

;THIS IS IT.

```

```

29-MAR-84 08:16 PAGE 62

;POINT TO ENTRMES. G CLR'D BY ASL.

COUNT
A#5
LOWTR+1
JSRGM
ARYPNT
ARYPNT+1
144,128,0,0 ; -32768.
; A FORMULA FROM THE CURRENT POSITION AND
; INTO A POSITIVE INTEGER
; LEAVING IT THE RESULT IN FACMO&LO. NEGATIVE ARGUMENTS
; ARE NOT ALLOWED.
N32768:
INTIDX:
INTIDX:
INTIDX:
INTIDX:
POSINT:
AYINT:
NONONO:
QINTGO:
; GET A NUMBER
; IF NEGATIVE, BLOW HIM OUT.
; FAC .GT. 32767?
; GET ADDR OF -32768.
; SEE IF FAC=Y,A.
; NO, FAC IS TOO BIG.
; GO TO QINT AND SHOVE IT.

; IF FOR STORE ORRECALL
; SAVE DIMFLG FOR RECURSION.
; SAVE VALTYP FOR RECURSION.
; SET NUMBER OF DIMENSIONS TO ZERO.
; SAVE NUMBER OF DIMS.
; SAVE LOOKS.
; EVALUATE INDICE INTO FACMO&LO.
; GET BACK ALL... WE'RE HOME.
; (# OF DIMS).

MULTIPLE DI
FMAPTR:
JSRGM:
INDLOP:

```

PUSH DIMFLG AND VALTYP FURTHER.

```

;PUT INDEX ONTO STACK.
;UNDER DIMFLG AND VALTYP.

```

```

;INCREMENT # OF DIMS.
;GET TERMINATING CHARACTER.
;A COMMA?

```

AVE COUNT OF DIMS.
;MUST BE CLOSED PAREN.

GET VALTYP AND

```

;DIMFLG OFF STACK.
;PLACE TO START SEARCH.

```

END OF ARRAYS?

!A FINE THING! NO ARRAY!

;/COMPARE HIGH ORDERS.
;/NO WAY IS IT THIS. GET OUT OF HERE.

HOW ORDERS?

WELL, HERE IT IS !!

GET LENGTH.

```

;ALWAYS BRANCHES.
;GET BAD SUB ERROR NUMBER.

```

;TOO BIG. 'FUNCTION CALL' ERROR.

PERHAPS A "RE-DIMENSION" ERROR

TEST THE DIMFLG

RETURN TO DATA SAVE ROUTINES.

GET NUMBER OF DIMS INPUT

[illegible]

"DTCA2DOC-007-064.PICT" 141 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2346v

ON RTS, A&Y=HI . X=L0.

29-MAR-84 08:16 PAGE 67
;RETURN TO CALLER.

VARPNT

LDA
RTS

ULTIPLE DI
95
96 DIMRTS:

06 ROMSQFTE
E2AA:A5 83
E2AC:60

```

06 RMSOFT 29-MAR-84 08:16 PAGE 68
NTEGER AR
99 ;TWO BYTE UNSIGNED INTEGER MULTIPLY.
100 ;THIS IS FOR MULTIPLY DIMENSIONED ARRAYS.
101 ; X,Y=X,A=CURTOL+LOWTR,Y,Y+1.
102 ; UMULT:
103 STY INDEX
104 LDA (LOWTR),Y
105 ADDEND
106 (LOWTR),Y
107 ADDEND+1
108 #16
109 DECCNT
110 #0
111 UMULTD:
112 LDY A
113 TXA
114 ASL
115 TAX
116 ROL
117 TAY
118 BCS
119 ASL
120 ROL
121 BCC
122 TXA
123 ADC
124 TAY
125 ADC
126 TAY
127 ADC
128 TAY
129 BCS
130 DEC
131 BNE
132 RTS
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"DTCA2DOC-007-069.PICT" 59 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2219v

```

29-MAR-84 08:16 PAGE 70
06 RMSOFTE
157 ; NOTE ONLY SINGLE ARGUMENTS ARE ALLOWED TO FUNCTIONS
158 ; AND FUNCTIONS MUST BE OF THE SINGLE LINE FORM:
159 DEF FNA(X)=X2+X*2
160 ; NO STRINGS CAN BE INVOLVED WITH THESE FUNCTIONS.
161 ; IDEA: CREATE A SIMPLE VARIABLE ENTRY
162 ; WHOSE FIRST CHARACTER HAS THE 200 BIT SET.
163 ; THE VALUE WILL BE:
164 ; A TEXT PNTR TO THE FORMULA VARIABLE.
165 ; A PNTR TO THE ARGUMENT VARIABLE.
166 ; FUNCTION NAMES CAN BE LIKE FNA4.
167 ; SUBROUTINE TO SEE IF WE ARE IN DIRECT MODE.
168 ; AND COMPLAIN IF SO.
169 ERRDIR: LDX CURLIN+1
170 INX
171 BNE
172 LDX
173 DFB
174 LDX
175 JMP
176 JSR
177 JSR
178 LDA
179 STA
180 JSR
181 JSR
182 JSR
183 LDA
184 PHA
185 LDA
186 LDA
187 LDA
188 LDA
189 LDA
190 LDA
191 LDA
192 LDA
193 LDA
194 LDA
195 JSR
196 JMP
197 ; SUBROUTINE TO
198 GETFNM: LDX
199 ORA
200 STA
201 STA
202 STA
203 STY
204 JMP
205 JSR
206 LDA
207 LDA
208 LDA
209 LDA
210 JSR
211 PLA
212 STA
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"DTCA2DOC-007-071.PICT" 127 KB 2001-03-26 dpi: 250h x 250v pix: 1993h x 2471v

"DTCA2DOC-007-072.PICT" 176 KB 2001-03-26 dpi: 250h x 250v pix: 1983h x 2356v

"DTCA2DOC-007-073.PICT" 158 KB 2001-03-26 dpi: 250h x 250v pix: 1993h x 2350v

"DTCA2DOC-007-074.PICT" 137 KB 2001-03-26 dpi: 250h x 250v pix: 1993h x 2230v

"DTCA2DOC-007-075.PICT" 133 KB 2001-03-26 dpi: 250h x 250v pix: 2013h x 2330v

"DTCA2DOC-007-076.PICT" 137 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2325v


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06 ROMSOFTE
E6FD:20
E6FE:45
E6FF:45
E600:45
E601:45
E602:45
E603:45
E604:45
E605:45
E606:45
E607:45
E608:45
E609:45
E60A:45
E60B:45
E60C:45
E60D:45
E60E:45
E60F:45
E610:45
E611:45
E612:45
E613:45
E614:45
E615:45
E616:45
E617:45
E618:45
E619:45
E61A:45
E61B:45
E61C:45
E61D:45
E61E:45
E61F:45
E620:45
E621:45
E622:45
E623:45
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E628:45
E629:45
E62A:45
E62B:45
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E631:45
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E63A:45
E63B:45
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E63D:45
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E640:45
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E64A:45
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E68C:45
E68D:45
E68E:45
E68F:45
E690:45
E691:45
E692:45
E693:45
E694:45
E695:45
E696:45
E697:45
E698:45
E699:45
E69A:45
E69B:45
E69C:45
E69D:45
E69E:45
E69F:45
E6A0:45
E6A1:45
E6A2:45
E6A3:45
E6A4:45
E6A5:45
E6A6:45
E6A7:45
E6A8:45
E6A9:45
E6AA:45
E6AB:45
E6AC:45
E6AD:45
E6AE:45
E6AF:45
E6B0:45
E6B1:45
E6B2:45
E6B3:45
E6B4:45
E6B5:45
E6B6:45
E6B7:45
E6B8:45
E6B9:45
E6BA:45
E6BB:45
E6BC:45
E6BD:45
E6BE:45
E6BF:45
E6C0:45
E6C1:45
E6C2:45
E6C3:45
E6C4:45
E6C5:45
E6C6:45
E6C7:45
E6C8:45
E6C9:45
E6CA:45
E6CB:45
E6CC:45
E6CD:45
E6CE:45
E6CF:45
E6D0:45
E6D1:45
E6D2:45
E6D3:45
E6D4:45
E6D5:45
E6D6:45
E6D7:45
E6D8:45
E6D9:45
E6DA:45
E6DB:45
E6DC:45
E6DD:45
E6DE:45
E6DF:45
E6E0:45
E6E1:45
E6E2:45
E6E3:45
E6E4:45
E6E5:45
E6E6:45
E6E7:45
E6E8:45
E6E9:45
E6EA:45
E6EB:45
E6EC:45
E6ED:45
E6EE:45
E6EF:45
E6F0:45
E6F1:45
E6F2:45
E6F3:45
E6F4:45
E6F5:45
E6F6:45
E6F7:45
E6F8:45
E6F9:45
E6FA:45
E6FB:45
E6FC:45
E6FD:45
E6FE:45
E6FF:45

; ITS LENGTH IN
; FRETSTR:
; FREFAC:
; FRETMP:
; MAKE SURE ITS A STRING.
; FREE UP STR PNT'D TO BY FAC.
; GET LENGTH FOR LATER.
; FREE UP THE TEMPORARY DESC.
; SAVE CODES.
; PREP TO GET STUFF.
; GET COUNT AND
; SAVE IT.
; SAVE LOW ORDER.
; SAVE HIGH ORDER.
; RETURN STATUS.
; STRING IS LAST ONE IN?
; GET COUNT BACK.
; SAVE FOR LATER USE.
; LAST ENTRY TO TEMP?
; POINT TO LAST ONE.
; UPDATE TEMP PNT.
; ALSO CLEARS ZFLG SO WE DO REST OF FRETMP.
; ALL DONE.
; CHARACTERS A STRING WHICH CONTAINS AS ITS ONLY
; CHARACTER THE ASCII EQUIVALENT OF INTEGER ARGUMENT (#)
; WHICH MUST BE LT. 255.
; CHRS:
; GET INTEGER IN RANGE.
; ONE-CHARACTER STRING.
; GET SPACE FOR STRING.
; GET RID OF "CHKNUM" RETURN ADDR.
; SETUP FAC TO POINT TO DESC.
; THE FOLLOWING IS THE LEFT$(S,#) FUNCTION.

```

```

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TRNG FUNCTION
; IT TAKES THE LEMOST # CHARACTERS OF THE STRING.
; IF # .GT. THE LEN OF STRING, IT RETURNS THE WHOLE STRING
LEFTS:
CMP (DSCPNT),Y
TYA
BCC
LDA
TXA
TYA
PHA
TXA
PHA
JSR
LDA
LDY
JSR
PLA
PLA
CLC
ADC
BCC
INX
TYA
JSR
JMP
CLC
SBC
EOR
JMP
RLEFT
RLEFT1
RLEFT2
RLEFT3
PULMOR:
MOVDO
PUTNEW
PREM
(0SCPNT),Y
#255
RLEFT
; MID ($,#) RETURNS STRING WITH CHARS FROM # POSITION
; ONWARD. IF # RETURNS LEN($), THEN RETURN NULL STRING.
; MID ($,#,#) RETURNS STRING WITH CHARACTERS FROM
; # POSITION FOR #2 CHARS. IF #2 GOES PAST END OF STRING
; RETURN AS MUCH AS POSSIBLE.
MIDS:
LDA #255
STA FACLO
JSR CHRGOT
CMP #41
BEQ MID2
JSR CHKCOM
GETBYT
PREM
MID2:
; DEFAULT FOR LAT COMPARE.
; SAVE CURRENT CHARACTER.
; GET IT A RIGHT PAREN )?
; NO THIRD PARAM.
; MUST HAVE COMMMA.
; GET THE LENGTH INTO 'FACLO'.
; CHECK IT OUT.
; COMPUTE OFFSET.
; PRESERVE AWHILE.
; GET LENGTH OF WHAT'S LEFT.
; GIVE NULL STRING.
; IN SUB C WAS 0 SO JUST COMPLEMENT.
; GREATER THAN WHAT'S DESIRED?
; NO, COPY THAT MUCH.
; GET LENGTH OF WHAT'S DESIRED.
; COPY IT.
; USED BY RIGHTS, LEFTS, MIDS FOR PARAMETER CHECKING & SET

```

06 ROMSOFTE

```

07  ROMSOFT-
715: 84 AE
717: A6 5E
719: 83 B8
721: 18 5E
723: 85 5F
725: A6 B9
727: 90 B0
729: 68 01
731: 86 61
733: A0 00
735: B1 60
737: 48 00
739: A9 00
741: 20 87
743: 20 4A
745: 08 00
747: 91 00
749: A6 AD
751: 8D AE
753: 8F B8
755: 86 B9
757: 84 B0
759: 60 00
761: 83 00
763: 85 00
765: 86 00
767: 87 00
769: 88 00
771: 89 00
773: 8A 00
775: 8B 00
777: 8C 00
779: 8D 00
781: 8E 00
783: 8F 00
785: 90 00
787: 91 00
789: 92 00
791: 93 00
793: 94 00
795: 95 00
797: 96 00
799: 97 00
801: 98 00
803: 99 00
805: 9A 00
807: 9B 00
809: 9C 00
811: 9D 00
813: 9E 00
815: 9F 00
817: A0 00
819: A1 00
821: A2 00
823: A3 00
825: A4 00
827: A5 00
829: A6 00
831: A7 00
833: A8 00
835: A9 00
837: AA 00
839: AB 00
841: AC 00
843: AD 00
845: AE 00
847: AF 00
849: B0 00
851: B1 00
853: B2 00
855: B3 00
857: B4 00
859: B5 00
861: B6 00
863: B7 00
865: B8 00
867: B9 00
869: BA 00
871: BB 00
873: BC 00
875: BD 00
877: BE 00
879: BF 00
881: C0 00
883: C1 00
885: C2 00
887: C3 00
889: C4 00
891: C5 00
893: C6 00
895: C7 00
897: C8 00
899: C9 00
901: CA 00
903: CB 00
905: CC 00
907: CD 00
909: CE 00
911: CF 00
913: D0 00
915: D1 00
917: D2 00
919: D3 00
921: D4 00
923: D5 00
925: D6 00
927: D7 00
929: D8 00
931: D9 00
933: DA 00
935: DB 00
937: DC 00
939: DD 00
941: DE 00
943: DF 00
945: E0 00
947: E1 00
949: E2 00
951: E3 00
953: E4 00
955: E5 00
957: E6 00
959: E7 00
961: E8 00
963: E9 00
965: EA 00
967: EB 00
969: EC 00
971: ED 00
973: EE 00
975: EF 00
977: F0 00
979: F1 00
981: F2 00
983: F3 00
985: F4 00
987: F5 00
989: F6 00
991: F7 00
993: F8 00
995: F9 00
997: FA 00
999: FB 00
1001: FC 00
1003: FD 00
1005: FE 00
1007: FF 00

TRNG FUNCTION
48 STY STRNG2+1
49 LDX INDEX1
50 STX TXTPTR
51 CLC
52 ADC
53 STA INDEX1
54 LDX INDEX2
55 BCC TXTPTR+1
56 INX VAL2
57 STY INDEX2+1
58 LDA #0
59 PHA (INDEX2),Y
60 LDA #0
61 STA (INDEX2),Y
62 JSR CHRGET
63 PLA
64 JSR
65 PLA
66 LDA #0
67 STA (INDEX2),Y
68 LDX STRNG2
69 LDY TXTPTR
70 STX TXTPTR+1
71 STY
72 RTS
73 VALRTS:

VAL2:
E727

ST2TXT:
VALRTS:

```

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;SAVE FOR LATER.

;NO CARRY, NO INC.

;PRESERVE CHARACTER.

;SET A TERMINATOR.

;GET CHARACTER PNT'D TO AND SET FLAGS.

;GET PRES'D CHARACTER.

;STUFF IT BACK.

;ALL DONE WITH STRINGS.

EGOT A NONZERO.

[illegible]

Source: David T Craig

Source: David T Craig

```

07 ROMSOFTF          LOATING POINT ADDITION AND SUBTRACT 29-MAR-84  08:16 PAGE 87
E8E2:30 E8 E8      BMI      SHFTR2
E8E4:F0 E9 E8      BEQ      SHFTR2
E8E6:E9 E9 E8      SBC      #210
E8E8:A8 AC          TAY
E8EA:BD AD          LDA     BCS
E8EC:16 01 14      BCC      ASL
E8EE:90 02 01      INC     ROR
E8F0:76 01 01      ROR     ROR
E8F2:76 01 01      ROR     ROR
E8F4:76 01 01      ROR     ROR
E8F6:76 01 01      ROR     ROR
E8F8:6A C3         ROR     INY
E8FA:00 00 EC      BNE     CLS
E8FC:11 18         RTS
E8FE:60

E8DC          SHFTR3:
E911          SHFTR4:
E903          ROLSHF:
E907          SHFTR7:
E8FD          SHFTRT:

;C CAN BE EITHER 1,0 AND IT WORKS.
;EQUIV TO BEQ HERE.
;YES, TWO OF THEM.
;ONE MO TIME.
;ROTATE ARGUMENT 1 BIT RIGHT.
;$$$ ( MOST EXPENSIVE ! )
;CLEAR OUTPUT OF FACOV.

```



```

07 ROMSUFTF
E952:55 9D
E954:A9 2D
E956:A0 E9
E958:20 B3
E95A:58 A9
E95C:5D A0
E95E:62 A9
E960:64 A0
E962:69 A0
E964:6A A0
E966:70 A9
E968:72 A0
E96A:74 A0
E96C:77 28
E96E:78 20
E970:7B A9
E972:7D A0
E974:7F:

ATURAL LOG FU
424 STA
425 LDA #SQRO.5
426 LDY #<SQRO.5
427 ; CALCULATE (F-SQR(.5))/(F+SQR(.5))
428 JSR FADD
429 LDA #SQR2.0
430 LDY #<SQR2.0
431 JSR FDIV
432 LDA #FONE
433 LDY #<FONE
434 JSR FSUB
435 LDA #LOGGCN2
436 LDY #<LOGGCN2
437 JSR POLYX
438 LDA #NEGHLF
439 LDY #<NEGHLF
440 JSR FADD
441 FINLOG
442 #LDG2
443 MULLN2:
444 LDY ;MULTIPLY TOGETHER.
445 ; JMP FMULT

29-MAR-84 08:16 PAGE 89
;RESULT IS FAC IN RANGE 0.5,1.
;GET POINTER TO SQR(0.5).
;ADD TO FAC.
;GET SQR(2.).

;EVALUATE APPROXIMATION POLYNOMIAL.
;ADD IN LAST CONSTANT.
;GET EXPONENT BACK.
;ADD IT IN.
;MULTIPLY RESULT BY LOG(2.0).

```


07	ROMSOFTF	LOADING MULTIPLICATION AND DIVISION 29-MAR-84 08:16 PAGE 9
85	A3	STA ARGMO
86	A3	(INDEX1),Y
87	A7	ARGMOH
88	5E	(INDEX1),Y
89	A2	ARGSGN
90	A8	FACSGN
91	A0	ARISGN
92	A0	ARGSGN
93	A0	#200
94	A0	ARGHO
95	88	(INDEX1),Y
96	81	ARGEXP
97	A5	FACEXP
98	9D	(INDEX1),Y
99	A5	FACEXP
00	A0	FACEXP
01	A0	FACEXP
02	A0	FACEXP
03	A0	FACEXP
04	A0	FACEXP
05	A0	FACEXP
06	A0	FACEXP
07	A0	FACEXP
08	A0	FACEXP
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17	A0	FACEXP
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36	A0	FACEXP
37	A0	FACEXP
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39	A0	FACEXP
40	A0	FACEXP
41	A0	FACEXP
42	A0	FACEXP
43	A0	FACEXP
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11	A0	FACEXP
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13	A0	FACEXP
14	A0	FACEXP
15	A0	FACEXP
16	A0	FACEXP
17	A0	FACEXP
18	A0	

```

07 ROMSOFTF
564 000
565 0
566 MOVAF
567 #TEN.C
568 #<TEN.C
569 #0
570 ARISGN
571 MOVFM
572 FDIIVT
573 CONUPK
574 DVOERR
575 ;CAN'T DIVIDE BY ZERO !
576 ;PUT IT INTO FAC.
577 ;SKIP OVER NEXT TWO BYTES.
578 ;UNPACK CONSTANT.
579 ;TAKE FACOV INTO ACCT IN FAC.
580 ;NEGATE FACEXP.
581
582 ;FIX UP EXPONENTS.
583 ;SCALE IT RIGHT.
584 ;OVERFLOW.
585 ;SETUP PROCEDURE.
586
587 ;THIS IS THE BEST CODE IN THE WHOLE PILE
588 ;SEE WHAT RELATION HOLDS.
589 ;C=0,1. N(C=0)=0.
590
591
592
593
594
595
596
597
598
599
600 QSHFT
601 RESLO,X
602 LD100
603 DIVNRM
604 #1
605
606 DIVSUB
607 ARGLO
608 ARGMOH
609 ARGMOH
610 ARGMOH
611 ARGMOH
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"DTCA2DOC-007-093.PICT" 70 KB 2001-03-26 dpi: 250h x 250v pix: 1957h x 2386v

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07 ROMSOFTF
EAE6::A55 62E3E 649
EAE8::A55 640 650
EAE9::A55 640 651
EAE9::A55 640 652
EAE9::A55 640 653
EAE9::A55 640 654
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EAE9::A55 640 698
EAE9::A55 640 699
EAE9::A55 640 700
EAE9::A55 640 701
EAE9::A55 640 702
EAE9::A55 640 703
EAE9::A55 640 704
EAE9::A55 640 705

LOADING POINT MOVEMENT ROUTINES. 29-MAR-84 08:16 PAGE 94

;MOVE RESULT TO FAC
;MOVER: LDA RESHO
STA FACHO
LDA RESMOH
LDA RESMO
LDA RESLO
LDA FACLO
JMP NORMAL
;MOVE MEMORY INTO FAC (UNPACKED).
;MOVFM: STY INDEX1
STY INDEX1+1
LDY #3+1
LDA (INDEX1),Y
STY FACLO
DEY
LDA (INDEX1),Y
STY FACMO
DEY
LDA (INDEX1),Y
STY FACMOH
DEY
LDA (INDEX1),Y
STY FACSGN
ORA #200
STY FACHO
DEY
LDA (INDEX1),Y
STY FACEXP
STY FACOV
RTS
;MOVE NUMBER FROM FAC TO MEMORY.
MOV2F: LDY #TEMPF2
LDY #TEMPF1
LDY #0
MOVMF: MOVMF
FORPNT: FORPNT+1
ROUND: ROUND
INDEX1: INDEX1+1
FACLO: FACLO
(INDEX): (INDEX),Y
FACMO: FACMO
(INDEX): (INDEX),Y
FACMOH: FACMOH
(INDEX): (INDEX),Y
FACSGN: FACSGN
#37F: #37F
FACHO: FACHO
(INDEX): (INDEX),Y

;MOVE LO AND SGN.
;ALL DONE.

;LEAVE SWITCHES SET ON EXP.

;ALWAYS BRANCHES.

;INCLUDE SIGN IN HO. ORA #2177

```

"DTCA2DOC-007-095.PICT" 85 KB 2001-03-26 dpi: 250h x 250v pix: 1922h x 2123v

```

07 ROMSOFTF
EB82: A5 9D
EB84: F0 09
EB86: A5 A2
EB88: 2A FF
EB8A: A9 02
EB8C: 80 01
EB8E: A9 01
EB90: 00 82
EB92: 20 82
EB94: 85 9E
EB96: A9 00
EB98: 05 9F
EB9A: A2 8B
EB9C: A5 9E
EB9E: 49 FF
EBA0: A9 00
EBA2: 85 A1
EBA4: 85 A0
EBA6: 86 9D
EBA8: 85 AC
EBAA: 85 A2
EBAC: 4C 29
EBAE: 46 A2
EBB0: 46 A2
EBB2: 46 A2
EBB4: 46 A2
EBB6: 46 A2
EBB8: 46 A2
EBBA: 46 A2
EBBC: 46 A2
EBBE: 46 A2
EBBF: 46 A2
EBC0: 46 A2
EBC2: 46 A2
EBC4: 46 A2
EBC6: 46 A2
EBC8: 46 A2
EBCA: 46 A2
EBCC: 46 A2
EBCE: 46 A2
EBD0: 46 A2
EBD2: 46 A2
EBD4: 46 A2
EBD6: 46 A2
EBD8: 46 A2
EBDA: 46 A2
EBDC: 46 A2
EBDE: 46 A2
EBE0: 46 A2
EBE2: 46 A2
EBE4: 46 A2
EBE6: 46 A2
EBE8: 46 A2
EBEA: 46 A2
EBEC: 46 A2
EBEE: 46 A2
EBF0: 46 A2
EBF2: 46 A2
EBF4: 46 A2
EBF6: 46 A2
EBF8: 46 A2
EBFA: 46 A2
EBFC: 46 A2
EBFE: 46 A2
EBFF: 46 A2

IGN,
739 ;PUT SIGN OF FAC IN ACCA.
740 LDA FACEXP
741 SIGNRT
742 FACSGN
743 A #100-1
744 LDA SIGNRT
745 #1
746 SIGNRT
747 ;SGN FUNCTION.
748 JSR SIGNRT
749 ;SGN FUNCTION.
750 ;FLOAT THE SIGNED INTEGER IN ACCA.
751 STA FACCH0
752 LDA #0
753 FACCH0+1
754 LDA #210
755 LDX SIGNED NUMBER IN FAC.
756 LDA FACCH0
757 LEOR #237
758 ROL A
759 FACCH0
760 LDA FACCH0
761 STX FACEXP
762 STX FACCOV
763 STX FACSGN
764 STX FACFLT
765 JMP VALUE
766 LSR
767 RTS
768

;IF NUMBER IS ZERO, SO IS RESULT.
;ASSUME NEGATIVE.
;GET .

;PUT ACCA IN HIGH ORDER.
;GET THE EXPONENT.
;GET COMP OF SIGN IN CARRY.
;ZERO ACCA BUT NOT CARRY.

```

29-MAR-84 08:16 PAGE 96

"DTCA2DOC-007-097.PICT" 92 KB 2001-03-26 dpi: 250h x 250v pix: 555h x 643v

"DTCA2DOC-007-098.PICT" 131 KB 2001-03-26 dpi: 250h x 250v pix: 524h x 689v

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08 ROMSOFTG
LOADING POINT INPUT ROUTINE.
29-MAR-84 08:16 PAGE 99
37 ;NUMBER INPUT IS LEFT IN FAC.
38 ;AT ENTRY TPTPTR POINTS TO THE 1ST CHARACTER IN A TEXT BUF
39 ;THE FIRST CHARACTER IS ALSO IN ACCA. FIN PACKS THE DIGITS
40 ;INTO THE FAC AS AN INTEGER AND KEEPS TRACK OF WHERE THE
41 ;DECIMAL POINT IS. THE NUMBER OF DIGITS AFTER THE DP.
42 ;SEEN. DECNT IS THE NUMBER OF DIGITS AFTER THE DP.
43 ;AT THE END DECNT AND THE EXPONENT ARE USED TO
44 ;DETERMINE HOW MANY TIMES TO MULTIPLY OR DIVIDE BY TEN
45 ;TO GET THE CORRECT NUMBER.
46 FIN:
47 LDX #0
48 LDX #011+1
49 STX DECNT,X
50 FINZLP
51 FINZLP
52 FINZLP
53 FINZLP
54 FINZLP
55 FINZLP
56 FINZLP
57 FINZLP
58 FINZLP
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D8 ROMSOFTG

;EXPONENT OF 16.
;NUMBER IS POSITIVE.

PRINT AND RETURN.

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;PRINT NULL IF PLUS
;NEG SIGN IF NEGATIVE

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;STA THE CHR POS FOR QINT.
;MAKE FAC POS FOR QINT.
;SAVE FOR LATER.

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GET ZERO TO TYPE IF FAC=0.

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IS NUMBER .LT. 1.0 ?
;NO.

•MULTIPLY BY 106.

SAVE COUNT OR ZERO IT.

IS NUMBER -GT. 999999.499 ?

YES. MAKE IT SMALLER.

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03 ROMSOFTG
ED06F:AD ED 82 EB
ED071:20 02 02
ED074:FD 02 02
ED076:10 02 02
ED078:20 02 02
ED07A:00 02 02
ED07C:00 02 02
ED07E:00 02 02
ED080:00 02 02
ED082:00 02 02
ED084:00 02 02
ED086:00 02 02
ED088:00 02 02
ED08A:00 02 02
ED08C:00 02 02
ED08E:00 02 02
ED090:00 02 02
ED092:00 02 02
ED094:00 02 02
ED096:00 02 02
ED098:00 02 02
ED09A:00 02 02
ED09C:00 02 02
ED09E:00 02 02
ED0A0:00 02 02
ED0A2:00 02 02
ED0A4:00 02 02
ED0A6:00 02 02
ED0A8:00 02 02
ED0AA:00 02 02
ED0AC:00 02 02
ED0AE:00 02 02
ED0B0:00 02 02
ED0B2:00 02 02
ED0B4:00 02 02
ED0B6:00 02 02
ED0B8:00 02 02
ED0BA:00 02 02
ED0BC:00 02 02
ED0BE:00 02 02
ED0C0:00 02 02
ED0C2:00 02 02
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ED0CA:00 02 02
ED0CC:00 02 02
ED0CE:00 02 02
ED0D0:00 02 02
ED0D2:00 02 02
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ED0D8:00 02 02
ED0DA:00 02 02
ED0DC:00 02 02
ED0DE:00 02 02
ED0E0:00 02 02
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ED0FC:00 02 02
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LOADING POINT OUTPUT ROUTINE.
207 LDY #<N.0999
208 JSR FCOMP
209 ; OR 99999999.94999?
210 BEQ FOUT38
211 BPL FOUT5
212 JSR MUL10
213 DEC DECCNT
214 FOUT38:
215 JSR FOUT3
216 BNE GOES
217 ;THIS ALWAYS GOES.
218 JSR DIV10
219 INC DECCNT
220 FOUT9:
221 BNE GOES
222 ;THIS ALWAYS GOES.
223 JSR FADDH
224 JSR QINT
225 BPL FOUT4
226 LDX #1
227 LDA DECCNT
228 CLC
229 ;IE, IS NUMBER -LT. 01?
230 ADCL #3*1+7
231 BNC FOUTPI
232 BPL #3*1+10
233 FOUT6:
234 FOUT6
235 #100-1
236 #2
237 #2
238 TENEXP
239 DECCNT
240 FOUT39
241 FOUT8
242 FBUFFPT
243 #
244 FBUFFR-1,Y
245 FOUT16
246 #0
247 FBUFFR-1,Y
248 FBUFFPT
249 #0
250 #200
251 FOUT16:
252 FOUT8:
253 FOUTIM:
254 FOUT2:
255 FOUTBL+2+1,Y
256 FACLO
257 FACMO
258 FOUTBL+1+1,Y
259 FACMO
260 FACMO
261 FOUTBL+1,Y
262 FACMOH
263 FACMOH
264 FOUTBL,Y
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[illegible]

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XPON 03 ROMSQF16
383 ;SQUARE ROOT FUNCTION --- SQR(A)
384 ;USE SQR(X)=X.5
385 SQR:
386 JSR MOVAF
387 LDA #FHALF
388 LDY #KFHALF
389 JSR MOVFM
390 ;LAST THING FETCHED IS FACEXP. INTO ACCX,
391 ;EXPONENTIATION -- XY.
392 ;N.B. DO=1
393 ;FIRST CHECK IF Y=0. IF SO, THE RESULT IS 1.
394 ;THEN CHECK IF X=0. IF SO THE RESULT IS 0.
395 ;IF X.GT.0. IF NOT CHECK THAT Y IS AN INTEGER.
396 ;IF X IS NEGATIVE AND Y IS ODD, NEGATE THE RESULT
397 ;RETURNED BY EXP.
398 ;TO COMPUTE THE RESULT USE XY=EXP((Y*LOG(X))).
399 ;IF FAC=0, JUST EXPONENTIATE THAT.
400 ;IS X=0?
401 LDA ARGEXP
402 BNE FFWRT1
403 JMP ZEROF1
404 ;ZERO FAC.
405 LDA #TEMPF3
406 JSR MOVFM
407 ;SAVE FOR LATER IN A TEMP.
408 ;Y=0 ALREADY. GOOD IN CASE NO ONE CALLS INT.
409 LDA ARGSGN
410 BPL FFWRT1
411 JSR INT
412 LDA #TEMPF3
413 JSR FCOMP
414 BNE FFWRT1
415 ;A=-1 AND Y IS IRRELEVANT.
416 ;NEGATE X. MAKE POSITIVE.
417 JSR INTEGR
418 JSR MOVFA1
419 ;GET ADDR OF COMPERAND.
420 ;EQUAL?
421 ;LEAVE X NEG. LOG WILL BLOW HIM OUT.
422 ;MULTIPLY FAC TIMES LOG(X).
423 ;EXPONENTIATE THE FAC.
424 ;IS IT EVEN?
425 ;YES. OR X.GT.0.
426 ;NEGATE THE NUMBER IN FAC.
427 ;NEGOP:
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;;TO SAVE IN ARG WITHOUT ROUND.
;;IF ABS(FAC) .GE. 128, TOO BIG.
;;OVERFLOW OR OVERFLOW.
;;GET LOW PART.

;;OVERFLOW OR OVERFLOW !!
;;SUBTRACT 1.
;;SAVE A WHILE.
;;PREP TO SWAP FAC AND ARG.

;;NEGATE FAC.

;;MULTIPLY BY POSITIVE 1.0.
;;GET SCALE FACTOR.
;;MODIFY FACEXP AND CHECK FOR OVERFLOW.
;;HAS TO DO JSR DUE TO PULAS IN

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[illegible]

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EFA7::34
EFA8::35
EFA9::36
EFAA::37
EFAB::38
EFAC::39
EFAD::40
EFAE::41
EFB1::42
EFB2::43
EFB3::44
EFB4::45
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EFBC::53
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EFC9::66
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EFDB::68
EFDC::69
EFDD::70
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EFFD::92
EFFE::93
EFFF::94
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;GET SIGN INTO ACCX.
;GET INTO ACCX, SINCE 'MOVEM' USES ACCX.
;START NEW SEQUENCE 'NEGATIVE'.
;GET LAST ONE INTO FAC.
;FAC WAS ZERO?
;RESTORE LAST ONE.
;MULTIPLY BY RANDOM CONSTANT.
;ADD RANDOM CONSTANT.
;REVERSE HO AND LO.
;MAKE NUMBER POSITIVE.
;PUT EXP WHERE IT WILL
;BE SHIFTED IN BY NORMAL.
;MAKE RESULT BETWEEN 0 AND 1.
;NORMALIZE.
;PUT NEW ONE INTO MEMORY.

```

"DTCA2DOC-007-110.PICT" 171 KB 2001-03-26 dpi: 250h x 250v pix: 2013h x 2295v

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03 ROMSOFTG

EO97:C8
EO98:D4
EO99:C8
EO9A:D5
EO9B:C4
EO9C:CE
EO9D:CA

```

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;USE IDENTITIES TO GET ARG BETWEEN 0 AND 1 AND THEN USE AN
;APPROXIMATION POLYNOMIAL TO COMPUTE ARCTAN(X).
ATN:
LDA PHA
BPL ATN1
JSR NEGOP
;USE ARCTAN(X)=-ARCTAN(-X)
ATN1:
LDA PHA
CMP #201
BCC ATN2
LDA #FONE
LDY #<FONE
JSR FDIV
;USE ARCTAN(X)=PI/2-ARCTAN(1/X)
ATN2:
LDA #ATNCON
LDY #<ATNCON
JSR POLYX
PLA
CMP #201
BCC ATN3
LDA #PI2
LDY #<PI2
JSR FSUB
ATN3:
PLA
BPL ATN4
JSR NEGOP
;SUBTRACT ARCTAGN FROM PI/2
;WAS ORIGINAL ARGUMENT POSITIVE?
;YES, NEGATIVE, NEGATE RESULT.
;ALL DONE.
;DEGREE-1.
;-.0006847939119

; -.004850942156

; -.01611170184

; -.03420963805

; -.05427913276

; .07245719654

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RCT 07090123450789012345078901234500
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"DTCA2DOC-007-115.PICT" 140 KB 2001-03-26 dpi: 250h x 250v pix: 1978h x 2340v

TYPE A CR.

SET PRE-BUF BYTES NON-ZERO FOR CHEAD

SET UP STRING TEMPORARIES.

```

;GET SIZE OF MEMORY INPUT.
;HIGHEST ADDRESS.

```

THIS IS THE SIZE OF MEMORY.
TOP OF STRINGS TOO.

SET UP TEXT TABLE.

PREPARE TO USE "REASON".
;SET UP EVERYTHING ELSE.

JMP (INDIRECT)

"DTCA2DOC-007-116.PICT" 126 KB 2001-03-26 dpi: 250h x 250v pix: 1998h x 2421v

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(START+1)

JMP
FIN

Y 119
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09 ROMSOFTI

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F1D5:

"DTCA2DOC-007-118.PICT" 122 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2229v

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PPLESOFT EXTENSIONS
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182 F22E:4C 9F F3
183 F231:
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;Y-REG=X-COORD
;OUT OF RANGE

;THIRD ARG IN ACC

ARG IN ACC

ARG IN Y-REG

;COLOR TO A-REG.

;PREPARE FOR TABV SUBR.
;OFF OF SCREEN?

PLOTDO
$F819
$F800
;ACC=Y-COORD
FIRST
#40
TOOBIG
PLOTDO
LOLLY
ATFNS
H2
XBOUND
#48
TOOBIG
ATFNS
;THIRD
H2
#40
TOOBIG
FIRST
HLINE
LOLLY
ATFNS
XBOUND
FIRST
VLINXX
$F828
ATFNS
;THIRD
#40
TOOBIG
FIRST
VLIN
GETBYT
SETCOL
PLIST
OFF
$F364
GETBYT
#18
TOOBIG
TABV

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;FOR OUTPUT SPEED
;ADJUST TRFLAG FOR TRACE.
;BACK TO CALLER.

;ALWAYS TAKEN
;GET ARG FOR HIMEM:
;PROGRAM OVERFLOW?

PPLESOFT EXTENSIONS
239 TABV EQU $F858
240 SETSPD: JSR GETBYT
241 F858 JSR TAX
242 FF FOR TAX
243 INX INX
244 STX STX
245 RTS RTS
246 SEC SEC
247 BCC BCC
248 ORG ORG
249 CLC CLC
250 ROR ROR
251 RTS RTS
252 * SETNORM: LDA
253 BNE BNE
254 LDA LDA
255 BNE BNE
256 LDX LDX
257 STA STA
258 STX STX
259 RTS RTS
260 LDA LDA
261 LDX LDX
262 BNE BNE
263 * HIMEMSET: JSR
264 LDA LDA
265 CMP CMP
266 LDB LDB
267 SBC SBC
268 BCS BCS
269 JMP JMP
270 LDA LDA
271 STA STA
272 LDB LDB
273 STA STA
274 SBC SBC
275 BCS BCS
276 CMP CMP
277 LDA LDA
278 SBC SBC
279 BCC BCC
280 LDA LDA
281 STA STA
282 LDB LDB
283 STA STA
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285 BCC BCC
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;ON ERR GOTO?
;IF NOT, BLOW HIM UP
;SAVE FOR ERRHNDL

;ROTATE IN,
;ALL INFO FOR "GOTO" COMMAND

;SKIP REST OF LINE,
;FINISH,
;PRESERVE STACK POINTER
;FOR "RESUME" STATEMENT
;FOR RESUME

;FOR STATUS
;NOW DISPATCH, THEN
;BACK TO NEWSTT,

;RESTORE STACK POINTER.
;FOR REST OF BASIC.
;BACK TO TRY AGAIN.....
;IF NOT A DIGIT.
;FOR LOMEM:

;READ THE LINE NUMBER INTO LINNUM.
;PREPARE FOR MOVE.

PPLESOFT EXTENSIONS
297 ONERR: LDA #GOTO?
298 JSR SYNCHR
299 LDA TXPTR
300 STA TXPTR+1
301 LDA TXPTR
302 STA TXPTR+1
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PPLESOFT EXTENSIONS

09 RMSOFTI

```

355 LDA STA
356 LDA STA
357 LDA STA
358 JSR LINC
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411 JSR LINC
412 JSR LINC

;MUST HAVE TWO ARGS.
;INCLUSIVE DELETE.

;GET THIS LINE.
;IS LOWTR>=INDEX2
;IF SO ;DO NOTHING

;NOW MOVE: ((INDEX1)<(LOWTR).-(VARTAB)M
;TRANSFER A BYTE.
;NEXT LOCATIONS...

;DONE WITH MOVE?
;IF LESS THAN OR EQUAL, CONT.

;END OF PROGRAM
;FINISH IT OFF.

;NOW INTO LOW-RESOLUTION

;THIS STUFF STOLEN FROM MONITOR GR ROUTINES

;FORMS $FO WITH CARRY CLEAR

```

```

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;OTHER ROUTINES ENTER HERE
;TEST FOR DOUBLE GR, SET Y
;BRANCH IF REG GR
;SAVE X ON TOP OF STACK
;MUST MUCK WITH COLORS IN ALT BANK
;SAVE IN X FOR LATER COLOR RESTORE

;ROTATE 8 BITS RIGHT
;RESET CARRY FOR ALT PAGE INDICATOR

;GO PLOT THE DOT
;BRANCH IF NOT SPECIAL HANDLED
;RESTORE UNTRANSLATED COLOR
;RESTORE ORIGINAL X
;PLOT ALWAYS RETURNS CARRY CLEAR.
;RESTORE ORIGINAL Y

;GET STATE OF DOUBLE GR
;80-STORE MUST ALSO BE ENABLED
;RETURN IN CARRY

;MAKE EM BREAKS
"STORE" ROUTINE.
POS.+LENGTH -1
(SHARES ROUTINES)

;SET UP.
;GET LENGTH
;X=HIGH

;SHOULD IT BE A 3 ??

;WRITE LEN TO CASSETTE

RECALL.....

;GET LEN OF FILE
;TOO BIG?

PPLESOFT EXTENSIONS
413 PLOT1 PHX JSR VIDSETY
414 JSR PLOT3
415 PHX
416 LDA COLOR
417 TAX
418 TXSR A
419 TXSR A
420 TXSR A
421 TXSR A
422 TXSR A
423 TXSR A
424 TXSR A
425 TXSR A
426 TXSR A
427 TXSR A
428 TXSR A
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;THIS IS THE START=NAME POS.+#DIMS*2+5
;END
;RECALL IS SIMILAR,
;STORE:
JSR GETARYPT
LDA #3
TAX (LOWTR),Y
DEX (LOWTR),Y
BCS #01
DEX #+3
POKER+1
C.COUT
DOPTRS
C.COUT
I
GETARYPT
C.CSIN
#2
(LOWTR),Y
POKER

;RECALL:
JSR
JSR
LDA
CMP

```

```

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PPLESOFT EXTENSIONS
471 INY
472 LDA
473 SBC
474 BCS
475 JMP
476 JSR
477 FIN
478 DO
479 ELSE
480 FIN
481 INCLUDE ROMSOFTJ
482
483 1
484 2
485 3
486 4
487 5
488 6
489 7
490 8
491 9
492 10
493 11

0000

;COMPARE
;(LOWTR),Y
POKER+1
*+3
OMERR
DOPTRS
C.CSIN
PLIST
OFF

;IF ENOUGH ROOM
;JUST TOO BIG!!

;TITLE "APPLE II HI-RES GRAPHICS ROUTINES"
*****
*
* APPLE-II HI-RESOLUTION *
* GRAPHICS SUBROUTINES *
*
* BY WOZ 9/13/77 *
*
* ALL RIGHTS RESERVED *
*****

```

POINTER TO
SHAPE LIST
RUNNING COLOR MASK
BASE ADDR FOR CURRENT
HI-RES PLOT LINE. A

MONITOR A1.

MONITOR A2.

BASIC 'START OF VARS'.

DELTA-X FOR HLIN, SHAPE.

SHAPE TEMP. FOR HLIN, SHAPE.
DELTA-Y FOR HLIN, SHAPE.
ROT QUADRANT (SHAPE).
ERROR FOR HLIN.

PRIOR X-COORD SAVE
AFTER HLIN OR HPLOT, SAVE.
HLIN, HPLOT Y-COORD SAVE.
COLOR FOR HPLOT, HPOSN
HORIZ OFFSET SAVE.
HI-RES PAGE (\$20 NORMAL)
SCALE FOR SHAPE, MOVE.

```

START OF
SHAPE TABLE. COUNT FACTOR >
COLLISION ROTATION SHAPE RES VIDEO
HOLD OF SHAPE RES VIDEO
SWITCH TO HY-GRAPHICS
SELECT TEXT/GRCS MODE.
--BYTE TAPE READ SETUP.
WO-EDGE TAPE HEADSE.
NO-EDGE WITHOUT PAGE
FOR PRIMARY PAGE
FOR SECONDARY PAGE
WHOLE SCREEN GRAPHICS

```

[illegible]

K

I-RES EQUATES

[illegible]

10 ROMSOFT J

[illegible]

```

29-MAR-84 08:16 PAGE 126

;DISPLAY SECOND PAGE.
;ALWAYS TAKEN.
;$20 INIT FOR $2000-3FFF
HI-RES SCREEN MEMORY.
SET HIRES DISPLAY MODE
SET GRAPHICS DISPLAY
SET FOR BLACK BKGND.
INIT HI-RES SCREEN MEM
FOR CURRENT PAGE, NORMALLY
$2000-3FFF OR $4000-5FFF
(SHAPE,H) WILL SPECIFY
32 SEPARATE PAGES.
THROUGHOUT THE INIT.
TEST FOR DONE.

** MICROSOFT VERSION
57 * * *
58 SETHRH: BIT HIPAGE
59 LDA BNE BIT FULSET
60 BNE LDA #40
61 SET
62
63 LOPAGE
64 MIXSET
65 HPAG
66 HIRES
67 TXTCLE
68 #50
69 HCOLOR1
70 HCLR
71 BKGND0
72 BKGND
73
74 BKGND1
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76 JSR Y
77 INY
78 BNE
79 LDA
80 AND
81 BNE
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```

ENTER WITH Y IN A-REG,
XL IN X-REG,
AND XH IN Y-REG.

```
FOR Y-COORD = 00ABCOEF,
CALCULATES BASE ADDRESS*
IN HBASL, HBASH FOR
ACCESSING SCREEN MEM
VIA (HBASL), Y ADDRESSING MODE
```

CALCULATES
HBASH = PPPFGHCD,
HBASL = EABA8000

WHERE PPP=001 FOR \$2000.3FFF
SCREEN MEM RANGE AND
PPP=010 FOR \$4000-7FFF
(GIVEN Y-COORD=ABCDEFGH)

DIVIDE XD BY 7 FOR
INDEX FROM BASE ADDR
(QUOTIENT) AND BIT 8
(WHICH SCREEN MEM
MASK SPEC'D BY REMAINDER)

SUBTRACT OUT SEVENS.

WORKS FOR X0 FROM
0 TO 279, LOW-ORDER.
BYTE IN X-REG,
HIGH IN Y-REG, ON ENTRY

IF ON ODD BYTE (CARRY
THEN ROTATE COLOR
BIT FOR 180 DEGREE TO
PRIOR TO COPYING

CALC BIT POSN IN HBAS
HNDX, AND HMASK FROM
Y-COORD IN A-Y-REGS.
X-COORD IN X-BITS OF H
SUBSTITUTE CORRESPONDING

I-RES GRAP

[illegible]

```

10 ROMSOFTJ      23
F465::10
F467::A5
F469::4A
F46A::80
F46C::49
F46E::35
F470::68
F471::10
F472::A0
F474::A9
F476::35
F478::84
F47A::A5
F47C::0A
F47E::09
F481::10
F483::A5
F485::49
F487::35
F489::60
F48A::A5
F48C::0A
F48D::49
F48F::30
F491::A8
F493::C0
F494::C0
F496::90
F498::A0
F49A::B0
DC

I-RES GRAP      30
F48A
F471
F476
F489
F46E
F478
F478

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LFTRT
LEFT
LR1
LEFT1
LEFT2
NEWNDX
CSHIFT
CSHFT2
RTS1
RIGHT

BPL
LBSR
LBS
EDRS
STAS
RSTY
DBPL
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STV
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ASL
CPL
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LEOR
STAS
RTS
LDA
ASL
EOR
BMA
LDV
CPC
BCC
LDB
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RIGHT
HMASK
A
LEFT1
$SC0
HMASK
LEFT2
$27
$SC0
HMASK
HNDX
HCOLOR1
A
$SC0
RTS1
HCOLOR1
$7F
HCOLOR1
HMASK
A
$80
LR1
$81
$28
NEWNDX
$80
NEWNDX

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USE SIGN FOR LFT/RT S
SHIFT LOW-ORDER
7 BITS OF HMASK
ONE BIT TO LSB.

DECR HORIZ INDEX.
WRAP AROUND SCREEN.
NEW HMASK, RIGHTMOST
DOT OF BYTE.
UPDATE HORIZ INDEX.

ROTATE LOW-ORDER
7 BITS OF HCOLOR1
ONE BIT POSN.
ZYXYXYX -> ZYXYXYX

SHIFT LOW-ORDER
7 BITS OF HMASK
ONE BIT TO MSB.
NEXT BYTE.

WRAP AROUND SCREEN IF
ALWAYS TAKEN.

```

```

29-MAR-84 08:16 PAGE 129
NO 90 DEG ROT (X-OR).
IF B2=0 THEN NO PLOT.
FOR EX-OR INTO SCREEN
SCREEN BIT SET?

ALWAYS TAKEN.
NO 90 DEG ROT.
IF B2=0 THEN NO PLOT.

SET HI-RES SCREEN BIT
TO CORRESPONDING HC
IF BIT OF SCREEN CHAN
THEN INCR COLLN DE

ADD QDRNT TO
SPECIFIED VECTOR
AND MOVE LFT, RT,
UP, OR DWN BASED
ON SIGN AND CARRY.

SIGN FOR UP/DWN SELECT

CALC BASE ADDRESS
(ADR OF LEFTMOST BYTE)
FOR NEXT LINE UP
IN (HBASL, HBASH)
WITH 192-LINE WRAPA

**** BIT MAP ****
FOR ROW = ABCDEFGH,

HBASL = EABAB000
HBASH = PPPFGHCD

WHERE PPP=001 FOR PRIMARY
HI-RES PAGE ($2000-

```


CALC BASE ADR FOR NEX
DOWN TO CHBASL/HBAS

WITH 192-LINE WRAPA

[illegible]

```

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SET (XOL,XOH) AND
YO TO ZERO FOR
REL LINE DRAW
(DX,DY).

ON ENTRY
XL: A-REG
XH: X-REG
Y: Y-REG

CALC ABS(X-XO)
IN (DXL,DXH)

X DIR TO SIGN BIT
OF QDRNT (DX POS)
D=RIGHT (DX NEG)
1=LEFT (DX NEG)

INIT (EL,EH) TO
ABS(X-XO)

CALC -ABS(Y-YO)-1
IN DY.

ROTATE Y DIR INTO
QDRNT SIGN BIT
(O=UP, 1=DOWN)

INIT (COUNT, COUNT)-
TO -(DELTX+DELTY+1)

HORIZ INDEX
ALWAYS TAKEN.
MOVE IN X-DIR. USE
QDRNT B6 FOR LFT/RT

ASSUME CARRY SET.
(EL,EH)-DELTY TO (EL,
NOTE: DY IS (-DELTY)-1
CARRY CLR IF (EL,EH)
GOES NEG.

SCREEN BYTE.
PLOT DOT OF HCOLOR1.
CURRENT BIT MASK.

```

#\$0
XOL
XOH
YO

XOL

XOH
QDRNT
HLIN2

#\$FF
#\$1

#\$0
QDRNT
DXH
EH

DXL
EL

XOL
XOH

YO
HLIN3
#\$FF
#\$FE
DY
YO
QDRNT

DXL

#\$FF
DXH
COUNT
HNDX
MOVEX2
A
LFTRT

EL
DY
EH
#\$0
EH
(HBASEL),Y
HCOLOR1
HMASK
(HBASEL),Y

PHA
LDA
STA
STA
PLA
PHAC
SBC
PHA
TXAC
SBC
STA
BCS
PLA
EOR
ADC
PHA
SBC
STA
PLA
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TXAC
GLBC
BCC
EOR
ADC
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RDR
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TAX
LBC
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BCS
ASL
JSC
LDA
ADC
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LBC
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LDA
EOR
AND
EOR

I-RES GRAP

HLINRL

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HILIN

F550

HLIN2

F568

HLIN3

MOVEX

MOVEX2

HCOUNT

F581

F4

10 ROMSOFTJ

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"DTCA2DOC-007-132.PICT" 75 KB 2001-03-26 dpi: 250h x 250v pix: 1973h x 2123v

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"DTCA2DOC-007-134.PICT" 130 KB 2001-03-26 dpi: 250h x 250v pix: 1962h x 2129v

```

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10 ROMSOFTJ
F650: 56 1A
F651: 84 1B
F652: AA
F653: 4A
F654: 4A
F655: 4A
F656: 4A
F657: 4A
F658: 4A
F659: 4A
F660: 4A
F661: 4A
F662: 4A
F663: 4A
F664: 4A
F665: 4A
F666: 4A
F667: 4A
F668: 4A
F669: 4A
F670: 4A
F671: 4A
F672: 4A
F673: 4A
F674: 4A
F675: 4A
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F680: 4A
F681: 4A
F682: 4A
F683: 4A
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F698: 4A
F699: 4A
F700: 4A
F701: 4A
F702: 4A
F703: 4A
F704: 4A
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F706: 4A
F707: 4A
F708: 4A
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F711: 4A
F712: 4A
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F719: 4A
F720: 4A
F721: 4A
F722: 4A
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F725: 4A
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F750: 4A
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F991: 4A
F992: 4A
F993: 4A
F994: 4A
F995: 4A
F996: 4A
F997: 4A
F998: 4A
F999: 4A
F1000: 4A

I-RES GRAP
435 * * EX-OR SHAPE INTO SCREEN.
436 * *
437 * * ROT = 0 TO 3 (QUADRANT ONLY)
438 * * SCALE IS USED
439 * *
440 * *
441 * * XDRAW
442 * * XDRAW1
443 * *
444 * *
445 * *
446 * *
447 * *
448 * *
449 * *
450 * *
451 * *
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492 * *

SHAPE DEFINITION
POINTER.
ROT ($0-$3F)
QDRNT 0=UP, 1=RT,
2=DN, 3=LFT.
SAVE COS AND SIN
VALS IN DXL AND DY,
INDEX FROM HI-RES
BASE ADR.
CLEAR COLLISION DETECT
1ST SHAPE DEF BYTE.
EL,EH FOR FRACTIONAL
L,R,U,D, VECTORS.
SCALE FACTOR.
IF FRAC COS OVFL
THEN MOVE IN
SPECIFIED VECTOR
DIRECTION
IF FRAC SIN OVFL
THEN MOVE IN
SPECIFIED VECTOR
DIRECTION +90 DEG.
LOOP ON SCALE
FACTOR.
NEXT 3-BIT VECTOR
OF SHAPE DEF.
NEXT BYTE OF
SHAPE DEF.
DONE IF ZERO.

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;GET X-ARG
;X<280
;IF LESS THAN 256, FINE
;SAVE COORDS.
;COMMA MUST SEPERATE ARGS.
;GET Y-ARG.
;ALL REGS. CORRECT

;ERROR.
;COLOR=0 TO 7
;BLOW UP!
;IS IT FOR A LINE?
;REARRANGE REGISTERS FOR LINE DRAW
;GO THROUGH WOZ'S ROUTINE
;CHECK FOR AN EXTRA TO
;SET HI-RES ROTATION
;GET SHAPE# INTO X
;PRESERVE SHAPE POINTER

FRMNUM
GETADR
POKER+1
POKER
#1
HOK
HTO0BIG
#24
HTO0BIG

#2C
SYNCHR
GETBYT
#192
HTO0BIG
FAC

FAC
TO0BIG
GETBYT
#8
HTO0BIG
COLRTAB,X
HCOLOR

0,42,85,127
128,170,213,255
;LINE TO X,Y?
#TOTK
LINETO
HFNST
HPLGT
CHRGOT
#TOTK
MINERTS
SYNCHR
HFNST
FAC

FAC
HILIN
LINEAGAIN
GETBYT
ROTBYT
GETBYT
SCALE
GETBYT
SHAPXL
SHAPEL

I-RES GRAP
HFNS:
HOK:
HTO0BIG:
SETHCOL:
MINERTS:
COLRTAB:
LINE:
LINEAGAIN:
LINETO:
SETROT:
SETSCALE:
SCALRTS:
PREDRAW:

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JSR
LDY
LDX
CPY
BCC
BNE
CPX
BCS
TXA
TYA
PHA
LDA
JSR
CPX
BCS
TXA
TYA
PHA
LDA
JMP
JSR
CPX
BCS
LDA
STX
DFFB
CMP
BEQ
JSR
CMP
BNE
JSR
STY
TXA
LDX
JSR
JMP
JSR
STX
RTS
STX
RTS
JMP
LDA
ST


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"DTCA2DOC-007-137.PICT" 130 KB 2001-03-26 dpi: 250h x 250v pix: 2003h x 2265v


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;BRANCH IF DONE WITH PLOT
;BRANCH ALWAYS TAKEN
;ADJUST Y AS NECESSARY, CARRY SET=PG2GR
;ROM RDSCRN
;EFFECTIVE 4 BIT ROTATE LEFT
; FOR ALT MEM COLORS
;TEST 40/80 GRAFIX

;CALC SPACES TO NEXT COMMA
; TAB POSITION IN EITHER 40 OR 80 COLUMNS
;SKIP THE NEXT 2 BYTES

;GET ARG OF STATEMENT

LDY FIRST
LJMP PLOTDO
LDY H2
LJMP RTSQQ
LDY PLOT1
LJMP HLINE1
LDY *
LJMP VIDSETY
LDY SF871
LJMP RDSCRN41
LDY RDSCRN41
LJMP $C054
LDY #8
LJMP A
LDY #SF
LJMP *
LDY VIDSTATE
LJMP XQXRTS
LDY #1
LJMP A
LDY XQXRTS
LJMP $C055
LDY $C01F
LJMP TABER3
LDY $2C
LJMP $24
LDY $24
LJMP $40
LDY SUBFLG
LJMP PTRGET
LDY SUBFLG
LJMP $578
LDY GET8YT
LJMP #40
LDY HTAB2
LJMP $21
LDY HTAB3
LJMP $24

I-RES GRAP
609
610 HLINE1
611
612
613
614
615
616 RDSCRN
617
618
619
620
621
622
623
624
625
626
627
628 RDSCRN41
629
630
631
632
633
634
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664
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666

10 ROMSOFTJ
F797: A4 F0
F798: 20 F3
F799: C4 F3
F79A: 80 F795
F79B: C8 F79C
F79C: 20 F7A6
F79D: 80 F7A6
F79E: 48
F79F: 20
F7A0: 20
F7A1: 20
F7A2: 20
F7A3: 20
F7A4: 20
F7A5: 20
F7A6: 20
F7A7: 20
F7A8: 20
F7A9: 20
F7AA: 20
F7AB: 20
F7AC: 20
F7AD: 20
F7AE: 20
F7AF: 20
F7B0: 20
F7B1: 20
F7B2: 20
F7B3: 20
F7B4: 20
F7B5: 20
F7B6: 20
F7B7: 20
F7B8: 20
F7B9: 20
F7BA: 20
F7BB: 20
F7BC: 20
F7BD: 20
F7BE: 20
F7BF: 20
F7C0: 20
F7C1: 20
F7C2: 20
F7C3: 20
F7C4: 20
F7C5: 20
F7C6: 20
F7C7: 20
F7C8: 20
F7C9: 20
F7CA: 20
F7CB: 20
F7CC: 20
F7CD: 20
F7CE: 20
F7CF: 20
F7D0: 20
F7D1: 20
F7D2: 20
F7D3: 20
F7D4: 20
F7D5: 20
F7D6: 20
F7D7: 20
F7D8: 20
F7D9: 20
F7DA: 20
F7DB: 20
F7DC: 20
F7DD: 20
F7DE: 20
F7DF: 20
F7E0: 20
F7E1: 20
F7E2: 20
F7E3: 20
F7E4: 20
F7E5: 20
F7E6: 20
F7E7: 20
F7E8: 20
F7E9: 20
F7EA: 20
F7EB: 20
F7EC: 20
F7ED: 20
F7EE: 20
F7EF: 20
F7F0: 20
F7F1: 20
F7F2: 20
F7F3: 20
F7F4: 20
F7F5: 20
F7F6: 20
F7F7: 20
F7F8: 20
F7F9: 20
F7FA: 20
F7FB: 20
F7FC: 20
F7FD: 20
F7FE: 20
F7FF: 20

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10 ROMSOFTJ
F7F8:90 DE F7D8
F7FA:AA F8 DA
F7FB:20 F8 DA
F7FE:80 EB F7EB
F300:

I-RES GRAP
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SHLOAD:
;READ LENGTH INTO
;POKER
POKER+1
;GET TABLE LENGTH IN POKER
;PREP FOR SUBTRACT(MEMSIZ-LEN-1)
;PUT TABLE AT END OF MEMORY
;-1 FROM MEMSIZ.

;ENOUGH ROOM FOR TABLE?

;END OF STRING SPACE.
;NOW GET IT FINALLY.

FOR STORE & RECALL
;CALCULATE END POSITION
;INTO CASSETTE POINTERS
;CALC. BEGIN POSITION
;GET # OF DIMENSIONS.
;INTO (A1)

BCC TAX
JSR TAX
BRA ELSE
LDA A1H
STA A2H
LDY #POKER
STY A1L
AND #AND
C.CSIN
MEMSIZ
A2L
POKER
MEMSIZ+1
*+3
A2H
POKER+1
STREND+1
MFULL
*+5
OMERR
MEMSIZ+1
FRETOP+1
A1H
SHAPXH
SHAPXL
MEMSIZ
FRETOP
A1L
RD2BIT
#3
READX1
ROUTINES
LOWTR
POKER
A2L
LOWTR+1
POKER+1
A2H
#4
(LOWTR)+Y
FMAPTR+2
ARYPNT
A1L
ARYPNT+1

```

```

10 ROMSOFTJ
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I-RES GRAP
725 STA A1H
726 RTS
727 THIS ROUTINE
728 ARRAY BY
729 #540
730 SUBFLG
731 PTRGET
732 #500
733 SUBFLG
734 VARTIO
735 GETBYT
736
737 HTAB:
738 #40
739 HTDONE
740 #40
741 CRDO
742 HTAB1
743 $24
744 "KRW"
745
746 HTDONE:
747
748
749
750
F300:

```

FAKES OUT PTRGET INTO FINDING ME AN
 ONLY IT'S NAME.
 ;MAKE SURE BIT 6 SET.
 ;GO FIND ARRAY.
 ;MAKE NORMAL FOR NEXT TIME
 ;TO ALLOW SUBSCRIPTING!
 ;GET ARG OF STATEMENT
 ;CURSOR HORIZONTAL.
 ;MATCHES ROM JUNK

10 SYMBOL	11 SYMBOL	12 SYMBOL	13 SYMBOL	14 SYMBOL	15 SYMBOL	16 SYMBOL	17 SYMBOL	18 SYMBOL	19 SYMBOL	20 SYMBOL	21 SYMBOL	22 SYMBOL	23 SYMBOL	24 SYMBOL	25 SYMBOL	26 SYMBOL	27 SYMBOL	28 SYMBOL	29 SYMBOL	30 SYMBOL	31 SYMBOL	32 SYMBOL	33 SYMBOL	34 SYMBOL	35 SYMBOL	36 SYMBOL	37 SYMBOL	38 SYMBOL	39 SYMBOL	40 SYMBOL	41 SYMBOL	42 SYMBOL	43 SYMBOL	44 SYMBOL	45 SYMBOL	46 SYMBOL	47 SYMBOL	48 SYMBOL	49 SYMBOL	50 SYMBOL	51 SYMBOL	52 SYMBOL	53 SYMBOL	54 SYMBOL	55 SYMBOL	56 SYMBOL	57 SYMBOL	58 SYMBOL	59 SYMBOL	60 SYMBOL	61 SYMBOL	62 SYMBOL	63 SYMBOL	64 SYMBOL	65 SYMBOL	66 SYMBOL	67 SYMBOL	68 SYMBOL	69 SYMBOL	70 SYMBOL	71 SYMBOL	72 SYMBOL	73 SYMBOL	74 SYMBOL	75 SYMBOL	76 SYMBOL	77 SYMBOL	78 SYMBOL	79 SYMBOL	80 SYMBOL	81 SYMBOL	82 SYMBOL	83 SYMBOL	84 SYMBOL	85 SYMBOL	86 SYMBOL	87 SYMBOL	88 SYMBOL	89 SYMBOL	90 SYMBOL	91 SYMBOL	92 SYMBOL	93 SYMBOL	94 SYMBOL	95 SYMBOL	96 SYMBOL	97 SYMBOL	98 SYMBOL	99 SYMBOL	100 SYMBOL
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																				
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																				
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																				
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																				
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																				
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[illegible][illegible]

10	SYMBOL
?	GR8TOP
07	GR0DY
27	H8ASH
24	HCOLOR
EE	HFOIND2
F533A0	HFLIN2
F53530	HFLIN2
F77969	HFLINERR
F2455A	HNPLOT1
F44423	HNPLOT2
F77FC9	HPOSIN2
09B7A	HTAB2
60	IF
F108F	INCRND
F226FB	INDEX2
0A7F	INITAT
7F	INLPN2M
0D	INPTPTR
1077	INTEGRX
F2278	INVERSE
0858	ISLRTS
090	JMPER1
058F	KLOOP1
0747	LDFONE
060F	LEFT2
F728	LEINETO
0634C8	LINLEN
EE94A6	LIST
F20545	LOG2
00065E	LOGERR
00046E	LOWEMSET
F4401	LUPAGE
006991	LUPEN
006991	LORI
EEA1Q7	LRT
04A4A7	LRUD
08423	LSTEND
EE8669	LUKALL
EE8554	MAYBAD
EE871	MIDEXP
F40E	MLOOXP
006991	MLTPLY
EEA1Q7	MORSTS
08423	MOVEAF
EE8669	MOVEAF
EE8554	MOVINS
EE871	MOVRTXT
F40E	MSETIIV
006991	MUSTOICR
006991	N.000099

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10 SYMBOL	SORTED BY SYMBOL	BY SYMBOL
3A0A	NEGFC	NEGFC
3A0B	NEGRTS	NEGRTS
3A0C	NEWNY1	NEWNY1
3A0D	NEWNY2	NEWNY2
3A0E	NEWNY3	NEWNY3
3A0F	NEWNY4	NEWNY4
3A10	NEWNY5	NEWNY5
3A11	NEWNY6	NEWNY6
3A12	NEWNY7	NEWNY7
3A13	NEWNY8	NEWNY8
3A14	NEWNY9	NEWNY9
3A15	NEWNY10	NEWNY10
3A16	NEWNY11	NEWNY11
3A17	NEWNY12	NEWNY12
3A18	NEWNY13	NEWNY13
3A19	NEWNY14	NEWNY14
3A1A	NEWNY15	NEWNY15
3A1B	NEWNY16	NEWNY16
3A1C	NEWNY17	NEWNY17
3A1D	NEWNY18	NEWNY18
3A1E	NEWNY19	NEWNY19
3A1F	NEWNY20	NEWNY20
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3A25	NEWNY26	NEWNY26
3A26	NEWNY27	NEWNY27
3A27	NEWNY28	NEWNY28
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3A2A	NEWNY31	NEWNY31
3A2B	NEWNY32	NEWNY32
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3A2D	NEWNY34	NEWNY34
3A2E	NEWNY35	NEWNY35
3A2F	NEWNY36	NEWNY36
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3A67	NEWNY92	NEWNY92
3A68	NEWNY93	NEWNY93
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3A6E	NEWNY99	NEWNY99
3A6F	NEWNY100	NEWNY100

*** SUCCESSFUL ASSEMBLY : = NO ERRORS
*** CREATED ON 00-SEP-83 15.03

** TOTAL LINES ASSEMBLED 6989
** FREE SPACE PAGE COUNT 37

Apple][Computer

AppleSoft BASIC Interpreter Source Code Listing

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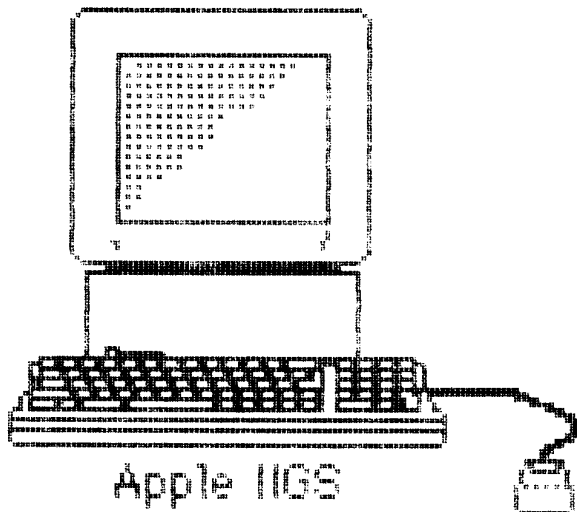
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