

TTY IDENT H18 2/14/68

* ENTRY POINTS

ENTRY TTYE4G, TTYASG, TTYTBL, ET0, TTND, FULST
ENTRY TDS5
ENTRY TTYT14, TTYOFF
ENTRY TTYBUF, CLCW
ENTRY ATIS2, ATIS4, ATIS5, ATTBUF
ENTRY TSOFF, TTI, TDI, ATII, TSONI
ENTRY FTCL, FTCD, ISIC, OSIC
ENTRY CIB, COB, SKI, DJB, CET, RDET
ENTRY MSGS, LKKS, LKNC
ENTRY SET3P, CLR3P, GAIX
ENTRY TFI, TNI

* TABLES INDEXED BY TELETYPE NUMBER

* TIS2, TIS4, TIS5, TDS2, TDS3 HAVE BEEN MOVED TO THE IO PACKAGE

* TDS OUTPUT BUFFER POINTER

TTYTBL BSS NTTB

* ECHO TABLE AND ASSORTED FLAGS

SETTYTB EQU TTYTBL+NTTB

TTYASG BSS NTTB

* TTY OWNERSHIP STATUS

TTYT14 BSS NTTB

* TIME AT LAST RUBOUT

* JOB - TELETYPE INDEX

TTND BSS NJDB

SETTND EQU TTND+NJDB-1

FULST ZRD 0

* TELETYPE ECHO TABLES

VECHR EQU 0

ECHRWD EQU 0

ET0 BSS 0

* ECHO EVERYTHING, BREAK ON EVERYTHING

ECHR 0

ECHB 201, 6, 0

ECHR -207

ECHB 201, 2, 0

ECHR -212

ECHB 201, 2, 0

ECHR 215

ECHB 201, 13, 0

ECHB 240, 64, 1

ET1 BSS 0

* ECHO EVERYTHING, BREAK ON PUNCS AND CTRLS

ECHR 0

ECHB 201, 6, 0

ECHR 207

ECHB 201, 2, 0

ECHR 212

ECHB 201, 2, 0

ECHR 215

ECHB 201, 13, 0

ECHR 240

ECHB 241, 15, 1

ECHB 060, 10, 1

```

      ECHB 272,7,1
      ECHB 101,26,1
      ECHB 333,5,1
ET2   BSS 0
* ECHO EVERYTHING, BREAK ON CTRLS ONLY
      ECHR 0
      ECHB 201,6,0
      ECHR 207
      ECHB 201,2,0
      ECHR 212
      ECHB 201,2,0
      ECHR 215
      ECHB 201,13,0
      ECHB 040,64,1

```

```

ET3   BSS 0
* ECHO NOTHING, BREAK ON EVERYTHING
      ECHR 0
      ECHB 201,95,0
      FORGT NECHR,ECHRWD

```

```

* TELETYPE BUFFERS
      TTYMG DATA TTYGM
LTTY EQU VTTY*NTTYC+NTTY+2*NLTTTC+2
LTTY01 EXT LTTY-1 INITIALIZATION PARAMETERS
ITTBLEXT 400000000B+ET0+LISB
TTYBUF EQU 30000B
* TELETYPE I/O BUFFER

```

```

* 'TII' 1/30/66 - 49 CYCLES
*
* THIS ROUTINE PROCESSES TELETYPE INPUT INTERRUPTS, AND PUTS THE
* CHARACTERS INTO A BUFFER FOR THE 204 INTERRUPT TO PROCESS

```

```

TIIA ZRD
* SAVE (A)
      IF -AR4F
TII B ZRD
      ENDF
TII X ZRD
* SAVE (X)
TII S1 ZRD
* TELETYPE 'PIN' WORD
TII S2 ZRD
* INPUT CHAR AND TELETYPE NO.
TII S4 ZRD
* ECHO
TII C1 1 TII P
*
TII ZRD
TII S TII S
      PIN TII S1
      STA TII A
      IF -AR4F
      SIB TII B
      ENDF

```

```

STX      TIIK
LDK      TII S1
CLA
COPY     KA, E
SKG      =NTTY-1
BRU      **2

```

(ILLEGAL TTY INP)

```

* FILE CHARACTER FOR ATII
MIN      ATIS5
LDA*     ATIS5
SKA      =200B
ADM      ATIS5
STX*     ATIS5
MIN      ATIS2
IF       AR4F
AR4I     SATIW
ELSF     1
BR4      ATII
ENDF

TII 4   LDA      TIIA
        IF       -AR4F
        LDB      TII B
        ENDF
        LDK      TIIK
        EIR
        BRI      TII

```

```

*
* 'ATII' 15/18/66
*
* THIS ROUTINE IS STARTED BY A PERMANENTLY ACTIVE
* LOW-PRIORITY INTERRUPT TO FINISH UP FOR TII
*

```

```

ATIS2    ZR0
* ATII RING BUFFER COUNTER
ATIS4    ZR0
* ATII READOUT POINTER
ATIS5    ZR0
* WRITEIN POINTER
ATTBUF   BSS      15
ATTBE    DATA    -15
* RING BUFFER
        IF       AR4F
ATIIA    ZR0
* SAVE (A)
ATII B   ZR0
* SAVE (B)
ATIIK    ZR0
* SAVE (K)
$SATIW   DATA    234000B
* AR4 ATII INT
RATIW    DATA    573777B
* DISAR4 ATII INT
        ENDF
*

```

```

IF      AR4F
ATTR   ZRD
ATII   ZRD
SENT319 ARMI   RATIW
        SKN CLINTI; BRU CLINTA
        SKN   ATIS2
        BRU *+3; EIR
        BRI   ATII
        STA   ATIIA
        STB   ATII3
        SIX   ATIIK
        ELSF  1
ATII   ZRD
        SKN   ATIS2
        BRU   *+2
        BRR   ATII
        ENDF
        LDA =600B; XMA RRL3; LRR3; POT RRL3; STA ATTR
ATIII  ARMI   RATIW
        MIN   ATIS4
ATIII1A LDA*   ATIS4
        SKE   ATTBE
        BRU   ATII2
        ADI   ATIS4
        BRU   ATIII1A
ATIII2 STA   TII2
        COPY  AX,AB,A
        LCI   3
        SKN   TTYTBL,2
        BRU   TII6
ATIII3 ETR   =177B
        SKE   =177B
        BRU   *+2
        BRU   ATIK
        SKE   =33B
        BRU   *+2
        BRU   TII3
        SKE   =175B
        BRU   TII1
* PROCESS RUBOUT
TII3   LDA   REAL
        MRG   =40000000B
        XMA   TTYTIM,2
        SKA   =40000000B
        BRU   *+2
        BRU   ATR3
        SUB   TTYTIM,2
        CVA
        SKG   =3
        SKG   =-1
        BRU   *+3
        LDA   =-1
        STA   TTYTIM,2
* SEARCH P.U. QUEUE

```

```

ATR3   CXA
      ETR       =77B
      CAB; LDA TIC1; DIR; BRM EPU
ATIX   SKR       ATIS2
      BRU       ATIF1
      IF        ARMF
      LDA ATRR; STA RRL3; LRR3; PJT RRL3
      LDA       ATIIA
      LDB       ATIIB
      LDX       ATIIK
      SKN CLINTI; BRU CLINTA
      EIR
      BRI       ATII
      ELSF      1
      BRR       ATII
      ENDF
* NOT SPECIAL
TII1   LDB       TTYTBL,2
      SKB       =LISB
      BRU       ATIX
      MUL       =12525253B
      ADD       TTYTBL,2
      CAX
      LDX       0,2           (ECHO WORD IN X)
      LCY       5
      ETR       =30B         (SHIFT IN A)
      CJPY      KB,AX
      LCY       3,2
      CLB
      RCY       3           (ECHO IN B)
      LDX       TII S2
      CXA
      ADD       X3
      ETR       =37600000B
      SKB       =37400000B
      BRU       TII1B       (ECHO AND FILE)
      SKB       =37600000B
      BRU       TII0        (FILE W/O ECHO)
      BRU       TII1A       (IGNORE EXCEPT FOR BREAK)
* NEEDS ECHO
TII1B  STB       TII S4
      SKN       LCM,2
      BRU       TII3B       (DEFER ECHO)
TII1D  SKN       TDS2,2
      BRU       TII3B       (TYPING, DEFER)
      STA       TII S2
      LDA       TII S2,2
      SKE       =0
      BRU       TII3A       (CHECK PREV DEFER)
TII1C  DIR; LDA TDS5,2; LCY 13; ADD =1000000B; RCY 13; STA TDS5,2
      LDA* TDS5,2
TII9   RCY       16
      LDB       TII S4
      LCY       16

```

```
STA*   TDS5,2
EIR
4IN    TDS2,2
LDA    =140000B
CJPY   XA,E
XMA    TUIS4
TTY5
PJT    TUIS4
CAB
BRU    *+2
```

* FILE IN BUFFER

```
TII0   STA    TUIS2
LDA    TIS4,2; LCY 18; ADD =1000000B; RCY 18; STA TIS4,2
LDA*   TIS4,2
ETR    =77600377B
CVA
ADD    TUIS2
AD4*   TIS4,2          (SAVE OUTPUT CHAR)
4IN    TIS2,2
LDA    TIS2,2
SKE    =VTTC
BRU    TII7B
DIR
LDA    TTYTBL,2      INPUT BUFFER OVERFLOW
MRG    =LISB
BRU    *+3
```

TII7 DIR
* RECORD BREAK

```
LDA    TTYTBL,2
ETR    =57777777B
EIR
STA    TTYTBL,2
4IN    ACR
BRU    TII7A
TII7B  SKG    =VTTC-TTYEW
BRU    TII1A
SKG    =VTTC-TTYEW4
BRU    TII7
DIR
LDA    TTYTBL,2
SKA    =11000000B
BRU    TII7+2
ETR    =46577777B
MRG    X1
EIR
STA    TTYTBL,2
4IN    ACR
LDA    =140000B
CJPY   XA,E
STA    TUIS4
TTY5
PJT    TUIS4
BRU    TII7A
TII1A  SKB    XA
```

```

      BRU      TII7      (BREAK CHAR)
TII7A LDA      REAL
      ETR      XX
      STA      TTYT14,2
      BRJ      ATIX
TII6  LDB      TTYTBL,2
      SKB      =3R3
      BRJ      *+2
      BRU      ATII3      (N) 3-LEVEL IN)
      RCY      3
      LDB      =77600000B
      SKA      TII52
      BRU      TII2

```

* 8-LEVEL EOF

```

      DIR
      LDA      TTYTBL,2
      ETR      =01374000B
      SKA      =3PB
      BRU      *+2
      ETR      X4
      ARG      =EIO
      EIR
      STA      TTYTBL,2
TII2  LDA      TII52
      ETR      =77600000B
      CLB
      BRJ      TII0      (N) CONV OR ECHO)

```

```

TII3A LDA      TII52
      LDB*     TII54,2
      SKB      =177B
      BRU      TII3B      (PREV DEFER)
      BRJ      TII1C
TII3B RCY      3
      LDB      TII54
      LCY      3
      ETR      =37600177B
      LDB      X4
      BRU      TII0

```

*
* 'ISDN', 'RPAV' 3/20/66

* THIS ROUTINE, ENTERED FROM THE PHANTOM USER, PROCESSES RUBOUTS

```

*
TIP   LDX      FILE
      STX      UTTY
      SKN      TTYASG,2
      BRU      ISDN

```

* NORMAL RUBOUT

```

RPAV  LDX      UTTY
      LDA      TTYTK4,2
      SKA      =-1
      BRU      TIP6

```

* EMERGENCY -- RETURN TO EXEC

```

      LDA      REAL

```

```

    STA     TTYTIM,2
    LDX     TTYASG,2
    BRM     EFK
    STX     PUPAC
TIP6  LDX     PUPAC
    LDA     =2000000B
    BRM     IIR
    BRU     **2
    BRU     PUG)          (INT ARMED AND CAUSED)

```

* RUBOUT INTERRUPT NOT ARMED

* CLEAR INPUT BUFFER

```

    LDX     UTTY
    DIR
    LDB     TISS,2
    STB     TIS4,2
    CAB
    LDA     TTYTBL,2
    ETR     =(NOT)LISB
    STA     TTYTBL,2
    COPY    BA,B
    STB     TIS2,2
    EIR
    LDK     PUPAC
    BRM     RFX
    BRM     TFX

```

(TERM AFFECTED BY STRUCTURE)

* CLEAR OUTPUT BUFFER FOR EXEC PRGGS

```

    LDX     PUPAC
    SKN     POU,2
    BRJ     PUG)
    LDX     UTTY
    BRM     CLOB
    BRU     PUG)

```

* UNUSED TELETYPE

* START UP NEW USER (FROM TSO)

```

TSO)A  LDA     FULST
    STA     JOB
    CAX
    LDA     FILE
    XMA     TTND,2
    STA     FULST

```

* START UP EXEC FOR THIS USER

```

    BRM     GFK
    BRM     RCVR
    LDA     =NUMEM
    MUL     JOB
    LSH     23
    STX     PUPAC
    LDX     JOB
    ADD     TSOVC4
    STA     TSOVT1
    SUB     =VC4EM+NUMEM

```



```

STA      PMTJOB
ADD      =-200000000B+NCMEM
STA      PMTP,2
LDA      =UMSZ*1000000B+NUMEM
STA      PMA,2
LDA      =NCMEM
STA      RL3,2
CLA
LDX      =-NUMEM
STA*     TSOVT1
BRX      *-1
LDA      =OSBND*8; SUB JOB; CLB; LSH 6; MRG =BIT2+BIT8
LDX      =NCMEM; STA* PMTJOB
LDX      PUPAC
BRM      SETPAC
BRU      PUGJ
TSOVC2  DATA  57010607B
TSOVC3  DATA  0
TSOVC4  ZR0    PMT,2
TSOVT1  ZR0
TSOVC1  ZR0    TSOVI

```

* SET UP NEW PAC SLOT
 \$SETPAC ZR0

```

CLA
LDB      JOB
LSH      39
ADD      =EXECL
MRG      X4
STA      PTAB,2
LDA      X1; STA P14,2; LDA PUPAC
LDX      FILE; STA TTYASG,2
LDA      TTYTBL,2
ETR      =(NOT) LISB
STA      TTYTBL,2
LDA      PUPAC
LDX      =QSQ
BRM      QPUT
LDX      PUPAC
LDA      TSOVC1
STA      PL,2
LDA      TSOVC2
STA      RL1,2
LDA      TSOVC3
STA      RL2,2
LDA      PACD4B
STA      PTEST,2
LDA      =400000000B+VFQU*1000000B
STA      PQJ,2
BRM      SETPAC

```

*
 TSOV EQU TSOVA
 TSOVI LDA UTTY
 MRG =24076400B

```

    STA    **+1
    BRU    *
    BRU    TSDN4:
    IF     -C04
    LDA    =-1
    STA    S4IFIL
    STA    S4DFIL
    ENDF
    LDA    =4BUFX
    STA    FBWRD
    BRU    EXECI,4
TSDN4 LDX JOB; SBRS 112
*
* 'TSOFF' 378766
*
* TURN OFF A TELETYPE STATION
*
TSOFF SKN    PDU,2
      BRU    TRAP
      LDA    SS03
      SKG    =NJ03
      SKG    =0
      BRU    TRAP
      COPY   AK,B
      X1A    FULST
      X1A    ITN),2
      COPY   AK
      SKN    TTYASG,2
      BRU    TRAP
      STA    TTYDF1; ADD =1; LDX =-NTTB; LSH 16; LDB =37600000B
      DIR ; SK4 LCWE,2; BRU TSOFF5; CIA ; EIR ; ADM LCWE,2; BRX *-6
TSOFF6 LDX TTYDF1
      LDX    TTYASG,2
      CXA
      ADD    =PPTR
      X1A    FPLST
      STA    PPTR,2
      STX    SS01
      LDX    TTYDF1
      BR1    TDOFF
      CLX
TSOFF3 LDA    ITN),2
      SKG    SS03
      BRU    TSOFF4
      LDA    =-1
      STA    ITN),2
TSOFF4 EAX    1,2
      CXA
      SKG    =NTAPE
      BRU    TSOFF3
      LDX    SS03; LDA =(N)D)BIT7
      DIR; ETR* P4TP,2; EIR; STA* P4TP,2
      LDA =BIT4+BIT5; SKA* P4TP,2; BRU *-1
      LDA RRL3; ETR =37B; XKA; SKN ER4T,2; BRU *-1; CAX

```

```

CLAB; XMA* R4TP,2; STB R4TP,2; SKA =BIT3; BRU TSOFF7
TSOFF3 LDA SS03; SKA JOB; BRU POPX; BRU PAC60
TSOFF7 ETR =37B; CAX; STB R4T,2; BRU TSOFF3
TSOFF5 EIR; BRK TSOFF6-7; BRU TSOFF6

```

* 'TDI' P. DEUTSCH 9/13/65

* THIS ROUTINE PROCESSES TELETYPE OUTPUT INTERRUPTS.

```

*
TDIA ZR0
* SAVE (A)
TDIB ZR0
* SAVE (B)
TDIX ZR0
* SAVE (X)
TDIS2 ZR0
* TELETYPE NO.

```

```

*
TDI ZR0
TTYS; PIN TDIS2; STX TDIX; LDX TDIS2
SKN TDS2,2; BRU *+2; BRU TDI7
STA TDIA
STB TDIB
LDA TTYTBL,2
SKA =102000000B
BRU TDI3

```

```

TDI2 LDA TDS4,2; LCV 13; ADD =10000000B; RCV 13; STA TDS4,2
DIR; LRR3; PGT =600B; LDA* TDS4,2; EIR; LRR3; PGT RRL3
LCV 3
ETR =776000000B

```

```

TDI5 SKR TDS2,2
EOR =400000B
LDB TDIB
ADA TDIS2
TTYS
PGT TDIS2
LDA TDS2,2
SKG TTYE4G
4IN ACTR
LDA TDIA

```

```

TDI7 LDX TDIX
EIR
BRI TDI

```

```

TDI3 SKA =2000000B
BRU TDI4
4IN TDS2,2
EOR =110000000B
STA TTYTBL,2
LDA =446000000B
BRU TDI5
TURN OFF READER

```

```

TDI4 LDB LCV,2
SKB =1400000B
BRU TDI6
4IN TDS2,2
ETR =66577777B

```

```

STA TTYTBL,2
LDA =4200000B TURN ON READER
BRU TDI5
TDI6 LDA =-40000B
AD4 LCN,2
CVA
BRU TDI5+2

```

```

*
* 'TNI' 10/12/66
* THIS ROUTINE PROCESSES DATA SET READY ON INTERRUPTS
*

```

```

TNI5 0
TNI6 0
TNI7 0
TNI8 0
TNI9 ZR0
TNI10 TTY5
TNI11 PIN TNI5
TNI12 STA TNI6
TNI13 STB TNI8
TNI14 STX TNI8
TNI15 LDA TNI5
TNI16 ETR =778
TNI17 SKG =VTTY/1
TNI18 BRU *+2
TNI19 BRU TNI1
TNI20 CAX
TNI21 SKN TTYASG,2 ACTIVE USER?
TNI22 BRU *+2 NO
TNI23 BRU TNI6
TNI24 CKB
TNI25 LDA REAL
TNI26 ADD =240 TIME DELAY OF 4 SECONDS
TNI27 STA TTYT14,2
TNI28 LDA TNI2
TNI29 DIR
TNI30 BR4 EPU

```

```

TNI31 LDA TNI6
TNI32 LDB TNI8
TNI33 LDX TNI8
TNI34 EIR
TNI35 BRI TNI
TNI36 STA TNI5; MRG DSRTST; STA *+2; LDA =120000B
TNI37 SKS* 36400B,2; LDA =100000B; ADM TNI5
TNI38 TTY5; PDI TNI5; BRU TNI1
TNI39 TDI2 10 *+1; LDX FILE; SKN TTYASG,2; BRU *+2; BRU PUG0
TNI40 CKA; MRG CPTST; STA TNI4; EJR =600B; STA TNI3
TNI41 TNI4 SKS* 36200B,2; BRU *+2; BRU TIP; LDA =120000B
TNI42 TNI3 SKS* 36400B,2; LDA =100000B; ADM FILE
TNI43 TTY5; PDI FILE; BRU PUG0
$CPTST SKS* 36200B,2
$DSRTST SKS* 36400B,2

```

```

*
```

* 'TFI' 10/12/66

* THIS ROUTINE PROCESSES DATA SET READY OFF INTERRUPTS

*

```
TFIS 0
TFIA 0
TFIB 0
TFIX 0
TFI 2R0
  TTYS
  PIV TFIS
  STA TFIA
  STB TFIB
  STX TFIX
  LDA TFIS
  EIR =77B
  SKG =NTTY-1
  BRU *+2
  BRU TFI1
  COPY AX
  SKN TTYASG,2
  BRU TFI2
  COPY AB
  ARG =120000B
  STA TFIS
  TTYS
  POT TFIS
  LDA REAL
  STA TTYTIM,2
  LDA =-1; STA TDS3,2; SKN TDS2,2; BRU *+2; BRU TFI4
  DIR; STA TDS2,2; LDA TDS4,2; STA TDS5,2; EIR
TFI4 CXB; LDA TFI3; DIR; BRM EPU
  BRU TFI1
TFI2 ARG =100000B ACTIVATE CHANNEL
  SKN DOWN SHUTTING DOWN?
  ARG =20000B
  STA TFIS
  TTYS
  POT TFIS
TFI1 LDA TFIA
  LDB TFIB
  LDX TFIX
  EIR
  BRM TFI
TFI3 9 *+1
  LDX FILE
  SKN TTYASG,2; BRU PUG)
  LDX TTYASG,2
  LDA PL,2; SKE =TSONI; BRU *+2; BRU PUG)
  BRM EFX
  STX PUPAC; BRM RFX; BRM TFX
  LDA PACDMB
  BRM QSCH
  LDA =EXECT+40000000B
  STA PL,2
```

```

CXA
LDX      =QSO
BR4      QPUT
BRU      PUGJ

```

```

*
* 'TI' 9/26/65 - 31 CYCLES NORMALLY

```

```

* THIS ROUTINE GETS A CHARACTER FROM TELETYPE (X), OR CREATES
* A 'PTEST' WORD IF THIS IS NOT POSSIBLE. IT ALSO PROCESSES
* DELAYED ECHOS.

```

```

* TIS1 ZRO
* SAVE CHAR WHILE TYPING ECHO

```

```

* TI ZRO
LDA      TIS2,2
SKG      =0
BRU      TI3

```

```

TIS LDA TIS5,2; LCY 13; ADD =1000000B; RCY 13
STA TIS5,2; DIR; LRR3; PGT =600B
LDB* TIS5,2; EIR; LRR3; PGT RRL3
CLA
LCY      3
STA      TIS1
SKB      =77400B
BRU      TI1

```

```

TI7/ DIR
LDA      TTYTBL,2
ETR      =(NOT) LISB
EIR
STA      TTYTBL,2
LDA      TIS1
SKR      TIS2,2
BRR      TI

```

```

TI4 EJR      =1200000B
STA      TTYTBL,2
LDA      =140000B
EIR
ADM      LCW,2
COPY     XA,E
STA      TI3

```

```

TTYS
PGT      TI3
BRU      TI6

```

```

TI8 ZRO      0

```

```

* DISMISS

```

```

TI3 LDA      X2
DIR
MRG      TTYTBL,2
SKA      =1000000B
BRU      TI4
EIR
STA      TTYTBL,2

```

```

TI6   CKA
      ETR      =77B
      ADD      =11000000B+TI7TBL
      CAB
      MOV      TI
      BRR      TI

```

* PRINT DELAYED ECHO

```

TI1   LCY      16
      LDB      =1
      BR4      TD
      BRU      TI7
      LDX      TDS3
      LDA TISS,2; LCY 13; SUB =10000000B; RCY 13; STA TISS,2
      MIN      TI
      BRR      TI

```

* 'TCI', 'FTCI', 'IST', 'ISTC', 'LFU', 'LFI' 6/28/66

* THIS IS THE USER INTERFACE FOR TELETYPE INPUT

```

TCI   POPD     17400000B,1,1,0,1
TCIP  STB      SS02
      STX      SS03
      LDX      UTTY
      BR4      TI
      BRU      TCIP1

```

```

TID4S LDX =0TI; BRU POPD4S
TID4S EQU TID4S

```

```

TCIP1 LDX      SS03
      STA*     0
      LDB      SS02
      BRU      XPOP
FTCI  LDX      UTTY
FII   BR4      TI
      BRU      *+2
      BRU      TID4S
      STA      T
      BRR      GPW

```

```

IST   POPD     15000000B,1,1,0,1
ISTP  STB      SS02
      STX      SS03
      LDA*     0
      BR4      GATX
      BRU      TRAP
      BR4      TI
      BRU      *+2
      BRU      TID4S
      LDB      SS02
      LDX      SS03
      BRU      XPOP

```

```

ISTC  LDA      UNIT
      BR4      GATX
      BRU      TRAP
      BRU      FII

```

*
* 'STI' 2/6/66

*
* SIMULATE TELETYPE INPUT

*
STI POPD 136000000,1,1,0,1

STIP1 SIA SS01

STB SS02

STX SS03

LDA* 0

SKG =-1

LDA UTTY

STA UNIT

COPY AX,3

LDA TTYTBL,2

SKA =ALB

BRU STIP1

LDX PACPTR

SKN POU,2

BRU TRAP

LDX UNIT

STIP1 LDA =NTTYC-TTYEW4; SKG TIS2,2 DISMISS IF BUFFER NEARLY FULL

BRU STIP2

LDA SS01

LSH 16

MRG UNIT

ADD X1

CAX

DIR

IF -ARMF

LDA SS01

SKA =137B

BRU STIP3

LDA TIC1

LDB UNIT

DIR

BRU EPU

BRU POPX

STIP3 EQU *

ENDF

MIN ATIS5

LDA* ATIS5

SKA =200B

AD4 ATIS5

EIR

STX* ATIS5

MIN ATIS2

IF ARMF

AR4 SATIW

ELSF 1

DIR

BR4 ATII

EIR

GNDF


```

BRU      POPX
STIP2    CXA
        ADD      LTIS2
        CAB
        BRU      TLD04S

```

```

*
* 'T)' 9/26/65
*
* THIS ROUTINE TYPES OUT THE CHARACTER (A) ON TELETYPE (X),
* CREATING A 'PTEST' WORD IF THIS IS NOT POSSIBLE. IT TAKES
* CARE OF LINKED TELETYPES AS WELL.
*

```

```

TDS1     ZR0
* OUTPUT CHAR FOR STARTING UP TELETYPE
TDS3     ZR0
* TELETYPE 'T)' WAS CALLED FOR
TDS9     ZR0
* NUMBER OF CHARACTERS TO PRINT
*

```

```

TL4B     ZR0      0
T0        ZR0
        STB      TDS9
        LDB      T0
        STB      TDL3
        STX      TDS8
        ETR      =377B
        MUL      =200B
T01       LDA      =NTTYC
        SUB      TDS9
        SKG      TDS2,2
        BRU      T04
        SKN      LCW,2
        BRU      TDL1

```

```

* NO FULL BUFFER
T07       DIR; LDA TDS5,2; LCY 18; ADD =1000000B; RCY 18
        STA TDS5,2; LRR3; P0T =600B; LDA* TDS5,2
        ETR =77600377B; COPY AX,BX,KB; COPY BX,KA
        STA* TDS5,2; MIN TDS2,2; EIR; LRR3; P0T RRL3
        LDA      =140000B
        COPY     KA,E
        STA      TDS1
        TTY5
        P0T     TDS1
        BRR     TDL3

```

```

* FULL BUFFER
T04       CXA
        ETR      =77B
        ADD      L1TDS2
        CAB
        MIN      T0
        BRR      T0

```

```

* CHECK FOR LINKS
TDL1     STB      TL4B
        BRM      TDL2

```

```

LDX LCW,2
BR1 TOL2
LDX TDS3
BR1 TOL3
LDX LCW,2
BR1 TOL3
LDX TDS3
BRR TD
TOL2 ZR0
LDA =NITYC
SUB TDS9
SKG TDS2,2
BRU TD4
BRR TOL2
TOL3 ZR0
LDB TLM8
BRU TD7

```

```

*
* 'TDF', 'TCD', 'FTCD', 'OST', 'OSTC', 'LFD' 6/28/66
*
* THIS IS THE USER INTERFACE FOR TELETYPE OUTPUT
*

```

```

TDF ZR0
SKN TTYTBL,2
BRU TDF4
TDF5 LDB TDS3,2
SKB K4
BRU TDF1
SKB K2
STA TDS3,2
TDF2 SKR TDS3,2
BRU *+2
BRR TDF
LDB =1
LDA =240B
BR1 TD
BRU TDF2
MIN TDS3,2
BRU TID04S
TDF1 SKB =135B
BRU TDF3
LDA K2
STA TDS3,2
BRR TDF
TDF4 LDB TTYTBL,2
SKB =3PB
BRU TDF3A
BRU TDF5
TDF3 ETR =177B; SKB =144B; BRU *+2; BRR TDF; ADD =240B
TDF3A LDB =1
BR1 TD
BRR TDF
BRU TID04S

```

```

TCJ POPD 17500000B,1,1,0,1
TCJP STA SS01
      STB SS02
      SIX SS03
      LDA* 0
      LDK UTTY
      BRM TDF
      BRU POPX
FTCJ LDK UTTY
      LDA T
FTJ BRM TDF
      BRR GPW
OST POPD 15100000B,1,1,0,1
OSTP STA SS01
      STB SS02
      SIX SS03
      LDX* 0
      BRM GLTT
      LDA SS01
      BRM TDF
      BRU POPX
OSTC LDK UNIT
      BRM GLTT
      LDA SS01
      ETR =377E
      STA T
      BRU FTJ

```

```

*
*
* 'CIB', 'COB', 'SKI', 'DOB', 'CET', 'RDET' 10/13/65
*
* THESE ROUTINES MANIPULATE TELETYPE BUFFERS AND ECHO TABLES.
*

```

```

CIB BRM GATT
      DIR
      LDA TIS5,2
      STA TIS4,2
      LDA TTYTBL,2
      ETR =(ND)DISB
      STA TTYTBL,2
      CLA
      ETR
      STA TIS2,2
      BRU POPX
COB BRM GATT
      BRM CLDB
      BRU POPX
SKI BRM GATT
      LDA TIS2,2
      SKG =0
      MIN 0
      BRU POPX
DOB BRM GATT
      SKN TIS2,2

```

```

BRU      *+2
BRU      POPX
CXA
ADD      L2TDS2
CAB
LDX      =QID
BRU      POPDMS
CET      BR4      GATT
LDA      SS01
SKG      =-1
BRU      CET1
SKA      =(ND)3
BRU      TRAP
CLB
LSH      5
ADD      =ET0
CET2     DIR
KMA      TTYTBL,2
ETR      =37740000B-3RB-3PB
ADD      TTYTBL,2
STA      TTYTBL,2
SKA      =3RB
BRU      *+3
LDA      K4
AD4      TTYTBL,2
ETR
BRU      POPX
CET1     ETR      =377B
MRG      =3RB
BRU      CET2
RDET     BR4      GATT
LDA      TTYTBL,2
SKA      =3RB
BRU      RDET1
SUB      ?ET0
EFR      AD4SK
RSH      5
RDET2    STA      SS01
BRU      POPX
RDET1    ETR      =377B
MRG      K4
BRU      RDET2

```

```

*
* 'MSGs', 'ASTT', 'RSTT' 1/30/66
*

```

```

* THESE ROUTINES CHANGE THE ACCEPT MESSAGES BIT AND ASSIGNMENT
* STATUS OF TELETYPES
*

```

```

MSGs     BR4      GATT
          CLA
          LDB      SS01
          SKB      =1
          LDA      =AIB
          SKB      =2

```

```

MRG      =AMB
DIR
KMA      TTYTBL,2
ETR      =(NOT)AMB(AND)(NOT)AIB
EIR
ADM      TTYTBL,2
BRU      RDPK

```

```

*
* 'TTOFF', 'GATT', 'GLTT', 'CJOB' 1/30/66
*

```

```

* THESE ROUTINES TURN TELETYPES OFF, AND CHECK THE LEGALITY OF
* I/O AND LINK REQUESTS
*

```

```

TTOFF ZR)
LDA     ADMK
STA     TTYASG,2
LDA     =ITIBL
STA     TTYTBL,2
LDA     =TTXFF1
KMA     0
STA     TTOFF1
BRU     LNKC+1

```

```

TTOFF1 ZR)
LDA     TTOFF1
STA     0
LDA     T
MRG     =24076400B
STA     *+2
LDA     =120000B
BRU     *
LDA     =100000B
SKN     DOWN
LDA     =120000B
MRG     T
STA     TTOFF1
TTYS
POT     TTOFF1
BRU     TTOFF

```

```

DE-ACTIVATE CHANNEL
DATA SET READY?
RE-ACTIVATE CHANNEL
DE-ACTIVATE CHANNEL

```

```

* (A)=TELETYPE NUMBER
* (B)=+ TURN ON.....- TURN OFF

```

```

TTYOFF SKN     PDU,2
BRU     TRAP
SKG     =VTTY-1
SKG     =-1
BRU     TRAP
SKE     UTTY
BRU     *+2
BRU     TRAP
LDA     =120000B
SKN     SS02
LDA     =100000B
MRG     SS01
STA     TTYOFF1
TTYS

```

```

      PDI      TTYDF1
      BRU      POPX
TTYDF1 ZR0
SGATT  ZR0
      LDA      SS03
      BR4      GATX
      BRU      TRAP
      BRR      GATT
GATX   ZR0
      SKG      =NTTY-1
      SKG      =-2
      BRU      TRAP
      SKG      =-1
      LDA      UTTY
      LDX      PACPTR
      LDB      PDU,2
      CAX
      SKE      UTTY
      SKB      X4
      MIN      GATX
      BRR      GATX
GLTT   ZR0
      CXA
      BR4      GATX
      BRU      TRAP
      BRR      GLTT
CJOB   ZR0

```

```

      LDA =-1; STA TOS3,2; SKN TOS2,2; BRU ++2; BRR CJOB
      DIR; STA TOS2,2; LDA TOS4,2; STA TOS5,2; EIR; BRR CJOB

```

```

*
* 'SET3P', 'CLR3P' 10/18/65
*
* THESE ROUTINES IMPLEMENT THE SPECIAL, FULL 3 LEVEL TELETYPE
* OUTPUT
*

```

```

SET3P  BR4      GATT
      DIR
      LDA      TTYTBL,2
      MRG      =8PB
      ETR      =37777777B
      EIR
      STA      TTYTBL,2
      BRU      POPX
CLR3P  BR4      GATT
      DIR
      LDA      TTYTBL,2
      ETR      =(NOT)3PB
      MRG      X4
      SKA      =3RB
      ETR      =37777777B
      EIR
      STA      TTYTBL,2
      BRU      POPX

```

```

*
```

* 'LVKC', 'LVKS' 2/6/66

*
* CLEAR, RECOMPUTE, AND SET LINKS

```
*  
LVKC  LDX  UTTY  
      SIX  T  
      BRU  LVKS3  
LVKS  SKG  =NTTY-1  
      SKG  =-1  
      BRU  TRAP  
      SKV  POU,2  
      BRU  TRAP  
      COPY AX  
      LDA  LCW,2  
      ETR  =77B  
      SKV  LCW,2  
      BRU  LVKS1  
      LDA  TTYTBL,2  
      SKA  =3RB+3PB  
      BRU  LVKS1  
      SKA  =112000000B  
      BRU  LVKS1  
      SKA  =A4B  
      BRU  LVKS2  
LVKS1 STA  SS01  
      DIR  
      LDA  LCW,2  
      ETR  =40140177B  
      RSH  16  
      MRG  UTTY  
      ADD  =1  
      LSH  16  
      EIR  
      STA  LCW,2  
      BRU  POPX  
LVKS2 LDA  UTTY  
      STA  T  
      MIN  0  
LVKS3 LDA  T  
      X4A  LCW,2  
      LDB  =NTTB+40000000B  
      XKA  
      STB  LCW,2  
      LDX  T  
      X4A  LCW,2  
      XKA  
      STB  LCW,2  
      BRU  POPX  
CLCW  LDX  UTTY; DIR ; LDA LCW,2; ETR =40177777B; EIR ; STA LCW,2  
      BRU POPX  
$TTYGD LDA TTCH1; STA 74B  
      CLA; LDX =-4000B; STA 34000B,2; BRX *-1  
      LDX =-NTTB; LDA =1000000B; STA TTCH  
      TTYS; POT TTCH; MIN TTCH; BRX *-3
```

ARMI AIRWD; BRU PACGDI

TTCH ZRQ

TTCH1 BR4 CLINT

END