THE MITCHELL INTERFACE

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Revised 01/02/02

THE MITCHELL INTERFACE

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SECTION 1 INTRODUCTION

Introduction

The Mitchell Interface, an extension of the Computerized Automotive Repair order System (C.A.R.S.), will permit you to read the Mitchell guides. Once the labor is located it may be transferred directly to the repair order or estimate.

The Mitchell guides also contain O.E.M. parts and prices. This information is updated four times a year. Once a part is located on the screen, it may be transferred to an estimate.

Section 1 contains information you should know before using the system. Section 2.0 explains how to install the system. Section 2.1 explains how to set up the system and the information required to do so. Sections 3.0 through 3.2 explain the day to day use of the system.

It is recommended that you read through this manual prior to installing the system. This will provide an overview that will make the implementation of the system easier.

Organization of this manual

SECTION 1 INTRODUCTION

SECTION 2.0 INSTALLING THE INTERFACE

INSTALLATION

NEW SYSTEM

Installing on a new system

If the Mitchell Interface is installed at the same time the rest of the system is put on the computer, the installation procedure will be handled by the installation disk. (See Section 2 of the Precision Main Menu Manual for more information.)

EXISTING MS-DOS SYSTEM

Installing on an existing Ms-Dos system

To install the Mitchell Interface exit the system to the "C" prompt (C: $\PDS>$). Insert the Mitchell disk in drive "A" and type the following:

A:INSTALL

The necessary programs and data files will be transferred to your hard disk. After the system has transfers the information from the MITCHELL INTERFACE DISK the system will display the following:

MITCHELL INTERFACE INSTALLATION NOTES:

An environment variable must be set to tell the system where to find the CD-ROM Drive. This command must be added to your "AUTOEXEC.BAT" file. Use the command:

SET MITCHELL=n

where "n" represents the drive letter for the CD-ROM drive. The value for "n" must be as follows:

3 = drive letter D 5 = drive letter F 7 = drive letter H 4 = drive letter E 6 = drive letter G

Example: If the CD-ROM is assigned drive "F:", use: SET MITCHELL=5

Values beyond 7 (beyond drive letter H) are not supported.

To print a copy of these instructions on your printer, press [PRINT SCREEN].

Press \mathbf{Y} to continue or [Esc] to cancel.

Precision tip: If you have installed the Mitchell Interface you MUST add the above command to the AUTOEXEC.BAT file before using your computer.

The Config.sys file must have lines added to load the device driver for the CD-ROM drive. Follow the instructions included with the CD-ROM drive or interface card.

The Autoexec.bat file must have lines added to load the Microsoft $^\mathsf{M}$ CD-ROM drive extensions for MS-DOS (MSCDEX.EXE). The Autoexec.Bat file must also contain a command which tells C.A.R.S. the drive letter to be used when reading the CD-ROM drive. The command must be in the form SET

Exit Mitchell Interface notes

Autoexec.bat and Config.sys files

SECTION 2.0 INSTALLING THE INTERFACE

MITCHELL=x where "x" represents a drive number from 0 to 7. Drive letter D is represented by a 3, drive letter E is represented by a 4, etc..

EXISTING WINDOWS SYSTEM

Installing on an existing Windows system

To install the Mitchell Interface exit the Precision Data System to the Windows desktop. Insert the Mitchell disk in drive "A" and click on the "Start" button. Next click "Run" and type the following:

AIINSTALL

The necessary programs and data files will be transferred to your hard disk. After the system has transfers the information from the MITCHELLINTERFACE DISK the system will display the following in "Notepad":

MITCHELL INTERFACE INSTALLATION NOTES:

An environment variable must be set to tell the system where to find the CD-ROM drive. This is done by editing the PdsSet.Bat file which is located in the Directory you specified earlier during this installation. Add the following command:

SET MITCHELL=n

The "n" represents the drive letter for the CD-ROM drive. The value of "n" MUST be as follows:

3 = drive D 4 = drive E 5 = drive F 6 = drive G 7 = drive H Values beyond 7 (drive H) are not supported.

Example: If the CD-ROM drive is drive "F:" use the following command:

SET MITCHELL=5

To print a copy of these instructions click on "File", then click "Print".

Click on the "X" button to exit the Mitchell notes.

Exit Mitchell Interface notes

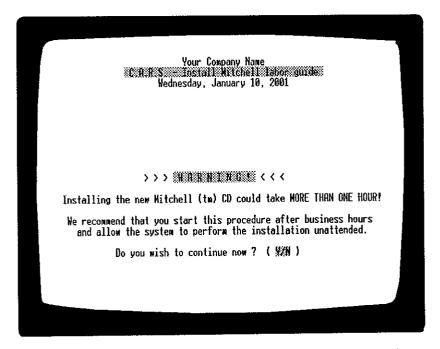
SECTION 2.0 INSTALLING THE INTERFACE

Installing a new Mitchell CD-ROM disk

Installing a new CD-ROM disk

You will receive new CD-ROM disks directly from Mitchell at the rate of approximately four a year. The new CD-ROM disk may not be used until it is properly installed.

To install a new CD-ROM disk, go to the \blacksquare .A.R.S. \blacksquare tilities menu and select the \blacksquare nstall Mitchell CD function. The following will appear:



Precision tip: Installing the new Mitchell™ CD-ROM disk will take at least THR€€ (3) HOURS! It is recommended that you start this procedure after business hours and allow the system to perform the installation unattended.

This procedure creates new data files which will be stored in the MPL subdirectory. If you prefer you can call Precision Data Systems for a copy of these data files. This will avoid the need to use the Install Mitchell CD function.

SECTION 2.0 INSTALLING THE INTERFACE

SECTION 2.1 SETTING UP THE MITCHELL INTERFACE

LABOR CODES

Labor skill levels

When labor is transferred from the Mitchell information onto a repair order or estimate it uses one of four labor codes. The labor code used is determined by the skill level shown in the Mitchell information for the labor operation selected. The four levels of skill are defined as follows:

- [A] HIGHLY SKILLED Requires the use of precision measuring tools and specialized test equipment. Requires thorough knowledge of complicated systems and strong diagnostic capabilities.
- [8] SKILLED Requires the use of basic tools and simple measuring devices. Accurate diagnosis is required using special test equipment. Must have basic knowledge of complex systems.
- [C] SEMISKILLED Requires the use of basic tools. Diagnosis is limited to a single possible cause of a problem. Must have basic knowledge of component or system operation.
- [D] LOW SKILLED Repair consists of part replacement only. Must be able to follow written and/or verbal instructions.

You must create the four labor operation codes, one for each skill level, by receiving each of them once. The codes are 01-MPL/A, 01-MPL/B, 01-MPL/C and 01-MPL/D. Each of these codes will be used to bill labor at 1/10th hour increments. Thus the selling price for each labor code must be what you charge for 1/10th of an hour of labor at that skill level. If you charge the same regardless of skill level you may enter in the same selling price for each labor code.

Creating labor operation codes

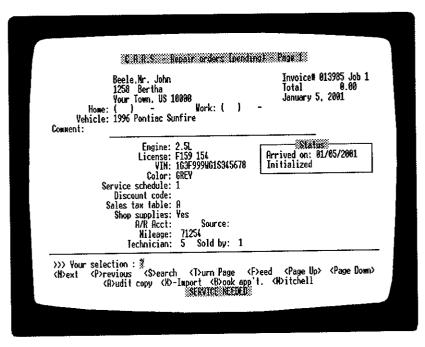
SECTION 2.1 SETTING UP THE MITCHELL INTERFACE

SECTION 3.0 USING THE MITCHELL INTERFACE

Using the Mitchell Interface

Using the Mitchell Interface

Once the Mitchell Interface has been installed, the \blacksquare itchell prompt will appear on the mini-menu in Repair orders (pending).



Entering the vehicle information

Press ${\Bbb M}$ and the following appears:

```
Adams, Ms. Marilyn Invoice# 013999 Job 2 1803 fly Street Total 0.00 Warch 20, 2001 Home: [112] 555-4321 Hork: (112) 555-1414 X 22 Vehicle: 1997 Chevrolet Camaro Comment:

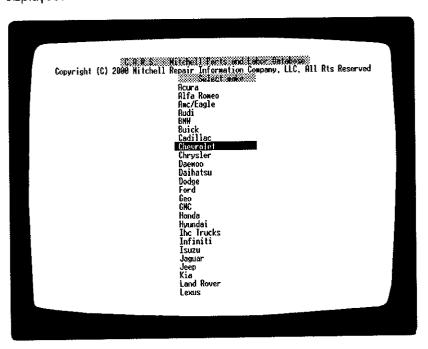
Stock no Street Total 0.00 Warch 20, 2001 Comment:

Stock no Street March 20, 2001 Warch 2
```

SECTION 3.0 USING THE MITCHELL INTERFACE

The system assumes that you want to look up information about the vehicle displayed on the screen. If you wish to look up information about a different vehicle press [F5] to erase the vehicle description shown at the bottom of the screen and type in the vehicle you wish to look up.

When you press [Enter] the system will attempt to recognize the vehicle make. If it does not recognize the vehicle make the following will be displayed:



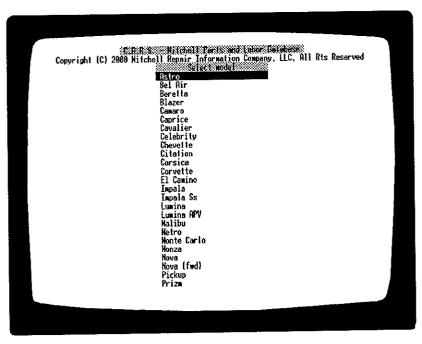
Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired make. After you have selected the make by highlighting it, press [Enter] to select it.

Selecting the make

SECTION 3.0 USING THE MITCHELL INTERFACE

Selecting the model

For most makes the model of the vehicle is not needed to locate the Mitchell information. However, for some makes the model information is needed. If the model information is needed the system will attempt to recognize the model name in the vehicle description. If the system does not recognize the model name the following will appear:

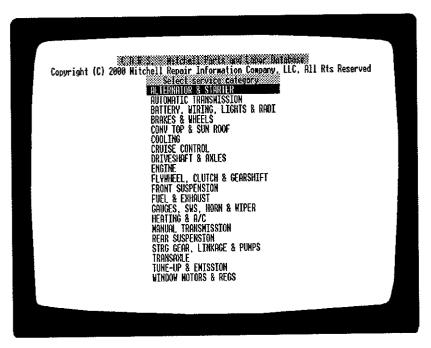


Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired model. After you have selected the model by highlighting it, press [Enter] to select it.

SECTION 3.0 USING THE MITCHELL INTERFACE

Selecting the service category

The Select service category screen will appear:

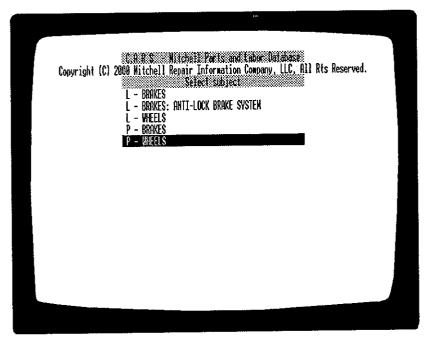


Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired service category. After you have selected the service category by highlighting it, press [Enter] to select it.

SECTION 3.0 USING THE MITCHELL INTERFACE

Selecting the subject

The Select subject screen will appear:



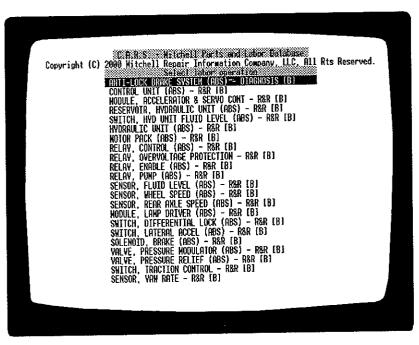
Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired subject. After you have selected the subject by highlighting it, press [Enter] to select it.

SECTION 3.0 USING THE MITCHELL INTERFACE

LABOR

Selecting the labor operation

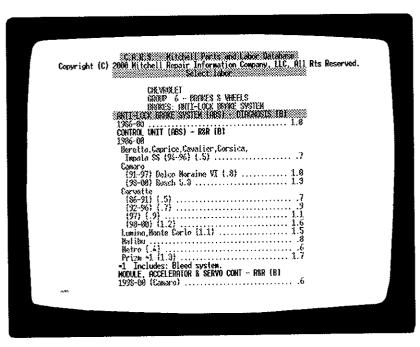
If the subject you have chosen is labor the Select labor operation screen will appear:



Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired labor operation. After you have selected the labor operation by highlighting it, press [Enter] to select it.

SECTION 3.0 USING THE MITCHELL INTERFACE

The labor section for the operation chosen will appear with the title of the chosen labor operation highlighted.



The exact labor often depends upon the specific engine, transmission and equipment options on the vehicle. If the labor operation has more lines than can fit on the screen, the exact labor which you are looking for may not be visible. Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate the exact labor.

To transfer the labor to the repair order, highlight it, then press [Enter]. The system will add the labor to the repair order stopping in the quantity column so that you can increase or decrease the labor quantity as you see fit. (The labor operation code that the system will use depends upon the skill level.)

Labor combinations and additional labor times are listed at the bottom of the section for that labor operation. If there are labor combinations and additional labor times listed for the labor operation chosen, the system will display a gray message box on the right hand side of the screen telling you so.

Precision tip: If you scroll out of the section for the labor operation selected the message box will disappear.

Before transferring the exact labor to the repair order, you must note any additional or combination labor you wish to add to the base labor amount. There are two ways to do this.

Transferring labor to the repair order

Labor additional and combination times

Noting additional and combination times

SECTION 3.0 USING THE MITCHELL INTERFACE

You can mentally note the additional and/or combination time to be added to the base labor amount. As labor is transferred to the repair order, the system will give you the opportunity to increase or decrease the base labor as you see fit. If you are adding additional and/or combination times to the base labor amount, adjust the labor up as desired to include the additional and/or combination time.

You can mark the base labor amount and mark the additional and/or combination time. The process of marking a labor amount is called "Tag". Highlight the labor amount you would like to use and press the [Space Bar] to tag it. A double arrowhead (<<) will appear to the right of the tagged labor amount. Use the [Up Arrow], [Down Arrow], [Page Up] and [Page Down] to move to the additional and/or combination time you wish to tag. Tag the labor amounts desired. After you have tagged the last labor amount, press [Enter]. The labor will be transferred to the repair order.

Precision tip: It is not necessary to tag the last labor amount you wish to select. Pressing [Enter] to select a labor amount also tags it.

Precision tip: If you scroll out of the section for the labor operation selected the tagged labor amounts will be untagged and you will be prevented from selecting labor amounts in the new labor operation section.

Type in the quantity of labor (number of tenth-hours) that you want on the repair order, then press [Enter]. Pressing [Enter] without changing the quantity will cause the system to use the quantity from the Mitchell information.

The employee number that appears in the technician column will receive commission for this item. If you wish a different employee to receive commission on this item, type in the number of the employee you wish to receive credit for this item, then press [Enter]. If you wish the commission on this item to go to the employee displayed, press [Enter] without typing an employee number.

Precision tip: Once a different employee number has been entered, all subsequent items added to the invoice will be credited to that employee until another employee number is entered.

Next, the system will move to the "Description" field. The description was taken from the Mitchell information. If you wish, you may change the description of the labor as shown on the repair order, or accept it as is.

Precision tip: If the description as contained in the Mitchell information is too long to fit in the description field on the repair order, the extra characters will be dropped. If, in dropping the extra characters, the system has made the

Entering the quantity

Entering the technician

Entering the description

SECTION 3.0 USING THE MITCHELL INTERFACE

description so that it is hard to understand, you should change it.

Entering the price each

After entering the description, the system will move to the "Each" field. The price of 1/10th hour usually is not changed. If you disagree with the skill level assigned to the labor operation by the Mitchell information, you may change the "Each" price. This will have the effect of billing this labor item at a higher skill level if you increase the price. The skill level will be lowered if you decrease the price.

Precision tip: Changing the quantity or the description will cause the system to note that you have changed something that came from the Mitchell information. This is indicated by a star appearing to the left of the labor code. It will also be indicated on any printed repair order with the footnote, "* = Service writer's judgement". This note is required by contract with Mitchell.

Exit the Mitchell interface

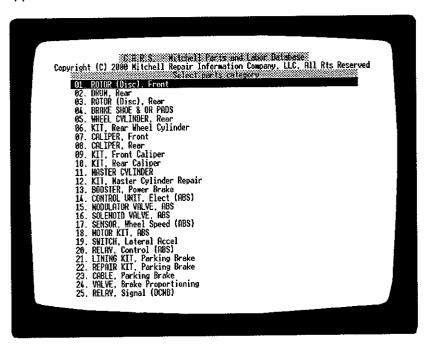
If you do not wish to transfer the labor to the repair order, exit by pressing \blacksquare to return to Repair orders (pending).

SECTION 3.0 USING THE MITCHELL INTERFACE

PARTS

Select the parts category

If the subject you have chosen is parts, the Select parts category screen will appear:



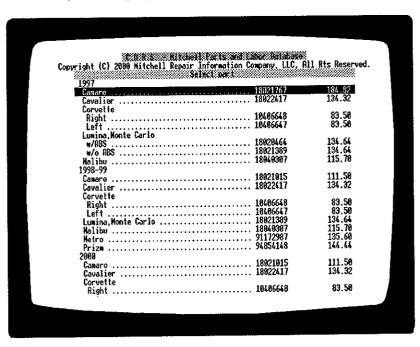
Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired parts category. After you have selected the parts category by highlighting it, press [Enter] to select it.

Precision tip: Parts can be transferred only to ESTIMATES. This prevents the inventory from becoming incorrect.

SECTION 3.0 USING THE MITCHELL INTERFACE

Select the part

The parts section for the parts category chosen will appear with the title of the chosen parts category highlighted.



The exact part often depends upon the specific engine, transmission and equipment options on the vehicle. If the parts category has more lines than can fit on the screen, the exact part which you are looking for may not be visible. Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired part.

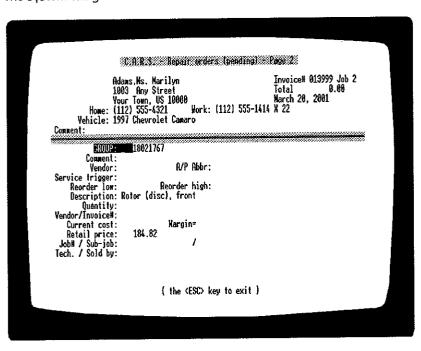
Precision tip: If the retail price column contains "N.A.", the price was not available at the time of the CDs release.

The "*" symbol in the price column indicates that the part is part of the General Motors Target Marketing Program. The price following this symbol is an approximation. Contact your local dealer for the actual price.

Parts discontinued by the manufacturer will be identified by "(D)". Any part number and price with a "(D)" should be considered the last available factory information. (See Section 3.1 Using Help for more information.)

SECTION 3.0 USING THE MITCHELL INTERFACE

After you have selected the part by highlighting it, press [Enter] to select it. The system will go into the Receive function.



Entering the group prefix

Changing the description

Entering the quantity

Vendor & invoice field

The system will ask for the two character Group prefix instead of the stock number. Enter the two character Group prefix to which the part is to be assigned and press [Enter].

Precision tip: If the part number in the Mitchell information has more characters than your systems allows, the leading characters that do not fit will be dropped.

The system will move to the quantity field. Before you enter the quantity, you may wish to change the description. The description was taken from the Mitchell information. If you wish to change the description, press [Up Arrow] to get to the description field so you can change it.

Precision tip: If the description as contained in the Mitchell information is too long to fit in the description field, the extra characters will be dropped. If, in dropping the extra characters, the system has made the description hard to understand, you should change it.

Enter the quantity you wish entered onto the estimate. The system will move to the Vendor & invoice # field.

As the item came from the Mitchell information, the system has automatically entered "MITCHELL" into the field. Just press [Enter]. The system will move to the Current cost field.

SECTION 3.0 USING THE MITCHELL INTERFACE

Cost field

Entering the retail price

Entering the job number

Entering the technician number

As the Mitchell information does not contain cost information, and as you are not purchasing the item at this time, just press [Enter] to keep the cost at zero. The system will move to the Retail price field.

The amount shown in the Retail price field has been taken from the Mitchell information. If you wish to charge more or less for the part, type in the new price and press [Enter]. The system will move to the job field.

Precision tip: Changing the description or the retail price will cause the system to note that you have changed something that came from the Mitchell information. This is indicated by a star appearing to the left of the stock number. It will also be indicated on any printed repair order with the footnote, "* = Service writer's judgement". This note is required by contract with Mitchell.

Enter the job number of the estimate you wish the part to go to. Remember, parts taken from the Mitchell information may only be transferred to an estimate. If you attempt the put the part on a job that is not an estimate, you will get the error message "INVALID!".

After you enter the job number, the system will move to the Technician number field. Enter the number of the technician you will want to get credit for installing the part, then press [Enter]. The part will go onto the estimate.

CONVERTING AN ESTIMATE TO A REPAIR ORDER

If you sell the job, do not immediately change the estimate to a repair order. Follow this procedure:

- A. Purchase the special order parts.
- B. As the special order parts come in, receive them to stock. (DO NOT put a job number in the Job number field.)
- C. After ALL of the special order parts have been received to stock, change the status of the job from "Estimate" to any other code (except VOID). The system will remove the parts from stock, update the job cost and add the Vendor & invoice number (Reference) to the job.

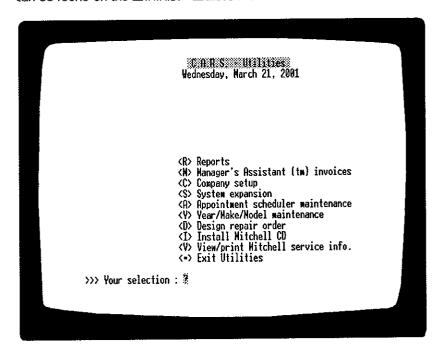
SECTION 3.0 USING THE MITCHELL INTERFACE

SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

View/print Mitchell service info.

View/print Mitchell service info.

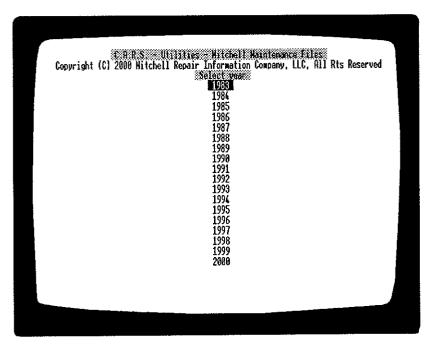
The Mitchell Parts & Labor CD includes service information (maintenance information and service schedules). The Service schedules can be used as a tool to make additional sales. The View/print Mitchell service info. function can be found on the \square .A.R.S. - \square tilities menu.



SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

Selecting the year

Press $\overline{\mathbb{V}}$ and the Select year screen will appear:



Use the [Page Up], [Page Down], [Up Arrow] or [Down Arrow] to locate and highlight the desired model year, then press [ϵ NTER].

The Select make screen will appear:

```
Copyright (C) 2000 Mitchell Repair Information Company, LLC, All Rts Reserved

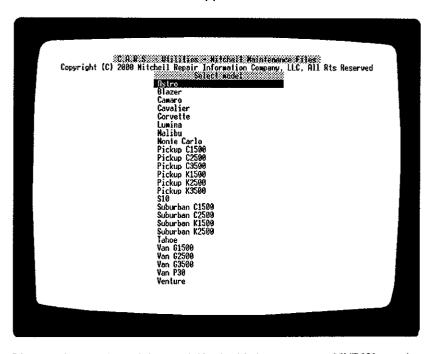
HCUra
HcUra
Hudi
BHW
Buick
Cadillac
Chewrolet
Chrysler
Dodge
Eagle
Ford
GMC
Geo
Honda
Hyundai
Infiniti
Isuzu
Jaguer
Jeep
Kia
Land Rover
Lexus
Lincoln
Mazda
Mercedes-Benz
Hercury
```

Selecting the make

SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

Highlight the desired make and press [ENTER].

Next the Select model screen will appear:



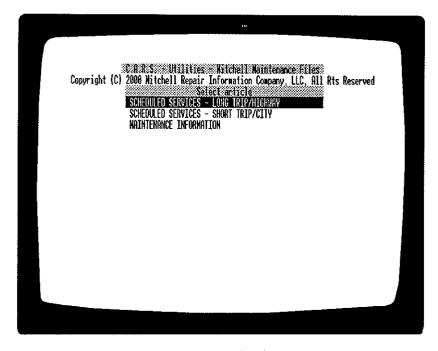
After you have selected the model by highlighting it, press [ENTER] to select it.

Selecting the model

SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

Selecting the Article

The Select article screen will appear:



Highlight the desired article and press [ENTER].

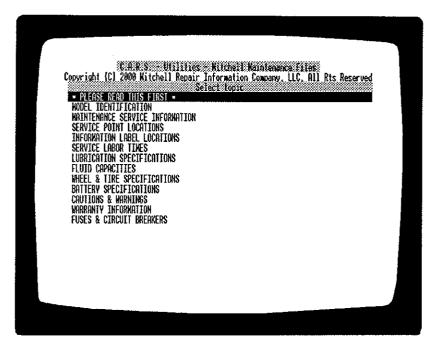
Precision tip: Mitchell calls a collection of related information that may be viewed or printed as a unit on "article"; similar to a magazine article.

There will be a brief pause while the system prepares the information for display.

SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

Selecting the Topic

The Select topic screen will appear:

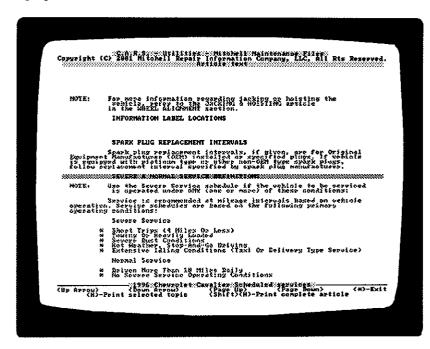


Highlight the desired topic and press [ENTER].

SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

Article text

The article text will appear on the screen with the title of the selected topic highlighted.



Viewing the information

Print a topic

Print a portion of the topic

Print another topic

Print an entire Article

Use the [Up Arrow], [Down Arrow], [Page Up] and [Page Down] to view the information on the screen.

To print the section for the topic you have chosen, press \blacksquare while the title of the selected topic is highlighted.

If you would like to print just a portion of the topic, use the [Down Arrow] to move the highlight down into the topic. Highlight the line of text where you would like to stop printing. Pressing \blacksquare at this time will print the topic only through the line you have highlighted.

To print another topic, highlight the title of the new topic and press lacksquare.

Precision tip: This will print the topic just highlighted, NOT the one originally selected from the Select topic screen.

Pressing [Shift]-19 anywhere within the Article text will print the complete article.

Precision tip: This choice will print ALL the topics listed on the "Select topic" screen.

Pressing [Esc] at any time will return you to the previous screen. Pressing • at any time will exit to the Utilities menu.

SECTION 3.1

	USING THE MITCHELL MAINTENANCE FILES			
Printing the complete article	If you would like to print the entire article, press ${\color{orange} \blacksquare}$ while the topic title is highlighted.			

SECTION 3.1 USING THE MITCHELL MAINTENANCE FILES

SECTION 3.2 HELP SCREENS

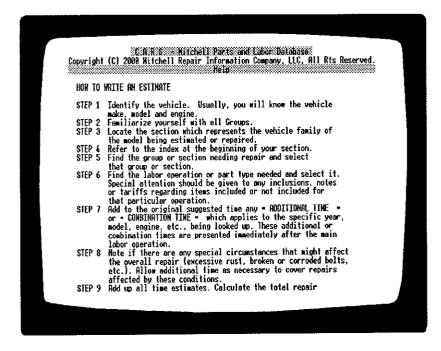
GETTING HELP

Information Help includes

Access Help

The Interface has access to helpful information provided by Mitchell. The information includes How to Write an Estimate, Subjects Covered, Format, Labor Definitions, Diagnostic Time, Parts Information, Skill Level Codes and Machining time.

To access the help, press \blacksquare at any time while in the Mitchell Interface. Use the [Up arrow], [Down arrow], [Page up] and [Page down] keys to scroll through the information. To exit the help, press [Esc].



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view/princiv	make	
	model	
	year	
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