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OS/VS1 OLTEP

VS1 Release 2

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This new publication as updated by Technical Newsletter GN28-2556 applies to release 2 of OS/VS1 and to all subsequent releases until otherwise indicated in new editions or Technical Newsletters. It replaces VS1 information contained in OS/VS OLTEP, GC28-0636, which applies to release 1 of OS/VS1 and release 1 of OS/VS2.

For a summary of major changes for release 2 of OS/VS1, see the Summary of Amendments.

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This publication provides customer engineers, other qualified personnel, and operators with the information required to use the Online Test Executive Program (OLTEP). It also provides customer engineers and specialists at remote centers with a description of how to use the RETAIN/370 feature of OLTEP.

OLTEP runs online test programs, under OS/VS, for the testing of I/O equipment.

The RETAIN/370 Interface enables a specialist at a remote center to help direct testing and to analyze test results. It is included at system generation if an IBM 2955 Field Engineering Data Adapter Unit is attached to the Central Processing Unit (CPU).

This publication is divided into four sections.

Section 1 is an introduction to OLTEP concepts and terminology. OLTEP system requirements and restrictions are described.

Section 2 deals with the methods of creating and modifying OLTEP data sets, cataloging an OLTEP procedure, and defining an OLTEP job.

Section 3 details OLTEP operating procedures including how to set up an MCS console, how to vary devices offline, how to invoke OLTEP, how to define and run tests, and how to equate CDS device addresses.

Section 4 explains how to use the RETAIN/370 feature of OLTEP. Information includes the methods of activating and terminating the RETAIN/370 Interface (REI), restrictions in entering test definitions, and special communication facilities.

Appendix A of this publication illustrates the format and syntax of a test definition and explains

OLTEP options. Following the appendix is a glossary.

This entire publication is designed for use by the customer engineer. Information for operators is contained in Section 3 and the appendixes. Information for remote specialists is in Section 4 and the appendixes.

Although the term customer engineer is referred to throughout the publication, execution of online tests is not limited to IBM customer engineers unless the RETAIN/370 feature of OLTEP is being used. The information in Sections 1-3 of this publication is for all qualified personnel who wish to use OLTEP.

The following publications are referred to in the text:

OS/VS JCL Reference, GC28-0618

OS/VS Linkage Editor and Loader, GC26-3803

OS/VS Message Library: Service Aids and OLTEP Messages, GC38-1006

Operator's Library: OS/VS1 Reference, GC38-0110

OS/VS Service Aids, GC28-0633

OS/VS SYS1.LOGREC Error Recording, GC28-0638

OS/VS Utilities, GC35-0005

Customer engineers should refer to F.E. Diagnostic Order Procedure, ZZ25-0505, for ordering procedures for online tests and their documentation.

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**Summary of Amendments
For GC28-0666-0
As Updated by GN28-2556
VS1 Release 2**

IBM 2701, 2702, 2703, 3270, and TP Terminals

The test requirements for these devices, specified in Figure 2, have been brought up to date.

Loading OLTEP Transient Modules

The description of this procedure, given in the Performance Aids section of the Introduction, has been corrected.

CNTRLIN DD Statementnt

The description of this statement in Section 2 has been corrected.

REP Cards

The format for these cards has been included in Section 2 under "How to Modify OLTEP Data Sets".

Cataloging an OLTEP Procedure

The JCL requirements for cataloging an OLTEP procedure have been corrected.

ADDRSPC Parameter

A description of this parameter of the EXEC statement used when cataloging an OLTEP procedure has been added.

**Summary of Amendments
For GC28-0666-0
VS1 Release 2**

This publication contains updated VS1 information from GC28-0636. Major changes are as follows:

OLTEP Editor Program

A new module, the OLTEP Editor, is now used in place of the OS/VS Linkage Editor to create OLTEP data sets. How the Editor is used is described in Section 1 under "How to Create OLTEP Data Sets".

OLTEP Punch Program

"How to Modify OLTEP Data Sets" is a new topic in Section 2 which describes how the OLTEP Punch program can be used to modify OLTEP data sets.

OLTEP Equate Facility

"How to ENTER DEV EQUATES/END/CLR" a new topic in Section 3 which describes how to change the address of a CDS device without changing the CDS being used.

Section 1: Introduction

The Online Test Executive Program enables you to run online test programs under OS/VS. These programs test control units, I/O devices and teleprocessing terminals. You can use online test programs to:

- Perform preventive maintenance checks.
- Diagnose equipment malfunctions.
- Verify repairs.
- Test engineering changes.

You can run online test programs (OLTs) to obtain printed diagnostic information, or to exercise a device while you test it with an oscilloscope. You can also run online test programs to print error records contained in SYS1.LOGREC, or in a history data set.

Online test programs are supplied by IBM Field Engineering. Ordering procedures are given in **F.E. Diagnostic Order Procedure, ZZ25-0505**.

The Online Test Executive Program acts as an interface, or adapter, to let you run online test programs under the operating system.

Online test programs are also known as "unit tests" or "OLT programs." With the Online Test Executive Program (OLTEP), they form the Online Test System (OLTS). Figure 1 shows how the Online Test System relates to the operating system.

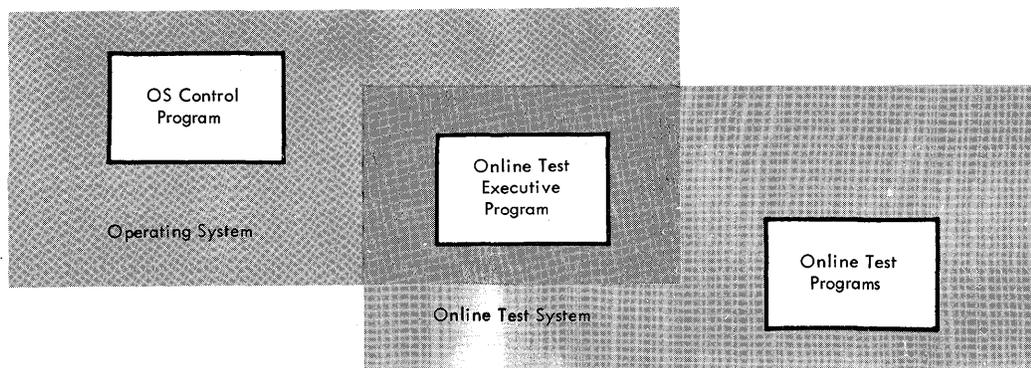


Figure 1. The Online Test System

OLTEP is the link between the operating system and OLTS. It is a standard component of the operating system. It runs as a job under the OS/VS control program, and acts as a control program for the Online Test System.

As a component of OS/VS, OLTEP resides in the system link library (SYS1.LINKLIB and SYS1.SVCLIB). OLT programs reside in a private data set which you must create before you can use OLTEP. The procedure for creating this partitioned data set is described in Section 2.

To start an OLTEP run, use the OS/VS job control language (JCL), or enter a START command at the console. Tell OLTEP what tests to run by entering test definitions, either at the console or with your JCL. OLTEP responds to each test definition by loading and executing the appropriate OLT programs.

Because OLTEP is run as an OS/VS job, there is minimum interference with normal system operation:

- When OS/VS is being run on a system, tests can be run without having first to stop OS/VS and then to re-IPL when testing is completed.
- The system operator can run other jobs while you are running OLTEP.

The operator can also help run OLTEP, and in some cases can run OLTEP by himself. Because OLTEP channels all messages and replies through the OS/VS control program, communications are in the standard OS/VS format. If you tell him what tests to run, the operator should be able to run OLTEP just as he would run any other job. For help, he can refer to Section 3 of this manual.

The RETAIN/370 feature of OLTEP will be selected at system generation if an IBM 2955 Field Engineering Data Adapter Control Unit is attached to the CPU. It enables a specialist at a remote installation to help direct the testing process and to analyze test results. If RETAIN/370 is active, the remote specialist receives most OLTEP messages and all test results. He is able to communicate with OLTEP and with the on-site customer engineer.

The OLTEP Run

Section 2 of this manual explains how to set up an OLTEP run. The general procedure is as follows:

1. **Create OLTEP Data Sets:** Run the OLTEP Editor to create a data set containing online test programs and system configuration data. If you intend to test remote teleprocessing terminals, create a second data set containing configuration data for these symbolically named units.
2. **Modify OLTEP Data Sets:** Use the OLTEP Punch program to obtain a punch-card copy of a member of the data set that needs to be modified. Then, using REP cards to make the desired changes, replace the member in the OLTEP data set by running the OLTEP Editor.
3. **Catalog an OLTEP Procedure:** Run the IEBUPDTE utility program to create and catalog an OLTEP procedure. Then, to run OLTEP, enter a START command at the console, referring to the OLTEP procedure.
4. **Define an OLTEP Job:** If the START command will not be used to run OLTEP, code and punch JCL statements to define the OLTEP run as an OS/VS job. To run OLTEP, enter the JCL in the OS/VS job stream.

Section 3 explains how to run OLTEP. The general procedure is as follows:

1. **Set up the Console:** In a system with MCS (multiple console support), you can run OLTEP from either the master console or the maintenance console. Decide which console to use; then ensure that it is properly set up for running OLTEP.
2. **Vary Devices Offline:** Before you can test most I/O devices, they must be offline to OS/VS. Select the devices to be tested; then use the VARY command to place them offline.
3. **Invoke OLTEP:** Enter JCL in the OS/VS job stream, or enter a START command at the console.
4. **Define and Run Tests:** Define tests at the console, or include OLTEP control statements with your JCL. Or do both: after running tests defined by control statements, define additional tests at the console.

Section 4 explains how to use the RETAIN/370 feature of OLTEP. Topics include:

1. **How to Activate RETAIN/370:** First activate the IBM 2955 Field Engineering Data Adapter Unit (FE/DAU) and establish verbal communications with the RETAIN/370 Center. Then reply 'REI' to message IFD105D.
2. **How to Define Tests:** The on-site customer engineer must enter the first test definition. If he enters the RE option, the remote specialist may define tests and options but he cannot specify device addresses.

3. **Communications:** The on-site customer engineer and the remote specialist can communicate with OLTEP and each other. OLTEP does not send all messages to the remote specialist. There are a number of restrictions regulating the remote specialist's replies to OLTEP messages.
4. **How to Terminate RETAIN/370:** To terminate the RETAIN/370 Interface, enter 'STOPREI' in response to message IFD105D.

OLTEP Requirements and Restrictions

OLTEP is a standard component of the operating system which runs as a job under the OS/VIS control program. Only one OLTEP job may be run on a system at any given time. For the RETAIN/370 feature of OLTEP to be activated, an IBM 2955 FE Data Adapter Unit must be attached to a multiplex channel.

OLTEP requires 64K bytes of virtual storage, and can run in any VS1 virtual storage partition. In addition, OLTEP must be able to obtain 4K to 32K bytes of real storage for use by the online tests. OLTEP automatically obtains up to 12K bytes of real storage; if you plan to run an online test larger than 12K, you must request additional storage when you invoke OLTEP by specifying PARM='MAX'.

OLTEP imposes certain requirements on devices to be tested. For example, most devices must be placed offline to OS/VIS. While OLTEP has a device allocated, no other user can access it. Specific requirements for each device type are defined in Figure 2.

When devices are placed offline for testing, enough devices must remain online to make up the minimum OS/VIS device configuration. There must also be enough devices to meet OLTEP data set requirements. The data sets required by OLTEP are as follows:

- OLTEP Data Set (data set of OLT programs and system configuration data in direct access storage).
- Output data set (printed output; usually a SYSOUT data set).

Other data sets are optional, or required by certain OLT programs. These are as follows:

- Control data set (OLTEP control statements, usually entered with JCL in the OS/VIS input stream).
- Input data set (test input, on magnetic tape or cards).
- SYS1.LOGREC (log data set on system residence volume).
- History data set (data from SYS1.LOGREC, accumulated by IFCEREPO -- may be on on tape or in direct access storage).
- Library of configuration data for symbolically addressed units (teleprocessing terminals).

Device Type ¹	Test Requirements
IBM 1419	OLTEP must be assigned the highest priority of any job in the system.
IBM 2250	In addition to the devices you will test, all other devices on the same control unit must be offline. (Note that the 2250-1 contains its own control unit.)
IBM 2305	<p>Full Test: Data stored on the device must be dumped. The device must be offline; if shared, the device must be offline to OS/VS in all systems that share the device. The operator must give permission for OLTEP to write on the device. When testing is completed, the volume must be reinitialized, and dumped data must be restored.</p> <p>Partial Test: If the device is online, OLTEP will ask OS/VS to allocate space on the device. If space is allocated, OLTEP will test the device, but testing will not include write Home Address or write R0 operations. If space is not allocated, OLTEP will test the device in File Protect Mode: there will be no write testing, and no data will be destroyed.</p> <p>If the device is offline, OLTEP will test the device in File Protect Mode if it is a shared device and is online to OS/VS in another system, or if the operator denies permission for OLTEP to write on the device.</p>
IBM 2314 IBM 2319 IBM 3330	<p>Full Test: The device must be offline; if shared, the device must be offline to OS/VS in all systems that share the device. A C.E. volume or scratch volume must be mounted. If a scratch volume is mounted, the operator must give permission for OLTEP to write on the device. The scratch volume must be reinitialized when testing is completed.</p> <p>Partial Test; If the device is online and not a C.E. volume, OLTEP will test it in File Protect Mode; there will be no write testing, and no data will be destroyed. If the device is online and is a C.E. volume, the operator must give permission for OLTEP to write on the device. Test routines that require an offline device will not be executed.</p> <p>If the device is offline, OLTEP will test the device in File Protect Mode if it is a shared device and is online to OS/VS in another system, or if the operator denies permission for OLTEP to write on the device.</p>
¹ Devices not listed in this table must be offline to OS/VS.	

Figure 2. Requirements for Devices to be Tested (Part 1 of 2)

Device Type ¹	Test Requirements
IBM 2400	<p>The device must be offline, and a scratch volume must be mounted. If the scratch volume does not have standard labels, or if OLTEP is unable to read the labels, the operator must give permission for OLTEP to write on the volume.</p> <p>Testing destroys both labels and data. If a volume initially has standard labels, OLTEP saves the volume serial number and relabels the volume when testing is completed. If a volume does not have standard labels, or if OLTEP cannot read the labels, the volume will have no labels when testing is completed.</p>
IBM 2701 IBM 2702 IBM 2703	<p>Telecommunications lines must be OFFLINE and UNALLOCATED in order to be tested by OLTEP. Also, all users of the lines (applications programs and program access methods) must have terminated their use of the lines and given the lines that they were using back to the operating system prior to testing.</p> <p>For the IBM 2702 and the IBM 2703, at least two lines, including line 0, are required for testing.</p>
IBM 3270	<p>Locally attached 3270 devices can be tested by OLTEP while they are online or allocated only if they have been allocated to BTAM (Basic Telecommunications Access Method). Otherwise, these devices must be offline to the operating system and not allocated to any user.</p>
Remote TP Terminals ²	<p>The remote terminals must be attached to an IBM 2701, 2702, 2703, 3704, 3705, or 7770 control unit in order to be tested by OLTEP. The TP line from the control unit to the remote terminals must be OFFLINE and UNALLOCATED in the operating system. Once OLTEP has control of the line, no other user should access it. The line will remain under OLTEP control until testing on the remote terminal has been completed and another device has been selected at ENTER-DEV/TEST/OPT time.</p> <p>A special OLTEP data set of symbolically named data must exist prior to testing of the remote terminals (see "How to Create OLTEP Data Sets" in Section 2).</p>
<p>¹Devices not listed in this table must be offline to OS/VS.</p> <p>²Teleprocessing terminals supported by OLTEP include 1030, 1050, 1060, 1130, 2020, 2260, 2265, 2715-II, 2721, 2740, 2741, 2760, 2770, 2780, 2979, and TOUCH-TONE* devices.</p> <p>*Trademark of Bell System</p>	

Figure 2. Requirements for Devices to be Tested (Part 2 of 2)

OLTEP Performance Aids

When you invoke OLTEP, there are several things that you can do to make it run faster and more efficiently:

1. Use JCL to invoke OLTEP, and save execution time by entering test definition statements in the input stream. This keeps OLTEP from requesting test definitions at the console, so the operator need only respond to data protection messages. To enter test definitions in the input stream, include the //CNTRLIN DD statement in your JCL; see "How to Define an OLTEP Job" in Section 2.
2. When you cannot enter test definitions in the input stream, invoke OLTEP from the console to avoid waiting for an initiator. See "How to Catalog an OLTEP Procedure" in Section 2 and "How to Invoke OLTEP" in Section 3.
3. When you use JCL to invoke OLTEP, minimize the wait for an initiator by assigning OLTEP to an infrequently used job class. To further expedite processing, assign OLTEP a high priority relative to other jobs in the class (especially when OLTEP must be run in a commonly used job class). To assign job class and priority, include the CLASS and PRTY parameters in our JOB statement.
4. If you are running OLTEP to test devices, reduce the time needed to load OLTEP transient modules by specifying more than the minimum amount of storage required by OLTEP.

When you define tests, keep in mind the following points, which will help to improve OLTEP's performance:

1. Most OLT programs must test offline devices. If you test too many devices at once, total system performance will be seriously degraded because the resources available to other users will be greatly reduced.
2. Since OLTEP must execute OLT programs sequentially, you can reduce OLTEP's total processing time by limiting the number of OLT programs to be run. To do this, be specific when defining the section and routine of the test you want to run; for example, in replying to message IFD105D ENTER DEV/TEST/OPT/, enter 282/2400A,2// rather than simply entering 282/2400//. See Figure 12 for more information on specifying test sections.
3. Avoid requesting the EL (Error Loop) or TL (Test Loop) option, except when you have detected and isolated an error and are prepared to monitor the device during testing; these options involve looping on an event, and may unnecessarily prolong OLTEP processing. When you request EL(n) or TL(n), be careful to limit the number of loops (n) to a reasonable figure; remember that the default number of loops is 500 for EL and 10 for TL.
4. When you are going to test a device by looping through on an error many times, you should suppress all messages in order to save I/O time. To do this, request the NPR (No Print) option whenever you request EL(n) or TL(n).
5. Avoid requesting the MI (Manual Intervention) option, except when you are prepared to stay at the console and respond promptly to OLTEP's needs. If you do not, OLTEP's performance will be seriously degraded because of needlessly long wait states.

6. Avoid requesting the PP (Parallel Print) option, except when the SYSOUT device is inoperative or distant from the console, or when you also request the MI option; PP causes all output messages from OLT programs to be routed to the console as well as the SYSOUT device, and may result in a large backlog of messages at the console. See Figure 13 for more information about the PP option.
7. Avoid requesting the FE (First Error Communication) option, except when you are expecting a particular error for which you are prepared to define a special test. Using the FE option indiscriminately can result in unnecessary repetitions of the sequence:

```
IFD129I FIRST ERROR COMMUNICATION ...  
IFD107I OPTIONS ARE ...  
IFD105D ENTER DEV/TEST/OPT/
```

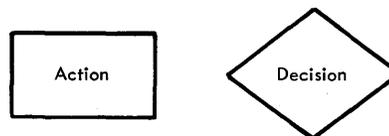
which can prolong OLTEP processing time and tie up the console.

Section 2: Setup Procedure

This section explains how to set up an OLTEP run. The general procedure is as follows:

1. **Create OLTEP Data Sets:** Run the OLTEP Editor Program to create a data set of online test programs and system configuration data. If you intend to test remote teleprocessing terminals, create a second data set containing configuration data for these symbolically named units. All configuration data, for both local devices and remote terminals, is supplied by IBM Field Engineering.
2. **Modify OLTEP Data Sets:** Use the OLTEP Punch program to obtain a punch-card copy of a member of the data set that needs to be modified. Then, using REP cards to make the desired changes, replace the member in the OLTEP data set by running the OLTEP Editor.
3. **Catalog an OLTEP Procedure:** Run the IEBUPDTE utility program to create and catalog an OLTEP procedure. Then, to run OLTEP, enter a START command at the console, referring to the OLTEP procedure.
4. **Define an OLTEP Job:** If the START command will not be used to run OLTEP, code and punch JCL (job control statements) to define OLTEP as an OS/VS job. Then, to run OLTEP, enter the JCL in the OS/VS job stream. Optionally, include OLTEP control statements with your JCL to define some or all of the tests you want to run.

This procedure is described in detail on the following pages. Each step is numbered as above, and related to other steps by a flowchart (Figure 3). The flowchart uses the following symbols:



Note that no action is required if an OLTEP data set has been created and an OLTEP procedure has been cataloged. In this case, you can go immediately to Section 3: Operating Procedure.

How to Set Up an OLTEP Run

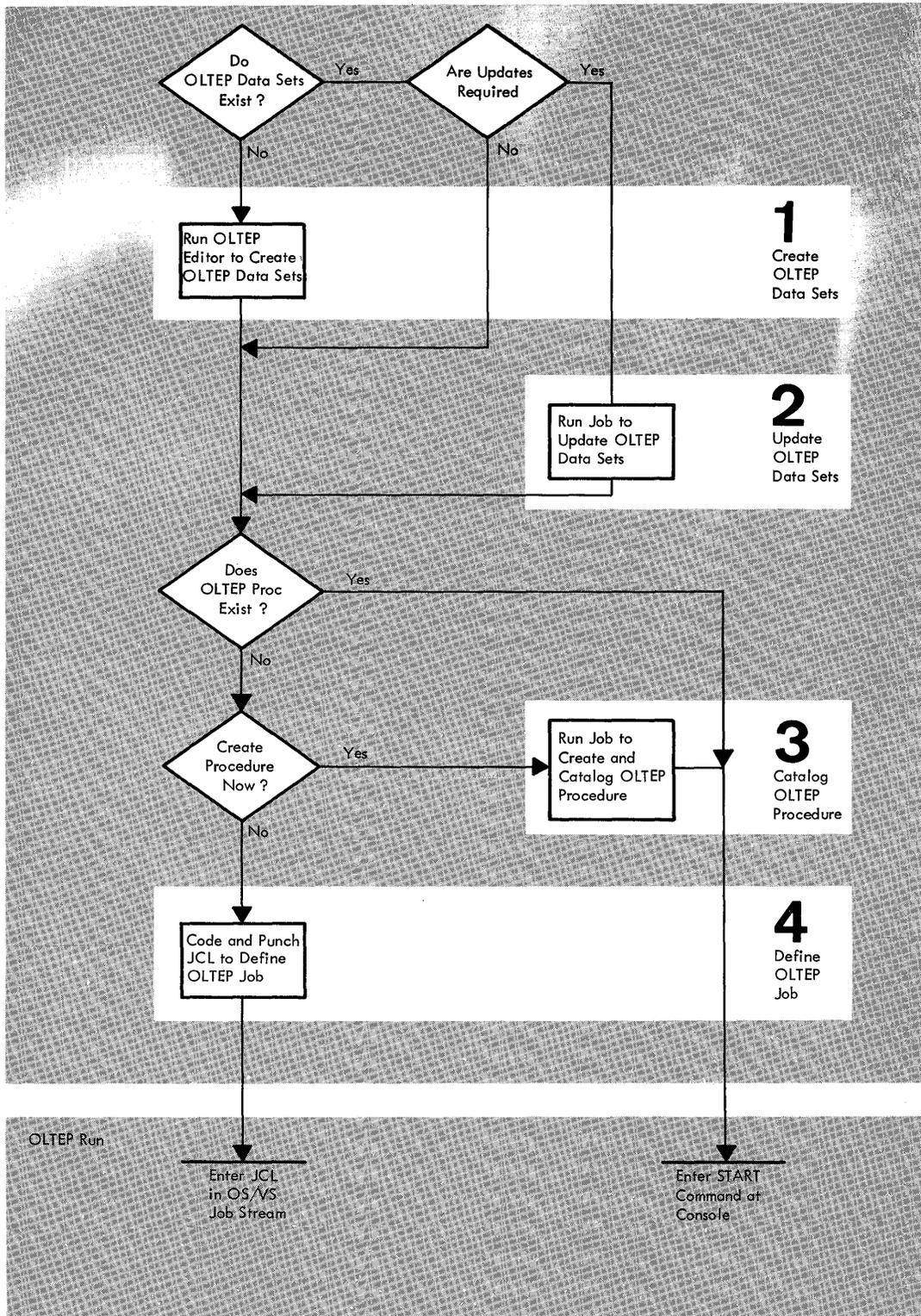


Figure 3. How to Set Up an OLTEP Run

How to Create OLTEP Data Sets

To create OLTEP data sets, the OLTEP Editor must be used in place of the OS/VS Linkage Editor.

The Editor program creates a partitioned data set (PDS), or adds entries to an already existing PDS, by putting online tests, and local and symbolic configuration data set load modules in the format required by the OLTEP Loader and the OLTEP Punch programs. The OLTs are placed in the data set specified on the OLTCDSDDD DD card, and the CDSs for remote devices are placed in the data set specified on the SYMSYM DD card. (CDS modules can be obtained from IBM Field Engineers.)

Note: The OLTCDSDDD or SYMSYM DD statements must not refer to a Linkage Editor type of data set. The Editor utility will destroy such a data set and thereby render it unusable by the system loader.

The following JCL statements are used to invoke the Editor routine. When adding members to a remote symbolic CDS data set, the shaded information must be included.

```
//EDITOR          JOB          parameters
//              EXEC          PGM=IFDOLT99
//DIAGMSG         DD          SYSOUT=A
//OLTCDSDDD      DD          parameters
//SYMSYM         DD          parameters
//CNTRLIN        DD          DATA

Object deck for OLT n
Name card for OLT N
Object deck for Local CDS n
Name card for Local CDS n
Symbolic CDS
Object deck for symbolic CDS1
Name card for symbolic CDS1

/*
```

Figure 4. JCL for Creating OLTEP Data Sets

When the input is from cards, the symbolic CDS control card must be manually inserted between the OLT local CDS load module and the symbolic CDS load modules. Its format consists of the words 'SYMBOLIC CDS' beginning in column 1.

- Since OLTEP data sets created by the OLTEP Editor are not valid input to the IEBCOPY compress function, to reclaim dead member space, the data set must be either moved/copied to a direct access device or unloaded to a tape and then loaded back onto the original disk.

As the Editor performs its function, appropriate messages will be sent to the system printer (the device specified on the DIAGMSG DD card) and to the operator's console.

There are several statements for which you must choose parameters. These statements are described below. Punch all underlined characters, including slashes and spaces, exactly as shown. Substitute letters or digits, **NO** blank spaces, for items that are not underlined.

```
//jobname  JOB  parameters
```

This statement defines the job. You must give the job a name of from 1 to 8 letters and digits, beginning with a letter. You must provide parameters as required by the installation.

Example:

```
//A134P406 JOB  
//GENOLTLB JOB 719B75550,FIELDENG
```

```
//OLTCDSDD DD parameters
```

This statement defines an OLTEP data set which is on a direct access volume and contains OLTs and local CDS modules.

Example 1:

```
//OLTCDSDD DD DSN=OLTLIB,DISP=(NEW,KEEP),  
// UNIT=2314,VOL=(PRIVATE,SER=OLTVOL),  
// SPACE=(1024,(140,120,40))
```

This statement defines a new OLTEP data set (OLTLIB) to contain online test programs and configuration data for units which will not be named symbolically. The data set is to reside on a private direct access volume (OLTVOL).

Example 2:

```
//OLTCDSDD DD DSN=OLTLIB,DISP=(NEW,CATLG),  
// UNIT=2314,VOLUME=(PRIVATE,SER=OLTVOL),  
// SPACE=(1024,(140,120,40))
```

This statement defines the same OLTEP data set (OLTLIB). It also catalogs the data set (DISP=(NEW,CATLG)). Later jobs can refer to OLTLIB without giving unit and volume information.

Example 3:

```
//OLTCDSDD DD DSN=OLTLIB,DISP=(OLD,KEEP),  
// UNIT=2314,VOL=(PRIVATE,SER=OLTVOL)
```

This statement refers to an existing OLTEP data set (OLTLIB) containing OLTEP programs and configuration data for units which are not named symbolically. The job adds programs to the data set.

```
//SYMSYM DD parameters
```

This statement defines an OLTEP data set that is on a direct access volume and which contains remote symbolic CDS modules.

Example 1:

```
//SYMSYM DD DSN=CDSLIB,DISP=(NEW,KEEP),  
// UNIT=2314,VOL=(PRIVATE,SER=OLTVOL),  
// SPACE=(1024,(25,10,5))
```

This statement defines an OLTEP data set (CDSLIB) to contain configuration for symbolically named remote teleprocessing terminals. The data set is to reside on a private direct access volume (OLTVOL).

Example 2:

```
//SYMSYM DD DSN=CDSLIB,DISP=(NEW,CATLG),  
// UNIT=2314,VOLUME=(PRIVATE,SER=OLTVOL),  
// SPACE=(1024,(25,10,5))
```

This statement defines the same data set (CDSLIB). It also catalogs the data set (DISP=(NEW,CATLG)). Later jobs can refer to CDSLIB without giving unit and volume information.

```
//CNTRLIN DD DATA  
[Object decks for OLTS  
and CDS LOAD modules  
with control cards of  
the following type:]  
Object Deck for OLT 1  
NAME Card for OLT 1  
Object Deck for OLT 2  
NAME Card for OLT 2  
Object Deck for OLT n  
NAME card for OLT n  
Object Deck for Local CDS 1  
NAME Card for Local CDS 1  
Object Deck for Local CDS n  
NAME Card for Local CDS n  
SYMBOLIC CDS  
Object Deck for symbolic CDS 1  
NAME Card for Symbolic CDS 1  
/*
```

This statement indicates the parameters needed when cards are used as input to the OLTEP Editor.

Note: The SYMBOLIC CDS and NAME control statements must begin in column 1. Also, only one blank should follow the NAME control word in the NAME control statement.

```
//CNTRLIN DD UNIT=(2400,,DEFER),DISP=OLD,DSN=NOLABL,LABEL=(,NL),  
// VOL=SER=DATA
```

This statement indicates the parameters needed when SOSP EDITOS is used as input to the OLTEP Editor. The parameters must be coded in this manner with the exception of UNIT= which will vary according to the device being used.

```
//DIAGMSG DD SYSOUT=A
```

This statement defines the output data set for the Editor diagnostic messages. These messages consist of the following:

- IFD900I: indicates record read from input device was not expected, and card was rejected.
- IFD901I: indicates an open to a DCB failed, and gives the DD name for the failing DCB. If the printer DCB could not be opened, this message goes to the operator console.
- IFD902I: indicates module was correctly added/replaced in the data set specified.
- IFD903I: indicates module could not be added or replaced on the data set. The cause of the error will be indicated and the job terminated (in all cases).
- IFD904I: indicates an error in the object deck sequence numbers was found. The module containing the error will not be stored into the directory. The message will show the expected and received sequence numbers; and the modules name which was not stored.

IFD906I: indicates an error in a REP card was detected. The card is printed in the message text and the module is bypassed.

IFD907I: indicates the data set to which modules are to be added.

IFD908I: indicates input was not in correct order.

IFD909I: indicates that incorrect DSN (SYS1.LINKLIB, SYS1.SVCLIB, or SYS1.LPALIB) was specified for OLTCDSDD or SYMSYM DD cards. The job is terminated.

The SOSP EDITOS tape consists of two files. The first file contains online tests and local configuration data sets, (CDS), load modules. The second file may be a null file or a CDS file for remote devices. The remote CDS will then be written in the data set defined by the //SYMSYM DD card.

How to Modify OLTEP Data Sets

To modify OLTEP data sets created by the OLTEP Editor you must first obtain a punch-card copy of the data set by running the OLTEP Punch program. To use the Punch program you must name each OLT/CDS to be punched with a "NAME" control card. The data set that is defined on the input JCL will then be searched and the OLT/CDS will be punched out at the card punch defined by the input JCL. All input to the Punch program must be from a card reader.

Once you have obtained the desired object decks, you can insert REP cards where needed to make necessary changes. The modified members can then be placed back into the original OLTEP data set by running the OLTEP Editor (see "How to Create OLTEP Data Sets" for more information about running the Editor). The format for the REP cards is as follows:

Columns	Description
1	12,2,9 Punch.
2-4	The EBCDIC characters REP.
5-6	Unused, should be left blank.
7-12	The assembled location, as shown in the listing, of the text data that is to be changed.
13-16	Unused, should be left blank.
17-71	At least two bytes of text data (4 columns) must be included. A comma must be used to separate every 2 bytes of data and the additional data must also be in increments of 2 bytes. A blank delimiter signifies the end of data on the REP card.

The following JCL is required when using the Punch program. When members to a remote symbolic CDS data set are referenced, the shaded information must be included. Note that all members of an OLTEP data set that are to be punched must be identified by a "NAME" control card.

```
//PUNCHOUT      JOB      865544, FIELDENG, MSGLEVEL=1
//              EXEC      PGM=IFDOLT98
//DIAGMSG        DD      SYSOUT=A
//PUNCHDD        DD      UNIT=ADDR, DSN=DUMMY, DISP=OLD, VOL=SER=DATA
//OLTCDSD        DD      UNIT=2314, DISP=SHR, VOL=SER=OLTVOL, DSN=OLTLIB
//SYMSYM         DD      UNIT=2314, DISP=SHR, VOL=SER=OLTVOL, DSN=CDSLIB
//CNTRLIN        DD      DATA

NAME olt1
NAME olt2
NAME loccds1
SYMBOLIC CDS
NAME symname1
NAME symname2
/*
```

Figure 5. JCL for Punching OLTEP Data Sets

Note: The SYMBOLIC CDS and NAME statements must begin in column one. Also, only one blank should follow the "E" in NAME in the NAME control statement.

The following is an explanation of the DD statements contained in the preceding JCL:

PUNCHDD--DD statement used to direct output to the card punch device.

OLTCDSD--DD statement used to reference the OLT-local CDS data set.

SYMSYM--DD statement used to reference the symbolic CDS data set.

CNTRLIN--DD statement used to read data from the card reader.

DIAGMSG--DD statement used to put messages out to the Sysout device.

The Punch program will send one of the following messages after each OLT/CDS is punched to indicate the success or failure of the process.

IFD900I -- an invalid input card was read, job will continue

IFD901I -- a data set could not be opened, job will terminate

IFD902I -- the punch was successful, job will continue

IFD905I -- the OLT/CDS could not be found, job will continue

How to Catalog an OLTEP Procedure

3

To catalog an OLTEP procedure:

- Punch up the statements listed in the box below. The statements in the shaded area define the OLTEP procedure. The other statements define a job that puts the procedure in SYS1.PROCLIB.
- Run the job. Because the job modifies SYS1.PROCLIB, jobs that use SYS1.PROCLIB cannot be run concurrently.

The OLTEP procedure lets you invoke OLTEP from the console. You do this by entering the START command, as explained in Section 3: Operating Procedure. Section 3 gives detailed directions for using the START command; these directions are based on the procedure defined below, and will be valid only if you define the procedure exactly as shown.¹

```
//jobname      JOB          parameters
//             EXEC         PGM=IEBUPDTE
//SYSPRINT      DD          SYSOUT=A
//SYSUT1       DD          DSN=SYS1.PROCLIB,DISP=OLD
//SYSUT2       DD          DSN=SYS1.PROCLIB,DISP=OLD
//SYSIN        DD          DATA
./  ADD        LIST=ALL,NAME=OLTEP
./NUMBER      NEW1=10,INCR=10

//OLTEP        PROC JOBSTEP=,OUTDATA=,INPUT='DUMMY,',SYMSYM='DUMMY,',
//OLTCDS=,HISTORY='DUMMY,',SERLOG='DUMMY',ABDUMP='DUMMY',
//VR='ADDRSPC=VIRT,'
//TEST         EXEC         PGM=IFDOLT,&JOBSTEP&VR.PARM=NULL
//OLTCDSDD     DD          &OLTCDS.parameters
//DIAGMSG      DD          &OUTDATA.SYSOUT=A
//INPUT        DD          &INPUT.UNIT=(2400,,DEFER)
//SYMSYM       DD          &SYMSYM.parameters
//SERLOG       DD          &SERLOG.DSN=SYS1.LOGREC,DISP=SHR
//ACCIN        DD          &HISTORY.parameters
//SYSABEND     DD          &ABDUMP.SYSOUT=A

/*
```

Figure 6. JCL for Cataloging an OLTEP Procedure

The statements in the shaded area define the OLTEP procedure. The //OLTEP PROC statement gives default values for optional parameters of the START command. If the operator omits all optional parameters, the OLTEP job step will be defined as follows:

```
//TEST         EXEC         PGM=IFDOLT,ADDRSPC=VIRT,PARM=NULL
//OLTCDSDD     DD          parameters
//DIAGMSG      DD          SYSOUT=A
//INPUT        DD          DUMMY,UNIT=(2400,,DEFER)
//SYMSYM       DD          parameters
//SERLOG       DD          DUMMY,DSN=SYS1.LOGREC,DISP=SHR
//ACCIN        DD          DUMMY,parameters
//SYSABEND     DD          DUMMY,SYSOUT=A
```

The //INPUT, //SERLOG, //ACCIN, and //SYSABEND statements each refer to a dummy data set; the job is effectively defined as:

```
//TEST          EXEC      PGM=IFDOLT
//OLTCDSDD     DD        parameters
//DIAGMSG      DD        SYSOUT=A
//SYMSYM       DD        parameters
```

There are several statements for which you must choose parameters. These statements are described below. Punch all underlined characters, including spaces, exactly as shown. Substitute letters or digits, NO blank spaces, for items that are not underlined.

```
//jobname JOB parameters
```

This statement defines the job that puts the OLTEP procedure in SYS1.PROCLIB. You must give this job a name of from 1 to 8 letters and digits, beginning with a letter. You must provide parameters only if required by the installation.

Examples:

```
//A134P407     JOB
//OLTJOB       JOB 5412678,IBMFED
```

```
//OLTCDSDD DD parameters
```

This statement defines the OLT and CDS data set. The data set contains online test programs, and configuration data for local devices. It must be created before you can use the OLTEP procedure. If no data set has been created, go back to Step 1, "How to Create OLTEP Data Sets."

Parameters must define the OLTEP data set as a partitioned data set on a direct access device.

Example 1:

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR
```

This statement refers to the data set OLTLIB, which must be cataloged since no unit or volume information is given.

Example 2:

```
//OLTCDSDD DD DSN=OLTS,DISP=SHR,UNIT=2314,
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement refers to the data set OLTS on the volume OLTVOL. When OLTEP is started, the system will select an IBM 2314 and ask for OLTVOL on the selected unit.

```
//ACCIN DD &HISTORY.parameters
```

This statement defines a history data set created by the IFCEREPO service aid. This data set contains accumulated input from SYS1.LOGREC. It may be on tape or on a direct access volume.

Specify parameters based on what you know about the way history data sets are created at the installation. If history data sets are not always created in the same way, you may have to leave out some necessary parameters, and have the operator enter them through the START command. If you leave out parameters, be sure to tell the operator which parameters he will have to enter.

Example 1:

```
//ACCIN DD &HISTORY.DISP=SHR
```

This statement implies that nothing is known in advance about the way a history data set will be created. The operator must specify the data set name in the START command; if the data set is not cataloged, he must also specify unit and volume information. For example:

```
s oltep.Pn,history='DSN=ACCDATA,UNIT=2400,VOL=SER=137429,'
```

Example 2:

```
//ACCIN DD &HISTORY.DSN=HISTDATA(0),DISP=SHR
```

This statement implies that history data sets are created as successive generations of a generation data group (HISTDATA). It indicates that the current generation (HISTDATA(0)) is to be retrieved through the catalog. To let OLTEP read this data set, the operator should enter:

```
s oltep.Pn,history=
```

Example 3:

```
//ACCIN DD &HISTORY.UNIT=2400,VOL=SER=HISTRY,  
// LABEL=(,NL),DISP=OLD
```

This statement implies that a history data set will always be written on nonlabelled 9-track tape. To define the data set for OLTEP, the operator should enter:

```
s oltep.Pn,history=
```

OS/VS will allocate an IBM 2400 magnetic tape unit, and ask the operator to mount the HISTRY volume. The operator must ensure that the correct volume is mounted, because the system cannot verify it. Because the tape is not labelled, HISTRY does not appear on the tape, and does not identify any specific volume.

```
//SYMSYM DD &SYMSYM.parameters
```

This statement defines a data set which contains configuration data for symbolically named units (remote teleprocessing terminals). The data set is created as described in Step 1 of this section.

Specify the DSN, UNIT, and VOL parameters based on the parameters you specified in the //SYMSYM DD statement (see Figure 4).

Example 1:

```
//SYMSYM DD &SYMSYM.DSN=CDSLIB,DISP=SHR,UNIT=2314,  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement defines a data set CDSLIB on volume OLTVOL. If remote teleprocessing terminals are to be tested, the operator should enter:

```
s oltep.Pn,symsym=
```

Example 2:

```
//SYMSYM DD &SYMSYM.DSN=CDSLIB,DISP=SHR
```

This statement refers to the data set CDSLIB. The data set is cataloged so no unit or volume information is given. If remote teleprocessing terminals are to be tested, the operator should enter:

```
s oltep.Pn,symsym=
```

How to Define an OLTEP Job

4

To define an OLTEP job, punch up the JCL listed below. Shaded statements are optional.

```
//jobname      JOB      parameters
                EXEC    PGM=IFDOLT,parameters
//OLTCDSDDD    DD      parameters
//DIAGMSG      DD      parameters
//SERLOG       DD      DSN=SYS1.LOGREC,DISP=SHR
//ACCIN        DD      parameters
//INPUT        DD      parameters
//SYMSYM       DD      parameters
//SYSABEND     DD      parameters
//CNTRLIN      DD      DATA
                [OLTEP control statements]
/*
```

Figure 7. JCL for Defining an OLTEP job

Each statement is described below. Punch all underlined characters, including spaces and slashes, exactly as shown. Substitute letters or numbers, NO blank spaces, for items that are not underlined.

```
//jobname JOB parameters
```

This statement defines the job. You must give the job a name of from 1 to 8 letters and digits, beginning with a letter. You must provide parameters only if required by the installation.

Each storage partition is associated with one or more job classes. If you are running OLTEP to test the IBM 1419 magnetic character reader, you can use the CLASS parameter to select a low-numbered (high-priority) partition. To expedite the scheduling of your job, you can use the CLASS and PRTY parameters.

Example 1:

```
//A134P407 JOB
```

This statement defines a job named A134P407.

Example 2:

```
//MICRTEST JOB B17386465B,CLASS=C
```

This statement defines a job named MICRTEST specifies an account number required by the installation, and assigns the job to job class C which should be a high-priority (low-numbered) partition.

Example 3:

```
//DEVTEST JOB CLASS=K,PRTY=13
```

This statement defines a job named DEVTEST, assigns the job to job class K, and specifies the highest allowable priority (priority 13). If job class K is little used at the installation, the job will be scheduled quickly, provided that an initiator has been started to service job class K as its primary job class. If job class K is heavily used, the job will still be scheduled fairly quickly, because of its high priority within the job class.

```
// EXEC PGM=IFDOLT,parameters
```

This statement means "execute OLTEP (IFDOLT) as a job." Significant parameters include:

TIME=1440

Include this parameter to specify "no time limit" for the job.

ADDRSPC=VIRT

Include this parameter to run OLTEP in virtual storage, (this is the default value for this parameter). To run OLTEP in real storage, specify "ADDRSPC=REAL". In most cases, through, OLTEP should be run in virtual storage.

EXAMPLES:

Example 1:

```
// EXEC PGM=IFDOLT
```

This statement means "execute OLTEP."

Example 2:

```
// EXEC PGM=IFDOLT,TIME=1440
```

This statement means "execute OLTEP with no time limit."

Example 3:

```
// EXEC PGM=IFDOLT,ADDRSPC=VIRT
```

This statement means "execute OLTEP in virtual storage".

```
//OLTCDSDD DD parameters
```

This statement defines the data set which contains system configuration data and online test (OLT) programs. It must be created before you can run OLTEP. If no data set has been created, go back to Step 1, "How to Create OLTEP Data Sets."

Parameters must define the data set as a partitioned data set on a direct access device.

The UNIT and VOLUME parameters should be used to indicate the direct access device and the serial number of the volume on which the OLT data set resides if it is not a cataloged data set.

Example 1:

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR
```

This statement refers to the data set OLTLIB, which must be cataloged since no unit or volume information is given.

Example 2:

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR,UNIT=194
```

This statement refers to the same data set (OLTLIB), and specifies a unit (194). The unit used by the data set cannot be tested. The UNIT parameter is used here to select a unit that will not be tested, and thus prevent the system from selecting a unit that will be tested.

Example 3:

```
//OLTCDSDD DD DSN=OLTS,DISP=SHR,UNIT=2314,  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement refers to the data set OLTS on the volume OLTVOL. OS/VS will select an IBM 2314 and ask for OLTVOL on the selected unit.

```
//DIAGMSG DD parameters
```

This statement defines the OLTEP output data set, which will contain diagnostic messages issued by OLTEP and the online test programs.

Example 1:

```
//DIAGMSG DD SYSOUT=A
```

This statement defines a system output data set. This data set is printed **after** testing has been completed.

Example 2:

```
//DIAGMSG DD UNIT=1403
```

This statement defines a data set that will be printed on an IBM 1403 while testing is in progress.

Note: The printer cannot be used by other jobs while OLTEP is running, and is not available for testing.

```
//SERLOG DD DSN=SYS1.LOGREC,DISP=SHR (optional)
```

This statement refers to the SYS1.LOGREC data set on the system residence volume. Include this statement if you will run OLT programs that use SYS1.LOGREC for input.

```
//ACCIN DD parameters (optional)
```

This statement defines a history data set created by the IFCEREPO service aid. Include this statement if you will run OLT programs that use a history data set for input.

A history data set contains accumulated input from SYS1.LOGREC. It may be on tape or on a direct access volume.

Example 1:

```
//ACCIN DD DSN=HISTORY,DISP=SHR
```

This statement refers to the data set **HISTORY**, which must be cataloged because no unit or volume information is given.

Example 2:

```
//ACCIN DD DSN=ACCDATA,DISP=SHR,UNIT=2314,  
// VOL=(PRIVATE,SER=711111)
```

This statement refers to the data set **ACCDATA** on volume **711111**. The system will select an **IBM 2314** direct access storage drive and ask for volume **711111** on that device.

Example 3:

```
//ACCIN DD DSN=LOGDATA,DISP=OLD,UNIT=2400  
// VOL=SER=T79641
```

This statement refers to the data set **LOGDATA** on a standard-label 9-track tape. **OS/VS** will select an **IBM 2400** magnetic tape unit and ask the operator to mount volume **T79641**.

```
//INPUT DD parameters (optional)
```

This statement defines a data set that contains test input data. Include this statement if you will run **OLT** programs that require data input.

Example 1:

```
//INPUT DD UNIT=(2400,,DEFER)
```

This statement defines a data set on a standard-label 9-track magnetic tape (800 bpi). (Tapes that fit this description are supplied with the online test programs that require input data.) When an **OLT** program is ready to use the data set, it will specify the correct volume serial number, and **OS/VS** will ask for the volume on an **IBM 2400** magnetic tape unit.

Example 2:

```
//INPUT DD UNIT=2540,DISP=OLD
```

This statement defines a card data set. **OS/VS** will select an **IBM 2540** card read punch and allocate it to **OLTEP**. The card reader will not be available for testing or for use by other jobs while **OLTEP** is running.

Example 3:

```
//INPUT DD DATA  
data set  
/*
```

This statement defines a data set that immediately follows the **//INPUT DD** statement in the input stream.

```
//SYMSYM DD parameters (optional)
```

This statement defines a data set which contains configuration data for symbolically named units (remote teleprocessing terminals). The data set is created as described in Step 1 of this section.

Example 1:

```
//SYMSYM DD DSN=CDSLIB,DISP=SHR,UNIT=2314,  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement defines a data set CDSLIB on the volume OLTVOL.

Example 2:

```
//SYMSYM DD DSN=CDSLIB,DISP=SHR
```

This statement refers to the data set CDSLIB. The data set is cataloged so no unit or volume information need be given.

```
//SYSABEND DD parameters (optional)
```

This statement defines a data set in which an abnormal termination dump will be written.

Example:

```
//SYSABEND DD SYSOUT=A
```

This statement defines a dump data set to be routed through the output stream. The dump is stored on a direct access device and later written to the system output device. A space parameter may be added to insure enough space for a full dump.

```
//CNTRLIN DD DATA (optional)  
 [OLTEP control statements]  
/*
```

This sequence defines a data set that contains OLTEP control statements. Include this sequence if you want to predefine some or all of the tests to be run.

An OLTEP control statement, which must begin in column 1, can be either a test definition statement, a CANCEL statement, a PROMPT statement, an EQU statement, an REI statement, or a STOPREI statement.

```
devices/_tests/_options/_
```

This is a test definition statement. It specifies devices to be tested, tests to be run, and options to be used. To code a test definition statement, refer to Figure 12.

```
CANCEL
```

This is a CANCEL statement. It cancels testing and terminates the job step. Place a CANCEL statement after the last test definition statement if you want to predefine all tests to be run. Otherwise, omit the cancel statement; when OLTEP has done the testing defined in your last test definition statement, it will ask the operator to define additional tests at the console. The operator can define additional tests or enter CANCEL to terminate the job step.

Note that a CANCEL statement may terminate the job step before all OLTEP messages have been written on the console. When this happens, the //DISGMSG data set will include test results and other messages that do not appear in the console listing. Be sure to check the //DIAGMSG listing to ensure that you do not miss any important information.

Example 1:

```
//CNTRLIN DD DATA
181-188/2400//
131-134/2314//
CANCEL
/*
```

This sequence asks OLTEP to run basic tests for IBM 2400 magnetic tape units 181 to 188 and IBM 2314 direct access storage drives 131 to 134. OLTEP uses standard options (since none are specified), and terminates the job step after testing unit 134.

Example 2:

```
//CNTRLIN DD DATA
1D0/2305//
/*
```

This sequence asks OLTEP to run basic tests for IBM 2305 drum storage device 1D0. When this test is completed, OLTEP will ask the operator to define additional tests at the console.

Section 3: Operating Procedure

This section is a guide to running OLTEP. It gives you a step-by-step procedure to follow at the console.

The overall procedure is as follows:

1. **Set Up a Console:** In a system with MCS (multiple console support), you can run OLTEP from either the master console or the maintenance console. Decide which console to use; then ensure that it is properly set up for running OLTEP.
2. **Vary Devices Offline:** Before you can test most I/O devices, they must be offline to OS/VS. Select the devices you will test; then use the VARY command to place them offline.
3. **Invoke OLTEP:** Enter JCL in the OS/VS job stream, or enter a START command at the console.
4. **Define and Run Tests:** Define tests at the console, or include OLTEP control statements with your JCL. Or do both: after running tests defined by control statements, you can define additional tests at the console.

To terminate testing, enter CANCEL in place of a test definition. You can enter CANCEL at the console, or include a CANCEL control statement with your JCL.

Before You Begin: You will need JCL defining an OLTEP job, or a cataloged procedure that you can refer to in a START command. You will also need an OLTEP library on a direct access volume. Refer if necessary to Section 2, which tells you how to:

- Create OLTEP Data Sets
- Modify OLTEP Data Sets
- Catalog an OLTEP Procedure
- Define an OLTEP Job

Note that OLTEP does no testing itself. OLTEP executes OLT programs that you specify in your test definitions. OLT programs are contained in an OLTEP data set.

You can specify OLT programs in several ways. You can specify them by device type, which means that OLTEP will execute all basic programs for that type of device. You can also specify programs individually (as test sections), or specify routines within a program.

To specify individual programs or routines, you must know their names and functions. For this information, you must refer to OLT program documentation provided by IBM Field Engineering. Unless you have this documentation, you will be able to specify OLT programs only by device type.

In addition to the OLT program documentation, you should also have available the following OS/VS publications:

- **Operator's Library: OS/VS1 Reference** for general operating information.
- **OS/VS Messages Library: Services Aids and OLTEP Messages**, for explanations of messages.
- **OS/VS JCL Reference**, if you will use the START command to invoke OLTEP, for descriptions of JCL parameters that you can specify in the START command.

How to Run OLTEP

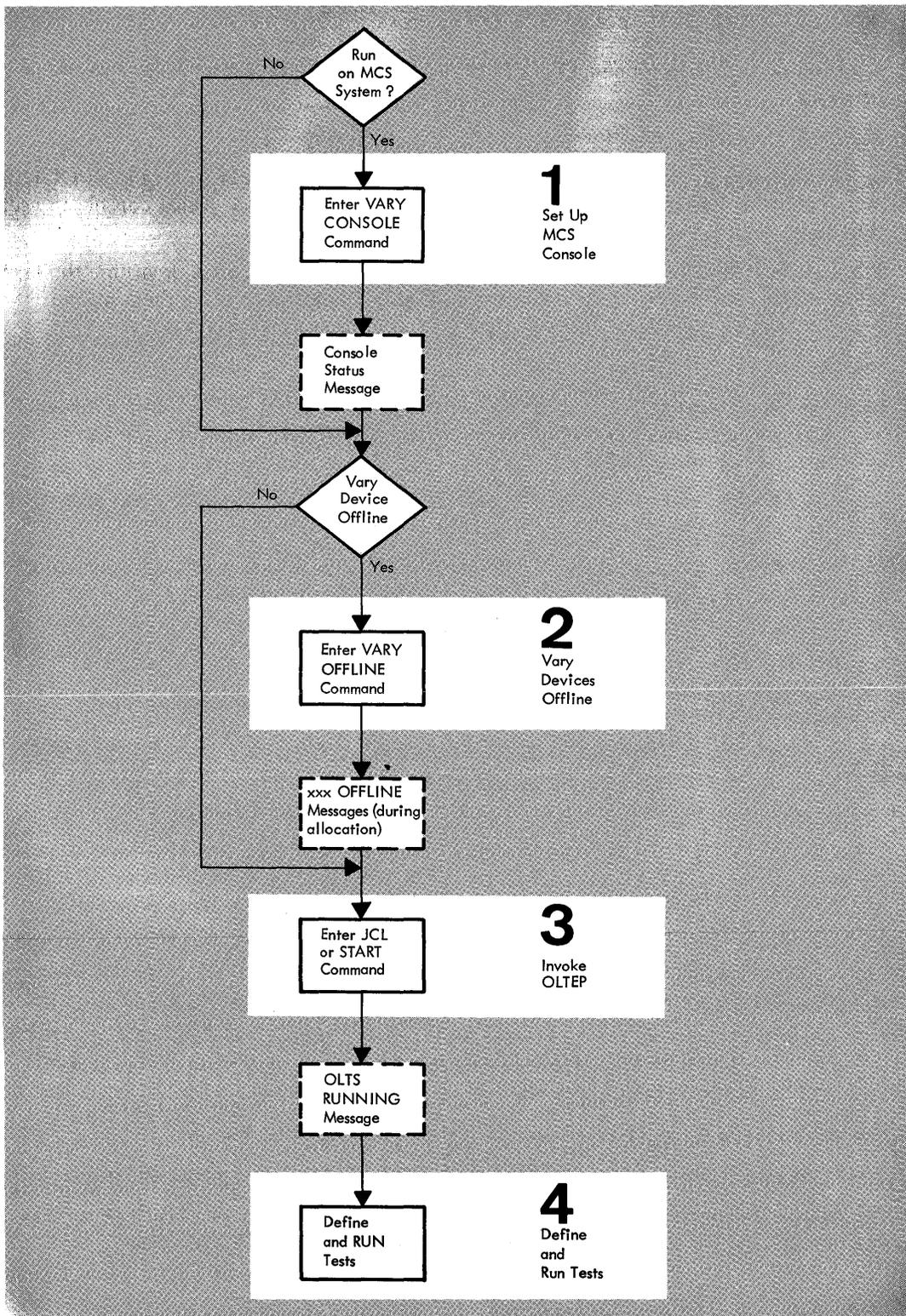


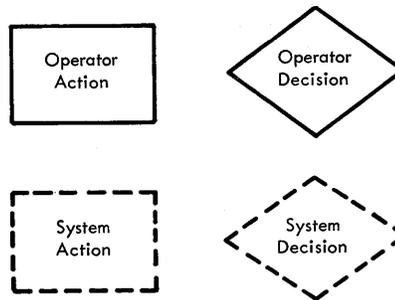
Figure 8. How to Run OLTEP

How to Run OLTEP

To run OLTEP, follow the procedure described below. It tells you how to:

1. Set up an MCS Console
2. Vary Devices Offline
3. Invoke OLTEP
4. Define and Run Tests
 - a. Enter Dev/Test/Opt/
 - b. Communicate on First Error
 - c. Force Communication
 - d. Respond to Messages

Each step is numbered (as above), and related to other steps by a flowchart (Figures 8 and 9). Flowcharts use the following symbols:



Messages and Commands: In the procedure that follows, messages are shown in boxes. For example:

```
id IFD105D      ENTER-DEV/TEST/OPT/
```

Commands are shown in boxes, with an arrow pointing in. For example:

```
└─ r id, 'cancel' ─┘      signal EOB
```

Note: Enter all underlined characters, including spaces and commas, exactly as shown. (Letters shown in lowercase may be entered in either lowercase or uppercase; letters shown in uppercase must be entered in uppercase.) Substitute letters or digits, NO blank spaces, for items that are not underlined.

Complete each command by signalling EOB (end-of-block).

Multiple Console Support: In a system with multiple console support (MCS), you can run OLTEP from either the master console or the maintenance console. OLTEP will direct all messages to the console that you select.

How to Set up an MCS Console

1

Step 1 applies only to systems with MCS (Multiple Console Support). If you will run OLTEP on a system without MCS, go directly to Step 2.

With MCS, you can run OLTEP from either the master console or the maintenance console. Normally, you will want to run OLTEP from the master console if you are an operator, or from the maintenance console if you are a customer engineer. If you plan to test a device that is attached to a control unit, it is recommended that the test be run from a console that is not attached to the same control unit.

Decide which console to use. Then ensure that the console is properly set up for running OLTEP.

Master Console: If you will run OLTEP from the master console, it must be set up to receive OLTEP messages (messages with MCS routing code 10).

Determine whether the master console can receive OLTEP messages. To do this, you can use the DISPLAY CONSOLES command. Enter:

```
▶ d consoles                signal EOB
```

OS/V5 will send you the following message, describing each console in the system:

```
IEE250I  hh.mm.ss.  CONSOLES
CONSOLE/ALT  COND  AUTH  ID  AREA  ROUTCD
information about hard copy device
information for one console
information for another console
...
```

Look for M under COND and 10 under ROUTCD. M identifies the master console. The master console can receive OLTEP messages if M and 10 appear together on the same line, or if 10 does not appear on any line. (Messages not specifically assigned to any console are sent to the master console.)

If the master console can receive OLTEP messages, go directly to Step 2. Otherwise, enter:

```
▶ v xxx,console,rout=(10,y,y,...)                signal EOB
```

v -- VARY command

xxx,console -- address of master console (addresss listed under CONSOLE in message IEE250I)

,rout=(10,y,y,...) -- routing code 10 and other routing codes previously assigned to the master console (codes listed under ROUTCD in message IEE250I)

OS/V5 will respond with the message:

```
IEE349I  CONSOLES
CONSOLE/ALT  COND      AUTH      ID      AREA      ROUTCD
xxx/xxx      M        ALL      xx     x, a1-a2    10,y,y,...
```

This message tells you that the master console can receive OLTEP messages. Go to Step 2.

Maintenance Console: If you run OLTEP from the maintenance console, the console should be active. For your convenience, the console should be authorized to enter system and I/O control commands.

Determine whether the maintenance console is active, and whether it is authorized to enter system and I/O control commands. To do this, you can use the DISPLAY CONSOLES command. Enter:

```
▶ d consoles          signal EOB
```

Enter this command at the maintenance console. If there is no response, the console is inactive; enter the same command at the master console. OS/V S will send you the following message, describing each console in the system:

```
IEE250I hh.mm.ss CONSOLES
CONSOLE/ALT COND AUTH ID AREA ROUTCD
information about hard copy device
information for one console
information for another console
...
```

Look for the maintenance console address under CONSOLE, or for 10 under ROUTCD. Routing code 10 identifies the maintenance console.

On the same line, look for A or A,P under COND. Look for SYS, IO, CONS, or ALL under AUTH.

- A - console is active
- A,P - request has been entered to make the console active
- SYS - console can enter system control commands
- I/O - console can enter I/O control commands
- CONS- console can enter console control commands (can enter VARY CONSOLE and thus authorize itself to enter other control commands)
- ALL - console can enter all OS/V S commands (except those reserved to the master console)

If the maintenance console is active and is authorized to enter system and I/O control commands, go directly to Step 2. Otherwise, enter:

```
▶ v xxx,console,auth=all      signal EOB
```

v -- VARY command (Enter this command at the master console unless the maintenance console is active and is authorized to enter console control commands.)

xxx,console -- address of maintenance console (address listed under CONSOLE in message IEE250I)

,auth=all -- authorization for maintenance console to enter all OS/V S commands (Omit if the console is already authorized to enter system and I/O control commands.)

OS/V S will respond with the message:

```
IEE349I CONSOLES
CONSOLE/ALT COND AUTH ID AREA ROUTCD
xxx/xxx A or ALL xx x,a1-a2 10
A,P
```

This message tells you that the maintenance console is active (A) or will become active (A,P), and that the console is authorized to enter all OS/V S commands. It will appear at the console that you used to enter the VARY command.

How to Vary Devices Offline

2

Before you can test devices, they must be offline to OS/VS.

To vary devices offline, enter:

```
v (xxx,xxx,...),offline          signal EOB
```

v -- VARY command (MCS (Multiple Console Support): Enter this command at the master console unless the maintenance console is authorized to enter I/O control commands.)

(xxx,xxx,...) -- unit addresses, separated by commas and enclosed by parentheses

,offline -- "Vary units offline."

The VARY command will take effect when OS/VS is called on to allocate or deallocate a device. For each device that is not allocated to a job or system task, OS/VS will send you the message:

```
IEE303I  xxx  OFFLINE
```

xxx - unit address

MCS: This message will appear on the console that you use to enter the VARY command.

For each device that is allocated to a job or system task, OS/VS will send you message IEE303I when the device is deallocated.

Enter the VARY command and invoke OLTEP as described in Step 3. For unallocated devices, OS/VS will immediately send you message IEE303I. Begin testing with these devices; test other devices when they are deallocated and placed offline.

If you use JCL to invoke OLTEP, there may be test definition statements included the JCL. These statements specify devices that are to be tested first. Do not invoke OLTEP until these devices are offline.

Note: Once a device has been varied offline for testing by OLTEP, it cannot be varied online until testing of the device has been completed. In systems with multiple console support, a console being tested cannot be added to the active console configuration until its testing has been completed.

How to Invoke OLTEP

3

There are two ways to invoke OLTEP:

- Enter JCL in the OS/VS job stream.
- Enter the START command at the console.

The second way can be used only if there is an OLTEP cataloged procedure in SYS1.PROCLIB.

To use JCL:

- Go back if necessary to Section 2, which tells you how to define an OLTEP job.
- Enter your JCL in the OS/VS job stream.
- Go to Step 4.

To use the START command enter:

```
▶ s_oltep.Pn,options          signal EOB
```

s -- START command (MCS: Enter this command at the master console unless the maintenance console has been authorized to enter system control commands.)

oltep -- name of OLTEP procedure in SYS1.PROCLIB (This procedure is defined in Section 2.)

.Pn -- number of the main storage partition to be used by OLTEP. If you will test the IBM 1419 magnetic character reader, you must select a low-numbered (high priority) partition.

.options -- any, all, or none of the following (in any order):

.jobstep=params -- enter this option if you want to specify job step parameters, such as dispatching priority, job step timing, address space, and region size.

.input='params' -- enter this option if you will run tests that require data input.

.symsym='params' -- enter this option if you will test symbolically named teleprocessing terminals.

.history='params' -- enter this option if you will run tests that require a history data set.

.serlog='params' -- enter this option if you will run tests that require SYS1.LOGREC.

.outdata='params' -- enter this option if you want test results printed before end-of-job.

.oltcds='params' -- enter this option if you want an OLTEP data set other than the one specified in the cataloged procedure.

.abdump='params' -- enter this option if you want a dump if the OLTEP job terminates abnormally.

The rest of Step 3 describes these options in detail. If you don't need to specify options, go directly to Step 4.

Jobstep Option: OLTEP runs as a one-step job under the operating system. The job step is defined by the following statement in the OLTEP procedure:

```
//TEST EXEC PGM=IFDOLT
```

Use the jobstep option if you want to add or replace parameters. You can add parameters by listing them after the equal sign:

Example: s oltep.Pn,jobstep='params, ' signal EOB

The EXEC statement is changed to:

```
//TEST EXEC PGM=IFDOLT,params
```

Note that you must put a comma after the last EXEC statement parameter, and that you must use apostrophes (single quotation marks) to enclose the parameters. You can replace parameters in the EXEC statement by putting a blank in place of the comma.

Example: s oltep,jobstep='params_ ' signal EOB

The EXEC statement becomes:

```
//TEST EXEC PGM=IFDOLT,params
```

For a description of EXEC statement parameters, refer to **JCL Reference**.

Examples:

To run online test programs in partition zero with no time limit, enter:

s oltep.P0,jobstep='TIME=1440, ' signal EOB

To run online test programs larger than 12K, (such as T3155LOA) enter:

s oltep.P1,jobstep='PARAM=MAX' signal EOB

Other Options: Options (other than jobstep) are used to define data sets.

Each option includes an equal sign; for example, `input =`. If you enter no parameters after the equal sign, a data set is defined by a DD statement in the OLTEP procedure:

<u>Option</u>	<u>DD Statement in OLTEP Procedure</u>	
,input=	//INPUT	DD UNIT=(2400,,DEFER)
,symsym=	//SYMSYM	DD parameters chosen by installation
,history=	//ACCIN	DD parameters chosen by installation
,serlog=	//SERLOG	DD DSN=SYS1.LOGREC,DISP=SHR
,outdata=	//DIAGMSG	DD SYSOUT=A
,oltcds=	//OLTCDSDD	DD parameters chosen by installation
,abdump=	//SYSABEND	DD SYSOUT=A

You can add parameters to a DD statement by listing them after the equal sign.

Example: s oltep.Pn,input='params, ' signal EOB

The //INPUT DD statement becomes:

```
//INPUT DD params,UNIT=(2400,,DEFER)
```

Note that you must put a comma after the last DD parameter, and that you must use apostrophes (single quotation marks) to enclose the parameters. You can replace parameters in the DD statement by putting a blank in place of the comma.

Example: `s oltep.Pn,input='UNIT=2540,DISP=OLD '` signal EOB

The //INPUT DD statement becomes:

```
//INPUT DD UNIT=2540,DISP=OLD
```

Note that all parameters in the DD statement are replaced. When you replace parameters, you must enter all the parameters needed to define a data set.

For a description of DD statement parameters, refer to **JCL Reference**.

Examples:

To start OLTEP and print test results at end-of-job (SYSOUT=A), enter:

`s oltep` signal EOB
or

`s oltep.Pn,input='params, '` signal EOB

To print test results during the job, enter:

`s oltep.Pn,outdata='UNIT=xxx '` signal EOB

xxx -- unit type or address (Example: 1403 (unit type), 00E (unit address))

To use an OLTEP data set other than the one specified in the cataloged procedure enter:

`s oltep.Pn,oltcds='params, '`
params-- parameters required by the installation

To define a standard input data set, enter:

`s oltep.Pn,input=` signal EOB

The data set must be on 9-track magnetic tape (800 bpi) with standard labels. (IBM Field Engineering provides these input tapes.)

To define a standard input data set and specify a particular tape unit, enter:

`s oltep.Pn,input='UNIT=(xxx, ,DEFER) '` signal EOB
xxx -- unit address (Example: 181)

To define a card input data set, enter:

`s oltep.Pn,input='UNIT=xxx,DISP=OLD '` signal EOB
xxx -- unit type or address (Example: 2540 (unit type), 00C (unit address))

To define the library of configuration data for symbolically named remote teleprocessing terminals, enter:

`s oltep.Pn,symsym=` signal EOB

If the OLTEP procedure requires that you specify parameters, enter:

```
▶ s oltep.Pn,symsym='params,_' signal EOB
```

Params -- parameters required by the OLTEP procedure

To define a history data set, enter:

```
▶ s oltep.Pn,history= signal EOB
```

If the OLTEP procedure requires that you specify parameters, enter:

```
▶ s oltep.Pn,history='params,_' signal EOB
```

params -- parameters required by the OLTEP procedure

To define a history data.set and SYS1.LOGREC, enter:

```
▶ s oltep.Pn,history=,serlog= signal EOB
```

To define a standard dump data set, enter:

```
▶ s oltep.Pn,abdump= signal EOB
```

How to Define and Run Tests

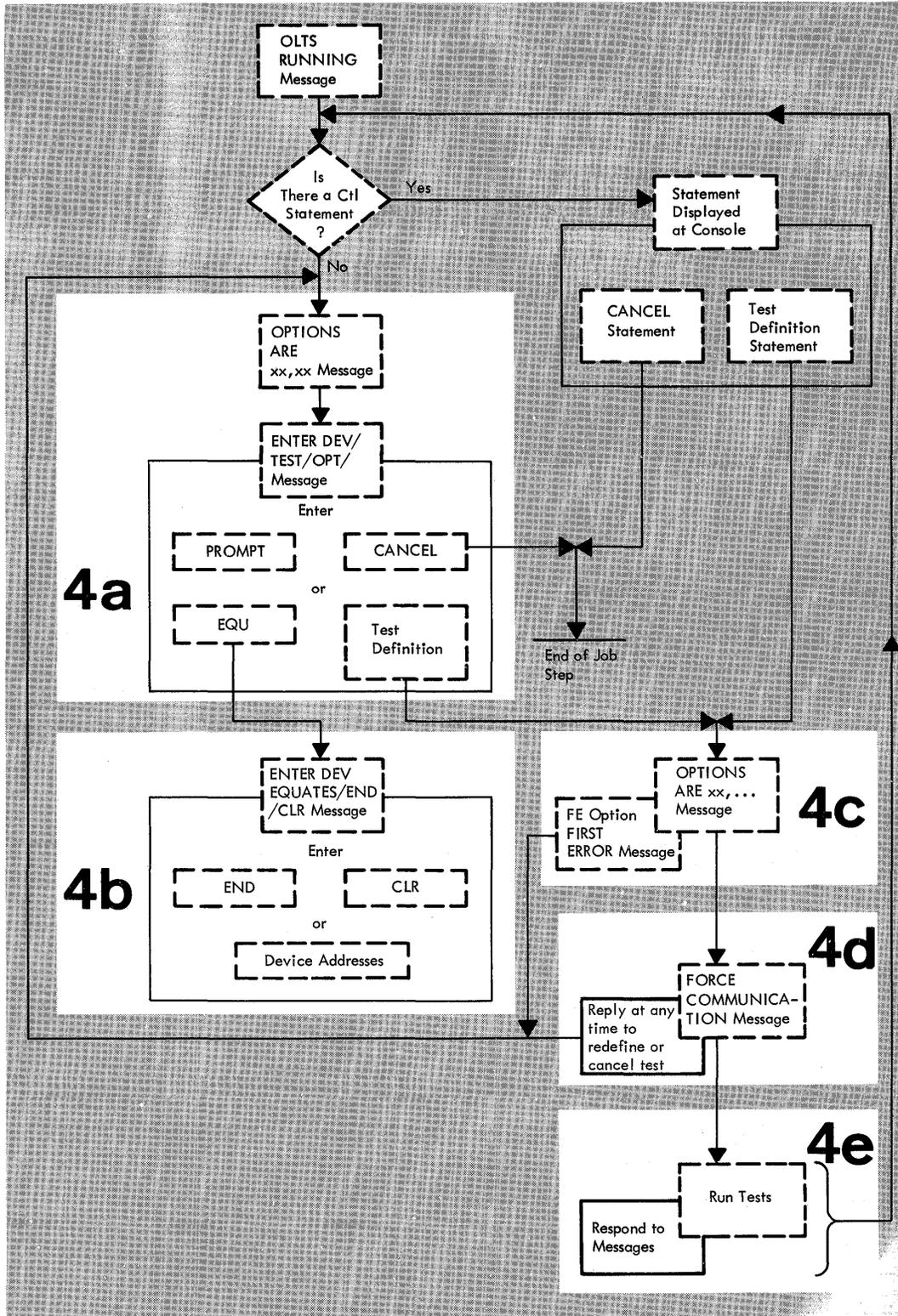


Figure 9. How To Define and Run Tests

How to Define and Run Tests

4

When OLTEP is running, it sends you the message:

```
IFD102I  OLTS RUNNING
```

OLTS - Online Test System

MCS: This message appears at the master console as well as at the maintenance console.

Then, if there are no OLTEP control statements to be processed, OLTEP sends you the messages:

```
IFD134I  WARNING- DASD VOLUME LABELED CEPACK NOT PROTECTED FROM WRITE
IFD107I  OPTIONS ARE zz,zz,...
id IFD105D  ENTER-DEV/TEST/OPT/
```

zz,zz,... - options in effect (OLTEP options are defined in Figure 13)

Message IFD134I warns you that any user pack that is physically on the system and that has the serial number CEPACK will be treated as test media and will be written upon if the volume is accidentally entered in response to message IFD105D.

Message IFD107I tells you the OLTEP options which are currently in effect. In this case, the default options will be listed because you have not yet entered a test definition.

Message IFD105D asks you to define the first test; it will be repeated when the test is completed. If you receive this message, go immediately to Step 4a.

If you do not receive message IFD105D, there are OLTEP control statements to be processed. These were included with the JCL you used to invoke OLTEP. OLTEP shows you the first statement on the console:

```
devices/tests/options/
```

This is a test definition statement. It defines the first test to be run.

Example:

```
180-184/2400//
```

"Test units 180 to 184. Run basic IBM 2400 tape unit tests. Use standard OLTEP options."

OLTEP will run the test, then show you the next statement and run the next test. If the last statement is:

```
CANCEL
```

testing ends and the job step is terminated. If not, OLTEP will send you the messages:

```
IFD107I  OPTIONS ARE zz,zz,...
id IFD105D  ENTER-DEV/TEST/OPT/
```

zz,zz,... - options in effect (OLTEP options are defined in Figure 13)

You can then define additional tests or terminate the job step.

Skip Step 4a. Go directly to Step 4c.

How to Enter DEV/TEST/OPT/

4a

When you receive the message:

```
id IFD105D ENTER-DEV/TEST/OPT/
```

you can define the next test to be run, terminate the job step, communicate with the OLT if it permits such communication (see 4c), equate device addresses (see 4b), or ask for help in defining the next test. You can also activate or terminate the RETAIN/370 Interface (see Section 4, "How to Activate RETAIN/370," and "How to Terminate RETAIN/370").

To define the next test, enter:

```
r id, 'devices/tests/options/'
```

signal EOB

r -- REPLY command

id -- message identifier (id in message IFD105D)

'devices/tests/options/' -- test definition; see Figure 12

To terminate the job step, enter:

```
r id, 'cancel'
```

signal EOB

r -- REPLY command

id -- message identifier (id in message IFD105D)

'cancel' -- "Cancel tests; terminate the job step."

To ask for help, enter:

```
r id, 'prompt xxxx'
```

signal EOB

r -- REPLY command

id -- message identifier (id in message IFD105D)

'prompt xxxx' -- "Prompt me on xxxx."

xxxx = dev - devices
or test - tests
or opt - options
or all - all of the above

Example:

```
00 IFD105D ENTER-DEV/TEST/OPT/
r 00, 'prompt dev'

IFD147I  EXAMPLES OF DEVICE FIELD
IFD147I  0181/                TEST DEVICE 181
IFD147I  0185-187/           TEST DEVICES 185, 186, AND 187
IFD147I  CHICAGO1/           TEST SYMBOLICALLY NAMED TP DEVICE, CHICAGO1
IFD147I  285-286,184,E/      TEST DEVICES 285,286, AND 184, AND SYMBOLIC E
IFD147I  .NDR/               NO DEVICE REQUIRED FOR TEST
IFD147I  /(SLASH ALONE)     TEST PREVIOUSLY SELECTED DEVICES

IFD146I  SEE SRL - ONLINE TEST EXECUTIBE PROGRAM

00 IFD105D ENTER-DEV/TEST/OPT/
```

OLTEP will send you messages that give examples of correct device, test, and option specifications. OLTEP will then repeat message IFD105D (ENTER-DEV/TEST/OPT/) to let you define the next test.

To equate device addresses, enter:

r_id,'equ'	signal EOB
------------	------------

r -- REPLY Command

id -- message identifier (id in message IFD105D)

'equ' -- "I want to enter equated device addresses"

OLTEP will send you the message IFD394D (ENTER DEV EQUATES/END/CLR) to let you enter the device addresses to be equated.

How to Enter DEV EQUATES/END/CLR

4b

When you receive the message

id IFD394D ENTER DEV EQUATES/END/CLR

(see 4a), you can define device addresses to be equated. Any three or four digit unit address may be entered as long as each entry, with the exception of END and CLR, contains an equal sign followed by a device address. However, symbolic device addresses or embedded blanks are not allowed in an entry.

Examples:	<table border="1"><tr><td>180=280</td></tr></table>	180=280	--	valid
180=280				
	<table border="1"><tr><td>180</td></tr></table>	180	--	invalid
180				
	<table border="1"><tr><td>180=</td></tr></table>	180=	--	invalid
180=				
	<table border="1"><tr><td>180 = 280</td></tr></table>	180 = 280	--	invalid
180 = 280				

You can define a range of devices equated to a single device as long as the difference in the range does not exceed 16.

Examples:	<table border="1"><tr><td>180-18F=280</td></tr></table>	180-18F=280	--	valid
180-18F=280				
	<table border="1"><tr><td>180-183=180</td></tr></table>	180-183=180	--	invalid
180-183=180				

You can define a series of devices equated to a single device. However, the series can not be intermixed with a range in the same entry.

Examples:	<table border="1"><tr><td>180,181,182=280</td></tr></table>	180,181,182=280	--	valid
180,181,182=280				
	<table border="1"><tr><td>180,181-183=280</td></tr></table>	180,181-183=280	--	invalid
180,181-183=280				

You can define multiple entries as long as they are separated by slashes.

Examples:	<table border="1"><tr><td>180-183=280/280,281,282=380/</td></tr></table>	180-183=280/280,281,282=380/	--	valid
180-183=280/280,281,282=380/				
	<table border="1"><tr><td>180-183=280,280,281,282=380</td></tr></table>	180-183=280,280,281,282=380	--	invalid
180-183=280,280,281,282=380				

You can remove a device from the equate table by equating it to itself.

Example: 180=180

You can redefine an entry to the table by reequating the left side device address.

Examples:	<table border="1"><tr><td>180=280</td></tr></table>	180=280
180=280		
	<table border="1"><tr><td>180=380</td></tr></table>	180=380
180=380		

This sequence of entries leaves device address 180 equated to device address 380. You can clear the equate table by entering CLR and you can obtain a copy of existing entries in the table by entering END.

Example:	<table border="1"><tr><td>CLR/180=280/END</td></tr></table>	CLR/180=280/END
CLR/180=280/END		

This statement removes all existing entries from the equate table, equates device address 180 to device address 280, and then prints out a copy of the entries existing in the table (which would be 180=280).

You can make additional entries to the table at a later time by reinvoking the EQU verb and repeating the equate procedure.

When you make an incorrect entry, it will invalidate itself and any multiple entries that follow it. However, any valid entries that preceded it will remain in the table. Also, when such an error occurs, an error message, which will include all data entered between slashes or implied slashes of the entry in error, will be printed out. (For actual messages put out by the Equate Module see **OS/VS Messages Library: Service Aids and OLTEP Messages.**)

How to Communicate on First Error

4c

If one of the OLTEP options in effect is FE (First Error Communication), OLTEP will send you the following messages when the first I/O error occurs:

IFD129I FIRST ERROR COMMUNICATION ttttsss rrrr UNIT xxxxxxxx aaaaaaaa
IFD107I OPTIONS ARE zz,zz,...
id IFD105D ENTER-DEV/TEST/OPT/

tttt - test type (device type) name of OLT program

sss - test section

rrrr - routine of OLT program ttttsss

xxxxxxx - address of unit on which error occurred

aaaaaaa - symbolic address of teleprocessing terminal on which error occurred (if applicable)

zz,zz,... - options in effect (OLTEP options are defined in Figure 13)

When you get these messages, you can resume testing from the point at which the error occurred, or you can enter 'talk' to communicate with the OLT (if the OLT permits such communication), or you can define a new test, or you can terminate the job step.

- To resume testing with the same options in effect, enter:

`r id, '///'`

signal EOB

`r` -- REPLY command

`id` -- message identifier (id in message IFD105D)

`'///'` -- "Resume testing from point of error."

The First Error Communication option remains in effect. When an I/O error occurs in a later test section, OLTEP will send you the same messages again.

To resume testing with different options, enter:

```
▶ r_id,'//options/'          signal EOB
```

r_ -- REPLY command

id -- message identifier (id in message IFD105D)

,'//options/' -- "Resume testing with new options as specified." See Figure 12 for format of option field.

Any option that is not specifically changed remains in effect. Thus, the FE option remains in effect unless you specify NFE.

To define a new test or terminate the job step, go to Step 4a.

To communicate with the OLT, enter:

```
▶ r_id,'talk'                signal EOB
```

If the OLT does not support this communication, OLTEP will send the following sequence of messages:

```
IFD166I OLT DOES NOT SUPPORT TALK
IFD107I OPTIONS ARE ZZ,ZZ,... - options in effect
IFD105D ENTER-DEV/TEST/OPT/
```

If the OLT does support 'talk', it will send a series of informative messages to the console indicating OLT progress at the point when 'talk' was entered.

How to Force Communication

4d

After you have defined the first test, OLTEP sends you the message:

```
id IFD104E    TO FORCE COMMUNICATION WITH OLTEP EXECUTIVE,
              ENTER ANY CHAR
```

This message permits you to interrupt testing. Do **not** reply immediately. Reply when and if you want to stop a test in order to define a new test or terminate the job step. Before you reply to this message, you must reply to any immediate reply message (IFDxxxD) which you have received.

To stop the running of a test, enter:

```
▶ r_id,'x'                signal EOB
```

r_ -- REPLY command

id -- message identifier (id in message IFD104E)

,'x' -- any character on the console keyboard

OLTEP will suspend testing and send you the message:

```
id IFD105D    ENTER-DEV/TEST/OPT/
```

When you get this message you can resume testing, define a new test, enter 'talk' to communicate with the OLT (if the OLT permits such communication), or terminate the job step. To resume testing, or to communicate with the OLT refer to step 4c. To define a new

test or cancel the job step, go to step 4a. Unless you terminate the job step, message IFD104E will be reissued.

Note that you can reply to message IFD104E at any time before the end of the job step. If you don't reply, the message is not repeated.

How to Respond to Messages

4e

OLTEP messages are explained in the publication **OS/VS Message Library: Service Aids and OLTEP Messages**.

RETAIN/370

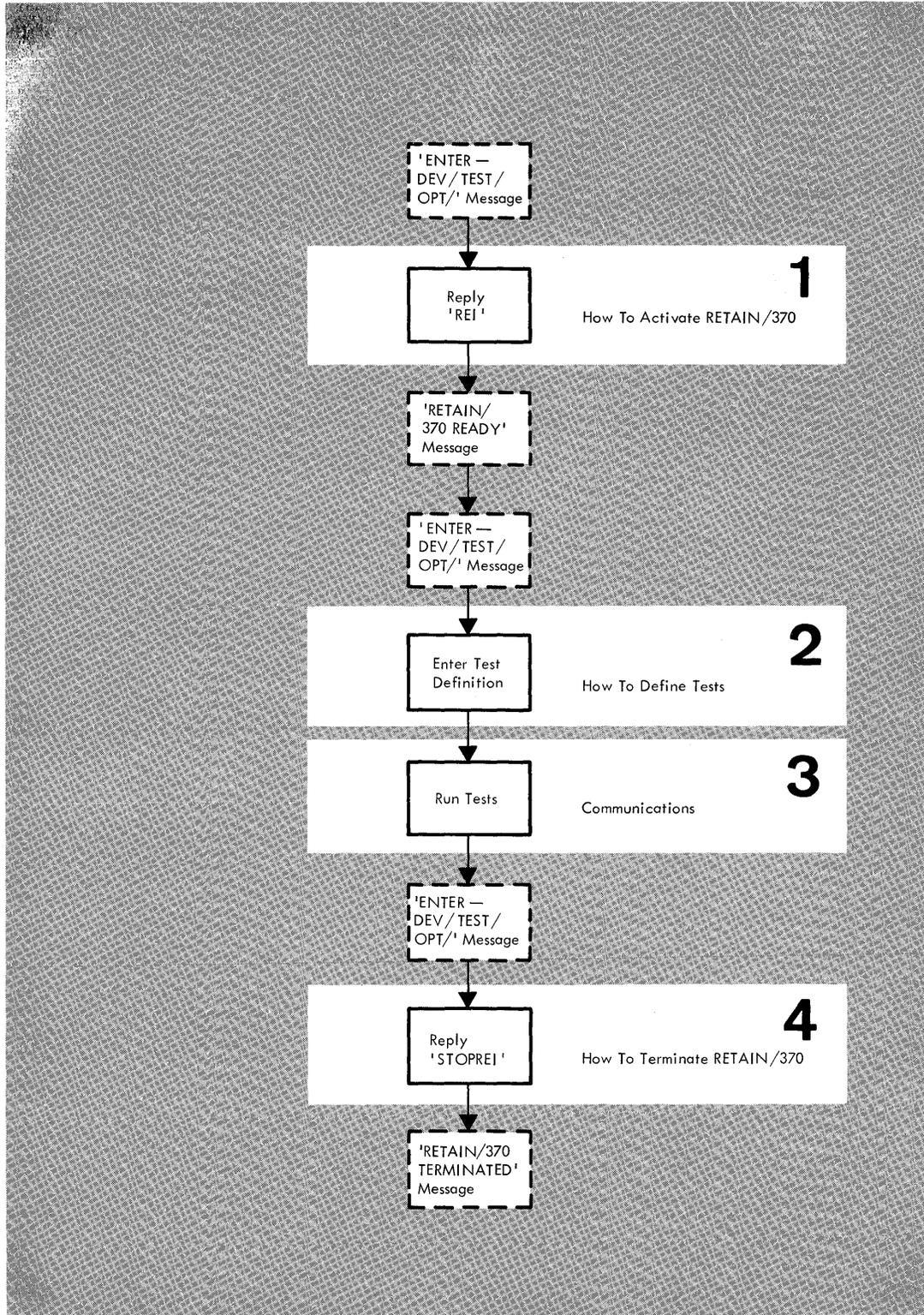


Figure 10. RETAIN/370

Section 4: Retain/370

This section is a guide to the use of the RETAIN/370 feature of OLTEP. Before attempting to activate the RETAIN/370 Interface, you may wish to follow the instructions in steps 1-3 of Section 3.

Topics discussed in this section include:

1. **How to Activate RETAIN/370:** First activate the IBM 2955 Field Engineering Data Adapter Unit (FE/DAU) and establish verbal communications with the RETAIN/370 center. Then reply 'REI' to message IFD105D.
2. **How to Define Tests:** The on-site customer engineer must enter the first test definition. If he enters the REI option, the remote specialist may define tests and options but he may not specify device addresses. The only entry he may make in the device field is .NDR (no devices required).
3. **Communications:** The on-site customer engineer and the remote specialist can communicate with OLTEP and with each other. OLTEP does not send all messages to the remote specialist. There are also certain restrictions regulating the remote specialist's replies to OLTEP messages.
4. **How to Terminate RETAIN/370:** To terminate the RETAIN/370 interface enter 'STOPREI' in response to message IFD105D.

Each step is numbered (as above), and related to other steps by a flowchart (Figure 10). Flowcharts use the following symbols:



Messages and Commands: In the procedure that follows, messages are shown in boxes. For example:

```
IFD163I  RETAIN/370  READY
```

Commands are shown in boxes, with an arrow pointing in. For example:

```
▶ r_id,'stoprei'          signal EOB
```

Enter all underlined characters, including spaces and commas, exactly as shown. Substitute letters or digits, NO blank spaces, for items that are not underlined.

How to Activate RETAIN/370

1

Before you can activate the RETAIN/370 Interface, you must do the following:

- Activate the IBM 2955 FE/DAU (must be online).
- Establish communications with the nearest RETAIN/370 center using the dial-up facility at the installation. (All discussion should take place at this time because once the RETAIN/370 Interface is activated, there can be no further verbal communications via the dial-up line.)
- Invoke OLTEP as described in Step 3 of Section 3.

If you have successfully invoked OLTEP you will receive the messages:

IFD102I	OLTS RUNNING
IFD134I	WARNING-DASD VOLUME LABELED CEPACK NOT PROTECTED FROM WRITE
IFD107I	OPTIONS ARE zz,zz,...
id IFD105D	ENTER-DEV/TEST/OPT/

zz,zz,... - options in effect (OLTEP options are defined in Figure 13)

To activate the RETAIN/370 Interface, enter:

```
▶ r id, 'rei'          signal EOB
```

r -- REPLY command

id -- message identifier (id in message IFD105D)

'rei' -- "Activate the RETAIN/370 Interface."

If a connection with the remote center is successfully established, OLTEP will send you the message:

```
IFD163I  RETAIN/370  READY
```

How to Define Tests

2

When the RETAIN/370 Interface has been activated, OLTEP will send you the message:

```
id IFD105D ENTER-DEV/TEST/OPT/
```

The remote specialist will be unable to respond to this and other immediate reply messages unless you specify the RE option in the options field of the test definition. Therefore, you must enter the first test definition. Enter:

```
r_id,'devices/tests/options/'
```

signal EOB

r -- REPLY command

id -- message identifier (id in message IFD105D)

'devices/tests/options/' -- test definition (see Figure 12)

If you and the remote specialist have agreed that he can respond to immediate and outstanding reply messages, specify RE in the options field. Your reply will be transmitted to the remote specialist's terminal. When OLTEP again issues message IFD105D, either you or the remote specialist may reply. The remote specialist is restricted in two respects.

- When entering a test definition, the remote specialist is unable to specify any unit addresses in the device field. If he wishes to test devices whose addresses you specified in a previous test definition, he should enter:

```
r_01,'/tests/options/'
```

signal EOB

r -- REPLY command

01 -- remote specialist reply code for message IFD105D.

,'/tests/options/' -- test definition (see Figure 12). The first slash indicates that there are no changes to the device field.

The unit addresses which you specified will remain in effect. If the remote specialist wishes to test new devices, you must enter the test definition and specify the new unit addresses.

When no devices are required for the tests which the remote specialist wishes to execute, he should enter .NDR in the device field of his test definition:

```
r_01,'.NDR/tests/options/'
```

signal EOB

r -- REPLY command

01 -- remote specialist reply code for message IFD105D

,'.NDR/tests/options/' -- test definition (see Figure 12). .NDR indicates that no devices are required for the tests specified.

- The remote specialist cannot enter CANCEL in his response to message IFD105D.

Note: The remote specialist can return control of OLTEP to the on-site customer engineer by entering NRE in the option field of his reply to message IFD105D.

If you do not specify RE in the options field, you are required to enter subsequent test definitions. Reply as indicated in step 4a of Section 3.

Communications

3

The RETAIN/370 Interface provides special facilities for communications such as:

A. Communications between the on-site customer engineer and the remote specialist.

- The on-site customer engineer and the remote specialist may send messages to each other.
- Replies to OLTEP messages from the on-site customer engineer are sent to the remote specialist's terminal. All replies from the remote specialist are sent to the on-site customer engineer's console.

B. Communications between OLTEP and the remote specialist.

- Many OLTEP messages are sent to the remote specialist. (The on-site customer engineer receives all messages.)
- All test results are sent to the remote specialist as well as to the output data set.
- The remote specialist may reply to certain OLTEP messages if the RE option has been specified. In his replies, the remote specialist must use specially provided reply codes.

C. Communications between OLTEP and the on-site customer engineer.

- If the RE option has not been specified the on-site customer engineer replies to all OLTEP messages.

D. Responses to RETAIN/370 messages.

On-Site Customer Engineer -- Remote Specialist

3a

If you are the on-site customer engineer, you will receive the following message so that you may communicate with the remote specialist:

```
id IFD168E      TO COMMUNICATE WITH REMOTE SPECIALIST ENTER MESSAGE
```

You need not reply to this message immediately. When you wish to send a message to the remote specialist, enter:

```
▶ r id, 'message'          signal EOB
```

r -- REPLY command

id -- message identifier (id in message IFD168E)

'message' -- message to be sent to remote specialist

If you are the remote specialist, you may send a message to the on-site customer engineer at any time the RETAIN/370 Interface is active by entering:

```
▶ r 03, 'message'          signal EOB
```

r -- REPLY command

03 -- remote specialist reply code for on-site communications message

'message' -- message to be sent to the on-site customer engineer

The message will be issued to the remote terminal (if sent by the on-site customer engineer) or to the console (if sent by the remote specialist) in the following form:

```
IFD255I  message
```

To send a message to the on-site customer engineer via the output printer only (that is, bypassing the system console), simply enter:

```
▶ Pmessage
```

Note that no reply command or message identifier is needed.

Reply Routing: An additional facility of the RETAIN/370 Interface causes the replies to OLTEP messages entered by the remote specialist to be printed on the on-site customer engineer's console. Replies to OLTEP messages entered by the on-site customer engineer are transmitted to the remote specialist's terminal.

Note: If both the customer engineer and the remote specialist reply to the same message, the first reply received will be honored. If both replies are received at the same time, the on-site customer engineer's reply will be honored. In either case, only the reply which is honored will be transmitted to the other's console or terminal.

OLTEP -- Remote Specialist

3b

If you are the remote specialist, the RETAIN/370 Interface sends you all the results of online test programs. You also receive OLTEP messages, including data protection messages (to which, however, you cannot reply).

If the RE option has not been specified by the on-site customer engineer, you are unable to reply to OLTEP messages. Reply codes will not be attached to the immediate and outstanding reply messages that you receive. You are able to communicate with the on-site customer engineer as described in step 3a of this section.

If the RE option has been specified, you are able to respond to the immediate and outstanding reply messages that you receive. The reply code that you must enter in response to a message prefixes the message text.

To reply to message IFD105D (ENTER-DEV/TEST/OPT/) refer to Step 2 of this section.

You may force communications with OLTEP by responding to message IFD104E:

00 IFD104E	TO FORCE COMMUNICATION WITH OLTEP EXECUTIVE, ENTER ANY CHAR
------------	--

This message permits you to interrupt testing. You need not reply immediately. Reply if you want to stop testing so that you or the on-site customer engineer may define a new test.

To force communication, enter:

 <u>r</u> <u>00</u> , ' <u>x</u> '	signal EOB
---	------------

r -- REPLY command

00 -- remote specialist reply code for outstanding reply messages

'x' -- any character on the terminal keyboard

The following figure summarizes the reply codes which you can enter in response to OLTEP messages. Only reply code 03 is valid if the RE option has not been specified.

REPLY CODE	DESCRIPTION
00	Reply code for message IFD104E (TO FORCE COMMUNICATION WITH OLTEP EXECUTIVE, ENTER ANY CHAR)
01	Reply code for message IFD105D (ENTER-DEV/TEST/OPT/)
03	Reply code for communications with the on-site customer engineer
04	Reply code for immediate reply messages (IFDxxxD) excluding message IFD105D.

Figure 11. Remote Specialist Reply Codes

OLTEP -- On-Site Customer Engineer

3c

If you are the on-site customer engineer and you have not specified the RE option, you must reply to all OLTEP messages.

If you have specified the RE option you may reply to all OLTEP messages.

Since the remote specialist cannot reply to data protection messages, you must continue to reply to these messages even if the RE option has been specified. (For a summary of those messages which the remote specialist receives, refer to Step 3d of this section.)

How to Respond to RETAIN/370 Messages

3d

OLTEP messages are explained in the publication *Service Aids and OLTEP Messages*. The remote specialist receives all OLTEP messages except the following:

- IFD121I
- IFD164I
- IFD167I
- IFD168E
- IFD169I
- IFD178I
- IFD505I

Note, however, that the remote specialist cannot reply to data protection messages.

How to Terminate RETAIN/370

4

If you are the on-site customer engineer you can terminate the RETAIN/370 Interface by replying 'STOPREI' to message IFD105D (ENTER-DEV/TEST/OPT/). Enter:

```
▶ r_id,'stoprei'          signal EOB
```

r -- REPLY command

id -- message identifier (id in message IFD105D)

'stoprei' -- "Terminate the RETAIN/370 Interface."

You can also terminate the RETAIN/370 Interface by replying 'CANCEL' to message IFD105D. RETAIN/370 will terminate prior to the termination of the job step.

If you are the remote specialist, you can terminate RETAIN/370 by entering the following in response to message IFD105D:

```
▶ r 01,'stoprei'          signal EOB
```

r -- REPLY command

01 -- remote specialist reply code for message IFD105D.

'stoprei' -- "Terminate the RETAIN/370 Interface."

The following message will be sent to the console when RETAIN/370 has terminated:

```
IFD169I  RETAIN/370 TERMINATED
```

Note: The remote specialist is unable to enter the CANCEL verb.

Appendix A: The Test Definition

Appendix A consists of three figures:

- Figure 12. The Test Definition
- Figure 13. OLTEP Options
- Figure 14. Messages Resulting from Combinations of OLTEP Options

Figure 12 shows how to enter a test definition. It refers to Figure 13, which defines OLTEP options, and to Figure 14, which describes the effects of certain option combinations.

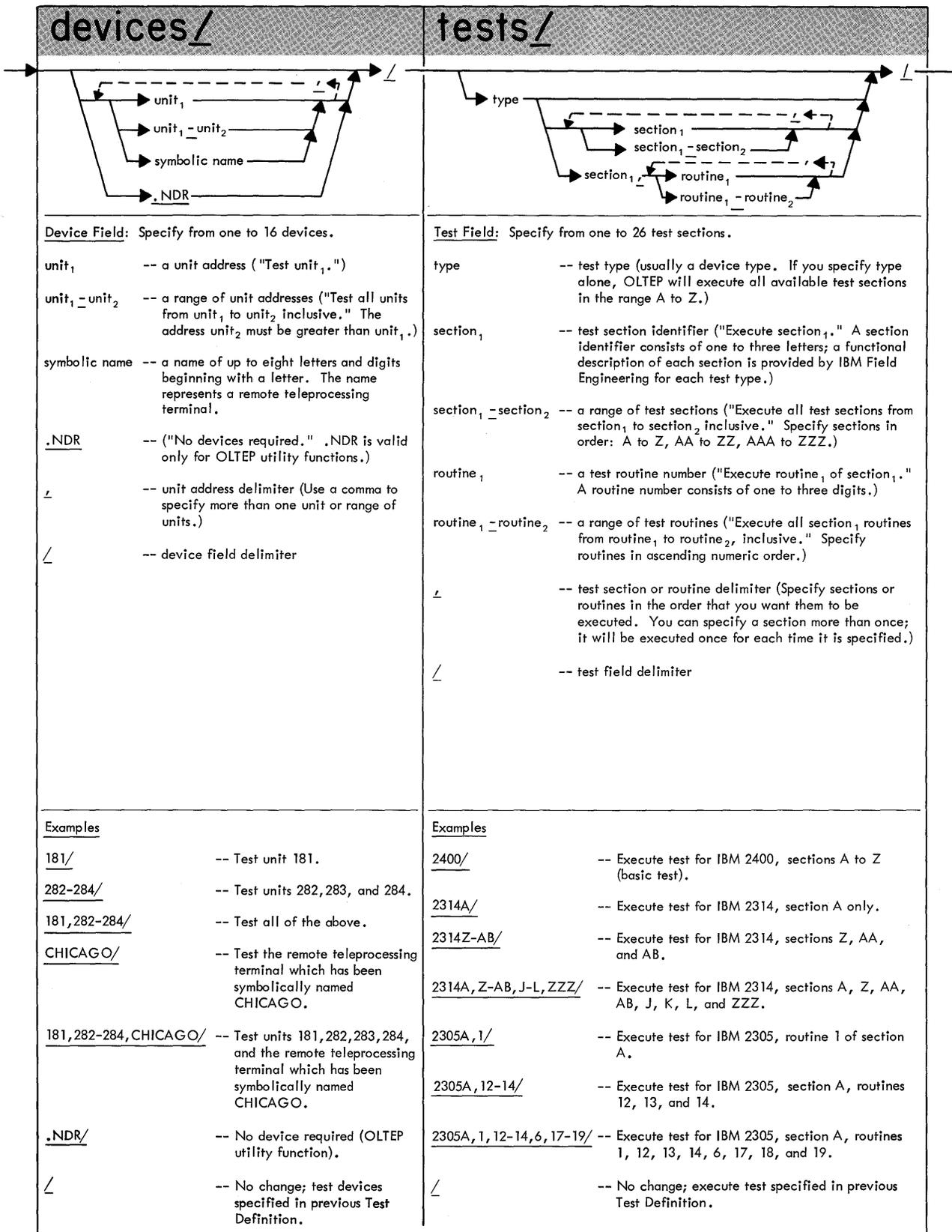
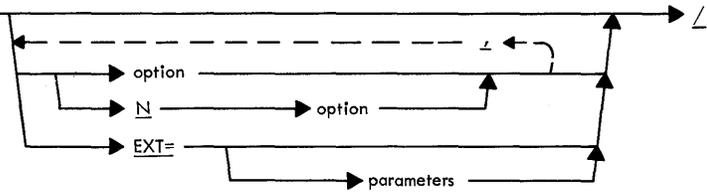


Figure 12. Test Definition (Part 1 of 2)

options/



Option Field: Specify OLTEP options and OLT program parameters.

option --any of the following OLTEP options
PR -- Print
CP -- Control Print
EP -- Error Print
FE -- First Error Communication
PP or PP(n) -- Parallel Print ($0 \leq n \leq 3$; PP=PP(2))
TL or TL(n) -- Test Loop ($1 \leq n \leq 32767$; TL=TL(10))
EL or EL(n) -- Error Loop ($1 \leq n \leq 32767$; EL=EL(500))
MI -- Manual Intervention
RE -- Remote

These options are explained in Figure 13. Each option that you specify remains in effect until you change it. PR, CP, EP, and FE are standard options; unless you negate them, they take effect automatically at the beginning of the job step. The effects of certain option combinations are defined in Figure 14.

Noption --negative option (Example: NPP--No Parallel Print
The option remains negative until respecified).

EXT=parameters --external parameters required by OLT programs (test sections).
Descriptions of OLT programs and their parameters are provided by IBM Field Engineering. (Parameters can include any character except a slash (/). They remain in effect until you change or cancel them.)

EXT= --no external parameters. (To cancel previously defined parameters, enter EXT= without parameters (EXT=)).

/ --option delimiter (Use a comma to specify more than one option, and to separate options from parameters. If you change your mind about an option after you have entered it, you can change the option within the same test definition. Example: FE, EL, NFE/=EL, NFE/)

/ --option field delimiter

Examples

FE/ -- First Error Communication.

NFE/ -- No First Error Communication.

EP, PP(1), TL(5), NEL/ -- Error Print, Parallel Print (level 1 output), Test Loop (repeat 5 times), No Error Loop.

MI, NMI/ -- No Manual Intervention (If you specify contradictory options, OLTEP accepts the last option specified.)

EXT = parameters/ -- External parameters.

PR, CP, EXT=parameters/ -- Print, Control Print, External parameters.

RE, EXT =/ -- Remote, no external parameters.

/ -- First Definition: / = PR, CP, EP, FE, NPP, NTL, NEL, NMI, NRE/.
Thereafter, / means "no change; use options and parameters already in effect."

NOTE:

To define a test, enter:

devices/_tests/_options/_

Enter devices, tests and options as shown at left. Follow the arrow, choosing your own direction at each branch point.

Enter all underlined characters, including slashes and commas, exactly as shown. Substitute letters or digits, NO blank spaces, for items that are not underlined.

Figure 12. Test Definition (Part 2 of 2)

STANDARD OPTIONS

PR (Print)

OLTEP sends you:

- Messages produced by the OLT programs. These messages include test results (messages numbered IFD100I) and requests for operator assistance (messages numbered IFD101D and IFD154E). Test results are written in the //DIAGMSG data set; operator requests are written in the //DIAGMSG data set and on the console.
- OLTEP messages that let you enter a new test definition after a catastrophic device error (message IFD157I followed by message IFD105D).

You can specify NPR (No Print) to suppress these messages; however, NPR has no effect unless you also specify TL (Test Loop) or EL (Error Loop). (The combination NPR,TL/ or NPR,EL/ also suppresses messages requested by the EP (Error Print) and FE (First Error Communication) options; see Figure 14.)

CP (Control Print)

OLTEP sends you a console message (IFD158I) to let you know when a test section (OLT program) has been started or terminated. In the termination message, OLTEP indicates whether the OLT program detected any errors.

EP (Error Print)

OLTEP sends you console messages that diagnose errors detected by OLT programs.

You can specify NEP (No Error Print) to limit these messages to one message per test section. With the TL (Test Loop) or EL (Error Loop) option, you can specify NPR (No Print) to suppress these messages entirely. (The combination NPR,TL/ or NPR,EL/ also suppresses messages requested by the PR (Print) and FE (First Error Communication) options; see Figure 14.)

FE (First Error Communication)

When an OLT program detects a device error, OLTEP suspends testing and asks for a new test definition at the console. You can then define a new test, resume testing from the point at which the error occurred, or terminate the job step. If you choose to resume testing, you can change the OLTEP options that apply to the test.

First error communication occurs once per test section (on the first error detected by an OLT program). To suppress first error communication, you can specify either NFE (No First Error Communication), or NPR (No Print) with the TL (Test Loop) or EL (Error Loop) option. (The combination NPR,TL/ or NPR,EL/ also suppresses messages requested by the PR (Print) and EP (Error Print) options; see Figure 14.)

Example: You are testing several tape drives. If a device error occurs, you want to check the device with an oscilloscope while repeating the routine that produced the error. Specify the FE option, as in the following sequence:

```
.....
01 IFD105D  ENTER-DEV/TEST/OPT/
r 01, '181-183/2400/FE/'
.....
IFD129I  FIRST ERROR COMMUNICATION T2400J 7 UNIT 00000181
01 IFD105D  ENTER-DEV/TEST/OPT/
.....
```

Figure 13. OLTEP Options (Part 1 of 4)

Message IFD129I tells you that an error occurred on unit 181 during execution of the IBM 2400 test, section J, routine 7. Message IFD105D asks for a new test definition; you could enter any of the following:

/// -- resume testing. Request a new test definition if an error occurs during execution of a later test section.

//EL/ -- resume testing and execute error loop.

//EL,NFE/ -- resume testing and execute error loop, but don't request a new test definition if an error occurs during execution of a later test section.

181/2400J,7/TL(499)/ -- execute 500 times the routine that caused the error. Request a new test definition if an error occurs.

181/2400J,7/TL(499),NPR/ -- execute 500 times the routine that caused the error. Don't request a new test definition if an error occurs, and don't print messages requested by the PR and EP options.

CANCEL -- terminate the job step.

OTHER OPTIONS

PP or PP(n) (Parallel Print)

OLTEP sends test output to the console as well as to the //DIAGMSG data set. Specify console output as follows:

<u>PP(0)</u>	-- header only
<u>PP(1)</u>	-- header, description, comments
<u>PP(2)</u> or <u>PP</u>	-- header, results
<u>PP(3)</u>	-- all of the above

This option can reduce system performance; use it only when necessary.

Example 1: The only printer at the installation is not working properly, so there is no way to print the //DIAGMSG data set. Define a dummy data set (//DIAGMSG DD DUMMY), and use the PP option to print test output at the console.)

Example 2: The //DIAGMSG data set is a SYSOUT data set; it will not be printed until the OLTEP job has terminated. Use the PP option to print test output that you want to see before terminating the job.

TL or TL(n) (Test Loop)

OLTEP executes the test that you have defined; it then repeats the test *n* times. The number *n* can be any integer from one to 32767; if you specify no value for *n*, OLTEP assumes *n* = 10 (TL = TL(10)).

With TL or TL(*n*), you can specify NPR (No Print) to suppress messages requested by the PR (Print), EP (Error Print), and FE (First Error Communication) options. (See Figure 14.)

Example: You want to exercise a device and test it with an oscilloscope. Specify the TL option to keep the device active for as much time as you require. Specify the NPR option to suppress unwanted messages.

You may want to terminate a test loop before it is completed. You can do so by canceling the job, or by entering a new test definition at the console.

Figure 13. OLTEP Options (Part 2 of 4)

Example: The following sequence shows how to terminate a test loop:

```
00 IFD105D ENTER-DEV/TEST/OPT/  
r 00, '181/2400/TL(100)/'  
  
00 IFD104E TO FORCE COMMUNICATION WITH OLTEP EXECUTIVE, ENTER ANY CHAR  
test loop  
  
r 00, '6'  
00 IFD105D ENTER-DEV/TEST/OPT/  
r 00, '182///'  
...
```

The initial test definition is 181/2400/TL(100)/. After accepting the definition, OLTEP sends you message IFD104E (assuming it has not already done so). You reply to this message when you want to terminate the test loop.

When you reply, OLTEP suspends testing and sends you message IFD105D. You then enter a new test definition, such as 182///, which ends testing of unit 181 and starts testing of unit 182. Since 182/// is here equivalent to 182/2400/TL(100)/, the test loop is restarted on unit 182. Note that you could also enter any of the following:

182//NTL/ -- the test loop is stopped completely; each 2400 test section is executed only once for unit 182.

/2400F// -- the test loop is stopped and a new test loop is started on the same unit (181); section F of the 2400 test will be executed 101 times.

//NTL/ -- testing is resumed from the point of interruption. Testing will end when the current loop has been completed.

//TL(5)/ -- testing is resumed; testing will end when the current loop and five additional loops have been completed.

//NPR/ -- testing is resumed, and will end when the original 100 loops have been completed. During the remaining loops, messages requested by the PR, EP, and FE options will not be printed.

EL or EL(n) (Error Loop)

When an OLT program detects an I/O error, OLTEP repeatedly executes the program that produced the error. Execution is repeated *n* times, where *n* is any integer from one to 32767. If you specify no value for *n*, OLTEP assumes *n* = 500 (EL = EL(500)).

With EL or EL(*n*), you can specify NPR (No Print) to suppress messages requested by the PR (Print), EP (Error Print), and FE (First Error Communication) options. (See Figure 14.)

Example: You are searching for an intermittent device error. When the error occurs, you want to determine the frequency of the error by repeating the same I/O operation a number of times. Specify the EL option to repeat any I/O operation that causes an error condition.

You may want to terminate an error loop before it is completed. You can do so in the same way that you can terminate a test loop. For example, you can terminate an error loop and resume testing by entering //NEL/. If you change the loop count (by entering //EL(*n*)//), the loop continues as originally defined; the new count applies only to subsequent errors.

Figure 13. OLTEP Options (Part 3 of 4)

MI (Manual Intervention)

OLTEP executes OLT program routines that require manual intervention, such as changing the carriage control tape on a printer. OLTEP bypasses these routines except when you specify the MI option. If you do not specify the MI option, you are not informed when a routine which requires manual intervention is bypassed.

Note: The MI and RE options are mutually exclusive.

RE (Remote)

If RETAIN/370 is active, OLTEP attaches reply codes to the immediate and outstanding reply messages which it sends to the remote specialist, enabling him to reply to these messages. If this option is not specified, the on-site customer engineer must reply to all messages.

Note: The MI and RE options are mutually exclusive.

TR (Trace)

OLTEP prints one line of output for every module used during a test, giving module IDs and addresses, and return codes. TR is used to debug online tests by tracing the online tests' use of OLTEP macro instructions.

Figure 13. OLTEP Options (Part 4 of 4)

OPTIONS					MESSAGES			
First Error	Communication	Error Print	Print	Test Loop	First Error	OLT Program (Error)	OLT Program (Normal)	Catastrophic Error
FE	EP	PR	...	...	+	•	•	+
FE	EP	PR	...	...	+	•	•	+
FE	EP	...	NTL	NEL	+	•	•	+
FE	NEP	PR	...	...	+	+	•	+
FE	NEP	...	NTL	NEL	+	+	•	+
-----					-----			
NFE	EP	PR	...	...	-	•	•	+
NFE	EP	...	NTL	NEL	-	•	•	+
NFE	NEP	PR	...	...	-	+	•	+
NFE	NEP	...	NTL	NEL	-	+	•	+
-----					-----			
...	...	NPR	TL	...	-	-	-	-
...	...	NPR	...	EL	-	-	-	-

Key

- ... Option may have either value. For example: TL or NTL.
- Message is printed.
- + Message is printed (limited to one message per test section).
- Message is suppressed.

For a description of each type of message, refer to description of the corresponding option in Figure 13.

First Error Message: First Error Communication Option
 OLT Program Message (Error): Error Print Option
 OLT Program Message (Normal): Print Option
 Catastrophic Error Message: Print Option

Figure 14. Messages Resulting from Combinations of OLTEP Options

The following terms are defined as they are used in this manual. If you do not find the term you are looking for, refer to the Index or to the **IBM Data Processing Glossary, GC20-1699**.

CE Bit: A bit that indicates whether a CE volume is mounted.

CE Volume: A specialized direct access volume used for testing by customer engineers.

configuration data set (CDS): A data set contained in the OLTEP library which contains descriptive information about the devices attached to a system.

Editor Program: A program that creates or updates partitioned data sets which contain OLTs and CDSs.

File Protect Mode (FPM): A mode in which online direct access storage devices are tested. No writing is done on the device in order to protect data.

First Error Communication: A standard OLTEP option (FE) which, when specified, enables the operator or customer engineer to enter a new test definition when an input/output error occurs.

maintenance console: In a system with multiple consoles, an alternate console that receives system error maintenance messages. Contrast with master console.

master console: In a system with multiple consoles, the basic console used for communication between the operator and the system.

multiple console support (MCS): A standard feature of OS/VS that permits selective message routing to up to 32 operator's consoles.

OLT program (online test program): A program which tests control units, or I/O devices under OS/VS. OLTEP provides the interface between OLT programs and the operating system.

OLTEP (Online Test Executive Program): A facility that schedules and controls activities on the online test system (OLTS) and provides communication with the operator. This program is part of a set of programs that can be used to test I/O devices, and control units, concurrently with the execution of programs.

OLTEP Data Sets: Data sets which contain OLT programs and system configuration data. These data sets must be created and maintained by the OLTEP Editor and Punch facilities.

Online Test System (OLTS): A system that allows a user to test I/O devices concurrently with execution of programs. Tests may be run to diagnose I/O errors, verify repairs and engineering changes, or to periodically check devices. See also OLTEP.

on-site customer engineer: Term used to describe the customer engineer at the installation where testing is being performed when the RETAIN/370 feature of OLTEP is active.

Punch Program: The program used to punch OLTs and/or CDSs from OLTEP data sets.

remote specialist: Term used to describe the field engineer who assists with testing at a center which is physically remote from the installation where testing with the RETAIN/370 option is being performed.

RETAIN/370 (Remote Technical Assistance Information Network/370): An optional feature of OLTEP which enables a specialist at a remote center to assist with testing.

SOSP (Standalone Online Support Processor): A Field Engineering diagnostic facility.

test definition: Information entered by an OLTEP user which specifies units to be tested, test sections to be executed, and options to be used.

test section: An OLT program or the function performed by an OLT program.

unit test: (See OLT program).

Indexes to OS/VS publications are consolidated in the OS/VS Master Index, GC28-0602, and the OS/VS Master Index of Logic, GY28-0603. For additional information about any subject listed below, refer to other publications listed for the same subject in the Master Index.

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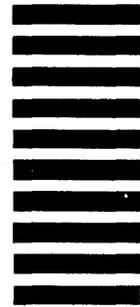
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