

M41 Fit™
Fit Test Software

User's Manual

P/N 1980238, Revision B
May 2004



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Fit Test Software***

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*P/N 1980238
Revision B
May 2004*

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About this Manual

Introduction

This manual describes how to install, set up, and use M41 Fit Test Software (also referred to as M41 Fit software). M41 Fit™ is intended for use with the M41 PATS Mask Fit Tester. Instructions for setting up the M41 with M41 Fit software appear in Chapter 3, “Getting Started.”

Organization

This manual is organized as follows:

Chapter	Description
1 Introducing M41 Fit Test Software	Introduces M41 Fit Test Software and describes its functions and features.
2 Getting Started	Provides instructions for installing the M41 Fit software and setting up the M41.
3 Conducting a Fit Test-Basic Procedures	Provides the basic procedures for conducting a fit test.
4 Using the M41 Fit Menu Options	Provides a detailed description of each of the M41 Fit menu options.

Conventions

The following conventions are used throughout this manual:

Convention	Description
Boldface	Menu options and dialog box fields are shown in boldface type.
Enter ↵	Key names, such as Enter ↵, are shown in keyboard type.
Underline	Menu items can be selected with the mouse or by pressing the Alt key and the shortcut key for the menu or option. The shortcut key is underlined on the screen display and in this manual. For example, to select the <u>F</u>ile menu, you can press Alt F .

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Please visit the TSI web site for the M41 PATS at:

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From this site you can:

- Download application notes for the M41.
- Download instruction manuals.
- Download product brochures.
- View a complete spare parts price list.
- Use our "links" page of NBC and mask-related web sites:
<http://www.tsi.com/defense/links/links.htm>.

Chapter 1

Introducing M41 Fit Test Software

M41 Fit Test Software runs under Windows 3.x, Windows 95, Windows 98, or Windows NT®. The software is designed for use with the M41, and expands the features available with the DOS-based version of M41 Fit™ software. This chapter introduces the M41 Fit features, and briefly describes the tasks you can perform with the software.

M41 Fit Features

In addition to the Windows interface, features provided by M41 Fit include:

- Selection of the person to be fit tested from a database using a mouse. You no longer have to rekey the same names again and again.
- Separate databases for people, respirators, exercise protocols, and fit test results. You also can merge databases, and can add fit-test data manually.
- Expanded report capabilities, including a tickler feature indicating who is due for a fit test. There is also a single page report for each test subject, user-designed reports, and other reports.
- Automated daily diagnostic checks.
- A real-time fit factor display for use in respirator training.
- A database locking capability to prevent tampering.
- Support for the Model 8095 N95-Companion™ accessory.

Using M41 Fit with TSI Commercial Fit Testers

As a convenience to military users who also use the TSI commercial fit testers, M41 Fit will also work with these devices. When the proper “Respirator” and “Protocol” selections are made, you can perform fit tests on commercial respirators using either the M41 PATS or the TSI Model 8020 PORTACOUNT® Plus.

The M41 PATS *cannot* be used with the TSI Model 8095 N95-Companion™ since the M41 hardware is not compatible with the N95.

M41 Fit, however, can be used with the N95 and an “N95 Ready” Model 8020 PORTACOUNT Plus.

Although M41 Fit and this manual are mostly concerned with the M41 PATS and military masks, the manual and HELP files contain references to using the N95.

M41 Fit Tasks

M41 Fit software allows you to perform the following tasks. Each task is described briefly. Instructions for performing these tasks appear in Chapter 3, “Conducting a Fit Test,” and Chapter 4, “Using the M41 Fit Menu Options.” The tasks are:

- **Conducting a fit test**
M41 Fit software opens in daily check mode, followed automatically by the first step of the fit test. Fit testing comprises five basic steps: selecting a test subject; selecting a respirator; selecting an exercise protocol; entering mask size and operator information; and running the fit test. An optional sixth step lets you view the fit test results before beginning the next test. These steps are discussed in detail in Chapter 3.
- **Performing daily diagnostic checks**
You can run diagnostic checks on the M41, including the particle check, zero check, maximum fit factor check, and valve check. You either can print or save the results of these checks for permanent record keeping.
- **Conducting respirator training**
The real-time fit factor display assists you in employee respirator training. This feature allows trainees to see the real-time effects of mask positioning and strap tightness while learning proper donning techniques.
- **Viewing, modifying, and printing reports**
M41 Fit software generates reports for fit test subjects, respirators, protocols, fit tests, next due dates, daily check results, and user-defined reports. You have the option of viewing the reports or printing the reports. You also can customize the reports to include specific fields only, or to sort the data in a specific order and specific ranges.
- **Setting up communications ports**
You can select any of four communications ports on your PC for the M41 Fit/M41 communications, depending on your hardware configuration.
- **Modifying setup options**
You can customize the setup for saving fit test data, printing fit test data, and alerting you to failed exercises and failed overall fit factors.
- **Opening and setting up databases**
There are four default databases: People, Respirator, Protocol, and Fit Test. You can open each of these databases to add, delete, duplicate, or search for information. You can also create new databases.
- **Copying, merging, and exporting databases**
These features allow you to move data from one database to another, to merge two databases, or to export the database to a tab-delimited ASCII file.

M41 Fit software also contains an online help facility.

Chapter 2

Getting Started

This chapter describes how to install M41 Fit software. It also describes how to connect the M41 to your computer.

Installing M41 Fit Software

To install M41 Fit, you must have the following minimum hardware and software configurations:

Hardware Requirements

- M41 Mask Fit Tester
- 386 or higher microprocessor
- 5 MB free hard-disk space for program files
- Windows-compatible printer
- Serial port
- Pointing device

Software Requirements

- Microsoft Windows 3.x, Windows 95, Windows 98, or Windows NT
- M41 Fit disk

Installation Procedures

The procedures for installing M41 Fit are different for Windows 3.x or Windows 95/98/NT. Both procedures are included here.

Installing M41 Fit with Windows 3.x

1. Insert the M41 Fit disk into drive A:.
2. In the Program Manager, click the **F**ile Menu and choose **R**un.
3. Type A:SETUP in the Command Line box.
4. Click **O**K.

The setup procedure creates the TSI Products group if it is not already present on your PC. The M41 Fit icon appears in this group.

Installing M41 Fit with Windows 95/98/NT

1. Insert the disk into drive A:.
2. Choose **Run** from the **Start** menu.
3. Type A:SETUP in the **Open** bar.
4. Click **OK**.
5. Follow the installation instructions on the screen.

The setup procedure creates the TSI Products group if it is not already present on your PC. When you select **Programs** from your **Start** menu, **TSI Products** appears on the list. Highlight **TSI products** and then select **M41 Fit**.

Connecting the M41

The M41 connects to the serial port on your computer. M41 Fit is shipped with an RS-232 interface cable with an 8-pin RJ 45 modular connector on one end and a 9-pin female connector marked "COMPUTER" on the other end.

Follow the instructions below to connect your M41 to your computer:

Note: IBM-PC compatible serial ports always have pins (male) on the computer side. Ports with holes (female) are not serial ports.

Using the 9-pin Cable with the 9-pin Computer Port

1. Plug the 9-pin RS-232 cable into the 9-pin connector on the back of your computer.
2. Tighten the keeper screws to prevent the cable from accidentally disconnecting.
3. Plug the other end of the cable into the Data Port located on the back of the M41.

Setting Up the M41

Before you begin fit testing, you also need to set up the M41. The *M41 Operation and Service Manual* contains the instructions you need if you are not already familiar with setting up the instrument.

If you are using the Model 8095 N95-Companion with the PORTACOUNT Plus to fit test filtering-facepiece (disposable) respirators, you also need the *Model 8095 N95-Companion Operation and Service Manual*.

Chapter 3

Conducting a Fit Test—Basic Procedures

This chapter provides the basic procedures you follow to conduct a fit test using M41 Fit software. These procedures begin by default when you open the software. The chapter discusses what you must do before you begin fit testing, and presents the dialog boxes you must fill in to complete a fit test. The dialog boxes are easy to fill in by following the information on the screen. However, if you need additional information, each dialog box is discussed in detail in Chapter 4, “Using the M41 Fit Menu Options.”

If this is the first time you have used M41 Fit, you must also set the COM (communications) port and set up the fit test options for automatically saving fit test results, automatically printing fit test results, and automatically terminating fit tests. You must do this *before* you begin fit testing. Basic instructions for completing these tasks appear in the next section.

M41 Fit always starts in daily check mode. TSI Incorporated strongly recommends that you run daily checks of the M41 before you run the first fit test.

Each fit test includes five steps:

1. Selecting a person to be fit tested from the **People** database.
2. Selecting a respirator from the **Respirator** database.
3. Selecting an exercise protocol from the **Protocol** database.
4. Entering mask size and operator identification information.
5. Running the fit test.

If this is the first time you have used M41 Fit, your **People** and **Respirator** databases will be empty. The instructions in this chapter and the information in Chapter 4 explain how to add records to the databases. M41 Fit provides a **Protocol** database which includes the most commonly used exercise protocols. If your protocol is not in this database, M41 Fit also lets you add it.

Before you Begin the Fit Test

Before you start the software, you must make sure the M41 is connected to the computer, is on, and is operating properly. Also, if you plan to use the N95-Companion with the M41, to fit test filtering-facepiece (disposable) respirators, you should connect the N95-Companion now. Refer to the *Model 8095 N95-Companion Operation and Service Manual* for specific information.

- Check the cable connections to the M41.
- If the M41 is not already running, press the ON/OFF key on the front panel to begin the 60-second warm-up cycle.

Then, start the software:

- Double-click the M41 Fit icon from your TSI Products group (Windows 3.x), or select **TSI Products/M41 Fit** from the list that appears when you select **Programs** from your **Start** menu. A dialog box asking if you want to do the daily checks appears on your screen (Figure 3-2). Click **Yes**. The **Daily Checks** dialog box appears (Figure 3-3). Run the daily checks at least once a day. When the checks are complete, click the **OK** button. The first fit test dialog box appears on your screen (Figure 3-4).

Note: If you did not start the M41 before starting the software, or if the M41 has not completed the warm-up period, you will receive this message: **M41 is not responding**, including suggestions to check the M41 and communications cable connections. Start the M41 and wait for the countdown. Click **OK** to continue. You may also select **Cancel** to skip the daily checks.

You are now ready to begin fit testing.

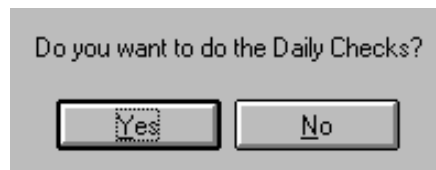


Figure 3-2. Daily Checks Inquiry Dialog Box

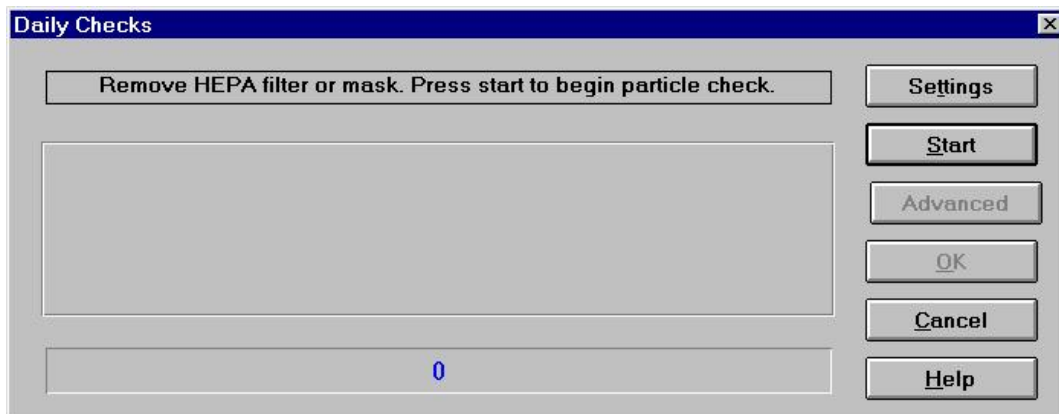


Figure 3-3. Daily Checks Dialog Box

Step 1 - Select a Person

When the **People Database** (Step 1) dialog box appears, it shows the record of the first person in the **People** database. The records are arranged in alphabetical order.

Note: If this is the first time you have used M41 Fit, your People database will be blank. The following instructions indicate which buttons you must click to add records to the database. However, you must refer to Chapter 4, "Using the M41 Fit Menu Options," for detailed descriptions of the fields in the database dialog boxes.

The screenshot shows a dialog box titled "Select a Person - Step 1 of 5 [C:\M41FIT\PEOPLE\PEOPLE.DBF]". It is divided into two main sections: "People Information" and "Sorted List".

People Information:

- ID Number: 123-45-6789
- Last Name: SMITH
- First Name: A1C JOHN
- Company: 62 CES/CEX
- Location: MCCHORD AFB
- Note: WEARS INSERTS

Sorted List:

- Sorted List dropdown: SMITH
- Custom1: [Empty]
- Custom2: [Empty]
- Custom3: [Empty]
- Custom4: [Empty]

Buttons:

- New
- Delete
- Duplicate
- Search
- < Back
- Next >
- Cancel
- Help

Figure 3-4. People Database (Step 1)

If the person shown is the one you want to fit test, click the **Next** button. Otherwise:

1. Click the **Sorted List** field arrow to display all the names in the **People** database, or use the **Search** button to find the name you need.

*Note: If the person you want to fit test is not in the database, or if the record is blank, click the **New** button and create a new record.*

2. Click the selected person's name to display the correct record.
3. Click the **Next** button to proceed to step 2.

Step 2 - Select a Respirator

When the **Respirator Database** (Step 2) dialog box appears, it shows the name of the first respirator in the **Respirator** database. The records are in alphabetical order (Figure 3-5).

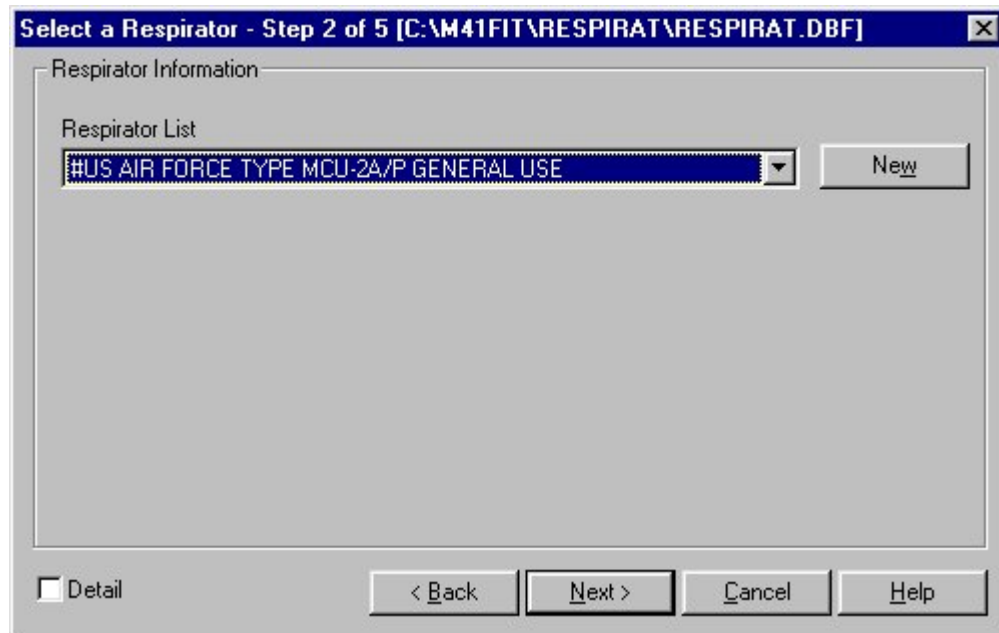


Figure 3-5. Respirator Database (Step 2)

If the record for the respirator you want to use is displayed, click the **Next** button. Otherwise:

1. Click the **Respirator List** field arrow to display all the respirators in the database. Use the scroll bar to find the respirator you need.

*Note: If the name of the respirator you want to use is not in the database, or if the record is blank, click the **New** button and create a new record.*

2. Click the selected respirator name to display it in the records field. If you want to see details for the selected respirator, click the **Detail** box to display the Respirator details dialog box (Figure 3-6).
3. Click the **Next** button to proceed to step 3.

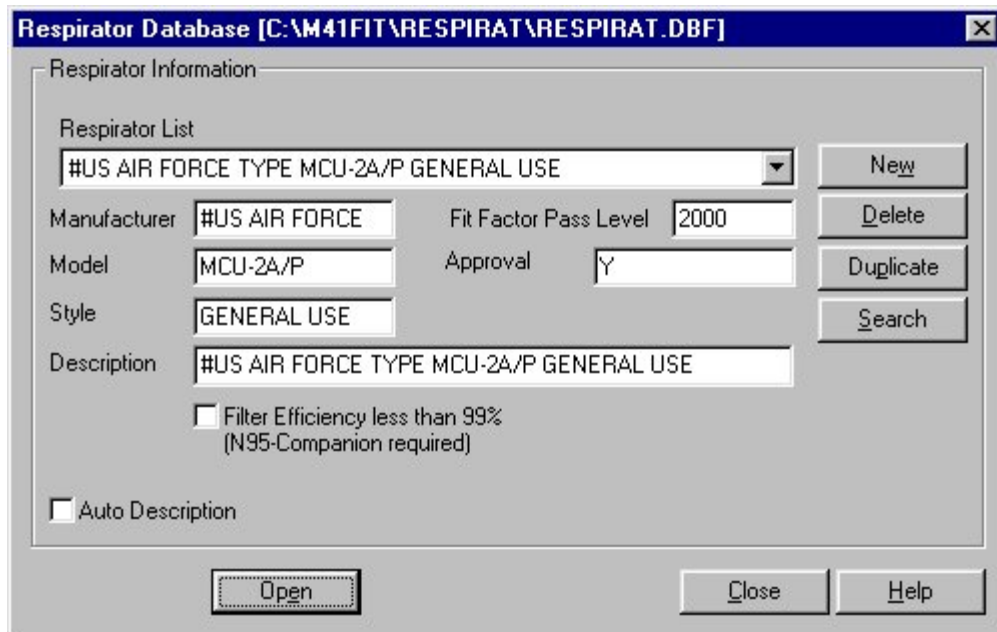


Figure 3-6. Respirator Details Dialog Box

Note: The following warning appears if the N95-Companion is connected to the PORTACOUNT Plus but **should not** be used to fit test the selected mask.

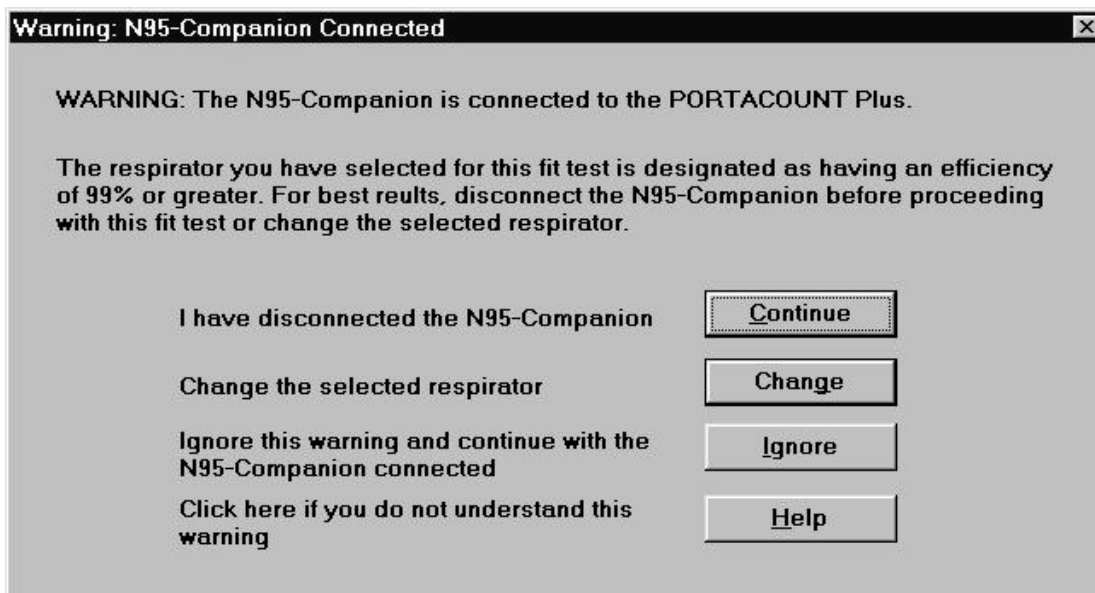


Figure 3-7. N95-Companion Connected Warning

Respirators equipped with particulate filters having 99% or greater efficiency should be fit tested **without** using the optional Model 8095 N95-Companion. This allows you to measure high fit factors more precisely. If you choose to ignore the warning and use the N95-Companion, the highest fit factor you can measure is 200.

Note: The following warning appears if the N95-Companion is **not** connected to the PORTACOUNT Plus but **should** be used to fit test the selected mask.

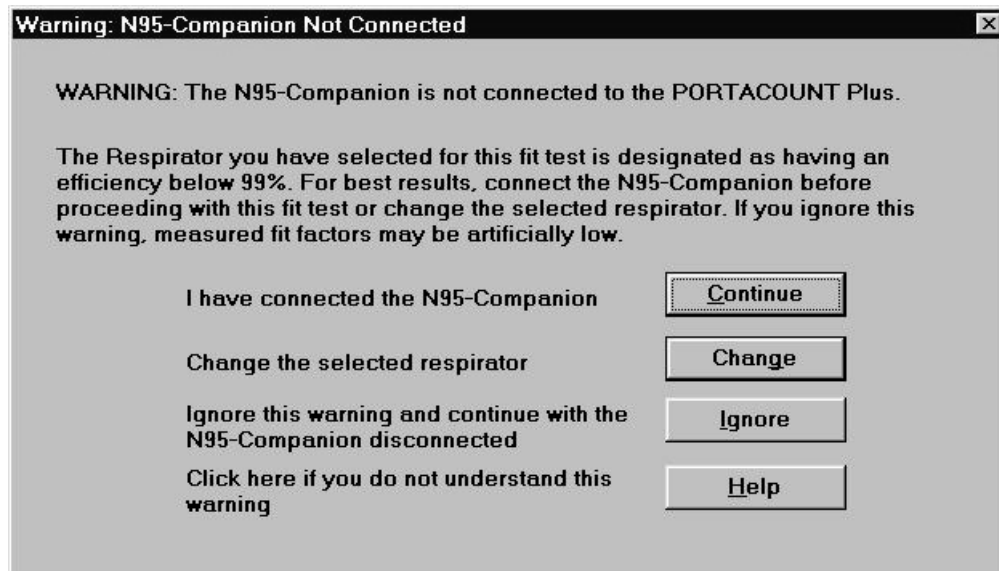


Figure 3-8. N95-Companion Not Connected Warning

Most respirators equipped with particulate filters having less than 99% efficiency should be fit tested using the optional Model 8095 N95-Companion with the PORTACOUNT Plus. If you choose to ignore the warning, artificially low fit factors will occur. This can cause a respirator with a good fit to fail the test.

Step 3 - Select a Protocol

When the **Protocol Database** (Step 3) dialog box appears, it shows the exercise protocol that was last used (Figure 3-9).

Note: If this is the first time you have used M41 Fit software, the dialog box displays the most commonly used 6-exercise protocol named "Default." The protocols are listed in alphabetical order.

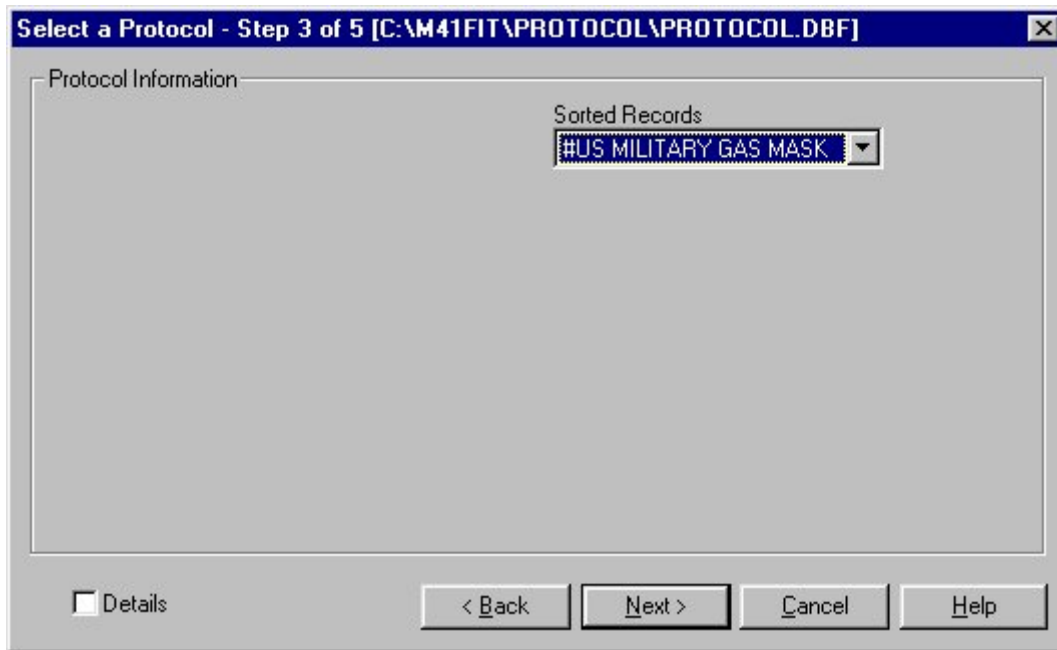


Figure 3-9. Protocol Database (Step 3)

If you want to use this protocol, click the **Next** button. Otherwise:

1. Click the **Sorted Records** field arrow to display all the exercise protocols in the database. Use the scroll bar to find the protocol you need.

*Note: If the name of the protocol you want to use is not in the database, or if the record is blank, click the **New** button and create a new record.*

2. Click the selected protocol name to display it in the **Sorted Records** field. If you want to see details for this protocol, click the **Details** box to display the Protocol details dialog box (Figure 3-10).
3. Click the **Next** button to proceed to step 4.

Note: M41 Fit remembers the protocol you last used and defaults to that protocol for the next fit test. If you always use the same protocol, this saves you from searching for it over and over again.

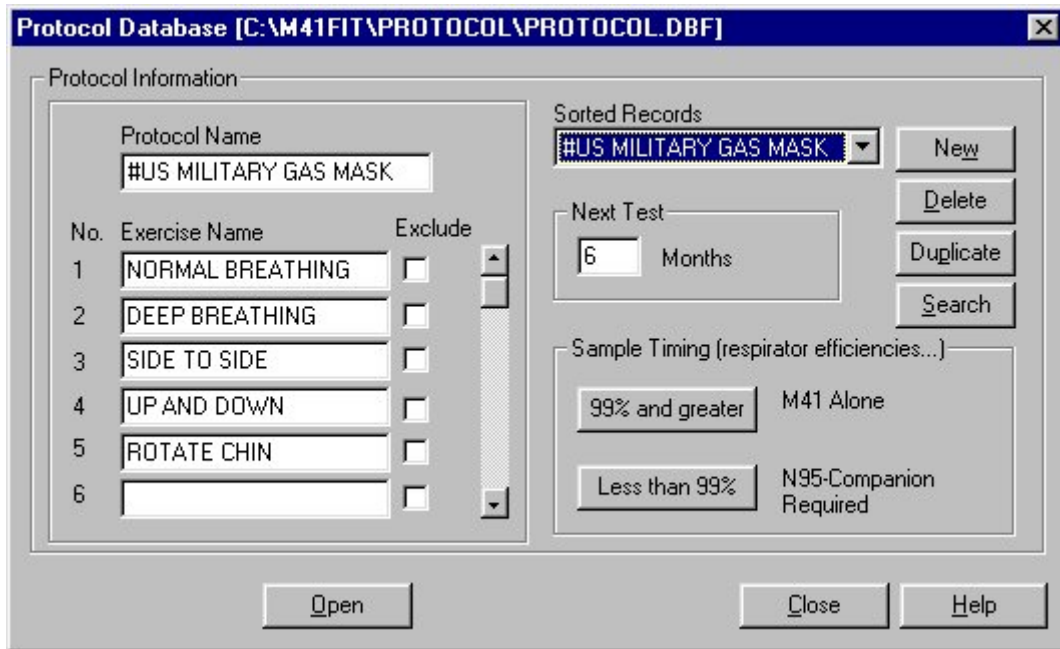


Figure 3-10. Protocol Details Dialog Box

Click the **View** button in the Sample Timing area of the **Protocol Details** dialog box to display the Sample Timing Details dialog box appears (Figure 3-11). The exercise protocol timing details shown on the screen differ depending on whether or not the N95-Companion is connected to the PORTACOUNT Plus. When you use the M41 alone, or if you enter data manually, M41 timing details appear. When you use the N95-Companion with the PORTACOUNT Plus, N95-Companion timing details appear.

Exercises	Mask Sample Time	Total Exercise Time
NORMAL BREATHING	20	40
DEEP BREATHING	20	40
SIDE TO SIDE	20	40
UP AND DOWN	20	40
ROTATE CHIN	20	40

Mask Purge Time: 11

Ambient Sample Time: 5

Ambient Purge Time: 4

Total Test Time: 03:20 mm:ss

Note: Total Exercise Time = Mask Sample + Mask Purge + Ambient Sample + Ambient Purge

Figure 3-11. Sample Timing Details Dialog Box

Step 4 - Information

When the **Information** (step 4) dialog box appears, the mask size and operator fields are blank. (Figure 3-12.) You must fill in these fields before the M41 Fit software will let you continue.

Mask Size: L

Operator: SMITY

Pass Level: 2000

Test Date: 06/18/1999 mm/dd/yyyy

Test Time: 13:39 hh:mm

Due Date: 12/18/1999 mm/dd/yyyy

Data Input: M41, Manual

< Back, Next >, Cancel, Help

Figure 3-12. Information (Step 4) Dialog Box

1. Fill in the **Mask Size** field. For example: SMALL, MEDIUM, or LARGE. This is a required field.
2. Fill in your name in the **Operator** field. This is a required field.
3. Override the **Pass Level** and **Due Date** by typing in new information, if necessary.
4. Click the **Next** button to proceed to Step 5.

*Note: The default setting for data input is M41. If you want to input data manually, click **Manual**. When you click the **Next** button, the **Manual Entry - Step 5 of 5** (Figure 3-14) screen appears. You can use this screen to fill in information from a fit test conducted without the computer.*

Step 5 - Conducting the Fit Test

The **Fit Test** (Step 5) dialog box (Figure 3-13) is not active until you begin the fit test by clicking the **Start** button. Before you click the **Start** button, *make sure the M41 sample tube is connected to the respirator and the test subject is ready to begin the exercise protocol immediately*. Refer to the *M41 Operation and Service Manual* if you need additional information. If you are also using the N95-Companion, refer to the *Model 8095 N95-Companion Operation and Service Manual*.

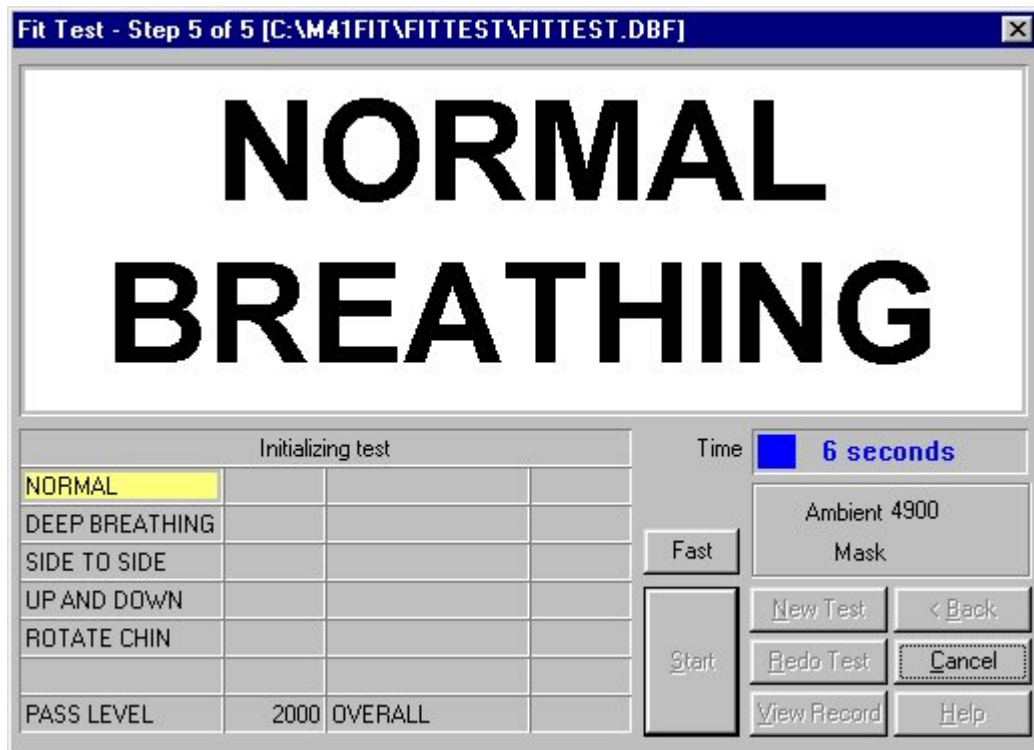


Figure 3-13. Fit Test (Step 5) Dialog Box

1. Click the **Start** button. The fit test begins immediately and the first exercise description appears in large type. The elapsed exercise time appears in the **Time** box. As each exercise is completed, the results appear in the grid at the lower left of the screen. The **Ambient** and **Mask** fields show the ambient and mask particle concentrations as they are measured.

2. M41 Fit prompts you when it begins a new exercise. The exercises proceed one after another without pause.
3. When the fit test is complete, the main portion of the dialog box displays either a pass or fail status. The grid at the lower left of the screen displays the results of each exercise and the overall fit factor. You can now begin a new fit test on another person by clicking the **New test** button, redo the test on the same person/respirator by clicking the **Redo test** button, cancel fit testing by clicking the **Cancel** button, or view the detailed fit test record by clicking the **View record** button.

Alternate Step 5 - Manual Entry

If you clicked the **Manual** button in Step 4, you will be allowed to edit the test date and time if necessary. If you then click **Next**, the **Manual Entry** (alternate Step 5) screen appears (Figure 3-14). You use this screen to enter the results of a fit test conducted without a computer. Fill in the results in the **Fit Factor** column of the screen. After you complete the manual entry of data, you can begin a new fit test on another person by clicking the **New test** button, or go on to view the detailed fit test record by clicking the **View record** button.

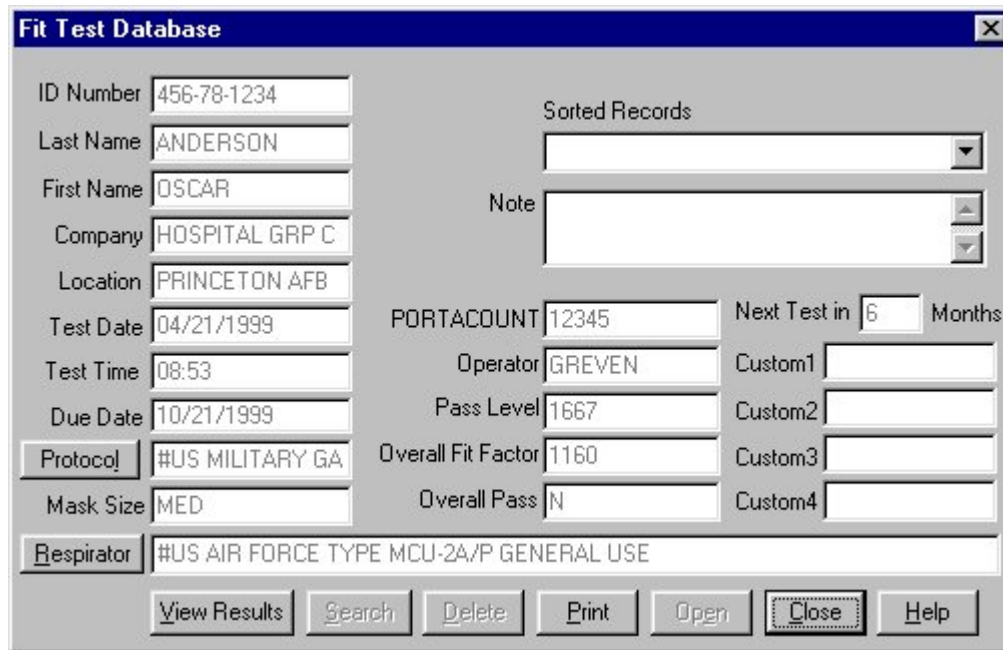
Exercise Name	Fit Factor
NORMAL BREATHING	
DEEP BREATHING	
SIDE TO SIDE	
UP AND DOWN	
ROTATE CHIN	

New Test
View Record
Cancel
Help

Figure 3-14. Manual Entry (Alternate Step 5)

View Record (optional)

Clicking **View Record** at the completion of a fit test allows you to look at the detailed information from the fit test you just finished (Figure 3-15). You cannot edit the information from this dialog box, but you may view all information and optionally print a single page fit test report. When you are done, click **OK** to begin fit testing another person.



The screenshot shows a window titled "Fit Test Database" with a close button (X) in the top right corner. The window contains several input fields and buttons. On the left side, there are fields for ID Number (456-78-1234), Last Name (ANDERSON), First Name (OSCAR), Company (HOSPITAL GRP C), Location (PRINCETON AFB), Test Date (04/21/1999), Test Time (08:53), Due Date (10/21/1999), Protocol (#US MILITARY GA), Mask Size (MED), and Respirator (#US AIR FORCE TYPE MCU-2A/P GENERAL USE). On the right side, there is a "Sorted Records" dropdown menu, a "Note" field with up and down arrows, and a "Next Test in" field set to 6 Months. Below these are fields for PORTACOUNT (12345), Operator (GREVEN), Pass Level (1667), Overall Fit Factor (1160), and Overall Pass (N). At the bottom right, there are four "Custom" fields (Custom1, Custom2, Custom3, Custom4). At the bottom of the window, there is a row of buttons: View Results, Search, Delete, Print, Open, Close (highlighted with a dashed border), and Help.

Figure 3-15. Fit Test Record

Summary

This chapter presented the basic fit testing procedures provided by the M41 Fit software. For detailed information on all the options available in M41 Fit, refer to Chapter 4.

Chapter 4

Using the M41 Fit Menu Options

This chapter discusses how to use the M41 Fit menu options to perform all the tasks available in the M41 Fit software. It is organized in the same order as the M41 Fit main menu bar, shown in Figure 4-1. You can perform M41 Fit tasks independently of the default basic procedures discussed in Chapter 3 by selecting them from the menu.

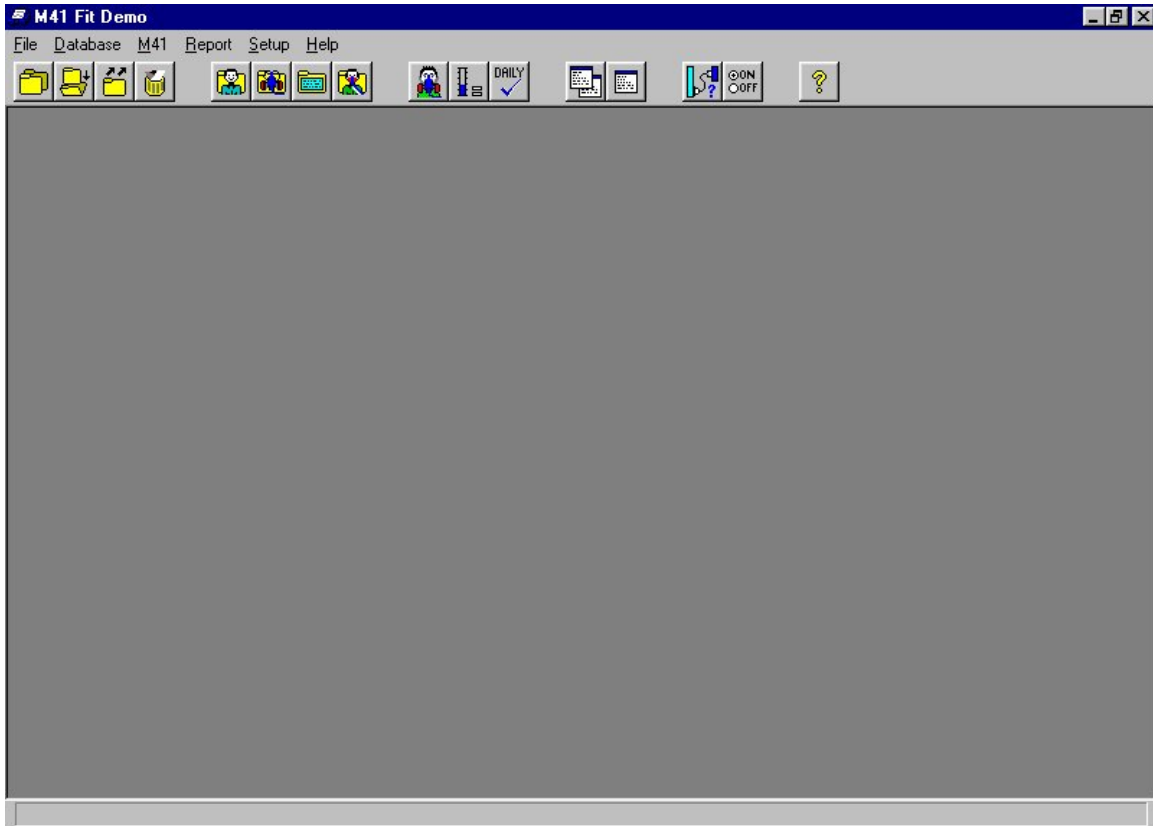


Figure 4-1. Main Menu

The following table lists all of the menu selections.

Menu	Description
<u>F</u>ile	The <u>F</u>ile menu contains three options: <ul style="list-style-type: none"> • <u>C</u>opy Database • <u>M</u>erge Databases • <u>E</u>xport Database • <u>D</u>elete Database • <u>E</u>xit
<u>D</u>atabase	The <u>D</u>atabase menu contains two options: <ul style="list-style-type: none"> • <u>O</u>pen • <u>S</u>etup/Create Default Filenames
<u>M</u>41	The <u>M</u>41 menu contains three options: <ul style="list-style-type: none"> • <u>F</u>it Test • <u>R</u>ealtime • <u>D</u>aily Checks
<u>R</u>eport	The <u>R</u>eport menu contains two options: <ul style="list-style-type: none"> • <u>S</u>elect Report • Single <u>F</u>it Test
<u>S</u>etup	The <u>S</u>etup menu contains two options: <ul style="list-style-type: none"> • <u>C</u>ommunications Port • M41 Daily Checks • N95-Companion Daily Checks • Fit test <u>O</u>ptions
<u>H</u>elp	The <u>H</u>elp menu contains four options: <ul style="list-style-type: none"> • <u>C</u>ontents • M41 Fit <u>F</u>eatures • M41 Fit <u>T</u>asks • <u>A</u>bout M41 Fit

You can select any of the options using the mouse or the keyboard.

- To select an item using the mouse, move the cursor to the menu and click the left mouse button. Then click the menu option you want to select.
- To select an item using the keyboard, press the **[Alt]** key and the underlined letter of the menu you want to select. For example, to select the **Database** menu, press and hold **[Alt]**, and then press **[D]**. Then, to select the menu option, press the underlined letter for the option you want.

In addition to the menu bar, M41 Fit includes toolbar buttons. These buttons, located directly below the menu bar, offer easy access to the most common menu options.

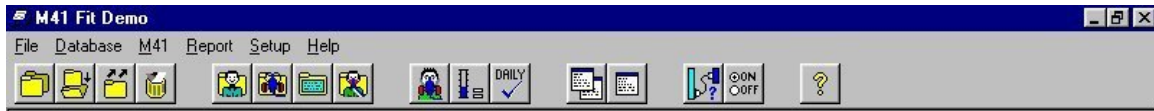


















Figure 4-2. Toolbar Buttons

Toolbar button descriptions in order from left to right are:

	Copy a database file to another location and optionally rename the file		Start a fit test
	Merge one database into another and optionally rename the file		Start the Real-time fit factor display
	Export a database to a tab-delimited ASCII file		Start daily checks
	Delete a database		Select a report format from a list
	View or edit the People database		View or print a single-page fit test report
	View or edit the Respirator database		Select or test a communications port
	View or edit the Protocol database		Set fit test options
	View or edit the Fit Test database		Online help

Using the File Menu

The **F**ile menu allows you to copy, merge, or export databases, or to exit the program. M41 Fit provides a distinct directory structure for the four types of database files: People, Respirator, Protocol, and Fit Test. Each file type has a specific directory. When you open any of the **Select Source/Destination Database File** dialog boxes, explained below, M41 Fit automatically displays the directory structure in the right-hand side of the dialog box.

Copying a Database

To copy a whole database from one location to another, open the **F**ile menu and click **C**opy Database. The **Copy Database** dialog box appears (Figure 4-3).

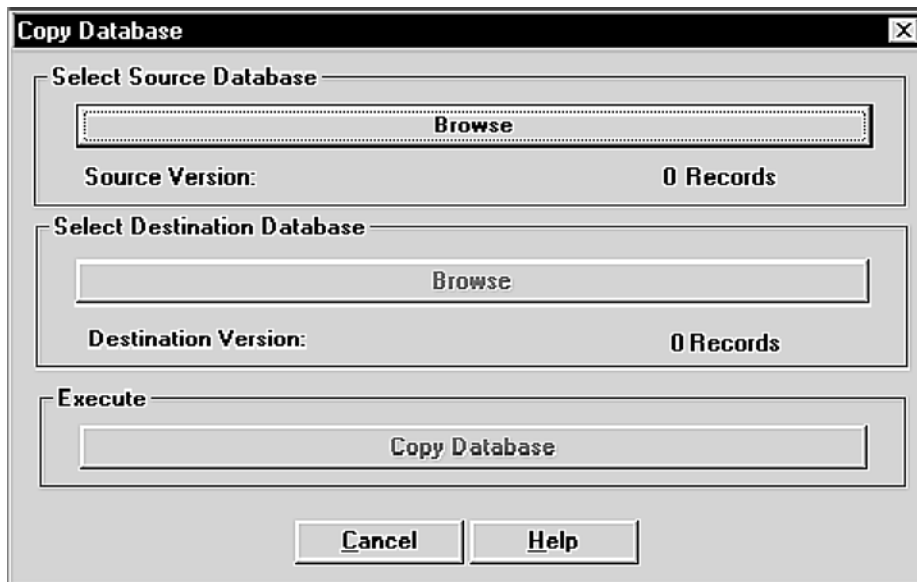


Figure 4-3. Copy Database Dialog Box

1. Click the **B**rowse button under **S**elect Source Database. The **S**elect source database file dialog box appears (Figure 4-4).
2. In the **F**olders list on the right-hand side of the dialog box, double-click the folder for the type of database you want to copy. The names of the files in the selected folder appear in the **F**ile name list on the left-hand side of the dialog box.
3. Using your mouse, select the name of the database you want to copy. (If the database name does not appear in the list, search for the desired database in other folders. If you are not familiar with basic Windows browse techniques, please refer to your Windows documentation.) The name of the file to be copied must appear in the **F**ile name bar at the top left of the screen. Click the **O**K button. The **C**opy Database dialog box reappears with the name of the source database filled in.
4. Click the **B**rowse button under **S**elect Destination Database. The **S**elect destination database file dialog box appears. This dialog box looks exactly like the **S**elect source database file dialog box, and functions in the same way.

5. The name of the *source* database file appears in the destination database **File name** bar by default. To change the name, type the new name in the bar. (The default destination drive is **A:**. If you want to change the drive, select a new drive from the **Drives** bar at the bottom of the screen.)

If you want to copy and rename the file, enter the name of the new file in the **File name** bar. The Copy procedure will copy and rename the file. Click the **OK** button. The **Copy Database** dialog box reappears, with the names of the source and destination databases filled in.

6. Click the **Copy Database** button under **Execute**. The file is copied from the source to the destination.



Figure 4-4. Select source database file Dialog Box

If you need to cancel the **Copy Database** procedure at any time, click the **Cancel** button that appears on all of the dialog boxes. You immediately return to the main M41 Fit window.

If you are on a network, click the **Network** button on the **Select Source/Select Destination Database** file dialog boxes to access other drives on the network.

Merging Databases

To merge data from one database file into another, open the **File** menu and click **Merge Databases**. The **Merge Databases** dialog box appears (Figure 4-5). This procedure adds data from the source database to the destination database. It does not alter the source database file.

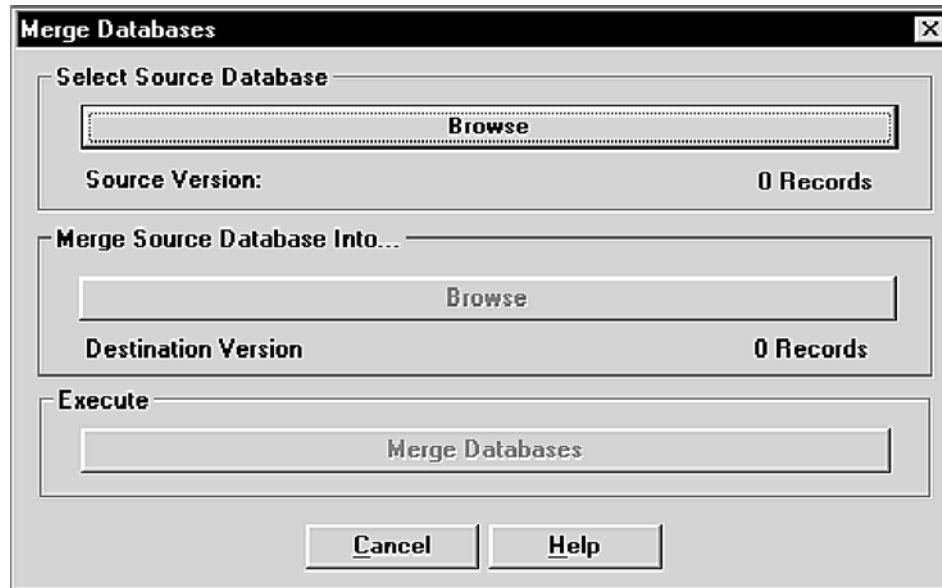


Figure 4-5. Merge Databases Dialog Box

1. Click the **Browse** button under **Select Source Database**. The **Select source database file** dialog box appears (Figure 4-4).
2. In the **Folders** list on the right-hand side of the dialog box, double-click the folder for the type of database you want to merge. The names of the files in the selected folder appear in the **File name** list on the left-hand side of the dialog box.
3. Using your mouse, select the name of the source database you want to merge data *from*. (If the database name does not appear in the list, search for the desired database in other folders. If you are not familiar with basic Windows search techniques, please refer to your Windows documentation.) The name must appear in the **File name** bar at the top left of the screen. Click the **OK** button. The **Merge Databases** dialog box reappears with the name of the source database filled in.
4. Click the **Browse** button under **Merge Source Database Into...**. The **Select destination database file** dialog box appears. This dialog box looks exactly like the **Select source database** dialog box, and functions in the same way.
5. Select the name of the database you want to merge data *into*. Search for the database if it does not appear in the list. The file must already exist or you cannot execute the merge function. Click the **OK** button. The **Merge Databases** dialog box reappears, with the names of the source and destination databases filled in.
6. Click the **Merge Databases** button under **Execute**. The data is copied from the source database and added to the destination database. The source database is not altered.

If you need to cancel the **Merge Databases** procedure at any time, click the **Cancel** button that appears on all of the dialog boxes. You immediately return to the previously displayed dialog box.

If you are on a network, click the **Network** button on the **Select Source/Select Destination Database** file dialog boxes to access other drives on the network.

Exporting Databases

The **Export Database** function allows you to transfer data to programs that cannot read dBASE IV format databases. Most popular database and spreadsheet software can read dBASE IV format databases directly.

The export database function creates a tab-delimited ASCII file containing all data in the database. There is no way to filter records.

To export data from one database file into a tab-delimited ASCII file, open the **File** menu and click **Export Databases**. The **Export Database** dialog box appears (Figure 4-6).



Figure 4-6. Export Database Dialog Box

1. Click the **Browse** button under **Select Source Database**. The **Select source database file** dialog box appears (Figure 4-4).
2. In the **Folders** list on the right-hand side of the dialog box, double-click the folder for the type of database you want to export. The names of the files in the selected folder appear in the **File name** list on the left-hand side of the dialog box.
3. Using your mouse, select the name of the database you want to export. (If the database name does not appear in the list, search for the desired database in other folders. If you are not familiar with basic Windows search techniques, please refer to your Windows documentation.) The name must appear in the **File name** bar at the top left of the screen.

Click the **OK** button. The **Export Database** dialog box reappears with the name of the source database filled in.

4. Click the **Browse** button under **Select Destination File**. The **Select destination file** dialog box appears (Figure 4-7).
5. Select the name of the file you want to export the data *to*.

WARNING: *If you select the name of an existing file, the file will be overwritten.*

Create a new file by typing the file name in the **File name** bar, or search for the file if it does not appear in the list. (The file extension **.txt** is used by default and may be changed if you want.) Click the **OK** button. The **Export Database** dialog box reappears, with the names of the source and destination files filled in.

6. Click the **Export Database** button under **Execute**. The data is copied from the source to the destination database.

If you need to cancel the **Export Database** procedure at any time, click the **Cancel** button that appears on all of the dialog boxes. You immediately return to the previously displayed dialog box.

If you are on a network, click the **Network** button on the **Select Source/Select Destination Database** file dialog boxes to access other drives on the network.

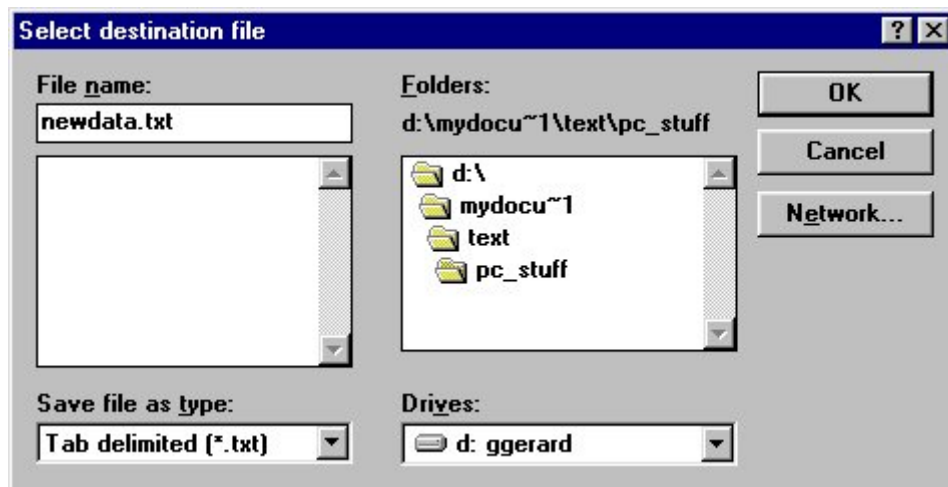


Figure 4-7. Select destination file Dialog Box - Export Database

Deleting Databases

To delete a database, open the **File** menu and click **Delete Database**. The **Select file to delete** dialog box appears (Figure 4-8).

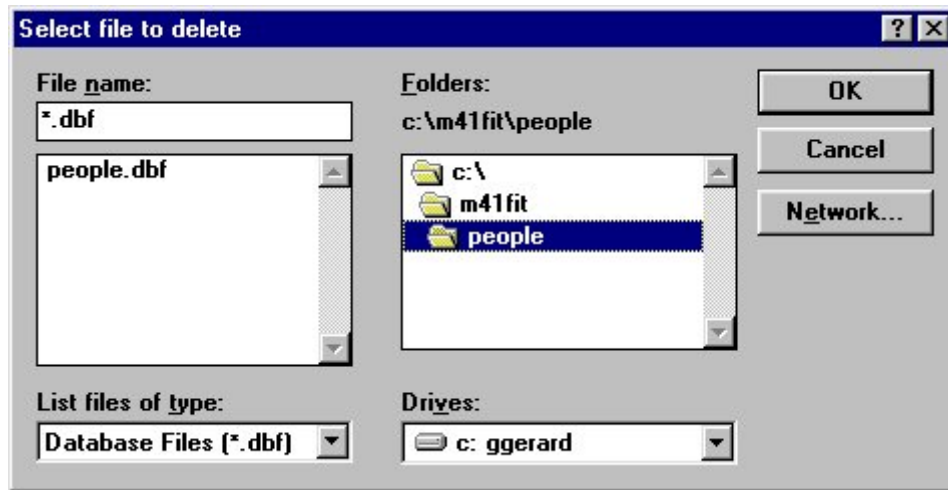


Figure 4-8. Select file to delete Dialog Box

1. In the **Folders** list on the right-hand side of the dialog box, double-click the folder for the type of database you want to delete. The names of the files in the selected folder appear in the **File name** list on the left-hand side of the dialog box.
2. Using your mouse, select the name of the database you want to delete. (If the database name does not appear in the list, search for the desired database in other folders. If you are not familiar with basic Windows search techniques, please refer to your Windows documentation.) The name must appear in the **File name** bar at the top left of the screen. Click the **OK** button. A dialog box appears, asking if you really want to delete this file.
3. Click **Yes** to delete the file.

If you need to cancel the **Delete Database** procedure at any time, click the **Cancel** button that appears on all of the dialog boxes. You immediately return to the previously displayed dialog box.

If you are on a network, click the **Network** button on the **Select file to delete** dialog box to access other drives on the network.

Exiting M41 Fit Software

To exit the program, open the **File** menu and click **Exit**. The main M41 Fit window closes, terminating the application.

Using the Database Menu

M41 Fit uses four types of database files: People; Respirator; Protocol; and Fit Test. The **Database** menu allows you to open the database files, add new data to these database files, change the default database file, or create a new database file.

All database files carry the **.dbf** extension. The default files supplied with M41 Fit software are **People.dbf**, **Respirator.dbf**, **Protocol.dbf**, and **Fittest.dbf**.

The default databases are the databases used for fit testing. In other words, Step 1 of a fit test uses the default people database, Step 2 uses the default respirator database, Step 3 uses the default protocol database, and the fit test results are stored in the default fit test database. The only way you can change a default database is by using the **Setup/Create Default Filenames** option, described later in this section.

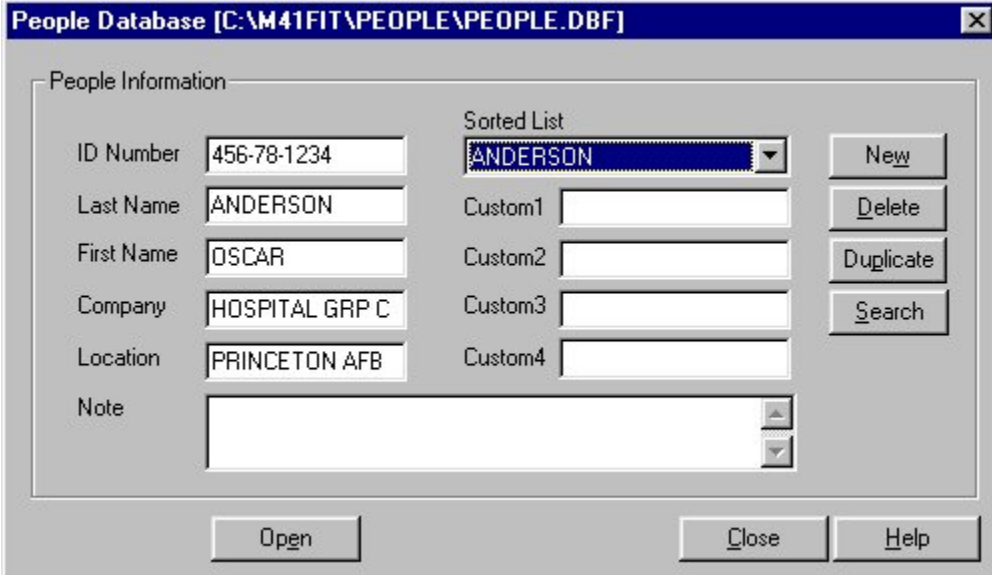
Opening and Updating the Default Database Files

To open one of the database files, click the **Database** menu, select **Open**, and select one of the four database files: People, Respirator, Protocol, or Fit Test. The first record in the default database appears. If you want to work on another database that is not currently defined as the default, click the **Open** button and select another database from the **Select Database File** dialog box.

Note: Each of the four database files is described in a separate section below.

Updating the People Database File

The **People Database** dialog box automatically displays the first record in the default people database (Figure 4-9), sorted by last name. If the database is empty, the dialog box contains all blank fields. You enter information for a new record in the fields in the **People Information** section of the dialog box. You can also change any of the displayed information for any existing record by overwriting these fields.



The screenshot shows a dialog box titled "People Database [C:\M41FIT\PEOPLE\PEOPLE.DBF]". It is divided into two main sections: "People Information" and "Sorted List".

People Information section:

- ID Number: 456-78-1234
- Last Name: ANDERSON
- First Name: OSCAR
- Company: HOSPITAL GRP C
- Location: PRINCETON AFB
- Note: (empty text area)

Sorted List section:

- Sorted List dropdown: ANDERSON
- Custom1: (empty text field)
- Custom2: (empty text field)
- Custom3: (empty text field)
- Custom4: (empty text field)

Buttons:

- New
- Delete
- Duplicate
- Search
- Open
- Close
- Help

Figure 4-9. People Database Dialog Box

The following table describes the function of each of the buttons or fields in the **People Database** dialog box.

Button or Field Name	Function
<u>N</u>ew button	Clicking the <u>N</u>ew button opens a new blank record, allowing you to enter a new record in the database.
<u>D</u>elete button	Clicking the <u>D</u>elete button allows you to delete the displayed record. A warning message first appears, asking if you are sure you want to delete the record. If you click <u>Y</u>es , the record is deleted permanently.
<u>D</u>uplicate button	Clicking the <u>D</u>uplicate button duplicates the displayed record, adds it to the database, and displays the duplicate record. You can use this feature to create a record similar to the displayed record, and edit the fields as necessary.
<u>S</u>earch button	<p>Clicking the <u>S</u>earch button displays the Database Search dialog box (Figure 4-10). Type the name of the person you want to find in the Text to search for... bar and click <u>O</u>K. The People Database dialog box reappears, displaying the selected record.</p> <p>You may search other fields besides the last name field by changing the field shown in the Data to search through .</p> <p>If the record you are searching for is not in the database file, the first record in the file reappears. Click <u>N</u>ew and add the new record.</p>
ID Number field	Displays the person's ID number. Limited to 11 alpha-numeric characters.
Last Name field	Displays the person's last name. Limited to 25 characters.
First Name field	Displays the person's first name. Limited to 25 characters.
Company field	Displays the person's company name. Limited to 25 characters.
Location field	Displays the person's division or department name. Limited to 25 characters.
Note field	Displays any information about the person that can affect the fit test circumstances or results, such as "wears safety goggles," or "wears dentures." Limited to 128 characters.

Button or Field Name	Function
Sorted List field	Clicking the arrow to the right of the sorted list field displays a list of all the records in the database file. It is used to select a record for display.
Custom fields (1, 2, 3, and 4)	Displays any user-defined data you may want to keep track of. The field names “custom1”, “custom2”, etc. cannot be changed.
Open button	Clicking the Open button displays the Select people database file dialog box. You can select another file for editing. However, this does not change the default people database for fit test purposes.
Close button	Clicking the Close button closes the dialog box.
Help button	Clicking the Help button accesses the FitPlus online help information.

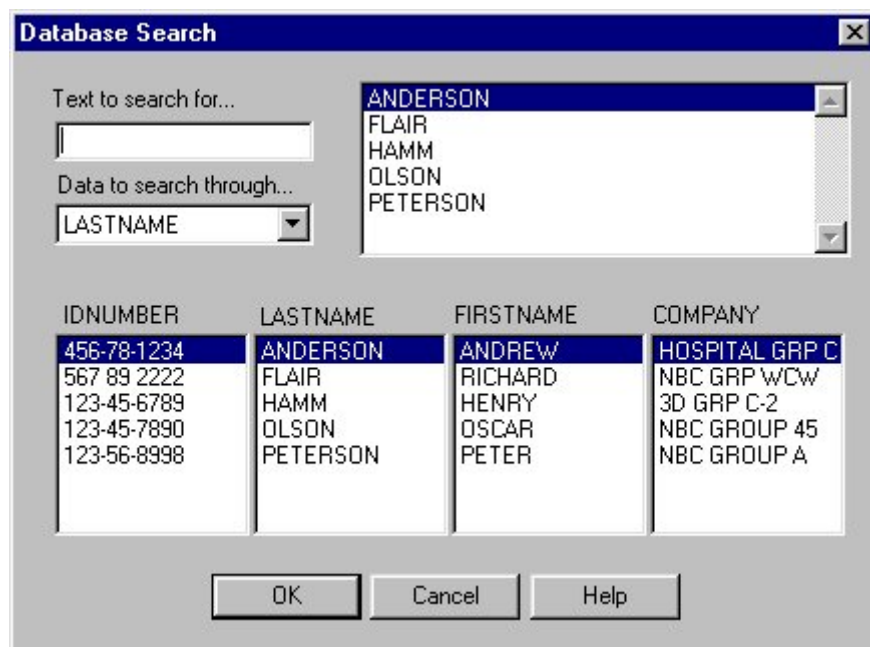


Figure 4-10. Database Search Dialog Box

Updating the Respirator Database

The **Respirator Database** dialog box automatically displays the first record in the default respirator database (Figure 4-11), sorted by description. You use the **Respirator List** field to display and select any existing respirator record. If the database is empty, the dialog box contains all blank fields. You enter information for a new respirator in the **Respirator Information** section of the dialog box. You can also change the displayed information for any existing record by updating the appropriate fields.

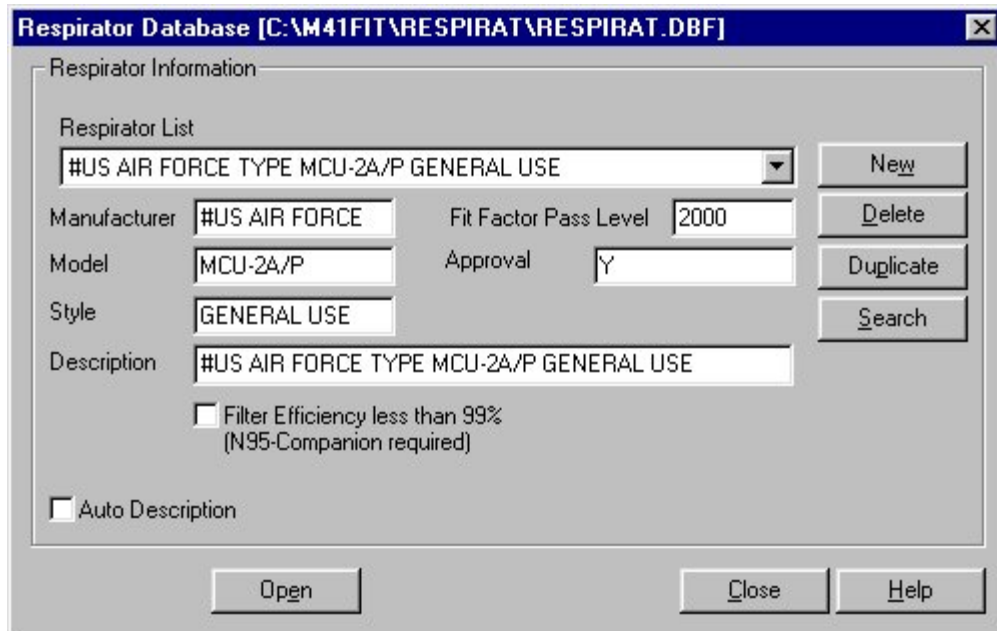


Figure 4-11. Respirator Database Dialog Box

The following table describes the function of each of the buttons or fields in the **Respirator Database** dialog box.

Button or Field Name	Function
<u>N</u> ew button	Clicking the <u>N</u> ew button opens a new blank record, allowing you to enter a new record in the database.
<u>D</u> elete button	Clicking the <u>D</u> elete button allows you to delete the displayed record. A warning message first appears, asking if you are sure you want to delete the record. If you click <u>Y</u> es, the record is deleted permanently.
<u>D</u> uplicate button	Clicking the <u>D</u> uplicate button duplicates the displayed record, adds it to the database, and displays the duplicate record. You can use this feature to create a record similar to the displayed record, and edit the fields as necessary.
<u>S</u> earch button	<p>Clicking the <u>S</u>earch button displays the Database Search dialog box. (This box is structured exactly like the box shown in Figure 4-10, although it displays respirator information.) Select the data to search through, and type the information to search for in the Text to search for... bar. Click <u>O</u>K. The Respirator Database dialog box reappears, displaying the selected record.</p> <p>If the record you are searching for is not in the database file, the first record in the file reappears. Click <u>N</u>ew and add the new record.</p>
<u>S</u> orted Records field	Clicking the arrow to the right of the Sorted Records field displays a list of all the respirator records in the database. You can select a new record or leave the current record in the dialog box.
<u>M</u> anufacturer field	Displays the respirator manufacturer's name.
<u>M</u> odel field	Displays the respirator model.
<u>S</u> tyle field	Displays the description of the respirator style, such as half- or full-face.
<u>A</u> pproval field	Displays the respirator approval number.

Button or Field Name	Function
Fit Factor Pass Level field	Displays the fit factor pass level number for this respirator, such as 100 for half masks and 500 for full-face masks. Consult the applicable regulations for additional information.
Description field	Displays the respirator description, also shown in the Sorted Records field. See Auto Description at the end of this table.
Filter efficiency less than 99% (N95-Companion required) box	<p>A check mark in this box indicates that the N95-Companion must be used with the PORTACOUNT Plus to guarantee accurate fit test results for the selected respirator.</p> <ul style="list-style-type: none"> • If the respirator you are fit testing with has HEPA, class 100 or class 99 filters, leave this box unchecked. The N95-Companion is not needed. • If the respirator has DM, DMF or class 95 filters, you should check this box so that the N95-Companion will be used (if present). • International users should leave this box unchecked for P3 filters and checked for P1 or P2 filters.
Auto Description Check Box	If Auto Description is checked, the description field will automatically be filled in using the information from the manufacturer, model, style and fit factor pass level fields. You may overwrite the automatic description if necessary.
Open button	Clicking the Open button displays the Select respirator database file dialog box. You can select another file for editing purposes. However, this does not change the default respirator database for fit test purposes.
Close button	Clicking the Close button updates the displayed record and closes the dialog box.
Help button	Clicking the Help button accesses the FitPlus online help information.

Updating the Protocol Database

The **Protocol Database** dialog box automatically displays the records in the default protocol database in alphabetical order. (Figure 4-12). You use the **Sorted Records** field to display and select any existing exercise protocols. If the database is empty, the dialog box contains all blank fields. You enter information for a new exercise protocol in the **Protocol Information** section of the dialog box. You can also change the displayed information for any existing record by updating the appropriate fields.

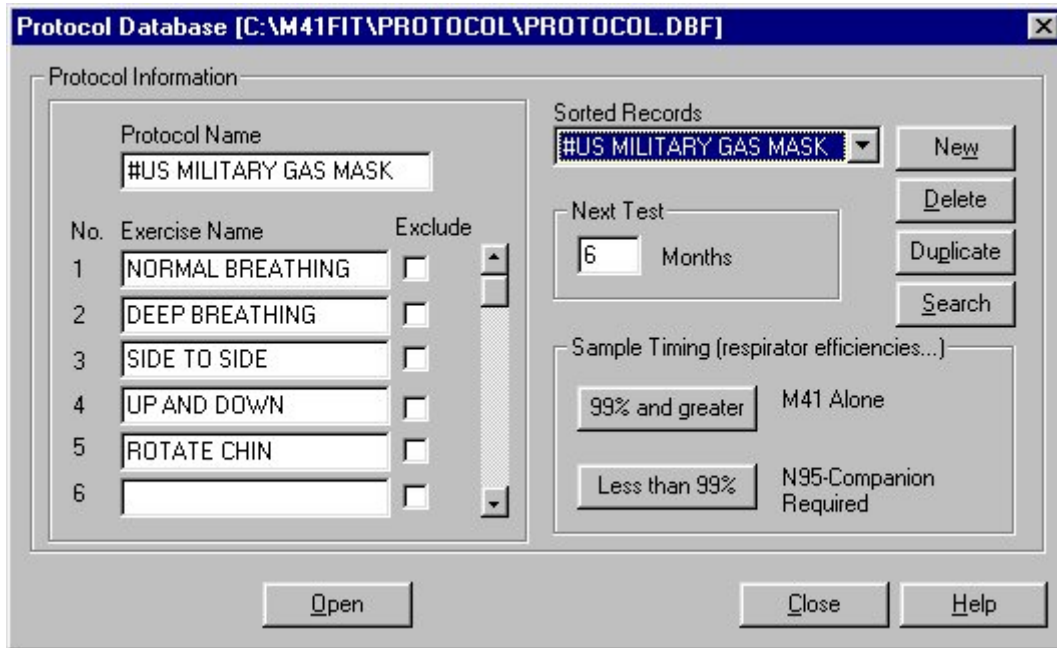


Figure 4-12. Protocol Database Dialog box

The following table describes the function of each of the buttons or fields in the **Protocol Database** dialog box.

Button or Field Name	Function
<u>N</u>ew button	Clicking the <u>N</u>ew button opens a new blank record, allowing you to enter a new record in the database.
<u>D</u>elete button	Clicking the <u>D</u>elete button allows you to delete the displayed record. A warning message first appears, asking if you are sure you want to delete the record. If you click <u>Y</u>es , the record is deleted permanently.
<u>D</u>uplicate button	Clicking the <u>D</u>uplicate button duplicates the displayed record, adds it to the database, and displays the duplicate record. You can use this feature to create a record similar to the displayed record, and edit the fields as necessary.

Button or Field Name	Function
S earch button	Clicking the S earch button displays the Database Search dialog box. (This box is structured exactly like the box shown in Figure 4-10, although it contains only the protocol names.) Type the name of the protocol for this fit test in the Text to search for... bar and click OK . The Protocol Database dialog box reappears, displaying the selected record. If the record you are searching for is not in the database file, the first record in the file reappears. Click N ew and add the new record.
P rotocol Name field	Displays the name of the displayed exercise protocol.
S orted Records field	Clicking the arrow to the right of the Sorted Records field displays a list of all the Protocol records in the database. You can select a new record or leave the current record information in the dialog box.
E xercise Name fields	Displays the names of all the exercises in the protocol. There are up to 12 exercises. Use the scroll bar to the right of the Exclude buttons to display Exercises 7 through 12.
M ask Time field	Displays the mask sample time in seconds for each exercise. Use 20 seconds for U.S. military protocols. Civilian and non-U.S. military protocols may use different mask sampling times.
T otal Time field	Displays the total time in seconds for each exercise. The total time is the mask plus ambient purge plus ambient sample plus mask purge times. FitPlus for Windows automatically updates the total when you move to the next field. You cannot update this field directly.
E xclude buttons	Clicking the Exclude button for an exercise excludes those exercise results from the overall fit factor result for the entire fit test. Do not exclude exercises unless you are absolutely certain that they are not required for the overall fit factor result. For U.S. military protocols, no exercises should be excluded.
A mbient Purge field	Displays the ambient purge time in seconds. The default is 4. Do not change this setting under normal circumstances.
A mbient Sample field	Displays the ambient sample time in seconds. The default is 5. Do not change this setting under normal circumstances.
M ask Purge field	Displays the mask purge time in seconds. The default is 11. Do not change under normal circumstances.

Button or Field Name	Function
Next Test field	Displays the number of months before the next fit test is due. This is typically 12 months, although some regulations call for 6 months. Consult the applicable regulations for additional information.
99% and greater button	Clicking the 99% and greater button displays the Sample timing for M41 (alone) dialog box (Figure 4-13). This box lists Mask Sample Times, Mask Purge Time, Ambient Sample Time, and Ambient Purge Time when you are conducting a fit test with the M41 alone.
Less than 99% button	Clicking the Less than 99% button displays the Sample timing for N95-Companion dialog box (Figure 4-14). This box lists Mask Sample Times, Mask Purge Time, Ambient Sample Time, and Ambient Purge Time when you are using the N95-Companion and PORTACOUNT together to conduct a fit test.
Open button	Clicking the Open button displays the Select protocol database file dialog box. You can select another file for editing purposes. However, this does not change the default protocol database used for fit testing.
Close button	Clicking the Close button updates the displayed record and closes the dialog box.
Help button	Clicking the Help button accesses the FitPlus online help information.

Sample Timing for M41 Alone (seconds)

Exercises	Mask Sample Time	Total Exercise Time
NORMAL BREATHING	20	40
DEEP BREATHING	20	40
SIDE TO SIDE	20	40
UP AND DOWN	20	40
ROTATE CHIN	20	40

Mask Purge Time: 11

Ambient Sample Time: 5

Ambient Purge Time: 4

Total Test Time: 03:20 mm:ss

Note: Total Exercise Time = Mask Sample + Mask Purge + Ambient Sample + Ambient Purge

Buttons: OK, Cancel, Help

Figure 4-13. Sample timing for M41 (alone) Dialog Box

Sample Timing for N95-Companion (seconds)

Mask Sample Times	Mask Sample Time
NORMAL BREATHING	50
DEEP BREATHING	50
HEAD SIDE TO SIDE	50
HEAD UP AND DOWN	50
TALKING	50
NORMAL BREATHING	50

Mask Purge Time: 15

Ambient Sample Time: 15

Ambient Purge Time: 6

Buttons: OK, Cancel

Figure 4-14. Sample timing for N95-Companion Dialog Box

Viewing the Fit Test Database

The **Fit Test Database** file dialog box automatically displays the first record in the default fit test database, sorted by last name (Figure 4-15). Many of the fields in this dialog box are display only, you cannot modify them.

The screenshot shows a dialog box titled "Fit Test Database [C:\M41FIT\FITTEST\FITTEST.DBF]". It contains the following fields and controls:

ID Number	567 89 2222	Sorted Records	FLAIR
Last Name	FLAIR	Note	WEARS GLASSES
First Name	RICHARD	M41	12345
Company	NBC GRP WCW	Operator	LEE
Location	CAMP LEJUNE	Pass Level	6667
Test Date	05/17/1999	Overall Fit Factor	1150
Test Time	10:37	Overall Pass	N
Due Date	11/17/1999	Next Test in	6 Months
Protocol	#US MILITARY GA	Custom1	
Mask Size	M	Custom2	
Respirator	#USMC TYPE M40 GENERAL USE	Custom3	
		Custom4	

Buttons at the bottom: View Results, Search, Delete, Print, Open, Close, Help.

Figure 4-15. Fit Test Database Dialog Box

You can display a new record by clicking the arrow next to the **Sorted Records** field and selecting a new record from the resulting list. You can also click the **Search** button at the bottom of the screen to display a dialog box that allows you to select a specific fit test record.

The following table describes the function of each button and field in the **Fit Test Database** dialog box. It also indicates whether or not you can modify the field.

Button or Field Name	Modify?	Function
First Name field	Y	Displays the first name of the fit test subject.
Last Name field	Y	Displays the last name of the fit test subject.
ID Number field	Y	Displays the ID number of the fit test subject.
Company field	Y	Displays the company name of the fit test subject.
Location field	Y	Displays the division or department name of the fit test subject.
Test Date field	N	Displays the date of the fit test.
Test Time field	N	Displays the time the fit test began.
Due Date field	Y	Displays the date that the next fit test is due.
Protocol field	N	Displays the protocol used for the fit test.
Mask Size field	Y	Displays the size of the mask used for the fit test.
Respirator field	Y	Displays the name of the respirator used for the fit test.
Sorted Records field	n/a	Clicking the arrow to the right of the Sorted Records field displays a list of all the Fit Test records in the database. You can select a new record or leave the current record information in the dialog box.
Note field	Y	Displays any information about the person that can affect the fit test circumstances or results.
Custom fields (1, 2, 3, and 4)	Y	Displays any user-defined data.
M41 field	N	Displays the serial number of the M41 used for the fit test.
Operator field	Y	Displays the name of the operator who conducted the fit test.
Pass Level field	N	Displays the pass level used for the fit test.
Overall Fit Factor field	N	Displays the overall fit factor result for the fit test.
Overall Pass field	N	Displays a Y for a passed fit test; an N for a failed fit test.

Button or Field Name	Modify?	Function
<u>P</u>rotocol button	n/a	Clicking the <u>P</u>rotocol button displays the Protocol Information dialog box (Figure 4-16). To view detailed exercise protocol information for this fit test, click the <u>V</u>iew button.
<u>R</u>espirator button	n/a	Clicking the <u>R</u>espirator button displays detailed information on the respirator used for this fit test (Figure 4-17).
<u>V</u>iew results button	n/a	Clicking the <u>V</u>iew results button displays the detailed exercise results for this fit test (Figure 4-18).
<u>S</u>earch button	n/a	Clicking the <u>S</u>earch button displays the Database Search dialog box. (This box is structured exactly like the box shown in Figure 4-9, although it contains fit test information). Select the type of data to search through, and type the information to search for in the Text to search for... bar. Click <u>O</u>K . The Respirator Database dialog box reappears, displaying the selected record. If the record you are searching for is not in the database file, the first record in the file reappears. Click <u>N</u>ew and add the new record.
<u>D</u>elete button	n/a	Clicking the <u>D</u>elete button permanently deletes this record from the fit test database. A warning message first appears asking if you are sure you want to delete the record.
<u>P</u>rint button	n/a	Clicking the Print button prints a detailed one-page report for this fit test.
<u>O</u>pen button	n/a	Clicking the <u>O</u>pen button displays the Select fit test database file dialog box. You can select another file for editing purposes. However, this does not change the default fit test database used for fit testing.
<u>C</u>lose button	n/a	Clicking the <u>C</u>lose button updates the displayed record and closes the database dialog box.
<u>H</u>elp button	n/a	Clicking the <u>H</u>elp button accesses the FitPlus online help information.

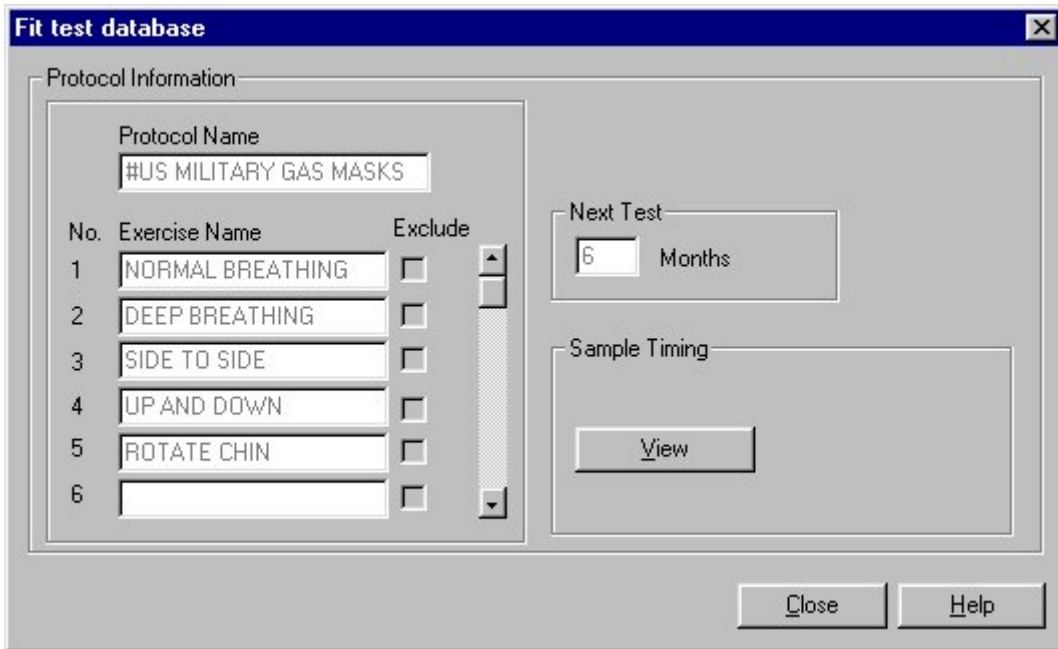


Figure 4-16. Protocol Information

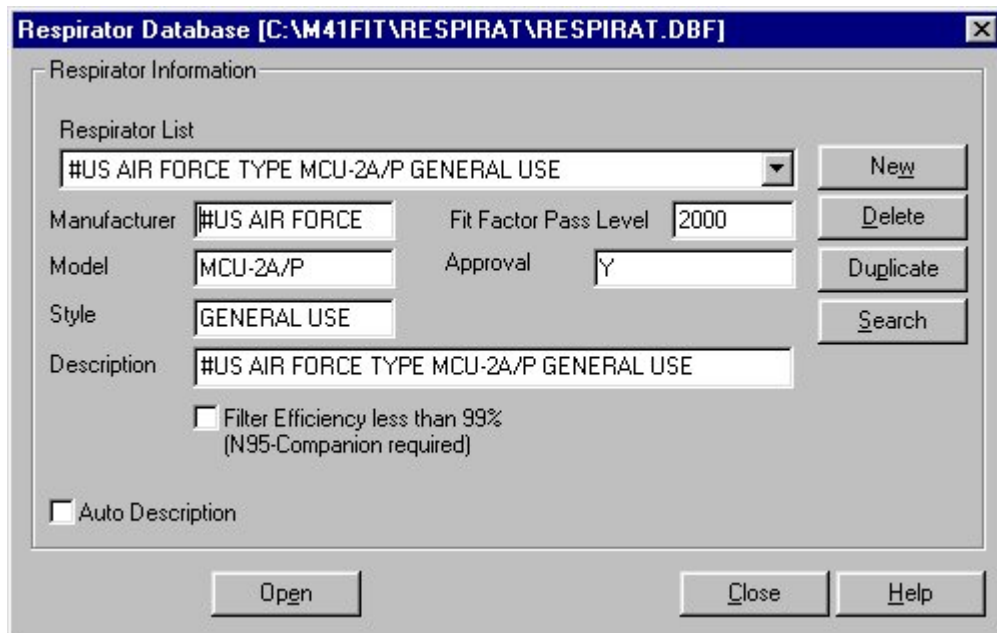


Figure 4-17. Respirator Information

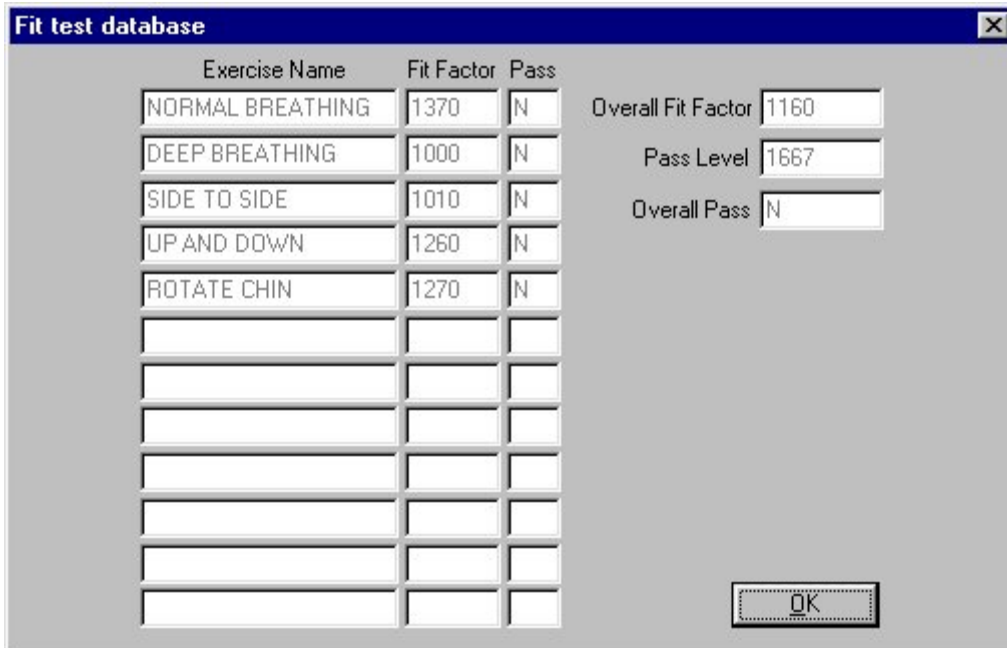


Figure 4-18. Complete Fit Test Results

Changing the Default Database Files

The default databases are the databases you use for new fit tests. Although you can have numerous databases in your database directories, only those designated as the defaults are used for new fit tests. To change the default database files, open the **Database** menu and select **Setup/Create Default Filenames**. The **Setup/Create Default Database Filenames** dialog box appears (Figure 4-19).

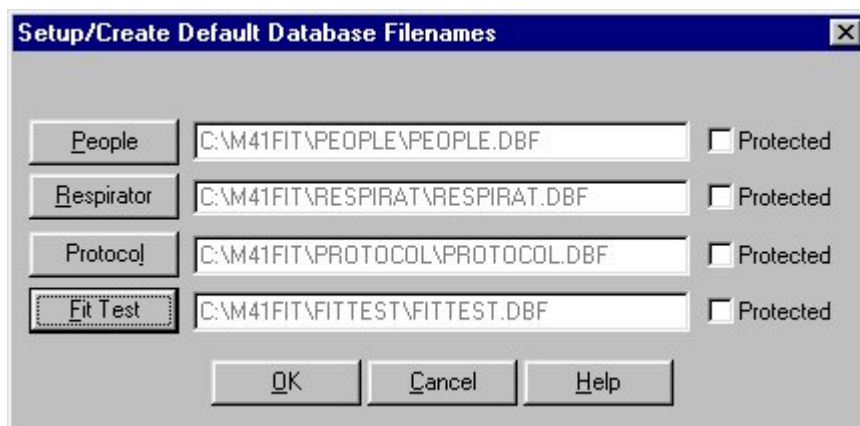


Figure 4-19. Setup/Create Default Database Filenames Dialog Box

The **Setup/Create Default Database Filenames** dialog box displays the names of each of the default databases. Clicking the **People**, **Respirator**, **Protocol**, or **Fit Test** button displays the **Select xxxxx Database** dialog box (Figure 4-20). The dialog box name changes depending on the database you select.

M41 Fit provides a distinct directory structure for the four types of database files. Each file type (People, Respirator, Protocol, and Fit Test) has a specific sub-directory under the main M41 Fit directory (usually C:\M41FIT). When you open any of the **Select xxxxx Database** dialog boxes, M41 Fit automatically opens the correct database directory for the database type you selected.



Figure 4-20. Select xxxxx Database Dialog Box

Follow these instructions to select a new default database file. The instructions are the same for all database types.

1. Select **Setup/Create Default Filenames** from the **D**atabase menu. The **Setup/Create Default Database Filenames** dialog box appears (Figure 4-19).
2. Select the type of database you want to change. The **Select xxxxx Database** dialog box appears (Figure 4-20).
3. Using your mouse, select the name of the new default database. (If the database name does not appear in the list, search for the desired database in other folders. If you are not familiar with basic Windows search techniques, please refer to your Windows documentation.) The name must appear in the **File name** bar at the top left of the screen after you have selected it. If you want to create a new database, type the new file name into the file name bar.
4. Click the **OK** button. The **Setup/Create Default Database Filenames** dialog box reappears with the name of the new default database displayed in the field next to the appropriate button. Click the **Protected** box next to the database name to protect existing records in the database from being changed. With this box selected, you can only add new records to the database, but you cannot edit existing records.
5. To edit the new database file, return to the **D**atabase menu. Select **O**pen. Refer to the instructions in the previous section, *Opening/Updating the Default Database Files*, if you need additional information.

You now see this default database file when you select **O**pen from the **D**atabase menu, and when you begin a fit test.

You can cancel the selection at any time by clicking the **C**ancel button to return to the **S**etup/**C**reate **D**efault **D**atabase **F**ilenames dialog box.

If you are on a network, click the **N**etwork button on the **S**elect or **c**reate **d**efault **d**atabase dialog box to access other drives on the network.

Creating New Default Database Files

To create new database files, open the **D**atabase menu and select **S**etup/**C**reate **D**efault **F**ilenames. The **S**etup/**C**reate **D**efault **D**atabase **F**ilenames dialog box appears (Figure 4-19). Click the button for the type of database file you want to create. The **S**elect **x**xxxx **D**atabase dialog box appears (Figure 4-20).

Follow these instructions to create a new default database file. The instructions are the same for all database types.

1. Click the **F**ile **n**ame field of the **S**elect **x**xxxx **d**atabase dialog box. Enter the name of your new database file. Overwrite the name already in the box if necessary. You do not need to include the .dbf file extension.
2. Click the **O**K button. The **S**etup/**C**reate **D**efault **F**ilenames dialog box reappears, with the new database name in the field next to the appropriate button.
3. Click the **O**K button to return to the main menu. Open the **D**atabase menu and select **O**pen, choosing the type of database file you just created. The database opens and displays a blank record.
4. Complete all the necessary fields in the new record. Refer to the tables earlier in this chapter for descriptions of the fields. When you are finished, click the **N**ew button to display another blank record.
5. Add all your new records. After you have added the last record, click **O**K. The main menu reappears.

To view your new file, select the appropriate database type using **O**pen from the **D**atabase menu. The first record of your new file appears in the database dialog box.

Using the M41 Menu

M41 Fit software allows you to run daily diagnostic tests and provides real-time fit factor displays for use in employee respirator training. Both of these selections are available from the **M**41 menu. The **M**41 menu also includes a Fit Test selection.

Conducting a Fit Test

To begin the fit test, open the **M**41 menu and select **F**it **t**est. The **P**eople **D**atabase dialog box appears. The fit test procedure is identical to the procedure described in Chapter 3, “Conducting a Fit Test - Basic Procedures.” Please refer to Chapter 3 for additional information.

Displaying Real-time Fit Factors

M41 Fit software allows you to display real-time fit factors to assist in mask training. This allows a person to experiment with straps and fit while watching the effect in real-time. The person then learns how each adjustment affects the fit, and learns how to achieve a fit that is comfortable and has minimum leakage. This feature is intended for classroom training and should not be used immediately before a fit test. Using the feature to help the test subject immediately before the official fit test defeats one of the main purposes of fit testing: *to prove that the test subject knows how to don the mask properly without help*. Use the Real-time Fit Factor feature in the classroom for training and practice only.

Note: You can use the real-time fit factor display just prior to a fit test as long as you have the test subject remove the mask and put it on again (without help) before the final test.

Before you start the real-time fit factor display, you must have the M41 on and properly attached to the computer, and must have someone wearing a respirator that is properly attached to the M41.

To begin the display, open the **M41** menu and select **Realtime**. The **Realtime Fit Factor Display** dialog box appears. Figure 4-21 shows the realtime fit factor when only the M41 is in use. Figure 4-22 shows the realtime fit factor when the M41 is used with the N95-Companion.

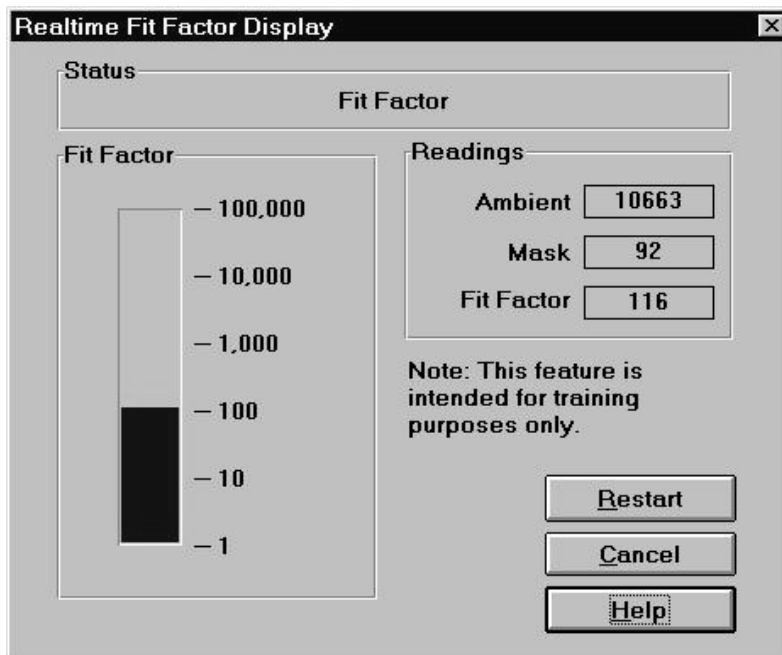


Figure 4-21. Realtime Fit Factor Display - M41 Only Dialog Box

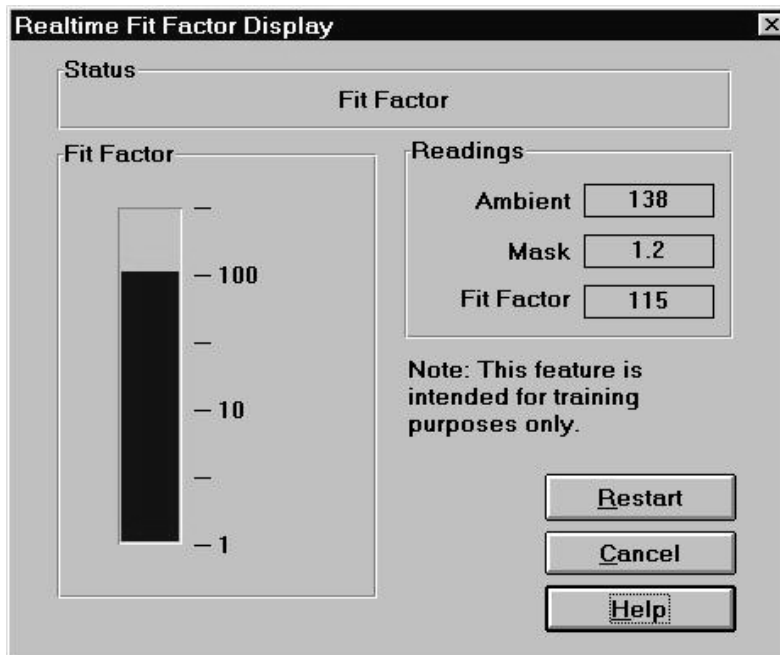


Figure 4-22. Realtime Fit Factor Display - N95-Companion Only Dialog Box

Because this dialog box monitors a process as it occurs, you cannot modify any of the fields manually. You can observe which process is occurring in the **Status** field, see the actual readings for the Ambient and Mask Purges and the Fit Factor in the **Readings** field, and watch the Fit Factor reading fluctuate in the graph portion of the dialog box. You can also stop the display by clicking the **Cancel** button, and stop and restart the display by clicking the **Restart** button. The display pauses periodically while the M41 takes an ambient reading. Clicking the **Restart** button forces a new ambient reading immediately.

Performing Daily M41 Checks

Daily checks consist of the particle check, zero check, and maximum fit factor check. There is also an optional valve check. TSI Incorporated strongly recommends daily checks of the M41 before you begin fit testing. M41 Fit software provides a very easy way for you to complete these checks. Daily Check results are automatically recorded in a database named **daily.dbf**. This database is located in the directory that holds the M41 Fit executable files (usually C:\M41FIT).

M41 Fit automatically initiates the daily checks when you first start the program. The M41 must be on and the 60-second countdown must be completed for this to work. You may click **Cancel** to skip the checks.

To start the daily checks manually, open the **M41** menu and select **Daily Checks**. The **Daily Checks** dialog box appears (Figure 4-23).

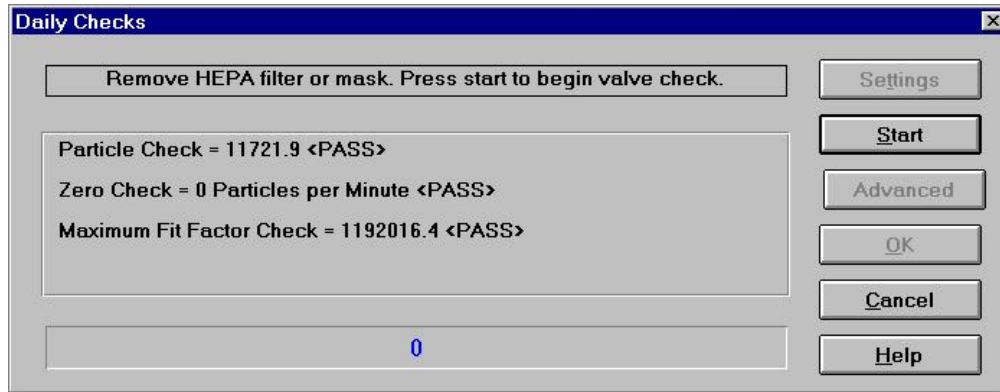


Figure 4-23. Daily Checks Dialog Box

Note: The Daily Check process detects whether or not the N95-Companion is attached to the M41 and adjusts the pass/fail values accordingly. Figure 3-3 shows pass/fail values for the M41 alone.

The dialog box instructs you to remove the HEPA filter or mask and press **Start**. Once you click the **Start** button, the daily check process begins and the status appears in the middle of the dialog box, with the elapsed time in seconds appearing in the bar at the bottom of the dialog box.

Note: If you want to change the settings for the Daily Checks before starting, click the **Settings** button. Either the **Daily Checks Settings for M41 Alone** dialog box (Figure 4-24) or the **Daily Checks Setting for N95-Companion** dialog box (Figure 4-25) appears, depending on your system configuration. Each dialog box displays the current settings and allows you to reset them. Do not change these settings unless you are sure you should do so.

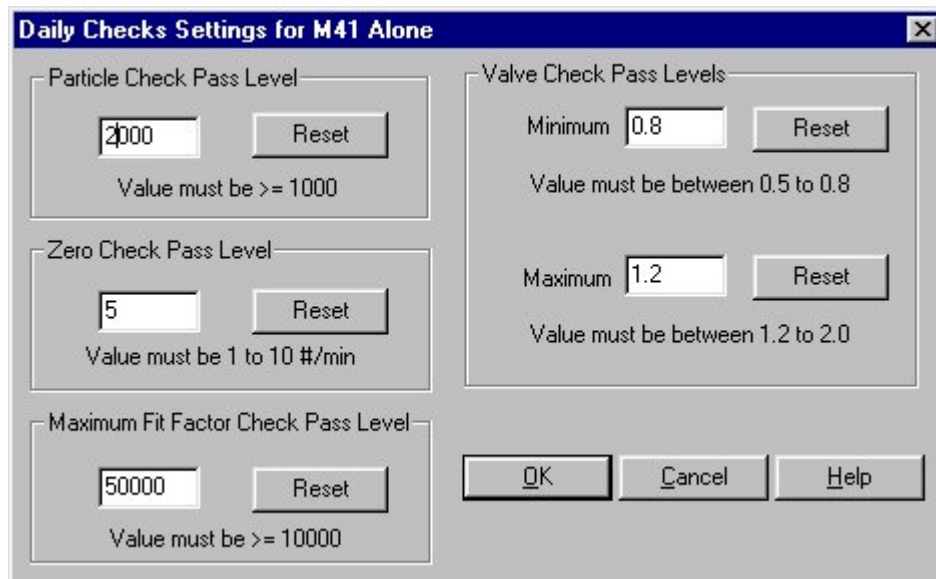


Figure 4-24. Daily Checks Settings for M41 Alone Dialog Box

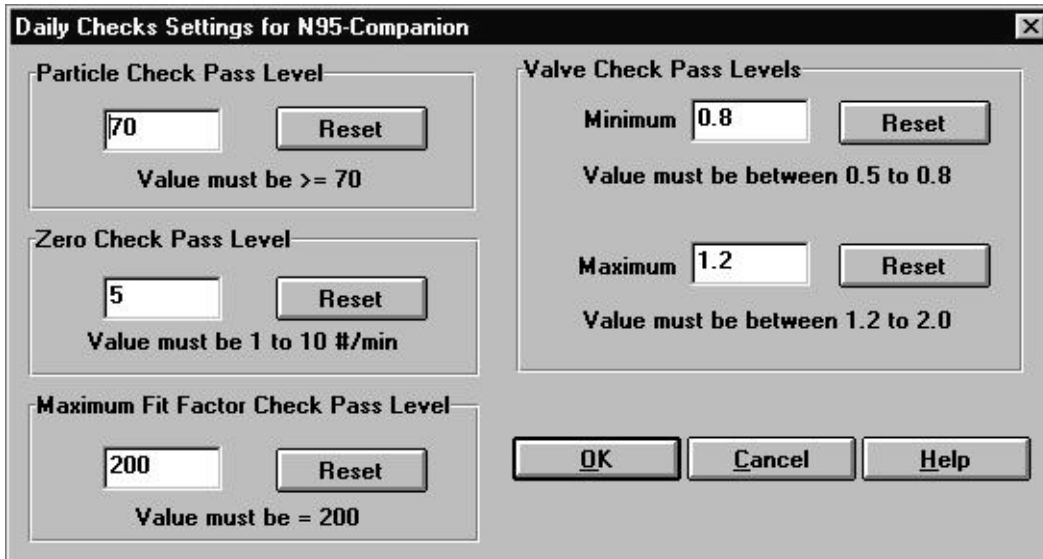


Figure 4-25. Daily Checks Settings for N95-Companion Dialog Box

The Particle check is performed first. After the Particle check is complete, the dialog box instructs you to attach a HEPA filter and press **Start** again. This starts the Zero check and Maximum Fit Factor check.

When these checks are complete, you can click the **OK** button to save the results and close the dialog box, or click **Advanced** to run the optional Valve check. The dialog box instructs you to again remove the HEPA filter and press **Start**. This starts the Valve check. When the Valve check is complete, all the test results appear in the dialog box. Click the **OK** button to save the results and close the dialog box. The results are saved in a database called **daily.dbf**. You can access them through the **Report** menu, discussed in the next section.

Using the Report Menu

M41 Fit provides the following reports:

- People Database report
- Respirator Database report
- Protocol Database report
- Fit test Database report
- Next Due report
- Daily check Results report
- DOS Fit Test Database report
- User defined reports 1 through 4 (you can rename and customize these reports)

You can access these reports by opening the **Report** menu and selecting **Select Report**. The **Report List** dialog box appears (Figure 4-26).

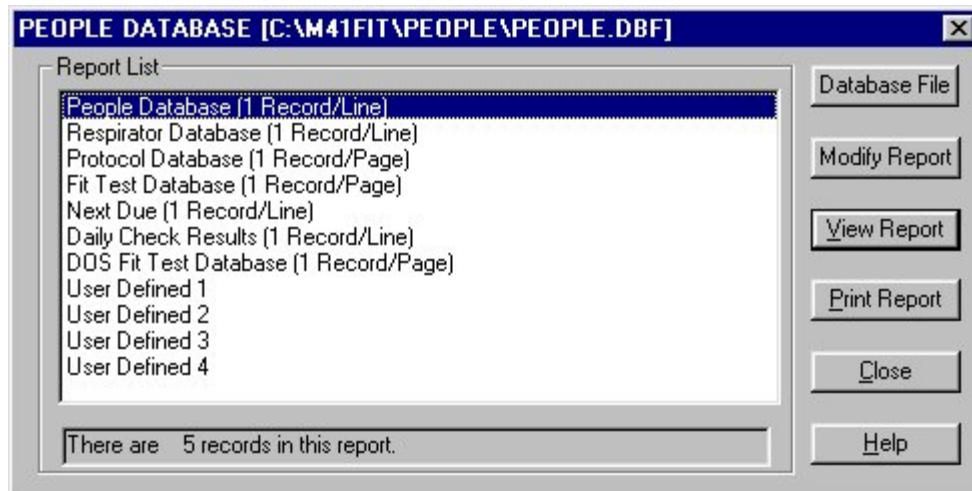


Figure 4-26. Report List Dialog box

The **People Database** is the first in the list, and is highlighted. The name of the database file used for the report appears across the top of the dialog box. This is the default database, although you can choose another database if you wish. The number of records included in the highlighted report appears in the field under the list. The following table describes each of the fields and buttons in the **Report List** dialog box.

Button or Field Name	Function
Report List field	Displays the names of the reports provided by M41 Fit.
Number of Records field	Displays the number of records contained in the report highlighted in the Report List field.
Database File button	<p>Clicking the Database File button opens the Select xxxxx Database (Figure 4-20) dialog box and allows you to choose another database for report purposes. The Select xxxxx Database dialog box is described previously in the <i>Changing the Default Database Files</i> section.</p> <p>Note: Selecting another database in this dialog box does not permanently change the default database used for fit testing.</p> <p>If you do select another file for report purposes and click the OK button, the new filename then appears at the top of the Report List dialog box.</p>

Button or Field Name	Function
<p>Modify Report button</p>	<p>Clicking this button displays the Select Fields to Use for Sorting dialog box (Figure 4-27). This dialog box lets you select fields to use for sorting reports. To select a new field:</p> <ol style="list-style-type: none"> 1. Use your mouse to highlight the sort field name on the left hand list. You can add more than one field if you wish. Note that the right-hand list has <end of list> highlighted. Any fields you add to the list appear at the end of the list by default. If you want to insert the fields elsewhere in the list, highlight the field name that you want the new field to appear <i>above</i>. The order of the fields in the right-hand list determines the sort order of the fields in your report. 2. Click the Add arrow. The names appear in the right hand list. These fields are now used in order to sort the selected report. 3. To remove sort fields, be sure they are highlighted in the right hand list and click the Remove arrow. The names move back into the left hand list and are not used for sorting. <p>Click the Next button at the bottom of the Select Fields to Use for Sorting dialog box. The Select Records to Include in Report dialog box appears (Figure 4-28). If you want to include all records in the report, click the All Records button at the top left of the dialog box. To include selected records only, click Selected Records and choose the field you want to use for filtering in the #1 Select Record with section of the screen, such as Company or Last Name; the filtering operation, such as “equal to” or “greater than”; and the specific filter criteria, such as an actual company name. You can include a second criteria by clicking the And button and completing the #2 Select Record with section of the screen, click None to use no second criteria, or click Or to use the second criteria only. Click the Next button to redisplay the Report List. Click View Report to display your modified report. All changes to your reports are saved.</p> <p>TO MODIFY USER DEFINED REPORTS</p> <p>If you selected a user defined report to modify, the Rename Report Title (Optional) dialog box appears (Figure 4-29). Type a name for the report if you wish and click Next. The Select Database dialog box appears (Figure 4-30). Choose the type of database you want to associate with this report and click Next. The Select Fields to Include in Report dialog box appears (Figure 4-31). Choose the fields you want in your report and click Next. The Select Fields to Use for Sorting dialog box appears. Refer to the beginning of this Modify Report button description.</p>

Button or Field Name	Function
<u>V</u>iew Report button	Clicking this button displays the first record in the selected report. Click N ext to view the next record in the report. Click C lose to return to the Report List dialog box. To select another database, refer to the Database File button description above.
<u>P</u>rint Report button	Clicking this button sends the selected report to your designated printer. The entire multi-page report is printed. If you want to print selected records only, refer to the Modify report button description above.
<u>C</u>lose button	Clicking this button closes the Report List dialog box.
<u>H</u>elp button	Clicking this button accesses the M41 Fit online help information.

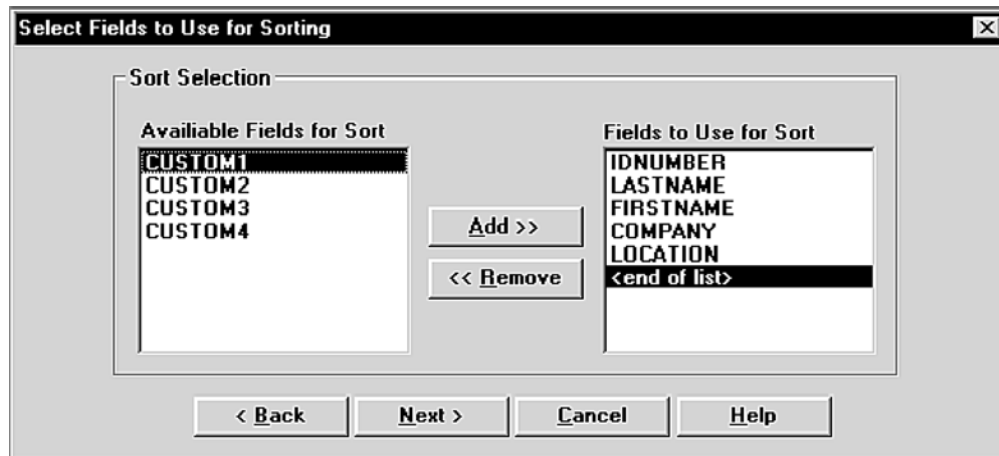


Figure 4-27. Select Fields to Use for Sorting Dialog Box

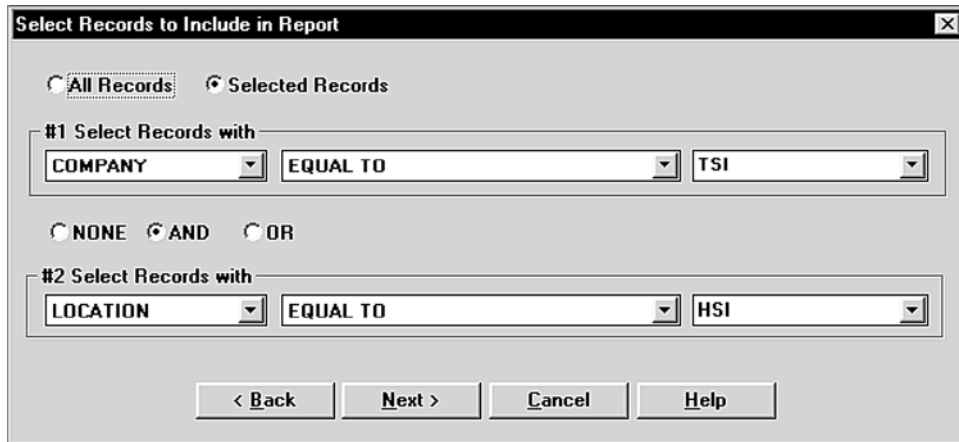


Figure 4-28. Select Records to Include in Report Dialog Box

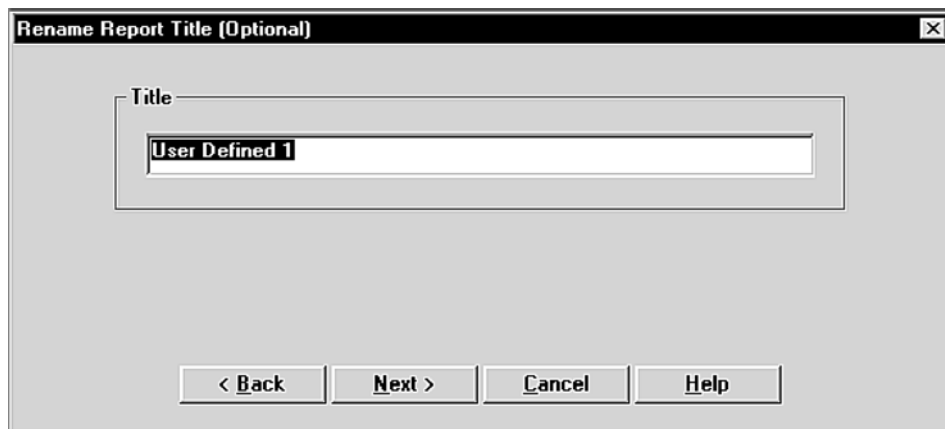


Figure 4-29. Rename Report Title (Optional) Dialog Box



Figure 4-30. Select Database Dialog Box

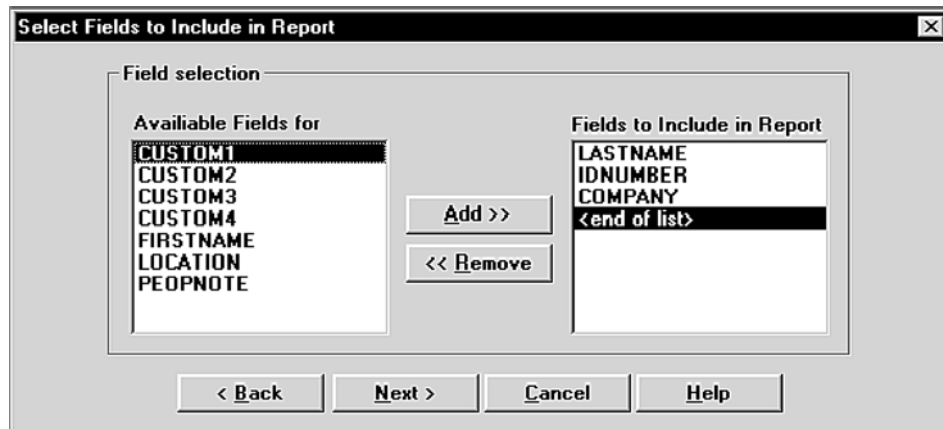


Figure 4-31. Select Fields to Include in Report Dialog Box

When you display the reports using the **View report** button described in the above table, the first record in the report appears on the screen. All reports have a **Next** and a **Close** option in the menu bar across the top of the report screen. Click **Next** to view the next record in the report. Click **Close** to return to the **Report List** dialog box.

Report Examples

The following examples include instructions for generating four different types of reports: a Next Due report; a single page Fit Test report; a user defined report; and report based on M41 Fit for DOS database files. Although these are only a representative sample of the many reports you can generate with M41 Fit, the examples show how to navigate through the many Report dialog boxes, and should provide some basic guidelines for generating other types of reports.

Example 1 - Next Due Report

Follow the steps below to generate a report showing who is due for a fit test. This report will have one record per line.

1. Open the **R**eport menu and choose **S**elect Report. From the **R**eport List dialog box, select **N**ext Due. The report obtains the data from the default Fit Test database. If you want to use a different Fit Test database, click **D**atabase File and choose another one. The name of the database file used for the report always appears across the top of the **R**eport List dialog box.
2. Click **M**odify Report to choose the fields to use for sorting: for example, **L**ast Name and **I**D number. If you do not select any fields, the report appears blank when you view it.
3. Click the **N**ext button to choose the records to include in the report: for example, click **S**elect Records and choose **D**ue Date less than *xx/xx/1996*, using whatever date you wish.
4. Click **N**one for the #2 filter.
5. Click **N**ext and choose **V**iew Report or **P**rint Report. The report shows all people due for a fit test prior to the date you entered.

Example 2 - Single Page Fit Test Report

Follow the steps below to generate a single page fit test report. Each fit test will be printed on a separate page.

1. Open the **R**eport menu and choose **S**elect Report. From the **R**eport List dialog box, select **F**it Test Database. The report obtains the data from the default Fit Test database. If you want to use a different database, click **D**atabase File and choose another one. The name of the database file used for the report always appears across the top of the **R**eport List dialog box.
2. Click **M**odify Report to choose the fields to use for sorting. If you do not select any fields, the report appears blank when you view it.
3. Click the **N**ext button to choose the records to include in the report: for example **C**ompany equal to *ABC*.
4. Click **N**one for the #2 filter.
5. Click **N**ext and choose **V**iew Report or **P**rint Report. The report shows each fit test report on a separate page.

Example 3 - User Defined Reports

Follow the steps below to generate a user-defined report.

1. Open the **R**eport menu and choose **S**elect Report. From the **R**eport List dialog box, select **U**ser Defined 1.
2. Click **M**odify Report and type a name for the report in the **R**ename Report Title (Optional) dialog box.
3. Click **N**ext and choose the type of database you want to take the data from. The report will obtain data from the default database.
4. Click the **N**ext button to choose the fields to include in the report. The report will be structured in columns with one field per column. The first field in the list is used for column one, the second field for column two, and so forth.
5. Click **N**ext and select the fields to use for sorting the report.
6. Click **N**ext and select the records to include in the report.
7. Click **N**ext and choose **V**iew Report or **P**rint Report.

*Note: If you want to change the database used for the report, click **D**atabase File and select a different one.*

Example 4 - Reports Based on M41 Fit for DOS Data Files

Follow the steps below to generate a report based on a M41 Fit for DOS database file.

1. Open the **R**eport menu and choose **S**elect Report. From the **R**eport List dialog box, select **D**OS Fit Test Database.
2. Click **D**atabase File to choose a M41 Fit for DOS database file. You can usually find these files in the M41 Fit directory on your hard drive. The most commonly used file name is **testdata.dbf**. When you have chosen the file, click **O**K.
3. Click **M**odify Report and select a field to sort on.
4. Click **N**ext and choose **A**ll Records or **S**elect Records from the **S**elect Records to Include in Report dialog box.
5. Click **N**ext and choose **V**iew Report or **P**rint Report. A one page report from each fit test is displayed or printed.

Using the Setup Menu

The four selections on the **Setup** menu allow you to select the communications port for your computer, change Daily Checks settings depending on your system configuration, and change the default fit test options.

Selecting the Communications Port

To select the communications port for the M41, open the **Setup** menu and choose **Communications port**. The Communications Port dialog box appears (Figure 4-32).

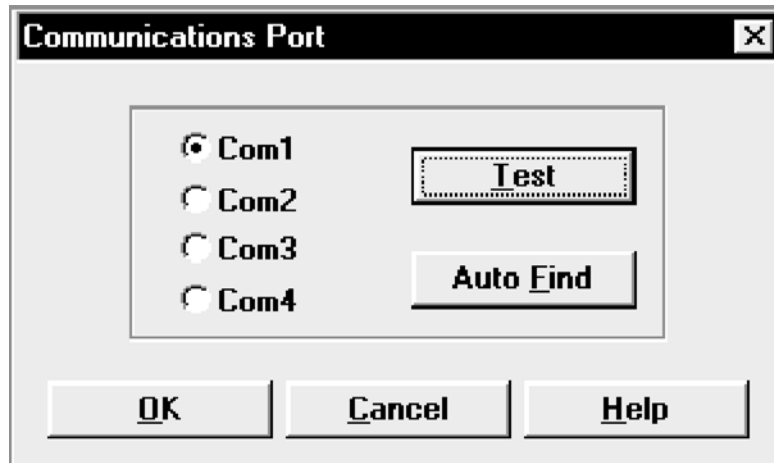


Figure 4-32. Communications Port Dialog box

Make sure your M41 is attached to your computer, the power is on, and the 60-second countdown is complete. If you don't know which port number the instrument is attached to, click **Auto Find**. The software will assign the correct port number.

If you do know the port number, click **Com1**, **Com2**, **Com3**, or **Com4**. Then, click **Test**. The software will verify that you have selected the selected the correct port.

Clicking **OK** saves the information, closes the dialog box, and returns you to the main menu.

Changing Daily Checks Settings

To change Daily Checks settings when you are using the M41 alone, open the **Setup** menu and select **M41 Daily Checks**. The **Daily Checks Settings for M41 Alone** dialog box appears (Figure 4-24). Refer to the "Using the M41 Menu" section earlier in this chapter for additional information.

To change Daily Checks settings when you are using the M41 with the N95-Companion, open the **Setup** menu and select **N95-Companion Daily Checks**. The **Daily Checks Settings for N95-Companion** dialog box appears (Figure 4-25). Refer to the "Using the M41 Menu" section earlier in this chapter for additional information.

Changing the Default Fit Test Options

To change the default fit test options, open the **Setup** menu and select **Fit test options**. The Fit Test Options dialog box appears (Figure 4-33).

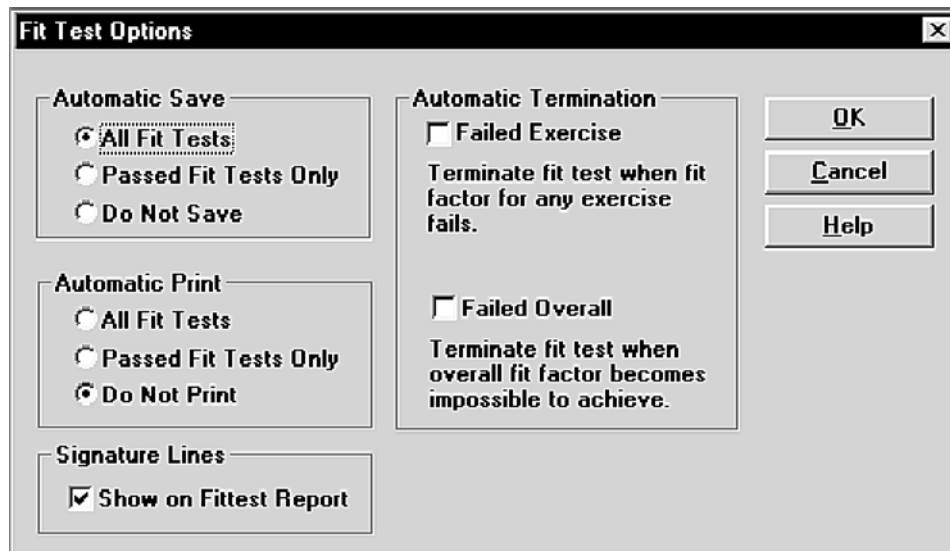


Figure 4-33. Fit Test Options Dialog box

The default settings are to automatically save all fit tests, to not automatically print fit test results, to not automatically terminate fit testing, and to include signature lines on reports. Once you have made any changes to these options, click **OK**. The dialog box closes, the options are changed, and the main menu reappears.

Automatic Save and Automatic Print

To change the **Automatic Save** and **Automatic Print** options, click the options you want.

Automatic Save allows you to:

- Save every fit test, regardless of the end result (except manually terminated fit tests).
- Save passed fit tests only
- Never save fit tests

Automatic Print allows you to:

- Print all fit tests, automatically at the end of each test
- Print passed fit tests only, automatically at the end of each test
- Never print automatically

You must have the printer attached to the computer with the power on during fit testing to use the autoprint options.

Automatic Termination

Automatic termination allows you to terminate a fit test when only one exercise fails, or when it is certain that the overall fit factor will fail.

Failed Exercise

Technically, it is possible to fail an exercise but still pass the overall test. If you want to require that all exercises pass, select the **Failed Exercise** box.

Failed Overall

M41 Fit always warns you when a fit test in progress is progressing so poorly that a passing fit factor is impossible. The fit test continues as usual until the last exercise is complete. The fit test then fails. If you would like to terminate fit tests automatically when an overall failure warning appears, select the **Failed Overall** box.

Signature Lines

The default setting is to show signature lines on single-page fit test reports. If you do not want signature lines, click the checked box to deselect this feature.



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