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ITEMS ON LOAN SYSTEM (IOLS)
USER'S MANUAL
FOR
OAK RIDGE NATIONAL LABORATORY

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1.0 INTRODUCTION

The Items on Loan System (IOLS) is a series of microcomputer-based input, update, and report programs that track the location and loan status of hard-copy engineering documents under the custodial care of the Information Services Division (ISD) of Martin Marietta Energy Systems, Inc. This IOLS user's guide provides instruction on the use of these programs.

Section 2.0 of this manual presents an overview of the IOLS, describing the system's purpose; the data that it handles; functions it performs; hardware, software, and access; reports; and help and error functions.

Section 3.0 describes the interactive menu-driven operation of the IOLS.

2.0 SYSTEM OVERVIEW

2.1 BACKGROUND

The Information Services Division (ISD) of Martin Marietta Energy Systems, Inc., has custodial responsibility for engineering drawings and vendor-supplied documents for all of Energy Systems. At the Oak Ridge National Laboratory (X-10), the record copies of these items are sometimes taken from the repository for use by various organizations. A system, utilizing dBASE III Plus, has been developed in order to keep track of these borrowed items. This system, called the Items on Loan System (IOLS), provides a quick and easy means of entering and updating information about the borrowed items and the persons to whom these items are loaned. In addition, the system produces reports that represent various sorted arrangements of the information.

A similar version of this system was previously developed for the K-25 ISD Engineering Data Center. The differences between these two systems are primarily in the structure of the database and the format of reports. The X-10 database contains a field, Badge Number, which is used to identify the borrower of the items. Some of the field lengths of other fields have also been changed.

2.2 SYSTEM DESCRIPTION

2.2.1 IOLS Database and Data Elements

The IOLS database contains data about the item that was loaned and the person who borrowed the item. Shown below is the database structure for this system.

<u>Field Name</u>	<u>Data Type</u>	<u>Length</u>
ITEM_TYPE	Numeric	1
VENDOR_COD	Character	5
SIZE	Character	1
NUM_PREFIX	Character	6
ITEM_NUM	Character	10
SUFFIX	Character	5
REVISION	Character	3
DATE_TAKEN	Date	8
LOCATION	Character	8
PHONE	Numeric	5
CLASS	Character	1
LASTNAME	Character	15
FIRST_INIT	Character	1
MID_INIT	Character	1
MAIL_STOP	Character	4
BUILDING	Character	8
STATUS	Character	1
BADGE_NO	Numeric	6

2.2.2 System Functions

The function of the IOLS is to provide the custodian of the engineering drawings and vendor-supplied documents with a method for tracking the loaned items. It provides methods of flagging items that are lost or overdue and produces reports of the lost or overdue items on request. Lost items have a value of L in the STATUS field. Overdue items are flagged automatically each day when the IOLS is started. These items have a value of D in the status field. Overdue is defined as being on loan over six months.

The IOLS provides the basic input/update capabilities (add, edit, and delete), report generating and viewing functions, and a system backup facility through a series of menu-driven screens. Selection of records to be edited or deleted can be performed on the basis of either item information (the combined value of NUM_PREFIX, ITEM_NUM, and SUFFIX) or borrower's name. The use of these screens is described in Sect. 3.0. Utilities for backing up system files and packing the database to reclaim space are provided via the main menu and are discussed in Sect. 3.0.

2.2.3 System Reports

The IOLS produces six basic reports that the user generates from a report menu screen. These reports may be directed to a printer or to an ASCII text file for viewing on the terminal screen. Four of the reports have the same format and list the same database records. They are different only in their sort order. The sort orders for these reports are:

1. Borrower's name and item information.
2. Borrower's name and date taken.
3. Item type, item number, prefix, and suffix.
4. Date taken.

The fifth report lists only the items that have been reported as being lost. This report is sorted by item information.

The sixth report lists the items on loan that are overdue, which is defined as being on loan for over six months. This report is sorted by borrower's name and item information and is normally mailed to the appropriate borrower along with a form letter as a request for disposition on the item.

The procedure for printing these reports is described in Sect. 3.3.4; an example of the format of these six reports is displayed.

2.3 SYSTEM REQUIREMENTS

2.3.1 Hardware

The IOLS is installed on an ISD microcomputer at X-10. The system may be run on an IBM PC, PC/XT, AT, or a 100%-compatible microcomputer. A printer attached to the microcomputer for running system reports must be able to write a 132-column line.

2.3.2 Software

To run the IOLS, the user must have version 1.0 or later of dBASE III Plus. This software package requires at least 384KB of RAM memory and either MS-DOS 2.11 or PC-DOS 2.0. Later versions of DOS may also be used.

2.3.3 System Access

To run the IOLS program, the user must have access to the ISD microcomputer at X-10 on which the system is installed.

2.4 HELP AND ERROR MESSAGES

The user of the IOLS may encounter various error messages as the system is used. One error condition occurs if the user attempts to add a duplicate record to the database. A duplicate record is defined as a record that has the same item information (prefix, item number, and suffix) as another record existing in the database. This condition also occurs if the user attempts to change the item information of one record to that already existing for another record. In either case, a system alarm will sound twice, and one of the following error messages will be displayed:

- ** A record for that Item already exists!
- ** Record not added.
- ** You may not change the Item Information of this record to that
- ** of an existing record! All changes to this record ignored.

If the user attempts to add a record or modify an existing record with invalid data in certain fields, the system alarm will sound, and one or more of the following error messages will appear on the screen:

- ** Item Type must be a number between 1 and 6.
- ** Classification must be U.
- ** Size must be A,B,C,D,E,F,S,# or Blank.
- ** Prefix, Item Number or Suffix must be specified.
- ** The Borrower's Name must be specified.
- ** Phone Number, if specified, must begin with 4 or 6
- ** Status must be N, D or L.
- ** The status of a classified item may not be (L)ost.

After the message is displayed, the cursor is placed on the offending field for corrections.

Another error condition occurs if the user attempts to edit or delete a record that does not exist. The error message for this condition is:

- ** Record not found! Press any key to continue.

When the user is printing reports to an ASCII file, the system will prompt the user for a valid filename. If the user fails to specify a filename, if illegal characters are used in the filename, or if a filename extension is specified, one of the following error messages will be displayed, and the filename must be reentered:

- ** A filename must be specified.
- ** Invalid character * in your filename.
(Where * is the invalid character)
- ** Do not attempt to enter a filename extension.

The following system backup message is displayed at the top of the IOLS Main Menu when the IOLS has not been backed up for over one month.

```
***** It has been over one month since your last      *****
***** system backup, which occurred on MM/DD/YY! *****
```

This message is disabled after the system is backed up.

The user should contact the CAD/CAE and Cost Engineering Section for questions concerning the operation of the IOLS.

3.0 SYSTEM OPERATION

This section describes the interactive menu-driven operation of the IOLS. It also covers procedures for performing a backup of the database and program files and for packing the database files to reclaim space occupied by records that have been deleted.

3.1 KEYBOARD OPERATION

The IOLS program uses several command keys and keyboard keys to move the cursor between prompts, data fields, menus, and screens as shown in the following table. Command keys are enclosed in less-than (<) and greater-than (>) signs (e.g., <ENTER>) that tell the user to press a single key to perform the action rather than to type the characters of the word.

<u>Key</u>	<u>Action</u>
<ARROW-KEYS>	Move the cursor up and down from field to field or right and left from space to space within a field.
<BACKSPACE>	Deletes the character to the left of the cursor.
<CONTROL>	Used in combination with another key, signals the system to perform a specific function.
<DELETE>	Deletes the character on which the cursor is placed.
<ENTER>	Indicates that data are complete in the current field and moves the cursor to the next entry field. If <ENTER> is pressed on the last field of a screen, the next screen will be displayed.

The following conventions are used to move between fields and screens in the IOLS:

1. The system will respond immediately to a menu or prompt selection when the selection is typed. <ENTER> does not have to be pressed to implement the command.
2. When data are typed into an input field and fill the available characters of the field, the cursor will automatically advance to the next field.
3. If typed input to the last field of the screen fills the field, the next screen will be displayed automatically.
4. If data input is complete on a screen but the input does not fill the field, <ENTER> can be pressed to advance to the next field or screen.

3.2 ACCESSING THE IOLS

The IOLS runs on an ISD microcomputer located at X-10. When the microcomputer is booted, the AUTOEXEC command file of the operating system displays the menu file MENU.TXT shown below.

START - UP MENU	
SmarTerm 240	1
KERMIT.....	2
Word Perfect.....	3
dBASE III Plus.....	4
Items on Loan Database.....	5
askSam.....	6
DOS 3.20.....	7

Your selection:

This start-up menu lists the various software programs existent on this machine to which the user has access.

To execute the IOLS program, the user should enter a 5 and press <ENTER>. The system will run dBASE III, start the IOLS program, and display the IOLS Main Menu.

3.3 OPERATING THE IOLS

The IOLS Main Menu shown below is displayed when the system has been accessed and allows the user to select the system functions or to exit the system.

**** I O L S MAIN MENU ****	
CODE	FUNCTION
0	Return to setup menu
1	Log out item on loan (Add)
2	Edit record
3	Log in returned item (Delete)
4	Print report
5	Browse report
6	Backup IOLS files
7	Pack database file
Enter Code - no carriage return <u>0</u>	

By typing one of the code numbers on the menu, the user may select to add, edit, or delete loan data; print or browse reports; back up system files; or pack the database. Code 0 will terminate the IOLS program and return the user to the operating system start-up menu.

The following sections of this manual contain descriptions of each of the main menu functions.

3.3.1 Log Out Item On Loan (Add)

If Code 1 is selected from the IOLS Main Menu, the system will display the following add screen to allow the user to enter information about the item and borrower into the database:

ITEMS ON LOAN DATA ENTRY PANEL			
Item Type:	X	Prefix:	XXXXXX
Date Taken:	XX/XX/XX	Revision:	XXX
Item Number:	XXXXXXXXXX	Classification:	X
Vendor Code:	XXXXX	Suffix:	XXXXX
Location:	XXXXXX	Size:	X
Status:	X	Borrower's Name:	X X XXXXXXXXXXXXXXXX
Building:	XXXXXX	Phone Number:	X-XXXX
Mail Stop:	XXXXXX	Badge Number:	XXXXXX

This screen contains empty fields to collect data for the record that is to be added to the database. The user may type new data in these fields using the key conventions described in Sect. 3.1. Other input conventions for this screen include:

1. The current date will be displayed for Date Taken but may be overtyped.
2. Only five numerals should be typed for the Phone Number field. A hyphen is automatically added by the system.
3. Not all fields must be filled. However, fields that are required before the record can be stored in the database are Item Type; Classification; a combination of Prefix, Item Number, and Suffix; and Borrower's Name.

When the new data have been typed and <ENTER> has been pressed to end the screen input, the system will perform data checks before entering the information into the database. These checks include:

1. The Item Type, Classification, and Size fields are checked for valid codes. If one of these checks fails, an error message will be displayed (see messages in Sect. 2.4), and the cursor will be placed on the offending field to allow for correction.
2. The combined value of the data typed in the item information fields (Prefix, Item Number, and Suffix) must be unique. If the combined value typed for these fields already exists in the database, the user will receive an error message (see Sect. 2.4).

When all checks have been passed, the new information will be added to the database and the system will prompt:

Add another record (Y or N). Y

The user can press Y or <ENTER> to add another record or press N to return to the IOLS Main Menu.

3.3.2 Edit Record

If Code 2 is selected from the IOLS Main Menu, the following prompt will be displayed:

```
Select record by Item Information or Borrower's Name (I or N)? I
```

When the user answers this prompt by typing an I or an N, the system will display one of the following prompts asking for the key data by which to search the database for the desired item or borrower record:

Enter the Item Information:

```
Prefix XXXXXX      Item Number  XXXXXXXXXXXX      Suffix  XXXXX
```

Enter the borrower's name:

```
Last Name  XXXXXXXXXXXXXXXX      First Init.  X      Mid Init.  X
```

The system will check the values that are typed against the data existing in the file and if only one record containing these values is found, will display the data for that record on the screen, presenting it in the same screen format as that used for display in the add function (see Sect. 3.3.1).

The user may overwrite the data existing in the fields using the key conventions described in Sect. 3.1. If the combined values of the Prefix, Item Number, and Suffix fields are changed to a combined value that already exists in another database record, the user will receive an error message (see Sect. 2.4) and the change will not be allowed. When the data have been changed and <ENTER> has been pressed to end the screen input, the system will perform the same validity checks as described in Sect. 3.3.1 before updating the record in the database. The next prompt displayed is:

Edit another record (Y or N). Y

The user can press Y (or <ENTER>) to edit another record or press N to return to the IOLS Main Menu.

It is possible that more than one record will exist for a borrower's name for which a search is performed. If this occurs, the system will display the following prompt:

```
** More than one item exists for X X XXXXXXXXXXXXXXXX
** Please select by Record Number from the following list:
```

Press any key to continue.

The following list screen will be displayed with all the records that exist for the borrower selected:

Items loaned to: X X XXXXXXXXXXXXXXXX											
REC	ITEM	VENDOR		NUMBER	ITEM	NUMBER		DATE			
NUM	TYPE	CODE	SIZE	PREFIX	NUMBER	SUFFIX	REV	TAKEN	LOC.	CLASS	
XXX	X	XXXXX	X	XXX	XXXXXXXX	X	X	XX/XX/XX	XXXXX	X	
XXX	X	XXXXX	X	XXX	XXXXXXXX	X	X	XX/XX/XX	XXXXX	X	
XXX	X	XXXXX	X	XXX	XXXXXXXX	X	X	XX/XX/XX	XXXXX	X	
To select a record enter its Record Number or Enter to exit. _											

The user can type the record number to be displayed and <ENTER> or just type <ENTER> to exit to the IOLS Main Menu. If more than one screen of borrowed items exists, <ENTER> can be pressed to display the next screen.

Data for the record number selected from this screen will be displayed in the same screen format as that of the add screen shown in Sect. 3.3.1. These data can be changed as described above.

3.3.3 Log In Returned Item (Delete)

If Code 3 is selected from the IOLS Main Menu, the same search prompts and user input conventions are used to select the record to be deleted as are used to select a record to be edited (see Sect. 3.3.2, Edit Record, above). The record is located by searching for the values the user inputs into the Item Information or Borrower's Name screens. When the desired record is found and displayed on the screen (in the format of the add screen in Sect. 3.3.1), the following prompt will be displayed below that screen:

Delete this record (Y or N)? N

Pressing Y in answer to this prompt will cause the system to delete the displayed record; an N response will leave the record unchanged. The user will receive the prompt:

Delete another record (Y or N)? Y

The user can press Y (or <ENTER>) to delete another record or press N to return to the IOLS Main Menu.

3.3.4 Print Report

When Code 4 is selected from the IOLS Main Menu, the following screen is displayed for the user to select the type of report to be printed:

CODE	REPORT	SORT KEY(S)
1	Name	Name, Item Information
2	Name-Date	Name, Date taken
3	Item	Item Type, Item Number, Prefix, Suffix
4	Date	Date taken
5	Lost Items	Item Information
6	Overdue Items	Name, Item Information

Enter a CODE or RETURN to exit 0

The IOLS produces six basic reports. The first four reports have the same format and list the same database records. They are different only in their sort order, which is indicated in the right "Sort Key" column of this screen. The fifth report lists only the items that have been reported as being lost. The sixth report lists the items on loan that are overdue, which is defined as being on loan for over six months. This report prints a separate page for each borrower's name that has overdue items. The separate pages are normally mailed to the appropriate borrowers along with a form letter as a request for disposition on the item.

All of these six reports have the same format for presentation of data, only the sort arrangements and report headers are different. An example of the format is displayed below in a sample Overdue Items report.

Page No. 1
XX/XX/XX

X - 1 0 E N G I N E E R I N G I T E M S O N L O A N

*** DUE OR OVERDUE ITEMS ***

ITEM TYPE	VENDOR CODE	NUMBER SIZE	ITEM PREFIX	NUMBER NUMBER	NUMBER SUFFIX	DATE REV	DATE TAKEN	LOCATION	CLASS	PHONE	NAME	BADGE NUMBER	MAIL STOP	BUILDING
** For: (BORROWER'S NAME)														
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX
X	XXXXX	X	XXX	XXXXXX	XXXX	X	XX/XX/XX	XXXXX	X	XXXXX	XXXXXXXXXX	X	X	XXX

This report format is wider than the terminal screen display and can only be properly viewed by sending the report to a printer with a 132-column line or to an ASCII file from which it can be viewed using the Browse Report function from the IOLS Main Menu (see Sect. 3.3.5). dBASE III Plus will scroll the report on the screen in a condensed format while it is being generated, but this display is not adequate for viewing IOLS reports.

When the desired report code number (1 to 6) is entered at the report menu prompt, the user will be asked to select the destination of the report.

Send report to the printer or to a file (P or F)? P

If the user selects P for printer, the report will be sent directly to the printer, the report will scroll quickly over the screen while being generated, and the user will be immediately returned to the print report screen to print another report or press <ENTER> to return to the IOLS Main Menu.

If the user selects F for File at this prompt, the destination of the report will be to an ASCII file in the C:\DBASE\ONLOAN directory. From this file, the report later can be called to the screen where it may be browsed (see Sect. 3.3.5). The user will be prompted for a name for the report file that is being created.

Enter the filename for the report: _____RPT

The extension .RPT is assumed and should not be entered by the user. An error message will be generated if a filename extension is entered or if invalid characters are used (see messages in Sect. 2.4). The report will scroll across the screen as it is being generated, and the system will return immediately to the print report screen, where the user may print another report or press <ENTER> to return to the IOLS Main Menu.

3.3.5 Browse Report

The Browse Report function of the IOLS may be used to view ASCII text files on the terminal screen. This function is intended to be used for viewing report files generated by the Print Report function; however, any ASCII text file that resides in the C:\DBASE\ONLOAN directory may be viewed. To perform this operation, the user should select Code 5 from the IOLS Main Menu. The system will then display the screen shown below.

BROWSE	
Enter Report File Name: _____	
Press Esc to get directory listing. Ctrl Z to abort	

The user may enter the file name or press <ESC> to get a list of files with the extension .RPT in the C:\DBASE\ONLOAN directory. If <ESC> is pressed, a screen like the one shown below will be displayed.

C:\DBASE\ONLOAN				BROWSE
REPORT1.RPT	7866	10-13-87	2:12p	
REPORT2.RPT	13063	10-21-87	8:17a	
REPORT3.RPT	3608	10-22-87	1:09p	
REPORT4.RPT	3654	10-24-87	12:46p	
REPORT5.RPT	2560	10-24-87	3:02p	
REPORT6.RPT	4547	10-25-87	12:43p	
6 File(s)		1708441 bytes free		
To select file for input, position cursor by file name and press the RETURN key				
MOVE UP =>PgUp or ↑ MOVE DOWN=>PgDn or ↓ CONTINUE=>ESC				

The <PAGE-UP>, <UP-ARROW>, <PAGE-DOWN>, and <DOWN-ARROW> keys are used to move the cursor next to the report file name to be selected (the <RETURN> key refers to the <ENTER> key on this screen). The <ENTER> key is pressed to mark the selected file with an asterisk (*). When <ESC> is pressed to return to the file name prompt, the report file name that was marked will be displayed in the file name input field.

To begin browsing the selected file, press the <ENTER> key. The screen will go blank while the report is being loaded, and the message "LOADING xxxxxxx.RPT" will be displayed in the lower left corner of the screen.

When the report appears on the screen, the last screen line will display directions for performing scrolling to view the entire report:

Down:PgDn or ↓ Up:PgUp or ↑ Home:Home Right: → Left: ← Exit:Esc

Pressing an <ARROW-KEY> in the direction indicated will move the report around on the terminal screen. When viewing of the report is complete, pressing the <ESC> key will return the user to the IOLS Main Menu.

3.3.6 Backup IOLS Files

System backups should be done on a monthly basis and even more frequently during times of heavy database activity. At the end of the backup procedure, the current date is automatically placed in a database record for future reference. When the IOLS is started, the current date is compared to this stored date. If the difference in these dates is more than one month, the system alarm sounds twice, and a reminder message is displayed at the top of the IOLS Main Menu:

```
***** It has been over one month since your last      *****
***** system backup, which occurred on MM/DD/YY! *****
```

To turn off this message, the backup program must be run.

When Code 6 is selected from the IOLS Main Menu, the user will be prompted for information required for the backup of the database and program files in the C:\DBASE\ONLOAN directory. The backup will be performed with the DOS BACKUP command, which automatically prompts the user for additional diskettes if needed.

The first prompt given to the user requests the target or destination drive for the backup:

Specify the target disk drive for the backup (A or B).

The only acceptable responses are A or B.

Next, the user is given the opportunity to format diskettes by answering the following prompt:

This backup procedure will require one or more formatted diskettes.
Do you need to format any diskettes (Y or N)?

The backup procedure may require more than one formatted diskette; therefore, at least two formatted diskettes should be available. To format diskettes, the user should answer Y to this prompt. The system will then prompt the user to insert an unformatted disk in the A or B drive:

Insert new diskette for drive X:
and strike ENTER when ready

After the first disk is formatted the user will be asked:

Format another (Y/N)?

To format another disk, the user should remove the first disk, insert a second new disk into the same drive, and press Y. When all disks are formatted the user should answer N to this prompt.

Finally, the user will be asked whether or not to proceed with the backup.

Proceed with the backup (Y or N)?

The user can press Y to begin the backup procedure. The system will respond with the following messages:

Source disk is non-removable

Insert backup diskette 01 in drive X:

Warning! Files in the target drive
X:\ root directory will be erased
Strike any key when ready

A formatted disk should be placed in the indicated drive; any key may be pressed to begin the backup. File names will be displayed on the screen as they are copied to the backup disk. If the backup requires more than one disk, the backup program will prompt the user to remove the full disk and insert a blank disk:

Insert backup diskette XX in drive X:

After the backup is complete, the user will be returned automatically to the IOLS Main Menu and may remove the backup disk from the drive for storage.

NOTE: To recover one or more files from a backup diskette(s), the DOS RESTORE command should be used. See the DOS reference manual for assistance with this command.

3.3.7 Pack Database File

As required, the database should be packed in order to reclaim the space occupied by records that have been deleted. To perform this operation, the user should select Code 7 from the IOLS Main Menu. The system will display the following message:

This procedure will reclaim the space used by the deleted records in the database files. If you have not done a backup recently you should exit from this procedure now and do a backup. Your last backup was done on MM/DD/YY. Do you want to exit (Y or N)?

If the user enters a Y, the system will return to the IOLS Main Menu, where the user may choose to perform a system backup (see Sect. 3.3.6).

If the user enters an N, the system will pack the database file and re-index the index file. As the database is packed, the following message is displayed:

Packing database ONLOAN.DBF index ITEMNUM.NDX.

When the database has been packed, the system will display the message:

Pack operation complete.

Press any key to continue.

Any keyboard key may be pressed to return to the IOLS Main Menu.

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