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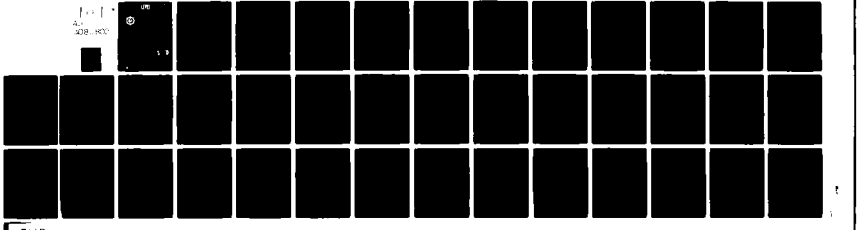

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The AN/TTC-39 Switch Simulator was developed for DCA by GTE-SYLVANIA under contract No. DCA100-76-C-0068. The Software was written in FORTRAN-IV for use on IBM System-360 or System-370. This manual describes the operation of the AN/TTC-39 Switch Simulation System as implemented on the DCEC Hybird Simulation Center in Reston, Virginia.

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TECHNICAL NOTE NO. 3-80

AN/TTC-39 SWITCH SIMULATOR

USER'S GUIDE

FEBRUARY 1980

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FOREWORD

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I. INTRODUCTION

The AN/TTC-39 Switch Simulator was developed for DCA by GTE-SYLVANIA under contract No. DCA100-76-C-0068. The Software was written in FORTRAN-IV for use on IBM System-360 or System-370. This manual describes the operation of the AN/TTC-39 Switch Simulation System as implemented on the DCEC Hybrid Simulation Center in Reston, Virginia. For a more detailed description of the simulator and instructions for the preparation of input data, the user is referred to the USER'S MANUAL (reference 1).

II. SYSTEM DESCRIPTION

The AN/TTC-39 Switch Simulator has been designed as an extension to the GASP-IV Simulation System. Some GASP procedures have been modified. The system is executed in three distinct steps: the Traffic Generation, the Model Execution, and the Post Simulation Analysis. Although the system can be operated in the batch mode (see Appendix B) it can more expediently be operated remotely from a TSO terminal. A command procedure library has been prepared that allows the TSO user to initiate each simulation step by entering a simple command. The command procedure will then generate the proper JCL cards and submit the job for background execution. Before any of these steps can be executed the three FORTRAN source modules must be compiled, and the link-edited load modules placed into dataset SYS9.TTC39.LOAD. A special TSO command has been provided for this task. While all steps can be executed in the background by the SUBMIT command the Traffic Generation step may also be executed in the foreground. A summary of all TSO commands is given in Figure 1 which also shows the input and intermediate datasets of each step.

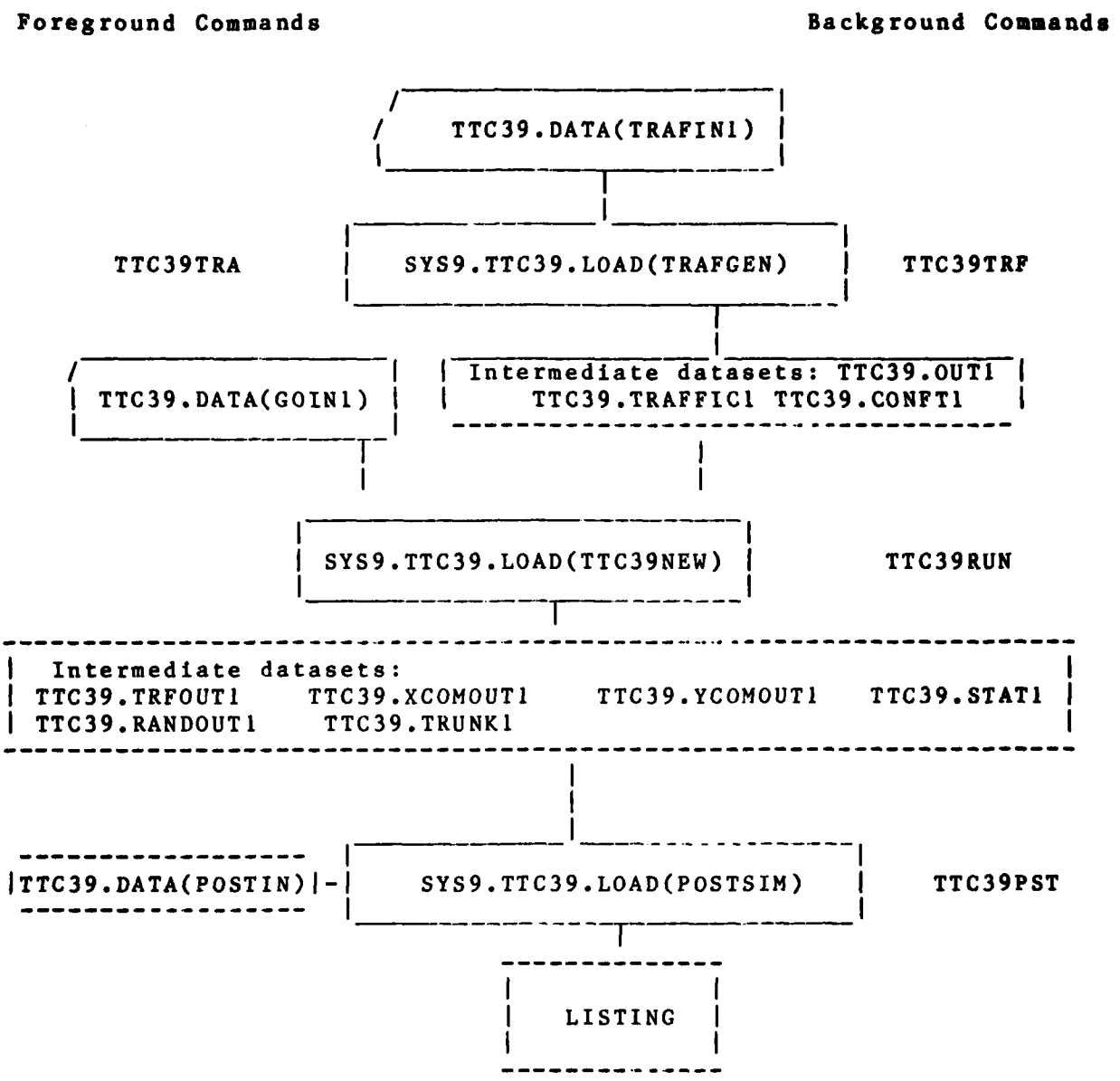

Figure 1. The TSO Command System

III. SYSTEM INITIALIZATION

To achieve good flexibility of the Simulation System the input/output data sets must be established on disc memory. This is automatically done whenever the SETUP command is executed. All necessary datasets that do not exist will then be created and cataloged. The SETUP command has the following format:

```
SETUP  SYS9.TTC39
```

This command will also concatinate all special TTC39 commands contained in partitioned dataset 'SYS9.TTC39.CLIST' with the regular TSO command list in dataset 'SYS1.CMDPROC'. The system will then respond with the following message:

```
*****************************************************************
*      THE TTC39 SIMULATION SYSTEM HAS BEEN INVOKED             *
*                                                               *
*---------------------------------------------------------------*
*                                                               *
*    THE HSF INSTALLATION PROVIDES THE FOLLOWING                *
*      COMMANDS FOR THE EXECUTION OF THE SYSTEM                 *
*                                                               *
*    TTC39CMP - TO COMPILE A MEMBER IN TTC39.FORT               *
*    TTC39TRF - TO GENERATE THE TRAFFIC FILE (BACKGROUND)       *
*    TTC39TRA - TO GENERATE THE TRAFFIC FILE (FOREGROUND)       *
*    TTC39RUN - TO EXECUTE THE MODEL (BACKGROUND)               *
*    TTC39PST - TO INVOKE POST ANALYSIS PROGRAM (BACKGROUND)    *
*    TTC39SIM - TO INVOKE ALL SIMULATION STEPS (BACKGROUND)     *
*    TTC39HLP - TO PROVIDE MORE INFORMATION ON EACH COMMAND     *
*****************************************************************
*        TTC39.DATA  HAS BEEN CREATED                           *
```

The last line is displayed only when the partitioned dataset TTC39.DATA is being generated. If the dataset had been catalogued previously, it will not be regenerated. This dataset accomodates the user prepared input data. Member TRAFIN1 contains input data for the Traffic Generator, GOIN1 input parameters for the GO step, and POSTIN input specifications for the report generation of the Post-Analysis step. For information concerning the preparation of these data the user is referred to the USER'S MANUAL (reference 1).

The associated command list is contained in member TTC39 of partitioned dataset SYS9.TTC39.CLIST and is shown in the following listing:

```
PROC 0,VOL(TSOWK4)
TPRINT '*************************************************************'
TPRINT '*    THE AN/TTC-39 SIMULATION SYSTEM HAS BEEN INVOKED      *'
TPRINT '*                                                          *'
TPRINT '*                                                          *'
TPRINT '*    THE HSF INSTALLATION PROVIDES THE FOLLOWING           *'
TPRINT '*      COMMANDS FOR THE EXECUTION OF THE SYSTEM            *'
TPRINT '*                                                          *'
TPRINT '*  TTC39CMP - TO COMPILE A MEMBER IN TTC39.FORT            *'
TPRINT '*  TTC39TRA - TO GENERATE THE TRAFFIC FILE (FOREGROUND)    *'
TPRINT '*  TTC39TRF - TO GENERATE THE TRAFFIC FILE (BACKGROUND)    *'
TPRINT '*  TTC39RUN - TO EXECUTE THE MODEL (BACKGROUND)            *'
TPRINT '*  TTC39PST - TO INVOKE POST ANALYSIS PROGRAM (BACKGROUND)*'
TPRINT '*  TTC39SIM - TO INVOKE ALL SIMULATION STEPS (BACKGROUND) *'
TPRINT '*  TTC39HLP - TO PROVIDE MORE INFORMTION ON EACH COMMAND  *'
TPRINT '*************************************************************'
FILESTAT TTC39.CNTL
SYSRC (EQ 0) GO TO LABEL 4
COPY 'SYS9.TTC39.CLIST(DUMMY)' TTC39.CNTL
FREE DA(TTC39.CNTL,'SYS9.TTC39.CLIST')
LABEL 4
FILESTAT TTC39.DATA
SYSRC (EQ 0) GO TO LABEL 5
ATTR A LRECL(80) RECFM(F B) BLKSIZE(1680)
ALLOC DA(TTC39.DATA) SP(60,60) BL(1680) DIR(5) U(A) VOL(&VOL.)
TPRINT '*         TTC39.DATA  HAS BEEN CREATED                   *'
FREE A(A)
COPY 'SYS9.TTC39.CLIST(TTC39GIN)' TTC39.DATA(GOIN1)  NONUM
COPY 'SYS9.TTC39.CLIST(TTC39TIN)' TTC39.DATA(TRAFIN1)  NONUM
COPY 'SYS9.TTC39.CLIST(TTC39PIN)' TTC39.DATA(POSTIN)  NONUM
FREE DA('SYS9.TTC39.CLIST',TTC39.DATA)
LABEL 5
FILESTAT TTC39SIN.DATA
SYSRC (EQ 0) GO TO LABEL 6
COPY 'SYS9.TTC39.CLIST(TTC39SIN)' TTC39SIN.DATA
TPRINT '*       TTC39SIN.DATA HAS BEEN CREATED                  *'
FREE DA(TTC39SIN.DATA)
LABEL 6
FILESTAT TTC39SLM.DATA
SYSRC (EQ 0) GO TO LABEL 93
COPY 'SYS9.TTC39.CLIST(TTC39SLI)' TTC39SLM.DATA NONUM
TPRINT '*       TTC39SLM.DATA HAS BEEN CREATED                  *'
FREE DA(TTC39SLM.DATA)
LABEL 93
END
```

IV. EXECUTING THE JOB STEPS

For each simulation step, one distinct TSO command has been created which requires the user to enter up to four mandatory keywords. The user can override some processing parameters by the optional keywords which are listed as follows:

```
IN(<member of input data set TTC39.DATA>)
OUT(<output class>)
R(<region size>)
TIME(<CPU time for this step>)
NO(<one character job name modifier>)
```

The available optional keywords and applicable defaults are listed under the individual job steps. However, the following two options are available for all command lists which generate JCL for background execution:

JCL(X) - for (X = EDIT) the user may first check and modify the JCL which is available at the terminal in the EDIT mode. The user may then submit the job by entering 'SUB *'. The default is X for immediate submission.

ROUTE(LOCAL) - This option allows remote users to specify the printer for remote printing (default LOCAL).

Before the job is submitted for background execution, all dataset names are displayed at the terminal. Except for the Compile Step the user is then asked to check the names. If all names are correct he may continue processing by entering 'YES'.

1. THE COMPILE STEP

The following command has been provided to generate the JCL for compiling the Traffic Generator, the Simulator, and the Post Analysis Program by remote job entry (see Appendix C):

TTC39CMP <your name> <your id> <task no.> <module name>

The system will invoke the Fortran-G Compiler and will take the source input from partitioned dataset:

TTC39.FORT(<module name>)

After compilation and link-editing, the load module is placed as member <module name> into the data set SYS9.TTC39.LOAD. The system will respond with the following message to the terminal, if the model TTC39NEW is compiled:

TTC39 LOAD MODULE SYS9.TTC39.LOAD(TTC39NEW) BEING CREATED

The following optional keywords and defaults are provided:

OUT(A)	-	default A for printer output. X,Y, or Z would send SYSPRINT output to OUTPUT class X, Y, or Z.
NO(0)	-	Job number modifier (default 0)

The command list is contained in partitioned dataset 'SYS9.TTC39.CLIST(TTC39CMP)' and is listed below:

```
PROC 4,N ID TASK MODEL OUT(A) NO(0) R(180) TIME(300) JCL(X) ORG()      -
ROUTE(LOCAL) LINES(10) FRM() HASP()
EDIT 'SYS9.SOL.CLIST(DUMMY)' CNTL
10 //&ID.C&NO.  JOB (&TASK.,&ORG.,&TIME.,&LINES.,&R.,&FRM.,&HASP.),&N.,
20 //          MSGLEVEL=(1,1),NOTIFY=&ID.,MSGCLASS=Q
30 /*ROUTE  PRINT &ROUTE.
40 //  EXEC FORTGCL,PARM.FORT='SOURCE,XREF,ID',REGION.FORT=&R.K,
50 //   REGION.LKED=130K
60 //FORT.SYSPRINT DD SYSOUT=&OUT.
70 //FORT.SYSIN DD DSN=&ID..TTC39.FORT(&MODEL.),DISP=SHR
80 //LKED.SYSLMOD DD DSN=SYS9.TTC39.LOAD(&MODEL.),DISP=SHR
90 //LKED.SYSPRINT DD SYSOUT=&OUT.
100 /*
TPRINT '*************************************************************'
TPRINT '*   LOAD MODULE SYS9.TTC39.LOAD(&MODEL.) BEING CREATED      *'
TPRINT '*  PRINTER OUTPUT IS CLASS(&OUT.) AND IS ROUTED TO &ROUTE. *'
TPRINT '*************************************************************'
IF (&JCL. EQ EDIT) GO TO LABEL 9
SUB
END LIST
LABEL 9
TPRINT 'EDIT'
```

2. THE TRAFFIC GENERATION STEP

The Traffic Generator will be invoked by the following command:

TTC39TRF <yourname> <your id> <task no.>

The following optional keywords and default are avalaible:

```
     NO(1)      - Job Id Modifier (Default 1)
     OUT(A)     - Output Class (Default A for printer)
     TIME(5)    - CPU time requested (Default 5 minutes)
TRAFIN(TRAFIN) - Input dataset specification (default TRAFIN)
```

The input data must be contained in a member of partitioned dataset TTC39.DATA. Its name is concatinated by the optional keywords TRAFIN and NO. The default name is TRAFIN1. The output dataset name is TTC39.TRAFFIC#, where # represents the number specified by optional keyword NO. The Command list contained in SYS9.TTC39.CLIST(TTC39TRF) is as follows:

```
PROC 3,N ID T NO(1) OUT(A) TIME(1) R(180) JCL(XXX) TRAFIN(TRAFIN)      -
ROUTE(LOCAL) LINES(5) FRM() HASP() ORG() LOAD(SYS9.TTC39.LOAD)
FILESTAT TTC39.TRAFFIC&NO.
SYSRC (EQ 0) GO TO LABEL 1
ATTR A LRECL(80) RECFM(F B) BLKSIZE(3120)
ALLOC DA(TTC39.TRAFFIC&NO.)  T SP(1,10) U(A)
FREE A(A)
FREE DA(TTC39.TRAFFIC&NO.)
LABEL 1
FILESTAT TTC39.CONFT&NO.
SYSRC (EQ 0) GO TO LABEL 91
ATTR A LRECL(800) RECFM(U) BLKSIZE(800)
ALLOC DA(TTC39.CONFT&NO.)  T SP(1,10) U(A)
FREE A(A)
FREE DA(TTC39.CONFT&NO.)
LABEL 91
FILESTAT TTC39.OUT&NO.
SYSRC (EQ 0) DELETE TTC39.OUT&NO.
TPRINT '*********************************************************'
TPRINT '*        AN/TTC39 TRAFFIC GENERATOR BEING INVOKED       *'
TPRINT '*              BACKGROUND EXECUTION                     *'
TPRINT '*-------------------------------------------------------*'
TPRINT '*  INPUT DATASET BEING USED IS:  TTC39.DATA(&TRAFIN.&NO.)  *'
TPRINT '*  OUTPUT DATASETS BEING USED ARE: TTC39.TRAFFIC&NO.     *'
TPRINT '*                                  TTC39.OUT&NO.        *'
TPRINT '*                                  TTC39.CONFT&NO.      *'
TPRINT '*-------------------------------------------------------*'
IF (&OUT. NE SAVE) GO TO LABEL 5
TPRINT '*  PRINTER OUTPUT WILL BE STORED IN DATASETS            *'
TPRINT '*  &ID..TRF&NO..OUTLIST AND &ID..SORT&NO..OUTLIST *'
```

```
GO TO LABEL 6
LABEL 5
TPRINT '* PRINT OUTPUT IS CLASS(&OUT.) AND IS SENT TO &ROUTE.       *'
LABEL 6
TPRINT '*************************************************************'
TPRINT ' THE FOLLOWING JOB CARD PARAMETERS ARE SPECIFIED:      '
TPRINT ' TIME = &TIME.00 SECS, REGION SIZE = &R.K, LINES = &LINES.00'
ASK '>>>> CHECK DATASET NAMES. DO YOU WANT TO CONTINUE ? <<<<<<<'
SYSRC (EQ 4) GO TO LABEL 9
EDIT TTC39 CNTL
DEL 20 10000
10 //&ID.T&NO.  JOB (&T.,&ORG.,&TIME.00,&LINES.,&R.,&FRM.,&HASP.),&N.,
20 //          MSGLEVEL=(1,1),NOTIFY=&ID.,MSGCLASS=Q
30 /*ROUTE  PRINT &ROUTE.
40 //TRAF EXEC PGM=TRAFGEN,REGION=&R.K,TIME=&TIME.
50 //TRAF.STEPLIB DD DSN=&LOAD.,DISP=SHR
60 //TRAF.FT01F001 DD DSN=&ID..TTC39.DATA(&TRAFIN.&NO.),
70 //      DISP=SHR,LABEL=(,,,IN)
80 //TRAF.FT06F001 DD SYSOUT=&OUT.
90 //TRAF.FT13F001 DD DSN=&ID..TTC39.OUT&NO.,UNIT=SYSTS,
100 //      DISP=(NEW,CATLG),SPACE=(TRK,(1,100)),
110 //      DCB=(LRECL=84,RECFM=VBS,BLKSIZE=3280)
111 //TRAF.FT12F001 DD DSN=&ID..TTC39.CONFT&NO.,UNIT=SYSTS,DISP=OLD
120 //TRAF.FT03F001 DD DSN=&&TRAFFIC,UNIT=SYSDA,DISP=(NEW,PASS),
130 //      SPACE=(CYL,(2,1)),
140 //      DCB=(LRECL=80,RECFM=FB,BLKSIZE=3120)
160 //SORT EXEC PGM=IERRCOOO,REGION=&R.K
170 //SYSOUT DD SYSOUT=&OUT.
180 //SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
190 //SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,5,,CONTIG)
200 //SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,5,,CONTIG)
210 //SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,5,,CONTIG)
220 //SORTIN DD DSN=&&TRAFFIC,UNIT=SYSDA,DISP=(OLD,DELETE),
230 //      DCB=(LRECL=80,RECFM=FB,BLKSIZE=3120)
240 //SORTOUT DD DSN=&ID..TTC39.TRAFFIC&NO.,UNIT=3330,DISP=(OLD,KEEP),
250 //      DCB=(LRECL=80,RECFM=FB,BLKSIZE=3120)
270 //SYSIN DD *
280      SORT FIELDS=(46,15,CH,A,1,5,FI,A)
290 /*
IF (&OUT. NE SAVE) GO TO LABEL 7
DE (TRF&NO..OUTLIST,SORT&NO..OUTLIST)
80 //TRAF.FT06F001 DD DSN=&ID..TRF&NO..OUTLIST,
81 //      UNIT=SYSTS,DISP=(NEW,CATLG),
82 //      SPACE=(1584,(100,600)),DCB=(LRECL=132,BLKSIZE=1584,RECFM=FBS)
170 //SYSOUT DD DSN=&ID..SORT&NO..OUTLIST,
171 //      UNIT=SYSTS,DISP=(NEW,CATLG),
172 //      SPACE=(1584,(100,600)),DCB=(LRECL=132,BLKSIZE=1584,RECFM=FBS)
LABEL 7
IF (&JCL. EQ EDIT) GO TO LABEL 9
SAVE TTC39
END LIST
SUBMIT TTC39.CNTL
LABEL 9
TPRINT 'EDIT    '
```

The Traffic Generator may also be invoked in the foreground by the following command:

```
**********************************
*  TTC39TRA  IN(<member name>)   *
**********************************
```

Two optional keywords, TRAFIN and NO, specify the member of partitioned dataset TTC39.DATA to be used as input. The same rules as for batch execution apply.

The following is a listing of the command list contained in dataset 'SYS9.TTC39.CLIST(TTC39TRA)':

```
PROC 0, NO(1) TRAFIN(TRAFIN) LOAD('SYS9.TTC39.LOAD(TRAFGEN)') -
VOL1(TSOWK1) VOL2(TSOWK2) VOL3(TSOWK3) PR(*)
FREE A(A)
FREE F(FT01F001,FT13F001,FT03F001,FT12F001,FT06F001,SYSOUT,SYSPRINT)
TPRINT '*************************************************************'
TPRINT '              AN/TTC39 TRAFFIC GENERATOR INVOKED    '
TPRINT '                     FOREGROUND EXECUTION             '
TPRINT '-------------------------------------------------------------'
TPRINT '          INPUT DATA SET :  TTC39.DATA(&TRAFIN.&NO.) '
TPRINT '         OUTPUT DATA SETS:  TTC39.TRAFFIC&NO.       '
TPRINT '                            TTC39.OUT&NO.          '
TPRINT '                            TTC39.CONFT&NO.        '
TPRINT '*************************************************************'
IF (&PR. EQ *) GO TO LABEL 11
FILESTAT &PR..OUTLIST
SYSRC ( EQ 0) GO TO LABEL 12
FREE A(A)
ATTR A RECFM(F B S) LRECL(134) BLKSIZE(268)
ALLOC DA(&PR..OUTLIST) SPACE(10,60) BLOCK(268) U(A)
FREE A(A)
LABEL 12
ALLOC FILE(FT06F001) DA(&PR..OUTLIST) SHR
ALLOC FILE(SYSPRINT) DA(&PR..OUTLIST) SHR
ALLOC FILE(SYSOUT) DA(*)
TPRINT '      PRINT OUTPUT IS SAVED IN       &PR..OUTLIST '
GO TO LABEL 13
LABEL 11
ALLOC FILE(FT06F001) DA(*)
ALLOC FILE(SYSOUT) DA(*)
ALLOC FILE(SYSPRINT) DA(*)
TPRINT '           PRINTER OUTPUT IS TERMINAL'
LABEL 13
TPRINT '*************************************************************'
FILESTAT BWTGNO&NO..DATA
SYSRC (EQ 0) GO TO LABEL 2
ATTR A LRECL(80) RECFM(F B) BLKSIZE(3120)
ALLOC DA(BWTGNO&NO..DATA)  T SP(1,10) U(A)
FREE A(A)
LABEL 2
```

```
FILESTAT TTC39.OUT&NO.
SYSRC (EQ 0) GO TO LABEL 4
ATTR A LRECL(84) RECFM(V B S) BLKSIZE(3280)
ALLOC DA(TTC39.OUT&NO.) T SP(1,10) U(A)
FREE A(A)
LABEL 4
FILESTAT TTC39.CONFT&NO.
SYSRC (EQ 0) GO TO LABEL 5
ATTR A LRECL(800) RECFM(U) BLKSIZE(800)
ALLOC DA(TTC39.CONFT&NO.) T SP(1,10) U(A)
FREE A(A)
LABEL 5
COPY TTC39.DATA(&TRAFIN.&NO.) TTC39.TRAFIN
ALLOCATE F(FT01F001) DA(TTC39.TRAFIN)
ALLOCATE DA(TTC39.CONFT&NO.) F(FT12F001)
ALLOCATE DA(TTC39.OUT&NO.) F(FT13F001)
ALLOCATE DA(BWTGNO&NO..DATA) F(FT03F001)
CALL '&LOAD.'
COPY BWTGNO&NO..DATA TTC39TRF.DATA NONUM
DE TTC39.TRAFIN
DE BWTGNO&NO..DATA
FREE DA(TTC39TRF.DATA,TTC39.OUT&NO.)
FREE F(SORTLIB,SORTWK01,SORTWK02,SORTWK03,SORTIN,SORTOUT,SYSIN)
ALLOC FILE(SORTLIB) DA('SYS1.SORTLIB') SHR
ALLOC FILE(SORTWK01) CYL SPACE(2,1) VOL(&VOL1.)
ALLOC FILE(SORTWK02) CYL SPACE(2,1) VOL(&VOL2.)
ALLOC FILE(SORTWK03) CYL SPACE(2,1) VOL(&VOL3.)
ALLOC FILE(SORTIN) DA(TTC39TRF.DATA) SHR
FILESTAT TTC39.TRAFFIC&NO.
SYSRC (EQ 0) GO TO LABEL 1
ATTR A LRECL(80) RECFM(F B) BLKSIZE(3120)
ALLOC DA(TTC39.TRAFFIC&NO.) T SP(1,10) U(A)
FREE A(A)
LABEL 1
ALLOC FILE(SORTOUT) DA(TTC39.TRAFFIC&NO.) SHR
ALLOC FILE(SYSIN) DA(TTC39SIN.DATA)
X IGHRC000
DE TTC39TRF.DATA
FREE F(SYSOUT,SORTLIB,SORTWK01,SORTWK02,SORTWK03,SORTIN,SORTOUT,SYSIN)
FREE F(FT01F001,FT13F001,FT03F001,FT12F001,FT06F001,SYSPRINT)
END LIST
```

3. THE MODEL EXECUTION STEP

The model is executed by the TSO command:

```
TTC39RUN <your name> <your id> <task no.>
```

The system will respond with the following message when the model is executed:

```
*************************************************************
*          THE AN/TTC-39 MODEL EXECUTION STEP               *
*               BACKGROUND EXECUTION                        *
*-----------------------------------------------------------*
*   INTERMEDIATE DATASETS ARE SAVED UNDER:                  *
*                   T8003.TTC39.XCOMOUT1                    *
*                   T8003.TTC39.YCOMOUT1                    *
*                   T8003.TTC39.STAT1                       *
*                   T8003.TTC39.TRFOUT1                     *
*                   T8003.TTC39.RANDOUT1                    *
*                   T8003.TTC39.TRUNK1                      *
*-----------------------------------------------------------*
*  THE INPUT DATASETS TO BE USED ARE:                       *
*             T8003.TTC39.DATA(GOIN1)                       *
*             T8003.TTC39.OUT1                              *
*             T8003.TTC39.TRAFFIC1                          *
*             T8003.TTC39.CONFT1                            *
*-----------------------------------------------------------*
*          PRINTER OUTPUT IS CLASS(A)                       *
*************************************************************
```

The following optional keywords are available to override the default parameters:

```
    R(500K)     - The Region size (default 500K)
    NO(1)       - The Job Id modifier ( default 1)
    OUT(A)      - The Output Class (default A for Printer)
    TIME(6)     - CPU time requested (default 6 minutes)
  GOIN(GOIN)    - Input Date Set (default TTC39.DATA(GOIN) )
```

The command list executed is stored in SYS9.TTC39.CLIST(TTC39RUN) and is listed as follows:

```
PROC 3,N ID T M(TTC39NEW) R(500) NO(1) OUT(A) TIME(6) GOIN(GOIN)       -
TYPRUN(X) JCL(X) ROUTE(LOCAL) ORG() LINES(10) FRM() HASP() UNIT(SYSTS)
TPRINT '*************************************************************'
TPRINT '*      THE AN/TTC-39 MODEL EXECUTION STEP                    *'
TPRINT '*           BACKGROUND EXECUTION                             *'
TPRINT '*-----------------------------------------------------------*'
TPRINT '*  INTERMEDIATE DATASETS ARE SAVED UNDER:                    *'
TPRINT '*                &ID..TTC39.XCOMOUT&NO.                       *'
TPRINT '*                &ID..TTC39.YCOMOUT&NO.                       *'
```

```
TPRINT '*                &ID..TTC39.STAT&NO.                    *'
TPRINT '*                &ID..TTC39.TRFOUT&NO.                  *'
TPRINT '*                &ID..TTC39.RANDOUT&NO.                 *'
TPRINT '*                &ID..TTC39.TRUNK&NO.                   *'
TPRINT '* THE INPUT DATASETS TO BE USED ARE:                  *'
TPRINT '*               &ID..TTC39.DATA(&GOIN.&NO.)             *'
TPRINT '*               &ID..TTC39.OUT&NO.                      *'
TPRINT '*               &ID..TTC39.TRAFFIC&NO.                  *'
TPRINT '*               &ID..TTC39.CONFT&NO.                    *'
TPRINT '*-----------------------------------------------------*'
IF (&OUT NE SAVE) GO TO LABEL 5
TPRINT '      PRINT OUTPUT IS SAVED IN  &ID..GO&NO..OUTLIST       '
GO TO LABEL 6
LABEL 5
TPRINT '*          PRINTER OUTPUT IS CLASS(&OUT.)                *'
LABEL 6
TPRINT '*******************************************************'
FILESTAT TTC39.XCOMOUT&NO.
SYSRC (EQ 0) DELETE TTC39.XCOMOUT&NO.
FILESTAT TTC39.YCOMOUT&NO.
SYSRC (EQ 0) DELETE TTC39.YCOMOUT&NO.
FILESTAT TTC39.TRFOUT&NO.
SYSRC (EQ 0) DELETE TTC39.TRFOUT&NO.
FILESTAT TTC39.STAT&NO.
SYSRC (EQ 0) DELETE TTC39.STAT&NO.
FILESTAT TTC39.RANDOUT&NO.
SYSRC (EQ 0) DELETE TTC39.RANDOUT&NO.
FILESTAT TTC39.TRUNK&NO.
SYSRC (EQ 0) DELETE TTC39.TRUNK&NO.
TPRINT ' THE FOLLOWING JOB CARD PARAMETERS ARE SPECIFIED:          '
TPRINT ' TIME = &TIME.00 SECS, REGION SIZE = &R.K, LINES = &LINES.000'
ASK '<<<<< CHECK DATASET NAMES. DO YOU WANT TO CONTINUE ? >>>>>>>'
SYSRC (EQ 4) GO TO LABEL 99
EDIT TTC39 CNTL
DEL 20 10000
10 //&ID.G&NO.  JOB (&T.,&ORG.,&TIME.00,&LINES.,&R.,&FRM.,&HASP.),&N.,
20 //   NOTIFY=&ID.,MSGCLASS=Q
30 /*ROUTE  PRINT &ROUTE.
IF (&TYPRUN. EQ HOLD) GO TO LABEL 1
GO TO LABEL 2
LABEL 1
35 /*MESSAGE    THIS JOB NEEDS &R.K OF CORE AND &TIME. MIN CPU TIME
C 20 /Q/Q,TYPRUN=HOLD
LABEL 2
40 //GO   EXEC PGM=&M.,REGION=&R.K,TIME=(&TIME.,40)
50 //GO.STEPLIB DD DSN=SYS9.TTC39.LOAD,DISP=SHR
60 //GO.FT09F001 DD DSN=&ID..TTC39.DATA(&GOIN.&NO.),
70 //             DISP=SHR,LABEL=(,,,IN)
80 //GO.FT06F001 DD  SYSOUT=&OUT.
90 //GO.FT20F001 DD DISP=(,DELETE),UNIT=SYSDA,
100 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
110 //GO.FT21F001 DD DISP=(,DELETE),UNIT=SYSDA,
120 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
```

```
130 //GO.FT22F001 DD DISP=(,DELETE),UNIT=SYSDA,
140 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
150 //GO.FT23F001 DD DISP=(,DELETE),UNIT=SYSDA,
160 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
170 //GO.FT24F001 DD DISP=(,DELETE),UNIT=SYSDA,
180 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
190 //GO.FT25F001 DD DISP=(,DELETE),UNIT=SYSDA,
200 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
210 //GO.FT26F001 DD DISP=(,DELETE),UNIT=SYSDA,
220 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
230 //GO.FT10F001 DD DISP=(SHR),DSN=&ID..TTC39.TRAFFIC&NO.
240 //GO.FT32F001 DD DISP=(SHR),DSN=&ID..TTC39.OUT&NO.
250 //GO.FT30F001 DD DISP=(NEW,CATLG),UNIT=&UNIT.,
260 //     DSN=&ID..TTC39.XCOMOUT&NO.,
270 // SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400)
280 //GO.FT31F001 DD DISP=(NEW,CATLG),UNIT=&UNIT.,
290 //     DSN=&ID..TTC39.YCOMOUT&NO.,
300 // SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400)
310 //GO.FT33F001 DD DISP=(NEW,CATLG),UNIT=&UNIT.,
320 //     DSN=&ID..TTC39.TRFOUT&NO.,
330 // SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=FB,BLKSIZE=400)
340 //GO.FT34F001 DD DISP=(NEW,CATLG),UNIT=&UNIT.,
350 //     DSN=&ID..TTC39.RANDOUT&NO.,
360 // SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=FB,BLKSIZE=800)
370 //GO.FT35F001 DD DISP=(NEW,CATLG),UNIT=&UNIT.,
380 //     DSN=&ID..TTC39.STAT&NO.,
390 // SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400)
391 //GO.FT38F001 DD DISP=(OLD,KEEP),UNIT=&UNIT.,
392 //     DSN=&ID..TTC39.CONFT&NO.
450 //GO.FT41F001 DD DUMMY
460 //GO.FT51F001 DD DUMMY
470 //GO.FT27F001 DD DISP=(,DELETE),UNIT=SYSDA,
480 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
490 //GO.FT28F001 DD DISP=(,DELETE),UNIT=SYSDA,
500 // SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
510 //GO.FT42F001 DD DISP=(NEW,CATLG),UNIT=SYSTS,
520 // DSN=&ID..TTC39.TRUNK&NO.,SPACE=(TRK,(20,20),RLSE)
530 /*
IF (&OUT. NE SAVE) GO TO LABEL 7
DE GO&NO..OUTLIST
80 //GO.FT06F001 DD DSN=&ID..GO&NO..OUTLIST,
81 //     UNIT=SYSTS,DISP=(NEW,CATLG),
82 //     SPACE=(1584,(100,600)),DCB=(LRECL=132,BLKSIZE=1584,RECFM=FBS)
LABEL 7
IF (&JCL. EQ EDIT) GO TO LABEL 9
SAVE TTC39
END
SUBMIT TTC39.CNTL
LABEL 99
LABEL 9
TPRINT 'EDIT
```

4. THE POST SIMULATION ANALYSIS STEP

The Post-Simulation Analysis program is invoked by the command

TTC39PST <your name> <your id> <task no>

The following optional keywords are available to override the systems default parameter:

NO(1) - The Job Id Modifier (default 1)
OUT(A) - Output Class (Default Class A for printer)
Time(2) - CPU Time requested (Default 2 minutes)

The command list is stored in date set SYS9.TTC39.CLIST(TTC39PST) and is listed as follows:

```
PROC 3,N ID T NO(1) OUT(A) TIME(2) JCL(X) ROUTE(LOCAL) ORG() HASP()     -
LINES(15) FRM() R(180)
TPRINT '*************************************************************'
TPRINT '*      THE TTC39 POST PROCESSOR IS BEING INVOKED             *'
TPRINT '*-----------------------------------------------------------*'
TPRINT '*   THE SIMULATOR OUTPUT DATA SETS TO BE ANALYSED ARE:      *'
TPRINT '*              "&ID..TTC39.XCOMOUT&NO."                       *'
TPRINT '*              "&ID..TTC39.YCOMOUT&NO."                       *'
TPRINT '*              "&ID..TTC39.TRFOUT&NO."                        *'
TPRINT '*              "&ID..TTC39.STAT&NO."                          *'
TPRINT '*              "&ID..TTC39.RANDOUT&NO."                       *'
TPRINT '*-----------------------------------------------------------*'
IF (&OUT NE SAVE) GO TO LABEL 5
TPRINT '*     PRINT OUTPUT IS SAVED IN  &ID..PST&NO..OUTLIST         *'
TPRINT '*                       AND IN  &ID..POST&NO..OUTLIST        *'
GO TO LABEL 6
LABEL 5
TPRINT '*          PRINTER OUTPUT IS CLASS(&OUT.)                       *'
LABEL 6
TPRINT '*         PRINTER OUTPUT IS ROUTED TO &ROUTE.                 *'
TPRINT '*************************************************************'
TPRINT ' THE FOLLOWING JOB CARD PARAMETER ARE SPECIFIED:              '
TPRINT ' TIME = &TIME.00 SECS, REGION SIZE = &R.K, LINES = &LINES.000'
ASK '<<<<< CHECK DATASET NAMES. DO YOU WANT TO CONTINUE ? >>>>>>>'
SYSRC (EQ 4) GO TO LABEL 99
FILESTAT TTC39SLM.DATA
SYSRC (EQ 0) GO TO LABEL 93
COPY 'SYS9.TTC39.CLIST(TTC39SLI)' '&ID..TTC39SLM.DATA' NONUM
FREE DA(TTC39SLM.DATA)
LABEL 93
EDIT TTC39 CNTL
DEL 20 10000
10 //&ID.S&NO.  JOB (&T.,&ORG.,&TIME.00,&LINES.,&R.,&FRM.,&HASP.),&N.,
020 //   MSGCLASS=Q,NOTIFY=&ID.
030 /*ROUTE  PRINT &ROUTE.
```

```
040 //POST  EXEC PGM=POSTSIM,REGION=120K,TIME=(&TIME.,40)
050 //POST.STEPLIB DD DSN=SYS9.TTC39.LOAD,DISP=SHR
060 //POST.FT05F001 DD DSN=&ID..TTC39.DATA(POSTIN),DISP=SHR
070 //POST.FT06F001 DD SYSOUT=&OUT.
080 //POST.FT07F001 DD SYSOUT=&OUT.
090 //POST.FT10F001 DD DSN=&ID..TTC39.XCOMOUT&NO.,UNIT=SYSDA,
100 //    DCB=(RECFM=VBS,LRECL=100,BLKSIZE=400),DISP=(SHR,KEEP)
110 //POST.FT11F001 DD DSN=&&SCRATCH,UNIT=SYSDA,DISP=(NEW,DELETE),
120 //     DCB=(LRECL=2500,RECFM=VBS,BLKSIZE=2500),
130 //     SPACE=(CYL,(1,1))
140 //POST.FT31F001 DD DSN=&ID..TTC39.YCOMOUT&NO.,UNIT=SYSDA,
150 //     DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400),DISP=(SHR,KEEP)
160 //POST.FT33F001 DD DSN=&ID..TTC39.TRFOUT&NO.,UNIT=SYSDA,
170 //     DCB=(LRECL=100,RECFM=FB,BLKSIZE=400),DISP=(SHR,KEEP)
171 //POST.FT34F001 DD DSN=&ID..TTC39.RANDOUT&NO.,DISP=(OLD,KEEP)
180 //POST.FT35F001 DD DSN=&ID..TTC39.STAT&NO.,UNIT=SYSDA,
190 //     DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400),DISP=(OLD,KEEP),
200 //     SPACE=(TRK,(20,20),RLSE)
201 //POST.FT39F001 DD DSN=&ID..TTC39SLM.DATA,DISP=(SHR,KEEP)
210 /*
IF (&OUT. NE SAVE) GO TO LABEL 7
DE (PST&NO..OUTLIST,POST&NO..OUTLIST)
70 //POST.FT06F001 DD DSN=&ID..PST&NO..OUTLIST,
71 //     UNIT=SYSTS,DISP=(NEW,CATLG),
72 //     SPACE=(1584,(100,600)),DCB=(LRECL=132,BLKSIZE=1584,RECFM=FBS)
80 //POST.FT07F001 DD DSN=&ID..POST&NO..OUTLIST,
81 //     UNIT=SYSTS,DISP=(NEW,CATLG),
82 //     SPACE=(1584,(100,600)),DCB=(LRECL=132,BLKSIZE=1584,RECFM=FBS)
LABEL 7
IF (&JCL. EQ EDIT) GO TO LABEL 9
SAVE TTC39
SUB
LABEL 99
END
LABEL 9
TPRINT 'EDIT                '
```

V. THE TTC39HLP COMMAND

The TTC39HLP Command allows the TSO user to inquire about details of the individual commands. By entering the command TTC39HLP all available commands are listed. To obtain more details on each command the user must enter

TTC39HLP C(<command name>)

The following Command List is invoked whenever the command TTC39HLP is executed.

```
PROC 0, C(TTC39HLP)
IF (&C. EQ TTC39HLP) GO TO LABEL 1
IF (&C. EQ TTC39PST) GO TO LABEL 6
IF (&C. EQ TTC39) GO TO LABEL 3
IF (&C. EQ TTC39CMP) GO TO LABEL 4
IF (&C. EQ TTC39RUN) GO TO LABEL 5
IF (&C. EQ TTC39TRF) GO TO LABEL 7
IF (&C. EQ TTC39TRA) GO TO LABEL 8
IF (&C. EQ TTC39SIM) GO TO LABEL 9
TPRINT 'NO FURTHER INFORMATION AVAILABLE **********************'
GO TO LABEL 100
LABEL 3
TPRINT 'FUNCTION - TO CREATE ALL TEMPORARY DATA SETS NECESSARY FOR'
TPRINT '           THE EXECUTION OF ANY STEP OF THE AN/TTC39 SWITCH'
TPRINT '           SIMULATION SYSTEM. DATA SETS WHICH EXIST WILL  '
TPRINT '           NOT BE RECREATED. THERE IS ONLY ONE USER  '
TPRINT '           ACCESSABLE DATASET:       '
TPRINT '           '
TPRINT '   TTC39.DATA - THIS PARTITIONED DATA SET CONTAINS THE DATA'
TPRINT '                NEEDS AS INPUT FOR THE INDIVIDUAL STEPS.   '
TPRINT '                MEMBER (TRAFIN) FOR THE TRAFFIC GENERATOR  '
TPRINT '                MEMBER (POSTIN) FOR THE POST SIMULATION STEP'
TPRINT '                MEMBER (GOIN) FOR THE SIMULATION STEP'
TPRINT '       '
TPRINT '   '
TPRINT 'SYNTAX           TTC39                '
GO TO LABEL 100
LABEL 4
TPRINT 'FUNCTION - TO INVOKE THE FORTH COMPILER. THE FORT SOURCE CODE'
TPRINT '           CONTAINED IN YOUR TEMPORARY DATASET <MODEL>.FORT  '
TPRINT '           IS COMPILED AND LINK-EDITED. THE LOAD MODULE IS   '
TPRINT '           PLACED INTO YOUR TEMPORARY DATA SET   TTC39.LOAD  '
TPRINT '           AS THE MEMBER (<MODEL>). '
TPRINT '  '
```

```
TPRINT 'SYNTAX     '
TPRINT 'TTC39CMP <NAME> <ID> <TASK> <MODEL> OUT(A) NO(1) JCL(X) '
TPRINT         'ROUTE(LOCAL)'
TPRINT '    '
TPRINT 'REQUIRED - <NAME>, <ID>, <TASK>, <MODEL>'
TPRINT 'ALIAS    - NONE'
TPRINT 'EXAMPLE  - TTC39CMP MILLER T8003 10321240 TTC39NEW OUT(X) '
TPRINT '   '
TPRINT 'OPERANDS -'
TPRINT '   '
TPRINT '    <NAME>     YOUR NAME, AS TO APPEAR IN JCL.'
TPRINT '    <ID>       YOUR BADGE NUMBER WITH PREFIX.'
TPRINT '    <TASK>     A VALID TASK NUMBER.'
TPRINT '    <MODEL>    THE NAME OF YOUR MODEL, AS USED IN COMPILE STEP.'
TPRINT '    OUT(X)     OPTIONAL, USED TO SPECIFY OUTPUT CLASS. YOU MAY'
TPRINT '               SPECIFY "Y", "Z", OR "A". DEFAULT IS "X". '
TPRINT '               OUT(A) -  SYSPRINT OUTPUT IS SENT TO PRINTER.'
TPRINT '               OUT(X),OUT(Y),OUT(Z) - SYSPRINT OUTPUT I SENT TO'
TPRINT '               OUTPUT CLASS X, Y, OR Z, AND MAY BE SCANNED AND'
TPRINT '               SAVED BY THE OUTPUT FUNCTION. FOR HELP ENTER'
TPRINT '                       "HELP OUTPUT" '
TPRINT '     NO(1)     OPTIONAL, THE ONE CHARACTER SYMBOL IN PARENTHESIS'
TPRINT '               IS ASSIGNED AS THE LAST LETTER TO THE JOB NUMBER.'
TPRINT '               DEFAULT IS "1".
TPRINT '    JCL(X)     OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY '
TPRINT '               THAT YOU WANT THE JCL GENERATED BY THIS COMMAND '
TPRINT '               PLACED INTO THE EDIT MODE FOR FURTHER EDITING.'
TPRINT '                JCL(EDIT) WILL ACCOMPLISH THIS . THE DEFAULT  '
TPRINT '                IS JCL(X) FOR DIRECT SUBMISSION. TO EXECUTE   '
TPRINT '                IN THE EDIT MODE SIMPLY ENTER "SUB *"         '
TPRINT '   ROUTE(X)     ALLOWS PRINTER OUTPUT TO BE ROUTED TO         '
TPRINT '                A REMOTE PRINTER LOCATION ASSOCIATED WITH     '
TPRINT '                THE KEYWORD PARAMETER X.    '
TPRINT '                X = LOCAL.... LOCAL PRINTER IS USED           '
TPRINT '                X = REMOTE3.. PRINTER ASSOCIATED WITH REMOTE3  '
TPRINT '                DEFAULT IS X = LOCAL        '
GO TO LABEL 100
LABEL 5
TPRINT 'FUNCTION - CREATE A BACKGOUND JOB (RJE) TO EXECUTE THE MODEL.'
TPRINT '           THE LOAD MODULE EXECUTED IS ASSUMED TO BE IN THE PDS'
TPRINT '           "TTC39.LOAD" AS MEMBER UNDER THE MODEL NAME SPE-'
TPRINT '           CIFIED. FILE "CARD" IS THE INPUT FILE AND IS BY'
TPRINT '           DEFAULT ALLOCATED TO "TTC39.DATA(GOIN)". THE JOB '
TPRINT '           CREATES TWO NEW DATA SETS OR REUSES THE EXISTING'
TPRINT '           ONES BY THE NAMES OUTSM# AND YCOMOUT#, WHERE #'
TPRINT '           REPRESENTS THE RUN NUMBER NO(X) OF THE SPECIFIC RUN.'
TPRINT '           BOTH DATASETS ARE USED BY THE POST ANALYSIS STEP.'
TPRINT '   '
```

```
TPRINT 'SYNTAX   TTC39RUN <NAME> <ID> <TASK> M(TTC39NEW) OUT(A) '
TPRINT '         GOIN(GOIN)  NO(1) TIME(5) R(380K) JCL(X) TYPRUN(XXX)'
TPRINT '         ROUTE(LOCAL)              '
TPRINT '   '
TPRINT 'REQUIRED - <NAME> <ID> <TASK>          '
TPRINT 'ALIAS    - NONE'
TPRINT 'EXAMPLE  - TTC39RUN MILLER T8003 JCL(EDIT)'
TPRINT '   '
TPRINT 'OPERANDS -'
TPRINT '   '
TPRINT '    <NAME>   YOUR NAME.'
TPRINT '    <ID>     USER ID (BADGE NO.) WITH PREFIX.'
TPRINT '    <TASK>   A VALID TASK NUMBER.'
TPRINT ' M(TTC39NEW) MODEL NAME CORRESPONDING TO THE MEMBER NAME.'
TPRINT '             DEFAULT IS TTC39NEW.                    '
TPRINT '    OUT(A)   OUTPUT CLASS. X, Y, Z, OR A  MAY BE SPECIFIED.'
TPRINT '             OUT(A) - ALL MODEL OUTPUT IS SENT TO PRINTER'
TPRINT '             OUT(X), OUT(Y), OUT(Z) MODEL OUTPUT IS CLASS X,'
TPRINT '             CLASS Y OR CLASS Z RESPECTIVELY'
TPRINT '    GOIN(GOIN)   SPECIFIES INPUT DATA SET. NAME IN PARENTHESIS'
TPRINT '                 REPRESENTS MEMBER NAME IN PDS "TTC39.DATA" '
TPRINT '                 IS ALLOCATED BY THE SYSTEM TO FILE "CARD".'
TPRINT '                 DEFAULT NAME IS GOIN.'
TPRINT '    NO(1)       SPECIFIES LAST DIGIT OF JOB NUMBER. DEFAULT IS '
TPRINT '                "1". THIS DIGIT MAY BE CHANGED TO ENABLE SIMUL-'
TPRINT '                TANIOUS EXECUTIONS OF MORE THAN ONE MODEL.'
TPRINT '    TIME(5)     SPECIFIES EXPECTED CPU RUNIING TIME. DEFAULT IS'
TPRINT '                5 MINUTES.'
TPRINT '    R(380K)   SPECIFIES REGION SIZE. DEFAULT IS 380K.'
TPRINT '    JCL(X)    OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY '
TPRINT '              THAT YOU WANT THE JCL GENERATED BY THIS COMMAND '
TPRINT '              PLACED INTO THE EDIT MODE FOR FURTHER EDITING.'
TPRINT '              JCL(EDIT) WILL ACCOMPLISH THIS . THE DEFAULT  '
TPRINT '              IS JCL(X) FOR DIRECT SUBMISSION. TO EXECUTE   '
TPRINT '              IN THE EDIT MODE SIMPLY ENTER "SUB *"          '
TPRINT '    TYPRUN()       SPECIAL INSTRUCTIONS TO CONSOLE OPERATOR  '
TPRINT '              HOLD - TO PUT JOB IN HOLD QUEUE                '
TPRINT '          <JOB.NO.) - TO SPECIFY A JOB WHICH MUST COMPLETE     '
TPRINT '                      FIRST BEFORE THIS JOB CAN BE RUN. JOB IS'
TPRINT '                      AUTOMATICALLY PLACED IN HOLD QUEUE.     '
TPRINT '  ROUTE(X)    ALLOWS PRINTER OUTPUT TO BE ROUTED TO          '
TPRINT '              A REMOTE PRINTER LOCATION ASSOCIATED WITH      '
TPRINT '              THE KEYWORD PARAMETER X.    '
TPRINT '              X = LOCAL.... LOCAL PRINTER IS USED            '
TPRINT '              X = REMOTE3.. PRINTER ASSOCIATED WITH REMOTE3  '
TPRINT '              DEFAULT IS X = LOCAL        '
TPRINT '  '
GO TO LABEL 100
```

```
LABEL 1
TPRINT 'TO INITIATE THE AN/TTC39 SIMULATION SYSTEM USE THE COMMAND:'
TPRINT '*************************************************************'
TPRINT '*                      TTC39                                *'
TPRINT '*************************************************************'
TPRINT 'THE FOLLOWING COMMANDS WILL EXECUTE THE SYSTEM '
TPRINT '-------------------------------------------------------------'
TPRINT 'FOREGROUND EXECUTION:'
TPRINT '*************************************************************'
TPRINT '*  TTC39TRA     -TO INVOKE THE TRAFFIC GENERATOR             *'
TPRINT '*************************************************************'
TPRINT 'FOREGROUND INITIATED BACKGROUND JOBS (RJE)'
TPRINT '*************************************************************'
TPRINT '*  TTC39CMP - TO COMPILE TTC39 LOAD MODELS                    *'
TPRINT '*  TTC39TRF - TO GENERATE THE TRAFFIC FILE                    *'
TPRINT '*  TTC39RUN - TO EXECUTE THE MODEL                            *'
TPRINT '*  TTC39PST - TO INVOKE THE POST ANALYSIS PROGRAM             *'
TPRINT '*************************************************************'
TPRINT 'TO GET MORE INFORMATION ABOUT THE COMMANDS ENTER'
TPRINT '*************************************************************'
TPRINT '*          TTC39HLP C(<COMMAND NAME>)                       *'
TPRINT '*************************************************************'
TPRINT '   '
GO TO LABEL 100

LABEL 6
TPRINT 'FUNCTION - SUBMITS THE JOB INTO THE JOB QUEUE.                '
TPRINT '  '
TPRINT 'SYNTAX  - <NAME> <USER ID> <TASK> NO(1) OUT(A) TIME(1)'
TPRINT 'SYNTAX   - JCL(X) ROUTE(LOCAL)    '
TPRINT '   '
TPRINT 'ALIAS    - NONE'
TPRINT '  '
TPRINT 'OPERANDS -'
TPRINT '  '
TPRINT '   <NAME>     YOUR NAME, AS TO APPEAR IN JCL.'
TPRINT '   <ID>       YOUR BADGE NUMBER WITH PREFIX.'
TPRINT '   <TASK>     A VALID TASK NUMBER.'
TPRINT '   <MODEL>    THE NAME OF YOUR MODEL, AS USED IN COMPILE STEP.'
TPRINT '   OUT(X)     OPTIONAL, USED TO SPECIFY OUTPUT CLASS. YOU MAY'
TPRINT '              SPECIFY "Y", "Z", OR "A". DEFAULT IS "X". '
TPRINT '              OUT(A) -  SYSPRINT OUTPUT IS SENT TO PRINTER.'
TPRINT '              OUT(X),OUT(Y),OUT(Z) - SYSPRINT OUTPUT I SENT TO'
TPRINT '              OUTPUT CLASS X, Y, OR Z, AND MAY BE SCANNED AND'
TPRINT '              SAVED BY THE OUTPUT FUNCTION. FOR HELP ENTER'
TPRINT '                      "HELP OUTPUT" '
TPRINT '    NO(1)     OPTIONAL, THE ONE CHARACTER SYMBOL IN PARENTHESIS'
TPRINT '              IS ASSIGNED AS THE LAST LETTER TO THE JOB NUMBER.'
TPRINT '              DEFAULT IS "1". THE JOB NUMBER OF ABOVE EXAMPLE'
TPRINT '              WOULD THEN BE -  "T8003C0".'
```

```
TPRINT '    JCL(X)     OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY '
TPRINT '               THAT YOU WANT THE JCL GENERATED BY THIS COMMAND '
TPRINT '               PLACED INTO THE EDIT MODE FOR FURTHER EDITING.'
TPRINT '                JCL(EDIT) WILL ACCOMPLISH THIS . THE DEFAULT  '
TPRINT '                IS JCL(X) FOR DIRECT SUBMISSION. TO EXECUTE   '
TPRINT '                IN THE EDIT MODE SIMPLY ENTER "SUB *"         '
TPRINT '   ROUTE(X)     ALLOWS PRINTER OUTPUT TO BE ROUTED TO         '
TPRINT '                A REMOTE PRINTER LOCATION ASSOCIATED WITH     '
TPRINT '                THE KEYWORD PARAMETER X.     '
TPRINT '                X = LOCAL.... LOCAL PRINTER IS USED           '
TPRINT '                X = REMOTE3.. PRINTER ASSOCIATED WITH REMOTE3  '
TPRINT '                DEFAULT IS X = LOCAL         '
LABEL 7
TPRINT 'FUNCTION - TO INVOKE THE AN/TTC39 TRAFFIC GENERATOR IN THE'
TPRINT '             BACKGROUND.              '
TPRINT '                 '
TPRINT 'SYNTAX     '
TPRINT 'TTC39TRF <NAME> <ID> <TASK> OUT(A) NO(1) JCL(X) ROUTE(LOCAL)'
TPRINT '            TRAFIN(TRAFIN) TIME(1) LINES(5)'
TPRINT 'REQUIRED - <NAME>, <ID>, <TASK>'
TPRINT 'ALIAS    - NONE'
TPRINT 'EXAMPLE  - TTC39TRF MILLER T8003 10321240 OUT(X) ROUTE(REMOTE3)'
TPRINT '   '
TPRINT 'OPERANDS -'
TPRINT '   '
TPRINT '    <NAME>     YOUR NAME, AS TO APPEAR IN JCL.'
TPRINT '    <ID>       YOUR BADGE NUMBER WITH PREFIX.'
TPRINT '    <TASK>     A VALID TASK NUMBER.'
TPRINT '    OUT(X)     OPTIONAL, USED TO SPECIFY OUTPUT CLASS. YOU MAY'
TPRINT '               SPECIFY "Y", "Z", OR "A". DEFAULT IS "X". '
TPRINT '               OUT(A) -  SYSPRINT OUTPUT IS SENT TO PRINTER.'
TPRINT '               OUT(X),OUT(Y),OUT(Z) - SYSPRINT OUTPUT I SENT TO'
TPRINT '               OUTPUT CLASS X, Y, OR Z, AND MAY BE SCANNED AND'
TPRINT '               SAVED BY THE OUTPUT FUNCTION. FOR HELP ENTER'
TPRINT '                       "HELP OUTPUT" '
TPRINT '     NO(1)     OPTIONAL, THE ONE CHARACTER SYMBOL IN PARENTHESIS'
TPRINT '               IS ASSIGNED AS THE LAST LETTER TO THE JOB NUMBER.'
TPRINT '               DEFAULT IS "1". THE JOB NUMBER OF ABOVE EXAMPLE'
TPRINT '               WOULD THEN BE -  "T8003C1".'
TPRINT '    JCL(X)     OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY '
TPRINT '               THAT YOU WANT THE JCL GENERATED BY THIS COMMAND '
TPRINT '               PLACED INTO THE EDIT MODE FOR FURTHER EDITING.'
TPRINT '                JCL(EDIT) WILL ACCOMPLISH THIS . THE DEFAULT  '
TPRINT '                IS X FOR DIRECT SUBMISSION TO BACKGROUND.  '
TPRINT '                IN THE EDIT MODE SIMPLY ENTER "SUB *"         '
TPRINT '    ROUTE(X)   OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY '
TPRINT '               THAT YOU WANT THE PRINTER OUTPUT ROUTED TO A    '
TPRINT '               REMOTE LOCATION. '
TPRINT '               X = LOCAL   OUTPUT SENT TO LOCAL PRINTER.      '
TPRINT '               X = REMOTE3 OUTPUT SENT TO REMOTE PRINTER      '
TPRINT '                           ASSOCIATED WITH REMOTE3.           '
```

```
TPRINT 'TRAFIN(XXX)  OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY '
TPRINT '             A DIFFERENT INPUT DATASET MEMBER THAN THE       '
TPRINT '             DEFAULT DSN TTC39.DATA(TRAFIN#), WHERE # IS THE '
TPRINT '             NUMBER SUPPLIED BY THE OPTIONAL KEYWORD NO().   '
GO TO LABEL 100
LABEL 8
TPRINT '          **************************          '
TPRINT '          *       TTC39TRA         *          '
TPRINT '          **************************          '
TPRINT '                '
TPRINT 'FUNCTION - TO INVOKE THE AN/TTC39 TRAFFIC GENERATOR IN THE   '
TPRINT '           FOREGROUND.          '
TPRINT '              '
TPRINT 'SYNTAX  - TTC39TRA IN(TRAFIN)      '
TPRINT 'REQUIRED - NONE    '
TPRINT 'ALIAS    - NONE'
TPRINT 'OPERANDS -'
TPRINT '  '
TPRINT '   IN(X)     SPECIFIES THE INPUT DATA SET. DEFAULT IS      .'
TPRINT '                 X = TRAFIN REFERRING TO THE DATASET       .'
TPRINT '                      TRAFIN.DATA                          .'
GO TO LABEL 100
LABEL 9
TPRINT 'FUNCTION - CREATE A BACKGOUND JOB (RJE) TO EXECUTE ALL STEPS '
TPRINT '           OF THE SIMULATION SYSTEM.       '
TPRINT '              '
TPRINT 'SYNTAX   TTC39SIM <NAME> <ID> <TASK> OUT(A) TIME(10)    '
TPRINT '         GOIN(GOIN)  NO(1) TIME(5) R(380K) JCL(X) TYPRUN(XXX)'
TPRINT '         ROUTE(LOCAL) TRAFIN(TRAFIN)      '
LABEL 100
END
```

BIBLIOGRAPHY

1. User's Manual for the Circuit Switch Simulation Model Program, prepared for DCA by GTE SYLVANIA, 3 May 1979.

2. Computer Program Product Specification for the Circuit Switch Simulation Model Program, prepared for DCA by GTE SYLVANIA, 6 June 1979.

3. Computer Program Development Specification for Circuit Switch Simulation Model Program, prepared for DCA by GTE SYLVANIA, 1 May 1979.

4. Narrative Description For Circuit Switch Simulation Model Program, prepared by DCA by GTE SYLVANIA, 3 MAY 1979.

APPENDIX A

SAMPLE TSO SESSION

```
DCEC - TSO, ENTER LOGON -
LOGON T8003/ABCDEF A(10321240) S(170) NOM  (CR)
T8003 LOGON IN PROGRESS AT 11:01:54 ON NOVEMBER 9, 1977
READY
SETUP SYS9.TTC39 (CR)
SYS9.TTC39.CLIST NOW CONCATENATED TO SYS1.CMDPROC
*************************************************************
*    THE AN/TTC-39 SIMULATION SYSTEM HAS BEEN INVOKED       *
*                                                           *
*    THE HSF INSTALLATION PROVIDES THE FOLLOWING            *
*      COMMANDS FOR THE EXECUTION OF THE SYSTEM             *
*  TTC39CMP - TO COMPILE TTC39 LOAD MODULES                 *
*  TTC39TRA - TO GENERATE THE TRAFFIC FILE (FOREGROUND)     *
*  TTC39TRF - TO GENERATE THE TRAFFIC FILE (BACKGROUND)     *
*  TTC39RUN - TO EXECUTE THE MODEL                          *
*  TTC39PST - TO INVOKE THE POST ANALYSIS PROGRAM           *
*  TTC39SIM - TO INVOKE ALL SIMULATION STEPS (BACKGROUND)   *
*  TTC39HLP - TO PROVIDE MORE INFORMATION ON EACH COMMAND   *
*************************************************************
*         TTC39.DATA  HAS BEEN CREATED                      *
READY
TTC39HLP (CR)
TO INITIATE THE AN/TTC39 SIMULATION SYSTEM USE THE COMMAND:
*************************************************************
*                        TTC39                              *
*************************************************************
FOREGROUND EXECUTION:
*************************************************************
*  TTC39TRA - TO INVOKE THE TRAFFIC GENERATOR               *
*************************************************************
FOREGROUND INITIATED BACKGROUND JOBS:
*************************************************************
*  TTC39CMP - TO COMPILE TTC39 LOAD MODULES                 *
*  TTC39TRF - TO GENERATE THE TRAFFIC FILE                  *
*  TTC39RUN - TO EXECUTE THE MODEL                          *
*  TTC39PST - TO INVOKE THE POST ANALYSIS PROGRAM           *
*  TTC39SIM - TO INVOKE ALL SIMULATION STEPS (BACKGROUND)   *
*************************************************************
TO GET MORE INFORMATION ABOUT THE COMMANDS ENTER:
*************************************************************
*              TTC39HLP C(<COMMAND NAME>)                   *
*************************************************************
READY
```

```
TTC39HLP C(TTC39CMP) (CR)
FUNCTION - TO INVOKE THE FORT  COMPILER. THE FORT SOURCE CODE
           CONTAINED IN YOUR TEMPORARY DATASET <MODEL>.FORT
           IS COMPILED AND LINK-EDITED. THE LOAD MODULE IS
           PLACED INTO SYSTEMS DATASET SYS9.TTC39.LOAD
           AS THE MEMBER (<MODEL>).

SYNTAX
TTC39CMP <NAME> <ID> <TASK> <MODEL> OUT(A) NO(0) JCL(X)
TPRINT         ROUTE(LOCAL)

REQUIRED - <NAME>, <ID>, <TASK>, <MODEL>
ALIAS    - NONE
EXAMPLE  - TTC39CMP MILLER T8003 10321240 TTC39NEW OUT(X)

OPERANDS -

   <NAME>     YOUR NAME, AS TO APPEAR IN JCL.
   <ID>       YOUR BADGE NUMBER WITH PREFIX.
   <TASK>     A VALID TASK NUMBER.
   <MODEL>    THE NAME OF YOUR MODEL, AS USED IN COMPILE STEP.
   OUT(X)     OPTIONAL, USED TO SPECIFY OUTPUT CLASS. YOU MAY
              SPECIFY "Y", "Z", OR "A". DEFAULT IS "X".
              OUT(A) -  SYSPRINT OUTPUT IS SENT TO PRINTER.
              OUT(X),OUT(Y),OUT(Z) - SYSPRINT OUTPUT I SENT TO
              OUTPUT CLASS X, Y, OR Z, AND MAY BE SCANNED AND
              SAVED BY THE OUTPUT FUNCTION. FOR HELP ENTER
                    "HELP OUTPUT"
    NO(1)     OPTIONAL, THE ONE CHARACTER SYMBOL IN PARENTHESIS
              IS ASSIGNED AS THE LAST LETTER TO THE JOB NUMBER.
              DEFAULT IS "1". THE JOB NUMBER OF ABOVE EXAMPLE
              WOULD THEN BE -  "T8003C0".
   JCL(X)     OPTIONAL, THIS KEYWORD ALLOWS YOU TO SPECIFY
              THAT YOU WANT THE JCL GENERATED BY THIS COMMAND
              PLACED INTO THE EDIT MODE FOR FURTHER EDITING.
               JCL(EDIT) WILL ACCOMPLISH THIS . THE DEFAULT
               IS JCL(X) FOR DIRECT SUBMISSION. TO EXECUTE
               IN THE EDIT MODE SIMPLY ENTER "RJE *"
  ROUTE(X)     ALLOWS PRINTER OUTPUT TO BE ROUTED TO
               A REMOTE PRINTER LOCATION ASSOCIATED WITH
               THE KEYWORD PARAMETER X.
               X = LOCAL.... LOCAL PRINTER IS USED
               X = REMOTE3.. PRINTER ASSOCIATED WITH REMOTE3
               DEFAULT IS X = LOCAL
READY
```

```
TTC39CMP T8003 10321240 TRAFGEN (CR)
*****************************************************************
*     LOAD MODULE SYS9.TTC39.LOAD(TRAFGEN) BEING CREATED        *
*  PRINTER OUTPUT IS CLASS(A) AND IS ROUTED TO LOCAL            *
*****************************************************************
JOB 297 T8003C1  IS # 2 CLASS I JOB TO BE EXECUTED
IEF404I  T8003C1  ENDED   TIME=11.20.51
EDIT TTC39(TRAFIN) DATA NONUM  (CR)
EDIT
TV  (CR)
L  (CR)
CHECKOUT OF TRGEN -TA341 AND DSVT ONLY
   $TRAFFIC 72
      TA341 1-2, DSVT 1    P
           TA341 6 5 1 3
             END
   DSVT 2-3      S
      TA341  7 4 1 2
     DSVT  6 5 1 3
             END
$PROBABILITY DISTRIBUTIONS
 7 1 .5 .3 .1 .05      8
  2 2. 2. 0. 0.     1
  3 4. 4. 0. 0.     1
  3  3. 3. 0. 0.      1
  5 3. 3. 0. 0.     1
  6 20. 20. 0. 0.   1
  7  36. 36.  0. 0.   1
UP 3
 3  3. 3. 0. 0.     1
C /3/4/
 4  3. 3. 0. 0.     1
SAVE  (CR)
SAVED
END  (CR)
READY
TTC39TRF TEAM1 T8003 10321240 (CR)
*****************************************************
*       AN/TTC39 TRAFFIC GENERATOR  BEING INVOKED   *
*               BACKGROUND EXECUTION                *
*                                                   *
*   INPUT DATASET BEING USED IS:   TTC39.DATA(TRAFIN)  *
*   OUTPUT DATASETS BEING CREATED: TTC39.TRAFFIC       *
*                                  TTC39OUT.DATA        *
*****************************************************
>>>> CHECK DATASET NAMES. DO YOU WANT TO CONTINUE ? <<<<
YES (CR)
JOB 301 T8003TO  IS BEING INPUT
READY
IEF404I   T8003TO  ENDED    TIME=11.00.02
READY
EDIT TTC39(GOIN) DATA NONUM (CR)
```

```
EDIT
TV (CR)
L  (CR)
 MODEL2  TEST                                                    100
100.0
36.0
50.0
60.0
21.0
60.0
64.0
50.0
60.0
3.0
75.0
75.0
75.0
75.0
75.0
75.0
85.0
500.
80.
75.
0.
0.
0.
0.
500.                                                                                  1.0
60.0                                  5.0                                  60.0
     2     3     4     5     1     15
UP 10
85.0
C /85/75/
75.0
SAVE (CR)
SAVED
END  (CR)
READY
```

```
TTC39RUN TEAM1 T8003 10321240 TTC39NEW  (CR)
*************************************************************
*        THE AN/TTC-39 MODEL EXECUTION STEP                 *
*              BACKGROUND EXECUTION                         *
*                                                           *
*-----------------------------------------------------------*
*    INTERMEDIATE DATASETS ARE SAVED UNDER:                 *
*                    T8003.TTC39.XCOMOUT1                   *
*                    T8003.TTC39.YCOMOUT1                   *
*                    T8003.TTC39.STAT1                      *
*                    T8003.TTC39.TRFOUT1                    *
*                    T8003.TTC39.RANDOUT1                   *
*                    T8003.TTC39.TRUNK1                     *
*                                                           *
*-----------------------------------------------------------*
*   THE INPUT DATASETS TO BE USED ARE:                      *
*              T8003.TTC39.DATA(GOIN1)                      *
*              T8003.TTC39.OUT1                             *
*              T8003.TTC39.TRAFFIC1                         *
*************************************************************
>>>> CHECK DATASET NAMES. DO YOU WANT TO CONTINUE ? <<<<
YES (CR)
JOB 322 T8003G1 IS BEING INPUT
READY
EF404I   T8003G1  ENDED    TIME=11.31.06
READY
EDIT TTC39(POSTIN) DATA NONUM  (CR)
EDIT
TV  (CR)
I  (CR)
( enter input parameters for POSTSIM )  (CR)
SAVE  (CR)
SAVED
END  (CR)
READY
TTC39PST TEAM1 T8003 10321240 (CR)
*************************************************************
*   THE TTC39 POST PROCESSOR IS BEING INVOKED               *
*                                                           *
*-----------------------------------------------------------*
*   THE SIMULATOR OUTPUT DATA SETS TO BE ANALYZED ARE:      *
*              T8003.TTC39..XCOMOUT1                        *
*              T8003.TTC39.YCOMOUT1                         *
*              T8003.TTC39.STAT1                            *
*              T8003.TTC39.TRAFOUT1                         *
*              T8003.TTC39.RANDOUT1                         *
*                                                           *
*-----------------------------------------------------------*
*       PRINTER OUTPUT IS CLASS(A)                          *
*       PRINTER OUTPUT IS ROUTED TO LOCAL                   *
*************************************************************
>>>> CHECK DATASET NAMES. DO YOU WANT TO CONTINUE ? <<<<
YES (CR)
JOB T8003S1 IS BEING INPUT
READY
IEF404I   T8003S1  ENDED    TIME=11.35.32
LOGOFF (CR)
T8003 LOGGED OFF TSO AT 13:01:42 ON NOVEMBER 9 1977
```

APPENDIX B

BATCH EXECUTION OF THE AN/TTC39 SWITCH SIMULATOR

The AN/TTC39 Simulator may also be executed in the batch mode. The output datasets of all steps are saved and will be reused when the simulation is repeated. The following lists the JCL for the execution of all three simulator steps.

```
/T8003TS1 JOB (10321240,,240,20,500,,),TEAM8,
//          MSGLEVEL=(1,1),NOTIFY=T8003
/*ROUTE  PRINT LOCAL
//SCRTCH  EXEC PGM=IEHPROGM,REGION=40K
//SYSPRINT  DD SYSOUT=A
//D1    DD UNIT=3330,VOL=SER=TSOWK4,DISP=SHR
//SYSIN  DD *
 SCRATCH DSNAME=T8003.TTC39.TRAFFIC1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.OUT1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.TRFOUT1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.XCOMOUT1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.YCOMOUT1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.RANDOUT1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.STAT1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.TRUNK1,VOL=3330=TSOWK4,PURGE
 SCRATCH DSNAME=T8003.TTC39.CONFT1,VOL=3330=TSOWK4,PURGE
/*
//TRAF EXEC PGM=TRAFGEN,REGION=120K,TIME=1
//TRAF.STEPLIB DD DSN=SYS9.TTC39.LOAD,DISP=SHR
//TRAF.FT01F001 DD *
TWOPARTY DATA 4.1.1
$TRAFFIC 3000
TA341 1-10 S
END
LLV 1-10 S
END
DSVT 1-10 N
END
TA341 1 S
LLV 1 2 3 4
END
LLV 11 N
PBX 1 5 6 7
END
PBX 1 P
VNA 1 8 9 10
END
TGC VN
38A 1 11 12 13 9 3
END
```

```
TGC A8
DSVT 1 14 15 4 3 3
END
TGC A9
39A 1 16 3 7 6 6
END
DSVT 11 S
TA341 1 17 6 10
END
$PROB
17 1 300. 300. 0. 0. 1
2 60. 60. 0. 0. 1
3 1. 0. 0. 0. 8
4 10. 10. 0. 0. 1
5 60. 50. 70. 0. 2
6 0. 1. 0. 0. 8
7 7. 7. 0. 0. 1
8 60. 0.001 999. 5. 3
9 0. 0. 1. 0. 8
10 4. 4. 0. 0. 1
11 1.59 0.001 999. 2.23 4
12 0. 0. 0. 1. 8
13 3.0 3.0 0. 0. 1
14 60. 0.001 999. 1.0 5
15 0. 0. 0. 0. 8
16 60. .001 999. 1.0 6
17 59. 1.0 999. 0. 9
/*
//TRAF.FT06F001 DD SYSOUT=A
//TRAF.FT13F001 DD DSN=T8003.TTC39.OUT1,UNIT=SYSTS,
//      DISP=(NEW,CATLG),SPACE=(TRK,(1,10),RLSE),
//      DCB=(LRECL=84,RECFM=VBS,BLKSIZE=3280)
//TRAF.FT12F001 DD DSN=T8003.TTC39.CONFT1,UNIT=SYSTS,
//     SPACE=(TRK,(1,10),RLSE),VOL=SER=TSOWK4,DISP=(NEW,CATLG),
//     DCB=(LRECL=800,RECFM=U,BLKSIZE=800)
//TRAF.FT03F001 DD DSN=&TRAFFIC,UNIT=SYSDA,DISP=(NEW,PASS),
//     SPACE=(TRK,(1,10),RLSE),
//     DCB=(LRECL=80,RECFM=FB,BLKSIZE=3120)
//SORT EXEC PGM=IERRCOOO,REGION=120K
//SYSOUT DD SYSOUT=A
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,2,,CONTIG)
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,2,,CONTIG)
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,2,,CONTIG)
//SORTIN DD DSN=&TRAFFIC,UNIT=SYSDA,DISP=(OLD,DELETE),
//     DCB=(LRECL=80,RECFM=FB,BLKSIZE=3120)
//SORTOUT DD DSN=T8003.TTC39.TRAFFIC1,UNIT=SYSTS,DISP=(NEW,CATLG),
//     SPACE=(TRK,(1,10),RLSE),VOL=SER=TSOWK4,
//     DCB=(LRECL=80,RECFM=FB,BLKSIZE=3120)
//SYSIN DD *
    SORT FIELDS=(46,15,CH,A,1,5,FI,A)
/*
```

```
//GO   EXEC PGM=TTC39NEW,REGION=500K,TIME=4
//GO.STEPLIB DD DSN=SYS9.TTC39.LOAD,DISP=SHR
//GO.FT09F001 DD *
TWOPARTY RUN 2 ERROR EQUAL 0
$ROUTING
VNA A8 * VN
39A * * A9
38A VN * A8
$TRUNK
TGC VN
   AN 50
   AS 50
    KIND VN
TGC A9
  DS 50
   AS 50
   KIND 39
ERROR 0.
TGC A8
   AN 50
   AS 50
  KIND 38
$EQUIPMENT
  DMFS 100
  IMU 100
 TNGN 100
 DIGR 100
 LKG 100
DMFR 100
CLRG 100
SDMX 100
$MISC
 END 500
 MAXC 100
X 0
/*
//GO.FT06F001 DD  SYSOUT=A
//GO.FT20F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT21F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT22F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT23F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT24F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT25F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT26F001 DD DISP=(,DELETE),UNIT=SYSDA,
// SPACE=(CYL,(1,1),RLSE),DCB=(RECFM=VS)
//GO.FT10F001 DD DISP=(SHR),DSN=T8003.TTC39.TRAFFIC1
```

```
//GO.FT32F001 DD DISP=(SHR),DSN=T8003.TTC39.OUT1
//GO.FT30F001 DD DISP=(NEW,CATLG),UNIT=3330,VOL=SER=TSOWK4,
//     DSN=T8003.TTC39.XCOMOUT1,
// SPACE=(CYL,(1,10),RLSE),DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400)
//GO.FT31F001 DD DISP=(NEW,CATLG),UNIT=3330,VOL=SER=TSOWK4,
//     DSN=T8003.TTC39.YCOMOUT1,
// SPACE=(CYL,(1,10),RLSE),DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400)
//GO.FT33F001 DD DISP=(NEW,CATLG),UNIT=3330,VOL=SER=TSOWK4,
//     DSN=T8003.TTC39.TRFOUT1,
// SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=FB,BLKSIZE=400)
//GO.FT34F001 DD DISP=(NEW,CATLG),UNIT=3330,VOL=SER=TSOWK4,
//     DSN=T8003.TTC39.RANDOUT1,
// SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=FB,BLKSIZE=800)
//GO.FT35F001 DD DISP=(NEW,CATLG),UNIT=3330,VOL=SER=TSOWK4,
//     DSN=T8003.TTC39.STAT1,
// SPACE=(TRK,(1,10),RLSE),DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400)
//GO.FT38F001 DD DISP=(OLD,KEEP),UNIT=3330,VOL=SER=TSOWK4,
//     DSN=T8003.TTC39.CONFT1
//GO.FT42F001 DD DISP=(NEW,CATLG),UNIT=3330,VOL=SER=TSOWK4,
// DSN=T8003.TTC39.TRUNK1,SPACE=(TRK,(20,20),RLSE)
//GO.FT41F001 DD DUMMY
//GO.FT51F001 DD DUMMY
//GO.FT27F001 DD DISP=(,DELETE),UNIT=3330,VOL=SER=TSOWK4,
// SPACE=(TRK,(1,10),RLSE),DCB=(RECFM=VS)
//GO.FT28F001 DD DISP=(,DELETE),UNIT=3330,VOL=SER=TSOWK4,
// SPACE=(TRK,(1,10),RLSE),DCB=(RECFM=VS)
//POST  EXEC PGM=POSTSIM,REGION=120K,TIME=2
//POST.STEPLIB DD DSN=SYS9.TTC39.LOAD,DISP=SHR
//POST.FT05F001 DD *
$TRAFFIC SUMMARY
$CALL PROCESSING SUMMARY
$SWITCH UTILIZATION SUMMARY
/*
//POST.FT06F001 DD SYSOUT=A
//POST.FT07F001 DD SYSOUT=A
//POST.FT10F001 DD DSN=T8003.TTC39.XCOMOUT1,UNIT=SYSTS,
//   DCB=(RECFM=VBS,LRECL=100,BLKSIZE=400),DISP=(SHR,KEEP)
//POST.FT11F001 DD DSN=&SCRATCH,UNIT=SYSTS,DISP=(NEW,DELETE),
//     DCB=(LRECL=2500,RECFM=VBS,BLKSIZE=2500),
//     SPACE=(TRK,(1,10),RLSE)
//POST.FT31F001 DD DSN=T8003.TTC39.YCOMOUT1,UNIT=SYSTS,
//     DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400),DISP=(SHR,KEEP)
//POST.FT33F001 DD DSN=T8003.TTC39.TRFOUT1,UNIT=SYSTS,
//     DCB=(LRECL=100,RECFM=FB,BLKSIZE=400),DISP=(SHR,KEEP)
//POST.FT34F001 DD DSN=T8003.TTC39.RANDOUT1,DISP=(OLD,KEEP)
//POST.FT35F001 DD DSN=T8003.TTC39.STAT1,UNIT=SYSTS,
//     DCB=(LRECL=100,RECFM=VBS,BLKSIZE=400),DISP=(OLD,KEEP),
//     SPACE=(TRK,(20,20),RLSE)
//POST.FT39F001 DD *
        0.0          0.0      0    0    0    0
   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
     1    0    0    0    1    1    0
   0  0  0
/*
```

APPENDIX C

SYSTEM INSTALLATION

The following instructions have been prepared to help the user in installing the AN/TTC-39 Simulation System. The simulator is usually delivered on an unlabeled magnetic tape which contains three partitioned datasets.

TTC39.FORT with the FORTRAN source modules:
TRAFGEN, the traffic generator
TTC39NEW, the simulator
POSTSIM, the post-analysis program.

TTC39.DATA with a variety of traffic generator and simulation step input data.ram.

TTC39.CLIST with special clists for the execution of the simulation steps.

These datasets can be loaded from this tape to disk using a JCL setup similar to the following:

```
//T8003TD  JOB (10321240,,10,,60,,),ULFERS,MSGLEVEL=(1,1),
//  NOTIFY=T8003,MSGCLASS=Q
/*MESSAGE   JOB REQUIRES TAPE SER NO 001228 FOR INPUT          ****
//COPYPDS  EXEC  PGM=IEHMOVE
//SYSPRINT  DD  SYSOUT=A
//SYSUT1    DD  UNIT=3330,DISP=OLD,VOL=SER=TSOWK2
//DD1  DD  UNIT=3330,DISP=OLD,VOL=SER=TSOWK4
//T1 DD DSN=TTC039.FINAL,DISP=(OLD,KEEP),UNIT=TAPE9,
//  DCB=(LRECL=80,BLKSIZE=800,RECFM=FB),VOL=(,RETAIN,SER=001228),
//   LABEL=(,NL)
//SYSIN DD *
  COPY PDS=T8003.TTC39.FORT,FROM=TAPE9=(001228,1),TO=3330=TSOWK4,      C
               FROMDD=T1
  COPY  PDS=SYS9.TTC39.CLIST,FROM=TAPE9=(001228,2),TO=3330=TSOWK4,     C
               FROMDD=T1
  COPY PDS=T8003.TTC39.DATA,FROM=TAPE9=(001228,3),TO=3330=TSOWK4,      C
               FROMDD=T1
/*
//CATALOG  EXEC  PGM=IEHPROGM
//SYSPRINT  DD  SYSOUT=A
//SYSUT1    DD   UNIT=3330,DISP=OLD,VOL=SER=TSOWK4
//SYSIN     DD   *
        CATLG   DSNAME=T8003.TTC39.FORT,VOL=3330=TSOWK4
        CATLG   DSNAME=SYS9.TTC39.CLIST,VOL=3330=TSOWK4
        CATLG   DSNAME=T8003.TTC39.DATA,VOL=3330=TSOWK4
/*
```

A permanent partitioned load module dataset with the name SYS9.TTC39.LOAD must be established to receive the three load modules of the simulation system. The compiling and link-editing of the traffic generator, the simulator, and the post-analysis program may be accomplished by executing the command list 'TTC39CMP' in dataset TTC39.CLIST for each of the three compilations. Each execution of this list will create a background job and place the load module into the dataset SYS9.TTC39.LOAD. The simulation system is then operational.

DISTRIBUTION LIST

R100 - 2
R102/R103/R103R - 1
R102M - 1
R102T - 9
R104 - 1
R110 - 1
R123 - 1
R124A - 1

R200 - 1
R300 - 1
R400 - 1
R500 - 1
R700 - 1
R800 - 1
NCS-TS - 1
101A - 1

222 - 13

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