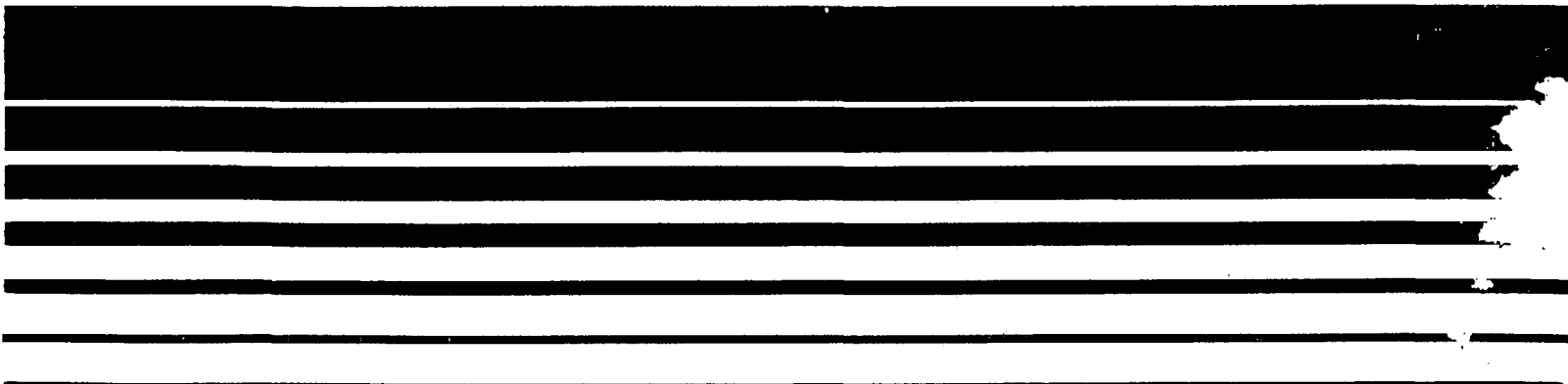

Air Branch



QA SYSTEM FOR MISSOURI'S DECENTRALIZED I/M PROGRAM



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DECENTRALIZED I/M PROGRAM

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SECTION 1

INTRODUCTION

The Clean Air Act Amendments of 1977 require all states to submit state implementation plans for demonstrating the attainment of National Ambient Air Quality Standards (NAAQS) by December 31, 1982. States that could not demonstrate attainment by 1982 could receive an extension to meet the automotive-related NAAQS (ozone and/or carbon monoxide) by December 31, 1987. To receive this extension, a state must require all reasonably available control technology, including inspection and maintenance (I/M) of motor vehicles. To meet this requirement, 30 states now operate I/M programs. Thirteen of these programs are decentralized with noncomputerized data collection (manual) emission analyzers. During the FY-84 and FY-85 audits of these I/M programs, EPA found that all of the manual data collection systems had low failure rates.

The Missouri I/M program began January 1, 1984. The I/M program is a decentralized program with manual emission analyzers. Missouri's data collection system in the past consisted of an analysis of approximately 1 in 20 motor vehicle inspection forms.

Missouri is similar to the other states which operate decentralized I/M programs with manual data collection systems. The state was found to have a low failure rate. This report presents a computerized QA data entry and evaluation system to assist in the management of manual I/M programs.

The system has been designed for use primarily in Missouri. However, the system is adaptable to other state programs. Once the primary data items and various assumptions are specified, adapting the system to another program would be a relatively simple task. Modifying the program would primarily require changes to the data base structure. If the same variable names are used, only minor changes to the analysis programs would be required.

The report is divided into a number of additional sections. Section 2 provides an overview of the QA system. Included are the hardware and software

requirements and a brief discussion of each of the menu items. Section 3 through 10 present detailed descriptions and instructions for utilizing the various program options.

SECTION 2

QA SYSTEM OVERVIEW

2.1 GETTING STARTED

Hardware and Software Requirements

The Missouri QA system has been designed to run on IBM compatible personal computers. The hardware requirements are essentially the same as those for dBASE III:

- 256K bytes of internal memory, and
- One 360K floppy diskette drive and a hard disk drive.

In addition the software requirements are:

- MS-DOS or PC-DOS version 2.0 or later, and
- dBASE III.

Configuring the System

A personal computer normally allows up to eight files to be open at one time. It uses five of those files itself. dBASE III allows up to 10 data files or 20 program files to be open at a time. Therefore, when using dBASE III, more files may need to be open than the computer allows. In order to solve this problem, a file CONFIG.SYS must be created on the DOS diskette or on the hard disk's root directory, so that the file is automatically loaded in the computer every time it is turned on. CONFIG.SYS is set by storing the following commands in the file:

Files = 20

Buffers = 24

Buffers allow dBASE III to work faster by keeping more information in the computer's memory. More information on creating a CONFIG.SYS file is available in both the dBASE III and other computer manuals. It should be noted that buffers occupy computer memory. Therefore, users should be careful not

to set the number of buffers too high.

Installing the Program

The authors recommend that the program be run from a hard disk. If a floppy disk is used, only very small data bases can be created. The maximum size data base that will fit on a floppy disk has not been determined but it is probably only a few hundred records.

To install the program onto the hard disk, put the diskette that came with this manual into drive A. At the DOS prompt enter the command:

```
COPY A:*. * D:
```

where D is the drive designation of the hard disk. To insure that all of the files are copied properly, display a directory of the hard disk. The following 23 files must appear in the directory in addition to the dBASE III program.

PROGRAM FILES

```
MISSOURI.PRG  
DATAENTR.PRG  
CORRECT.PRG  
SUMMARY2.PRG  
SUMMARY3.PRG  
SUMMARY4.PRG  
SUMMARY5.PRG  
ERRORCHK.PRG  
SUMMY3.PRG
```

DATA BASE FILES

```
MISSOURI.DBF  
DOUBLE.DBF  
REENTER.DBF  
LOEM2NUP.DBF  
MAKES.DBF  
INSPECT.DBF  
STATIONS.DBF  
ERRORS.DBF  
YEARS.DBF
```

REPORT FORM FILES

```
MISSOURI.FRM  
CARS.FRM  
EMISSION.FRM  
EXEMP.FRM  
STATION.FRM
```

Starting the Program

The Missouri QA system provides all of the commands and structures to exercise all of the program options. To use the program, dBASE III must first be loaded with the following commands:

```
d > DBASE [CR]
```

("d >") is the DOS prompt that indicates the drive ("d") containing the dBASE III program. "[CR]" is used throughout this manual to denote the "enter" or "carrier return" key. dBASE III responds with a dot (.) prompt. If the QA program is in a different drive than dBASE III enter the following command:

```
. SET DEFAULT TO d: [CR]
```

where "d" is the drive that contains the Missouri QA program. This command directs dBASE III to the appropriate drive for data and program files. If dBASE III and the QA program are on the same disk (i.e., a hard disk) this step is unnecessary.

Finally, to call up the program, enter the following command:

```
. DO MISSOURI [CR]
```

2.2 PROGRAM OPTIONS

Following the .DO MISSOURI [CR] command the computer screen will display the menu options shown in Figure 1. Each of these options is discussed below.

Option 1

Selecting option 1 allows the user to enter data from the Missouri Motor Vehicle Inspection form MVI-2 and data from the Low Emission Tune-Up form SHP-522. The program was designed to minimize data entry errors. It validates the data entered wherever possible. Also, to quantify the accuracy of the data entered, the program includes a system to check five percent of the records entered. This program option is discussed in Section 3.

Option 2

The error correction program creates an index of unique vehicle makes including all misspellings of the various makes. It offers suggested dBASE III statements for correcting misspellings in the data base. This option is presented in Section 4.

Missouri Automobile Emission Inspection
Data Management Program

***** Main Menu *****

1. Data Entry
2. Error Correction
3. Overall Summary
4. Make Summary
5. Year Summary
6. Station Summary
7. Error Analysis
8. Return to dBASE III

Please enter your selection (1-8):

Figure 1. Menu of program options

Option 3

The overall data summary program enables the user to obtain a detailed data summary of all data contained in the data base. Examples of the program output and a discussion of the program can be found in Section 5.

Option 4

Selection of this option allows the user to obtain a data summary of all vehicles that match a user-selected model year or model year group. Refer to Section 6 for details.

Option 5

Similar to option 4, this option provides a data summary for a specific vehicle make selected by the user. This option is discussed in Section 7.

Option 6

Option 6 presents a summary by vehicle inspection station. The user specifies the station of interest and the program generates the appropriate summary statistics. See Section 8 for details.

Option 7

Option 7 is an error analysis program. During data entry, a 5 percent sample of the data base is entered twice to evaluate entry accuracy. This program compares the duplicate entries and prints a summary of the errors encountered. This option is discussed in Section 9.

Option 8

Selecting option 8 allows the user to leave the program and return to dBASE III. This option can be selected anytime the menu appears on the screen.

SECTION 3

DATA ENTRY

The data entry program is designed for use with MVI-2 and SHP-522 forms. The program is designed to minimize data entry errors by restricting data entries in certain key fields. Also, to quantify the accuracy of the data entered, the program includes a system to check five percent of the records entered.

When Option 1 is selected, the program displays the screen shown in Figure 2. These codes are used to indicate exhaust leaks, tampering items, and inspection/maintenance items. These codes will be discussed later in the program description.

After the codes are displayed, pressing any key will display the instructions to specify the month and year of the inspections. If the bulk of the forms are from a given month, then the user will only need to enter the day of the month to complete the date. It is possible to enter dates that occur outside of the specified month. Instructions for this are included in the program and will be displayed on the screen at the appropriate time.

3.1 MVI-2 FORM

The data entry screen, shown in Figure 3, was designed to look similar to the MVI-2 form. To minimize errors, some of the data are determined by the computer. For example, the user enters the year, make, and VIN of the car and the hydrocarbon and carbon monoxide readings from the first inspection. The computer then determines if the car passed or failed. If the car passed, the computer skips the reinspection data. If a user enters a body style greater than 2 or a fuel type other than gas, the computer aborts that record and informs the user to go on to the next record. Likewise, if the inspection station begins with something other than:

- 050,
- 092,

The following are the codes used within this program
to indicate the cause for a vehicle failing an inspection:

Exhaust System	Inspection/Maintenance
E1 = Exhaust leak	M0 = Not specified
	M1 = Air filter element
	M2 = TAC
Tampering	M3 = Idle speed
	M4 = Air /fuel mixture
T0 = Not specified	M5 = Dwell
T1 = Catalytic converter	M6 = Timing
T2 = PCV valve	M7 = Spark plugs
T3 = EGR valve	M8 = Spark plug wires
T4 = Air pump	M9 = Vacuum hose
T5 = Carbon canister	N0 = Electronic controls
T6 = Fuel inlet resistor	N1 = Low emission tune-up
T7 = Other	N2 = Other

Press any key to continue...

Figure 2. Program codes for exhaust leaks, tampering and
inspection/maintenance items

YEAR: MAKE: ODOMETER:

VIN:

BODY STYLE: FUEL:

FIRST INSPECTION REINSPECTION

HC: HC:

CO: CO:

STATUS (HC/CO): STATUS (HC/CO):

EXEMPT: WAIVED: 207-B COMPLIANCE:

CODES: COST:

STATION No.: INSPECTOR: DATE: 03/ /86

REINSPECTOR: DATE: 03/ /86

STICKER/DECAL No.:

Enter '99' for the year to return to the menu.

Figure 3. Data entry screen -- MVI-2 form

- 096,
- 115, or
- 296

the computer aborts that record and informs the user to go on to the next record. Finally, the computer determines if the vehicle was exempt, waived or in compliance under Section 207(b).

3.2 OPERATING INSTRUCTIONS

Table 1 provides the maximum lengths, types and requirements for each item entered. The names for the data fields are those used by the program. Users enter only those data listed in Table 1. The data are entered in the order shown in the table. The computer will highlight the areas on the screen where data are entered. A flashing cursor indicates which item to enter.

Users should be careful NOT to press the escape (ESC) key as this will advance the program and confuse the user. If the user makes a mistake when entering data, it is sometimes possible to go back to previous items with the up arrow key or the backspace key. However, these keys will not always work; therefore, they should be used with care.

The year, make, inspection station, and inspector must not be left blank as this will cause problems in the data analysis programs.

When all of the data from a form are entered, the computer will ask the user if the data are correct. If the user responds "Y" the data will be saved. If the user responds "N" the data are not saved; and, the user must reenter all of the data from that form. The computer does nothing if the user responds with anything but "Y" or "N."

The program was designed so that if a given field is filled, the computer will go on to the next item. For example, the year is entered as two digits. When a user enters "85" the computer will then immediately prompt the user to enter the make. The user does not press the "enter" key. However, when entering the odometer reading the user may not fill all of the spaces provided. The enter key must then be pressed to continue. By not requiring the enter key be pressed, the number of keystrokes has been minimized to speed data entry and minimize entry errors.

TABLE 1. DATA REQUIREMENTS FOR MVI-2 FORM

Data	Maximum length	Type	Comments
Year	2	Numeric	Last two digits with range of 71-98; enter 99 to end program. <u>DO NOT</u> leave this field blank.
Make	4	Character	First four letters (e.g., CHEV for Chevrolet). <u>DO NOT</u> leave this field blank.
Odometer	3	Numeric	In thousands of miles. Automatically right justifies entry.
VIN	18	Character	Digits and/or letters.
Body	1	Numeric	Any number greater than 2 will abort that record.
Fuel	1	Character	Any letter other than G (gasoline) will abort that record.
First Inspection HC_First	4	Numeric	Number between 0 and 2000.
CO_First	4	Numeric	Number between 0.00 and 9.99.
Reinspection HC_RE	4	Numeric	Not entered if vehicle passed first inspection.
CO_RE	4	Numeric	Not entered if vehicle passed first inspection.
Codes	38	Character	Series of 2 character codes. Each code has 1 letter (E, T, M or N) and 1 number (0-9). The codes are not separated. A maximum of 19 can be entered. See Figure 2.
Cost	3	Numeric	In dollars. Automatically right justified.
Station_1	6	Numeric	Must begin with 050, 092, 096, 115, or 296. <u>DO NOT</u> leave this field blank.
Inspect_1	9	Numeric	Inspector for initial inspection. <u>DO NOT</u> leave this field blank.

(continued)

TABLE 1. (continued)

Data	Maximum length	Type	Comments
Date_1	2	Date	Enter only the day. The month and year are provided. If a different month is desired press the F10 key and enter the date.
Reinspect	9	Numeric	Reinspector number not entered if vehicle passed first inspection.
Re_Date	2	Date	Reinspection date not entered if vehicle passed first inspection.
Decal	8	Character	Must begin with the letter "E". Other characters are numbers.

The computer will not accept letters when numbers are required. Likewise, it will not accept numbers where letters are required.

Figures 4 and 5 show completed data entry screens for vehicles that passed and failed the first inspection, respectively. A listing of the Missouri data entry program source code is provided in Appendix A. The data base structure is shown in Appendix B.

Pass or fail determinations for the initial inspection and the reinspection are automatically made by the program, regardless of the indication on the MVI-2 form. The standards used for this determination are:

<u>Year</u>	<u>HC, ppm</u>	<u>CO, %</u>
1971-74	700	7.0
1975-79	600	6.0
1980	300	3.0
1981+	220	1.2

The computer also determines the exempt, waived, and 207 (b) compliance status of each vehicle.

The program also remembers the last inspection station, inspector, reinspector, and decal number input to the program. For the first three items the operator need only press the [CR] if no changes are needed. The decal number is incremented by one for each new form, based on the number for the previous form. For example, if the first form had decal number E0000001 then the number displayed on the screen for the second form is E0000002. If this number is correct the operator need only press [CR] to accept the displayed value.

3.3 QUALITY ASSURANCE

In addition to minimizing data entry errors, the Missouri data entry program includes a system to quantify the accuracy of the data entered. Users will be prompted to enter one of every 20 records twice. The first time these records are entered they will be saved in the main data base (MISSOURI.DBF). The same records will also be saved in a second data base called DOUBLE.DBF. The computer then prompts the user to reenter the data. The reentered data are saved in a third data base (REENTER.DBF).

Ideally there would be no errors and the DOUBLE.DBF and REENTER.DBF files

YEAR: 85 MAKE: CHEV ODOMETER: 2

VIN: 9999999999999999

BODY STYLE: 1 FUEL: G

FIRST INSPECTION REINSPECTION

HC: 100 HC:

CO: 1.00 CO:

STATUS (HC/CO): P/P STATUS (HC/CO):

EXEMPT: 0 WAIVED: 0 207-B COMPLIANCE: 0

CODES: COST:

STATION No.: 096001 INSPECTOR: 123456789 DATE: 03/01/86

REINSPECTOR: DATE: 03/ /86

STICKER/DECAL No.: E0000001

Are the above data correct (Y/N)?

Figure 4. Completed data entry screen for passed inspection

YEAR: 85 MAKE: CHEV ODOMETER: 2

VIN: 999999999

BODY STYLE: 1 FUEL: G

FIRST INSPECTION	REINSPECTION
HC: 500	HC: 150
CO: 1.00	CO: 1.00
STATUS (HC/CO): F/P	STATUS (HC/CO): P/P

EXEMPT: 0 WAIVED: 0 207-B COMPLIANCE: 1

CODES: M3M7 COST: 50

STATION No.: 096001 INSPECTOR: 123456789 DATE: 03/01/86

REINSPECTOR: 123456789 DATE: 03/10/86

STICKER/DECAL No.: E0000002

Are the above data correct (Y/N)?

Figure 5. Completed data entry screen for failed inspection

would be identical. However, this is unlikely; and, by comparing the two files users can determine the frequency and types of data entry errors. This analysis is discussed under Option 8 (see Section 9 of this report).

3.4 LOW EMISSION TUNE-UP FORM (SHP-522)

Vehicles that were waived should have also submitted a low emission tune-up form. The data entry screen shown in Figure 6 was designed to look similar to the SHP-522 form. The data entry program automatically displays this screen when a vehicle fails both the initial inspection and the reinspection.

To minimize errors, many of the data fields on the screen will contain data from the MVI-2 form. Specifically, the VIN, make, year, station, before tune-up readings, adjustments, and cost will contain the same values as were entered from the MVI-2 form. To accept the values, the user need only press [CR] as each field is highlighted. If needed, any value can be modified.

Table 2 provides the maximum lengths, types and requirements for each data field. The data are entered in the order shown in the table. The computer will highlight the areas on the screen where data are to be entered. A flashing cursor indicates which item to enter.

Users should be careful NOT to press the escape (ESC) key as this will advance the program and confuse the user. If the user makes a mistake when entering data, it is sometimes possible to go back to previous items with the up arrow or backspace key. However, the keys will not always work; therefore, they should be used with care.

When all of the data from a form are entered, the computer will ask the user if the data are correct. If the user responds "Y" the data will be saved and the MVI-2 data entry screen will reappear. If the user responds "N" the data are not saved; and, the user must reenter all of the data from that form. The computer does nothing if the user responds with anything but "Y" or "N." The program was designed so that if a given field is filled, the computer will go on to the next item. The program will not accept letters when numbers are required. Likewise, it will not accept numbers where letters are required.

VIN : 9999999999

Make : CHEV

Year : 85

Mechanic No. :

Station No. : 096001

Date:

Before Tune-up

After Tune-up

HC :

HC :

CO :

CO :

Adjustments :

Cost :

Control No. :

Figure 6. Data entry screen SHP-522 form

TABLE 2. DATA REQUIREMENTS FOR SHP-522 FORM

Data	Maximum length	Type	Comments
VIN	18	Character	Vehicle ID. NO. digits and/or letters. Not entered.
Make	4	Character	First four letters. Not entered.
Year	2	Numeric	Last two digits. Not entered.
Mechanic No.	11	Character	Inspector's number.
Station No.	6	Numeric	
Date	8	Date	Entire the entire date.
Before tune-up			
HC	4	Numeric	Number between 0 and 2000.
CO	4	Numeric	Number between 0.00 and 9.99.
Adjustments	38	Character	Series of 2 character codes. Each code has 1 letter. (E,T,M, or N) and 1 Number (0-9) The codes are not separated. A maximum of 19 can be entered. See Figure 3-1.
Cost	3	Numeric	In dollars.
Control No.	6	Character	Control No. from SHP-522 form.

Figure 7 shows a completed data entry screen for a waived vehicle. The program source code is contained in Appendix A. The data base structure is shown in Appendix B.

Two caveats are needed here. First, if only one inspection was performed prior to the low emission tune-up then the initial inspection data should also be entered as the reinspection data. Second, in the case where no low emission tune-up data are provided, artificial data will need to be entered into the low emission data base and the record will need to be deleted by hand later.

3.5 EXITING THE PROGRAM

To leave the data entry program, press the F10 key or enter a "99" for the year of the vehicle. The program will then prompt for making a back-up copy of the data bases prior to leaving the program. If a back-up is desired, either the DOS "Backup" command must be in the same directory as dBASE III or the DOS "Path" command must have been used to specify another directory. Following the backup operation or if no backup was desired, the program will return to the main menu.

VIN : 9999999999

Make : CHEV

Year : 85

Mechanic No. : 123-45-6789

Station No. : 096001

Date: 03/05/86

Before Tune-up

After Tune-up

HC : 450

HC : 200

CO : 0.80

CO : 0.00

Adjustments : M3M7N1

Cost : 200

Control No. : 123456

Are the above data correct (Y/N)?

Figure 7. Completed data entry screen for waived vehicle

SECTION 4

ERROR CORRECTION ROUTINE

The second option in the main menu offers the opportunity to obtain a listing of all vehicle makes presently in the data base. In this program, the computer generates an index and listing of all unique vehicle makes including all misspellings.

Once Option 2 is selected, the program automatically produces a summary table similar to that presented in Figure 8. As there is no way to automatically correct all of the misspellings, they must be corrected outside of the program. Following the summary table, example dBASE III statements are presented. Also included are instructions for performing the necessary corrections. These same steps would be used to correct any other errors noted in the data analysis programs discussed in the next sections.

INSTRUCTIONS FOR MAKING CORRECTIONS TO THE DATA BASE

This program provides users with a list of all the vehicle makes in the Missouri data base, including misspellings. Users can then use the dBASE III 'Replace' command to correct the misspelled vehicle makes. Examples of how to use the 'replace' command are given below:

1. To correct one misspelling at a time use the command -

```
REPLACE ALL MAKE WITH '(correct spelling)' FOR MAKE =  
'(incorrect spelling)'
```

Note: You must use the quotation marks; however the '(' and the ')' must NOT be used.

EXAMPLE: REPLACE ALL MAKE WITH 'FORD' FOR MAKE = 'FODR'

2. To correct several misspellings of the same make at the same time use the command -

```
REPLACE ALL MAKE WITH '(correct spelling)' FOR MAKE = '(first  
incorrect spelling)' .AND. MAKE = '(second incorrect  
spelling)' .AND. MAKE = ....
```

EXAMPLE: REPLACE ALL MAKE WITH 'FORD' FOR MAKE = 'FOOR' .AND.
MAKE = 'FROD' .AND. MAKE = 'FOSD'

These commands must be issued from the dBASE III dot (.) prompt. First exit this program. Then to avoid confusion, and prepare dBASE III enter the following commands:

```
.CLEAR ALL  
.USE MISSOURI
```

You are now ready to make the appropriate corrections to the data base. Other corrections and changes can be made with dBASE III commands, e.g. EDIT and BROWSE. Users should refer to the dBASE III manual for a full discussion of these commands.

Figure 8. Example output - error correction program

LISTING OF ALL THE MAKES IN THE MISSOURI DATA BASE

Note: Most of the makes listed appear
in the data base more than once.

AMER	AUDI	BENZ	BMW	BUIC	CADI
CAPR	CHEV	CHRY	DATS	DODG	FIAT
FORD	GMC	HOND	INTE	JEEP	LINC
MAZD	MERC	MG	MITS	NISS	OLDS
OLED	PLYM	PONT	PORS	RENA	ROLL
SAAB	SPEC	SUBA	TOYO	TRIU	VOLK
VOLV					

Figure 8. (continued)

SECTION 5

OVERALL DATA SUMMARY

Selecting Option 3 from the main menu will cause output similar to that shown in Figure 9 to be generated. The data summaries will be generated from the entire active data base. Consequently, care should be exercised in selecting the active data base. The data base to be used for the summary must be named MISSOURI.DBF.

There are no user options in this program; however, it is imperative that a printer be connected to the computer. After the data have been processed the program will prompt the user to strike a key to initiate the printed output.

Following execution of the program, the main menu will once again appear on the screen.

The execution time for the program will depend on the size of the data base. Execution of the program for a 3000 record data base will take 15-30 minutes depending on the hardware (computer) used. The user should not interrupt the program during processing.

FAILURE RATE SUMMARY REPORT

11/13/86

Page 1

This report summarizes data for vehicle model years 1971 through 1990.
There were 11 vehicle(s) that failed
at least one of the initial inspections but were not reinspected.

***** General Summary *****

Description	Total	1971 - 1974		1975 - 1979		1980		1981 +	
	No. Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Emission Tests	999	89		349		71		490	
Passing Vehicles	872 88.26	74 83.15		292 83.67		56 78.87		450 93.95	
Initial Inspection									
Failed HC	48 4.86	9 10.11		25 7.16		7 9.86		7 1.46	
Failed CO	25 2.53	4 4.49		13 3.72		1 1.41		7 1.46	
Failed Both	43 4.35	2 2.25		19 5.44		7 9.86		15 3.13	
Overall	116 11.74	15 16.85		57 16.33		15 21.13		29 6.05	
Reinspections									
Failed HC	5 4.76	0 0.00		4 7.55		1 6.67		0 0.00	
Failed CO	0 0.00	0 0.00		0 0.00		0 0.00		0 0.00	
Failed Both	3 0.30	0 0.00		0 0.00		1 1.41		2 0.42	
Overall	8 7.62	0 0.00		4 7.55		2 13.33		2 8.70	
Exempt Vehicles	11 1.10	0 0.00		0 0.00		0 0.00		11 2.24	
Waived Vehicles	8 0.80	0 0.00		4 1.15		2 2.82		2 0.41	
Comply w/207-B	2 0.20	0 0.00		0 0.00		0 0.00		2 0.41	

Initial Inspection

HC Reading					
Mean	201	379	324	203	80
Min	0	22	0	0	0
Max	2000	2000	2000	2000	2000
Std. Dev.	307	393	355	285	179

CO Reading					
Mean	1.31	3.02	2.22	1.12	0.38
Min	0.00	0.04	0.00	0.00	0.00
Max	9.99	9.70	9.99	9.80	9.99
Std. Dev.	2.11	2.52	2.47	2.03	1.01

Reinspection

HC Reading					
Mean	346	382	437	214	201
Min	5	29	117	25	5
Max	1972	695	1700	928	1972
Std. Dev.	323	210	306	244	391

CO Reading					
Mean	2.37	3.81	3.09	1.09	0.68
Min	0.00	0.50	0.00	0.01	0.00
Max	6.78	6.78	5.96	4.71	5.83
Std. Dev.	1.92	2.10	1.49	1.36	1.32

Figure 9. Example output - overall data summary program

FAILURE RATE REPORT BY INSPECTION STATION

The average failure rate is 11.74.

This report summarizes data for vehicle model years 1971 through 1986.

An asterisk (*) next to a station number indicates that the failure rate is more than 2 standard deviations from the mean.

The station must also have inspected at least 30 automobiles.

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Insp. Station	Initial Inspections			Reinspections		
	Tests	Failures	Percent	Tests	Failures	Percent
092131	11	6	54.5	5	0	0.0
092141	3	0	0.0	0	0	0.0
092174	22	7	31.8	7	2	28.5
092178	9	5	55.5	3	1	33.3
096035	67	0	0.0	0	0	0.0
096125	1	1	100.0	1	0	0.0
096152	24	7	29.1	7	0	0.0
096174	1	1	100.0	1	1	100.0
096184	183	3	1.6	3	0	0.0
096211	4	4	100.0	4	0	0.0
096215	23	7	30.4	7	1	14.2
096328	74	0	0.0	0	0	0.0
096369	6	3	50.0	3	0	0.0
096382	64	0	0.0	0	0	0.0
096428	5	0	0.0	0	0	0.0
096500	1	0	0.0	0	0	0.0
096522	5	2	40.0	2	0	0.0
096528	23	5	21.7	5	0	0.0
096567	19	4	21.0	4	1	25.0
096648	33	5	15.1	5	2	40.0
096710	3	2	66.6	2	0	0.0
096774	4	1	25.0	1	0	0.0
096785	70	5	7.1	1	0	0.0
096916	0	0	0.0	0	0	0.0
096976	33	0	0.0	0	0	0.0
296015	68	2	2.9	2	0	0.0
296032	8	0	0.0	0	0	0.0
296035	1	0	0.0	0	0	0.0
296068	6	3	50.0	2	0	0.0
296098	5	0	0.0	0	0	0.0
296102	18	8	44.4	8	0	0.0
296106	37	1	2.7	1	0	0.0
296125	21	18	85.7	17	0	0.0
296134	43	1	2.3	0	0	0.0
296147	17	6	35.2	6	0	0.0
296184	1	0	0.0	0	0	0.0
296258	29	0	0.0	0	0	0.0
296328	1	0	0.0	0	0	0.0
296351	7	2	28.5	2	0	0.0
296390	6	2	33.3	2	0	0.0
296405	32	5	15.6	4	0	0.0

Figure 9. (continued)

SECTION 6

DATA SUMMARY BY MODEL YEAR

If Option 4 is selected the computer will generate summary statistics for a user selected model year or group of model years. The program prompts the user to enter the beginning year and ending year of the vehicles of interest. This is indicated in the example screen shown in Figure 10. Any number between 71 and 86 can be entered as the beginning year. If only one year is desired then the ending year is left blank. Otherwise the ending year must be greater than the beginning year.

In this fashion the user could evaluate a single year such as 71, or a group of years such as 77-79. If the group 71-86 is selected, then the entire data base will be evaluated. An example output is shown in Figure 11 for the 1971 vehicles in a data base.

Once again the user is cautioned not to interrupt the program during processing. The processing time varies as function of the size of the MISSOURI.DBF file and will take 15-20 minutes for a 3000 record data base. An 80-column printer is required to obtain the output from this program.

Please select the model year or range
of model years that you wish to analyze.
Enter only the last two (2) digits; e.g. enter '86' for 1986

Starting year: 0

Ending year: 0

To select only one year, enter it in the starting year;
leave the ending year blank.

Figure 10. Example screen - data summary by model year

FAILURE RATE REPORT BY VEHICLE MAKE

This report summarizes data for vehicle model years 1976 through 1980.

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Vehicle Make	Initial Inspections			Reinspections		
	Tests	Failures	Percent	Tests	Failures	Percent
AMC	7	0	0.0	0	0	0.0
AUDI	1	0	0.0	0	0	0.0
BMW	2	0	0.0	0	0	0.0
BUIC	30	7	23.3	6	1	16.6
CADI	9	1	11.1	1	0	0.0
CAPR	1	1	100.0	1	0	0.0
CHEV	78	15	19.2	14	2	14.2
CHRY	11	1	9.0	1	0	0.0
DATS	12	1	8.3	1	0	0.0
DODG	19	6	31.5	6	0	0.0
FIAT	1	0	0.0	0	0	0.0
FORD	67	19	28.3	19	2	10.5
GMC	5	1	20.0	0	0	0.0
HOND	5	0	0.0	0	0	0.0
INTE	1	0	0.0	0	0	0.0
JEEP	2	1	50.0	1	0	0.0
LINC	4	0	0.0	0	0	0.0
MAZD	5	0	0.0	0	0	0.0
MERC	10	1	10.0	1	0	0.0
MG	2	0	0.0	0	0	0.0
OLDS	55	6	10.9	5	0	0.0
PLYM	18	2	11.1	2	0	0.0
PONT	29	4	13.7	4	0	0.0
PORS	1	0	0.0	0	0	0.0
RENA	1	0	0.0	0	0	0.0
ROLL	1	0	0.0	0	0	0.0
SPEC	1	0	0.0	0	0	0.0
TOYO	9	0	0.0	0	0	0.0
TRIU	1	0	0.0	0	0	0.0
VOLK	4	0	0.0	0	0	0.0
VOLV	3	0	0.0	0	0	0.0

Figure 11. Example output - summary by model year

FAILURE RATE SUMMARY REPORT

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This report summarizes data for vehicle model years 1976 through 1980.

***** General Summary *****

Description	Number	Percent
Emission Tests	395	
Passing Vehicles	329	83.2
Failed Initial Inspection for HC	29	7.3
Failed Initial Inspection for CO	12	3.0
Failed Both Initial Inspections	25	6.3
Overall Failure Rate	66	16.7
Failed Reinspection for HC	4	6.4
Failed Reinspection for CO	0	0.0
Failed Both Reinspections	1	1.6
Overall Reinspection Failure Rate	5	8.0
Exempt Vehicles	0	0.00
Waived Vehicles	5	1.27
Vehicles Complying with Sect. 207-B	0	0.00

There were 4 vehicle(s) that failed at least one of the initial inspections but were not reinspected.

Figure 11. (continued)

FAILURE RATE SUMMARY REPORT

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This report summarizes data for vehicle model years 1976 through 1980.

There were 62 reinspected vehicles in the data base.

***** Failed Vehicle Summary *****

Average Initial Inspection HC Reading: 854

Average Initial Inspection CO Reading: 5.29

Average Reinspection HC Reading: 416

Average Reinspection CO Reading: 2.73

Percent HC Reduction: 51.2

Percent CO Reduction: 48.4

Average Repair Cost: \$ 22

NOTE - For vehicles that failed the initial inspection but were not reinspected, the first inspection readings were used to calculate reinspection averages.

Failure Code Distribution

Code	Description	Number	Percent
----	-----	-----	-----
Exhaust System			
E1	Exhaust leak	7	11.2
Tampering			
T0	Not specified	0	0.0
T1	Catalytic converter	0	0.0
T2	PCV valve	0	0.0
T3	EGR valve	0	0.0
T4	Air pump	0	0.0
T5	Carbon canister	0	0.0
T6	Fuel inlet restrictor	0	0.0
T7	Other	0	0.0
Inspection/Maintenance			
M0	Not specified	40	64.5
M1	Air filter element	2	3.2
M2	TAC	0	0.0
M3	Idle speed	0	0.0
M4	Air/fuel mixture	14	22.5
M5	Dwell	0	0.0
M6	Timing	1	1.6
M7	Spark plugs	1	1.6
M8	Spark plug wires	0	0.0
M9	Vacuum hose	3	4.8
N0	Electronic controls	0	0.0
N1	Low emission tune-up	4	6.4
N2	Other	1	1.6

Figure 11. (continued)

FAILURE RATE REPORT BY INSPECTION STATION

This report summarizes data for vehicle model years 1976 through 1980.

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Insp. Station	Initial Inspections			Reinspections		
	Tests	Failures	Percent	Tests	Failures	Percent
092131	3	3	100.0	2	0	0.0
092174	15	5	33.3	5	1	20.0
092178	5	3	60.0	2	1	50.0
096035	8	0	0.0	0	0	0.0
096125	1	1	100.0	1	0	0.0
096152	10	3	30.0	3	0	0.0
096174	1	1	100.0	1	1	100.0
096184	60	1	1.6	1	0	0.0
096211	3	3	100.0	3	0	0.0
096215	12	5	41.6	5	0	0.0
096328	29	0	0.0	0	0	0.0
096369	3	3	100.0	3	0	0.0
096382	27	0	0.0	0	0	0.0
096522	3	1	33.3	1	0	0.0
096528	14	4	28.5	4	0	0.0
096567	9	2	22.2	2	1	50.0
096648	19	4	21.0	4	1	25.0
096710	2	2	100.0	2	0	0.0
096774	2	1	50.0	1	0	0.0
096785	28	2	7.1	0	0	0.0
096976	20	0	0.0	0	0	0.0
296015	15	1	6.6	1	0	0.0
296032	4	0	0.0	0	0	0.0
296068	1	1	100.0	1	0	0.0
296098	3	0	0.0	0	0	0.0
296102	10	3	30.0	3	0	0.0
296106	18	1	5.5	1	0	0.0
296125	12	11	91.6	11	0	0.0
296134	17	0	0.0	0	0	0.0
296147	10	2	20.0	2	0	0.0
296258	8	0	0.0	0	0	0.0
296328	1	0	0.0	0	0	0.0
296351	3	1	33.3	1	0	0.0
296390	1	0	0.0	0	0	0.0
296405	18	2	11.1	2	0	0.0

Figure 11. (continued)

SECTION 7

DATA SUMMARY BY VEHICLE MAKE

Option 5 allows the user to generate a summary report for a particular vehicle make. Once the option is selected, the computer prompts the user for the desired make. The four character make is entered and then [CR] is pressed. The computer then generates a summary similar to that shown in Figure 12.

The program should not be interrupted during processing. Processing time is dependent on the size of the data base. Also, an 80-column printer is needed to obtain the output.

FAILURE RATE REPORT BY VEHICLE MAKE

This report summarizes CHRY's for vehicle model years 1976 through 1985.

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Model Year	Initial Inspections			Reinspections		
	Tests	Failures	Percent	Tests	Failures	Percent
1976	1	0	0.0	0	0	0.0
1977	3	1	33.3	1	0	0.0
1978	3	0	0.0	0	0	0.0
1979	4	0	0.0	0	0	0.0
1981	1	0	0.0	0	0	0.0
1982	4	0	0.0	0	0	0.0
1983	4	0	0.0	0	0	0.0
1984	4	0	0.0	0	0	0.0
1985	2	0	0.0	0	0	0.0

Figure 12. Example output - summary by vehicle make

FAILURE RATE SUMMARY REPORT

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FAILURE RATE REPORT BY VEHICLE MAKE

This report summarizes CHRY's for vehicle model years 1976 through 1985.

***** General Summary *****

Description	Number	Percent
Emission Tests	26	
Passing Vehicles	25	96.1
Failed Initial Inspection for HC	0	0.0
Failed Initial Inspection for CO	0	0.0
Failed Both Initial Inspections	1	3.8
Overall Failure Rate	1	3.8
Failed Reinspection for HC	0	0.0
Failed Reinspection for CO	0	0.0
Failed Both Reinspections	0	0.0
Overall Reinspection Failure Rate	0	0.0
Exempt Vehicles	0	0.00
Waived Vehicles	0	0.00
Vehicles Complying with Sect. 207-B	0	0.00

There were 0 vehicle(s) that failed at least one of the initial inspections but were not reinspected.

Figure 12. (continued).

FAILURE RATE SUMMARY REPORT

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This report summarizes CHRY's for vehicle model years 1976 through 1985.

There were 1 reinspected vehicles in the data base.

***** Failed Vehicle Summary *****

Average Initial Inspection HC Reading: 1250.

Average Initial Inspection CO Reading: 9.99

Average Reinspection HC Reading: 420

Average Reinspection CO Reading: 5.20

Percent HC Reduction: 66.4

Percent CO Reduction: 47.9

Average Repair Cost: \$ 24

NOTE - For vehicles that failed the initial inspection but were not reinspected, the first inspection readings were used to calculate reinspection averages.

Failure Code Distribution

Code	Description	Number	Percent
----	-----	-----	-----
Exhaust System			
E1	Exhaust leak	0	0.0
Tampering			
T0	Not specified	0	0.0
T1	Catalytic converter	0	0.0
T2	PCV valve	0	0.0
T3	EGR valve	0	0.0
T4	Air pump	0	0.0
T5	Carbon canister	0	0.0
T6	Fuel inlet restrictor	0	0.0
T7	Other	0	0.0
Inspection/Maintenance			
M0	Not specified	0	0.0
M1	Air filter element	0	0.0
M2	TAC	0	0.0
M3	Idle speed	0	0.0
M4	Air/fuel mixture	1	00.0
M5	Dwell	0	0.0
M6	Timing	0	0.0
M7	Spark plugs	0	0.0
M8	Spark plug wires	0	0.0
M9	Vacuum hose	0	0.0
N0	Electronic controls	0	0.0
N1	Low emission tune-up	0	0.0
N2	Other	0	0.0

Figure 12. (continued)

FAILURE RATE REPORT BY INSPECTION STATION

This report summarizes CHRY's for vehicle model years 1976 through 1985.

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Insp. Station	Initial Inspections			Reinspections		
	Tests	Failures	Percent	Tests	Failures	Percent
092174	1	0	0.0	0	0	0.0
096184	4	0	0.0	0	0	0.0
096328	3	0	0.0	0	0	0.0
096382	2	0	0.0	0	0	0.0
096500	1	0	0.0	0	0	0.0
096528	2	0	0.0	0	0	0.0
096648	1	0	0.0	0	0	0.0
096785	3	0	0.0	0	0	0.0
296015	4	0	0.0	0	0	0.0
296098	1	0	0.0	0	0	0.0
296125	1	1	100.0	1	0	0.0
296134	1	0	0.0	0	0	0.0
296147	1	0	0.0	0	0	0.0
296258	1	0	0.0	0	0	0.0

Figure 12. (continued)

SECTION 8

DATA SUMMARY BY INSPECTION STATION

The selection of Option 6 will generate a dBASE III data base and a summary of data for a user-selected inspection station. The six-digit inspection station of interest is input and a summary similar to that shown in Figure 13 is obtained. Also if desired, the program will generate a separate ASCII data file for transfer to another computer.

Processing speed is dependent on the size of data base. An 80-column printer is required and the program should not be interrupted during processing.

FAILURE RATE REPORT BY VEHICLE MAKE
FOR INSPECTION STATION 096184

This report summarizes data for vehicle model years 1971 through 1986.

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Vehicle Make	Initial Inspections			Reinspections		
	Tests	Failures	Percent	Tests	Failures	Percent
AMC	2	0	0.0	0	0	0.0
AUDI	1	0	0.0	0	0	0.0
BUIC	7	1	14.2	1	0	0.0
CADI	9	0	0.0	0	0	0.0
CHEV	34	0	0.0	0	0	0.0
CHRY	4	0	0.0	0	0	0.0
DATS	5	0	0.0	0	0	0.0
DODG	3	0	0.0	0	0	0.0
FORD	22	1	4.5	1	0	0.0
HOND	8	0	0.0	0	0	0.0
JEEP	3	0	0.0	0	0	0.0
LINC	3	0	0.0	0	0	0.0
MAZD	4	0	0.0	0	0	0.0
MERC	6	0	0.0	0	0	0.0
MG	2	0	0.0	0	0	0.0
NISS	6	0	0.0	0	0	0.0
OLDS	27	0	0.0	0	0	0.0
PLYM	7	1	14.2	1	0	0.0
PONT	11	0	0.0	0	0	0.0
PORS	1	0	0.0	0	0	0.0
SAAB	2	0	0.0	0	0	0.0
SUBA	2	0	0.0	0	0	0.0
TOYO	9	0	0.0	0	0	0.0
VOLK	5	0	0.0	0	0	0.0
VOLV	2	0	0.0	0	0	0.0

Figure 13. Example output - summary by inspection station

FAILURE RATE SUMMARY REPORT
FOR INSPECTION STATION 096184

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This report summarizes data for vehicle model years 1971 through 1986.

***** General Summary *****

=====										
Description	Total		1971 - 1974		1975 - 1979		1980		1981 +	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent

Emission Tests	185		14		56		12		103	
Passing Vehicles	180	98.36	14	100.00	54	96.43	12	100.00	100	99.01
Initial Inspection										
Failed HC	2	1.09	0	0.00	1	1.79	0	0.00	1	0.99
Failed CO	1	0.55	0	0.00	1	1.79	0	0.00	0	0.00
Failed Both	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Overall	3	1.64	0	0.00	2	3.57	0	0.00	1	0.99
Reinspections										
Failed HC	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Failed CO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Failed Both	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Overall	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Exempt Vehicles	2	1.08	0	0.00	0	0.00	0	0.00	2	1.94
Waived Vehicles	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Comply w/207-B	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

There were 0 vehicle(s) that failed
at least one of the initial inspections but were not reinspected.

Figure 13. (continued)

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FAILURE RATE SUMMARY REPORT
FOR INSPECTION STATION 096184

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This report summarizes data for vehicle model years 1971 through 1986.
 There were 3 reinspected vehicles in the data base.

***** Emission Inspection Data Summary *****

Description	Total	1971 - 1974	1975 - 1979	1980	1981 +
Initial Inspection					
HC Reading					
Mean	114	233	224	77	42
Min	0	113	4	0	0
Max	918	544	918	216	333
Std. Dev.	140	116	173	79	52
CO Reading					
Mean	0.79	2.60	1.57	0.41	0.17
Min	0.00	0.19	0.00	0.00	0.00
Max	9.99	6.49	9.99	2.92	1.17
Std. Dev.	1.56	2.46	2.04	0.86	0.29
Reinspection					
HC Reading					
Mean	207	0	256	0	110
Min	110	0	230	0	110
Max	282	0	282	0	110
Std. Dev.	88	0	36	0	0
CO Reading					
Mean	1.25	0.00	1.88	0.00	0.01
Min	0.01	0.00	1.87	0.00	0.01
Max	1.88	0.00	1.88	0.00	0.01
Std. Dev.	1.08	0.00	0.01	0.00	0.00
Failing Vehicles					
HC Reduction, %					
Mean	50.14	0.00	41.73	0.00	66.97
Min	14.18	0.00	14.18	0.00	66.97
Max	69.28	0.00	69.28	0.00	66.97
Std. Dev.	31.17	0.00	38.96	0.00	0.00
CO Reduction, %					
Mean	49.28	0.00	73.92	0.00	0.00
Min	0.	0.00	66.67	0.00	0.
Max	81.18	0.00	81.18	0.00	0.00
Std. Dev.	43.29	0.00	10.26	0.00	0.00
Repair Cost, \$					
Mean	0	0	0	0	0
Min	0	0	0	0	0
Max	0	0	0	0	0
Std. Dev.	0	0	0	0	0

Figure 13. (continued)

This report summarizes data for vehicle model years 1971 through 1986.

Failure Code Distribution		
Code Description	Number	Percent
-----	-----	-----
Exhaust System		
E1 Exhaust leak	1	33.3
Tampering		
T0 Not specified	0	0.0
T1 Catalytic converter	0	0.0
T2 PCV valve	0	0.0
T3 EGR valve	0	0.0
T4 Air pump	0	0.0
T5 Carbon canister	0	0.0
T6 Fuel inlet restrictor	0	0.0
T7 Other	0	0.0
Inspection/Maintenance		
M0 Not specified	2	66.6
M1 Air filter element	0	0.0
M2 TAC	0	0.0
M3 Idle speed	0	0.0
M4 Air/fuel mixture	0	0.0
M5 Dwell	0	0.0
M6 Timing	0	0.0
M7 Spark plugs	0	0.0
M8 Spark plug wires	0	0.0
M9 Vacuum hose	0	0.0
N0 Electronic controls	0	0.0
N1 Low emission tune-up	0	0.0
N2 Other	0	0.0

Figure 13. (continued)

FAILURE RATE REPORT BY INSPECTOR
FOR INSPECTION STATION 096184

This report summarizes data for vehicle model years 1971 through 1986.

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=====				
	Initial Inspections			
Inspector	Tests	Failures	Percent	

492628655	54	1	1.8	
494846474	1	0	0.0	
497527049	5	0	0.0	
497678655	1	0	0.0	
499846474	98	2	2.0	
501527104	1	0	0.0	
507527104	25	0	0.0	
=====				

Figure 13. (continued)

SECTION 9

ERROR ANALYSIS PROGRAM

The basic process used for data entry quality assurance is to take a 5 percent random sample from the data base (1 out of 20). Then the two separate entries are compared. The actual steps in the process are as follows:

1. The operator enters a set of data consisting of about 20 forms.
2. After the 20th form is entered the computer program requires the operator to re-enter the last set of data.
3. The operator re-enters the 20th data set and goes on to the next form.
4. This process repeats every 20 forms.

In the computer, three separate data bases are used. The primary data base (A) contains all of the records. The secondary data base (B) contains a copy of those records randomly selected for the audit. The last data base (C) contains the second entry for the selected sample.

A separate program has been developed to compare the records in data bases B and C (Option 7). These records are compared field-by-field to determine the types of errors and their frequency for each field.

An example of this process is shown in Figure 14. The program processed the results upon selection of Option 7 from the main menu. Since the data bases used for this analysis are only 5 percent of the large data base processing will proceed rather quickly. A 132-column printer is needed for the output and the program must not be interrupted during processing.

SUMMARY REPORT

ERROR ANALYSIS

Out of 75 records there were a total of 168 errors.
 There were 67 records that did not have any errors.

Entry	No. of errors	Entry	No. of errors
-----	-----	-----	-----
Year	0	CO reinsp. status	0
Make	1	Exempt	0
Odometer	0	Waived	0
VIN	10	C 207B compliance	0
Body	0	Codes	0
First HC	0	Cost	0
First CO	1	First insp. station	0
HC status	74	First inspector	3
CO status	71	First insp. date	4
Reinsp. HC	0	Reinsp. station	1
Reinsp. CO	0	Reinsp. date	1
HC reinsp. status	0	Decal No.	2

Figure 14. Example output - error analysis

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REPORT OF ERRORS IN
ENTERING AUTOMOBILE DATA IN THE
MISSOURI DATA BASE

No.	YEAR	YEAR	MAKE	MAKE	DOUBLE ODOMETER	REENTER ODOMETER	DOUBLE VIN	REENTER VIN	DOUBLE BODY	REENTER BODY
1	78	77			0	0	8472108566	8472108566	0	0
2	78	77	CHEV	CHEV	86	85	1G3AR47A5DM474217	1GEAR47A5DM474217	0	0
3	78	77			0	0	8472108566	8472108566	0	0
4	78	77			0	0	8472108566	8472108566	0	0
5	78	77			0	0			0	0
6	78	77			0	0	8472108566	8472108566	0	0
7	78	77			0	0			0	0
8	0	0	CHEV	CHEV	0	0	1G3AR47A5DM474217	1GEAR47A5DM474217	0	0

Figure 14. (continued)

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REPORT OF ERRORS IN
ENTERING EMISSIONS DATA IN THE
MISSOURI DATA BASE

No.	DOUBLE FIRST INSP. HC	REENTER FIRST INSP. HC	DOUBLE FIRST INSP. CO	REENTER FIRST INSP. CO	DOUBLE HC STATUS	REENTER HC STATUS	DOUBLE REINS. HC	REENTER REINS. HC	DOUBLE REINS. CO	REENTER REINS. CO	DOUBLE HC STATUS	REENTER HC STATUS	DOUBLE CO STATUS	REENTER CO STATUS
1	0	0	0.00	0.00	P		0	0	0.00	0.00				
2	12	10	1.11	0.01	P		2	0	1.00	0.00	F			
3	0	0	0.00	0.00	P		0	0	0.00	0.00				
4	0	0	0.00	0.00	P		0	0	0.00	0.00				
5	12	10	1.11	0.01	P		2	0	1.00	0.00	F			
6	0	0	0.00	0.00	P		0	0	0.00	0.00				
7	12	10	1.11	0.01	P		2	0	1.00	0.00	F			
8	0	0	1.01	0.01	P		0	0	0.00	0.00				

Figure 14. (continued)

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REPORT OF ERRORS IN EXEMPT,
WAIVED, 207-B COMPLIANCE, ETC. ENTRIES
IN MISSOURI DATA BASE

No.	DOUBLE EXEMPT	REENTER EXEMPT	DOUBLE WAIVED	REENTER WAIVED	DOUBLE 207-B COMP.	REENTER 207-B COMP.	DOUBLE CODES	REENTER CODES
1	0	0	0	0	0	0		
2	1	0	1	0	1	0	MO	
3	0	0	0	0	0	0		
4	0	0	0	0	0	0		
5	1	0	1	0	1	0	MO	
6	0	0	0	0	0	0		
7	1	0	1	0	1	0	MO	
8	0	0	0	0	0	0		

Figure 14. (continued)

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REPORT OF ERRORS IN THE
STATION/INSPECTOR DATA IN THE
MISSOURI DATA BASE

No.	DOUBLE COST	RE- ENTER	DOUBLE FIRST INSP.	REENTER FIRST INSP.	DOUBLE FIRST INSPECTOR	REENTER FIRST INSPECTOR	DOUBLE FIRST INSP. DATE	REENTER FIRST INSP. DATE	DOUBLE REIN- SPECTOR	REENTER REIN- SPECTOR	DOUBLE REINSP. DATE	REENTER REINSP. DATE	DOUBLE DECAL No.	REENTER DECAL No.
1	0	0			496281526	496781526	/ /	/ /	0	0	/ /	/ /	E7180051	E2180051
2	12	0	196785	096785	500684582	500684682	03/27/86	03/03/27	487581192	487481192	03/20/86	03/03/20	E2248393	E2328393
3	0	0			496281526	496781526	/ /	/ /	0	0	/ /	/ /		
4	0	0			496281526	496781526	/ /	/ /	0	0	/ /	/ /	E7180051	E2180051
5	12	0	196785	096785	0	0	03/24/86	03/25/86	1	0	/ /	/ /		
6	0	0			496281526	496781526	/ /	/ /	0	0	/ /	/ /	E7180051	E2180051
7	0	0			0	0	/ /	/ /	0	0	/ /	/ /		
8	0	0			500684582	500684682	03/27/86	03/03/27	487581192	487481192	03/20/86	03/03/20	E2248393	E2328393

Figure 14. (continued)

SECTION 10

EXITING THE PROGRAM

The final Option (8) allows the user to exit the program and return to the dBASE III dot prompt (.).

TECHNICAL REPORT DATA <i>(Please read instructions on the reverse before completing)</i>		
1. REPORT NO. EPA-907/9-87-002	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE QA System for Missouri's Decentralized I/M Program	5. REPORT DATE August 1987	6. PERFORMING ORGANIZATION CODE
	8. PERFORMING ORGANIZATION REPORT NO. PN 3655-40	
7. AUTHOR(S)	10. PROGRAM ELEMENT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS PEI Associates, Inc.	11. CONTRACT/GRANT NO. 68-02-3890 Task Order No. 40	
	13. TYPE OF REPORT AND PERIOD COVERED	
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency Region VII, Air and Toxics Division/Air Branch 726 Minnesota Avenue Kansas City, Kansas 66101	14. SPONSORING AGENCY CODE	
	15. SUPPLEMENTARY NOTES	
16. ABSTRACT The St. Louis, Missouri, decentralized I/M program has experienced a low failure rate (FR) since the program started on January 1, 1984. This contract evaluated one-half month's I/M data for the actual FR. (The state has been determining the FR by evaluating data records from a 1 of 20 random sample.) The contract also produced a program to evaluate the I/M data for problems (Quality Assurance evaluations of inspector, inspections, models, model years, etc.)		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
I/M Data Evaluation Missouri I/M	I/M Failure Rates I/M Waiver Rates QA Data Evaluation Tampering Rates	
18. DISTRIBUTION STATEMENT Release unlimited	19. SECURITY CLASS (This Report) Unclassified	21. NO. OF PAGES
	20. SECURITY CLASS (This page) Unclassified	22. PRICE

APPENDIX A
SOURCE CODE FOR QA SYSTEM

** MISSOURI.PRG

*****MAIN MENU FOR MISSOURI EMISSION INSPECTION DATA SYSTEM

DO WHIL .T.

** SET UP COMPUTER

CLEAR ALL

SET BELL OFF

SET CONFIRM OFF

SET DELETED ON

SET ECHO OFF

SET ESCAPE ON

SET EXACT ON

SET INTENSITY ON

SET SAFETY OFF

SET TALK OFF

STOR 0 TO ANS

CLEA

** DISPLAY MENU

@ 2,20 SAY "Missouri Automobile Emission Inspection"

@ 3,27 SAY "Data Management Program"

@ 6,27 SAY "***** Main Menu *****"

@ 9,30 SAY "1. Data Entry"

@ 10,30 SAY "2. Error Correction"

@ 11,30 SAY "3. Overall Summary"

@ 12,30 SAY "4. Make Summary"

@ 13,30 SAY "5. Year Summary"

@ 14,30 SAY "6. Station Summary"

@ 15,30 SAY "7. Error Analysis"

@ 16,30 SAY "8. Return to dBASE III"

@ 18,21 SAY "Please enter your selection (1-8):"

DO WHIL ANS=0

** GET MENU SELECTION

@ 19,57 GET ANS PICT '@Z 9'

READ

** CALL UP PROGRAM BASED ON SELECTION

DO CASE

CASE ANS=1

DO DATAENTR

CASE ANS=2

DO CORRECT

CASE ANS=3

DO SUMMARY2

CASE ANS=4

DO SUMMARY3

CASE ANS=5

DO SUMMARY4

CASE ANS=6

DO SUMMARY5

CASE ANS=7

DO ERRORCHK

** EXIT PROGRAM

CASE ANS=8

CLEA ALL

RETU

OTHE

?? CHR(7)

STOR 0 TO ANS

ENDC

STOR 9 TO ANS

ENDD
ENDD
*EOF

* DATAENTR.PRG

***** SET UP COMPUTER

CLEAR ALL
SET BELL OFF
SET CONFIRM ON
SET DELETED ON
SET ECHO OFF
SET ESCAPE ON
SET EXACT ON
SET INTENSITY ON
SET SAFETY OFF
SET TALK OFF
SET FUNCTION 10 TO '99'

***** PREPARE DATA BASES

SELECT A
USE MISSOURI
SELECT B
USE DOUBLE
SELECT C
USE REENTER
SELECT D
USE LOEM2NUP
SELECT A
CLEAR

**** GET MONTH OF DATA TO BE ENTERED

@ 10,19 SAY "Please enter the month for which data are"
@ 11,19 SAY "to be entered (mm/yy):"
STOR " / " TO MMY
STOR "N" TO ANS
DO WHIL ANS="N"
 STOR "Y" TO ANS
 @ 11,43 GET MMY PICT '99/99'
 READ
 @ 20,23 SAY "Are the above data correct (Y/N)? "
 @ 20,57 GET ANS PICTURE '!'
 READ
 @ 20,1 CLEA
ENDDO
STOR SUBSTR(MMY,1,2) TO MMNTH
STOR SUBSTR(MMY,4,2) TO MYR

***** SET FREQUENCY TO CHECK DATA ENTRY

STORE 1 TO X
STORE 18+X TO FRE

***** DISPLAY CODES ON THE SCREEN

@ 2,12 SAY "The following are the codes used within this program"
@ 3,9 SAY "to indicate the cause for a vehicle failing an inspecti"
@ 3,64 SAY "on:"
@ 5,11 SAY "Exhaust System Inspection/Maintenance"
@ 7,9 SAY "E1 = Exhaust leak M0 = Not specified"
@ 8,42 SAY "M1 = Air filter element"
@ 9,42 SAY "M2 = TAC"
@ 10,14 SAY "Tampering M3 = Idle speed"
@ 11,42 SAY "M4 = Air /fuel mixture"
@ 12,9 SAY "T0 = Not specified M5 = Dwell"
@ 13,9 SAY "T1 = Catalytic converter M6 = Timing"

@ 14,9 SAY "T2 = PCV valve	M7 = Spark plugs"
@ 15,9 SAY "T3 = EGR valve	M8 = Spark plug wires"
@ 16,9 SAY "T4 = Air pump	M9 = Vacuum hose"
@ 17,9 SAY "T5 = Carbon canister	M0 = Electronic contro"
@ 17,64 SAY "Is"	
@ 18,9 SAY "T6 = Fuel inlet resistor	N1 = Low emission tune"
@ 18,64 SAY "-up"	
@ 19,9 SAY "T7 = Other	N2 = Other"
@ 23,0 SAY ""	

WAIT

SET CONFIRM OFF

STORE 1 TO COUNT

STORE " " TO MSTAT1ON

STORE 0 TO MINSPECT

STORE " " TO SAVE

STORE " " TO MDECAL

***** BEGIN OPERATION

DO WHILE .T.

DO WHILE COUNT <= FRE

CLEAR

***** INITIALIZE VARIABLES

STORE 0 TO MYEAR

STORE " " TO MMAKE

STORE 0 TO MMILES

STORE " " TO MVIN

STORE 0 TO MBODY

STORE " " TO MFUEL

STORE 0 TO MHC1

STORE 0.00 TO MCO1

STORE "P" TO MSTAT1HC

STORE "P" TO MSTAT1CO

STORE 0 TO MHCRE

STORE 0.00 TO MCORE

STORE " " TO MSTAT2HC

STORE " " TO MSTAT2CO

STORE 0 TO MEXE

STORE 0 TO MWAI

STORE 0 TO M207

STORE " " TO MCODES

STORE 0 TO MCOST

STORE " " TO MDATE1

STORE MINSPECT TO MREIN

STORE " " TO MDATE2

IF MDECAL <> " " .AND. SAVE <> "N"

STORE VAL(SUBSTR(MDECAL,2,7)) TO DECNO

STORE DECNO+1 TO DECNO

STORE LEN(STR(DECNO)) TO LEN

STORE "E"+SUBSTR(STR(DECNO),LEN-6,7) TO MDECAL

ENDIF

STORE 1 TO FLAG1

STORE 1 TO FLAG2

STORE 1 TO FLAG3

***** DRAW SCREEN

@ 1,11 SAY "YEAR:"

@ 1,31 SAY "MAKE:"

@ 1,50 SAY "ODOMETER:"

@ 3,12 SAY "VIN:"

```

@ 5,5 SAY "BODY STYLE:"
@ 5,41 SAY "FUEL:"
@ 8,14 SAY "FIRST INSPECTION          REINSPECTION"
@ 10,16 SAY "HC:"
@ 10,51 SAY "HC:"
@ 11,16 SAY "CO:"
@ 11,51 SAY "CO:"
@ 12,4 SAY "STATUS (HC/CO):"
@ 12,39 SAY "STATUS (HC/CO):"
@ 14,7 SAY "EXEMPT:"
@ 14,29 SAY "WAIVED:"
@ 14,49 SAY "207-B COMPLIANCE:"
@ 16,8 SAY "CODES:"
@ 16,60 SAY "COST:"
@ 18,2 SAY "STATION No.:"
@ 18,27 SAY "INSPECTOR:"
@ 18,52 SAY "DATE: "+SUBSTR(MMNT,1,2)+"/ "+SUBSTR(MYR,1,2)
@ 20,25 SAY "REINSPECTOR:"
@ 20,52 SAY "DATE: "+SUBSTR(MMNT,1,2)+"/ "+SUBSTR(MYR,1,2)
@ 22,8 SAY "STICKER/DECAL No.:"

```

***** BEGIN DATA ENTRY

```

DO WHILE MYEAR<71
  @ 24,18 SAY "Enter '99' for the year to return to the menu."
  @ 1,18 GET MYEAR PICTURE '@Z 99'
  READ
  @ 24,18 CLEAR
ENDDO

```

***** EXIT PROGRAM BY ENTERING '99' FOR YEAR

```

IF MYEAR=99
  CLEAR
  CLEAR ALL
  STORE " " TO ANS
  @ 10,21 SAY "Do you want to back up the data bases? "
  DO WHILE ANS (<) "Y" .AND. ANS (<) "N"
    @ 10,61 GET ANS PICTURE "!"
    READ
  ENDDO
  IF ANS="Y"
    !BACKUP C:*.DBF A:
  ENDIF
  RETURN
ENDIF
@ 1,38 GET MMAKE PICTURE '@! AAAA'
@ 1,61 GET MILES PICTURE '@Z 999'
@ 3,18 GET MVIN PICTURE '@! NNNNNNNNNNNNNNNNNNN'
@ 5,18 GET MBODY PICTURE '@Z 9'
READ

```

***** CHECK IF DATA BELONGS IN DATA BASE -- I.E. IS CAR AND GASOLINE DRIVEN

```

IF MBODY>2
  ?? CHR(7)
  @ 6,0 CLEAR
  @ 8,22 SAY "THIS VEHICLE IS NOT PART OF THIS DATA BASE."
  @ 9,30 SAY "GO ON TO THE NEXT FORM."
  WAIT
  CLEAR
  LOOP
ENDIF

```



```
@ 5,48 GET MFUEL PICTURE '@! A'
READ
IF MFUEL (<) "G"
  ?? CHR(7)
  @ 6,0 CLEAR
  @ 8,22 SAY "THIS VEHICLE IS NOT PART OF THIS DATA BASE."
  @ 9,30 SAY "GO ON TO THE NEXT FORM."
  WAIT
  CLEAR
  LOOP
ENDIF
```

```
***** CHECK FOR EXEMPTION
IF MYEAR>85 .OR. MYEAR<71 .OR. MBODY>2
  STORE 1 TO MEXE
ENDIF
```

```
@ 10,21 GET MHC1 PICTURE '@Z 9999'
READ
IF MHC1>2000
  STORE 2000 TO MHC1
  @ 10,21 SAY MHC1 PICTURE "9999"
ENDIF
@ 11,21 GET MCO1 PICTURE '@Z 9.99'
READ
```

```
***** DETERMINE PASS/FAIL FOR FIRST INSPECTION
```

```
DO CASE
  CASE MYEAR>80
    IF MHC1>220
      STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>1.2
      STORE "F" TO MSTAT1CO
    ENDIF
  CASE MYEAR=80
    IF MHC1>300
      STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>3.0
      STORE "F" TO MSTAT1CO
    ENDIF
  CASE MYEAR>74
    IF MHC1>600
      STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>6.0
      STORE "F" TO MSTAT1CO
    ENDIF
  CASE MYEAR>70
    IF MHC1>700
      STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>7.0
      STORE "F" TO MSTAT1CO
    ENDIF
ENDCASE
@ 12,21 SAY MSTAT1HC
@ 12,22 SAY "/"
@ 12,23 SAY MSTAT1CO
```

***** IF FAILED FIRST TIME GET REINSPECTION DATA

```
IF MSTAT1HC ( ) "P" .OR. MSTAT1CO ( ) "P"  
  STORE "P" TO MSTAT2HC  
  STORE "P" TO MSTAT2CO  
  @ 10,56 GET MHCRE PICTURE '@Z 9999'  
  READ  
  IF MHCRE)2000  
    STORE 2000 TO MHCRE  
    @ 10,56 SAY MHCRE PICTURE "9999"  
  ENDIF  
  @ 11,56 GET MHCRE PICTURE '@Z 9.99'  
  READ
```

***** DETERMINE STATUS OF REINSPECTION

```
DO CASE
CASE MYEAR>80
    IF MHCRE>220
        STORE "F" TO MSTAT2HC
    ENDIF
    IF MCORE>1.2
        STORE "F" TO MSTAT2CO
    ENDIF
CASE MYEAR=80
    IF MHCRE>300
        STORE "F" TO MSTAT2HC
    ENDIF
    IF MCORE>3.0
        STORE "F" TO MSTAT2CO
    ENDIF
CASE MYEAR>74
    IF MHCRE>600
        STORE "F" TO MSTAT2HC
    ENDIF
    IF MCORE>6.0
        STORE "F" TO MSTAT2CO
    ENDIF
CASE MYEAR>71
    IF MHCRE>700
        STORE "F" TO MSTAT2HC
    ENDIF
    IF MCORE>7.0
        STORE "F" TO MSTAT2CO
    ENDIF
```

```
ENDCASE
@ 12,56 SAY MSTAT2HC
@ 12,57 SAY "/"
@ 12,58 SAY MSTAT2CO
READ
```

```
ENDIF  
@ 16,16 GET MCODES PICTURE '@! A9A9A9A9A9A9A9A9A9A9A9A9A9A9A9A9'  
READ  
IF MSTAT1HC (>) "P" ,OR. MSTAT1CO (>) "P"  
    @ 16,67 GET MCOST PICTURE '@Z 999'  
    READ  
ENDI
```

***** DETERMINE WAIVER / 207-B COMPLIANCE

```
IF (MSTAT1HC="F" .OR. MSTAT1CO="F") .AND. (MSTAT2HC="F" .OR. MSTAT2CO="F")
  STORE 1 TO MWAI
ENDIF
```

```
IF (MSTAT1HC="F" .OR. MSTAT1CO="F") .AND. MYEAR>83 .AND. MMILES<24
  STORE 1 TO M207
ENDIF
@ 14,15 SAY MEXE PICTURE "*"
@ 14,38 SAY MWAI PICTURE "*"
@ 14,67 SAY M207 PICTURE "*"
```

***** GET INSPECTOR/REINSPECTOR DATA

```
@ 18,16 GET MSTATION PICTURE '999999'
READ
STORE SUBSTR(MSTATION,1,3) TO AREA
IF AREA (<) "115" .AND. AREA (<) "0%6" .AND. AREA (<) "296" .AND. AREA (<) "092" .AND. AREA (<) "050"
  ?? CHR(7)
  @ 19,0 CLEAR
  @ 20,22 SAY "THIS VEHICLE IS NOT PART OF THIS DATA BASE."
  @ 21,30 SAY "GO ON TO THE NEXT FORM."
  WAIT
  CLEAR
  LOOP
ENDIF
@ 18,39 GET MINSPECT PICTURE '@Z 9999999999'
READ
```

***** GET INSPECTION DATE

```
DO WHILE FLAG1=1
  @ 24,12 SAY "To enter dates after March 31,1986 press the [F10] key."
  @ 18,61 GET MDATE1 PICTURE '99'
  READ
  IF MDATE1<"00" .AND. MDATE1<"32"
    STORE 0 TO FLAG1
  ENDIF
  IF MDATE1="99"
    @ 18,57 SAY " "
    STORE DATE() TO MDATEA
    @ 18,58 GET MDATEA
    READ
    STORE DTOC(MDATEA) TO MDATE1
    STORE 0 TO FLAG1
  ENDIF
  @ 24,0 CLEAR
ENDDO
IF MSTAT1HC (<) "P" .OR. MSTAT1CO (<) "P"
  @ 20,39 GET MREIN PICTURE '@Z 9999999999'
  READ
```

***** GET REINSPECTION DATE

```
DO WHILE FLAG2=1
  IF LEN(MDATE1)<3
    @ 24,12 SAY "To enter dates after March 31,1986 press the [F10] key."
    @ 20,61 GET MDATE2 PICTURE '99'
    READ
    IF MDATE2<"00" .AND. MDATE2<"32"
      IF MDATE2=MDATE1
        STORE 0 TO FLAG2
      ENDIF
      @ 24,0 CLEAR
      LOOP
    ENDIF
  ENDIF
  IF MDATE2="99" .OR. LEN(MDATE1)>2
```

```

        STORE 0 TO FLAG2
        @ 20,57 SAY "
        STORE DATE() TO MDATEA
        @ 20,58 GET MDATEA
        READ
        STORE DTOD(MDATEA) TO MDATE2
    ENDIF
ENDDO
ENDIF
@ 22,28 GET MDECAL PICTURE '@! A9999999'
READ
IF SUBSTR(MDECAL,1,1) <> "E"
    ?? CHR(7)
    @ 19,0 CLEAR
    @ 20,22 SAY "THIS VEHICLE IS NOT PART OF THIS DATA BASE."
    @ 21,30 SAY "GO ON TO THE NEXT FORM."
    WAIT
    CLEAR
    LOOP
ENDIF
IF LEN(MDATE1)<3
    IF LEN(MDATE1)=1
        STORE "0"+MDATE1 TO MDATE1
    ENDIF
    STORE MMNTH+"/"+MDATE1+"/"+MYR TO MDATE1
ENDIF
IF LEN(MDATE2)<3
    IF LEN(MDATE2)=1
        STORE "0"+MDATE2 TO MDATE2
    ENDIF
    STORE MMNTH+"/"+MDATE2+"/"+MYR TO MDATE2
ENDIF
STORE " " TO SAVE

```

***** ASK IF DATA ARE CORRECT

```

DO WHILE SAVE <> "Y" .AND. SAVE <> "N"
    @ 24,0 CLEAR
    ?? CHR(7)
    @ 24,23 SAY "Are the above data correct (Y/N)? "
    @ 24,57 GET SAVE PICTURE '!'
    READ
ENDDO
IF SAVE="N"
    LOOP
ENDIF

```

***** STORE DATA TO MAIN DATA BASE

```

SELECT A
APPEND BLANK
REPLACE YEAR WITH MYEAR,MAKE WITH MMAKE,ODOMETER WITH MMILES,VIN WITH MVIN,BODY WITH MBODY
REPLACE HC_FIRST WITH MHC1,CO_FIRST WITH MCD1,STATUS1HC WITH MSTAT1HC,STATUS1CO WITH MSTAT1CO
REPLACE HC_RE WITH MHCRE,CO_RE WITH MCDRE,STATUS2HC WITH MSTAT2HC,STATUS2CO WITH MSTAT2CO
REPLACE EXEMPT WITH MEHE,WAIVED WITH MWAI,C_207B WITH M207,CODES WITH MCODES,COST WITH MCOST
REPLACE STATION_1 WITH MSTATION,INSPECT_1 WITH MINSPECT,DATE_1 WITH CTOD(MDATE1)
IF MSTAT1HC <> "P" .OR. MSTAT1CO <> "P"
    REPLACE REINSPECT WITH MREIN,RE_DATE WITH CTOD(MDATE2)
ENDIF
REPLACE DECAL WITH MDECAL
STORE 1 TO LOW
IF MWAI=1

```

***** ENTER LOW EMISSION TUNE-UP FORM DATA

SELECT D

CLEAR

***** INITIALIZE VARIABLES

DO WHILE LOW=1

STORE " " TO MMECH

STORE " " TO M2NDATE

STORE 0 TO MATHC

STORE 0.00 TO MATCO

STORE " " TO MCONT

***** DISPLAY SCREEN

@ 1,4 SAY "VIN :"

@ 1,11 SAY "VIN

@ 1,33 SAY "Make :"

@ 1,41 SAY "MAKE PICTURE "AAAA"

@ 1,56 SAY "Year :"

@ 1,63 SAY "YEAR PICTURE "99"

@ 3,22 SAY "Mechanic No. :"

@ 5,23 SAY "Station No. :"

@ 7,30 SAY "Date: "

@ 9,10 SAY "Before Tune-up

After Tune-up"

@ 11,12 SAY "HC :"

@ 11,51 SAY "HC :"

@ 12,12 SAY "CO :"

@ 12,51 SAY "CO :"

@ 14,7 SAY "Adjustments :"

@ 15,14 SAY "Cost :"

@ 17,25 SAY "Control No. :"

***** ENTER DATA

@ 3,38 GET "MECH PICTURE "999X99X9999"

@ 5,38 GET "STATION PICTURE "999999"

READ

DO WHILE FLAG3=1

IF LEN(MDATE2)<3

@ 24,12 SAY "To enter dates after March 31,1986 press the [F10] Key."

@ 7,40 GET M2NDATE PICTURE '99'

READ

IF M2NDATE>"00" .AND. M2NDATE<"32"

IF M2NDATE=MDATE2

STORE 0 TO FLAG3

ENDIF

@ 24,0 CLEAR

LOOP

ENDIF

ENDIF

IF M2NDATE="99" .OR. LEN(MDATE2)>2

STORE 0 TO FLAG3

@ 7,37 SAY " "

STORE DATE() TO MDATEA

@ 7,38 GET MDATEA

READ

STORE DTOC(MDATEA) TO M2NDATE

ENDIF

ENDDO

@ 11,18 GET "HCRC PICTURE "9999"

READ

IF "HCRC">2000


```

REPLACE STATION_1 WITH MSTATION,INSPECT_1 WITH MINSPECT,DATE_1 WITH CTOD(MDATE1)
IF MSTAT1HC (> "P" .OR. MSTAT1CO (> "P"
  REPLACE REINSPECT WITH MREIN,RE_DATE WITH CTOD(MDATE2)
ENDIF
REPLACE DECAL WITH MDECAL

```

```

***** REENTER DATA INTO REENTER DATA BASE --- SEE NOTES FROM INITIAL DATA ENTRY
SELECT C
CLEAR

```

```

***** NOTIFY KEYPUNCH OPERATOR TO REENTER THE LAST FORM
?? CHR(7)
@ 12,5 SAY "THIS IS A TEST. THIS IS ONLY A TEST! THIS PROGRAM IN CONJUNCTION WITH"
@ 14,5 SAY "THE EPA IS CONDUCTING A TEST TO DETERMINE THE ACCURACY OF THIS SYSTEM."
@ 16,6 SAY "PLEASE ENTER THE DATA FROM THE PREVIOUS FORM AGAIN. THANK YOU."
@ 22,1 SAY ""
WAIT

```

```

STORE " " TO SAVE
DO WHILE SAVE=" "

```

```

***** INITIALIZE VARIABLES

```

```

CLEAR
STORE 0 TO MYEAR
STORE " " TO MMAKE
STORE 0 TO MMILES
STORE " " TO MVIN
STORE 0 TO MBODY
STORE " " TO MFUEL
STORE 0 TO MHC1
STORE 0.00 TO MCO1
STORE "P" TO MSTAT1HC
STORE "P" TO MSTAT1CO
STORE 0 TO MHCRE
STORE 0.00 TO MCORE
STORE " " TO MSTAT2HC
STORE " " TO MSTAT2CO
STORE 0 TO MEXE
STORE 0 TO MWAI
STORE 0 TO M207
STORE " " TO MCODES
STORE 0 TO MCOST
STORE " " TO MSTATION
STORE 0 TO MINSPECT
STORE " " TO MDATE1
STORE 0 TO MREIN
STORE " " TO MDATE2
STORE " " TO MDECAL
STORE 1 TO FLAG1
STORE 1 TO FLAG2
STORE 1 TO FLAG3

```

```

***** DRAW SCREEN

```

```

@ 1,11 SAY "YEAR:"
@ 1,31 SAY "MAKE:"
@ 1,50 SAY "ODOMETER:"
@ 3,12 SAY "VIN:"
@ 5,5 SAY "BODY STYLE:"
@ 5,41 SAY "FUEL:"
@ 8,14 SAY "FIRST INSPECTION" REINSPECTION"
@ 10,16 SAY "HC:"

```

```

@ 10,51 SAY "HC:"
@ 11,16 SAY "CO:"
@ 11,51 SAY "CO:"
@ 12,4 SAY "STATUS (HC/CO):"
@ 12,39 SAY "STATUS (HC/CO):"
@ 14,7 SAY "EXEMPT:"
@ 14,29 SAY "WAIVED:"
@ 14,49 SAY "207-B COMPLIANCE:"
@ 16,8 SAY "CODES:"
@ 16,60 SAY "COST:"
@ 18,2 SAY "STATION No.:"
@ 18,27 SAY "INSPECTOR:"
@ 18,52 SAY "DATE: "+SUBSTR(MMINTH,1,2)+"/ /"+SUBSTR(MYR,1,2)
@ 20,25 SAY "REINSPECTOR:"
@ 20,52 SAY "DATE: "+SUBSTR(MMINTH,1,2)+"/ /"+SUBSTR(MYR,1,2)
@ 22,8 SAY "STICKER/DECAL No.:"

```

***** BEGIN DATA REENTRY

```

DO WHILE MYEAR<71
  @ 1,18 GET MYEAR PICTURE '@Z 99'
  READ
ENDDO
@ 1,38 GET MMAKE PICTURE '@! AAAA'
@ 1,61 GET MILES PICTURE '@Z 999'
@ 3,18 GET MVIN PICTURE '@! NNNNNNNNNNNNNNNNN'
@ 5,18 GET MBODY PICTURE '@Z 9'
READ
IF MBODY>2
  ?? CHR(7)
  @ 6,0 CLEAR
  @ 8,22 SAY "THIS VEHICLE IS NOT PART OF THIS DATA BASE."
  @ 9,30 SAY "GO ON TO THE NEXT FORM."
  WAIT
  CLEAR
  LOOP
ENDIF
@ 5,48 GET MFUEL PICTURE '@! A'
READ
IF MFUEL (>) "G"
  ?? CHR(7)
  @ 6,0 CLEAR
  @ 8,22 SAY "THIS VEHICLE IS NOT PART OF THIS DATA BASE."
  @ 9,30 SAY "GO ON TO THE NEXT FORM."
  WAIT
  CLEAR
  LOOP
ENDIF
IF MYEAR>85 .OR. MYEAR<71 .OR. MBODY>2
  STORE 1 TO MEXE
ENDIF
@ 10,21 GET MHC1 PICTURE '@Z 9999'
READ
IF MHC1>2000
  STORE 2000 TO MHC1
ENDIF
@ 11,21 GET MCO1 PICTURE '@Z 9.99'
READ
DO CASE
  CASE MYEAR>80
    IF MHC1>220

```



```

        STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>1.2
        STORE "F" TO MSTAT1CO
    ENDIF
CASE MYEAR=80
    IF MHC1>300
        STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>3.0
        STORE "F" TO MSTAT1CO
    ENDIF
CASE MYEAR>74
    IF MHC1>600
        STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>6.0
        STORE "F" TO MSTAT1CO
    ENDIF
CASE MYEAR>71
    IF MHC1>700
        STORE "F" TO MSTAT1HC
    ENDIF
    IF MCO1>7.0
        STORE "F" TO MSTAT1CO
    ENDIF
ENDCASE
@ 12,21 SAY MSTAT1HC
@ 12,22 SAY "/"
@ 12,23 SAY MSTAT1CO
IF MSTAT1HC (>) "P" .OR. MSTAT1CO (>) "P"
    STORE "P" TO MSTAT2HC
    STORE "P" TO MSTAT2CO
    @ 10,56 GET MHCRE PICTURE '@Z 9999'
    READ
    IF MHCRE>2000
        STORE 2000 TO MHCRE
    ENDIF
    @ 11,56 GET MCORE PICTURE '@Z 9.99'
    READ
DO CASE
    CASE MYEAR>80
        IF MHCRE>220
            STORE "F" TO MSTAT2HC
        ENDIF
        IF MCORE>1.2
            STORE "F" TO MSTAT2CO
        ENDIF
    CASE MYEAR=80
        IF MHCRE>300
            STORE "F" TO MSTAT2HC
        ENDIF
        IF MCORE>3.0
            STORE "F" TO MSTAT2CO
        ENDIF
    CASE MYEAR>74
        IF MHCRE>600
            STORE "F" TO MSTAT2HC
        ENDIF
        IF MCORE>6.0

```

```

        STORE "F" TO MSTAT2C0
    ENDIF
CASE MYEAR>71
    IF MHCRE>700
        STORE "F" TO MSTAT2HC
    ENDIF
    IF MCDRE>7.0
        STORE "F" TO MSTAT2C0
    ENDIF
ENDCASE
@ 12,56 SAY MSTAT2HC
@ 12,57 SAY "/"
@ 12,58 SAY MSTAT2C0
@ 16,16 GET MCODES PICTURE '@! A9A9A9A9A9A9A9A9A9A9A9A9A9A9A9'
@ 16,67 GET MCOST PICTURE '@Z 999'
ENDIF
IF (MSTAT1HC="F" .OR. MSTAT1CO="F") .AND. (MSTAT2HC="F" .OR. MSTAT2C0="F")
    STORE 1 TO MMAI
ENDIF
IF (MSTAT1HC="F" .OR. MSTAT1CO="F") .AND. MYEAR >83 .AND. MMILES<24
    STORE 1 TO M207
ENDIF
@ 14,15 SAY MEXE
@ 14,38 SAY MMAI
@ 14,67 SAY M207
@ 18,16 GET MSTATION PICTURE '999999'
@ 18,39 GET MINSPECT PICTURE '@Z 999999999'
READ

DO WHILE FLAG1=1
    @ 24,12 SAY "To enter dates after March 31,1986 press the [F10] key."
    @ 18,61 GET MDATE1 PICTURE '99'
    READ
    IF MDATE1>"00" .AND. MDATE1<"32"
        STORE 0 TO FLAG1
    ENDIF
    IF MDATE1="99"
        @ 18,57 SAY "      "
        STORE DATE() TO MDATEA
        @ 18,58 GET MDATEA
        READ
        STORE DTOC(MDATEA) TO MDATE1
        STORE 0 TO FLAG1
    ENDIF
    @ 24,0 CLEAR
ENDDO
IF MSTAT1HC (<) "P" .OR. MSTAT1CO (<) "P"
    @ 20,39 GET MREIN PICTURE '@Z 999999999'
    READ

***** GET REINSPECTION DATE
DO WHILE FLAG2=1
    IF LEN(MDATE1)<3
        @ 24,12 SAY "To enter dates after March 31,1986 press the [F10] key."
        @ 20,61 GET MDATE2 PICTURE '99'
        READ
        IF MDATE2>"00" .AND. MDATE2<"32"
            IF MDATE2)=MDATE1
                STORE 0 TO FLAG2
            ENDIF

```

```

        @ 24,0 CLEAR
        LOOP
    ENDIF
ENDIF
IF MDATE2="99" .OR. LEN(MDATE1)>2
    STORE 0 TO FLAG2
    @ 20,57 SAY "
    STORE DATE() TO MDATEA
    @ 20,58 GET MDATEA
    READ
    STORE DTOD(MDATEA) TO MDATE2
ENDIF
ENDDO
ENDIF
@ 22,28 GET MDECAL PICTURE '@! A9999999'
READ
IF LEN(MDATE1)=1
    STORE "0"+MDATE1 TO MDATE1
ENDIF
IF LEN(MDATE2)=1
    STORE "0"+MDATE2 TO MDATE2
ENDIF
STORE MMNTH+"/"+MDATE1+"/"+MYR TO MDATE1
STORE MMNTH+"/"+MDATE2+"/"+MYR TO MDATE2
DO WHILE SAVE=" "
    @ 24,0 CLEAR
    ?? CHR(7)
    @ 24,23 SAY "Are the above data correct (Y/N)? "
    @ 24,57 GET SAVE PICTURE '!'
    READ
    IF SAVE (<) "Y" .AND. SAVE (<) "N"
        STORE " " TO SAVE
    ENDIF
ENDDO
IF SAVE="N"
    STORE " " TO SAVE
ENDIF
ENDDO

***** STORE DATA TO DATA BASE
SELECT C
APPEND BLANK
REPLACE YEAR WITH MYEAR,MAKE WITH MMAKE,ODOMETER WITH MMILES,VIN WITH MVIN,BODY WITH MBODY
REPLACE HC_FIRST WITH MHC1,CO_FIRST WITH MCO1,STATUS1HC WITH MSTAT1HC,STATUS1CO WITH MSTAT1CO
REPLACE HC_RE WITH MHCRE,CO_RE WITH MCORE,STATUS2HC WITH MSTAT2HC,STATUS2CO WITH MSTAT2CO
REPLACE EXEMPT WITH MEXE,WAIVED WITH MWA1,C_207B WITH M207,CODES WITH MCODES,COST WITH MCOST
REPLACE STATION_1 WITH MSTATION,INSPECT_1 WITH MINSPECT,DATE_1 WITH CTOD(MDATE1)
IF MSTAT1HC (<) "P" .OR. MSTAT1CO (<) "P"
    REPLACE REINSPECT WITH MREIN,RE_DATE WITH CTOD(MDATE2)
ENDIF
REPLACE DECAL WITH MDECAL

*****RESET ERROR CHECKING COUNTER
STORE 1 TO COUNT

***** RETURN TO MAIN DATA BASE TO CONTINUE DATA ENTRY
ENDDO
*EOF

```

```

** CORRECT.PRG
***** DISPLAYS ALL VALUES OF MAKE, STATION AND YEAR
***** GIVES USERS EXAMPLE OF COMMAND TO CORRECT ERRORS

** SET UP COMPUTER
CLEAR ALL
SET BELL OFF
SET CONFIRM OFF
SET DELETED ON
SET ECHO OFF
SET ESCAPE ON
SET EXACT ON
SET INTENSITY ON
SET SAFETY OFF
SET TALK OFF
SET UNIQUE ON
CLEA
SELE A
USE MISSOURI

CLEA
SET COLO TO W*,B
@ 10,20 SAY "PLEASE WAIT WHILE I INDEX THE DATA BASE."
SET COLO TO W
IF .NOT. FILE("IMAKE.NDX")
    INDE ON MAKE TO IMAKE
ELSE
    SET INDE TO IMAKE
    REIN
ENDI
SET INDE TO IMAKE
SET DEVI TO PRIN

@ 2,15 SAY "INSTRUCTIONS FOR MAKING CORRECTIONS TO THE DATA BASE"
@ 5,12 SAY "This program provides users with a list of all the vehi"
@ 5,67 SAY "cle makes"
@ 6,7 SAY "in the Missouri data base, including misspellings. Use"
@ 6,62 SAY "rs can then"
@ 7,7 SAY "use the dBASE III 'Replace' command to correct the miss"
@ 7,62 SAY "pelled"
@ 8,7 SAY "vehicle makes. Examples of how to use the 'replace' co"
@ 8,62 SAY "mmand are"
@ 9,7 SAY "given below:"
@ 12,11 SAY "1. To correct one misspelling at a time use the command"
@ 12,67 SAY "-"
@ 14,12 SAY "REPLACE ALL MAKE WITH '(correct spelling)' FOR MAKE ="
@ 15,15 SAY "'(incorrect spelling)'"
@ 17,12 SAY "Note: You must use the quotation marks; however the '('("
@ 17,68 SAY "and"
@ 18,18 SAY "the ') must NOT be used,"
@ 20,12 SAY "EXAMPLE: REPLACE ALL MAKE WITH 'FORD' FOR MAKE = 'FODR'"
@ 23,11 SAY "2. To correct several misspellings of the same make at"
@ 23,66 SAY "the same"
@ 24,14 SAY "time use the command -"
@ 26,12 SAY "REPLACE ALL MAKE WITH '(correct spelling)' FOR MAKE = '"
@ 26,67 SAY "{first"
@ 27,16 SAY "incorrect spelling)' ,AND, MAKE = '(second incorrect"
@ 28,16 SAY "spelling)' ,AND, MAKE = ,,,,"
@ 31,13 SAY "EXAMPLE: REPLACE ALL MAKE WITH 'FORD' FOR MAKE = 'FODR'"
@ 31,69 SAY ",AND,"

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```

@ 32,17 SAY "MAKE = 'FROD' .AND. MAKE = 'FOSD'"
@ 35,7 SAY "These commands must be issued from the dBASE III dot (."
@ 35,62 SAY ") prompt."
@ 36,7 SAY "First exit this program. Then to avoid confusion, and"
@ 36,62 SAY "prepare"
@ 37,7 SAY "dBASE III enter the following commands:"
@ 39,25 SAY ".CLEAR ALL"
@ 40,25 SAY ".USE MISSOURI"
@ 42,7 SAY "You are now ready to make the appropriate corrections t"
@ 42,62 SAY "o the data"
@ 43,7 SAY "base. Other corrections and changes can be made with d"
@ 43,62 SAY "BASE III"
@ 44,7 SAY "commands, e.g. EDIT and BROWSE. Users should refer to"
@ 44,62 SAY "the dBASE"
@ 45,7 SAY "III manual for a full discussion of these commands."
STOR 70 TO LINE
DO WHILE .NOT. EOF()
  IF LINE>60
    EJECT
    @ PROW(),15 SAY "LISTING OF ALL THE MAKES IN THE MISSOURI DATA BASE"
    @ PROW()+2,21 SAY "Note: Most of the makes listed appear"
    @ PROW()+1,24 SAY "in the data base more than once."
    @ PROW()+2,1 SAY " "
    STOR 12 TO LINE
  ENDI
  STOR 0 TO X
  IF RECNO()>1
    SKIP
  ENDI
  @ PROW()+1,X*12+8 SAY MAKE
  DO WHILE X<5
    SKIP
    IF EOF()
      STOR 6 TO X
      LOOP
    ENDI
    STOR X+1 TO X
    @ PROW(),X*12+8 SAY MAKE
  ENDD
  STOR LINE+1 TO LINE
ENDD
SET DEVI TO SCREEN
EJECT
*** EOF

```

**** SUMMARY2.PRG

***** SET UP COMPUTER

CLEAR ALL
SET BELL OFF
SET CONFIRM ON
SET DELETED ON
SET ECHO OFF
SET ESCAPE ON
SET FUNCTION 10 TO 'QUIT;'
SET INTENSITY ON
SET SAFETY OFF
SET TALK OFF
SET FUNCTION 10 TO '99'

***** ALLOW USERS TO SELECT INSPECTION STATION

SELE A
USE MISSOURI
GO BOT
STOR RECNO() TO NUM
GO TOP
CLEA
IF .NOT. FILE("INSPECT.NDX")
* !QX &DATAB INSPECT_1 INSPECT
ENDI

***** PREPARE DATA BASE

SELE C
USE STATIONS
ZAP
SELE A
CLEA
SET COLO TO W*,B
@ 10,20 SAY "PLEASE WAIT WHILE I INDEX THE DATA BASE."
SET COLO TO W
IF .NOT. FILE("ISTATION.NDX")
INDE ON STATION_1 TO ISTATION
ELSE
SET INDE TO ISTATION
REIN
ENDI

SET INDE TO ISTATION

STOR 0 TO COUNT

GO TOP

CLEA

**** MAIN PROGRAM

**** CALCULATE TOTALS BY MAKE

STOR 71 TO MEYEAR
STOR 98 TO MSYEAR
STOR 0 TO TOTAL1
STOR 0 TO PASS1
STOR 0 TO HVAL1
STOR 0 TO HSQ1
STOR 0 TO HMAX1
STOR 2000 TO HMIN1
STOR 0.00 TO CVAL1
STOR 0.00 TO CSQ1

STOR 0.00 TO CMAX1
STOR 9.99 TO CMIN1
STOR 0 TO HFAIL1
STOR 0 TO CFAIL1
STOR 0 TO BFAIL1
STOR 0 TO HRFAIL1
STOR 0 TO CRFAIL1
STOR 0 TO BRFAIL1
STOR 0 TO MEXMPT1
STOR 0 TO MWAVED1
STOR 0 TO MCMPLI1
STOR 0 TO HRVAL1
STOR 0 TO HRSQ1
STOR 0 TO HRMAX1
STOR 2000 TO HRMIN1
STOR 0.00 TO CRVAL1
STOR 0.00 TO CRSQ1
STOR 0.00 TO CRMAX1
STOR 9.99 TO CRMIN1
STOR 0 TO REINS1
STOR 0 TO TOTAL2
STOR 0 TO PASS2
STOR 0 TO HVAL2
STOR 0 TO HSQ2
STOR 0 TO HMAX2
STOR 2000 TO HMIN2
STOR 0.00 TO CVAL2
STOR 0.00 TO CSQ2
STOR 0.00 TO CMAX2
STOR 9.99 TO CMIN2
STOR 0 TO HFAIL2
STOR 0 TO CFAIL2
STOR 0 TO BFAIL2
STOR 0 TO HRFAIL2
STOR 0 TO CRFAIL2
STOR 0 TO BRFAIL2
STOR 0 TO MEXMPT2
STOR 0 TO MWAVED2
STOR 0 TO MCMPLI2
STOR 0 TO HRVAL2
STOR 0 TO HRSQ2
STOR 0 TO HRMAX2
STOR 2000 TO HRMIN2
STOR 0.00 TO CRVAL2
STOR 0.00 TO CRSQ2
STOR 0.00 TO CRMAX2
STOR 9.99 TO CRMIN2
STOR 0 TO REINS2
STOR 0 TO TOTAL3
STOR 0 TO PASS3
STOR 0 TO HVAL3
STOR 0 TO HSQ3
STOR 0 TO HMAX3
STOR 2000 TO HMIN3
STOR 0.00 TO CVAL3
STOR 0.00 TO CSQ3
STOR 0.00 TO CMAX3
STOR 9.99 TO CMIN3
STOR 0 TO HFAIL3
STOR 0 TO CFAIL3

```

STOR 0 TO BFAL3
STOR 0 TO HRFAIL3
STOR 0 TO CRFAIL3
STOR 0 TO BRFAIL3
STOR 0 TO MEXMPT3
STOR 0 TO MWAVED3
STOR 0 TO MCMPLI3
STOR 0 TO HRVAL3
STOR 0 TO HRSQ3
STOR 0 TO HRMAX3
STOR 2000 TO HRMIN3
STOR 0.00 TO CRVAL3
STOR 0.00 TO CRSQ3
STOR 0.00 TO CRMAX3
STOR 9.99 TO CRMIN3
STOR 0 TO REINS3
STOR 0 TO TOTAL4
STOR 0 TO PASS4
STOR 0 TO HVAL4
STOR 0 TO HSQ4
STOR 0 TO HMAX4
STOR 2000 TO HMIN4
STOR 0.00 TO CVAL4
STOR 0.00 TO CSQ4
STOR 0.00 TO CMAX4
STOR 9.99 TO CMIN4
STOR 0 TO HFAL4
STOR 0 TO CFAL4
STOR 0 TO BFAL4
STOR 0 TO HRFAIL4
STOR 0 TO CRFAIL4
STOR 0 TO BRFAIL4
STOR 0 TO MEXMPT4
STOR 0 TO MWAVED4
STOR 0 TO MCMPLI4
STOR 0 TO HRVAL4
STOR 0 TO HRSQ4
STOR 0 TO HRMAX4
STOR 2000 TO HRMIN4
STOR 0.00 TO CRVAL4
STOR 0.00 TO CRSQ4
STOR 0.00 TO CRMAX4
STOR 9.99 TO CRMIN4
STOR 0 TO REINS4
STOR 0 TO ZTOTAL
STOR 0 TO ZREINS
STOR 0 TO ZFAL
STOR 0 TO ZRFAL
@ 5,10 SAY "Processing record      of "
@ 5,40 SAY NUM
?? " "
DO WHILE .NOT. EOF()
    STOR COUNT+1 TO COUNT
    @ 5,28 SAY COUNT PICT '9999999'
    IF YEAR<MEYEAR
        STOR YEAR TO MEYEAR
    ENDI
    IF YEAR<MSYEAR
        STOR YEAR TO MSYEAR
    ENDI

```



```

DO CASE
CASE YEAR<75
  STOR TOTAL1+1 TO TOTAL1
  IF EXEMPT=1
    STOR MEXMPT1+1 TO MEXMPT1
  ELSE
    STOR HC_FIRST+HVAL1 TO HVAL1
    STOR HC_FIRST^2+HSQ1 TO HSQ1
    STOR CO_FIRST+CVAL1 TO CVAL1
    STOR CO_FIRST^2+CSQ1 TO CSQ1
    IF HC_FIRST<HMIN1
      STOR HC_FIRST TO HMIN1
    ENDI
    IF HC_FIRST>HMAX1
      STOR HC_FIRST TO HMAX1
    ENDI
    IF CO_FIRST<CMIN1
      STOR CO_FIRST TO CMIN1
    ENDI
    IF CO_FIRST>CMAX1
      STOR CO_FIRST TO CMAX1
    ENDI
  DO CASE
    CASE STATUS1HC="F" .AND. STATUS1CO="P"
      STOR HFAIL1+1 TO HFAIL1
    CASE STATUS1CO="F" .AND. STATUS1HC="P"
      STOR CFAIL1+1 TO CFAIL1
    CASE STATUS1HC="F" .AND. STATUS1CO="F"
      STOR BFAIL1+1 TO BFAIL1
    CASE STATUS1HC="P" .AND. STATUS1CO="P"
      STOR PASS1+1 TO PASS1
  ENDC
  IF HC_RE>0 .OR. CO_RE>0
    STOR HRVAL1+HC_RE TO HRVAL1
    STOR HC_RE^2+HRSQ1 TO HRSQ1
    STOR CRVAL1+CO_RE TO CRVAL1
    STOR CO_RE^2+CRSQ1 TO CRSQ1
    STOR REINS1+1 TO REINS1
    IF STATUS2HC="F" .AND. STATUS2CO="P"
      STOR HRFAIL1+1 TO HRFAIL1
    ENDI
    IF STATUS2CO="F" .AND. STATUS2HC="P"
      STOR CRFAIL1+1 TO CRFAIL1
    ENDI
    IF STATUS2HC="F" .AND. STATUS2CO="F"
      STOR BRFAIL1+1 TO BRFAIL1
    ENDI
    IF HC_RE<HRMIN1
      STOR HC_RE TO HRMIN1
    ENDI
    IF HC_RE>HRMAX1
      STOR HC_RE TO HRMAX1
    ENDI
    IF CO_RE<CRMIN1
      STOR CO_RE TO CRMIN1
    ENDI
    IF CO_RE>CRMAX1
      STOR CO_RE TO CRMAX1
    ENDI
  ENDI
ENDI

```

```

IF WAIVED=1
  STOR MWAIVED1+1 TO MWAIVED1
ENDI
IF C_207B=1
  STOR MCMPLI1+1 TO MCMPLI1
ENDI
ENDI
CASE YEAR>74 .AND. YEAR<80
  STOR TOTAL2+1 TO TOTAL2
  IF EXEMPT=1
    STOR MEXMPT2+1 TO MEXMPT2
  ELSE
    STOR HC_FIRST+HVAL2 TO HVAL2
    STOR HC_FIRST^2+HSQ2 TO HSQ2
    STOR CO_FIRST+CVAL2 TO CVAL2
    STOR CO_FIRST^2+CSQ2 TO CSQ2
    IF HC_FIRST<HMIN2
      STOR HC_FIRST TO HMIN2
    ENDI
    IF HC_FIRST>HMAX2
      STOR HC_FIRST TO HMAX2
    ENDI
    IF CO_FIRST<CMIN2
      STOR CO_FIRST TO CMIN2
    ENDI
    IF CO_FIRST>CMAX2
      STOR CO_FIRST TO CMAX2
    ENDI
  DO CASE
    CASE STATUS1HC="F" .AND. STATUS1CO="P"
      STOR HFAIL2+1 TO HFAIL2
    CASE STATUS1CO="F" .AND. STATUS1HC="P"
      STOR CFAIL2+1 TO CFAIL2
    CASE STATUS1HC="F" .AND. STATUS1CO="F"
      STOR BFAIL2+1 TO BFAIL2
    CASE STATUS1HC="P" .AND. STATUS1CO="P"
      STOR PASS2+1 TO PASS2
  ENDC
  IF HC_RE>0 .OR. CO_RE>0
    STOR HRVAL2+HC_RE TO HRVAL2
    STOR HC_RE^2+HRSQ2 TO HRSQ2
    STOR CRVAL2+CO_RE TO CRVAL2
    STOR CO_RE^2+CRSQ2 TO CRSQ2
    STOR REINS2+1 TO REINS2
    IF STATUS2HC="F" .AND. STATUS2CO="P"
      STOR HRFAIL2+1 TO HRFAIL2
    ENDI
    IF STATUS2CO="F" .AND. STATUS2HC="P"
      STOR CRFAIL2+1 TO CRFAIL2
    ENDI
    IF STATUS2HC="F" .AND. STATUS2CO="F"
      STOR BRFAIL2+1 TO BRFAIL2
    ENDI
    IF HC_RE<HRMIN2
      STOR HC_RE TO HRMIN2
    ENDI
    IF HC_RE>HRMAX2
      STOR HC_RE TO HRMAX2
    ENDI
    IF CO_RE<CRMIN2

```

```

        STOR CO_RE TO CRMIN2
    ENDI
    IF CO_RE>CRMAX2
        STOR CO_RE TO CRMAX2
    ENDI
ENDI
IF WAIVED=1
    STOR MWAIVED2+1 TO MWAIVED2
ENDI
IF C_207B=1
    STOR MCMPLI2+1 TO MCMPLI2
ENDI
ENDI
CASE YEAR=80
    STOR TOTAL3+1 TO TOTAL3
    IF EXEMPT=1
        STOR MEXMPT3+1 TO MEXMPT3
    ELSE
        STOR HC_FIRST+HVAL3 TO HVAL3
        STOR HC_FIRST^2+HSQ3 TO HSQ3
        STOR CO_FIRST+CVAL3 TO CVAL3
        STOR CO_FIRST^2+CSQ3 TO CSQ3
        IF HC_FIRST<HMIN3
            STOR HC_FIRST TO HMIN3
        ENDI
        IF HC_FIRST>HMAX3
            STOR HC_FIRST TO HMAX3
        ENDI
        IF CO_FIRST<CMIN3
            STOR CO_FIRST TO CMIN3
        ENDI
        IF CO_FIRST>CMAX3
            STOR CO_FIRST TO CMAX3
        ENDI
    DO CASE
        CASE STATUS1HC="F" ,AND, STATUS1CO="P"
            STOR HFAIL3+1 TO HFAIL3
        CASE STATUS1CO="F" ,AND, STATUS1HC="P"
            STOR CFAIL3+1 TO CFAIL3
        CASE STATUS1HC="F" ,AND, STATUS1CO="F"
            STOR BFAIL3+1 TO BFAIL3
        CASE STATUS1HC="P" ,AND, STATUS1CO="P"
            STOR PASS3+1 TO PASS3
    ENDC
    IF HC_RE>0 ,OR, CO_RE>0
        STOR HRVAL3+HC_RE TO HRVAL3
        STOR HC_RE^2+HRSQ3 TO HRSQ3
        STOR CRVAL3+CO_RE TO CRVAL3
        STOR CO_RE^2+CRSQ3 TO CRSQ3
        STOR REINS3+1 TO REINS3
        IF STATUS2HC="F" ,AND, STATUS2CO="P"
            STOR HRFAIL3+1 TO HRFAIL3
        ENDI
        IF STATUS2CO="F" ,AND, STATUS2HC="P"
            STOR CRFAIL3+1 TO CRFAIL3
        ENDI
        IF STATUS2HC="F" ,AND, STATUS2CO="F"
            STOR BRFAIL3+1 TO BRFAIL3
        ENDI
        IF HC_RE<HRMIN3

```

```

        STOR HC_RE TO HRMIN3
    ENDI
    IF HC_RE>HRMAX3
        STOR HC_RE TO HRMAX3
    ENDI
    IF CO_RE<CRMIN3
        STOR CO_RE TO CRMIN3
    ENDI
    IF CO_RE>CRMAX3
        STOR CO_RE TO CRMAX3
    ENDI
    ENDI
    IF WAIVED=1
        STOR MWAIVED3+1 TO MWAIVED3
    ENDI
    IF C_207B=1
        STOR MCMPLI3+1 TO MCMPLI3
    ENDI
    ENDI
CASE YEAR>80
    STOR TOTAL4+1 TO TOTAL4
    IF EXEMPT=1
        STOR MEXMPT4+1 TO MEXMPT4
    ELSE
        STOR HC_FIRST+HVAL4 TO HVAL4
        STOR HC_FIRST^2+HSQ4 TO HSQ4
        STOR CO_FIRST+CVAL4 TO CVAL4
        STOR CO_FIRST^2+CSQ4 TO CSQ4
        IF HC_FIRST<HMIN4
            STOR HC_FIRST TO HMIN4
        ENDI
        IF HC_FIRST>HMAX4
            STOR HC_FIRST TO HMAX4
        ENDI
        IF CO_FIRST<CMIN4
            STOR CO_FIRST TO CMIN4
        ENDI
        IF CO_FIRST>CMAX4
            STOR CO_FIRST TO CMAX4
        ENDI
    DO CASE
        CASE STATUS1HC="F" .AND. STATUS1CO="P"
            STOR HFAIL4+1 TO HFAIL4
        CASE STATUS1CO="F" .AND. STATUS1HC="P"
            STOR CFAIL4+1 TO CFAIL4
        CASE STATUS1HC="F" .AND. STATUS1CO="F"
            STOR BFAIL4+1 TO BFAIL4
        CASE STATUS1HC="P" .AND. STATUS1CO="P"
            STOR PASS4+1 TO PASS4
    ENDC
    IF HC_RE>0 .OR. CO_RE>0
        STOR HRVAL4+HC_RE TO HRVAL4
        STOR HC_RE^2+HRSQ4 TO HRSQ4
        STOR CRVAL4+CO_RE TO CRVAL4
        STOR CO_RE^2+CRSQ4 TO CRSQ4
        STOR REINS4+1 TO REINS4
        IF STATUS2HC="F" .AND. STATUS2CO="P"
            STOR HRFAIL4+1 TO HRFAIL4
        ENDI
        IF STATUS2CO="F" .AND. STATUS2HC="P"

```

```

        STOR CRFAIL4+1 TO CRFAIL4
    ENDI
    IF STATUS2HC="F" .AND. STATUS2CO="F"
        STOR BRFAIL4+1 TO BRFAIL4
    ENDI
    IF HC_RE<HRMIN4
        STOR HC_RE TO HRMIN4
    ENDI
    IF HC_RE>HRMAX4
        STOR HC_RE TO HRMAX4
    ENDI
    IF CO_RE<CRMIN4
        STOR CO_RE TO CRMIN4
    ENDI
    IF CO_RE>CRMAX4
        STOR CO_RE TO CRMAX4
    ENDI
    ENDI
    IF WAIVED=1
        STOR MWAIVED4+1 TO MWAIVED4
    ENDI
    IF C_207B=1
        STOR MCMPLI4+1 TO MCMPLI4
    ENDI
    ENDI
ENDC
*****CALCULATE MAKE TOTALS
    STOR ZTOTAL+1 TO ZTOTAL
    IF STATUS1HC="F" .OR. STATUS1CO="F"
        STOR ZFAIL+1 TO ZFAIL
    ENDI
    IF HC_RE>0 .OR. CO_RE>0
        STOR ZREINS+1 TO ZREINS
    ENDI
    IF STATUS2HC="F" .OR. STATUS2CO="F"
        STOR ZRFAIL+1 TO ZRFAIL
    ENDI
***** GO TO NEXT RECORD
    SKIP
ENDD
CLEA
STOR HFAIL1+HFAIL2+HFAIL3+HFAIL4 TO HFAILT
STOR CFAIL1+CFAIL2+CFAIL3+CFAIL4 TO CFAILT
STOR BFAIL1+BFAIL2+BFAIL3+BFAIL4 TO BFAILT
STOR REINS1+REINS2+REINS3+REINS4 TO REINST
@ 10,24 SAY "Make sure your printer is ready."
WAIT "                               Press any key to continue."
CLEA
STOR 1 TO PAGE
SET COLO TO W*,B
@ 10,36 SAY "PRINTING"
SET COLO TO W
SET DEVI TO PRIN
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 3,8 SAY DATE()
@ 3,64 SAY "Page"
@ 3,69 SAY PAGE PICT '99'
@ 5,6 SAY "This report summarizes data for vehicle model years 19"
@ 5,60 SAY MSYEAR PICT '99'
@ 5,63 SAY "through 19"

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```

@ 5,73 SAY MEYEAR PICT '99'
@ 5,75 SAY " "
STOR "There were "+STR(HFAILT+BFALT+CFALT-REINST)+" vehicle(s) that failed" TO NI
@ 6,40-LEN(NI)/2 SAY NI
@ 7,7 SAY "at least one of the initial inspections but were not reinspected."
@ 9,28 SAY "***** General Summary *****"
STOR "===== " TO TOP
STOR "----- " TO BOT
@ 10,1 SAY "===== " +TOP
@ 11,3 SAY "Description"
@ 11,20 SAY "Total"
@ 11,30 SAY "1971 - 1974"
@ 11,43 SAY "1975 - 1979"
@ 11,60 SAY "1980"
@ 11,71 SAY "1981 +"
@ 12,17 SAY "No. Percent No. Percent No. Percent No. Percent No. Percent"
@ 13,1 SAY "----- " +BOT
@ 14,1 SAY "Emission Tests"
STOR TOTAL1+TOTAL2+TOTAL3+TOTAL4 TO TOTALT
STOR MEXMPT1+MEXMPT2+MEXMPT3+MEXMPT4 TO MEXMPTT
STOR TOTALT-MEXMPTT TO TESTT
STOR TOTAL1-MEXMPT1 TO TEST1
STOR TOTAL2-MEXMPT2 TO TEST2
STOR TOTAL3-MEXMPT3 TO TEST3
STOR TOTAL4-MEXMPT4 TO TEST4
@ 14,17 SAY TOTALT PICT '9999'
@ 14,30 SAY TOTAL1 PICT '9999'
@ 14,43 SAY TOTAL2 PICT '9999'
@ 14,56 SAY TOTAL3 PICT '9999'
@ 14,69 SAY TOTAL4 PICT '9999'
@ 16,1 SAY "Passing Vehicles"
STOR PASS1+PASS2+PASS3+PASS4 TO PASST
@ 16,17 SAY PASST PICT '9999'
IF TESTT=0
    @ 16,24 SAY "0.00"
ELSE
    @ 16,22 SAY PASST/TESTT*100 PICT '999.99'
ENDI
@ 16,30 SAY PASS1 PICT '9999'
IF TEST1=0
    @ 16,37 SAY "0.00"
ELSE
    @ 16,35 SAY PASS1/TEST1*100 PICT '999.99'
ENDI
@ 16,43 SAY PASS2 PICT '9999'
IF TEST2=0
    @ 16,50 SAY "0.00"
ELSE
    @ 16,48 SAY PASS2/TEST2*100 PICT '999.99'
ENDI
@ 16,56 SAY PASS3 PICT '9999'
IF TEST3=0
    @ 16,63 SAY "0.00"
ELSE
    @ 16,61 SAY PASS3/TEST3*100 PICT '999.99'
ENDI
@ 16,69 SAY PASS4 PICT '9999'
IF TEST4=0
    @ 16,76 SAY "0.00"
ELSE

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```

@ 16,74 SAY PASS4/TEST4*100 PICT '999.99'
ENDI
@ 18,1 SAY "Initial Inspection"
STOR HFAIL1+HFAIL2+HFAIL3+HFAIL4 TO HFAILT
@ 19,4 SAY "Failed HC"
@ 19,17 SAY HFAILT PICT '9999'
IF TESTT=0
    @ 19,24 SAY "0.00"
ELSE
    @ 19,22 SAY HFAILT/TESTT*100 PICT '999.99'
ENDI
@ 19,30 SAY HFAIL1 PICT '9999'
IF TEST1=0
    @ 19,37 SAY "0.00"
ELSE
    @ 19,35 SAY HFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 19,43 SAY HFAIL2 PICT '9999'
IF TEST2=0
    @ 19,50 SAY "0.00"
ELSE
    @ 19,48 SAY HFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 19,56 SAY HFAIL3 PICT '9999'
IF TEST3=0
    @ 19,63 SAY "0.00"
ELSE
    @ 19,61 SAY HFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 19,69 SAY HFAIL4 PICT '9999'
IF TEST4=0
    @ 19,76 SAY "0.00"
ELSE
    @ 19,74 SAY HFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 20,4 SAY "Failed CO"
STOR CFAIL1+CFAIL2+CFAIL3+CFAIL4 TO CFAILT
@ 20,17 SAY CFAILT PICT '9999'
IF TESTT=0
    @ 20,24 SAY "0.00"
ELSE
    @ 20,22 SAY CFAILT/TESTT*100 PICT '999.99'
ENDI
@ 20,30 SAY CFAIL1 PICT '9999'
IF TEST1=0
    @ 20,37 SAY "0.00"
ELSE
    @ 20,35 SAY CFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 20,43 SAY CFAIL2 PICT '9999'
IF TEST2=0
    @ 20,50 SAY "0.00"
ELSE
    @ 20,48 SAY CFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 20,56 SAY CFAIL3 PICT '9999'
IF TEST3=0
    @ 20,63 SAY "0.00"
ELSE
    @ 20,61 SAY CFAIL3/TEST3*100 PICT '999.99'

```

ENDI
@ 20,69 SAY CFAIL4 PICT '9999'
IF TEST4=0
 @ 20,76 SAY "0.00"
ELSE
@ 20,74 SAY CFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 21,4 SAY "Failed Both"
STOR BFAIL1+BFAIL2+BFAIL3+BFAIL4 TO BFAILT
@ 21,17 SAY BFAILT PICT '9999'
IF TESTT=0
 @ 21,24 SAY "0.00"
ELSE
@ 21,22 SAY BFAILT/TESTT*100 PICT '999.99'
ENDI
@ 21,30 SAY BFAIL1 PICT '9999'
IF TEST1=0
 @ 21,37 SAY "0.00"
ELSE
@ 21,35 SAY BFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 21,43 SAY BFAIL2 PICT '9999'
IF TEST2=0
 @ 21,50 SAY "0.00"
ELSE
@ 21,48 SAY BFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 21,56 SAY BFAIL3 PICT '9999'
IF TEST3=0
 @ 21,63 SAY "0.00"
ELSE
@ 21,61 SAY BFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 21,69 SAY BFAIL4 PICT '9999'
IF TEST4=0
 @ 21,76 SAY "0.00"
ELSE
@ 21,74 SAY BFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 22,4 SAY "Overall"
STOR HFAILT+CFAILT+BFAILT TO OFAILT
STOR HFAIL1+CFAIL1+BFAIL1 TO OFAIL1
STOR HFAIL2+CFAIL2+BFAIL2 TO OFAIL2
STOR HFAIL3+CFAIL3+BFAIL3 TO OFAIL3
STOR HFAIL4+CFAIL4+BFAIL4 TO OFAIL4
@ 22,17 SAY OFAILT PICT '9999'
IF TESTT=0
 @ 22,24 SAY "0.00"
ELSE
@ 22,22 SAY OFAILT/TESTT*100 PICT '999.99'
ENDI
@ 22,30 SAY OFAIL1 PICT '9999'
IF TEST1=0
 @ 22,37 SAY "0.00"
ELSE
@ 22,35 SAY OFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 22,43 SAY OFAIL2 PICT '9999'
IF TEST2=0
 @ 22,50 SAY "0.00"


```

ELSE
@ 22,48 SAY OFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 22,56 SAY OFAIL3 PICT '9999'
IF TEST3=0
    @ 22,63 SAY "0.00"
ELSE
@ 22,61 SAY OFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 22,69 SAY OFAIL4 PICT '9999'
IF TEST4=0
    @ 22,76 SAY "0.00"
ELSE
@ 22,74 SAY OFAIL4/TEST4*100 PICT '999.99'
ENDI
STOR HRFAIL1+HRFAIL2+HRFAIL3+HRFAIL4 TO HRFAILT
STOR REINS1+REINS2+REINS3+REINS4 TO REINST
@ 24,1 SAY "Reinspections"
@ 25,4 SAY "Failed HC"
@ 25,17 SAY HRFAILT PICT '9999'
IF REINST=0
    @ 25,24 SAY "0.00"
ELSE
@ 25,22 SAY HRFAILT/REINST*100 PICT '999.99'
ENDI
@ 25,30 SAY HRFAIL1 PICT '9999'
IF REINS1=0
    @ 25,37 SAY "0.00"
ELSE
@ 25,35 SAY HRFAIL1/REINS1*100 PICT '999.99'
ENDI
@ 25,43 SAY HRFAIL2 PICT '9999'
IF REINS2=0
    @ 25,50 SAY "0.00"
ELSE
@ 25,48 SAY HRFAIL2/REINS2*100 PICT '999.99'
ENDI
@ 25,56 SAY HRFAIL3 PICT '9999'
IF REINS3=0
    @ 25,63 SAY "0.00"
ELSE
@ 25,61 SAY HRFAIL3/REINS3*100 PICT '999.99'
ENDI
@ 25,69 SAY HRFAIL4 PICT '9999'
IF REINS4=0
    @ 25,76 SAY "0.00"
ELSE
@ 25,74 SAY HRFAIL4/REINS4*100 PICT '999.99'
ENDI
@ 26,4 SAY "Failed CO"
STOR CRFAIL1+CRFAIL2+CRFAIL3+CRFAIL4 TO CRFAILT
@ 26,17 SAY CRFAILT PICT '9999'
IF REINST=0
    @ 26,24 SAY "0.00"
ELSE
@ 26,22 SAY CRFAILT/REINST*100 PICT '999.99'
ENDI
@ 26,30 SAY CRFAIL1 PICT '9999'
IF REINS1=0
    @ 26,37 SAY "0.00"

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ELSE
@ 26,35 SAY CRFAIL1/REINS1*100 PICT '999.99'
ENDI
@ 26,43 SAY CRFAIL2 PICT '9999'
IF REINS2=0
    @ 26,50 SAY "0.00"
ELSE
@ 26,48 SAY CRFAIL2/REINS2*100 PICT '999.99'
ENDI
@ 26,56 SAY CRFAIL3 PICT '9999'
IF REINS3=0
    @ 26,63 SAY "0.00"
ELSE
@ 26,61 SAY CRFAIL3/REINS3*100 PICT '999.99'
ENDI
@ 26,69 SAY CRFAIL4 PICT '9999'
IF REINS4=0
    @ 26,76 SAY "0.00"
ELSE
@ 26,74 SAY CRFAIL4/REINS4*100 PICT '999.99'
ENDI
@ 27,4 SAY "Failed Both"
STOR BRFAIL1+BRFAIL2+BRFAIL3+BRFAIL4 TO BRFAILT
@ 27,17 SAY BRFAILT PICT '9999'
IF REINST=0
    @ 27,24 SAY "0.00"
ELSE
@ 27,22 SAY BRFAILT/TESTT*100 PICT '999.99'
ENDI
@ 27,30 SAY BRFAIL1 PICT '9999'
IF REINS1=0
    @ 27,37 SAY "0.00"
ELSE
@ 27,35 SAY BRFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 27,43 SAY BRFAIL2 PICT '9999'
IF REINS2=0
    @ 27,50 SAY "0.00"
ELSE
@ 27,48 SAY BRFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 27,56 SAY BRFAIL3 PICT '9999'
IF REINS3=0
    @ 27,63 SAY "0.00"
ELSE
@ 27,61 SAY BRFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 27,69 SAY BRFAIL4 PICT '9999'
IF REINS4=0
    @ 27,76 SAY "0.00"
ELSE
@ 27,74 SAY BRFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 28,4 SAY "Overall"
STOR HRFAILT+CRFAILT+BRFAILT TO ORFAILT
STOR HRFAIL1+CRFAIL1+BRFAIL1 TO ORFAIL1
STOR HRFAIL2+CRFAIL2+BRFAIL2 TO ORFAIL2
STOR HRFAIL3+CRFAIL3+BRFAIL3 TO ORFAIL3
STOR HRFAIL4+CRFAIL4+BRFAIL4 TO ORFAIL4
@ 28,17 SAY ORFAILT PICT '9999'

```

```

IF REINST=0
    @ 28,24 SAY "0.00"
ELSE
    @ 28,22 SAY ORFAILT/REINST*100 PICT '999.99'
ENDI
@ 28,30 SAY ORFAIL1 PICT '9999'
IF REINS1=0
    @ 28,37 SAY "0.00"
ELSE
    @ 28,35 SAY ORFAIL1/REINS1*100 PICT '999.99'
ENDI
@ 28,43 SAY ORFAIL2 PICT '9999'
IF REINS2=0
    @ 28,50 SAY "0.00"
ELSE
    @ 28,48 SAY ORFAIL2/REINS2*100 PICT '999.99'
ENDI
@ 28,56 SAY ORFAIL3 PICT '9999'
IF REINS3=0
    @ 28,63 SAY "0.00"
ELSE
    @ 28,61 SAY ORFAIL3/REINS3*100 PICT '999.99'
ENDI
@ 28,69 SAY ORFAIL4 PICT '9999'
IF REINS4=0
    @ 28,76 SAY "0.00"
ELSE
    @ 28,74 SAY ORFAIL4/REINS4*100 PICT '999.99'
ENDI
@ 30,1 SAY "Exempt Vehicles"
STOR MEXMPT1+MEXMPT2+MEXMPT3+MEXMPT4 TO MEXMPTT
@ 30,17 SAY MEXMPTT PICT '9999'
IF TOTALT=0
    @ 30,24 SAY "0.00"
ELSE
    @ 30,22 SAY MEXMPTT/TOTALT*100 PICT '999.99'
ENDI
@ 30,30 SAY MEXMPT1 PICT '9999'
IF TOTAL1=0
    @ 30,37 SAY "0.00"
ELSE
    @ 30,35 SAY MEXMPT1/TOTAL1*100 PICT '999.99'
ENDI
@ 30,43 SAY MEXMPT2 PICT '9999'
IF TOTAL2=0
    @ 30,50 SAY "0.00"
ELSE
    @ 30,48 SAY MEXMPT2/TOTAL2*100 PICT '999.99'
ENDI
@ 30,56 SAY MEXMPT3 PICT '9999'
IF TOTAL3=0
    @ 30,63 SAY "0.00"
ELSE
    @ 30,61 SAY MEXMPT3/TOTAL3*100 PICT '999.99'
ENDI
@ 30,69 SAY MEXMPT4 PICT '9999'
IF TOTAL4=0
    @ 30,76 SAY "0.00"
ELSE
    @ 30,74 SAY MEXMPT4/TOTAL4*100 PICT '999.99'

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```

ENDI
@ 31,1 SAY "Waived Vehicles"
STOR MWAIVED1+MWAIVED2+MWAIVED3+MWAIVED4 TO MWAIVEDT
@ 31,17 SAY MWAIVEDT PICT '9999'
IF TOTALT=0
    @ 31,24 SAY "0.00"
ELSE
@ 31,22 SAY MWAIVEDT/TOTALT*100 PICT '999.99'
ENDI
@ 31,30 SAY MWAIVED1 PICT '9999'
IF TOTAL1=0
    @ 31,37 SAY "0.00"
ELSE
@ 31,35 SAY MWAIVED1/TOTAL1*100 PICT '999.99'
ENDI
@ 31,43 SAY MWAIVED2 PICT '9999'
IF TOTAL2=0
    @ 31,50 SAY "0.00"
ELSE
@ 31,48 SAY MWAIVED2/TOTAL2*100 PICT '999.99'
ENDI
@ 31,56 SAY MWAIVED3 PICT '9999'
IF TOTAL3=0
    @ 31,63 SAY "0.00"
ELSE
@ 31,61 SAY MWAIVED3/TOTAL3*100 PICT '999.99'
ENDI
@ 31,69 SAY MWAIVED4 PICT '9999'
IF TOTAL4=0
    @ 31,76 SAY "0.00"
ELSE
@ 31,74 SAY MWAIVED4/TOTAL4*100 PICT '999.99'
ENDI
@ 32,1 SAY "Comply w/207-B"
STOR MCMPLI1+MCMPLI2+MCMPLI3+MCMPLI4 TO MCMPLIT
@ 32,17 SAY MCMPLIT PICT '9999'
IF TOTALT=0
    @ 32,24 SAY "0.00"
ELSE
@ 32,22 SAY MCMPLIT/TOTALT*100 PICT '999.99'
ENDI
@ 32,30 SAY MCMPLI1 PICT '9999'
IF TOTAL1=0
    @ 32,37 SAY "0.00"
ELSE
@ 32,35 SAY MCMPLI1/TOTAL1*100 PICT '999.99'
ENDI
@ 32,43 SAY MCMPLI2 PICT '9999'
IF TOTAL2=0
    @ 32,50 SAY "0.00"
ELSE
@ 32,48 SAY MCMPLI2/TOTAL2*100 PICT '999.99'
ENDI
@ 32,56 SAY MCMPLI3 PICT '9999'
IF TOTAL3=0
    @ 32,63 SAY "0.00"
ELSE
@ 32,61 SAY MCMPLI3/TOTAL3*100 PICT '999.99'
ENDI
@ 32,69 SAY MCMPLI4 PICT '9999'

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```

IF TOTAL4=0
  @ 32,76 SAY "0.00"
ELSE
  @ 32,74 SAY MCMPLI4/TOTAL4*100 PICT '999.99'
ENDI
STOR PAGE+1 TO PAGE
@ 34,1 SAY "Initial Inspection"
***** INITIAL INSPECTION HC
@ 36,4 SAY "HC Reading"
STOR HVAL1+HVAL2+HVAL3+HVAL4 TO HVALT
STOR 2000 TO HMINT
IF HMIN1<HMINT
  STOR HMIN1 TO HMINT
ENDI
IF HMIN2<HMINT
  STOR HMIN2 TO HMINT
ENDI
IF HMIN3<HMINT
  STOR HMIN3 TO HMINT
ENDI
IF HMIN4<HMINT
  STOR HMIN4 TO HMINT
ENDI
STOR 0.00 TO HMAXT
IF HMAX1>HMAXT
  STOR HMAX1 TO HMAXT
ENDI
IF HMAX2>HMAXT
  STOR HMAX2 TO HMAXT
ENDI
IF HMAX3>HMAXT
  STOR HMAX3 TO HMAXT
ENDI
IF HMAX4>HMAXT
  STOR HMAX4 TO HMAXT
ENDI
IF HMINT=2000
  STOR 0.00 TO HMINT
ENDI
IF HMIN1=2000
  STOR 0.00 TO HMIN1
ENDI
IF HMIN2=2000
  STOR 0.00 TO HMIN2
ENDI
IF HMIN3=2000
  STOR 0.00 TO HMIN3
ENDI
IF HMIN4=2000
  STOR 0.00 TO HMIN4
ENDI
STOR 9.99 TO CMINT
IF CMIN1<CMINT
  STOR CMIN1 TO CMINT
ENDI
IF CMIN2<CMINT
  STOR CMIN2 TO CMINT
ENDI
IF CMIN3<CMINT
  STOR CMIN3 TO CMINT

```

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ENDI
IF CMIN4<CMINT
    STOR CMIN4 TO CMINT
ENDI
IF CMINT=9.99
    STOR 0.00 TO CMINT
ENDI
IF CMIN1=9.99
    STOR 0.00 TO CMIN1
ENDI
IF CMIN2=9.99
    STOR 0.00 TO CMIN2
ENDI
IF CMIN3=9.99
    STOR 0.00 TO CMIN3
ENDI
IF CMIN4=9.99
    STOR 0.00 TO CMIN4
ENDI
STOR 0.00 TO CMAXT
IF CMAX1>CMAXT
    STOR CMAX1 TO CMAXT
ENDI
IF CMAX2>CMAXT
    STOR CMAX2 TO CMAXT
ENDI
IF CMAX3>CMAXT
    STOR CMAX3 TO CMAXT
ENDI
IF CMAX4>CMAXT
    STOR CMAX4 TO CMAXT
ENDI
@ 37,8 SAY "Mean"
IF TOTALT=0
    @ 37,24 SAY "0"
ELSE
    @ 37,21 SAY HVALT/TOTALT PICT '9999'
ENDI
IF TOTAL1=0
    @ 37,37 SAY "0"
ELSE
    @ 37,34 SAY HVAL1/TOTAL1 PICT '9999'
ENDI
IF TOTAL2=0
    @ 37,24 SAY "0"
ELSE
    @ 37,47 SAY HVAL2/TOTAL2 PICT '9999'
ENDI
IF TOTAL3=0
    @ 37,63 SAY "0"
ELSE
    @ 37,60 SAY HVAL3/TOTAL3 PICT '9999'
ENDI
IF TOTAL4=0
    @ 37,76 SAY "0"
ELSE
    @ 37,73 SAY HVAL4/TOTAL4 PICT '9999'
ENDI
@ 38,8 SAY "Min"
@ 38,21 SAY HMINT PICT '9999'

```

```

@ 38,34 SAY HMIN1 PICT '9999'
@ 38,47 SAY HMIN2 PICT '9999'
@ 38,60 SAY HMIN3 PICT '9999'
@ 38,73 SAY HMIN4 PICT '9999'
@ 39,8 SAY "Max"
@ 39,21 SAY HMAX1 PICT '9999'
@ 39,34 SAY HMAX2 PICT '9999'
@ 39,47 SAY HMAX3 PICT '9999'
@ 39,60 SAY HMAX4 PICT '9999'
STOR HSQ1+HSQ2+HSQ3+HSQ4 TO HSQT
STOR HVAL1+HVAL2+HVAL3+HVAL4 TO HVALT
IF TOTALT<2
    STOR 0 TO HSTD1
ELSE
    STOR ((TOTALT*HSQT-HVALT^2)/(TOTALT*(TOTALT-1)))^0.5 TO HSTD1
ENDI
IF TOTAL1<2
    STOR 0 TO HSTD1
ELSE
    STOR ((TOTAL1*HSQ1-HVAL1^2)/(TOTAL1*(TOTAL1-1)))^0.5 TO HSTD1
ENDI
IF TOTAL2<2
    STOR 0 TO HSTD2
ELSE
    STOR ((TOTAL2*HSQ2-HVAL2^2)/(TOTAL2*(TOTAL2-1)))^0.5 TO HSTD2
ENDI
IF TOTAL3<2
    STOR 0 TO HSTD3
ELSE
    STOR ((TOTAL3*HSQ3-HVAL3^2)/(TOTAL3*(TOTAL3-1)))^0.5 TO HSTD3
ENDI
IF TOTAL4<2
    STOR 0 TO HSTD4
ELSE
    STOR ((TOTAL4*HSQ4-HVAL4^2)/(TOTAL4*(TOTAL4-1)))^0.5 TO HSTD4
ENDI
@ 40,8 SAY "Std. Dev."
@ 40,21 SAY HSTD1 PICT '9999'
@ 40,34 SAY HSTD2 PICT '9999'
@ 40,47 SAY HSTD3 PICT '9999'
@ 40,60 SAY HSTD4 PICT '9999'
@ 40,73 SAY HSTD4 PICT '9999'
***** INITIAL INSPECTION CO
@ 42,4 SAY "CO Reading"
STOR CVAL1+CVAL2+CVAL3+CVAL4 TO CVALT
@ 43,8 SAY "Mean"
IF TOTALT=0
    @ 43,21 SAY "0.00"
ELSE
    @ 43,21 SAY CVALT/TOTALT PICT '9.99'
ENDI
IF TOTAL1=0
    @ 43,34 SAY "0.00"
ELSE
    @ 43,34 SAY CVAL1/TOTAL1 PICT '9.99'
ENDI
IF TOTAL2=0
    @ 43,47 SAY "0.00"
ELSE

```

```

@ 43,47 SAY CVAL2/TOTAL2 PICT '9.99'
ENDI
IF TOTAL3=0
  @ 43,60 SAY "0.00"
ELSE
  @ 43,60 SAY CVAL3/TOTAL3 PICT '9.99'
ENDI
IF TOTAL4=0
  @ 43,73 SAY "0.00"
ELSE
  @ 43,73 SAY CVAL4/TOTAL4 PICT '9.99'
ENDI
@ 44,8 SAY "Min"
@ 44,21 SAY CMINT PICT '9.99'
@ 44,34 SAY CMIN1 PICT '9.99'
@ 44,47 SAY CMIN2 PICT '9.99'
@ 44,60 SAY CMIN3 PICT '9.99'
@ 44,73 SAY CMIN4 PICT '9.99'
@ 45,8 SAY "Max"
@ 45,21 SAY CMAXT PICT '9.99'
@ 45,34 SAY CMAX1 PICT '9.99'
@ 45,47 SAY CMAX2 PICT '9.99'
@ 45,60 SAY CMAX3 PICT '9.99'
@ 45,73 SAY CMAX4 PICT '9.99'
STOR CSQ1+CSQ2+CSQ3+CSQ4 TO CSQT
STOR CVAL1+CVAL2+CVAL3+CVAL4 TO CVALT
IF TOTALT<2
  STOR 0.00 TO CSTD1
ELSE
  STOR ((TOTALT*CSQT-CVALT^2)/(TOTALT*(TOTALT-1)))^0.5 TO CSTD1
ENDI
IF TOTAL1<2
  STOR 0.00 TO CSTD1
ELSE
  STOR ((TOTAL1*CSQ1-CVAL1^2)/(TOTAL1*(TOTAL1-1)))^0.5 TO CSTD1
ENDI
IF TOTAL2<2
  STOR 0.00 TO CSTD2
ELSE
  STOR ((TOTAL2*CSQ2-CVAL2^2)/(TOTAL2*(TOTAL2-1)))^0.5 TO CSTD2
ENDI
IF TOTAL3<2
  STOR 0.00 TO CSTD3
ELSE
  STOR ((TOTAL3*CSQ3-CVAL3^2)/(TOTAL3*(TOTAL3-1)))^0.5 TO CSTD3
ENDI
IF TOTAL4<2
  STOR 0.00 TO CSTD4
ELSE
  STOR ((TOTAL4*CSQ4-CVAL4^2)/(TOTAL4*(TOTAL4-1)))^0.5 TO CSTD4
ENDI
@ 46,8 SAY "Std. Dev."
@ 46,21 SAY CSTD1 PICT '9.99'
@ 46,34 SAY CSTD1 PICT '9.99'
@ 46,47 SAY CSTD2 PICT '9.99'
@ 46,60 SAY CSTD3 PICT '9.99'
@ 46,73 SAY CSTD4 PICT '9.99'
@ 48,1 SAY "Reinspection"
***** REINSPECTION HC
@ 50,4 SAY "HC Reading"

```



```
STOR HRVAL1+HRVAL2+HRVAL3+HRVAL4 TO HRVALT
STOR 2000 TO HRMINT
IF HRMIN1<HRMINT
    STOR HRMIN1 TO HRMINT
ENDI
IF HRMIN2<HRMINT
    STOR HRMIN2 TO HRMINT
ENDI
IF HRMIN3<HRMINT
    STOR HRMIN3 TO HRMINT
ENDI
IF HRMIN4<HRMINT
    STOR HRMIN4 TO HRMINT
ENDI
IF HRMINT=2000
    STOR 0 TO HRMINT
ENDI
IF HRMIN1=2000
    STOR 0 TO HRMIN1
ENDI
IF HRMIN2=2000
    STOR 0 TO HRMIN2
ENDI
IF HRMIN3=2000
    STOR 0 TO HRMIN3
ENDI
IF HRMIN4=2000
    STOR 0 TO HRMIN4
ENDI
STOR 0 TO HRMAXT
IF HRMAX1>HRMAXT
    STOR HRMAX1 TO HRMAXT
ENDI
IF HRMAX2>HRMAXT
    STOR HRMAX2 TO HRMAXT
ENDI
IF HRMAX3>HRMAXT
    STOR HRMAX3 TO HRMAXT
ENDI
IF HRMAX4>HRMAXT
    STOR HRMAX4 TO HRMAXT
ENDI
STOR 9.99 TO CRMINT
IF CRMIN1<CRMINT
    STOR CRMINT TO CRMINT
ENDI
IF CRMIN2<CRMINT
    STOR CRMIN2 TO CRMINT
ENDI
IF CRMIN3<CRMINT
    STOR CRMIN3 TO CRMINT
ENDI
IF CRMIN4<CRMINT
    STOR CRMIN4 TO CRMINT
ENDI
IF CRMINT=9.99
    STOR 0.00 TO CRMINT
ENDI
IF CRMIN1=9.99
    STOR 0.00 TO CRMIN1
```

```

ENDI
IF CRMIN2=9.99
    STOR 0.00 TO CRMIN2
ENDI
IF CRMIN3=9.99
    STOR 0.00 TO CRMIN3
ENDI
IF CRMIN4=9.99
    STOR 0.00 TO CRMIN4
ENDI
STOR 0.00 TO CRMAXT
IF CRMAX1>CRMAXT
    STOR CRMAX1 TO CRMAXT
ENDI
IF CRMAX2>CRMAXT
    STOR CRMAX2 TO CRMAXT
ENDI
IF CRMAX3>CRMAXT
    STOR CRMAX3 TO CRMAXT
ENDI
IF CRMAX4>CRMAXT
    STOR CRMAX4 TO CRMAXT
ENDI
@ 51,8 SAY "Mean"
IF REINST=0
    @ 51,24 SAY "0"
ELSE
    @ 51,21 SAY HRVALT/REINST PICT '9999'
ENDI
IF REINS1=0
    @ 51,37 SAY "0"
ELSE
    @ 51,34 SAY HRVAL1/REINS1 PICT '9999'
ENDI
IF REINS2=0
    @ 51,50 SAY "0"
ELSE
    @ 51,47 SAY HRVAL2/REINS2 PICT '9999'
ENDI
IF REINS3=0
    @ 51,63 SAY "0"
ELSE
    @ 51,60 SAY HRVAL3/REINS3 PICT '9999'
ENDI
IF REINS4=0
    @ 51,76 SAY "0"
ELSE
    @ 51,73 SAY HRVAL4/REINS4 PICT '9999'
ENDI
@ 52,8 SAY "Min"
@ 52,21 SAY HRMINT PICT '9999'
@ 52,34 SAY HRMIN1 PICT '9999'
@ 52,47 SAY HRMIN2 PICT '9999'
@ 52,60 SAY HRMIN3 PICT '9999'
@ 52,73 SAY HRMIN4 PICT '9999'
@ 53,8 SAY "Max"
@ 53,21 SAY HRMAXT PICT '9999'
@ 53,34 SAY HRMAX1 PICT '9999'
@ 53,47 SAY HRMAX2 PICT '9999'
@ 53,60 SAY HRMAX3 PICT '9999'

```

```

@ 53,73 SAY HRMAX4 PICT '9999'
STOR HRSQ1+HRSQ2+HRSQ3+HRSQ4 TO HRSQT
STOR HRVAL1+HRVAL2+HRVAL3+HRVAL4 TO HRVALT
IF REINST<2
    STOR 0 TO HRSTD1
ELSE
    STOR ((REINST*HRSQT-HRVALT^2)/(REINST*(REINST-1)))^0.5 TO HRSTD1
ENDI
IF REINS1<2
    STOR 0 TO HRSTD1
ELSE
    STOR ((REINS1*HRSQ1-HRVAL1^2)/(REINS1*(REINS1-1)))^0.5 TO HRSTD1
ENDI
IF REINS2<2
    STOR 0 TO HRSTD2
ELSE
    STOR ((REINS2*HRSQ2-HRVAL2^2)/(REINS2*(REINS2-1)))^0.5 TO HRSTD2
ENDI
IF REINS3<2
    STOR 0 TO HRSTD3
ELSE
    STOR ((REINS3*HRSQ3-HRVAL3^2)/(REINS3*(REINS3-1)))^0.5 TO HRSTD3
ENDI
IF REINS4<2
    STOR 0 TO HRSTD4
ELSE
    STOR ((REINS4*HRSQ4-HRVAL4^2)/(REINS4*(REINS4-1)))^0.5 TO HRSTD4
ENDI
@ 54,8 SAY "Std. Dev."
@ 54,20 SAY HRSTD1 PICT '99999'
@ 54,33 SAY HRSTD1 PICT '99999'
@ 54,46 SAY HRSTD2 PICT '99999'
@ 54,59 SAY HRSTD3 PICT '99999'
@ 54,72 SAY HRSTD4 PICT '99999'
***** REINSPECTION CO
@ 56,4 SAY "CO Reading"
STOR CRVAL1+CRVAL2+CRVAL3+CRVAL4 TO CRVALT
@ 57,8 SAY "Mean"
IF REINST=0
    @ 57,21 SAY "0.00"
ELSE
    @ 57,21 SAY CRVALT/REINST PICT '9.99'
ENDI
IF REINS1=0
    @ 57,34 SAY "0.00"
ELSE
    @ 57,34 SAY CRVAL1/REINS1 PICT '9.99'
ENDI
IF REINS2=0
    @ 57,47 SAY "0.00"
ELSE
    @ 57,47 SAY CRVAL2/REINS2 PICT '9.99'
ENDI
IF REINS3=0
    @ 57,60 SAY "0.00"
ELSE
    @ 57,60 SAY CRVAL3/REINS3 PICT '9.99'
ENDI
IF REINS4=0
    @ 57,73 SAY "0.00"

```

```

ELSE
@ 57,73 SAY CRVAL4/REINS4 PICT '9.99'
ENDI
@ 58,8 SAY "Min"
@ 58,21 SAY CRMIN1 PICT '9.99'
@ 58,34 SAY CRMIN1 PICT '9.99'
@ 58,47 SAY CRMIN2 PICT '9.99'
@ 58,60 SAY CRMIN3 PICT '9.99'
@ 58,73 SAY CRMIN4 PICT '9.99'
@ 59,8 SAY "Max"
@ 59,21 SAY CRMAX1 PICT '9.99'
@ 59,34 SAY CRMAX1 PICT '9.99'
@ 59,47 SAY CRMAX2 PICT '9.99'
@ 59,60 SAY CRMAX3 PICT '9.99'
@ 59,73 SAY CRMAX4 PICT '9.99'
STOR CRSQ1+CRSQ2+CRSQ3+CRSQ4 TO CRSQT
STOR CRVAL1+CRVAL2+CRVAL3+CRVAL4 TO CRVALT
IF REINST<2
    STOR 0.00 TO CRSTD1
ELSE
STOR ((REINST*CRSQ1-CRVAL1^2)/(REINST*(REINST-1)))^0.5 TO CRSTD1
ENDI
IF REINS1<2
    STOR 0.00 TO CRSTD1
ELSE
STOR ((REINS1*CRSQ1-CRVAL1^2)/(REINS1*(REINS1-1)))^0.5 TO CRSTD1
ENDI
IF REINS2<2
    STOR 0.00 TO CRSTD2
ELSE
STOR ((REINS2*CRSQ2-CRVAL2^2)/(REINS2*(REINS2-1)))^0.5 TO CRSTD2
ENDI
IF REINS3<2
    STOR 0.00 TO CRSTD3
ELSE
STOR ((REINS3*CRSQ3-CRVAL3^2)/(REINS3*(REINS3-1)))^0.5 TO CRSTD3
ENDI
IF REINS4<2
    STOR 0.00 TO CRSTD4
ELSE
STOR ((REINS4*CRSQ4-CRVAL4^2)/(REINS4*(REINS4-1)))^0.5 TO CRSTD4
ENDI
@ 60,8 SAY "Std. Dev."
@ 60,20 SAY CRSTD1 PICT '99.99'
@ 60,33 SAY CRSTD1 PICT '99.99'
@ 60,46 SAY CRSTD2 PICT '99.99'
@ 60,59 SAY CRSTD3 PICT '99.99'
@ 60,72 SAY CRSTD4 PICT '99.99'
STOR REINST TO MREINS
SET DEVI TO SCRE
EJEC
CLEA

SELE A
GO TOP
SET INDE TO ISTATION
**** CALCULATE TOTALS BY STATION
STOR 0 TO TTOTAL
STOR 0 TO TFAIL
STOR 0 TO SUM

```

```

STOR 0 TO SUMSQ
DO WHILE .NOT. EOF()
  STOR STATION_1 TO MSTAT
  ? MSTAT
  STOR "S"+MSTAT TO ZSTAT
  STOR 0 TO REINS
  STOR 0 TO TOTAL
  STOR 0 TO PASS
  STOR 0 TO FAIL
  STOR 0 TO RFAIL
  SELE A
  DO WHILE STATION_1=MSTAT
    IF EXEMPT=1
***** STOR MEXEMPT+1 TO MEXEMPT
      ELSE
        STOR TOTAL+1 TO TOTAL
        IF STATUS1HC="F" .OR. STATUS1CO="F"
          STOR FAIL+1 TO FAIL
        ELSE
          STOR PASS+1 TO PASS
        ENDI

        IF HC_RE>0 .OR. CO_RE>0
          IF STATUS2HC="F" .OR. STATUS2CO="F"
            STOR RFAIL+1 TO RFAIL
          ENDI
          STOR REINS+1 TO REINS
        ENDI
        STOR TTOTAL+1 TO TTOTAL
        IF STATUS1HC="F" .OR. STATUS1CO="F"
          STOR TFAIL+1 TO TFAIL
        ENDI
      ENDI
    SKIP
    IF EOF()
      STOR "XXX" TO STATION_1
    ENDI
  ENDD
  SELE C
  APPE BLAN
  REPL STATION WITH MSTAT
  SAVE TO &ZSTAT
  SELE A
  STOR FAIL/TOTAL+SUM TO SUM
  STOR (FAIL/TOTAL)^2+SUMSQ TO SUMSQ
ENDD
STOR ((TTOTAL*SUMSQ-SUM^2)/(TTOTAL*(TTOTAL-1)))^0.5 TO STDDEV
STOR TFAIL/TTOTAL TO AVG
STOR (TFAIL/TOTAL)*100+200*STDDEV TO UPLIM
STOR (TFAIL/TOTAL)*100-200*STDDEV TO LOLIM
***** CALCULATE FINAL TOTALS - ADD STATION TOTALS
SELE C
GO TOP
CLEA
@ 10,24 SAY "Make sure your printer is ready."
WAIT "                               Press any key to continue."
CLEA
SET COLO TO W*,B
@ 10,36 SAY "PRINTING"
SET COLO TO W

```

```

SET DEVI TO PRIN
STOR PAGE+1 TO PAGE
STOR 13 TO LINES
DO WHIL ,NOT. EOF()
  IF LINES=13
    @ PROW(),20 SAY "FAILURE RATE REPORT BY INSPECTION STATION"
    @ PROW()+2,6 SAY "The average failure rate is "
    @ PROW(),34 SAY TFAIL/TTOTAL*100 PICT '99.99'
    @ PROW(),39 SAY "Z, the standard deviation is"
    @ PROW(),68 SAY STDDEV*100 PICT '999.99'
    @ PROW(),74 SAY ".,"
    @ PROW()+2,6 SAY "This report summarizes data for vehicle model years 19"
    @ PROW(),60 SAY MSYEAR PICT '99'
    @ PROW(),63 SAY "through 19"
    @ PROW(),73 SAY MEYEAR PICT '99'
    @ PROW(),75 SAY ".,"
    @ PROW()+2,6 SAY DATE()
    @ PROW(),66 SAY "Page"
    @ PROW(),71 SAY PAGE PICT '##'
    @ PROW()+1,4 SAY TOP
    @ PROW()+1,26 SAY "Initial Inspections"
    @ PROW(),57 SAY "Reinspections"
    @ PROW()+1,5 SAY "Insp. Station"
    @ PROW(),23 SAY "Tests Failures Percent"
    @ PROW(),52 SAY "Tests Failures Percent"
    @ PROW()+1,4 SAY BOT
  ENDI
  STOR "S"+STATION TO ZSTAT
  REST FROM &ZSTAT ADDITIVE
  @ PROW()+1,9 SAY SUBSTR(ZSTAT,2,LEN(ZSTAT)-1) PICT '999999'
  IF (FAIL/TOTAL<LOLIM .OR. FAIL/TOTAL>UPLIM) .AND. TOTAL>30
    @ PROW(),18 SAY "*"
  ENDI
  @ PROW(),23 SAY TOTAL PICT '99999'
  @ PROW(),32 SAY FAIL PICT '99999'
  @ PROW(),41 SAY FAIL/TOTAL*100 PICT '999.9'
  @ PROW(),52 SAY REINS PICT '99999'
  @ PROW(),61 SAY RFAIL PICT '99999'
  IF REINS=0
    @ PROW(),72 SAY "0.0"
  ELSE
    @ PROW(),70 SAY RFAIL/REINS*100 PICT '999.9'
  ENDI
  DELE
  STOR LINES+1 TO LINES
  SKIP
  IF LINES=55 .OR. EOF()
    @ PROW()+1,4 SAY BOT
    EJECT
    STOR 13 TO LINES
    STOR PAGE+1 TO PAGE
  ENDI
ENDD

PACK
SET DEVI TO SCRE
EJECT
CLEA
RETU
*** EOF

```

**** SUMMARY3.PRG

***** SET UP COMPUTER

CLEAR ALL
SET BELL OFF
SET CONFIRM ON
SET DELETED ON
SET ECHO OFF
SET ESCAPE ON
***SET EXACT ON
SET FUNCTION 10 TO 'QUIT;'
SET INTENSITY ON
SET SAFETY OFF
SET TALK OFF
SET UNIQUE ON
SET FUNCTION 10 TO '99'

***** ALLOW USERS TO SELECT MODEL YEARS

CLEA
STOR 0 TO ZMSYEAR
STOR 0 TO ZMEYEAR
STOR 0 TO FLAG
@ 4,22 SAY "Please select the model year or range"
@ 5,21 SAY "of model years that you wish to analyze."
@ 7,12 SAY "Enter only the last two (2) digits; e.g. enter '86' for"
@ 7,68 SAY "1986"
@ 11,28 SAY "Starting year:"
@ 13,28 SAY "Ending year:"
@ 16,16 SAY "To select only one year, enter it in the starting year;"
@ 17,25 SAY "leave the ending year blank."
DO WHILE FLAG=0
 @ 11,44 GET ZMSYEAR PICT '###'
 @ 13,44 GET ZMEYEAR PICT '###'
 READ
 IF ZMSYEAR<71 .OR. ZMSYEAR>86 .OR. (ZMEYEAR<>0 .AND. ZMEYEAR<71) .OR. ZMEYEAR>86 .OR. (ZMEYEAR<=ZMSYEAR .AND. ZMEYEAR<>0)
 ?? CHR(7)
 ELSE
 STOR 1 TO FLAG
 ENDI
ENDD

IF .NOT. FILE("IMAKE.NDX")
* !QX MISSOURI MAKE IMAKE
ENDI
IF .NOT. FILE("ISTATION.NDX")
* !QX MISSOURI STATION_1 ISTATION
ENDI

***** PREPARE DATA BASE

SELE C
USE STATIONS
ZAP
SELE B
USE MAKES
ZAP
SELE A
USE MISSOURI

CLEA

```

SET COLO TO W*,B
@ 10,20 SAY "PLEASE WAIT WHILE I INDEX THE DATA BASE."
SET COLO TO W
IF .NOT. FILE("IMAKE.NDX")
    INDE ON MAKE TO IMAKE
ELSE
    SET INDE TO IMAKE
    REIN
ENDI
IF .NOT. FILE("ISTATION.NDX")
    INDE ON STATION_1 TO ISTATION
ELSE
    SET INDE TO ISTATION
    REIN
ENDI

```

```

SET INDE TO IMAKE

```

```

**** ELIMINATE RECORDS NOT IN SELECTED RANGE OF YEARS
IF ZMEYEAR>0
    SET FILT TO YEAR>=ZMSYEAR .AND. YEAR<=ZMEYEAR
ELSE
    SET FILT TO YEAR=ZMSYEAR
ENDI
GO TOP
CLEA
**** MAIN PROGRAM

```

```

**** CALCULATE TOTALS BY MAKE

```

```

DO WHIL .NOT. EOF()
    STOR MAKE TO MMAKE
    SELE B
    APPE BLAN
    REPL MAKE WITH MMAKE
    SELE A
    ? MMAKE
    STOR 0 TO TOTAL
    STOR 0 TO PASS
    STOR 0 TO HFAIL
    STOR 0 TO CFAIL
    STOR 0 TO BFAIL
    STOR 0 TO HRFAIL
    STOR 0 TO CRFAIL
    STOR 0 TO BRFAIL
    STOR 0 TO MEXEMPT
    STOR 0 TO MWAIVED
    STOR 0 TO MCOMPLI
    STOR 0 TO HFVAL
    STOR 0 TO CFVAL
    STOR 0 TO HRFVAL
    STOR 0 TO CRFVAL
    STOR 0 TO REPCOST
    STOR 0 TO CE1
    STOR 0 TO CT0
    STOR 0 TO CT1
    STOR 0 TO CT2
    STOR 0 TO CT3
    STOR 0 TO CT4
    STOR 0 TO CT5
    STOR 0 TO CT6

```



```

STOR 0 TO CT7
STOR 0 TO CM0
STOR 0 TO CM1
STOR 0 TO CM2
STOR 0 TO CM3
STOR 0 TO CM4
STOR 0 TO CM5
STOR 0 TO CM6
STOR 0 TO CM7
STOR 0 TO CM8
STOR 0 TO CM9
STOR 0 TO CN0
STOR 0 TO CN1
STOR 0 TO CN2
STOR 0 TO CSTCNT
STOR 0 TO REINS
DO WHILE MAKE=MMAKE
  STOR TOTAL+1 TO TOTAL
  IF EXEMPT=1
    STOR MEXEMPT+1 TO MEXEMPT
  ELSE
    DO CASE
      CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFVAL+1 TO HFVAL
        STOR HFVAL+HC_FIRST TO HFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR CFVAL+1 TO CFVAL
        STOR HFVAL+HC_FIRST TO HFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFVAL+1 TO BFVAL
        STOR HFVAL+HC_FIRST TO HFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS+1 TO PASS
    ENDC
    IF STATUS1HC="F" .OR. STATUS1CO="F"
      IF HC_RE>0 .OR. CO_RE>0
        STOR HRFVAL+HC_RE TO HRFVAL
        STOR CRFVAL+CO_RE TO CRFVAL
        IF STATUS2HC="F" .AND. STATUS2CO="P"
          STOR HRFVAL+1 TO HRFVAL
        ENDI
        IF STATUS2CO="F" .AND. STATUS2HC="P"
          STOR CRFVAL+1 TO CRFVAL
        ENDI
        IF STATUS2HC="F" .AND. STATUS2CO="F"
          STOR BRFVAL+1 TO BRFVAL
        ENDI
        STOR REINS+1 TO REINS
      ELSE
        STOR HRFVAL+HC_FIRST TO HRFVAL
        STOR CRFVAL+CO_FIRST TO CRFVAL
      ENDI
    ENDI
    IF WAIVED=1
      STOR MWAIVED+1 TO MWAIVED
    ENDI
    IF C_207B=1

```

```

    STOR MCOMPLI+1 TO MCOMPLI
ENDI
IF COST>0
    STOR REPCOST+COST TO REPCOST
    STOR CSTCNT+1 TO CSTCNT
ENDI
STOR LEN(TRIM(CODES)) TO LENGTH
STOR 1 TO X
DO WHILE X<LENGTH
    STOR SUBSTR(CODES,X,2) TO MCODE
    DO CASE
        CASE MCODE="E1"
            STOR CE1+1 TO CE1
        CASE MCODE="T0"
            STOR CT0+1 TO CT0
        CASE MCODE="T1"
            STOR CT1+1 TO CT1
        CASE MCODE="T2"
            STOR CT2+1 TO CT2
        CASE MCODE="T3"
            STOR CT3+1 TO CT3
        CASE MCODE="T4"
            STOR CT4+1 TO CT4
        CASE MCODE="T5"
            STOR CT5+1 TO CT5
        CASE MCODE="T6"
            STOR CT6+1 TO CT6
        CASE MCODE="T7"
            STOR CT7+1 TO CT7
        CASE MCODE="M0"
            STOR CM0+1 TO CM0
        CASE MCODE="M1"
            STOR CM1+1 TO CM1
        CASE MCODE="M2"
            STOR CM2+1 TO CM2
        CASE MCODE="M3"
            STOR CM3+1 TO CM3
        CASE MCODE="M4"
            STOR CM4+1 TO CM4
        CASE MCODE="M5"
            STOR CM5+1 TO CM5
        CASE MCODE="M6"
            STOR CM6+1 TO CM6
        CASE MCODE="M7"
            STOR CM7+1 TO CM7
        CASE MCODE="M8"
            STOR CM8+1 TO CM8
        CASE MCODE="M9"
            STOR CM9+1 TO CM9
        CASE MCODE="N0"
            STOR CN0+1 TO CN0
        CASE MCODE="N1"
            STOR CN1+1 TO CN1
        CASE MCODE="N2"
            STOR CN2+1 TO CN2
    ENDC
    STOR X+2 TO X
ENDD
ENDI
SKIP

```

```
IF EOF()
  STOR "XXXX" TO MAKE
ENDI
ENDD
SAVE ALL EXCE FLAG,X,LENGTH,MCODE,ZMEYEAR,ZMSYEAR TO &MMAKE
ENDD
```

***** CALCULATE FINAL TOTALS - ADD MAKE TOTALS

```
STOR 0 TO ZTOTAL
STOR 0 TO ZPASS
STOR 0 TO ZHFAIL
STOR 0 TO ZCFAIL
STOR 0 TO ZBFAIL
STOR 0 TO ZHRFAIL
STOR 0 TO ZCRFAIL
STOR 0 TO ZERFAIL
STOR 0 TO ZMEXEMPT
STOR 0 TO ZMWAIVED
STOR 0 TO ZMCOMPLI
STOR 0 TO ZHFVAL
STOR 0 TO ZCFVAL
STOR 0 TO ZHRFVAL
STOR 0 TO ZCRFVAL
STOR 0 TO ZREPCOST
STOR 0 TO ZCE1
STOR 0 TO ZCT0
STOR 0 TO ZCT1
STOR 0 TO ZCT2
STOR 0 TO ZCT3
STOR 0 TO ZCT4
STOR 0 TO ZCT5
STOR 0 TO ZCT6
STOR 0 TO ZCT7
STOR 0 TO ZCM0
STOR 0 TO ZCM1
STOR 0 TO ZCM2
STOR 0 TO ZCM3
STOR 0 TO ZCM4
STOR 0 TO ZCM5
STOR 0 TO ZCM6
STOR 0 TO ZCM7
STOR 0 TO ZCM8
STOR 0 TO ZCM9
STOR 0 TO ZCN0
STOR 0 TO ZCN1
STOR 0 TO ZCN2
STOR 0 TO ZCSTCNT
STOR 0 TO ZREINS
STOR 0 TO ZFAIL
STOR 0 TO ZRFAIL
```

SELE B

GO TOP

CLEA

@ 10,24 SAY "Make sure your printer is ready."

WAIT " Press any key to continue."

CLEA

SET COLO TO W*+,B

@ 10,36 SAY "PRINTING"

SET COLO TO W

```

SET DEVI TO PRIN
STOR 1 TO ZPAGE
STOR 11 TO ZLINES
STOR "===== " TO ZTOP
STOR "-----" TO ZBOT
DO WHILE .NOT. EOF()
  IF ZLINES=11
    @ PROW(),23 SAY "FAILURE RATE REPORT BY VEHICLE MAKE"
    IF ZMEYEAR>0
      @ PROW()+2,6 SAY "This report summarizes data for vehicle model years 19"
      @ PROW(),60 SAY ZMSYEAR PICT '99'
      @ PROW(),63 SAY "through 19"
      @ PROW(),73 SAY ZMEYEAR PICT '99'
      @ PROW(),75 SAY "."
    ELSE
      @ PROW()+2,12 SAY "This report summarizes data for vehicle model year 19"
      @ PROW(),65 SAY ZMSYEAR PICT '99'
      @ PROW(),67 SAY "."
    ENDI
    @ PROW()+2,6 SAY DATE()
    @ PROW(),66 SAY "Page"
    @ PROW(),71 SAY ZPAGE PICT '##'
    @ PROW()+1,4 SAY ZTOP
    @ PROW()+1,26 SAY "Initial Inspections"
    @ PROW(),57 SAY "Reinspections"
    @ PROW()+1,5 SAY "Vehicle Make"
    @ PROW(),23 SAY "Tests Failures Percent"
    @ PROW(),52 SAY "Tests Failures Percent"
    @ PROW()+1,4 SAY ZBOT
  ENDI
  STOR MAKE TO ZMAKE
  REST FROM &ZMAKE ADDITIVE
  STOR ZTOTAL+TOTAL TO ZTOTAL
  STOR ZPASS+PASS TO ZPASS
  STOR ZHFAIL+HFAIL TO ZHFAIL
  STOR ZCFAIL+CFAIL TO ZCFAIL
  STOR ZBFAIL+BFAIL TO ZBFAIL
  STOR HFAIL+CFAIL+BFAIL TO FAIL
  STOR ZFAIL+FAIL TO ZFAIL
  STOR ZHRFAIL+HRFAIL TO ZHRFAIL
  STOR ZCRFAIL+CRFAIL TO ZCRFAIL
  STOR ZBRFAIL+BRFAIL TO ZBRFAIL
  STOR HRFAIL+CRFAIL+BRFAIL TO RFAIL
  STOR ZRFAIL+RFAIL TO ZRFAIL
  STOR ZREINS+REINS TO ZREINS
  STOR ZMEXEMPT+MEXEMPT TO ZMEXEMPT
  STOR ZMWAIVED+MWAIVED TO ZMWAIVED
  STOR ZMCOMPLI+MCOMPLI TO ZMCOMPLI
  STOR ZHFVAL+HFVAL TO ZHFVAL
  STOR ZCFVAL+CFVAL TO ZCFVAL
  STOR ZHRFVAL+HRFVAL TO ZHRFVAL
  STOR ZCRFVAL+CRFVAL TO ZCRFVAL
  STOR ZREPCOST+REPCOST TO ZREPCOST
  STOR ZCE1+CE1 TO ZCE1
  STOR ZCT0+CT0 TO ZCT0
  STOR ZCT1+CT1 TO ZCT1
  STOR ZCT2+CT2 TO ZCT2
  STOR ZCT3+CT3 TO ZCT3
  STOR ZCT4+CT4 TO ZCT4
  STOR ZCT5+CT5 TO ZCT5

```

```

STOR ZCT6+CT6 TO ZCT6
STOR ZCT7+CT7 TO ZCT7
STOR ZCM0+CM0 TO ZCM0
STOR ZCM1+CM1 TO ZCM1
STOR ZCM2+CM2 TO ZCM2
STOR ZCM3+CM3 TO ZCM3
STOR ZCM4+CM4 TO ZCM4
STOR ZCM5+CM5 TO ZCM5
STOR ZCM6+CM6 TO ZCM6
STOR ZCM7+CM7 TO ZCM7
STOR ZCM8+CM8 TO ZCM8
STOR ZCM9+CM9 TO ZCM9
STOR ZCN0+CN0 TO ZCN0
STOR ZCN1+CN1 TO ZCN1
STOR ZCN2+CN2 TO ZCN2
STOR ZCSTCNT+CSTCNT TO ZCSTCNT
@ PROW(),1,9 SAY ZMAKE PICT 'AAAA'
@ PROW(),23 SAY TOTAL PICT '99999'
@ PROW(),32 SAY FAIL PICT '99999'
@ PROW(),41 SAY FAIL/TOTAL*100 PICT '999.9'
@ PROW(),52 SAY REINS PICT '99999'
@ PROW(),61 SAY RFAIL PICT '99999'
IF REINS=0
    @ PROW(),72 SAY "0.0"
ELSE
    @ PROW(),70 SAY RFAIL/REINS*100 PICT '999.9'
ENDI
RELE ALL EXCEPT Z*
STOR ZLINES+1 TO ZLINES
SKIP
IF ZLINES=55 .OR. EOF()
    @ PROW(),1,4 SAY ZBOT
    EJEK
    STOR 11 TO ZLINES
    STOR ZPAGE+1 TO ZPAGE
ENDI
ENDD
PACK
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 3,8 SAY DATE()
@ 3,64 SAY "Page"
@ 3,69 SAY ZPAGE PICT '99'
IF ZMEYEAR>0
    @ 5,6 SAY "This report summarizes data for vehicle model years 19"
    @ 5,60 SAY ZMSYEAR PICT '99'
    @ 5,63 SAY "through 19"
    @ 5,73 SAY ZMEYEAR PICT '99'
    @ 5,75 SAY ","
ELSE
    @ 5,12 SAY "This report summarizes data for vehicle model year 19"
    @ 5,65 SAY ZMSYEAR PICT '99'
    @ 5,67 SAY ","
ENDI
@ 12,28 SAY "***** General Summary *****"
@ 14,17 SAY "Description"
@ 14,72 SAY "nt"
@ 15,7 SAY "-----"
@ 15,66 SAY "-----"
@ 16,8 SAY "Emission Tests"
@ 16,53 SAY ZTOTAL PICT '99999'

```

Number	Perce
14,72 SAY "nt"	
15,7 SAY "-----"	
15,66 SAY "-----"	
16,8 SAY "Emission Tests"	
16,53 SAY ZTOTAL PICT '99999'	

@ 9,17 SAY "Average Initial Inspection HC Reading:"
 STOR ZHFVAL/ZFAIL TO ZHAUG
 @ 9,56 SAY ZHAUG PICT '9999'
 @ 10,17 SAY "Average Initial Inspection CO Reading:"
 STOR ZCFVAL/ZFAIL TO ZCAUG
 @ 10,55 SAY ZCAUG PICT '99.99'
 @ 12,17 SAY "Average Reinspection HC Reading:"
 STOR ZHRFVAL/ZFAIL TO ZHRAUG
 @ 12,56 SAY ZHRAUG PICT '9999'
 @ 13,17 SAY "Average Reinspection CO Reading:"
 STOR ZCRFVAL/ZFAIL TO ZCRAUG
 @ 13,55 SAY ZCRAUG PICT '99.99'
 @ 15,17 SAY "Percent HC Reductions:"
 @ 15,57 SAY (ZHAUG-ZHRAUG)/ZHAUG*100 PICT '999.9 '
 @ 16,17 SAY "Percent CO Reductions:"
 @ 16,57 SAY (ZCAUG-ZCRAUG)/ZCAUG*100 PICT '999.9 '
 @ 17,17 SAY "Average Repair Cost:"
 @ 17,56 SAY "\$"
 @ 17,58 SAY ZREPCOST/ZCSTCNT PICT '999'
 @ 19,12 SAY "NOTE - For vehicles that failed the initial inspection"
 @ 20,12 SAY "but were not reinspected, the first inspection readings"
 @ 21,12 SAY "were used to calculate reinspection averages."
 @ 24,28 SAY "Failure Code Distribution"

Code	Description	Number	Perc
ent			
----	-----	-----	-----

"Exhaust System"			
E1	Exhaust leak		
ZCE1	PICT '999999'		
ZCE1/ZREINS*100	PICT '99.9'		
"Tampering"			
T0	Not specified		
ZCT0	PICT '999999'		
ZCT0/ZREINS*100	PICT '99.9'		
T1	Catalytic converter		
ZCT1	PICT '999999'		
ZCT1/ZREINS*100	PICT '99.9'		
T2	PCV valve		
ZCT2	PICT '999999'		
ZCT2/ZREINS*100	PICT '99.9'		
T3	EGR valve		
ZCT3	PICT '999999'		
ZCT3/ZREINS*100	PICT '99.9'		
T4	Air pump		
ZCT4	PICT '999999'		
ZCT4/ZREINS*100	PICT '99.9'		
T5	Carbon canister		
ZCT5	PICT '999999'		
ZCT5/ZREINS*100	PICT '99.9'		
T6	Fuel inlet restrictor		
ZCT6	PICT '999999'		
ZCT6/ZREINS*100	PICT '99.9'		
T7	Other		
ZCT7	PICT '999999'		
ZCT7/ZREINS*100	PICT '99.9'		
"Inspection/Maintenance"			
M0	Not specified		
ZCM0	PICT '999999'		
ZCM0/ZREINS*100	PICT '99.9'		

```

@ 17,8 SAY "Passing Vehicles"
@ 17,53 SAY ZPASS PICT '99999'
@ 17,68 SAY ZPASS/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 18,8 SAY "Failed Initial Inspection for HC"
@ 18,53 SAY ZHFAIL PICT '99999'
@ 18,68 SAY ZHFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 19,8 SAY "Failed Initial Inspection for CO"
@ 19,53 SAY ZCFAIL PICT '99999'
@ 19,68 SAY ZCFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 20,8 SAY "Failed Both Initial Inspections"
@ 20,53 SAY ZBFAIL PICT '99999'
@ 20,68 SAY ZBFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 21,8 SAY "Overall Failure Rate"
@ 21,53 SAY ZFAIL PICT '99999'
@ 21,68 SAY ZFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 22,8 SAY "Failed Reinspection for HC"
@ 22,53 SAY ZHRFAIL PICT '99999'
@ 22,68 SAY ZHRFAIL/ZREINS*100 PICT '999.9'
@ 23,8 SAY "Failed Reinspection for CO"
@ 23,53 SAY ZCRFAIL PICT '99999'
@ 23,68 SAY ZCRFAIL/ZREINS*100 PICT '999.9'
@ 24,8 SAY "Failed Both Reinspections"
@ 24,53 SAY ZBRFAIL PICT '99999'
@ 24,68 SAY ZBRFAIL/ZREINS*100 PICT '999.9'
@ 25,8 SAY "Overall Reinspection Failure Rate"
@ 25,53 SAY ZRFAIL PICT '99999'
@ 25,68 SAY ZRFAIL/ZREINS*100 PICT '999.9'
@ 27,8 SAY "Exempt Vehicles"
@ 27,53 SAY ZMEXEMPT PICT '99999'
@ 27,67 SAY ZMEXEMPT/ZTOTAL*100 PICT '99.99'
@ 28,8 SAY "Waived Vehicles"
@ 28,53 SAY ZMWAIVED PICT '99999'
@ 28,67 SAY ZMWAIVED/(ZTOTAL-ZMEXEMPT)*100 PICT '99.99'
@ 29,8 SAY "Vehicles Complying with Sect. 207-B"
@ 29,53 SAY ZMCOMPLI PICT '99999'
@ 29,67 SAY ZMCOMPLI/(ZTOTAL-ZMEXEMPT)*100 PICT '99.99'
STOR "There were "+STR(ZHFAIL+ZBFAIL+ZCFAIL-ZREINS)+" vehicle(s) that failed" TO NI
@ 33,40-LEN(NI)/2 SAY NI
@ 34,7 SAY "at least one of the initial inspections but were not reinspected."
STOR ZPAGE+1 TO ZPAGE
EJEC
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 2,8 SAY DATE()
@ 2,64 SAY "Page"
@ 2,69 SAY ZPAGE PICT '99'
IF ZMEYEAR>0
    @ 4,6 SAY "This report summarizes data for vehicle model years 19"
    @ 4,60 SAY ZMSYEAR PICT '99'
    @ 4,63 SAY "through 19"
    @ 4,73 SAY ZMEYEAR PICT '99'
    @ 4,75 SAY "."
ELSE
    @ 4,12 SAY "This report summarizes data for vehicle model year 19"
    @ 4,65 SAY ZMSYEAR PICT '99'
    @ 4,67 SAY "."
ENDI
STOR "There were "+STR(ZREINS)+" reinspected vehicles in the data base." TO R
STOR LEN(R) TO Y
@ 6,40-Y/2 SAY R
@ 8,24 SAY "***** Failed Vehicle Summary *****"

```

@ 47,13 SAY "M1 Air filter element"
 @ 47,51 SAY ZCM1 PICT '99999'
 @ 47,64 SAY ZCM1/ZREINS*100 PICT '99.9'
 @ 48,13 SAY "M2 TAC"
 @ 48,51 SAY ZCM2 PICT '99999'
 @ 48,64 SAY ZCM2/ZREINS*100 PICT '99.9'
 @ 49,13 SAY "M3 Idle speed"
 @ 49,51 SAY ZCM3 PICT '99999'
 @ 49,64 SAY ZCM3/ZREINS*100 PICT '99.9'
 @ 50,13 SAY "M4 Air/fuel mixture"
 @ 50,51 SAY ZCM4 PICT '99999'
 @ 50,64 SAY ZCM4/ZREINS*100 PICT '99.9'
 @ 51,13 SAY "M5 Dwell"
 @ 51,51 SAY ZCM5 PICT '99999'
 @ 51,64 SAY ZCM5/ZREINS*100 PICT '99.9'
 @ 52,13 SAY "M6 Timing"
 @ 52,51 SAY ZCM6 PICT '99999'
 @ 52,64 SAY ZCM6/ZREINS*100 PICT '99.9'
 @ 53,13 SAY "M7 Spark plugs"
 @ 53,51 SAY ZCM7 PICT '99999'
 @ 53,64 SAY ZCM7/ZREINS*100 PICT '99.9'
 @ 54,13 SAY "M8 Spark plug wires"
 @ 54,51 SAY ZCM8 PICT '99999'
 @ 54,64 SAY ZCM8/ZREINS*100 PICT '99.9'
 @ 55,13 SAY "M9 Vacuum hose"
 @ 55,51 SAY ZCM9 PICT '99999'
 @ 55,64 SAY ZCM9/ZREINS*100 PICT '99.9'
 @ 56,13 SAY "M0 Electronic controls"
 @ 56,51 SAY ZCN0 PICT '99999'
 @ 56,64 SAY ZCN0/ZREINS*100 PICT '99.9'
 @ 57,13 SAY "N1 Low emission tune-up"
 @ 57,51 SAY ZCN1 PICT '99999'
 @ 57,64 SAY ZCN1/ZREINS*100 PICT '99.9'
 @ 58,13 SAY "N2 Other"
 @ 58,51 SAY ZCN2 PICT '99999'
 @ 58,64 SAY ZCN2/ZREINS*100 PICT '99.9'
 SET DEVI TO SCRE
 EJECT
 CLEA

SELE A
 GO TOP
 SET INDE TO ISTATION
 **** CALCULATE TOTALS BY STATION
 DO WHIL .NOT. EOF()
 STOR STATION_1 TO MSTAT
 SELE C
 APPE BLAN
 REPL STATION WITH MSTAT
 ? MSTAT
 STOR 0 TO TOTAL
 STOR 0 TO PASS
 STOR 0 TO HFAIL
 STOR 0 TO CFAIL
 STOR 0 TO BFAIL
 STOR 0 TO HRFAIL
 STOR 0 TO CRFAIL
 STOR 0 TO BRFAIL
 STOR 0 TO MEXEMPT
 STOR 0 TO MWAIVED


```

STOR 0 TO MCOMPLI
STOR 0 TO HFVAL
STOR 0 TO CFVAL
STOR 0 TO HRFVAL
STOR 0 TO CRFVAL
STOR 0 TO REPCOST
STOR 0 TO CE1
STOR 0 TO CT0
STOR 0 TO CT1
STOR 0 TO CT2
STOR 0 TO CT3
STOR 0 TO CT4
STOR 0 TO CT5
STOR 0 TO CT6
STOR 0 TO CT7
STOR 0 TO CM0
STOR 0 TO CM1
STOR 0 TO CM2
STOR 0 TO CM3
STOR 0 TO CM4
STOR 0 TO CM5
STOR 0 TO CM6
STOR 0 TO CM7
STOR 0 TO CM8
STOR 0 TO CM9
STOR 0 TO CN0
STOR 0 TO CN1
STOR 0 TO CN2
STOR 0 TO CSTCNT
STOR 0 TO REINS
SELE A
DO WHILE STATION_1=MSTAT
  STOR TOTAL+1 TO TOTAL
  IF EXEMPT=1
    STOR MEXEMPT+1 TO MEXEMPT
  ELSE
    DO CASE
      CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFVAL+1 TO HFVAL
        STOR HFVAL+HC_FIRST TO HFVAL
      CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR CFVAL+1 TO CFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFVAL+1 TO BFVAL
        STOR HFVAL+HC_FIRST TO HFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS+1 TO PASS
    ENDC

    IF HC_RE>0 .OR. CO_RE>0
      STOR HRFVAL+HC_RE TO HRFVAL
      STOR CRFVAL+CO_RE TO CRFVAL
      IF STATUS2HC="F" .AND. STATUS2CO="P"
        STOR HRFVAL+1 TO HRFVAL
      ENDI
      IF STATUS2CO="F" .AND. STATUS2HC="P"
        STOR CRFVAL+1 TO CRFVAL
      ENDI
    ENDIF
  ENDIF
ENDWHILE

```

```

IF STATUS2HC="F" .AND. STATUS2CO="F"
  STOR BRFAIL+1 TO BRFAIL
ENDI
STOR REINS+1 TO REINS
ELSE
  STOR HRFVAL+HC_FIRST TO HRFVAL
  STOR CRFVAL+CO_FIRST TO CRFVAL
ENDI
IF WAIVED=1
  STOR MWAIVED+1 TO MWAIVED
ENDI
IF C_207B=1
  STOR MCOMPLI+1 TO MCOMPLI
ENDI
IF COST>0
  STOR REPCOST+COST TO REPCOST
  STOR CSTCNT+1 TO CSTCNT
ENDI
STOR LEN(TRIM(CODES)) TO LENGTH
STOR 1 TO X
DO WHILE X<LENGTH
  STOR SUBSTR(CODES,X,2) TO MCODE
  DO CASE
    CASE MCODE="E1"
      STOR CE1+1 TO CE1
    CASE MCODE="T0"
      STOR CT0+1 TO CT0
    CASE MCODE="T1"
      STOR CT1+1 TO CT1
    CASE MCODE="T2"
      STOR CT2+1 TO CT2
    CASE MCODE="T3"
      STOR CT3+1 TO CT3
    CASE MCODE="T4"
      STOR CT4+1 TO CT4
    CASE MCODE="T5"
      STOR CT5+1 TO CT5
    CASE MCODE="T6"
      STOR CT6+1 TO CT6
    CASE MCODE="T7"
      STOR CT7+1 TO CT7
    CASE MCODE="M0"
      STOR CM0+1 TO CM0
    CASE MCODE="M1"
      STOR CM1+1 TO CM1
    CASE MCODE="M2"
      STOR CM2+1 TO CM2
    CASE MCODE="M3"
      STOR CM3+1 TO CM3
    CASE MCODE="M4"
      STOR CM4+1 TO CM4
    CASE MCODE="M5"
      STOR CM5+1 TO CM5
    CASE MCODE="M6"
      STOR CM6+1 TO CM6
    CASE MCODE="M7"
      STOR CM7+1 TO CM7
    CASE MCODE="M8"
      STOR CM8+1 TO CM8
    CASE MCODE="M9"

```

```

        STOR CM9+1 TO CM9
        CASE MCODE="NO"
        STOR CN0+1 TO CN0
        CASE MCODE="N1"
        STOR CN1+1 TO CN1
        CASE MCODE="N2"
        STOR CN2+1 TO CN2
    ENDC
    STOR X+2 TO X
ENDD
ENDI
SKIP
IF EOF()
    STOR "000000" TO STATION_1
ENDI
ENDD
STOR MSTAT TO MSTAT1
IF SUBSTR(MSTAT1,LEN(MSTAT1)-5,1)=" "
    STOR "SO"+SUBSTR(MSTAT1,LEN(MSTAT1)-4,5) TO MSTAT2
ELSE
    STOR "S"+SUBSTR(MSTAT1,LEN(MSTAT1)-5,6) TO MSTAT2
ENDI
SAVE ALL EXCE FLAG,X,LENGTH,MCODE,ZMEYEAR,ZMSYEARZLINES,ZPAGE TO &MSTAT2
ENDD

***** CALCULATE FINAL TOTALS - ADD STATION TOTALS
SELE C
GO TOP
CLEA
@ 10,24 SAY "Make sure your printer is ready."
WAIT "                Press any key to continue."
CLEA
SET COLO TO W*,8
@ 10,36 SAY "PRINTING"
SET COLO TO W
SET DEVI TO PRIN
STOR ZPAGE+1 TO ZPAGE
STOR 11 TO ZLINES
STOR "-----" TO ZTOP
STOR "-----" TO ZBOT
DO WHIL .NOT. EOF()
    IF ZLINES=11
        @ PROW(),20 SAY "FAILURE RATE REPORT BY INSPECTION STATION"
        IF ZMEYEAR>0
            @ PROW()+2,6 SAY "This report summarizes data for vehicle model years 19"
            @ PROW(),60 SAY ZMSYEAR PICT '99'
            @ PROW(),63 SAY "through 19"
            @ PROW(),73 SAY ZMEYEAR PICT '99'
            @ PROW(),75 SAY " ."
        ELSE
            @ PROW()+2,12 SAY "This report summarizes data for vehicle model year 19"
            @ PROW(),65 SAY ZMSYEAR PICT '99'
            @ PROW(),67 SAY " ."
        ENDI
        @ PROW()+2,6 SAY DATE()
        @ PROW(),66 SAY "Page"
        @ PROW(),71 SAY ZPAGE PICT '##'
        @ PROW()+1,4 SAY ZTOP
        @ PROW()+1,26 SAY "Initial Inspections"
        @ PROW(),57 SAY "Reinspections"
    
```

```

@ PROW()+1,5 SAY "Insp. Station"
@ PROW(),23 SAY "Tests Failures Percent"
@ PROW(),52 SAY "Tests Failures Percent"
@ PROW()+1,4 SAY ZBOT
ENDI
STOR "S"+STATION TO ZSTAT
REST FROM &ZSTAT ADDITIVE
@ PROW()+1,9 SAY SUBSTR(ZSTAT,2,LEN(ZSTAT)-1) PICT '999999'
@ PROW(),23 SAY TOTAL PICT '99999'
STOR HFAIL+CFAIL+BFAIL TO FAIL
@ PROW(),32 SAY FAIL PICT '99999'
@ PROW(),41 SAY FAIL/TOTAL*100 PICT '999.9'
@ PROW(),52 SAY REINS PICT '99999'
STOR HRFAIL+CRFAIL+BRFAIL TO RFAIL
@ PROW(),61 SAY RFAIL PICT '99999'
IF REINS=0
  @ PROW(),72 SAY "0.0"
ELSE
  @ PROW(),70 SAY RFAIL/REINS*100 PICT '999.9'
ENDI
DELE
STOR ZLINES+1 TO ZLINES
SKIP
IF ZLINES>55 .OR. EOF()
  @ PROW()+1,4 SAY ZBOT
  EJEC
  STOR 11 TO ZLINES
  STOR ZPAGE+1 TO ZPAGE
ENDI
ENDD
PACK
SET DEVI TO SCRE
EJEC
CLEA
RETU
*** EOF

```

```
**** SUMMARY4.PRG
***** SET UP COMPUTER
CLEAR ALL
SET BELL OFF
SET CONFIRM ON
SET DELETED ON
SET ECHO OFF
SET ESCAPE ON
SET FUNCTION 10 TO 'QUIT;'
SET INTENSITY ON
SET SAFETY OFF
SET TALK OFF
SET UNIQUE ON
SET FUNCTION 10 TO '99'
```

```
***** PREPARE DATA BASE
SELE C
USE STATIONS
ZAP
SELE B
USE YEARS
ZAP
SELE A
USE MISSOURI
```

```
***** ALLOW USERS TO SELECT MODEL YEARS
```

```
CLEA
STOR " " TO ZMODEL
STOR 0 TO FLAG
@ 4,27 SAY "Please select the model that"
@ 5,27 SAY "you wish to analyze:"
DO WHILE FLAG=0
    @ 5,51 GET ZMODEL PICT '@! AAAA'
    READ
    LOCA FOR MAKE=ZMODEL
    IF EOF()
        ?? CHR(7)
        @ 10,33 SAY ZMODEL+" NOT FOUND"
        WAIT "
        @ 9,0 CLEA
    ELSE
        STOR 1 TO FLAG
    ENDI
ENDD
```

PRESS ANY KEY TO CONTINUE"

```
IF .NOT. FILE(IYEAR.NDX)
    *!QX MISSOURI YEAR IYEAR
ENDI
IF .NOT. FILE(ISTATION.NDX)
    *!QX MISSOURI STATION_1 ISTATION
ENDI
```

```
CLEA
SET COLO TO W*+,B
@ 10,20 SAY "PLEASE WAIT WHILE I INDEX THE DATA BASE."
SET COLO TO W
```

```
IF .NOT. FILE(IYEAR)
    INDE ON YEAR TO IYEAR
```

```

ELSE
    SET INDE TO IYEAR
    REIN
ENDI
IF .NOT. FILE(ISTATION.WDX)
    INDE ON STATION_1 TO ISTATION
ELSE
    SET INDE TO ISTATION
    REIN
ENDI
SET INDE TO IYEAR

**** ELIMINATE RECORDS NOT OF SELECTED MAKE
SET FILT TO MAKE=ZMODEL
GO TOP
CLEA
**** MAIN PROGRAM

**** CALCULATE TOTALS BY YEAR
DO WHILE .NOT. EOF()
    STOR YEAR TO MYEAR
    SELE B
    APPE BLAN
    REPL YEAR WITH MYEAR
    SELE A
    ? MYEAR
    STOR 0 TO TOTAL
    STOR 0 TO PASS
    STOR 0 TO HFAIL
    STOR 0 TO CFAIL
    STOR 0 TO BFAIL
    STOR 0 TO HRFAIL
    STOR 0 TO CRFAIL
    STOR 0 TO BRFAIL
    STOR 0 TO MEXEMPT
    STOR 0 TO MWAIVED
    STOR 0 TO MCOMPLI
    STOR 0 TO HFVAL
    STOR 0 TO CFVAL
    STOR 0 TO HRFVAL
    STOR 0 TO CRFVAL
    STOR 0 TO REPCOST
    STOR 0 TO CE1
    STOR 0 TO CT0
    STOR 0 TO CT1
    STOR 0 TO CT2
    STOR 0 TO CT3
    STOR 0 TO CT4
    STOR 0 TO CT5
    STOR 0 TO CT6
    STOR 0 TO CT7
    STOR 0 TO CM0
    STOR 0 TO CM1
    STOR 0 TO CM2
    STOR 0 TO CM3
    STOR 0 TO CM4
    STOR 0 TO CM5
    STOR 0 TO CM6
    STOR 0 TO CM7
    STOR 0 TO CM8

```

```

STOR 0 TO CM9
STOR 0 TO CM0
STOR 0 TO CM1
STOR 0 TO CM2
STOR 0 TO CSTCNT
STOR 0 TO REINS
DO WHILE YEAR=MYEAR
  IF EXEMPT=1
    STOR MEXEMPT+1 TO MEXEMPT
  ELSE
    DO CASE
      CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFVAL+HC_FIRST TO HFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR HFVAL+HC_FIRST TO HFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFVAL+HC_FIRST TO BFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS+1 TO PASS
    ENDC
    IF STATUS1HC="F" .OR. STATUS1CO="F"
      IF HC_RE>0 .OR. CO_RE>0
        STOR HRFVAL+HC_RE TO HRFVAL
        STOR CRFVAL+CO_RE TO CRFVAL
        IF STATUS2HC="F" .AND. STATUS2CO="P"
          STOR HRFAIL+1 TO HRFAIL
        ENDI
        IF STATUS2CO="F" .AND. STATUS2HC="P"
          STOR CRFAIL+1 TO CRFAIL
        ENDI
        IF STATUS2HC="F" .AND. STATUS2CO="F"
          STOR BRFAIL+1 TO BRFAIL
        ENDI
        STOR REINS+1 TO REINS
      ELSE
        STOR HRFVAL+HC_FIRST TO HRFVAL
        STOR CRFVAL+CO_FIRST TO CRFVAL
      ENDI
    ENDI
    IF WAIVED=1
      STOR MWAIVED+1 TO MWAIVED
    ENDI
    IF C_207B=1
      STOR MCOMPLI+1 TO MCOMPLI
    ENDI
    IF COST>0
      STOR REPCOST+COST TO REPCOST
      STOR CSTCNT+1 TO CSTCNT
    ENDI
    STOR LEN(TRIM(CODES)) TO LENGTH
    STOR 1 TO X
    DO WHILE X<LENGTH
      STOR SUBSTR(CODES,X,2) TO MCODE
      DO CASE

```

```

CASE MCODE="E1"
  STOR CE1+1 TO CE1
CASE MCODE="T0"
  STOR CT0+1 TO CT0
CASE MCODE="T1"
  STOR CT1+1 TO CT1
CASE MCODE="T2"
  STOR CT2+1 TO CT2
CASE MCODE="T3"
  STOR CT3+1 TO CT3
CASE MCODE="T4"
  STOR CT4+1 TO CT4
CASE MCODE="T5"
  STOR CT5+1 TO CT5
CASE MCODE="T6"
  STOR CT6+1 TO CT6
CASE MCODE="T7"
  STOR CT7+1 TO CT7
CASE MCODE="M0"
  STOR CM0+1 TO CM0
CASE MCODE="M1"
  STOR CM1+1 TO CM1
CASE MCODE="M2"
  STOR CM2+1 TO CM2
CASE MCODE="M3"
  STOR CM3+1 TO CM3
CASE MCODE="M4"
  STOR CM4+1 TO CM4
CASE MCODE="M5"
  STOR CM5+1 TO CM5
CASE MCODE="M6"
  STOR CM6+1 TO CM6
CASE MCODE="M7"
  STOR CM7+1 TO CM7
CASE MCODE="M8"
  STOR CM8+1 TO CM8
CASE MCODE="M9"
  STOR CM9+1 TO CM9
CASE MCODE="N0"
  STOR CN0+1 TO CN0
CASE MCODE="N1"
  STOR CN1+1 TO CN1
CASE MCODE="N2"
  STOR CN2+1 TO CN2
ENDC
STOR X+2 TO X
ENDD
ENDI
STOR TOTAL+1 TO TOTAL
SKIP
IF EOF()
  STOR 99 TO YEAR
ENDI
ENDD
STOR STR(MYEAR) TO MYEAR
STOR "Y19"+SUBSTR(MYEAR,LEN(MYEAR)-1,2) TO FILE
SAVE ALL EXCE FLAG,X,LENGTH,MCODE TO &FILE
ENDD

```

***** CALCULATE FINAL TOTALS - ADD YEAR TOTALS

STOR 0 TO ZMAXDATE
STOR 99 TO ZMINDATE
STOR 0 TO ZTOTAL
STOR 0 TO ZPASS
STOR 0 TO ZHFAIL
STOR 0 TO ZCFAIL
STOR 0 TO ZBFAIL
STOR 0 TO ZHRFAIL
STOR 0 TO ZCRFAIL
STOR 0 TO ZBRFAIL
STOR 0 TO ZMEXEMPT
STOR 0 TO ZMWAIVED
STOR 0 TO ZMCOMPLI
STOR 0 TO ZHFVAL
STOR 0 TO ZCFVAL
STOR 0 TO ZHRFVAL
STOR 0 TO ZCRFVAL
STOR 0 TO ZREPCOST
STOR 0 TO ZCE1
STOR 0 TO ZCT0
STOR 0 TO ZCT1
STOR 0 TO ZCT2
STOR 0 TO ZCT3
STOR 0 TO ZCT4
STOR 0 TO ZCT5
STOR 0 TO ZCT6
STOR 0 TO ZCT7
STOR 0 TO ZCM0
STOR 0 TO ZCM1
STOR 0 TO ZCM2
STOR 0 TO ZCM3
STOR 0 TO ZCM4
STOR 0 TO ZCM5
STOR 0 TO ZCM6
STOR 0 TO ZCM7
STOR 0 TO ZCM8
STOR 0 TO ZCM9
STOR 0 TO ZCN0
STOR 0 TO ZCN1
STOR 0 TO ZCN2
STOR 0 TO ZCSTCNT
STOR 0 TO ZREINS
STOR 0 TO ZFAIL
STOR 0 TO ZKFAIL
SELE F
GO BOT
STOR YEAR TO ZMAXDATE
GO TOP
STOR YEAR TO ZMINDATE
CLEA
@ 10,24 SAY "Make sure your printer is ready."
WAIT " Press any key to continue."
CLEA
SET COLO TO W*,B
@ 10,36 SAY "PRINTING"
SET COLO TO W

SET DEVI TO PRIN
STOR 1 TO ZPAGE
STOR 11 TO ZLINES

```

STOR "===== " TO ZTOP
STOR "----- " TO ZBOT
DO WHILE .NOT. EOF()
  IF ZLINES=11
    @ PROW(),23 SAY "FAILURE RATE REPORT BY VEHICLE MAKE"
    @ PROW()+2,5 SAY "This report summarizes "+ZMODEL+"s for vehicle model years 19"
    @ PROW(),61 SAY ZMINDATE PICT '99'
    @ PROW(),64 SAY "through 19"
    @ PROW(),74 SAY ZMAXDATE PICT '99'
    @ PROW(),76 SAY " ."
    @ PROW()+2,6 SAY DATE()
    @ PROW(),66 SAY "Page"
    @ PROW(),71 SAY ZPAGE PICT '###'
    @ PROW()+1,4 SAY ZTOP
    @ PROW()+1,26 SAY "Initial Inspections"
    @ PROW(),57 SAY "Reinspections"
    @ PROW()+1,6 SAY "Model Year"
    @ PROW(),23 SAY "Tests Failures Percent"
    @ PROW(),52 SAY "Tests Failures Percent"
    @ PROW()+1,4 SAY ZBOT
  ENDI
  STOR STR(YEAR) TO ZYEAR
  STOR "Y19"+TRIM(SUBSTR(ZYEAR,LEN(ZYEAR)-1,2)) TO ZFILE
  * STOR ""+"Y19"+TRIM(SUBSTR(ZYEAR,LEN(ZYEAR)-1,2))+".MEM"+" " TO ZEFILE
  REST FROM &ZFILE ADDITIVE
  STOR ZTOTAL+TOTAL TO ZTOTAL
  STOR ZPASS+PASS TO ZPASS
  STOR ZHFAIL+HFAIL TO ZHFAIL
  STOR ZCFAIL+CFAIL TO ZCFAIL
  STOR ZBFAIL+BFAIL TO ZBFAIL
  STOR HFAIL+CFAIL+BFAIL TO FAIL
  STOR ZFAIL+FAIL TO ZFAIL
  STOR ZHRFAIL+HRFAIL TO ZHRFAIL
  STOR ZCRFAIL+CRFAIL TO ZCRFAIL
  STOR ZBRFAIL+BRFAIL TO ZBRFAIL
  STOR HRFAIL+CRFAIL+BRFAIL TO RFAIL
  STOR ZRFAIL+RFAIL TO ZRFAIL
  STOR ZREINS+REINS TO ZREINS
  STOR ZMEXEMPT+MEXEMPT TO ZMEXEMPT
  STOR ZMWAIVED+MWAIVED TO ZMWAIVED
  STOR ZMCOMPLI+MCOMPLI TO ZMCOMPLI
  STOR ZHFVAL+HFVAL TO ZHFVAL
  STOR ZCFVAL+CFVAL TO ZCFVAL
  STOR ZHRFVAL+HRFVAL TO ZHRFVAL
  STOR ZCRFVAL+CRFVAL TO ZCRFVAL
  STOR ZREPCOST+REPCOST TO ZREPCOST
  STOR ZCE1+CE1 TO ZCE1
  STOR ZCT0+CT0 TO ZCT0
  STOR ZCT1+CT1 TO ZCT1
  STOR ZCT2+CT2 TO ZCT2
  STOR ZCT3+CT3 TO ZCT3
  STOR ZCT4+CT4 TO ZCT4
  STOR ZCT5+CT5 TO ZCT5
  STOR ZCT6+CT6 TO ZCT6
  STOR ZCT7+CT7 TO ZCT7
  STOR ZCM0+CM0 TO ZCM0
  STOR ZCM1+CM1 TO ZCM1
  STOR ZCM2+CM2 TO ZCM2
  STOR ZCM3+CM3 TO ZCM3
  STOR ZCM4+CM4 TO ZCM4

```

```

STOR ZCM5+CM5 TO ZCM5
STOR ZCM6+CM6 TO ZCM6
STOR ZCM7+CM7 TO ZCM7
STOR ZCM8+CM8 TO ZCM8
STOR ZCM9+CM9 TO ZCM9
STOR ZCN0+CN0 TO ZCN0
STOR ZCN1+CN1 TO ZCN1
STOR ZCN2+CN2 TO ZCN2
STOR ZCSTCNT+CSTCNT TO ZCSTCNT
@ PROW()+1,9 SAY SUBSTR(ZFILE,LEN(ZFILE)-3,4) PICT '9999'
@ PROW(),23 SAY TOTAL PICT '99999'
@ PROW(),32 SAY FAIL PICT '99999'
@ PROW(),41 SAY FAIL/TOTAL*100 PICT '999.9'
@ PROW(),52 SAY REINS PICT '99999'
@ PROW(),61 SAY RFAIL PICT '99999'
IF REINS=0
  @ PROW(),72 SAY "0.0"
ELSE
  @ PROW(),70 SAY RFAIL/REINS*100 PICT '999.9'
ENDI
RELE ALL EXCEPT Z*
STOR ZLINES+1 TO ZLINES
SKIP
IF ZLINES=55 .OR. EOF()
  @ PROW()+1,4 SAY ZBOT
  EJEC
  STOR 11 TO ZLINES
  STOR ZPAGE+1 TO ZPAGE
ENDI
* ERASE &ZEFILE
ENDD
PACK
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 3,8 SAY DATE()
@ 3,64 SAY "Page"
@ 3,69 SAY ZPAGE PICT '99'
@ 6,23 SAY "FAILURE RATE REPORT BY VEHICLE MAKE"
@ 8,5 SAY "This report summarizes "+ZMODEL+"s for vehicle model years 19"
@ 8,61 SAY ZMINDATE PICT '99'
@ 8,64 SAY "through 19"
@ 8,74 SAY ZMAXDATE PICT '99'
@ 8,76 SAY ","
@ 12,28 SAY "***** General Summary *****"
@ 14,17 SAY "Description"           Number           Perce"
@ 14,72 SAY "nt"
@ 15,7 SAY "-----"
@ 15,66 SAY "-----"
@ 16,8 SAY "Emission Tests"
@ 16,53 SAY ZTOTAL PICT '99999'
@ 17,8 SAY "Passing Vehicles"
@ 17,53 SAY ZPASS PICT '99999'
@ 17,68 SAY ZPASS/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 18,8 SAY "Failed Initial Inspection for HC"
@ 18,53 SAY ZHFAIL PICT '99999'
@ 18,68 SAY ZHFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 19,8 SAY "Failed Initial Inspection for CO"
@ 19,53 SAY ZCFAIL PICT '99999'
@ 19,68 SAY ZCFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
@ 20,8 SAY "Failed Both Initial Inspections"
@ 20,53 SAY ZBFAIL PICT '99999'

```

@ 20,68 SAY ZBFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
 @ 21,8 SAY "Overall Failure Rate"
 @ 21,53 SAY ZFAIL PICT '99999'
 @ 21,68 SAY ZFAIL/(ZTOTAL-ZMEXEMPT)*100 PICT '999.9'
 @ 22,8 SAY "Failed Reinspection for HC"
 @ 22,53 SAY ZHRFAIL PICT '99999'
 @ 22,68 SAY ZHRFAIL/ZREINS*100 PICT '999.9'
 @ 23,8 SAY "Failed Reinspection for CO"
 @ 23,53 SAY ZCRFAIL PICT '99999'
 @ 23,68 SAY ZCRFAIL/ZREINS*100 PICT '999.9'
 @ 24,8 SAY "Failed Both Reinspections"
 @ 24,53 SAY ZBRFAIL PICT '99999'
 @ 24,68 SAY ZBRFAIL/ZREINS*100 PICT '999.9'
 @ 25,8 SAY "Overall Reinspection Failure Rate"
 @ 25,53 SAY ZRFAIL PICT '99999'
 @ 25,68 SAY ZRFAIL/ZREINS*100 PICT '999.9'
 @ 27,8 SAY "Exempt Vehicles"
 @ 27,53 SAY ZMEXEMPT PICT '99999'
 @ 27,67 SAY ZMEXEMPT/ZTOTAL*100 PICT '99.99'
 @ 28,8 SAY "Waived Vehicles"
 @ 28,53 SAY ZMWAIVED PICT '99999'
 @ 28,67 SAY ZMWAIVED/(ZTOTAL-ZMEXEMPT)*100 PICT '99.99'
 @ 29,8 SAY "Vehicles Complying with Sect. 207-B"
 @ 29,53 SAY ZMCOMPLI PICT '99999'
 @ 29,67 SAY ZMCOMPLI/(ZTOTAL-ZMEXEMPT)*100 PICT '99.99'
 STOR "There were "+STR(ZHFAIL+ZBFAIL+ZCFVAL-ZREINS)+" vehicle(s) that failed" TO NI
 @ 33,40-LEN(NI)/2 SAY NI
 @ 34,7 SAY "at least one of the initial inspections but were not reinspected."
 STOR ZPAGE+1 TO ZPAGE
 EJECT
 @ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
 @ 2,8 SAY DATE()
 @ 2,64 SAY "Page"
 @ 2,69 SAY ZPAGE PICT '99'
 @ 4,5 SAY "This report summarizes "+ZMODEL+"s for vehicle model years 19"
 @ 4,61 SAY ZMINDATE PICT '99'
 @ 4,64 SAY "through 19"
 @ 4,74 SAY ZMAXDATE PICT '99'
 @ 4,76 SAY ". "
 STOR "There were "+STR(ZREINS)+" reinspected vehicles in the data base." TO R
 STOR LEN(R) TO Y
 @ 6,40-Y/2 SAY R
 @ 8,24 SAY "***** Failed Vehicle Summary *****"
 @ 9,17 SAY "Average Initial Inspection HC Reading:"
 STOR ZHFVAL/ZFAIL TO ZHAUG
 @ 9,56 SAY ZHAUG PICT '9999'
 @ 10,17 SAY "Average Initial Inspection CO Reading:"
 STOR ZCFVAL/ZFAIL TO ZCAUG
 @ 10,55 SAY ZCAUG PICT '99.99'
 @ 12,17 SAY "Average Reinspection HC Reading:"
 STOR ZHRFVAL/ZFAIL TO ZHRAUG
 @ 12,56 SAY ZHRAUG PICT '9999'
 @ 13,17 SAY "Average Reinspection CO Reading:"
 STOR ZCRFVAL/ZFAIL TO ZCRAUG
 @ 13,55 SAY ZCRAUG PICT '99.99'
 @ 15,17 SAY "Percent HC Reduction:"
 @ 15,57 SAY (ZHAUG-ZHRAUG)/ZHAUG*100 PICT '999.9 '
 @ 16,17 SAY "Percent CO Reduction:"
 @ 16,57 SAY (ZCAUG-ZCRAUG)/ZCAUG*100 PICT '999.9 '
 @ 17,17 SAY "Average Repair Cost:"

@ 17,56 SAY "\$"
 @ 17,58 SAY ZREPCOST/ZCSTCNT PICT '999'
 @ 19,12 SAY "NOTE - For vehicles that failed the initial inspection"
 @ 20,12 SAY "but were not reinspected, the first inspection readings"
 @ 21,12 SAY "were used to calculate reinspection averages."
 @ 24,28 SAY "Failure Code Distribution"
 @ 26,12 SAY "Code Description Number Perc"
 @ 26,67 SAY "ent"
 @ 27,12 SAY "-----" "-----" "-----"
 @ 27,67 SAY "----"
 @ 29,15 SAY "Exhaust System"
 @ 31,13 SAY "E1 Exhaust leak"
 @ 31,51 SAY ZCE1 PICT '99999'
 @ 31,64 SAY ZCE1/ZREINS*100 PICT '99.9'
 @ 33,15 SAY "Tampering"
 @ 35,13 SAY "T0 Not specified"
 @ 35,51 SAY ZCT0 PICT '99999'
 @ 35,64 SAY ZCT0/ZREINS*100 PICT '99.9'
 @ 36,13 SAY "T1 Catalytic converter"
 @ 36,51 SAY ZCT1 PICT '99999'
 @ 36,64 SAY ZCT1/ZREINS*100 PICT '99.9'
 @ 37,13 SAY "T2 PCV valve"
 @ 37,51 SAY ZCT2 PICT '99999'
 @ 37,64 SAY ZCT2/ZREINS*100 PICT '99.9'
 @ 38,13 SAY "T3 EGR valve"
 @ 38,51 SAY ZCT3 PICT '99999'
 @ 38,64 SAY ZCT3/ZREINS*100 PICT '99.9'
 @ 39,13 SAY "T4 Air pump"
 @ 39,51 SAY ZCT4 PICT '99999'
 @ 39,64 SAY ZCT4/ZREINS*100 PICT '99.9'
 @ 40,13 SAY "T5 Carbon canister"
 @ 40,51 SAY ZCT5 PICT '99999'
 @ 40,64 SAY ZCT5/ZREINS*100 PICT '99.9'
 @ 41,13 SAY "T6 Fuel inlet restrictor"
 @ 41,51 SAY ZCT6 PICT '99999'
 @ 41,64 SAY ZCT6/ZREINS*100 PICT '99.9'
 @ 42,13 SAY "T7 Other"
 @ 42,51 SAY ZCT7 PICT '99999'
 @ 42,64 SAY ZCT7/ZREINS*100 PICT '99.9'
 @ 44,15 SAY "Inspection/Maintenance"
 @ 46,13 SAY "M0 Not specified"
 @ 46,51 SAY ZCM0 PICT '99999'
 @ 46,64 SAY ZCM0/ZREINS*100 PICT '99.9'
 @ 47,13 SAY "M1 Air filter element"
 @ 47,51 SAY ZCM1 PICT '99999'
 @ 47,64 SAY ZCM1/ZREINS*100 PICT '99.9'
 @ 48,13 SAY "M2 TAC"
 @ 48,51 SAY ZCM2 PICT '99999'
 @ 48,64 SAY ZCM2/ZREINS*100 PICT '99.9'
 @ 49,13 SAY "M3 Idle speed"
 @ 49,51 SAY ZCM3 PICT '99999'
 @ 49,64 SAY ZCM3/ZREINS*100 PICT '99.9'
 @ 50,13 SAY "M4 Air/fuel mixture"
 @ 50,51 SAY ZCM4 PICT '99999'
 @ 50,64 SAY ZCM4/ZREINS*100 PICT '99.9'
 @ 51,13 SAY "M5 Dwell"
 @ 51,51 SAY ZCM5 PICT '99999'
 @ 51,64 SAY ZCM5/ZREINS*100 PICT '99.9'
 @ 52,13 SAY "M6 Timing"
 @ 52,51 SAY ZCM6 PICT '99999'

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@ 52,64 SAY ZCM6/ZREINS*100 PICT '99.9'
@ 53,13 SAY "M7          Spark plugs"
@ 53,51 SAY ZCM7 PICT '99999'
@ 53,64 SAY ZCM7/ZREINS*100 PICT '99.9'
@ 54,13 SAY "M8          Spark plug wires"
@ 54,51 SAY ZCM8 PICT '99999'
@ 54,64 SAY ZCM8/ZREINS*100 PICT '99.9'
@ 55,13 SAY "M9          Vacuum hose"
@ 55,51 SAY ZCM9 PICT '99999'
@ 55,64 SAY ZCM9/ZREINS*100 PICT '99.9'
@ 56,13 SAY "M0          Electronic controls"
@ 56,51 SAY ZCN0 PICT '99999'
@ 56,64 SAY ZCN0/ZREINS*100 PICT '99.9'
@ 57,13 SAY "M1          Low emission tune-up"
@ 57,51 SAY ZCN1 PICT '99999'
@ 57,64 SAY ZCN1/ZREINS*100 PICT '99.9'
@ 58,13 SAY "N2          Other"
@ 58,51 SAY ZCN2 PICT '99999'
@ 58,64 SAY ZCN2/ZREINS*100 PICT '99.9'
SET DEVI TO SCRE
EJEC
CLEA

```

```

SELE A
GO TOP
SET INDE TO ISTATION
**** CALCULATE TOTALS BY STATION
DO WHILE .NOT. EOF()
    STOR STATION_1 TO MSTAT
    SELE C
    APPE BLAN
    REPL STATION WITH MSTAT
    ? MSTAT
    STOR 0 TO TOTAL
    STOR 0 TO PASS
    STOR 0 TO HFVAL
    STOR 0 TO CFVAL
    STOR 0 TO BFVAL
    STOR 0 TO HRFAIL
    STOR 0 TO CRFAIL
    STOR 0 TO BRFAIL
    STOR 0 TO MEXEMPT
    STOR 0 TO MWAIVED
    STOR 0 TO MCOMPLI
    STOR 0 TO HFVAL
    STOR 0 TO CFVAL
    STOR 0 TO HRFVAL
    STOR 0 TO CRFVAL
    STOR 0 TO REPCOST
    STOR 0 TO CE1
    STOR 0 TO CT0
    STOR 0 TO CT1
    STOR 0 TO CT2
    STOR 0 TO CT3
    STOR 0 TO CT4
    STOR 0 TO CT5
    STOR 0 TO CT6
    STOR 0 TO CT7
    STOR 0 TO CM0
    STOR 0 TO CM1

```

```

STOR 0 TO CM2
STOR 0 TO CM3
STOR 0 TO CM4
STOR 0 TO CM5
STOR 0 TO CM6
STOR 0 TO CM7
STOR 0 TO CM8
STOR 0 TO CM9
STOR 0 TO CN0
STOR 0 TO CN1
STOR 0 TO CN2
STOR 0 TO CSTCNT
STOR 0 TO REINS
SELE A
DO WHILE STATION_1=MSTAT
  STOR TOTAL+1 TO TOTAL
  IF EXEMPT=1
    STOR MEXEMPT+1 TO MEXEMPT
  ELSE
    DO CASE
      CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFVAL+1 TO HFVAL
        STOR HFVAL+HC_FIRST TO HFVAL
      CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR CFVAL+1 TO CFVAL
        STOR CFVAL+CO_FIRST TO CFVAL
      CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFVAL+1 TO BFVAL
        STOR BFVAL+HC_FIRST TO BFVAL
        STOR BFVAL+CO_FIRST TO BFVAL
      CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS+1 TO PASS
    ENDC

    IF HC_RE>0 .OR. CO_RE>0
      STOR HRFVAL+HC_RE TO HRFVAL
      STOR CRFVAL+CO_RE TO CRFVAL
      IF STATUS2HC="F" .AND. STATUS2CO="P"
        STOR HRFVAL+1 TO HRFVAL
      ENDI
      IF STATUS2CO="F" .AND. STATUS2HC="F"
        STOR CRFVAL+1 TO CRFVAL
      ENDI
      IF STATUS2HC="F" .AND. STATUS2CO="F"
        STOR BRFVAL+1 TO BRFVAL
      ENDI
      STOR REINS+1 TO REINS
    ELSE
      STOR HRFVAL+HC_FIRST TO HRFVAL
      STOR CRFVAL+CO_FIRST TO CRFVAL
    ENDI
    IF WAIVED=1
      STOR MWAIVED+1 TO MWAIVED
    ENDI
    IF C_207B=1
      STOR MCOMPLI+1 TO MCOMPLI
    ENDI
    IF COST>0
      STOR REPCOST+COST TO REPCOST
      STOR CSTCNT+1 TO CSTCNT

```

```

ENDI
STOR LEN(TRIM(CODES)) TO LENGTH
STOR 1 TO X
DO WHIL X<LENGTH
  STOR SUBSTR(CODES,X,2) TO MCODE
  DO CASE
    CASE MCODE="E1"
      STOR CE1+1 TO CE1
    CASE MCODE="T0"
      STOR CT0+1 TO CT0
    CASE MCODE="T1"
      STOR CT1+1 TO CT1
    CASE MCODE="T2"
      STOR CT2+1 TO CT2
    CASE MCODE="T3"
      STOR CT3+1 TO CT3
    CASE MCODE="T4"
      STOR CT4+1 TO CT4
    CASE MCODE="T5"
      STOR CT5+1 TO CT5
    CASE MCODE="T6"
      STOR CT6+1 TO CT6
    CASE MCODE="T7"
      STOR CT7+1 TO CT7
    CASE MCODE="M0"
      STOR CM0+1 TO CM0
    CASE MCODE="M1"
      STOR CM1+1 TO CM1
    CASE MCODE="M2"
      STOR CM2+1 TO CM2
    CASE MCODE="M3"
      STOR CM3+1 TO CM3
    CASE MCODE="M4"
      STOR CM4+1 TO CM4
    CASE MCODE="M5"
      STOR CM5+1 TO CM5
    CASE MCODE="M6"
      STOR CM6+1 TO CM6
    CASE MCODE="M7"
      STOR CM7+1 TO CM7
    CASE MCODE="M8"
      STOR CM8+1 TO CM8
    CASE MCODE="M9"
      STOR CM9+1 TO CM9
    CASE MCODE="N0"
      STOR CN0+1 TO CN0
    CASE MCODE="N1"
      STOR CN1+1 TO CN1
    CASE MCODE="N2"
      STOR CN2+1 TO CN2
  ENDC
  STOR X+2 TO X
ENDD
ENDI
SKIP
IF EOF()
  STOR "000000" TO STATION_1
ENDI
ENDD
STOR MSTAT TO MSTAT1

```



```

IF SUBSTR(MSTAT1,LEN(MSTAT1)-5,1)=" "
  STOR "SO"+SUBSTR(MSTAT1,LEN(MSTAT1)-4,5) TO MSTAT2
ELSE
  STOR "S"+SUBSTR(MSTAT1,LEN(MSTAT1)-5,6) TO MSTAT2
ENDI
SAVE ALL EXCE FLAG,X,LENGTH,MCODE,ZLINES,ZPAGE TO &MSTAT2
ENDD

```

***** CALCULATE FINAL TOTALS - ADD STATION TOTALS

```

SELE C
GO TOP
CLEA
@ 10,24 SAY "Make sure your printer is ready."
WAIT "                      Press any key to continue."
CLEA
SET COLO TO W*+,B
@ 10,36 SAY "PRINTING"
SET COLO TO W
SET DEVI TO PRIN
STOR ZPAGE+1 TO ZPAGE
STOR 11 TO ZLINES
STOR "===== " TO ZTOP
STOR "----- " TO ZBOT
DO WHIL .NOT. EOF()
  IF ZLINES=11
    @ PROW(),20 SAY "FAILURE RATE REPORT BY INSPECTION STATION"
    @ PROW()+2,5 SAY "This report summarizes "+ZMODEL+"s for vehicle model years 19"
    @ PROW(),61 SAY ZMINDATE PICT '99'
    @ PROW(),64 SAY "through 19"
    @ PROW(),74 SAY ZMAXDATE PICT '99'
    @ PROW(),76 SAY "."
    @ PROW()+2,6 SAY DATE()
    @ PROW(),66 SAY "Page"
    @ PROW(),71 SAY ZPAGE PICT '##'
    @ PROW()+1,4 SAY ZTOP
    @ PROW()+1,26 SAY "Initial Inspections"
    @ PROW(),57 SAY "Reinspections"
    @ PROW()+1,5 SAY "Insp. Station"
    @ PROW(),23 SAY "Tests Failures Percent"
    @ PROW(),52 SAY "Tests Failures Percent"
    @ PROW()+1,4 SAY ZBOT
  ENDI
  STOR "S"+STATION TO ZSTAT
  * STOR CHR(22)+&ZSTAT+".MEM"+CHR(22) TO ZEFILE
  REST FROM &ZSTAT ADDITIVE
  @ PROW()+1,9 SAY SUBSTR(ZSTAT,2,LEN(ZSTAT)-1) PICT '999999'
  @ PROW(),23 SAY TOTAL PICT '99999'
  STOR HFAIL+CFAIL+BFAIL TO FAIL
  @ PROW(),32 SAY FAIL PICT '99999'
  @ PROW(),41 SAY FAIL/TOTAL*100 PICT '999.9'
  @ PROW(),52 SAY REINS PICT '99999'
  STOR HRFAIL+CRFAIL+BRFAIL TO RFAIL
  @ PROW(),61 SAY RFAIL PICT '99999'
  IF REINS=0
    @ PROW(),72 SAY "0.0"
  ELSE
    @ PROW(),70 SAY RFAIL/REINS*100 PICT '999.9'
  ENDI
DELE
RELE ALL EXCEPT Z*

```

```
STOR ZLINES+1 TO ZLINES
SKIP
IF ZLINES>55 .OR. EOF()
  @ PROW()+1,4 SAY ZBOT
  EJECT
  STOR 11 TO ZLINES
  STOR ZPAGE+1 TO ZPAGE
ENDI
* ERAS &ZEFILE
ENDD
PACK
SET DEVI TO SCRE
EJECT
CLEA
RETU
*** EOF
```

**** SUMMARY5.PRG

***** SET UP COMPUTER

CLEAR ALL
SET BELL OFF
SET CONFIRM ON
SET DELETED ON
SET ECHO OFF
SET ESCAPE ON
***SET EXACT ON
SET FUNCTION 10 TO 'QUIT;'
SET INTENSITY ON
SET SAFETY OFF
SET TALK OFF
***SET UNIQUE ON
SET FUNCTION 10 TO '99'

***** ALLOW USERS TO SELECT INSPECTION STATION

SELE A
USE MISSOURI
CLEA
STOR " " TO MSTATION
STOR 0 TO FLAG
@ 4,27 SAY "Please select the station that"
@ 5,27 SAY "you wish to analyze:"
DO WHILE FLAG=0
 @ 5,51 GET MSTATION PICT '999999'
 READ
 LOCA FOR STATION_1=MSTATION
 IF EOF()
 ?? CHR(7)
 @ 10,33 SAY MSTATION+" NOT FOUND"
 WAIT " " PRESS ANY KEY TO CONTINUE"
 @ 9,0 CLEA
 ELSE
 STOR 1 TO FLAG
 ENDI
ENDD
STOR " " TO ANS
@ 8,22 SAY "Would you like an ASCII copy of the"
@ 9,22 SAY "data for station "+MSTATION+"?"
DO WHILE ANS<>"Y" .AND. ANS<>"N"
 STOR "N" TO ANS
 @ 9,48 GET ANS PICT '!'
 READ
ENDD
SET COLO TO W*,B
@ 13,35 SAY "PROCESSING"
SET COLO TO W
STOR "S"+SUBSTR(MSTATION,LEN(MSTATION)-5,6) TO DATAB
COPY STRU TO &DATAB
CLOS DATA
SELE A
USE &DATAB
APPE FROM MISSOURI FOR STATION_1=MSTATION
IF .NOT. FILE("IMKYR.NDX")
* !QX &DATAB MAKE IMKYR
ENDI
IF .NOT. FILE("INSPECT.NDX")
* !QX &DATAB INSPECT_1 INSPECT

ENDI

IF ANS="Y"

 COPY TO &DATA& DELIMITED

ENDI

***** PREPARE DATA BASE

SELE C

USE INSPECT

ZAP

SELE B

USE MAKES

ZAP

SELE A

CLEA

SET COLO TO W*,B

@ 10,20 SAY "PLEASE WAIT WHILE I INDEX THE DATA BASE."

SET COLO TO W

IF .NOT. FILE("IMKYR.NDX")

 INDE ON MAKE TO IMKYR

ELSE

 SET INDE TO IMKYR

 REIN

ENDI

IF .NOT. FILE("INSPECT.NDX")

 INDE ON INSPECT_1 TO INSPECT

ELSE

 SET INDE TO INSPECT

 REIN

ENDI

SET INDE TO IMKYR

GO TOP

CLEA

**** MAIN PROGRAM

**** CALCULATE TOTALS BY MAKE

STOR 71 TO MEYEAR

STOR 98 TO MSYEAR

STOR 0 TO CE1

STOR 0 TO CT0

STOR 0 TO CT1

STOR 0 TO CT2

STOR 0 TO CT3

STOR 0 TO CT4

STOR 0 TO CT5

STOR 0 TO CT6

STOR 0 TO CT7

STOR 0 TO CM0

STOR 0 TO CM1

STOR 0 TO CM2

STOR 0 TO CM3

STOR 0 TO CM4

STOR 0 TO CM5

STOR 0 TO CM6

STOR 0 TO CM7

STOR 0 TO CM8

STOR 0 TO CM9

STOR 0 TO CN0

STOR 0 TO CN1
STOR 0 TO CN2
STOR 0 TO TOTAL1
STOR 0 TO PASS1
STOR 0 TO HVAL1
STOR 0 TO HSQ1
STOR 0 TO HMAX1
STOR 2000 TO HMIN1
STOR 0.00 TO CVAL1
STOR 0.00 TO CSQ1
STOR 0.00 TO CMAX1
STOR 9.99 TO CMIN1
STOR 0 TO HFAIL1
STOR 0 TO CFAIL1
STOR 0 TO BFAIL1
STOR 0 TO HRFAIL1
STOR 0 TO CRFAIL1
STOR 0 TO BRFAIL1
STOR 0 TO MEXMPT1
STOR 0 TO MWAVED1
STOR 0 TO MCMPLI1
STOR 0 TO HRVAL1
STOR 0 TO HRSQ1
STOR 0 TO HRMAX1
STOR 2000 TO HRMIN1
STOR 0.00 TO CRVAL1
STOR 0.00 TO CRSQ1
STOR 0.00 TO CRMAX1
STOR 9.99 TO CRMIN1
STOR 0 TO RPCST1
STOR 0 TO RPCSTSQ1
STOR 999 TO RPCSTMIN1
STOR 0 TO RPCSTMAX1
STOR 0 TO CSTCNT1
STOR 0 TO REINS1
STOR 0 TO TOTAL2
STOR 0 TO PASS2
STOR 0 TO HVAL2
STOR 0 TO HSQ2
STOR 0 TO HMAX2
STOR 2000 TO HMIN2
STOR 0.00 TO CVAL2
STOR 0.00 TO CSQ2
STOR 0.00 TO CMAX2
STOR 9.99 TO CMIN2
STOR 0 TO HFAIL2
STOR 0 TO CFAIL2
STOR 0 TO BFAIL2
STOR 0 TO HRFAIL2
STOR 0 TO CRFAIL2
STOR 0 TO BRFAIL2
STOR 0 TO MEXMPT2
STOR 0 TO MWAVED2
STOR 0 TO MCMPLI2
STOR 0 TO HRVAL2
STOR 0 TO HRSQ2
STOR 0 TO HRMAX2
STOR 2000 TO HRMIN2
STOR 0.00 TO CRVAL2
STOR 0.00 TO CRSQ2

STOR 0.00 TO CRMAX2
STOR 9.99 TO CRMIN2
STOR 0 TO RPCST2
STOR 0 TO RPCSTSQ2
STOR 999 TO RPCSTMIN2
STOR 0 TO RPCSTMAX2
STOR 0 TO CSTCNT2
STOR 0 TO REINS2
STOR 0 TO TOTAL3
STOR 0 TO PASS3
STOR 0 TO HVAL3
STOR 0 TO HSQ3
STOR 0 TO HMAX3
STOR 2000 TO HMIN3
STOR 0.00 TO CVAL3
STOR 0.00 TO CSQ3
STOR 0.00 TO CMAX3
STOR 9.99 TO CMIN3
STOR 0 TO HFAIL3
STOR 0 TO CFAIL3
STOR 0 TO BFAIL3
STOR 0 TO HRFAIL3
STOR 0 TO CRFAIL3
STOR 0 TO BRFAIL3
STOR 0 TO MEXMPT3
STOR 0 TO MWAVED3
STOR 0 TO MCMPLI3
STOR 0 TO HRVAL3
STOR 0 TO HRSQ3
STOR 0 TO HRMAX3
STOR 2000 TO HRMIN3
STOR 0.00 TO CRVAL3
STOR 0.00 TO CRSQ3
STOR 0.00 TO CRMAX3
STOR 9.99 TO CRMIN3
STOR 0 TO RPCST3
STOR 0 TO RPCSTSQ3
STOR 999 TO RPCSTMIN3
STOR 0 TO RPCSTMAX3
STOR 0 TO CSTCNT3
STOR 0 TO REINS3
STOR 0 TO TOTAL4
STOR 0 TO PASS4
STOR 0 TO HVAL4
STOR 0 TO HSQ4
STOR 0 TO HMAX4
STOR 2000 TO HMIN4
STOR 0.00 TO CVAL4
STOR 0.00 TO CSQ4
STOR 0.00 TO CMAX4
STOR 9.99 TO CMIN4
STOR 0 TO HFAIL4
STOR 0 TO CFAIL4
STOR 0 TO BFAIL4
STOR 0 TO HRFAIL4
STOR 0 TO CRFAIL4
STOR 0 TO BRFAIL4
STOR 0 TO MEXMPT4
STOR 0 TO MWAVED4
STOR 0 TO MCMPLI4

STOR 0 TO HRVAL4
STOR 0 TO HRSQ4
STOR 0 TO HRMAX4
STOR 2000 TO HRMIN4
STOR 0.00 TO CRVAL4
STOR 0.00 TO CRSQ4
STOR 0.00 TO CRMAX4
STOR 9.99 TO CRMIN4
STOR 0 TO RPCST4
STOR 0 TO RPCSTSQ4
STOR 999 TO RPCSTMIN4
STOR 0 TO RPCSTMAX4
STOR 0 TO CSTCNT4
STOR 0 TO REINS4
STOR MAKE TO MMAKE
STOR 0.00 TO HRED1A
STOR 0.00 TO HRED1
STOR 0.00 TO HREDSQ1
STOR 100.00 TO HREDMIN1
STOR 0.00 TO HREDMAX1
STOR 0.00 TO HRED2A
STOR 0.00 TO HRED2
STOR 0.00 TO HREDSQ2
STOR 100.00 TO HREDMIN2
STOR 0.00 TO HREDMAX2
STOR 0.00 TO HRED3A
STOR 0.00 TO HRED3
STOR 0.00 TO HREDSQ3
STOR 100.00 TO HREDMIN3
STOR 0.00 TO HREDMAX3
STOR 0.00 TO HRED4A
STOR 0.00 TO HRED4
STOR 0.00 TO HREDSQ4
STOR 100.00 TO HREDMIN4
STOR 0.00 TO HREDMAX4
STOR 0.00 TO CRED1A
STOR 0.00 TO CRED1
STOR 0.00 TO CREDSQ1
STOR 100.00 TO CREDMIN1
STOR 0.00 TO CREDMAX1
STOR 0.00 TO CRED2A
STOR 0.00 TO CRED2
STOR 0.00 TO CREDSQ2
STOR 100.00 TO CREDMIN2
STOR 0.00 TO CREDMAX2
STOR 0.00 TO CRED3A
STOR 0.00 TO CRED3
STOR 0.00 TO CREDSQ3
STOR 100.00 TO CREDMIN3
STOR 0.00 TO CREDMAX3
STOR 0.00 TO CRED4A
STOR 0.00 TO CRED4
STOR 0.00 TO CREDSQ4
STOR 100.00 TO CREDMIN4
STOR 0.00 TO CREDMAX4
STOR 0 TO ZTOTAL
STOR 0 TO ZREINS
STOR 0 TO ZFAIL
STOR 0 TO ZRFAIL

```

DO WHILE .NOT. EOF()
  IF YEAR>MEYEAR
    STOR YEAR TO MEYEAR
  ENDI
  IF YEAR<MSYEAR
    STOR YEAR TO MSYEAR
  ENDI
DO CASE
  CASE YEAR<75
    STOR TOTAL1+1 TO TOTAL1
    IF EXEMPT=1
      STOR MEXMPT1+1 TO MEXMPT1
    ELSE
      STOR HC_FIRST+HVAL1 TO HVAL1
      STOR HC_FIRST^2+HSQ1 TO HSQ1
      STOR CO_FIRST+CVAL1 TO CVAL1
      STOR CO_FIRST^2+CSQ1 TO CSQ1
      IF HC_FIRST<HMIN1
        STOR HC_FIRST TO HMIN1
      ENDI
      IF HC_FIRST>HMAX1
        STOR HC_FIRST TO HMAX1
      ENDI
      IF CO_FIRST<CMIN1
        STOR CO_FIRST TO CMIN1
      ENDI
      IF CO_FIRST>CMAX1
        STOR CO_FIRST TO CMAX1
      ENDI
    DO CASE
      CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFAIL1+1 TO HFAIL1
      CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR CFAIL1+1 TO CFAIL1
      CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFAIL1+1 TO BFAIL1
      CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS1+1 TO PASS1
    ENDC
    IF HC_RE>0 .OR. CO_RE>0
      STOR HRVAL1+HC_RE TO HRVAL1
      STOR HC_RE^2+HRSQ1 TO HRSQ1
      STOR CRVAL1+CO_RE TO CRVAL1
      STOR CO_RE^2+CRSQ1 TO CRSQ1
      STOR REINS1+1 TO REINS1
      IF STATUS2HC="F" .AND. STATUS2CO="P"
        STOR HRFAIL1+1 TO HRFAIL1
      ENDI
      IF STATUS2CO="F" .AND. STATUS2HC="P"
        STOR CRFAIL1+1 TO CRFAIL1
      ENDI
      IF STATUS2HC="F" .AND. STATUS2CO="F"
        STOR BRFAIL1+1 TO BRFAIL1
      ENDI
      IF HC_RE<HRMIN1
        STOR HC_RE TO HRMIN1
      ENDI
      IF HC_RE>HRMAX1
        STOR HC_RE TO HRMAX1
      ENDI
    ENDI
  ENDI

```



```

IF CO_RE<CRMIN1
  STOR CO_RE TO CRMIN1
ENDI
IF CO_RE>CRMAX1
  STOR CO_RE TO CRMAX1
ENDI
IF HC_FIRST<>0
  STOR (HC_FIRST-HC_RE)/HC_FIRST*100 TO HRED1A
ELSE
  STOR 0 TO HRED1A
ENDI
STOR HRED1A+HRED1 TO HRED1
STOR HRED1A^2+HREDSQ1 TO HREDSQ1
IF HRED1A<HREDMIN1
  STOR HRED1A TO HREDMIN1
ENDI
IF HRED1A>HREDMAX1
  STOR HRED1A TO HREDMAX1
ENDI
IF CO_FIRST<>0
  STOR (CO_FIRST-CO_RE)/CO_FIRST*100 TO CRED1A
ELSE
  STOR 0 TO CRED1A
ENDI
STOR CRED1A+CRED1 TO CRED1
STOR CRED1A^2+CREDSQ1 TO CREDSQ1
IF CRED1A<CREDMIN1
  STOR CRED1A TO CREDMIN1
ENDI
IF CRED1A>CREDMAX1
  STOR CRED1A TO CREDMAX1
ENDI
ENDI
IF WAIVED=1
  STOR MWAVED1+1 TO MWAVED1
ENDI
IF C_207B=1
  STOR MCMPLI1+1 TO MCMPLI1
ENDI
IF COST>0
  STOR RPCST1+COST TO RPCST1
  STOR RPCSTSQ1+COST^2 TO RPCSTSQ1
  STOR CSTCNT1+1 TO CSTCNT1
  IF COST<RPCSTMIN1
    STOR COST TO RPCSTMIN1
  ENDI
  IF COST>RPCSTMAX1
    STOR COST TO RPCSTMAX1
  ENDI
ENDI
ENDI
CASE YEAR>74 .AND. YEAR<80
  STOR TOTAL2+1 TO TOTAL2
  IF EXEMPT=1
    STOR MEXMPT2+1 TO MEXMPT2
  ELSE
    STOR HC_FIRST+HVAL2 TO HVAL2
    STOR HC_FIRST^2+HSQ2 TO HSQ2
    STOR CO_FIRST+CVAL2 TO CVAL2
    STOR CO_FIRST^2+CSQ2 TO CSQ2
  
```

```

IF HC_FIRST<HMIN2
    STOR HC_FIRST TO HMIN2
ENDI
IF HC_FIRST>HMAX2
    STOR HC_FIRST TO HMAX2
ENDI
IF CO_FIRST<CMIN2
    STOR CO_FIRST TO CMIN2
ENDI
IF CO_FIRST>CMAX2
    STOR CO_FIRST TO CMAX2
ENDI
DO CASE
    CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFAIL2+1 TO HFAIL2
    CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR CFAIL2+1 TO CFAIL2
    CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFAIL2+1 TO BFAIL2
    CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS2+1 TO PASS2
ENDC
IF HC_RE>0 .OR. CO_RE>0
    STOR HRVAL2+HC_RE TO HRVAL2
    STOR HC_RE^2+HRSQ2 TO HRSQ2
    STOR CRVAL2+CO_RE TO CRVAL2
    STOR CO_RE^2+CRSQ2 TO CRSQ2
    STOR REINS2+1 TO REINS2
    IF STATUS2HC="F" .AND. STATUS2CO="P"
        STOR HRFAIL2+1 TO HRFAIL2
    ENDI
    IF STATUS2CO="F" .AND. STATUS2HC="P"
        STOR CRFAIL2+1 TO CRFAIL2
    ENDI
    IF STATUS2HC="F" .AND. STATUS2CO="F"
        STOR BRFAIL2+1 TO BRFAIL2
    ENDI
    IF HC_RE<HMIN2
        STOR HC_RE TO HMIN2
    ENDI
    IF HC_RE>HMAX2
        STOR HC_RE TO HMAX2
    ENDI
    IF CO_RE<CMIN2
        STOR CO_RE TO CMIN2
    ENDI
    IF CO_RE>CMAX2
        STOR CO_RE TO CMAX2
    ENDI
    IF HC_FIRST<>0
        STOR (HC_FIRST-HC_RE)/HC_FIRST*100 TO HRED2A
    ELSE
        STOR 0 TO HRED2A
    ENDI
    STOR HRED2A+HRED2 TO HRED2
    STOR HRED2A^2+HREDSQ2 TO HREDSQ2
    IF HRED2A<HREDMIN2
        STOR HRED2A TO HREDMIN2
    ENDI
    IF HRED2A>HREDMAX2

```

```

        STOR HRED2A TO HREDMAX2
    ENDI
    IF CO_FIRST(>0
        STOR (CO_FIRST-CO_RE)/CO_FIRST*100 TO CRED2A
    ELSE
        STOR 0 TO CRED2A
    ENDI
    STOR CRED2A+CRED2 TO CRED2
    STOR CRED2A^2+CRED2 TO CRED2SQ2
    IF CRED2A<CREDMIN2
        STOR CRED2A TO CREDMIN2
    ENDI
    IF CRED2A>CREDMAX2
        STOR CRED2A TO CREDMAX2
    ENDI
ENDI
IF WAIVED=1
    STOR MWAIVED2+1 TO MWAIVED2
ENDI
IF C_207R=1
    STOR MCMPLI2+1 TO MCMPLI2
ENDI
IF COST>0
    STOR RPCST2+COST TO RPCST2
    STOR RPCST2SQ2+COST^2 TO RPCST2SQ2
    STOR CSTCNT2+1 TO CSTCNT2
    IF COST<RPCSTMIN2
        STOR COST TO RPCSTMIN2
    ENDI
    IF COST>RPCSTMAX2
        STOR COST TO RPCSTMAX2
    ENDI
ENDI
ENDI
CASE YEAR=80
    STOR TOTAL3+1 TO TOTAL3
    IF EXEMPT=1
        STOR MEXMPT3+1 TO MEXMPT3
    ELSE
        STOR HC_FIRST+HVAL3 TO HVAL3
        STOR HC_FIRST^2+HSQ3 TO HSQ3
        STOR CO_FIRST+CVAL3 TO CVAL3
        STOR CO_FIRST^2+CSQ3 TO CSQ3
        IF HC_FIRST<HMIN3
            STOR HC_FIRST TO HMIN3
        ENDI
        IF HC_FIRST>HMAX3
            STOR HC_FIRST TO HMAX3
        ENDI
        IF CO_FIRST<CMIN3
            STOR CO_FIRST TO CMIN3
        ENDI
        IF CO_FIRST>CMAX3
            STOR CO_FIRST TO CMAX3
        ENDI
    DO CASE
        CASE STATUS1HC="F" .AND. STATUS1CO="P"
            STOR HFAIL3+1 TO HFAIL3
        CASE STATUS1CO="F" .AND. STATUS1HC="P"
            STOR CFAIL3+1 TO CFAIL3
    
```

```

CASE STATUS1HC="F" .AND. STATUS1CO="F"
  STOR BFAL3+1 TO BFAL3
CASE STATUS1HC="P" .AND. STATUS1CO="P"
  STOR PASS3+1 TO PASS3
ENDC
IF HC_RE>0 .OR. CO_RE>0
  STOR HRVAL3+HC_RE TO HRVAL3
  STOR HC_RE*2+HRSQ3 TO HRSQ3
  STOR CRVAL3+CO_RE TO CRVAL3
  STOR CO_RE*2+CRSQ3 TO CRSQ3
  STOR REINS3+1 TO REINS3
  IF STATUS2HC="F" .AND. STATUS2CO="P"
    STOR HRFAIL3+1 TO HRFAIL3
  ENDI
  IF STATUS2CO="F" .AND. STATUS2HC="P"
    STOR CRFAIL3+1 TO CRFAIL3
  ENDI
  IF STATUS2HC="F" .AND. STATUS2CO="F"
    STOR BRFAIL3+1 TO BRFAIL3
  ENDI
  IF HC_RE<HRMIN3
    STOR HC_RE TO HRMIN3
  ENDI
  IF HC_RE>HRMAX3
    STOR HC_RE TO HRMAX3
  ENDI
  IF CO_RE<CRMIN3
    STOR CO_RE TO CRMIN3
  ENDI
  IF CO_RE>CRMAX3
    STOR CO_RE TO CRMAX3
  ENDI
  IF HC_FIRST<>0
    STOR (HC_FIRST-HC_RE)/HC_FIRST*100 TO HRED3A
  ELSE
    STOR 0 TO HRED3A
  ENDI
  STOR HRED3A+HRED3 TO HRED3
  STOR HRED3A*2+HREDSQ3 TO HREDSQ3
  IF HRED3A<HREDMIN3
    STOR HRED3A TO HREDMIN3
  ENDI
  IF HRED3A>HREDMAX3
    STOR HRED3A TO HREDMAX3
  ENDI
  IF CO_FIRST<>0
    STOR (CO_FIRST-CO_RE)/CO_FIRST*100 TO CRED3A
  ELSE
    STOR 0 TO CRED3A
  ENDI
  STOR CRED3A+CRED3 TO CRED3
  STOR CRED3A*2+CREDSQ3 TO CREDSQ3
  IF CRED3A<CREDMIN3
    STOR CRED3A TO CREDMIN3
  ENDI
  IF CRED3A>CREDMAX3
    STOR CRED3A TO CREDMAX3
  ENDI
ENDI
IF WAIVED=1

```

```

        STOR MWAVER3+1 TO MWAVER3
    ENDI
    IF C_207B=1
        STOR MCMPLI3+1 TO MCMPLI3
    ENDI
    IF COST>0
        STOR RPCST3+COST TO RPCST3
        STOR RPCSTSQ3+COST^2 TO RPCSTSQ3
        STOR CSTCNT3+1 TO CSTCNT3
        IF COST<RPCSTMIN3
            STOR COST TO RPCSTMIN3
        ENDI
        IF COST>RPCSTMAX3
            STOR COST TO RPCSTMAX3
        ENDI
    ENDI
ENDI
CASE YEAR>80
    STOR TOTAL4+1 TO TOTAL4
    IF EXEMPT=1
        STOR MEXMPT4+1 TO MEXMPT4
    ELSE
        STOR HC_FIRST+HVAL4 TO HVAL4
        STOR HC_FIRST^2+HSQ4 TO HSQ4
        STOR CO_FIRST+CVAL4 TO CVAL4
        STOR CO_FIRST^2+CSQ4 TO CSQ4
        IF HC_FIRST<HMIN4
            STOR HC_FIRST TO HMIN4
        ENDI
        IF HC_FIRST>HMAX4
            STOR HC_FIRST TO HMAX4
        ENDI
        IF CO_FIRST<CMIN4
            STOR CO_FIRST TO CMIN4
        ENDI
        IF CO_FIRST>CMAX4
            STOR CO_FIRST TO CMAX4
        ENDI
    DO CASE
        CASE STATUS1HC="F" .AND. STATUS1CO="P"
            STOR HFAIL4+1 TO HFAIL4
        CASE STATUS1CO="F" .AND. STATUS1HC="P"
            STOR CFAIL4+1 TO CFAIL4
        CASE STATUS1HC="F" .AND. STATUS1CO="F"
            STOR BFAIL4+1 TO BFAIL4
        CASE STATUS1HC="P" .AND. STATUS1CO="P"
            STOR PASS4+1 TO PASS4
    ENDC
    IF HC_RE>0 .OR. CO_RE>0
        STOR HRVAL4+HC_RE TO HRVAL4
        STOR HC_RE^2+HRSQ4 TO HRSQ4
        STOR CRVAL4+CO_RE TO CRVAL4
        STOR CO_RE^2+CRSQ4 TO CRSQ4
        STOR REINS4+1 TO REINS4
        IF STATUS2HC="F" .AND. STATUS2CO="P"
            STOR HRFAIL4+1 TO HRFAIL4
        ENDI
        IF STATUS2CO="F" .AND. STATUS2HC="P"
            STOR CRFAIL4+1 TO CRFAIL4
        ENDI
    
```

```

IF STATUS2HC="F" .AND. STATUS2CO="F"
  STOR BRFAIL4+1 TO BRFAIL4
ENDI
IF HC_RE<HRMIN4
  STOR HC_RE TO HRMIN4
ENDI
IF HC_RE>HRMAX4
  STOR HC_RE TO HRMAX4
ENDI
IF CO_RE<CRMIN4
  STOR CO_RE TO CRMIN4
ENDI
IF CO_RE>CRMAX4
  STOR CO_RE TO CRMAX4
ENDI
IF HC_FIRST<>0
  STOR (HC_FIRST-HC_RE)/HC_FIRST*100 TO HRED4A
ELSE
  STOR 0 TO HRED4A
ENDI
STOR HRED4A+HRED4 TO HRED4
STOR HRED4A^2+HREDSQ4 TO HREDSQ4
IF HRED4A<HREDMIN4
  STOR HRED4A TO HREDMIN4
ENDI
IF HRED4A>HREDMAX4
  STOR HRED4A TO HREDMAX4
ENDI
IF CO_FIRST<>0
  STOR (CO_FIRST-CO_RE)/CO_FIRST*100 TO CRED4A
ELSE
  STOR 0 TO CRED4A
ENDI
STOR CRED4A+CRED4 TO CRED4
STOR CRED4A^2+CREDSQ4 TO CREDSQ4
IF CRED4A<CREDMIN4
  STOR CRED4A TO CREDMIN4
ENDI
IF CRED4A>CREDMAX4
  STOR CRED4A TO CREDMAX4
ENDI
ENDI
IF WAIVED=1
  STOR MWAVED4+1 TO MWAVED4
ENDI
IF C_207B=1
  STOR MCMPLI4+1 TO MCMPLI4
ENDI
IF COST>0
  STOR RPCST4+COST TO RPCST4
  STOR RPCSTSQ4+COST^2 TO RPCSTSQ4
  STOR CSTCNT4+1 TO CSTCNT4
  IF COST<RPCSTMIN4
    STOR COST TO RPCSTMIN4
  ENDI
  IF COST>RPCSTMAX4
    STOR COST TO RPCSTMAX4
  ENDI
ENDI
ENDI
ENDI

```

```

ENDC
STOR LEN(TRIM(CODES)) TO LENGTH
STOR 1 TO X
DO WHILE X<LENGTH
  STOR SUBSTR(CODES,X,2) TO MCODE
  DO CASE
    CASE MCODE="E1"
      STOR CE1+1 TO CE1
    CASE MCODE="T0"
      STOR CT0+1 TO CT0
    CASE MCODE="T1"
      STOR CT1+1 TO CT1
    CASE MCODE="T2"
      STOR CT2+1 TO CT2
    CASE MCODE="T3"
      STOR CT3+1 TO CT3
    CASE MCODE="T4"
      STOR CT4+1 TO CT4
    CASE MCODE="T5"
      STOR CT5+1 TO CT5
    CASE MCODE="T6"
      STOR CT6+1 TO CT6
    CASE MCODE="T7"
      STOR CT7+1 TO CT7
    CASE MCODE="M0"
      STOR CM0+1 TO CM0
    CASE MCODE="M1"
      STOR CM1+1 TO CM1
    CASE MCODE="M2"
      STOR CM2+1 TO CM2
    CASE MCODE="M3"
      STOR CM3+1 TO CM3
    CASE MCODE="M4"
      STOR CM4+1 TO CM4
    CASE MCODE="M5"
      STOR CM5+1 TO CM5
    CASE MCODE="M6"
      STOR CM6+1 TO CM6
    CASE MCODE="M7"
      STOR CM7+1 TO CM7
    CASE MCODE="M8"
      STOR CM8+1 TO CM8
    CASE MCODE="M9"
      STOR CM9+1 TO CM9
    CASE MCODE="N0"
      STOR CN0+1 TO CN0
    CASE MCODE="N1"
      STOR CN1+1 TO CN1
    CASE MCODE="N2"
      STOR CN2+1 TO CN2
  ENDC
  STOR X+2 TO X
ENDD
*****CALCULATE MAKE TOTALS
STOR ZTOTAL+1 TO ZTOTAL
IF STATUS1HC="F" .OR. STATUS1CO="F"
  STOR ZFAIL+1 TO ZFAIL
ENDI
IF HC_RE>0 .OR. CO_RE>0
  STOR ZREINS+1 TO ZREINS

```

```

ENDI
IF STATUS2HC="F" .OR. STATUS2CO="F"
  STOR ZRFAIL+1 TO ZRFAIL
ENDI
***** GO TO NEXT RECORD
SKIP
IF .NOT. EOF()
***** REINITIALIZE VARIABLES IF MAKE CHANGES
  IF MAKE<>MMAKE
    SAVE ALL LIKE Z* TO &MMAKE
    SELE B
    APPE BLAN
    REPL MAKE WITH MMAKE
    SELE A
    STOR MAKE TO MMAKE
    ? MMAKE
    STOR 0 TO ZTOTAL
    STOR 0 TO ZREINS
    STOR 0 TO ZFAIL
    STOR 0 TO ZRFAIL
  ENDI
ELSE
  SAVE ALL LIKE Z* TO &MMAKE
  SELE B
  APPE BLAN
  REPL MAKE WITH MMAKE
  SELE A
ENDI
ENDD
SAVE ALL LIKE C?? TO CODES
RELE ALL LIKE C??
SELE B
GO TOP
CLEA
@ 10,24 SAY "Make sure your printer is ready."
WAIT "                               Press any key to continue."
CLEA
SET COLO TO W*,B
@ 10,36 SAY "PRINTING"
SET COLO TO W

SET DEVI TO PRIN
STOR 1 TO PAGE
STOR 11 TO LINES
STOR "===== " TO TOP
STOR "----- " TO BOT
DO WHIL .NOT. EOF()
  IF LINES=11
    @ PROW(),23 SAY "FAILURE RATE REPORT BY VEHICLE MAKE"
    @ PROW()+1,25 SAY "FOR INSPECTION STATION"
    @ PROW(),48 SAY MSTATION PICT '999999'
    @ PROW()+2,6 SAY "This report summarizes data for vehicle model years 19"
    @ PROW(),60 SAY MSYEAR PICT '99'
    @ PROW(),63 SAY "through 19"
    @ PROW(),73 SAY MEYEAR PICT '99'
    @ PROW(),75 SAY "."
    @ PROW()+2,6 SAY DATE()
    @ PROW(),66 SAY "Page"
    @ PROW(),71 SAY PAGE PICT '##'
    @ PROW()+1,4 SAY TOP

```



```

@ PROW()+1,26 SAY "Initial Inspections"
@ PROW(),57 SAY "Reinspections"
@ PROW()+1,5 SAY "Vehicle Make"
@ PROW(),23 SAY "Tests Failures Percent"
@ PROW(),52 SAY "Tests Failures Percent"
@ PROW()+1,4 SAY BOT
ENDI
STOR MAKE TO ZMAKE
REST FROM &ZMAKE ADDITIVE
@ PROW()+1,9 SAY ZMAKE PICT 'AAAA'
@ PROW(),23 SAY ZTOTAL PICT '99999'
@ PROW(),32 SAY ZFAIL PICT '99999'
@ PROW(),41 SAY ZFAIL/ZTOTAL*100 PICT '999.9'
@ PROW(),52 SAY ZREINS PICT '99999'
@ PROW(),61 SAY ZRFAIL PICT '99999'
IF ZREINS=0
  @ PROW(),72 SAY "0.0"
ELSE
  @ PROW(),70 SAY ZRFAIL/ZREINS*100 PICT '999.9'
ENDI
RELE ALL LIKE Z*
STOR LINES+1 TO LINES
SKIP
IF LINES=55 .OR. EDF()
  @ PROW()+1,4 SAY BOT
  EJECT
  STOR 11 TO LINES
  STOR PAGE+1 TO PAGE
ENDI
ENDD
PACK
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 2,27 SAY "FOR INSPECTION STATION"
@ 2,50 SAY MSTATION PICT '999999'
@ 3,8 SAY DATE()
@ 3,64 SAY "Page"
@ 3,69 SAY PAGE PICT '99'
@ 5,6 SAY "This report summarizes data for vehicle model years 19"
@ 5,60 SAY MSYEAR PICT '99'
@ 5,63 SAY "through 19"
@ 5,73 SAY MEYEAR PICT '99'
@ 5,75 SAY " ."
@ 8,28 SAY "***** General Summary *****"
@ 10,1 SAY "=====+TOP"
@ 11,3 SAY "Description"
@ 11,20 SAY "Total"
@ 11,30 SAY "1971 - 1974"
@ 11,43 SAY "1975 - 1979"
@ 11,60 SAY "1980"
@ 11,71 SAY "1981 +"
@ 12,17 SAY "No. Percent No. Percent No. Percent No. Percent No. Percent"
@ 13,1 SAY "-----+BOT"
@ 14,1 SAY "Emission Tests"
STOR TOTAL1+TOTAL2+TOTAL3+TOTAL4 TO TOTALT
STOR MEXMPT1+MEXMPT2+MEXMPT3+MEXMPT4 TO MEXMPTT
STOR TOTALT-MEXMPTT TO TESTT
STOR TOTAL1-MEXMPT1 TO TEST1
STOR TOTAL2-MEXMPT2 TO TEST2
STOR TOTAL3-MEXMPT3 TO TEST3
STOR TOTAL4-MEXMPT4 TO TEST4

```

```

@ 14,17 SAY TOTAL1 PICT '9999'
@ 14,30 SAY TOTAL1 PICT '9999'
@ 14,43 SAY TOTAL2 PICT '9999'
@ 14,56 SAY TOTAL3 PICT '9999'
@ 14,69 SAY TOTAL4 PICT '9999'
@ 16,1 SAY "Passing Vehicles"
STOR PASS1+PASS2+PASS3+PASS4 TO PASST
@ 16,17 SAY PASST PICT '9999'
IF TESTT=0
    @ 16,24 SAY "0.00"
ELSE
    @ 16,22 SAY PASST/TESTT*100 PICT '999.99'
ENDI
@ 16,30 SAY PASS1 PICT '9999'
IF TEST1=0
    @ 16,37 SAY "0.00"
ELSE
    @ 16,35 SAY PASS1/TEST1*100 PICT '999.99'
ENDI
@ 16,43 SAY PASS2 PICT '9999'
IF TEST2=0
    @ 16,50 SAY "0.00"
ELSE
    @ 16,48 SAY PASS2/TEST2*100 PICT '999.99'
ENDI
@ 16,56 SAY PASS3 PICT '9999'
IF TEST3=0
    @ 16,63 SAY "0.00"
ELSE
    @ 16,61 SAY PASS3/TEST3*100 PICT '999.99'
ENDI
@ 16,69 SAY PASS4 PICT '9999'
IF TEST4=0
    @ 16,76 SAY "0.00"
ELSE
    @ 16,74 SAY PASS4/TEST4*100 PICT '999.99'
ENDI
@ 18,1 SAY "Initial Inspection"
STOR HFAIL1+HFAIL2+HFAIL3+HFAIL4 TO HFAILT
@ 19,4 SAY "Failed HC"
@ 19,17 SAY HFAILT PICT '9999'
IF TESTT=0
    @ 19,24 SAY "0.00"
ELSE
    @ 19,22 SAY HFAILT/TESTT*100 PICT '999.99'
ENDI
@ 19,30 SAY HFAIL1 PICT '9999'
IF TEST1=0
    @ 19,37 SAY "0.00"
ELSE
    @ 19,35 SAY HFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 19,43 SAY HFAIL2 PICT '9999'
IF TEST2=0
    @ 19,50 SAY "0.00"
ELSE
    @ 19,48 SAY HFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 19,56 SAY HFAIL3 PICT '9999'
IF TEST3=0

```

```

@ 19,63 SAY "0.00"
ELSE
@ 19,61 SAY HFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 19,69 SAY HFAIL4 PICT '9999'
IF TEST4=0
@ 19,76 SAY "0.00"
ELSE
@ 19,74 SAY HFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 20,4 SAY "Failed CO"
STOR CFAIL1+CFAIL2+CFAIL3+CFAIL4 TO CFAILT
@ 20,17 SAY CFAILT PICT '9999'
IF TESTT=0
@ 20,24 SAY "0.00"
ELSE
@ 20,22 SAY CFAILT/TESTT*100 PICT '999.99'
ENDI
@ 20,30 SAY CFAIL1 PICT '9999'
IF TEST1=0
@ 20,37 SAY "0.00"
ELSE
@ 20,35 SAY CFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 20,43 SAY CFAIL2 PICT '9999'
IF TEST2=0
@ 20,50 SAY "0.00"
ELSE
@ 20,48 SAY CFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 20,56 SAY CFAIL3 PICT '9999'
IF TEST3=0
@ 20,63 SAY "0.00"
ELSE
@ 20,61 SAY CFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 20,69 SAY CFAIL4 PICT '9999'
IF TEST4=0
@ 20,76 SAY "0.00"
ELSE
@ 20,74 SAY CFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 21,4 SAY "Failed Both"
STOR BFAIL1+BFAIL2+BFAIL3+BFAIL4 TO BFAILT
@ 21,17 SAY BFAILT PICT '9999'
IF TESTT=0
@ 21,24 SAY "0.00"
ELSE
@ 21,22 SAY BFAILT/TESTT*100 PICT '999.99'
ENDI
@ 21,30 SAY BFAIL1 PICT '9999'
IF TEST1=0
@ 21,37 SAY "0.00"
ELSE
@ 21,35 SAY BFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 21,43 SAY BFAIL2 PICT '9999'
IF TEST2=0
@ 21,50 SAY "0.00"
ELSE

```

```
@ 21,48 SAY BFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 21,56 SAY BFAIL3 PICT '9999'
IF TEST3=0
    @ 21,63 SAY "0.00"
ELSE
@ 21,61 SAY BFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 21,69 SAY BFAIL4 PICT '9999'
IF TEST4=0
    @ 21,76 SAY "0.00"
ELSE
@ 21,74 SAY BFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 22,4 SAY "Overall"
STOR HFAILT+CFAILT+BFAILT TO OFAILT
STOR HFAIL1+CFAIL1+BFAIL1 TO OFAIL1
STOR HFAIL2+CFAIL2+BFAIL2 TO OFAIL2
STOR HFAIL3+CFAIL3+BFAIL3 TO OFAIL3
STOR HFAIL4+CFAIL4+BFAIL4 TO OFAIL4
@ 22,17 SAY OFAILT PICT '9999'
IF TESTT=0
    @ 22,24 SAY "0.00"
ELSE
@ 22,22 SAY OFAILT/TESTT*100 PICT '999.99'
ENDI
@ 22,30 SAY OFAIL1 PICT '9999'
IF TEST1=0
    @ 22,37 SAY "0.00"
ELSE
@ 22,35 SAY OFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 22,43 SAY OFAIL2 PICT '9999'
IF TEST2=0
    @ 22,50 SAY "0.00"
ELSE
@ 22,48 SAY OFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 22,56 SAY OFAIL3 PICT '9999'
IF TEST3=0
    @ 22,63 SAY "0.00"
ELSE
@ 22,61 SAY OFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 22,69 SAY OFAIL4 PICT '9999'
IF TEST4=0
    @ 22,76 SAY "0.00"
ELSE
@ 22,74 SAY OFAIL4/TEST4*100 PICT '999.99'
ENDI
STOR HRFAIL1+HRFAIL2+HRFAIL3+HRFAIL4 TO HRFAILT
STOR REINS1+REINS2+REINS3+REINS4 TO REINST
@ 24,1 SAY "Reinspections"
@ 25,4 SAY "Failed HC"
@ 25,17 SAY HRFAILT PICT '9999'
IF REINST=0
    @ 25,24 SAY "0.00"
ELSE
@ 25,22 SAY HRFAILT/REINST*100 PICT '999.99'
ENDI
```

```

@ 25,30 SAY HRFAIL1 PICT '9999'
IF REINS1=0
    @ 25,37 SAY "0.00"
ELSE
    @ 25,35 SAY HRFAIL1/REINS1*100 PICT '999.99'
ENDI
@ 25,43 SAY HRFAIL2 PICT '9999'
IF REINS2=0
    @ 25,50 SAY "0.00"
ELSE
    @ 25,48 SAY HRFAIL2/REINS2*100 PICT '999.99'
ENDI
@ 25,56 SAY HRFAIL3 PICT '9999'
IF REINS3=0
    @ 25,63 SAY "0.00"
ELSE
    @ 25,61 SAY HRFAIL3/REINS3*100 PICT '999.99'
ENDI
@ 25,69 SAY HRFAIL4 PICT '9999'
IF REINS4=0
    @ 25,76 SAY "0.00"
ELSE
    @ 25,74 SAY HRFAIL4/REINS4*100 PICT '999.99'
ENDI
@ 26,4 SAY "Failed CD"
STOR CRFAIL1+CRFAIL2+CRFAIL3+CRFAIL4 TO CRFAILT
@ 26,17 SAY CRFAILT PICT '9999'
IF REINST=0
    @ 26,24 SAY "0.00"
ELSE
    @ 26,22 SAY CRFAILT/REINST*100 PICT '999.99'
ENDI
@ 26,30 SAY CRFAIL1 PICT '9999'
IF REINS1=0
    @ 26,37 SAY "0.00"
ELSE
    @ 26,35 SAY CRFAIL1/REINS1*100 PICT '999.99'
ENDI
@ 26,43 SAY CRFAIL2 PICT '9999'
IF REINS2=0
    @ 26,50 SAY "0.00"
ELSE
    @ 26,48 SAY CRFAIL2/REINS2*100 PICT '999.99'
ENDI
@ 26,56 SAY CRFAIL3 PICT '9999'
IF REINS3=0
    @ 26,63 SAY "0.00"
ELSE
    @ 26,61 SAY CRFAIL3/REINS3*100 PICT '999.99'
ENDI
@ 26,69 SAY CRFAIL4 PICT '9999'
IF REINS4=0
    @ 26,76 SAY "0.00"
ELSE
    @ 26,74 SAY CRFAIL4/REINS4*100 PICT '999.99'
ENDI
@ 27,4 SAY "Failed Both"
STOR BRFAIL1+BRFAIL2+BRFAIL3+BRFAIL4 TO BRFAILT
@ 27,17 SAY BRFAILT PICT '9999'
IF REINST=0

```

```

    @ 27,24 SAY "0.00"
ELSE
@ 27,22 SAY BRFAILT/TESTT*100 PICT '999.99'
ENDI
@ 27,30 SAY BRFAIL1 PICT '9999'
IF REINS1=0
    @ 27,37 SAY "0.00"
ELSE
@ 27,35 SAY BRFAIL1/TEST1*100 PICT '999.99'
ENDI
@ 27,43 SAY BRFAIL2 PICT '9999'
IF REINS2=0
    @ 27,50 SAY "0.00"
ELSE
@ 27,48 SAY BRFAIL2/TEST2*100 PICT '999.99'
ENDI
@ 27,56 SAY BRFAIL3 PICT '9999'
IF REINS3=0
    @ 27,63 SAY "0.00"
ELSE
@ 27,61 SAY BRFAIL3/TEST3*100 PICT '999.99'
ENDI
@ 27,69 SAY BRFAIL4 PICT '9999'
IF REINS4=0
    @ 27,76 SAY "0.00"
ELSE
@ 27,74 SAY BRFAIL4/TEST4*100 PICT '999.99'
ENDI
@ 28,4 SAY "Overall"
STOR HRFAILT+CRFAILT+BRFAILT TO ORFAILT
STOR HRFAIL1+CRFAIL1+BRFAIL1 TO ORFAIL1
STOR HRFAIL2+CRFAIL2+BRFAIL2 TO ORFAIL2
STOR HRFAIL3+CRFAIL3+BRFAIL3 TO ORFAIL3
STOR HRFAIL4+CRFAIL4+BRFAIL4 TO ORFAIL4
@ 28,17 SAY ORFAILT PICT '9999'
IF REINST=0
    @ 28,24 SAY "0.00"
ELSE
@ 28,22 SAY ORFAILT/REINST*100 PICT '999.99'
ENDI
@ 28,30 SAY ORFAIL1 PICT '9999'
IF REINS1=0
    @ 28,37 SAY "0.00"
ELSE
@ 28,35 SAY ORFAIL1/REINS1*100 PICT '999.99'
ENDI
@ 28,43 SAY ORFAIL2 PICT '9999'
IF REINS2=0
    @ 28,50 SAY "0.00"
ELSE
@ 28,48 SAY ORFAIL2/REINS2*100 PICT '999.99'
ENDI
@ 28,56 SAY ORFAIL3 PICT '9999'
IF REINS3=0
    @ 28,63 SAY "0.00"
ELSE
@ 28,61 SAY ORFAIL3/REINS3*100 PICT '999.99'
ENDI
@ 28,69 SAY ORFAIL4 PICT '9999'
IF REINS4=0

```

```

    @ 28,76 SAY "0.00"
ELSE
@ 28,74 SAY ORFAIL4/REINS4*100 PICT '999.99'
ENDI
@ 30,1 SAY "Exempt Vehicles"
STOR MEXMPT1+MEXMPT2+MEXMPT3+MEXMPT4 TO MEXMPTT
@ 30,17 SAY MEXMPTT PICT '9999'
IF TOTALT=0
    @ 30,24 SAY "0.00"
ELSE
@ 30,22 SAY MEXMPTT/TOTALT*100 PICT '999.99'
ENDI
@ 30,30 SAY MEXMPT1 PICT '9999'
IF TOTAL1=0
    @ 30,37 SAY "0.00"
ELSE
@ 30,35 SAY MEXMPT1/TOTAL1*100 PICT '999.99'
ENDI
@ 30,43 SAY MEXMPT2 PICT '9999'
IF TOTAL2=0
    @ 30,50 SAY "0.00"
ELSE
@ 30,48 SAY MEXMPT2/TOTAL2*100 PICT '999.99'
ENDI
@ 30,56 SAY MEXMPT3 PICT '9999'
IF TOTAL3=0
    @ 30,63 SAY "0.00"
ELSE
@ 30,61 SAY MEXMPT3/TOTAL3*100 PICT '999.99'
ENDI
@ 30,69 SAY MEXMPT4 PICT '9999'
IF TOTAL4=0
    @ 30,76 SAY "0.00"
ELSE
@ 30,74 SAY MEXMPT4/TOTAL4*100 PICT '999.99'
ENDI
@ 31,1 SAY "Waived Vehicles"
STOR MWAVED1+MWAVED2+MWAVED3+MWAVED4 TO MWAVEDT
@ 31,17 SAY MWAVEDT PICT '9999'
IF TOTALT=0
    @ 31,24 SAY "0.00"
ELSE
@ 31,22 SAY MWAVEDT/TOTALT*100 PICT '999.99'
ENDI
@ 31,30 SAY MWAVED1 PICT '9999'
IF TOTAL1=0
    @ 31,37 SAY "0.00"
ELSE
@ 31,35 SAY MWAVED1/TOTAL1*100 PICT '999.99'
ENDI
@ 31,43 SAY MWAVED2 PICT '9999'
IF TOTAL2=0
    @ 31,50 SAY "0.00"
ELSE
@ 31,48 SAY MWAVED2/TOTAL2*100 PICT '999.99'
ENDI
@ 31,56 SAY MWAVED3 PICT '9999'
IF TOTAL3=0
    @ 31,63 SAY "0.00"
ELSE

```

```

@ 31,61 SAY MWAVER3/TOTAL3*100 PICT '999.99'
ENDI
@ 31,69 SAY MWAVER4 PICT '9999'
IF TOTAL4=0
    @ 31,76 SAY "0.00"
ELSE
@ 31,74 SAY MWAVER4/TOTAL4*100 PICT '999.99'
ENDI
@ 32,1 SAY "Comply w/207-B"
STOR MCMP11+MCMP12+MCMP13+MCMP14 TO MCMP1T
@ 32,17 SAY MCMP1T PICT '9999'
IF TOTALT=0
    @ 32,24 SAY "0.00"
ELSE
@ 32,22 SAY MCMP1T/TOTALT*100 PICT '999.99'
ENDI
@ 32,30 SAY MCMP11 PICT '9999'
IF TOTAL1=0
    @ 32,37 SAY "0.00"
ELSE
@ 32,35 SAY MCMP11/TOTAL1*100 PICT '999.99'
ENDI
@ 32,43 SAY MCMP12 PICT '9999'
IF TOTAL2=0
    @ 32,50 SAY "0.00"
ELSE
@ 32,48 SAY MCMP12/TOTAL2*100 PICT '999.99'
ENDI
@ 32,56 SAY MCMP13 PICT '9999'
IF TOTAL3=0
    @ 32,63 SAY "0.00"
ELSE
@ 32,61 SAY MCMP13/TOTAL3*100 PICT '999.99'
ENDI
@ 32,69 SAY MCMP14 PICT '9999'
IF TOTAL4=0
    @ 32,76 SAY "0.00"
ELSE
@ 32,74 SAY MCMP14/TOTAL4*100 PICT '999.99'
ENDI
STOR "There were "+STR(HFAILT+BFALT+CFALT-REINST)+" vehicle(s) that failed" TO NI
@ 34,40-LEN(NI)/2 SAY NI
@ 35,7 SAY "at least one of the initial inspections but were not reinspected."
STOR PAGE+1 TO PAGE
RELE ALL LIKE ?FAIL?
RELE ALL LIKE ?RFALT?
EJEC
@ 1,8 SAY DATE()
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 1,64 SAY "Page"
@ 1,69 SAY PAGE PICT '99'
@ 2,27 SAY "FOR INSPECTION STATION"
@ 2,50 SAY M1STATION PICT '999999'
@ 3,6 SAY "This report summarizes data for vehicle model years 19"
@ 3,60 SAY M1SYEAR PICT '99'
@ 3,63 SAY "through 19"
@ 3,73 SAY M1EYEAR PICT '99'
@ 3,75 SAY "."
STOR "There were "+STR(REINST)+" reinspected vehicles in the data base." TO R
STOR LEN(R) TO Y

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@ 4,40-Y/2 SAY R
@ 6,18 SAY "***** Emission Inspection Data Summary *****"
@ 7,1 SAY "=====+TOP"
@ 8,3 SAY "Description"
@ 8,20 SAY "Total"
@ 8,30 SAY "1971 - 1974"
@ 8,43 SAY "1975 - 1979"
@ 8,60 SAY "1980"
@ 8,71 SAY "1981 +"
@ 9,1 SAY "-----+BOT"
@ 11,1 SAY "Initial Inspection"
***** INITIAL INSPECTION HC
@ 13,4 SAY "HC Reading"
STOR HVAL1+HVAL2+HVAL3+HVAL4 TO HVALT
STOR 2000 TO HMINT
IF HMIN1<HMINT
    STOR HMIN1 TO HMINT
ENDI
IF HMIN2<HMINT
    STOR HMIN2 TO HMINT
ENDI
IF HMIN3<HMINT
    STOR HMIN3 TO HMINT
ENDI
IF HMIN4<HMINT
    STOR HMIN4 TO HMINT
ENDI
STOR 0.00 TO HMAXT
IF HMAX1>HMAXT
    STOR HMAX1 TO HMAXT
ENDI
IF HMAX2>HMAXT
    STOR HMAX2 TO HMAXT
ENDI
IF HMAX3>HMAXT
    STOR HMAX3 TO HMAXT
ENDI
IF HMAX4>HMAXT
    STOR HMAX4 TO HMAXT
ENDI
IF HMINT=2000
    STOR 0.00 TO HMINT
ENDI
IF HMIN1=2000
    STOR 0.00 TO HMIN1
ENDI
IF HMIN2=2000
    STOR 0.00 TO HMIN2
ENDI
IF HMIN3=2000
    STOR 0.00 TO HMIN3
ENDI
IF HMIN4=2000
    STOR 0.00 TO HMIN4
ENDI
STOR 9.99 TO CMINT
IF CMIN1<CMINT
    STOR CMIN1 TO CMINT
ENDI
IF CMIN2<CMINT

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    STOR CMIN2 TO CMINT
ENDI
IF CMIN3<CMINT
    STOR CMIN3 TO CMINT
ENDI
IF CMIN4<CMINT
    STOR CMIN4 TO CMINT
ENDI
IF CMINT=9.99
    STOR 0.00 TO CMINT
ENDI
IF CMIN1=9.99
    STOR 0.00 TO CMIN1
ENDI
IF CMIN2=9.99
    STOR 0.00 TO CMIN2
ENDI
IF CMIN3=9.99
    STOR 0.00 TO CMIN3
ENDI
IF CMIN4=9.99
    STOR 0.00 TO CMIN4
ENDI
STOR 0.00 TO CMAXT
IF CMAX1>CMAXT
    STOR CMAX1 TO CMAXT
ENDI
IF CMAX2>CMAXT
    STOR CMAX2 TO CMAXT
ENDI
IF CMAX3>CMAXT
    STOR CMAX3 TO CMAXT
ENDI
IF CMAX4>CMAXT
    STOR CMAX4 TO CMAXT
ENDI
@ 14,8 SAY "Mean"
IF TOTALT=0
    @ 14,24 SAY "0"
ELSE
    @ 14,21 SAY HVALT/TOTALT PICT '9999'
ENDI
IF TOTAL1=0
    @ 14,37 SAY "0"
ELSE
    @ 14,34 SAY HVAL1/TOTAL1 PICT '9999'
ENDI
IF TOTAL2=0
    @ 14,24 SAY "0"
ELSE
    @ 14,47 SAY HVAL2/TOTAL2 PICT '9999'
ENDI
IF TOTAL3=0
    @ 14,63 SAY "0"
ELSE
    @ 14,60 SAY HVAL3/TOTAL3 PICT '9999'
ENDI
IF TOTAL4=0
    @ 14,76 SAY "0"
ELSE

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@ 14,73 SAY HVAL4/TOTAL4 PICT '9999'
ENDI
@ 15,8 SAY "Min"
@ 15,21 SAY HMINT PICT '9999'
@ 15,34 SAY HMIN1 PICT '9999'
@ 15,47 SAY HMIN2 PICT '9999'
@ 15,60 SAY HMIN3 PICT '9999'
@ 15,73 SAY HMIN4 PICT '9999'
@ 16,8 SAY "Max"
@ 16,21 SAY HMAXT PICT '9999'
@ 16,34 SAY HMAX1 PICT '9999'
@ 16,47 SAY HMAX2 PICT '9999'
@ 16,60 SAY HMAX3 PICT '9999'
@ 16,73 SAY HMAX4 PICT '9999'
STOR HSQ1+HSQ2+HSQ3+HSQ4 TO HSQT
STOR HVAL1+HVAL2+HVAL3+HVAL4 TO HVALT
IF TOTALT<2
    STOR 0 TO HSTD1
ELSE
    STOR ((TOTALT*HSQT-HVALT^2)/(TOTALT*(TOTALT-1)))^0.5 TO HSTD1
ENDI
IF TOTAL1<2
    STOR 0 TO HSTD1
ELSE
    STOR ((TOTAL1*HSQ1-HVAL1^2)/(TOTAL1*(TOTAL1-1)))^0.5 TO HSTD1
ENDI
IF TOTAL2<2
    STOR 0 TO HSTD2
ELSE
    STOR ((TOTAL2*HSQ2-HVAL2^2)/(TOTAL2*(TOTAL2-1)))^0.5 TO HSTD2
ENDI
IF TOTAL3<2
    STOR 0 TO HSTD3
ELSE
    STOR ((TOTAL3*HSQ3-HVAL3^2)/(TOTAL3*(TOTAL3-1)))^0.5 TO HSTD3
ENDI
IF TOTAL4<2
    STOR 0 TO HSTD4
ELSE
    STOR ((TOTAL4*HSQ4-HVAL4^2)/(TOTAL4*(TOTAL4-1)))^0.5 TO HSTD4
ENDI
@ 17,8 SAY "Std. Dev."
@ 17,21 SAY HSTD1 PICT '9999'
@ 17,34 SAY HSTD2 PICT '9999'
@ 17,47 SAY HSTD3 PICT '9999'
@ 17,60 SAY HSTD4 PICT '9999'
@ 17,73 SAY HSTD4 PICT '9999'
***** INITIAL INSPECTION CO
@ 19,4 SAY "CD Reading"
STOR CVAL1+CVAL2+CVAL3+CVAL4 TO CVALT
@ 20,8 SAY "Mean"
IF TOTALT=0
    @ 20,21 SAY "0.00"
ELSE
    @ 20,21 SAY CVALT/TOTALT PICT '9.99'
ENDI
IF TOTAL1=0
    @ 20,34 SAY "0.00"
ELSE
    @ 20,34 SAY CVAL1/TOTAL1 PICT '9.99'

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ENDI
IF TOTAL2=0
  @ 20,47 SAY "0.00"
ELSE
  @ 20,47 SAY CVAL2/TOTAL2 PICT '9.99'
ENDI
IF TOTAL3=0
  @ 20,60 SAY "0.00"
ELSE
  @ 20,60 SAY CVAL3/TOTAL3 PICT '9.99'
ENDI
IF TOTAL4=0
  @ 20,73 SAY "0.00"
ELSE
  @ 20,73 SAY CVAL4/TOTAL4 PICT '9.99'
ENDI
@ 21,8 SAY "Min"
@ 21,21 SAY CMINT PICT '9.99'
@ 21,34 SAY CMIN1 PICT '9.99'
@ 21,47 SAY CMIN2 PICT '9.99'
@ 21,60 SAY CMIN3 PICT '9.99'
@ 21,73 SAY CMIN4 PICT '9.99'
@ 22,8 SAY "Max"
@ 22,21 SAY CMAXT PICT '9.99'
@ 22,34 SAY CMAX1 PICT '9.99'
@ 22,47 SAY CMAX2 PICT '9.99'
@ 22,60 SAY CMAX3 PICT '9.99'
@ 22,73 SAY CMAX4 PICT '9.99'
STOR CSQ1+CSQ2+CSQ3+CSQ4 TO CSQT
STOR CVAL1+CVAL2+CVAL3+CVAL4 TO CVALT
IF TOTAL1<2
  STOR 0.00 TO CSTD1
ELSE
  STOR ((TOTAL1*CSQT-CVAL1^2)/(TOTAL1*(TOTAL1-1)))^0.5 TO CSTD1
ENDI
IF TOTAL1<2
  STOR 0.00 TO CSTD1
ELSE
  STOR ((TOTAL1*CSQ1-CVAL1^2)/(TOTAL1*(TOTAL1-1)))^0.5 TO CSTD1
ENDI
IF TOTAL2<2
  STOR 0.00 TO CSTD2
ELSE
  STOR ((TOTAL2*CSQ2-CVAL2^2)/(TOTAL2*(TOTAL2-1)))^0.5 TO CSTD2
ENDI
IF TOTAL3<2
  STOR 0.00 TO CSTD3
ELSE
  STOR ((TOTAL3*CSQ3-CVAL3^2)/(TOTAL3*(TOTAL3-1)))^0.5 TO CSTD3
ENDI
IF TOTAL4<2
  STOR 0.00 TO CSTD4
ELSE
  STOR ((TOTAL4*CSQ4-CVAL4^2)/(TOTAL4*(TOTAL4-1)))^0.5 TO CSTD4
ENDI
@ 23,8 SAY "Std. Dev."
@ 23,21 SAY CSTD1 PICT '9.99'
@ 23,34 SAY CSTD1 PICT '9.99'
@ 23,47 SAY CSTD2 PICT '9.99'
@ 23,60 SAY CSTD3 PICT '9.99'

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@ 23,73 SAY CSTD4 PICT '9.99'
@ 25,1 SAY "Reinspection"
***** REINSPECTION HC
@ 27,4 SAY "HC Reading"
STOR HRVAL1+HRVAL2+HRVAL3+HRVAL4 TO HRVALT
STOR 2000 TO HRMINT
IF HRMIN1<HRMINT
    STOR HRMIN1 TO HRMINT
ENDI
IF HRMIN2<HRMINT
    STOR HRMIN2 TO HRMINT
ENDI
IF HRMIN3<HRMINT
    STOR HRMIN3 TO HRMINT
ENDI
IF HRMIN4<HRMINT
    STOR HRMIN4 TO HRMINT
ENDI
IF HRMINT=2000
    STOR 0 TO HRMINT
ENDI
IF HRMIN1=2000
    STOR 0 TO HRMIN1
ENDI
IF HRMIN2=2000
    STOR 0 TO HRMIN2
ENDI
IF HRMIN3=2000
    STOR 0 TO HRMIN3
ENDI
IF HRMIN4=2000
    STOR 0 TO HRMIN4
ENDI
STOR 0 TO HRMAXT
IF HRMAX1>HRMAXT
    STOR HRMAX1 TO HRMAXT
ENDI
IF HRMAX2>HRMAXT
    STOR HRMAX2 TO HRMAXT
ENDI
IF HRMAX3>HRMAXT
    STOR HRMAX3 TO HRMAXT
ENDI
IF HRMAX4>HRMAXT
    STOR HRMAX4 TO HRMAXT
ENDI
STOR 9.99 TO CRMINT
IF CRMIN1<CRMINT
    STOR CRMINT TO CRMINT
ENDI
IF CRMIN2<CRMINT
    STOR CRMIN2 TO CRMINT
ENDI
IF CRMIN3<CRMINT
    STOR CRMIN3 TO CRMINT
ENDI
IF CRMIN4<CRMINT
    STOR CRMIN4 TO CRMINT
ENDI
IF CRMINT=9.99

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    STOR 0.00 TO CRMINT
ENDI
IF CRMIN1=9.99
    STOR 0.00 TO CRMIN1
ENDI
IF CRMIN2=9.99
    STOR 0.00 TO CRMIN2
ENDI
IF CRMIN3=9.99
    STOR 0.00 TO CRMIN3
ENDI
IF CRMIN4=9.99
    STOR 0.00 TO CRMIN4
ENDI
STOR 0.00 TO CRMAXT
IF CRMAX1>CRMAXT
    STOR CRMAX1 TO CRMAXT
ENDI
IF CRMAX2>CRMAXT
    STOR CRMAX2 TO CRMAXT
ENDI
IF CRMAX3>CRMAXT
    STOR CRMAX3 TO CRMAXT
ENDI
IF CRMAX4>CRMAXT
    STOR CRMAX4 TO CRMAXT
ENDI
@ 28,8 SAY "Mean"
IF REINST=0
    @ 28,24 SAY "0"
ELSE
    @ 28,21 SAY HRVALT/REINST PICT '9999'
ENDI
IF REINS1=0
    @ 28,37 SAY "0"
ELSE
    @ 28,34 SAY HRVAL1/REINS1 PICT '9999'
ENDI
IF REINS2=0
    @ 28,50 SAY "0"
ELSE
    @ 28,47 SAY HRVAL2/REINS2 PICT '9999'
ENDI
IF REINS3=0
    @ 28,63 SAY "0"
ELSE
    @ 28,60 SAY HRVAL3/REINS3 PICT '9999'
ENDI
IF REINS4=0
    @ 28,76 SAY "0"
ELSE
    @ 28,73 SAY HRVAL4/REINS4 PICT '9999'
ENDI
@ 29,8 SAY "Min"
@ 29,21 SAY HRMINT PICT '9999'
@ 29,34 SAY HRMIN1 PICT '9999'
@ 29,47 SAY HRMIN2 PICT '9999'
@ 29,60 SAY HRMIN3 PICT '9999'
@ 29,73 SAY HRMIN4 PICT '9999'
@ 30,8 SAY "Max"

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@ 30,21 SAY HRMAXT PICT '9999'
@ 30,34 SAY HRMAX1 PICT '9999'
@ 30,47 SAY HRMAX2 PICT '9999'
@ 30,60 SAY HRMAX3 PICT '9999'
@ 30,73 SAY HRMAX4 PICT '9999'
STOR HRSQ1+HRSQ2+HRSQ3+HRSQ4 TO HRSQT
STOR HRVAL1+HRVAL2+HRVAL3+HRVAL4 TO HRVALT
IF REINST<2
    STOR 0 TO HRSTD1
ELSE
    STOR ((REINST*HRSQT-HRVALT^2)/(REINST*(REINST-1)))^0.5 TO HRSTD1
ENDI
IF REINS1<2
    STOR 0 TO HRSTD1
ELSE
    STOR ((REINS1*HRSQ1-HRVAL1^2)/(REINS1*(REINS1-1)))^0.5 TO HRSTD1
ENDI
IF REINS2<2
    STOR 0 TO HRSTD2
ELSE
    STOR ((REINS2*HRSQ2-HRVAL2^2)/(REINS2*(REINS2-1)))^0.5 TO HRSTD2
ENDI
IF REINS3<2
    STOR 0 TO HRSTD3
ELSE
    STOR ((REINS3*HRSQ3-HRVAL3^2)/(REINS3*(REINS3-1)))^0.5 TO HRSTD3
ENDI
IF REINS4<2
    STOR 0 TO HRSTD4
ELSE
    STOR ((REINS4*HRSQ4-HRVAL4^2)/(REINS4*(REINS4-1)))^0.5 TO HRSTD4
ENDI
@ 31,8 SAY "Std. Dev."
@ 31,20 SAY HRSTD1 PICT '99999'
@ 31,33 SAY HRSTD1 PICT '99999'
@ 31,46 SAY HRSTD2 PICT '99999'
@ 31,59 SAY HRSTD3 PICT '99999'
@ 31,72 SAY HRSTD4 PICT '99999'
***** REINSPECTION CO
@ 33,4 SAY "CO Reading"
STOR CRVAL1+CRVAL2+CRVAL3+CRVAL4 TO CRVALT
@ 34,8 SAY "Mean"
IF REINST=0
    @ 34,21 SAY "0.00"
ELSE
    @ 34,21 SAY CRVALT/REINST PICT '9.99'
ENDI
IF REINS1=0
    @ 34,34 SAY "0.00"
ELSE
    @ 34,34 SAY CRVAL1/REINS1 PICT '9.99'
ENDI
IF REINS2=0
    @ 34,47 SAY "0.00"
ELSE
    @ 34,47 SAY CRVAL2/REINS2 PICT '9.99'
ENDI
IF REINS3=0
    @ 34,60 SAY "0.00"
ELSE

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@ 34,60 SAY CRVAL3/REINS3 PICT '9.99'
ENDI
IF REINS4=0
    @ 34,73 SAY "0.00"
ELSE
    @ 34,73 SAY CRVAL4/REINS4 PICT '9.99'
ENDI
@ 35,8 SAY "Min"
@ 35,21 SAY CRMINT PICT '9.99'
@ 35,34 SAY CRMIN1 PICT '9.99'
@ 35,47 SAY CRMIN2 PICT '9.99'
@ 35,60 SAY CRMIN3 PICT '9.99'
@ 35,73 SAY CRMIN4 PICT '9.99'
@ 36,8 SAY "Max"
@ 36,21 SAY CRMAXT PICT '9.99'
@ 36,34 SAY CRMAX1 PICT '9.99'
@ 36,47 SAY CRMAX2 PICT '9.99'
@ 36,60 SAY CRMAX3 PICT '9.99'
@ 36,73 SAY CRMAX4 PICT '9.99'
STOR CRSQ1+CRSQ2+CRSQ3+CRSQ4 TO CRSQT
STOR CRVAL1+CRVAL2+CRVAL3+CRVAL4 TO CRVALT
IF REINST<2
    STOR 0.00 TO CRSTD1
ELSE
    STOR ((REINST*CRSQ1-CRVAL1^2)/(REINST*(REINST-1)))^0.5 TO CRSTD1
ENDI
IF REINS1<2
    STOR 0.00 TO CRSTD1
ELSE
    STOR ((REINS1*CRSQ1-CRVAL1^2)/(REINS1*(REINS1-1)))^0.5 TO CRSTD1
ENDI
IF REINS2<2
    STOR 0.00 TO CRSTD2
ELSE
    STOR ((REINS2*CRSQ2-CRVAL2^2)/(REINS2*(REINS2-1)))^0.5 TO CRSTD2
ENDI
IF REINS3<2
    STOR 0.00 TO CRSTD3
ELSE
    STOR ((REINS3*CRSQ3-CRVAL3^2)/(REINS3*(REINS3-1)))^0.5 TO CRSTD3
ENDI
IF REINS4<2
    STOR 0.00 TO CRSTD4
ELSE
    STOR ((REINS4*CRSQ4-CRVAL4^2)/(REINS4*(REINS4-1)))^0.5 TO CRSTD4
ENDI
@ 37,8 SAY "Std. Dev."
@ 37,20 SAY CRSTD1 PICT '99.99'
@ 37,33 SAY CRSTD2 PICT '99.99'
@ 37,46 SAY CRSTD3 PICT '99.99'
@ 37,59 SAY CRSTD4 PICT '99.99'
@ 39,1 SAY "Failing Vehicles"
***** PERCENT REDUCTION HC
@ 41,4 SAY "HC Reduction, %"
STOR HRED1+HRED2+HRED3+HRED4 TO HREDT
STOR 100 TO HREDMINT
IF HREDMIN1<HREDMINT
    STOR HREDMIN1 TO HREDMINT
ENDI

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```
IF HREDMIN2<HREDMINT
  STOR HREDMIN2 TO HREDMINT
ENDI
IF HREDMIN3<HREDMINT
  STOR HREDMIN3 TO HREDMINT
ENDI
IF HREDMIN4<HREDMINT
  STOR HREDMIN4 TO HREDMINT
ENDI
IF HREDMINT=100
  STOR 0.00 TO HREDMINT
ENDI
IF HREDMIN1=100
  STOR 0.00 TO HREDMIN1
ENDI
IF HREDMIN2=100
  STOR 0.00 TO HREDMIN2
ENDI
IF HREDMIN3=100
  STOR 0.00 TO HREDMIN3
ENDI
IF HREDMIN4=100
  STOR 0.00 TO HREDMIN4
ENDI
STOR 0.00 TO HREDMAXT
IF HREDMAX1>HREDMAXT
  STOR HREDMAX1 TO HREDMAXT
ENDI
IF HREDMAX2>HREDMAXT
  STOR HREDMAX2 TO HREDMAXT
ENDI
IF HREDMAX3>HREDMAXT
  STOR HREDMAX3 TO HREDMAXT
ENDI
IF HREDMAX4>HREDMAXT
  STOR HREDMAX4 TO HREDMAXT
ENDI
STOR 9.99 TO CREDMINT
IF CREDMIN1<CREDMINT
  STOR CREDMIN1 TO CREDMINT
ENDI
IF CREDMIN2<CREDMINT
  STOR CREDMIN2 TO CREDMINT
ENDI
IF CREDMIN3<CREDMINT
  STOR CREDMIN3 TO CREDMINT
ENDI
IF CREDMIN4<CREDMINT
  STOR CREDMIN4 TO CREDMINT
ENDI
STOR 0.00 TO CREDMAXT
IF CREDMAX1>CREDMAXT
  STOR CREDMAX1 TO CREDMAXT
ENDI
IF CREDMAX2>CREDMAXT
  STOR CREDMAX2 TO CREDMAXT
ENDI
IF CREDMAX3>CREDMAXT
  STOR CREDMAX3 TO CREDMAXT
ENDI
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IF CREDMAX4>CREDMAXT
    STOR CREDMAX4 TO CREDMAXT
ENDI
IF CREDMINT=100
    STOR 0.00 TO CREDMINT
ENDI
IF CREDMIN1=100
    STOR 0.00 TO CREDMIN1
ENDI
IF CREDMIN2=100
    STOR 0.00 TO CREDMIN2
ENDI
IF CREDMIN3=100
    STOR 0.00 TO CREDMIN3
ENDI
IF CREDMIN4=100
    STOR 0.00 TO CREDMIN4
ENDI
@ 42,8 SAY "Mean"
IF REINST=0
    @ 42,22 SAY "0.00"
ELSE
    @ 42,19 SAY HREDT/REINST PICT '9999.99'
ENDI
IF REINS1=0
    @ 42,35 SAY "0.00"
ELSE
    @ 42,32 SAY HRED1/REINS1 PICT '9999.99'
ENDI
IF REINS2=0
    @ 42,48 SAY "0.00"
ELSE
    @ 42,45 SAY HRED2/REINS2 PICT '9999.99'
ENDI
IF REINS3=0
    @ 42,61 SAY "0.00"
ELSE
    @ 42,58 SAY HRED3/REINS3 PICT '9999.99'
ENDI
IF REINS4=0
    @ 42,74 SAY "0.00"
ELSE
    @ 42,71 SAY HRED4/REINS4 PICT '9999.99'
ENDI
@ 43,8 SAY "Min"
@ 43,17 SAY HREDMINT PICT '999999.99'
@ 43,30 SAY HREDMIN1 PICT '999999.99'
@ 43,43 SAY HREDMIN2 PICT '999999.99'
@ 43,56 SAY HREDMIN3 PICT '999999.99'
@ 43,69 SAY HREDMIN4 PICT '999999.99'
@ 44,8 SAY "Max"
@ 44,20 SAY HREDMAXT PICT '999.99'
@ 44,33 SAY HREDMAX1 PICT '999.99'
@ 44,46 SAY HREDMAX2 PICT '999.99'
@ 44,59 SAY HREDMAX3 PICT '999.99'
@ 44,72 SAY HREDMAX4 PICT '999.99'
STOR HREDSQ1+HREDSQ2+HREDSQ3+HREDSQ4 TO HREDSQT
STOR HRED1+HRED2+HRED3+HRED4 TO HREDT
IF REINST<2
    STOR 0.00 TO HREDSTD

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ELSE
STOR ((REINST*HREDSQT-HREDT^2)/(REINST*(REINST-1)))^0.5 TO HREDSTD1
ENDI
IF REINS1<2
STOR 0.00 TO HREDSTD1
ELSE
STOR ((REINS1*HREDSQ1-HRED1^2)/(REINS1*(REINS1-1)))^0.5 TO HREDSTD1
ENDI
IF REINS2<2
STOR 0.00 TO HREDSTD2
ELSE
STOR ((REINS2*HREDSQ2-HRED2^2)/(REINS2*(REINS2-1)))^0.5 TO HREDSTD2
ENDI
IF REINS3<2
STOR 0.00 TO HREDSTD3
ELSE
STOR ((REINS3*HREDSQ3-HRED3^2)/(REINS3*(REINS3-1)))^0.5 TO HREDSTD3
ENDI
IF REINS4<2
STOR 0.00 TO HREDSTD4
ELSE
STOR ((REINS4*HREDSQ4-HRED4^2)/(REINS4*(REINS4-1)))^0.5 TO HREDSTD4
ENDI
@ 45,8 SAY "Std. Dev."
@ 45,17 SAY HREDSTD1 PICT '999999.99'
@ 45,30 SAY HREDSTD2 PICT '999999.99'
@ 45,43 SAY HREDSTD3 PICT '999999.99'
@ 45,56 SAY HREDSTD4 PICT '999999.99'
@ 45,69 SAY HREDSTD4 PICT '999999.99'
***** PERCENT REDUCTION CO
@ 47,4 SAY "CO Reduction, %"
STOR CRED1+CRED2+CRED3+CRED4 TO CREDT
@ 48,8 SAY "Mean"
IF REINST=0
@ 48,22 SAY "0.00"
ELSE
@ 48,19 SAY CREDT/REINST PICT '9999.99'
ENDI
IF REINS1=0
@ 48,35 SAY "0.00"
ELSE
@ 48,32 SAY CRED1/REINS1 PICT '9999.99'
ENDI
IF REINS2=0
@ 48,48 SAY "0.00"
ELSE
@ 48,45 SAY CRED2/REINS2 PICT '9999.99'
ENDI
IF REINS3=0
@ 48,61 SAY "0.00"
ELSE
@ 48,58 SAY CRED3/REINS3 PICT '9999.99'
ENDI
IF REINS4=0
@ 48,74 SAY "0.00"
ELSE
@ 48,71 SAY CRED4/REINS4 PICT '9999.99'
ENDI
IF CREDMIN1=0
STOR 0.00 TO CREDMIN1

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ENDI
@ 49,8 SAY "Min"
@ 49,17 SAY CREDMINT PICT '999999.99'
@ 49,30 SAY CREDMIN1 PICT '999999.99'
@ 49,43 SAY CREDMIN2 PICT '999999.99'
@ 49,56 SAY CREDMIN3 PICT '999999.99'
@ 49,69 SAY CREDMIN4 PICT '999999.99'
@ 50,8 SAY "Max"
@ 50,20 SAY CREDMAXT PICT '999.99'
@ 50,33 SAY CREDMAX1 PICT '999.99'
@ 50,46 SAY CREDMAX2 PICT '999.99'
@ 50,59 SAY CREDMAX3 PICT '999.99'
@ 50,72 SAY CREDMAX4 PICT '999.99'
STOR CREDSQ1+CREDSQ2+CREDSQ3+CREDSQ4 TO CREDST
STOR CRED1+CRED2+CRED3+CRED4 TO CREDT
IF REINST<2
    STOR 0.00 TO CREDSTD1
ELSE
STOR ((REINST*CREDST-CREDT^2)/(REINST*(REINST-1)))^0.5 TO CREDSTD1
ENDI
IF REINST<2
    STOR 0.00 TO CREDSTD1
ELSE
STOR ((REINST*CREDST-CREDT^2)/(REINST*(REINST-1)))^0.5 TO CREDSTD1
ENDI
IF REINST<2
    STOR 0.00 TO CREDSTD2
ELSE
STOR ((REINST*CREDST-CREDT^2)/(REINST*(REINST-1)))^0.5 TO CREDSTD2
ENDI
IF REINST<2
    STOR 0.00 TO CREDSTD3
ELSE
STOR ((REINST*CREDST-CREDT^2)/(REINST*(REINST-1)))^0.5 TO CREDSTD3
ENDI
IF REINST<2
    STOR 0.00 TO CREDSTD4
ELSE
STOR ((REINST*CREDST-CREDT^2)/(REINST*(REINST-1)))^0.5 TO CREDSTD4
ENDI
@ 51,8 SAY "Std. Dev."
@ 51,17 SAY CREDSTD1 PICT '999999.99'
@ 51,30 SAY CREDSTD1 PICT '999999.99'
@ 51,43 SAY CREDSTD2 PICT '999999.99'
@ 51,56 SAY CREDSTD3 PICT '999999.99'
@ 51,69 SAY CREDSTD4 PICT '999999.99'
*****REPAIR COST
@ 53,4 SAY "Repair Cost, $"
STOR RPCST1+RPCST2+RPCST3+RPCST4 TO RPCSTT
STOR RPCSTSQ1+RPCSTSQ2+RPCSTSQ3+RPCSTSQ4 TO RPCSTSQT
STOR CSTCNT1+CSTCNT2+CSTCNT3+CSTCNT4 TO CSTCNTT
STOR 999 TO RPCSTMINT
IF RPCSTMINT<RPCSTMINT
    STOR RPCSTMINT TO RPCSTMINT
ENDI
IF RPCSTMINT<RPCSTMINT
    STOR RPCSTMINT TO RPCSTMINT
ENDI
IF RPCSTMINT<RPCSTMINT
    STOR RPCSTMINT TO RPCSTMINT

```

```

ENDI
IF RPCSTMIN4<RPCSTMINT
    STOR RPCSTMIN4 TO RPCSTMINT
ENDI
IF RPCSTMINT=999
    STOR 0 TO RPCSTMINT
ENDI
IF RPCSTMIN1=999
    STOR 0 TO RPCSTMIN1
ENDI
IF RPCSTMIN2=999
    STOR 0 TO RPCSTMIN2
ENDI
IF RPCSTMIN3=999
    STOR 0 TO RPCSTMIN3
ENDI
IF RPCSTMIN4=999
    STOR 0 TO RPCSTMIN4
ENDI
STOR 0 TO RPCSTMAXT
IF RPCSTMAX1>RPCSTMAXT
    STOR RPCSTMAX1 TO RPCSTMAXT
ENDI
IF RPCSTMAX2>RPCSTMAXT
    STOR RPCSTMAX2 TO RPCSTMAXT
ENDI
IF RPCSTMAX3>RPCSTMAXT
    STOR RPCSTMAX3 TO RPCSTMAXT
ENDI
IF RPCSTMAX4>RPCSTMAXT
    STOR RPCSTMAX4 TO RPCSTMAXT
ENDI
@ 54,8 SAY "Mean"
IF CSTCNT=0
    @ 54,25 SAY "0"
ELSE
    @ 54,23 SAY RPCSTT/CSTCNT PICT '999'
ENDI
IF CSTCNT1=0
    @ 54,38 SAY "0"
ELSE
    @ 54,36 SAY RPCST1/CSTCNT1 PICT '999'
ENDI
IF CSTCNT2=0
    @ 54,51 SAY "0"
ELSE
    @ 54,49 SAY RPCST2/CSTCNT2 PICT '999'
ENDI
IF CSTCNT3=0
    @ 54,64 SAY "0"
ELSE
    @ 54,62 SAY RPCST3/CSTCNT3 PICT '999'
ENDI
IF CSTCNT4=0
    @ 54,77 SAY "0"
ELSE
    @ 54,75 SAY RPCST4/CSTCNT4 PICT '999'
ENDI
@ 55,8 SAY "Min"
@ 55,23 SAY RPCSTMINT PICT '999'

```

```

@ 55,36 SAY RPCSTMIN1 PICT '999'
@ 55,49 SAY RPCSTMIN2 PICT '999'
@ 55,62 SAY RPCSTMIN3 PICT '999'
@ 55,75 SAY RPCSTMIN4 PICT '999'
@ 56,8 SAY "Max"
@ 56,23 SAY RPCSTMAX1 PICT '999'
@ 56,36 SAY RPCSTMAX2 PICT '999'
@ 56,49 SAY RPCSTMAX3 PICT '999'
@ 56,62 SAY RPCSTMAX4 PICT '999'
@ 56,75 SAY RPCSTMAX4 PICT '999'
IF CSTCNT1<2
  STOR 0 TO RPCSTSTD1
ELSE
  STOR ((CSTCNT1*RPCSTSQT-RPCSTT^2)/(CSTCNT1*(CSTCNT1-1)))^0.5 TO RPCSTSTD1
ENDI
IF CSTCNT1<2
  STOR 0 TO RPCSTSTD1
ELSE
  STOR ((CSTCNT1*RPCSTSQ1-RPCST1^2)/(CSTCNT1*(CSTCNT1-1)))^0.5 TO RPCSTSTD1
ENDI
IF CSTCNT2<2
  STOR 0 TO RPCSTSTD2
ELSE
  STOR ((CSTCNT2*RPCSTSQ2-RPCST2^2)/(CSTCNT2*(CSTCNT2-1)))^0.5 TO RPCSTSTD2
ENDI
IF CSTCNT3<2
  STOR 0 TO RPCSTSTD3
ELSE
  STOR ((CSTCNT3*RPCSTSQ3-RPCST3^2)/(CSTCNT3*(CSTCNT3-1)))^0.5 TO RPCSTSTD3
ENDI
IF CSTCNT4<2
  STOR 0 TO RPCSTSTD4
ELSE
  STOR ((CSTCNT4*RPCSTSQ4-RPCST4^2)/(CSTCNT4*(CSTCNT4-1)))^0.5 TO RPCSTSTD4
ENDI
@ 57,8 SAY "Std. Dev."
@ 57,22 SAY RPCSTSTD1 PICT '9999'
@ 57,35 SAY RPCSTSTD1 PICT '9999'
@ 57,48 SAY RPCSTSTD2 PICT '9999'
@ 57,61 SAY RPCSTSTD3 PICT '9999'
@ 57,74 SAY RPCSTSTD4 PICT '9999'
EJECT
STOR REINST TO MREINS
STOR PAGE TO MPAGE
RELE ALL EXCE M*
REST FROM CODES ADDITIVE
STOR MPAGE TO PAGE
STOR PAGE+1 TO PAGE
@ 1,8 SAY DATE()
@ 1,28 SAY "FAILURE RATE SUMMARY REPORT"
@ 1,64 SAY "Page"
@ 1,69 SAY PAGE PICT '99'
@ 2,27 SAY "FOR INSPECTION STATION"
@ 2,50 SAY MSTATION PICT '999999'
@ 7,6 SAY "This report summarizes data for vehicle model years 19"
@ 7,60 SAY MSYEAR PICT '99'
@ 7,63 SAY "through 19"
@ 7,73 SAY MEYEAR PICT '99'
@ 7,75 SAY " ."
@ 14,28 SAY "Failure Code Distribution"

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```

@ 16,12 SAY "Code Description"
@ 16,51 SAY "Number      Percent"
@ 17,12 SAY "-----"
@ 17,50 SAY "-----"
@ 19,15 SAY "Exhaust System"
@ 21,13 SAY "E1 Exhaust leak"
@ 21,51 SAY CE1 PICT '99999'
IF MREINS=0
    @ 21,65 SAY "0.0"
ELSE
@ 21,64 SAY CE1/MREINS*100 PICT '99.9'
ENDI
@ 23,15 SAY "Tampering"
@ 25,13 SAY "T0 Not specified"
@ 25,51 SAY CT0 PICT '99999'
IF MREINS=0
    @ 25,65 SAY "0.0"
ELSE
@ 25,64 SAY CT0/MREINS*100 PICT '99.9'
ENDI
@ 26,13 SAY "T1 Catalytic converter"
@ 26,51 SAY CT1 PICT '99999'
IF MREINS=0
    @ 26,65 SAY "0.0"
ELSE
@ 26,64 SAY CT1/MREINS*100 PICT '99.9'
ENDI
@ 27,13 SAY "T2 PCV valve"
@ 27,51 SAY CT2 PICT '99999'
IF MREINS=0
    @ 27,65 SAY "0.0"
ELSE
@ 27,64 SAY CT2/MREINS*100 PICT '99.9'
ENDI
@ 28,13 SAY "T3 EGR valve"
@ 28,51 SAY CT3 PICT '99999'
IF MREINS=0
    @ 28,65 SAY "0.0"
ELSE
@ 28,64 SAY CT3/MREINS*100 PICT '99.9'
ENDI
@ 29,13 SAY "T4 Air pump"
@ 29,51 SAY CT4 PICT '99999'
IF MREINS=0
    @ 29,65 SAY "0.0"
ELSE
@ 29,64 SAY CT4/MREINS*100 PICT '99.9'
ENDI
@ 30,13 SAY "T5 Carbon canister"
@ 30,51 SAY CT5 PICT '99999'
IF MREINS=0
    @ 30,65 SAY "0.0"
ELSE
@ 30,64 SAY CT5/MREINS*100 PICT '99.9'
ENDI
@ 31,13 SAY "T6 Fuel inlet restrictor"
@ 31,51 SAY CT6 PICT '99999'
IF MREINS=0
    @ 31,65 SAY "0.0"
ELSE

```

```
@ 31,64 SAY CT6/MREINS*100 PICT '99.9'
ENDI
@ 32,13 SAY "T7 Other"
@ 32,51 SAY CT7 PICT '99999'
IF MREINS=0
    @ 32,65 SAY "0.0"
ELSE
@ 32,64 SAY CT7/MREINS*100 PICT '99.9'
ENDI
@ 34,15 SAY "Inspection/Maintenance"
@ 36,13 SAY "M0 Not specified"
@ 36,51 SAY CM0 PICT '99999'
IF MREINS=0
    @ 36,65 SAY "0.0"
ELSE
@ 36,64 SAY CM0/MREINS*100 PICT '99.9'
ENDI
@ 37,13 SAY "M1 Air filter element"
@ 37,51 SAY CM1 PICT '99999'
IF MREINS=0
    @ 37,65 SAY "0.0"
ELSE
@ 37,64 SAY CM1/MREINS*100 PICT '99.9'
ENDI
@ 38,13 SAY "M2 TAC"
@ 38,51 SAY CM2 PICT '99999'
IF MREINS=0
    @ 38,65 SAY "0.0"
ELSE
@ 38,64 SAY CM2/MREINS*100 PICT '99.9'
ENDI
@ 39,13 SAY "M3 Idle speed"
@ 39,51 SAY CM3 PICT '99999'
IF MREINS=0
    @ 39,65 SAY "0.0"
ELSE
@ 39,64 SAY CM3/MREINS*100 PICT '99.9'
ENDI
@ 40,13 SAY "M4 Air/fuel mixture"
@ 40,51 SAY CM4 PICT '99999'
IF MREINS=0
    @ 40,65 SAY "0.0"
ELSE
@ 40,64 SAY CM4/MREINS*100 PICT '99.9'
ENDI
@ 41,13 SAY "M5 Dwell"
@ 41,51 SAY CM5 PICT '99999'
IF MREINS=0
    @ 41,65 SAY "0.0"
ELSE
@ 41,64 SAY CM5/MREINS*100 PICT '99.9'
ENDI
@ 42,13 SAY "M6 Timing"
@ 42,51 SAY CM6 PICT '99999'
IF MREINS=0
    @ 42,65 SAY "0.0"
ELSE
@ 42,64 SAY CM6/MREINS*100 PICT '99.9'
ENDI
@ 43,13 SAY "M7 Spark plugs"
```



```

@ 43,51 SAY CM7 PICT '99999'
IF MREINS=0
  @ 43,65 SAY "0.0"
ELSE
@ 43,64 SAY CM7/MREINS*100 PICT '99.9'
ENDI
@ 44,13 SAY "M8 Spark plug wires"
@ 44,51 SAY CM8 PICT '99999'
IF MREINS=0
  @ 44,65 SAY "0.0"
ELSE
@ 44,64 SAY CM8/MREINS*100 PICT '99.9'
ENDI
@ 45,13 SAY "M9 Vacuum hose"
@ 45,51 SAY CM9 PICT '99999'
IF MREINS=0
  @ 45,65 SAY "0.0"
ELSE
@ 45,64 SAY CM9/MREINS*100 PICT '99.9'
ENDI
@ 46,13 SAY "M0 Electronic controls"
@ 46,51 SAY CM0 PICT '99999'
IF MREINS=0
  @ 46,65 SAY "0.0"
ELSE
@ 46,64 SAY CM0/MREINS*100 PICT '99.9'
ENDI
@ 47,13 SAY "M1 Low emission tune-up"
@ 47,51 SAY CM1 PICT '99999'
IF MREINS=0
  @ 47,65 SAY "0.0"
ELSE
@ 47,64 SAY CM1/MREINS*100 PICT '99.9'
ENDI
@ 48,13 SAY "M2 Other"
@ 48,51 SAY CM2 PICT '99999'
IF MREINS=0
  @ 48,65 SAY "0.0"
ELSE
@ 48,64 SAY CM2/MREINS*100 PICT '99.9'
ENDI
SET DEVI TO SCRE
EJEC
CLEA

```

```

SELE A
GO TOP
SET INDE TO INSPECT
**** CALCULATE TOTALS BY INSPECTOR
DO WHILE .NOT. EOF()
  STOR INSPECT_1 TO MSTAT
  ? MSTAT
  STOR 0 TO REINS
  STOR 0 TO TOTAL
  STOR 0 TO PASS
  STOR 0 TO HFAIL
  STOR 0 TO CFAIL
  STOR 0 TO BFAIL
  STOR 0 TO HRFAIL
  STOR 0 TO CRFAIL

```

```

STOR 0 TO BRFAIL
SELE A
DO WHILE INSPECT_1=MSTAT
  STOR TOTAL+1 TO TOTAL
  IF EXEMPT=1
***** STOR MEXEMPT+1 TO MEXEMPT
  ELSE
    DO CASE
      CASE STATUS1HC="F" .AND. STATUS1CO="P"
        STOR HFFAIL+1 TO HFFAIL
      CASE STATUS1CO="F" .AND. STATUS1HC="P"
        STOR CFFAIL+1 TO CFFAIL
      CASE STATUS1HC="F" .AND. STATUS1CO="F"
        STOR BFFAIL+1 TO BFFAIL
      CASE STATUS1HC="P" .AND. STATUS1CO="P"
        STOR PASS+1 TO PASS
    ENDC

    IF HC_RE>0 .OR. CO_RE>0
      IF STATUS2HC="F" .AND. STATUS2CO="P"
        STOR HRFAIL+1 TO HRFAIL
      ENDI
      IF STATUS2CO="F" .AND. STATUS2HC="P"
        STOR CRFAIL+1 TO CRFAIL
      ENDI
      IF STATUS2HC="F" .AND. STATUS2CO="F"
        STOR BRFAIL+1 TO BRFAIL
      ENDI
      STOR REINS+1 TO REINS
    ENDI
  ENDI
  SKIP
  IF EOF()
    STOR 0 TO INSPECT_1
  ENDI
ENDD
SELE C
APPE BLAN
REPL INSPECT WITH MSTAT,DTOTAL WITH TOTAL,DPASS WITH PASS
REPL DHFAIL WITH HFFAIL,DCFFAIL WITH CFFAIL,DBFAIL WITH BFFAIL
REPL DHRFAIL WITH HRFAIL,DCRFAIL WITH CRFAIL,DBRFAIL WITH BRFAIL
SELE A
ENDD

***** CALCULATE FINAL TOTALS - ADD STATION TOTALS
SELE C
GO TOP
CLEA
@ 10,24 SAY "Make sure your printer is ready."
WAIT "                      Press any key to continue."
CLEA
SET COLO TO W*,B
@ 10,36 SAY "PRINTING"
SET COLO TO W
SET DEVI TO PRIN
STOR PAGE+1 TO PAGE
STOR 11 TO LINES
STOR "-----" TO TOP
STOR "-----" TO BOT
DO WHILE .NOT. EOF()

```

IF LINES=11

```
@ PROW(),25 SAY "FAILURE RATE REPORT BY INSPECTOR"  
@ PROW()+1,27 SAY "FOR INSPECTION STATION"  
@ PROW(),50 SAY MSTATION PICT '999999'  
@ PROW()+1,6 SAY "This report summarizes data for vehicle model years 19"  
@ PROW(),60 SAY MSYEAR PICT '99'  
@ PROW(),63 SAY "through 19"  
@ PROW(),73 SAY MEYEAR PICT '99'  
@ PROW(),75 SAY ", "  
@ PROW()+2,6 SAY DATE()  
@ PROW(),66 SAY "Page"  
@ PROW(),71 SAY PAGE PICT '##'  
@ PROW()+1,4 SAY TOP  
@ PROW()+1,41 SAY "Initial Inspections"  
@ PROW()+1,20 SAY "Inspector"  
@ PROW(),38 SAY "Tests Failures Percent"  
@ PROW()+1,4 SAY BOT
```

ENDI

```
@ PROW()+1,20 SAY INSPECT PICT '9999999999'  
@ PROW(),38 SAY DTOTAL PICT '99999'  
STOR DHFAIL+DCFAIL+DBFAIL TO FAIL  
@ PROW(),47 SAY FAIL PICT '99999'  
@ PROW(),56 SAY FAIL/DTOTAL*100 PICT '999.9'
```

DELE

STOR LINES+1 TO LINES

SKIP

IF LINES=55 .OR. EOF()

```
@ PROW()+1,4 SAY BOT
```

EJEC

STOR 11 TO LINES

STOR PAGE+1 TO PAGE

ENDI

ENDD

PACK

SET DEVI TO SCRE

EJEC

CLEA

RETU

*** EOF

*** ERRORCHK.PRG

***** THIS ROUTINE CHECK THE DUPLICATE RECORDS
***** TO DETERMINE THE FREQUENCY OF ERRORS IN THE MAIN DATA BASE

SET ECHO OFF
SET EXACT ON
SET HELP OFF
SET TALK OFF
CLEA ALL
CLEA

***** SET UP DATA BASES

SELE A
USE DOUBLE
GO BOTTOM
STOR RECNO() TO MCOUNTA
GO TOP
? RECNO()
SELE B
USE REENTER
GO BOTTOM
STOR RECNO() TO MCOUNTB
GO TOP
? RECNO()
SELE C
USE ERRORS

**** CHECK NO. OF RECORDS IN DATA BASES

IF MCOUNTA () MCOUNTB
?? CHR(7)
@ 10,12 SAY "The data bases DO NOT contain the same number of records!"
@ 12,22 SAY "Please check them before continuing."
RETURN
ENDIF

****INITIALIZE COUNTERS

STOR "F" TO MERROR
STOR 0 TO MCOUNT1
STOR 0 TO MCOUNT2
STOR 0 TO MCOUNT3
STOR 0 TO MCOUNT4
STOR 0 TO MCOUNT5
STOR 0 TO MCOUNT6
STOR 0 TO MCOUNT7
STOR 0 TO MCOUNT8
STOR 0 TO MCOUNT9
STOR 0 TO MCOUNT10
STOR 0 TO MCOUNT11
STOR 0 TO MCOUNT12
STOR 0 TO MCOUNT13
STOR 0 TO MCOUNT14
STOR 0 TO MCOUNT15
STOR 0 TO MCOUNT16
STOR 0 TO MCOUNT17
STOR 0 TO MCOUNT18
STOR 0 TO MCOUNT19
STOR 0 TO MCOUNT20
STOR 0 TO MCOUNT21
STOR 0 TO MCOUNT22

STOR 0 TO MCOUNT23
STOR 0 TO MCOUNT24

SET COLOR TO W*,B
@ 10,35 SAY "PROCESSING"
SET COLOR TO W,
@ 12,26 SAY "Checking record number :"

***** BEGIN COMPARISONS

SELE A

DO WHILE .NOT. EOF()

@ 12,51 SAY " "

@ 12,51 SAY RECNO() PICTURE "999"

SELE A

STOR YEAR TO MYEAR1

STOR MAKE TO MMAKE1

STOR ODOMETER TO MMILES1

STOR VIN TO MVIN1

STOR BODY TO MBODY1

STOR HC_FIRST TO MHC1

STOR CO_FIRST TO MCO1

STOR STATUS1HC TO HCSTAT1

STOR STATUS1CO TO COSTAT1

STOR HC_RE TO MHCR1

STOR CO_RE TO MCO1

STOR STATUS2HC TO HCRESTA1

STOR STATUS2CO TO CORESTA1

STOR EXEMPT TO MEXEM1

STOR WAIVED TO MWAIV1

STOR C_207B TO MC207B1

STOR CODES TO MCODES1

STOR COST TO MCOST1

STOR STATION_1 TO MSTAT1

STOR INSPECT_1 TO MINS1

STOR DATE_1 TO MDATE1

STOR REINSPECT TO MREIN1

STOR RE_DATE TO MRDATE1

STOR DECAL TO MDECAL1

SELE B

STOR YEAR TO MYEAR2

STOR MAKE TO MMAKE2

STOR ODOMETER TO MMILES2

STOR VIN TO MVIN2

STOR BODY TO MBODY2

STOR HC_FIRST TO MHC2

STOR CO_FIRST TO MCO2

STOR STATUS2HC TO HCSTAT2

STOR STATUS2CO TO COSTAT2

STOR HC_RE TO MHCR2

STOR CO_RE TO MCO2

STOR STATUS2HC TO HCRESTA2

STOR STATUS2CO TO CORESTA2

STOR EXEMPT TO MEXEM2

STOR WAIVED TO MWAIV2

STOR C_207B TO MC207B2

STOR CODES TO MCODES2

STOR COST TO MCOST2

STOR STATION_1 TO MSTAT2

STOR INSPECT_1 TO MINS2

STOR DATE_1 TO MDATE2

```

STOR REINSPECT TO MREIN2
STOR RE_DATE TO MRDATE2
STOR DECAL TO MDECAL2
***** COMPARE YEARS
IF MYEAR1(>)MYEAR2
  SELE C
  APPEND BLANK
  REPL DYEAR WITH MYEAR1,RYEAR WITH MYEAR2
  STOR "T" TO MERROR
  STOR MCOUNT1+1 TO MCOUNT1
ENDIF
***** COMPARE MAKES
IF MMAKE1(>)MMAKE2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DMAKE WITH MMAKE1,RMAKE WITH MMAKE1
  STOR MCOUNT2+1 TO MCOUNT2
ENDIF
***** COMPARE MILES
IF MMILES1(>)MMILES2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DMILES WITH MMILES1,RMILES WITH MMILES2
  STOR MCOUNT3+1 TO MCOUNT3
ENDIF
***** COMPARE VEHICLE IDENTIFICATION NUMBERS
IF MVIN1(>)MVIN2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DVIN WITH MVIN1,RVIN WITH MVIN2
  STOR MCOUNT4+1 TO MCOUNT4
ENDIF
***** COMPARE BODY STYLES
IF MBODY1(>)MBODY2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DBODY WITH MBODY1,RBODY WITH MBODY2
  STOR MCOUNT5+1 TO MCOUNT5
ENDIF
***** COMPARE FIRST INSPECTION HYDROCARBON READINGS
IF MHCI1(>)MHC2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DHC_FIRS WITH MHCI1,RHC_FIRS WITH MHC2
  STOR MCOUNT6+1 TO MCOUNT6

```

```

ENDIF
***** COMPARE FIRST INSPECTION CARBON MONOXIDE READINGS
IF MCO1(<)MCO2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DCO_FIRS WITH MCO1,RCO_FIRS WITH MCO2
  STOR MCOUNT7+1 TO MCOUNT7
ENDIF
***** COMPARE FIRST INSPECTION HYDROCARBON STATUS
IF HCSTAT1(<)HCSTAT2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DSTAT1HC WITH HCSTAT1,RSTAT1HC WITH HCSTAT2
  STOR MCOUNT8+1 TO MCOUNT8
ENDIF
***** COMPARE FIRST INSPECTION CARBON MONOXIDE STATUS
IF COSTAT1(<)COSTAT2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DSTAT1CO WITH COSTAT1,RSTAT2CO WITH COSTAT2
  STOR MCOUNT9+1 TO MCOUNT9
ENDIF
***** COMPARE REINSPECTION HYDROCARBON READINGS
IF MHCR1(<)MHCR2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DHC_RE WITH MHCR1,RHC_RE WITH MHCR2
  STOR MCOUNT10+1 TO MCOUNT10
ENDIF
***** COMPARE REINSPECTION CARBON MONOXIDE READINGS
IF MCO1_RE(<)MCO2_RE
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DCO_RE WITH MCO1_RE,RCO_RE WITH MCO2_RE
  STOR MCOUNT11+1 TO MCOUNT11
ENDIF
***** COMPARE REINSPECTION HYDROCARBON STATUS
IF HCRESTA1(<)HCRESTA2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DSTAT2HC WITH HCRESTA1,RSTAT1HC WITH HCRESTA2
  STOR MCOUNT12+1 TO MCOUNT12

```

```

ENDIF
***** COMP REINSPECTION CARBON MONOXIDE STATUS
IF CORESTA1(>)CORESTA2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DSTAT1CO WITH CORESTA1,RSTAT1CO WITH CORESTA2
  STOR MCOUNT13+1 TO MCOUNT13
ENDIF
***** COMPARE EXEMPT STATUS
IF MEXEM1(>)MEXEM2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DEXEMPT WITH MEXEM1,REXEMPT WITH MEXEM2
  STOR MCOUNT14+1 TO MCOUNT14
ENDIF
***** COMPARE WAIVED STATUS
IF MWAIV1(>)MWAIV2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DWAIVED WITH MWAIV1,RWAIVED WITH MWAIV2
  STOR MCOUNT15+1 TO MCOUNT15
ENDIF
***** COMPARE C-207 B COMPLIANCE STATUS
IF MC207B1(>)MC207B2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DC207B WITH MC207B1,RC207B WITH MC207B2
  STOR MCOUNT16+1 TO MCOUNT16
ENDIF
***** COMPARE CODES
IF MCODES1(>)MCODES2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  RERPLACE DCODES WITH MCODES1,RCODES WITH MCODES2
  STOR MCOUNT17+1 TO MCOUNT17
ENDIF
***** COMPARE COSTS
IF MCOST1(>)MCOST2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DCOST WITH MCOST1,RCOST WITH MCOST2
  STOR MCOUNT18+1 TO MCOUNT18

```



```

ENDIF
***** COMPARE FIRST INSPECTION STATIONS
IF MSTAT1(>)MSTAT2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DSTATION1 WITH MSTAT1,RSTATION1 WITH MSTAT2
  STOR MCOUNT19+1 TO MCOUNT19
ENDIF
***** COMPARE INITIAL INSPECTORS
IF MINS1(>)MINS2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DINSPECT1 WITH MINS1,RINSPECT1 WITH MINS2
  STOR MCOUNT20+1 TO MCOUNT20
ENDIF
***** COMPARE INITIAL INSPECTION DATES
IF MDATE1(>)MDATE2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DDATE_1 WITH MDATE1,RDATE_1WITH MDATE2
  STOR MCOUNT21+1 TO MCOUNT21
ENDIF
***** COMPARE REINSPECTORS
IF MREIN1(>)MREIN2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DREINSPEC WITH MREIN1,RREINSPEC WITH MREIN2
  STOR MCOUNT22+1 TO MCOUNT22
ENDIF
***** COMPARE REINSPECTION DATES
IF MRDATE1(>)MRDATE2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DRE_DATE WITH MRDATE1,RRE_DATE WITH MRDATE2
  STOR MCOUNT23+1 TO MCOUNT23
ENDIF
***** FINALLY! COMPARE DECAL NUMBERS
IF MDECAL1(>)MDECAL2
  SELE C
  IF MERROR="F"
    APPEND BLANK
    STOR "T" TO MERROR
  ENDIF
  REPL DDECAL WITH MDECAL1,RDECAL WITH MDECAL2
  STOR MCOUNT24+1 TO MCOUNT24

```

```

ENDIF
SELE A
SKIP
SELE B
SKIP
ENDDO
SELE C
COUNT TO MCOUNTC

```

***** END OF COMPARISONS

CLEAR

?? CHR(7)

STOR MCOUNT1+MCOUNT2+MCOUNT3+MCOUNT4+MCOUNT5+MCOUNT6+MCOUNT7+MCOUNT8+MCOUNT9+MCOUNT10+MCOUNT11+MCOUNT12+MCOUNT13+MCOUNT14+MCOUNT15+MCOUNT16+MCOUNT17+MCOUNT18+MCOUNT19+MCOUNT20+MCOUNT21+MCOUNT22+MCOUNT23+MCOUNT24 TO TOTAL

STOR "Out of "+STR(MCOUNTA)+" records there were a total of "+STR(TOTAL)+" errors." TO LINE1

STOR "There were "+STR(MCOUNTA-MCOUNTC)+" records that did not have any errors." TO LINE2

STOR 40-LEN(LINE1)/2 TO X1

STOR 40-LEN(LINE2)/2 TO X2

* DISPLAY RESULTS OF COMPARISONS

@ 1,24 SAY "The processing is complete."

@ 3,X1 SAY LINE1

@ 4,X2 SAY LINE2

@ 5,4 SAY "Entry	No. of errors	Entry"
------------------	---------------	--------

@ 5,63 SAY "No. of errors"		
----------------------------	--	--

@ 6,4 SAY "-----	-----	-----"
------------------	-------	--------

@ 6,63 SAY "-----"		
--------------------	--	--

@ 7,4 SAY "Year"

@ 7,27 SAY MCOUNT1 PICT '9999'

@ 7,44 SAY "CO reinsp. status"

@ 7,68 SAY MCOUNT13 PICT '9999'

@ 8,4 SAY "Make"

@ 8,27 SAY MCOUNT2 PICT '9999'

@ 8,44 SAY "Exempt"

@ 8,68 SAY MCOUNT14 PICT '9999'

@ 9,4 SAY "Odometer"

@ 9,27 SAY MCOUNT3 PICT '9999'

@ 9,44 SAY "Waived"

@ 9,68 SAY MCOUNT15 PICT '9999'

@ 10,4 SAY "VIN"

@ 10,27 SAY MCOUNT4 PICT '9999'

@ 10,44 SAY "C 207B compliance"

@ 10,68 SAY MCOUNT16 PICT '9999'

@ 11,4 SAY "Body"

@ 11,27 SAY MCOUNT5 PICT '9999'

@ 11,44 SAY "Codes"

@ 11,68 SAY MCOUNT17 PICT '9999'

@ 12,4 SAY "First HC"

@ 12,27 SAY MCOUNT6 PICT '9999'

@ 12,44 SAY "Cost"

@ 12,68 SAY MCOUNT18 PICT '9999'

@ 13,4 SAY "First CO"

@ 13,27 SAY MCOUNT7 PICT '9999'

@ 13,44 SAY "First insp. station"

@ 13,68 SAY MCOUNT19 PICT '9999'

@ 14,4 SAY "HC status"

@ 14,27 SAY MCOUNT8 PICT '9999'

@ 14,44 SAY "First inspector"

@ 14,68 SAY MCOUNT20 PICT '9999'

@ 15,4 SAY "CO status"

@ 15,27 SAY MCOUNT9 PICT '9999'

```

@ 15,44 SAY "First insp. date"
@ 15,68 SAY MCOUNT1 PICT '9999'
@ 16,4 SAY "Reinsp. HC"
@ 16,27 SAY MCOUNT10 PICT '9999'
@ 16,44 SAY "Reinsp. station"
@ 16,68 SAY MCOUNT22 PICT '9999'
@ 17,4 SAY "Reinsp. CO"
@ 17,27 SAY MCOUNT11 PICT '9999'
@ 17,44 SAY "Reinsp. date"
@ 17,68 SAY MCOUNT23 PICT '9999'
@ 18,4 SAY "HC reinsp. status"
@ 18,27 SAY MCOUNT12 PICT '9999'
@ 18,44 SAY "Decal No."
@ 18,68 SAY MCOUNT24 PICT '9999'
WAIT
CLEAR
STOR "Press 'P' to print a full report of the results" to LINE3
STOR "of this comparison; or 'N' to quit," TO LINE4
STOR 40-LEN(LINE3)/2 TO X3
STOR 40-LEN(LINE4)/2 TO X4
STOR 42+LEN(LINE4)/2 TO X4A
@ 10,X3 SAY LINE3
@ 12,X4 SAY LINE4
STOR " " TO ANS
DO WHILE ANS<>"P" ,AND, ANS<>"N"
  @ 12,X4A GET ANS PICTURE "@! A"
  READ
  DO CASE
    CASE ANS="N"
      RETURN
    CASE ANS="P"
      SET DEVICE TO PRINT
      STOR 5 TO Y
      STOR "SUMMARY REPORT" TO LINE
      X=40-LEN(LINE)/2
      @ Y,X SAY LINE
      STOR "ERROR ANALYSIS" TO LINE
      STOR Y+2 TO Y
      X=40-LEN(LINE)/2
      @ Y,X SAY LINE
      @ Y+3,X1 SAY LINE1
      @ Y+4,X2 SAY LINE2
      STORE Y+3 TO Y
      @ Y+5,4 SAY "Entry          No. of errors          Entry"
      @ Y+5,63 SAY "No. of errors"
      @ Y+6,4 SAY "-----"
      @ Y+6,63 SAY "-----"
      @ Y+7,4 SAY "Year"
      @ Y+7,27 SAY MCOUNT1 PICT '9999'
      @ Y+7,44 SAY "CO reinsp. status"
      @ Y+7,68 SAY MCOUNT13 PICT '9999'
      @ Y+8,4 SAY "Make"
      @ Y+8,27 SAY MCOUNT2 PICT '9999'
      @ Y+8,44 SAY "Exempt"
      @ Y+8,68 SAY MCOUNT14 PICT '9999'
      @ Y+9,4 SAY "Odometer"
      @ Y+9,27 SAY MCOUNT3 PICT '9999'
      @ Y+9,44 SAY "Waived"
      @ Y+9,68 SAY MCOUNT15 PICT '9999'
      @ Y+10,4 SAY "VIN"

```

```

@ Y+10,27 SAY MCOUNT4 PICT '9999'
@ Y+10,44 SAY "C 207B compliance"
@ Y+10,68 SAY MCOUNT16 PICT '9999'
@ Y+11,4 SAY "Body"
@ Y+11,27 SAY MCOUNT5 PICT '9999'
@ Y+11,44 SAY "Codes"
@ Y+11,68 SAY MCOUNT17 PICT '9999'
@ Y+12,4 SAY "First HC"
@ Y+12,27 SAY MCOUNT6 PICT '9999'
@ Y+12,44 SAY "Cost"
@ Y+12,68 SAY MCOUNT18 PICT '9999'
@ Y+13,4 SAY "First CO"
@ Y+13,27 SAY MCOUNT7 PICT '9999'
@ Y+13,44 SAY "First insp. station"
@ Y+13,68 SAY MCOUNT19 PICT '9999'
@ Y+14,4 SAY "HC status"
@ Y+14,27 SAY MCOUNT8 PICT '9999'
@ Y+14,44 SAY "First inspector"
@ Y+14,68 SAY MCOUNT20 PICT '9999'
@ Y+15,4 SAY "CO status"
@ Y+15,27 SAY MCOUNT9 PICT '9999'
@ Y+15,44 SAY "First insp. date"
@ Y+15,68 SAY MCOUNT21 PICT '9999'
@ Y+16,4 SAY "Reinsp. HC"
@ Y+16,27 SAY MCOUNT10 PICT '9999'
@ Y+16,44 SAY "Reinsp. station"
@ Y+16,68 SAY MCOUNT22 PICT '9999'
@ Y+17,4 SAY "Reinsp. CO"
@ Y+17,27 SAY MCOUNT11 PICT '9999'
@ Y+17,44 SAY "Reinsp. date"
@ Y+17,68 SAY MCOUNT23 PICT '9999'
@ Y+18,4 SAY "HC reinsp. status"
@ Y+18,27 SAY MCOUNT12 PICT '9999'
@ Y+18,44 SAY "Decal No."
@ Y+18,68 SAY MCOUNT24 PICT '9999'
?CHR(15)
SET DEVICE TO SCREEN
IF MCOUNTC(>)0
REPO FORM CARS ALL TO PRINT
REPO FORM EMISSION ALL TO PRINT
REPO FORM EXEMP ALL TO PRINT
REPO FORM STATION ALL TO PRINT
ENDIF
OTHERWISE
  LOOP
ENDCASE
ENDDO
CLEA ALL
RETU
*EOF

```

APPENDIX B
DATA BASE STRUCTURE FOR
DATA ENTRY--MVI-2 AND
SHP-522 FORMS

Structure for database : C:MISSOURI.dbf

Number of data records : 1482

Date of last update : 09/15/86

Field	Field name	Type	Width	Dec
1	YEAR	Numeric	2	
2	MAKE	Character	4	
3	ODOMETER	Numeric	3	
4	VIN	Character	18	
5	BODY	Numeric	1	
6	HC_FIRST	Numeric	4	
7	CO_FIRST	Numeric	4	2
8	STATUS1HC	Character	1	
9	STATUS1CO	Character	1	
10	HC_RE	Numeric	4	
11	CO_RE	Numeric	4	2
12	STATUS2HC	Character	1	
13	STATUS2CO	Character	1	
14	EXEMPT	Numeric	1	
15	WAIVED	Numeric	1	
16	C_207B	Numeric	1	
17	CODES	Character	38	
18	COST	Numeric	3	
19	STATION_1	Character	6	
20	INSPECT_1	Numeric	9	
21	DATE_1	Date	8	
22	REINSPECT	Numeric	9	
23	RE_DATE	Date	8	
24	DECAL	Character	8	
** Total **			141	

Structure for database : C:\LOEM2NUP.dbf

Number of data records : 35

Date of last update : 11/03/86

Field	Field name	Type	Width	Dec
1	VIN	Character	18	
2	MAKE	Character	4	
3	YEAR	Numeric	2	
4	MECH	Character	11	
5	STATION	Character	6	
6	DATE	Date	8	
7	PREHC	Numeric	4	
8	PRECO	Numeric	4	2
9	ATHC	Numeric	4	
10	ATCO	Numeric	4	2
11	ADJUST	Character	38	
12	COST	Numeric	3	
13	CONTROL	Character	6	
** Total **			113	