```
LENGTH OF  PRG          00622
                                    1                   IDENT     ACCOUNTS
                                    3                   INCLUDE   ↑SYSMAC
                                    3+001  SYSMAC       COSY/     03          V4.1        08/17/74  0453
                                    4
                00621  P            6                   ENTRY     FORMFLAG
                00602  P            7                   ENTRY     ACCWORDS
                00001  P            8                   ENTRY     LOG
                00373  P            9                   ENTRY     MESFLAG
                04540               10                   ENTRY     MSFCHRG
                00310               11                   ENTRY     PTPCHRG
                00000  P           11+001               ENTRY     DAYSCHD
                00312  P           11+002               ENTRY     SHIFTRAT
                40433               12                   ENTRY     TPMNTCHG
                00574  P            13                   ENTRY     UDHASH
                00526  P            14                   ENTRY     UDSELECT
                                    15
                                    16                   EXT       A
                                    17                   EXT       ABORT
                                    18                   EXT       ACCNUM
                                    19                   EXT       ACCPRINT
                                    20                   EXT       ACCSTUFF
                                    21                   EXT       BIT19
                                    22                   EXT       BIT23
                                    22+001               EXT       BUSY
                                    22+002               EXT       FASTQN
                                    23                   EXT       FINK
                                    24                   EXT       FLAGS
                                    24+001               EXT       FASTTMAX              MAX TIME FOR ≠FASTQ≠ JOB
                                    24+002               EXT       FASTMMAX              MAX MFBLKS FOR FASTQ JOB
                                    25                   EXT       GETBLK
                                    26                   EXT       GETBUFF
                                    27                   EXT       GIVBUFFP
                                    28                   EXT       HIGHHOUR,LOWHOUR
                                    29                   EXT         HSITAB,HSITABL,HSILOC
                                    30                   EXT       I1
                                    31                   EXT       IOBOUND
                                    32                   EXT       ISFBLKS
                                    33                   EXT       LPREC
                                    34                   EXT       LPTAB
                                    35                   EXT       LPTABL
                                    36                   EXT       MACHERR
                                    37                   EXT       MFBLKLIM
                                    38                   EXT       MFBLKSMZ
                                    39                   EXT       MSFTIME
                                    40                   EXT       MSWAIT
                                    41                   EXT       NMSWAIT
                                    41+001               EXT       NSHIFT
                00474  P            42                   ENTRY     NORMSYS
                                    42+001               EXT       07777777              FOR USE AS ACCMASK
                                    43                   EXT       OPMSG
                                    44                   EXT       PLOTREC
                                    45                   EXT       PTPREC
                                    45+001               EXT       RATETAB
                                    46                   EXT       READ
                                    47                   EXT       RF60
                                    48                   EXT       RF77
                                    49                   EXT       RPSAPTR
                                    50                   EXT       SCREAM
                                    51                   EXT       SELECT
                                    52                   EXT       SFBLKLIM
                                    53                   EXT       SFBLKS
                                    54                   EXT       SWBIT
                                    55                   EXT       SYSCM
                                    56                   EXT       SYSCODE
                                    57                   EXT       SYSVAL
                                    58                   EXT       T1
                                    59                   EXT       T2
                                    60                   EXT       TERMINAL
                                    61                   EXT       TIMLIM
                                    62                   EXT       TOTALTIM
                                    63                   EXT       TXTOTAL
                                    64                   EXT       UDBITS
                                    65                   EXT       UDLENGTH
                                    66                   EXT       USERDIR
                                    67                   EXT       USRNUM
                                    68                   EXT       WCTIME
                                    69                   EXT       WRITE
                                    70                   EXT       XREQEND
```

```
                                    71                  EXT     ZLIST
                                    72                  EXT     ZLOC
                                    73
07773                               74  DINT            EQU     7773B
07774                               75  EINT            EQU     7774B
00000                               76  IMPURE          EQU     00000
00001                               77  PFLOC           EQU     0018
04000                               78  CORE            EQU     PFLOC*2↑11
04003                               79  COREXX          EQU     CORE+3
00000                               80  PFR             EQU     0000
00000                               81  PFW             EQU     0000
01000                               82  WPFB            EQU     1000B
00001                               83  X1              EQU     1
00002                               84  X2              EQU     2
00003                               85  X3              EQU     3
00003                               86  PSA             EQU     X3
00000                               87  CNBLK           EQU     0
00014                           87+001  PRIVBIT         EQU     12              SET IF SJ3 REQUIRED ON LOGIN
                                    88
00035                               89  NU              EQU     35B             NUMBER OF USERS
00037                               90  DATE            EQU     37B
                                    91
                                    92  *               USER DIRECTORY DEFINITIONS
                                    93
00000                               94  UDACC           EQU     0
00002                               95  UDTIMLIM        EQU     2
00003                               96  UDMFBLIM        EQU     3
00004                               97  UDSFBLIM        EQU     4
00005                               98  UDFLAGS         EQU     5
00006                               99  UDSFBLKS        EQU     6
00007                              100  UDTIME          EQU     7
                                   101                  FCBDEF
                                   65  .*                                                                          *
                                   66  .*************************************************************************
                                   67  .*                                                                          *
                                   68  .*              FILE CONTROL BLOCK DEFINITIONS                              *
                                   69  .*                                                                          *
                                   70  .*                                                                          *
00000                              71  ACCWORD         EQU     0               ACCOUNTING WORD  (MUST BE 0)       *
00001                              72  LP              EQU     1               LOAD POINT BLOCK                   *
00002                              73  COREP           EQU     2               CORE POINTER IF NON-ZERO           *
                                   74  .*                                      IF BIT23 = 1, CORE BLOCK HAS       *
                                   75  .*                                      BEEN WRITTEN INTO                  *
00003                              76  CBP             EQU     COREP+1         BLOCK NUMBER OF THE CURRENT BLOC*
00004                              77  CPP             EQU     4               CURRENT POSITION POINTER           *
                                   78  .*                                      (REL. POSIT. WITHIN BLOCK CBP)     *
                                   79  .*                                      BIT23 SEZ READ-ONLY                *
                                   80  .*                                      BIT22 SEZ AT LOAD POINT            *
                                   81  .*                                      BIT21 SEZ END OF DATA              *
                                   82  .*                                      BIT20 SEZ FILE MARK JUST READ      *
                                   83  .*                                                                         *
                                   84  .*                                      BIT18 SEZ BINARY RECORD PROCESSE*
                                   85  .*                                      BIT17 SEZ ABNORMAL/UNAVAILABLE     *
                                   86  .*                                      BIT16 SEZ ADDRESS ERROR            *
                                   87  .*                                      BIT15 SEZ SAVED FILE               *
00005                              88  BLKR            EQU     5               NUMBER OF BLOCKS BEYOND            *
                                   89  .*                                      THE CURRENT BLOCK                  *
00006                              90  EPP             EQU     6               END POSITION POINTER               *
                                   91  .*                                      BIT22 SEZ THE FILE HAS CHANGED     *
                                   92  .*                                      BIT21 SEZ POSITIONER READY         *
                                   93  .*                                      BIT20 SEZ DESTRUCTIVE READ         *
                                   94  .*                                      FILE DIRECTORY                     *
                                   95  .*                                      BITS 15-18 CONTAIN THE HT          *
                                   96  .*                                      BITS 00-14 CONTAIN END POSITION    *
00007                              97  TFL             EQU     7               TOTAL LENGTH IN BLOCKS             *
                                  102  ************************************************************************
                                  103
                                  104                  HTDEF
                                  203  .*************************************************************************
                                  204  .*                                                                         *
00001                             205  HTFILE          EQU     01B                     FILE                       *
00002                             206  HTLP            EQU     02B                     LINE PRINTER               *
00003                             207  HTPUN           EQU     03B                     CARD PUNCH                 *
00004                             208  HTCR            EQU     04B                     CARD READER                *
00005                             209  HTMT            EQU     05B                     MAGNETIC TAPE              *
00006                             210  HTTTY           EQU     06B                     TELETYPE                   *
00007                             211  HTPLOT          EQU     07B                     X/Y PLOTTER                *
00010                             212  HTNULL          EQU     10B                     ONLINE INCINERATOR         *
00011                             213  HTTV            EQU     11B                     CRT DISPLAY                *
```

```
00012                214      HTRAF    EQU      12B                 RANDOM ACCESS FILE                *
00013                215      HTTASK   EQU      13B                 FUTURE INPUT FOR REMOTE BATCH     *
00014                216      HTMSF    EQU      14B                 USER DISKPACK                     *
00015                217      HTPTP    EQU      15B                 PAPER TAPE PUNCH                  *
00016                218      HTMAX    EQU      16B                 (NUMBR OF HARDWARE TYPES) + 1     *
00017                219      HTMASK   EQU      17B                 MASK FOR THE HARDWARE TYPE        *
                     220      *                                                                          *
                     221      *************************************************************************
                     105
00000                105+001  DAYSCHD  BSS      1                   LOW HOUR FOR EACH SHIFT
```

```
110     *                                                                       *
111     *          THE FORMAT OF THE ACCOUNTING FILE IS A SERIES OF 17 WORD     *
112     *          RECORDS.  THE FIRST WORD OF THE RECORD IS 00000017 IF THE    *
113     *          RECORD IS A NORMAL ACCOUNTING RECORD OR A 40000000 IF IT IS  *
114     *          THE END OF THE FILE.                                         *
115     *                                                                       *
116     *                                                                       *
117     *          WORD WC   40000000 OR 00000017                               *
118     *          WORD 00   DATE AND HOUR FROM RF 37                           *
119     *          WORD 01   ACCOUNT NUMBER                                     *
120     *          WORD 02   USER CODE                                          *
121     *          WORD 03   SAVE FILE BLOCK TOTAL                              *
122     *          WORD 04   TERMINAL NUMBER IN BITS 15-23                      *
123     *                    TRAFFIC IN BITS 6-14                               *
124     *                    BATCH QUEUE NUMBER IN BITS 0-5                     *
125     *          WORD 05   CPU TIME IN MILLISECONDS                           *
126     *          WORD 06   ELAPSED WALL CLOCK TIME IN SECONDS                 *
127     *          WORD 07   RECORDS OUTPUT TO PRIMARY LINE PRINTER             *
128     *          WORD 08   RECORDS OUTPUT TO THE PUNCH                        *
129     *          WORD 09   RECORDS OUTPUT TO THE PLOTTER                      *
130     *          WORD 10   NUMBER OF INPUT CARDS READ                         *
131     *          WORD 11   MILLISECONDS OF TAPE DRIVE ACTIVITY                *
132     *          WORD 12   NUMBER OF SPECIAL INPUT RECORDS                    *
133     *          WORD 13   RECORDS TO PAPER TAPE PUNCH                        *
134     *          WORD 14   RECORDS TO REMOTE LINE PRINTERS                    *
135     *          WORD 15   SECONDS OF USER DISK PACK TIME                     *
136     *                                                                       *
```

```
                                 *******************************************************************
                          141    *                                                                 *
                          142    *          LOG EXECUTIVE REQUEST                                  *
                          143    *                                                                 *
                          144    *          USER MUST BE IN CONTROL MODE AND                       *
                          145    *          IF LOGIN  HAVE JOB/USER NUMBER IN AQ      OR           *
                          146    *          IF LOGOFF HAVE 0 IN A                                  *
                          147    *                                                                 *
                          148    *          EFFECTIVE ADDRESS OF INSTRUCTION SHOULD BE THE LUN OF  *
                          149    *          STANDARD OUTPUT IF IT HAS NOT YET BEEN UNEQUIPPED SO THAT *
                          150    *          IT CAN BE CHARGED FOR IF NEEDED                        *
                          151    *                                                                 *
                                 *******************************************************************
                          153
          00001 P         154    LOG       EQU    *
00001  14600000           157              ENA    0
00002  40377777 X         158              STA    T1,PSA            MARK THE END OF THE PSA LIST
00003  05100001           159              ISG    1,X1
00004  01000023 P         160              UJP    XLOG              STANDARD OUTPUT DOES NOT EXIST
00005  20100002           161              LDA    1+1,X1            LOAD THE CONTROL BLOCK ADDRESS
00006  53500000           162              TAI    X1+CNBLK
00007  20100006           163              LDA    EPP,X1+CNBLK      WHAT KIND OF PRINTER DO WE HAVE
00010  17600017           164              ANA    17B
00011  05677777 X         165              ASG    LPTABL            SKIP IF NOT A PRINTER NUMBER
00012  01000014 P         166              UJP    *+2
00013  14600000           167              ENA    0
00014  53600000           168              TAI    X2
00015  20277777 X         169              LDA    LPTAB,X2          LOAD POINTER TO PRINTER CONTROL
00016  12077760           170              SHA    -15               MACRO   PICK UP PROPER ACCOUNTING
00017  30377777 X         171              ADA    ACCSTUFF,PSA      WORD
00020  53600000           172              TAI    X2
00021  20100000           173              LDA    ACCWORD,X1        LOAD THE LINE PRINTER TOTAL
00022  34200000           174              RAD    0,X2              CHARGE FOR THE PRINTER RECORDS
          00023 P         175    XLOG      EQU    *
00023  14677777 X         176              ENA    MSWAIT
00024  34377777 X         177              RAD    IOBOUND,PSA       PREVENT FURTHER TOIL
00025  77730000           178              VFD    A12/DINT
00026  14677777 X         179              ENA    SWBIT             PERFORM SWITCHING
00027  35077777 X         180              SSA    FLAGS
00030  40000027 X         181              STA    FLAGS
00031  14277777 X         182              ENI    XREQEND,X2
00032  54100575 P         183              LDI    UDQUEUE,X1        LOAD THE END POINTER
00033  47300575 P         184              STI    UDQUEUE,PSA       ADVANCE THE END POINTER
00034  02500044 P         185              IJO    UDSRCH01,X1       JUMP IF ALREADY ACTIVE
00035  47200552 P         186              STI    UDEXIT,X2         SAVE THE RETURN ADDRESS
00036  47300576 P         187              STI    UDPSA,PSA         ACTIVATE THE QUEUE
00037  14700047 P         188              ENQ    UDSRCH02          ENTER THE INTERRUPT ADDRESS
00040  14600042 P         189              ENA    *+2               ENTER THE RETURN ADDRESS
00041  01077777 X         190              UJP    GETBUFF           OBTAIN SOME CORE TO PLAY WITH
00042  03200055 P         191              AZJ,GE UDSRCH03          JUMP IF CORE WAS AVAILABLE
00043  01000552 P         192              UJP    UDEXIT            SCRAM AND WAIT FOR THE INTERRUPT
00044  53300000           193    UDSRCH01  TIA    PSA
00045  44177777 X         194              SWA    T2,X1             LINK INTO THE QUEUE
00046  01200000           195              UJP    0,X2              AND RETURN
00047  47200552 P         196    UDSRCH02  STI    UDEXIT,X2         SAVE THE RETURN ADDRESS
00050  13000030           197              SHAQ   24
00051  77650001           198              PFA    PFLOC+PFR
00052  44000550 P         199              SWA    UDPFRSTR          SAVE THE PAGE FILE WORD
00053  13000030           200              SHAQ   24
00054  54300576 P         201              LDI    UDPSA,PSA         LOAD THE PSA ADDRESS
00055  77640001           202    UDSRCH03  APF    PFLOC+PFW         LOAD THE PAGE FILE WORD
00056  20377777 X         203    UDSRCH04  LDA    A,PSA             LOAD THE ACCOUNT NUMBER
00057  03100322 P         204              AZJ,NE UDSRCH05          JUMP IF LOGIN
00060  20377777 X         205              LDA    ACCNUM,PSA        IS THE USER LOGGED ON
00061  03200063 P         206              AZJ,GE *+2               JUMP IF SO
00062  00000431 P         207              HLT    UDSRCHX5          CONTROL MODE BLEW IT AGAIN
00063  20000602 P         208              LDA    ACCWORDS          LOAD THE CURRENT BLOCK NUMBER
00064  40000600 P         209              STA    ADDRESS           SAVE IT FOR REFERENCE
00065  14277777 X         210              ENI    READ,X2
00066  14300070 P         211              ENI    *+2,X3
00067  01000537 P         212              UJP    UDIOX             READ IN THE CURRENT BLOCK
00070  54100603 P         213              LDI    POSITION,X1       LOAD THE INTRA-BLOCK POSITION
00071  05100755           214              ISG    WPFB-19,X1        SKIP IF AN EXTENSION IS NEEDED
00072  01000116 P         215              UJP    ACC01
00073  14477756           216              ENA,S  -17               THE POSITION WILL BE ZERO AT THE
00074  40000603 P         217              STA    POSITION          END OF THE OPERATION
00075  14200001           218              ENI    1,X2              ONE BLOCK IS NEEDED
00076  14100000           219              ENI    0,X1              SELECT MASS STORAGE DEVICE ZERO
00077  77650001           220              PFA    PFLOC+PFR
```

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00100  44000112 P      221                 SWA     UDXPF
00101  77730000        222                 VFD     A12/DINT        PREVENT INTERFERENCE
00102  00777777 X      223                 RTJ     GETBLK          GET A FILE BLOCK
00103  40000602 P      224                 STA     ACCWORDS        STORE THE NEW CURRENT BLOCK
00104  40004000        225                 STA     CORE            STORE THE FORWARD POINTER
00105  14277777 X      226                 ENI     WRITE,X2
00106  14700577 P      227                 ENQ     EXPAND          INITIATE THE WRITE OF THE FILE
00107  14100003        228                 ENI     3,X1            MARK INTO THE EXTENSION BLOCK
00110  14300112 P      229                 ENI     *+2,X3
00111  01000544 P      230                 UJP     UDIOZ
00112  14600000        231     UDXPF       ENA     IMPURE
00113  77640001        232                 APF     PFLOC+PFW
00114  14100755        233                 ENI     WPFB-19,X1      ENTER THE POSITION OF THE
00115  01000120 P      234                 UJP     ACC02           PRESENT ACCOUNTING RECORD
00116  20000601 P      235     ACC01       LDA     FM              LOAD THE FILE MARK WORD
00117  40104023        236                 STA     CORE+19,X1      STORE IT INTO THE BLOCK
00120  14600021        237     ACC02       ENA     17              ENTER THE POSITION INCREMENT
00121  34000603 P      238                 RAD     POSITION        ADVANCE THE POSITION
00122  15477775        239                 INA,S   -2              COMPENSATE FOR THE I-R GAP
00123  53010037        240                 TMQ     DATE            LOAD THE CURRENT DATE AND HOUR
00124  45104002        241                 STAQ    COREXX-1,X1
00125  47100141 P      241+001             STI     ACC04,X1        SAVE INDEX ONE.
00126  00700312 P      241+002             RTJ     SHIFTRAT        FIND WHICH SHIFT IT IS.
00127  21177777 X      241+003             LDQ     RATETAB,X1      GET HE RATE FOR THIS SHIFT.
00130  20300017 X      241+004             LDA     ACCSTUFF,PSA    LOOK AT THE RATE AT LOGON TIME.
00131  53600000        241+005             TAI     X2              POINTER TO THE ACCOUNTING STUFF.
00132  12000002        241+006             SHA     2               GET THE LOG ON RATE FACTOR
00133  17600003        241+007             ANA     3
00134  53500000        241+008             TAI     X1
00135  20100127 X      241+009             LDA     RATETAB,X1
00136  03600140 P      241+010             AQJ,GE  ACC03           USE THE LARGEST RATE.
00137  13000030        241+011             SHAQ    24
00140  40000605 P      241+012 ACC03       STA     RATEFACT        SAVE FOR COMPUTING
00141  14100000        241+013 ACC04       ENI     IMPURE,X1       RESTORE THE INDEX 1
00142  25300060 X      253                 LDAQ    ACCNUM,PSA      LOAD THE ACCOUNT NUMBERS
00143  45104004        254                 STAQ    COREXX+1,X1
00144  14700000        255                 ENQ     0               WALL CLOCK TIME
00145  20377777 X      256                 LDA     SYSCODE,PSA     GET SYSTEM CODE
00146  37077777 X      257                 LPA     BIT19           GET BATCH BIT
00147  03100151 P      258                 AZJ,NE  *+2             JUMP IF BATCH (WC=0)
00150  21377777 X      259                 LDQ     WCTIME,PSA
00151  20377777 X      260                 LDA     TOTALTIM,PSA    LOAD THE CPU TIME
00152  45104010        261                 STAQ    COREXX+5,X1
00153  25277777 X      262                 LDAQ    LPREC,X2        LOAD LINES PRINTED AND CARDS
00154  45104012        263                 STAQ    COREXX+7,X1     PUNCHED
00155  20277777 X      264                 LDA     PLOTREC,X2      LOAD PLOTTER RECORDS
00156  21200000        265                 LDQ     0,X2            IS THERE A CARD READER POINTER
00157  04500000        266                 QSE,S   0               SKIP IF NOT
00160  21600000        267                 LDQ,I   0,X2            LOAD THE NUMBER OF CARDS READ
00161  45104014        268                 STAQ    COREXX+9,X1
00162  25277777 X      269                 LDAQ    PTPREC,X2       LOAD PAPER TAPE PUNCH AND REMOTE
00163  45104020        270                 STAQ    COREXX+13,X1    LINE PRINTER RECORDS
00164  20277777 X      271                 LDA     MSFTIME,X2      LOAD SECONDS OF USER DISK PACK
00165  40104022        272                 STA     COREXX+15,X1    TIME AND SAVE IT
00166  14700000        273                 ENQ     0               SET SPECIAL INPUT RECORDS TO 0
00167  41000604 P      274                 STQ     TOTAL           SET THE CHARGE TO ZERO
00170  20377777 X      275                 LDA     TXTOTAL,PSA     LOAD THE TAPE ACTIVITY WORD
00171  45104016        276                 STAQ    COREXX+11,X1
00172  20377777 X      277                 LDA     SFBLKS,PSA      LOAD THE TOTAL SAVED FILE SPACE
00173  21377777 X      278                 LDQ     TERMINAL,PSA    LOAD THE TERMINAL NUMBER
00174  45104006        279                 STAQ    COREXX+3,X1
00175  20377777 X      280                 LDA     SELECT,PSA      LOAD THE BATCH TERMINAL NUMBER
00176  12077754        281                 SHA     -24+5
00177  44104007        282                 SWA     COREXX+4,X1
00200  53020035        283                 TMA     NU              GET NUMBER OF USERS
00201  12000006        284                 SHA     6               AND SAVE FOR THE STATISTICS
00202  34104007        285                 RAD     COREXX+4,X1
```

```
                                288     *****************************************************************************
                                289     *                                                                           *
                                290     *       THE FOLLOWING CODE (TO ACC08) DETERMINES IF A                       *
                                291     *       USER IS A HIGH-SPEED DEVICE USER, AND IF SO HE                      *
                                292     *       IS CHARGED FOR EACH DEVICE USED.  NOTE THAT A                       *
                                293     *       USER IS CHARGED A SERVICE CHARGE FOR EACH                           *
                                294     *       DEVICE USED, SUCH THAT IF HE HAD THREE DEVICES                      *
                                295     *       AND READ ONE RECORD FROM EACH, HE WOULD BE                          *
                                296     *       CHARGED FOR THREE RECORDS AND THREE SERVICE                         *
                                297     *       CHARGES.                                                            *
                                298     *                                                                           *
                                299     *****************************************************************************
                                300             TIA     X1              SAVE
00203  53100000                 301             TAI     X2              INDEX X1 FROM MEQ INSTRUCTION
00204  53600000                 302             SHAQ    9
00205  13000011                 303             ANA     377B            MASK TO TERMINAL NUMBER
00206  17600377                 304             ENQ     0
00207  14700000                 305             STQ     COREXX+12,X1    ZERO HIGH-SPEED RECORD SUM
00210  41104017                 306             ENI     HSITABL,X1      NUMBER OF ENTRIES
00211  14177777 X               307     ACCMEQ  ENQ     377B            MASK FOR SEARCH
00212  14700377                 308             SHAQ    24-9            SAVE TERMINAL NUMBER
00213  13000017                 309             MEQ     HSITAB,2        LOOK FOR USER
00214  05277777 X               310             UJP     ACC08           NO SUCH LUCK SO LEAVE
00215  01000233 P               311             SHAQ    9               RESTORE TERMINAL NUMBER
00216  13000011                 312             LDA     HSITAB,X1       GET LUNLIST POINTER
00217  20100214 X               313             TAI     X3              FOR INDEXING THE LUNLIST ELEMENTS
00220  53700000                 314             LDA     1,X3            GET CONTROL BLOCK POINTER
00221  20300001                 315             TAI     X3              POINT AT CONTROL BLOCK
00222  53700000                 316     ACCCLR  LDA     ACCWORD,X3      GET ACCOUNTING INFO
00223  20300000                 317             ASE,S   0               SKIP IF NO USAGE
00224  04400000                 318             INA     SPSERCHR        ADD SERVICE CHARGE IF USED
00225  15600310                 319             RAD     COREXX+12,X2    ADD TO TOTAL
00226  34204017                 320             ENA     0
00227  14600000                 321             STA,I   ACCCLR          CLEAR ACOUNTING INFO IN CBLK
00230  40400223 P               322             SHAQ    24              RESTORE TTY NUMBER
00231  13000030                 323             UJP     ACCMEQ          AND CONTINUE TO SEARCH
00232  01000212 P               324     ACC08   EQU     *
       00233 P                  325             TIA     X2              RESTORE
00233  53200000                 326             TAI     X1              INDEX X1
00234  53500000                 327             LDI     UDPSA,PSA       RESTORE CURRENT PSA POINTER
00235  54300576 P               328
                                329             ENI     -COSTL+1,X2     COMPUTE THE CHARGES FOR THE
00236  14277765                 330     ACCLOOP LDA     COREXX+5,X1     CONTROL MODE ROUTINE
00237  20104010                 331             STA     RF60,X3         SAVE VALUE IN USERS REGISTER FILE
00240  40377777 X               332             INI     1,X3
00241  15300001                 333             ENQ     0
00242  14700000                 334             SHAQ    -3
00243  13077774                 335+001         LPA     07777777        PREVENT SIGN EXTENSION
00244  37077777 X               336             QSE,S   0               SKIP IF EVEN NUMBER OF EIGHTS
00245  04500000                 337             INA     1               ROUND UP
00246  15600001                 338+001         MUA     RATEFACT        MULTIPLY BY THE SHIFT RATE.
00247  50000605 P               339             STA     COREXX+5,X1     SAVE MODIFIED NUMBER OF RECORDS
00250  40104010                 340     REGRATES EQU    *
       00251 P                  341             INI     1,X1
00251  15100001                 342             SHAQ    -12
00252  13077763                 343             ANA     07777B          WATCH FOR NEGATIVE
00253  17607777                 344             DVA     COST+COSTL-1,X2
00254  51200620 P               345             RAD     TOTAL
00255  34000604 P               346             IJI     ACCLOOP,X2
00256  02200237 P               347
                                348
                                349
00257  20000600 P               350             LDA     ADDRESS         LOAD THE ADDRESS OF THIS BLOCK
00260  14200105 X               351             ENI     WRITE,X2        AND WRITE IT OUT
00261  14300263 P               352             ENI     *+2,X3
00262  01000537 P               353             UJP     UDIOX
00263  25300142 X               354             LDAQ    ACCNUM,PSA      LOAD THE ACCOUNT NUMBERS
00264  00700522 P               355             RTJ     UDSRCH          SEARCH FOR THIS COMBINATION
00265  04400000                 356             ASE,S   0               WE HAVE TO FIND THE ENTRY
00266  00000266 P               357             HLT     *               OTHERWISE HOW DID HE LOG ON
00267  20300172 X               358             LDA     SFBLKS,PSA      LOAD THE TOTAL SAVED FILE SPACE
00270  31377777 X               359             SBA     ISFBLKS,PSA     CALCULATE THE CHANGE IN SPACE
00271  30104006                 360             ADA     CORE+UDSFBLKS,X1 ADD IN THE INITIAL VALUE
00272  05400000                 361             ASG,S   0               PREVENT NEGATIVE TOTALS
00273  14600000                 362             ENA     0
00274  40104006                 363             STA     CORE+UDSFBLKS,X1 STORE TOTAL INTO THE DIRECTORY
00275  20000604 P               364             LDA     TOTAL           LOAD THE CPU EQUIVALENT
00276  40300056 X               365             STA     A,PSA
00277  12077774                 366             SHA     -3
```

```
00300  34104007          368                RAD       CORE+UDTIME,X1     UPDATE THE TOTAL PROCESSOR TIME
00301  20377777 X        369                LDA       UDBITS,PSA         TURN OFF THE NOISE MAKER IF THIS
00302  12000012          370                SHA       24-14              JOB NUMBER IS BEING WATCHED
00303  17600001          371                ANA       000018
00304  16477777          372                XOA,S     -0
00305  34077777 X        373                RAD       SCREAM
00306  20000600 P        374                LDA       ADDRESS
00307  14200260 X        375                ENI       WRITE,X2           REWRITE INTO THE DIRECTORY
00310  14300474 P        376                ENI       UDSRCH07,X3        ENTER THE RETURN ADDRESS
00311  01000536 P        377                UJP       UDIO
00312  01000000          377+001  SHIFTRAT  UJP       IMPURE             THIS ROUTINE FINDS THE SHIFT
00313  17700037          377+002            ANQ       37B
00314  14177777 X        377+003            ENI       NSHIFT,X1          IS IN Q UPON ENTRY.
00315  22400000 P  00000 0  377+004  SHFT.1  LACH      DAYSCHD,X1
00316  03700312 P        377+005            AQJ,LT    SHIFTRAT           RETURN--WE'VE FOUNT IT.
00317  02500315 P        377+006            IJD       SHFT.1,X1
00320  14100314 X        377+007            ENI       NSHIFT,X1          USE THE UPPER SCHEDULE IF OUT.
00321  01000312 P        377+008            UJP       SHIFTRAT           RETURN
```

```
                                      ********************************************************************************
                                      *                                                                              *
                                      *       LOG IN ROUTINE                                                         *
                                      *       ERROR CODES                                                            *
                                      *                                                                              *
                                      *       0       LEGAL JOB/USER CODE                                            *
                                      *       1       JOB NUMBER OUT OF TIME                                         *
                                      *       2       ILLEGAL JOB/USER CODE                                          *
                                      *       3       EXPERMENTAL OS3 IS RUNNING                                     *
                                      *                                                                              *
                                      ********************************************************************************

                                      UDSRCH05 EQU     *
00322   20300263 X                    LDA     ACCNUM,PSA              IS THE USER ALREADY LOGGED IN
00323   03300325 P                    AZJ,LT  *+2                     JUMP IF NOT
00324   00000325 P                    HLT     *+1                     WHAT DO WE DO NEXT
00325   25300276 X                    LDAQ    A,PSA                   LOAD THE JOB/USER NUMBER
00326   45300322 X                    STAQ    ACCNUM,PSA              SET THE ACCOUNT NUMBERS
00327   00700522 P                    RTJ     UDSRCH                  SEARCH THE USER DIRECTORY
00330   03100474 P                    AZJ,NE  NORMSYS                 JUMP IF NOT FOUND
00331   20300175 X                    LDA     SELECT,PSA              GET QUEUE NUMBER
00332   12077754                      SHA     -24+5                   GET THE ACTUAL QUEUE NUMBER
00333   16677777 X                    XOA     FASTQN                  COMPARE IT WITH THE FASTQ PNTR
00334   53600000                      TAI     X2                      X2=000008 IF FAST QUEUE
00335   20104006                      LDA     CORE+UDSFBLKS,X1
00336   40300267 X                    STA     SFBLKS,PSA              SET THE TOTAL SAVED FILE SPACE
00337   40300270 X                    STA     ISFBLKS,PSA
00340   20104002                      LDA     CORE+UDTIMLIM,X1
00341   31104007                      SBA     CORE+UDTIME,X1
00342   05477777 X                    ASG,S   FASTTMAX                SKIP IF USER MAX
00343   01000346 P                    UJP     *+3                     OTHERWISE SKIP CHECK
00344   05200001                      ISG     1,X2                    SKIP IF NOT IN FAST QUEUE
00345   14600342 X                    ENA     FASTTMAX                THEN SET IT TO THE MAXIMUM
00346   40377777 X                    STA     TIMLIM,PSA              SET THE ABSOLUTE TIME LIMIT
00347   03200355 P                    AZJ,GE  UDSRCHZ5                JUMP IF TIME IS LEFT
00350   12000001                      SHA     1                       IF USER IS 50% OVER HIS ORGINAL
00351   30104002                      ADA     CORE+UDTIMLIM,X1        TIME LIMIT REFUSE TO LET HIM
00352   03200355 P                    AZJ,GE  *+3                     LOG IN
00353   14100001                      ENI     1,X1                    ENTER THE ERROR CODE
00354   01000475 P                    UJP     UDSRCHX7
00355 P                               EQU     *       UDSRCHZ5
00355   20104003                      LDA     CORE+UDMFBLIM,X1
00356   05477777 X                    ASG,S   FASTMMAX                SKIP IF USER MAX MFBLKS
00357   01000362 P                    UJP     *+3                     OTHERWISE IGNORE THE CHECK
00360   05200001                      ISG     1,X2                    SKIP IF NOT THE FAST USER
00361   14600356 X                    ENA     FASTMMAX                THEN SET-TO MAXIMUM
00362   40377777 X                    STA     MFBLKLIM,PSA            SET THE SCRATCH FILE SPACE LIMIT
00363   20104004                      LDA     CORE+UDSFBLIM,X1
00364   40377777 X                    STA     SFBLKLIM,PSA            SET THE SAVE FILE SPACE LIMIT
00365   11700000        60000 0       ECHA,S  3000008
00366   37104005                      LPA     CORE+UDFLAGS,X1
00367   21300331 X                    LDQ     SELECT,PSA              FIND THE INPUT QUEUE NUMBER
00370   12400013                      SHQ     6+5
00371   17703700                      ANQ     037008                  SAVE JUST Q NUMBER
00372   53040000                      AQA
00373   16600000                      XOA     0+IMPURE        MESFLAG SET MESSAGE BIT FOR DATE
00374   40377777 X                    STA     RF77,PSA
00375   20104005                      LDA     CORE+UDFLAGS,X1         LOAD THE FLAGS WORD AGAIN
00376   21300145 X                    LDQ     SYSCODE,PSA             GET SYSTEM CODE
00377   12400004                      SHQ     23-19                   BATCH BIT TO POST
00400   05500000                      QSG,S   0                       SIP IF NOT BATCH
00401   17477756                      ANA,S   -17                     TAKE AWAY BATCH USERS PRIORITY
00402   40300301 X                    STA     UDBITS,PSA              AND SAVE IN THE PSA
00403   12000013                      SHA     23-PRIVBIT              CHECK THE BIT
00404   00300406 P                    SJ3     *+2                     JUMP IF CHECKING NOT NEEDED
00405   03300474 P                    AZJ,LT  UDSRCH07                JUMP FOR FAIL TEST
00406   12000027                      SHA     24+PRIVBIT-14+1         CHECK SCREAM BIT
00407   17600001                      ANA     1                       MASK TO 1 BIT
00410   03000431 P                    AZJ,EQ  UDSRCHX5                JUMP IF ALRIGHT
00411   34000305 X                    RAD     SCREAM                  THE CONSOLE
00412   20077777 X                    LDA     BUSY                    MAKE SURE THE MESSAGE CAN BE OUTP
00413   14700012                      ENQ     10                      ONLY TEN MESSAGES BACKED UP
00414   03600431 P                    AQJ,GE  UDSRCHX5                DON≠T PRINT THIS ONE BUT SCREAM
00415   11002424 P      00505 0       ECHA    STARS
00416   14700020                      ENQ     STARSL
00417   77730000                      VFD     A12/DINT
00420   14200422 P                    ENI     *+2,X2                  ENTER THE RETURN
00421   01077777 X                    UJP     OPMSG
00422   14200424 P                    ENI     *+2,X2                  ENTER THE RETURN
```

```
00423  01077777 X          441                 UJP       ACCPRINT          PRINT OUT THE JOB/USER NUMBER
00424  11002424 P  00505 0  442                 ECHA      STARS
00425  14700020            443                 ENQ       STARSL
00426  14200430 P          444                 ENI       *+2,X2
00427  01000421 X          445                 UJP       OPMSG
00430  77740000            446                 VFD       A12/EINT
00431  14600000            447       UDSRCHX5  ENA       0                 INDICATE LEGAL JOB/USER NUMBER
00432  44377777 X          448       UDSRCH06  SWA       I1,PSA            SET THE USERS INDEX 1
00433  14477777 X          449                 ENA,S     NMSWAIT
00434  34300024 X          450                 RAD       IOBOUND,PSA       CLEAR THE MASS STORAGE WAIT
00435  53010037            450+001             TMQ       DATE              GET THE CURRENT DATE
00436  00700312 P          450+002             RTJ       SHIFTRAT          GET THE SHIFT NUMBER FOR HIM.
00437  53100000            450+003             TIA       X1                AND PUT IT IN THE ACCSTUFF WORD
00440  12000026            450+004             SHA       22                AND PUT IT IN THE ACCSTUFF WORD
00441  21300130 X          450+005             LDQ       ACCSTUFF,PSA      GET ACCSTUFF POINTER
00442  17777777            450+006             ANQ       77777B            THROWAWAY OLD RATE SCHED
00443  53040000            450+007             AQA                         ADD TOGETHER
00444  40300441 X          458                 STA       ACCSTUFF,PSA
00445  14700000            459                 ENQ       0
00446  53600000            461                 TAI       X2
00447  20200000            462                 LDA       0,X2              CHECK FOR A BATCH JOB
00450  04600000            463                 ASE       0
00451  41600000            464                 STQ,I     0,X2              ZERO THE CARD COUNTER
00452  14100006            465                 ENI       8-1-1,X1          CLEAR ALL BUT THE FIRST WORD
00453  41200001            466                 STQ       1,X2
00454  15200001            467                 INI       1,X2
00455  02500453 P          468                 IJD       *-2,X1
00456  20300002 X          469                 LDA       T1,PSA            LOAD THE NEXT LINK OF THE QUEUE
00457  14177777 X          470                 ENI       ZLIST,X1          ZERO OUT THE APPROPRIATE COUNTERS
00460  41377777 X          471                 STQ       ZLOC,PSA
00461  15300001            472                 INI       1,PSA
00462  02500460 P          473                 IJD       *-2,X1            LOOP UNTIL DONE
00463  14700002            474                 ENQ       2
00464  41377777 X          475                 STQ       MFBLKSMZ,PSA
00465  53700000            476                 TAI       PSA               SET THE PSA INDEX
00466  47300576 P          477                 STI       UDPSA,PSA         SET THE CURRENT PSA ADDRESS
00467  77730000            478                 VFD       A12/DINT          PREVENT INTERFERENCE
00470  03100056 P          479                 AZJ,NE    UDSRCH04          JUMP IF MORE IN THE QUEUE
00471  47000575 P          480                 STI       UDQUEUE,0         CLEAR THE QUEUE POINTER
00472  14300550 P          481                 ENI       UDPFRSTR,X3
00473  01077777 X          482                 UJP       GIVBUFFP
                           483
       00474  P            484       UDSRCH07  EQU       *
00474  14100002            485       NORMSYS   ENI       2+IMPURE,X1       ERROR CODE 2/3  ILLEGAL NUMBER
       00475  P            486       UDSRCHX7  EQU       *
00475  20077777 X          487                 LDA       BIT23
00476  35300326 X          488                 SSA       ACCNUM,PSA        INDICATE USER IS
00477  40300476 X          489                 STA       ACCNUM,PSA        NOT LOGGED ON
00500  14600002            490                 ENA       2
00501  40300346 X          491                 STA       TIMLIM,PSA        SET THE TIME LIMIT AND THE
00502  40300362 X          492                 STA       MFBLKLIM,PSA      SCRATCH FILE SPACE LIMIT
00503  53100000            493                 TIA       X1                ERROR CODE TO A
00504  01000432 P          494                 UJP       UDSRCH06
                           495
00505  54545454            496       STARS     BCD       4,*******^*******^
       00020               497       STARSL    EQU,C     *-STARS
```

```
00511  14101000          500      UDSRCH08 ENI      WPFB,X1          ENTER THE LENGTH OF THE BLOCK
00512  20300477  X       501      UDSRCH09 LDA      ACCNUM,PSA       LOAD THE ACCOUNT NUMBER
00513  14577777          502               ENQ,S    77777B           SEARCH ON ALL BITS
00514  06004000          503               MEQ      CORE+UDACC,8     SEARCH FOR THE NUMBER
00515  01000553  P       504               UJP      UDSRCH11         NOT FOUND IN THIS BLOCK
00516  25300512  X       505               LDAQ     ACCNUM,PSA       LOAD ALL 48 BITS WORTH
00517  33104000          506               SBAQ     CORE+UDACC,X1    AND CHECK THEM
00520  13400000          507               SCAQ
00521  03100512  P       508               AZJ,NE   UDSRCH09         JUMP IF NOT A COMPLETE MATCH
00522  01000000          509      UDSRCH   UJP      IMPURE
                         510
                         511      *        THE FOLLOWING IS THE SCATTER FUNCTION FOR THE USER DIRECTORY
                         512
00523  53040000          513               AQA
00524  50000574  P       514               MUA      UDHASH
00525  53040000          515               AQA
00526  00000526          516      UDSELECT VFD      A9/IMPURE,A15/*+IMPURE,A24/IMPURE
                         517
00530  21077777  X       518      UDSRCH10 LDQ      UDLENGTH
00531  03700533  P       519               AQJ,LT   *+2
00532  14600000          520               ENA      0
00533  40000600  P       521               STA      ADDRESS
00534  14200065  X       522               ENI      READ,X2
00535  14300511  P       523               ENI      UDSRCH08,X3
00536  30077777  X       524      UDIO     ADA      USERDIR
          00537  P       525      UDIOX    EQU      *
00537  13000030          526               SHAQ     24
00540  77650001          527               PFA      PFLOC+PFR
00541  12000011          528               SHA      9
00542  13000030          529               SHAQ     24
00543  14101000          530               ENI      WPFB,X1
00544  47300573  P       531      UDIOZ    STI      UDIOEND,X3       SAVE THE CONTINUATION ADDRESS
00545  14300564  P       532               ENI      UDIOWAIT,X3      RETURN TO THE COMPLETION ROUTINE
00546  77730000          533               VFD      A12/DINT
00547  00777777  X       534               RTJ      FINK             CALL THE MASS STORAGE DRIVER
00550  14600000          535      UDPFRSTR ENA      IMPURE
00551  77640001          536               APF      PFLOC+PFW        RESTORE THE PAGE FILE WORD
00552  01000000          537      UDEXIT   UJP      IMPURE           EXIT
00553  20004000          538      UDSRCH11 LDA      CORE+UDACC
00554  03100560  P       539               AZJ,NE   *+4
00555  40300336  X       540               STA      SFBLKS,PSA       CLEAR THE SAVE FILE SPACE COUNTER
00556  14600001          541               ENA      1                NON-EXISTANT ACCOUNT/USER CODE
00557  01000522  P       542               UJP      UDSRCH
00560  20000600  P       543               LDA      ADDRESS          LOAD THE CURRENT BLOCK NUMBER
00561  15600001          544               INA      1                ADVANCE TO THE NEXT BLOCK
00562  01000530  P       545               UJP      UDSRCH10         AND TRY AGAIN
00563  00777777  X       546               RTJ      MACHERR          IRRECOVERABLE ERROR
00564  77740000          547      UDIOWAIT VFD      A12/EINT         ENABLE THE INTERRUPTS
00565  47300552  P       548               STI      UDEXIT,X3        SAVE THE RETURN ADDRESS
00566  54300576  P       549               LDI      UDPSA,PSA        LOAD THE PSA INDEX
00567  77650001          550               PFA      PFLOC+PFR
00570  44000550  P       551               SWA      UDPFRSTR         SAVE THE PAGE FILE WORD
00571  13000017          552               SHAQ     15
00572  77640001          553               APF      PFLOC+PFW        LOAD THE PAGE FILE WORD
00573  01000000          554      UDIOEND  UJP      IMPURE           CONTINUE PROCESSING
                         555
                         556
00574  00000000          557      UDHASH   VFD      A24/IMPURE       SCATTER FUNCTION CONSTANT
00575  00000000          558      UDQUEUE  VFD      09/000,A15/IMPURE END PSA POINTER
00576  00000000          559      UDPSA    VFD      09/000,A15/IMPURE CURRENT PSA POINTER
00577  77777777          560      EXPAND   VFD      024/77777777,A24/IMPURE,024/40000000
          00600  P       561      ADDRESS  EQU      EXPAND+1
          00601  P       562      FM       EQU      EXPAND+2
00602                    563      ACCWORDS BSS      2
          00603  P       564      POSITION EQU      ACCWORDS+1
00604                    565      TOTAL    BSS      1
                         566
00605                    566+001  RATEFACT BSS      1                FACTOR FOR SHIFT CHARGING.
```

```
                                572       *****************************************************************************
                                573       *                                                                           *
                                574       *       THE FOLLOWING TABLE CONTAINS CONVERSION FACTORS FOR A ROUGH         *
                                575       *       APPROXIMATION OF JOB COST   ITALICS CN ROUGH                        *
                                576       *                                                                           *
                                577       *       TABLE VALUES ARE (UNITS * 2 ↑12) PER CENT                           *
                                578       *                                                                           *
                                579       *       ENTRIES IN THIS TABLE ARE IN THE SAME ORDER AS THEY ARE IN           *
                                580       *       THE ACCOUNTING RECORDS                                              *
                                581       *                                                                           *
                                582       *****************************************************************************
                                583
                                584                 MACRO     ,,PAR
                                585                 NAME      CHARGE
                                586                 DEC       ($PAR(2)*2↑12 BYTE $PAR(1))/$PAR(1)
                                587       .*
                                588                 END
                                589
                                591
                     00606 P    592       COST      EQU       *
                                593       *
                                595       *                                             CPU SECONDS
                                595                 CHARGE    30000,3600000           $300.00 PER 3600000 MSEC
00606  01700000                 585                 DEC       (3600000*2↑12 BYTE 30000)/30000
                                586       .*
                                596       *                                             WALL CLOCK TIME
                                597                 CHARGE    200,3600                $2.00 PER 3600 SEC
00607  00220000                 585                 DEC       (3600*2↑12 BYTE 200)/200
                                586       .*
                                598       *                                             LINE PRINTER RECORDS
                                599                 CHARGE    125,1000                $1.25 PER 1000 LINES
00610  00100000                 585                 DEC       (1000*2↑12 BYTE 125)/125
                                586       .*
                                600       *                                             PUNCHED CARDS
                                601                 CHARGE    250,1000                $2.50 PER 1000 CARDS
00611  00040000                 585                 DEC       (1000*2↑12 BYTE 250)/250
                                586       .*
                                602       *                                             PLOTTER RECORDS
                                603                 CHARGE    100,510                 $1.00 PER 510 RECORDS
00612  00050631                 585                 DEC       (510*2↑12 BYTE 100)/100
                                586       .*
                                604       *                                             INPUT CARDS READ
                                605                 CHARGE    150,1000                $1.50 PER 1000 CARDS
00613  00065252                 585                 DEC       (1000*2↑12 BYTE 150)/150
                                586       .*
                                606       *                                             TAPE DRIVE ACTIVITY
                                607                 CHARGE    3,1000                  $0.03 PER 1000 MSEC
00614  05152525                 585                 DEC       (1000*2↑12 BYTE 3)/3
                                586       .*
                                608       *                                             SPECIAL INPUT RECORDS
                                609                 CHARGE    50,100                  $0.50 PER 100 RECORDS
00615  00020000                 585                 DEC       (100*2↑12 BYTE 50)/50
                                586       .*
                                610       *                                             PAPER TAPE PUNCH RECORDS
                                611                 CHARGE    50,100                  $0.50 PER 100 RECORDS
00616  00020000                 585                 DEC       (100*2↑12 BYTE 50)/50
                                586       .*
                                612       *                                             REMOTE LINE PRINTER RECORDS
                                612+001             CHARGE    50,1000                 0.05 FOR 100 RECORDS
00617  00240000                 585                 DEC       (1000*2↑12 BYTE 50)/50
                                586       .*
                                614       *                                             USER DISK PACK TIME
                                615                 CHARGE    750,3600                $7.50 PER 3600 SEC
00620  00046314                 585                 DEC       (3600*2↑12 BYTE 750)/750
                                586       .*
                     00013      616       COSTL     EQU       *-COST
                                617
                                618
                     00310      619       SPSERCHR  EQU       200                     NUMBER OF RECORDS TO CHARGE FOR
                                620       *                                             SPECIAL HANDLING FOR SPECIAL
                                621       *                                             INPUT RECORDS
                                622
                                623
                     40433      624       TPMNTCHG  EQU       16667                   $.50 FOR TAPE MOUNTING
                                625
                                626
                     00310      627       PTPCHRG   EQU       200                     $1.00 FOR PAPER TAPE HANDLING
                                628
```

```
                                629
                                630
04540                           630     MSFCHRG  EQU     2400            $5.00 FOR DISK PACK MOUNTING


00621 76527557                  630+002 FORMFLAG OCT     76527557        FIRST WORD OF FORMS RECORDS
                                669             END

NO LINES WITH ERRORS
```

```
    A                   X          16      203 00056P      366 00276P      396 00325P
  * ABORT               X          17
    ACC01                    00116P  235     215 00072P
    ACC02                    00120P  237     234 00115P
    ACC08                    00233P  324     310 00215P
    ACCCLR                   00223P  316     321 00230P
    ACCLOOP                  00237P  330     348 00256P
    ACCMEQ                   00212P  307     323 00232P
    ACCNUM              X          18      205 00060P      253 00142P      355 00263P      393 00322P      397 00326P      488 00476P
                                                489 00477P      501 00512P      505 00516P
    ACCO3                    00140P  241+12  241+10 00136P
    ACCO4                    00141P  241+13  241+1 00125P
    ACCPRINT            X          19      441 00423P
    ACCSTUFF            X          20      171 00017P      241+4 00130P    450+5 00441P    458 00444P
    ACCWORD                  00000   71      173 00021P      316 00223P
    ACCWORDS  E              00602P  563     564 00604P        7 00000P      208 00063P      224 00103P
    ADDRESS                  00600P  561     209 00064P      351 00257P      374 00306P      521 00533P      543 00560P
    BIT19               X          21      257 00146P
    BIT23               X          22      487 00475P
  * BLKR                     00005   88
    BUSY                X       22+1    434+1 00412P
  * CBP                      00003   76
    CNBLK                    00000   87      162 00006P      163 00007P
    CORE                     04000   78       79 00000P      225 00104P      236 00117P      361 00271P      364 00274P      368 00300P
                                            404 00335P      407 00340P      408 00341P      412 00351P      417 00355P      419 00363P
                                            422 00366P      429 00375P      503 00514P      506 00517P      538 00553P
    COREP                    00002   73       76 00000P
    COREXX                   04003   79      241 00124P      254 00143P      261 00152P      263 00154P      268 00161P      270 00163P
                                            272 00165P      276 00171P      279 00174P      282 00177P      285 00202P      305 00210P
                                            319 00226P      330 00237P      341 00250P
    COST                     00606P  592     616 00621P      346 00254P
    COSTL                    00013   616     329 00236P      346 00254P
  * CPP                      00004   77
    DATE                     00037   90      240 00123P      450+1 00435P
    DAYSCHD   E              00000P  105+1     11+1 00000P   377+4 00315P
    DINT                     07773   74      178 00025P      222 00101P      437 00417P      478 00467P      533 00546P
    EINT                     07774   75      446 00430P      547 00564P
    EPP                      00006   90      163 00007P
    EXPAND                   00577P  560     561 00602P      562 00602P      227 00106P
    FASTMMAX            X       24+2    417+1 00356P    417+4 00361P
    FASTQN              X       22+2    399+3 00333P
    FASTTMAX            X       24+1    408+1 00342P    408+4 00345P
    FINK                X          23      534 00547P
    FLAGS               X          24      180 00027P      181 00030P
    FM                       00601P  562     235 00116P
    FORMFLAG  E              00621P  630+2     6 00000P
    GETBLK              X          25      223 00102P
    GETBUFF             X          26      190 00041P
    GIVBUFFP            X          27      482 00473P
  * HIGHHOUR            X          28
  * HSILOC              X          29
    HSITAB              X          29      309 00214P      312 00217P
    HSITABL             X          29      306 00211P
  * HTCR                     00004   208
  * HTFILE                  00001   205
  * HTLP                    00002   206
  * HTMASK                  00017   219
  * HTMAX                   00016   218
  * HTMSF                   00014   216
  * HTMT                    00005   209
  * HTNULL                  00010   212
  * HTPLOT                  00007   211
  * HTPTP                   00015   217
  * HTPUN                   00003   207
  * HTRAF                   00012   214
  * HTTASK                  00013   215
  * HTTTY                   00006   210
  * HTTV                    00011   213
    I1                  X          30      448 00432P
    IMPURE                   00000   76      231 00112P      241+13 00141P   377+1 00312P    427 00373P      485 00474P      509 00522P
                                            516 00526P      516 00526P      516 00527P      535 00550P      537 00552P      554 00573P
                                            557 00574P      558 00575P      559 00576P      560 00600P
    IOBOUND             X          31      177 00024P      450 00434P
    ISFBLKS             X          32      360 00270P      406 00337P
    LOG       E              00001P  154       8 00000P
  * LOWHOUR             X          28
  * LP                       00001   72
    LPREC               X          33      262 00153P
    LPTAB               X          34      169 00015P
```

```
    LPTABL      X              35      165 00011P
    MACHERR     X              36      546 00563P
    MESFLAG   E   00373P       427       9 00000P
    MFBLKLIM    X              37      418 00362P      492 00502P
    MFBLKSMZ    X              38      475 00464P
    MSFCHRG   E   04540        630       10 00000P
    MSFTIME     X              39      271 00164P
    MSWAIT      X              40      176 00023P
    NMSWAIT     X              41      449 00433P
    NORMSYS   E   00474P       485       42 00000P      399 00330P
    NSHIFT      X            41+1    377+3 00314P    377+7 00320P
    NU            00035        89      283 00200P
    07777777    X            42+1    336+1 00244P
    OPMSG       X              43      439 00421P      445 00427P
    PFLOC         00001        77       78 00000P      198 00051P      202 00055P      220 00077P      232 00113P      527 00540P
                                         536 00551P      550 00567P      553 00572P
    PFR           00000        80      198 00051P      220 00077P      527 00540P      550 00567P
    PFW           00000        81      202 00055P      232 00113P      536 00551P      553 00572P
    PLOTREC     X              44      264 00155P
    POSITION      00603P      564      213 00070P      217 00074P      238 00121P
    PRIVBIT       00014      87+1    430+1 00403P    430+4 00406P
    PSA           00003        86      158 00002P      171 00017P      177 00024P      184 00033P      187 00036P      193 00044P
                                         201 00054P      203 00056P      205 00060P    241+4 00130P      253 00142P      256 00145P
                                         259 00150P      260 00151P      275 00170P      277 00172P      278 00173P      280 00175P
                                         327 00235P      355 00263P      359 00267P      360 00270P      366 00276P      369 00301P
                                         393 00322P      396 00325P      397 00326P    399+1 00331P      405 00336P      406 00337P
                                         409 00346P      418 00362P      420 00364P      423 00367P      428 00374P    429+1 00376P
                                         430 00402P      448 00432P      450 00434P    450+5 00441P      458 00444P      469 00456P
                                         471 00460P      472 00461P      475 00464P      476 00465P      477 00466P      488 00476P
                                         489 00477P      491 00501P      492 00502P      501 00512P      505 00516P      540 00555P
                                         549 00566P
    PTPCHRG   E   00310        627       11 00000P
    PTPREC      X              45      269 00162P
    RATEFACT      00605P     566+1   241+12 00140P    339+1 00247P
    RATETAB     X            45+1    241+3 00127P    241+9 00135P
    READ        X              46      210 00065P      522 00534P
  * REGRATES      00251P       342
    RF60        X              47      331 00240P
    RF77        X              48      428 00374P
  * RPSAPTR     X              49
    SCREAM      X              50      373 00305P      434 00411P
    SELECT      X              51      280 00175P    399+1 00331P      423 00367P
    SFBLKLIM    X              52      420 00364P
    SFBLKS      X              53      277 00172P      359 00267P      405 00336P      540 00555P
    SHFT.1        00315P     377+4   377+6 00317P
    SHIFTRAT  E   00312P     377+1    11+2 00000P    241+2 00126P    377+5 00316P    377+8 00321P    450+2 00436P
    SPSERCHR      00310        619      318 00225P
    STARS         00505P       496      497 00511P      435 00415P      442 00424P
    STARSL        00020        497      436 00416P      443 00425P
    SWBIT       X              54      179 00026P
  * SYSCM       X              55
    SYSCODE     X              56      256 00145P    429+1 00376P
  * SYSVAL      X              57
    T1          X              58      158 00002P      469 00456P
    T2          X              59      194 00045P
    TERMINAL    X              60      278 00173P
  * TFL           00007        97
    TIMLIM      X              61      409 00346P      491 00501P
    TOTAL         00604P       565      274 00167P      347 00255P      365 00275P
    TOTALTIM    X              62      260 00151P
    TPMNTCHG  E   40433        624       12 00000P
    TXTOTAL     X              63      275 00170P
    UDACC         00000        94      503 00514P      506 00517P      538 00553P
    UDBITS      X              64      369 00301P      430 00402P
    UDEXIT        00552P       537      186 00035P      192 00043P      196 00047P      548 00565P
    UDFLAGS       00005        98      422 00366P      429 00375P
    UDHASH    E   00574P       557       13 00000P      514 00524P
    UDIO          00536P       524      377 00311P
    UDIOEND       00573P       554      531 00544P
    UDIOWAIT      00564P       547      532 00545P
    UDIOX         00537P       525      212 00067P      354 00262P
    UDIOZ         00544P       531      230 00111P
    UDLENGTH    X              65      518 00530P
    UDMFBLIM      00003        96      417 00355P
    UDPFRSTR      00550P       535      199 00052P      481 00472P      551 00570P
    UDPSA         00576P       559      187 00036P      201 00054P      327 00235P      477 00466P      549 00566P
    UDQUEUE       00575P       558      183 00032P      184 00033P      480 00471P
    UDSELECT  E   00526P       516       14 00000P
    UDSFBLIM      00004        97      419 00363P
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        UDSFBLKS        00006          99      361 00271P      364 00274P      404 00335P
        UDSRCH          00522P        509      356 00264P      398 00327P      542 00557P
        UDSRCH01        00044P        193      185 00034P
        UDSRCH02        00047P        196      188 00037P
        UDSRCH03        00055P        202      191 00042P
        UDSRCH04        00056P        203      479 00470P
        UDSRCH05        00322P        392      204 00057P
        UDSRCH06        00432P        448      494 00504P
        UDSRCH07        00474P        484      376 00310P    430+3 00405P
        UDSRCH08        00511P        500      523 00535P
        UDSRCH09        00512P        501      508 00521P
        UDSRCH10        00530P        518      545 00562P
        UDSRCH11        00553P        538      504 00515P
        UDSRCHX5        00431P        447      207 00062P    430+6 00410P    434+3 00414P
        UDSRCHX7        00475P        486      415 00354P
        UDSRCHZ5        00355P        416      410 00347P
        UDTIME          00007         100      368 00300P      408 00341P
        UDTIMLIM        00002          95      407 00340P      412 00351P
        UDXPF           00112P        231      221 00100P
        USERDIR      X                  66      524 00536P
      * USRNUM        X                  67
        WCTIME       X                  68      259 00150P
        WPF3            01000          82      214 00071P      233 00114P      500 00511P      530 00543P
        WRITE        X                  69      226 00105P      352 00260P      375 00307P
        X1              00001          83      159 00003P      161 00005P      162 00006P      163 00007P      173 00021P      183 00032P
                                               185 00034P      194 00045P      213 00070P      214 00071P      219 00076P      228 00107P
                                               233 00114P      236 00117P      241 00124P    241+1 00125P    241+3 00127P    241+8 00134P
                                             241+9 00135P    241+13 00141P      254 00143P      261 00152P      263 00154P      268 00161P
                                               270 00163P      272 00165P      276 00171P      279 00174P      282 00177P      285 00202P
                                               300 00203P      305 00210P      306 00211P      312 00217P      326 00234P      330 00237P
                                               341 00250P      343 00251P      361 00271P      364 00274P      368 00300P    377+3 00314P
                                             377+4 00315P    377+6 00317P    377+7 00320P      404 00335P      407 00340P      408 00341P
                                               412 00351P      414 00353P      417 00355P      419 00363P      422 00366P      429 00375P
                                             450+3 00437P      465 00452P      468 00455P      470 00457P      473 00462P      485 00474P
                                               493 00503P      500 00511P      506 00517P      530 00543P
        X2              00002          84      168 00014P      169 00015P      172 00020P      174 00022P      182 00031P      186 00035P
                                               195 00046P      196 00047P      210 00065P      218 00075P      226 00105P    241+5 00131P
                                               262 00153P      264 00155P      265 00156P      267 00160P      269 00162P      271 00164P
                                               301 00204P      319 00226P      325 00233P      329 00236P      346 00254P      348 00256P
                                               352 00260P      375 00307P    399+4 00334P    408+3 00344P    417+3 00360P      438 00420P
                                               440 00422P      444 00426P      461 00446P      462 00447P      464 00451P      466 00453P
                                               467 00454P      522 00534P
        X3              00003          85       86 00000P      211 00066P      229 00110P      313 00220P      314 00221P      315 00222P
                                               316 00223P      331 00240P      332 00241P      353 00261P      376 00310P      481 00472P
                                               523 00535P      531 00544P      532 00545P      548 00565P
        XLOG            00023P        175      160 00004P
        XREQEND      X                  70      182 00031P
        ZLIST        X                  71      470 00457P
        ZLOC         X                  72      471 00460P
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