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User's Guide to MIDAS

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User's Guide to MIDAS

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USER'S GUIDE TO MIDAS

by

S.A. Tisue, N.B. Williams, C.C. Huber, and K.C. Chun

1 INTRODUCTION

Welcome to the MIDAS User's Guide. This document describes the goals of the Munitions Items Disposition Action System (MIDAS) program and documents the MIDAS software. The main text first describes the equipment and software you need to run MIDAS and tells how to install and start it. It lists the contents of the database and explains how it is organized. Finally, it tells how to perform various functions, such as locating, entering, viewing, deleting, changing, transferring, and printing both textual and graphical data. Images of the actual computer screens accompany these explanations and guidelines. Appendix A contains a glossary of names for the various abbreviations, codes, and chemicals; Appendix B is a list of modem names; Appendix C provides a database dictionary and rules for entering data; and Appendix D describes procedures for troubleshooting problems associated with connecting to the MIDAS server and using MIDAS.

1.1 MISSION OF THE MIDAS PROGRAM

The mission of the MIDAS program is to provide procedures for the systematic disposition of all unwanted conventional munitions. To carry out this mission, all munitions must be characterized in the Single Manager for Conventional Ammunition (SMCA) inventory, and alternatives for resource recovery and recycling (R3) and/or disposal of munitions in the resource recovery and disposition (RRD) inventory must be identified.

Demilitarization programs presently in place rely extensively on open burning and open detonation (OB/OD) as the primary methods of disposal. Information needed for demilitarization planning, environmental permit applications, and waste characterizations is currently obtained through a series of fragmented research efforts. The MIDAS program is intended to consolidate the research effort and develop a central library that contains information on munitions, components, parts, bulk items, materials, compounds, and packaging and supports the disposal process, which includes waste characterizations, the identification and selection of disposal alternatives, and the actual disposal of munitions. This central database system is developed by using the MIDAS software.

The MIDAS team, located at the U.S. Army Defense Ammunition Center and School (USADACS) in Savanna, Illinois, manages the MIDAS software and central library. Expected users are installation and command demil and disposition planners, environmental offices, safety offices, research and development personnel, headquarters program managers, U.S. Department of Defense (DOD) Services, other agencies, and private industry.

Further information on MIDAS can be obtained from USADACS, SMCAC-TDM, Savanna, IL 61074-9639. The phone number is (815) 273-8056/8084, the DSN is 585-8056/8084, and the data facsimile extension is 8717. The e-mail address is sioactdm@savanna-emhl.army.mil.

1.2 OVERVIEW OF THE MIDAS DATABASE SYSTEM

The MIDAS database system (hereafter referred to as "MIDAS" or simply "the system") is an information system that runs on an IBM-compatible personal computer (PC). It was developed by Argonne National Laboratory (ANL) for USADACS. MIDAS contains detailed information on the structure and composition of munitions and lets users store and retrieve this information. Despite the complexity of its munitions data, MIDAS provides users with easy access to these data in a number of ways.

MIDAS organizes the data for each munition into a hierarchical list so you can quickly and clearly discern the structure of that munition. For each munition you select, MIDAS can display all of its primary components and parts. Then, for each primary component, it can display all of its subcomponents and parts; for each subcomponent, it can display all of its subcomponents and parts; and so on. This breakdown enables you to view the structure of components and parts within a munition and the detailed data associated with these components and parts.

MIDAS also stores information on weight and material specifications for each part, so you can acquire data on the total weight and material composition for any munition, component, or part. For detailed component and part information, MIDAS also provides direct access to its components and parts libraries. This feature is particularly useful if you are trying to define a specific class of components or parts.

MIDAS enables you to acquire comprehensive information on all the munitions in the system. By choosing the "Standard Reports" and "User Defined Reports" options from the Main Menu, you can quickly retrieve and compute total weight and composition statistics for all or selected munitions in the MIDAS database.

MIDAS data libraries consist of a local library and a central library. The local library contains the data entered by the individual users (data collectors) and is located in the user's machine. The central library, containing data reviewed by the USADACS reviewers for accuracy and

consistency, is shared by all users as the authoritative data source. MIDAS provides an organized means of pooling data in the central library and distributing new versions of the central library to the user community. Figure 1.1 is a diagram of the entire central library development process. Most users entering data need to be concerned only with the steps labeled "Submit Finished Data" (described in Section 13.2.1 as submitting local data to the server) and "Download New Version" (described in Section 5.5 as downloading the central library). The process used at USADACS to centralize data is described in Section 16.1.

The master copy of the central library is stored on the MIDAS server, a computer located at USADACS. The server, in addition to storing this information, functions as the central point of contact for controlling the central library development process. Users at USADACS are connected to the server via an Ethernet local area network (LAN). Other users can dial in to the server over regular phone lines by using a modem. (The two types of connection are functionally equivalent, but a LAN connection is much faster.) Users connect to the server to perform the following functions:

- Access the central library directly,
- Download a copy of the central library onto their local hard drives,

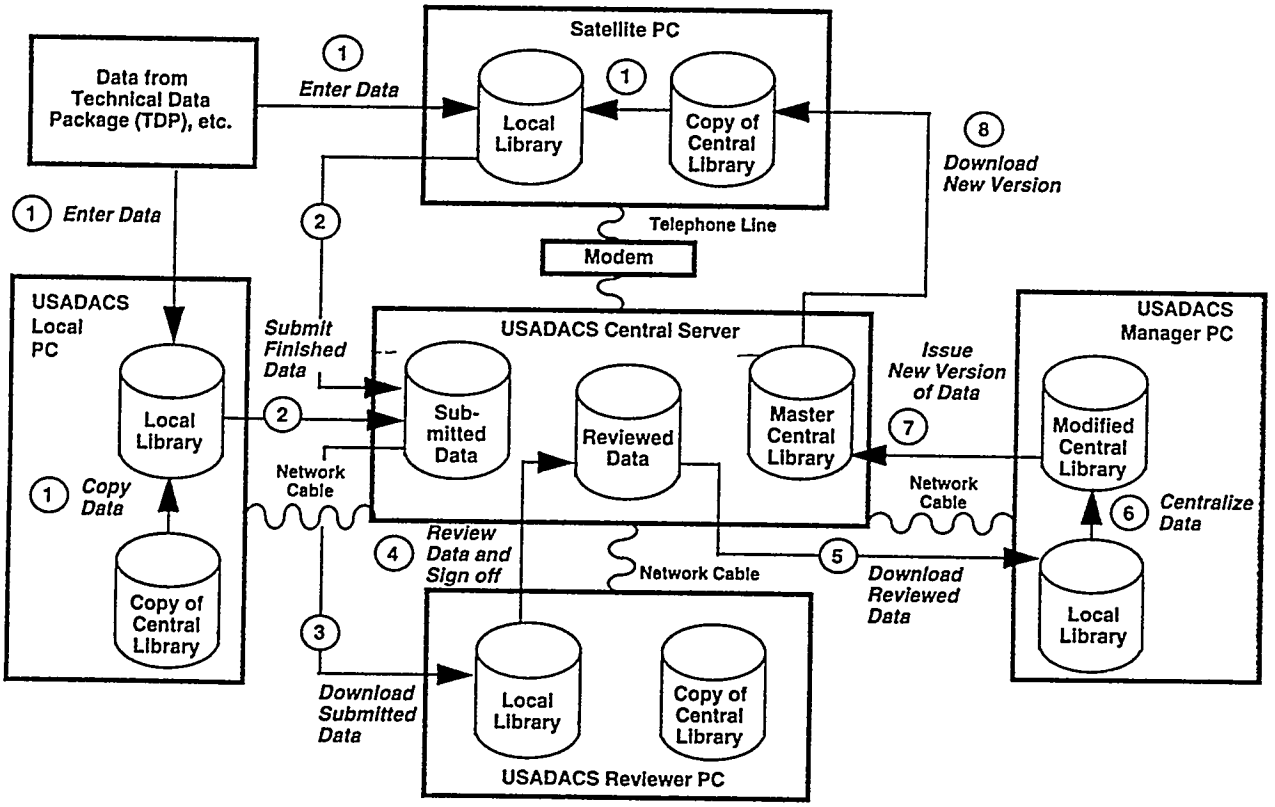

FIGURE 1.1 Database Development Process

- Download MIDAS software updates and improvements to their computers,
- Submit finished data to USADACS for inclusion in the central library,
- Review submitted data and add these data to the central library (USADACS users only), and
- Download scanned images from the server.

As the first two items on this list indicate, there are two modes of access to the central library. Users connected to the server can access the central library directly without downloading it onto their machines. This mode is slower and requires a constant connection to the server. Assuming enough disk space is available, users can also download a copy of the central library onto their local hard drive, which gives them faster access to the data. The option of accessing the central library directly from the server, because it is much slower than accessing a local copy, is intended primarily for occasional, view-only users of MIDAS.

Users do not modify the central library directly. The MIDAS team reviews the data generated by users and adds the data to the central library. Each computer on which MIDAS has been installed contains a "local library," a data area that contains only data that the individual user has typed or imported from a disk. The user has full control over the contents of his or her local library. However, the local and central libraries are not entirely separate; local items may contain links to items in the central library. Thus, the central library is not just a repository for finished munitions. It is also a source of components, parts, and materials for incorporation into new items. Moreover, items in the central library may be copied and modified to create similar items. The use of items in the central library reduces duplication efforts for users who are developing items that are similar to those already in the central library or that include items that are the same as or similar to those already in the central library.

1.3 WEIGHT ESTIMATION PROGRAM

MIDAS also provides a separate module called the weight estimation program. Its purpose is to provide a convenient means for estimating the volumes, weights, and compositions of parts and bulk items (including surface coatings, if any) for which weight information is not available from an existing information source. Figure 1.2 shows a sample screen from the program. The weight estimation program is started by choosing "Weight Estimation" from MIDAS's Initial Menu. Complete information on using the weight estimation program is contained in Delis et al. (1995).

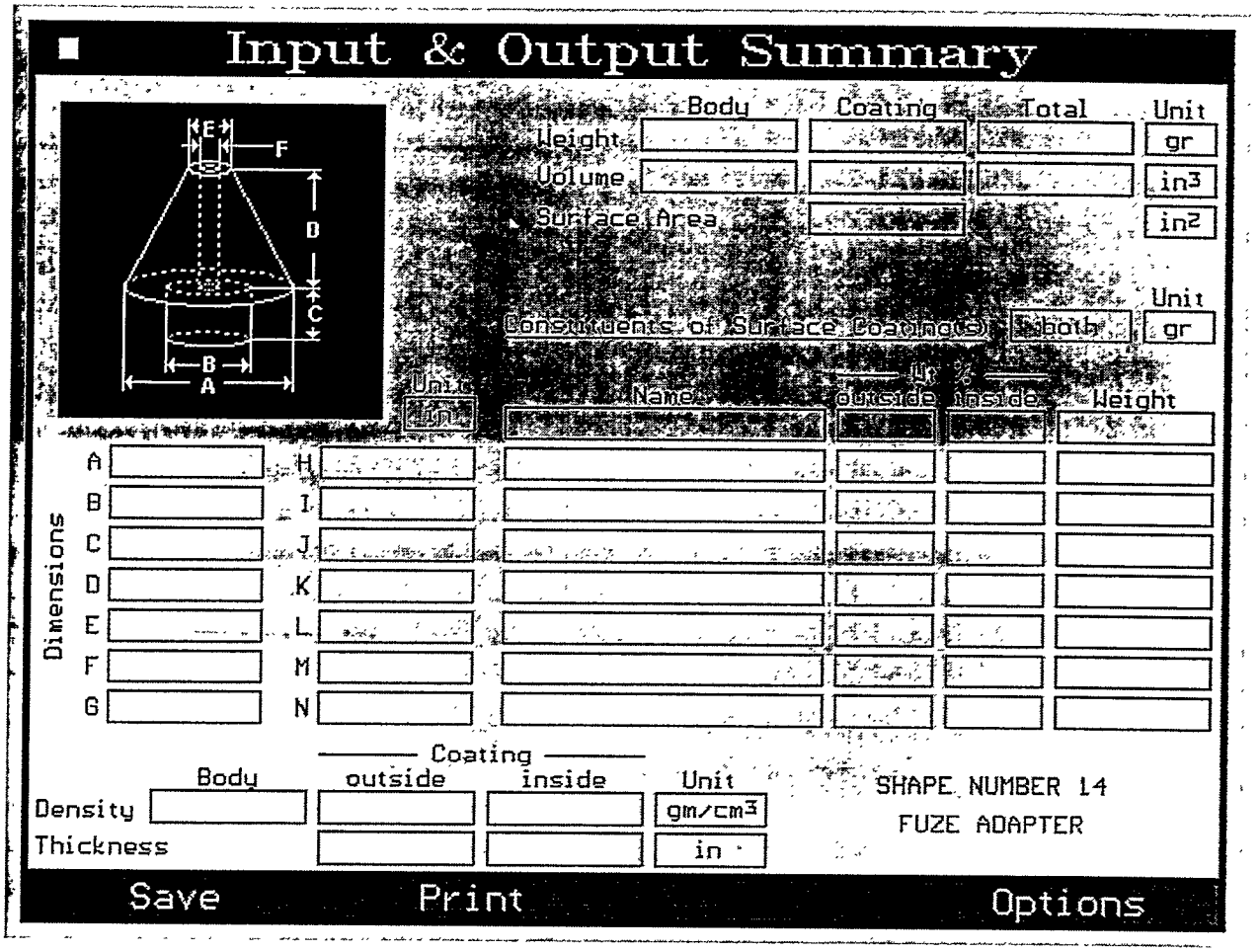

FIGURE 1.2 Weight Estimation Program Input and Output Summary Screen

1.4 BULLETIN BOARD

MIDAS data for selected munitions, in the form of standard reports in ASCII format, can be accessed through a bulletin board system (BBS) at USADACS. This information source is intended for individuals who want access to munitions data in the central library but do not require full use of the MIDAS interface. The BBS is separate from the MIDAS server. Users must contact USADACS to obtain a username and password to use the BBS.

1.5 CONVENTIONS FOLLOWED IN THIS DOCUMENT

Words enclosed by square brackets indicate keys on the computer keyboard. Commonly mentioned keys include [Enter], [Esc], and the function keys [F1], [F2], etc. Directory names, file

names, and acronyms are in all uppercase letters. The names of screens, menus, options, buttons, and commands are shown as they appear on the computer screen and are enclosed in quotation marks. Words that need to be typed in by the user are in italics.

2 SYSTEM REQUIREMENTS

This section describes the computer hardware and software required to run MIDAS.

2.1 CENTRAL PROCESSING UNIT, DISK, AND MEMORY

MIDAS runs on an IBM-compatible PC with 6 megabytes (MB) of memory. Currently, the software and data libraries occupy about 20 MB of disk space. (This number will increase as the central library grows.) It is recommended that at least 20 MB extra should be free when the system is running. If less than 20 MB is free, the system warns the user. If less than 10 MB is free, the system notifies the user of the problem and exits. MIDAS will run on a 386-based PC, but use of a 486-based or Pentium-based machine is strongly recommended for better performance. Users must have version 5.0 (or a later version) of DOS; version 6.22 is recommended.

MIDAS software is completely self-contained. MIDAS was developed primarily by using dBASE 5.0, but it does not require dBASE software to run. Some functions in MIDAS use the PKZIP file compression (and decompression) utilities to minimize the size of files written to diskettes.[1]

2.2 DOS CONFIGURATION

Version 3.0 of MIDAS requires that the following statements be present in the user's CONFIG.SYS file:

```
FILES=99
BUFFERS=25
```

These are minimum values; higher settings are permissible.

If you plan to connect to the MIDAS server by using a modem, you should check your CONFIG.SYS file to see if there is a LASTDRIVE= setting. This setting does not need to be in your CONFIG.SYS file to dial in to the server, but if you do have such a setting, it must read LASTDRIVE=E. Some popular networking packages require a different setting, such as LASTDRIVE=Z. Version 6.0 and later versions of MS-DOS allow you to have multiple configurations in your CONFIG.SYS; you may need to use this facility if MIDAS's required setting

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[1] PKZIP, which was developed by PKZIP, Inc., is a widely used file compression utility. MIDAS has an application license to use PKZIP on any machine on which MIDAS has been installed.

conflicts with the required setting for another package. Consult your DOS manual for information on setting up a CONFIG.SYS file with multiple configurations.

2.3 PRINTING

The preferred printer for using MIDAS is a Hewlett-Packard LaserJet IV or compatible printer. You tell MIDAS what kind of printer you have by using MIDAS's Main Menu, as described in Section 9. If you have a LaserJet IV, any reports that you print will include special printer control codes that will set up your printer for the correct type size and orientation. If you have a different printer, reports will not include any special control characters. When printing reports, MIDAS notifies you to set up your printer beforehand so that reports print correctly. MIDAS reports assume that at least 169 output columns are available. Reports will not print correctly unless your printer is set to a mode with an output width of at least 169 columns.

2.4 NETWORKING

2.4.1 USADACS Users

Special hardware requirements for USADACS users with a LAN connection to the server will be handled by the MIDAS network administrator. Tisue et al. (1995) contains details and guidance for the network administrator.

2.4.2 Remote Users

Remote users are not connected to the LAN at USADACS. They must use a modem to connect to the server.[2] Most brands of modem are expected to work; however, it is impossible to guarantee complete compatibility with all brands and models. The modems used on the MIDAS server are U.S. Robotics's Courier brand. It is recommended that users intending to dial in to the MIDAS server obtain this same model to ensure maximum compatibility. Appendix B contains a list of modems that will work with MIDAS. Other modems may work, but users will require special assistance to configure them.

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[2] At this time, Internet connectivity is not available. USADACS is investigating this option for the future.

For 28.8-kbps connections,[3] users should make sure to purchase a modem that supports the V.34 protocol. The modems on the server can also make 28.8-kbps connections by using the V.FC protocol, but this protocol is not as reliable as V.34 and is regarded as obsolete. (V.34 and V.FC are standard modem communication protocols supported by a wide variety of modem brands and models.) The minimum practical speed for dialing into the server is considered to be 14.4 kbps, although slower modems will work. MIDAS usability testing is performed under the assumption that 28.8-kbps modems are available.

Both external and internal modems are acceptable, but external modems are recommended when appropriate, because they are easier to configure, troubleshoot, and move between machines.

Although the maximum possible connection speed of a 28.8-kbps modem is 28.8 kbps, this maximum rate is not always achievable. The actual connection speed obtained may vary, depending on the quality of the phone lines between the caller and USADACS. The actual connection speed also depends on the long-distance carrier and the quality of the phone lines at the user's site. Argonne has found that when various long-distance carriers were used to dial into the server, connection speeds ranged from 9.6 to 26.0 kbps. Users who repeatedly get poor connection speeds are encouraged to experiment with different long-distance carriers and contact their local phone company and long-distance carrier to see if improvements can be made. Users at military sites may dial in to the server over the DSN telephone network and thus bypass commercial long-distance carriers.

For best performance with an external 28.8-kbps modem, the serial port used should be equipped with a 16550 UART chip. (The UART chip is part of the circuitry that controls the serial port.) Users with an external modem should consult the documentation for their PC to see if this chip is present. Users with an internal modem should consult the modem's documentation to determine if the modem contains this chip or simulates its presence. (For more on the 16550 UART, see footnote 7 on page 5-3.)

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[3] The abbreviation kbps means kilobits per second. Bits per second is often used interchangeably with baud; hence, the terms 28.8 kbps, 28.8 kilobaud, and 28,800 baud are equivalent.

3 INSTALLING MIDAS

Before installing MIDAS, you should read Section 2 to make sure the machine you are using meets version 3.0's minimum requirements. The installation process is basically the same whether you are installing MIDAS for the first time or reinstalling it onto a system that already contains version 3.0. Section 3.1 tells you how to get a unique node ID before you install MIDAS on your machine. Section 3.2 describes the normal installation procedure. Section 3.3 describes how the installation procedure differs when you are reinstalling version 3.0 over an existing installation.

3.1 NODE IDS

Each machine running MIDAS must have a unique node ID, different from every other machine's node ID. Node IDs are assigned by USADACS. Before installing MIDAS, you should contact USADACS or your local MIDAS administrator to obtain a node ID. Node IDs must be exactly four characters long and consist only of digits and capital letters.

3.2 NORMAL INSTALLATION

1. Start from the DOS prompt.

2. Insert the first MIDAS installation diskette into your A or B drive.

3. Type *A:* or *B:* and press [Enter] to switch to the floppy drive.

4. Type *install* and press [Enter] to begin the installation.

5. After a short delay, you will be prompted to type in the letter of the drive on which you want to install MIDAS. If you want to install onto drive C, just press [Enter]; otherwise, type the drive letter of your choice and press [Enter].

6. Unless your set of installation diskettes has a preset node ID, you will be prompted to enter your node ID (see Section 3.1). Type in your node ID and press [Enter]. If you are upgrading from version 2.0, you will be shown your existing node ID. To keep the existing node ID, just press [Enter]; to get a new node ID, type one.

7. The installation program will check the hard drive you have chosen to see if there is enough disk space to hold MIDAS. If disk space is severely

inadequate, the installation program will notify you and refuse to install MIDAS. If disk space is only somewhat inadequate, the installation program will notify you and ask whether you want to continue anyway. See Section 2.1 for information on MIDAS's disk space requirements.

8. If you have enough disk space, the installation program will start installing files from the first diskette. You will be prompted to insert each successive diskette and press [Enter].

9. When installation is complete, you will be returned to the DOS prompt. If any errors occur during installation, contact USADACS for assistance.

3.3 REINSTALLING SOFTWARE AND/OR LIBRARIES

You can reinstall the MIDAS software without destroying the data in the local and central libraries. If the installation program detects that you already have version 3.0 installed on the drive you selected, it will bring up a special Reinstallation Menu (Figure 3.1). You have the following options:

- "Reinstall MIDAS software only": Reinstalls the software, leaving your local library and central library alone. Reinstalling the software removes any software updates that you might have downloaded since MIDAS was originally installed.

- "Reinstall Central Library only": Reinstalls the central library only. It does not reinstall software or remove software updates. It might be preferable to instead re-download the current central library from the server; see Section 5.5.

- "Reinstall everything but Local Library": Reinstalls the software and central library but leaves your local library alone. It removes any software updates you might have applied.

- "Reinstall everything": Deletes all MIDAS software and data from your hard drive before reinstalling. It removes any software updates you might have applied.

- "Quit": Aborts the installation.

After you have made a selection from this menu, the installation process will proceed as described in Section 3.2. Depending on what you chose to reinstall, some of the installation diskettes may be skipped.

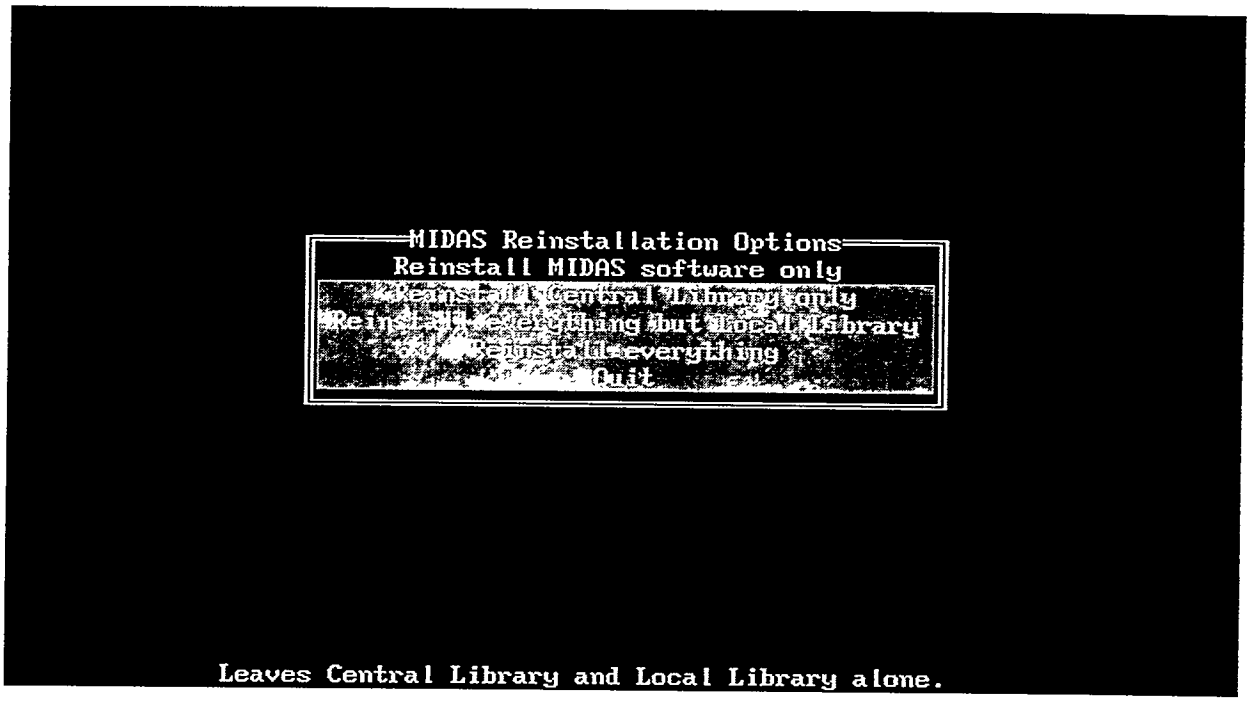

FIGURE 3.1 Reinstallation Menu

4 GETTING STARTED

This section describes how to run MIDAS and use MIDAS's initial menu.

4.1 RUNNING MIDAS

MIDAS can be started either from the DOS prompt or from within Microsoft Windows.

4.1.1 From the DOS Prompt

The MIDAS installation program copies a MIDAS batch file to the root directory of your C drive (or whatever drive letter you specify at install time). To run MIDAS, just make sure that your current drive is the drive in which MIDAS was installed (for example, type *C:* to switch to that drive), then type *MIDAS* and press [Enter]. Do not change into the MIDAS directory itself before running MIDAS.

4.1.2 By Using Microsoft Windows

MIDAS was developed to run under Version 5.0 (or a later version) of DOS. It was not designed to run under Windows and has not been extensively tested under Windows. It will run under Windows, but with some restrictions. Please keep the following information in mind when you run MIDAS under Windows:

- If you run MIDAS under Windows and experience any problems with the software, you must determine whether the same problem occurs when MIDAS runs outside Windows before reporting the problem.

- The weight estimation program will not run under Windows because the DOS and Windows environments are incompatible in the way they handle the mouse and graphics.

- The Network Functions Menu cannot be used under Windows. If you need to connect to the MIDAS server, or if you need to download software updates or the central library, you must do so before starting Windows.

To run MIDAS under Windows, use the MIDAS.PIF file in the MIDAS directory, which contains the appropriate settings for running MIDAS in a DOS window. You may run this file

directly using the Run command on the Program Manager's File menu, or you may create a program icon associated with the MIDAS.PIF file so that you can start MIDAS by double-clicking on the icon.

4.2 INITIAL MENU

Figure 4.1 shows the MIDAS Initial Menu. You can move the cursor to the desired menu item by using the up and down arrow keys. Select an item by pressing [Enter].

- To enter MIDAS itself, choose MIDAS Databases.
- To run the weight estimation program, choose "Weight Estimation." (See Section 1.3 for a description of the weight estimation program.)
- To connect to the MIDAS server and perform other functions related to the server, choose "Network Functions."
- To return to the DOS prompt, choose "Exit."

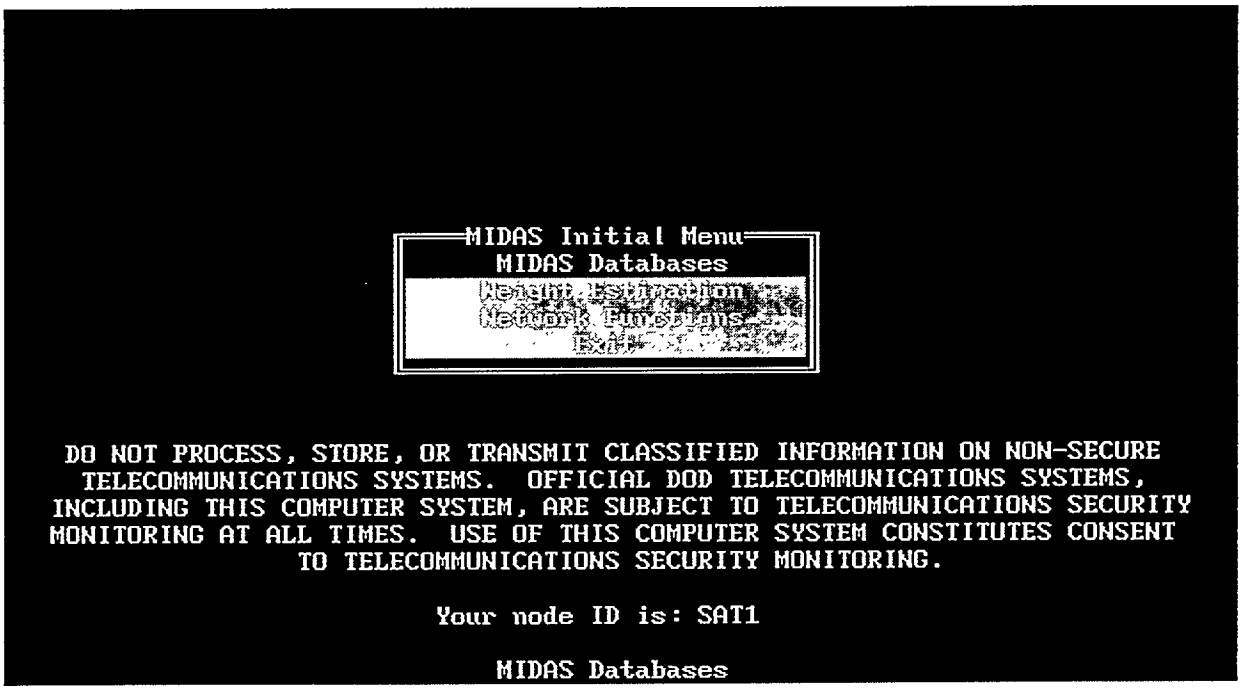

FIGURE 4.1 Initial Menu

5 NETWORK FUNCTIONS MENU

If you choose "Network Functions" from the Initial Menu, you will move to MIDAS's Network Functions Menu, shown in Figure 5.1. (To operate this menu, use the same keystrokes that you used for the Initial Menu.) From this menu, you can configure various networking options, connect to the MIDAS server, and exchange data with the server, as described below.

If you are connected to the MIDAS server and choose "Network Functions," a different menu with additional available functions is displayed (Figure 5.2). Also, instead of the option of "Connect to Server," you can select "Disconnect From Server." (See Section 5.6 for further information on the "Disconnect from Server" function.) When you are done using the Network Functions Menu, choose "Return to Initial Menu" to return to the Initial Menu. Please note that you can exit MIDAS and still stay connected to the MIDAS server.

If you are a user at USADACS who is connecting to the server via a direct network connection, the MIDAS network administrator will configure your system for you, so you can skip Section 5.1.

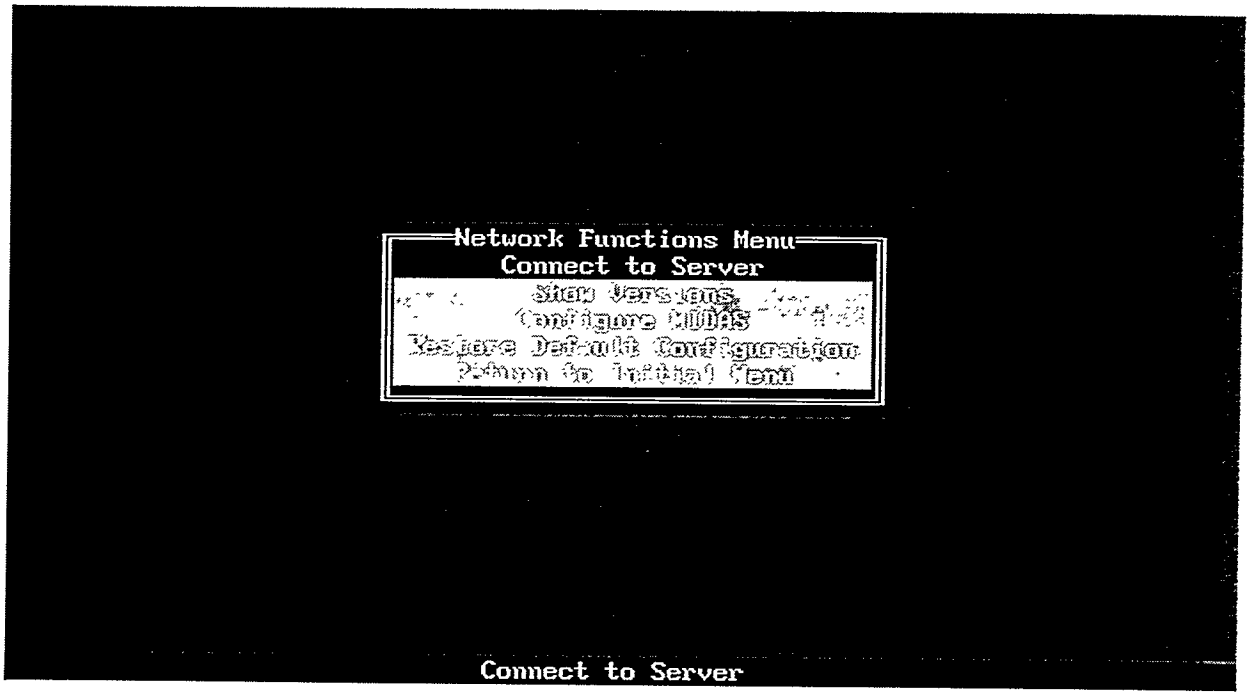

FIGURE 5.1 Network Functions Menu before Connection to Server

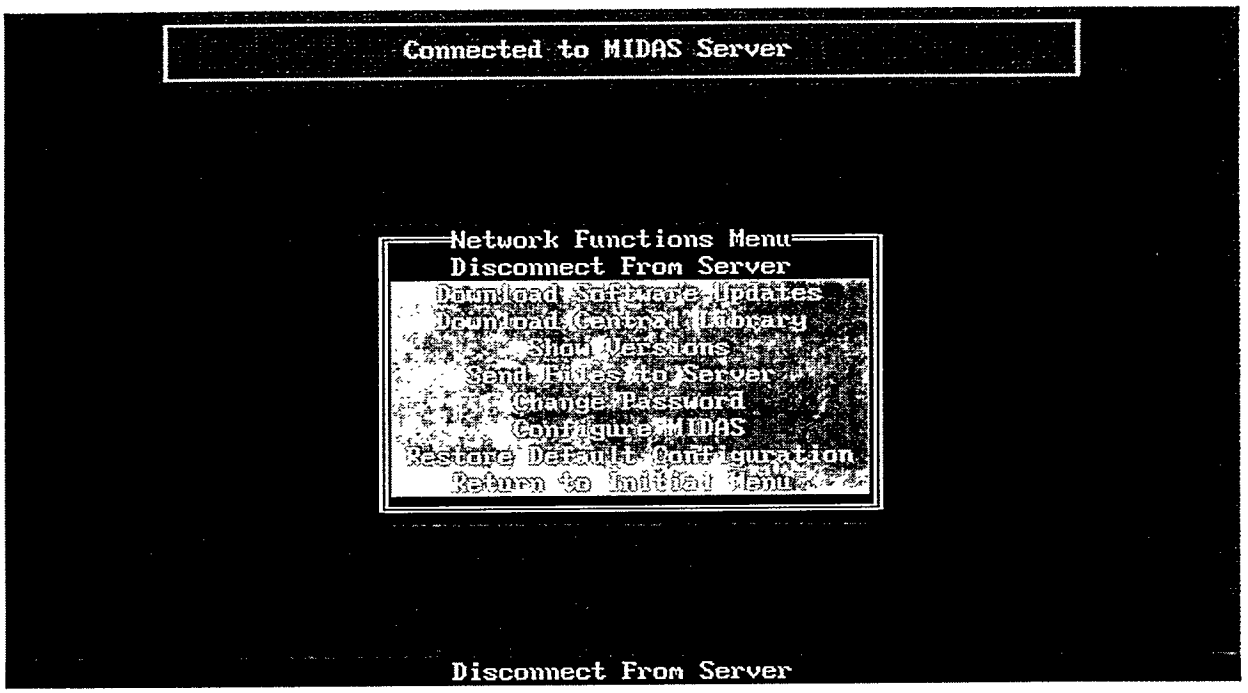

FIGURE 5.2 Network Functions Menu after Connection to Server

5.1 MODEM CONFIGURATION

To configure MIDAS to work with a modem, you need to know the following information:

- Interrupt: Which interrupt has the serial port (or internal modem) been configured to use?

- Port address: Which port address has the serial port (or internal modem) been configured to use?

If you are using an external modem on the COM1: port, the correct values are probably interrupt 4, port address 3F8. If you are using an external modem on the COM2: port, the correct values are probably interrupt 3, port address 2F8. Most PC hardware is configured to use these standard values. If you are using an external modem, consult the documentation for your computer or serial port card to determine the correct values. If you are using an internal modem, consult the documentation for the modem. You might also try running a diagnostics program such as Microsoft's msd program (included with recent version of MS-DOS). If you run msd and choose the Com Ports option, you will see a list showing which port addresses[4] are associated with which ports

[4] msd shows port addresses with a trailing H. Do not include the H when entering the address into the MIDAS configuration file.

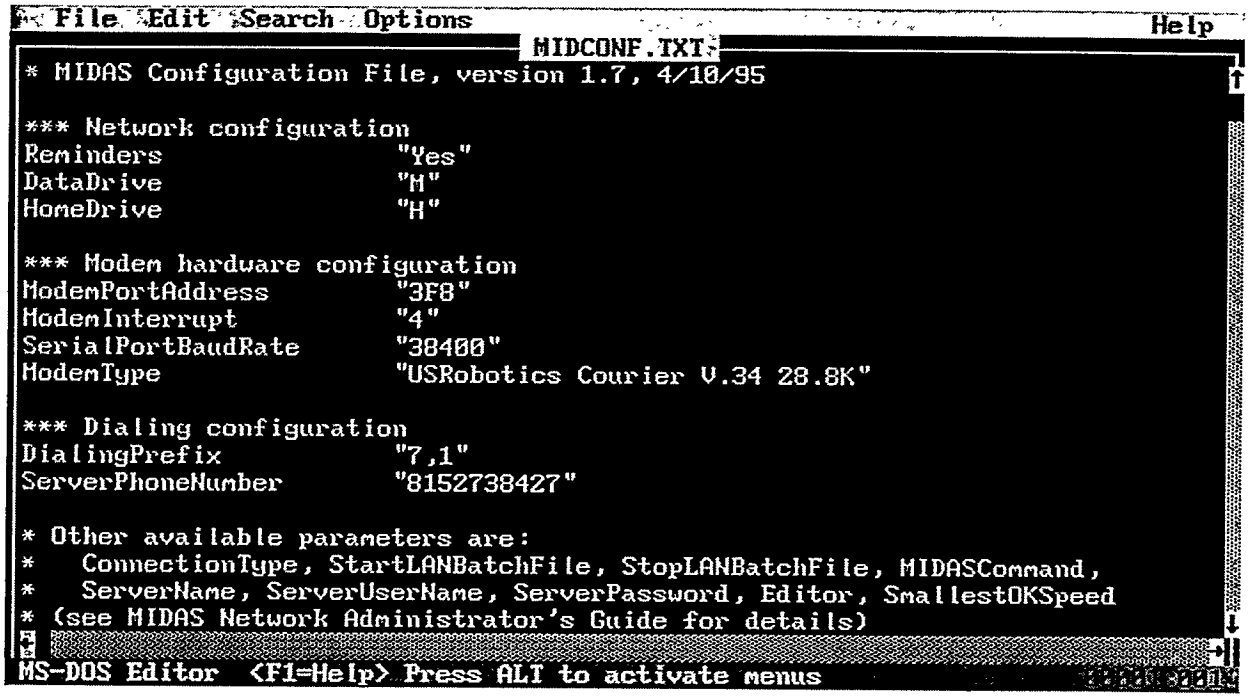

FIGURE 5.3 DOS Editor Screen for Configuring Network Settings

and/or internal modems.[5] If you choose the "IRQ Status" option, you will see a list showing which interrupts are associated with which ports. MIDAS will not be able to use your modem unless these settings are made correctly.

Once you have determined your modem's interrupt and port address, choose "Configure MIDAS" from the Network Functions Menu. You will be placed into the DOS Editor Screen with a file containing the networking settings (Figure 5.3).[6] Edit the lines that begin with "ModemInterrupt" and "ModemPortAddress" to reflect the interrupt number and port address you have determined. Type the values between the pairs of double quotes. Do not remove the double quotes; they are required. "SerialPortBaudRate" should be set to 9600 if you have a 9.6-kbps modem, 19200 if you have 14.4-kbps modem, and 38400 if you have a faster modem.[7] Finally, you need to set "ModemType" to the exact brand and model of modem you have. Choose from the list of modems in Appendix B. You must type the name exactly as it is listed in the appendix. If your modem is not on the list, contact USADACS for assistance.

---

[5] If COM3 is not in use, msd will sometimes incorrectly indicate that a device is on COM3 when it is really on COM4.

[6] For help using the editor, consult your DOS manual or use the editor's on-line help facility. Press the [F1] key to activate on-line help.

[7] If your serial port has a 16550 UART chip, or if you have an internal modem that simulates the presence of this chip, you may want to try setting SerialPortBaudRate to 57600 for increased performance.

"ServerPhoneNumber" is preset to 8152738427. (If you are in the 815 area code, you may need to remove the 815. If you are a modem user at USADACS, you may also need to remove the 273.) Make sure that "DialingPrefix" is set appropriately for your site to include whatever needs to be dialed before the phone number when making a long-distance call. A typical "DialingPrefix" setting would be 9,1. The comma indicates that the modem should pause at that spot when dialing. If you can dial through DSN, the server is reachable at 5858427. You will need to prefix this number with the appropriate dialing sequence for accessing DSN; for example, 8,5858427.

If you have trouble getting your modem to work with MIDAS, you may want to first make sure the modem operates properly when ordinary communications software is used. Most modems are sold with a communications software package for dialing into BBSs and similar systems. If you can get the modem to work with this package first, it will be easier to set up MIDAS to work with the modem.

If you make a mistake in your configuration and want to start over, choose "Restore Default Configuration" from the Network Functions Menu. Any changes you have made will be lost.

Assistance with configuration is available from USADACS.

5.2 CONNECTING TO THE SERVER

Before you can connect to the server, you must obtain a username and password from USADACS. You must also configure MIDAS to recognize your modem; use the instructions in Section 5.1.

When you are ready to connect, choose "Connect to Server" from the Network Functions Menu. You will see a series of messages indicating the progress of the connection process. If at any point you get the message "Connection failed," see Appendix D for troubleshooting information.

You will be notified if your actual connection speed is less than the recommended minimum speed of 14.4 kbps and given the option of aborting the connection attempt so you can try again to get a better connection. (See Section 2.4.2 for a discussion of connection speeds.)

Once a connection between your modem and a modem on the server has been established, you will be asked to enter the username and password that were assigned to you by USADACS. If your username and password are not accepted by the server, perhaps because you mistyped them, you will be given the option of attempting to enter them again.

If your name and password are accepted by the server, the login process is complete. You will be returned to the Network Functions Menu, and there will be a blue box at the top of the screen reading "Connected to MIDAS Server" (see Figure 5.2).

5.3 CHANGING YOUR PASSWORD

The first time you connect to the server, you should choose "Change Password" from the Network Functions Menu and select a password that is known only to you and is impossible for others to guess. Your password will be harder to guess if you include some numbers or punctuation marks. You should also change your password if you have any reason to suspect anyone may have discovered it. Do not write down your password! Choose a password you can remember.

When changing your password, you will first be asked to enter your old password; then you will be asked to enter the new password twice, to guard against typing mistakes. If you forget your password, contact USADACS for assistance.

5.4 DOWNLOADING SOFTWARE UPDATES

When you connect to the server, you will automatically be told if there are any new software updates available. To apply the updates, choose "Download Software Updates" from the Network Functions Menu. As each update is applied, you will see a short description of the update. As each file is downloaded, modem users will see a display of the elapsed time and total expected download time for that file. Modem users will also be given an estimate of the total download time for each update. If for some reason you are disconnected from the server in the middle of an update, the MIDAS software will not be affected.[8] If any errors occur during the software update process, contact USADACS for assistance.

5.5 DOWNLOADING THE CENTRAL LIBRARY

When you connect to the server, you will automatically be told if a new version of the central library is available. To download the new central library, choose "Download Central Library" from the Network Functions Menu. You may also choose this option at any time to re-download the current central library, even if you already have the current version. (You might want to do this if your copy of the central library somehow becomes corrupted; a USADACS central library manager might also want to choose this option to undo any changes he or she has made to the central library.)

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[8] There is a small possibility that corruption would occur if the disconnection were to happen at *exactly* the wrong time, but this situation is highly unlikely in practice.

Modem users will be given an estimate of the total download time, and a progress indicator will be shown. If for some reason you are disconnected from the server in the middle of downloading the central library, your old central library will be left untouched.

5.6 DISCONNECTING FROM THE SERVER

When you are done communicating with the server, you can disconnect in one of two ways. In the first way, you can select "Disconnect from Server" from the Network Functions Menu, which will immediately disconnect you from the MIDAS server. If you are a user who is connected by modem, this option means MIDAS will end the telephone connection and hang up.

In the second way, you can return to the Initial Menu and select "Exit." This option will enable you to exit MIDAS without immediately disconnecting from the server. If you are a user who is connected by modem, MIDAS will ask if you wish to hang up, since you are accruing telephone charges. (MIDAS does not prompt LAN-connected users.) If you exited MIDAS but did not disconnect from the server, you can then disconnect at any time by typing *MIDAS*, selecting "Network Functions" from the Initial Menu, and then selecting "Disconnect from Server."

5.7 OTHER NETWORK OPTIONS

5.7.1 Obtaining Information on Your Software and Library Versions

Choosing the "Show Versions" option from either of the Network Functions Menus (Figure 5.1 or 5.2) shows you:

- What version of the central library you have, when that version was created, and when you downloaded it, and
- What set of install diskettes you used to install MIDAS, which updates you have applied, and when you applied them.

If you call USADACS to report a problem or request assistance, you may be asked for this information.

5.7.2 Sending Files — Not Finished Data — to the Server

Choosing the "Send Files to Server" option from the Network Functions Menu allows you to copy the contents of a directory on your local machine into a special area of the server set aside for exchanging data. If a need arises for you to use this option, your contact at USADACS will tell you what to do. Do not use this function to submit finished munitions data. For information on submitting data to the server, see Sections 13.2.1 and 13.2.3.

6 LOGIN SCREEN

6.1 GETTING TO THE MAIN MENU

After you choose "MIDAS Databases" from the MIDAS Initial Menu (see Section 4.2), after a short delay, you will see the Login Screen (Figure 6.1). The Login Screen displays the date and time and prompts you for your assigned userid and password. MIDAS uses the date, time, and userid to mark information when it is entered or updated. It is important that this information be correct. If the date and time are not correct, exit MIDAS by pressing [Esc] and correct the problem by using the DOS "DATE" and "TIME" commands.

Your userid and password can each be eight characters or less. The system administrator for your installation (who may be you) assigns a userid and password. Enter your userid at the "USERID" prompt, then press [Enter]. Enter your password, then press [Enter]. If you make a mistake or if your password is invalid, MIDAS displays a warning message and continues to prompt you until you do enter a valid userid and password. If MIDAS does not accept your userid or password after repeated attempts, press [Esc] to exit. Contact your system administrator to check your userid and password. When you have entered a valid userid and password, MIDAS advances to the Main Menu.

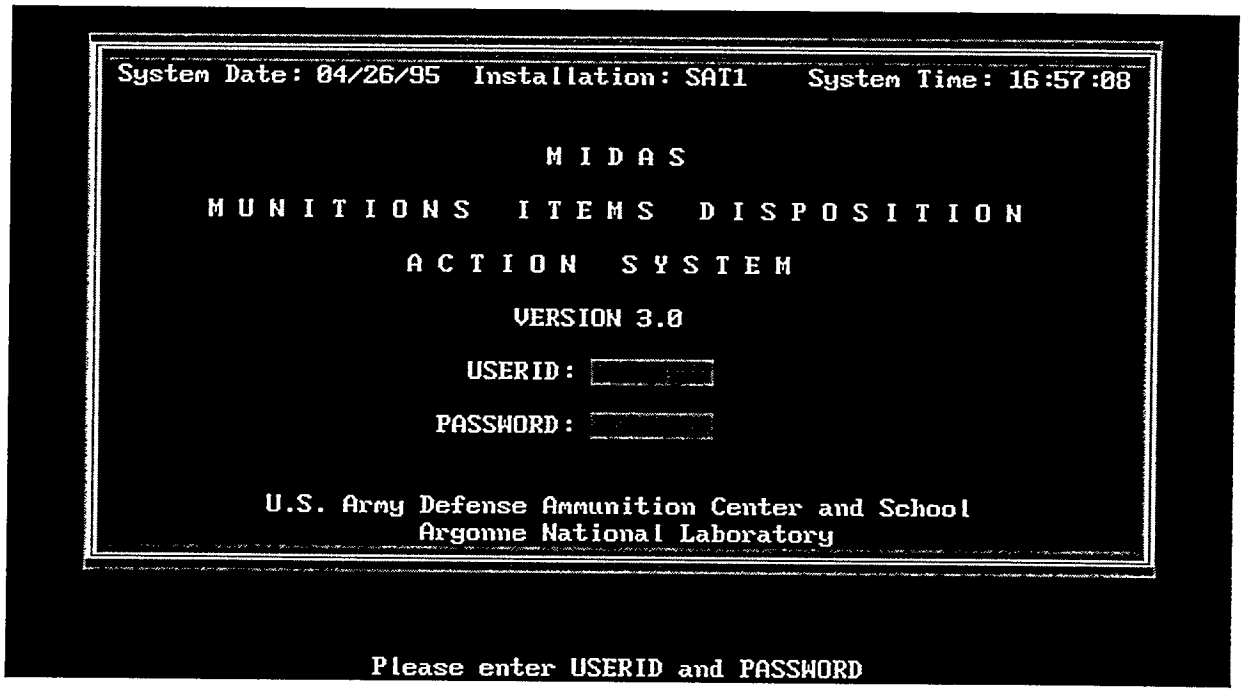

FIGURE 6.1 Login Screen

The name and password that you enter in the Login Screen are not necessarily related to the name and password you are given to log in to the server. Server names and passwords are assigned by USADACS and are networkwide. MIDAS login names and passwords are local, apply to your own machine, and can be assigned by any local user with SUPERUSER access level. Access levels are described below.

6.2 ACCESS LEVELS

Each userid has an access level associated with it. The different access levels are as follows:

- VIEW: Users with this access level may enter the system and view data but may not change any data.

- UPDATE: Users with this access level may both view and modify data in the local library; they can create and delete items.

- REVIEW: Users with this access level, in addition to all the privileges associated with access level UPDATE, may select, review, and edit data that have been submitted to the MIDAS server.

- SUPERUSER: Users with this access level, in addition to all the privileges associated with access level UPDATE, may use all of the functions on the System Administration Menu; they can create and delete user accounts and assign access levels.

- USADACS: Only users with this access level may modify the central library. A special item on the Main Menu, "Manage Central Library," appears only for these users. (See Section 16 for more information on this menu item.)

7 MIDAS DATABASES

This section describes the structures of the databases managed by the MIDAS software. Briefly, the types of items contained in the databases are munitions, components, parts, bulk items, materials, and compounds. (These item types are explained in detail in Section 7.2.) Figure 7.1 shows the MIDAS item types and how each item type may be linked to others. (The ovals labeled MCLINK, MPLINK, CCLINK, and CPLINK in the figure are special internal tables that contain the links among munitions, components, and parts.) Each item type has a list of data fields that identify the item and appropriate references that link the item to other items in the database. All the data fields in each of the above libraries are listed in Appendix C, Table C.1.

Figure 7.1 does not indicate the division between local and central libraries. The rules for linking between the local and central libraries are as follows. In general, local items may contain central items. (Compounds and bulk items are exceptions; local materials may contain only local compounds, and local parts may contain only local bulk items.) However, central items may not contain local items. For example, a local component may contain a central part or a central component, but a central component consists only of central parts and components.

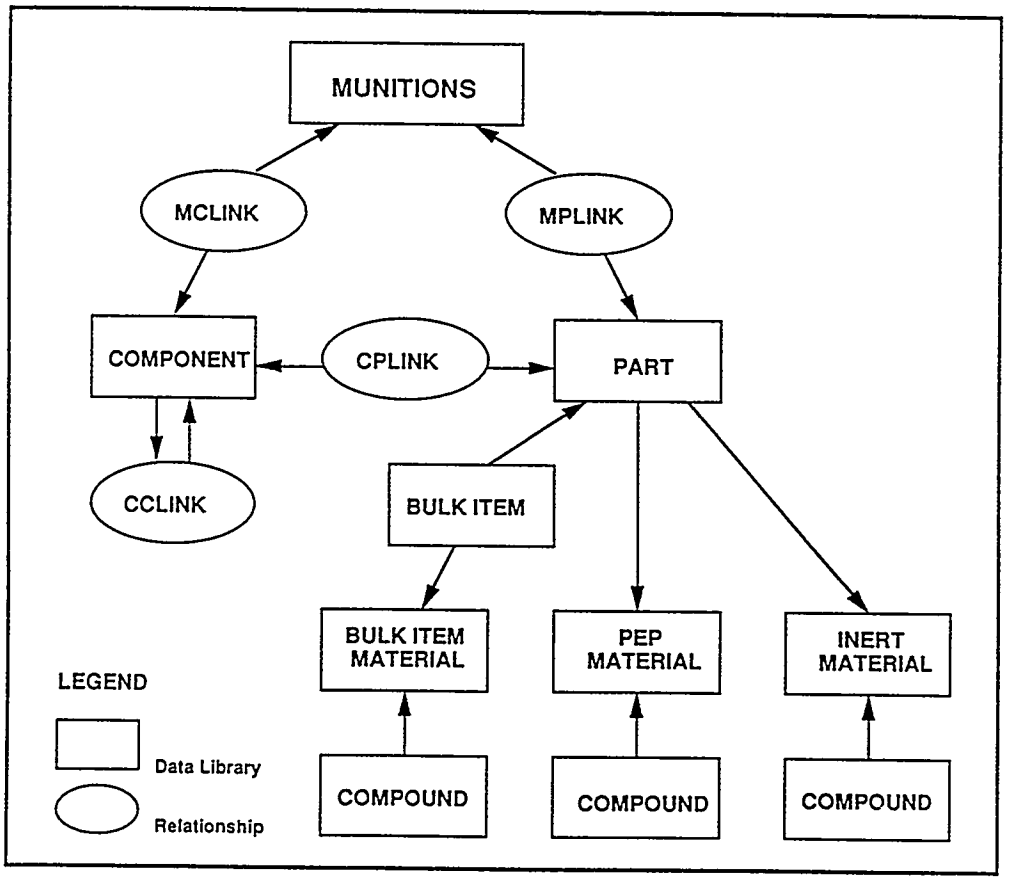

FIGURE 7.1 Structure of Databases

7.1 DATA FIELDS

7.1.1 Common Data Fields

These are some of the data fields that are used to characterize different types of items:

- NSN: The national stock number is a unique 13-digit number assigned to every munition. Components and parts may also have an NSN. For munitions that have different packaging configurations, each packaging configuration is assigned a separate NSN.

- DODIC: The U.S. Department of Defense identification code is a four-character code assigned to each munition.

- Nomenclature: This data field is the name of a munition, component, part, material, compound, or bulk item. Its length is 40 characters or fewer.

- Drawing number: Each service of the Armed Forces keeps a master list of drawing numbers and is responsible for assigning drawing numbers to installations developing munitions.

- Revision: This data field is used to keep track of different versions of the same drawing number.

- Specification: This data field tells you to which military or commercial specifications an item must conform.

- TGCS: This data field contains type, grade, class, and style.

- Status: This data field tells you whether an item has been completely entered yet or not. Possible values are OFFICIAL, COMPLETE, PARTIAL, and blank. Only completed items in the central library are marked as OFFICIAL; local items cannot have this status. When you complete an item in your local library, you mark its status as COMPLETE. If you are not done entering all of the data for the item, you mark its status as PARTIAL.

Further descriptions of these data fields and the rules for entering data into these fields are provided in Appendix C.

7.1.2 Key Fields

For certain types of items in the database, a set of "key fields" has been defined. Table 7.1 shows which key fields are associated with which item types. Together, these key fields define what makes an item unique. For example, the key fields for munitions are NSN and DODIC. No two munitions in the database should ever have exactly the same NSN and DODIC, because these two fields completely determine the identity of a munition. MIDAS uses the key fields at various places in the system to enforce uniqueness of items.

7.1.3 System Fields

MIDAS closely tracks when data are entered and who enters them. When data are first entered, the following data fields are completed by MIDAS:

- Creation node ID: The node ID of the machine on which the item was created. (For more information on node IDs, see Section 3.1)
- Creation person: The userid of the user who created the item. (For more information on userids, see Section 6.1.)
- Creation date: The date that the data were entered.
- Creation time: The time that the data were entered.

There is a corresponding set of fields for updates. When any entry is updated, the fields are updated to reflect the node ID, person, date, and time of the update. Only the last update information is stored. Therefore, if a specific entry is updated many times, only the last update is noted.

TABLE 7.1 Key Fields

Type	Key Fields
Munition	NSN, DODIC
Component	NSN, Drawing No., Revision
Part	Drawing No., Revision, Material (all material key fields must match)
Material	Nomenclature, Specification, TGCS

7.2 ITEM TYPES

This section describes in more detail the different types of items found in MIDAS: munitions, components, parts, bulk items, materials, and compounds.

7.2.1 Munitions

A munition consists of parts and components. A munition is represented in the system by a set of data fields (including the key fields NSN and DODIC) and a set of links to the first-level parts and components it contains. The adjective "first level" indicates that the part or component it modifies is linked directly to that munition. For example, if a munition contains a component, and that component contains a subcomponent, the subcomponent is part of the structure of that munition but is not a first-level component of that munition.

7.2.2 Components

A component consists of parts and possibly other components. A component is represented in the system by a set of data fields (including the key fields NSN, drawing number, and revision) and a set of links to the first-level parts and components it contains. (When a component contains another component, the second component is often referred to as a subcomponent. The difference between components and subcomponents is purely a matter of a context.) A component is typically not a munition itself. A component is identified as a separate item because many components are used in more than one munition. In other words, as data for munitions are entered, MIDAS builds a library of components. Therefore, for a new munition, MIDAS may already contain the data on some or all of its components. A component is typically assigned a drawing number, which is given to a diagram of the component.

7.2.3 Parts

The defining characteristic of a part is that it consists of a single material. Parts are included in components and munitions. A part is represented in the system by a set of data fields (including the key fields drawing number and revision) and a link to a single material (all of the material's key fields are also considered key fields for the part).

7.2.4 Bulk Items

Bulk items are coatings, adhesives, and other small quantities of materials associated with a part that may be important in the disposal of that part but are not identified by drawing number or as a separate part. Data on bulk items are stored in the Bulk Item Material Library (Figure 7.1).

7.2.5 Materials

A material is defined here as a homogeneous substance that may consist of one or more compounds (in the special sense of the word "compound" as defined in the next section). Examples are TNT, nitroglycerin, nitrocellulose, aluminum, magnesium, sulfur, charcoal, diatomaceous earth, and asphaltum. A material is characterized in the system as a set of data fields (including the key fields nomenclature, specification, and TGCS) and an optional set of links to one or more of the compounds it may contain. There are five types of materials:

- PEP: Propellant, explosive, or pyrotechnic material consisting of one or more chemical compounds. The amount of the material (weight) is specified when a part made of the material is created; the weight may be different for different parts made of the same PEP material.

- Chemical: Any chemical material that is not a PEP material.

- Radioactive: Radioactive material.

- Inert: Physical item, such as a washer, grommet, or casing, made from a material such as metal or plastic. An inert part has a specific weight.

- Packaging: Material that is used to pack an item for shipping or storage (e.g., a wood crate) but is not actually part of the munition. Munitions are cased in units of one or more. Packaging must be accounted for when disposing of a munition, since the packaging will be disposed of also. Since a munition package may consist of a number of munitions, a portion of the packaging is assigned to each munition. For example, for a munition that is cased in units of four, the MIDAS database will contain 0.25 units of packaging for one unit of that munition. If a munition is packaged in different quantities, MIDAS will have a separate munition entry for each packaging configuration. (Each munition entry is assigned a unique NSN.)

Data on PEP, chemical, and radioactive materials are stored in the PEP Material Library; data on inert and packaging materials are stored in the Inert Material Library (Figure 7.1).

7.2.6 Compounds

Typically, a compound is a combination of chemical elements that can be described by a chemical formula. However, certain constituents of a material such as charcoal, diatomaceous earth, and metal alloy are not strictly compounds. Nevertheless, for the sake of convenience, elements and other substances such as these are also included as compounds in the MIDAS databases. The MIDAS library contains the compounds used in materials, as defined by their nomenclature, specifications, and other descriptors. The weight of a compound is not directly specified. Rather, a weight percent of the material is specified. Therefore, for every material, the weight percent of the compounds in the material should always total 100%. When needed, MIDAS calculates the actual weight of a compound used in a part by multiplying the weight percent by the actual weight of the part.

8 MIDAS INTERFACE

This section describes features of the MIDAS interface that are common to the entire system as described in subsequent sections.

8.1 MANEUVERING THROUGH MIDAS

MIDAS operates as a menu-driven system. Consequently, to get to the function or piece of data that you want, you need to be familiar with how different functions are grouped together under the menu options and with what kinds of data the menu options enable you to work.

The basic structure of MIDAS is straightforward. From the View/Update Menu, you can choose "Munitions," "Components," "Parts," or "Materials" to work in that respective part of the MIDAS database. The functions that enable you to generate reports are grouped under two different options on the Main Menu. Functions related to generating standard reports are grouped under the "Standard Reports" option, whereas all the custom-report-generating functions are grouped under the "User Defined Reports" option. The functions that allow data to be exported and imported to and from the local library or central server are grouped under the "Transfer Data" option. All the functions dealing with system administration tasks are grouped under "System Administration."

You maneuver from one part of MIDAS to another by selecting different menu options. Whenever MIDAS presents you with a menu, you can select the option you want by moving the selection bar over it by using the [Up-Arrow] or [Down-Arrow] keys and then pressing [Enter]. Performing this action often brings you to a submenu that presents you with another set of choices. These submenus work in the same way as the Main Menu or any other menu in MIDAS. If you make a mistake and accidentally select a menu option you do not want, you can always return to the previous menu by pressing [Esc]. Furthermore, when you finish using a system function and want to move to another part of the system, you do so by pressing [Esc] until you have returned to the Main Menu from which you started.

MIDAS contains a number of selection screens. These screens share a number of common features. To begin with, all of the items listed on these screens represent data records from the local or central libraries; none of the items ever represent a system function. Whether a selection screen lists munitions, components, or parts, the list always pertains to contents of the MIDAS database. When you want to select an item from one of these lists (for instance, if you wanted to view a data record in more detail), you can always do so by moving the selection bar on the screen over the item you want to select and pressing [Enter]. You can move the selection bar on any of the selection screens in two ways: with the [Up-Arrow] and [Down-Arrow] keys or with the [Page-Up] and [Page-Down] keys. The [Up-Arrow] and [Down-Arrow] keys always move the selection bar only

one entry at a time. The number of items on a selection list is often very large. To move up and down the list quickly, you can press the [Page-Up] and [Page-Down] keys to move the selection bar an entire page's worth of entries at a time. You exit a selection screen in the same way that you exit a menu — always by pressing [Esc].

8.2 KEYBOARD CONVENTIONS

Throughout all of its screens and menus, MIDAS employs certain conventions for added convenience and flexibility. For instance, some keys, such as [Esc] and [Enter], do essentially the same thing throughout the entire system. Furthermore, MIDAS often makes use of certain special "hot keys" to activate certain features. Whenever you see a list of function keys displayed in brackets at the bottom of the screen, you know that each of these keys will automatically activate the system feature associated with it.

- [Esc]: Wherever you are, pressing [Esc] returns you to the place where you previously were.
- [Enter]: When you are scrolling through a list of menu options or selection list items, pressing [Enter] will select the highlighted option or item in the list.
- [F1]: Whenever the [F1] hot key is active, it activates the help feature.
- [F2]: Whenever the [F2] hot key is active, it activates the search function.[9]
- [F5]: Whenever the [F5] hot key is active, it is used to display a detailed diagram for a munition, component, or part.
- [F8]: Whenever the [F8] hot key is active, it is used to add data.
- [F10]: Whenever the [F10] hot key is active, it is used to delete data.

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[9] Data searches on nomenclature always perform a substring search; i.e., MIDAS looks for the specific characters specified starting in column 1 of the data field. All other fields require the entire parameter to be specified.

9 MAIN MENU

To get to the Main Menu, start MIDAS as described in Section 4, choose "MIDAS Databases" from the Initial Menu, and log in as described in Section 6. The Main Menu will appear (Figure 9.1). It displays the main functions of the system and enables you to run one of these functions by moving the selection bar to it and pressing [Enter]. You move the selection bar with the [Up-Arrow] and [Down-Arrow] keys. If you are connected to the server, you will see a purple indicator in the lower left corner of the screen reading "Connected to MIDAS Server." (This same indicator appears in various other screens in the system as well.)

The line at the bottom of the box that begins "Central Library:" shows you whether you are accessing the central library on your hard drive or directly from the server. If you are accessing the central library on your hard drive, this line reads "Central Library: Your Hard Drive." If you are accessing the central library directly from the server, this line reads "Central Library: MIDAS Server." When you are connected to the server, this indicator line is also an active menu item. If you highlight it by using the arrow keys and press [Enter], a pop-up menu will appear to let you select which Central Library MIDAS will access — either your hard drive or the MIDAS server.

The printer indicator line that begins "Current printer:" is also an active menu item. Highlighting it brings up a menu that lets you choose between MIDAS's two modes of output to a printer. If you have a Hewlett Packard Laserjet or compatible printer, choose "H/P Laserjet." If you

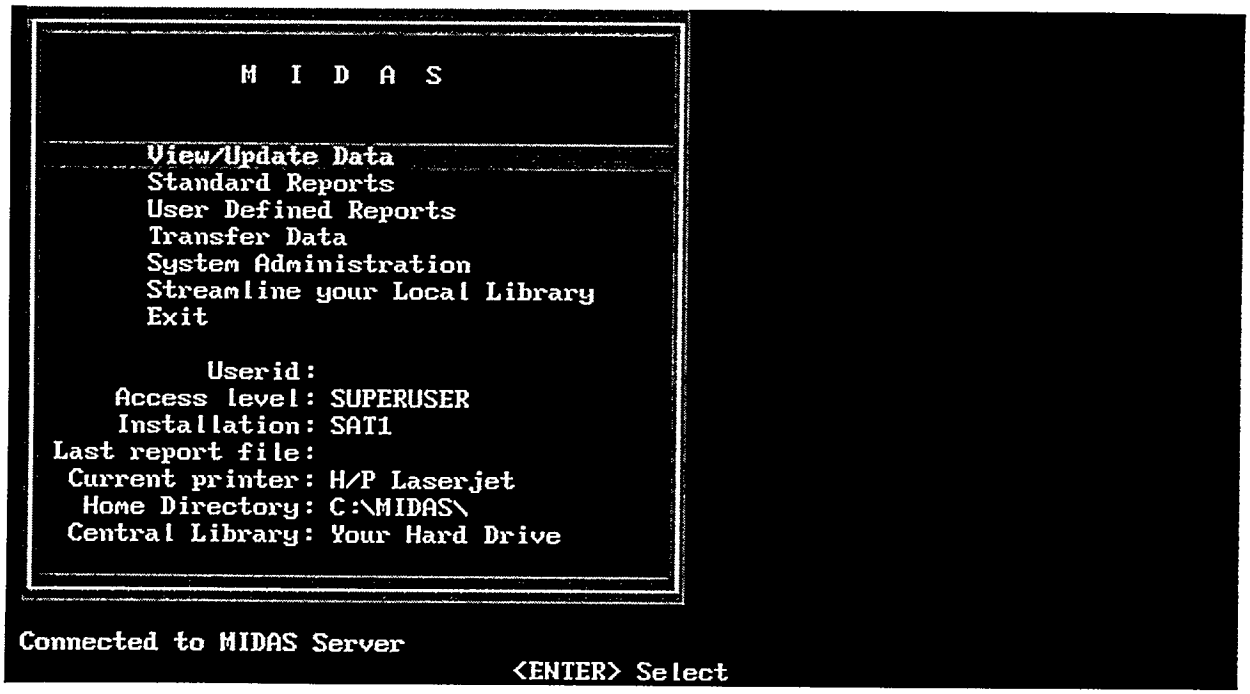

FIGURE 9.1 Main Menu

have a different type of printer, choose "Other printers." For information on requirements and restrictions for printing from MIDAS, see Section 2.3.

Besides the "Current printer" and "Central Library" options available at the bottom of the box, the following functions are available from the top of the Main Menu:

- "View/Update Data": This option lets you view and/or update data for particular munitions in the system, as well as their components and parts. It enables you to add new munitions to the system and delete unwanted ones. It also allows you to access the components, parts, and materials libraries, as well as the official Demil Inventory listing. See Section 10 for further details.

- "Standard Reports": This function lets you generate a number of common reports simply by selecting the one you want from a list on the Standard Reports Menu. See Section 11.

- "User Defined Reports": This option allows you to create custom column-oriented reports that list specific data fields you select, arranged in the order you specify. You can save the custom report formats that you create so you can generate the same report later without having to define it again. See Section 12.

- "Transfer Data": This function lets you export data to a diskette, import data from a diskette, and submit data to the MIDAS server for inclusion in the central library. It also lets USADACS personnel review the data submitted to the server, centralize them, and transfer the new central library to the server. This function can also be used to transfer scanned images to the server. See Section 13.

- "System Administration": All of the following system support functions appear on the System Administration Menu: "Backup Local Library," "Restore Local Library," "Review Backup/Restore Log," "Review Usage Log," "Reindex Local Library," "Delete Local Library," and "User Access Control" (add/delete user, change user access level). However, you will not be able to use some of them if you do not have the appropriate access level. See Section 14.

- "Streamline your Local Library": This function is available and appears as a Main Menu option only if your access level is not USADACS. It brings up a menu that lets you eliminate items in your local library that are duplicates of

items in the local or central libraries. For more information on this function, see Section 15.

- "Manage Central Library": This function is available and appears as a Main Menu option only if your access level is USADACS. For more information on managing the central library, see Section 16.

- "Exit": This option lets you exit the MIDAS database and return to the MIDAS Initial Menu.

Pressing [Esc] has no effect when you are at the Main Menu. To exit MIDAS, you must choose "Exit."

10 VIEWING AND UPDATING DATA

The purpose of the view/update function is to allow you to view, input, change, or delete any of the data in MIDAS. When you select the "View/Update Data" option from the Main Menu, MIDAS advances to the View/Update Menu (Figure 10.1). This menu prompts you to choose the type of item that you want to access and to choose whether you want to look at local or central library items. Select a data category by moving the selection bar with the [Up-Arrow] and [Down-Arrow] keys to the category that you want and then pressing [Enter].

The menu options "Scanned Images" and "Demil Inventory" appear on the screen under the "USADACS CENTRAL LIBRARY" heading because local items cannot have associated scanned images, and the demil inventory is considered part of the central library.

The rest of this section is organized as follows:

- Section 10.1 describes how to enter, view, and edit munitions.
- Section 10.2 describes how to enter, view, and edit components.
- Section 10.3 describes how to enter, view, and edit parts.

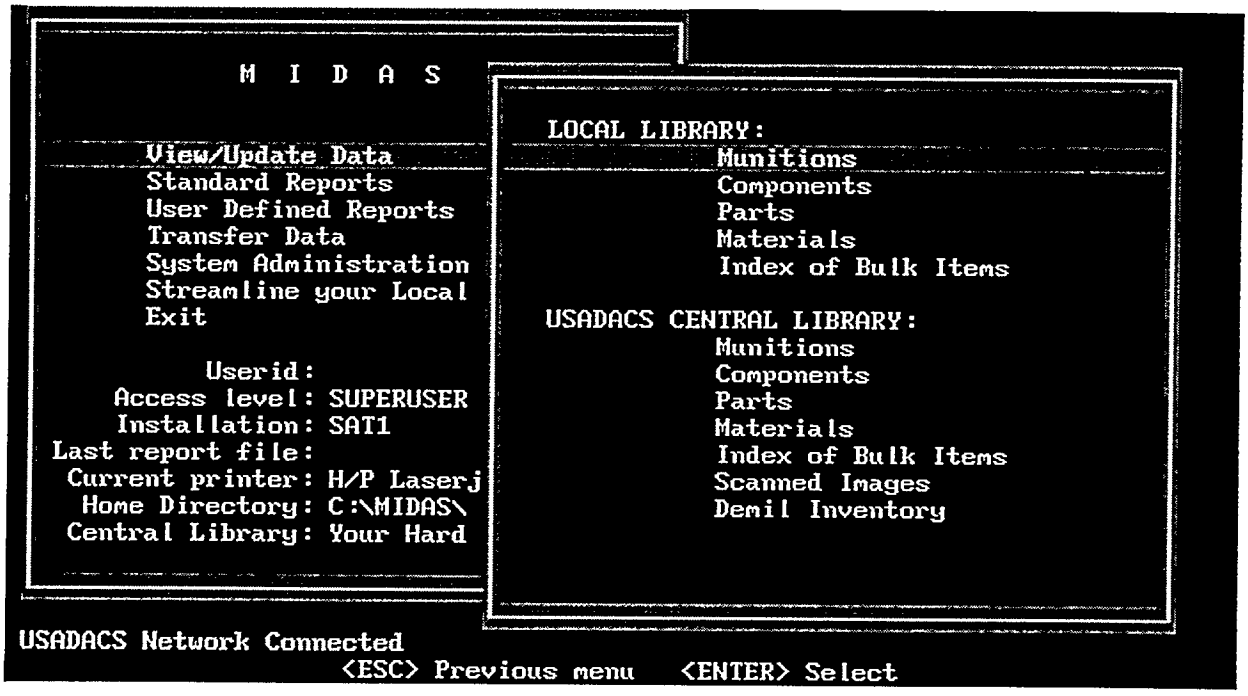

FIGURE 10.1 View/Update Menu

- Section 10.4 describes how to enter, view, and edit materials and compounds.
- Section 10.5 describes how to view and edit the expanded structure of a particular munition, component, or part.
- Section 10.6 describes how to view usage information for a particular component, part, or material (i.e., find all the items in which it is used).
- Section 10.7 describes how to view an index of all the bulk items.
- Section 10.8 describes how to view scanned images of munitions.
- Section 10.9 describes how to view the demilitarization inventory database.

10.1 SELECTING, ENTERING, AND EDITING A MUNITION

When you select "Munitions" from the View/Update Menu, either under the "LOCAL LIBRARY" heading or the "CENTRAL LIBRARY" heading, MIDAS advances to the Munition Selection Screen, which displays a list of munitions in the library you have chosen (Figure 10.2).

Local Library | MUNITIONS | # Entries: 33

SELECT	NSN	DODIC	NOMENCLATURE	QUANTITY	STATUS
	1320004348856	D501	PROJ 155MM ADAM M692E1	0	COMPLETE
	1320012616043	D501	PROJ 155MM ADAM M692E1	0	COMPLETE
	1320000434881	D502	PROJ 155MM HE ADAM M731	0	COMPLETE
	1320010507966	D509	PROJ 155MM RAAM-S M741	0	COMPLETE
	1320000738047	D562	PROJ 155MM HE APERS M449A1	0	COMPLETE
	1320006899365	D562	PROJ 155MM HE APERS M449A1	0	COMPLETE
	1320010142451	D661	CHG PROP 8IN WB M188 W/O PRIMER	0	COMPLETE
	1320000284375	D676	CHG PROP 8IN WB M2 WHIT	0	COMPLETE
	1320000284378	D676	CHG PROP 8IN WB M2	0	
	1320001138006	D676	CHG PROP 8IN WB M2 WHIT	0	COMPLETE
	1365001135818	K531	DISP & RIOT CNTRL AGENT XM32	0	COMPLETE
	1370000285970	L231	SIGNAL ILLUM ACFT SNGL STAR RED M43	0	
	1370005408507	L231	SIGNAL ILLUM ACFT SNGL STAR RED M43A2	0	COMPLETE
	1370006185790	L231	SIGNAL ILLUM ACFT SNGL STAR RED M43A2	0	COMPLETE
	1370006185791	L232	SIGNAL ILLUM ACFT SNGL STAR YLW M44A2	0	COMPLETE
	1370006181402	L233	SIGNAL ILLUM ACFT SNGL STAR GRN M45A2	0	COMPLETE
	1390004323232	N301	FUZE PD M521	0	COMPLETE

<ESC> Previous <F2> Search <F5> Image <F8> Add <F10> Delete <ENTER> Select

FIGURE 10.2 Munition Selection Screen

You can browse through the list of munitions by scrolling up and down. You can work with one particular munition by selecting it from the list. To do this, move the selection bar to the munition that you want and press [Enter]. You can select one of the functions on the Munition Selection Screen by pressing the appropriate hot key:

- [F2] Search: To search for specific munitions.
- [F5] Image: To display a diagram of a munition. (This function is only available when viewing the central library.)
- [F8] Add: To add a new munition to the system. (This function will not be available when viewing the central library unless you have USADACS access level.)
- [F10] Delete: To delete a munition from the system. (This function will not be available when viewing the central library unless you have USADACS access level.)

Each of these functions is described in greater detail in the following sections.

10.1.1 Adding a Munition

While you are on the Munition Selection Screen, you can add a munition to the system by pressing [F8]. MIDAS then displays a Munition Entry Screen (Figure 10.3), on which you can enter the basic data for the new munition, including its NSN, DODIC, drawing number, and nomenclature. You can move from field to field on this screen by using the [Up-Arrow] and [Down-Arrow]. When you have finished entering all the data for the new munition, press [Ctrl+End]. The symbol ↕ indicates the value for the corresponding field are a choice list. Select a value by pressing the space bar repeatedly until you find the appropriate value.

Whenever you enter a new munition, the munition's set of key fields is checked against existing munitions in the local and central libraries to make sure you are not entering a duplicate munition. If you are trying to enter a duplicate munition, MIDAS indicates that the munition is already in the system and will not enter the munition. (This procedure occurs for the other item types as well.)

Example: Add a new munition to the system

1. Start at the Munition Selection Screen.

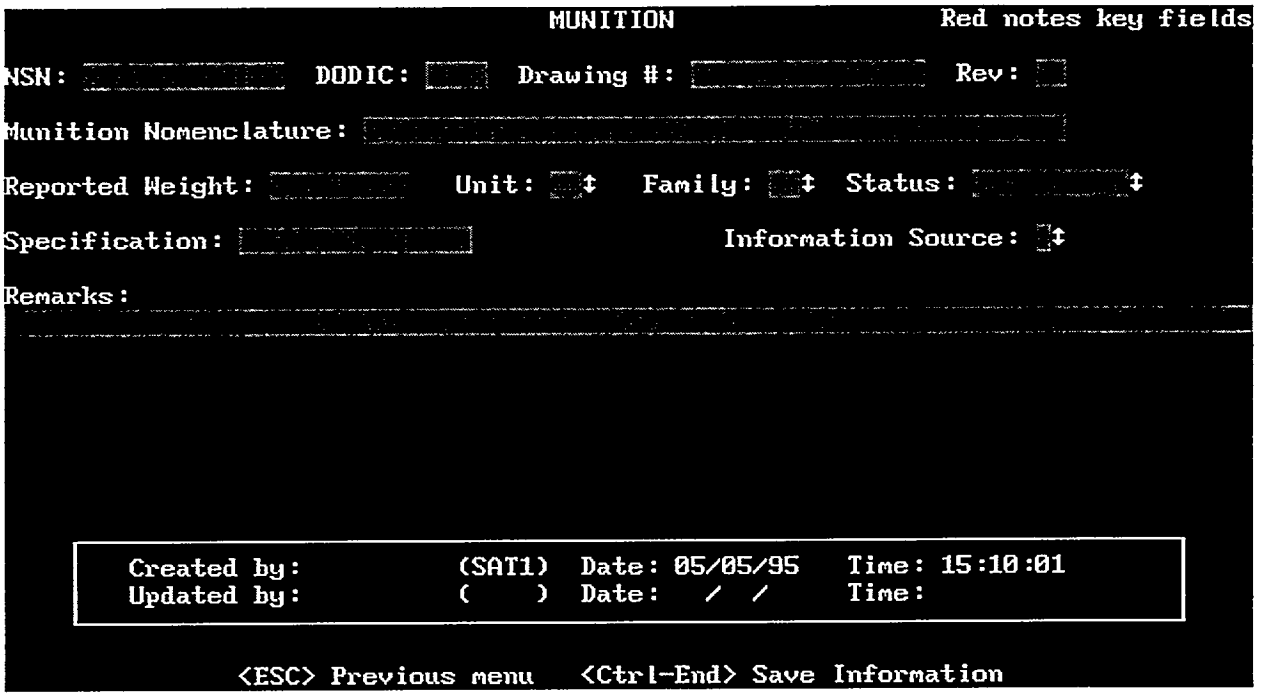

FIGURE 10.3 Munition Entry Screen for Entering Data

2. Press [F8].

3. Press [Down-Arrow] until the cursor is on the munition nomenclature field.

4. Type *A TEST EXAMPLE* and press [Enter].

5. Press [Ctrl+End].

6. Move the selection bar on the Munition Selection Screen over the entry you have just created — the line reading *A TEST EXAMPLE.*

7. Press [Enter] to look at it in more detail. Note the date and time it was created.

10.1.2 Deleting a Munition

To delete a munition from the system, move the selection bar over the munition you want to delete. Next, press [F10]. A confirmation window will appear, and you will be prompted on whether the munition in question is really the one you want to delete. If it is the munition you want to delete, press [Enter]. Otherwise, press [Esc], and the munition will remain in the database.

Example: Delete a munition from the system

1. Create a test example munition by following the steps for the [F8] Add function as described above.

2. Move the selection bar on the Munition Selection Screen over the test example munition you just created.

3. Press [F10].

4. Read over the information in the Munition Deletion Confirmation Window.

5. Press [F10].

6. Press [Enter] in the Munition Deletion Confirmation Window.

7. Note that the test example munition no longer appears in the Munition Selection Screen.

10.1.3 Searching for a Munition

The search function enables you to limit the number of munitions with which you are working by searching for and selecting a subset of munitions in the system. Press [F2] on the Munition Selection Screen to advance to the Munition Search Screen (Figure 10.4).

The Munition Search Screen provides data entry fields that enable you to specify the parameters for your search. You enter the criteria that you want all the munitions in your subset to meet in these data entry fields. For instance, if you want to search for all the munitions that begin with the letter "C," just enter C in the nomenclature field; leave the other fields blank. Similarly, if you want to search for munitions with NSN of 1320009869781, enter this number in the NSN field.

To move from one parameter to another, press the [Up-Arrow] and [Down-Arrow]. When you have finished entering the parameters for your search, press [F3] to execute the search. The number of items selected that match your search criteria is displayed in the upper right corner of the screen. If MIDAS located items that match your search criteria, the search status bar changes to a green box labeled "Search: ON." If no match was found, this status bar is a red box labeled "Search: OFF."

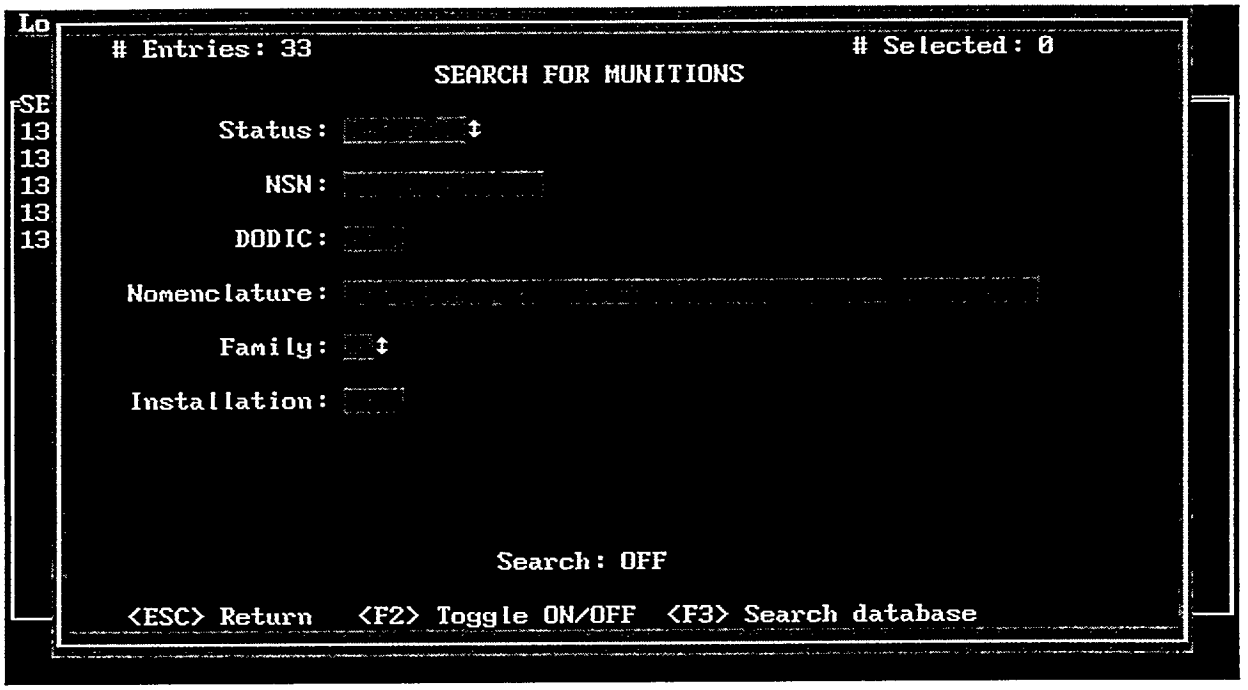

FIGURE 10.4 Munition Search Screen

The search status bar tells you whether your search is toggled on or off. If it is on, when you exit the search window, MIDAS will list only the munitions that meet your search criteria; if it is off, it will list all the munitions that exist in the system. Press [F2] to toggle the search criteria on or off at any time.

When you are searching any of the databases on the nomenclature field, a substring search is performed; in other words, any record in which the nomenclature field contains the search string at any location will be considered a match. For example, the results for the search string SIGNAL would include the nomenclatures SIGNAL ILLUM or PROJECTOR SIGNAL, since they both contain the string SIGNAL.

Example: Search for specific munitions

1. On the Munition Selection Screen, press [F2].

2. For this example, enter the word *CASE* in the Nomenclature field.

3. Note the number that follows # Entries and the number that follows # Selected in the upper part of the window.

4. Press [F3].

5. Now look at the number that follows # Selected.

6. Press [Esc].

7. Note how the Munition Selection Screen now contains only those munitions whose nomenclature somewhere contains the word *CASE*.

8. Press [F2] to activate the search function again.

9. Toggle the search status bar setting to "Search: OFF" by pressing [F2] and then pressing [Esc].

10. Note that the list of entries on the Munition Selection Screen has returned to what it was before — a complete list containing all the munitions in the current library.

10.1.4 Displaying a Diagram of a Munition

While you are on the Munition Selection Screen, you can view a diagram to see any of the munitions on it and the location of its major components and parts. Move the selection bar to the munition you wish to view and press [F5]. MIDAS will display a graphical digitized picture of the munition (Figure 10.5) until you press another key. Afterward, it will return to the Munition Selection Screen.

Example: Display a diagram for a munition

1. Move the selection bar on the Munition Selection Screen over a munition whose diagram you would like to view and press [F5].

2. Examine the diagram of the munition.

3. If MIDAS instead displays a window containing the message No image file for this munition, MIDAS does not have an image for that munition.

4. Press [Enter] when you are done.

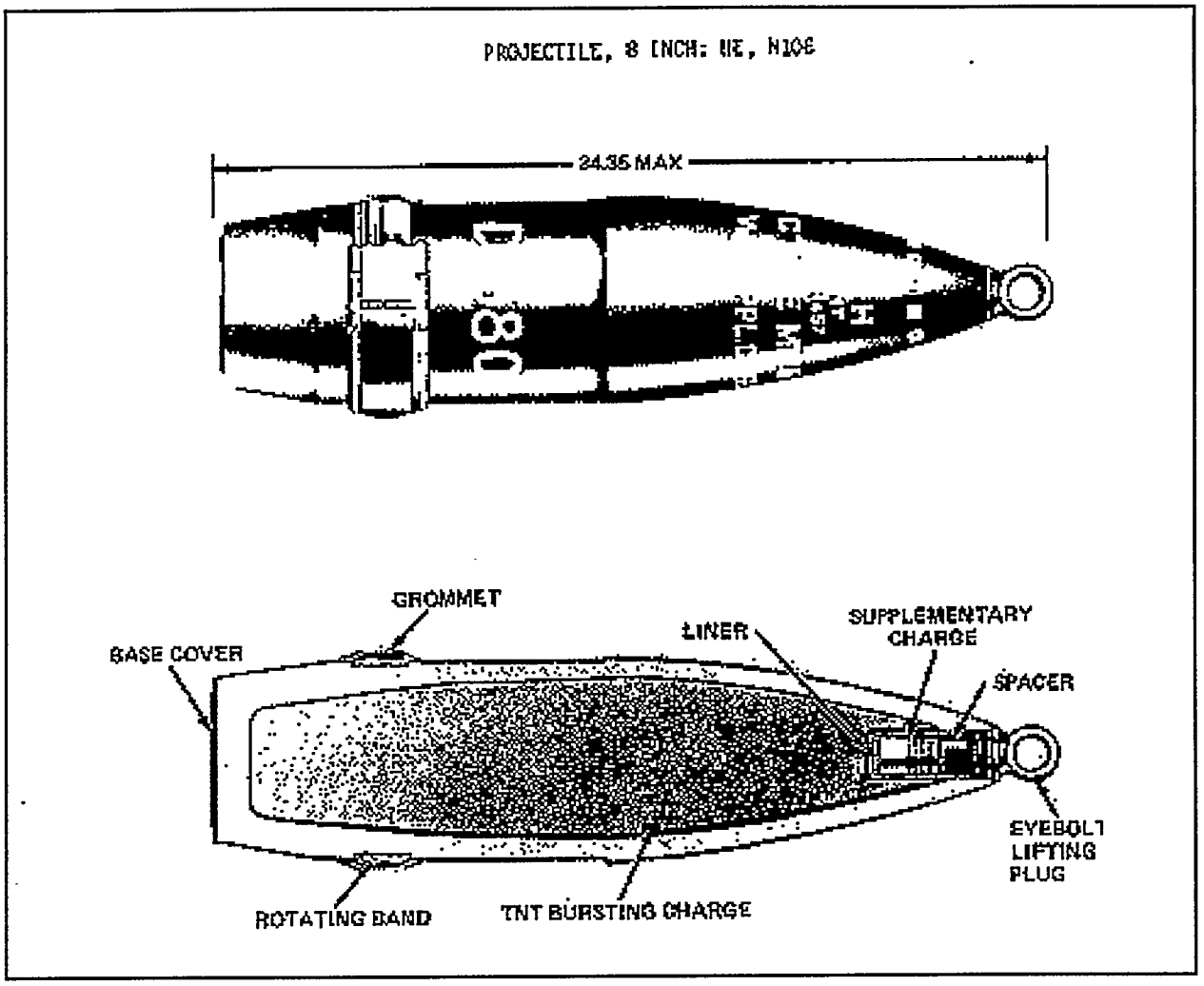

FIGURE 10.5 Munition Diagram Screen

10.1.5 Viewing and Updating a Munition

Select a munition by highlighting a particular munition on the Munition Selection Screen and pressing [Enter]. MIDAS will advance to a screen that lets you work with the munition, the Munition View/Update Screen (Figure 10.6).

This screen acts as a kind of stepping stone to a number of different functions for viewing and editing the munition you selected. You can use it to access, view, and modify different kinds of data for the selected munition, such as data on the structure of the munition (with all of its components and parts) and its digitized image. In the middle, this screen displays the detailed data for the selected munition. At the top, it displays a menu bar of different options. The following options are available from this menu bar:

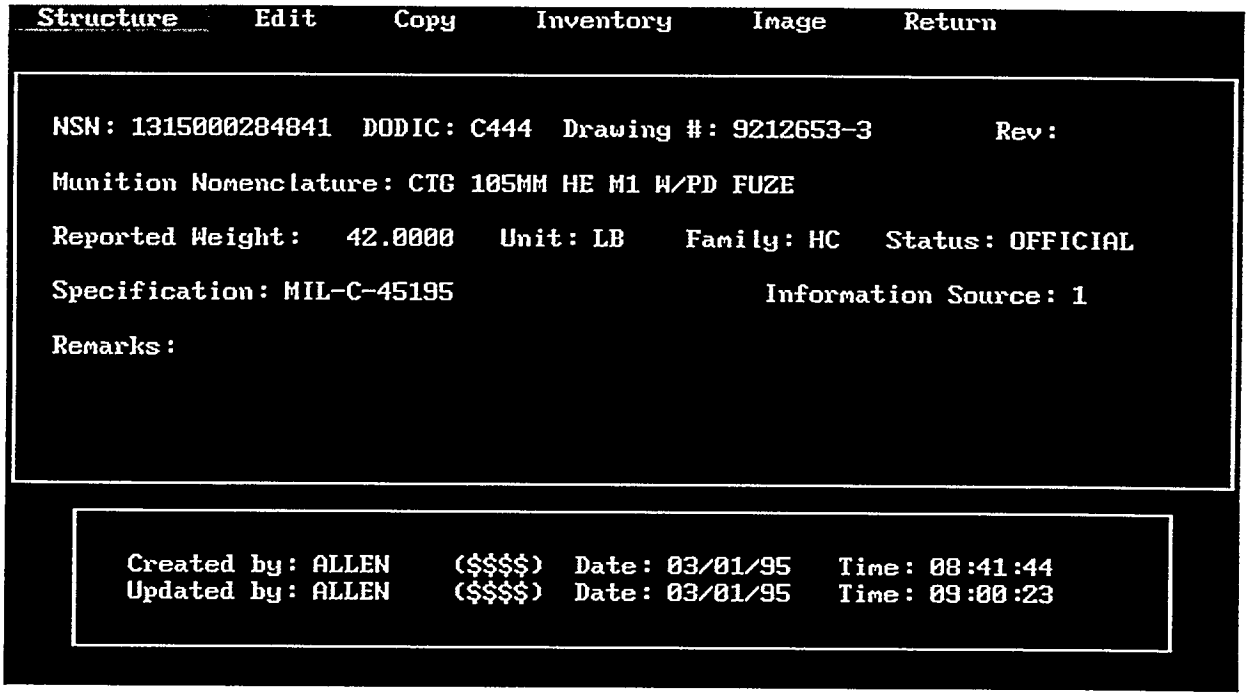

FIGURE 10.6 Munition View/Update Screen

- "Structure": Display and edit the hierarchical structure of the munition with which you are working.
- "Edit": Edit the basic record data for the munition with which you are working.
- "Copy": Easily create multiple similar items by copying existing items.
- "Inventory": Search the demil inventory for the selected munition.
- "Image": Display a diagram for the munition with which you are working.
- "Return": Go back to the Munition Selection Screen.

The rest of this subsection describes each of these options in greater detail. When you are finished using the Munition View/Update Menu, you can return to the Munition Selection Screen by selecting the last option at the far right of the menu bar: "Return."

10.1.5.1 Viewing the Structure of a Munition

Choosing the "Structure" option from the menu bar of the Munition View/Update Screen lets you view the expanded structure of a munition (i.e., find all the items it contains). This option is described in Section 10.5.

10.1.5.2 Editing Munition Data

Choosing the "Edit" option from the menu bar of the Munition View/Update Screen lets you view and/or modify the data for a munition. Move the selection bar at the top of the screen over the Edit option and press [Enter]. The filled-in Entry Screen for the munition you have selected will appear (Figure 10.7). You can move from one field to another by pressing the [Up-Arrow] and [Down-Arrow]. You can move within each field by pressing the [Left-Arrow] and [Right-Arrow], and you can make changes by typing over the data that are displayed or remove the data by pressing the [Delete] or [Backspace] keys. If you want to save your changes, press [Ctrl+End]. You can exit the screen without saving any changes by pressing [Esc].

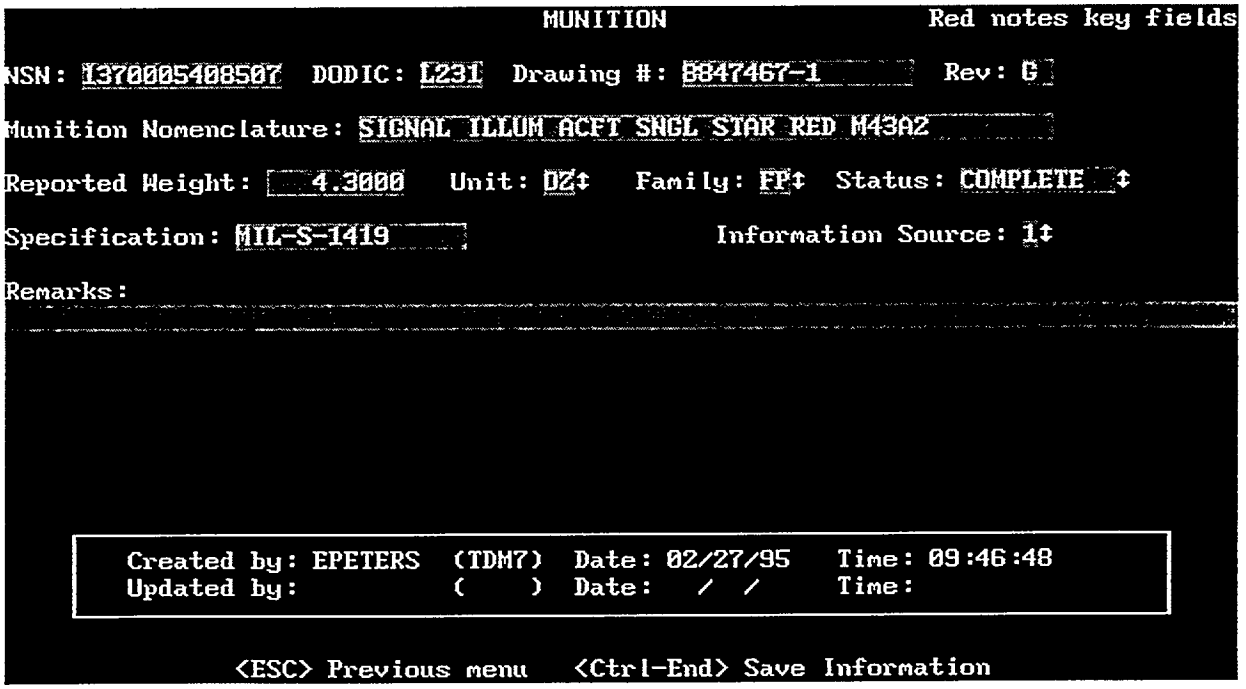

FIGURE 10.7 Munition Entry Screen for Editing Data Previously Entered

10.1.5.3 Copying a Munition

Choosing the "Copy" option from the menu bar of the Munition View/Update Screen enables you to make a copy of the selected munition and places the copy in your local library. The munition's links are automatically copied as well. Before making the copy, the system brings up the Munition Entry Screen for the selected munition so you can change any information that you want to change. You must change at least one key field for the item. If you do not change a key field, the new item is considered a duplicate of the original item and the system refuses to create it. The purpose of the copy function is to create new items that are similar to yet different from existing items, not to create exact duplicates. See Section 7.1.2 for a discussion of key fields. When you are done changing fields on the Munition Entry Screen, press [Ctrl+End] to complete the copy or [Esc] to cancel the operation.

10.1.5.4 Viewing the Inventory of a Munition

Choosing the "Inventory" option from the menu bar of the Munition View/Update Screen brings up a screen that is similar to the Demil Inventory Screen accessible from the View/Update Menu (see Section 10.9). This screen shows all the entries in the demilitarization inventory database in which the NSN and DODIC fields match those of the selected munition (Figure 10.8). The only option available from this screen is to press [Esc] to return to the previous screen.

DEMIL INVENTORY (ORANGE BOOK) # Entries: 14

SELECT	NSN	DODIC	NOMENCLATURE	LOCATION	COND	WEIGHT	QUANTITY
	1315000579576	C280	CARTRIDGE 90MM M71A1	BAD	A	3096	48
	1315000579576	C280	CARTRIDGE 90MM M71A1	BAD	C	516	8
	1315000579576	C280	CARTRIDGE 90MM M71A1	BB2	A	13932	216
	1315000579576	C280	CARTRIDGE 90MM M71A1	BB2	G	20124	312
	1315000579576	C280	CARTRIDGE 90MM M71A1	BB2	H	1548	24
	1315000579576	C280	CARTRIDGE 90MM M71A1	MCAAP	A	774	12
	1315000579576	C280	CARTRIDGE 90MM M71A1	HWAAP	A	57728	895
	1315000579576	C280	CARTRIDGE 90MM M71A1	HWAAP	F	24123	374
	1315000579576	C280	CARTRIDGE 90MM M71A1	LEAD	A	27671	429
	1315000579576	C280	CARTRIDGE 90MM M71A1	LEAD	B	4644	72
	1315000579576	C280	CARTRIDGE 90MM M71A1	LEAD	G	54696	848
	1315000579576	C280	CARTRIDGE 90MM M71A1	B08	A	118035	1830
	1315000579576	C280	CARTRIDGE 90MM M71A1	SEAD	C	5805	90
	1315000579576	C280	CARTRIDGE 90MM M71A1	SEAD	G	39926	619

<ESC> Previous menu

FIGURE 10.8 Munition Demil Inventory Information Screen

10.1.5.5 Displaying a Diagram of a Munition

This "Image" option is exactly the same as the [F5] "Image" option on the Munition Selection Screen (see Section 10.1.4; Figure 10.5). When you select it, MIDAS displays a picture of the munition that shows the location of its major components and parts. Access this feature by choosing "Image" from the menu bar of the Munition View/Update Screen and pressing [Enter].

10.2 SELECTING, ENTERING, AND EDITING A COMPONENT

By choosing the "Components" option from the View/Update Menu, you can view and/or modify the data for individual components independent of the munitions in which they may be used. When you want to look at the structure, weight, or material composition of a particular component, this option enables you to find this component directly rather than having to find a munition that contains it. Furthermore, when you make modifications to the data for a particular component under the "Components" option, these changes are reflected in all the munitions and components throughout the system that contain these components. This option also enables you to add or delete components directly. This feature is convenient when, for example, a specific category of components (such as fuses) is being characterized or when a specific component will be used in more than one munition.

When you select the "Components" option from the View/Update Menu, MIDAS advances to the Component Selection Screen (Figure 10.9). All the function key options on this screen are exactly the same as those on the Munition Selection Screen (Figure 10.2).

USADACS Central Library — COMPONENTS — # Entries: 1042

NOMENCLATURE	DRAWING#	SPECIFICATION	NSN	STATUS
FUZE BOMB TAIL M905 METAL P	8839300		1325007283277	OFFICIAL
FUZE GP GREN M223	9215350	MIL-F-50950	1330010524928	OFFICIAL
FUZE HAND GREN M201A1	13-10-22	MIL-F-10080	1330002939516	OFFICIAL
FUZE HAND GREN M204A2	7548570-1	MIL-F-13424	1330008623229	OFFICIAL
FUZE HAND GREN M205A2	7548570-2	MIL-F-13424	1330000028581	OFFICIAL
FUZE HAND GREN M206A2	7548570-3	MIL-F-13424	1330002939517	OFFICIAL
FUZE HAND GREN M213	8822131	MIL-F-45437	1330001823570	OFFICIAL
FUZE M509 SERIES MPTS ASSY	8799747	MIL-F-45149		OFFICIAL
FUZE MINE M603	73-9-55A	MIL-F-11245	1345000285078	OFFICIAL
FUZE MT M565 ASSY	10522991	MIL-F-14848	1390009935691	OFFICIAL
FUZE MT M592 ASSY	10542850		1390004256265	OFFICIAL
FUZE MTSQ M501A1	73-7-136	MIL-F-10074	1390008924897	OFFICIAL
FUZE MTSQ M564 ASSY	10534285	MIL-F-14854	1390010326130	OFFICIAL
FUZE MTSQ M564 SUB-ASSY	11738601		1390010548871	OFFICIAL
FUZE PD LOADING M48A3 ASSY	8798219	MIL-F-60348	1390009351952	OFFICIAL
FUZE PD M508A1 W/BOOSTER	7549041	MIL-F-12639	1390009650867	OFFICIAL
FUZE PD M51A5	73-2-146	MIL-F-10373	1390000284901	OFFICIAL
FUZE PD M524A6 ASSY	9205729	MIL-F-45465	1390009650570	OFFICIAL

<ESC> Previous <F2> Search <F5> Image <F8> Add <F10> Delete <ENTER> Select

FIGURE 10.9 Component Selection Screen

10.2.1 Adding a Component

While you are on the Component Selection Screen, you can add a component to the system by pressing [F8]. MIDAS then displays a Component Entry Screen (which is similar to the Munition Entry Screen, Figure 10.3). Here you can enter the basic data for the new component, including its NSN, DODIC, drawing number, and nomenclature. You can move from field to field on this screen by using the [Up-Arrow] and [Down-Arrow]. The symbol ↕ indicates the values for the corresponding field are a choice list. Select a value by pressing the space bar repeatedly until you find the appropriate value. When you have finished entering all the data for the new component, press [Ctrl+End].

Whenever you enter a new component, the component's set of key fields is checked against existing components in the local and central libraries to make sure you are not entering a duplicate component. If you are trying to enter a duplicate component, MIDAS indicates that the component is already in the system and will not enter the component. (This procedure occurs for the other item types as well.)

Example: Add a new component to the system

1. Start at the Component Selection Screen.
2. Press [F8].
3. Press [Down-Arrow] until the cursor is on the component nomenclature field.
4. Type *A TEST EXAMPLE* and press [Enter].
5. Press [Ctrl+End].
6. Move the selection bar on the Component Selection Screen over the entry you have just created — the line reading *A TEST EXAMPLE.*
7. Press [Enter] to look at it in more detail. Note the date and time it was created.

10.2.2 Deleting a Component

Normally, you will not delete a component once it is used in a munition. To delete a component from a munition, you must edit the munition that contains the component; in other words, you can delete the component by editing the munition.

If you have created a component that you have not used (or if a component is not being used any more), you can delete it. When deleting a component, MIDAS always verifies whether the component is currently used in any munition (or is used as a subcomponent in another component). If it is, MIDAS will not delete the component. You must first delete each component from the munition that contains it (or delete each subcomponent from the component that contains it). You can find out where a component is used by accessing the usage function (see Section 10.6).

10.2.3 Searching for a Component

The search function for components operates in a similar way to the search function for munitions (described in Section 10.1.3). The data fields appropriate for components are provided as search criteria.

10.2.4 Displaying a Diagram of a Component

While you are on the Component Selection Screen, you can view a diagram to see any of the components on it and the location of its major subcomponents and parts. Move the selection bar to the component you wish to view and press [F5]. MIDAS will display a graphical digitized picture of the component until you press another key. Afterward, it will return to the Component Selection Screen.

Example: Display a diagram for a component

1. Move the selection bar on the Component Selection Screen over a component whose diagram you would like to view and press [F5].

2. Examine the diagram of the component.

3. If MIDAS instead displays a window containing the message "No image file for this component," MIDAS does not have an image for that component.

4. Press [Enter] when you are done.

10.2.5 Viewing and Updating a Component

Select a component by highlighting a particular component on the Component Selection Screen and pressing [Enter]. MIDAS will advance to a screen that lets you work with the component, the Component View/Update Screen (Figure 10.10).

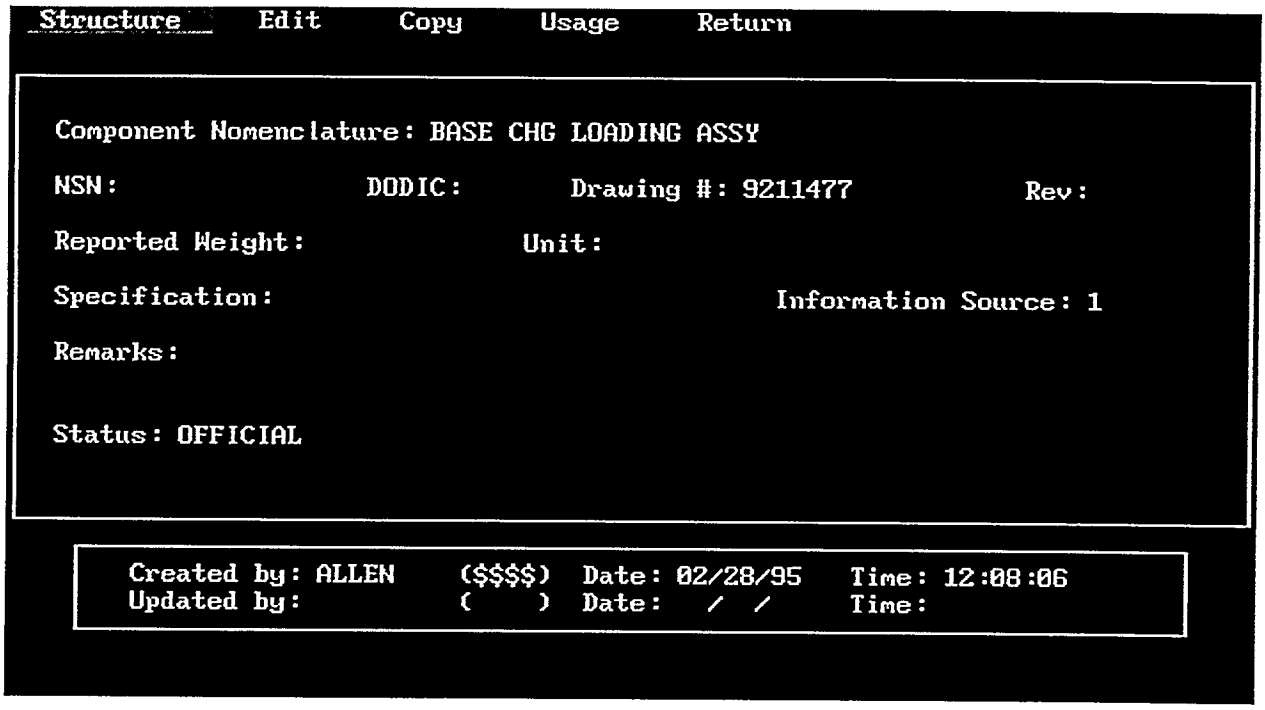

FIGURE 10.10 Component View/Update Screen

This screen acts as a kind of stepping stone to a number of different functions for viewing and editing the component you selected. You can use it to access, view, and modify different kinds of data for the selected component, such as data on the structure of the component (with all of its subcomponents and parts). In the middle, this screen displays the detailed data for the selected component. At the top, it displays a menu bar of different options. The following options are available from this menu bar:

- "Structure": Display and edit the hierarchical structure of the component with which you are working.
- "Edit": Edit the basic record data for the component with which you are working.
- "Copy": Easily create multiple similar items by copying existing items.
- "Usage": Find everywhere the component is used (see Section 10.6 for details).
- "Return": Go back to the Component Selection Screen.

The rest of this subsection describes each of these options in greater detail. When you are finished using the Component View/Update Menu, you can return to the Component Selection Screen by selecting the last option at the far right of the menu bar: "Return."

10.2.5.1 Viewing the Structure of a Component

Choosing the "Structure" option from the menu bar of the Component View/Update Screen lets you view the expanded structure of a component (i.e., find all the items it contains). A description of this option and a sample Expanded Structure Screen are provided in Section 10.5.

10.2.5.2 Editing Component Data

Choosing the "Edit" option from the menu bar of the Component View/Update Screen lets you view and/or modify the data for a component. Move the selection bar at the top of the screen over the Edit option and press [Enter]. The filled-in Entry Screen for the component you have selected will appear. You can move from one field to another by pressing the [Up-Arrow] and [Down-Arrow]. You can move within each field by pressing the [Left-Arrow] and [Right-Arrow], and you can make changes by typing over the data that are displayed or remove the data by pressing the [Delete] or [Backspace] keys. If you want to save your changes, press [Ctrl+End]. You can exit the screen without saving any changes by pressing [Esc].

10.2.5.3 Copying a Component

Choosing the "Copy" option from the menu bar of the Component View/Update Screen enables you to make a copy of the selected component and places the copy in your local library. The component's links are automatically copied as well. Before making the copy, the system brings up the Component Entry Screen for the selected munition so you can change any information that you want to change. You must change at least one key field for the item. If you do not change a key field, the new item is considered a duplicate of the original item and the system refuses to create it. The purpose of the copy function is to create new items that are similar to yet different from existing items, not to create exact duplicates. See Section 7.1.2 for a discussion of key fields. When you are done changing fields on the Component Entry Screen, press [Ctrl+End] to complete the copy or [Esc] to cancel the operation.

10.2.5.4 Usage Function

Choosing the "Usage" option from the menu bar of the Component View/Update Screen brings up the Usage Screen, which is similar to the Expanded Structure Screen but is conceptually reversed. Instead of displaying the component and its detailed structure of parts and subcomponents (if any), the usage function displays the component and all of the munitions and/or components that contain this component. A description of this option and a sample usage screen are provided in Section 10.6.

10.3 SELECTING, EDITING, AND ENTERING A PART

Choosing the "Parts" option from the View/Update Menu allows you to view and/or modify the data for individual parts independent of the munitions and components in which they are used. When you make modifications to the data for a particular part under the "Parts" option, these changes are reflected in all the munitions and components throughout the system that contain these parts. When you select "Parts" from the View/Update Menu, MIDAS advances to a Part Selection Screen that is basically the same as the Munition Selection Screen.

10.3.1 Adding a Part

The Part Entry Screen (Figure 10.11) is somewhat more complicated than the Munition Entry Screen or Component Entry Screen, because entering a part involves entering or selecting the material that makes up the part. First enter the fields at the top of the screen. To assign a material to the new part, select the material type by positioning the cursor in the field labeled "Material Type" and pressing the space bar repeatedly until the desired material type is displayed. Then press [Enter]. The symbol ↕ indicates the values for the corresponding field are a choice list. Select a value by pressing the space bar until you find the appropriate value.

Specifying the material data is a function of the type of material. Data on PEP, chemical, and radioactive materials are selected from the material libraries. Data on inert or packaging material are entered directly.

Weight and unit are entered only for inert and packaging parts. For PEP, chemical, and radioactive parts, weight and unit are specified when the part is linked to a munition or component.

When you press <F5> or <F6>, a window that lists the appropriate material library is displayed. You can highlight the desired material by using the <Up-Arrow> or <Down-Arrow> keys and then select it by pressing <Enter>. Pressing <Esc> cancels this operation. The appropriate data fields (material nomenclature, spec, type, grade, class, and style) are displayed.

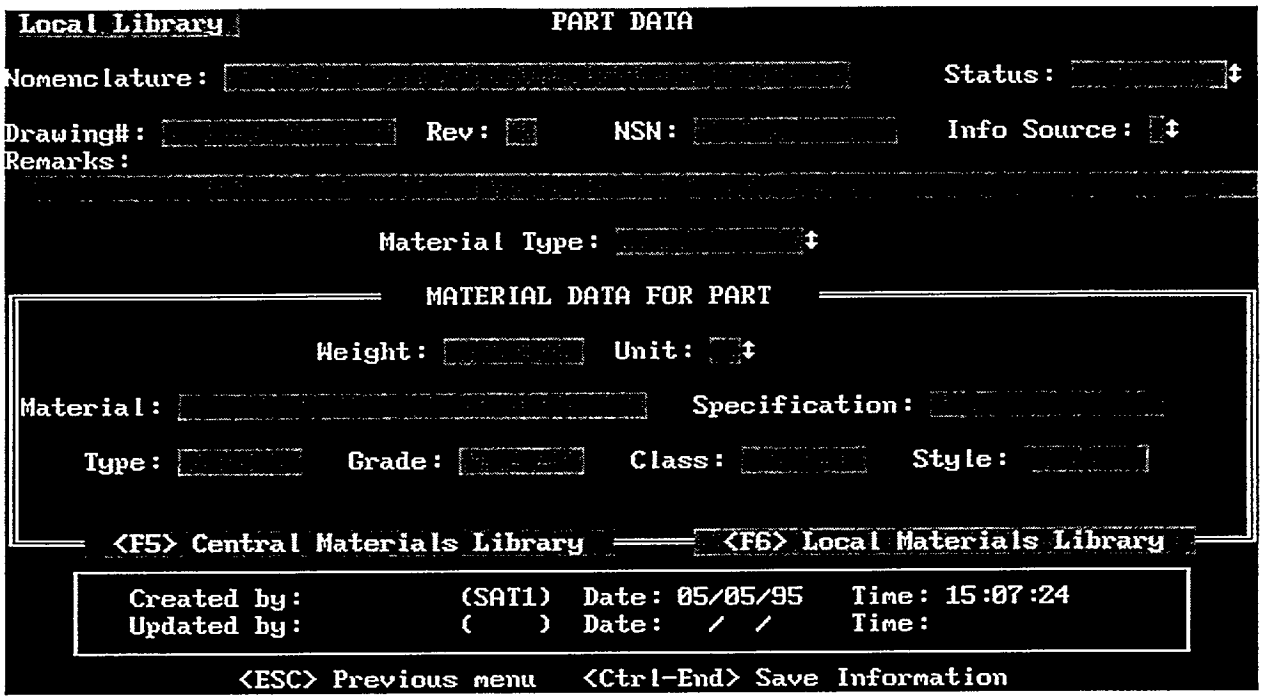

FIGURE 10.11 Part Entry Screen

10.3.2 Deleting a Part

Normally, you will not delete a part once it is used in a component. To delete a part from a component, you must edit the component that contains the part; in other words, you can delete the part by editing the component.

If you have created a part that you have not used (or if a part is not being used any more), you can delete it. When deleting a part, MIDAS always verifies whether the part is currently used in any component. If it is, MIDAS will not delete the part. You must first delete the part from each component that contains it. You can find out where a part is used by accessing the usage function (see Section 10.6).

10.3.3 Searching for a Part

The search function for parts operates in a similar way to the search function for munitions (described in Section 10.1.3) and components. The data fields appropriate for parts are provided as search criteria.

10.3.4 Viewing and Updating a Part

The functions for viewing and updating parts are similar to those for munitions and components (Sections 10.1.5 and 10.2.5). The specific functions available for parts are "Structure," "Edit," "Mtl./Cmpds.," "Bulk Items," "Copy," "Usage," and "Return" (Figure 10.12).

Choosing the "Mtl./Cmpds." option from the menu bar of the Part View/Update Screen brings up a screen showing the data on the material and compounds that make up the part (Figure 10.13).

Choosing the "Bulk Items" option from the menu bar of the Part View/Update Screen brings up a screen listing the bulk items linked to the selected part (Figure 10.14). You may position the selection bar over a bulk item by pressing the [Up-Arrow] or [Down-Arrow] and view or edit it by pressing [Enter]. To delete a bulk item from the part, position the selection bar over the item and press [F10]. To add a new bulk item to the part, press [F8]. If you choose to add a bulk item, you will see a menu giving you the choice of entering a new bulk item, copying a bulk item from the central library, or copying a bulk item from your local library. If you choose to enter a new bulk item, the system will display the Bulk Item Entry Screen (Figure 10.15). The symbol ↕ indicates the values for the corresponding field are a choice list. Select a value by pressing the space bar until you find the appropriate value. As usual, when you are done entering data, press [Ctrl+End] to add the new bulk item or press [Esc] to cancel the operation.

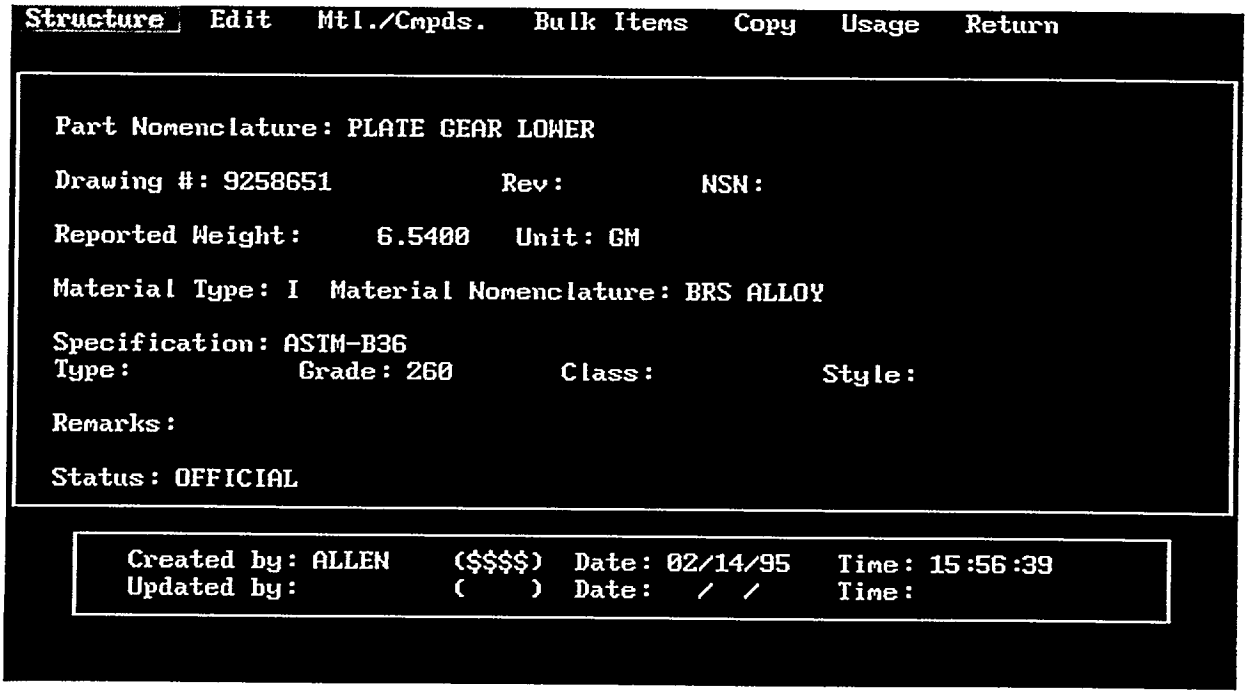

FIGURE 10.12 Part View/Update Screen

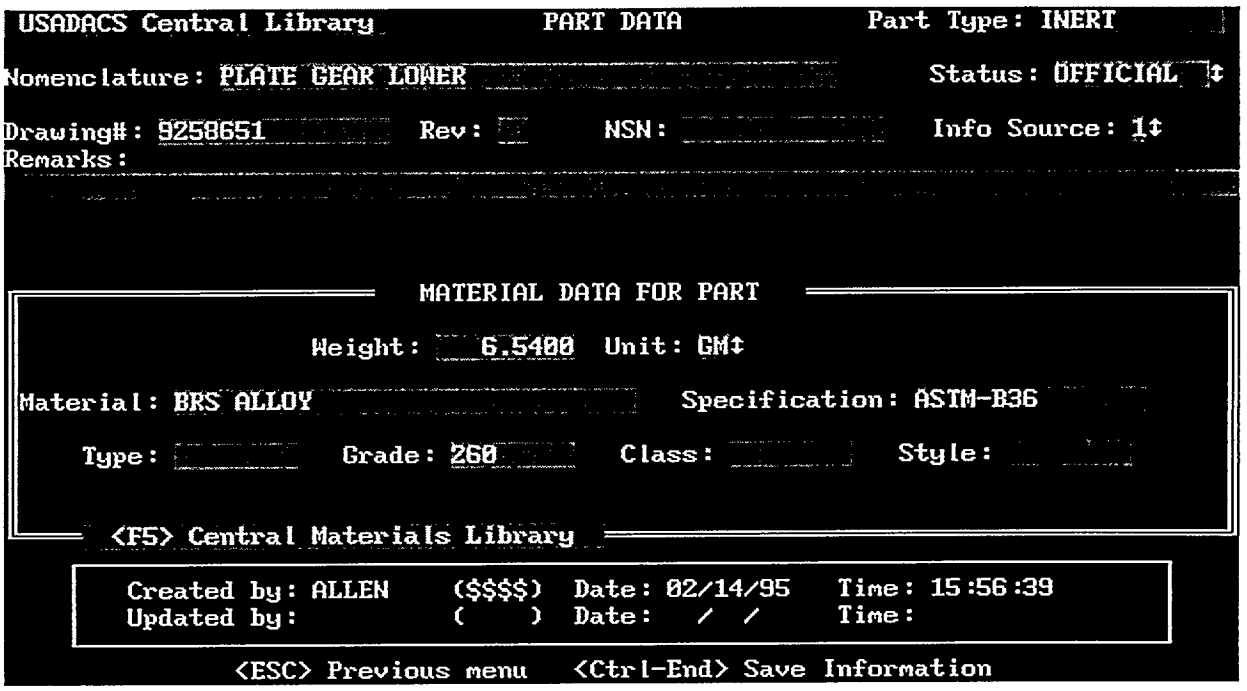

FIGURE 10.13 Material and Compound List Screen

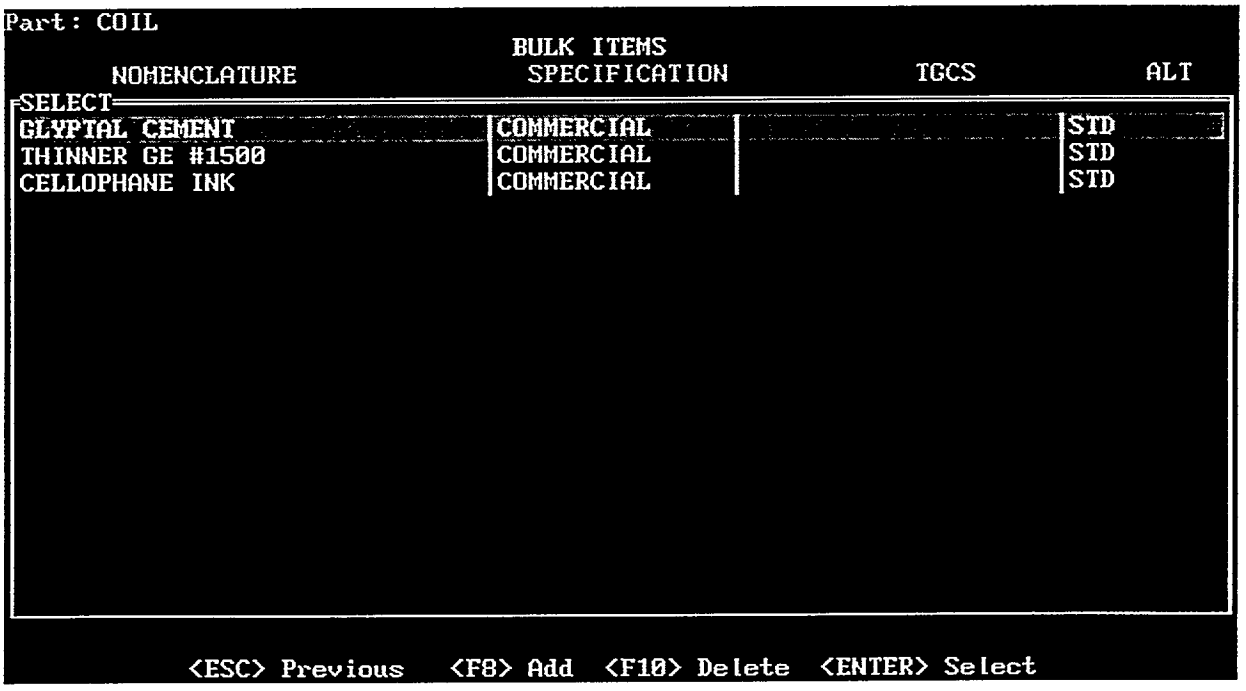

FIGURE 10.14 Bulk Item Selection Screen

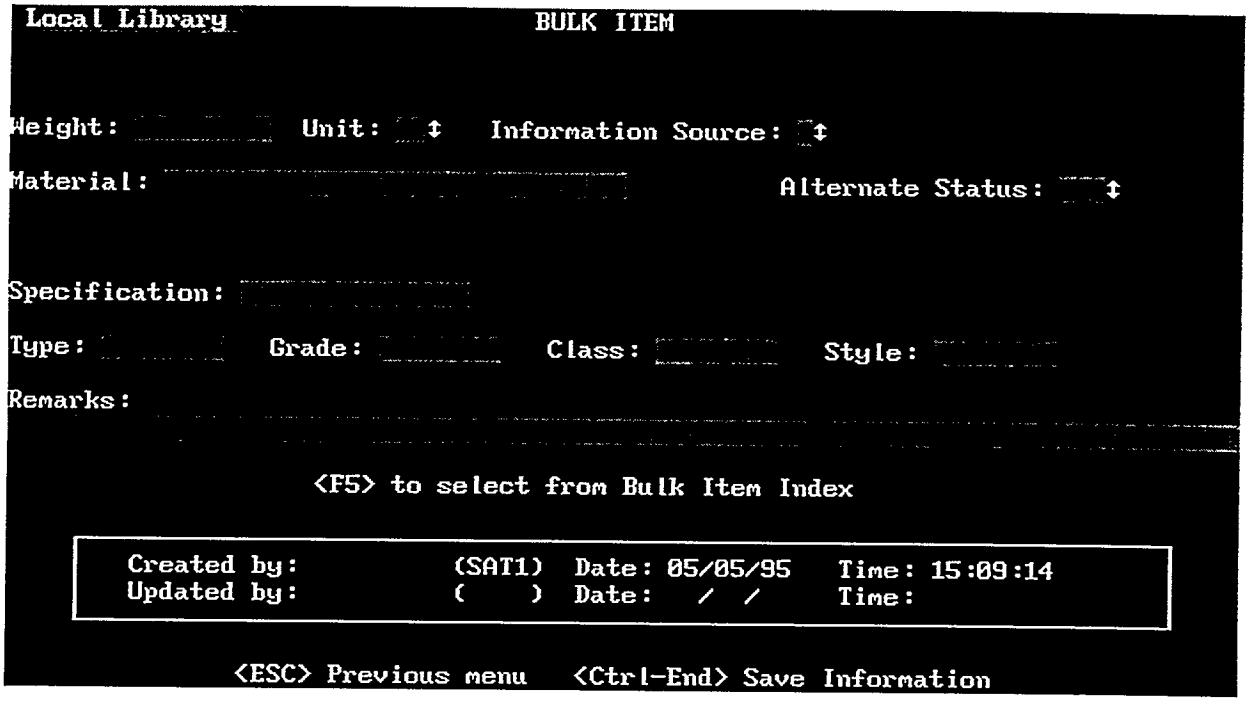

FIGURE 10.15 Bulk Item Entry Screen

10.4 SELECTING, ENTERING, AND EDITING A MATERIAL OR COMPOUND

To locate, view, and/or modify the data for individual materials and/or compounds within a specific material, first choose the "Materials" option from the View/Update Menu. Then choose either "PEP" or "Inert" from the small pop-up menu that follows. You will advance to the Material Selection Screen (Figure 10.16). When you use the selection bar to highlight the material of interest, the bottom half of the screen will list the compounds contained in that material. At this point, you can directly add, delete, view, or modify a material. The keys to use are the same as on the other Selection Screens: [F8] to add, [F10] to delete, and [Enter] to bring up a Material View/Update Screen so you can view or modify the material. If you want to add, delete, view, or modify a compound in a material, you must first select the material by pressing [Enter] to bring up the Material View/Update Screen. The functions "Edit," "Compounds," "Usage," and "Return" are then available. Choose "Compounds" from the menu bar (see Section 10.4.5). When you are finished using the Material Selection Screen, you can return to the View/Update Menu by pressing [Esc].

10.4.1 Adding a Material

There are no essential differences between adding a material and adding any other type of item. (Sections 10.1.1, 10.2.1, and 10.3.1 describe how to add a munition, component, and part.)

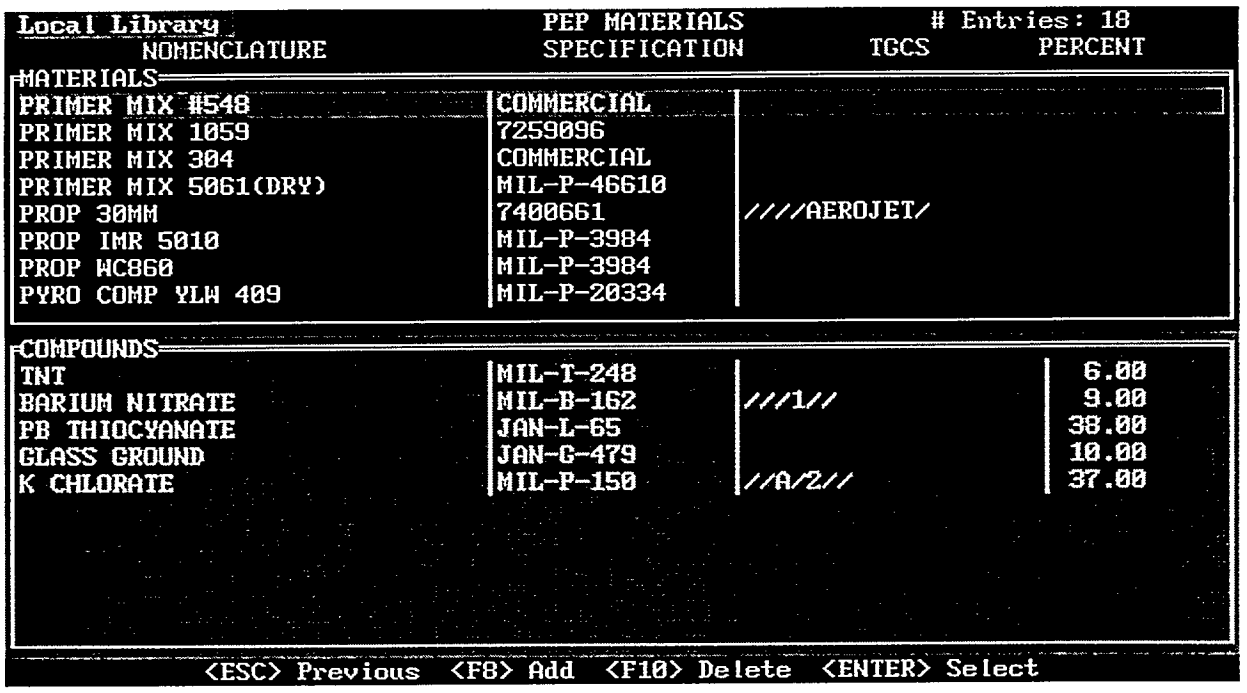

FIGURE 10.16 Material Selection Screen

10.4.2 Deleting a Material

When a material is no longer used in any parts, you can delete the material from the appropriate Material Library. The usage function can verify that a material is no longer used in any parts. If the material is used in any part, MIDAS will not delete the material from the library.

10.4.3 Searching for a Material

There is no search option available for materials.

10.4.4 Viewing and Updating a Material

Only the "Edit," "Compounds," "Usage," and "Return" options are available on the menu bar of the Material View/Update Screen. The "Edit" option lets you change the fields for a material in the same way as you would for other item types. Changes you make to a local material are automatically reflected in all local parts that use that material. The "Compounds" option is discussed next in Section 10.4.5. See Section 10.6 for information on the "Usage" option. The "Return" option moves you back to the Material Selection Screen.

10.4.5 Working with Compounds in a Material

If you select "Compounds" from the menu bar of Material View/Update Screen, MIDAS will advance to a screen that lists all the compounds contained in the material you selected (Figure 10.17). You can look over the list of compounds and make modifications to it, if you desire. If you want to view and/or modify the data on one of the compounds, select it from the list by moving the selection bar over it and pressing [Enter]. MIDAS will then advance to a screen (similar to the Entry Screens for other item types) that displays each of the data fields for the compound you selected. You can move from field to field by pressing the [Up-Arrow] or [Down-Arrow] keys and make changes to the data by typing on the keyboard. When you are finished making modifications, press [Ctrl+End] to save them and return to the list of compounds. If you do not want to save the changes you have made, press [Esc], and MIDAS will return to the list of compounds without saving your modifications.

If you want to add a compound to the list of compounds in the material of interest, press [F8]. You can either (1) enter the data for the compound directly or (2) select a compound from a list of all the compounds in the central library. When you press [F8], MIDAS opens a window prompting you to select one of these two options. If the compound you are adding to the material is one that does not currently exist in the central library, you should choose the first option to add it to the material and input its data. However, if the central library already contains the compound you want to add to the material, you should choose the second option.

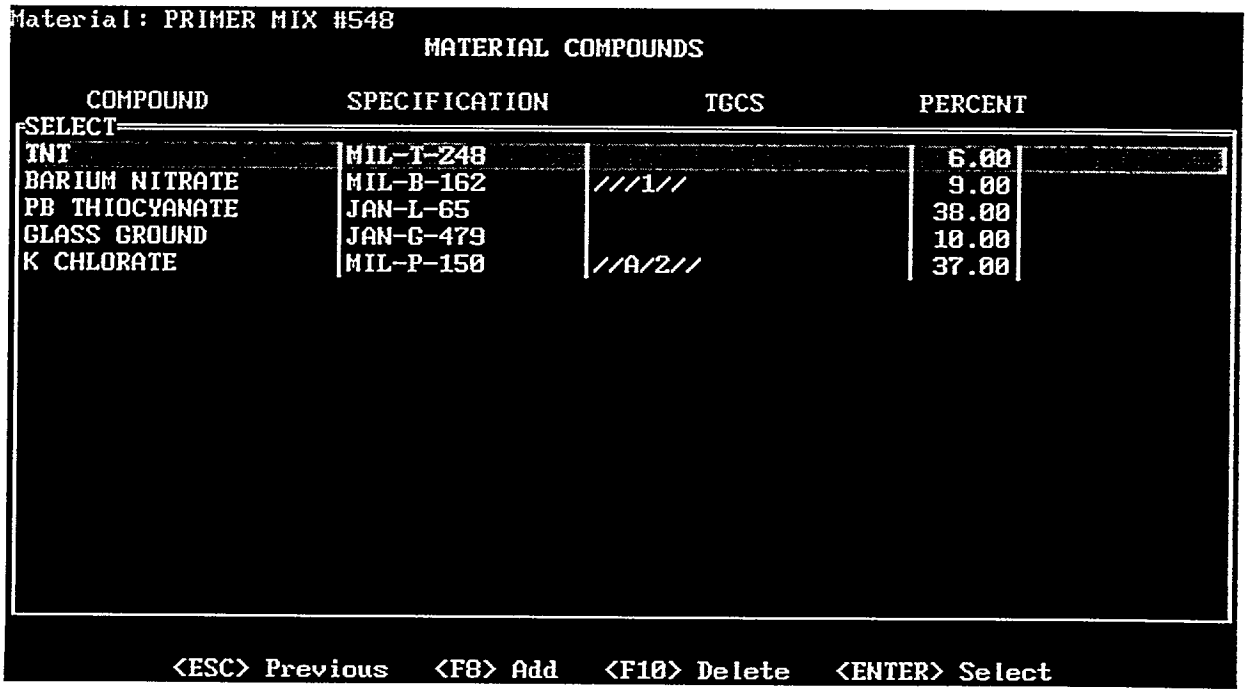

FIGURE 10.17 Compound Selection Screen

If you want to delete a compound from the material, move the selection bar over the compound and press [F10]. MIDAS will ask you to confirm that you do, in fact, want to delete the compound before doing so.

When you are done modifying the list of compounds in the material of interest, you can return to the Material Selection Screen by pressing [Esc].

10.5 FINDING ALL ITEMS IN A MUNITION, COMPONENT, OR PART: EXPANDING ITS STRUCTURE

Selecting the "Structure" option from the menu bar of the View/Update Screen for a particular munition, component, or part (not a material or compound) displays an Expanded Structure Screen, which is a structural breakdown of all the items that make up the munition, component, or part of interest. When you select the "Structure" option, MIDAS will spend several seconds searching all the databases in the system and retrieving data on every component, part, material, and compound in the component you have selected. When it has finished, it will display an expanded structure list for the item that shows the complete hierarchy (Figure 10.18). At the top of the Expanded Structure Screen, MIDAS displays the Nomenclature, NSN, and DODIC for the item of interest, as well as its reported and calculated total weight.

CTG 105MM HE M1 W/O FUSE NSN: 1315002314629 DODIC: C445
Reported weight: 42.0000 LB. Calculated weight: 39.4701 LB.

SELECT	ITEM	TYPE	NOMENCLATURE	LEVEL	FACTOR	WEIGHT	
1	M		CTG 105MM HE M1 W/O FUSE	0	1.0000	0.0000	I
2	P		├─CASE CTG 105MM M14B1 (STEEL)	1	1.0000	5.4000	T
3	B		│ ├─SILICONE COMPOUND	2	1.0000	0.0000	T
4	B		│ ├─VARNISH	2	1.0000	0.0000	T
5	B		│ ├─INK WHITE	2	1.0000	0.0000	T
6	B		│ └─INK WHITE (ALT)	2	1.0000	0.0000	T
7	P		├─PLUG CLOSING (POLYETHLENE)	1	1.0000	0.0000	T
8	P		├─PLUG (AL ALLOY) (ALT)	1	1.0000	0.0000	$
9	P		├─PLUG (AL ALLOY) (ALT)	1	1.0000	0.0000	$
10	P		├─SPACER (CNTR BOARD) (ALT)	1	1.0000	0.0000	$
11	B		│ └─ANIMAL GLUE	2	1.0000	0.0000	$
12	C		├─PERC PRIMER ASSY M28B2	1	1.0000	0.0000	A
13	P		│ ├─PEP (BLACK PWDR CL 1*1)	2	1.0000	0.0450	$
14	X		│ │ ├─K NITRATE (74.00%)	3	0.0000	0.0000	$
15	X		│ │ ├─S (10.40%)	3	0.0000	0.0000	$
16	X		│ │ └─CHARCOAL (15.60%)	3	0.0000	0.0000	$
17	P		│ ├─BODY (STEEL TUBE)	2	1.0000	0.0000	A
18	Y		│ │ ├─Fe (98.57%)	3	0.0000	0.0000	X

<ESC> Prev. <F6> Sum Parts <F7> Sum Cmpd. <ENTER> Select

FIGURE 10.18 Expanded Structure Screen

In the expanded components/parts list, MIDAS displays the hierarchical structure of the components and parts of the munition. It shows the nomenclature of each entry, its level in the hierarchical structure of the munition, its factor, and its weight. (The factor of an item is how many of the item appear at this place in the item structure.) Furthermore, every entry on the list is indented according to its location in the structure of the munition. For instance, all the subcomponents and parts that make up a particular component in the list are indented several spaces under the component, indicating that they belong to it. Accordingly, all the subcomponents and parts that make up this subcomponent are indented even further. Thus, MIDAS displays the hierarchical structure of the munition visually; by simply looking at the list, you can tell what components and parts are linked together to form other components, and ultimately what components and parts directly make up the munition itself. The system also draws a "tree" of connecting lines to further emphasize the relationships between the items.

The hierarchical structure of an item (munition, component, part, or material) is always displayed in a consistent manner. For a munition, the parts directly "linked" to the munition (referred to as first-level parts) are listed first, along with the material (and any compounds associated with the material) and bulk items associated with each part. The parts are listed in the order that each part was linked to the munition. To link a part to a munition, you either enter a new part directly or select an existing part from the central library or local library.

After first-level parts, components directly linked to the munition (referred to as first-level components) are listed in the order that each component was linked to the munition. Each component, in turn, is expanded, and the hierarchical structure of each component is listed (with its components, parts, materials, compounds, and bulk items). The same methodology is used to expand the structure of components, parts, and materials.

At times, you may want to change the order of specific components or parts that are at the same level in the hierarchical structure. You can do so by deleting specific items and relinking them in the appropriate order. For example, if you wanted to list three first-level components — A, B, and C — in the order B, A, and C, you would first delete components A and C from the munition, which will delete the link from the munition to these components. (The components will not be deleted from the component libraries.) You would then relink component A and finally component C by selecting them from the appropriate component library.

The type of each item is indicated by an abbreviation in the "TYPE" column of the Expanded Structure Screen. The names for the one-character abbreviations are shown in Table 10.1. To save space, names of materials are not put on a separate line in the Expanded Structure Screen. Instead, they are shown in parentheses after the name of the part.

Version 3.0 of MIDAS includes a special new node ID, consisting of four dollar signs: $$$$. This special node ID is assigned to all items in the central library and only to items in the central library. Hence, it provides a means of distinguishing local items from central items in contexts where items might come from either library. In the Expanded Structure Screen, the last column in the display shows either a dollar sign, indicating a central item, or an alphanumeric character, indicating a local item. Since available screen space is limited, only one character is shown, but this is enough to distinguish between local and central items, since normal node IDs are not allowed to contain special characters such as dollar signs. (In some other contexts, all four characters are shown.) In the example, the letter A indicates a four-character code beginning with A, such as ANL1.

TABLE 10.1 One-Character Abbreviations for Items

Item Type	Letter
Munition	M
Component	C
Part	P
Bulk item	B
Compound in a PEP material	X
Compound in an inert material	Y

When the expanded structure is displayed, the following functions are available:

- [F6] "Sum Parts": A list of all the parts (whether they are primary first-level parts or subparts belonging to first- or second-level components) and the weight of each part.

- [F7] "Sum Cmpd.": A list of all the compounds contained in all the parts and the total weight of each compound.

To view the complete set of data for a particular item in the list or perform other operations on that item (described below), move the selection bar over the item you want to examine and press [Enter]. MIDAS helps you keep your place in the structure you are viewing. If you have left the Expanded Structure Screen to view or edit a subitem, when you return, the cursor will be over the same item as it was when you left. Also, when you return to the Expanded Structure Screen, the item whose structure you are viewing is re-expanded only if you have actually changed something in the item's structure.

When you are finished using the Expanded Structure Screen, press [Esc].

The rest of this section describes the functions available by moving the selection bar over an item in the Expanded Structure Screen and pressing [Enter].

10.5.1 Viewing and Editing an Item

This function, listed as "View/Edit Current Item" on the pop-up menu, is available for all item types except compounds. It lets you directly edit the item you have selected on the Entry Screen appropriate for the item type. Any changes you make to an item will be reflected not only in the structure you are currently viewing but also everywhere that item is used.

10.5.2 Viewing a First-Level Component

This function, listed as "View 1st Components" on the pop-up menu, is available only for munitions and components. It provides a list of all the first-level components used in the munition or component you selected (i.e., those components that together directly make up the munition or component, as opposed to those that make up other components or subcomponents in the item). This list displays the nomenclature, specification, and TGCS for each first-level component. You can scroll through the list by pressing the [Up-Arrow] and [Down-Arrow] keys. When you are completely done, you can return to the Expanded Structure Screen pop-up menu by pressing [Esc].

10.5.3 Viewing a First-Level Part

This function, listed as "View 1st Parts" on the pop-up menu, is available only for munitions and components. It provides a list of all the first-level parts used in the munition or component you selected. The list works the same as does the list of first-level components.

10.5.4 Adding a Component

This function, listed as "Add a Component" on the pop-up menu, lets you add a component to the selected munition or component. You can select an existing component from the central library or local library or enter a new component directly.

10.5.5 Adding a Part

This function, listed as "Add a Part" on the pop-up menu, lets you add a part to the selected munition or component. You can select an existing part from the central library or local library or enter a new part directly.

10.5.6 Adding a Bulk Item

This function, listed as "Add a Bulk Item" on the pop-up menu, lets you add a bulk item to a part. You can copy a bulk item from the central library or local library or enter a new bulk item directly. If you select a bulk item from the local or central library, you can edit this new bulk item before it is created. (The changes will not affect the original bulk item, only the copy you are making.)

10.5.7 Deleting the Link to an Item

This function, listed as "Delete Link to Item" on the pop-up menu, unlinks the selected component or part from the munition or component in which it is used. It does not delete the selected item from the database entirely; it only removes the link to the item. Before the link is deleted, you will be prompted to confirm the deletion; press [Enter] to perform the deletion or [Esc] to cancel.

10.5.8 Deleting a Bulk Item

This function, listed as "Delete a Bulk Item" on the pop-up menu, deletes the selected bulk item.

10.6 FINDING ALL ITEMS IN WHICH A COMPONENT, PART, OR MATERIAL IS USED: USAGE FUNCTION

To access the usage function, first choose the "Components," "Parts," or "Materials" option (not the "Munitions" option) from the View/Update Menu, under either the "LOCAL LIBRARY" or the "CENTRAL LIBRARY" heading (Figure 10.1).[10] The Selection Screen for that item will appear. When you choose the item of interest from this Selection Screen, its View/Update Screen will appear (Figure 10.10). You will see an option called "Usage" in the menu bar at the top of the screen. Choosing this option brings up the Usage Screen, which is similar to the Expanded Structure Screen but is conceptually reversed. The Expanded Structure Screen displays an item at the top of the screen, with its hierarchical structure (i.e., all its constituents) below. The Usage Screen displays an item at the top, with all the items in which it is used below (Figure 10.19). Currently, no functions are accessible from the Usage Screen except to return to the previous screen by pressing [Esc].

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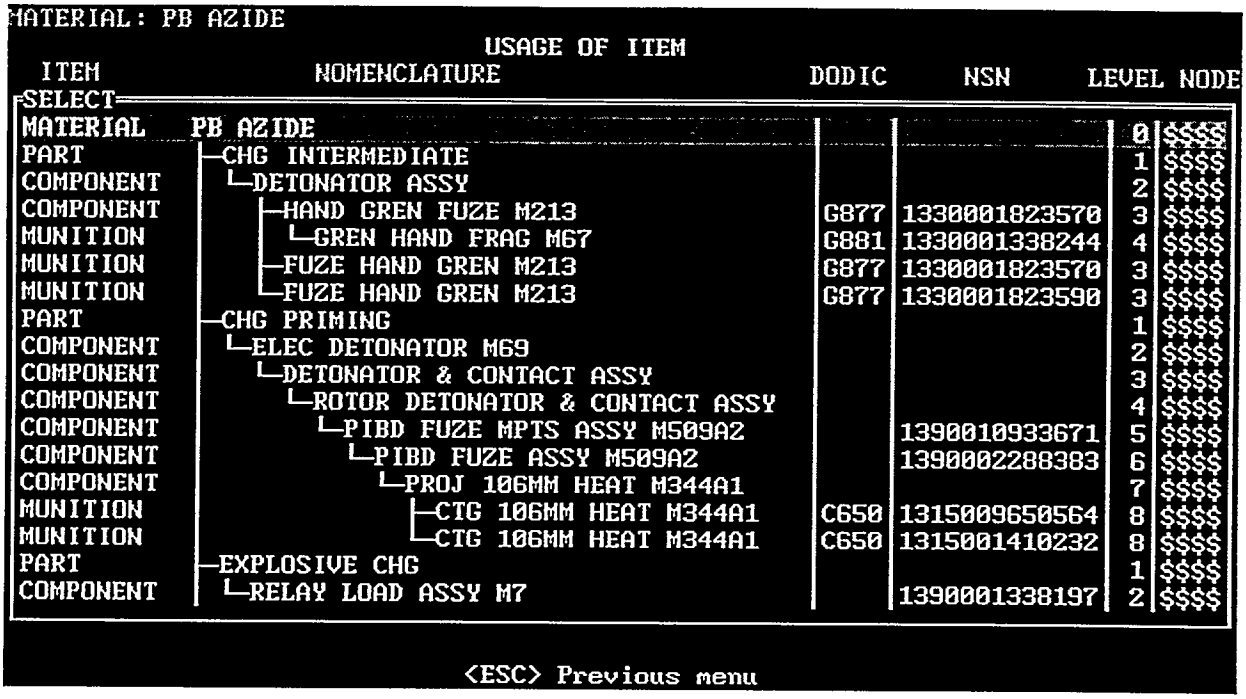
[10] It is not currently possible to determine the usage of compounds or bulk items (i.e., to determine all the items in which a compound or bulk item is used).



MATERIAL: PB AZIDE

USAGE OF ITEM

ITEM	NOMENCLATURE	DODIC	NSN	LEVEL	NODE
SELECT					
MATERIAL	PB AZIDE			0	$$$$
PART	├─CHG INTERMEDIATE			1	$$$$
COMPONENT	└─DETONATOR ASSY			2	$$$$
COMPONENT	├─HAND GREN FUZE M213	G877	1330001823570	3	$$$$
MUNITION	└─GREN HAND FRAG M67	G881	1330001338244	4	$$$$
MUNITION	├─FUZE HAND GREN M213	G877	1330001823570	3	$$$$
MUNITION	└─FUZE HAND GREN M213	G877	1330001823590	3	$$$$
PART	├─CHG PRIMING			1	$$$$
COMPONENT	└─ELEC DETONATOR M69			2	$$$$
COMPONENT	└─DETONATOR & CONTACT ASSY			3	$$$$
COMPONENT	└─ROTOR DETONATOR & CONTACT ASSY			4	$$$$
COMPONENT	└─PIBD FUZE MPTS ASSY M509A2		1390010933671	5	$$$$
COMPONENT	└─PIBD FUZE ASSY M509A2		1390002288383	6	$$$$
COMPONENT	└─PROJ 106MM HEAT M344A1			7	$$$$
MUNITION	├─CTG 106MM HEAT M344A1	C650	1315009650564	8	$$$$
MUNITION	└─CTG 106MM HEAT M344A1	C650	1315001410232	8	$$$$
PART	├─EXPLOSIVE CHG			1	$$$$
COMPONENT	└─RELAY LOAD ASSY M7		1390001338197	2	$$$$

<ESC> Previous menu

FIGURE 10.19 Usage Screen

10.7 FINDING ALL BULK ITEMS IN A LIBRARY

Choosing "Index of Bulk Items" from the View/Update Menu under either the "LOCAL LIBRARY" or "CENTRAL LIBRARY" heading displays the Bulk Item Index Screen, which lists all of the bulk items in the selected library (Figure 10.20). Duplicate bulk items (according to the set of key fields for bulk items) are not shown. The only option available from the Bulk Item Index Screen is to return to the View/Update Menu by pressing [Esc].

10.8 FINDING ALL SCANNED IMAGES IN THE CENTRAL LIBRARY

Choosing "Scanned Images" from the View/Update Menu displays the Image Selection Screen, which lists all of the available scanned images that have been associated with items in the central library (Figure 10.21). Select the image you want to view by pressing the [Up-Arrow] or [Down-Arrow] and [Enter]. When you are done viewing the image, press any key to return to the Image Selection Screen or press [Esc] to return to the View/Update Menu.

10.9 FINDING ALL THE ITEMS IN THE DEMILITARIZATION INVENTORY

The "Demil Inventory" option enables you to scroll through a list of all the items in the demilitarization inventory. To activate this option, simply select it from the View/Update Menu.

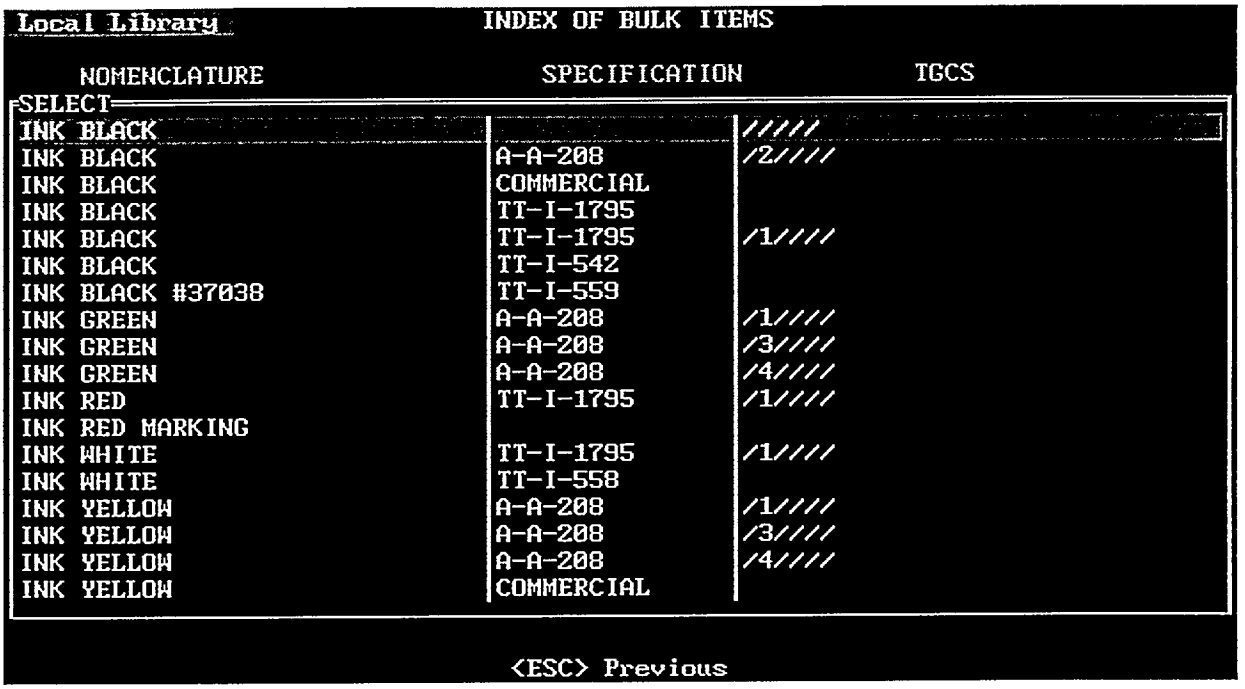


FIGURE 10.20 Bulk Item Index Screen

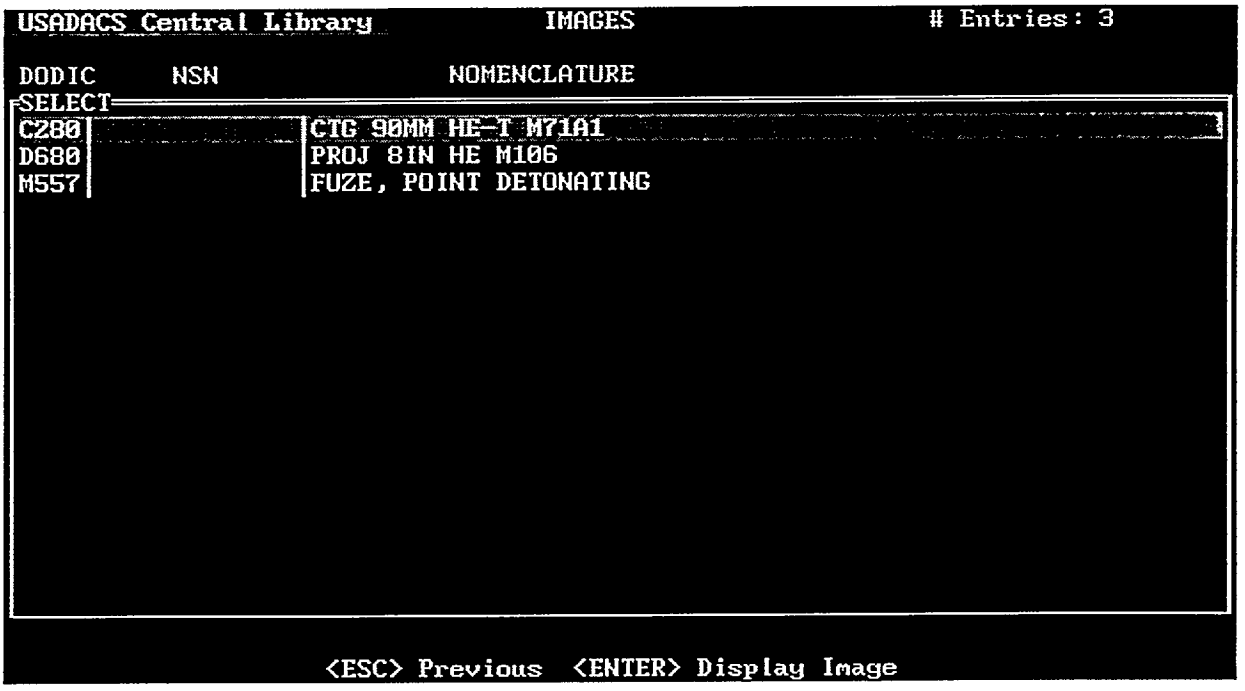


FIGURE 10.21 Image Selection Screen

MIDAS will advance to a browse screen containing the list of items in the demilitarization inventory (Figure 10.8). Press the [Up-Arrow] and [Down-Arrow] keys to scroll through the list, item by item, or press the [Page-Up] and [Page-Down] keys to move through the list page by page. When you have finished looking at the list, press [Esc] to return to the View/Update Menu.

11 STANDARD REPORTS

When you select the "Standard Reports" function from the Main Menu, MIDAS advances to the Standard Reports Menu (Figure 11.1). To generate one of these reports, move the selection bar to the report you want by pressing the [Up-Arrow] and [Down-Arrow] keys and then press [Enter]. MIDAS will display a small menu asking if you want to send the report to a file or to the printer. Sending the report to a file also displays the report on the screen, so you may wish to use that option as a means of previewing reports before printing them.

If you choose to send the report to a file, you will be told the file name of the report, for example, REPORT2.PRT. The report files can be found in the REPORTS subdirectory of the MIDAS directory, should you want to access them from DOS.

After the file name is displayed and you press [Enter] to continue, the report will be displayed on the screen. You can scroll through the report by pressing the arrow keys or [Page-Up] and [Page-Down] keys. When you are done viewing the report, press [Esc].

If you choose to send the report to a printer, make sure you first make the printer ready for printing. If the printer is not ready, or if for some reason MIDAS is unable to communicate with your printer, you will be notified by a dialog box.

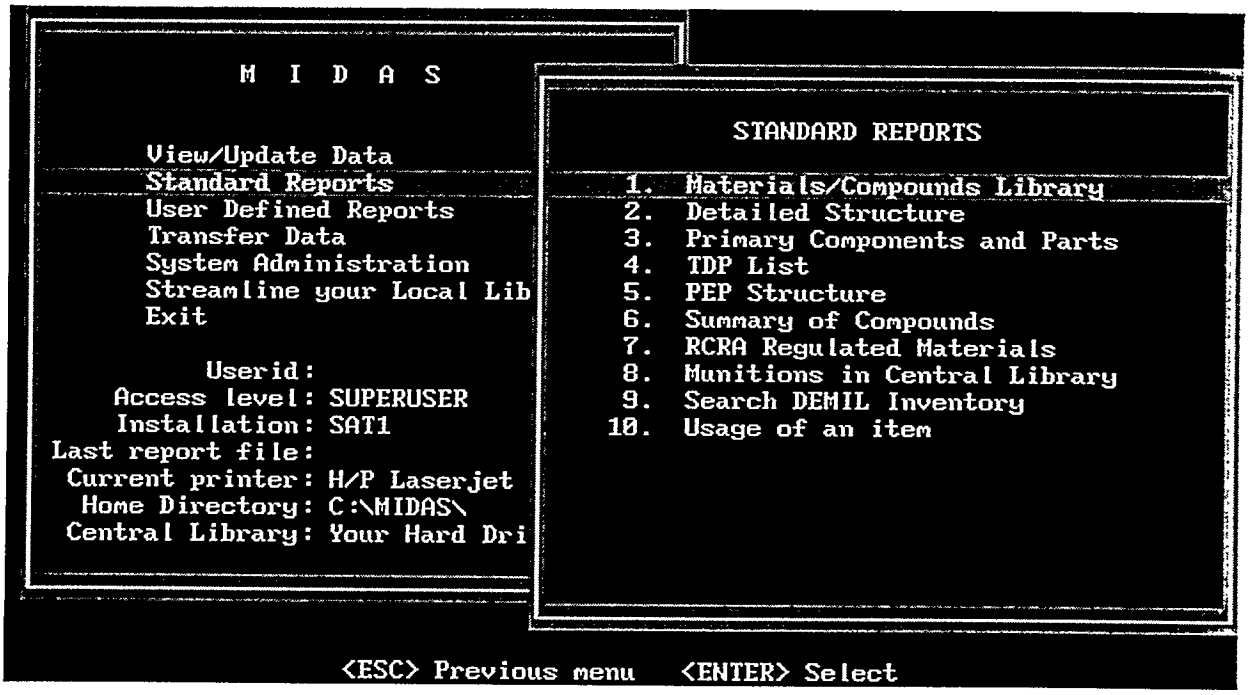


FIGURE 11.1 Standard Reports Menu

MIDAS contains standard reports numbered 1 through 10, as follows:

1. "Materials/Compounds Library": This report lists all of the materials and their associated compounds in the local or central Inert Material Library or PEP Material Library, whichever you choose.

2. "Detailed Structure": This report contains the structure of the last item that you viewed in the Expanded Structure Screen (see Section 10.5). Since the characters that are used to draw tree lines in the Expanded Structure Screen are not available on most printers, the tree lines do not appear in this report.

3. "Primary Components and Parts": This report operates on the last item that you viewed in the Expanded Structure Screen. It is intended for munitions and components and shows a listing of the first-level components and parts (i.e., only those components and parts that are directly linked to the munition or component).

4. "TDP List": This report operates on the last item that you viewed in the Expanded Structure Screen, which should be a munition or a component. The report lists all of the parts in the structure of the item, showing their nomenclature, drawing number, and revision. The output is sorted by drawing number.

5. "PEP Structure": This report operates on the last item that you viewed in the Expanded Structure Screen. It provides information on each PEP part in the structure of the item and lists the compounds that make up each part.

6. "Summary of Compounds": This report operates on the last item that you viewed in the Expanded Structure Screen. It produces a list, in alphabetical order, of all the compounds that appear anywhere in the structure of the item and gives the total weight of the compounds (in pounds). Table A.5 shows the symbols and atomic weights of elements used in chemical compounds.

7. "RCRA Regulated Materials": RCRA materials are those regulated by the Resource Conservation and Recovery Act. This report operates on the last item that you viewed in the Expanded Structure Screen. It shows a list of the parts, bulk items, and compounds in the structure of the item, followed by a summary that shows which RCRA elements appear in the item and their total weights (in milligrams). Table A.6 lists RCRA-regulated materials and provides their weight as a percent of the weight of the compounds that contain them.

8. "Munitions in Central Library": This report lists all of the munitions in the central library in a simple tabular format.

9. "Search DEMIL Inventory": This report lets you search the demilitarization inventory database and print a report of the results. (Section 10.9 describes another way of accessing this database.) Choosing this report brings up a Search Screen similar to the regular MIDAS Search Screen accessible from the View/Update Menu. Any items in the demil inventory that match the search strings entered by the user are included in the report.

10. "Usage of an item": This new report is similar to report number 2, the detailed structure report, except that it shows the usage of the last item for which the usage function was invoked. Since the characters that are used to draw tree lines in the usage screen are not available on most printers, the tree lines do not appear in this report. See Section 10.6 for a description of the usage function.

12 USER DEFINED REPORTS

The user defined reports function enables you to create and generate custom reports. You can use its report design to create a report that contains exactly the kind of information you want simply by selecting and ordering the fields that you want to include in the report. Furthermore, once you have created a new report format, you can save it so that you can run the same report again at a later date.

When you select "User Defined Reports" from the Main Menu, MIDAS advances to the User Defined Report Selection Screen, which contains a list of all the custom reports users have previously defined (Figure 12.1), including several that are included with the system (unless a user has subsequently deleted them). In the upper right-hand corner of the screen, MIDAS lists the number of user defined reports that are in this list. For each report contained in the selection list itself, MIDAS displays the number of this report in the list, the userid of the person who created it, the date and the time it was created, and the title given to the report by the person who created it. You can scroll through the list by pressing the [Up-Arrow] and [Down-Arrow] keys. If you see a report that you want to generate, or if you want to view and/or modify the format of one of the reports, you can select it from the list by pointing to it with the selection bar and pressing [Enter]. You can also create a report with a completely new format by pressing [F8] to activate the "Add" command. You can delete an unwanted report from the selection list by pressing [F10] to activate the "Delete" command. To exit the Report Selection Screen, press [Esc] at any time and MIDAS will

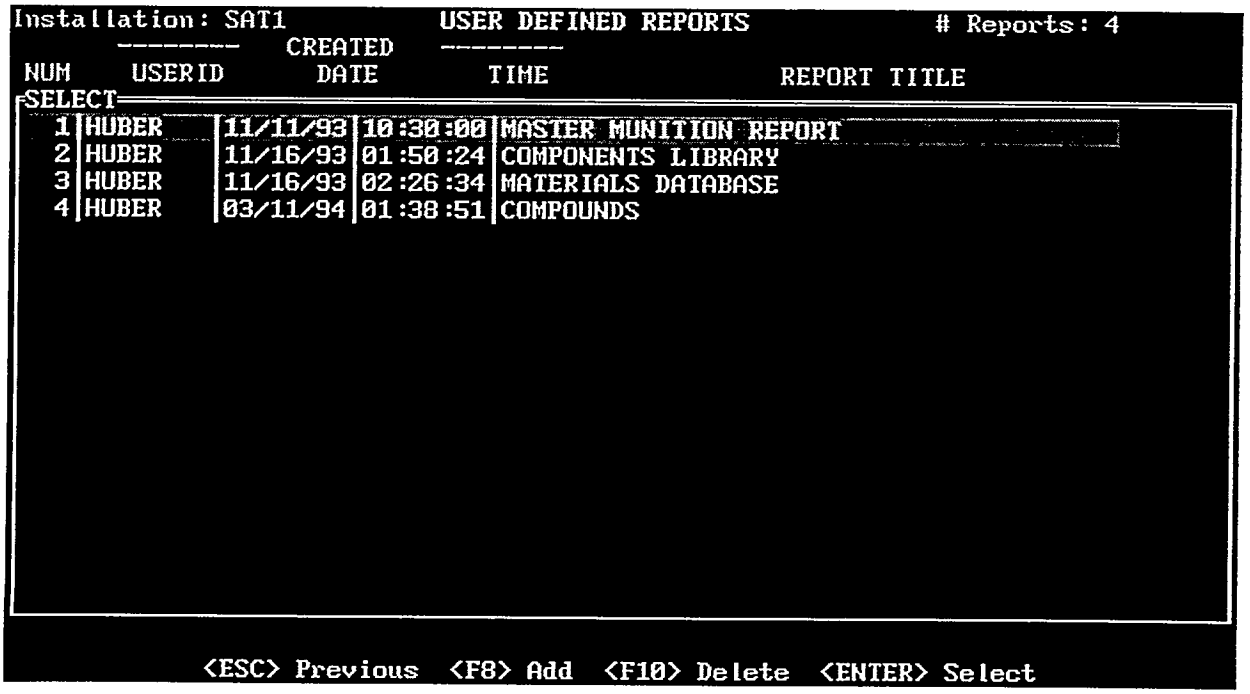


FIGURE 12.1 User Defined Report Selection Screen

return to the Main Menu. The following subsections deal with each of these features in more detail; they explain how to create a new report and how to work with one that has already been created.

12.1 DELETING A REPORT

To delete a user defined report, move the selection bar on the Report Selection Screen over the report that you no longer want and press [F10]. MIDAS will display a confirmation window asking you to verify that the report it is about to delete is, in fact, the report you intend to delete. If it is, press [Enter], and MIDAS will delete that report. If it is not, press [Esc] and MIDAS will return to the Report Selection Screen, where you can select the report that you do want to delete.

12.2 CREATING A NEW REPORT

Adding a new user defined report to the system is a somewhat more lengthy process. After you select the [F8] Add option from the Report Selection Screen, MIDAS prompts you to enter the title of the new report. After you enter the title, you will be returned to the Report Selection Screen, which will now include the report you have created. Now you need to add fields to the report. Select the new report by highlighting it and pressing [Enter]. The system will advance to a Report Field Selection Screen that will let you create the new report in the format you want (Figure 12.2).

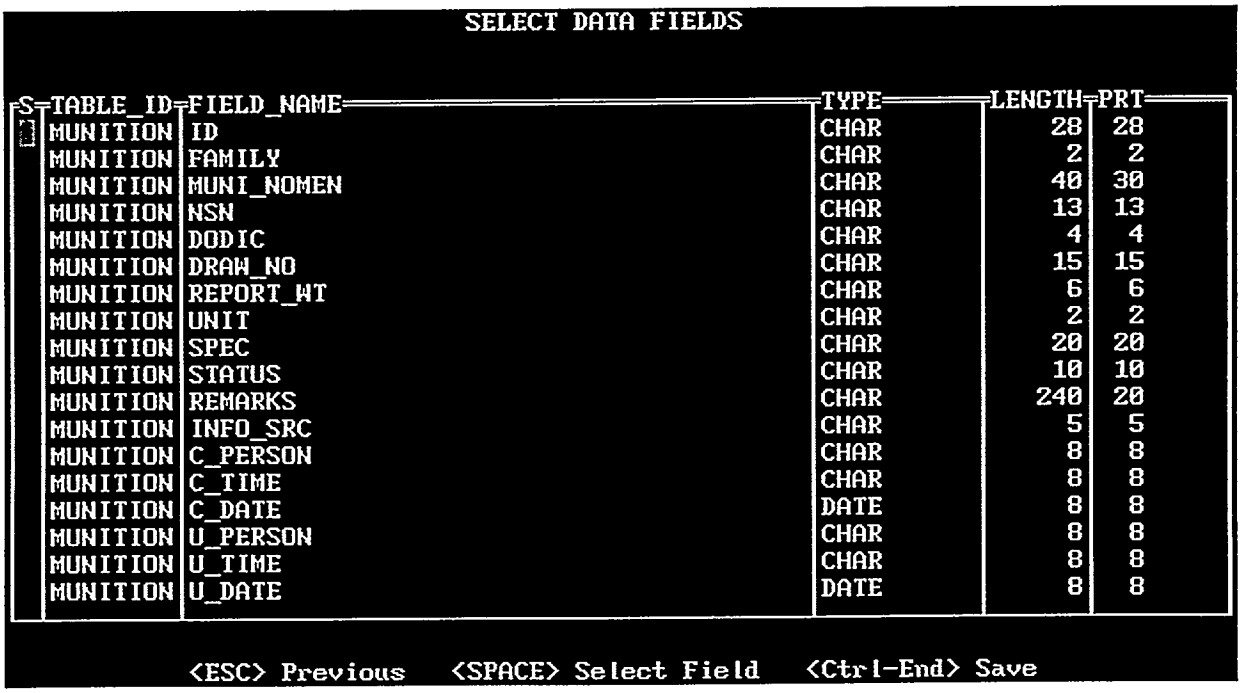


FIGURE 12.2 User Defined Report Field Selection Screen

The Report Field Selection Screen displays a list of all the fields in the MIDAS databases. You can scroll through this list by pressing the [Up-Arrow] and [Down-Arrow] keys. The information associated with each field is displayed in separate columns horizontally across the screen. The first column contains the name of the database to which the field belongs (such as MUNITION or PARTS). The second column contains the name of the field itself. The third column contains the data type of the field (numerical, character, or date). The fourth column contains the size of the field (its width in characters as it exists inside the system database). The final fifth column lists the print width of the field (the actual width in columns that the field should occupy on the report when it is generated).

The purpose of the Report Field Selection Screen is to enable you to select what system database fields you want to include in the report. Accordingly, the screen allows you to move a selection cursor up and down the list and either put a check next to a field that you want to include in your report or remove a check next to a field that you do not want to include in your report. The selection cursor is located in a special column of its own at the far left of the screen. You can move the cursor from in front of one field to another by pressing the [Up-Arrow] and [Down-Arrow] keys. To toggle a check in front of a particular field on or off, press the space bar. If there is a check in front of the field at which your selection cursor is located, MIDAS will unselect this field and remove the check from in front of the field. If there is no check in front of the field, MIDAS will select this field to include in your report and place a check in front of it.

Currently, a user defined report can contain fields associated with items of only one type; for example, munitions only or materials only. The MIDAS development team plans to enhance user defined reports to remove this restriction, so that information on multiple item types can be included in a single report.

When you have finished selecting exactly which fields you want to include in your report, press [Ctrl+End]. If you have decided that you do not want to add a new report to the User Defined Report Selection Screen, press [Esc]. Note that pressing [Ctrl+End] only advances you to the next step in the new report format definition process, it does not permanently add the fields to the report. To save your new report, generate it, or do anything else with it, you must use the options on the User Defined Report Editing Screen, described in the next section.

12.3 EDITING AND USING EXISTING REPORTS

When you select a report to modify or generate from the Report Selection Screen (or after you select the fields for a new report), MIDAS advances to the Report Editing Screen (Figure 12.3). This screen allows you to do many things with your report. You can change its format by changing the order in which the fields are printed. You can change the names of the column headings that appear across the top of each page. You can change the title of the report itself. The Report Editing

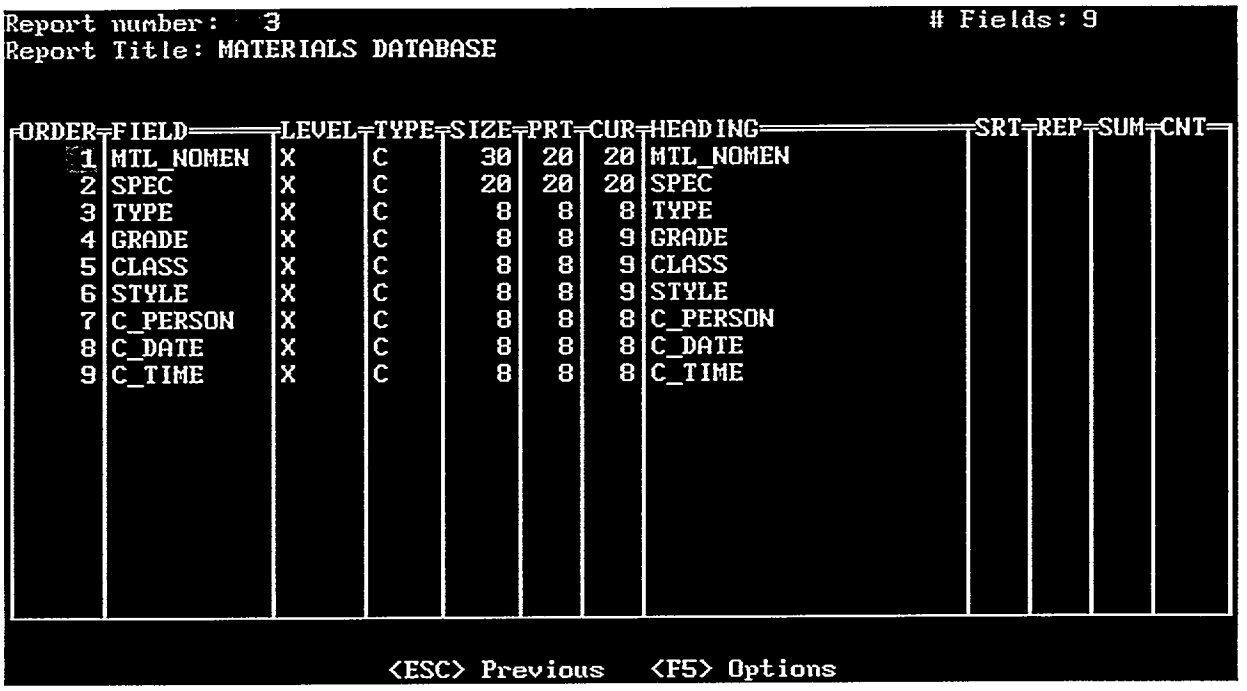


FIGURE 12.3 User Defined Report Editing Screen

Screen also offers a number of command options, all of which can be accessed by pressing [F5]. These options include adding or deleting fields from the report, checking whether the report will fit on the page, saving the report, changing the title of the report, and generating the report. Each of the following subsections describes a different feature of the Report Editing Screen and its command options.

12.3.1 Reordering Fields

You can change the order in which the fields included on your report are listed by making changes to the first column at the far left of the Report Editing Screen, "ORDER." This column lists the numerical order in which the fields occur on the report (which also corresponds to their order in the list of fields on this screen.) If you move the cursor over one of these numbers and enter a new number for the field, the order in which it is included in the report will change. This change will be reflected in the order of the entries on the screen as soon as you move the cursor any direction.

You can also use the cursor to change the column heading for a particular field. Make modifications by moving the cursor to the "HEADING" column on the screen and type in the name for the new column heading in the appropriate row for the field that you want to change.

12.3.2 Adding and Deleting Fields

To modify the number and kinds of fields on a report you created by using the [F8] Add command, open the Report Options Menu by pressing [F5] at any point while you are on the Report Editing Screen. The User Defined Report Options Menu will open up in the lower right-hand corner of the screen (Figure 12.4). You can scroll through its list of commands by pressing the [Up-Arrow] and [Down-Arrow] keys. To change the number or kinds of fields included in the report, move the selection bar to the first or second option, "Add Fields" or "Delete Fields," and select one of them by pressing [Enter].

12.3.3 Generating a Report

To generate the report of interest, select the fifth option on the Report Options Menu: "Run Report." MIDAS will display a confirmation window asking you to verify that you do indeed want to generate the report that you are about to generate. Press [Enter] to continue. Next, select whether to send the report to the printer or to a file. If you select file, you must also enter the name of the file to which you want to write the report. When you have made these selections, press [Enter], and MIDAS will generate the report.

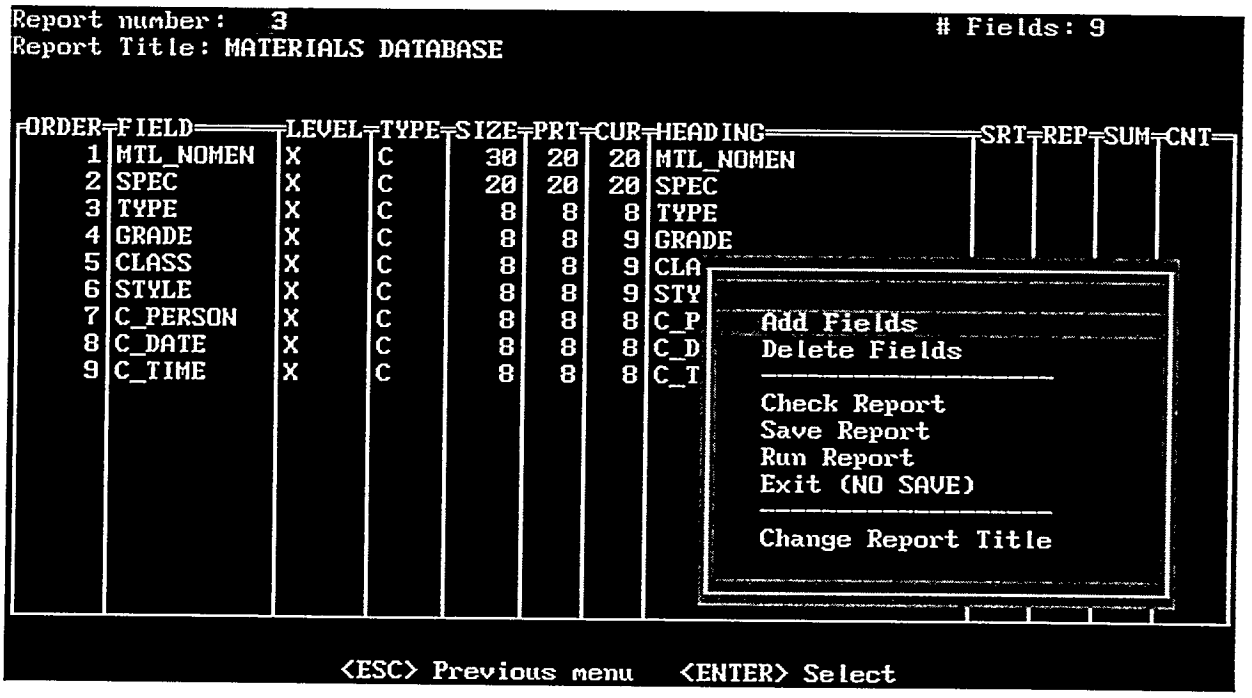


FIGURE 12.4 User Defined Report Options Menu

13 TRANSFERRING DATA

The various options on the Transfer Data Menu let you copy data in and out of your local library as well as the MIDAS Server. The functions available for transferring data to and from a diskette, described in Section 13.1, are exporting and importing. The functions available for transferring data to and from the MIDAS server, described in Section 13.2, are submitting data to the server for review or centralization, selecting and downloading data from the server to review or centralize, and transferring a new central library to the server. The Transfer Data Menu is shown in Figure 13.1.

13.1 TRANSFERRING DATA TO AND FROM A DISKETTE

13.1.1 Exporting Data to a Diskette

Data can be copied from your local library to a diskette. The diskette can be kept as a backup for reloading into your local library at a later time. (You can also back up your local library from the System Administration Menu [see Section 14], but that function backs up the whole library; the export function allows you to select which items you want to export.) The diskette can also be given to others so they can load your data into their local library. This function serves as a way to extract specific munitions or other items from the system and put them on a diskette.

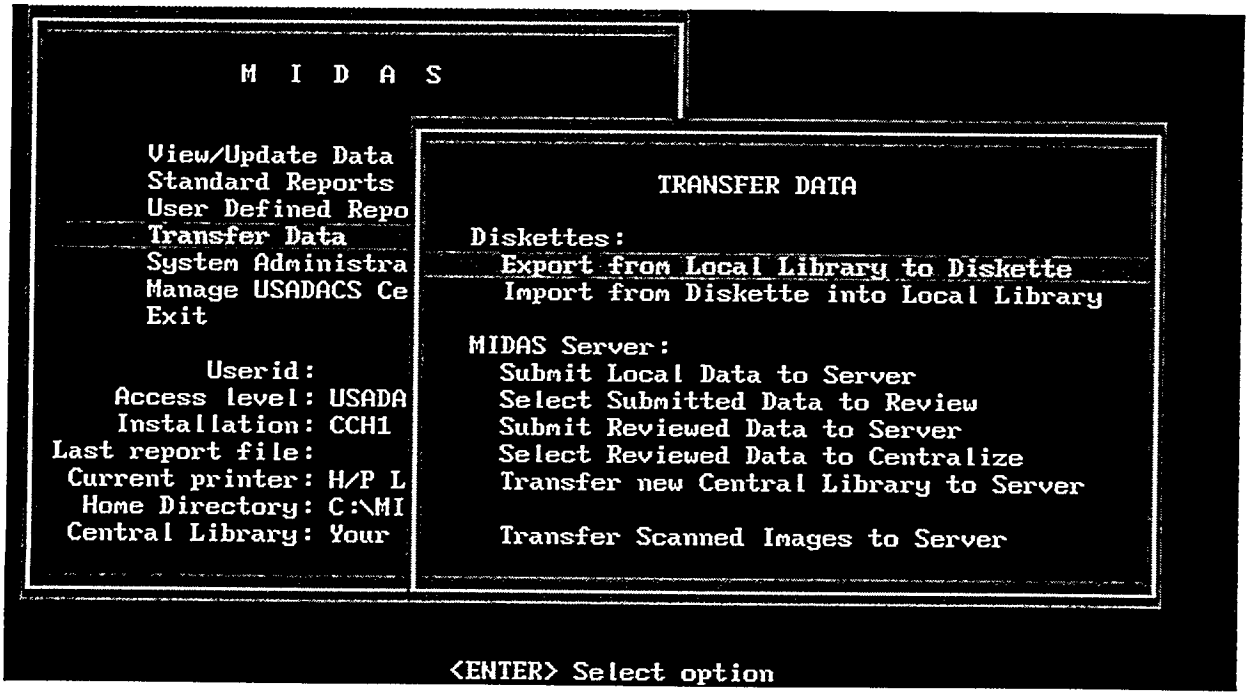


FIGURE 13.1 Transfer Data Menu

If you choose the "Export from Local Library to Diskette" option from the Transfer Data Menu, MIDAS advances to a window where it prompts you to choose the items you want to export (Figure 13.2). Press the [Up-Arrow] and [Down-Arrow] to move the cursor to the item category or type you want to export. Press the space bar to toggle the value in the "OPTION" column among three options: "All" (to export all items of that type), "Select" (to export only some items of that type), or blank (to not export any items of that type). If you choose "All" and then press [Enter], the number of items you chose will immediately appear in the "SELECTED" column.

On the other hand, if you choose "Select" and then press [Enter], MIDAS will advance to the Export Item Selection Screen, where you can select the specific items you want to export (Figure 13.3). This screen is essentially the same, no matter what type of item you are working with. MIDAS presents a list of all the items of the selected type in your local library. On the left-hand side of this list is an empty column. You can press the space bar to select one item to export. MIDAS places a check in the blank column directly next to the item you have selected. You can put a check next to as many items as you like. If you want to unselect an item, just press the space bar again, and MIDAS will remove the check from the column. If you want to find one or more items to export, you can activate the search function at any point on the item Selection Screen by pressing [F2]. If you want to view the record data for an item to confirm that it is one that you want to export, move the selection bar over it and press [Enter]. When you have selected all the items that you want to export, press [F5]. You will be returned to the Export Type Selection Screen, and the number of items you have selected will be displayed in the "SELECTED" column.

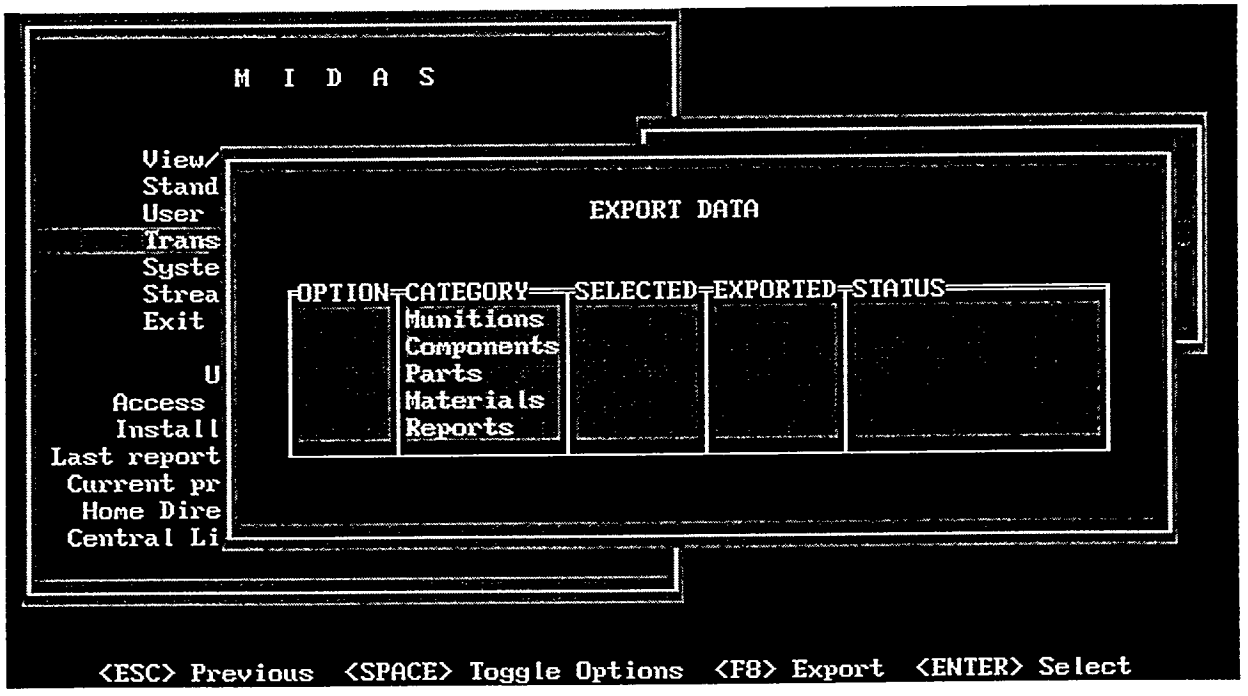


FIGURE 13.2 Export Type Selection Screen

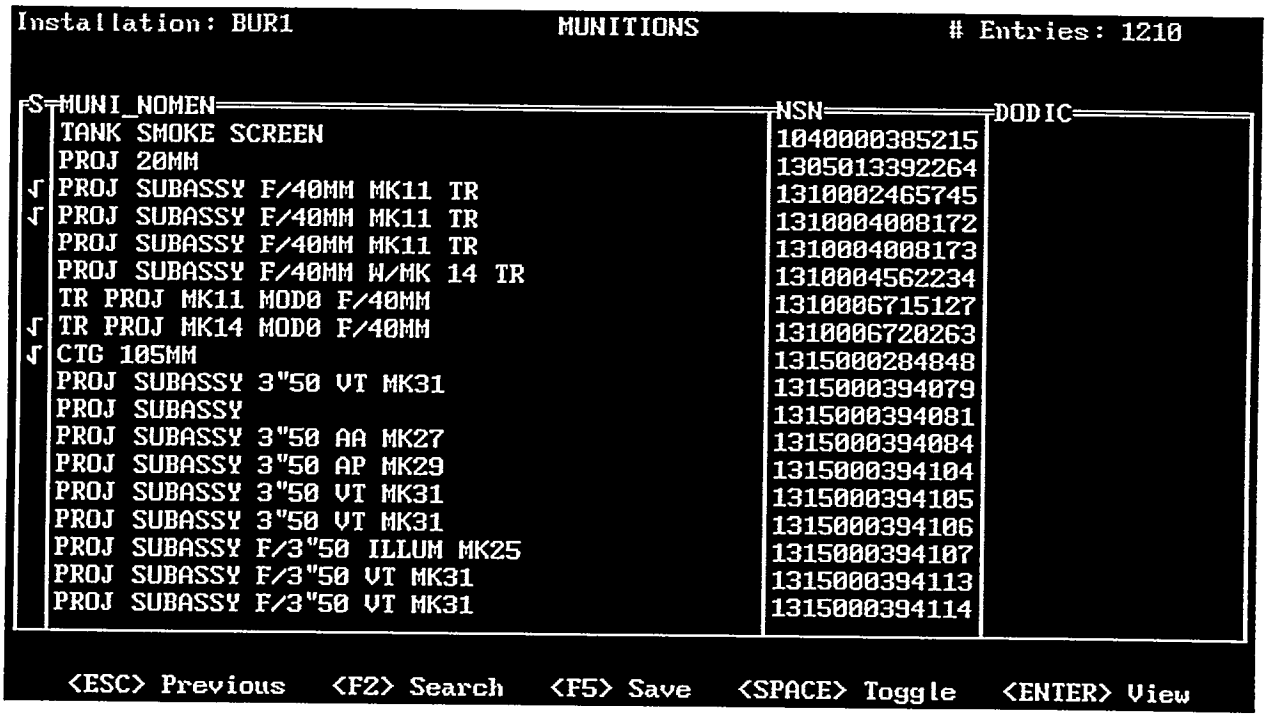


FIGURE 13.3 Export Item Selection Screen

You can select items of more than one type by following the procedure outlined above. Note that exporting an item also exports all of the items in its structure. For example, when you export a munition, all the components, parts, materials, and compounds that are contained in the structure of that munition are exported too. (If there are items from the central library in the structure, the central items themselves are not exported, but the links to the central items are exported, so the structure of the item is correctly preserved.)

"Reports" is on the Export Type Selection Screen under the heading "CATEGORY." You can use this feature to export your user defined report definitions (see Section 12) as well as the standard types of items.

When you are done selecting items, press [F8]. The system will advance to a confirmation window that prompts you for the destination drive (Figure 13.4). Specify the destination drive by pressing its letter or the space bar. Confirm that you want to continue the exporting process by pressing [Enter].

MIDAS will then assign a unique file name to the export and display this file name on the screen (Figure 13.5). In the figure, the given file name is FCNM6C.EXP. This file name can be used to identify the export later when it is re-imported. After MIDAS has completed exporting the data for the munitions or components you selected, it will return to the Export Type Selection Screen. Press [Esc] to return to the Transfer Data Menu.

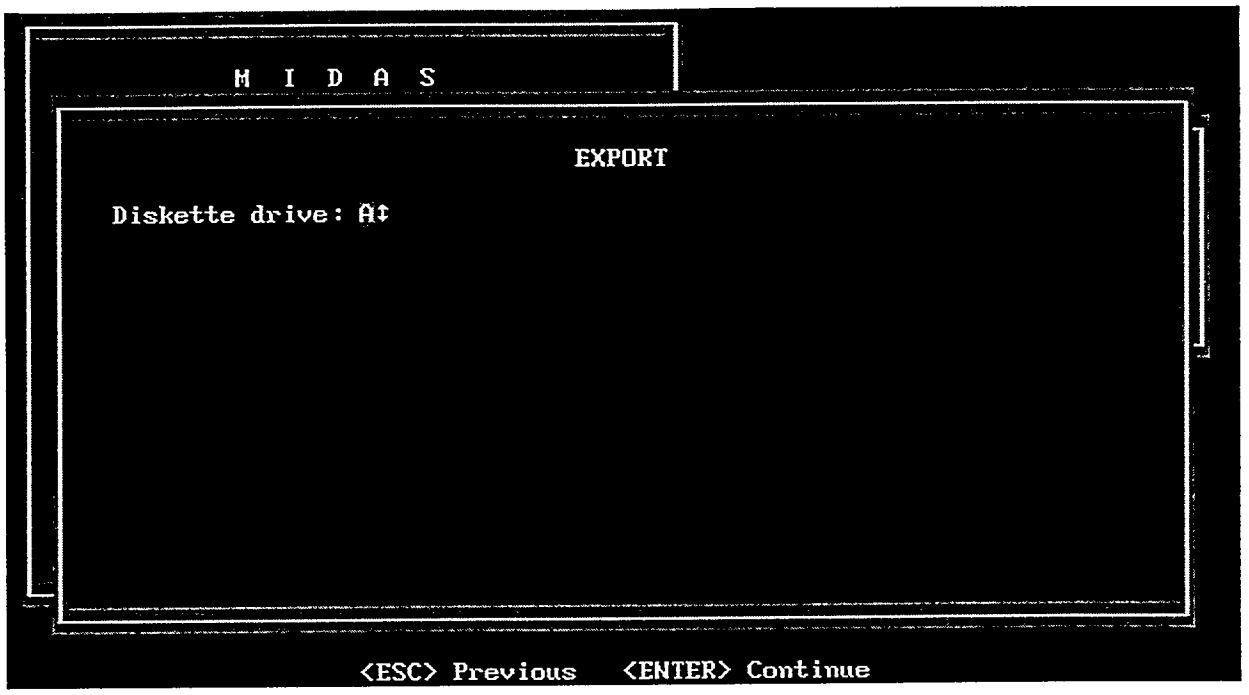


FIGURE 13.4 Export Drive Selection Screen

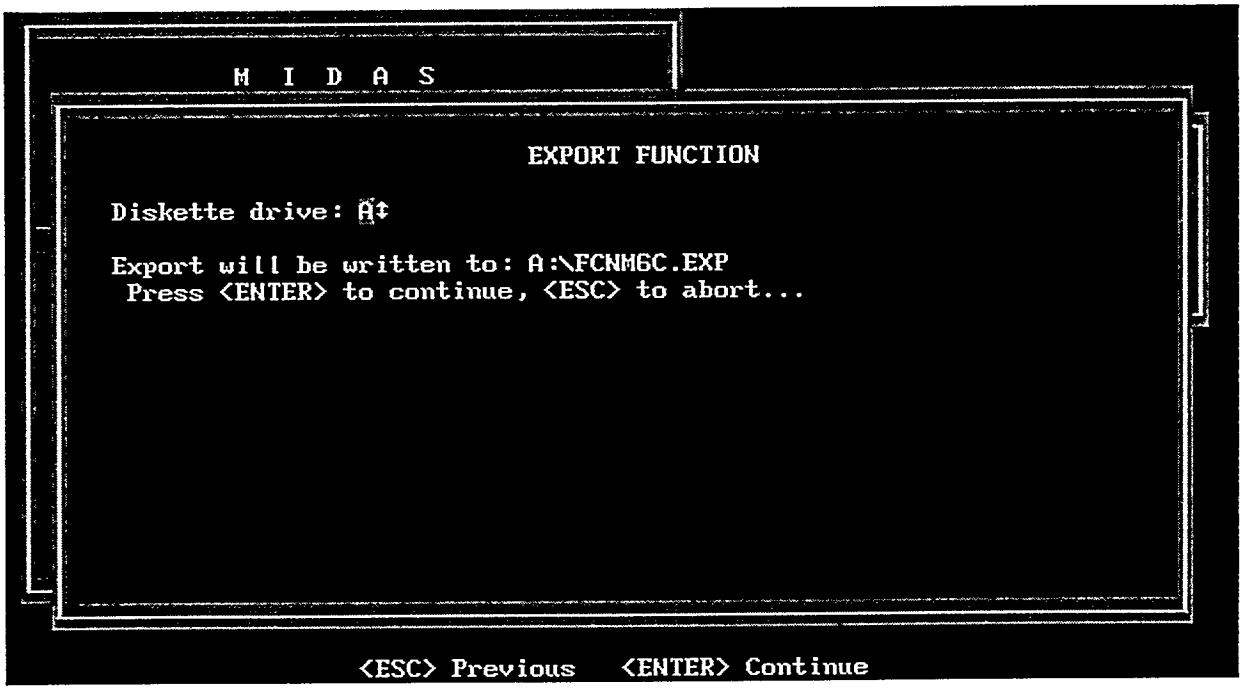


FIGURE 13.5 Export File Name Screen

13.1.2 Importing Data from a Diskette

This function complements the export function. It enables you to retrieve the data for items that you stored on a diskette when you used the export function. Note that if you import an item that already exists on the system (perhaps the very item you exported at an earlier date), you will overwrite existing data for the item in your local library.

Version 3.0 of MIDAS can import data that was exported from a version 2.0 system. However, version 2.0 cannot import data exported from a version 3.0 system.

To use this function, select "Import from Diskette into Local Library" from the Transfer Data Menu. MIDAS will open a window prompting you for the letter of the drive from which you are importing data. Press the letter of this drive (or select it by pressing the space bar) and then press [Enter]. A screen such as the one shown in Figure 13.6 appears. (If there are no export files on the disk, you will instead be notified of this fact.) The name of each exported file on the chosen drive is listed with the date and time it was created and its size. Use the arrow keys to select the file you want to import and press [Enter]. Once you have chosen a file, the import process proceeds automatically. When the file is imported, MIDAS will display a message saying so. Press [Enter] again and MIDAS will return to the Transfer Data Menu.

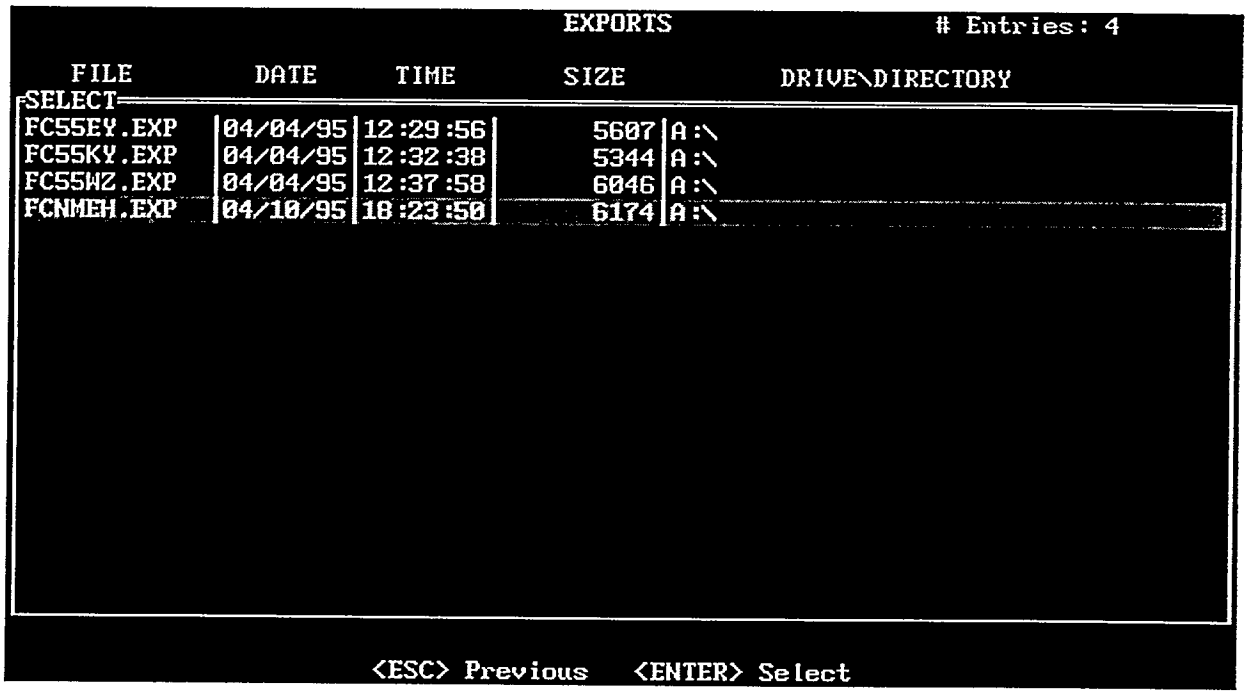


FIGURE 13.6 File Name Selection Screen

13.2 TRANSFERRING DATA TO AND FROM THE SERVER

These functions enable users to send and retrieve collected data for submittal, review, and loading into the central library. All these functions require you to be connected to the MIDAS server. The specific function displayed depends on the access level assigned to the user. All users can submit data to USADACS. Specific users are assigned a REVIEW access level. REVIEW-level users can review and submit reviewed data for loading into the central library. They can also submit scanned images to the server. Only the USADACS central library manager (who is responsible for loading the central library) can create a new central library on the server.

13.2.1 Submitting Local Data to the Server

To send data to USADACS to be incorporated into the central library, you must first be connected to the MIDAS server. For information on connecting to the server, see Section 5. You will use the submit function to send that data to the server to be reviewed by USADACS personnel. To access the submit function, choose the option called "Submit Local Data to Server" from the Transfer Data Menu. From this point on, the submit function is identical to the export function, except that you will not be asked to choose a drive; your data will automatically be sent to the appropriate data area on the server. The file name of your submission will be displayed (e.g., M:\SUBMIT\ANL1\FG6TZY.EXP). The file name includes your node ID (ANL1 in the example) and a unique submission ID (FG6TZY in the example); together, these two IDs identify your submission.

13.2.2 Selecting Submitted Data to Review

You will see this option displayed on the screen only if you are a REVIEW-level user. This option enables you to list the files (containing munition data) that have been submitted by the user community. When you select this option from the Transfer Data Menu, a list of files containing munition data is displayed (Figure 13.7). These files were created when the "Submit Local Data to Server" option was chosen (as described in Section 13.2.1). You can then select one of the files by pressing [Enter].

When you select a file, MIDAS lists the number of munitions, components, parts, and materials within this file (Figure 13.8). To import these data into your local library, press [F5]. MIDAS loads the data in this file into your local library just like it does when it carries out the "Import from Diskette into Local Library" option (Section 13.1.2).

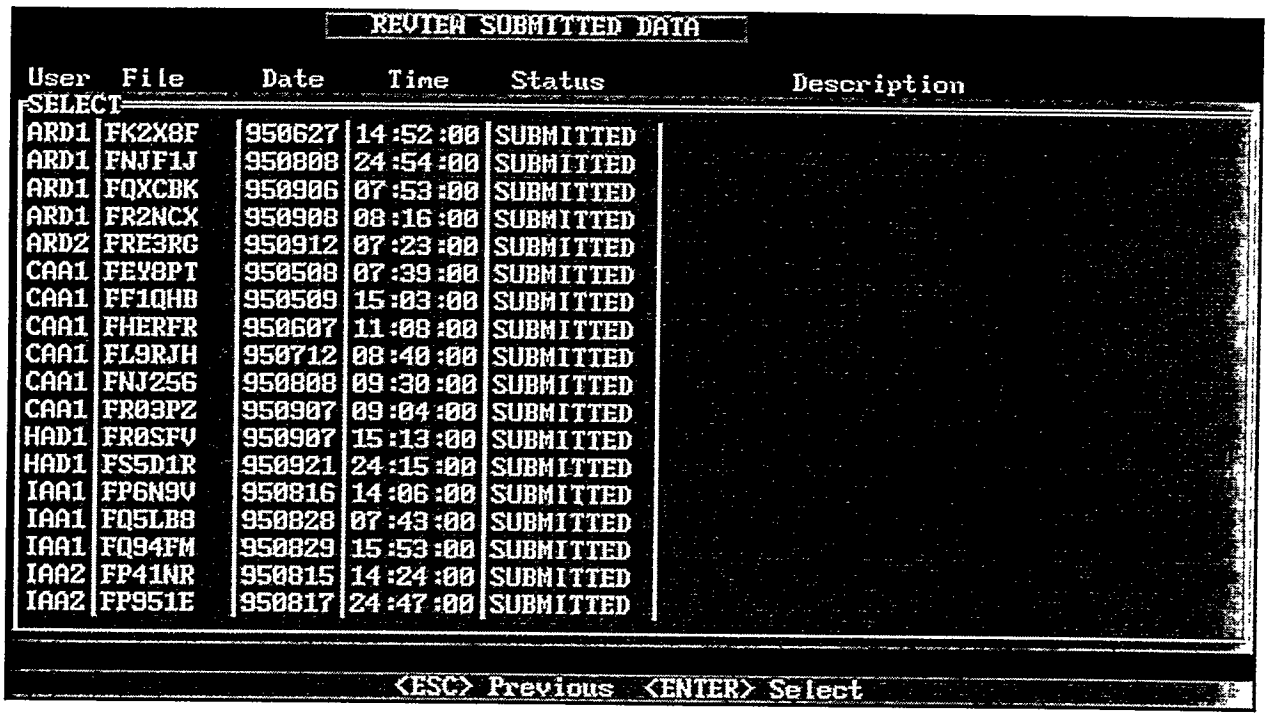


FIGURE 13.7 Select Submitted Data to Review Screen

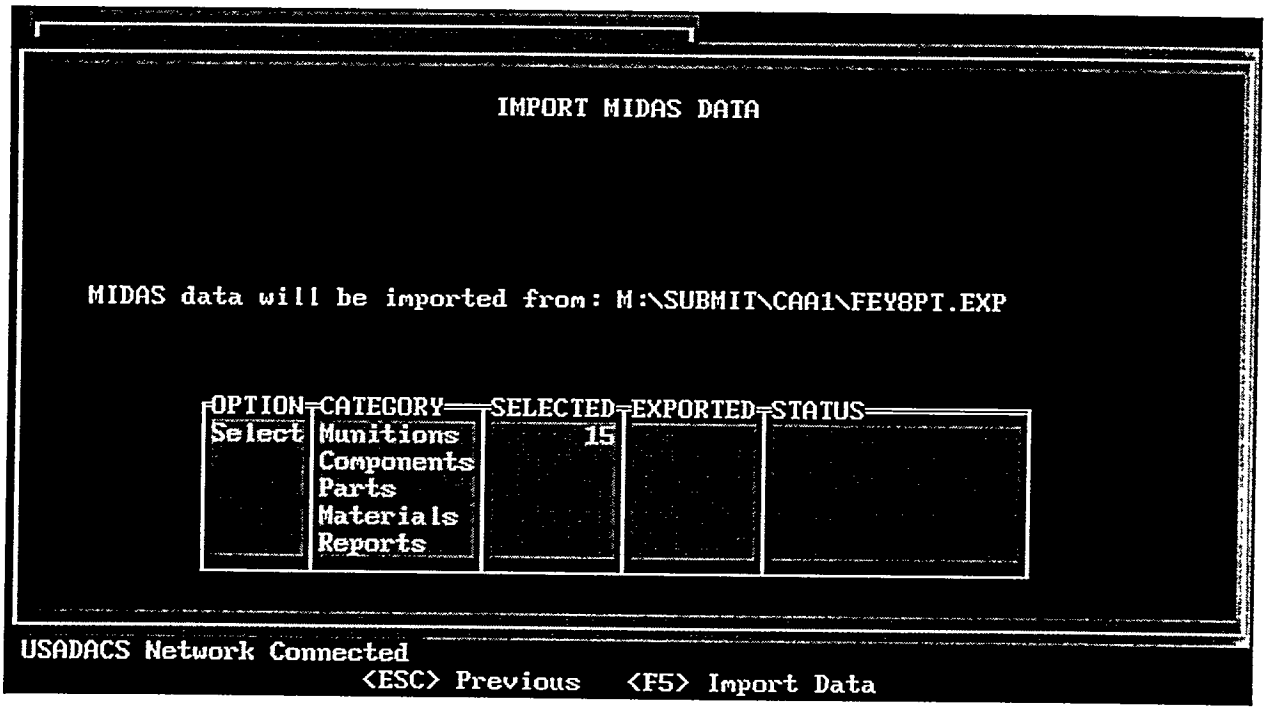


FIGURE 13.8 Submitted Data Selected for Import into Local Library Screen

13.2.3 Submitting Reviewed Data to the Server

You will see this option displayed on the screen only if you are a REVIEW-level user. This option enables you to submit reviewed data to the server. This option operates identically to the "Submit Local Data to the Server" option, except data written to the server are assigned "REVIEWED" status and stored on the server.

13.2.4 Transferring Scanned Images to the Server

You will see this option displayed on the screen only if you are a REVIEW-level user. This option enables you to submit scanned images to the server. Each image must be scanned before you use MIDAS and stored in the IMAGES subdirectory (under the MIDAS directory) on the hard drive. The file name must be the eight-character DODAC (FSC + DODIC) with the extension PCX (for example, 1315C280.PCX).

This function first scans the IMAGES subdirectory for scanned images. If new images have been added (or existing images updated), MIDAS automatically updates the Scanned Images library on your PC. Next, this local data library is compared with the Scanned Images library on the MIDAS server. The library on the server is then updated as needed. Any new images are transferred to the server.

13.2.5 Selecting Reviewed Data to Centralize

Only the Central Library manager will see this option displayed on the screen. This option enables the Central Library manager to list the files (containing munition data) that have been reviewed and submitted for inclusion in the central library. When you select this function, a list of files (containing reviewed munition data) is displayed. These files were created when the "Submit Reviewed Data to Server" option was chosen (as described in Section 13.2.3). You can then select one of the files by pressing [Enter].

When you select a file, MIDAS lists the number of munitions, components, parts, and materials within this file. To import these data into your local library, press [F5]. MIDAS loads the data in this file into your local library just like it does when it carries out the "Import from Diskette into Local Library" option (Section 13.1.2).

13.2.6 Transferring a New Central Library to the Server

Only the Central Library manager will see this option displayed on the screen. This option enables the Central Library manager to create a new central library on the MIDAS server. When selected, it first creates a backup of the central library on the server.

Next, MIDAS prepares the central library on the user's PC to be the new official central library. The status of completed munitions, components, parts, and materials is changed from "COMPLETE" to "OFFICIAL." The central library is then packed, and the indices are recreated. The central library is compressed and transferred to the MIDAS server.

14 SYSTEM ADMINISTRATION

Choose "System Administration" from the Main Menu to reach the System Administration Menu (Figure 14.1). This menu enables you to back up, restore, reindex, or delete your local library, control user access to the system, and view several logs the system keeps.

All of the functions in the System Administration Menu affect only the local library. Some of the same functions can be performed on the central library from the Central Library Management Menu (see Section 16), a menu that is available only to users with USADACS access level. Other users are not allowed to modify the central library in any way; hence, there is no need for them to perform any of the system administration functions on the central library.

The rest of this section describes the individual functions available from the System Administration Menu.

14.1 BACKING UP THE LOCAL LIBRARY

The "Backup Local Library" option on the System Administration Menu enables you to store a complete copy of all the data in your local library on a diskette. This diskette functions as a backup in the case of data loss. This function is not restricted by access level.

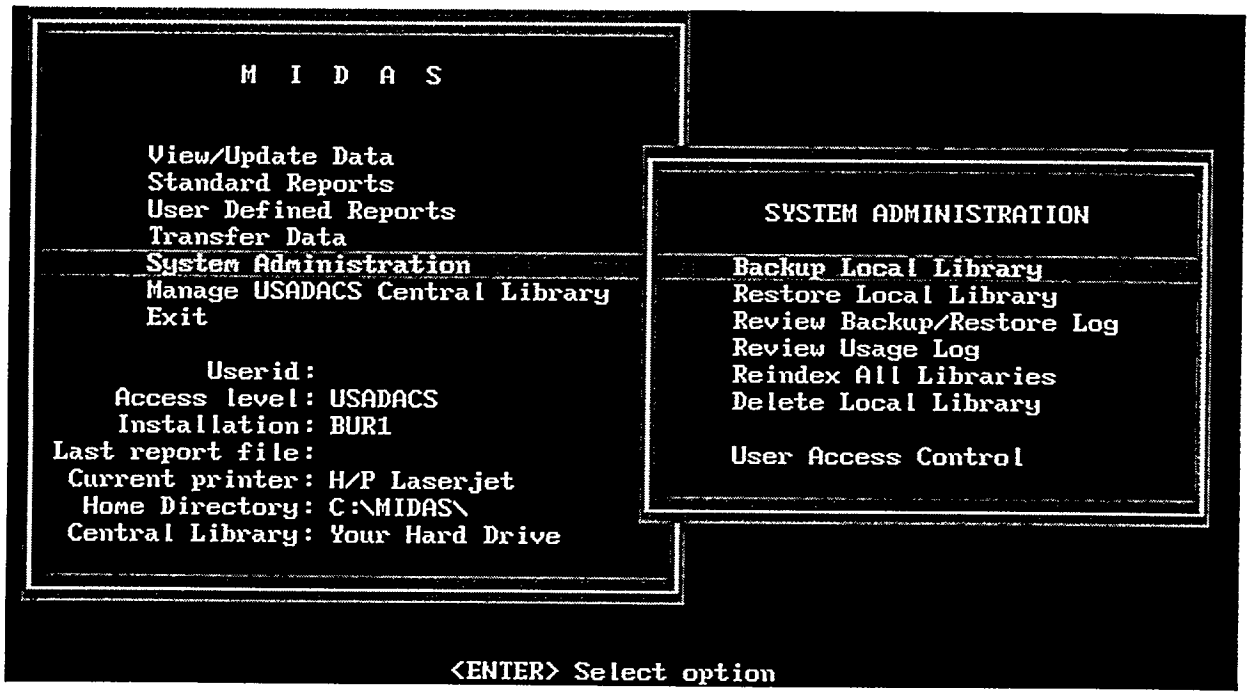


FIGURE 14.1 System Administration Menu

When you select this function, MIDAS will open a confirmation window prompting you whether you wish to continue. At this point, if you do want to back up the system, press [Esc] to abort the process; otherwise, press [Enter] to continue. Next MIDAS will prompt you for the letter of the disk drive to which you want to write the backup of the system (generally the A or B drive). Type *A* or *B* accordingly, then press [Enter]. In case you accidentally entered the wrong letter, MIDAS will present a final prompt asking you to press [Enter] to continue. If you made a mistake, press [Esc] to abort the process and start over; if not, press [Enter]. At this point, MIDAS will begin the backup process; this should take several minutes. When MIDAS has completed this process, it will display a message in the confirmation window saying "Backup complete." Press [Enter] and MIDAS will return to the System Administration Menu.

14.2 RESTORING THE LOCAL LIBRARY

The "Restore Local Library" option on the System Administration Menu enables you to take the backup copy of the local library that you stored on a diskette when you used the backup function and transfer it back onto your computer (or another computer).

Version 3.0 of MIDAS can restore backups created on a version 2.0 system. However, version 2.0 cannot restore backups created on a version 3.0 system.

You can use this function only if you have SUPERUSER access level. If you do not, this option will appear on the system menu, but you will not be able to select it. If you do have clearance, when you select "Restore Local Library," MIDAS will open a confirmation window prompting you whether you wish to continue. At this point, if you do want to back up the system, press [Esc] to abort the process; otherwise, press [Enter] to continue. Before you continue, remember that when MIDAS restores from a backup, all of the data currently in your local library are lost. Only the data that were stored on the diskette will remain. If you have entered new data into your local library since making the backup, restoring the backup will cause these data to be lost. If you choose to continue with the restore function, MIDAS will prompt you for the letter of the disk drive in which the backup of the system is located, either A or B. See Figure 14.2. Type the letter of the drive you are using, then press [Enter]. MIDAS will display one final message, confirming that the drive you have selected is indeed the drive in which it should look for the backup diskette. Press [Enter] again to continue. At this point, MIDAS will begin restoring from the backup; this process should take several minutes. When MIDAS has completed this process, it will display a message in the confirmation window saying Backup restored.

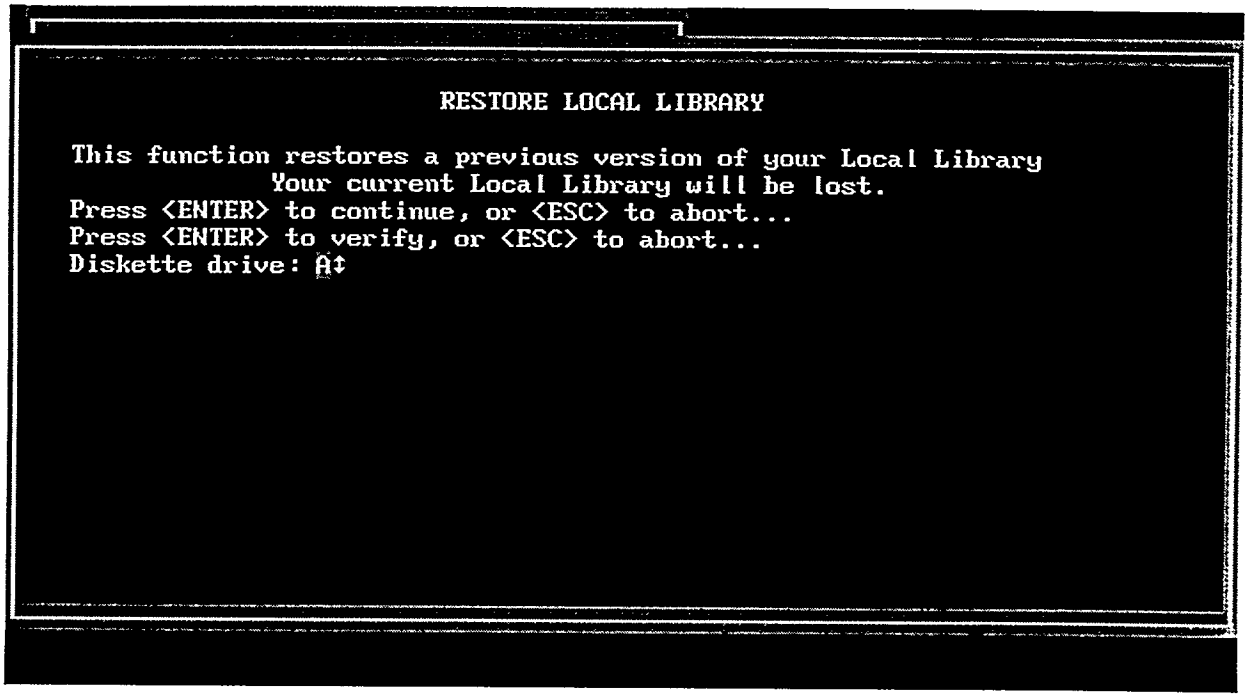


FIGURE 14.2 Restore Local Library Screen

14.3 CONTROLLING USER ACCESS

You can use this function only if you have SUPERUSER access level to the system; if you do not, this option will appear on the system menu, but you will not be able to select it. When you select "User Access Control" from the System Administration Menu, MIDAS will display the User Accounts Screen (Figure 14.3), which lists all the users who have access to the system. You can scroll through this list by pressing the [Up-Arrow] and [Down-Arrow] keys. To select a user and edit his or her access level, move the selection bar over the entry you want to modify and press [Enter]. You can add a new user at any time by pressing [F8]. You can delete a user from the system by moving the selection bar over that person's entry and pressing [F10].

When you add a new user to the system or edit the entry for a current user, MIDAS prompts you for the information on that user on a separate Data Entry Screen (Figure 14.4). Each entry contains three pieces of information: the user's userid, password, and access level. You can enter or modify the first two pieces of information by typing in the appropriate information. To modify the access level for a user, however, use the space bar to toggle through the different possible access level settings when the cursor is on that field. There are five possible access level settings: "VIEW," "UPDATE," "REVIEW," "SUPERUSER," and "USADACS." The meaning of these access levels is described in Section 6.2.

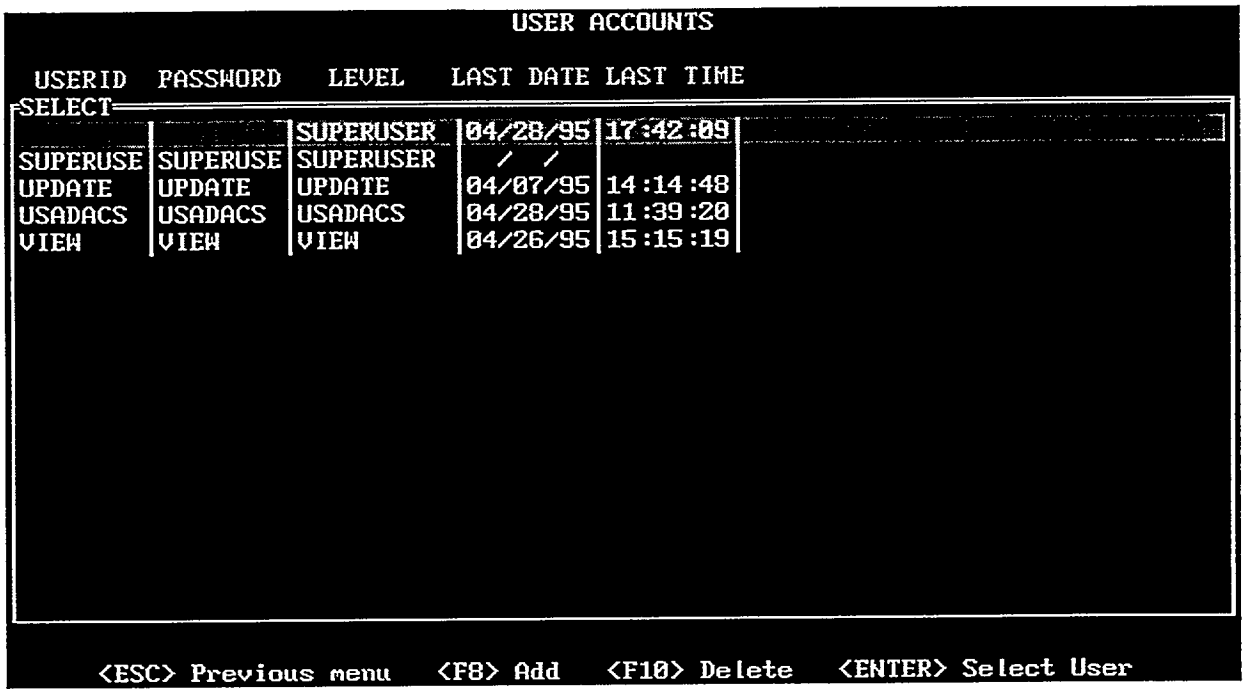


FIGURE 14.3 User Accounts Screen

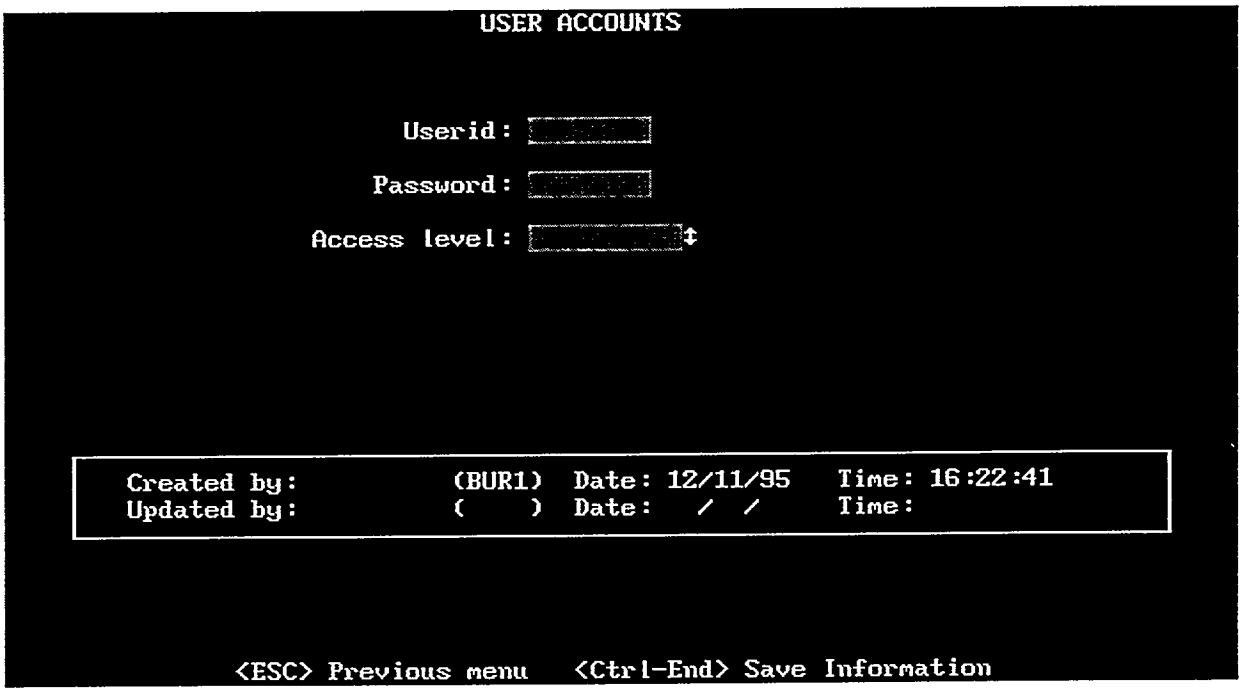


FIGURE 14.4 Data Entry Screen

When you have finished entering or editing the information for a user, press [Ctrl+End] to save the changes you have made. If you do not want to save the changes, press [Esc]. At this point, MIDAS will return to the User Accounts Screen. When you have finished using this screen, press [Esc] to return to the System Administration Menu.

14.4 REVIEWING THE BACKUP/RESTORE LOG

Choosing the "Review Backup/Restore Log" option from the System Administration Menu provides you with a historically ordered list of when each backup was made and/or restored. To browse through the list, press the [Up-Arrow] and [Down-Arrow] keys. This information is crucial to ensuring that the data in the system are adequately protected. If you check the list and see that the system has not been backed up recently, you know that it is time to perform a backup. Also, when you prepare to restore a backup, you can use this information to tell if the system contains new data that would be erased by the restore procedure. When you are finished looking at the list, press [Esc] to return to the System Administration Menu.

14.5 REVIEWING THE USAGE LOG

Choosing the "Review Usage Log" option from the System Administration Menu provides you with a list showing when any major operations (e.g., session initiation or report generation) were performed on the system. The list displays the userid of the person who performed the operation, the organization from which he or she performed it, the date and time he or she performed it, and a description of the exact operation performed. To browse through the list, press the [Up-Arrow] and [Down-Arrow] keys. When you are finished looking at the list, press [Esc] to return to the System Administration Menu.

14.6 REINDEXING THE LOCAL LIBRARY

The option "Reindex Local Library" on the System Administration Menu recomputes the indexes of the MIDAS databases. These indexes, which are internal to the system, should not concern you in the normal course of operations. However, if you suspect that your index files might have become corrupted (for example, in the case of a power outage or system crash), you may wish to use this function, especially if MIDAS is acting strangely or halting with unexpected error messages.

14.7 DELETING THE LOCAL LIBRARY

The option "Delete Local Library" on the System Administration Menu erases all items of all item types from your local library. If you choose this option, you will be given two chances to press the [Esc] key to back out. If you use this function accidentally, your data cannot be recovered. This function does not affect the central library.

15 STREAMLINING THE LOCAL LIBRARY

Choosing the "Streamline your Local Library" option from the Main Menu brings up the menu illustrated in Figure 15.1 The Streamlining Menu offers several options that help you eliminate duplicate items from your local library. The Streamlining Menu will appear only if your access level is UPDATE or SUPERUSER. If your access level is USADACS, the Central Library Management Menu will appear instead. See Section 16 for a description of the Central Library Management Menu.

The purpose of the streamlining function is to update your local library when you download a new version of the central library. When you enter data directly into your local library, MIDAS ensures you are not entering duplicate items by checking the key fields for each item (the fields with red headings on the data entry screens). However, because many people are constantly adding new data to the central library and because you can import data into your local library, duplication of items can still occur. For example, someone else may have created a part that is exactly the same as one you created (same drawing number, material nomenclature, SPEC, and TGCS) and used it in a different munition. Internally, MIDAS considers these to be different items, since they were entered by two different persons, on different PCs at different dates and times. When the data are submitted to USADACS and loaded into the central library, the duplicate items are resolved through the centralization process.

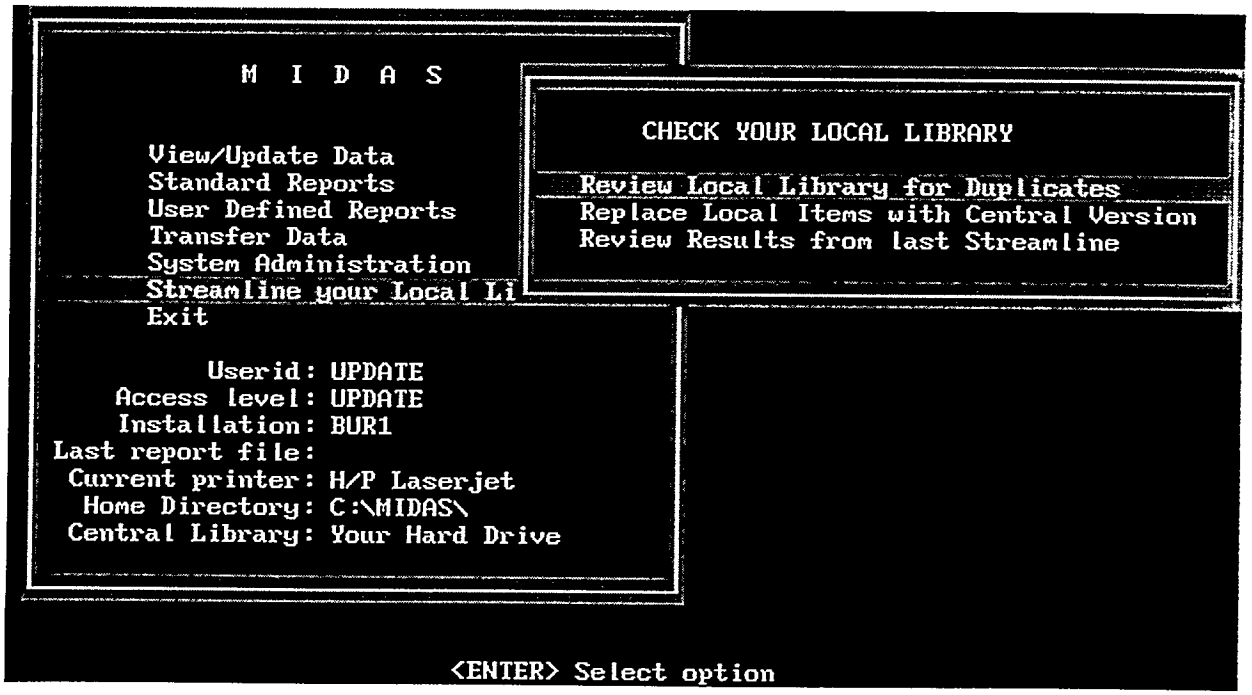


FIGURE 15.1 Streamlining Menu

Whenever you download a new version of the central library, it may contain items that you have characterized in your own local library. One streamlining option automatically compares your local library data with the central library data to check for duplicates and revises your local library by using the central library items instead.

15.1 REVIEWING THE LOCAL LIBRARY FOR DUPLICATES

Choosing "Review Local Library for Duplicates" from the Streamlining Menu scans the local library for items that are duplicates of one another according to the key fields (as defined in Section 7.1.2). It scans only the local library; it does not compare the local library to the central library. It reports duplicate items and the contents of their key fields but does not automatically remove the duplicates.

15.2 REPLACING LOCAL ITEMS WITH CENTRAL ITEMS

Choosing "Replace Local Items with Central Version" scans the local library for items that are duplicates of items in the central library according to the key fields (see Section 7.1.2). Any duplicates that are found are removed from the local library. Links to the deleted items are replaced with links to the corresponding central items. Problem items, which have key fields that match a central item but which differ from the central item in some other way, are brought to the attention of the user. Differences could lie in the non-key fields for the item or the structure of the item.

There is one exception to the usual rules for determining whether a local item is a duplicate of a central item. The central library as distributed by USADACS contains a large number of munitions for which there is basic munition information (NSN, DODIC, nomenclature, etc.) but no further details on parts or components. These are the set of munitions that need to be characterized. Therefore, if a local munition has the same key fields as a central munition, but the central munition has no subitems, the local munition is not considered a duplicate and is not removed from the local library.

15.2.1 Choosing Items for Streamlining

Choosing the option "Replace Local Items with Central Version" from the Streamlining Menu brings up a screen that allows you to choose which items in your local library you want checked. This screen is shown in Figure 15.2. Press the [Up-Arrow] and [Down-Arrow] keys to move the cursor to the item type you wish to be checked. Press the space bar repeatedly to toggle among the four options "All," "Select," "Result," and blank. The option you choose is displayed in the column labeled "OPTION." The option "All" attempts to streamline all items of that type. The

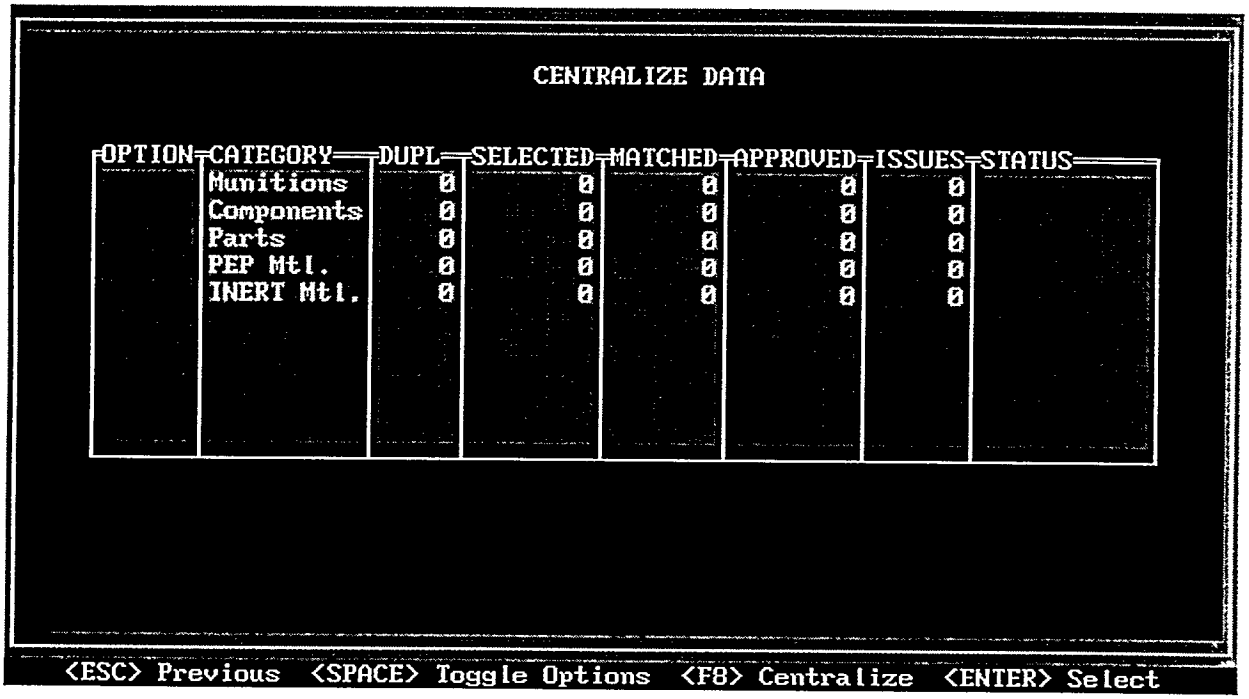


FIGURE 15.2 Streamlining Selection Screen

option "Select" allows you to select individual items of that type to streamline. The option "Result" attempts to re-streamline the same set of items of that type that you might have previously attempted to streamline. If you leave the option blank, MIDAS does not attempt to streamline any items of that type. If you select an option other than blank, you must press [Enter] to activate the option. The number of items that you have chosen will be displayed in the column labeled "SELECTED."

15.2.2 Performing the Streamline

Once you have selected the items you wish to streamline, press [F8] to begin the operation. You may press [Esc] to cancel the operation and return to the Streamlining Menu.

15.2.2.1 Checking Status

For each item type you are streamlining, the system will bring up a screen like the one in Figure 15.3. The details of this screen differ for different item types, but the basic idea is the same for all item types: only items that have no local subitems can be streamlined. For example, if a local munition is linked to a local component, that munition will not be streamlined. If you want to streamline that munition, you must first streamline the local component. If the local component is local components and therefore will be able to be streamlined.

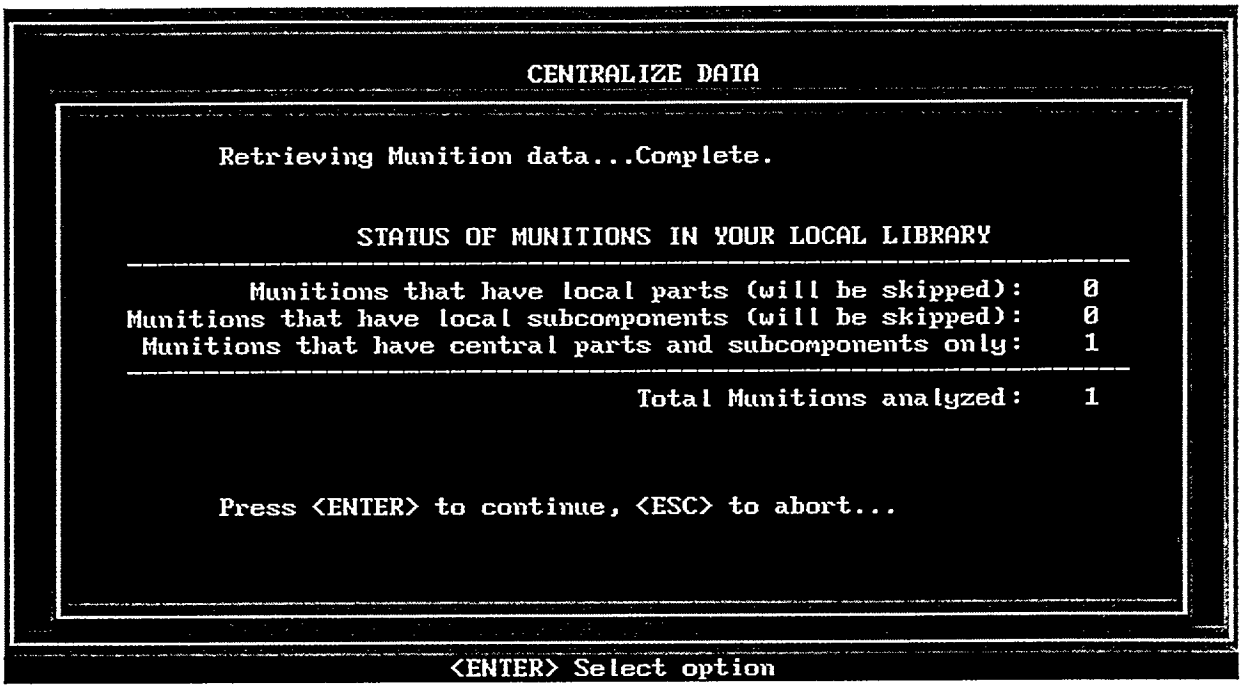


FIGURE 15.3 Streamlining Status Screen

Once you have viewed the information on the Streamlining Status Screen, press [Enter] to continue streamlining or [Esc] to abort and return to the Streamlining Selection Screen.

15.2.2.2 Checking Progress

Now the system will actually compare all of the local items you have selected that are eligible for streamlining. This comparison may take a long time when the number of items is large. When the comparison is done, you will see a summary of the results. Each item will be classified as new, same, or different. These terms are defined as follows:

- "New": There are no items in the central library whose key fields match the key fields of the local item.

- "Same": There is an item in the central library whose key fields match the key fields of the local item. Moreover, all other information, including data on non-key fields and the structure of the item, matches.

- "Different": There is an item in the central library whose key fields match the key fields of the local item. However, it is different in some other respect, in either a non-key field or the structure of the item.

New items remain in your local library. Same items are deleted from your local library and all links to the deleted item are replaced with links to the corresponding central item. Different items remain in your local library and should be considered problems that you need to resolve before submitting your data to USADACS. To resolve these items, you will want to view a report that shows the detailed results of the streamlining process, described in the next section.

15.3 REVIEWING THE RESULTS OF STREAMLINING

To view a report showing the detailed results of the streamlining process, choose "Review results from last Streamline" from the Streamlining Menu. On the menu that appears, you can choose "Duplicates" to see a summary of local duplicates of local items, or you can choose one of the other item types to see the results of streamlining for that item type.

16 CENTRAL LIBRARY MANAGEMENT

To access the central library management functions, select the "Manage USADACS Central Library" option from MIDAS's Main Menu. This option is available only to users with the USADACS access level (and replaces the Streamlining Menu available to other users). The Central Library Management Menu is shown in Figure 16.1. The indicators near the bottom of the menu show the version number of the current central library, the date and time it was created, and the server login name of the person who centralized it.

16.1 CENTRALIZING THE LIBRARY

This section describes how items are added to the central library, a step that is labeled "Centralizes Data" in Figure 1.1. The centralization process is essentially the same as the streamlining process described in Section 15. The only difference is that items that are classified as new are actually added to the central library and deleted from the local library. (In the streamlining process, new items remain in the local library.) To add items to the central library, choose "Centralize the Local Library" from the Central Library Management Menu.

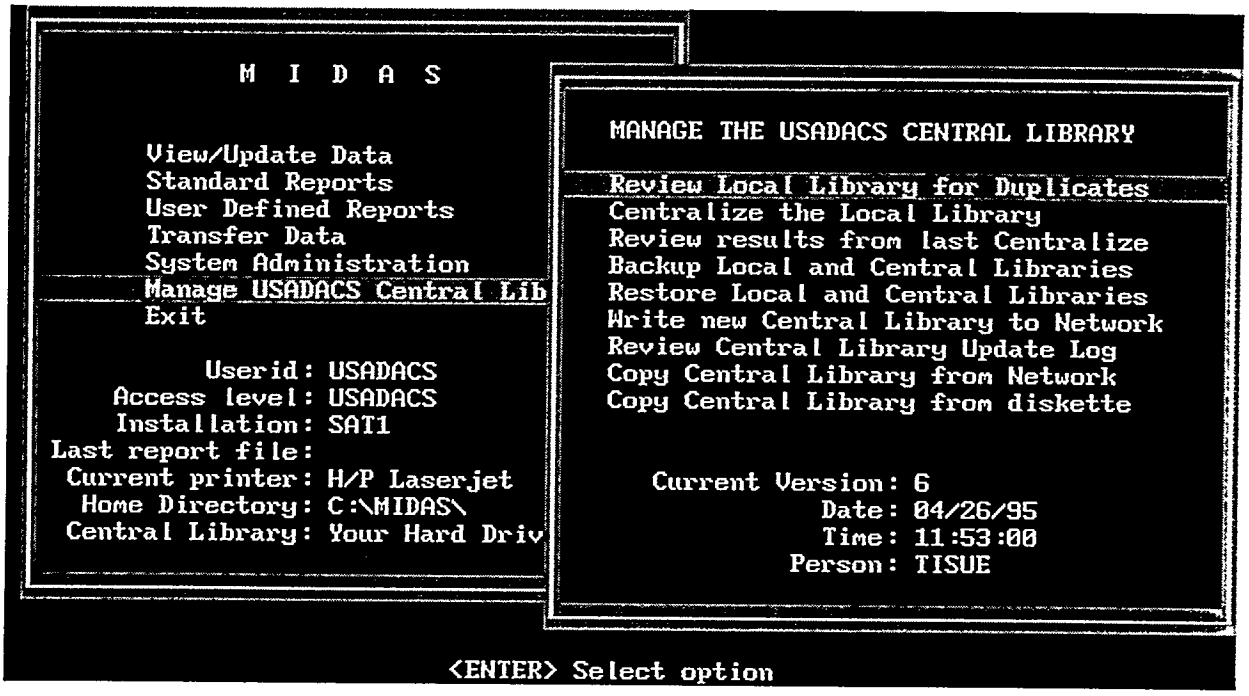


FIGURE 16.1 Central Library Management Menu

16.2 OTHER CENTRAL LIBRARY MANAGEMENT FUNCTIONS

16.2.1 Backing Up and Restoring Libraries

The option, "Backup Local and Central Libraries," and its companion option, "Restore Local and Central Libraries," are similar to the backup and restore functions on the System Administration Menu, except that in this case, both the central and local libraries are backed up and restored. In addition, the backups are not written to diskettes but are instead stored on your hard drive.

16.2.2 Uploading a New Central Library to the Server

When you want to make your changes to the central library available to all other MIDAS users, choose "Write new Central Library to Network." The contents of your central library will be copied onto the server and made available for everybody to download. The version number shown near the bottom of the Central Library Management Menu will be updated, as will the date, time, and name of the person who centralized that version.

17 REFERENCES

Delis, C.E., et al., 1995, unpublished information on using the MIDAS Weight Estimation Program, Argonne National Laboratory, Argonne, Ill.

Novell, Inc., 1995, *NetWare Connect*, Provo, Utah.

Tisue, S.A., et al., 1995, unpublished information on MIDAS for the network administrator, Argonne National Laboratory, Argonne, Ill.

APPENDIX A:

GLOSSARY

APPENDIX A: GLOSSARY

This appendix defines abbreviations, munition family codes, material codes, information source codes, element symbols, and materials and chemical compounds containing the RCRA-regulated elements used in MIDAS. Data collectors should be familiar with these terms, codes, and symbols and use them whenever possible to standardize naming and data coding conventions.

Table A.1 shows the abbreviations and terms used to define munitions, components, and parts in a meaningful and consistent manner.

TABLE A.1 Abbreviations and Terms

Abbreviation	Term
ACFT	aircraft
ALT	alternate
AMMO	ammunition
AP	armor-piercing
APDS-T	armor-piercing discarding sabot with tracer
APFSDS-T	armor-piercing fin-stabilized discarding sabot with tracer
APERS	antipersonnel
API	armor-piercing incendiary
API-T	armor-piercing incendiary with tracer
AP-T	armor-piercing with tracer
ASSY	assembly
AT	antitank
BD	base-detonating (fuses)
BE	base-ejecting
BLK	blank
BRS	brass
CAL	caliber
CBN	carbine
CHG	charge
CNTR	container
COMP B	composition B
CN	riot control agent (chloroacetophenone)
CR	riot control agent (dibenz-(b,f)-1,4-oxazephine)
CS	riot control agent (O-chlorobenzylidene malononitrile)
CSTR	canister
CRYPTO	cryptographic
CTG	cartridge
DEMO	demolition
DET	detonator/detonation
Disp	dispenser

TABLE A.1 (Cont.)

Abbreviation	Term
E	experimental modification (when used in items such as T48E2)
EJECT	ejection
EQUIP	equipment
EXPL	explosive
ELECT	electric
FBRBRD	fiberboard
FRAG	fragmentation
FS	sulfur trioxide in chlorosulfonic acid
GM	guided missile
GP	general purpose
GREN	grenade
GRN	green
GRND	ground
HC	high-capacity (peculiar to navy gun ammunition)
HC	hexachloroethane (smoke mixture)
HE	high explosive
HEAT	high explosive antitank
HEAT-T	high explosive antitank with tracer
HEDP	high explosive dual-purpose
HEI	high explosive incendiary
HEI-T	high explosive incendiary with tracer
HEP	high explosive plasticized
HEP-T	high explosive plasticized with tracer
HVAP-T	hypervelocity armor-piercing with tracer
HVTP-T	hypervelocity target practice with tracer
ILLUM	illumination
IN	inch
IR	infrared
INC/INCND	incendiary
LAU	launcher
LBS	pound(s)

TABLE A.1 (Cont.)

Abbreviation	Term
M	model (Army/Air Force)
MK	mark (Navy)
MM	millimeter
MOD	modification
MLRS	multiple launch rocket system
MSL	missile
MT	mechanical time (fuze)
MTL-LND	metal-lined
MTR	motor (rocket)
MTSQ	mechanical time and superquick
NATO	North Atlantic Treaty Organization
PARA	parachute
PD	point detonation
PERC	percussion
PI	point-initiating (fuze)
PIBD	point-initiating base-detonating (fuze)
PRAC	practice
PROJ	projectile
PROP	propellant/propelling
PROX	proximity (fuse)
PWP	plasticized white phosphorus
RAP	rocket-assisted projectile
RATO	rocket-assisted takeoff
RD	round
RKT	rocket
RP	red phosphorus
SEC	second
/ (slash)	per
SMK	smoke
SPL	special
SUPPL	supplementary
SURF	surface

TABLE A.1 (Cont.)

Abbreviation	Term
TNT	trinitrotoluene
TORP	torpedo
TP	target practice
TP-T	target practice with tracer
TR	tracer
WBX	wooden box
WDN	wooden
WHD	warhead
W/	with
W/O	without
WP	white phosphorus
WRBND	wirebound
VT	variable time (fuze)
YLW	yellow

Table A.2 shows the MIDAS munition family codes. These are one- or two-character codes that reflect the functional grouping of ammunition by its explosive or material content and size. The codes are used to categorize ammunition items for MIDAS stockpile data analyses. These MIDAS codes provide commanders, demilitarization managers, DOD contractors, and industry with a means for identifying and categorizing ammunition, components, and constituents. All MIDAS data collectors should be familiar with these munition family codes to ensure that ammunition items are correctly categorized.

TABLE A.2 Munition Family Codes

Code	Category	Description
CD	Dyes	Includes a variety of ammunition types such as naval spotting charges and marine location markers.
CP	WP/PWP	Includes a variety of ammunition types containing white or red phosphorus as the primary filler. Items may contain a high-explosive bursting charge to rupture container and disburse the fillers.
CR	Riot Control	Includes a variety of items containing irritating agents. Common fillers are tear gas, mace, or pepper gas. Common abbreviations for irritating agents are CS, CN, or CR.
CS	Smokes, HC, Colors, FS	Includes items that provide screening, signaling, or marking smoke. Primary fillers are hexachloroethane, mixtures of sulfur trioxide and chlorosulfonic acid, and other smoke-producing mixtures that do not use white or red phosphorus.
DU	Depleted Uranium or Tungsten Carbide	Includes all ammunition items with projectiles containing depleted uranium or tungsten carbide as the primary filler. These items are typically kinetic-energy projectile penetrators with discarding sabots.
FI	Incendiary/Thermite	Includes ammunition or devices that produce intense heat for destroying equipment or documents. Primary fillers are thermite, thermate, triethylaluminum, or potassium perchlorate.
FP	Pyrotechnics/Illumination/ Nonfrag/Tracers	Includes a variety of ammunition types used for illumination, marking, or tracers.
HA	HE Components/Devices	Includes all high-explosive detonators, boosters, or bursting charges not configured within an ammunition item.

TABLE A.2 (Cont.)

Code	Category	Description
HB	HE Bombs	Includes high-explosive-filled bombs. Items are typically air-dropped and contain high-explosive fillers such as tritonal, TNT, or composition B.
HC	HE Cartridges	Includes complete cased cartridges greater than 20 millimeters with projectiles filled with high explosives.
HD	HE Explosive "D"	Includes all ammunition, regardless of type, containing explosive D as the primary filler. Explosive D is also known as ammonium picrate or yellow D.
HE	Bulk High Explosives	Includes all bulk high explosives such as TNT, composition B, or composition C-4 that are used primarily as explosive fillers for ammunition items.
HG	HE Grenades	Includes hand or rifle grenades containing high-explosive fillers.
HH	HE Depth Charges and UWM	Includes all high-explosive-filled marine depth charges and underwater mines.
HI	HE ICM/CBU and Submunitions	Includes a variety of ammunition types containing submunitions. Items may be air-dropped cluster bomb units, projectiles, or warheads containing submunitions such as anti-tank or anti-personnel grenades or scatterable mines.
HM	HE Missiles	Includes complete rounds of missile ammunition configured with a high-explosive-filled warhead and guidance system.
HP	HE Projectiles and Warheads	Includes all projectiles, warheads, mortars, or other such items without a cartridge case or rocket motor that contain a high-explosive filler.
HR	HE Rockets	Includes complete rounds of rocket ammunition, including those configured with fuses and/or high-explosive-filled warheads.
HT	HE Torpedoes	Includes underwater torpedoes containing high explosives.
HX	Demolition Material	Includes all demolition charges such as TNT, C-4, cratering charges, shaped charges, and other such devices.

TABLE A.2 (Cont.)

Code	Category	Description
HZ	HE Land Mines	Includes all high-explosive-filled land mines emplaced by hand or disbursing devices. Includes scatterable mines when they are packed separately from the disbursing unit (i.e., dispenser, projectile body, or other system).
I	Inert	Includes all ammunition without any explosive or reactive material or fillers. Items in this family are typically classified as DUMMY ammunition and used primarily for training.
N	No Family	Includes a variety of ammunition and components that are not identifiable as filler or cannot be characterized because of incomplete data. Ammunition can be assigned to this family only by the MIDAS team when it is conducting a stockpile analysis.)
PB	Bulk Propellants and Black Powder	Includes all propellants and black powder in bulk form that are not assembled or configured to an ammunition item.
PC	Propellant Charges and Increments	Includes propelling charges, propellant increments, and other propellant mixtures.
PD	Propellant Munitions/ Components	Includes rocket motors, cartridge-actuated devices (CADs), propellant-actuated devices (PADs), blank ammunition greater than 20 millimeters, and expelling charges.
SA	Small Arms Ammo through 20 mm	Includes all small arms ammunition and cartridges through 20 millimeters.
SC	Incinerable Munitions/ Components	Includes all ammunition items of relatively small size capable of being demilitarized in deactivation furnaces or by other incineration methods.
SF	Fuses	Includes fuses related to all munition types typically packaged, shipped, and stored by DODIC.

Each part is composed of a material. The material codes for the allowed types of materials are shown in Table A.3:

TABLE A.3 Material Codes

Code	Type of Material
X	PEP (propellant, explosive, and pyrotechnic)
C	Chemical (non-PEP chemicals)
I	Inert
P	Packaging
R	Radioactive

Information source codes define the source of the data collected for munitions, components, and parts. The codes are listed in Table A.4:

TABLE A.4 Information Source Codes

Code	Type of Source
1	Technical data package
2	Technical or supply manual
3	Specification
4	Other
E	Estimated

TABLE A.5 Element Symbols and Atomic Weights

Element	Symbol	Atomic Weight[a]	Element	Symbol	Atomic Weight[a]
Actinium	Ac	[227]	Hafnium	Hf	178.49
Aluminum	Al	26.981539	Helium	He	4.002602
Americium	Am	[243]	Holmium	Ho	164.93032
Antimony	Sb	121.760	Hydrogen	H	1.00794[c]
Argon	Ar	39.948	Indium	In	114.818
Arsenic	As	74.92159	Iodine	I	126.90447
Astatine	At	[210]	Iridium	Ir	192.217
Barium	Ba	137.327	Iron	Fe	55.845[b]
Berkelium	Bk	[247]	Krypton	Kr	83.80
Beryllium	Be	9.012182	Lanthanum	La	138.9055
Bismuth	Bi	208.98037	Lead	Pb	207.2
Boron	B	10.811[c]	Lithium	Li	6.941
Bromine	Br	79.904[b]	Lutetium	Lu	174.967
Cadmium	Cd	112.411	Magnesium	Mg	24.3050
Calcium	Ca	40.078	Manganese	Mn	54.93805
Californium	Cf	[251]	Mendelevium	Md	[258]
Carbon	C	12.011[c]	Mercury	Hg	200.59
Cerium	Ce	140.115	Molybdenum	Mo	95.94
Cesium	Cs	132.90543	Neodymium	Nd	144.24
Chlorine	Cl	35.4527[b]	Neon	Ne	20.1797
Chromium	Cr	51.9961[b]	Neptunium	Np	[237]
Cobalt	Co	58.93320	Nickel	Ni	58.6934
Copper	Cu	63.546	Niobium	Nb	92.90638
Curium	Cm	[247]	Nitrogen	N	14.00674
Dysprosium	Dy	162.50	Nobelium	No	[259]
Einsteinium	Es	[252]	Osmium	Os	190.23
Erbium	Er	167.26	Oxygen	O	15.9994[c]
Europium	Eu	151.965	Palladium	Pd	106.42
Fermium	Fm	[257]	Phosphorus	P	30.973762
Fluorine	F	18.9984032	Platinum	Pt	195.08
Francium	Fr	[223]	Plutonium	Pu	[244]
Gadolinium	Gd	157.25	Polonium	Po	[209]
Gallium	Ga	67.723	Potassium	K	39.0983
Germanium	Ge	72.61	Praseodymium	Pr	140.90765
Gold	Au	196.96654	Promethium	Pm	[145]

TABLE A.5 (Cont.)

Element	Symbol	Atomic Weight[a]	Element	Symbol	Atomic Weight[a]
Protactinium	Pa	231.03588	Technetium	Tc	[98]
Radium	Ra	[226]	Tellurium	Te	127.60
Radon	Rn	[222]	Terbium	Tb	158.92534
Rhenium	Re	186.207	Thallium	Tl	204.3833
Rhodium	Rh	102.90550	Thorium	Th	232.0381
Rubidium	Rb	85.4678	Thulium	Tm	168.93421
Ruthenium	Ru	101.07	Tin	Sn	118.710
Samarium	Sm	150.36	Titanium	Ti	47.867
Scandium	Sc	44.955910	Tungsten	W	183.84
Selenium	Se	78.96	Uranium	U	238.0289
Silicon	Si	28.0855[c]	Vanadium	V	50.9415
Silver	Ag	107.8682[b]	Xenon	Xe	131.29
Sodium	Na	22.989768	Ytterbium	Yb	173.04
Strontium	Sr	87.62	Yttrium	Y	88.90585
Sulfur	S	32.066[c]	Zinc	Zn	65.39
Tantalum	Ta	180.9479	Zirconium	Zr	91.224

[a] Numbers in brackets are the mass numbers of the longest-lived isotope of elements for which a standard atomic weight cannot be defined.

[b] Atomic weight is believed to have the following experimental uncertainty: Br ±0.002, Cl ±0.001, Cr ±0.001, Fe ±0.003, Ag ±0.003. For other elements, the last digit given for the atomic weight is believed reliable to ±0.5. Lawrencium, Lw, has been proposed as the name for element No. 103, nuclidic mass about 257.

[c] Atomic weight varies because of natural variation in isotopic composition: B ±0.003, C ±0.00005, H ±0.00001, O ±0.0001, Si ±0.001, S ±0.003.

TABLE A.6 Chemical Compounds Containing RCRA-Regulated Elements

Chemical Compound		RCRA-Regulated Element		
Name	Molecular Weight[a]	Chemical Symbol	Atomic Weight	Weight %[b]
Ba chromate ($BaCrO_4$)	253.319	Ba	137.327	54.21
		Cr	51.996	20.53
Ba nitrate [$Ba(NO_3)_2$]	261.335	Ba	137.327	52.55
Ba peroxide (BaO_2)	169.325	Ba	137.327	81.10
Ba stearate [$Ba(C_{18}H_{35}O_2)_2$]	704.279	Ba	137.327	19.50
Basic Pb styphnate [$C_6H(NO_2)_3(OPbOH)_2$]	691.501	Pb	207.2	59.93
Chromic oxide or Cr oxide (Cr_2O_3)	151.989	Cr	51.996	68.42
Pb 2-ethyl hexoate[c] [$Pb(C_4H_9CHC_2H_5COO)_2$]	493.612	Pb	207.2	41.98
Pb azide (PbN_6)	291.242	Pb	207.2	71.14
Pb carbonate ($PbCO_3$)	267.208	Pb	207.2	77.54
Pb chromate ($PbCrO_4$)	323.192	Pb	207.2	64.11
		Cr	51.996	16.09
Pb dioxide or Pb peroxide (PbO_2)	239.198	Pb	207.2	86.62
Pb salicylate [$Pb(O_2CC_6H_4OH)_2$]	481.428	Pb	207.2	43.04
Pb styphnate [$PbO_2C_6H(NO_2)_3$]	450.287	Pb	207.2	46.02
Pb thiocyanate [$Pb(CNS)_2$]	323.368	Pb	207.2	64.08
Red Pb oxide (Pb_3O_4)	685.596	Pb	207.2	90.67

[a] Computed by using the following atomic weights: Ba = 137.34, C = 12.011, Cr = 51.996, H = 1.008, N = 14.007, O = 15.999, Pb = 207.19, and S = 32.064.

[b] (Weight of RCRA-regulated element) / (molecular weight of chemical compound) × (100).

[c] Specification No. MIL-L-17699 (1953): Pb content = maximum of 42.5% and minimum of 40.5%.

TABLE A.7 Bulk Item Materials Containing RCRA-Regulated Elements

Material	Specification	TGCS	Thickness (µm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element		
						Chemical Symbol	Weight %	Remarks
Cd plating	46-P-1					Cd		
Cd coating	57-O-2	/1//OS//	8			Cd		
Cd coating	57-O-2	/1//RSC//	4					Class "RSC" refers to Zn coating
Cd coating	57-O-2	/1//TS//	4			Cd		
Cd coating	57-O-2	/1//TSC//	4			Cd		
Pb	AMS-7721					Pb		
Electrolytic Sn plate	ASTM-A624					Cr		Cathodic sodium dichromate treatment (0.350-0.650 mg/ft^2)
Electrolytic Sn plate	ASTM-A624					Cr		Sodium dichromate dip treatment (0.150 mg/ft^2)
Electrolytic Sn plate	ASTM-A624							Cathodic sodium carbonate treatment (no surface added Cr)
Chromate coating	ASTM-B201		5			Cr		
Ag braze	ASTM-B260					Ag		
Ag braze	ASTM-B260	/BAG1////				Ag	44-46	
Ag braze	ASTM-B260	/BAG1////				Cd	23-25	
Ag braze	ASTM-B260	/BAG1A////				Ag	49-51	
Ag braze	ASTM-B260	/BAG1A////				Cd	17-19	
Pb solder	ASTM-B32					Pb		
Pb solder	ASTM-B32	/40 B////				Pb	60	
Pb solder	ASTM-B32	/50 B////				Pb	50	
Pb solder	ASTM-B32	/50B////				Pb	50	
Zn chromate	ASTM-B633	/2////				Cr		Chromate conversion coating (Zn plated)
Zn chromate	ASTM-B633	/2//1//				Cr		Chromate conversion coating (Zn plated)
Zn chromate	ASTM-B633	/2//2//				Cr		Chromate conversion coating (Zn plated)
Zn chromate	ASTM-B633	/2//3//				Cr		Chromate conversion coating (Zn plated)
Cd coating	ASTM-B696	/2//5//	5			Cd		
Ag coating	Commercial					Ag		
Ag paint	Commercial					Ag		
Ag paint DuPont #5326	Commercial					Ag		
Ag paint DuPont #6328	Commercial					Ag		
Ag plating	Commercial					Ag		
Cd alloy	Commercial					Cd		
Cd coating	Commercial					Cd		
Cd plating	Commercial					Cd		
Cd Zn coating	Commercial					Cd		
Chromate coating	Commercial					Cr		

TABLE A.7 (Cont.)

Material	Specification	TGCS	Thickness (µm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element: Chemical Symbol	RCRA-Regulated Element: Weight %	Remarks
Chromate coating (10551098)	Commercial					Cr		
Chromate passivation treatment	Commercial					Cr		
Clear chromate	Commercial					Cr		
Dichromate dip	Commercial					Cr		
K chromate 1% solution	Commercial					Cr		
K nitrate/dichromate (10404109)	Commercial					Cr		
K nitrate/dichromate (10976661)	Commercial					Cr		
Lead telluride filter	Commercial					Pb		
Nylon Cd coating	Commercial					Cd		
Pb coating	Commercial					Pb		
Pb dioxide coating	Commercial					Pb		
Pb lubricating coating	Commercial					Pb		
Pb mononitoresorcinate (9311218)	Commercial					Pb		
Pb Sn Zn plating	Commercial					Pb		
Sn Pb coating	Commercial					Pb		
Sn Pb Ag solder	Commercial					Pb		
Sn/Cd coating	Commercial					Cd		
Sulfuric chromate solution	Commercial					Cr		
Zn chromate	Commercial					Cr		
Zn Pb plating	Commercial					Pb		
Zn/Cd coating	Commercial					Cd		
Chromate coating	FED-STD-151					Cr		
Anodic coating	MIL-A-8625	/1////	5-18		2153	Cr		
Anodic coating	MIL-A-8625	/1//1//	5-18		2153	Cr		
Anodic coating	MIL-A-8625	/1//1or2//	5-18		2153	Cr		
Anodic coating	MIL-A-8625	/1//2//	5-18		2153	Cr		
Anodic coating	MIL-A-8625	/1/B///	5-18		2153	Cr		
Ag/Cu brazing	MIL-B-15395					Ag		
	MIL-B-15395	//0///				Ag	19-21	
	MIL-B-15395	//1///				Ag	44-46	
	MIL-B-15395	//2///				Ag	64-66	
	MIL-B-15395	//3///				Ag	14.5-15.5	
Ag brazing	MIL-B-15395	//4///				Ag	49-51	

TABLE A.7 (Cont.)

Material	Specification	TGCS	Thickness (µm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element: Chemical Symbol	RCRA-Regulated Element: Weight %	Remarks
Ag brazing	MIL-B-15395	//4///				Cd	17-19	
	MIL-B-15395	//5///				Ag	49-51	
	MIL-B-15395	//5///				Cd	15-17	
	MIL-B-15395	//6///				Ag	49-51	
	MIL-B-15395	//6///				Cd	9-11	
	MIL-B-15395	//7///				Ag	44-46	
	MIL-B-15395	//7///				Cd	23-25	
	MIL-B-15395	//8///				Ag	34-36	
	MIL-B-15395	//8///				Cd	17-19	
Brazing	MIL-B-7883							Filler metals may include Ag and Cr
Brazing	MIL-B-7883	//B///						Filler metals may include Ag and Cr
Brazing	MIL-B-7883	/1/B///						Filler metals may include Ag and Cr
Brazing	MIL-B-7883	/3/B///						Filler metals may include Ag and Cr
Chromate coating	MIL-C-17711					Cr		See QQ-Z-325 (Zn-plated surface) or QQ-P-416 (Cd-plated surface)
Chromate coating	MIL-C-5541					Cr		
Chromate coating	MIL-C-5541	///1//			430	Cr		
Chromate coating	MIL-C-5541	///1A//			430	Cr		
Chromate coating	MIL-C-5541	///3//				Cr		No weight/area given but less than Class A coating weight
Chromate coating	MIL-C-5541	/1/B/1//			430	Cr		
Chromate coating	MIL-C-5541	/1/C/1//			430	Cr		
Chromate coating	MIL-C-5541	/1/C/2//				Cr		No Class "2" exists in specification
Chromate coating	MIL-C-5541	/2//2//				Cr		No Class "2" exists in specification
Cd coating	MIL-C-81562					Cd		
	MIL-C-81562	///1//	13			Cd		
	MIL-C-81562	///2//	8			Cd		
	MIL-C-81562	///3//	5			Cd		
Cd coating	MIL-C-81562	/1//2//	8			Cd		
Cd chromate	MIL-C-81562	/2//2//	8			Cd		Suppl. chromate treatment
Cd chromate	MIL-C-81562	/2//6//	8			Cd		Class "6" refers only to Zn coating. Suppl. chromate treatment
Cd coating	MIL-C-81562	/M//2//	8			Cd		
Coating compound	MIL-C-8514		8-10			Cr		Zn chromate 1.59%
Enamel	MIL-E-10687							Need Color No. to identify metal
Enamel	MIL-E-10687	/A//1//						Need Color No. to identify metal
Enamel	MIL-E-11195							Need Color No. to identify metal

TABLE A.7 (Cont.)

Material	Specification	TGCS	Thickness (μm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element: Chemical Symbol	RCRA-Regulated Element: Weight %	Remarks
Enamel	MIL-E-16663							Need Color No. to identify metal
Enamel	MIL-E-16663	/1//1or2/						Need Color No. to identify metal
Enamel	MIL-E-17137							Need Color No. to identify metal
Enamel	MIL-E-19603	///2//						Need Color No. to identify metal
Enamel	MIL-E-22118							Need Color No. to identify metal
Enamel	MIL-E-480	/2////						Need Color No. to identify metal
Enamel	MIL-E-52227							Need Color No. to identify metal
Enamel	MIL-E-5556							Need Color No. to identify metal
Solder plate finish	MIL-F-14072	//M230///	7.6			Pb	30-50	
Solder plate finish	MIL-F-14072	/2////						Need grade or finish no.
Pb coating	MIL-L-13808	/1////	6-25			Pb		
Chrome pickle	MIL-M-3171	/1////	15-25			Cr		
Cd plating	MIL-P-17141					Cd		
	MIL-P-17141	/1////	8-13					Zinc plating
Cd plating	MIL-P-17141	/2////	8-13			Cd		
	MIL-P-17141	/3////	8-13					Tin plating
Primer Zn chromate	MIL-P-6889	/2////	15-23			Cr		7% Zn chromate; thickness data from TT-P-1757
Sn-Pb coating	MIL-P-81728		5-13			Pb	30-50	
Primer Zn chromate	MIL-P-8585		15-23			Cr		7-32% Zn chromate; thickness data from TT-P-1757
Sn Pb solder	MIL-S-50827	/SN62////				Pb		
Solder	MIL-S-6872							May contain Pb or Cd, see DoD-STD-1866 (general solder)
Chromate coating	MIL-T-12879					Cr		Weight/area supplied for phosphate coating only
Chromate coating	MIL-T-12879	///2//				Cr		Weight/area supplied for phosphate coating only
	MIL-T-12879	/1//1//						Phosphate treatment (weight/area = 150 mg/ft^2)
Chromate coating	MIL-T-12879	/1//2//				Cr		Chromate treatment
Chromate coating	MIL-T-12879	/2////				Cr		Weight/area supplied for phosphate coating only
	MIL-T-12879	/2//1//				Cr		Phosphate treatment with final chromate finish
Chromate coating	MIL-T-12879	/2//2//				Cr		Chromate treatment with final chromate finish
Cd plating	NDS-46P1					Cd		
Ag plating	NDS-46P5	/1////				Ag		
Cr coating	QQ-C-320	///2//	51			Cr		
Pb sheet	QQ-L-201	//B///				Pb	99.5	Thickness is a function of weight/area (1 lb/ft^2 = 0.0156 inch)
Cd coating	QQ-P-416					Cd		
	QQ-P-416	///1//	13			Cd		

TABLE A.7 (Cont.)

Material	Specification	TGCS	Thickness (µm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element		
						Chemical Symbol	Weight %	Remarks
	QQ-P-416	///2//	8			Cd		
	QQ-P-416	///3//	5			Cd		
Cd coating	QQ-P-416	/1////				Cd		
Cd coating	QQ-P-416	/1//1//	13			Cd		
Cd coating	QQ-P-416	/1//2//	8			Cd		
Cd coating	QQ-P-416	/1//3//	5			Cd		
Cd coating	QQ-P-416	/1//A//				Cd		"A" is not a valid classification
Cd chromate	QQ-P-416	/2////	8			Cd		Suppl. chromate treatment
Cd chromate	QQ-P-416	/2//1 or 2//	13 or 8			Cd		Suppl. chromate treatment
Cd chromate	QQ-P-416	/2//1//	13			Cd		Suppl. chromate treatment
Cd chromate	QQ-P-416	/2//2//	8			Cd		Suppl. chromate treatment
Cd chromate	QQ-P-416	/2//3//	5			Cd		Suppl. chromate treatment
Cd phosphate	QQ-P-416	/3//2//	8			Cd		
Ag coating	QQ-S-365	/1 or 2/B///	13			Ag		
Ag coating	QQ-S-365	/1/A///	13			Ag		Suppl. chromate treatment
Ag coating	QQ-S-365	/1/B///	13			Ag		
Ag coating	QQ-S-365	/2/A///	13			Ag		Suppl. chromate treatment
Ag coating	QQ-S-365	/2/B///	13			Ag		
Ag coating	QQ-S-365	/3////	13			Ag		
Ag coating	QQ-S-365	/3/A///	13			Ag		Suppl. chromate treatment
Ag coating	QQ-S-365	/3/B///	13			Ag		
Ag solder	QQ-S-561					Ag		
	QQ-S-561	///1//				Ag	44-46	
	QQ-S-561	///2//				Ag	64-66	
	QQ-S-561	///3//				Ag	14.5-15.5	
Ag solder	QQ-S-561	///4//				Ag	49-51	
Ag solder	QQ-S-561	///4//				Cd	19-21	
	QQ-S-561	///5//				Ag	49-51	
	QQ-S-561	///5//				Cd	15-17	
	QQ-S-561	///6//				Ag	49-51	
	QQ-S-561	///6//				Cd	9-11	
	QQ-S-561	///6A//				Ag	49-51	
	QQ-S-561	///6A//				Cd	9-11	
Ag solder	QQ-S-561	///O//				Ag	19-21	

TABLE A.7 (Cont.)

Material	Specification	TGCS	Thickness (μm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element: Chemical Symbol	RCRA-Regulated Element: Weight %	Remarks
Sn Pb solder	QQ-S-571					Pb		Percentages of Pb vary from 0.97%
Sn-Pb solder	QQ-S-571	/RA////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn35////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn40////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50-60////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50-70////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50-W-S////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50/50////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50/60////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn50/90////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60-63////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60-W-S////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60/80////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60BS////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60WRAP////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60WRMA////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn60WRP3////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn62////						May contain, Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn63////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn63WRP3////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn70////						May contain Pb, Ag, and Cd
Sn-Pb solder	QQ-S-571	/Sn96////						May contain Pb, Ag, and Cd
Zn chromate	QQ-Z-325	/2//2//				Cr		
Zn chromate	QQ-Z-325	/2//3//				Cr		
White Pb	TT-A-251	/B////				Pb		
	TT-C-490	/1////						Zinc phosphate spray (150-500 mg/ft^2)
	TT-C-490	/1////						Zinc phosphate dip (300-500 mg/ft^2)
	TT-C-490	/2////						Aqueous iron phosphate (35 mg/ft^2)
Zn chromate	TT-C-490	/3////				Cr		Type 3 described as organic pretreatment coating (no Zn chromate type)
	TT-C-490	/4////						Non-aqueous iron phosphate (35 mg/ft^2)
	TT-C-490	/5////						Zinc phosphate (500-1100 mg/ft^2)
Enamel	TT-E-489							Need Color No. to identify metal
Stencil ink enamel	TT-E-489							Need Color No. to identify metal

TABLE A.7 (Cont.)

Material	Specification	TGCS	Thickness (µm)	Density (g/cm^3)	Weight/Area (mg/m^2)	RCRA-Regulated Element		Remarks
						Chemical Symbol	Weight %	
Enamel	TT-E-489	///A//						Need Color No. to identify metal
Enamel	TT-E-515							Need Color No. to identify metal
Enamel	TT-E-516							Need Color No. to identify metal
Stencil ink	TT-E-516							Need Color No. to identify metal
Enamel	TT-E-516	/1////						Need Color No. to identify metal
Enamel	TT-E-518							Need Color No. to identify metal
Enamel	TT-E-529							Need Color No. to identify metal

APPENDIX B:

MODEM NAMES

APPENDIX B: MODEM NAMES*

"Aceex 1496"
"Acer Modem 2424"
"AdTrans ISU 128"
"Ampac Connoisseur RDX14400"
"Anchor Signalman Lightning 24"
"Angia V.32/V.32bis"
"Apex V.32bis"
"AT&T 2224 CEO"
"AT&T 4000"
"AT&T 4024 *"
"AT&T Comsphere 3800 Series *"
"AT&T Paradyne 9600 PCMCIA"
"AT&T Paradyne DM424/DM424PC"
"AT&T Paradyne KeepInTouch"
"AT&T DataPort 14.4/FAX - Cellular"
"AT&T DataPort 14.4/FAX"
"AT&T Secure Data 1900"
"AT&T Secure Data 1910"
"ATI 2400etc *"
"ATI 9600etc/e"
"ATI 14400etc/e"
"Banksia MyFastModem"
"Bausch EuroScout"
"Bocamodem 14.4Kbps Pocket"
"Bocamodem 14.4Kbps V.32bis"
"Bocamodem V.FAST MV28K"
"CALPAK MX-2400/MXE-2400"
"Cardinal 9600 V.42"
"Cardinal 9600 V.32/V.42bis"
"Cardinal 14400 V.32/V.42bis"
"Cardinal 9600 1/2 Card V.32/V.42bis"
"Cardinal 14400 1/2 Card V.32/V.42bis"
"Cardinal 19200 V.32terbo/V.42bis"
"Codex 1132/PC Modem"
"Codex 2234"
"Codex 2264 *"
"Codex 3220"
"Codex 3260/3265"
"Codex 326X FAST"
"Communicate 1440C"
"Compaq PCMCIA 14.4 Data/Fax"
"Compaq SpeedPAQ 144"
"CompuCom Speedmodem Combo *"
"CompuCom Speedmodem STAR *"
"Data Race Action 32L"
"Dataflex Design Pocket ISDN V.24/X.21"
"Datatronics Discovery 1200C *"
"Datatronics Discovery 1200P *"
"Datatronics Discovery 2400E *"
"DSD 9642+"
"DSI 9624"
"DSI Scout Plus"
"DSI Connection 14.4+Fax"
"Dynalink 14400"
"EasyData *"
"ELSA MicroLink 14.4"
"ELSA Microlink ISDN"
"ELSA MicroLink 288oo"
"ELSA MicroLink 2460"
"ETech Bullet E2400"
"ETech Bullet E9696M"
"ETech Bullet PC2400MH *"
"E-Tech UFOmate P1496MX"
"ETech UFOmate P1496MX"
"ETech UFOmate P1414MX"
"ETech UFOmate P9696MX"
"ETech Bullet E1414MX"
"ETech PCMCIA C1414AX"

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* This information was supplied by Novell, Inc., as part of the NetWare Connect software used by MIDAS (see References, Section 17). See Section 5.1 for instructions on using this information to configure MIDAS to work with your modem.

"EuroViVa 14.4/Fax"
"Everex Evercom 24E *"
"Everex Evercom 24E+"
"Everex Evercom 96E+"
"Fastcomm FDX Series"
"Forval 14400 *"
"Forval 9600 V32 *"
"Galaxy Apollo V.32turbo"
"Galaxy UFO V.32 Turbo/V.42bis *"
"Gateway 2000 Telepath Fax/Modem"
"Gateway 2000 TelePath V.32/42bis"
"Gateway 2000 Telepath II Fax/Modem"
"GDC 914 ADR"
"General DataComm MNP5 *"
"General DataComm V.42bis *"
"General DataComm VF 28.8"
"GVC 9600 *"
"GVC 9600 V.42bis"
"GVC 14400 V.42bis"
"GVC Super Modem 2400 *"
"Hayes compatible"
"Hayes Smartmodem 300 *"
"Hayes Smartmodem 1200"
"Hayes Smartmodem 2400"
"Hayes V-series 2400"
"Hayes V-series 9600"
"Hayes Smartmodem OPTIMA 96"
"Hayes Smartmodem OPTIMA 14.4"
"Hayes Smartmodem OPTIMA 28.8 V.FC"
"Hayes V-series Ultra 96"
"Hayes V-series Ultra 144"
"Hayes ACCURA 96"
"Hayes ACCURA 144"
"Hayes ACCURA 288 V.FC"
"Hayes ISDN - V.120 *"
"Hayes ISDN - X.25 *"
"Hayes Smartmodem 9600 - V.32"
"Hi-Per 96/96"
"IBM PCMCIA Data/FAX"
"IBM ThinkPad 350 9600 Internal"
"IBM Thinkpad 720C PCMCIA Data/Fax"
"IBM 7855 Modem Model 10"
"IBM/PCSI Comm Module - CDPD"
"IBM/PCSI Comm Module - Cellular Modem"
"IBM/PCSI Comm Module - Cellular Phone"
"IBM/PCSI Comm Module - Wired Modem"
"IBM/PCSI Comm Module - Wired Phone"
"Identity 14400 Fax/Modem"
"Incomm Turbo 4800 *"
"InfoTel 144"
"Intel 2400EX"
"Intel 2400EX MNP"
"Intel 9600EX *"
"Intel 14.4EX"
"Intel Faxmodem 14.4"
"Intel SatisFAXtion *"
"Intel SatisFAXtion/400"
"ntel SatisFAXtion/400E"
"Intel PCMCIA 14.4 Faxmodem - Rel 3"
"Intel PCMCIA 96 Faxmodem - Rel 3"
"Intel PCMCIA 14.4 Faxmodem - Rel 2"
"Intel PCMCIA 96 Faxmodem - Rel 2"
"Leading Edge Model L 1200 *"
"Lightning LightCom 96 *"
"Maestro Executive Series 144FM"
"MAESTRO Companion PB96M"
"MAESTRO Companion PB96FM"
"MAESTRO Companion PB144M"
"MAESTRO Companion PB144FM"
"MAESTRO Companion PW144FM"
"MAESTRO Companion PW192FM"
"MAESTRO Companion PW240FM"
"MAESTRO Companion PW288FM"
"MAESTRO Executive 96M"
"MAESTRO Executive 96FM"
"MAESTRO Executive 144M"
"MAESTRO Executive 144FM"
"MAESTRO Executive 192FM"
"AESTRO Executive 240FM"
"MAESTRO Executive 288FM"
"MAESTRO Super Executive V.32"

"Manual modem"
"Maxan Maxmodem 2400EI"
"Maxum Super Modem 2400 *"
"Mayze 96/96R"
"Megahertz 96/24 FAX/Modem"
"Megahertz P296FMV FAX/Modem *"
"Megahertz T3144 FAX/Modem *"
"Megahertz C5144 FAX/Modem"
"Megahertz A2144,CC3144,P2144,TX3144"
"Megahertz XJ2144"
"Megahertz XJ1144"
"MegaPlus Fax V.32bis"
"MICC 4824 *"
"MICC 9600/9610/9620"
"Microcom AX/1200-2400 series *"
"Microcom AX/9600 *"
"Microcom AX/9612-9624 series"
"Microcom DeskPorte FAST ES 28.8"
"Microcom DeskPorte ES"
"Microcom DeskPorte FAST"
"Microcom QX/12K and QX/V.32c *"
"Microcom QX/4232bis"
"Microcom QX/4232hs"
"Microcom HD/4232bis"
"Microcom HD/FAST 28.8"
"Microcom MicroPorte 542"
"Migent Pocket Modem *"
"Mitsuba 9600"
"Modular Technology M5124"
"Modular Technology M5132"
"Modular Technology M5134"
"MultiTech 1200 *"
"MultiTech 224"
"MultiTech 224E"
"MultiTech 224EH5/EH7"
"MultiTech 696 *"
"MultiTech MultiModem II MT932"
"MultiTech MultiModem II MT1432"
"MultiTech MultiModem II MT1932"
"MultiTech MultiModem II (slow init)"
"MultiTech MultiModem V32"
"MultiTech MT2834"
"MUXUM ECM FAST V32 Terbo"
"NEC N9631"
"NEC DSP 9630"
"NEC 14.4"
"NEC 14.4 - Cellular"
"Netcomm SmartModem M11F"
"Netcomm ProRack M4"
"Netcomm ProRack M5"
"Netcomm ProRack M7"
"Netcomm SmartModem M4/M5 *"
"Netcomm Trailblazer v.32"
"NOKIA Cellular Data Card"
"Nomad 9600 Modem"
"Okidata Okitel 9600"
"OmniTel Netcomm Q1200 *"
"OmniTel Netcomm Q2400 *"
"ONBIT CONNECTY PCMCIA 144"
"ONBIT 144"
"ONBIT 288"
"OSITECH LapTALK Plus 14.4"
"Pace Linnet 32 PLUS"
"Pace Linnet 32 PLUS fx"
"PACE UltraLink Thirty-Two Plus"
"Penril Alliance V.32"
"Penril Datalink 2400"
"Piiceon Dispatcher"
"PNB 14400"
"PowerBit 14400 Modem"
"PowerBit 28800 Modem"
"Practical Periph. 2400SA MNP *"
"Practical Periph. 2400SA V.42bis"
"Practical Peripherals 1200 *"
"Practical Peripherals 2400SA"
"Practical Peripherals 9600SA"
"Practical Peripherals PM14400FXMT"
"Practical Peripherals 14400FXSA *"
"Practical Peripherals 28.8 V.FC"
"Practical Peripherals ProClass 28.8"
"Practical Peripherals PM144MT II"
"Practical Peripherals PM288MT II V.FC"

"Practical Peripherals MC288MT II V.FC"
"Practical Pocket Modem 14400FX"
"Prometheus ProModem 1200 *"
"Prometheus LineLink 14.4"
"Pure Data PDMCIA V32bis"
"Pure Data PDMCIA V.17"
"Pure Data PDMCIA V.29"
"Racal Milgo RMD 3232"
"Racal Milgo RMD 3222"
"Racal Milgo RMD 3264"
"Racal Vadic 9632VP"
"Rockwell RG 2400 PC Modem *"
"Sharp 9624e"
"Sonix Volante"
"Sonix Volante ISDN T/A"
"Supra FaxModem V.32 *"
"Supra Faxmodem V.32bis"
"Supra Faxmodem 28.8"
"Supra Fax/Modem 144LC"
"Telebit WorldBlazer"
"Telebit QBlazer"
"Telebit T1000"
"Telebit T1600"
"Telebit T2500"
"Telebit T3000"
"Telebit TrailBlazer Plus"
"Telebit TrailBlazer"
"Telelink IMS-08 Faxline"
"Telenetics TC921 *"
"Texas Instruments V.32bis/V.17"
"Toshiba PC-T144PF4 PCMCIA"
"Toshiba Adv. PCMCIA Modem"
"Touchbase Worldport 1200 *"
"Touchbase Worldport 2400 *"
"Touchbase Worldport 9600 *"
"Twincom 96/42i"
"UDS PCTA120"
"UDS FasTalk 2400 *"
"UDS FasTalk 32x"
"UDS FasTalk V.32/42b"
"UDS FasTalkII"
"UDS V.32 *"
"UDS V.3225"
"UDS V.3229"
"USRobotics Courier 2400"@
"USRobotics Courier 2400e *"
"USRobotics Courier V.32terbo FAX"
"USRobotics Sportster 2400 PC MNP *"
"USRobotics Sportster 2400 v42bis*"
"USRobotics Sportster 9600/14400 V42bis*"
"USRobotics HST, HST Dual Standard"
"USRobotics V.32/V.32bis"
"USRobotics Sportster 9600/14400 (UK)"
"USRobotics HST, HST Dual Standard (UK)"
"USRobotics V.32/V.32bis (UK)"
"USRobotics Dual Rack 663"
"USRobotics Worldport 14400 PCMCIA"
"USRobotics Dual Standard (old)"
"USRobotics Dual Standard (old) (UK)"
"USRobotics Courier V.34 28.8K"
"USRobotics Courier V.34 28.8K (UK)"
"USRobotics Sportster V.34 28.8K"
"USRobotics Quad V.34 28.8K"
"Ven-Tel 9600 Plus/Plus II"
"Ven-Tel Pathfinder *"
"V-Fast 144/144"
"ViVa 14.4/Fax"
"ViVa 9624"
"ViVa 14.4/9642e"
"Western Datacom 432 LineBkr V.32 *"
"WinBook XP 14.4"
"Xircom Ethernet+Modem"
"Zoltrix 14400"
"Zoom 2400"
"Zoom 2400 V.42bis"
"Zoom 9600 V.32 Turbo *"
"Zoom 14400 V.32bis"
"Zoom FaxModem FX 9624 *"
"Zoom FaxModem FX 9624 V42bis *"
"Zoom FaxModem VFX V.32/V.42bis *"
"Zoom FaxModem VFX 28.8"
"Zoom FaxModem VFP 28.8"

"Zoom PKT POCKET"
"Zoom PKT 14.4 POCKET"
"Zoom PBK Internal for PowerBook"
"Zoom PBK 14.4 Internal for PowerBook"
"Zoom VP V.32bis"
"Zoom VX V.32bis"
"Zoom VP V.32"
"Zoom VX V.32"
"Zoom VFP 14.4V"
"Zoom VFX 14.4V for PC"
Zoom VFX 14.4V for Macintosh"
"Zoom VFDI"
"Zoom VFDX for PC"
"Zoom VFDX for Macintosh"
"Zoom VFP 28.8"
"Zoom VFX 28.8"
"Zoom VFP 24K"
"Zoom VFX 24K"
"Zoom VFP 19.2"
"Zoom VFX 19.2"
"Zoom VFP V.32bis"
"Zoom VFX V.32bis"
"Zoom VFP V.32"
"Zoom VFX V.32"
"Zoom PCMCIA 14.4C"
"Zoom PCMCIA LC"
"Zoom 14.4PC"
"Zoom 14.4EX"
"ZyXEL U-1496"

APPENDIX C:

DATA FIELDS AND LIBRARIES AND DATA ENTRY RULES

APPENDIX C:

DATA FIELDS AND LIBRARIES AND DATA ENTRY RULES

C.1 DATA FIELDS AND LIBRARIES

Table C.1 lists the names of the libraries in MIDAS and identifies the fields contained in each library. This table and Tables C.2 through C.4 appear at the end of this appendix.

C.2 DATA AND DATA ENTRY RULES

C.2.1 MIDAS Data Input

The process of breaking down the details of all components and constituents included in the assembly of specified ammunition items is called the MIDAS component identification (CID) process. Table C.2 at the end of this appendix is an example of a MIDAS Data Input Worksheet, which is used to document structure and constituent data. These data are then input into the MIDAS database, from which the MIDAS Detailed Structure Report is generated. (An example report is shown in Table C.3). An alternate methodology may be employed in the work being performed by an individual installation, pending approval by the Demil Technology Office.

Details of individual data fields of the MIDAS database and the general rules of data entry are provided below. The data fields listed in Table C.2 are described first, with the rest following. The MIDAS data libraries and the data fields they contain are listed in Table C.1.

a. NATIONAL STOCK NUMBER (NSN). The NSN is a 13-digit number used to identify end items and major components. This field is filled by numeric characters that are unique to a specific end item or component and may further identify differing package configurations or modifications. NSNs may or may not be assigned to components, parts, and bulk items.

b. DEPARTMENT OF DEFENSE IDENTIFICATION CODE (DODIC). The DODIC is a four-space alphanumeric field that identifies specific end items. This field is typically composed of an alphabetic character and three numeric characters, but other patterns may be used in some cases. When used in conjunction with the NSN, these numbers and characters form a unique identifier of end items, components, and packaging configurations.

c. LEVEL OF ASSEMBLY (LV ASSEMBLY). The level of assembly identifies the relationships among ammunition end items, components, subcomponents, and parts. To accurately show the hierarchal structure of an ammunition item, one must know these relationships. Table C.2 shows the partial component breakdown of a major end item, shown as assembly level 1.0, indicating the end item status of the munition. All subsequent parts, components, or subcomponents are shown in relation to the end item as 1.1, 1.2, 1.3, 1.3.1, 1.3.2, etc. This column may contain up to 19 spaces. When CID is being performed, it is vital that the correct level of assembly be assigned to all components and parts. When correctly input into the MIDAS database, components and parts will be linked to the next higher assembly and shown by two or more space indentations on the Expanded Structure Screen and the MIDAS Detailed Structure Report (e.g., Table C.3).

NOTE: Bulk items are not assigned levels of assembly when entered on the MIDAS worksheets. Where alternate or optional components, parts, or bulk items are identified, these items are given the same level of assembly as the primary component, or part, or bulk item.

d. DRAWING (DWG) NUMBER.

(1) The drawing/part number (15 spaces), also seen in many DOD publications as "piece mark" or "part identification number" (PIN), is the unique identifier of specific items, components, and parts. The drawing/part number is also used as a unique identifier of specific engineering drawings used throughout the ammunition life cycle. The drawing/part number is used as the primary source of information for component identification and for cross-referencing data within the MIDAS database.

(2) The following general rules apply to the Drawing Number data field:

(a) Bulk or process materials are generally not given a drawing/part number, but are identified by specification.

(b) Components and parts must have a drawing number. If a number has not been assigned, one must be created for that item. To do this, use the drawing number in which the item is shown and add a *1, *2 , *3, and so on for each item not having a drawing number (e.g., an unnumbered part in dwg 123456 would become 123456*1; see Table C.4, Example 1a). This does not apply to PEP parts.

(c) For PEP materials, enter a drawing number under the specification field when the specific composition data are provided in that drawing and not in a specification.

(d) A Drawing Revision (REV) field is in the MIDAS database but not on the MIDAS Data Input Worksheet. Always fill in the Revision field when applicable.

(e) Key fields for components are NSN and Drawing Number. If you have an alternate component with the same key fields as the primary component, add "(ALT)" to the end of the alternate drawing number [e.g., 123456(ALT)]. If a component exactly matches another except for the filler, the drawing number may be changed as follows: 123456 may become 123456TNT or 123456COMPB (see Table C.4, Example 1a and 1b).

e. NOMENCLATURE.

(1) The Nomenclature field, containing up to 30 spaces, provides a brief description of an item by providing the following information:

(a) The general item type: cartridge (CTG), projectile (PROJ), grenade, bomb, etc.

(b) Size when necessary, which is usually in millimeters (MM), inches (IN), or calibers (CAL).

(c) Applicable modifiers such as HE, SMOKE, APFSDS-T, or BLANK.

(d) The model number (e.g., M18 or MK21). Engineering changes are shown in the model numbers as A1 or MOD 1. However, model numbers are often not unique (Army, Air Force); consequently, they are only useful when shown with the approved item name.

(2) The following general rules apply when inputting nomenclature:

(a) Use standard abbreviations for nomenclature, without commas or periods.

(b) When there are more than two adjectives for an end item noun, the secondary adjective is not moved behind the primary adjective: e.g., use FUZE HAND GREN, not FUZE GREN HAND.

(c) In expressing the size, no space is allowed between the number and unit: e.g., use 90MM, not 90 MM; use 8IN, not 8 IN.

(d) When there is more than one modifier, the more general modifier should be used first: e.g., use SMK HC, not HC SMK.

(e) Nomenclature for a component or part is to be copied exactly as it appears in drawings. However, if a component or part you need is already in MIDAS, with the

only difference being the nomenclature (i.e., Chg Upper vs. Upper Chg), use the existing component or part rather than creating a new one.

(f) A TYPE designation is also allowed in nomenclatures, as long as it is not for material (composition), e.g., BODY ASSY TYPE PH.

f. ITEM (MTL) TYPE.

(1) This field is used to identify the type of data library in which the data for a given item is stored. In the detailed structure of the MIDAS database, the Item Type is abbreviated to the word Type. This is a one-space field showing the following:

M	Munition
C	Component
P	Part
B	Bulk item
X	Compound in PEP material
Y	Compound in inert material

(2) The following general rules apply specifically to the Material field:

(a) Parts cannot have subparts. If an item has subparts, then it is a component.

(b) Typically, components will be composed of at least two parts, or two components, or a part and a component. Exceptions may occur in rare cases.

g. COMPOSITION.

(1) This field describes the composition of material (20 spaces). This field may show chemical names or common names, but it will reflect information as identified in the technical data package or specification of the item.

NOTE: This field should further identify the chemical components that make up the final composition. See the example for Propellant M1 (Assy 1.2) in Table C.2.

(2) The following general rules apply to the Composition field.

(a) For materials names there are two general rules. The first is to not change the location of adjectives in front of certain general nouns: e.g., use BLACK POWDER, not POWDER BLACK; use PRIMER MIXTURE, not MIXTURE PRIMER; use RDX PELLETS, not PELLETS RDX. The second rule is to give a word that

describes the chemical composition of the material first, and to follow this word by other descriptions such as physical form, or an adjective: e.g., use RAYON CLOTH, not CLOTH RAYON; use PAPER FOILING, not FOILING PAPER.

(b) For materials that are 100% pure (e.g., TNT 100%), the compound name should be the same as the material name.

(c) If the first part of a compound name is a chemical element, the element is expressed by its chemical symbol, all in uppercase (e.g., PB AZIDE, BA NITRATE).

(d) When the composition nomenclature exceeds 20 spaces, abbreviate the nomenclature to 20 spaces or less and include the entire nomenclature in the Remarks field.

(e) When the percentage of nitrogen (N) in nitrocellulose (NC) is given (e.g., 13.15% nitrogen in nitrocellulose), NC is to be input as "NC (N 13.15%)".

(f) If a part is stainless steel, identify it as such, and not just as steel, in the Composition field. If the middle letter of a specification indicates tubing, wire, or other forms, show it in the Composition field (e.g., QQ-W-470 = Steel Wire, MIL-T-46072 = BRS Tube, MIL-W-52263 = Stainless Steel Wire); otherwise, keep the Composition entry brief. Use abbreviations whenever possible (see Section C.2.2, paragraph a).

h. PERCENT. This 9-digit field indicates the percent of total composition contributed by specific items in the Composition field. However, it usually only affects the percentage breakdown of materials.

NOTE: Total percentages of a material's compound(s) must equal 100%. If the specification indicates that the material's compounds exceed 100%, the percentages must be normalized. List the actual percentage range for each compound in the Remarks field of each compound, and add the statement "% have been normalized" to the Remarks field of the material.

i. WEIGHT. This field is used to identify the weight of the item indicated in the Nomenclature and/or Composition fields. Estimated weights will be identified in the Source field by the capital letter "E". The Weight field will contain up to 9 digits. Use the Weight field whenever possible. This is especially important for PEP materials.

j. UNIT OF MEASUREMENT (UM). This field indicates the unit of measure for the weights given. Record units in the following two-letter codes:

LB	Pounds
OZ	Ounces

GM Grams
GR Grains
MG Milligrams

k. SPECIFICATION.

(1) This field indicates the federal, military, or commercial specification of an item (13 spaces). Do not use standards in lieu of specifications. Example, protective coatings or finishes referenced as MIL-STD-171, finish 1.1.1.2, must be further researched to identify a cadmium coating, QQ-P-416, type 1, class 2.

(2) The following general rules apply to the Specification field.

(a) Material specifications for commercial parts are usually not listed in the drawings. The information that is available in drawings for commercial parts is the commercial vendor (name and address), which will lead you to the manufacturer. In some cases, the manufacturer code/CAGE number will lead to the manufacturer. If the specification is not available, enter, for example, "CAGE # 1234" (or "Commercial" if CAGE # is not available), in the Specification column. If a commercial brand name for a given material is well known (e.g., LOCTITE, with two different grades indicating the strength of the sealer), the brand name should be listed under the Specification column.

(b) For the PEP Materials Library, a drawing/part number may be used in lieu of a specification when the specification does not exist or does not indicate the specific composition of the material.

(3) TOLERANCES. In many cases, tolerances are shown as part of a specification. Tolerances are generally shown as unilateral ([+] or [-]), bilateral (+ or -), or a range (1 to 4). Such rigid specifications are usually shown with metal parts or components. When applied to specifications for composition, tolerances may indicate percent of total composition. The following general rules apply to tolerances.

(a) When specifications are given with unilateral or bilateral tolerances, the actual specification without tolerance should be recorded. For example, 80 +3 grains tolerance will be recorded as 80 grains.

(b) When specifications give a range for a tolerance, the median of the range should be recorded. For example, a 9 to 13 grains requirement would be recorded as 11 grains.

(4) SOURCE CONTROL DRAWINGS. Parts identified on a Source Control Drawing should have "COMMERCIAL" listed in the Specification field. For bulk items, the same applies to Source Control and Formulation Drawings, except the drawing number should be entered at the end of the nomenclature.

l. TYPE, GRADE, CLASS, AND STYLE (TGCS). These fields (6 spaces each) provide further definition within the specification. Do not use Roman numerals (i.e., input Type II as Type 2).

m. FACTOR. The Factor field (6 digits) is used as a multiplier to account for multiple components within an item or the number of items per package. For example, use 24 to show the number of submunition grenades in each projectile, or use 0.125 to show one pallet for each eight projectiles. Round to four decimal places maximum.

n. SOURCE. This field indicates the source of data recorded on the worksheet. Use the following one-space source codes:

1	Technical data package
2	Technical or supply manual
3	Specification
4	Other
E	Estimated

o. FAMILY. Use the Family field to enter the MIDAS munition family code, which is a one- or two-character code that reflects the functional grouping of ammunition by its explosive material content and size. The munition family codes are listed in Table A.2.

p. STATUS. Always indicate when an item is *complete* in the Status field.

q. REMARKS. Use the Remarks field to expand item descriptions beyond the information given in the Nomenclature and Composition fields. Describe the differences among models, other names used, color, method of loading, composition formula, or unique features.

C.2.2 General Data Entry

a. Abbreviations in Appendix A of this MIDAS Users Guide are to be used, e.g., ASSY (assembly), CHG (charge), CTG (cartridge), GREN (grenade), HC (hexachloroethane), HE (high explosive), IN (inch), MM (millimeter), PROJ (projectile), SMK (smoke), AL (aluminum), BA (barium), CD (cadmium), CU (copper), K (potassium), MG (magnesium), NI (nickel), and PB (lead).

b. In general, commas, periods, colons, or semicolons are not allowed. A comma is allowed when three or more items are included in the nomenclature, e.g., CORE, WINDSHIELD & TIP ASSY.

c. A hyphen (-) is allowed only in drawing numbers, specification numbers, model numbers, or other numbers (e.g., 7548570-2, MIL-C-63310) and in certain limited situations (e.g., APFSDS-T, ANTI-RESET).

d. The words "and" and "No." are abbreviated as "&" and "#", respectively.

e. In some instances a munition may be used as a component in other munitions (e.g., fuzes, small arms cartridges). In this case, the munition will first be entered as a component and then linked to the munition. This procedure allows the component to be reused in other munitions when needed (see Table C.4, Example 2).

f. A part may have one specification but many (three or more) different types or grades. Rather than listing many alternates, list the Drawing Number, Nomenclature, Material Type, and Specification once. In the Type or Grade field (whichever applies), enter a double asterisk (**). List the different types or grades in the Remarks field for that part (see Table C.4, Example 3).

g. Information on materials for parts and protective finishes on parts, including alternate materials and alternate protective finishes, should be extracted from the notes on the drawings pertaining to the parts.

h. When all of the data for two parts are the same except for their bulk items, two separate entries must be created in the Parts Library for these parts. Furthermore, the nature of the difference between them should be made clear by entering an abbreviation for one of their bulk items in the Style column of the TGCS field (e.g., LUBOIL for lubricating oil). (See Table C.4, Example 4.)

i. When all of the data for two PEP materials are the same except for their compound composition, two separate entries must be created in the Materials Library for these materials. Furthermore, the nature of the difference between them must be made clear by entering the most important compound and its percentage in their nomenclatures, e.g., DELAY COMP (BA CR 40.5%), DELAY COMP (BA CR 60.0%), and DELAY COMP (BA CR 87.0%).

j. If an item/component/part or material is classified, simply list the nomenclature (as long as the nomenclature is not classified), and state that the data are classified.

k. In order to be centralized into the MIDAS database, explosive items must be identified in one of three ways, which are shown in Table C.4, Examples 5, 6, and 7).

l. PROTECTIVE DEVICES. When grommets, lifting plugs, shipping plugs, and other protective devices used for transport, storage, and handling are found in a munition's assembly drawings, they should be treated as inert parts.

m. BULK ITEMS. Ensure that all applicable bulk items are included with a part. This effort requires research from the part drawing back through assembly drawings to the top drawing. Remember that a bulk item applied to one part may also be applicable to another when the parts are assembled (e.g., glues, sealants).

C.2.3 Packaging Data

Complete packaging configurations will be done only when directed by the Demil Technology Office (USADACS).

TABLE C.1 MIDAS Data Dictionary

Library	Fields	Type	Length
Munition	Selection field	Character	1
	MIDAS ID	Character	12
	Previous MIDAS ID	Character	12
	Munition nomenclature	Character	45
	National Stock Number (NSN)	Character	13
	Department of Defense Identification Code (DODIC)	Character	4
	Drawing number	Character	15
	Revision	Character	2
	Reported total weight	Numeric	9.4
	Unit of total weight	Character	2
	Family classification	Character	2
	Specification	Character	15
	Information source	Character	1
	Status	Character	10
	Remarks	Character	80
	Quantity (Orange book)	Numeric	9
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Component	Selection field	Character	1
	MIDAS ID	Character	12
	Previous MIDAS ID	Character	12
	Component nomenclature	Character	40
	National Stock Number (NSN)	Character	13
	Department of Defense Identification Code (DODIC)	Character	4
	Drawing number	Character	15
	Revision	Character	2
	Reported total weight	Numeric	9.4
	Unit of total weight	Character	2
	Specification	Character	15
	Information source	Character	1

TABLE C.1 (Cont.)

Library	Fields	Type	Length
Component (cont.)			
	Status	Character	10
	Remarks	Character	80
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	8
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Part	Selection field	Character	1
	MIDAS ID	Character	12
	Previous MIDAS ID	Character	12
	Part nomenclature	Character	40
	Material MIDAS ID	Character	12
	Material nomenclature	Character	30
	National Stock Number (NSN)	Character	13
	Drawing number	Character	15
	Revision	Character	2
	Factor	Numeric	9
	Material code (I, X, R, C, P)	Character	1
	Reported total weight	Numeric	9.4
	Unit of total weight	Character	2
	Specification	Character	15
	Type	Character	8
	Grade	Character	8
	Class	Character	8
	Style	Character	8
	TGCS (Format: /Type/Grade/Class/Style/)	Character	20
	Information source	Character	1
	Status	Character	10
	Remarks	Character	80
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8

TABLE C.1 (Cont.)

Library	Fields	Type	Length
Part (cont.)			
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Material (Inert & PEP)	Selection field	Character	1
	MIDAS ID	Character	12
	Previous MIDAS ID	Character	12
	Material nomenclature	Character	30
	Material code (I, X, R, C, P)	Character	1
	Specification	Character	15
	Type	Character	8
	Grade	Character	8
	Class	Character	8
	Style	Character	8
	TGCS (Format: /Type/Grade/Class/Style/)	Character	20
	Information source	Character	1
	Status	Character	10
	Remarks	Character	80
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Compound (Inert & PEP)	Selection field	Character	1
	Material MIDAS ID	Character	12
	Previous material MIDAS ID	Character	12
	Percent of material	Numeric	6.2
	Compound nomenclature	Character	20
	Specification	Character	15
	Type	Character	8

TABLE C.1 (Cont.)

Library	Fields	Type	Length
Compound (Inert & PEP) (cont.)			
	Grade	Character	8
	Class	Character	8
	Style	Character	8
	TGCS (Format: /Type/Grade/Class/Style/)	Character	20
	Information source	Character	1
	Status	Character	10
	Remarks	Character	80
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Bulk item	Selection field	Character	1
	Bulk item MIDAS ID	Character	12
	Part MIDAS ID	Character	12
	Previous part MIDAS ID	Character	12
	Material MIDAS ID	Character	12
	Material code (I, X, R, C, P)	Character	1
	Material nomenclature	Character	30
	Specification	Character	15
	Type	Character	8
	Grade	Character	8
	Class	Character	8
	Style	Character	8
	TGCS (Format: /Type/Grade/Class/Style/)	Character	20
	Reported total weight	Numeric	9.4
	Unit of total weight	Character	2
	Information source	Character	1
	Alternate item	Character	3
	Alternate MIDAS ID	Character	12
	Status	Character	10

TABLE C.1 (Cont.)

Library	Fields	Type	Length
Bulk item (cont.)			
	Remarks	Character	80
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Munition-component link	Selection field	Character	1
	Link MIDAS ID	Character	12
	Munition MIDAS ID	Character	12
	Component MIDAS ID	Character	12
	Factor	Numeric	9.4
	Alternate item	Character	3
	Alternate MIDAS ID	Character	12
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Component-component link	Selection field	Character	1
	Link MIDAS ID	Character	12
	"Parent" component MIDAS ID	Character	12
	"Child" component MIDAS ID	Character	12
	Factor	Numeric	9.4
	Alternate item	Character	3
	Alternate MIDAS ID	Character	12
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8

TABLE C.1 (Cont.)

Library	Fields	Type	Length
Component-component link (cont.)			
	Organizaton creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Munition-part link	Selection field	Character	1
	Link MIDAS ID	Character	12
	Munition MIDAS ID	Character	12
	Part MIDAS ID	Character	12
	Factor	Numeric	9.4
	Weight	Numeric	9.4
	Unit of weight	Character	2
	Alternate item	Character	3
	Alternate MIDAS ID	Character	12
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Component-part link	Selection field	Character	1
	Link MIDAS ID	Character	12
	Component MIDAS ID	Character	12
	Part MIDAS ID	Character	12
	Factor	Numeric	9.4
	Weight	Numeric	9.4
	Unit of weight	Character	2
	Alternate item	Character	3
	Alternate MIDAS ID	Character	12
	Date created	Date	8
	Time created	Character	8
	Person creating data	Character	8

TABLE C.1 (Cont.)

Library	Fields	Type	Length
Component-part link (cont.)			
	Organization creating data	Character	4
	Last update date	Date	8
	Last update time	Character	8
	Last update person	Character	8
	Last update organization	Character	4
Expanded structure	Selection field	Character	1
	Expanded structure MIDAS ID	Character	5
	Type	Character	1
	Entity	Character	10
	MIDAS ID	Character	12
	Nomenclature	Character	40
	National Stock Number (NSN)	Character	13
	Department of Defense Identification Code (DODIC)	Character	4
	Drawing number	Character	15
	Revision	Character	2
	Specification	Character	20
	TGCS (Format: /Type/Grade/Class/Style/)	Character	20
	Factor	Numeric	8.4
	Alternate item	Logical	1
	Reported total weight	Character	10
	Unit of total weight	Character	2
	Weight (LB)	Numeric	11.6
	Total weight flag	Logical	1
	Total number of items	Numeric	8.4
	Material MIDAS ID	Character	12
	Material nomenclature	Character	40
	Material code (I, X, R, C, P)	Character	1
	Percent of material	Character	6
	"Parent" MIDAS ID	Character	12
	Weight of compound	Numeric	11.6
	Status	Character	10
	Level	Numeric	2
	Tree	Character	80
	View	Character	80

TABLE C.2 Worksheet for Documenting Component and Constituent Data

ITEM:

NSN	DODIC	LV ASSEMBLY	DWG NUMBER	NOMENCLATURE	MTL	COMPOSITION	%	WT	UNIT	SPECIFICATION	TY or TYPE	GR or GRADE	CL or CLASS	STYLE	FACTOR	SOURCE
1315-00-752-7574	C280	1.0	8849017-2	CTG 90mm HE-TM71A1 W/F	M			39.00	LB	MIL-C-46276						1
		1.1	7548080	CTG CASE M19B1	P	STEEL		10.10	LB	MIL-S-3289						1
				VARNISH	B					FA-PD-1808	2					1
		1.2		PROP M1	P	PROP M1		5.33	LB	JAN-P-309						1
					X	NC	84.50			MIL-N-244						3
					X	DINITROTOLUENE	9.50			MIL-D-204						3
					X	DIBUTYLPHTHALATE	5.00			MIL-D-218						3
					X	DIPHENYLAMINE	1.00			MIL-D-98						3
1390-00-825-1370	N518	1.3	8838130	PRIMER PERC M28B2 ASSY	C					MIL-P-46565						1
		1.3.1		PEP	P	BLACK POWDER CL#1		315.00	GR	MIL-P-223			1			1
					X	K NITRATE	74.00			MIL-P-156			1			3
					X	S	10.40			MIL-S-14929						3
					X	CHARCOAL	15.60			JAN-C-178			1			3
		1.3.2	8838089-6	BODY	P	STEEL				MIL-T-11833			60			1
				CD COATING	B					QQ-P-416						1
				ZN CHROMATE (ALT)	B					ASTM-B633	2		3			1
		1.3.3	7548488	LINER	P	PAPER		.035	LB	MIL-P-60169						1
				ANIMAL GLUE	B					mmm-A-100	1	P1				1
		1.3.4	8838081	HEAD	P	BRS				ASTM-B16						1
		1.3.5	8838015	PLUG FIRING	P	BRS				ASTM-B16	1					1
		1.3.6	8838012	CUP BATTERY	P	BRS				ASTM-B16	1		LHC			1
				LACQUER	B					MIL-L-296						1
				LACQUER CELL NITRATE	B					MIL-L-10297	1or2					1
				SEALING COMPOUND (ALT)	B					MIL-S-22473		AVV				1
1390-01-042-9350	N567	1.3.7	8831157	PRIMER PERC M61 ASSY	C					MIL-P-20449						1
		1.3.7.1		PEP	P	PRIMER MIX #70		1.00	GR				1			1
					X	PB THIOCYANATE	25.00			MIL-L-65						1
					X	K CHLORATE	53.00			MIL-P-150		A	1			1
					X	SB SULFIDE	17.00			MIL-A-159			1			1
					X	TNT	5.00			MIL-T-248	1 OR 2					1
		1.3.7.2	8831160	COVER	P	PAPER FOILING				MIL-P-60169	.3					1

MIDAS DATA INPUT WORKSHEET

SOURCE CODE 1 = DWG, 2 = TM, 3 = SPEC, 4 = OTHER

TABLE C.3 MIDAS Detailed Structure for an Item

Page No. 1 — USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM

09/27/95 — Nomenclature: CTG 90MM HE-T M71A1 W/P — Status: OFFICIAL

NSN: 1315007527574 — DODIC: C280 — Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	CODE	MATERIAL NOMENCLATURE	SPECIFICATION	TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
8849017-2	CTG 90MM HE-T M71A1 W/P	M			MIL-C-46226		39.0000LB		1.0000
7548080	CTG CASE M19B1 (STEEL)	P	I	STEEL	MIL-S-3289		10.1000LB	10.100000	1.0000
	VARNISH	B	B	VARNISH	FA-PD-1808	/2////			1.0000
	PROP M1 (PROP M1)	P	X	PROP M1	JAN-P-309		5.3300LB	5.330000	1.0000
	NC (84.50%)	X			MIL-N-244				
	DINITROTOLUENE (9.50%)	X			MIL-D-204				
	DIBUTYLPHTHALATE (5.00%)	X			MIL-D-218				
	DIPHENYLAMINE (1.00%)	X			MIL-D-98				
8838130	PRIMER PERC M28B2 ASSY	C			MIL-P-46565				1.0000
	PEP (BLACK PWDR CL 1*1)	P	X	BLACK PWDR CL 1*1	MIL-P-223	///1//	315.0000GR	0.045001	1.0000
	K NITRATE (74.00%)	X			MIL-P-156	///1//			
	S (10.40%)	X			MIL-S-14929				
	CHARCOAL (15.60%)	X			JAN-C-178	///1//			
8838089-6	BODY (STEEL)	P	I	STEEL	MIL-T-11823	///60//			1.0000
	CD COATING	B	B	CD COATING	QQ-P-416				1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
7548488	LINER (PAPER)	P	I	PAPER	MIL-P-60169		0.0350LB	0.035000	1.0000
	ANIMAL GLUE	B	B	ANIMAL GLUE	MMM-A-100	/1/P1///			1.0000
8838081	HEAD (BRS)	P	I	BRS	ASTM-B16				1.0000
8838015	PLUG FIRING (BRS)	P	I	BRS	ASTM-B16	/1////			1.0000
8838012	CUP BATTERY (BRS)	P	I	BRS	ASTM-B16	/1///LAC/			1.0000
	LACQUER	B	B	LACQUER	MIL-L-296				1.0000
	LACQUER CELL NITRATE	B	B	LACQUER CELL NITRATE	MIL-L-10287	/1 OR 2////			1.0000
	SEALING COMPOUND (ALT)	B	B	SEALING COMPOUND	MIL-S-22473	//AVV///			1.0000
8831157	PRIMER PERC M61 ASSY	C			MIL-P-20449				1.0000
	PEP (PRIMER MIX #70)	P	X	PRIMER MIX #70		///1//	1.0000GR	0.000143	1.0000
	PB THIOCYANATE (25.00%)	X			MIL-L-65				
	K CHLORATE (53.00%)	X			MIL-P-150	//A/1//			
	SB SULFIDE (17.00%)	X			MIL-A-159	///1//			
	TNT (5.00%)	X			MIL-T-248	/1 OR 2////			
8831160	COVER (PAPER FOILING)	P	I	PAPER FOILING	MIL-P-60169	/3////			1.0000
	ACETONE (ALT)	B	B	ACETONE	O-A-51				1.0000
	ETHYL ALCOHOL	B	B	ETHYL ALCOHOL	MIL-E-463	//1///			1.0000
8831159	ANVIL (CU ALLOY)	P	I	CU ALLOY	ASTM-B19	//260///			1.0000
8831158	CUP PRIMER (CU ALLOY)	P	I	CU ALLOY	ASTM-B19	//260//LAC-CEL/			1.0000
	LACQUER CELL NITRATE	B	B	LACQUER CELL NITRATE	MIL-L-10287	/1////			1.0000
8838129	PRIMER PERC M28A2 ASSY (ALT)	C			MIL-P-46565				1.0000
	PEP (BLACK PWDR CL 1*1)	P	X	BLACK PWDR CL 1*1	MIL-P-223	///1//	315.0000GR		1.0000
	K NITRATE (74.00%)	X			MIL-P-156	///1//			
	S (10.40%)	X			MIL-S-14929				
	CHARCOAL (15.60%)	X			JAN-C-178	///1//			
8838089-12	BODY (STEEL)	P	I	STEEL	MIL-T-11823	///60//			1.0000
	CD COATING	B	B	CD COATING	QQ-P-416				1.0000
7548488	LINER (PAPER)	P	I	PAPER	MIL-P-60169		0.0350LB		1.0000
	ANIMAL GLUE	B	B	ANIMAL GLUE	MMM-A-100	/1/P1///			1.0000
8838080	HEAD (BRS)	P	I	BRS	ASTM-B16				1.0000
8838015	PLUG FIRING (BRS)	P	I	BRS	ASTM-B16	/1////			1.0000
8838012	CUP BATTERY (BRS)	P	I	BRS	ASTM-B16	/1///LAC/			1.0000
	LACQUER	B	B	LACQUER	MIL-L-296				1.0000
	LACQUER CELL NITRATE	B	B	LACQUER CELL NITRATE	MIL-L-10287	/1 OR 2////			1.0000
	SEALING COMPOUND (ALT)	B	B	SEALING COMPOUND	MIL-S-22473	//AVV///			1.0000
8831157	PRIMER PERC M61 ASSY (ALT)	C			MIL-P-20449				1.0000
	PEP (PRIMER MIX #70)	P	X	PRIMER MIX #70		///1//	1.0000GR		1.0000

TABLE C.3 (Cont.)

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USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM

Nomenclature: CTG 90MM HE-T M71A1 W/P — Status: OFFICIAL
NSN: 1315007527574 — DODIC: C280 — Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	MATERIAL CODE	MATERIAL NOMENCLATURE	SPECIFICATION	TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
	PB THIOCYANATE (25.00%)	X			MIL-L-65				
	K CHLORATE (53.00%)	X			MIL-P-150	//A/1//			
	SB SULFIDE (17.00%)	X			MIL-A-159	///1//			
	TNT (5.00%)	X			MIL-T-248	/1 OR 2////			
8831160	COVER (PAPER FOILING)	P	I	PAPER FOILING	MIL-P-60169	/3////			1.0000
	ACETONE (ALT)	B	B	ACETONE	O-A-51				1.0000
	ETHYL ALCOHOL	B	B	ETHYL ALCOHOL	MIL-E-463	//1///			1.0000
8831159	ANVIL (CU ALLOY)	P	I	CU ALLOY	ASTM-B19	//260///			1.0000
8831158	CUP PRIMER (CU ALLOY)	P	I	CU ALLOY	ASTM-B19	//260//LAC-CEL/			1.0000
	LACQUER CELL NITRATE	B	B	LACQUER CELL NITRATE	MIL-L-10287	/1////			1.0000
8849014	TRACER M10 LOADING ASSY	C			MIL-T-46555				1.0000
8849015	BODY TRACER (STEEL)	P	I	STEEL	ASTM-A108	//1117///			1.0000
	ZN COATING	B	B	ZN COATING	ASTM-B633	/1//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD COATING (ALT)	B	B	CD COATING	QQ-P-416	/1//3//			1.0000
	PETTMAN CEMENT	B	B	PETTMAN CEMENT	JAN-C-99	/A////			1.0000
8849012	DISC CLOSING (BRS)	P	I	BRS	ASTM-B36				1.0000
8849013	WASHER CLOSING (STEEL)	P	I	STEEL	ASTM-A109				1.0000
	CD COATING	B	B	CD COATING	QQ-P-416	/1//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8849013	WASHER CLOSING (STEEL) (ALT)	P	I	STEEL	ASTM-A108				1.0000
	CD COATING	B	B	CD COATING	QQ-P-416	/1//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8849013	WASHER CLOSING (STEEL) (ALT)	P	I	STEEL	ASTM-A512				1.0000
	CD COATING	B	B	CD COATING	QQ-P-416	/1//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	PEP (IGN COMP K-29)	P	X	IGN COMP K-29	MIL-C-14334		30.0000GR	0.004286	1.0000
	BA PEROXIDE* (80.50%)	X			MIL-B-153	///C//			
	MG PWDR** (16.50%)	X			MIL-M-382	/3////			
	CA RESINATE (2.00%)	X			MIL-C-20470	/1 OR 2////			
	GRAPHITE (1.00%)	X			JAN-G-155				
	PEP (TRACER COMP R45)	P	X	TRACER COMP R45	MIL-T-46555		35.0000GR	0.005000	1.0000
	SR NITRATE (56.00%)	X			MIL-S-20322				
	MG-AL ALLOY (37.00%)	X			JAN-M-454				
	POLYVINYL CHLORIDE (7.00%)	X			MIL-P-20307				
8849010	GASKET (CU)	P	I	CU	ASTM-B152				1.0000
	BITUMINOUS COATING	B	B	BITUMINOUS COATING	MIL-C-450	/1////			1.0000
73-2-146	FUZE PD M51A5	C			MIL-P-10373		2.1200LB		1.0000
73-2-154A	BOOSTER M21A4 ASSY	C			PA-PD-524		0.7200LB		1.0000
73-2-155C	CUP BOOSTER (AL ALLOY)	P	I	AL ALLOY	QQ-A-591	///2//	282.2000GR	0.040315	1.0000
73-2-155C	CUP BOOSTER (AL ALLOY) (ALT)	P	I	AL ALLOY	QQ-A-359		282.2000GR		1.0000
73-2-155D	PELLET BOOSTER (TETRYL PELLETS (TE	P	X	TETRYL PELLETS (TETR	MIL-P-46464	/2////	351.0000GR	0.050144	1.0000
	GRAPHITE (0.50%)	X			MIL-G-155	//1 OR 2///			
	TETRYL (MIN) (98.00%)	X			MIL-T-339				
	BA STEARATE (0.75%)	X			MIL-B-366				
	CA STEARATE (0.75%)	X			MIL-C-263				
73-2-156A	BODY ASSY	C							
73-2-114B	BODY (BRS)	P	I	BRS	QQ-B-626				1.0000
73-2-155G	PIN ROTOR STOP (STEEL)	P	I	STEEL	QQ-S-763	/C//1//	0.3800GR	0.000054	1.0000
73-2-155F	PIN ROTOR PIVOT (STEEL)	P	I	STEEL	QQ-S-763	/C//1//	7.4000GR	0.001057	1.0000
73-2-114C	PIN CENTRIFUGAL (BRS)	P	I	BRS	QQ-B-626		13.0000GR	0.001857	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//	21.6000GR	0.003086	1.0000
73-2-144E	PIN CENTRIFUGAL LOCK (BRS)	P	I	BRS	QQ-B-626		7.3000GR	0.001043	1.0000

TABLE C.3 (Cont.)

Page No. 3 — USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM

09/27/95 — Nomenclature: CTG 90MM HE-T M71A1 W/P — Status: OFFICIAL

NSN: 1315007527574 — DODIC: C280 — Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	CODE	MATERIAL NOMENCLATURE	MATERIAL SPECIFICATION	MATERIAL TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-113Q	SPRING CENTRIFUGAL PIN (STEEL WI	P	I	STEEL WIRE	QQ-W-470		0.3000GR	0.000043	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
73-2-114D	SPRING CENTRIFUGAL LOCK PIN (STE	P	I	STEEL WIRE	QQ-W-470		1.0000GR	0.000143	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
73-2-155K	SCREW CENTRIFUGAL PIN (BRS)	P	I	BRS	QQ-B-626		15.2000GR	0.002171	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-155K	SCREW CENTRIFUGAL PIN (STEEL) (A	P	I	STEEL	QQ-S-633	//1020///			1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
73-2-155K	SCREW CENTRIFUGAL PIN (ZN ALLOY)	P	I	ZN ALLOY	QQ-Z-363	///A//			1.0000
73-2-113C	PLUG BODY (BRS)	P	I	BRS	QQ-B-613		1.8000GR	0.000257	3.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-113R	PLUG BODY (STEEL) (ALT)	P	I	STEEL	QQ-S-00640				3.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
73-2-114F	SCREW LOCK PIN CLOSING (BRS)	P	I	BRS	QQ-B-626		56.0000GR	0.008000	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-113A	ROTOR ASSY	C							1.0000
73-2-113B	ROTOR (BRS)	P	I	BRS	QQ-B-626		345.0000GR	0.049287	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-113B	ROTOR (AL ALLOY) (ALT)	P	I	AL ALLOY	QQ-A-591	///10//			1.0000
73-2-113B	ROTOR (BRS SINTERED) (ALT)	P	I	BRS SINTERED	MIL-B-12128				1.0000
73-2-113B	ROTOR (CU) (ALT)	P	I	CU	JAN-C-768				1.0000
73-2-113M	PIN ROTOR LOCK (BRS)	P	I	BRS	QQ-B-626		2.7000GR	0.000386	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-113L	LOCK ROTOR LOCK PIN (BRS)	P	I	BRS	QQ-B-626		1.7000GR	0.000243	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8797749	DETONATOR M17 ASSY	C			MIL-D-46406				1.0000
	PEP (PB AZIDE)	P	X	PB AZIDE	MIL-L-3055	/1////	4.0800GR	0.000583	1.0000
	PB AZIDE (100.00%)	X			MIL-L-3055	/1////			
	PEP (TETRYL)	P	X	TETRYL	MIL-T-339	//1/A//	1.2300GR	0.000176	1.0000
	TETRYL (100.00%)	X			MIL-T-339	//1/A//			
8797745-3	CUP DETONATOR (AL ALLOY)	P	I	AL ALLOY	QQ-A-561	//1100///	4.5000GR	0.000643	1.0000
	BITUMINOUS COATING	B	B	BITUMINOUS COATING	MIL-C-450	/1 OR 2////			1.0000
8795797-1	DISC DETONATOR (AL ALLOY)	P	I	AL ALLOY	QQ-A-561	//1100///	0.3000GR	0.000043	1.0000
	ADHESIVE PLASTIC	B	B	ADHESIVE PLASTIC	COMMERCIAL				1.0000
8797036-1	DISC DETONATOR CLOSING (AL A	P	I	AL ALLOY	QQ-A-561	//1100///	0.1800GR	0.000026	1.0000
	LACQUER CELL NITRATE	B	B	LACQUER CELL NITRATE	MIL-L-10287	/1////			1.0000
73-2-156L	COVER & DISC ASSY	C							1.0000
73-2-113P	COVER ROTOR (BRS)	P	I	BRS	QQ-B-613		130.6000GR	0.018658	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
73-2-113P	COVER ROTOR (STEEL) (ALT)	P	I	STEEL	QQ-S-00640	//1009///			1.0000
73-2-155H	DISC ROTOR COVER (PAPER ONION	P	I	PAPER ONION SKIN	JAN-P-157		0.2000GR	0.000029	1.0000
	SHELLAC VARNISH	B	B	SHELLAC VARNISH	TT-V-91	/2/B///			1.0000
73-2-155H	DISC ROTOR COVER (BRS) (ALT)	P	I	BRS	QQ-B-626				1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
	SHELLAC VARNISH	B	B	SHELLAC VARNISH	TT-V-91	/2/B///			1.0000
	SHELLAC VARNISH	B	B	SHELLAC VARNISH	TT-V-91	/2/B///			1.0000
73-2-155H	DISC ROTOR COVER (AL ALLOY) (A	P	I	AL ALLOY	QQ-A-591	///10//			1.0000
73-2-155A	BOOSTER CLOSING CUP ASSY	C							1.0000
73-2-155L	CUP BOOSTER CLOSING (BRS ALLOY	P	I	BRS ALLOY	JAN-C-439		3.8000GR	0.000543	1.0000
	PEP (CHG TETRYL)	P	X	CHG TETRYL			3.7800GR	0.000540	1.0000
	TETRYL (98.00%)	X			MIL-T-339	//A///			
	GRAPHITE (2.00%)	X			MIL-G-48771	//1,2///			

TABLE C.3 (Cont.)

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USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM

Nomenclature: CTG 90MM HE-T M71A1 W/F
NSN: 1315007527574 DODIC: C280

Status: OFFICIAL
Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	CODE	------- MATERIAL ------- NOMENCLATURE	SPECIFICATION	TGCS	-- REPORTED --- WEIGHT	UNIT WEIGHT(LB)	FACTOR
8798219	FUZE PD LOADING M48A3 ASSY	C			MIL-F-60348		1.4100LB		1.0000
8798221	TUBE FLASH (STEEL TUBE)	P	I	STEEL TUBE	QQ-T-830	//1137///			1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798221	TUBE FLASH (STEEL) (ALT)	P	I	STEEL	ASTM-A108	//1035///			1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798221	TUBE FLASH (STEEL) (ALT)	P	I	STEEL	ASM-5082				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
9234456	SCREW BOTTOM CLOSING (AL ALLOY)	P	I	AL ALLOY	ASTM-B211	//2024///			1.0000
8798220	OGIVE (STEEL)	P	I	STEEL	ASTM-A109				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	LACQUER	B	B	LACQUER	PA-PD-575				1.0000
8798232	HEAD LOADING ASSY	C							1.0000
8798233	CUSHION DETONATOR (CORK)	P	I	CORK	HH-C-576				1.0000
8798234	SCREW DET RETAINING (AL ALLOY)	P	I	AL ALLOY	ASTM-B211				1.0000
8798234	SCREW DET RETAINING (AL ALLOY) (	P	I	AL ALLOY	ASTM-B221				1.0000
8798235	MPTS HEAD ASSY	C							1.0000
8798236	DISC CLOSING (AL ALLOY)	P	I	AL ALLOY	ASTM-B209	//1100///			1.0000
8798237	HEAD (AL ALLOY)	P	I	AL ALLOY	ASTM-B211	//2011-T3///			1.0000
8798238	SUPPORT FIRING PIN (BRS)	P	I	BRS	ASTM-B36	//210///			1.0000
8798239	WASHER CLOSING DISC (AL ALLOY)	P	I	AL ALLOY	ASTM-B209				1.0000
9234572	PIN FIRING (AL ALLOY)	P	I	AL ALLOY	ASTM-B316	//2017-T4///			1.0000
9234572	PIN FIRING (AL ALLOY) (ALT)	P	I	AL ALLOY	ASTM-B211	//2024-T4///			1.0000
8797763	DETONATOR M24 ASSY	C							1.0000
	PEP (PRIMER MIX KCLO3 33.4%)	P	X	PRIMER MIX KCLO3 33.			0.8600GR	0.000123	1.0000
	K CHLORATE (33.40%)	X			MIL-P-150	//A/2//			
	SB SULFIDE (33.30%)	X			MIL-A-159	///A,B//			
	PB AZIDE (28.30%)	X			MIL-L-3055	/1////			
	CARBORUNDUM (5.00%)	X			COMMERCIAL				
	PEP (PB AZIDE)	P	X	PB AZIDE	MIL-L-3055		2.7700GR	0.000396	1.0000
	PB AZIDE (100.00%)	X			MIL-L-3055				
8797745-10	CUP DETONATOR (AL ALLOY)	P	I	AL ALLOY	QQ-A-561	//1100///	4.6000GR	0.000657	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8795797-1	DISC DETONATOR (AL ALLOY)	P	I	AL ALLOY	QQ-A-561	//1100///	0.3000GR	0.000043	1.0000
	ADHESIVE PLASTIC	B	B	ADHESIVE PLASTIC	COMMERCIAL				1.0000
8797765	WASHER RETAINER (FUZE CLOTH)	P	I	FUZE CLOTH	JAN-C-367		0.1000GR	0.000014	1.0000
8797765	WASHER RETAINER (WOOL FELT PRE	P	I	WOOL FELT PRESSED	C-F-206	/2//209//	0.1000GR		1.0000
8797766	RETAINER (AL ALLOY)	P	I	AL ALLOY	QQ-A-225/5A		1.3000GR	0.000186	1.0000
8797766	RETAINER (AL ALLOY) (ALT)	P	I	AL ALLOY	QQ-A-250/2B		1.3000GR		1.0000
9234457	BODY LOADING ASSY	C			MIL-F-60349				1.0000
9234573	SEAL BODY (AL BACKED TAPE)	P	I	AL BACKED TAPE	COMMERCIAL				1.0000
8798222	BODY MPTS	C							1.0000
8798223	BODY (STEEL)	P	I	STEEL	ASTM-A108				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798223	BODY (STEEL) (ALT)	P	I	STEEL	MIL-S-13048				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798224	INTERRUPTER (BRS)	P	I	BRS	ASTM-B16				1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000

TABLE C.3 (Cont.)

Page No. 5 — USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM
09/27/95 — Nomenclature: CTG 90MM HE-T M71A1 W/F — Status: OFFICIAL
NSN: 1315007527574 — DODIC: C280 — Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	MATERIAL CODE	MATERIAL NOMENCLATURE	SPECIFICATION	TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
8798225-1	SPRING TENSION (STEEL)	P	I	STEEL	ASTM-A228				1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798225-1	SPRING TENSION (STEEL) (ALT)	P	I	STEEL	ASTM-A227				1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798225-1	SPRING TENSION (STEEL) (ALT)	P	I	STEEL	ASTM-A229				1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8798226	RETAINER SETTING SLEEVE (BRS)	P	I	BRS	ASTM-B16				1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8798227	WASHER SETTING SLEEVE (STEEL)	P	I	STEEL	ASTM-A109				1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8798228	SETTING SLEEVE ASSY	C							1.0000
8798229	SLEEVE SETTING (BRS)	P	I	BRS	ASTM-B16				1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8798230	CUP SPRING (BRS)	P	I	BRS	ASTM-B16				1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8798231	SPRING INTERRUPTER (STEEL)	P	I	STEEL	ASTM-A228				1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797864-3	DELAY PLUNGER M1 ASSY	C			MIL-P-20378		1166.4000GR		1.0000
8797869	WASHER LOCK CHECK (BRS)	P	I	BRS	ASTM-B36		30.0000GR	0.004286	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8797870	SUPPORT PLUNGER (STEEL)	P	I	STEEL	ASTM-A108	//1137///	39.0000GR	0.005572	1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797870	SUPPORT PLUNGER (STEEL) (ALT)	P	I	STEEL	QQ-S-633	//1038///	39.0000GR		1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797871	SPRING PLUNGER RESTRAINING (STEE	P	I	STEEL	ASTM-A228		10.1000GR	0.001443	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797872	PIN GUIDE (BRS)	P	I	BRS	ASTM-B16		4.0000GR	0.000571	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
9204747	PIN GUIDE (STEEL) (ALT)	P	I	STEEL	MIL-P-10971				1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797873	FIRING PIN ASSY	C					245.0000GR		1.0000
8797874	HOUSING PLUNGER (STEEL)	P	I	STEEL	ASTM-A569		239.0000GR	0.034144	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	STENCIL INK	B	B	STENCIL INK	TT-I-558				1.0000
8797874	HOUSING PLUNGER (STEEL) (ALT)	P	I	STEEL	ASTM-A109		239.0000GR		1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	STENCIL INK	B	B	STENCIL INK	TT-I-558				1.0000
8797875	PIN FIRING (STEEL)	P	I	STEEL	ASTM-A108	//1177///	6.0000GR	0.000857	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8797875	PIN FIRING (STEEL WIRE) (ALT)	P	I	STEEL WIRE	QQ-W-461	//1035///	6.0000GR		1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8797876	PLUNGER BODY ASSY	C					799.8000GR		1.0000
8797877	BODY PLUNGER (BRS)	P	I	BRS	ASTM-B16		741.4000GR	0.105916	1.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8797878	LOCK CENT PLUNGER PIN (STEEL)	P	I	STEEL	ASTM-A109		6.0000GR	0.000857	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000

TABLE C.3 (Cont.)

Page No. 6 — USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM
09/27/95
Nomenclature: CTG 90MM HE-T M71A1 W/P — Status: OFFICIAL
NSN: 1315007527574 DODIC: C280 Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	CODE	MATERIAL NOMENCLATURE	SPECIFICATION	TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8797878	LOCK CENT PLUNGER PIN (STEEL)	P	I	STEEL	ASTM-A569		6.0000GR		1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8797878	LOCK CENT PLUNGER PIN (STEEL)	P	I	STEEL	ASTM-A366		6.0000GR		1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
	ZN CHROMATE (ALT)	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
8797879	PIN LOCK PIVOT (STEEL)	P	I	STEEL	ASTM-A108	//1018///	5.0000GR	0.000714	1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797879	PIN LOCK PIVOT (STEEL) (ALT)	P	I	STEEL	QQ-W-461	//1020///	5.0000GR		1.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797880	RETAINER SPRING (BRS)	P	I	BRS	ASTM-B36		8.0000GR	0.001143	2.0000
	CHROMATE COATING	B	B	CHROMATE COATING	MIL-C-5541	///3//			1.0000
8797881	SPRING CENTRIFUGAL PIN (STEEL)	P	I	STEEL	ASTM-A228		0.7000GR	0.000100	2.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797881	SPRING CENTRIFUGAL PIN (STEEL)	P	I	STEEL	ASTM-A227		0.7000GR		2.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797881	SPRING CENTRIFUGAL PIN (STAINL	P	I	STAINLESS WIRE	QQ-W-423	/302////	0.7000GR		2.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797882	PIN CENTRIFUGAL PLUNGER (STEEL	P	I	STEEL	ASTM-A108	//1137///	15.0000GR	0.002143	2.0000
	CD CHROMATE	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8844434-2	DELAY ELEMENT M2 ASSY	C			MIL-D-46486				1.0000
8844432	HOLDER PRIMER (BRS)	P	I	BRS	ASTM-B16				1.0000
8840607	PRIMER PERC M54 ASSY	C			MIL-P-13392				1.0000
	PEP (PRIMER MIX #70)	P	X	PRIMER MIX #70		///1//	0.1700GR	0.000024	1.0000
	PB THIOCYANATE (25.00%)	X			MIL-L-65				
	K CHLORATE (53.00%)	X			MIL-P-150	//N/1//			
	SB SULFIDE (17.00%)	X			MIL-A-159	///1//			
	TNT (5.00%)	X			MIL-T-248	/1 OR 2////			
8840604	CUP (BRS ALLOY)	P	I	BRS ALLOY	JAN-C-383				1.0000
	SHELLAC	B	B	SHELLAC	JAN-S-732	/1//2//			1.0000
	VARNISH	B	B	VARNISH	MIL-V-13750				1.0000
8840606	DISC (PAPER FOIL)	P	I	PAPER FOIL	JAN-P-224	/1////			1.0000
8840605	ANVIL (BRS)	P	I	BRS	QQ-B-626				1.0000
8840605	ANVIL (BRS) (ALT)	P	I	BRS	QQ-B-613				1.0000
8840605	ANVIL (BRS WIRE) (ALT)	P	I	BRS WIRE	QQ-W-321	//COMP 7///			1.0000
8844433	DELAY HOLDER ASSY	C							1.0000
	PEP (BLACK PWDR CL 1*1)	P	X	BLACK PWDR CL 1*1	MIL-P-223	///1//	0.3200GR	0.000046	1.0000
	K NITRATE (74.00%)	X			MIL-P-156	///1//			
	S (10.40%)	X			MIL-S-14929				
	CHARCOAL (15.60%)	X			JAN-C-178	///1//			
8844431	HOLDER DELAY (BRS)	P	I	BRS	ASTM-B16				1.0000
	SHELLAC	B	B	SHELLAC	JAN-S-732	/1//1 OR 2//			1.0000
	VARNISH	B	B	VARNISH	MIL-V-13750				1.0000
8840608	RELAY M7 ASSY	C			MIL-R-46453				1.0000
8844437	WASHER RELAY (AL ALLOY)	P	I	AL ALLOY	QQ-A-561				1.0000
8840625-3	CUP FLAT BOTTOM RELAY (AL AL	P	I	AL ALLOY	ASTM-B209	//1100///			1.0000
	PEP (PB AZIDE)	P	X	PB AZIDE	MIL-L-3055	/1////	1.4300GR	0.000204	1.0000
	PB AZIDE (100.00%)	X			MIL-L-3055	/1////			
	PEP (PB AZIDE) (ALT)	P	X	PB AZIDE	MIL-L-14758		1.4300GR		1.0000
	PB AZIDE (100.00%)	X			MIL-L-14758				
	PEP (PB AZIDE) (ALT)	P	X	PB AZIDE	MIL-L-46225		1.4300GR		1.0000
	PB AZIDE (100.00%)	X			MIL-L-46225				

TABLE C.3 (Cont.)

Page No. 7 — USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM
09/27/95 — Status: OFFICIAL
Nomenclature: CTG 90MM HE-T M71A1 W/P
NSN: 1315007527574 DODIC: C280 Reported Weight: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	MATERIAL CODE	MATERIAL NOMENCLATURE	MATERIAL SPECIFICATION	MATERIAL TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
4116-44	PKG FOR NSN 1315007527574	C							1.0000
4116/44	PALLET 40" X 48" (WOOD)	P	P	WOOD	MIL-P-15011	/I//1/I/	80.0000LB	80.000000	0.0310
	CU-8-QUINOLINOLATE COMP D (ALT)	B	B	CU-8-QUINOLINOLATE C	COMMERCIAL				1.0000
	ZN NAPHTHENATE (ALT)	B	B	ZN NAPHTHENATE	COMMERCIAL				1.0000
	PENTACHLOROPHENOL (ALT)	B	B	PENTACHLOROPHENOL	TT-W-572				1.0000
	STEEL STRAPPING (GALV)	B	B	STEEL STRAPPING (GAL	QQ-S-781	/1 OR 4//1//			1.0000
	CU NAPHTHENATE	B	B	CU NAPHTHENATE	COMMERCIAL				1.0000
8794342	SEAL METALLIC (PB WIRE)	P	P	PB WIRE	QQ-L-201				0.5000
7548306	BOX PACKING ASSY	C							0.5000
7548306*2	HANDLE (JUTE ROPE)	P	P	JUTE ROPE	T-R-592	/1 OR 2////			1.0000
8797310	NUT THUMB (STEEL)	P	P	STEEL	COMMERCIAL				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797312	WASHER (STEEL)	P	P	STEEL	ASTM-A425				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797313	WASHER (STEEL)	P	P	STEEL	ASTM-A425				1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
8797332	BOLT CARRIAGE (STEEL)	P	P	STEEL	COMMERCIAL		0.9600LB	0.960000	1.0000
	ZN CHROMATE	B	B	ZN CHROMATE	ASTM-B633	/2//3//			1.0000
	CD CHROMATE (ALT)	B	B	CD CHROMATE	QQ-P-416	/2//3//			1.0000
7548306*3	FILLER END (COMP BOARD)	P	P	COMP BOARD	MIL-B-3106	/1 OR 2////			1.0000
7548306*5	FILLER TOP (COMP BOARD)	P	P	COMP BOARD	MIL-B-3106	/1 OR 2////			1.0000
7548306*4	FILLER SIDE (COMP BOARD)	P	P	COMP BOARD	MIL-B-3106	/1 OR 2////			1.0000
7548306*1	BOX PACKING (WOOD)	P		WOOD	MIL-B-2427	/3/A/1//	31.0000LB	31.000000	1.0000
7548301	CNTR ASSY	C							1.0000
7548301*2	SUPPORT ASSY ()	P	P						1.0000
7548301*2	SUPPORT ASSY () (ALT)	P	P			/A////			1.0000
7548301*2	SUPPORT ASSY () (ALT)	P	P			/B////			1.0000
7548301*3	PAD (PADDING MATERIAL 13607)	P	P	PADDING MATERIAL 136	MIL-P-13607	/1 OR 2////			1.0000
	ADHESIVE DEXTRIN	B	B	ADHESIVE DEXTRIN	MIL-A-13374				1.0000
7548301*4	RING NECK (FIBERBOARD)	P	P	FIBERBOARD	PPP-P-320				1.0000
7548301*5	SPACER (CHIPBOARD)	P	P	CHIPBOARD	UU-C-282	//2///			1.0000
	ADHESIVE	B	B	ADHESIVE	MIL-A-45059				1.0000
8799116	STOP PACKING (STEEL)	P	P	STEEL	OAC-PD-32	/B////			1.0000
	ACID CLEANING	B	B	ACID CLEANING	MIL-C-10578				1.0000
	ENAMEL	B	B	ENAMEL	MIL-E-52891				1.0000
8799117	STOP PACKING (STEEL) (ALT)	P	P	STEEL	OAC-PD-32				1.0000
	ENAMEL	B	B	ENAMEL	MIL-E-52891				1.0000
	ACID CLEANING	B	B	ACID CLEANING	MIL-C-10578				1.0000
7548301*6	STRIP SEALING (PLASTIC-FILM TAPE)	P	P	PLASTIC-FILM TAPE	MIL-T-43036				1.0000
7548301*7	SUPPORT PROJ (ASPHALT ASBESTOS)	P	P	ASPHALT ASBESTOS	MIL-C-13212				1.0000
7548301*8	SUPPORT PROJ (ASPHALT ASBESTOS) (A	P	P	ASPHALT ASBESTOS	MIL-C-13212	/A////			1.0000
7548301*9	SUPPORT PROJ (POLYETHYLENE HD) (AL	P	P	POLYETHYLENE HD	COMMERCIAL	/B////			1.0000
7548301*1	CNTR (FIBER)	P		FIBER	MIL-C-2439		7.0000LB	7.000000	1.0000
	STENCIL INK	B	B	STENCIL INK	TT-I-1795	/1////			1.0000
	STENCIL INK (ALT)	B	B	STENCIL INK	TT-I-1795	/3////			1.0000
8849016-2TNT	PROJ HE-T LOADING ASSY	C			MIL-L-20336		21.3100LB		1.0000
75-18-42A	BODY SHELL (STEEL FORGING)	P	I	STEEL FORGING	MIL-F-13854		18.4500LB	18.450000	1.0000
	ACID PROOF PAINT	B	B	ACID PROOF PAINT	JAN-P-450	/1 OR 2////			1.0000
	ENAMEL	B	B	ENAMEL	MIL-E-10687				1.0000
	LACQUER (ALT)	B	B	LACQUER	MIL-L-11195				1.0000

TABLE C.3 (Cont.)

Page No. 8 — USADACS - MIDAS DETAILED STRUCTURE FOR AN ITEM

09/27/95 — Nomenclature: CTG 90MM HE-T M71A1 W/P — Status: OFFICIAL

NSN: 1315007527574 — DODIC: C280 — Reported Height: 39.0000 LB (39.0000 LB)

DRAWING #	NOMENCLATURE	TYPE	CODE	MATERIAL NOMENCLATURE	SPECIFICATION	TGCS	REPORTED WEIGHT	REPORTED UNIT WEIGHT(LB)	FACTOR
	SILICONE GREASE	B	B	SILICONE GREASE	COMMERCIAL	//DC-6///			1.0000
	STENCIL INK YLW	B	B	STENCIL INK YLW	TT-I-558				1.0000
75-18-42B	ROTATING BAND (CU ALLOY)	P	I	CU ALLOY	MIL-B-20292		0.7300LB	0.730000	1.0000
75-18-42C	COVER BASE (STEEL)	P	I	STEEL	QQ-S-00640	//FS1009///	0.0500LB	0.050000	1.0000
	ADHESIVE PLASTIC	B	B	ADHESIVE PLASTIC	MIL-A-388	/3////			1.0000
	PEP (TNT)	P	X	TNT	JAN-T-248	//1///	315.0000GR	0.045001	1.0000
	TNT (100.00%)	X			JAN-T-248	//1///			
75-14-468	DEEP CAVITY ACCESS	C							1.0000
75-14-468K9	LINER (AL ALLOY)	P	I	AL ALLOY	QQ-A-561		0.0350LB	0.035000	1.0000
75-14-468H5	SPACER (CNTR BOARD)	P	I	CNTR BOARD	MIL-B-20890	/1////	0.0110LB	0.011000	1.0000
	GLUE	B	B	GLUE	MIL-G-20469	//2///			1.0000
75-14-468A	SUPPL CHG ASSY	C							1.0000
75-14-468F8	DISC CLOSING (AL ALLOY)	P	I	AL ALLOY	QQ-A-561		0.0040LB	0.004000	1.0000
75-14-468D11	PAD (WOOL FELT PRESSED)	P	I	WOOL FELT PRESSED	C-F-206	/12R3////	0.0060LB	0.006000	1.0000
75-14-468E3	BODY (AL ALLOY)	P	I	AL ALLOY	QQ-A-561		0.0240LB	0.024000	1.0000
75-14-468G15	TAB (TAPE ADHESIVE)	P	I	TAPE ADHESIVE	JAN-P-12T	/B/2///	0.0010LB	0.001000	1.0000
	PEP (CHG MIX (TNT 98.5%))	P	X	CHG MIX (TNT 98.5%)			0.3000LB	0.300000	1.0000
	TNT (98.50%)	X			MIL-T-248	//1///			
	BA STEARATE (1.50%)	X			JAN-B-366				
									60.9781

TABLE C.4 Assigning a Drawing Number and TGCS to Parts and Components

EXAMPLE #1

a.

Drawing #	Nomenclature	Type	Code	Nomenclature	Specification	TGCS
9288720 (Alt)	Box Packing Assy	C				
9288720 *3	Filler End (Sheet Form)	P	P	Sheet Form	MIL-F-50449	
9288720 *4	Filler Side (Sheet Form)	P	P	Sheet Form	MIL-F-50449	

b.

Drawing #	Nomenclature	Type	Code	Nomenclature	Specification	TGCS
8849016-2TNT	Proj. HE-T Loading Assy	C			MIL-L-20336	
75-18-42A	Body Shell (Steel Forging)	P	I	Steel Forging	MIL-F-13854	
	Acid Proof Paint	B	B	Acid Proof Paint	JAN-P-450	/1 or 2////
	Enamel	B	B	Enamel	MIL-E-10687	
	Lacquer (Alt)	B	B	Lacquer	MIL-L-11195	

EXAMPLE #2

06/08/95 Nomenclature: Fuze PD M557 NSN: 1390001875392 DODIC: N335 Reported Weight: 2.1200 lb (2.1200 lb)

Drawing #	Nomenclature	Type	Material Code	Material Nomenclature	Specification	TGCS
8863535	Fuze PD M557	M			MIL-F-60998	
8863535	Fuze PD M557	C			MIL-F-60998	
8595541	Booster M125A1 Assy	C			MIL-B-46654	
8595509	Cup Booster (Al Alloy)	P	I	Al Alloy	ASTM-B209	//1100///

TABLE C.4 (Cont.)

EXAMPLE #3

Drawing #	Nomenclature	Type	Material Code	Material Nomenclature	Specification	TGCS
8797593	Pin Safety (Steel)	P	I	Steel	ASTM-A108	//**///
	Cd Chromate	B	B	Cd Chromate	QQ-P-416	/2//3//

Structure	View	Mtl./Cmpds.	Bulk Items	Copy	Usage	Return

Part Nomenclature: Pin Safety

Drawing #: 8797593 Rev.: F NSN:

Reported Weight: Unit:

Material Type: I Material Nomenclature: Steel

Specification: ASTM-A108
Type: Grade: ** Class: Style:

Remarks: Grades 1111, 1015, 1020, 1213, B1112 or B1113

Status: Official

TABLE C.4 (Cont.)

EXAMPLE #4

Drawing #	Nomenclature	Type	Code	Nomenclature	Specification	TGCS
701242	Arbor Pin (BRS)	P	I	BRS	ASTM-B134-62	////LUBOIL/
	Lubricating Oil	B	B	Lubricating Oil	MIL-L-11734	

EXAMPLE #5

			Material			
Drawing #	Nomenclature	Type	Code	Nomenclature	Specification	TGCS
10535490	Pellet (Primer Mix FA-1023)	P	X	Primer Mix FA-1023	10535491	
	Pb Styphnate (38.00%)	X			MIL-L-757	
	Tetracene (4.00%)	X			MIL-T-46938	
	Ba Nitrate (39.00%)	X			MIL-B-162	
	Sb Sulfide (12.00%	X			MIL-A-159	
	Al Pwdr (7.00%)	X			MIL-A-512	/3/F/6//

Example #5

- A specific Drawing #, Nomenclature and Weight have been assigned to this part and will not change regardless of where it is used.
- When the compounds for a material are listed in a formulation drawing and not a specification, enter the drawing number in the Specification Block

TABLE C.4 (Cont.)

EXAMPLE #6

Drawing #	Nomenclature	Type	Material Code	Material Nomenclature	Specification	TGCS
	Prop M30 (Prop M30)	P	X	Prop M30	MIL-P-63515	
	NC (28.00%)	X			MIL-N-244	
	Nitroglycerin (22.50%)	X			MIL-N-246	
	Nitroguanidine (47.70%)	X			MIL-N-494	
	Ethyl Centralite (1.50%)	X			MIL-E-255	
	Cryolite (0.30%)	X			Commercial	

Example #6

- The Part and Material Nomenclatures will always be the same.
- No Drawing # has been assigned to the propellant.
- The weight may change when used in different munitions or components.

EXAMPLE #7

Drawing #	Nomenclature	Type	Material Code	Material Nomenclature	Specification	TGCS
	PEP (Black Pwdr CL 7)	P	X	Black Pwdr CL 7	MIL-P-223	///7//
	K Nitrate (74.00%)	X			MIL-P-156	///A//
	S (10.40%)	X			MIL-S-14929	/1/COMM.///
	Charcoal (15.60%)	X			JAN-C-178	//A///

Example #7

- The Part is not assigned a Drawing # and may be used in different munitions or components.
- The Weight may change when used in different munitions or components.
- Since the Part Nomenclature may change with each use of this Material, "PEP" is assigned so this same part may be reused in other munitions and components.

APPENDIX D:

TROUBLESHOOTING PROBLEMS WITH MIDAS

APPENDIX D:

TROUBLESHOOTING PROBLEMS WITH MIDAS

This appendix describes potential problems that might occur while you use MIDAS and recommended procedures for solving them. Specific problems should be reported to USADACS.

D.1 TROUBLESHOOTING PROBLEMS WITH CONNECTING

- If you do not have "ModemInterrupt" and "ModemPortAddress" set correctly, you will see the message "Modem did not respond to commands." This message will also occur if the modem is broken or not turned on or if any connections are loose.

- If you see the message "Modem reports no dial tone," check to be sure that the modem is connected to a phone line and that the phone line is "live."

- Is the volume on your modem up high enough so you can hear what happens during the connection process? Setting the volume high will help you make sure you have your dialing prefix set correctly by letting you hear dialing sounds, busy signals, and so on.

- If you see the message "Modem reports busy signal," perhaps you are using the wrong dialing prefix, or maybe all the lines at USADACS are busy.

- If you see the message "Modem reports no carrier," the connection failed, and the software was unable to determine the exact reason. Make sure you selected the right brand and model of modem. Also, try dialing again; sometimes connections fail because of excessive noise on the line or other transient problems. If you repeatedly get this error message, contact USADACS for assistance.

D.2 RECOVERING DAMAGED DATABASES

Because your Central and Local Libraries are stored on your hard drive, if certain things happen to your PC, you can lose some or all of your data. For example, if your hard drive fails, you may lose all the programs and data on it. To minimize any loss of data, it is recommended that you back up your Local Library frequently (daily if you enter data every day).

The most common problem is probably caused when your PC loses electric power while MIDAS is updating one of the libraries. In this case, the data you are entering are lost. In addition, a database index may be damaged. The best way to avoid this problem is to use an uninterruptable power supply (UPS) on your PC. If this problem does happen, you may get a dBase error message about a damaged index, or you may just be missing data. A separate program named FIXDB has been provided that can repair your Library. To run FIXDB, type the following commands (pressing <Enter> after each command):

```
CD\MIDAS
FIXDB
CD\
```

The FIXDB program deletes all the Local Library indices, then repairs each database. This program may take a number of minutes to run, depending on the amount of data you have entered. The next time you run MIDAS, the indices will be recreated automatically. When you restart MIDAS, you may get a "missing index" type prompt, followed by a prompt to select "Cancel" or "Proceed." Use the <Tab> key to highlight "Proceed," then press <Enter>. MIDAS will then recreate all indices. You should check the items you were entering, verify what is missing, and re-enter any missing data.

D.3 IMPORT FUNCTION READING A BAD DISKETTE

Figure D.1 displays an example of the IMPORT function attempting to read MIDAS data from a bad diskette. In this case, press <Enter> to exit MIDAS. Remove the diskette. The diskette is either unformatted or damaged, and data cannot be read from it.

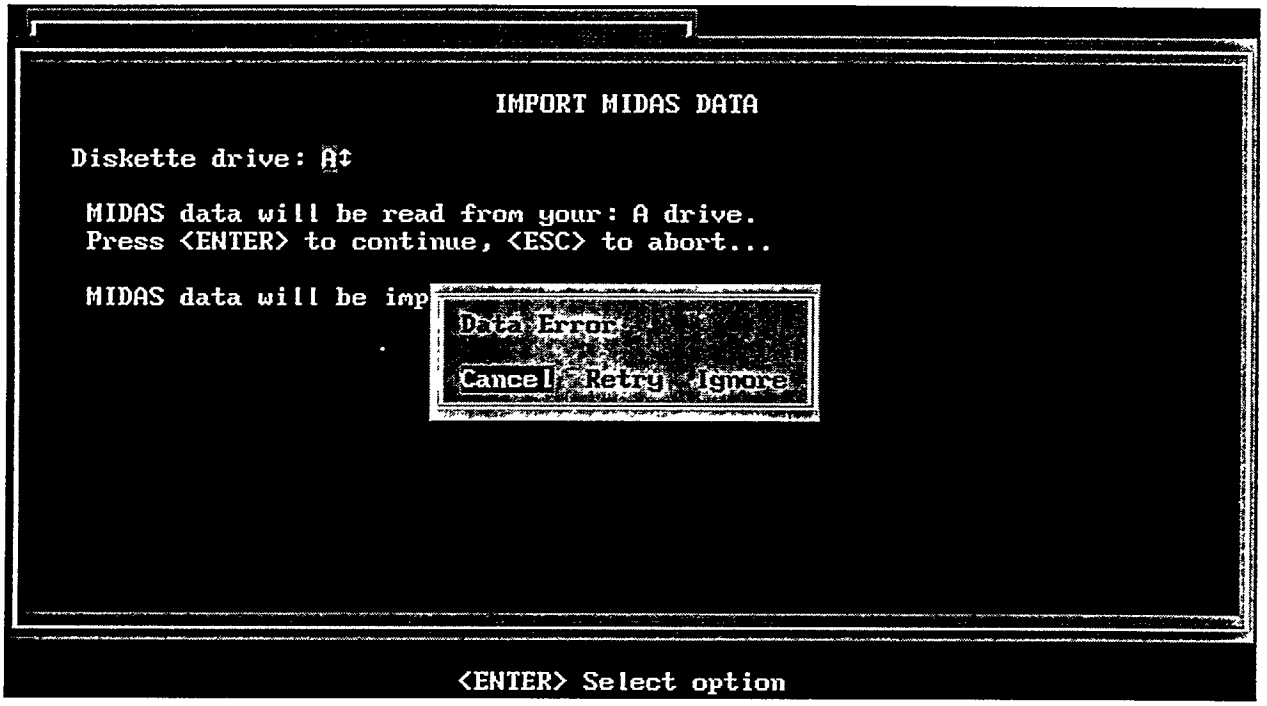

FIGURE D.1 Import Reading a Bad Diskette