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NOS/BE 1
APPLICATION INSTALLATION HANDBOOK

REVISION RECORD

REVISION	DESCRIPTION
A	Manual released. This manual replaces part II – NOS/BE 1 of the Application Installation Handbook,
(07–17–79)	publication number 76071100, which is now obsolete.
B	TIGS section is completely revised including new CDC 795 Post Processor Option. Changes are also made
(12–17–79)	to APT IV 2 and GPSS V/6000 1.2 products to correspond to NOS/BE LV508 release. This edition obsoletes
	all previous editions.

Publication No.
84000980

LIST OF EFFECTIVE PAGES

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INSTALLATION AND MODIFICATION

This handbook presents information pertaining to the installation of applications software under NOS/BE. While the information in this handbook describes the application installation, users should reference the "Introduction" to NOS/BE Installation Handbook for additional information.

The application products presented are intended for use only as described in this handbook. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

RELEASE TAPES

The following application products are available under NOS/BE:

Application	Tape	Section
APEX III Out-of-Core System 1	PL45	2
APEX III Mixed Integer Programming Option	PL51	2
APEX III Matrix Reduction Option	PL52	2
APEX III Parametrics Option	PL53	2
APT IV 2	PL59A	3
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SIMSCRIPT I.5 3	PL27	8
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RELATED DOCUMENTATION

The following manuals contain relevant information on NOS/BE and/or the application products described in this handbook:

Title	Publication No.
NOS/BE Installation Handbook	60494300
APEX III Reference Manual	76070000
Application Executive Reference Manual	17322200
APT IV V2 Reference Manual	17326900
APT IV Internal Maintenance Specification[†]	
Beginning Graphics Users Guide	76077300
Data Handler Reference Manual	17322100
GPSS V/6000 General Information Manual	84003900
IMSL Reference Manual (Volumes 1-2)[†]	SMD150043
PERT/TIME General Information Manual	60133300
PERT/TIME Reference Manual	60133600
777/IGS Reference Manual	17321800
777/IGS Remote Job Entry User Guide	76077200
777/IGS User Guide	17322500
777/3D IGS Reference Manual	17326500
SIMSCRIPT I.5 Reference Manual	60358500
TIGS V1 Reference Manual	60455940
TOTAL Universal Reference Manual	76070300
1743-1 Reference Manual	89638400

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† These manuals may be ordered by title from Control Data Corporation, Software Manufacturing and Distribution, 4201 North Lexington Avenue, St. Paul, Minnesota 55112.

APEX-III OUT-OF-CORE SYSTEM 1

RELEASE DESCRIPTIONS

APEX-III Out-of-Core System 1 runs under the NOS/BE operating system. The FORTRAN Extended compiler is required for compiling APEX-III. APEX-III Out-of-Core System 1 is designed to execute from permanent files.

Hardware Requirements

APEX-III Out-of-Core System 1 requires the same minimum hardware configuration as NOS/BE except that a minimum field length of 100K octal is required to compile the system and a minimum of 64K octal is required to execute APEX-III.

Deficiencies

None.

Release Materials

APEX-III Out-of-Core System 1 resides on the tape known as PL45, in either 7-track (800 bpi) or 9-track (800 or 1600 cpi) format, has label OOCAPEXIIIV1P2 and contains nine binary files.

> File 1 – installation and verification deck in UPDATE PL form,
> File 2 – empty,
> File 3 – empty,
> File 4 – source code in UPDATE PL form,
> File 5 – empty,
> File 6 – sample output from the Out-of-Core System verification run,
> File 7 – sample output from the Mixed Integer Programming verification run,
> File 8 – sample output from the Matrix Reduction verification run, and
> File 9 – sample output from the Parametrics verification run.

A listing of the installation and verification deck (APEXC1) may be obtained from PL45 by executing the following job:

$$\text{LIST,} \left\{ \begin{array}{c} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\}.$$

ACCOUNT. (Supply valid ACCOUNT card.)

$$\text{LABEL(OLDPL,R,L=OOCAPEXIIIV1P2, D=} \left\{ \begin{array}{c} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\},$$
    VSN=APXOOC)

UPDATE(F,*==,L=7)

7/8/9

6/7/8/9

INSTALLATION PARAMETERS

None.

INSTALLATION AND VERIFICATION PROCEDURE

APEX-III Out-of-Core System 1 is installed and verified by executing deck APEXC1 contained on the first file of PL45. For those installations that have available any of the APEX-III options, deck APEXC1 may also be used to install and verify the APEX-III Out-of-Core System 1 with any combination of the APEX-III Mixed Integer Programming Option (MIP), APEX-III Matrix Reduction Option, and APEX-III Parametrics Option.

The deck APEXC1 performs three functions:

1. Reads the APEX-III Out-of-Core System from PL45, merging any APEX-III Options to be installed with the Out-of-Core System, compiles the combined system, and installs an executable file of the APEX-III system on a permanent file named APEXIII with the ID = APEX.

2. Makes a verification run for the Out-of-Core System and each option installed.

3. Copies sample verification run output from the release tape to OUTPUT for use in validating correct execution of the verification run(s).

This job deck also creates three permanent files which are needed when one uses the APEX-III USER feature. (Reference the APEX-III Reference Manual for detailed information.) For those installations where the USER feature is used infrequently, it may be desirable to maintain these three files on magnetic tape rather than permanent files. These three files are described below:

Name	ID	Contents
APEXPL	APEX	Partial APEX-III source code. Contains APEX-III COMMON regions and subroutines QBUFFER, QGET, QUSER, and QUSERDA.
APEXOV	APEX	Relocatable binary code of APEX-III overlay drivers.
APEXRL	APEX	Relocatable binary code of remaining APEX-III subroutines.

The deck APEXC1 contains UPDATE IF,DEF directives to simplify installation. The names used by these directives and their meaning when DEFINEd are as follows:

Name	Effect on Installation Job
MT	Uses 7-track magnetic tapes.
HD	Uses 9-track, 800 cpi, magnetic tapes.
PE	Uses 9-track, 1600 cpi, magnetic tapes.
MIP	APEX-III Mixed Integer Programming Option is installed with APEX-III Out-of-Core System 1.
RED	APEX-III Matrix Reduction Option is installed with APEX-III Out-of-Core System 1.
PAR	APEX-III Parametrics Option is installed with APEX-III Out-of-Core System 1.
CYB176	Required when installing on a CYBER 176.

APEXC1 may be extracted from PL45 and submitted for execution via the following job. Note that APEXC1 requires a change for execution. A valid ACCOUNT card must be supplied.

INST, $\left\{ \begin{array}{l} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\}$.

ACCOUNT.   (Supply valid ACCOUNT card.)

LABEL(OLDPL,R,L=OOCAPEXIIIV1P2, D= $\left\{ \begin{array}{l} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\}$,

    VSN=APXOOC)

REQUEST, COMPILE, *Q .

UPDATE(Q,*==,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

=IDENT,INST

=DEFINE $\left\{ \begin{array}{l} \text{MT} \\ \text{HD} \\ \text{PE} \end{array} \right\}$

=DEFINE MIP   (If Mixed Integer Programming Option.)

=DEFINE RED   (If Matrix Reduction Option.)

=DEFINE PAR   (If Parametrics Option.)

=DEFINE CYB176   (If installing on a CYBER 176.)

=D,APEXC1.8

ACCOUNT.   (Supply valid ACCOUNT card.)

=C,APEXC1

7/8/9

6/7/8/9

Error Messages

A nonfatal loader error will be encountered in loading the APEX-III system. The error message is of the form:

    NE4102///DUPLICATE ENTRY POINT NAME-EXIT
    PROGRAM NAME ———— FORSYS=
    LAST FILE ACCESSED - FORTRAN

Errors of any other form should be investigated.

APEX—III MIXED INTEGER PROGRAMMING OPTION (MIP)

RELEASE DESCRIPTIONS

The APEX-III Mixed Integer Programming Option runs under NOS/BE when installed with APEX-III Out-of-Core System 1. The FORTRAN Extended compiler is required for compiling and updating APEX-III MIP. APEX-III MIP is designed to execute from permanent files.

Hardware Requirements

APEX-III MIP requires the same minimum hardware configuration as NOS/BE except that a minimum field length of 100K octal is required to compile the system and a minimum of 64K octal is required for execution.

Deficiencies

None.

Release Materials

The APEX-III MIP resides on the tape known as PL51. PL51, in either 7-track (800 bpi) or 9-track (800 or 1600 cpi) format, has label MIPAPEXIIIV1P2 and contains six binary files.

    File 1 – empty,
    File 2 – empty,
    File 3 – empty,
    File 4 – source code in UPDATE PL form,
    File 5 – empty, and
    File 6 – empty.

INSTALLATION PARAMETERS

None.

INSTALLATION AND VERIFICATION PROCEDURE

The APEX-III MIP must be installed with APEX-III Out-of-Core System 1. The installation deck, APEXC1, on the APEX-III Out-of-Core System 1 tape, known as PL45, is used to install and verify the MIP Option. The name MIP is defined for the UPDATE IF,DEF directives in deck APEXC1 to merge the MIP Option with the Out-of-Core system.

(Reference "Installation and Verification Procedure" for APEX-III Out-of-Core System 1 for details of installation and expected error messages.)

APEX-III MATRIX REDUCTION OPTION (REDUCE)

RELEASE DESCRIPTIONS

The Apex-III Matrix Reduction Option runs under the NOS/BE operating system when installed with APEX-III Out-of-Core System 1. The FORTRAN Extended compiler is required for compiling and updating APEX-III REDUCE. APEX-III REDUCE is designed to execute from permanent files.

Hardware Requirements

APEX-III REDUCE requires the same minimum hardware configuration as NOS/BE except that a minimum field length of 100K octal is required to compile the system and a minimum of 64K octal is required for execution.

Deficiencies

None.

Release Materials

The APEX-III Matrix Reduction Option resides on the tape known as PL52. PL52, in either 7-track (800 bpi) or 9-track (800 or 1600 cpi) format, has label REDAPEXIIIV1P2 and contains six binary files.

    File 1 - empty,
    File 2 - empty,
    File 3 - empty,
    File 4 - source code in UPDATE PL form,
    File 5 - empty, and
    File 6 - empty.

INSTALLATION PARAMETERS

None.

INSTALLATION AND VERIFICATION PROCEDURE

The APEX-III Matrix Reduction Option must be installed with APEX-III Out-of-Core System 1. The installation deck, APEXC1, on the APEX-III Out-of-Core System 1 tape, known as PL45, is used to install and verify the REDUCE Option. The name RED is defined for the UPDATE IF,DEF directives in deck APEXC1 to merge the REDUCE Option with the out-of-core system.

(Reference "Installation and Verification Procedure" for APEX-III Out-of-Core System 1 for details of installation and expected error messages.)

APEX-III PARAMETRICS OPTION

RELEASE DESCRIPTIONS

The APEX-III Parametrics Option runs under the NOS/BE operating system when installed with APEX-III Out-of-Core System 1. The FORTRAN Extended compiler is required for compiling and updating APEX-III Parametrics. APEX-III Parametrics is designed to execute from permanent files.

Hardware Requirements

APEX-III Parametrics requires the same minimum hardware configuration as NOS/BE except that a minimum field length of 100K octal is required to compile the system and a minimum of 64K octal is required for execution.

Deficiencies

None.

Release Materials

The APEX-III Parametrics Option resides on the tape known as PL53. PL53, in either 7-track (800 bpi) or 9-track (800 or 1600 cpi) format, has label PARAPEXIIIV1P2 and contains six binary files.

    File 1 - empty,
    File 2 - empty,
    File 3 - empty,
    File 4 - source code in UPDATE PL form,
    File 5 - empty, and
    File 6 - empty.

INSTALLATION PARAMETERS

None.

INSTALLATION AND VERIFICATION PROCEDURE

The APEX-III Parametrics Option must be installed with APEX-III Out-of-Core System 1. The installation deck, APEXC1, on the APEX-III Out-of-Core System 1 tape known as PL45, is used to install and verify the Parametrics Option. The name PAR is defined for the UPDATE IF,DEF directives in deck APEXC1 to merge the Parametrics Option with the out-of-core system.

(Reference "Installation and Verification Procedure" for APEX-III Out-of-Core System 1 for details of installation and expected error messages.)

RELEASE DESCRIPTION

APT IV Version 2 (APT IV 2) is a numerical control language processor designed to generate cutter location coordinates. The user has the capability to fully describe the part to be machined and then drive the tool along the chosen path. The output from APT IV 2 is a verification listing and a file for input to a post processor. APT IV 2 has all the capabilities of APT IV in addition to new language features and extensions.

APT IV 2 runs under the NOS/BE operating system on a CDC host computer having at least 65,000 words of central memory.

RELEASE MATERIALS

APT IV 2 resides on the tape known as PL59A. This release tape contains six files:

File 1 – installation/maintenance program library.

File 2 – absolute modules of the APT IV 2 system. The file should be placed on the system library if the user does not wish to modify the APT IV processor. File 3 of PL59A was used to make file 2.

File 3 – relocatable binary records of all routines needed for the standard mode; included are the binary records, COD4, PRD4, PTR4, POO4 and COO4 which are produced by the LOAD COMPLEX. This file is ready to be loaded by the host computer system and will produce the absolute modules contained on file 2.

File 4 – program library in UPDATE format. Following the YANK$$$ deck, the first 67 decks, TAPEOP through ZSSPICT, are common decks called by one or more of the succeeding decks. The next 16 decks, LLDM through LBCDBIN, are the LOAD COMPLEX. The next deck, LLCDATA, is data used by the LOAD COMPLEX routines. The next 93 decks, TAPT4T through TLCANON, are the TRANSLATOR. The next 378 decks, XAPT4E through XTRANSF57 are the EXECUTION COMPLEX. The next 45 decks, CAPT4C through CTAPEWT are the CLEDITOR. The last 18 decks, PAPT4P through PTAPEWT are the POST EXEC.

File 5 – sample part program. Job control cards are provided for correct operation with system overlays resident in the system library, permanent files, or user library.

File 6 – listing of the sample job, not including the dayfile.

INSTALLATION REQUIREMENTS

The system has four general modes of operation:

1. Standard mode – offers all capabilities except parametric and sculptured surfaces. This mode requires approximately $115,000_8$ words of field length to build the system and for execution.

2. Parametric surface mode – offers all capabilities of the standard system plus the added features of parametric surface processing. This mode does not include sculptured surface processing. Approximately $115,000_8$ words are required to build the system and ($115,000_8$ plus the length of the FORTRAN parametric surface routines) words for execution.

3. Sculptured surface mode – offers all capabilities of the standard system plus the added features of sculptured surfaces processing. This mode does not include parametric surface processing. Approximately $135,000_8$ words are required to build and execute the system.

4. Parametric and sculptured mode – both parametric and sculptured surface processing may be used. Approximately $135,000_8$ words are required to build the system and ($135,000_8$ plus the length of the FORTRAN parametric surface routine) words for execution.

INSTALLATION OPTIONS

The user may choose one of four modes:

Parametric surface,
Sculptured surface,
Parametric and sculptured surface, and
Neither parametric nor sculptured surface.

The release system operates with neither parametric nor sculptured surfaces.

In addition to the above mode, the user may choose one of three residences for the APT system:

System library,
Permanent files, or
User library.

The released system operates from the system library.

The user may wish to have local modifications incorporated.

INSTALLATION PROCEDURES

The following control cards may be used to obtain a listing of the installation decks from PL59A:

LIST, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT.

LABEL(OLDPL,R,L=APT4V2, D= $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$, VSN=PL59A)

UPDATE(F,*=$$$$,L=A1247)

7/8/9

6/7/8/9

The following DEFINE options are specifiable in the installation decks:

$\left\{ \begin{matrix} \text{STANDARD} \\ \text{COMPLEX} \\ \begin{Bmatrix} \text{SYSTEM,} \\ \text{PERMFILE,} \\ \text{USERLIB ,} \end{Bmatrix} \end{matrix} \; \begin{Bmatrix} \text{SSSURF,} \end{Bmatrix} \begin{Bmatrix} \text{PARSURF} \end{Bmatrix} \right\} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$

STANDARD APT SYSTEM INSTALLATION

The standard APT IV 2 system is on file 2 of the release tape, PL59A. The standard APT system is installed into the host computer operating system via an EDITLIB (SYSTEM). The standard APT system does not include parametric or sculptured surfaces.

The selection of the standard APT system precludes the selection of any and all other parameters except MT/NT. The UPDATE deck to perform the installation of the standard system is as follows:

STAN, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT.

LABEL(OLDPL,R,L=APT4V2, D= $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$, VSN=PL59A)

REQUEST(COMPILE,*Q)

UPDATE(Q,*=$$$$,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

$IDENT,DECKSELC

$DELETE,STANDECK.13   (To change ACCOUNT cards as needed.)

ACCOUNT.

$DEFINE, $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$

$DEFINE,STANDARD

$COMPILE,STANDECK

6/7/8/9

If the user selects to install the standard system, the user must be prepared to do system EDITLIBs.

One of the following tape densities must be defined to install APT:

HY	7-TRACK,800BPI
HD	9-TRACK,800BPI
PE	9-TRACK,1600CPI

MODIFICATION OF THE LOAD COMPLEX ROUTINES

The deck COMPLEX may be used to modify the five relocatable decks produced by the LOAD COMPLEX. The names of the decks are COD4, PRD4, PTR4, POO4, and COO4. Once the user modifications are determined and inserted, the deck COMPLEX compiles the LOAD COMPLEX routines LLDM through LBCDBIN. The deck LCCDATA, which is to be modified by the user, is the input data for the LOAD COMPLEX execution. The output, five FORTRAN BLOCK DATA routines, is then compiled and the relocatable decks replace their counterparts on file 3 of the new release tape.

Next, the user should complete the installation of the APT system by running a second job to specify any other installation option.

NOTE
Use of the COMPLEX option precludes the use of the standard option in this next job.

The deck SOURCDK will be used to complete the installation using the output tape of the previous job as the OLDPL for this next job.

A sample procedure to install modifications to the LOAD COMPLEX routines is as follows:

COMPLX, $\begin{Bmatrix} \text{MT1.} \\ \text{HD1.} \\ \text{PE1} \end{Bmatrix}$

ACCOUNT.

LABEL(OLDPL,R,L=APT4V2, D= $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$, VSN=PL59A)

REQUEST(COMPILE,*Q)

UPDATE(Q,*=$$$$,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

$IDENT,COMPMOD

$DELETE,COMPLEX.10   (To change ACCOUNT cards as needed.)

ACCOUNT.

$$\text{\$DEFINE,} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$$

$DEFINE,COMPLEX

$INSERT,COMPLEX.70

*IDENT,COMPLX

*INSERT,LITL.43

C I MODIFIED THIS WITH A COMMENT CARD

                                   (Insert mods here as needed.)

*COMPILE,LITL

$INSERT,COMPLEX.74

*IDENT,LCMOD

*DELETE,LLCDATA.2   (Insert mods to LLCDATA
                                 here as needed.)

, (15 spaces) 1000

*COMPILE,LLCDATA

$COMPILE,COMPLEX

6/7/8/9

Before proceeding to the next job, review the results of this job to be sure that the intended modifications have been made correctly.

NONSTANDARD APT SYSTEM INSTALLATION

To perform nonstandard installation, the user:

    Must not select the option standard and
    Must not select the option COMPLEX during
    this run.

The user may, however, have selected COMPLEX for the previous run to generate a new input tape for this job.

The DEFINE options available for a nonstandard installation are:

$$\begin{Bmatrix} \text{SYSTEM,} \\ \text{PERMFILE,} \\ \text{USERLIB,} \end{Bmatrix} \{\text{SSSURF,}\} \{\text{PARSURF,}\} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$$

The user may select only one of SYSTEM, PERMFILE or USERLIB to specify whether the APT system is installed in the system library, as permanent files or as a user library.

The deck SOURCDK is used to install the nonstandard APT system.

In addition to selecting the type of residency, the user may DEFINE:

1.   SSSURF   -the sculptured surface feature is installed.

2.   PARSURF-the parametric surface feature is installed.

Local modifications may be installed (no DEFINE needed) by inserting the mods into SOURCDK at the obvious place (look at the listing of SOURCDK at line 170).

Any combination of the above may be installed.

SAMPLE INSTALLATION RUNS

To install APT with parametric surfaces into the system library:

$$\text{INSTAL,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.

$$\text{LABEL(OLDPL,R,L=APT4V2, D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL59A)}$$

REQUEST(COMPILE,*Q)

UPDATE(Q,*=$$$$,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

$IDENT,SELECDK

$DELETE,SOURCDK.10(To change ACCOUNT cards
                                 as needed.)

ACCOUNT.

$$\text{\$DEFINE,} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$$

$DEFINE,SYSTEM

$DEFINE,PARSURF

$COMPILE,SOURCDK

6/7/8/9

To install APT with sculptured surfaces, parametric surfaces, PSRs and local modifications onto permanent files:

$$\text{INSTAL,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.

$$\text{LABEL(OLDPL,R,L=APT4V2, D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL59A)}$$

REQUEST(COMPILE,*Q)

UPDATE(Q,*=$$$$,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

$IDENT,SELECDK

$DELETE,SOURCDK.10 (To change ACCOUNT cards
                                as needed.)

ACCOUNT.

$$\text{\$DEFINE,} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$$

$DEFINE,SSSURF

$DEFINE,PARSURF

```
$DEFINE,PERMFILE

$INSERT,SOURCDK.127

*INSERT,TCILOUT.4

C MODIFY TCILOUT WITH A COMMENT CARD; A
SAMPLE LOCAL MOD

*COMPILE,TCILOUT

$COMPILE,SOURCDK

6/7/8/9
```

VERIFICATION PROCEDURE

To obtain a listing of the verification job, run the following procedure:

$$\text{LIST,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

```
ACCOUNT.
```

$$\text{LABEL(PL59A,R,L=APT4V2, D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL59A)}$$

```
SKIPF(PL59A,4,17)

COPYBF(PL59A,OLDPL)

UPDATE(F,*=$$$$, L=A1247)

6/7/8/9
```

The DEFINE options in the verification job coincide with the method under which APT was installed (i.e., STANDARD, SYSTEM, USERLIB, PERMFILE). Choose only one of these options when running the verification job.

To run the verification job, assuming APT was installed on permanent files, execute the following procedure:

$$\text{PERMAMP,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

```
ACCOUNT.
```

$$\text{LABEL(PL59A,R,L=APT4V2, D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL59A)}$$

```
SKIPF(PL59A,4,17)

COPYBF(PL59A,OLDPL)

REQUEST(COMPILE,*Q)

UPDATE(Q,*=$$$$,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

$IDENT,SELECDK

$DELETE,VERIFY.3    (To change ACCOUNT cards
                     as needed.)

ACCOUNT.

$DEFINE,PERMFILE

$COMPILE,VERIFY

6/7/8/9
```

The verification job is a sample APT IV part program with neither parametric nor sculptured surfaces. The output from this job should be compared to file 6 of PL59A. File 6 can be printed with a COPYSBF.

RELEASE DESCRIPTION

HARDWARE REQUIREMENTS

A minimum field length of 100K octal is required to load GPSS V 1.2. Once loaded, it requires a minimum field length of 45K octal to execute. Other requirements are the same as the minimum hardware configuration for NOS/BE.

RELEASE MATERIALS

The release materials for GPSS V Version 1.2 are included on the release tape PL35. The release tape contains six files:

File 1 – GPSS V installation job decks GPS1 and GPS2 in UPDATE format,

File 2 – GPSS V Preloaded absolute binaries,

File 3 – GPSS V relocatable binaries,

File 4 – GPSS V program library in UPDATE format,

File 5 – Empty and

File 6 – Sample output from the model executed by GPS1 and GPS2.

INSTALLATION PROCEDURES

File 1 of PL35 contains the installation/verification decks, GPS1 and GPS2.

GPS1 updates the GPSS V program library (file 4), reassembles the system, and installs the preloaded absolute binaries on a direct access permanent file named GPSS.

GPS2 installs the preloaded absolute binaries from file 2 on a direct access permanent file named GPSS.

GPSS V runs from a local file. It cannot be executed from the running system. The local file name for GPSS V must be GPSS.

GPS1 and GPS2 execute a GPSS model as part of the installation/verification process. After execution of the model, sample output from the model on file 6 of PL35 is listed for comparison to validate correct installation of GPSS.

GPS1 and GPS2 may be obtained from PL35 by executing a job of the following form:

$$\text{EXTRACT,CM45000,T100,} \left\{ \begin{array}{l} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\}.$$

ACCOUNT.   (Supply valid ACCOUNT card.)

$$\text{LABEL(PL35,R,L=GPSSV1P2, VSN=PL35, D=} \left\{ \begin{array}{l} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\})$$

UPDATE(Q,P=PL35,*==,C=PUNCH)

7/8/9

=IDENT,INST

$$\text{=DEFINE} \left\{ \begin{array}{l} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\}$$

=/   UPDATE CARDS TO MODIFY INSTALL DECKS GO HERE.

$$\text{=C} \left\{ \begin{array}{l} \text{GPS1} \\ \text{GPS2} \end{array} \right\}$$

6/7/8/9

If a card punch is not available or if the user desires to execute either GPS1 or GPS2 directly from PL35, the following three cards should be substituted for the UPDATE card in the previous deck:

REQUEST(COMPILE,*Q)
UPDATE(Q,P=PL35,*==)
ROUTE(COMPILE,DC=IN)

To list GPS1 or GPS2 as they appear on PL35, a job of the following form should be executed:

$$\text{LIST,CM45000,T100,} \left\{ \begin{array}{l} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\} .$$

ACCOUNT   (Supply valid ACCOUNT card.)

VSN(TAPE=PL35)

$$\text{LABEL(TAPE,R,L=GPSSV1P2, D=} \left\{ \begin{array}{l} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\})$$

UPDATE(Q,L=A12347,*==,P=TAPE)

7/8/9

=IDENT,INST

=C GPS1

=C GPS2

6/7/8/9

The user should check the lists and add valid ACCOUNT information.

INSTALLATION PARAMETERS

For maximum efficiency, several installation options are provided to configure GPSS V to individual installations. To select an option, an update *DEFINE option name card should be included in the configuration run. Options are:

Option	Definition
CRM	All I/O requests will be processed by the CYBER record manager. If not selected, standard CIO requests will be used. CYBER record manager will be used for I/O on the following files: INPUT, OUTPUT, JOBTA1, JOBTA2, and JOBTA3. All internal file operations on files not available to the HELP block user still use CIO directly for speed purposes.
CP64	Code will be optimized for a 6400 type processor. If not selected, a 6600 type processor is assumed.
XJOP	Monitor requests will be executed via the XJ instruction. If not selected, the XJ instruction is not used.
IMUL	Integer multiply hardware is installed.
FILELOAD	If defined, the preloader will create a random file containing the overlays. This version of GPSS cannot be placed on the system, but must be run from a permanent file. However, the field length required to start a GPSS run is reduced to what is needed to load the (0,0) overlay plus the longest primary overlay, which is about 30K instead of approximately 75 to 105K when FILELOAD is not defined. No ECS load options are available when FILELOAD is defined.
REPRIEVE	If defined, the error termination printout section is executed when GPSS execution is halted due to operator drop, exceeding CP or I/O time limit, or exceeding mass storage limit. Thus, the results of the simulation up to the point at which GPSS execution is halted for one of the above reasons is printed. If REPRIEVE is not defined, GPSS execution is halted without an error termination printout.

Option	Definition
FTRACE	If defined, then in addition to the standard one-line trace of GPSS V/6000, the current transaction is also listed. This option slows down a simulation which uses the TRACE feature by a factor of 2 to 10 depending upon the amount of tracing done. It also increases the minimum field length for all runs by 2 to 3K.
LISALL	If defined, LIST and UNLIST cards are listed on the output file when encountered. Otherwise, they are never listed.

CMR, XJOP, IMUL, and REPRIEVE are included by default in the install deck GPS1.

Other parameters that may be changed for an installation are the operating system name and installation name. Cards of the following type may be used as input to update to change these parameters:

```
*D,GPSSTXT.419,GPSSTXT.420
OPSYSTEM MICRO 1, , $NOS/BE 1.X$
INSTALL MICRO 1, , $installation name$
```

NOTES AND CAUTIONS

The deck GPSSTXT on the source OLDPL (file 4) of PL35 contains documentation which is an overview of the system. It is not required but may be helpful for the user to obtain a listing of GPSSTXT by assembling it using COMPASS.

When loading GPSS V, five nonfatal errors are noted. These errors are of the form:

DUPLICATE ENTRY POINT NAME - INIT

Errors of any other form should be investigated.

RELEASE DESCRIPTION

IMSL 7 (International Mathematical and Statistical Library, Version 7) consists of more than 400 FORTRAN functions and subprograms. IMSL 7 is on PL87.

HARDWARE REQUIREMENTS

IMSL 7 requires the minimum hardware configuration for NOS/BE.

NOTES AND CAUTIONS

The installation process does not provide program listings. If a program listing is needed (it is very long), the FTN card in the install deck may be appropriately modified (remove L=0).

RELEASE MATERIALS

IMSL 7 resides on the tape known as PL87. PL87 is a program library in UPDATE format. It has the following characteristics: 7-track (800 bpi) or 9-track (800 or 1600 cpi), binary recording mode, eight files:

File 1 – install deck in UPDATE OLDPL format,
File 2 – empty file,
File 3 – empty file,
File 4 – program deck in UPDATE OLDPL format,
File 5 – verify job control language deck in UPDATE OLDPL format,
File 6 – expected verify output ((COPYBF,OUTPUT) format),
File 7 – verify program deck in UPDATE OLDPL format, and
File 8 – deleted routines from Version 6 in UPDATE PL format (included for conversion purposes).

INSTALLATION PROCEDURES

The procedures for the installation of IMSL 7 are outlined in the following four steps.

STEP 1.

This step includes:

• Installation deck,
• Verification deck, and
• Expected verify output.

NOTE

The user must supply appropriate job and accounting cards.

$$\text{JOB,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.   (Supply appropriate accounting data.)

$$\text{REQUEST(TAPE,} \begin{Bmatrix} \text{MT} \\ \text{NT} \end{Bmatrix}, \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=IMSLIB,E)}$$

REWIND(TAPE)

UPDATE(P=TAPE,F,D,8,I=DUMMY,*=/,L=7)

REWIND(TAPE)

SKIPF(TAPE,4,17)

UPDATE(P=TAPE,F,D,8,*=/,L=7,R,I=DUMMY)

REWIND(TAPE)

SKIPF(TAPE,5,17)

COPYBF(TAPE,OUTPUT,1)

6/7/8/9

STEP 2.

Installation characteristics are:

• Permanent file name = IMSLIB, and
• Public access rights (ID=PUBLIC).

$$\text{JOB,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.   (Supply appropriate accounting data.)

$$\text{REQUEST(TAPE,} \begin{Bmatrix} \text{MT} \\ \text{NT} \end{Bmatrix}, \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=IMSLIB,E)}$$

REQUEST(COMPILE,*Q)

UPDATE(P=TAPE,F,D,8,*=/)

ROUTE(COMPILE,DC=IN)

7/8/9

/IDENT IMSL   (Optional.)

/DEFINE NOSBE   (Required.)

Note that one of the following three tape parameters is required.

/DEFINE MT   (7-track, 800 bpi.)
/DEFINE NT   (9-track, 800 cpi.)
/DEFINE NTPE   (9-track, 1600 cpi.)

/DELETE IMSLIL.XX   (Required.)

$$\text{JOB,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}, \text{T1200.}$$ (Supply appropriate job and account information.)

ACCOUNT.

6/7/8/9

STEP 3.

Refer to the following:

JOB, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT.   (Supply appropriate accounting data.)

REQUEST(TAPE, $\begin{Bmatrix} \text{MT} \\ \text{NT} \end{Bmatrix}$, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$, VSN=IMSLIB,E)

SKIPF(TAPE,4,17)

REQUEST(COMPILE,*Q)

UPDATE(P=TAPE,F,D,8,*=/,R=C)

ROUTE(COMPILE,DC=IN)

7/8/9

/IDENT IMSL   (Optional.)

/DEFINE NOSBE   (Required.)

One of the following three tape parameters (required):

/DEFINE MT	(7-track, 800 bpi.)
/DEFINE NT	(9-track, 800 cpi.)
/DEFINE NTPE	(9-track, 1600 cpi.)

/DELETE IMSLVL.XX (Required.)

JOB, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$, T300. (*,*,*,*) accounting data. (Supply appropriate job and account information.)

ACCOUNT.

6/7/8/9

STEP 4.

Do a minimal visual comparison of the expected verify output and the actual verify output.

NOTE

A large number of routines from Version 6 have been replaced by other named routines in Version 7. No name conflicts exist. If the old routines are needed, add the following card to the data record in the Step 2 job:

/DEFINE IMSL6

RELEASE DESCRIPTION

HARDWARE CONFIGURATION

PERT/TIME requires a minimum hardware configuration with at least 65K (octal) central memory, three tape units, and the other minimum equipment required by NOS/BE.

RELEASE MATERIALS

PERT/TIME is on release tape PL85. PL85 contains PERT2P0 as file ID in HDR1 and six files:

> File 1 – installation deck program library in UPDATE format,
> File 2 – PERT/TIME in absolute binary format,
> File 3 – PERT/TIME in relocatable binary format,
> File 4 – source PL in UPDATE format,
> File 5 – empty, and
> File 6 – empty.

LIMITATIONS

Because the file names TAPE1 through TAPE7 are used internally, no user file name may be TAPE 1 through 7.

INSTALLATION PROCEDURES

Release tape PL85 contains PERT/TIME. To get a listing and a punched-card copy of the installation decks from the first file of PL85, run a job similar to the following (if a card punch is not on-line, the decks must be keypunched by hand):

JOB statement, $\left\{ \begin{array}{c} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\}$.

ACCOUNT information

VSN(TAPE=PL85)

LABEL(TAPE,R,L=PERT2P0,D= $\left\{ \begin{array}{c} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\}$)

UPDATE(F,L=A12347,P=TAPE)

REWIND(COMPILE)

COPYBF(COMPILE,PUNCH)

7/8/9

6/7/8/9

The following job installs PERT/TIME executable binary on a permanent file:

JOB statement, $\left\{ \begin{array}{c} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\}$.

ACCOUNT information

VSN(TAPE=PL85)

LABEL(TAPE,R,L=PERT2P0, $\left\{ \begin{array}{c} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\}$)

REQUEST(PERT78,*PF)

SKIPF(TAPE,1,17)

COPYBF(TAPE,PERT78)

CATALOG(PERT78,ID=PERT78)

6/7/8/9

To execute from the release tape PL85, run a job similar to the following:

PERT,T1000, $\left\{ \begin{array}{c} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{array} \right\}$.

ACCOUNT information

VSN(TAPE=PL85)

LABEL(TAPE,R,L=PERT2P0, $\left\{ \begin{array}{c} \text{HY} \\ \text{HD} \\ \text{PE} \end{array} \right\}$)

SKIPF(TAPE,1,17)

COPYBF(TAPE,PERT78)

PERT78.

$\left. \begin{array}{l} 7/8/9 \\ 6/7/8/9 \end{array} \right\}$ PERT networks

If a master data tape is made, insert the following after the LABEL statement:

REQUEST TAPE6,MT.

If an old master data tape is input and a new master data tape saved, insert the following after the LABEL statement.

REQUEST TAPE4,MT.   OLD MASTER
REQUEST TAPE6,MT.   NEW MASTER

If either option is used the MT1 job card parameter must be increased. An entry must be placed on the Y-card for each additional tape used.

Successive PERT/TIME networks may be processed by batching as follows (a higher FL will be required):

```
K
L
M
X
Y
W
A                PERT BATCHED NETWORKS
•
•
•
A
Z
K
L
•
•
Z
```

(Input for each network starts with the K control card and ends with the Z control card.)

The following job compiles and installs PERT/TIME from the source PL to a permanent file:

JOB statement, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT information

VSN(TAPE=PL85)

LABEL(TAPE,L=PERT2P0, $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$)

SKIPF(TAPE,3,17)

UPDATE(F,P=TAPE,R)

UNLOAD(TAPE)

REWIND(COMPILE)

REQUEST(PERT78,*PF)

FTN(I=COMPILE,B=PERT,L=0)

LOAD(PERT)

NOGO(PERT78)

CATALOG(PERT78,ID=PERT78)

7/8/9

6/7/8/9

PRODUCT DESCRIPTION 777/IGS (HOST AND REMOTE) VERSION 2.2

777/IGS (HOST and REMOTE), Version 2.2, in conjunction with INTERCOM 4 and the NOS/BE operating system, provides a remote interactive graphics capability with timeshared access to Control Data CYBER 170L, CDC CYBER 70L, and 6000 series computers from the 777 CYBER graphics terminal. Remote batch jobs may be submitted from 777 terminals equipped with a remote card reader and line printer.

The 777/IGS host library provides the interface between the user's application program written in FORTRAN Extended and the operator of the 777 console. The console operator interacts with the application through the keyboard, function keys, and light pen.

The 777/IGS controller software allows the console operator all INTERCOM commands and capabilities available to nongraphic CRT terminals and the use of remote batch capabilities as provided by 1700 IMPORT and controlled by the TTY. If the controller software is defined as voice grade communication, remote batch capabilities are compatible to a 200 UT via the 777 console.

PRODUCT DESCRIPTION - 777/IGS WITH 3D (HOST AND REMOTE) VERSION 2.2

777/IGS with 3D (HOST and REMOTE), Version 2.2, is a logical extension of 777/IGS (HOST and REMOTE), Version 2.2. 777/IGS with 3D provides the capabilities of 777/IGS and a three-dimensional (3D) graphics capability.

Prior to Version 2.2, the 777/IGS 3D products consisted of 3D routines added to the 777/IGS routines during installation to form a graphics system with 3D capability. Beginning with Version 2.2, 777/IGS with 3D contains all the routines of a complete graphics system with 3D capability. This change in release format allows a simpler installation procedure using two release tapes rather than four.

777/IGS (HOST)

RELEASE DESCRIPTIONS

777/IGS (HOST) runs under the NOS/BE operating system. Accordingly, it requires the same minimum hardware configuration as NOS/BE. 777/IGS (HOST) is designed to be used from permanent files.

Release Materials

777/IGS (HOST) resides on the tape known as PL40. This release tape contains six files:

File 1 - program library of installation job,
File 2 - program library of demo programs,
File 3 - program library of the CDC CYBER graphics terminal performance program (CGTPP),
File 4 - program library of 777/IGS (HOST),
File 5 - empty, and
File 6 - empty.

The CGTPP is provided by the Systems Division of Vought Corporation and is included with these release materials at the request of VIM, Inc.

Notes and Cautions

The installation of 777/IGS requires installing from PL40 (HOST) and PL41 (REMOTE). The installation jobs are on the first file of the tapes. The installation of INTERCOM 4 is required before attempting to use 777/IGS but is not necessary for proper installation. 777/IGS runs on a Control Data CYBER graphics terminal, model 777-1, 777-2, or 777-3. Graphics activity should be stopped during installation of new 777/IGS host software.

INSTALLATION PROCEDURE

File 1 on PL40 contains the deck INSTALL which is used to install the host software system (777/IGS library and debug library), the binaries for the demo programs, and the CGTPP.

The user performs an UPDATE run to list the install job deck and locate the ACCOUNT and JOB cards in the deck. As part of the EXTRACT procedure, the ACCOUNT and/or JOB cards should be modified appropriately for the user's installation. To list the contents of the install job deck, run the following job:

$$\text{LIST,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.

$$\text{LABEL,OLDPL,R,L=777IGSH, D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=PL40.}$$

UPDATE,F,*=+,L=A7.

UNLOAD,OLDPL.

7/8/9

6/7/8/9

Braces, { }, in this section, indicate alternate parameters for installation from 7-track release tapes (top alternate) or from 9-track release tapes (bottom two alternates).

Execution of the following procedure will install the host software:

$$\text{EXTRACT,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix} .$$

ACCOUNT.

$$\text{LABEL,OLDPL,R,L=777IGSH,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} , \text{VSN=PL40.}$$

REQUEST,COMPILE,*Q.

UPDATE,F,*=+,D,8.

ROUTE,COMPILE,DC=IN.

7/8/9

+IDENT BUILD

$$\text{+DEFINE} \begin{Bmatrix} \text{7-TRACK} \\ \text{9-TRACK} \\ \text{9-TRPE} \end{Bmatrix} \begin{Bmatrix} \text{7 TRACK, 800 bpi} \\ \text{9 TRACK, 800 cpi} \\ \text{9 TRACK, 1600 cpi} \end{Bmatrix}$$

+DEFINE parameters as described below

+DELETE INSTALL.6

ACCOUNT.   } To change ACCOUNT and/or
other modifications } JOB cards as necessary.

6/7/8/9

The second +DEFINE card defines parameters by which optional functions of the install job are requested. These parameters are as follows:

Parameter	Definition
IGSDBUG	The 777/IGS debug library is cataloged (IGSDBUG,ID=777).
CATDEMOS	Demo program relocatable binary files are cataloged (DEMO1,ID=777 through DEMO4, ID=777).
VOUGHT	Vought Corporation's Control Data CYBER graphics terminal performance program absolute binary file is cataloged (CGTPP, ID=777).

Regardless of the defined option parameters, the 777/IGS library will be cataloged (IGS777,ID=777).

NOTE

The graphics class PP program, GCC, is installed during NOS/BE installation.

777/IGS (REMOTE)

RELEASE DESCRIPTIONS

The 777 controller software allows a console operator the use of all INTERCOM commands and capabilities to nongraphic CRT terminals. Use of remote batch capabilities as provided by 1700 IMPORT and controlled by the TTY are also available. If the controller software is defined as voice grade, remote batch capabilities are compatible to a 200 UT via the 777 console.

Release Materials

777/IGS (REMOTE) resides on the tape known as PL41. This release tape contains six files:

File 1 - program library of installation job,

File 2 - absolute binary of 8-bit intermediate bootstrap (405/430 card reader bootstrap),

File 3 - absolute binaries of installation utility programs
record 1: assembler, and
record 2: binary generation routine,

File 4 - program library of 777/IGS (REMOTE),

File 5 - empty, and

File 6 - empty.

Notes and Cautions

The installation of 777/IGS requires installing from PL40 (HOST) and PL41 (REMOTE). The installation jobs are on the first file of the tapes. The installation of INTERCOM 4 is required before attempting to use 777/IGS but is not necessary for proper installation.

777/IGS runs on a Control Data CYBER graphic terminal, model 777-1, 777-2, or 777-3.

A 415 card punch is needed to install 777/IGS REMOTE software.

At sites with a 1729-3 card reader, do not mark the backs of any cards. This type of reflective reader may interpret the marks as punched holes.

There is a configuration change (for MSOS 4 compatibility) with Version 2.1 of 777/IGS and an addition of several new peripheral options with Version 2.2. Users currently on 777/IGS Version 2.0 will have to change the controller interrupts before going to a later system. The changes and additions are shown in tables 7-1 and 7-2. See also the 1743-1 Reference Manual.

TABLE 7-1. INTERRUPT/EQUIPMENT HISTORY

	V2.0	V2.1	V2.2
HW Error Processor	0/-	0/-	0/-
TTY	1/1	1/1	1/1
Zeta Plotter	-	-	2/2
Line Printer	5/15	4/4	4/4
Voice Grade Communications	-	5/5	5/5
405 CR	6/6	6/6	6/6
1732-3 Magnetic Tape	-	-	7/7
777 DCI Console 1	10/4	8/8	8/8
Wideband Communications	3/5	9/9	9/9
1743-2 (Hardcopy)	-	-	10/10
430 CR	9/9	11/11	11/11
777 DCI Console 2	11/12	12/12	12/12
777 DCI Console 3	12/2	14/14	14/14

TABLE 7-2. FJ606 (1743) STRAPPING OPTIONS

Sync Bits	⟶ Bits 4, 2, and 1 (16_F)
Parity Mode	⟶ No Parity
No Data Bits	⟶ 8 Bits
Equipment Code	⟶ (5_{16}) Bits 7 & 9 & 6
Protect	⟶ No Protect
Int. Cycle Time	⟶ No Plugs In
Operating Mode	⟶ Full Duplex, Both Data Sets

LOCAL HARDCOPY

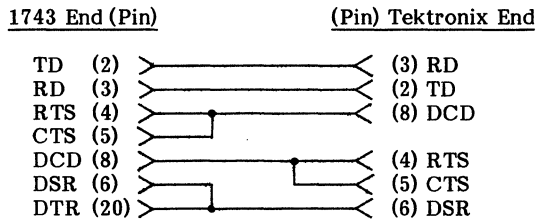Local hardcopy hardware requirements are:

1743-2:
- Set on equipment 10 interrupt line 10.
- Baud rate set at 300-9600 (same as Tektronix).
- Half duplex.
- 8 bits, ASCII data.
- No parity.
- Port 0.

Tektronix 4010 (or equivalent):
- Full duplex.
- Baud rate set at 300-9600 (same as 1743-2).

Required cable modifications to run without modems on the 1743-2 and 4010 are as follows:

1743 End (Pin)	(Pin) Tektronix End
TD (2)	(3) RD
RD (3)	(2) TD
RTS (4)	(8) DCD
CTS (5)	
DCD (8)	(4) RTS
DSR (6)	(5) CTS
DTR (20)	(6) DSR

HOST HARDCOPY

A Houston Instrument plotter and associated controller can be directly attached to the 1742-X line printer. This requires the use of the Houston Instrument UNIPLOT post processor.

INSTALLATION PROCEDURE

File 1 on PL41 contains the deck INSTALL. It builds and punches out the controller software deck (with appropriate intermediate bootstrap).

First, the user performs an UPDATE run to list the install job deck and locate the ACCOUNT and JOB cards in the deck. As part of the EXTRACT procedure, the ACCOUNT and/or JOB cards should be modified appropriately for the user's installation. To list the contents of the install job deck, run the following job:

$$\text{LIST,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.

$$\text{LABEL,OLDPL,R,L=777IGSR,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=PL41.}$$

UPDATE,F,*=+,L=A7.

UNLOAD,OLDPL.

7/8/9

6/7/8/9

Braces, { }, used in this section, indicate alternate parameters for installation from 7-track release tapes (top

alternate) or from 9-track release tapes (bottom two alternates).

Execution of the following procedure will provide a card deck on the 415 card punch unit. This deck consists of an 8-bit special loader (intermediate bootstrap) followed by the controller software. There is one and only one 8-bit format loader. It will execute correctly for the 430, 1729-3 or 1726/405 card readers. This deck is used as input for the controller initialization procedure as described in the 777/IGS Remote Job Entry User Guide.

$$\text{EXTRACT,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}.$$

ACCOUNT.

$$\text{LABEL,OLDPL,R,L=777IGSR,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=PL41.}$$

REQUEST,COMPILE,*Q

UPDATE,F,*=+,D,8.

ROUTE,COMPILE,DC=IN.

7/8/9

+IDENT BUILD

$$\text{+DEFINE} \begin{Bmatrix} \text{7-TRACK} \\ \text{9-TRACK} \\ \text{9-TRPE} \end{Bmatrix} \begin{Bmatrix} \text{7 TRACK, 800 bpi} \\ \text{9 TRACK, 800 cpi} \\ \text{9 TRACK, 1600 cpi} \end{Bmatrix}$$

+DEFINE parameters as described below

$$\left. \begin{array}{l} \text{+DELETE INSTALL.6} \\ \text{ACCOUNT.} \\ \text{other modifications} \end{array} \right\} \begin{array}{l} \text{To change ACCOUNT and/or} \\ \text{job cards as necessary} \end{array}$$

6/7/8/9

The second +DEFINE card defines parameters by which optional functions of the install job are requested and certain characteristics of the controller software configuration are specified. These parameters are as shown in figure 7-1.

CONTROLLER INITIALIZATION PROCEDURE

The operator loads the card deck produced by the 777/IGS (REMOTE) installation procedure into the 777 CYBER graphics terminal card controller from the remote card reader to initialize the controller. For a detailed description of this process, please refer to the 777 IGS Remote Job Entry User Guide.

VERIFICATION PROCEDURES—777/IGS (HOST AND REMOTE)

In order to verify that the 777/IGS system has been properly installed, the four demo programs may be executed. It is assumed that CATDEMOS was defined in the host EXTRACT job so that the demo program binaries have been cataloged as DEMO1,ID=777 through DEMO4,ID=777. For general information on terminal operations, please refer to the 777 IGS Reference Manual.

The operator should log in and enter the following commands to INTERCOM:

Parameter	Definition
1. May define 1 of: CON1, CON2, or CON3	Configure 777 system with one, two, or three consoles, respectively. Default is CON1.
2. May define 1 of: 24K, 28K, 32K, 36K, 40K, 44K, 48K, 52K, 56K, 60K, or 65K	Configure 777 system with controller memory size indicated, Default is 28K.
3. May define 1 of: CR405 or CR430	Configure system with 1726/405 card reader or 1728/430 card read-punch, respectively. (1729-2,3 card readers need CR430.) Default is no card reader.
4. May define 1 of: 026 or 029	Set keypunch code for all remote batch to 026 or 029, respectively. Default is 026.
5. May define: LP501	Configure 777 system with 1740/501 or 1742 line printer.
6. May define: LP501 and LP1742	Configure 777 system with 1742-30 line printer.
7. May define 1 of: DMP421 or DMP42X	Controller software will include a dump routine. It will output to a line printer configured into the system via defining LP501 or LP501 and LP1742, respectively. Default is no dump routine.
8. May define 1 of: IMPORT or CM1743	Configure 777 system to use wideband or voice-grade communications, respectively, and to have batch processing capabilities. If neither IMPORT nor CM1743 is defined, the 777 system uses wideband communications and has no batch processing capabilities. (Wideband communication with the host computer uses high-speed INTERCOM.)
9. May define: TTY	Configure 777 system with a TTY.
10. May define: UT	Configure 777 system with a utility processor as described in the 777 IGS Remote Job Entry User Guide.
11. May define: MT	Configure 777 system with a 1732-3/616-92,95 9-track magnetic tape unit.
12. May define: PL	Configure 777 system with a Zeta 1200-series plotter.
13. May define: HC	Configure 777 system for Tektronix 4631 hardcopy capability via a Tektronix display and a 1743-2 communications controller.

Figure 7-1. Second +DEFINE Card Parameters

```
ATTACH,IGS777,ID=777,MR=1
ATTACH,DEMO1,ID=777,MR=1
ATTACH,DEMO2,ID=777,MR=1
ATTACH,DEMO3,ID=777,MR=1
ATTACH,DEMO4,ID=777,MR=1
LIBRARY,IGS777
```

At this point, entering DEMO1, DEMO2, DEMO3, DEMO4 will cause a demo program to be executed. Brief descriptions of the demo programs are as follows:

DEMO1 After the operator enters GO in response to a PAUSE, the so-called quick-look pattern graphics sampler appears on the console screen along with another PAUSE. When the operator again enters GO, the program terminates.

DEMO2 A display of numbers appears on the console screen along with a prompting message which requests that the operator choose a number with the lightpen. Then, a doily pattern appears. The complexity of the pattern depends directly on the magnitude of the selected number. At this point, the operator may select the ENCORE lightbutton returning the initial display for another choice or select the FIN lightbutton terminating the program.

DEMO3 A lightbutton of interactive functions appears on the screen. The operator uses this menu, together with the lightpen and keyboard, to interact with the graphics display file. The interactive functions are tracking, windowing, zooming, copying, moving, deletion, freehand, rubber-band drawing, and hardcopy. When the operator enters GO, the program terminates.

DEMO4 180 simple pictures appear and disappear in quick succession followed by an eightleafed rose pattern and a PAUSE. Press the INT key twice so that the pattern is on the screen, but the input rectangle is not. Then, space-bar presses start and stop an intriguing simulated film loop. To terminate, press the INT key to regain the input rectangle and then enter a GO.

777/IGS WITH 3D (HOST)

RELEASE DESCRIPTIONS

777/IGS with 3D (HOST) runs under the NOS/BE operating system. Accordingly, it requires the same minimum hardware configuration as NOS/BE. 777/IGS with 3D (HOST) is designed to be used from permanent files.

Release Materials

777/IGS with 3D (HOST) resides on the tape known as PL46. This release tape contains six files:

    File 1 - program library of installation job,
    File 2 - program library of demo programs,
    File 3 - program library of the Control Data CYBER
            graphics terminal performance program
            (CGTPP),
    File 4 - program library of 777/IGS with 3D (HOST),
    File 5 - empty, and
    File 6 - empty.

The CGTPP is provided by the Systems Division of Vought Corporation and is included with these release materials at the request of VIM, Inc.

Notes and Cautions

The installation of 777/IGS with 3D requires installing from PL46 (HOST) and PL47 (REMOTE). The installation jobs are on the first file of the tapes. The installation of INTERCOM 4 is required before attempting to use 777/IGS with 3D but is not necessary for proper installation.

777/IGS with 3D runs on a Control Data CYBER graphics terminal, model 777-1, 777-2, or 777-3.

Graphics activity should be stopped during installation of new 777/IGS HOST software.

INSTALLATION PROCEDURE

Installation of 777/IGS with 3D (HOST) from PL46 is exactly the same as the installation of 777/IGS (HOST) from PL40 with three exceptions.

1. The LABEL control card in the LIST and EXTRACT jobs is as follows:

    $$\text{LABEL,OLDPL,R,L=777IGSH3D,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=PL46.}$$

2. An extra card should be entered into the EXTRACT job deck immediately after the IDENT card. The new extra card is as follows:

        +DEFINE (2D+3D)

3. The CATDEMOS option in the EXTRACT job will catalog a fifth demo program (DEMO5,ID=777) which may be used to verify correct installation of the 3D system. During execution of the program, selection of the word ROTATE with the lightpen causes a box-shaped 3D figure to rotate. Pressing any function key causes program termination to occur.

777/IGS WITH 3D (REMOTE)

RELEASE DESCRIPTIONS

The 777 controller software allows a console operator the use of all INTERCOM commands and capabilities available to nongraphic CRT terminals. The use of remote batch capabilities as provided by 1700 IMPORT and controlled by the TTY are also available. If the controller software is defined as voice grade, remote batch capabilities are compatible to a 200 UT via the 777 console.

Release Materials

777/IGS with 3D (REMOTE) resides on the tape known as PL47. This release tape contains six files:

    File 1 - program library of installation job,

    File 2 - absolute binary of 8-bit intermediate bootstrap
            (405/430 card reader bootstrap),

    File 3 - absolute binaries of installation utility programs
            record 1: assembler, and
            record 2: binary generation program,

    File 4 - probram library of 777/IGS with 3D (REMOTE),

    File 5 - empty, and

    File 6 - empty.

Notes and Cautions

The installation of 777/IGS with 3D requires installing from PL46 (HOST) and PL47 (REMOTE). The installation jobs are on the first files of the tapes. The installation of INTERCOM 4 is required before attempting to use 777/IGS with 3D but is not necessary for proper installation.

777/IGS with 3D runs on a Control Data CYBER graphics terminal, model 777-1, 777-2, or 777-3.

A 415 card punch is needed to install 777/IGS REMOTE software.

At sites with a 1729-3 card reader, do not mark the backs of any cards. This type of reflective reader may interpret the marks as punched holes.

The configuration change described in the notes and cautions under 777/IGS (REMOTE) also applies to 777/IGS with 3D (REMOTE).

INSTALLATION PROCEDURE

Installation of 777/IGS with 3D (REMOTE) from PL47 is exactly the same as the installation of 777/IGS (REMOTE) from PL41 with two exceptions.

1. The LABEL control card in the LIST and EXTRACT jobs should be as follows:

    $$\text{LABEL,OLDPL,R,L=777IGSR3D,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}, \text{VSN=PL47.}$$

2. An extra card should be entered into the EXTRACT job deck immediately after the IDENT card. The new extra card should be as follows:

        +DEFINE (2D+3D)

RELEASE DESCRIPTION

SIMSCRIPT I.5 Version 3 operates under NOS/BE 1 on the same minimum configuration as NOS/BE.

RELEASE MATERIALS

The release materials for SIMSCRIPT I.5 Version 3 are included on program library tape PL27. The release tape contains six files:

File 1 – SIMSCRIPT installation job decks SIMI51 and SIMI52 plus verification job deck VSIMI5,
File 2 – SIMI5 compiler (in EDITLIB binary format),
File 3 – SIMI5 execution library,
File 4 – program library containing compiler and execution library in UPDATE 1.2 format (a detailed description of the file appears below),
File 5 – blank file, and
File 6 – output from verification job VSIMI5.

LIMITATIONS

SIMSCRIPT I.5 Version 3 operates under NOS/BE 1 in conjunction with COMPASS 3 and FORTRAN Extended 4.

INSTALLATION PARAMETERS

None.

INSTALLATION PROCEDURE

SIMSCRIPT Version 3 is made up of a compiler and an execution library. They are contained in a single UPDATE record to facilitate generation of an overlay tape.

The first 73 decks (ADEF through ASML) belong to the SIMSCRIPT Version 3 compiler and are written in SIMSCRIPT.

ADEF contains the definition deck necessary to compile the compiler. It always must be written on the COMPILE file when any compiler routine written in SIMSCRIPT is to be recompiled.

MAINAD through WASM (15 decks) represent the definition processor part of the compiler (overlay 1.0).

DEFINE through REFL (52 decks) represent the translator part of the compiler (overlay 2.0).

ASMBL through ASML (5 decks) represent the assembler phase of the compiler (overlay 3.0).

The TREND$ deck marks the end of the SIMSCRIPT language routines; it contains a *WEOR.

The following 38 decks (SIMI5 through ALLOUT) belong to the SIMI5 compiler and are written in COMPASS.

SIMI5 through XXERROR represent the root segment of the compiler (overlay 0.0).

XX$DEFS through CONUM are part of the definition processor overlay (overlay 1.0).

XX$TRAN through PACKIT are part of the translator overlay (overlay 2.0).

XX$FAKE represents overlay 2.1.

XX$ASMB through ALLOUT are part of the assembler overlay (overlay 3.0).

The UTEND$ deck marks the end of the compiler routines written in COMPASS; it contains a *WEOR.

The 26 decks from XX$MAIN through XX$FMT represent the SIMI5 execution library and are written in COMPASS.

Loader control cards are included in the following decks: SIMI5, XX$DEFS, XX$TRAN, XX$FAKE, and XX$ASMB.

The SIMI5 compiler automatically generates the following LDSET table to reference the necessary libraries:

SIMLIB   which should contain the SIMI5 execution library
FORTRAN
BAMLIB

SYSTEM GENERATION

SIMSCRIPT installation job decks SIMI51 and SIMI52, plus verification job deck VSIMI5, may be obtained from the first file of PL27 by executing a job of the following form:

$$\text{EXTRACT,CM45000,T100,} \begin{Bmatrix} \text{MT1.} \\ \text{HD1.} \\ \text{PE1.} \end{Bmatrix}$$

ACCOUNT CARD.

$$\text{LABEL(PL27,R,L=SIMI53P0,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL27)}$$

UPDATE(Q,P=PL27,*==,C=PUNCH)

7/8/9

=DEFINE X

=C Y

6/7/8/9

where X = HY, HD or PE and Y is the deck name.

The SIMI51 deck includes the control cards necessary to generate the SIMSCRIPT Version 3 compiler and execution library from the release tape. It also generates a new

program library tape. If PSRs are to be applied against SIMSCRIPT they should be placed on a permanent file called MINIT,ID=CCT previous to execution of SIMI51.

Job SIMI52 can be used to enter SIMSCRIPT Version 3 into the running system through EDITLIB either from the release PL27 or from the tape created by SIMI51. Job DST3 may then be run to secure a deadstart tape including SIMSCRIPT Version 3.

The user should supply valid ACCOUNT information.

VERIFICATION PROGRAM

The verification deck provided with the release validates SIMSCRIPT. The validation consists of a SIMSCRIPT job with a report. The time required to run the validation job is about one minute. The output includes the actual validation (magic squares) and dayfile as follows:

THIS IS A 3 BY 3 MAGIC SQUARE. ALL OF THE ROWS, COLUMNS AND DIAGONALS SUM TO 15:

```
4    3    8
9    5    1
2    7    6
```

THIS IS A 5 BY 5 MAGIC SQUARE. ALL OF THE ROWS, COLUMNS AND DIAGONALS SUM TO 65:

```
11   10    4   23   17
18   12    6    5   24
25   19   13    7    1
 2   21   20   14    8
 9    3   22   16   15
```

```
04.13.36.VISIMS1H
04.13.36.VSIMS,CM65000,T1000.
04.13.36.   THIS SIMPLE PROGRAM VERIFIES CORRECT
04.13.36.   INSTALLATION OF
04.13.36.   SIMSCRIPT
04.13.36.SIMI5.
04.13.42.LGO.
04.13.47.STOP
04.13.47.CP      004.403 SEC.
04.13.47.PP      002.815 SEC.
```

HY selects 800 bpi 7-track tapes.
HD selects 800 cpi 9-track tapes.
PE selects 1600 cpi 9-track tapes.

If a card punch is not available, or if the user desires to execute either SIMI51, SIMI52, or VSIMI5 directly from PL27, a job of the following form should be executed:

$$
\text{EXTRACT,CM45000,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix} .
$$

ACCOUNT CARD.

$$
\text{LABEL(PL27,R,L=SIMI53P0,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL27)}
$$

REQUEST(COMPILE,*Q)

UPDATE(Q,P=PL27,*==)

REWIND(COMPILE)

ROUTE(COMPILE,DC=IN)

7/8/9

=DEFINE X

=C   Y

6/7/8/9

where X = HY, HD or PE and Y = deck name.

The user should supply valid ACCOUNT information.

In order to list SIMI51, SIMI52, or VSIMI5 as they appear on PL27, a job of the following form should be executed.

$$
\text{LIST,CM45000,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix} .
$$

ACCOUNT CARD.

$$
\text{LABEL(PL27,R,L=SIMI53P0,D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL27)}
$$

UPDATE(Q,L=A12347,P=PL27,*==)

7/8/9

=C SIMI51

=C SIMI52

=C VSIMI5

6/7/8/9

TIGS 1 OVERVIEW

RELEASE DESCRIPTION

TIGS 1 (Terminal Independent Graphics System Version 1) runs under NOS/BE and INTERCOM (Version 4 or Version 5) to provide the user with both a remote interactive graphic capability in graphic mode and a timesharing capability in interactive mode.

TIGS 1 consists of a preprocessor and a post processor. The preprocessor writes a neutral display file (NDF) that is then traversed by the post processor to produce graphics output to a specific terminal. A non-NDF, limited-interaction subset of TIGS is also available. This subset is called Beginning TIGS (BTIGS).

The TIGS subroutines are callable from user application programs that are written in FORTRAN Extended.

The operation of TIGS 1 under NOS/BE requires the installation of INTERCOM and all associated products.

Hardware Configuration

The minimum hardware configuration required by NOS/BE and INTERCOM is required to support TIGS 1.

Under INTERCOM, the site address for a terminal operating in synchronous mode must be 160_8 for BCD and 161_8 for ASCII. The site address is irrelevant for the terminal operating in asynchronous mode.

RELEASE MATERIALS

The TIGS 1 release requires both the preprocessor magnetic tape, PL86A, and an appropriate post processor tape. Refer to the individual post processor sections for installation, verification, and terminal operation of TIGS 1.

TIGS 1 PREPROCESSOR

The TIGS1 preprocessor resides on the tape known as PL86A. PL86A has the following characteristics: 7-track (800-bits per inch (bpi)) or 9-track (800 or 1600 characters per inch (cpi)), binary recording mode, TIGSPRE12 as the file ID in the HDR1 label, and six files:

File 1 - empty,
File 2 - empty,
File 3 - empty,
File 4 - TIGS 1 preprocessor source code program library in UPDATE format,

File 5 - BTIGS 1 preprocessor source code program library in UPDATE format, and
File 6 - empty.

TEKTRONIX 401X POST PROCESSOR OPTION

RELEASE MATERIALS

The Tektronix 401X post processor runs under NOS/BE when installed with the TIGS 1 preprocessor.

The Tektronix 401X post processor resides on the tape known as PL86B. PL86B is a program library in UPDATE format and has the following characteristics: 7-track (800 bpi) or 9-track (800 or 1600 cpi), binary recording mode, TIGSTEK12 as file ID in HDR1 label, and six files:

File 1 - installation job program library in UPDATE format,
File 2 - empty,
File 3 - empty,
File 4 - TIGS 1 Tektronix post processor source code program library in UPDATE format,
File 5 - BTIGS 1 Tektronix post processor source code program library in UPDATE format, and
File 6 - Verification program in UPDATE PL format.

NOTES AND CAUTIONS

All limitations applicable to NOS/BE and INTERCOM also apply to TIGS 1 with the Tektronix 401X post processor.

All TIGS 1 subroutines are callable from application programs that have been written in FORTRAN Extended.

A CDC Synchronous interface (Tektronix product number 021-0135-01) is required on each Tektronix terminal to communicate in synchronous mode with the 6671 multiplexer or the 255X host communications processors.

Communications between the terminal and the central site are supported for TIGS 1 with the Tektronix 401X post processor according to table 9-1.

TABLE 9-1. TIGS/TEKTRONIX COMMUNICATIONS CAPABILITIES

Communications Mode	Baud Rate
Synchronous	2000 to 4800
Asynchronous	300 to 9600

INSTALLATION DESCRIPTION

The installation of TIGS 1 with the Tektronix 401X post processor allows the user to generate any combination of a TIGS library (TEKLIB) to be used when segmenting or overlaying TIGS, a TIGS library (TEKSFL) without segment or overlay capabilities, and a BTIGS library (TEKBGN).

The TIGS segment/overlay loader library, TEKLIB, can be used in those situations where memory requirements of graphic applications exceed the available NOS/BE field length. The user can employ the segment/overlay loader library, TEKLIB, in conjunction with the CYBER loader to segment or to overlay a graphic application and thereby reduce memory requirements. Note that the use of the segment/overlay loader library, TEKLIB, without segmentation or overlays greatly increases an application program field length requirement. For example, the installation verification program TEKVFY requires approximately 4000_8 less words using TEKSFL than it does using TEKLIB without segmentation or overlays. The segment/overlay loader library, TEKLIB, must be used if an old neutral display file is to be accessed by the application program.

The basic nonsegment/nonoverlay loader library, TEKSFL, can be used for graphic applications with memory requirements that do not exceed the NOS/BE available field length.

Only one library, TEKBGN, is provided for BTIGS. Since BTIGS has no neutral display file, a special segment/overlay loader library is not required for neutral display file access.

TEKLIB is installed by default by the installation job. TEKSFL is installed by the installation job by specifying =DEFINE,BASICLDR as an UPDATE directive. TEKBGN is installed by the installation job by specifying =DEFINE,BTIGSLIB as an UPDATE directive. Installation of TEKLIB may be suppressed by specifying =DEFINE,NOSEGLDR as an UPDATE directive.

CONFIGURATION DEFAULTS

Users may also wish to specify installation defaults for terminal type, baud rate, tablet availability, and hardcopy unit availability. If the same configuration is used repeatedly, specification of the installation default will minimize the question/answer session during TIGS 1 initialization. When the installation defaults are to be used, only a single Y response is required during initialization. Installation defaults are specified using =DEFINE directive in UPDATE (see step 2 of the "Installation Procedure").

OTHER FILES GENERATED

In addition to the TIGS 1 library (or libraries), three other permanent files may be produced during installation: installation verification program (TEKVFY) relocatable binary, TIGS 1.0 to 1.2 neutral display file conversion program (NDFCNV) in absolute binary, and a source file of Tektronix 4014 post processor segment loader directives (TEKDIR). Operation of the installation verification program is described under the heading "Verification Procedure" in this document. TEKVFY is always generated. NDFCNV and TEKDIR are generated if the TIGS segment/overlay loader library, TEKLIB is generated (see table 9-2).

NEUTRAL DISPLAY FILE CONVERSION

All TIGS 1.0 neutral display files must be modified by a conversion program before they can be used by a TIGS 1.2 application program. The conversion program is installed in absolute binary form during the TIGS 1.2 installation procedure. The conversion program is cataloged under permanent file name NDFCNV,ID=TIGS. Instructions on running this program are given in the TIGS 1.2 Reference Manual under Appendix E - "Operating System Dependencies". This program does not apply to BTIGS.

SEGMENTATION

Users may wish to provide segmentation for their application and TIGS 1. To aid the user in doing this, a skeleton segment directives source file is provided during the TIGS 1 installation procedure. The segment directives source file is cataloged under permanent file name TEKDIR,ID=TIGS. Instructions on segmentation are given in the TIGS Reference Manual under Appendix E - "Operating System Dependencies". These segment directives do not apply to BTIGS.

GRAPHICS CLASS

Execution of TIGS 1 with the Tektronix 401X post processor requires a graphics PP routine in NOS/BE. The PP routine, GCC-Change Program to Graphics Classification, gives the calling program graphics classification for the duration of program execution and returns the page width and length to the calling routine. GCC is installed as part of the NOS/BE installation. No graphics activity should be attempted if GCC has not been installed.

INSTALLATION PROCEDURE

The procedure for installation of TIGS 1 with the Tektronix 401X post processor is outlined in the following two steps.

Step 1.

This step generates UPDATE(L=7) listings of the installation job and the verification program. The installation job is file 1 on the Tektronix 401X post processor release tape (PL86B). File 1 is a program library in UPDATE format with = (equals) as the master control character. The verification program is file 6. File 6 is a program library in UPDATE format with * (asterisk) as the master control character.

Perform an UPDATE run against file 1 of PL86B to obtain the sequence number which corresponds to any control card which must be modified for installation. An L=7 listing of the installation job and verification program may be obtained by executing the following procedure:

LISTI,T10,CM65000, $\begin{Bmatrix} MT1 \\ HD1 \\ PE1 \end{Bmatrix}$.   (7-track, 800 bpi.)
(9-track, 800 cpi.)
(9-track, 1600 cpi.)

ACCOUNT(*)   (Supply appropriate accounting information.)

LABEL(TIGSPL,R,L=TIGSTEK12,

D= $\begin{Bmatrix} HY \\ HD \\ PE \end{Bmatrix}$, VSN=PL86B)   (7-track, 800 bpi.)
(9-track, 800 cpi.)
(9-track, 1600 cpi.)

COPYBF(TIGSPL,OLDPLT)

SKIPF(TIGSPL,4,17)

COPYBF(TIGSPL,OLDPLV)

UNLOAD(TIGSPL)

UPDATE(Q,P=OLDPLT,C=0,L=7,*==,U)

UPDATE (Q,P=OLDPLV,C=0,L=7,U)

7/8/9

=IDENT,LIST1

=C,TIGS1

7/8/9

*IDENT,LIST2

*C,TIGS2

6/7/8/9

Step 2.

This step installs a desired combination of the following permanent files: TIGS/BTIGS library (or libraries), verification program relocatable binary, TIGS 1.0 to 1.2 neutral display file conversion program in absolute binary, and a source file of segment loader directives.

The job (EXTRACT), described in this step, performs a full UPDATE on file 1 of the Tektronix post processor release tape, (PL86B), modifying the installation job program library with the appropriate accounting information and DEFINE UPDATE directives required for installation. Route the resulting installation job to the NOS/BE input queue by executing the following procedure. NOTE: Only the Tektronix post processor release tape (PL86B) is required for the EXTRACT job, but both the Tektronix post processor release tape (PL86B) and the TIGS 1 preprocessor release tape (PL86A) are required for the installation job routed to the NOS/BE input queue.

$$\text{EXTRACT,T10,CM65000,} \begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix} . \begin{matrix} \text{(7-track, 800 bpi.)} \\ \text{(9-track, 800 cpi.)} \\ \text{(9-track, 1600 cpi.)} \end{matrix}$$

ACCOUNT(*)   (Supply appropriate accounting information.)

LABEL(TIGSPL,R,L=TIGSTEK12,

$$\text{D=} \begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix} \text{, VSN=PL86B)} \begin{matrix} \text{(7-track, 800 bpi.)} \\ \text{(9-track, 800 cpi.)} \\ \text{(9-track, 1600 cpi.)} \end{matrix}$$

COPYBF(TIGSPL,OLDPL)

UNLOAD(TIGSPL)

REQUEST(COMPILE,*Q)

UPDATE(F,*==,L=17,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

=IDENT,INSTALL

=DEFINE, $\begin{Bmatrix} \text{HY} \\ \text{PE} \end{Bmatrix}$ (7-track, 800 bpi.)
(9-track, 1600 cpi.)

(Default is 9-track, 800 cpi (HD).)

=DEFINE,BASICLDR   (This is an optional UPDATE directive. If the user wishes to install a TIGS basic (nonsegment/nonoverlay) loader library (TEKSFL), the =DEFINE, BASICLDR directive must be included as part of the UPDATE (see table 9-2).

=DEFINE,BTIGSLIB   (This is an optional UPDATE directive. If the user wishes to install a BTIGS library (TEKBGN), the =DEFINE, BTIGSLIB directive must be included as part of the UPDATE (table 9-2).

=DEFINE,NOSEGLDR   (This is an optional UPDATE directive. If the user wishes to suppress the installation of a TIGS segment/overlay loader library (TEKLIB), the =DEFINE, NOSEGLDR directive must be included as part of the UPDATE. Suppressing TEKLIB also causes the TIGS 1.0 to 1.2 neutral display file conversion program (NDFCNV) and the TIGS segment loader directives source file (TEKDIR) to be suppressed (table 9.2).

=DEFINE, $\begin{Bmatrix} \text{A4006} \\ \text{S 4010} \\ \text{A4010} \\ \text{S 4014} \\ \text{A4014} \\ \text{S4014EGM} \end{Bmatrix}$ (asynchronous 4006)
(synchronous 4010)
(asynchronous 4010)
(synchronous 4014)
(asynchronous 4014)
(synchronous 4014 with enhanced graphics module)

(Specify the installation default terminal type. This default may be overridden at run time by answering the initialization questions individually. If none of the above terminal types is defined, an asynchronous 4014 with enhanced graphics module will be established as the installation default.)

=DEFINE, $\begin{Bmatrix} \text{BAUD300} \\ \text{BAUD2000} \\ \text{BAUD2400} \\ \text{BAUD4800} \\ \text{BAUD9600} \end{Bmatrix}$ Specify the installation default baud rate. This default may be overridden at run time by answering the initialization questions individually. If none of the above baud rates is defined, 1200 baud will be established as the installation default.)

=DEFINE $\begin{Bmatrix} \text{TAB4953} \\ \text{TAB4943} \end{Bmatrix}$ (Tektronix 4953 Tablet)
(Tektronix 4954 Tablet)

(Specify the installation default tablet. This default may he overridden at run time by answering the initialization questions individually. If neither of the above tablets is defined, the installation default will be no tablet.)

=DEFINE, $\begin{Bmatrix} \text{HARDTEK} \\ \text{HARDVER} \end{Bmatrix}$ (Tektronix 4631 Hardcopy Unit)
(Versatec Hardcopy Unit)

(Specify the installation default hardcopy unit. This default may be overridden at run time answering the initialization questions individually. If neither of the above hardcopy units is defined, the installation default will be no hardcopy unit.)

=D,TIGS1.10

ACCOUNT( )   (The user must modify the installation job program library with appropriate accounting information. The dummy ACCOUNT card sequence number, 10, was obtained from the compile file listing resulting from step 1 of the "Installation Procedure.")

6/7/8/9

TABLE 9-2. FILES INSTALLED USING SPECIFIC DEFINE COMBINATIONS

DEFINES \ FILES	TEKLIB TEKDIR NDFCNV	TEKSFL	TEKBGN	TEKVFY
None	Yes	No	No	Yes
BASICLDR	Yes	Yes	No	Yes
BTIGSLIB	Yes	No	Yes	Yes
BASICLDR BTIGSLIB	Yes	Yes	Yes	Yes
NOSEGLDR BASICLDR	No	Yes	No	Yes
NOSEGLDR BTIGSLIB	No	No	Yes	Yes
NOSEGLDR BASICLDR BTIGSLIB	No	Yes	Yes	Yes

VERIFICATION PROCEDURE

Run the verification program, cataloged as permanent file TEKVFY by the verification job, to verify the proper installation of TIGS 1. The verification program may be run as follows:

1. Refer to the "Terminal Operating Procedures" to properly set up the terminal.

2. Log in to NOS/BE with a valid user name and password.

3. If a segment/overlay loader library (TEKLIB) was not installed, go to step 12.

4. Attach the segment/overlay loader library permanent file and declare TEKLIB a library:

   ATTACH(TEKLIB,ID=TIGS)
   LIBRARY(TEKLIB)

5. Attach the verification program permanent file and execute the verification program:

   ATTACH(TEKVFY,ID=TIGS)
   TEKVFY.

6. The terminal operator will be asked if the installation defaults are to be accepted. † If the installation defaults are correct for terminal type and baud rate, the operator may type a Y and skip to step 11. If the defaults are not correct, the operator must type an N and do steps 7 through 10.

7. The operator will be asked to enter the terminal type. Enter the number that corresponds to the terminal in use (figure 9-1).

8. The terminal operator will be asked to enter the baud rate (figure 9-1). Enter the baud rate in use.

9. The terminal operator will be asked if the tablet is to be used (figure 9-1). Enter 0. The tablet is not required for the verification program.

10. The terminal operator will be asked if a hardcopy unit is available (figure 9-1). Enter 0. The verification program does not require the availability of a hardcopy unit.

11. The terminal screen will be cleared and figure 9-2 will be displayed if terminal type 4, 5, 6, or 7 was selected in step 7. Figure 9-3 will be displayed if terminal type 1, 2, or 3 was selected. One warning message number 901 will appear on TAPE63 if library TEKLIB or TEKSFL was used.

12. If a basic (nonsegment/nonoverlay) loader library, TEKSFL, was not installed, then go to operation 16.

13. Attach the basic (nonsegment/nonoverlay) loader library permanent file and declare TEKSFL a library:

   ATTACH(TEKSFL,ID=TIGS)
   LIBRARY(TEKSFL)

14. Attach the verification program and execute the verification program:

   ATTACH(TEKVFY,ID=TIGS)
   TEKVFY.

15. Repeat operation 6 through 11 to verify the basic (nonsegment/nonoverlay) loader library, TEKSFL.

16. If a BTIGS library (TEKBGN) was not installed, go to step 20.

17. Attach the BTIGS library permanent file and declare TEKBGN a library:

   ATTACH(TEKBGN,ID=TIGS)
   LIBRARY(TEKBGN)

18. Attach the verification program and execute the verification program:

   ATTACH(TEKVFY,ID=TIGS)
   TEKVFY.

19. Repeat steps 6 through 11 to verify the BTIGS library, TEKBGN.

20. Purge any unnecessary files generated during the installation or verification of TIGS 1.

21. Log off when finished.

TERMINAL OPERATING PROCEDURES

Tektronix 4006 Terminal

Tektronix 4006 terminal operating procedures are as follows:

1. Turn the terminal power on by turning the POWER switch, located at the rear of the display unit, to the ON position.

---

† For BTIGS, the initialization questions can be overridden by supplying a subroutine ZPIQST (ITERM,IBAUD,ITABL,IHC) to provide the values for each parameter (see TIGS Reference Manual, "BTIGS appendix".

```
INSTALLATION DEFAULT VALUES ARE
7      4014 W/EGM ASYNCHRONOUS
1200   BAUD
0      NO TABLET
0      NO HARD COPY
DO YOU ACCEPT THESE DEFAULTS (Y/N)

 N
ENTER TERMINAL TYPE
1      4006 ASYNCHRONOUS
2      4010 SYNCHRONOUS
3      4010 ASYNCHRONOUS
4      4014 SYNCHRONOUS
5      4014 ASYNCHRONOUS
6      4014 W/EGM SYNCHRONOUS
7      4014 W/EGM ASYNCHRONOUS

 7
ENTER BAUD RATE, 300,1200,2000,2400,4800,9600

 3
IS TABLET GOING TO BE USED
ENTER 0 FOR NONE,1 FOR 4953,2 FOR 4954

 0
IS HARD COPY UNIT AVAILABLE
ENTER 0 FOR NONE,1 FOR TEKTRONIX,2 FOR VERSATEC

 0
```

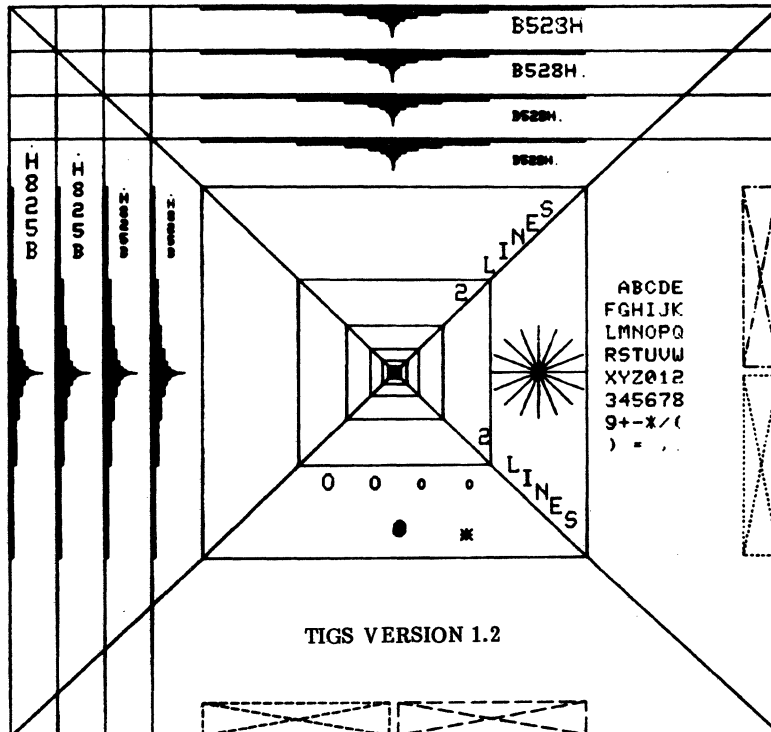Figure 9-1. Acceptable Tektronix Defaults

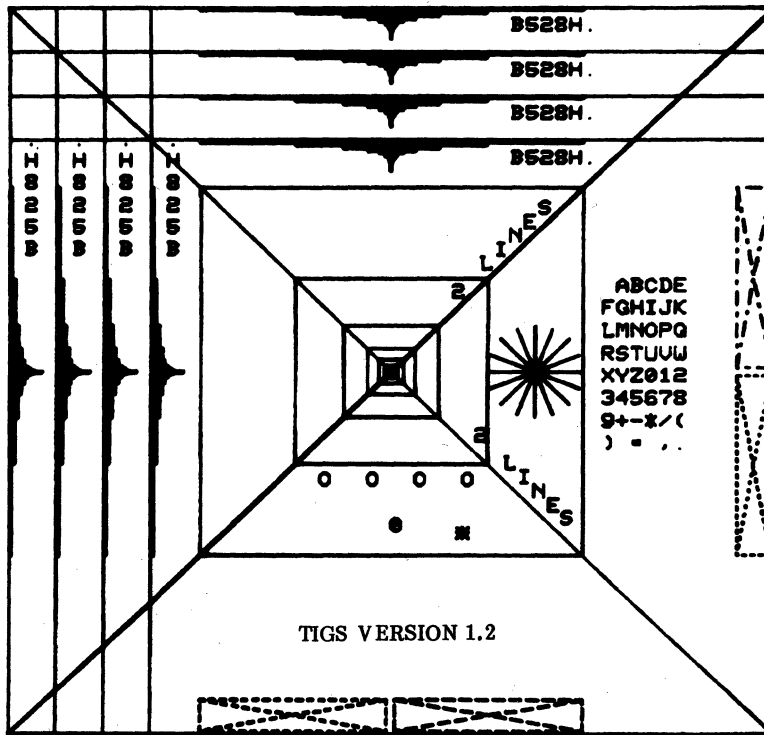Figure 9-2.   Figure Displayed on Terminal Types 4, 5, 6, or 7

Figure 9-3. Figure Displayed on Terminal Type 1, 2, or 3.

2. Allow the terminal to warm up.

3. Depress the PAGE key to erase the screen and to position the cursor to home position (the upper left-hand corner of the screen).

4. Select the appropriate transmit and receive baud rates using the baud rate switches located at the rear of the display unit.

5. The setting of the FULL/HALF DUPLEX switch located at the rear of the display unit is NOS/BE installation dependent.

6. Turn the modem power on and verify that the modem is connected to the terminal.

7. Dial the appropriate telephone number.

8. INTERCOM Version 4 will respond with a LOGIN message when ready for interactive command processing. INTERCOM Version 5, however, requires the user to depress the RETURN key after the terminal is polled before it will respond with a LOGIN message.

Tektronix 4010/4014 Terminals With Synchronous Interface

Tektronix 4010 and 4014 terminals (equipped with Control Data Synchronous interface) synchronous/asynchronous operating procedures are as follows:

1. Turn the terminal power on.

• Tektronix 4010 terminal: The POWER switch is located beneath the keyboard at the top of the pedestal stand. The red POWER indicator, located at the top of the keyboard, will illuminate when power has been applied to the terminal.

• Tektronix 4014 terminal: The POWER switch is located at the front lower right-hand corner of the pedestal stand. The green POWER indicator, located on the upper left-hand corner of the keyboard, will illuminate when power has been applied to the terminal.

2. Allow the terminal to warm up.

3. Press the PAGE key to erase the screen and to position the cursor to home position (the upper left-hand corner of the screen).

4. Set the ASCII/ALT switch to the ASCII position.

5. Select the appropriate baud rate switch settings. The switch should select the EXT position if the terminal is to be used for synchronous communications at 2000, 4800, or 9600 baud. Otherwise, the terminal baud rate switch setting will correspond to the baud rate in use.

• Tektronix 4010 terminal: Select the appropriate transmit and receive baud rates using the baud rate switches located at the rear of the pedestal stand.

• Tektronix 4014 terminal: Select the appropriate baud rate using the baud rate switch located at the rear of the pedestal stand.

6. The setting of the FULL/HALF DUPLEX switch is NOS/BE installation dependent.

7. Set the CODE EXPANDER switch to one of the following positions:

   • Synchronous mode communications: Turn the switch ON.

   • Asynchronous mode communications: Turn the switch OFF.

8. The following keyboard operations establish proper operating mode:

   • Synchronous mode communications: Place the terminal in local mode. Press the SHIFT key. While the SHIFT key is pressed, press the RESET PAGE key. Place the terminal in line mode and repeat the keyboard procedure.

   • Asynchronous mode communications: Place the terminal in local mode. Press and keep depressed the SHIFT key. Press and keep depressed the CNTL key. While both the SHIFT and CNTL keys are pressed, press the P key. Place the terminal in line mode.

9. Dial the appropriate telephone number.

10. INTERCOM Version 4 will respond with a LOGIN message when ready for interactive command processing. INTERCOM Version 5, however, requires the user to press the RETURN key after the terminal is polled before it will respond with a LOGIN message.

Tektronix 4010/4014 Terminals Without Synchronous Interface

If the Tektronix 4010 and 4014 terminals are not equipped with the Control Data synchronous interface option, then the terminal can be operated in asynchronous mode only.

The Tektronix 4010 and 4014 terminals asynchronous mode operating procedures are essentially the same as for the synchronous mode operating procedures. However, step 8 of the synchronous mode operating procedures can be omitted. No special keyboard operations are required to establish mode switching since the terminals will always be in asynchronous mode when not equipped with the Control Data synchronous interface option.

SANDERS GRAPHIC 7 POST PROCESSOR OPTION

RELEASE MATERIALS

The Sanders Graphic 7 post processor runs under NOS/BE when installed with the TIGS 1 preprocessor.

The Sanders Graphic 7 post processor resides on the tape known as PL86C. PL86C is a program library in UPDATE format and has the following characteristics: 7-track (800 bpi) or 9-track (800 or 1600 cpi), binary recording mode, TIGSSAND12 as file ID in HDR1 label, six files:

File 1 - installation job program library in UPDATE format,
File 2 - terminal resident software in binary format,
File 3 - empty,
File 4 - TIGS 1 Sanders Graphic 7 post processor source code program library in UPDATE format,
File 5 - verification program in UPDATE PL format, and
File 6 - empty.

Notes and Cautions

All limitations applicable to NOS/BE and INTERCOM also apply to TIGS 1 with the Sanders Graphic 7 post processor.

All TIGS 1 subroutines are callable from application programs that have been written in FORTRAN Extended.

Communications between the terminal and the central site are supported for TIGS 1 with the Sanders Graphic 7 post processor according to table 9-3.

TABLE 9-3.   TIGS/SANDERS COMMUNICATIONS CAPABILITIES

Communication Mode	Baud Rate	Compatible Modem Type
Asynchronous	1200	212A
	300	103A

INSTALLATION DESCRIPTION

The installation of TIGS 1 with the Sanders Graphic 7 post processor allows the user the option of generating either a segment/overlay loader library, SANDLIB, or both a segment/overlay loader library, SANDLIB, and a basic (nonsegment/nonoverlay) loader library, SANDSFL.

The segment/overlay loader library, SANDLIB, can be used in those situations where memory requirements of graphic applications exceed the available NOS/BE field length. The user can employ the segment/overlay loader library, SANDLIB, in conjunction with the CYBER loader to segment or to overlay a graphic application and thereby reduce memory requirements. Note that use of the segment/overlay loader library, SANDLIB, without segmentation or overlays increases an application program field length requirement.

The basic (nonsegment/nonoverlay) loader library, SANDSFL, can be used for graphic applications with memory requirements that do not exceed the NOS/BE available field length.

If the use of a previously created old TIGS 1.2 NDF (Neutral Display File) is required, then the library, SANDLIB, must be used. See section 8 of the TIGS Reference Manual for further details.

The segment/overlay loader library, SANDLIB, is installed by default by the installation job. Both the segment/overlay library, SANDLIB, and the basic (nonsegment/nonoverlay) loader library, SANDSFL, will be installed by the installation job by specifying =DEFINE,BASICLDR as an UPDATE directive.

REFRESH MEMORY

The amount of refresh memory available in the Sanders Graphic 7 terminal must be specified during installation of the post processor. The allowable sizes of refresh memory are 8K, 16K and 24K words. Table 9-4 lists these options and the corresponding installation job directives.

TABLE 9-4.   REFRESH MEMORY SIZES

Refresh Memory Size	Required Installation Job UPDATE Directive
8K words	=DEFINE,REF8K
16K words	=DEFINE,REF16K
24K words	=DEFINE,REF24K

CONFIGURATION DEFAULTS

Users may also wish to specify installation defaults for lightpen availability, trackball/forcestick availability, hardcopy unit availability and terminal error display availability. If the same configuration is used repeatedly, specification of the installation defaults will minimize the question/answer session during TIGS 1.2 initialization. When the installed defaults are to be used, only a single Y response is required during initialization.

OTHER FILES GENERATED

In addition to the TIGS 1.2 library (or libraries), five other permanent files are produced during installation: (1) installation verification program, relocatable binary; (2) TIGS 1.0 to 1.2 neutral display file conversion program in absolute binary; (3) a source file of Sanders Graphic 7 post processor segment loader directives; (4) a relocatable program to "downline load" into the terminal needed software code; and (5) the code to downline load. Operation of the installation verification and downline loading programs are described under the heading "Verification Procedure".

NEUTRAL DISPLAY FILE CONVERSION

All TIGS 1.0 neutral display files must be modified by a conversion program before they can be used by a TIGS 1.2 application program. The conversion program to accomplish this is installed in absolute binary form during the TIGS 1.2 installation procedure. The conversion program is cataloged under permanent file name NDFCNV,ID=TIGS. Instructions on running this program are given in the TIGS 1.2 Reference Manual under Appendix E - "Operating System Dependencies".

SEGMENTATION

Users may wish to provide segmentation for their application and TIGS 1.2 To aid the user in doing this, a skeleton segment directives source file is cataloged under permanent file name SANDDIR,ID=TIGS. Instructions on segmentation are given in the TIGS Reference Manual under Appendix E - "Operating System Dependencies".

INSTALLATION PROCEDURE

The procedure for installing TIGS 1 with the Sanders Graphic 7 post processor is outlined in the following two steps.

Step 1.

This step generates UPDATE(L=7) listings of the installation job and the verification program.

The installation job is file 1 on the Sanders post processor release tape (PL86C). File 1 is a program library in UPDATE format with = (equals) as the master control character.

The verification program is file 5. File 5 is a program library in UPDATE format with * (asterisk) as the master control character.

Perform an UPDATE run against file 1 of PL86C to obtain the sequence number which corresponds to any control cards which must be modified for installation. An L=7 listing of the installation job and verification program may be obtained by executing the following procedure:

```
LISTI,T10,CM65000.

ACCOUNT(*)          (Supply appropriate accounting
                     information.)

LABEL(TIGSPL,R,L=TIGSSAND12,

    (HY)                   (7-track, 800 bpi.)
D= (HD) , VSN=PL86C)       (9-track, 800 cpi.)
    (PE)                   (9-track, 1600 cpi.)

COPYBF(TIGSPL,OLDPLT)

SKIPF(TIGSPL,3,17)

COPYBF(TIGSPL,OLDPLV)

UNLOAD(TIGSPL)

UPDATE(Q,P=OLDPLT,C=0,L=7,*==,U)

UPDATE(Q,P=OLDPLV,C=0,L=7,U)

7/8/9

=IDENT,LIST1

=C,TIGS1

7/8/9

*IDENT,LIST2

*C,TIGS2

6/7/8/9
```

Step 2.

This step installs the following permanent files: TIGS library (or libraries), installation verification program in relocatable binary, TIGS 1.0 to 1.2 neutral display file conversion program in absolute binary, a source file of Sanders post processor segment loader directives, a relocatable binary program to downline load into the terminal needed software code and the code to downline load.

Perform a full UPDATE on file 1 of the Sanders post processor release tape, (PL86C), modifying the installation job program library with the appropriate accounting information and DEFINE UPDATE directives required for installation. Route the resulting installation job to the NOS/BE input queue by executing the following procedure. NOTE: Only the Sanders post processor release tape (PL86C) is required for the EXTRACT job, but both the Sanders post processor release tape (PL86C) and the TIGS 1

preprocessor release tape (PL86A) are required for the installation job routed to the NOS/BE input queue.

```
EXTRACT,T10,CM65000.
ACCOUNT (*)          (Supply appropriate accounting
                      information.)
LABEL(TIGSPL,R,L-TIGSSAND12,
         (HY)                 (7-track, 800 bpi.)
   D=    {HD}  , VSN=PL86C)   (9-track, 800 cpi.)
         (PE)                 (9-track, 1600 cpi.)
COPYBF(TIGSPL,OLDPL)
UNLOAD(TIGSPL)
REQUEST(COMPILE,*Q)
UPDATE(F,*==,L=17,D,8)
ROUTE(COMPILE,DC=IN)
7/8/9
=IDENT,INSTALL
=DEFINE,  {HY}             (7-track, 800 bpi.)
          {PE}             (9-track, 1600 cpi.)
          (Default is 9-track, 800 cpi
          (HD).)
```

=DEFINE,BASICLDR (Optional UPDATE directive. If the user wishes to install both a segment/overlay loader library (SANDLIB) and a basic (nonsegment/nonoverlay) library (SANDSFL), the =DEFINE, BASICLDR directive must be included as part of the UPDATE. If the =DEFINE, BASICLDR directive is not included as part of the UPDATE, then only a segment/overlay loader library (SANDLIB) will be installed.)

```
        (REF8K )
=DEFINE,{REF16K}
        (REF24K)
```
(Specify the amount of refresh memory available in the terminal.)

=DEFINE,LIGHTPEN (Optional UPDATE directive. If the user has a lightpen and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no lightpen is assumed.)

=DEFINE,BALLSTICK (Optional UPDATE directive. If the user has a trackball or forcestick and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no trackball or forcestick is assumed.)

=DEFINE,HARDCOPY (Optional UPDATE directive. If the user has a hardcopy unit and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the ini-

tialization questions individually. If not defined, no hardcopy unit is assumed.)

=DEFINE, ERDISPLAY (Optional UPDATE directive. If the user wants the terminal error display enabled, this is recommended, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no errors will be displayed on the terminal screen.)

=D,TIGS1.10
ACCOUNT (*)
(Modify the installation job program library with appropriate accounting information. The dummy account card sequence number, 10, was obtained from the L=7 file listing resulting from step 1 of the "Installation Procedure".)

6/7/8/9

VERIFICATION PROCEDURE

Run the verification program, which is permanent file SANDVFY,ID=TIGS, created by the installation procedure job, to verify the proper installation of TIGS 1. The verification program may be run as follows:

1. Refer to "Terminal Operating Procedures" section to properly set up the terminal.

2. Log in to NOS/BE with a valid user name and password.

3. Downline load code into the terminal's memory. See appendix G of the TIGS Reference Manual for the procedure required.

4. Attach the verification program and segment/overlay loader library. Declare the library to the system:

```
ATTACH(SANDVFY,ID=TIGS)
ATTACH(SANDLIB,ID=TIGS)
LIBRARY(SANDLIB)
```

5. Execute the verification program:

```
SANDVFY.
```

6. The terminal operator will then be asked if the installation defaults are to be accepted. If the defaults are correct for lightpen, trackball/forcestick, hardcopy unit and error display, the operator may type a Y and skip to step 11. If the defaults are not correct, the operator must enter N and follow the subsequent steps (figure 9-4).

7. The terminal operator will be asked if a lightpen is available (figure 9-4).

8. The terminal operator will be asked if a trackball/forcestick is available (figure 9-4).

9. The terminal operator will be asked if a hardcopy unit is available. Enter N. The verification program does not require the availability of a hardcopy unit (figure 9-4).

```
INSTALLATION DEFAULT VALUES ARE

LIGHTPEN IS NOT AVAILABLE
TRACKBALL/FORCESTICK IS AVAILABLE
HARD COPY UNIT IS NOT AVAILABLE
ERROR DISPLAY IS ENABLED

DO YOU ACCEPT THESE DEFAULTS (Y/N)

   N
IS LIGHTPEN AVAILABLE (Y/N)

   Y
IS TRACKBALL/FORCESTICK AVAILABLE (Y/N)

   N
IS HARD COPY UNIT AVAILABLE (Y/N)

   N
SHOULD ERROR DISPLAY BE ENABLED (Y/N)

   Y
```

Figure 9-4. Acceptable Sanders Defaults

10. The terminal user will be asked if the error display should be enabled. Enter Y (figure 9-4).

11. Figure 9-5 will be displayed.

12. If neither a lightpen nor a trackball/forcestick is available, steps 13 through 16 are skipped.

13. The terminal operator is allowed to pick one of three buttons: WINDOW, RESTORE, or QUIT. The buttons are picked in one of the following ways:

    • If the lightpen is available, the operator positions the pen tip over the text of the button and depresses the tip.

    • If only the trackball/forcestick is available, the operator positions the center of the cursor over the text of the button and depresses the function key labeled FO.

14. If WINDOW is picked, the terminal operator will be asked to locate the lower-left and then the upper-right corner of a new window to display. This is done in one of the following ways:

    • If the lightpen is available, the operator positions the pen tip at the lower-left corner of the window desired and depresses the tip and then does the same for the upper-right corner. Finally, the operator depresses the function key labeled F15, after waiting for prompting at each step.

    • If only the trackball/forcestick is available, the operator positions the center of the cursor at the lower-left corner of the window desired and presses the function key labelled FO, and then does the same for the upper-right corner. Finally, the operator depresses the function key labeled F15, after waiting for prompting at each step.

15. If RESTORE is picked, the original display is redrawn.

16. If QUIT is picked, the verification program terminates.

17. If a basic (nonsegment/nonoverlay) loader library, SANDSFL, was not installed, then go to step 21.

18. Attach the nonsegment/nonoverlay loader library and declare it to the system:
      ATTACH(SANDSFL,ID=TIGS)
      LIBRARY(SANDSFL)

19. Execute the verification program:
      SANDVFY.

20. Repeat steps 6 through 16 to verify the nonsegment/ nonoverlay loader library, SANDSFL.

21. Purge all unnecessary files generated during the installation or verification of TIGS 1.

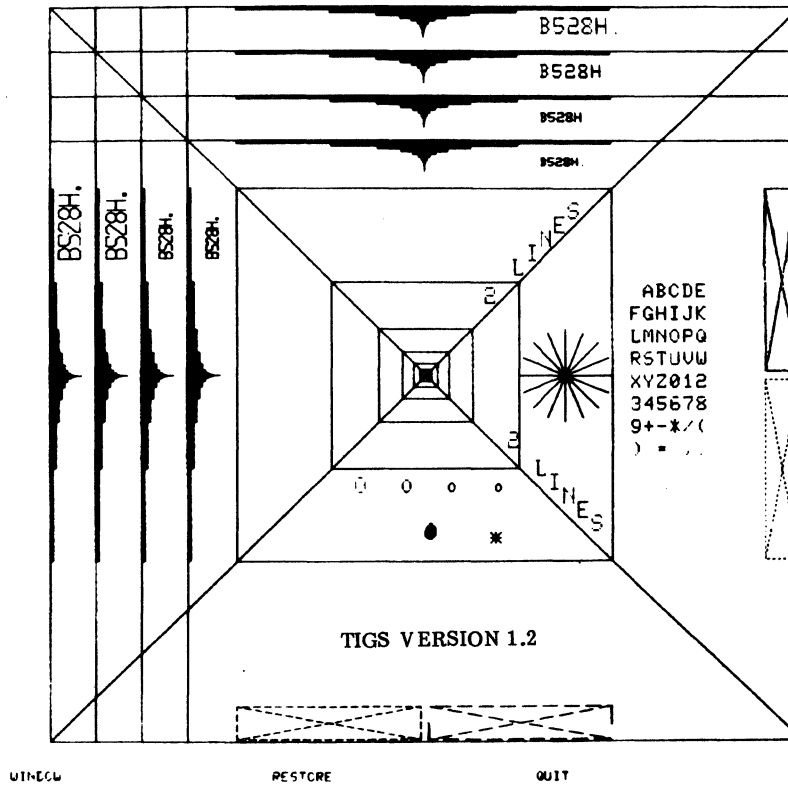22. Log off the system by entering LOGOUT when finished.

Figure 9-5. Figure Displayed on the Sanders Graphic 7 Terminal

TERMINAL OPERATING PROCEDURES

The Sanders Graphic 7 operating procedures are as follows:

1. Turn the terminal power on by pushing in the ON/OFF button on the front of the display and flipping the ON/OFF switch, located behind the front panel of the controller unit, to ON.

2. Push the LOCAL button on the front panel of the controller unit to bring up a test pattern on the display screen.

3. Depress the carriage return key on the keyboard to bring down the test pattern. An M will appear in the center of the screen. Then depress Y followed by carriage return. A G7 F will appear at the top of the screen indicating that the terminal is in teletype emulation mode.

4. Switch the terminal to half duplex by depressing the function key labeled F1.

5. Turn the modem power on and verify that the modem is connected to the terminal.

6. Dial the appropriate phone number.

7. INTERCOM 5 requires the user to press the RETURN key after the terminal is polled before it will respond with a LOGIN message. INTERCOM 4 will respond with a LOGIN message when it is ready for interactive command processing.

CDC 795 POST PROCESSOR OPTION

RELEASE MATERIALS

The CDC 795 post processor runs under NOS/BE when installed with the TIGS 1 preprocessor.

The CDC 795 post processor resides on the tape known as PL86D. PL86D is a program library in UPDATE format and has the following characteristics: 7-track (800 bpi) or 9-track (800 or 1600 cpi), binary recording mode, TIGSCDC12 as file ID in HDR1 label, six files:

File 1 - installation job program library in UPDATE format,
File 2 - empty,
File 3 - empty,
File 4 - TIGS 1 CDC 795 post processor source code program library in UPDATE format,
File 5 - verification program in UPDATE PL format, and
File 6 - empty.

Notes and Cautions

All limitations applicable to NOS/BE and INTERCOM also apply to TIGS 1 with the CDC 795 post processor.

All TIGS 1 subroutines are callable from application programs that have been written in FORTRAN Extended.

Communications between the terminal and the central site are supported for TIGS 1 with the CDC 795 post processor according to table 9-5.

TABLE 9-5. TIGS/CDC 795 COMMUNICATIONS
CAPABILITIES

Communication Mode	Baud Rate	Compatible Modem Type
Asynchronous	1200 300	212A 103A

INSTALLATION DESCRIPTION

The installation of TIGS 1 with the CDC 795 post processor allows the user the option of generating either a segment/overlay loader library (CDCLIB) or both a segment/overlay loader library (CDCLIB) and a basic (non-segment/non-overlay) loader library (CDCSFL).

The segment/overlay loader library (CDCLIB) can be used in those situations where memory requirements of graphic applications exceed the available NOS/BE field length. The user can employ the segment/overlay loader library (CDCLIB) in conjunction with the CYBER loader to segment or to overlay a graphic application and thereby reduce memory requirements. Note that use of the segment/overlay loader library (CDCLIB) without segmentation or overlays increases an application program field length requirement.

The basic (nonsegment/nonoverlay) loader library (CDCSFL) can be used for graphic applications with memory requirements that do not exceed the NOS/BE available field length.

If the use of a previously created old TIGS 1.2 NDF (Neutral Display File) is required, then the library, (CDCLIB) must be used. See section 8 of the TIGS Reference Manual for further details.

The segment/overlay loader library (CDCLIB) is installed by default by the installation job. Both the segment/overlay library (CDCLIB) and the basic (nonsegment/nonoverlay) loader library (CDCSFL), will be installed by the installation job by specifying =DEFINE,BASICLDR as an UPDATE directive.

CONFIGURATION DEFAULTS

Users may also wish to specify installation defaults for lightpen availability, forcestick availability, tablet availability, hardcopy unit availability, and terminal error display availability. If the same configuration is used repeatedly, specification of the installation defaults will minimize the question/answer session during TIGS 1.2 initialization. When the installed defaults are to be used, only a single Y response is required during initialization.

OTHER FILES GENERATED

In addition to the TIGS 1.2 library (or libraries), three other permanent files are produced during installation: installation verification program, relocatable binary; TIGS 1.0 to 1.2 neutral display file conversion program in absolute binary; and CDC 795 post processor segment loader directives. Operation of the installation verification program is described under the heading "Verification Procedure".

NEUTRAL DISPLAY FILE CONVERSION

All TIGS 1.0 neutral display files must be modified by a conversion program before they can be used by a TIGS 1.2 application program. The conversion program to accomplish this is installed in absolute binary form during the TIGS 1.2 installation procedure. The conversion program is cataloged under permanent file name NDFCNV,ID=TIGS. Instructions on running this program are given in the TIGS 1.2 Reference Manual under Appendix E - "Operating System Dependencies".

SEGMENTATION

Users may wish to provide segmentation for their application and TIGS 1.2. To aid the user in doing this, a skeleton segment directives source file is cataloged under permanent file name CDCDIR,ID=TIGS. Instructions on segmentation are given in the TIGS Reference Manual under Appendix E - "Operating System Dependencies".

INSTALLATION PROCEDURE

The procedure for installing TIGS 1 with the CDC 795 post processor is outlined in the following two steps.

Step 1.

This step generates UPDATE(L=7) listings of the installation job and the verification program.

The installation job is file 1 on the CDC 795 post processor release tape (PL86D). File 1 is a program library in UPDATE format with = (equals) as the master control character.

The verification program is file 5. File 5 is a program library in UPDATE format with * (asterisk) as the master control character.

Perform an UPDATE run against file 1 of PL86D to obtain the sequence number which corresponds to any control cards which must be modified for installation. An L=7 listing of the installation job and verification program may be obtained by executing the following procedure:

```
LISTI,T10,CM65000.

ACCOUNT(*)              (Supply appropriate
                        accounting information.)

LABEL(TIGSPL,R,L=TIGSCDC12,

     (HY)              (7-track, 800 bpi.)
D= {HD}, VSN=PL86D)   (9-track, 800 cpi.)
     (PE)              (9-track, 1600 cpi.)

COPYBF(TIGSPL,OLDPLT)

SKIPF(TIGSPL,3,17)

COPYBF(TIGSPL,OLDPLV)

UNLOAD(TIGSPL)

UPDATE(Q,P=OLDPLT,C=0,L=7,*==,U)

UPDATE(Q,P=OLDPLV,C=0,L-7,U)

7/8/9
```

```
=IDENT,LIST1

=C,TIGS1

7/8/9

*IDENT,LIST2

*C,TIGS2

6/7/8/9
```

Step 2.

This step installs the following permanent files: TIGS library (or libraries), installation verification program in relocatable binary, TIGS 1.0 to 1.2 neutral display file conversion program in absolute binary and a source file of CDC 795 post processor segment loader directives.

Perform a full UPDATE on file 1 of the CDC 795 post processor release tape, (PL86D), modifying the installation job program library with the appropriate accounting information and DEFINE UPDATE directives required for installation. Route the resulting installation job to the NOS/BE input queue by executing the following procedure. NOTE: Only the CDC 795 post processor release tape (PL86D) is required for the EXTRACT job, but both the CDC 795 post processor release tape (PL86D) and the TIGS 1 preprocessor release tape (PL86A) are required for the installation job routed to the NOS/BE input queue.

```
EXTRACT,T10,CM65000.

ACCOUNT(*)              (Supply appropriate
                       accounting information.)

LABEL(TIGSPL,R,L=TIGSCDC12,
       ⎧HY⎫            (7-track, 800 bpi.)
  D=  ⎨HD⎬, VSN=PL86D) (9-track, 800 cpi.)
       ⎩PE⎭            (9-track, 1600 cpi.)

COPYBF(TIGSPL,OLDPL)

UNLOAD(TIGSPL)

REQUEST(COMPILE,*Q)

UPDATE(F,*==,L=17,D,8)

ROUTE(COMPILE,DC=IN)

7/8/9

=IDENT,INSTALL

          ⎧HY⎫         (7-track, 800 bpi.)
=DEFINE,  ⎨PE⎬
          ⎩  ⎭         (9-track, 1600 cpi.)

                       (Default is 9-track, 800 cpi
                       (HD).)

=DEFINE,BASICLDR       (Optional UPDATE directive.
                       If the user wishes to install
                       both a segment/overlay loader
                       library (CDCLIB) and a basic
                       (nonsegment/nonoverlay) li-
                       brary  -- (CDCSFL),  the
                       =DEFINE, BASICLDR direc-
                       tive must be included as part
                       of the UPDATE. If the
```

=DEFINE,BASICLDR directive is not included as part of the UPDATE, then only a segment/overlay loader library (CDCLIB) will be installed.)

=DEFINE,LIGHTPEN   (Optional UPDATE directive. If the user has a lightpen and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no lightpen is assumed.)

=DEFINE,FORSTICK   (Optional UPDATE directive. If the user has a forcestick and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no forcestick is assumed.)

=DEFINE,TABLET   (Optional UPDATE directive. If the user has a tablet and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no tablet is assumed.)

=DEFINE,HARDCOPY   (Optional UPDATE directive. If the user has a hardcopy and wishes to declare its existence, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no hardcopy is assumed.)

=DEFINE,ERDISPLAY   (Optional UPDATE directive. If the user wants the terminal error display enabled, this is recommended, add this directive as part of the UPDATE. This default may be overridden at run time by answering the initialization questions individually. If not defined, no errors will be displayed on the terminal screen.)

=D,TIGS1.10   (Modify the installation job
ACCOUNT(*)   program library with appro-
                       priate accounting information. The dummy account card sequence number, 10, was obtained from the L=7 file listing resulting from step 1 of the "Installation Procedure".)

6/7/8/9

VERIFICATION PROCEDURE

Run the verification program, which is permanent file CDCVFY,ID=TIGS, created by the installation procedure job, to verify the proper installation of TIGS 1. The verification program may be run as follows:

1. Refer to "Terminal Operating Procedures" section to properly set up the terminal.

2. Log in to NOS/BE with a valid user name and password.

3. Attach the verification program and segment/overlay loader library. Declare the library to the system:

       ATTACH(CDCVFY,ID=TIGS)
       ATTACH(CDCLIB,ID=TIGS)
       LIBRARY(CDCLIB)

4. Execute the verification program:

       CDCVFY.

5. The terminal operator will then be asked if the installation defaults are to be accepted. If the defaults are correct for lightpen, forcestick, tablet, hardcopy unit and error display, the operator may type a Y and skip to step 11. If the defaults are not correct, the operator must enter N and follow the subsequent steps (figure 9-6).

6. The terminal operator will be asked if a lightpen is available (figure 9-6).

7. The terminal operator will be asked if a forcestick is available (figure 9-6).

8. The terminal operator will be asked if a tablet is available (figure 9-6).

9. The terminal operator will be asked if a hardcopy unit is available. Enter N. The verification program does not require the availability of a hardcopy unit (figure 9-6).

```
TIGS/CDC795 VERSION 1.2
COPYRIGHT CONTROL DATA CORP. 1979
INSTALLATION DEFAULT VALUES ARE


LIGHTPEN IS NOT AVAILABLE
FORCESTICK IS AVAILABLE
TABLET IS NOT AVAILABLE
HARD COPY UNIT IS AVAILABLE
ERROR DISPLAY IS ENABLED


DO YOU ACCEPT THESE DEFAULTS (Y/N)
         N
IS LIGHTPEN AVAILABLE (Y/N)
         Y
IS FORCESTICK AVAILABLE (Y/N)
         N
IS TABLET AVAILABLE (Y/N)
         Y
IS HARD COPY UNIT AVAILABLE (Y/N)
         N
SHOULD ERROR DISPLAY BE ENABLED (Y/N)
         Y
```

Figure 9-6. Acceptable CDC 795 Defaults

10. The terminal user will be asked if the error display should be enabled. Enter Y (figure 9-6).

11. Figure 9-7 will be displayed.

12. If a lightpen, forestick, or tablet is not available, steps 13 through 16 are skipped.

13. The terminal operator is allowed to pick one of three buttons: WINDOW, RESTORE, or QUIT. The buttons are picked in one of the following ways:

    . If the lightpen is available, the operator positions the pen tip over the text of the button and depresses the tip.

    . If only the forestick is available, the operator positions the center of the cursor over the text of the button and depresses the function key labeled F15.

    . If only the tablet is available, the operator positions the center of the cursor over the text of the button and depresses the pen tip.

14. If WINDOW is picked, the terminal operator will be asked to locate the lower-left and then the upper-right corner of a new window to display. This is done in one of the following ways:

    . If the lightpen is available, the operator positions the pen tip at the lower-left corner of the window desired and depresses the tip and then does the same for the upper-right corner. Finally, the operator depresses the function key labeled F15, after waiting for prompting at each step.

    . If only the forcestick is available, the operator positions the center of the cursor at the lower-left corner of the window described and presses the function key labeled FO. The operator then positions the center of the cursor at the upper-right corner and presses the function key labeled F15, after waiting for prompting at each step.

    . If only the tablet is available, the operator positions the center of the cursor at the lower-left corner of the window desired, depresses the tip, and then does the same for the upper-right corner. Finally, the operator depresses the function key labeled F15, after waiting for prompting at each step.

15. If RESTORE is picked, the original display is redrawn.

16. If QUIT is picked, the verification program terminates.

17. If a basic (nonsegment/nonoverlay) loader library, CDCSFL, was not installed, go to step 21.

18. Attach the nonsegment/nonoverlay loader library and declare it to the system:

        ATTACH(CDCSFL,ID=TIGS)
        LIBRARY(CDCSFL)

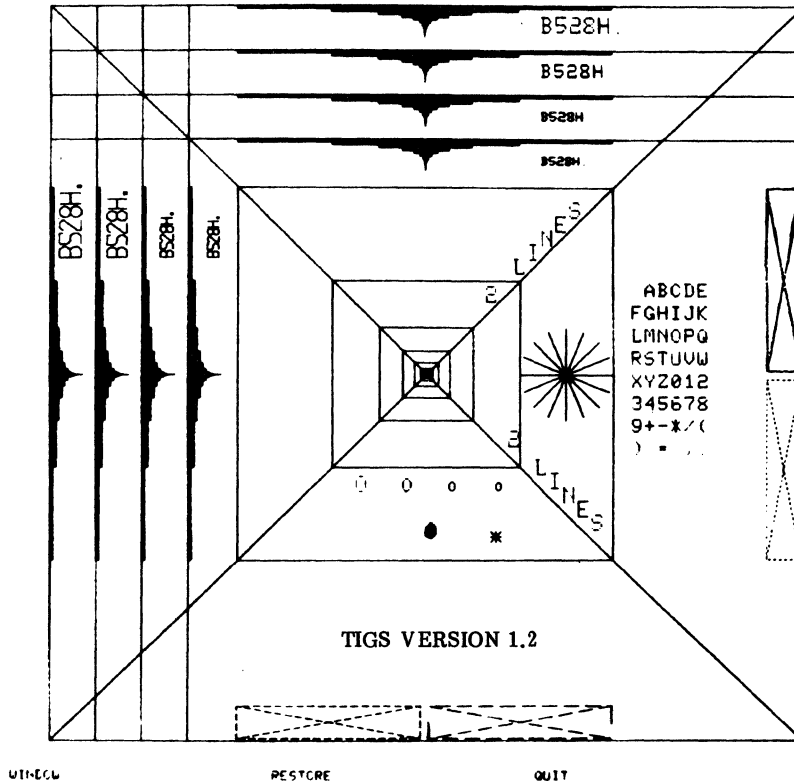19. Execute the verification program:

        CDCVFY.

Figure 9-7. Figure Displayed on the CDC 795 Terminal

20. Repeat steps 5 through 16 to verify the nonsegment/nonoverlay loader library, CDCSFL.

21. Purge all unnecessary files generated during the installation or verification of TIGS 1.

22. Log off the system by entering LOGOUT when finished.

TERMINAL OPERATING PROCEDURES

The CDC 795 operating procedures are as follows:

1. Turn the terminal power on by pushing in the ON/OFF button on the front of the display and flipping the 0/1 switch, located on the front panel of the controller unit, to 1.

2. Push the LOCAL button on the front panel of the controller unit to bring up a test pattern on the display screen.

3. Depress the carriage return key on the keyboard to bring down the test pattern. A B∅M will appear in the center of the screen. Then depress Y followed by carriage return. A TTY F will appear at the top of the screen indicating that the terminal is in teletype emulation mode.

4. Switch the terminal to half duplex by depressing the function key labeled F1.

5. Turn the modem power on and verify that the modem is connected to the terminal.

6. Dial the appropriate phone number.

7. INTERCOM 5 requires the user to press the RETURN key after the terminal is polled before it will respond with a LOGIN message. INTERCOM 4 will respond with a LOGIN message when it is ready for interactive command processing.

TOTAL UNIVERSAL 1

RELEASE DESCRIPTIONS

TOTAL Universal 1 consists of the following relocatable binaries:

DBGEN (Data base generation program)—this program reads user-prepared DBDL statements and generates COMPASS source statements which in turn produce the data base descriptor module.

DBFMT (Data set format program)—this program reads format parameter statements, and, utilizing a data base descriptor module, preformats the data sets.

DATBAS (Data base interface module)—this module serves as an interface between the user application program and the TOTAL and data base descriptor modules.

TOTAL (Data base management module)—this module provides the data management capability of the system, interpreting and executing the various DML commands from the user application program.

DBRCV (Data base recovery module)—this module, optional in use, provides the ability to record images from the TOTAL logging file.

These files are to be installed on the user's permanent file library.

Hardware Requirements

TOTAL Universal 1 can be maintained and run on the same minimum hardware requirements as NOS/BE.

Deficiencies

None.

INSTALLATION PROCEDURES

TOTAL Universal 1 resides on the tape PL49. PL49 is a program library in binary format. It has the following characteristics: labeled, 7- or 9-track, 800 bpi, binary recording mode, TOTALU1P0 as file ID in HDR1 label, six files:

File 1 – installation and verification deck in UPDATE format,
File 2 – empty,
File 3 – five TOTAL relocatable binaries (described earlier),
File 4 – empty,
File 5 – empty, and
File 6 – sample output of installation and validation job.

Installation consists of the following steps:

1. Determine update directives to modify the install deck (as described in the next section).

2. Create the following job to call the install/validate job from the install tape and submit it as a batch job:

   JOB/ACCOUNT.   (Supply valid JOB/ACCOUNT card.)

   LABEL,TOT,R,L=TOTALU1P0,D=HY,VSN=PL49.

   REQUEST,COMPILE,*Q.

   UPDATE,Q,*=$$$$,P=TOT,L=F.

   ROUTE,COMPILE,DC=IN.

   7/8/9

   UPDATE directives

   6/7/8/9

3. Validate the install/validate job output against the sample output copied from the install tape.

INSTALLATION PARAMETERS

Following is a sample UPDATE directive deck to be used as described in the previous section. All options are shown and explained.

```
$IDENT,INST
⎰$DEFINE MT⎱        (7-track install tape.)
⎱$DEFINE NT⎰        (9-track install tape.)
 $DELETE INSTALL.2,INSTALL.3
  JOB/ACCOUNT        (Site/user dependent.)
 $COMPILE INSTALL
```

INSTALLATION JOB

The installation/validation job performs the following:

1. Issue LABEL to have install tapes assigned to job.

2. REQUEST's permanent file space for the five TOTAL files, copies them from tape to the permanent files, and catalogs the permanent files as in the following example (no passwords are assigned):

   CATALOG,DBGEN,ID=TOTAL

3. Validation is begun by defining a data base using DBGEN.

4. The test data base is formatted with DBFMT.

5. Sample data is placed in the data base with a COBOL program, and retrievals are performed. DATBAS and TOTAL are verified in this phase.

6. DBRCV is next run against the data base for its validation.

7. Finally, the sample output of the install/validation job is copied from the install tape to output.

TOTAL UNIVERSAL 2

RELEASE DESCRIPTION

TOTAL Universal 2 consists of the following relocatable binaries:

DBGEN (Data base generation program)—this program reads user-prepared DBDL statements and generates COMPASS source statements which in turn produce the data base descriptor module.

DBFMT (Data set format program)—this program reads format parameter statements, and, utilizing a data base descriptor module, preformats the data sets.

DATBAS (Data base interface module)—this module serves as an interface between the user application program and the TOTAL and data base descriptor modules.

TOTAL (Data base management module)—this module provides the data management capability of the system, interpreting and executing the various DML commands from the user application program.

DBRCV (Data base recovery module)—this module, optional in use, provides the ability to recover record images from the TOTAL logging file.

TOTUTIL (TOTAL utilities)—this program provides TOTAL users with a generalized utility package capable of performing file loading/unloading, statistics, and other data base functions.

These files are to be installed on the user's permanent file library.

Hardware Requirements

TOTAL Universal 2 can be maintained and run on the same minimum hardware requirements as NOS/BE.

Deficiencies

None.

RELEASE MATERIALS

TOTAL UNIVERSAL 2 release materials are contained on program library tape PL75. PL75 has the following characteristics: labeled, 7-track (800 bpi) or 9-track (800 or 1600 cpi), binary recording mode, TOTALU2P0 as file ID in HDR1 label. PL75 contains seven files:

File 1 - installation and verification deck in UPDATE format,
File 2 - empty,
File 3 - five TOTAL relocatable binaries: DBGEN, DBFMT, DATBAS, TOTAL, DBRCV,

File 4 - source code for TOTAL utilities in UPDATE format,
File 5 - empty,
File 6 - COBOL compilation output from the validation job, and
File 7 - execution output from the validation job.

INSTALLATION PROCEDURES

Installation consists of the following steps:

1. Determine UPDATE directives to modify the install deck (as described in the next section).

2. Create the following job to call the install/validate job from the install tape and submit it as a batch job:

JOB/ACCOUNT.   (Supply valid JOB/ACCOUNT card.)

LABEL,TOT,R,L=TOTALU2P0,D= $\begin{Bmatrix} HY \\ HD \\ PE \end{Bmatrix}$, VSN=PL75.

REQUEST,COMPILE,*Q.

UPDATE,Q,*=$$$$,P=TOT,L=F.

ROUTE,COMPILE,DC=IN.

7/8/9

UPDATE directives

6/7/8/9

3. Validate the install/validate job output against the sample output copied from the install tape.

INSTALLATION PARAMETERS

Following are the UPDATE directives to be used as described in the previous section. All options are shown and explained.

$IDENT INST

$\begin{Bmatrix} \$DEFINE\ HY \\ \$DEFINE\ HD \\ \$DEFINE\ PE \end{Bmatrix}$ (7-track 800 bpi) ⎫ Select one to corre-
(9-track 800 cpi) ⎬ spond to the instal-
(9-track 1600 cpi) ⎭ lation tape density.

$DELETE INSTALL.2,INSTALL.3

JOB/ACCOUNT CARD.   (Supply valid JOB/ ACCOUNT card.)

$COMPILE INSTALL

INSTALLATION JOB

The installation/validation job performs the following:

1. Issues LABEL card to have install tape assigned to job.

2. REQUEST's permanent file space for the five TOTAL files, copies them from tape to the permanent files and catalogs the permanent files as in the following example:

CATALOG,DBGEN,ID=TOTAL.

3. Compiles TOTAL utilities and creates the relocatable binary on the permanent file TOTUTIL.

4. Validation is begun by defining a data base using DBGEN.

5. The test data base is formatted with DBFMT.

6. Sample data is placed in the data base with a COBOL program, and retrievals are performed. DATBAS and TOTAL are verified in this phase.

7. DBRCV is run against the data base for its validation.

8. The TOTAL utilities are validated by executing the statistics option.

9. Finally, the sample output of the install/validation job is copied from the install tape to output for verification.

FILES CREATED

The installation/validation job creates the following permanent files with ID=TOTAL and no passwords assigned:

DBGEN
DBFMT
DATBAS } Five TOTAL binaries
TOTAL
DBRCV

TOTUTIL – TOTAL utility binary
CUSTDB – Validation DBMOD
CUCUST } Validation data base files
CUINVF

The user should insure that these files will not conflict with already existing files prior to installation.

RELEASE DESCRIPTIONS

TOTAL/ATHENA consists of four relocatable binaries:

ATB1 ⎫	Modules that interface with the TOTAL
ATB2 ⎭	data base management system.
ATRP	the Report Writer module.
ATPLT	the Plotter module.

HARDWARE REQUIREMENTS

TOTAL/ATHENA can be maintained and run on the same minimum hardware requirements as NOS/BE.

SOFTWARE REQUIREMENTS

TOTAL Universal 2 must be installed before TOTAL/ATHENA installation is attempted.

INSTALLATION PROCEDURES

PL62 contains six files:

File 1 – install deck in UPDATE format,

File 2 – empty,

File 3 – four relocatable binaries:

    -ATB1 ⎫
    -ATB2 ⎭ TOTAL/ATHENA query update binaries,
    -ATRP   TOTAL/ATHENA Report Writer, and
    -ATPLT   TOTAL/ATHENA Plotter;

File 4 – TOTAL/ATHENA, Report Writer, and Plotter source code deck in UPDATE format,

File 5 – demonstration decks in UPDATE format:

    -TOTAL/ATHENA,
    -REPORT WRITER
    -PLOTTER, and
    -TEXT INFORMATION;

File 6 – sample output from demonstration jobs.

Installation consists of the following steps:

1. Choose the UPDATE directives that are required in step 2 to modify the install deck.

    a. Select a DEFINE,MT or DEFINE,NT or DEFINE, NTPE for install tape processing.

    b. Select a DEFINE,BINARY or DEFINE,SOURCE. For execution of TOTAL/ATHENA, Report Writer and Plotter compiled binaries, select the DEFINE,BINARY. For users to compile their own copies of TOTAL/ATHENA, Report Writer

    and Plotter, select the DEFINE,SOURCE control directive.

    c. Select DEFINE,DEBUG if COBOL DEBUG mode is desired.

2. Create and submit for batch processing the following job to call the install deck from the install tape:

JOB, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT.

LABEL,ATH,R,L=TOTALATHENA,D= $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$,

    VSN=PL62.

REQUEST,COMPILE,*Q.

UPDATE(Q,P=ATH,L=F,*=/)

ROUTE(COMPILE,DC=IN)

7/8/9

/ID INST

/DEFINE $\begin{Bmatrix} \text{MT (7 TRACK TAPE)} \\ \text{NT (9 TRACK TAPE)} \\ \text{NTPE} \end{Bmatrix}$ (Select MT, NT or NTPE)
         (9 TRACK TAPE - 1600 cpi)

/DEFINE $\begin{Bmatrix} \text{SOURCE} \\ \text{BINARY} \end{Bmatrix}$ (Select BINARY or SOURCE)

[/DEFINE,DEBUG]

/DELETE INSTALL.2,INSTALL.3

JOBNAME, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.   (Choose)

ACCOUNT.   (Insert correct ACCOUNT here.)

/D INSTALL.103,INSTALL.104

JOBNAME,T200, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.   (Choose)

ACCOUNT.   (Insert correct ACCOUNT here.)

/COMPILE INSTALL

6/7/8/9

3. Verify that the output from the demonstration job matches the listing of the install tape sample output file. Verify that the output obtained from interactively executing the ATHENA plotter matches the output listed in the demonstration job text file.

INSTALLATION JOB

The installation jobs perform the following:

1. Issue LABEL to have PL62 assigned to job.

2. For installation of the binary files (/DEFINE, BINARY), the install job defines the two TOTAL

ATHENA files, the Report Writer and Plotter files, and copies them from release PL62 to the permanent files. No passwords are assigned.

3. For the user to compile binaries from source code (/DEFINE,SOURCE) the install job defines the two TOTAL/ATHENA files, the Report Writer file and Plotter file, copies and updates the source code from tape to disk and compiles the source code generating TOTAL/ATHENA, Report Writer and Plotter binaries.

4. A TOTAL/ATHENA demonstration is begun by defining a data base using DBGEN (TOTAL module).

5. A test data base is formatted with DBFMT (TOTAL module).

6. Sample data is placed in the data base with TOTAL/ATHENA and then TOTAL/ATHENA retrievals and functions are performed.

7. A TOTAL/ATHENA Report Writer demonstration is then processed with SUBSET and COMMAND file data supplied on the install tape.

8. A TOTAL/ATHENA plotter demonstration should then be run interactively by the installer. The plotter data base and a text file of instructions to the installer is supplied on the install tape. The needed files are cataloged by the installation job, and the text file of instructions is printed out following the ATHENA Report Writer demonstration.

When the plotter verification is complete, the installer should compare all the demonstration output with the expected output which was copied from the install tape.

This job lists the install deck as it appears on file 1 of PL62:

JOBNAME, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT.

LABEL(ATH,R,L=TOTALATHENA,D= $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$,

    VSN=PL62)

UPDATE(Q,L=F,P=ATH,*=/)

7/8/9

/ID ATHLIST

/COMPILE INSTALL

6/7/8/9

DEMONSTRATION JOB

The demonstration deck in UPDATE format includes the demonstration job and the necessary input records to the demonstration job. The demonstration job performs these operations:

1. Generates a TOTAL DBMOD and formats a TOTAL data base.

2. Creates and executes the TOTAL/ATHENA query/update executable binary.

3. Executes the TOTAL/ATHENA report generator module.

4. Defines and copies a TOTAL/ATHENA plotter SUBSET file.

5. Prints a text file that describes how to verify the TOTAL/ATHENA plotter.

This job lists the demonstration deck as it appears on file 5 of the install tape:

JOBNAME, $\begin{Bmatrix} \text{MT1} \\ \text{HD1} \\ \text{PE1} \end{Bmatrix}$.

ACCOUNT.

LABEL(ATH,R,L=TOTALATHENA,D= $\begin{Bmatrix} \text{HY} \\ \text{HD} \\ \text{PE} \end{Bmatrix}$,

    VSN=PL62)

SKIPF,ATH,4,17.

UPDATE(Q,L=F,P=ATH,*=$$$$,R)

7/8/9

$ID ATHLIST

$COMPILE TADEMO

6/7/8/9

NOTE

The binary files on this release were generated on a non-CMU CYBER system.

COMMENT SHEET

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