INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume VIII - User Interface Subsystem
Part 7 - Forms Processor Unit Test Plan

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### Block 11 - INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)

**Vol VIII - User Interface Subsystem**

**Part 7 - Forms Processor Unit Test Plan**

This unit test plan establishes the methodology and procedures used to test the capabilities of the Form Processor (FP).
FOREWORD

This technical report covers work performed under Air Force Contract F33600-87-C-0464, DAPro Project. This contract is sponsored by the Manufacturing Technology Directorate, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Bruce A. Rasmussen, Branch Chief, Integration Technology Division, Manufacturing Technology Directorate, through Mr. David L. Judson, Project Manager. The Prime Contractor was Integration Technology Services, Software Programs Division, of the Control Data Corporation, Dayton, Ohio, under the direction of Mr. W. A. Osborne. The DAPro Project Manager for Control Data Corporation was Mr. Jimmy P. Maxwell.

The DAPro project was created to continue the development, test, and demonstration of the Integrated Information Support System (IISS). The IISS technology work comprises enhancements to IISS software and the establishment and operation of IISS test bed hardware and communications for developers and users.

The following list names the Control Data Corporation subcontractors and their contributing activities:

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<td>Responsible for the overall Common Data Model design development and implementation, IISS integration and test, and technology transfer of IISS.</td>
</tr>
<tr>
<td>D. Appleton Company</td>
<td>Responsible for providing software information services for the Common Data Model and IDEF1X integration methodology.</td>
</tr>
<tr>
<td>ONTEK</td>
<td>Responsible for defining and testing a representative integrated system base in Artificial Intelligence techniques to establish fitness for use.</td>
</tr>
<tr>
<td>Simpact Corporation</td>
<td>Responsible for Communication development.</td>
</tr>
<tr>
<td>Structural Dynamics Research Corporation</td>
<td>Responsible for User Interfaces, Virtual Terminal Interface, and Network Transaction Manager design, development, implementation, and support.</td>
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<tr>
<td>Arizona State University</td>
<td>Responsible for test bed operations and support.</td>
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SECTION 1  
GENERAL

1.1 Purpose

This unit test plan establishes the methodology and procedures used to adequately test the capabilities of the computer program identified as the Form Processor, known in this document as the FP. The FP is one configuration item of the Integrated Information Support System (IISS) User Interface (UI). It consists of Form Processor callable routines and the User Interface Monitor which is the main controller of the Form Processor.

1.2 Project References

1.3 Terms and Abbreviations

American Standard Code for Information Interchange: (ASCII), the character set defined by ANSI X3.4 and used by most computer vendors.

Application Interface: (AI), subset of the IISS User Interface that consists of the callable routines that are linked with applications that use the Form Processor or Virtual Terminal. The AI enables applications to be hosted on computers other than the host of the User Interface.

Application Process: (AP), a cohesive unit of software that can be initiated as a unit to perform some function or functions.

Attribute: field characteristic such as blinking, highlighted, black, etc. and various other combinations. Background attributes are defined for forms or windows only. Foreground attributes are defined for items. Attributes may be permanent, i.e., they remain the same unless changed by the application program, or they may be temporary, i.e., they remain in effect until the window is redisplayed.

Common Data Model: (CDM), IISS subsystem that describes common data application process formats, form definitions, etc. of the IISS and includes conceptual schema, external schemas, internal schemas, and schema transformation operators.

Computer Program Configuration Item: (CPCI), an aggregation of computer programs or any of their discrete portions, which satisfies an end-use function.

Conceptual Schema: (CS), the standard definition used for all data in the CDM. It is based on IDEF1 information modelling.

Current Cursor Position: the position of the cursor before an edit command or function is issued in the text editor.

Cursor Position: the position of the cursor after any command is issued.

Device Drivers: (DD), software modules written to handle I/O for a specific kind of terminal. The modules map terminal specific commands and data to a neutral format. Device Drivers are part of the UI Virtual Terminal.

Display List: a list of all the open forms that are currently being processed by the FP or the user.

Display Size: the number of lines used in the edit area.

Extended Binary Coded Decimal Interchange Code: (EBCDIC), the character set used by a few computer vendors (notably IBM) instead of ASCII.
**External Schema:** (ES), an application's view of the CDM's conceptual schema.

**Field:** two dimensional space on a terminal screen.

**Field Pointer:** indicates the ITEM which contains the current cursor position.

**Form:** structured view which may be imposed on windows or other forms. A form is composed of fields. These fields may be defined as forms, items, and windows.

**Form Definition:** (FD), forms definition language after compilation. It is read at runtime by the Form Processor.

**Forms Definition Language:** (FDL), the language in which electronic forms are defined.

**Forms Driven Form Editor:** (FDFE), subset of the FE which consists of a forms driven application used to create Form Definition files interactively.

**Form Editor:** (FE), subset of the IISS User Interface that is used to create definitions of forms. The FE consists of the Forms Driven Form Editor and the Forms Language Compiler.

**Form Hierarchy:** a graphic representation of the way in which forms, items and windows are related to their parent form.

**Forms Language Compiler:** (FLAN), subset of the FE that consists of a batch process that accepts a series of forms definition language statements and produces form definition files as output.

**Form Processor:** (FP), subset of the IISS User Interface that consists of a set of callable execution time routines available to an application program for form processing.

**Form Processor Text Editor:** (FPTE), subset of the Form Processor that consists of software modules that provide text editing capabilities to all users of applications that use the Form Processor.

**Integrated Information Support System:** (IISS), a computing environment used to investigate, demonstrate, test the concepts and produce application for information management and information integration in the context of Aerospace Manufacturing. The IISS addresses the problems of integration of data resident on heterogeneous data bases supported by heterogeneous computers interconnected via a Local Area Network.

**Item:** non-decomposable area of a form in which hard-coded descriptive text may be placed and the only defined areas where user data may be input/output.
Logical Device: a conceptual device that identifies a top level window of an application. It is used to distinguish between multiple applications running simultaneously on a physical device. NOTE: a single application can have more than one logical device. To the end user this also appears as multiple applications running simultaneously.

Message: descriptive text which may be returned in the standard message line on the terminal screen. They are used to warn of errors or provide other user information.

Message Line: a line on the terminal screen that is used to display messages.

Network Transaction Manager: (NTM), IISS subsystem that performs the coordination, communication and housekeeping functions required to integrate the Application Processes and System Services resident on the various hosts into a cohesive system.

Open List: a list of all the forms that are currently open for an application process.

Operating System: (OS), software supplied with a computer which allows it to supervise its own operations and manage access to hardware facilities such as memory and peripherals.

Page: instance of forms in windows that are created whenever a form is added to a window.

Paging and Scrolling: a method which allows a form to contain more data than can be displayed with provisions for viewing any portion of the data buffer.

Physical Device: a hardware terminal.

Presentation Schema: (PS), may be equivalent to a form. It is the view presented to the user of the application.

Previous Cursor Position: the position of the cursor when the previous edit command was issued.

Qualified Name: the name of a form, item or window preceded by the hierarchy path so that it is uniquely identified.

Report Definition Language: an extension of the Forms Definition Language that includes retrieval and calculation of database information and is used to define reports.

Subform: a form that is used within another form.

User Data: data which is either input by the user or output by the application programs to items.

User Interface: (UI), IISS subsystem that controls the user's terminal and interfaces with the rest of the system. The UI consists of two major subsystems: the User Interface
Development System (UIDS) and the User Interface Management System (UIMS).

**User Interface Development System:** (UIDS), collection of IISS User Interface subsystems that are used by applications programmers as they develop IISS applications. The UIDS includes the Form Editor and the Application Generator.

**User Interface Management System:** (UIMS), the runtime UI. It consists of the Form Processor, Virtual Terminal, Application Interface, the User Interface Services and the Text Editor.

**User Interface Monitor:** (UIM), part of the Form Processor that handles messaging between the NTM and the UI. It also provides authorization checks and initiates applications.

**User Interface/Virtual Terminal Interface:** (UI/VTI), another name for the User Interface.

**Virtual Terminal:** (VT), subset of the IISS User Interface that performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by the UI software which constitutes the virtual terminal definition. Specific terminals are then mapped against the virtual terminal software by specific software modules written for each type of real terminal supported.

**Virtual Terminal Interface:** (VTI), the callable interface to the VT.

**Window:** dynamic area of a terminal screen on which predefined forms may be placed at run time.

**Window Manager:** a facility which allows the following to be manipulated: size and location of windows, the device on which an application is running, the position of a form within a window. It is part of the Form Processor.
SECTION 2
DEVELOPMENT ACTIVITY

2.1 Statement of Pretest Activity

During system development, the computer programs were tested progressively. Functionality was incrementally tested, and as bugs were discovered by this testing, the software was corrected.

Each Form Processor callable routine was tested individually through Form Processor development. A test program, ARTEST, was developed as an easy means of testing changes to the Form Processor. This test program allows a developer to type in commands that are translated into the appropriate Form Processor calls. With this test program all Form Processor callable routines may be executed.

Testing of the User Interface Monitor (UIM) of the Form Processor began with the integration of the Form Processor and the NTM. The UIM's main task is to receive messages sent to the Form Processor. A test minintm was developed also so that the Window Management processing capability of the Form Processor could be tested before integration with the NTM.

All pretesting activity was conducted by the individual program developer in a manual mode. The developer would manually enter data onto the screen and observe the results. Any errors were noted by the developer, and corrections to the Form Processor software were then made after a testing session.

2.2 Pretest Activity Results

The pretest activity was very successful in the elimination of programming bugs so that at release time only a few bugs were found in the Form Processor. The development of the test program, ARTEST, has proved very beneficial since as new functionality was added to the Form Processor, ARTEST was also updated to test this functionality. ARTEST is the major test tool for the Unit Test Plan of the Form Processor.

The minintm was useful in testing the window management processing; however, it postponed our integration with the real NTM since it was easier to run and test standalone. This integration was a difficult process. The only significant bug found in the window management processing through the NTM integration was incorrect use of the Source as the application name in an Application End message.

The pretesting activity was successful in eliminating programming errors and helped pinpoint difficulties in integration with the NTM.
SECTION 3
SYSTEM DESCRIPTION

3.1 System Description

The Form Processor consists of a set of callable execution time routines that allows an application program to send/receive formatted screens to/from various terminals and to perform terminal control functions independent of the terminal type. It also has a User Interface Monitor (UIM) that handles translating messages sent across the NTM into the appropriate FP calls. The UIM also handles the log on to IISS, processing the IISS Function Screen and processing the application status form.

3.2 Testing Schedule

The execution of the Form Processor is dependent upon the NTM subsystem of IISS when it is not configured standalone. Testing of the Form Processor must be done only after the NTM has been successfully tested. In this unit test, the Form Processor is dependent on the Application Interface (AI) and on the Virtual Terminal (VT).

3.3 First Location Testing

These tests of the Form Processor require the following:

- Equipment: Air Force VAX, terminals supported by the Virtual Terminal as listed in the UI Terminal Operator Guide.


- Personnel: One integrator familiar with the IISS.

- Training: The FP User Manual has been previously provided with the current release.

- Deliverables: The current release of the User Interface Management Subsystem.

- Test Materials: This test may be run interactively by inputting the appropriate data and observing the output as outlined in this test plan. A script file has also been created and run generating a save file to be used for comparison in subsequent tests of this subsystem.

- Security considerations: None.

3.4 Subsequent Location Testing

The requirements as listed above need to be met; however, in subsequent testing it is advantageous to create a script file of the outlined tests and run this saving the output of the test for future comparisons.
SECTION 4
SPECIFICATIONS AND EVALUATIONS

4.1 Test Specifications

The test uses the program ARTEST to test the following areas of functionality as specified in section 3.2 of the Form Processor Development Specification:

- Form processing
- User Profile Maintenance
- Virtual Terminal Pass-through
- NTM message processing
- Function key processing

The following sections list the FP routines that handle the particular area of functionality, where appropriate. The associated figures refer to the specific activities performed in section 5.3 to test each area.

4.1.1 Form Processing

Controlling the Form Processor:

INITFP - Figures 2a,b
TERMFP - Figures 58a,b
SETDQN - Figures 32a, 32d-f
GETDQN - Figures 32b,c

Opening and Closing Forms:

OPNFRM - Figures 8a-d
CLSFIRM - Figures 15a-c

Creating and Saving Forms:

CRTFRM - Figures 104a, 104c
S AVF RM - Figures 151a-c
REPFRM - Figures 103a,b
MAKFRM - Figures 105a,b

Adding and Removing Fields:

CRTFLD - Figures 99a,b
ADDFLD - Figures 97a-98b, 99c, 104b,c
REPFLD - Figures 100a,c
MVRFLD - Figures 101a,b
RMVFLD - Figures 102
GFMFLD - Figures 109a-e
GDPFEX - Figures 107a-c
GDPF LC - Figures 108
Changing Characteristics:

ADDIM - Figures 110a,b  INQATT - Figures 130a-c
INQSIZ - Figures 139a-c  INQDIM - Figures 138a,b
INQDOM - Figures 132  INQVAL - Figures 141
INQLOC - Figures 134a,b  INQABS - Figures 129a-c
INQTyp - Figures 140a-c  INQPRO - Figures 136a-c
INQAPR - Figures 155,158,159  INQHLP - Figures 133a-c
RMVATT - Figures 142a-d  RMVDIM - Figures 112a,b
RMVDOM - Figures 145a,b  144a,b
RMVHLP - Figures 147a,b  RMVARY - Figures 148a,b
RMVVAL - Figures 150a-d  RMVPRO - Figures 137a,b
SETAPR - Figures 156,157  RMVAPR - Figures 160-163
SETDIM - Figures 120a,b  SETDOM - Figures 111a-e,
SETDIS - Figures 100b,c,  113a-d
SETLOC - Figures 118a-d  SETNAM - Figures 110a,b
SETVAL - Figures 126a-128b  123a,b
SETSIZ - Figures 122a-d,  125a-d
124a-d  SETTYP - Figures 121a-c,
SETHLP - Figures 117a-f  SETATT - Figures 115a,b

Modifying the Display List:

ADDELM - Figures 7a-v  ADDFRM - Figures 8a-d
APRFLD - Figures 153a-d
GETATT - Figures 22a,b
GETBAK - Figures 6a,b
GPAGE - Figures 11a,b
GWINDO - Figures 12a,b
PUTATT - Figures 23a,24b,27a-c
PUTBAK - Figures 25a,b,28a,b
RMVPAG - Figures 10a,b
RPLFRM - Figures 9a,b

Transferring Data:

PDATA - Figures 16a,b, 18a,b
GDATA - Figures 17a,b, 19a,b

Displaying Forms:

OUTSCR - Figures 31a-c
OISCR - Figures 31a-c

Getting and Setting the Cursor Position:

GETCUR - Figures 29a,b
PARFQN - Figures 30a,b
PUTCUR - Figures 29a-c

Displaying Messages:

PMSGLC - Figures 34k
PMSGLS - Figures 34n

4-2
Creating and Modifying Logical Devices:

CHGLDV  - Figures 40a,b
CLSILDV - Figures 54a,b
GETLDV  - Figures 36a,b
INQLDV  - Figures 35a,b
MOVLDV  - Figures 52a-c
OPNLDV  - Figures 39a,b
SETLDV  - Figures 37a,b, 38a,b

4.1.2 User Profile Maintenance

GTUINF  - Figures 3a,b

4.1.3 Virtual Terminal Pass-through

GETVTI  - Figures 4a,b
INITVT  - Figures 4a-6b
PUTVTI  - Figures 6a,b
TERMVT  - Figures 4a-6b

4.1.4 NTM Message Processing

All Figures

4.1.5 Function Key Processing

Control Keys: All Figures
Application Mode Keys: Figures 29b,c
Scroll/Page Mode Keys: Figures 34a-o
Text Editor Mode Keys: Figures 60a-94
Window Manager Mode Keys: Figures 41a-53d
Status Mode Keys: 50b,c, 51a,b, 52c, 53a, 56d,e, 57a,b, 58a

4.2 Testing Methods and Constraints

The tests as outlined in Section 5 must be followed. The required input is stated for each test. This testing uses the normal mode of operation of these functions and does not completely exercise all the error combinations that a user of the Form Processor might create by faulty entry of form field information. Much of this testing has been done, however, through the normal testing done by the developer of these functions. No data recording is required. It is suggested that on further running of this test, scripting of the test may be done and the output from running the script be saved for future testing. No additional constraints are placed on this unit test besides those listed in Section 3.3 of this unit test plan.
4.3 Test Progression

The progression of testing of the Form Processor is fully outlined in Section 5 of this unit test plan. This progression should be followed exactly to insure the successful testing of this IISS configuration item.

4.4 Test Evaluation

The test results are evaluated by comparing the information returned on the various output screens to that specified as successful for the given test. As outlined in Section 5, each test of Form Processor functionality provides an input screen with the required data entry specified and the resulting output for a successful test. To speed up this testing and provide more accurate measurement of the test's success, scripting has been used. The resulting output of this test is saved in the files FPUTP.SAV, FPTEUTP.SAV, and FPDFUTP.SAV. The corresponding test script files are FPUP.TP.SCP, FPTEUTP.SCP, and FPDFUTP.SCP. All of these files are under IISS Configuration Management. If scripting is used, these files should be copied over to the test directory. The .SAV file may be used for future comparison against the corresponding ...TST.SAV files generated when running this unit test using scripting. To compare the results use the command file DIFFILE.COM which is under configuration management. The only differences should be the date/time stamps on the IISS Function Screen and the type of device on the window manager screen. The device type is given to the UIS by the NTM at run time.
SECTION 5

TEST PROCEDURES

5.1 Test Description

The program ARTEST is used to perform this test. Commands are entered on the ARTEST form Command Line field. The commands are then translated by the program into a call to the appropriate Form Processor routine, and the resulting output is observed on the ARTEST form.

The following keys are used to move within forms (using the VT100 terminal as an example): the <ENTER> key is used to activate all commands; the <TAB> key is used to move from field to field within the form; and the arrow keys are used to move within fields. In addition, ESC TAB is a reverse TAB. The keypad layouts for the various modes are shown in Appendix B.

5.2 Test Control

As outlined, this unit test may be done manually or run automatically using the supplied script files. To manually perform this unit test the tester must be logged into the IISS system and enter ARTEST on the IISS Function Screen. In section 5.3 the required input data is specified for each function being tested and the resulting successful output is also specified. The order of the testing is also completely specified. The test control information is completely described by the sequence of the input and output screens presented in this section. The success of the test may be determined by doing a comparison on the .SAV files produced against the ones provided under IISS Configuration Management.

5.3 Test Procedures

To run the unit test plan as outlined in this section on a VAX, one must be logged on to an IISS account. The NTM must be up and running and the UI group logical names IISSFLIB and IISSMLIB must be set properly. IISSFLIB points to the directory containing production form definitions (FD files). IISSMLIB points to the directory containing error messages (MSG files).

This unit test uses the program ARTEST and its associated forms ff1 through ff39. The FDL source file for these forms is presented in Appendix A. The executable for ARTEST should exist in the NTM environment directory and the NTM dirtbl.dat should have its SD entry pointing to this directory. The NTM tables APITBL and APTTBL should have ARTEST set up as a normal IISS application program. This test also uses the files PRINT.DEV and FPUTP.DAT. They must be created in the NTM environment directory before beginning the test.
Assuming the NTM is up and running, an IISS user may start this unit test plan as follows:

\$ SET DEF <to directory containing your NTM environment>
\$ VT100 -RFPUTP.SCP -SFPTST.SAV

This starts up the VT100 device driver with the first of three source scripts as input and specifies a save file for output. If the User Interface system has been installed at your site with a different device driver, then this step is amended as appropriate. The test begins executing on the terminal. When the $ returns, run the second script by entering:

\$ VT100 -RFPTEUTP.SCP -SFPTETST.SAV

When the $ returns again, run the third script by entering:

\$ VT100 -RFPDFUTP.SCP -SFPDFTST.SAV

The results of the test are saved in the .SAV files. These files should be compared with the appropriate .SAV files under Configuration Management as described in Section 4.4. The following figures show not only the form input and output but also the sequencing of the test.

---

![Logon Screen](image)

**Figure 5-1a** Logon Screen
Figure 5-1b  Enter User Information
Figure 5-1c  IISS Function Screen
Figure 5-2a Start ARTEST Application
Figure 5-2b  First ARTEST Screen
Figure 5-3a  Test GTUINF
Figure 5-3b GTUINF Result
Figure 5-4a Test GETVTI
Figure 5-4b GETVTI Result
Enter "xx" in form ff2 as shown and press <ENTER>.

Figure 5-5a Enter Data for GETVTI
Figure 5-5b GETVTI Result
Figure 5-6a Test PUTVTI
Figure 5-6b PUTVTI Result
Figure 5-7a  Add Fixed Size Form
Figure 5-7b  After Adding Fixed Size Form
Figure 5-7c  Add First Element to Form ff10
Figure 5-7d  Form ff10 with One Element

Press <Enter>
Figure 5-7e  Form ff10 with Two Elements

Press <Enter>
Figure 5-7f  Form ff10 with Three Elements

Press <Enter>
Figure 5-7g  Form ff10 with Four Elements

Press <Enter>
Figure 5-7h  Error on Fixed Size Form
Figure 5-7i  Add Open-ended Form
Figure 5-7j  After Adding Open-ended Form
Figure 5-7k  Add First Element to Form ffill
Figure 5-71 Form ff11 with One Element

Press <Enter>
Figure 5-7m Form ff11 with Two Elements

Press <Enter>
Figure 5-7n  Form ff11 with Three Elements

Press <Enter>
Figure 5-70  Form ff11 with Four Elements

Press <Enter>
Figure 5-7p  Form ff11 with Five Elements
Figure 5-7q  Add Data to Form ff11

Add data as shown and press <Mode> key to get into Scrll/Page mode
Figure 5-7r  Scroll/Page Mode

Press PF5 (Scroll up)
Figure 5-7s  Form ff11 Showing Fifth Element
Figure 5-7t Add Data in Sixth Element

Add '5' as shown in Form ff11
Figure 5-7u Remove Form ff11

Press <Mode> Key to return to application mode then enter screen as shown.
Figure 5-7v  New Screen
Figure 5-8a Test ADDFRM
Figure 5-8b  Form ff5 in W3
Figure 5-8c Add Another Form
Figure 5-8d  Form ff2 in W3
Figure 5-9a Test RPLFRM
Figure 5-9b  Form ff3 in W3
Figure 5-10a  Test RMVPAG
Figure 5-10b  W3 with Page Removed
Figure 5-11a Test GPAGE
Figure 5-11b  GPAGE Result
Figure 5-12a Test GWINDO
Figure 5-12b  GWINDO Result
Figure 5-13a  Add Form ff9
Figure 5-13b  W3 with Form ff9
Figure 5-14a  Remove Page 2 of W3

5-51
Figure 5-14b  W3 with Page 2 Removed
Figure 5-15a Test CLSFRM
Figure 5-15b  CLSFRM Result

Press <Enter>
Figure 5-15c  Form ff9 Already Closed
Figure 5-16a  Test PDATA
Figure 5-16b  PDATA Result
Figure 5-17a Test GDATA (Current Instance)
Figure 5-17b  GDATA Result
Figure 5-18a  PDATA 'BYE'
Figure 5-19a Test GDATA (Previous Instance)
Figure 5-19b  GDATA Result
Figure 5-20a  Change ff6 Value

Enter "xx" as shown in form ff6
Figure 5-20b  GDATA (Previous Instance)
Figure 5-21a  GDATA (Current Instance)
Figure 5-21b  Current Value in Form ff6
Figure 5-22a Test GETATT
Figure 5-22b GETATT Result
Figure 5-23a Test PUTATT (OUTPUT)
Figure 5-23b  PUTATT Result
Figure 5-24a Test PUTATT (TEXT)
Figure 5-24b  PUTATT Result
Figure 5-25a Test PUTBAK (WHITE)
Figure 5-25b  PUTBAK Result
Figure 5-26a Test GETBAK
Figure 5-26b GETBAK Result
Figure 5-27a Change Attribute
Figure 5-27b Attribute Changed

Press PF16
Figure 5-27c  Background Attribute Restored
Figure 5-28a  Change Form ff5 Background
Figure 5-28b  Form ff5 Background Black
Figure 5-29a Test PUTCUR
Figure 5-29b  PUTCUR Result

Press PF16
Figure 5-29c  Current Cursor Position
Figure 5-30a Test PARFQN
Figure 5-30b  PARFQN Result
Figure 5-31a Test Terminal in Terminal
Figure 5-31b  Test Screen

May only tab to items in Form ff5 and the MSG ITEM

Press <Enter>
Figure 5-31c Normal Screen
Figure 5-32a Test SETDQN
Figure 5-32b  Test GETDQN
Figure 5-32c  GETDQN Result
Figure 5-32d Enter Data
Figure 5-32e  Data Entered
Figure 5-32f  Reset Default Qualified Name
Figure 5-32g  Enter Data
Figure 5-32h  Path Not Unique
Figure 5-33a Enter Test Data
Figure 5-33b  Test Data Entered

Press <Mode> Key to get into Scrl1/Page mode
Figure 5-34a Scroll Up

Position cursor on 'A' in form ff7
Press PF5 (scroll up)
Figure 5-34b Scroll Up Result

Press PF6 (scroll down)
Figure 5-34c Scroll Down Result

Press PF7 (scroll left)
Figure 5-34d  Scroll Left Result

Press PF8  (scroll right)
Figure 5-34e Scroll Right Result

Press PF9 (page up)
Figure 5-34f  Page Up Result

Press PF10 (page down)
Figure 5-34g  Page Down Result

Press PF11 (page left)
Figure 5-34h  Page Left Result

Press PF12 (page right)
Figure 5-34i  Page Right Result

Press PF11 (page left)
Figure 5-34j Test PMSGLC

Press PF11 (page left)
Figure 5-34k  PMSGLC Result

Press PF12 (page right)
Press PF9 (page up)
Figure 5-34m Test PMSGLS

Press PF9 (page up)
Figure 5-34n  FMSGLS Result

Press PF10 (page down)
Figure 5-340  Scrolling Ended
Figure 5-35a Test INQLDV
Logical device numbers are determined at run time. Substitute the number you get (if it's not '5') wherever '5' appears in the remainder of this test.
Figure 5-36a Test GETLDV
Figure 5-36b GETLDV Result
Figure 5-37a  Test SETLDV (Smaller)
Figure 5-37b SETLDV Result
Figure 5-38a Test SETLDV (Larger)
Figure 5-39a Test OPNLDV
Logical device numbers are determined at run time. Substitute the number you get (if it's not '26') wherever '26' appears in the remainder of this test.
Figure 5-40a Test CHGLDV
Figure 5-40b  CHGLDV Result

All fields non-enterable.
Press <Mode> key to get into window manager mode.
Press PF14 (Select AP)

Figure 5-41a  Select Application
Figure 5-41b  Application Selected (LDV 5)
Figure 5-42a Test Size Key

Position cursor above 'm' in 'form ff3' then press PF9 (size).
Figure 5-42b Size Result
Figure 5-43a  Test Location Key

Position cursor as shown and press PF10 (Location)
Figure 5-43b Location Result
Figure 5-44a  Add Form ff1
Figure 5-44b  Form ff1 Added
Figure 5-45a Test Select Window

Position cursor on 'C' in 'Command L' below form ff1 and press PF11 (Select Window).
Figure 5-45b  Select Window Result
Position cursor as shown and press PF5 (Page Up).
Figure 5-47a Test Page Down

Leave the cursor positioned as shown on the screen and press PF6 (Page Down).
Figure 5-47b  Page Down Result

Press PF15 (Home View).
Figure 5-47c  Home View Result
Position cursor on 'L' in 'Command L' below form ff1 and press PF7 (page left).
Figure 5-48b  Page Left Result
Position cursor on 'L' in 'Line' below form ff1 and press PF8 (page right).
Figure 5-49b  Page Right Result

Press PF12 (unselect window)
Figure 5-49c  Unselect Window Result

Press <Mode> key to get into status mode.
Figure 5-50a  Test APSTAT

Press PF6 (APSTAT) to display Application Status Form
**Figure 5-50b Application Status Form**

The Device Type field value may be different than shown in this figure. This value is assigned by the NTM at run time.
<table>
<thead>
<tr>
<th>Application</th>
<th>Type</th>
<th>Name</th>
<th>Pri</th>
<th>Windev</th>
<th>Location</th>
<th>Display</th>
<th>Viewport</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDARTEST2Z</td>
<td>SCREEN</td>
<td>V100</td>
<td>3</td>
<td>35 41 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>WSP</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>V3</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>WSP</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>V3</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>WSP</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>V3</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>WSP</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>V3</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>SDARTEST2Z</td>
<td>WSP</td>
<td>V3</td>
<td>3</td>
<td>60 10 8</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5-50c** Manually Test Move LDV

Change form as shown and press <ENTER>. NOTE: 'SDPRINTERZ' and 'PRINT.DEV' must be entered in upper case for this release.
Press PF6 (APSTAT) PF6 to display Application Status Form.
### Application Status Form

#### Figure 5-51a Application Status Form

<table>
<thead>
<tr>
<th>Application Type</th>
<th>Device</th>
<th>Location</th>
<th>Display Size</th>
<th>Viewport Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDART Test</td>
<td>SDP</td>
<td>Screen</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>SDART Test</td>
<td>SDP</td>
<td>V3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>SDART Test</td>
<td>SDP</td>
<td>V3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>SDART Test</td>
<td>VID100</td>
<td>Screen</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>SDART Test</td>
<td>VID100</td>
<td>V3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>SDART Test</td>
<td>VID100</td>
<td>V3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

**Note:**
- SDART Test refers to different types of test devices.
- Screen and V3 refer to display types.
- VID100 indicates a specific device setup.

**Figure 5-51a Application Status Form**
Figure 5-51b  Return LDV

Change form as shown and press <ENTER>.
Figure 5-51c  Return LDV Result
Figure 5-52a Test MOVLDV

Enter MOVLDV information in upper case.
Figure 5-52b  MOVLDV Result

Press PF6 (APSTAT) to display Application Status Form.
### Application Status

<table>
<thead>
<tr>
<th>Application</th>
<th>Type</th>
<th>Device</th>
<th>Location</th>
<th>Display</th>
<th>Viewport</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMARTTEST1</td>
<td></td>
<td>LPDPRINTER</td>
<td>SCREEN</td>
<td>1 1 80 24</td>
<td>0 0</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td></td>
<td>VFD</td>
<td>3 45 0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td></td>
<td>V3</td>
<td>3 60 10 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td></td>
<td>VT100</td>
<td>3 45 0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td></td>
<td>V3</td>
<td>3 60 10 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td></td>
<td>VT100</td>
<td>3 45 0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td></td>
<td>VT100</td>
<td>3 60 10 0</td>
<td>0 0</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5-52c Application Status Form**
<table>
<thead>
<tr>
<th>Application</th>
<th>Type</th>
<th>Name</th>
<th>Pri</th>
<th>Location</th>
<th>Display</th>
<th>Viewport</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMARTTEST2</td>
<td>SCREEN</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>80 24</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td>WF</td>
<td></td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>60 10</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td>V3</td>
<td></td>
<td></td>
<td>1</td>
<td>3</td>
<td>60 10</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td>VT100</td>
<td>TT:</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>60 10</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td>WF</td>
<td></td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>60 10</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td>V3</td>
<td></td>
<td></td>
<td>1</td>
<td>3</td>
<td>60 10</td>
</tr>
<tr>
<td>SMARTTEST2</td>
<td>VT100</td>
<td>TT:</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>60 10</td>
</tr>
</tbody>
</table>

Figure 5-53a Return LDV

Change form as shown and press <ENTER>
Press <Mode> key to get into window manager mode and press PF14 (SELECT AP).
Figure 5-53c Change LDV Location

Position cursor 1 line below the Command Line as shown and press PF10 (LOCATION).
Figure 5-53d Change Location Result
Figure 5-54a Test CLSLDV
Figure 5-54b  CLSLDV Result

Press PF13 (FUNCTION)
Figure 5-54c  IISS Function Screen
Figure 5-55a  Start: MM
Figure 5-55b  IISS Function Screen
Figure 5-56a  Start TE
Figure 5-56b  IISS Function Screen

Press PF12 (UNSELECT AP).
Press <Mode> Key to get into status mode and press PF6 to display Application Status Form.
Position cursor on 'VT100' in SDTEZZZZZZ line and press PF8 (ABORT)
### Figure 5-56e Abort Result

Press <ENTER>
Figure 5-57a  Application Status Form after Aborting TE

Press <QUIT>.
Figure 5-57b  Abort MM

Press PF8 (ABORT) and wait for the screen to repaint.
Figure 5-58a Abort Result

Press <QUIT>.
Figure 5-58b  IISS Function Screen
Enter SDARTESTZZ in the Function field and press <ENTER>.

Figure 5-59a  Restart ARTEST Application
Figure 5-59b  First ARTEST Screen

Press the <MODE> key to return to application mode.
Figure 5-60a  Prepare for TE Mode Testing
Figure 5-60b  W3 with Form ff12
Figure 5-61a Enter Data in Item
Figure 5-61b  Form ff12 Item with Data
Figure 5-62a  Add Form ff13 to W1
Figure 5-62b  W1 with Form ff13

Press the <MODE> key to get into Text Editor mode.
Figure 5-62c Text Editor Mode

Position the cursor on the "n" in "1 line" and press PF13 (MIDLINE BREAK).
Figure 5-63 Midline Break Result

Press PF10 (DELETE LINE).
Figure 5-64 Delete Line Result

Press PF9 (INSERT LINE).
Enter "line 1" in the blank line.
Figure 5-66 New Data Entered

Press PF14 (DELETE ITEM).
Figure 5-67  Delete Item Result

Press PF11 (PASTE).
Press PF14 (DELETE ITEM).
Figure 5-69  Delete Item Result

Press PF12 (FILL).
Figure 5-70 Fill Result

Position cursor below the "o" in Command and press PF12 (FILL).
Figure 5-71 Copying an Item Value Using Fill

Position the cursor back in W3 and press PF15 (RESTORE).
**Figure 5-72 Restore Result**

Press PF5 (SEARCH).
Figure 5-73  Search Screen

Enter "line" and press <ENTER>.
The cursor should be positioned on "line" after the "1" in w3. Press PF6 (SEARCH NEXT).
The cursor should be positioned on "line" after the "2" in w3. Press PF6 (SEARCH NEXT).
The cursor should be positioned on "line" after the "3" in w3. Press PF6 (SEARCH NEXT).
Figure 5-74d  String Not Found

Press PF5 (SEARCH).
Enter "line" and "-" for direction and press <ENTER>.
The cursor should be positioned on "line" after the "2" in w3. Press PF6 (SEARCH NEXT).
The cursor should be positioned on "line" after the "1" in w3. Press PF6 (SEARCH NEXT).
Figure 5-76c  String Not Found

Press PF5 (SEARCH).
Enter "line" and "+" for direction and press <ENTER>.

Figure 5-77 Search Screen
Figure 5-78 Search Result

The cursor should be positioned on "line" after the "2" in w3. Press PF7 (REPLACE).
Figure 5-79 Replace Screen

Enter "LINE" and press <ENTER>.
Figure 5-80 Replacement Result

Press PF8 (REPLACE NEXT).
Figure 5-81 Replace Next Result

Press PF17 (MARGINS).
Figure 5-82 Fill Margins Screen

Enter "1" for left and "3" for right and press <ENTER>.
Figure 5-83 Test New Fill Margins

Position the cursor on the "1" in w3 and press PF12 (FILL).
Figure 5-84 Fill Result

Press PF17 (MARGINS).
Figure 5-85    Fill Margins Screen

Press <ENTER>.
Figure 5-86 Test Changed Fill Margins

Press PF12 (FILL).
Figure 5-86  Test Changed Fill Margins

Press PF12 (FILL).
Figure 5-87 Fill Result

Press PF15 (RESTORE).
Press PF5 (SEARCH).
Figure 5-89 Search Screen

Enter "line" and press <ENTER>.
The cursor should be positioned on "line" after the "1" in w3. Press PF16 (REPEAT).
Figure 5-91  Repeat Screen

Enter "3" and press <ENTER>.
Figure 5-92  Test Repeat Replace

Press PF7 (REPLACE).
Figure 5-94  Repeat Replace Result

Press <QUIT>.
Figure 5-95  IISS Function Screen
Figure 5-96a Restart ARTEST Application

Enter "ARTEST" as shown and press <ENTER>.
Figure 5-96b First ARTEST Screen
Figure 5-97a ADDFLD Test Case 1

Create a new input item field named i2 of size 1 by 1 and add it to the form ff4. The fields position is offset 1 row and 2 columns from the upper left corner of the containing forms.
Since the form ff4 is a repeating form field, the field i2 is added to both instances of the form.

Figure 5-97b Case 1 Result

Since the form ff4 is a repeating form field, the field i2 is added to both instances of the form.
Create a new input item field named i3 of size 1 by 1 and add it to the form ff4. The field is positioned relative to i2.
Figure 5-98b Case 2 Result

The field i3 appears to the right of i2 as specified.
Create a field named \texttt{ff5_i2} on the form \texttt{ff5}. Define no other properties of the field at this time. There are no changes in the terminal screen at this time.
Use SETLOC to define the location of ff5_i2 to be offset 2 rows and 3 columns from the upper left corner of the containing form.
Figure 5-99c Specify Field Display Attribute

Use SETDIS to define the display attribute of the field ff5_i2 to be input.
The field is now visible on form ff5.

Figure 5-99d Test Case Result
Create a copy of the item field i1 on form ff8. Name the field i2 and attach it to form ff5 without giving it a location. There will be no changes on the terminal screen at this time.
Figure 5-100b Specify an Absolute Field Location

Use SETLOC to position the field i2 on form ff5 1 row and 1 column from the upper left corner of ff5.
Figure 5-100c  Test Case Result

The field is now visible on form ff5.
Figure 5-101a  MVRFLD Test Case

Copy a field and define the position to be offset 1 row and 1 column from the origin of form ff6.
Figure 5-101b  Test Case Result

The original field is i1 on form ff8. The copy is named i2 and now appears on the form ff6.
Remove field i2 from form ff6. The form ff6 appears as it did before calling MVRFLD.
Create a copy of the form ff4 and call it ff42. There will be no changes on the terminal screen at this time.
The form is added to the window W3 so that it becomes visible and you can see that the form copy was actually created. Note that only a single instance of ff4 appears.
Create a form named ff54. There will be no changes on the terminal screen at this time.
Use ADDFLD to add an input item field, i1, to the form ff54. Its position is offset 0 rows and 1 column from the origin of ff54. There will be no changes on the terminal screen at this time.
The form is added to the window W3 so that it becomes visible and you can see that it was actually created.
Create a form named ff59 with a black background and a size of 2 by 2.

Figure 5-105a  MAKFRM Test Case
The form ff59 is added as a form field to the form ff5 with a position offset 2 rows and 8 columns from the origin of ff5 to show that it was actually created.

Figure 5-105b Test Case Result
Figure 5-106a GDPFEX Test Preparation

Use RPLFRM to replace the current form in page 1 of W3 with form ff14.
Figure 5-106b  RPLFRM Result
Use PDATA to set the value of the item field il on ff14 to "17".
Figure 5-106d  PDATA Result
Figure 5-107a  GDPFEX Test Case 1 with Result

Get the first field in the form ff14 which has a VALUE clause referring to the item field il. It is i2.
Figure 5-107b  GDPFEX Test Case 2 with Result

Get the second field in the form ff14 which has a VALUE clause referring to the item field il. There is no such field. The form ff14 only contains one field that has a value clause expression referring to item il.
Get the last field in the list of fields whose value depends on the item field \( i_1 \). Since there is only one such field, \( i_2 \), this field name is returned.
Figure 5-108 GDPFLC Test Case with Result

Get the first field in the form ff14 which has a location clause referring to the item field il. The first such field is i3. The location of i3 is relative to il.
Figure 5-109a  GFMFLD Test Case 1 with Result

Get the first field belonging to the form ff3. The name of this field is il, and it is an item field.
Figure 5-109b  GFMFLD Test Case 2 with Result

Get the second field belonging to the form ff3. There is only one field in ff3 as the message shows.
Figure 5-109c  GFMFLD Test Case 3 with Result

Get the ninth field belonging to the form ff1. The name of this field is ff3, and it is a form field.
Figure 5-109d  GFMFLD Test Case 4 with Result

Get the next to the last field belonging to the form ff1. The name of this field is ff8, and it is a form field.
Figure 5-109e  GFMFLD Test Case 5 with Result

Get the field belonging to the form ffl which is twelfth from the last. The name of this field is i4, and it is an item field.
Add a repeat specification to the item field il in the form ff8 which indicates that il repeats vertically twice with no spaces and that both instances are actually displayed.
Figure 5-110b Test Case Result

The box below the "form ff8" shows the result of making il an array.
Establish a domain clause for the repeating item field il on the form ff8. Define il to be a must enter, right justified, numeric field with a minimum value of 10 and a maximum value of 20.
A data value of "abc" is entered in the item field ii on form ff8.
The value is right justified but since "abc" is not numeric, an error message is issued.
Figure 5-111d Invalid Value with Result

Entering an out of range numeric value results in an error message in the message line.
The value "11" satisfies all of the domain constraints and is accepted as a valid value.
Figure 5-112a  RMVDIM Test Case

Remove the array dimension from item field il on form ff8.
Figure 5-112b  Test Case Result

The form ff8 now only contains one occurrence of the item field ii.
Redefine the item field il on the form ff8 to be a required entry character field that is to be left justified and shifted to upper case.
Figure 5-113b  Test Verification

Pressing the <ENTER> key without entering any data results in the message that data must be entered in the field.
Figure 5-113c  Data Value "abc" Entered

The character string "abc" is entered in the field ii.
As per the domain clause, the string "abc" is shifted to upper case and left justified.
Attach a prompt to the window w1 on the form ff1.

Figure 5-114a SETPRO Test Case 1
Figure 5-114b Case 1 Result

The prompt "window_1" appears centered one line above w1.
Define a background prompt for the form ff8 at the position offset 1 row and 1 column from the upper left corner of ff8.
Figure 5-114d Case 2 Result

The prompt, "blnk line", appears below the prompt, "form ff8".
Attach a prompt to the window field w3 on ff1 that is positioned relative to w3, centered vertically and offset 2 horizontally.
Figure 5-114f  Case 3 Result

The prompt, "<- w3", appears on the form ff1.
Figure 5-115a  SETATT Test Case

Define an attribute clause for "input" on the form ff3.
The item i1 on ff3 has the display attribute "input" and now shows the properties defined for this attribute: a foreground color of white and background color of black. It is also bold, underscore, slowblink, reverse, and tabfield.
Figure 5-116a  SETDIS Test Case 1

Define the display attribute of item i1 on form ff3 to be output.
Figure 5-116b  Case 1 Result

Since the field il contains no data, it does not appear on the form ff3.
Figure 5-116c  Return Attribute to Input

Use SETDIS again to reset il's display attribute to input.
Figure 5-116d  SETDIS Test Case 2

Set the display color of the window w2 on form ff1 to be white instead of its original color, black.
Figure 5-116e Case 2 Result

This makes all four occurrences of the window visible against the black background of the containing form, ffl.
Figure 5-117a SETHLP Test Case 1

Define the help for the item field il on form ff3 to be application help.
Figure 5-117b  Case 1 Result

Positioning the cursor in item field il and pressing the <HELP> key causes the message to appear in the message line.
Help for the item field ii on form ff3 is defined to be a string that will be displayed in the message line.
Positioning the cursor in item field il and pressing the <HELP> key causes the message to appear in the message line. Press the <ENTER> key to continue.
Help for the item field i1 on form ff3 is defined to be the form ff2.
When the cursor is in the item field i1 on the form ff3 and the <HELP> key is pressed, the form ff1 is replaced by the form ff2 on the terminal screen. Press the <QUIT> key to return to ARTEST and then press the <ENTER> key to continue.
Figure 5-118a  SETLOC Test Case 1

Change the location of the item field i2 on the form ff2. Define it to be positioned relatively to the first and second occurrences of i1.
Figure 5-118b Case 1 Result

The item field i2 appears 1 row below il(1) and 3 columns to the right of the left edge of il(2).
Figure 5-118c  SETLOC Test Case 2

Redefine the position of i2 on ff2 in absolute terms.
Figure 5-118d  Case 2 Result

The item field i2 is placed a row 3 and column 3 on form ff2.
Figure 5-119a  SETNAM Test Case 1

Change the name of the item field i1 on ff8 to be i2.
Use PDATA to insert data into the item field now named i2. This verifies that the name change was successful.
Figure 5-120a SETDIM Test Case

Form ff3 currently contains the item field i1 that repeats twice horizontally and then this array is repeated twice vertically. The vertical repetition is changed to be 1 displayed instance and 2 actual instances.
The second vertical repetition of il array is no longer displayed.
Figure 5-121a  SETTYP Test Case 1

Change the form field ff3 on the form ff1 to an item field.
Figure 5-121b  Case 1 Result

Form ff3 no longer appears on the screen.
Figure 5-121c  Test Verification

To verify that the field is now an input item, PDATA is used to enter the value "1234567890".
Figure 5-122a SETSIZ Test Case 1

Change the size of the field ff3 on the form ff1 to be 4 by 4.
Figure 5-122b Case 1 Result

The reorganization of the data in ff3 shows that the size was changed.
Figure 5-122c SETSIZ Test Case 2

Change the size of the item field ff3 on form ff1 to 10 by 4.
Figure 5-122d  Case 2 Result.

The data contained in ff3 are reorganized to reflect the size change.
Change the item field ff3 back to a form.
Figure 5-123b  Case 2 Result

The original form ff3 reappears.
Change the size of the item field i1 on form ff3 to be 2 by 1 instead of 3 by 1.
Figure 5-124b  Case 3 Result

Since il is an item array, the size is changed on all instances of il.
Figure 5-124c  SETSIZ Test Case 4

Increase the size of item i1 on form ff3 to be larger than the original size of 3 by 1.
Figure 5-124d Case 4 Result

Again, the size is increased to 4 by 1 on all instances of ii in the form ff3.
Figure 5-125a SETTYP Test Case 3

Change the form field ff7 on the form ff1 a window field.
By default the background color of the window is black, the same as its containing form and so it does not appear.
Figure 5-125c Test Verification

To verify that field ff7 is now a window field, use ADDFRM to add the form ff3 to it.
Figure 5-125d  ADDFRM Result

Form ff3 does appear where the form ff7 was.
Figure 5-126a  SETVAL Test Case 1

Define a VALUE clause for the item field i1 on the form ff14 which is displayed in window w3.
The VALUE clause defines the value of i1 to be "zzz". Since i2 has a value clause set as "i1", "zzz" is also displayed as that field's value.
Define the value of the item i2 on ff8 to be the built-in TIME function.
Figure 5-127b  Case 2 Result

The current time appears in the item field i2 on form ff8.
Figure 5-128a SETVAL Test Case 3

Define the value of the item field il on the form ff3 to be the expression "12" + 2.
Since the item field il is a repeated field on the form ff3, the result of evaluating the expression, 14, is placed in each array instance. This test also shows that the appropriate conversion is done to perform the arithmetic.
Return the absolute position of window w3 on the form ffl. It is row 3 and column 60.
Figure 5-129b  INQABS Test Case 2 with Result

Return the absolute position of item il on form ff2. It is row 2 and column 2.
Figure 5-129c  INQABS Test Case 3 with Result

Return the absolute position of form ff2 on form ff1. It is row 12 and column 1.
Return the first attribute defined for the form ff1. It is BLACKFG.
Inquire what the display color associated with the attribute BLACKFG is. It is black.
Inquire what the background color associated with the attribute BLACKFG is. It is white.
Figure 5-131a INQDIS Test Case 1 with Result

Return the background color attribute for ff1. It is BLUE.
Return the background color attribute for the window w2 on the form ffl. It is XPARNT.
Figure 5-131c INQDIS Test Case 3 with Result

Return the background color attribute for the form ff2 on the form ff1. It is XPARNT.
Figure 5-131d INQDIS Test Case 4 with Result

Return the display attribute for the item field i0 on the form flf1. It is TEXT.
Figure 5-131e INQDIS Test Case 5 with Result

Inquire what is the display attribute for a non-existent field, i99, on form ffl. The message "Field not found" is sent to the message line.
Inquire what the display attribute is for a field on a nonexistent form, ff56. The message "Form not found" is sent to the message line.
Return the entire DOMAIN clause associated with the item field i2 on form ff2. It is NUMERIC, MINIMUM 1, MAXIMUM 6.
Figure 5-133a INQHLP Test Case 1 with Result

Inquire what the "help" associated with the item field il on form ff4 is. The help for this field is the string "This is a help string".
Figure 5-133b  INQHLP Test Case 2 with Result

Inquire what is "help" associated with the item field il on the form ff5 is. The help has defined to be application help.
Inquire what is the "help" associated with the item field i4 on the form ffl. The help is the form PATHCOM.

Figure 5-133c INQHLP Test Case 3 with Result
Return the location of the item field i3 on the form ff14. The location is specified relative to the field i1 and is adjacent to i1.
Figure 5-134b  INQLOC Test Case 2 with Result

Return the location of the item field i4 on the form ff1. The position of field i4 is offset 1 row 19 columns from the origin of ff1.
Create the form test.
Figure 5-135b  Display the Form Test

Add the form test to window w3.
Figure 5-135c  Add First Prompt

Add the form prompt "test".
Figure 5-135d  Add Second Prompt

Add the form prompt "abcd".
Figure 5-135e  Add Third Prompt

Add another form prompt "test".
Figure 5-136a INQPRO Test Case 1 with Result

Return the first prompt string attached to the form test. It is the string "test". The location of the prompt is also returned and is 0 rows and 1 column from the upper left corner of the form test.
Figure 5-136b INQPRO Test Case 2 with Result

Return the second prompt string attached to the form test. It is the string "abcd". The location of the prompt is also returned and is 1 row and 1 column from the upper left corner of the containing form.
Figure 5-136c INQPRO Test Case 3 with Result

Inquire about a nonexistent prompt string on the form test. The error message "Invalid Index Specified" is returned.
Remove the prompt string "test" from the form test.
Figure 5-137b Test Result

Since the prompt string "test" occurs twice, they are both removed.
Figure 5-138a  INQDIM Test Case 1 with Result

Return the first repeat specification of the field ff4 on the form ff1. The form ff4 is repeated vertically twice with one intervening space and both elements are displayed.
Inquire about a nonexistent repeat specification. The error message "Array Not Found" is displayed in the message line.
Return the SIZE specification for the item field 11 on the form ff3. The field has a width of 4 and a depth of 1.
Return the SIZE specification of the form field ff3 on the form ff1. The field has a width of 10 and a depth of 4.
Return the SIZE specification of the window field w2 on the form ff1. The field has a width of 10 and a depth of 4.
Figure 5-140a  INQTYP Test Case 1 with Result

Inquire what type of the field ff2 on the form ff1 is. The type returned is "F" for form.
Figure 5-140b INQTYPI Test Case 2 with Result

Inquire what the type of the field i0 on the form ff1 is. The type returned is "I" for item.
Figure 5-140c  INQTYP Test Case 3 with Result

Inquire what type of the field w2 on the form ff1 is. The type returned is "W" for window.
Figure 5-141 INQVAL Test Case with Result

Return the VALUE clause defined for the item field i3 on the form ffl. The result is "Display:".
Remove the ATTRIBUTE clause defining the attribute BLACKFG for the form ff1.
Figure 5-142b Verify Case 1 Result

The INQATT routine is used to verify that the attribute definition for BLACKFG has been deleted. BLACKFG was formerly the first attribute associated with form ff1. The first attribute is now REDFG.
Remove the ATTRIBUTE clause defining REDFG as an attribute associated with the form ffl.
The INQATT routine is used to verify that the attribute definition for REDFG has been deleted. This time the background color belonging to the attribute REDFG is requested. The message "Attribute does not exist" is issued proving the attribute definition has been deleted.
Add the form ff3 to window w3.
Figure 5-144a  RMVDIM Test Case

The first repeat specification for the window field w2 on the form ff1 is removed.
Only the second repeat specification, horizontal repetition, remains for the field w2.
Remove the domain clause defined for the item field i2 on the form ff2. The INQDOM test in Figure 5-132, show that the domain options for this field are defined as NUMERIC, MINIMUM 1, MAXIMUM 6.
Inquire what the domain clause defined for the item field i1 on the form ff2 is after having deleted it. The message "Value Clause Not Found" is issued verifying that the DOMAIN clause has indeed been dropped.
Position the cursor in the item field ii on the form ff4 and press the <HELP> key to obtain the help associated with the field. The "help" is a text string "This is a help string". Press the <ENTER> key to continue.
Remove the help information defined for the item field i1 on the form ff4.
Inquire what help is defined for the item field il on ff4 using INQHLP. The message "No help available" verifies that the help has been deleted.
Figure 5-148a RMVARY Test Case

Remove the entire repeat specification for the item field il on the form ff3.
Figure 5-148b  Test Case Result

Only one occurrence of the item field il is now displayed on the form ff3.
Use INQVAL to first obtain the VALUE clause defined for the item field 10 on the form ff1. It is defined as the string "form ff1".

Figure 5-149  RMVVAL Test Preparation
Remove the VALUE clause defined for the item field i0 on the form ff1.
Figure 5-150b Verify Test Case

The value of the item field still displays as "form ffl" because no new data have been assigned to it. Use PDATA to assign blanks to i0.
Figure 5-150c  Test Case Result

The "form ff1" value in field i0 is now gone.
Figure 5-150d  Another RMVVAL Verification

Use INQVAL to verify that the VALUE clause has been removed. This is shown by the error message "Value Clause Not Found".
The definition of the form ff1 is to be compiled and written out in compiled (FD) form.

Figure 5-151a  SAVFRM Test Case 1
The definition of the form ffl is to be compiled and written out in both compiled (FD) form and in source (FDL) form.

Figure 5-151b SAVFRM Test Case 2
The definition of the form ffl is to be written out in source (FDL) form.
Use RPLFRM to display form ff14 in window w3. This form contains three item fields. I2 is an output field whose value is defined to be i1 and i3 is displayed depending on the value of its APPEARS IF clause.
Figure 5-153a APRFLD Test Case 1 with Result

Set the display flag to nondisplay. Item i3 does not appear on the screen.
Set the display flag to display. Item i3 appears on the screen.
Figure 5-153c APRFLD Test Case 3 with Result

Toggle the display flag. Item i3 does not appear on the screen.
Figure 5-153d  APRFLD Test Case 4 with Result

Toggle the display flag. Item i3 appears on the screen.
Figure 5-154 INQAPR Test Preparation

Use RPLFRM to display the form ff20 in window w3. Item i3 does not appear.
Find out what the current appears if criterion defined for item i3 is. It appears if the value of i1 is greater than 10.
Figure 5-156 SETAPR Error Test

Enter an invalid expression for the appears if criterion. The message "Error in expression" is displayed.
Define the appears if criterion for item i3 to be not i1 greater than 10. Since the value of i1 is blank, i3 appears.

Figure 5-157 SETAPR Test Case with Result
Use INQAPR to verify the appears if criterion defined for i3. The message "Field value too long - truncated" is displayed because a buffer size of 5 is not long for the expression.
Use INQAPR again with a larger buffer size. The criterion defined previously using SETAPR is returned.
Use RMVAPR to delete the appears if criterion defined for an item field. In this case, 11 does not have any criterion defined. The message "Value clause not found" is displayed.
Use PDATA to enter the value "20 " in i1 so that i3 disappears.
Figure 5-162 RMVAPR Test Case 2 with Result

Remove the appears if criterion defined for the item i3. The field appears.
Use INQAPR to verify that the appears if criterion for i3 was removed. The message "Value clause not found" is displayed. Press <QUIT> to return to the IISS Function Screen and then press <QUIT> again to complete this Unit Test.
APPENDIX A

FP TEST FORMS

/* these forms are for testing form processor */

CREATE FORM ARTESTP
prompt center at 1 40 "ARTEST Parameters"

item parml
at 3 10
size 10
display as input
prompt at left "parml"

item parm2
at 5 10
size 10
display as input
prompt at left "parm2"

item parm3
at 7 10
size 10
display as input
prompt at left "parm3"

item parm4
at 9 10
size 10
display as input
prompt at left "parm4"

CREATE FORM ff1

ATTRIBUTE blackfg (background white, display black)
ATTRIBUTE redfg (background white, display red)
ATTRIBUTE greenfg (background black, display green)
ATTRIBUTE yellowfg (background black, display yellow)
ATTRIBUTE bluefg (background white, display blue)
ATTRIBUTE magentafg (background white, display magenta)
ATTRIBUTE cyanfg (background black, display cyan)
ATTRIBUTE whitefg (background black, display white)

BACKGROUND blue
PROMPT AT 1 2 "Command Line"
PROMPT AT 21 2 "Line 21"
PROMPT AT 22 2 "Line 22"
PROMPT AT 23 2 "Line 23"
PROMPT AT 24 2 "Line 24"
PROMPT AT 25 2 "Line 25"
PROMPT AT 26 2 "Line 26"
PROMPT AT 27 2 "Line 27"
PROMPT AT 28 2 "Line 28"
PROMPT AT 29 2 "Line 29"
PROMPT AT 30 2 "Line 30"
PROMPT AT 31 2 "Line 31"
PROMPT AT 32 2 "Line 32"
PROMPT AT 33 2 "Line 33"
PROMPT AT 34 2 "Line 34"
PROMPT AT 35 2 "Line 35"
PROMPT AT 36 2 "Line 36"
PROMPT AT 37 2 "Line 37"
PROMPT AT 38 2 "Line 38"
PROMPT AT 39 2 "Line 39"
PROMPT AT 40 2 "Line 40"
PROMPT AT 41 2 "Line 41"
PROMPT AT 42 2 "Line 42"
PROMPT AT 43 2 "Line 43"
PROMPT AT 44 2 "Line 44"
PROMPT AT 45 2 "Line 45"
PROMPT AT 46 2 "Line 46"
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PROMPT AT 48 2 "Line 48"
PROMPT AT 49 2 "Line 49"
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PROMPT AT 57 2 "Line 57"
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PROMPT AT 64 2 "Line 64"
PROMPT AT 65 2 "Line 65"
PROMPT AT 66 2 "Line 66"
PROMPT AT 67 2 "Line 67"
PROMPT AT 68 2 "Line 68"
PROMPT AT 69 2 "Line 69"
item i0
at 1 70
size 8
display as text
value "form ff1"

item i3
at 21 11
size 8
display as text
value "Display:"

item i4
at 1 20
size 40 by 2
display as input
help pathcom

WINDOW w1 (2 v 1)
AT 3 2
SIZE 10 BY 4
background white
appears if 'ff1.ff6.il' < "11111"

WINDOW w2(2 v 1, 2 H 1)
AT 3 15
SIZE 10 BY 4
background xparnt

WINDOW wnf
at 3 45
size * by *
background green

WINDOW w3
at 3 60
size 10 by 8
background yellow

form ff2 (2 h 4)
at 12 1
size 12 by 4

form ff3
at 12 32
size 10 by 4
form ff4 (2 v 1)
at 16 2
size 10 by 2

form ff5
at 12 43
size 10 by 4

form ff6
at 12 55
size 10 by 4

form ff7
at 12 68
size 10 by 4

form ff8
at 16 13
size 10 by 4

item fqn
at 21 20
size 60 by 3
display as output

CREATE FORM ff2
prompt at 1 2 "form ff2"

item i1(2 h 1)
at 2 2
size 2
display as input

item i2
at 3 2
size 3
domain (NUMERIC MAXIMUM 6 MINIMUM 1)
display as input

create form ff3
prompt at 1 2 "form ff3"

item i1(2 v 1, 2 h 1)
at 2 2
size 3
display as input
create form ff4
background black
prompt at 1 2 "form ff4"

item il
at 2 2
size 4
display as input
help "This is a help string"

create form ff5
background white
prompt at 1 2 "form ff5"

item il
at 3 3
size 1 by 2
display as input
help application

create form ff6
background xparnt
prompt at 1 2 "form ff6"

item il
at 3 6
size 1 by 4
display as input

create form ff7
prompt at 1 2 "form ff7"

item il(3/6 v 0, 2/4 h 1)
at 2 2
size 1
display as input

create form ff8
prompt at 1 2 "form ff8"

item il
at 3 2
size 8
display as input

create form ff9
prompt at 1 2 "form ff9"

item i1
at 2 2
size 8
display as input

window w4
at 3 1
size 10 by 5
display as black

create form ff10
size 10 by 8
prompt at 1 2 "Form ff10"

item i1 (* v)
at 2 2
size 4
display as input

create form ff11
size 10 by 8
prompt at 1 2 "Form ff11"

item i1 (4/ * v)
at 2 2
size 4
display as input

create form pathcom

item i4
at 3 47
size 1
display as input
help morhelp

prompt at 1 30 "Commands for ARTEST"
prompt at 3 30 " More Commands:"
prompt at 5 10
#---------------------------------------------------------#

prompt at 6 9 "add form to a window addfrm window form"
prompt at 7 9 "delete pages from window rmvpag window page"
prompt at 8 9 "replace page in window form" rplfrm window page
prompt at 9 9 "close form" clsfrm form

prompt at 10 9 "put data to form item array pdata path data"
prompt at 11 9 "get data from form item array gdata inst(0=prev, 1=cur) path"

prompt at 12 9 "change attributes: background putbak path
dur(prm=0,tmp=1) attrib"
prompt at 13 9 "get attributes: background getbak path
dur(prm=0,tmp=1)"
prompt at 14 9 "put and get temp attributes(b) tmpbak path dur attrib"

prompt at 15 9 "get name of form on page n gpage window page"
prompt at 16 9 "get number of pages in window gwindo window"

prompt at 17 9 "put cursor to field putcur path"
prompt at 18 9 "window set(term within term) oiscr path"

prompt at 19 9 "change attributes: foreground putatt path
dur(prm=0,tmp=1) attrib"
prompt at 20 9 "get attributes: foreground getatt path
dur(prm=0,tmp=1)"
prompt at 21 9 "put and get temp attributes(f) tmpatt path dur attrib"

create form morhelp

item i4
at 3 47
size 1
display as input
help arthlp2
prompt at left "More More Commands"
prompt at 2 28 "More Commands for ARTEST"
prompt at 4 10

"---------------------------------------------------------------"

prompt at 5 9 "open logical device opnldv returns ldvid"
prompt at 6 9 "close logical device clsldv ldvid(except 'HOME')"
set logical device
setldv ldvid row

change logical device
chgldv

inquire logical device
inqldv returns

put data to Virtual Terminal
putvti data

get data from Virtual Terminal
getvti

parse fully qualified name
parfqn

lev(0=lst,1=fst,-1=nxt2lst,etc)

get default qualified name
getdqn

set default qualified name
setdqn path

put message line string
pmsgls string

put message line code
pmsglc code

output a screen
outscr path

put cursor at a location
putloc path row column

get the length of a buffer
gdatln path

add an element to an array
addelm path

open a form
opnfrm form

use pf16(0) to display path name of cursor position

use pf15(3) to send screen to printer (to call 'prntvt')

use pf17(.) to refresh the screen (to call 'rfshvt')
display as input
at 1 2
size 6 by 34

create form ff14
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
value "xxx"
size 3

create form ff15
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if 2 > 1
value "xxx"
size 3

create form ff16
item i1
display as input
at 1 2
size 3
item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if 2 < 1
value "xxx"
size 3

create form ff17
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if 'il' != 1
value "xxx"
size 3

create form ff18
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if between('il', 1, 10)
value "xxx"
size 3

create form ff19
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if in('il', 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
value "xxx"
size 3

create form ff20
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if il > 10 ? 1 : 0
value "xxx"
size 3

create form ff21
item il
display as input
at 1 2
size 3
item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if 'i1' > "CCC" ? 1 : 0
value "xxx"
size 3

create form ff22
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if NOT 'i1'
value "xxx"
size 3

create form ff23
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of il
appears if IN(BETWEEN('il', 1, 10), 1, 2, 3, 4)
value "xxx"
size 3

create form ff24
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if IN(BETWEEN('il', "AAA", "CCC"), 1, 2, 3, 4)
value "xxx"
size 3

create form ff25
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if IN(BETWEEN('il', "AAA", "CCC"), "AAA", "BBB", "CCC", "DDD")
value "xxx"
size 3

create form ff26
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if NOT APPEARS('i1')
value "xxx"
size 3

create form ff27
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if APPEARS('i1')
value "xxx"
size 3

create form ff28
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3
item i3
display as output
at 3 right of il
appears if APPEARS('ff24.il')
value "xxx"
size 3

create form ff29
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if 'il' >= 1 ? 'il' = 5 ? 1 : 0 : 1
value "xxx"
size 3

create form ff30
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of il
appears if NOT IN('il' >= 1 ? 'il' = 5 ? 1 : 0 : 1, 1, 2, 3)
value "xxx"
size 3

create form ff31
item il
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if 'i1' <= 0 OR 'i1' >= 10
value "xxx"
size 3

create form ff32
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3

item i3
display as output
at 3 right of i1
appears if 'i1' != 11 AND 'i1' >= 10
value "xxx"
size 3

create form ff33
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'i1'
size 3
item i3
  display as output
  at 3 right of il
  appears if GWINDO('.w3') > 1
  value "xxx"
  size 3

create form ff34
  item il
  display as input
  at 1 2
  size 3

  item i2
  display as output
  at 2 2
  value 'il'
  size 3

  item i3
  display as output
  at 3 right of il
  appears if CURSOR('i2')
  value "xxx"
  size 3

create form ff35
  item il
  display as input
  at 1 2
  size 3

  item i2
  display as output
  at 2 2
  value 'il'
  size 3

  item i3
  display as output
  at 3 right of il
  appears if gpage('.w3', 1) = "FF3"
  value "xxx"
  size 3

create form ff36
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of i1
appears if getatt('il', 0) != "INPUT"
value "xxx"
size 3

create form ff37
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of i1
appears if not getatt('il', 0) != "INPUT"
value "xxx"
size 3

create form ff38
prompt at 1 4 "ff38"

item i1
display as input
at 2 2
size 3

item i2
display as output
at 2 6
value 'il'
size 3

form f1
at 4 2
appears if 'il' > 10 ? 1 : 0
size 7 by 6

create form f1
prompt at 1 2 "F1"

create form ff39
item i1
display as input
at 1 2
size 3

item i2
display as output
at 2 2
value 'il'
size 3

item i3
display as output
at 3 right of i1
appears if not role("manager")
value "xxx"
size 3
APPENDIX B

VT100 KEYPAD LAYOUTS

Figure B-1  Window Manager Mode

Figure B-2  Scroll/Page Mode
Figure B-3 Status Mode

Figure B-4 Text Editor Mode