```
                                .TITLE  PDP-9/15 EAE TEST FOR SYSTEM EXERCISER
                        /
                        /REV. DATE -- 1/17/71 -- (1)
                        /
                                .EBREL
                        /
00000 R 000000 A        UODSW   0
00001 R 000000 A        UODSW1  0               /HIGH DIVIDEND,
00002 R 000000 A        UODSW2  0               /MULTIPLICAND OR LOW DIVIDEND,
00003 R 000000 A        UODSW3  0               /MULTIPLIER OR DIVISOR,
00004 R 000075 R                .DSA    EAEITR
00005 R 000032 R                .DSA    EAEBGN
00006 R 050105 A                .SIXBT  'EAEPT2'
00007 R 202462 A
00010 R 000040 A                40                              /MASK FOR CHAIN MODE
00011 R         A               .BLOCK  7
00020 R 000000 A        SYSERR  0                               /ERROR INDICATOR FOR MONITOR
00021 R 000000 A        ERWC    0                               /ERROR WORD COUNT
00022 R 000000 A        ERWD1   0                               /ERROR
00023 R 000000 A        ERWD2   0                               /WORDS
00024 R 000000 A        ERWD3   0                               /
00025 R 000000 A        ERWD4   0                               /
00026 R 000000 A        ERWD5   0                               /
00027 R 000000 A        ERWD6   0                               /
00030 R 000000 A        ERWD7   0                               /
00031 R 000000 A        ERWD8   0                               /
                        /
        641002 A        LACQ=641002
        664000 A        GSM=664000
        652000 A        LMQ=652000
        657122 A        MULS=657122
        644323 A        DIVS=644323
                        /
00032 R 000000 A        EAEBGN  0
00033 R 140020 R                DZM     SYSERR
00034 R 140021 R                DZM     ERWC
00035 R 200711 R                LAC     (LAC    RAN1)
00036 R 040217 R                DAC     RAN+2
00037 R 200032 R                LAC     EAEBGN
00040 R 040075 R                DAC     EAEITR          /SAVE RETURN ADDRESS
00041 R 200000 R                LAC     UODSW
00042 R 500712 R                AND     (300)
00043 R 740200 A                SZA
00044 R 600050 R                JMP     .+4
00045 R 100202 R                JMS     EXMUL
00046 R 100342 R                JMS     EXDIV
00047 R 600056 R                JMP     TERMIN
00050 R 540713 R                SAD     (100)
00051 R 600062 R                JMP     TEST1
00052 R 540714 R                SAD     (200)
00053 R 600065 R                JMP     TEST2
00054 R 540712 R                SAD     (300)
00055 R 600070 R                JMP     TEST3
```

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.EJECT
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```
00056 R 777774 A    TERMIN  LAW     -4              /END OF TEST
00057 R 040020 R            DAC     SYSERR
00060 R 140021 R            DZM     ERWC
00061 R 620075 R            JMP*    EAEITR          /EXIT
00062 R 100120 R    TEST1   JMS     SETRAN
00063 R 100202 R            JMS     EXMUL
00064 R 600056 R            JMP     TERMIN
                    /
00065 R 100120 R    TEST2   JMS     SETRAN
00066 R 100342 R            JMS     EXDIV
00067 R 600056 R            JMP     TERMIN
                    /
00070 R 100120 R    TEST3   JMS     SETRAN
00071 R 100202 R            JMS     EXMUL
00072 R 100120 R            JMS     SETRAN
00073 R 100342 R            JMS     EXDIV
00074 R 600056 R            JMP     TERMIN
                    /
                    /
                    /
00075 R 000000 A    EAEITR  0                       /MONITOR STORE RETURN
00076 R 620077 R            JMP*    EAEXIT          /GO TO NEXT TEST
                    /
00077 R 000000 A    EAEXIT  0                       /PROGRAM STORES ADDRESS OF NEXT TEST
00100 R 777773 A            LAW     -5              /SIGNAL TO MONITOR
00101 R 040020 R            DAC     SYSERR          /NORMAL BREAKPOINT
00102 R 750000 A            CLA
00103 R 620075 R            JMP*    EAEITR
                    /
00104 R 000000 A    ERRXIT  0
00105 R 200104 R            LAC     ERRXIT          /ADDRESS STORED WHEN ERROR TO BE PRINTED
00106 R 040077 R            DAC     EAEXIT
00107 R 777776 A            LAW     -2
00110 R 600101 R            JMP     EAEXIT+2        /EXIT
                    /
00111 R 000000 A    HOLD    0
00112 R 750004 A            LAS
00113 R 500715 R            AND     (40)
00114 R 741200 A            SNA
00115 R 620111 R            JMP*    HOLD
00116 R 100077 R            JMS     EAEXIT
00117 R 600112 R            JMP     .-5
                            .EJECT
```

```
00120 R 000000 A    SETRAN  0
00121 R 200716 R            LAC     (JMP    RAN.1)
00122 R 040217 R            DAC     RAN+2
00123 R 200001 R            LAC     UODSW+1
00124 R 040235 R            DAC     RAN1
00125 R 200002 R            LAC     UODSW+2
00126 R 040237 R            DAC     RAN3
00127 R 200003 R            LAC     UODSW+3
00130 R 040236 R            DAC     RAN2
00131 R 620120 R            JMP*    SETRAN
00132 R 000000 A    BADMUL  0
00133 R 200717 R            LAC     (1)
00134 R 040022 R            DAC     ERWD1
00135 R 200236 R            LAC     RAN2
00136 R 040023 R            DAC     ERWD2
00137 R 200237 R            LAC     RAN3
00140 R 040024 R            DAC     ERWD3
00141 R 200672 R            LAC     HPRODH
00142 R 040025 R            DAC     ERWD4
00143 R 200674 R            LAC     LPRODH
00144 R 040026 R            DAC     ERWD5
00145 R 200673 R            LAC     HPRODS
00146 R 040027 R            DAC     ERWD6
00147 R 200675 R            LAC     LPRODS
00150 R 040030 R            DAC     ERWD7
00151 R 777771 A            LAW     -7
00152 R 040021 R            DAC     ERWC
00153 R 100104 R            JMS     ERRXIT
                    /
00154 R 620132 R            JMP*    BADMUL
00155 R 000000 A    BADDIV  0
00156 R 200720 R            LAC     (2)
00157 R 040022 R            DAC     ERWD1
00160 R 200235 R            LAC     RAN1
00161 R 040023 R            DAC     ERWD2
00162 R 200237 R            LAC     RAN3
00163 R 040024 R            DAC     ERWD3
00164 R 200236 R            LAC     RAN2
00165 R 040025 R            DAC     ERWD4
00166 R 200703 R            LAC     QUOTH
00167 R 040026 R            DAC     ERWD5
00170 R 200705 R            LAC     REMH
00171 R 040027 R            DAC     ERWD6
00172 R 200704 R            LAC     QUOTS
00173 R 040030 R            DAC     ERWD7
00174 R 200706 R            LAC     REMS
00175 R 040031 R            DAC     ERWD8
00176 R 777770 A            LAW     -10
00177 R 040021 R            DAC     ERWC
00200 R 100104 R            JMS     ERRXIT
00201 R 620155 R            JMP*    BADDIV
                            .EJECT
```

```
                        /MULTIPLY RANDOM NUMBERS (RAN2 X RAN3)
00202 R 740000 A    EXMUL   NOP
00203 R 200721 R            LAC     (400000
00204 R 040666 R            DAC     CTRAN#          /RANDOM NUMBER COUNTER 4096
00205 R 100215 R    EXMAGN  JMS     RAN             /RANDOM NUMBER GENERATOR
00206 R 100310 R            JMS     SOFMUL          /SOFTWARE MULTIPLY
00207 R 100320 R            JMS     HARMUL          /HARDWARE MULTIPLY
00210 R 100330 R            JMS     MULCOM          /HARDWARE=SOFTWARE
00211 R 100077 R            JMS     EAEXIT
00212 R 440666 R            ISZ     CTRAN
00213 R 600205 R            JMP     EXMAGN
00214 R 620202 R            JMP*    EXMUL           /EXIT
                        /RANDOM NUMBER GENERATOR
00215 R 000000 A    RAN     0
00216 R 100111 R            JMS     HOLD
00217 R 200235 R            LAC     RAN1
00220 R 100240 R            JMS     RDGEN
00221 R 040235 R            DAC     RAN1            /FIRST NUMBER
00222 R 100240 R            JMS     RDGEN
00223 R 040236 R            DAC     RAN2            /SECOND NUMBER
00224 R 100240 R            JMS     RDGEN
00225 R 040237 R            DAC     RAN3            /THIRD NUMBER
00226 R 620215 R            JMP*    RAN
                        /
00227 R 440237 R    RAN.1   ISZ     RAN3
00230 R 620215 R            JMP*    RAN
00231 R 440235 R            ISZ     RAN1
00232 R 620215 R            JMP*    RAN
00233 R 100120 R            JMS     SETRAN
00234 R 620215 R            JMP*    RAN
                        /
                        /
                        /
00235 R 003466 A    RAN1    003466
00236 R 153501 A    RAN2    153501
00237 R 210762 A    RAN3    210762
                            .EJECT
```

```
00240 R 000000 A     RDGEN   0
00241 R 040306 R             DAC     RWRK
00242 R 200274 R             LAC     RANDEX
00243 R 540722 R             SAD     (RANTBL+10
00244 R 741000 A             SKP
00245 R 600255 R             JMP     RANTAD
00246 R 200723 R             LAC     (RANTBL
00247 R 040274 R             DAC     RANDEX
00250 R 200273 R             LAC     RANCON
00251 R 744010 A             CLLIRAL
00252 R 741400 A             SZL
00253 R 340717 R             TAD     (1
00254 R 040273 R             DAC     RANCON
00255 R 220274 R     RANTAD  LAC*    RANDEX
00256 R 340273 R             TAD     RANCON
00257 R 060274 R             DAC*    RANDEX
00260 R 440307 R             ISZ     RANCNT
00261 R 600266 R             JMP     .+5
00262 R 360724 R             TAD*    (0)
00263 R 060274 R             DAC*    RANDEX
00264 R 777700 A             LAW     -100
00265 R 040307 R             DAC     RANCNT
00266 R 200306 R             LAC     RWRK
00267 R 740020 A             RAR
00270 R 360274 R             TAD*    RANDEX
00271 R 440274 R             ISZ     RANDEX
00272 R 620240 R             JMP*    RDGEN
00273 R 123456 A     RANCON  123456
00274 R 000305 R     RANDEX  RANTBL+10
00275 R 654321 A     RANTBL  654321
00276 R 361416 A             361416
00277 R 055363 A             055363
00300 R 546060 A             546060
00301 R 243035 A             243035
00302 R 762572 A             762572
00303 R 453237 A             453237
00304 R 150214 A             150214
00305 R 000000 A             0
00306 R 000000 A     RWRK    0
00307 R 777700 A     RANCNT  -100
                             .EJECT
```

```
                        /SOFTWARE MULTIPLY (RAN2 X RAN3)
00310 R 740000 A    SOFMUL  NOP
00311 R 200236 R            LAC     RAN2
00312 R 100441 R            JMS     MULT
00313 R 200237 R            LAC     RAN3            /LOW ORDER IN AC HIGH ORDER IN MP5
00314 R 040675 R            DAC     LPRODS#         /LOW ORDER
00315 R 200701 R            LAC     MP5
00316 R 040673 R            DAC     HPRODS          /HIGH ORDER
00317 R 620310 R            JMP*    SOFMUL          /EXIT
                        /HARDWARE MULTIPLY
00320 R 740000 A    HARMUL  NOP
00321 R 200236 R            LAC     RAN2            /MULTIPLIER
00322 R 100431 R            JMS     HMPY
00323 R 200237 R            LAC     RAN3            /MULTIPLICAND
00324 R 040672 R            DAC     HPRODH          /HIGH ORDER
00325 R 641002 A            LACQ
00326 R 040674 R            DAC     LPRODH          /LOW ORDER
00327 R 620320 R            JMP*    HARMUL          /EXIT
                        /
                        /COMPARE PRODUCT OF SOFTWARE + HARDWARE
00330 R 740000 A    MULCOM  NOP
00331 R 200672 R            LAC     HPRODH#
00332 R 540673 R            SAD     HPRODS#
00333 R 741000 A            SKP
00334 R 600340 R            JMP     .+4             /HIGH ORDER NOT EQUAL
00335 R 200674 R            LAC     LPRODH#
00336 R 540675 R            SAD     LPRODS
00337 R 600341 R            JMP     .+2
00340 R 100132 R            JMS     BADMUL          /LOW ORDER NOT EQUAL
00341 R 620330 R            JMP*    MULCOM
                        .EJECT
```

```
                        /DIVIDE RANDOM NUMBERS (RAN1,RAN3)/(RAN2)
00342 R 740000 A    EXDIV   NOP
00343 R 200721 R            LAC     (400000
00344 R 040666 R            DAC     CTRAN           /RANDOM NUMBER COUNTER 4096
00345 R 100215 R    EXDAGN  JMS     RAN             /RANDOM NUMBER GENERATOR
00346 R 100367 R            JMS     SOFDIV          /SOFTWARE DIVIDE
00347 R 100355 R            JMS     HARDIV          /HARDWARE DIVIDE
00350 R 100400 R            JMS     DIVCOM          /HARDWARE=SOFTWARE
00351 R 100077 R            JMS     EAEXIT
00352 R 440666 R            ISZ     CTRAN
00353 R 600345 R            JMP     EXDAGN
00354 R 620342 R            JMP*    EXDIV
                        /HARDWARE DIVIDE
00355 R 740000 A    HARDIV  NOP
00356 R 200237 R            LAC     RAN3
00357 R 652000 A            LMQ                     /DIVIDEND LOW ORDER
00360 R 200235 R            LAC     RAN1            /DIVIDEND HIGH ORDER
00361 R 100417 R            JMS     HDIVID
00362 R 200236 R            LAC     RAN2            /DIVISOR
00363 R 040705 R            DAC     REMH            /HARDWARE REMAINDER
00364 R 641002 A            LACQ
00365 R 040703 R            DAC     QUOTH           /HARDWARE QUOTIENT
00366 R 620355 R            JMP*    HARDIV
                        /
                        /SOFTWARE DIVIDE (RAN1,RAN3)/(RAN2)
00367 R 740000 A    SOFDIV  NOP
00370 R 200235 R            LAC     RAN1            /HIGH ORDER DIVIDEND
00371 R 100514 R            JMS     DIVIDE
00372 R 200237 R            LAC     RAN3            /LOW ORDER DIVIDEND
00373 R 200236 R            LAC     RAN2            /DIVISOR
00374 R 040704 R            DAC     QUOTS           /SOFTWARE QUOTIENT
00375 R 200667 R            LAC     DVD
00376 R 040706 R            DAC     REMS            /SOFTWARE REMAINDER
00377 R 620367 R            JMP*    SOFDIV
                        /
                        /COMPARE QUOTIENT AND REMAINDERS
00400 R 740000 A    DIVCOM  NOP
00401 R 200355 R            LAC     HARDIV          /GET LINK FROM SOFTWARE DIVIDE
00402 R 741400 A            SZL                     /CHECK LINK FROM HARDWARE DIVIDE
00403 R 620400 R            JMP*    DIVCOM          /IF LINK = 1 EXIT.
00404 R 741100 A            SPA                     /AC SHOULD BE PLUS FOR EQUAL LINKS
00405 R 620400 R            JMP*    DIVCOM
00406 R 200703 R            LAC     QUOTH#
00407 R 540704 R            SAD     QUOTS#
00410 R 741000 A            SKP
00411 R 600415 R            JMP     .+4             /QUOTIENT NOT EQUAL
00412 R 200705 R            LAC     REMH#
00413 R 540706 R            SAD     REMS#
00414 R 600416 R            JMP     .+2
00415 R 100155 R    DVCMER  JMS     BADDIV          /REMAINDER NOT EQUAL
00416 R 620400 R            JMP*    DIVCOM
                            .EJECT
```

```
                        /HARDWARE ARITHMETIC SUBROUTINES
                        /SIGNED DIVIDE SUBROUTINE
                        /CALLING SEQUENCE
                        /DIVIDE IN AC AND MQ
                        /JMS HDIVIDE
                        /PICKUP OTHER FACTOR
                        /
00417 R 000000 A    HDIVID  0                       /ENTRY TO SUBROUTINE
00420 R 040710 R            DAC     TEM#
00421 R 420417 R            XCT*    HDIVID
00422 R 664000 A            GSM
00423 R 040426 R            DAC     HDIVL
00424 R 200710 R            LAC     TEM
00425 R 644323 A            DIVS
00426 R 000000 A    HDIVL   0                       /LOCATION OF DIVISIOR
00427 R 440417 R            ISZ     HDIVID
00430 R 620417 R            JMP*    HDIVID
                        /SIGNED MULTIPLY SUBROUTINE
                        /CALLING SEQUENCE.
                        /ONE FACTOR IN AC
                        /JMS HMPY
                        /PICK UP OTHER FACTOR   /LACXXX ON LAC I XXX
                        /
00431 R 000000 A    HMPY    0                       /ENTRY TO SUBROUTINE
00432 R 664000 A            GSM                     /FIX MULTIPLIER MAGNITUDE
00433 R 040436 R            DAC     .+3
00434 R 420431 R            XCT*    HMPY            /LAC MULTIPLIER
00435 R 657122 A            MULS
00436 R 000000 A            0                       /LOCATION OF MULTIPLER
00437 R 440431 R            ISZ     HMPY            /INDEX RETURN
00440 R 620431 R            JMP*    HMPY
                        .EJECT
```

```
                        /PDP-15 ONE'S COMPLEMENT SINGLE PRECISION MULTIPLICATION SUBROUTINE
                        /HARDWARE SIMULATION
                        /CALLING SEQUENCE:
                                /LAC MULTIPLIER
                                /JMS MULT
                                /LAC MULTIPLICAND
                                /RETURN; LOW ORDER PRODUCT IN AC, HIGH ORDER PRODUCT
                                /IN MP5
00441 R 000000 A    MULT        0
00442 R 140701 R                DZM     MP#5
00443 R 741200 A                SNA
00444 R 740000 A                NOP
00445 R 745100 A                SPA!CLL
00446 R 740003 A                CMA!CML
00447 R 040676 R                DAC     M#P1
00450 R 420441 R                XCT*    MULT
00451 R 741200 A                SNA
00452 R 740000 A                NOP
00453 R 741100 A                SPA
00454 R 740003 A                CMA!CML
00455 R 040677 R                DAC     MP#2
00456 R 200725 R                LAC     (360000
00457 R 740010 A                RAL
00460 R 040501 R                DAC     MPSIGN
00461 R 777756 A                LAW     -22
00462 R 040700 R                DAC     MP#3
00463 R 740000 A                NOP
00464 R 200676 R    MP4         LAC     MP1
00465 R 740020 A                RAR
00466 R 200701 R                LAC     MP5
00467 R 745400 A                SZL!CLL
00470 R 340677 R                TAD     MP2
00471 R 740020 A                RAR
00472 R 040701 R                DAC     MP5
00473 R 200676 R                LAC     MP1
00474 R 740020 A                RAR
00475 R 040676 R                DAC     MP1
00476 R 200701 R                LAC     MP5
00477 R 440700 R                ISZ     MP3
00500 R 600512 R                JMP     MPZ+2
00501 R 000000 A    MPSIGN      0
00502 R 040701 R                DAC     MP5
00503 R 200676 R                LAC     MP1
00504 R 740000 A                NOP
00505 R 400501 R                XCT     MPSIGN
00506 R 040676 R                DAC     MP1
00507 R 740000 A                NOP
00510 R 440441 R    MPZ         ISZ     MULT
00511 R 620441 R                JMP*    MULT
00512 R 740000 A                NOP
00513 R 600464 R                JMP     MP4
                                .EJECT
```

```
                        /PDP-15 ONE'S COMPLEMENT DIVIDE SUBROUTINE HARDWARE SIMULATION
                        /CALLING SEQUENCE,
                        /       LAC HIGH ORDER DIVIDEND /JMS DIVIDE
                        /       LAC LOW ORDER DIVIDEND
                        /       LAC DIVISOR
                        /       RETURN,QUOT. IN AC, REM. IN D#VD
                        /IF HIGH DIVIDENDS GREATER OF EQUAL TO DIVISOR, DIVISOR TAKES
                        /PLACE AND LINK IS SET TO 1.
00514 R 000000 A    DIVIDE  0                       /HIGH ORDER DIVIDEND IN AC
00515 R 745100 A            SPA!CLL                 /IS DIVIDEND POSITIVE
00516 R 740003 A            CMA!CML                 /NO, COMPLEMENT IN AC AND LINK
00517 R 040667 R            DAC     D#VD            /STORE HIGH ORDER DIVIDEND
00520 R 420514 R            XCT*    DIVIDE          /FETCH LOW ORDER DIVIDEND
00521 R 741400 A            SZL                     /DIVIDEND SIGN BIT POSITIVE?
00522 R 740001 A            CMA                     /NO, COMPLEMENT LOW ORDER DIVIDEND
00523 R 040702 R            DAC     Q#UO            /STORE LOW ORDER DIVIDEND
00524 R 100525 R            JMS     DV5             /DEPOSIT DIVIDEND SIGN BIT INTO DV5M
00525 R 000000 A    DV5     0                       /REMAINDER HAS SIGN OF DIVIDEND
00526 R 440514 R            ISZ     DIVIDE
00527 R 420514 R            XCT*    DIVIDE          /FETCH DIVISOR
00530 R 741100 A            SPA                     /SKIP IF SIGN POSITIVE
00531 R 740003 A            CMA!CML                 /COMPELEMENT AC AND LINK
00532 R 100533 R            JMS     DV4             /DEPOSIT QUOTIENT
00533 R 000000 A    DV4     0                       /CONTAINS SIGN BIT OF QUOITIENT
00534 R 744000 A            CLL                     /CLEAR LINK
00535 R 040670 R            DAC     D#VS            /SAVE DIVISOR
00536 R 440514 R            ISZ     DIVIDE          /INCREMENT TO EXIT ADDRESS
00537 R 777755 A            LAW     -23             /SET UP "STEP COUNTER"
00540 R 040671 R            DAC     DV#1
00541 R 200607 R            LAC     SVCB
00542 R 040602 R            DAC     SVC0            /SET SAVE CARRY SWITCH TO INITIAL
00543 R 140707 R            DZM     SVCRY           /CLEAR SAVED CARRY.
00544 R 740000 A    DSP1    NOP
00545 R 200670 R            LAC     DVS             /FETCH DIVISOR
00546 R 600563 R            JMP     DV2A-2          /START DIVISION
00547 R 200601 R    DV2     LAC     QHIB            /GET SAVED HI QUOTIENT BIT
00550 R 740010 A            RAL                     /PUT BIT INTO LINK
00551 R 200667 R            LAC     DVD             /GET DIVIDEND
00552 R 740010 A            RAL                     /INSERT HI QUOT INTO DIVIDEND
00553 R 040667 R            DAC     DVD             /STORE NEW DIVIDEND
00554 R 740000 A    DSP3    NOP
00555 R 200570 R            LAC     DCRY            /GET LAST CARRY
00556 R 740010 A            RAL                     /PUT INTO LINK
00557 R 200670 R            LAC     DVS             /GET DIVISOR
00560 R 745400 A            SZL!CLL                 /IF LINK IS 1, ADD NEG DIVISOR.
00561 R 741000 A            SKP
00562 R 600565 R            JMP     .+3
00563 R 740001 A            CMA                     /IF LINK IS 0, ADD POS DIVISOR.
00564 R 340717 R            TAD     (1)
00565 R 340667 R    DV2A    TAD     DVD             /ADD DIVISOR (+,-) TO DIVIDEND
00566 R 040667 R            DAC     DVD             /STORE NEW DIVIDNED
00567 R 100570 R            JMS     .+1
00570 R 000000 A    DCRY    0                       /SAVE CARRY
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```
00571 R 740000 A     DSP2    NOP
00572 R 200707 R             LAC     SVCRY           /CHECK LAST
00573 R 741100 A             SPA                     /CARRY.=1 IF OVERFLOW
00574 R 740002 A             CML                     /IF OVERFLOW ERROR LAST CYCLE
                     /COMPLEMENT THIS INSERT BIT
00575 R 200702 R             LAC     QUO             /GET QUOTIENT
00576 R 740010 A             RAL                     /INSERT CARRY INTO QUOTIENT
00577 R 040702 R             DAC     QUO             /STORE NEW QUOTIENT
00600 R 100601 R             JMS     .+1             /SAVE HI BIT FOR
00601 R 000000 A     QHIB    0                       /INSERTION INTO DIVIDEND
00602 R 740040 A     SVC0    HLT
00603 R 600617 R             JMP     SVC2            /1ST - SAVE EXTRA SIGN BIT
00604 R 600614 R             JMP     SVC1            /2ND - SAVE SIGN BIT, CHECK XSIGN BIT
00605 R 600610 R             JMP     SVC1A           /3RD - CHECK SIGN BIT.
00606 R 600622 R             JMP     SVC3            /OTHERS - CONTINUE
00607 R 600603 R     SVCB    JMP     SVC0+1
00610 R 200707 R     SVC1A   LAC     SVCRY
00611 R 741100 A             SPA
00612 R 600654 R             JMP     OVRFLO
00613 R 600621 R             JMP     SVC3-1
00614 R 200707 R     SVC1    LAC     S#VCRY          /TEST SAVED SIGN BIT
00615 R 741100 A             SPA                     /MUST=0
00616 R 600654 R             JMP     OVRFLO          /NOT=0, OVERFLOW
00617 R 200570 R     SVC2    LAC     DCRY
00620 R 040707 R             DAC     SVCRY           /SAVE CARRY FOR TEST NEXT CYCLE
00621 R 440602 R             ISZ     SVC0            /INCREMENT SWITCH
00622 R 440671 R     SVC3    ISZ     DV1             /INCREMENT STEP COUNTER
00623 R 600547 R             JMP     DV2             /GO TO NEXT DIVIDE CYCLE
                     /STEP COUNTER=0
00624 R 200570 R             LAC     DCRY            /TEST LAST CARRY
00625 R 741100 A             SPA
00626 R 600633 R             JMP     DV3             /IF=1 NO CORRECTIONS NEEDED
00627 R 740000 A     DSP4    NOP
00630 R 200670 R             LAC     DVS             /WAS 0
                     /ADD (+) DIVISOR TO CORRECT
00631 R 340667 R             TAD     DVD             /DVD VALUE FOR REMAINDER
00632 R 040667 R             DAC     DVD
00633 R 200525 R     DV3     LAC     DV5             /CHECK DIVIDEND SIGN
00634 R 740010 A             RAL                     /
00635 R 740000 A     DSP5    NOP
00636 R 200667 R             LAC     DVD             /
00637 R 741401 A             SZL!CMA                 /IF MINUS, COMPELEMENT REMAINDER
00640 R 040667 R             DAC     DVD             /
00641 R 200533 R             LAC     DV4             /CHECK DIVISOR SIGN
00642 R 740010 A             RAL
00643 R 200702 R             LAC     QUO
00644 R 741400 A             SZL                     /IF MINUS, COMPLEMENT QUOTIENT
00645 R 740001 A             CMA
00646 R 040702 R             DAC     QUO
00647 R 200707 R             LAC     SVCRY           /SET LINK TO DETERMINED VALUE
00650 R 740010 A             RAL
00651 R 200702 R             LAC     QUO
00652 R 740000 A     DSP6    NOP
```

```
00653 R 620514 R            JMP*    DIVIDE
                      /OVERFLOW OCCURRED
00654 R 200671 R    OVRFLO  LAC     DV1
00655 R 340717 R            TAD     (1)
00656 R 740100 A            SMA
00657 R 600633 R            JMP     DV3
00660 R 200601 R            LAC     QHIB            /GET SAVED HI QUOTIENT BIT
00661 R 740010 A            RAL
00662 R 200667 R            LAC     DVD             /PUT INTO DIVIDEND
00663 R 740010 A            RAL
00664 R 040667 R            DAC     DVD             /STORE NEW DIVIDEND
00665 R 600633 R            JMP     DV3             /GO TO ADJUST SIGNS
                            .EJECT
```

```
                000000 R                .END    UODSW
    00711 R 200235 R *L
    00712 R 000300 A *L
    00713 R 000100 A *L
    00714 R 000200 A *L
    00715 R 000040 A *L
    00716 R 600227 R *L
    00717 R 000001 A *L
    00720 R 000002 A *L
    00721 R 400000 A *L
    00722 R 000305 R *L
    00723 R 000275 R *L
    00724 R 000000 A *L
    00725 R 360000 A *L
              SIZE=00726      NO ERROR LINES
```

```
BADDIV  00155 R   BADMUL  00132 R   CTRAN   00666 R   DCRY    00570 R
DIVCOM  00400 R   DIVIDE  00514 R   DIVS   644323 A   DSP1    00544 R
DSP2    00571 R   DSP3    00554 R   DSP4    00627 R   DSP5    00635 R
DSP6    00652 R   DVCMER  00415 R   DVD     00667 R   DVS     00670 R
DV1     00671 R   DV2     00547 R   DV2A    00565 R   DV3     00633 R
DV4     00533 R   DV5     00525 R   EAEBGN  00032 R   EAEITR  00075 R
EAEXIT  00077 R   ERRXIT  00104 R   ERWC    00021 R   ERWD1   00022 R
ERWD2   00023 R   ERWD3   00024 R   ERWD4   00025 R   ERWD5   00026 R
ERWD6   00027 R   ERWD7   00030 R   ERWD8   00031 R   EXDAGN  00345 R
EXDIV   00342 R   EXMAGN  00205 R   EXMUL   00202 R   GSM    664000 A
HARDIV  00355 R   HARMUL  00320 R   HDIVID  00417 R   HDIVL   00426 R
HMPY    00431 R   HOLD    00111 R   HPRODH  00672 R   HPRODS  00673 R
LACQ   641002 A   LMQ    652000 A   LPRODH  00674 R   LPRODS  00675 R
MPSIGN  00501 R   MPZ     00510 R   MP1     00676 R   MP2     00677 R
MP3     00700 R   MP4     00464 R   MP5     00701 R   MULCOM  00330 R
MULS   657122 A   MULT    00441 R   OVRFLO  00654 R   QHIB    00601 R
QUO     00702 R   QUOTH   00703 R   QUOTS   00704 R   RAN     00215 R
RANCNT  00307 R   RANCON  00273 R   RANDEX  00274 R   RANTAD  00255 R
RANTBL  00275 R   RAN.1   00227 R   RAN1    00235 R   RAN2    00236 R
RAN3    00237 R   RDGEN   00240 R   REMH    00705 R   REMS    00706 R
RWRK    00306 R   SETRAN  00120 R   SOFDIV  00367 R   SOFMUL  00310 R
SVCB    00607 R   SVCRY   00707 R   SVC0    00602 R   SVC1    00614 R
SVC1A   00610 R   SVC2    00617 R   SVC3    00622 R   SYSERR  00020 R
TEM     00710 R   TERMIN  00056 R   TEST1   00062 R   TEST2   00065 R
TEST3   00070 R   UODSW   00000 R   UODSW1  00001 R   UODSW2  00002 R
UODSW3  00003 R
```

UODSW	00000	R	UODSW1	00001	R	UODSW2	00002	R	UODSW3	00003	R
SYSERR	00020	R	ERWC	00021	R	ERWD1	00022	R	ERWD2	00023	R
ERWD3	00024	R	ERWD4	00025	R	ERWD5	00026	R	ERWD6	00027	R
ERWD7	00030	R	ERWD8	00031	R	EAEBGN	00032	R	TERMIN	00056	R
TEST1	00062	R	TEST2	00065	R	TEST3	00070	R	EAEITR	00075	R
EAEXIT	00077	R	ERRXIT	00104	R	HOLD	00111	R	SETRAN	00120	R
BADMUL	00132	R	BADDIV	00155	R	EXMUL	00202	R	EXMAGN	00205	R
RAN	00215	R	RAN.1	00227	R	RAN1	00235	R	RAN2	00236	R
RAN3	00237	R	RDGEN	00240	R	RANTAD	00255	R	RANCON	00273	R
RANDEX	00274	R	RANTBL	00275	R	RWRK	00306	R	RANCNT	00307	R
SOFMUL	00310	R	HARMUL	00320	R	MULCOM	00330	R	EXDIV	00342	R
EXDAGN	00345	R	HARDIV	00355	R	SOFDIV	00367	R	DIVCOM	00400	R
DVCMER	00415	R	HDIVID	00417	R	HDIVL	00426	R	HMPY	00431	R
MULT	00441	R	MP4	00464	R	MPSIGN	00501	R	MPZ	00510	R
DIVIDE	00514	R	DV5	00525	R	DV4	00533	R	OSP1	00544	R
DV2	00547	R	OSP3	00554	R	DV2A	00565	R	OCRY	00570	R
OSP2	00571	R	OHIB	00601	R	SVC0	00602	R	SVCB	00607	R
SVC1A	00610	R	SVC1	00614	R	SVC2	00617	R	SVC3	00622	R
OSP4	00627	R	DV3	00633	R	OSP5	00635	R	OSP6	00652	R
OVRFLO	00654	R	CTRAN	00666	R	DVD	00667	R	DVS	00670	R
DV1	00671	R	HPRODH	00672	R	HPRODS	00673	R	LPRODH	00674	R
LPRODS	00675	R	MP1	00676	R	MP2	00677	R	MP3	00700	R
MP5	00701	R	QUO	00702	R	QUOTH	00703	R	QUOTS	00704	R
REMH	00705	R	REMS	00706	R	SVCRY	00707	R	TEM	00710	R
LACQ	641002	A	DIVS	644323	A	LMQ	652000	A	MULS	657122	A
GSM	664000	A									