

1985 RESIDENTIAL TRANSPORTATION
ENERGY CONSUMPTION SURVEY

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Prepared for:

UNITED STATES DEPARTMENT OF ENERGY
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OFFICE OF ENERGY MARKETS AND END USE
ENERGY END USE DIVISION
RESIDENTIAL AND COMMERCIAL BRANCH
WASHINGTON, DC 20585

Prepared by:

THE ORKAND CORPORATION
8484 GEORGIA AVENUE
SILVER SPRING, MD 20910

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ABBREVIATIONS AND ACRONYMS

DOE -- Department of Energy

DSN -- Data set name

EIA -- Energy Information Administration

FPR -- Fuel Purchase Record
(files described in Section 4)

HVI -- Household/Vehicle Information
(files described in Section 3)

JCL -- Job Control Language

MPG -- Miles per gallon

PSU -- Primary Sampling Unit

RECS4 -- 1984 Residential Energy Consumption Survey

RTECS -- Residential Transportation Energy Consumption Survey

SAS -- Statistical Analysis System

SSU -- Secondary Sampling Unit

SECTION 1: GENERAL INFORMATION

1.1. SUMMARY

The Residential Transportation Energy Consumption Survey (RTECS), first conducted in 1983, provides information on how households use energy for personal transportation.

This manual is the second of three providing detailed information on how the 1985 RTECS was conducted. It covers manual and automated procedures used in data manipulation. The other two manuals cover the procedures used in sample design and data collection, and reports preparation.

Section 2 provides an overview of the 1985 RTECS and of data manipulation procedures. Sections 3, 4, and 5 present detailed information on data manipulation procedures.

1.2. ENVIRONMENTS

1.2.1. Project Sponsor

U.S. Department of Energy
Energy Information Administration
Office of Energy Markets and End Use
Energy End Use Division
Residential and Commercial Branch
1000 Independence Avenue, S.W.
Washington, DC 20585

1.2.2. Project Developer

U.S. Department of Energy
Energy Information Administration
Office of Energy Markets and End Use
Energy End Use Division
Residential and Commercial Branch
1000 Independence Avenue, S.W.
Washington, DC 20585

1.2.3. Survey Contractor

Response Analysis Corporation
377 Wall Street
P.O. Box 158
Princeton, NJ 08542

1.2.4. Computer Center

U.S. Department of Energy
Energy Information Administration
Computer Center
1000 Independence Avenue, S.W.
Washington, DC 20585

1.3. REFERENCES

1.3.1. Project Authorization

Department of Energy Contract Number DE-AC01-84EI19658, Task Assignment Number 231, authorizes the development of documentation for the 1985 Residential Transportation Energy Consumption Survey (RTECS).

1.3.2. 1985 RTECS Publications

1.3.2.1. Statistical Report

- Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles 1985, Energy Information Administration, Washington, DC, to be published in 1987

1.3.2.2. Methodological Reports

- "Residential Transportation Energy Consumption Survey (RTECS) Volume I: Sample Selection and Data Collection Procedures," photocopied, Response Analysis Corporation, Princeton, NJ; March 1986.
- "Residential Transportation Energy Consumption Survey (RTECS) Volume II: Household/Vehicle Information Files," photocopied, Response Analysis Corporation, Princeton, NJ; July 1986.
- "Residential Transportation Energy Consumption Survey (RTECS) Volume III: Fuel Purchase Record Files," photocopied, Response Analysis Corporation, Princeton, NJ; July 1986.
- "Residential Transportation Energy Consumption Survey (RTECS) Volume IV: Annualization Procedures," photocopied, Response Analysis Corporation, Princeton, NJ; August 1986.
- 1985 RTECS Sample Design and Data Collection Procedures Manual, The Orkand Corporation, Silver Spring, MD; September 1986.
- 1985 RTECS Data Manipulation Procedures Manual, The Orkand Corporation, Silver Spring, MD; October 1986.
- 1985 RTECS Report Preparation Procedures Manual, The Orkand Corporation, Silver Spring, MD; to be published in December 1986.
- 1985 RTECS Data User's Manual, The Orkand Corporation, Silver Spring, MD; to be published in December 1986.

1.4.

DOCUMENTATION STANDARDS

This manual was prepared in accordance with EIA Standards Manual, Energy Information Administration, Washington, DC, October 1, 1983, and with Guidelines for Documentation of Computer Programs and Automated Data Systems, Federal Information Processing Standards (FIPS) Publication 38, National Bureau of Standards, Washington, DC, February 15, 1976.

SECTION 2: SURVEY OVERVIEW

2.1. OVERVIEW OF 1985 RTECS PURPOSES AND PROCEDURES

The 1985 Residential Transportation Energy Consumption Survey (RTECS) was designed by the Energy Information Administration (EIA) to provide information about how energy is used by households for personal transportation. It is one of a series of EIA surveys that gather information on residential and nonresidential energy consumption.

This manual is the second of three that describe the manual procedures and computer software for the 1985 RTECS. The three manuals explain the three principal groups of procedures used to conduct RTECS:

- Sample design and data collection procedures
- Data manipulation procedures (editing, imputation, and annualization)
- Procedures for the preparation of printed reports and a public-use tape

The 1985 RTECS sample of 4,020 households was drawn from a larger sample of 5,682 households -- the sample households for the 1984 Residential Energy Consumption Survey (RECS). RECS provided information about energy consumption within the residential sector -- about fuels and equipment used in the home, energy-related structural features of the housing unit, dimensions of the housing unit, energy-use habits, and demographic data on household members.

RECS also gathered data on the vehicles used by the household; that data served as the starting point for RTECS. The 1985 RTECS sample consisted of a core (self-weighting) national sample of households, plus an oversample of high-mileage (more than 12,500 miles annually) households. The Annualized Final File included information on 8,491 vehicles.

The primary data collection period for the 1985 RTECS ran from December 1984 through January 1986. The survey contractor, Response Analysis Corporation (RAC), gathered data from sample households by means of a series of telephone interviews (and, for households that could not be reached by telephone, by mailed forms). RAC tried to contact each household to obtain beginning- and end-of-year (1985) odometer readings for each vehicle in use by the household, to obtain records of all vehicle fuel purchases for a specified month, and to maintain an up-to-date record of the household's vehicle inventory, including vehicles acquired or disposed of during the year. Information in the fuel-purchase records included, for each purchase, the date, odometer reading, estimate of how full the tank was after the fuel purchase, number

of gallons purchased, total cost and price per gallon, and type of fuel purchased.

Using the data collected, RAC then performed imputation and annualization procedures in order to estimate the total miles, total gallons of fuel and miles per gallon, and total cost of fuel for each vehicle in use by an RTECS sample household during the calendar year 1985. A number of imputation procedures were used to deal with missing or incomplete information, which could result from a household's refusal to participate, non-participation for other reasons, or incomplete reporting. Because fuel purchase records were obtained for only one month for each vehicle, all fuel purchase records had to be adjusted from a monthly to an annual basis.

The Annualized Final File was used to produce statistics describing the vehicle stock of U.S. households in 1985 as well as estimates of vehicle miles, fuel consumption, and costs. The results of the survey will be published in printed form by EIA in the report Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles 1985 and will also be available on a public-use data tape.

2.2.

OVERVIEW OF 1985 RTECS DATA MANIPULATION PROCEDURES

This manual describes three major groups of RTECS data manipulation procedures:

- Creation of the Household Vehicle Information (HVI) Files (includes data entry, updating, and editing procedures). The HVI Files contain the basic record of information on RTECS sample households and the vehicles used by household members.
- Creation and use of the Fuel Purchase Record (FPR) Files (includes data entry and editing procedures and procedures for calculating miles-per-gallon figures for each vehicle). The FPR Files contain data on fuel purchases for each vehicle, which were collected from a different subset of the RTECS sample for each month in 1985.
- Imputation and annualization procedures used to adjust for missing or incomplete information and to adjust single-month fuel-purchase information to an annual basis, and weighting procedures used to produce meaningful estimates for all U.S. households.

The programs used to perform RTECS data manipulation procedures were written in SAS, PL/1, or Fortran.

2.2.1.

Organization of RTECS Files

Three kinds of files were created and used for RTECS data manipulation procedures. Each of these files contained one record for each RTECS sample household.

- The Household/Vehicle Information (HVI) Files contained information about sample households and their vehicles. There were 12 HVI Files -- one for each calendar month. Each single-month file contained one record for each household that was assigned to that month for fuel purchase data collection.
- The Fuel Purchase Record (FPR) Files contained information about specific vehicle fuel purchases, vehicle tank capacities, vehicle odometer readings for the beginning and end of the assigned data-collection month, and other information related to fuel purchases. Like the HVI Files, the FPR Files were organized in 12 single-month generation data sets.
- The Annualized Final Files contained information about each household, each eligible vehicle, fuel purchases, and miles per gallon. These data were taken from the HVI and FPR Files following imputation and annualization procedures.

In the HVI and FPR Files, each record (which contained data for one household) was subdivided into "cards." Each card contained up to 80 columns of data. The organization of these cards is described in Sections 2.2.1.1 and 2.2.1.2.

2.2.1.1. Organization of cards in the HVI Files

For each RTECS sample household, the HVI Files contained one Household Information Card (Card OH01), plus a pair of cards (1V01 and 1V02) for each vehicle owned or regularly used by the household. The contents of those three card types is shown below.

- Household Information Card (OH01)
 - Data pertaining to sample selection and month assigned for fuel purchase data collection
 - Current status of the household and number of vehicles in use by the household
 - Results of contacts in each major RTECS data collection phase
- Vehicle Information Card 1 (1V01)
 - Vehicle identification (type, make and model, and year)
 - Vehicle characteristics (e.g., number of cylinders)
- Vehicle Information Card 2 (1V02)
 - Beginning and ending odometer readings
 - Acquisition and disposition dates for each vehicle
 - Eligibility of vehicle for survey

2.2.1.2. Organization of cards in the FPR Files

For each RTECS sample household that had one or more vehicles eligible for the survey, the FPR Files contained one Household Information Card (Card 5H01).

For each eligible vehicle, there was one Vehicle Card 6V01. During the data manipulation procedures, one VNAME Card (Card 6V02) and one VSTAT Card (Card 6V03) were also created for each eligible vehicle, but these cards were not a permanent part of the FPR Files.

For each eligible vehicle, there might also be a number of Fuel Purchase Cards (Cards 7P01 through 7PXX) -- one card for each recorded fuel purchase.

The contents of each of the kinds of cards in the FPR Files is shown below.

- Household Information Card (5H01)
 - The month assigned for fuel purchase data collection
 - The actual month for which data were collected
 - The data collection method
 - The number of vehicles for which data were collected
- Data primarily from purchase record data collection (6V01)
 - Beginning- and end-of-month odometer and fuel gauge readings
 - Fuel tank capacity as reported by the respondent
 - The reason (if applicable) for the vehicle's not having been driven during the month

- Number of purchases recorded
- Optional codes (entered by an editor) indicating which purchases were to be used for calculating MPG
- VNAME Card (6V02)
 - Information on vehicle make and model
 - Standard fuel tank capacity
- VSTAT Card (6V03) (statistics generated by the MPG program)
 - Summary of types of missing information
 - Summary information on cost and type of fuel
 - Total vehicle miles, gallons of fuel, and miles per gallon
 - Flags for very high vehicle miles or miles per gallon
 - A code indicating the "quality" of the record
- Fuel Purchase Cards (7P01-7Pxx)
 - Details of specific fuel purchases (a separate card for each purchase)

2.2.1.

Procedures Related to the HVI Files

To maintain a basic record of information about the RTECS sample households and the vehicles used by members of the households, RAC created the Household/Vehicle Information (HVI) Files. Data included in the files were collected primarily through a series of household contacts, which took place between December 1984 and January 1986. Each household in the survey was contacted once during that period for the purpose of collecting one month's fuel purchase information and updating information about the household and its vehicles. Additional data came from the 1984 Residential Energy Consumption Survey (RECS4) questionnaire.

The HVI Files were used during 1985 RTECS data collection and data manipulation procedures in the following ways:

- To prepare vehicle labels, questionnaire pages, and listings for later stages of fuel purchase record data collection and for end-of-year odometer readings
- To provide performance statistics on data collection contacts
- In combination with fuel purchase data and additional data taken from the original RECS4 interview, to produce annualized estimates of number of vehicles, vehicle miles, fuel consumption, and fuel costs on both an individual vehicle and a household basis

There were 12 HVI Files -- one for each calendar month. Each single-month file contained one record for each household that was assigned to that month for fuel purchase data collection. This single-month organization facilitated the flow of work for data collection and for data entry and editing.

2.2.2. Procedures Related to the FPR Files

The Fuel Purchase Record (FPR) Files contained data that were collected from a different subsample of 1985 RTECS households each month. The primary use of these files was to compute a miles-per-gallon figure based on actual recorded use of the vehicle for a given calendar month. Ultimately, data from the FPR Files and the HVI Files were used as the basis for imputation and annualization procedures and for the preparation of the final files used for RTECS estimates and reports.

Like the HVI Files, the FPR Files were organized in 12 single-month generation data sets, and card-image formats were used in the files. The FPR Files consisted of one record for each household, containing data on each vehicle used by members of the household. The complete record for a household contained information on up to 12 vehicles and might contain information on a number of fuel purchases for each vehicle.

2.2.3. Imputation and Annualization Procedures

For each RTECS vehicle, fuel purchase data were collected for only one month between December 1984 and January 1986. In order to use RTECS data to produce statistics describing the vehicle stock of U.S. households for all of 1985, the data had to be annualized.

In addition, some items of data were missing or incomplete because of a household's refusal to participate, non-participation for other reasons, or incomplete reporting. RAC used a number of imputation procedures to adjust for this missing information.

The principal objectives of the annualization procedures were to estimate the total mileage driven, total gallons of fuel consumed and miles per gallon, and the total cost of fuel, for each vehicle in use by an RTECS household during any part of calendar year 1985.

The resulting Annualized Data File contained these figures for vehicles and summaries for each sample household. That file was used to produce statistics describing the vehicle stock of U.S. households in 1985 and estimates of vehicle miles, fuel consumption, and fuel costs.

Three principal data sets were used in the annualization process:

- 1984 Residential Energy Consumption Survey (RECS4) data files
- 1985 RTECS Household/Vehicle Information (HVI) Files
- 1985 RTECS Fuel Purchase Record (FPR) Files

Following are the key data items for which RAC performed imputation and annualization procedures:

- Vehicle acquisitions and dispositions
- Annual miles driven
- Miles per gallon
- Vehicle characteristics (Number of cylinders, presence of air conditioning, type of transmission, number of doors, business use of the vehicle, number of regular drivers)
- Fuel type
- Cost per gallon

To produce meaningful estimates of personal transportation energy consumption for all U.S. households, RAC first had to develop RTECS household weights. To do this, RAC first computed a preliminary weight appropriate for development of estimates for all U.S. households as of November 1984 (the center point of the RECS4 data collection). The time frame for RTECS data, however, was calendar year 1985.

The final weighting steps involved use of an independent estimate of households as of July 1985, based on Current Population Survey (CPS) data. The 1985 population controls were extrapolated from the March 1984 and March 1985 CPS data for each of the four Census regions and for three categories of household type and size. The preliminary November 1984 weights were then reweighted to the July 1985 control totals through three ratio adjustments, carried out separately for original and revised sample SSUs.

The final weights, after the application of the three ratio adjustments, reflect estimates of total households as of July 1985.

SECTION 3: CREATING AND USING THE HOUSEHOLD/VEHICLE INFORMATION FILES

To maintain a basic record of information about the RTECS sample households and the vehicles used by members of the households, RAC created the Household/Vehicle Information (HVI) Files. Data included in the files were collected primarily through the series of household contacts, which took place between December 1984 and January 1986. Each household in the survey was contacted once during that period for the purpose of collecting one month's fuel purchase information and updating information about the household and its vehicles. Additional data came from the 1984 Residential Energy Consumption Survey (RECS4) questionnaire. See Appendix A for a layout of the HVI Files.

There are 12 HVI Files -- one for each calendar month. Each file contains records for households that were assigned to that month for fuel purchase data collection. This single-month organization facilitated the flow of work for data collection and for data entry and editing.

The HVI Files were used during 1985 RTECS data collection and data manipulation procedures in the following ways:

- To prepare vehicle labels, questionnaire pages, and listings for later stages of fuel purchase data collection and for end-of-year odometer readings
- To provide performance statistics on RTECS data collection contacts
- In combination with fuel purchase data and additional data taken from the original RECS4 interview, to produce annualized estimates of number of vehicles, vehicle miles, fuel consumption, and fuel costs on both an individual vehicle and a household basis

RAC's manual, Residential Transportation Energy Consumption Survey Volume II: Household/Vehicle Information Files, served as a training manual and basic reference for RTECS operating staff working on the HVI Files. All of the coding instructions and many of the forms referred to in this section originally appeared in that manual.

This section explains how the Household/Vehicle Information (HVI) Files were created, maintained, and used.

HOW THE HVI FILES WERE STRUCTURED

Each single-month HVI File contained one record for each household assigned to that month. Each record contained data on a maximum of 12 vehicles.

The records were in card-image format, primarily because of the ease of working with that format in hierarchical files of varying length. Each record contained one household information card, plus two vehicle-information cards for each vehicle used by members of the household. The cards contained the following principal items of information:

- Household Information Card (OH01)
 - Data pertaining to sample selection and month assigned for fuel purchase data collection
 - Current status of the household and number of vehicles in use by the household
 - Results of contacts in each major RTECS data collection phase
- Vehicle Information Card 1 (1V01)
 - Vehicle identification (type, make and model, and year)
 - Vehicle characteristics (e.g., number of cylinders)
- Vehicle Information Card 2 (1V02)
 - Beginning and ending odometer readings
 - Acquisition and disposition dates for each vehicle
 - Eligibility of vehicle for survey

CREATING THE HVI FILES

The program CREATE generated the HVI files from the 12 single-month RTECS Sample Files that were used for sampling and initial data collection steps. This program reformatted the data files and added numeric make and model codes from a master file of 143 common vehicle makes and models.

Appendix A contains file layouts of the Sample Files and the HVI Files. The HVI File layouts indicate the source of the items taken from the Sample Files. Appendix E consists of the list of vehicle make and model codes.

Program used

• CREATE

Source: CN6212.HVI.SAS:CREATE
(JCL included in source code)

Language: SAS

System
context: CREATE was run 12 times to create each of the 12 single-month HVI Files.

User
interface: The user modified the JCL to contain the data set name (DSN) of the desired single-month Sample File.

After completion, the user checked the JCL log file for proper condition codes and printed the SAS log with program control counts messages.

Program
flow: CREATE read the specified single-month Sample File, containing a household card and up to 12 vehicle cards for each household, and transferred the needed fields to the HVI Files. See the layout of the Sample Files in Appendix A. The layout of the HVI Files created by CREATE also appears in Appendix A; it indicates the source of each field from the Sample Files.

For each household record, CREATE merged the date of the RECS interview from the RECS Household Questionnaire File. To add make and model codes, it then matched each vehicle against a master file of common make and model codes (shown in Exhibit 3-1, which follows Section 3.2) by the combination of alphabetic make and model. If a match was found, CREATE added the corresponding numeric make

and model codes to the newly created record; if no match was found, the code was added to the HVI File in a later clerical step.

CREATE output the household information to the HVI File as one card (OH01) and split the vehicle information into two cards (1V01 and 1V02).

Inputs: -- CN6212.PRO.R4TS.SAMPLE<MONTH>
 (Sample File for specific month)

 -- CN6615.PRO.ASK4QUES(0)
 (RECS4 Household Questionnaire File)

 -- CN6212.PRO.HVI.MODEL.CODES
 (Master make and model code file)

Outputs: -- CN6212.PRO.HVI.MONTH<MONTH>(+1)
 (HVI File for the month)

 -- SAS log (counts and messages)

Exhibit 3-1: Master File of Common Vehicle Make and Model Codes

AMC	02CONCORD	07
AMC	02GREMLIN	08
AMC	02HORNET	09
AMC	02MATADOR	13
AMC	02FACER	15
AMC	02RAMBLER	17
AMC	02SPIRIT	22
AUDI	54FOX	01
AUDI	545000	08
BUICK	08CENTURY	03
BUICK	08ELECTRA	05
BUICK	08LE SABRE	09
BUICK	08LESABRE	09
BUICK	08LIMITED	21
BUICK	08OPEL	10
BUICK	08REGAL	11
BUICK	08RIVIERA	12
BUICK	08SKYHAWK	14
BUICK	08SKYLARK	13
BUICK	08WILDCAT	18
CADILLAC	09CALAIS	01
CADILLAC	09CIMARRON	12
CADILLAC	09DE VILLE	02
CADILLAC	09DEVILLE	02
CADILLAC	09EL DORADO	03
CADILLAC	09ELDORADO	03
CADILLAC	09FLEETWOOD	04
CADILLAC	09SEVILLE	07
CHEVROLET	11BEL AIR	01
CHEVROLET	11BISCAYNE	03
CHEVROLET	11CAMARO	46
CHEVROLET	11CAPRICE	07
CHEVROLET	11CAVALIER	72
CHEVROLET	11CELEBRITY	74
CHEVROLET	11CHEVELLE	09
CHEVROLET	11CHEVETTE	11
CHEVROLET	11CITATION	71
CHEVROLET	11CORVETTE	21
CHEVROLET	11ELCAMINO	22
CHEVROLET	11IMPALA	27
CHEVROLET	11LUV	31
CHEVROLET	11MALIBU	32
CHEVROLET	11MONTE CARLO	34
CHEVROLET	11MONZA	35
CHEVROLET	11NOVA	37
CHEVROLET	11VEGA	43
CHRYSLER	12CORDOBA	02
CHRYSLER	12LE BARON	03
CHRYSLER	12NEW YORKER	05
CHRYSLER	12NEWPORT	04
DATSUN	64B210	06
DATSUN	64MAXIMA	24
DATSUN	64200SX	05
DATSUN	64210	06
DATSUN	64280Z	09

Exhibit 3-1: Master File of Common Vehicle Make and Model Codes (continued)

DATSUN	64280ZX	09
DATSUN	64310GX	10
DATSUN	64510	15
DODGE	15ARIES	20
DODGE	15ASPEN	01
DODGE	15CHALLENGER	03
DODGE	15CHARGER	04
DODGE	15COLT	05
DODGE	15CORONET	07
DODGE	15DART	12
DODGE	15DIPLOMAT	44
DODGE	15MAGNUM	16
DODGE	15MONACO	19
DODGE	15OMNI	21
DODGE	15POLARA	25
FORD	19COURIER	05
FORD	19ELITE	14
FORD	19FAIRLANE	15
FORD	19FAIRMONT	17
FORD	19FALCON	18
FORD	19FIESTA	20
FORD	19FUTURA	17
FORD	19GALAXIE	23
FORD	19GRANADA	24
FORD	19LTD	25
FORD	19MAVERICK	27
FORD	19MUSTANG	55
FORD	19PINTO	48
FORD	19TEMPO	77
FORD	19THUNDERBIRD	38
FORD	19TORINO	39
HONDA	68ACCORD	06
HONDA	68CIVIC	11
HONDA	68PRELUDE	07
JEEP	26WAGONEER	07
LINCOLN	28CONTINENTAL	01
LINCOLN	28TOWN CAR	11
MAZDA	75GLC	28
MAZDA	75RX7	30
MAZDA	75626	34
MERCURY	29BOBCAT	01
MERCURY	29CAPRI	32
MERCURY	29COMET	07
MERCURY	29COUGAR	10
MERCURY	29LYNX	35
MERCURY	29MARQUIS	13
MERCURY	29MONARCH	15
MERCURY	29MONTEGO	17
MERCURY	29MONTEREY	19
MERCURY	29ZEPHYR	23
NISSAN	52SENTRA	02 *
OLDSMOBILE	31CUTLASS	02
OLDSMOBILE	31DELTA 88	06
OLDSMOBILE	31OMEGA	23
OLDSMOBILE	31TORONADO	17

Exhibit 3-1: Master File of Common Vehicle Make and Model Codes (continued)

OLDSMOBILE	3188	16
OLDSMOBILE	3198	19
PLYMOUTH	33CHAMP	31
PLYMOUTH	33DUSTER	36
PLYMOUTH	33FURY	06
PLYMOUTH	33HORIZON	35
PLYMOUTH	33RELIANT	19
PLYMOUTH	33SATELLITE	13
PLYMOUTH	33VALIANT	36
PLYMOUTH	33VOLARE	18
PONTIAC	34ASTRE	01
PONTIAC	34BONNEVILLE	03
PONTIAC	34CATALINA	05
PONTIAC	34FIREBIRD	09
PONTIAC	34GRAND PRIX	11
PONTIAC	34LEMANS	15
PONTIAC	34PHOENIX	17
PONTIAC	34SUNBIRD	19
PONTIAC	34TRANS AM	09
PONTIAC	34VENTURA	22
RENAULT	83ALLIANCE	02
SUBARU	88GL	14
TOYOTA	90CELICA	24
TOYOTA	90COROLLA	25
TOYOTA	90CORONA	12
TOYOTA	90TERCEL	31
VOLKSWAGEN	93BEETLE	01
VOLKSWAGEN	93BUG	01
VOLKSWAGEN	93BUS	03
VOLKSWAGEN	93JETTA	28
VOLKSWAGEN	93RABBIT	09
VOLKSWAGEN	93SCIROCCO	11

* NISSAN make code changed to 64 in final stages of 1985 RTECS processing;
 SENTRA model code changed to 20.

3.3.

PERFORMING CODING AND DATA ENTRY PROCEDURES

To prepare RTECS data for entry into the HVI File, RAC personnel transcribed the data from questionnaires onto coding forms. All personnel who coded or entered data attended a training session; those not already familiar with RTECS received additional training by working with more experienced staff members.

Supervision of coding and data entry personnel included checks of 100 percent of both data transcription and data entry.

Instructions used (see Appendix B)

- HVI File Coding Instructions and Specimen Forms

3.3.1.

Performing Initial Data Entry

The FORMINIT program produced initial coding forms on which to enter data about each RTECS vehicle. Each line of the form listed one RTECS vehicle and the ID number of its household. Blank spaces in the line were used for entering information on vehicle characteristics (e.g., number of cylinders) and beginning odometer readings.

Paper records from each month's contacts with households and the RECS4 questionnaire contained the background information that was entered onto the initial coding forms. RAC personnel clerically coded the forms from RTECS records. A second coder checked 100% of the coded data. RAC personnel followed the coding instructions for FORMINIT to complete these initial coding forms. The forms were then keypunched, 100% verified, and output to magnetic tape.

The MERGEVI program then merged the contents of the tape with the current generation of the HVI Files, matching on household ID and vehicle number, to create a new generation of each single-month HVI File.

Forms used (see Appendix C)

- RTECS Initial Coding Forms
- Coding Instructions for FORMINIT
- F4739-40: Odometer Reading Call form
- F4454-04: RECS4 Household Questionnaire (a copy of this long questionnaire is reproduced in the 1984 RECS Data Collection Procedures Manual, pages A-63 through A-110)

Programs used

• FORMINIT

Source: CN6212.PRO.RTECS.PLI.SOURCE:FORMINIT
(JCL included in source code)

Language: PL/1

System

context: FORMINIT was run on all 12 single-month HVI Files during the initial data entry phase. It was one of a series of programs that handled the coding, data entry, and editing of the HVI Files. FORMINIT was run only after an HVI File had been determined to be "clean" -- that is, that each record was sorted by household ID number, vehicle number, and card type, and that the correct number of vehicle cards was present.

User

interface: Before submitting this job for batch execution, the user modified the JCL by changing the month designation of the input file name to the desired month.

After the job was completed, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Inputs: -- CN6212.PRO.HVI.TEMPLATE.FORM132(FORMINIT)
(Template heading file for data entry form)
-- CN6212.PRO.HVI.MONTH<MONTH>(0)
(Single-month HVI File -- the current generation for a given month)

Outputs: -- Initial data entry coding forms
-- Production control and error report

Program

flow: FORMINIT read a specific single-month HVI File, which contained, for each household, a household card (OH01) followed by up to 12 pairs of vehicle cards (1V01 and 1V02). It placed the Household ID number and vehicle number on one line of the output document, followed by underscores for the remaining columns of the document.

A specimen copy of the initial coding form appears in Appendix C.

• MERGEVI

Source: CN6212.PRO.HVI.SAS:MERGEVI
(JCL included in source code)

Language: SAS

System
context: MERGEVI was run once for each single-month HVI
File, after the coding and keypunching of that
month's initial data entry forms was complete.

User
interface: The user modified the JCL to contain the data set
name of the desired files. He checked the JCL log
file for proper condition codes and printed the SAS
log with program control counts and messages.

Inputs: -- CN6212.PRO.HVI.MONTH<XX>(0)
(HVI File for month -- current generation)

-- CN6615.DCE.NEWDATA.<XXXXXXXX>
(Keypunched initial coding forms for month)

Outputs: -- CN6212.PRO.HVI.MONTH<XX>(0)
(HVI File for month -- +1 generation)

-- FT11F001 SAS log (counts and error messages)

Program
flow:

MERGEVI read the HVI File containing, for each household, a household card (OH01) and up to 12 pairs of vehicle cards (1V01 and 1V02). It separated the three card types.

MERGEVI also read the file of keypunched initial coding forms, containing one record for each vehicle. It separated the background vehicle characteristics, which went on the 1V01 card, from the odometer information, which went on the 1V02 card.

MERGEVI merged the keypunched data into the 1V01 and 1V02 cards for each vehicle, matching by ID and vehicle number. The vehicles in both files had to match exactly; all nonmatches were output for checking.

If no nonmatches were found, the three card types were combined and written to the next generation of the HVI File.

3.3.2. Performing Additional Data Entry

Three additional coding forms were created for use after the initial data entry phase -- one form for each of the card types in the HVI Files. These were called "turnaround coding forms".

The FORMTURN program produced the forms from the current generation of a specified single-month HVI File. The forms contained blanks for information not yet in the file.

Before the end of 1985, the forms were updated at least once. Updating included coding, data entry, and checking of as much information as possible before the end of data collection in early 1986. A number of types of information were added during the first updating cycle -- usually from data collection forms completed at the time of fuel purchase data collection or as a result of other mid-year contacts with the household.

Data added at the time of updating included information on vehicles acquired or disposed of during the year, make and model codes for vehicles not on the master file of common make and model codes, contact status codes, and, if appropriate, a code indicating the reason why a household was dropped from the study.

Editors used the SUPERWYLBUR line editor to add newly coded information to the HVI Files interactively.

The CHECKUP program performed range and consistency checks on all new data in the file. The legal ranges for which the program checked are the ranges shown in the HVI File layouts in Appendix A. The range checks included a check to see that all unused columns were blank.

→ Following are examples of the items checked for consistency by the CHECKUP program. For a complete list of consistency checks performed by CHECKUP, see Appendix B.

See Section 3.4 for a description of how corrections were made when needed, following a run of the CHECKUP program.

FORMTURN would then run a new generation of turnaround coding forms in preparation for the next updating cycle, which normally would take place after the completion of RTECS data collection and would incorporate end-of-year odometer readings and related information.

To add information about vehicles acquired after the HVI Files were created, coders used blank versions of the two vehicle turnaround forms.

Instructions and other information used (see Appendix B)

- Coding Instructions for Turnaround Forms
- 1985 RTECS Validity of Blanks in HVI Files (checked by CHECKUP program)
- HVI Consistency Checks and Error Messages (from CHECKUP program)

Forms used (see Appendix C)

- Turnaround Coding Form OH01
- Turnaround Coding Form 1V01
- Turnaround Coding Form 1V02
- F4739-31: Fuel Purchase Data Collection Telephone Questionnaire
- F4739-63: Vehicle-Disposed-of card
- F4739-64: Vehicle-Acquired card
- F4739-65: Address Change or Correction Card

Programs used

- FORMTURN

JCL: CN6212.PRO.HVI.RUNJCL:FORMTURN
Source: CN6212.PRO.HVI.PLI.SOURCE:FORMTURN
Language: PL/1

System context: FORMTURN was run at various stages during the entry and editing phase, whenever new information was to be added to the HVI files. It is one of a series of programs that handled the coding, data entry, and editing of RTECS HVI Files.

User interface: Before submitting this job for batch execution, the user changed the month designation of the input file name as required.

Upon completion, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Inputs: -- CN6212.PRO.HVI.TEMPLATE.FORM132(HHLINE)
 (Template heading file for Household Card OH01)

 -- CN6212.PRO.HVI.TEMPLATE.FORM132(V1LINE)
 (Template heading file for Vehicle Card 1V01)

 -- CN6212.PRO.HVI.TEMPLATE.FORM132(V2LINE)
 (Template heading file for Vehicle Card 1V02)

Outputs: -- Turnaround document listing for Household cards
 OH01

 -- Turnaround document listing for Vehicle Cards
 1V01

 -- Turnaround document listing for Vehicle Cards
 1V02

 -- Production control and error report

Program
 flow:

FORMTURN read the HVI File containing, for each household, a Household Card (OH01) and up to 12 pairs of Vehicle Cards (1V01 and 1V02). It listed data from each card on a separate turnaround document (output print file). FORMTURN read into storage a template file for each output document. The template files contained heading lines as they were to appear on each page of the output turnaround forms. The program then looped to read an input HVI File record and branched to a procedure specific to the card type read.

Specimen copies of the three Turnaround Coding Forms appear in Appendix C.

• CHECKUP

JCL: CN6212.HVI.RUNJCL:CHECKUP

Source: CN6212.HVI.PLI.SOURCE:CHECKUP

Language: PL/1

System
 context:

CHECKUP was run whenever a significant amount of editing had been done to the HVI File. It is one of a series of programs used in the coding, data entry, and editing of the HVI Files.

User

interface: Before submitting this job for batch execution, the user changed the month designation of the input file name in the JCL as required. Before execution, the user could change entries in an "error exception" file, which suspended the checking of data fields not yet present in the file.

Upon completion, the user checked the JCL log for proper condition codes and checked the control report for error messages and record count.

Inputs: -- CN6212.PRO.HVI.MONTHQQ(0)
(Single-month HVI File -- current generation for a given month)

-- CN6212.PRO.HVI.TEMPLATE.FORM80(NEWRNGCK)
(Range error exception file)

-- CN6212.PRO.HVI.MAKMOD.MATRIX
(Listing of vehicles with status changes)

Outputs: -- Listing of range and relationship errors

-- Production control and error report

-- CN6212.PRO.HVI.MONTHQQ(+1)
(Updated single-month HVI File -- output as a temporary dataset until there were no errors, after which it became a new generation)

Program
flow:

This program began by reading a file of "error exceptions" into storage.

Next, it read the HVI FILE, containing one Household Card (1V01) and from 0 to 12 pairs of Vehicle Cards (1V01 and 1V02) for each household. It branched to a specific procedure, based on the card type of the card read. Each procedure checked the card type of the current card against that of the previous card to verify that the file was in proper hierarchical order. Invalid card types were trapped in the main READ loop. Vehicle Cards were stored in arrays as they were read.

That procedure continued until the household ID of the card read differed from that of the previous card. Then another procedure was invoked to perform range checks on all cards read for the household. That procedure wrote error messages when necessary and set a flag indicating whether

range errors were found. CHECKUP checked the ranges specified in the HVI File layouts shown in Appendix A. The range checks also included a check that all unused columns were blank. The validity of blanks in fields that are used is shown in Appendix B.

Then control returned to the main loop, which checked the range-error flag. If no range errors had been found, a procedure was invoked to perform relation checks between various fields in the record for the current household. These checks, and the error messages resulting from various relationship errors, appear in Appendix B.

If no consistency errors were found, a procedure was invoked to examine the vehicle disposition code and update the vehicle status and active-vehicle count fields, and list the vehicles whose status was changed. Then the main loop continued until the end of the input file was reached.

Since CHECKUP was run on files at various stages of completeness, there was a facility to suspend checking ranges and relationships involving data not yet in the files.

EDITING THE HVI FILES

When CHECKUP flagged an entry as inconsistent or out of range, or when a respondent corrected information already on file, the HVI Files had to be edited. The editing steps were similar to those used for data entry, but involved changing information that had already been entered. The forms were the same as those used for data entry (see Sections 3.3.1 and 3.3.2) and the tasks were generally performed by the same personnel.

Editors used the SUPERWYLBUR line editor to make additions and changes to the HVI File interactively. After a batch of updates was completed, the CHECKUP program would be run again. If no errors were found, the program created a new generation of the HVI File.

A Generation Log was used to record information on each run of CHECKUP and each batch of updates to the HVI Files. It listed the source of each group of changes and the run date of the coding forms on which the changes were noted. The turnaround coding forms served as paper records of additions to the file as well as for editing transactions.

Every two weeks, all generations of the HVI Files (except the current and one previous generation) were user-initiated archived for a retention period of seven years.

Information used (see Appendix B)

- 1985 RTECS Validity of Blanks in HVI Files (checked by CHECKUP program)
- HVI Consistency Checks and Error Messages (from CHECKUP program)

Form used (see Appendix C)

- RTECS Generation Log

3.5. USING THE HVI FILES TO PREPARE DATA COLLECTION MATERIALS

The single-month HVI Files were used to automate the preparation of materials needed for data collection contacts with RTECS households. The HVILABEL program produced three identical labels for each vehicle, to be used on three types of data collection forms:

- Logs mailed to households for fuel purchase record-keeping
- Fuel purchase data collection forms for households contacted by telephone
- Odometer-reading cards mailed to households at the end of the calendar year

The HVIPAGES program produced pages for data collection questionnaires. Three different versions of a questionnaire page, tailored to specific data collection instruments, were produced:

- A background questionnaire page, used to verify and update the description of the household vehicle stock
- A log page, used by telephone interviewers for quick reference to the household vehicle stock when contacting the household to check on receipt of fuel purchase logs
- An odometer reading page, used by telephone interviewers when end-of-year odometer readings were collected

Forms produced by HVIPAGES and HVILABELS (see Appendix D)

- Vehicle labels
- Background Questionnaire Page
- Current Vehicle Stock Page
- Odometer Reading Page

Programs used

- HVILABEL

JCL: CN6212.PRO.HVI.RUNJCL:HVILABEL

Source: CN6212.PRO.HVI.PLI.SOURCE:HVILABEL

Language: PL/1

**System
context:**

HVILABEL was run on each single-month HVI File just before the data collection month, so that the labels reflected the current vehicle information. It is one of a series of programs used in preparation of RTECS data collection materials from the HVI Files.

User

interface: Before submitting this job for batch execution, the user modified the JCL by changing the month designation of the input file name and indicating how many labels (from 1 to 6) to produce for each vehicle.

Upon completion, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Input: -- CN6212.PRO.HVI.<MONTHXX>(0)
(Single-month HVI File -- current generation for a given month)

Outputs: -- Label print file for active, qualified vehicles
-- Production control and error report

**Program
flow:**

HVILABEL read a file containing, for each household, a Household Card (OH01) and up to 12 pairs of Vehicle Cards (1V01 and 1V02). The status code field of the Household Card and the status code field of the 1V02 Vehicle Card had to be checked before deciding to produce labels for a given vehicle. The program executed a nested loop to produce alignment lines for the label forms -- five lines of asterisks covering every print position on the form, followed by a blank line for the space between label rows.

Next, HVILABEL read an input Household Card and entered the main processing loop. The status field was checked for specified values; if the household qualified, a procedure to format and produce the labels was invoked. If the status field was not among the specified values, a procedure to bypass all Vehicle Cards for the household was invoked. If the card read was not of the OH01 type, an error message was written and execution halted.

HVILABEL then read the next two cards, checking to see that they were 1V01 and 1V02. If they were not the correct type, an error message was written and

execution stopped. Next, the Vehicle Card status code was checked and a decision was made to either produce the label or read the next card. This procedure continued until the card read had a different household ID number, when control returned to the main loop.

- HVIPAGES

JCL: CN6212.PRO.HVI.RUNJCL:LOGPAGES
CN6212.PRO.HVI.RUNJCL:ODOPAGES
CN6212.PRO.HVI.RUNJCL:QSTPAGES

Source: CN6212.PRO.HVI.PLI.SOURCE:HVIPAGES

Language: PL/1

System

context: HVIPAGES was run on the desired single-month HVI File at various times, using different template files, to produce pages that were used in telephone contacts with households -- background questionnaire pages, current vehicle stock pages, and odometer reading pages. It is one of a series of programs used to prepare RTECS data collection materials from the HVI Files.

User

interface: A separate JCL file was used for each of the three templates. Before submitting this job for batch execution, the user changed the month designation of the input file name in the appropriate JCL.

Upon completion, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Inputs: -- CN6212.PRO.HVI.TEMPLATE.FORM80(LOG1)
CN6212.PRO.HVI.TEMPLATE.FORM80(LOG3)
CN6212.PRO.HVI.TEMPLATE.FORM80(OD01)
CN6212.PRO.HVI.TEMPLATE.FORM80(OD02)
CN6212.PRO.HVI.TEMPLATE.FORM80(PAGE2A)
CN6212.PRO.HVI.TEMPLATE.FORM80(PAGE2B)
(Template file for the desired page format)

-- CN6212.PRO.HVI.MONTH<MONTH>(0)
(Single-month HVI File -- current generation for a given month)

Outputs: -- Pages print file for active, qualified vehicles

-- Production control and error report

Program
flow:

HVIPAGES read the appropriate template file into storage. Next, it read the HVI File containing, for each household, a Household Card (OH01) and up to 12 pairs of Vehicle Cards (1V01 and 1V02) and branched to a specific procedure based on the card type that had been read. Each procedure checked the card type of the current card against that of the last card to verify that the field was in proper order. Vehicle cards were stored in arrays as they were read until the household ID number of the card read differed from that of the previous card.

Then another procedure was invoked to test household and vehicle status codes and to merge vehicle data with the template file and print the output pages. HIVIPAGES checked the household status code to decide whether pages were to be printed for a household. For qualifying households with at least one active vehicle, the template was filled in with a column of data for each active vehicle. Households with more than four active vehicles required a second output page.

Next, the main loop resumed, processing households until the end of the input file was reached.

SECTION 4: USING THE FUEL PURCHASE RECORD FILES

The Fuel Purchase Record (FPR) Files contained data that were collected from a different subsample of 1985 RTECS households each month. The primary use of these files was to compute a miles-per-gallon (MPG) figure based on actual recorded use of the vehicle for a given calendar month. Ultimately, data from the FPR Files and the HVI Files were used as the basis for imputation and annualization procedures and for the preparation of the final files used for RTECS estimates and reports.

Like the HVI Files described in Section 3, the FPR Files were organized in 12 single-month generation data sets, and card-image formats were used in the files. The FPR Files consisted of one record for each household, containing data on each vehicle used by members of the household. The complete record for a household contained information on up to 12 vehicles and might contain information on a number of fuel purchases for each vehicle. See Appendix A for the layout of the FPR Files.

In the FPR Files, the record for each household contained the following kinds of cards:

- Household information (5H01)
 - The month assigned for fuel purchase data collection
 - The actual month for which data were collected
 - The data collection method
 - The number of vehicles for which data were collected
- Data primarily from fuel purchase data collection (6V01)
 - Beginning- and end-of-month odometer and fuel gauge readings
 - Fuel tank capacity as reported by the respondent
 - The reason (if applicable) for the vehicle's not having been driven during the month
 - Number of purchases recorded
 - Optional codes (entered by an editor) indicating which purchases were to be used for calculating MPG
- VNAME Card (6V02) (created from the HVI and Tank Capacity Files for each run of the MPG program; not stored permanently)
 - Information on vehicle make and model from Card 1V01 of the HVI Files
 - Standard fuel tank capacity
- VSTAT Card (6V03) (statistics generated by the MPG program)
 - Summary of types of missing information
 - Summary information on cost and type of fuel
 - Total vehicle miles, gallons of fuel, and MPG
 - Flags for very high vehicle miles or MPG
 - A code indicating the "quality" of the record
- 7P01-7Pxx -- Details of specific fuel purchases (a separate card for each purchase)

RAC's manual, Residential Transportation Energy Consumption Survey Volume III: Fuel Purchase Record Files, served as a training manual and basic reference for RTECS operating staff working on the FPR Files. The editing instructions and many of the forms referred to in this section originally appeared in that manual.

4.1.

MANUALLY CODING AND EDITING THE FPR FILES

RAC prepared materials for editing and coding in a separate batch for each record month (the month for which purchase records were obtained). Three types of cards were coded:

- A card for each household (5H01)
- A card for each vehicle for which data were obtained for the record month (6V01)
- A card for each fuel purchase (7PXX)

Codes for Cards 5H and 6V were transcribed to coding forms. Entries for 7P were edited directly on the telephone data collection forms for purchase records; purchase record data collected by mail were first transcribed to those forms. The primary tasks at this stage were to clarify entries as necessary and to round off entries when more digits were recorded than were wanted in the final record.

All data for Cards 5H, 6V, and 7P were batched by purchase record month. Coding forms for Cards 5H and 6V and the purchase record pages for Card 7P were keypunched and the data were 100% verified and output to magnetic tape. Contents of these tapes became the first generation of the single-month FPR Files.

Instructions used (see Appendix B)

- F4739-131: Preparation of Fuel Purchase Records for Data Entry (general coding and data entry instructions)
- F4739-132: Preparation of Fuel Purchase Records for Data Entry: Card 5H Coding Instructions
- F4739-133: Preparation of Fuel Purchase Records for Data Entry: Card 6V01 Coding Instructions
- F4739-134: Preparation of Fuel Purchase Records for Data Entry: Card 7P Editing Instructions
- F4739-138: Transportation Study Purchase File: Instructions for Key Entry Supervisor

Forms used (see Appendix C)

- F4739-137: Transportation Study Purchase File: Card 5H Coding Form
- F4739-135: Transportation Study Purchase File: Card 6V01 Coding Form

- F4739-31: Transportation Study Purchase File: Telephone Data Collection Form (Appendix C includes a sample data collection page from this multi-page form, on which entries for Card 7P were coded directly)

PERFORMING INITIAL RANGE AND CONSISTENCY CHECKS

After initial data entry of the FPR File, the CHECK program performed range and consistency checks on each single-month file separately. The program checked the ranges listed in the FPR File layouts in Appendix A. For complete details on the automated consistency checks performed by CHECKUP and on the manual followup to the range and relationship errors found by the program, see Appendix B. An overview of the kinds of relationship checks performed by CHECKUP follows:

- Dates should be internally consistent. For instance, Fuel Purchase Cards should be in chronological order, the beginning date for data collection should agree with the assigned month, and all fuel-purchase dates should be in the assigned month.
- Skip patterns should be correct. That is, when the answer to one question should result in skipping one or more of the following questions, the skipped questions should be coded with 9s for "not applicable."
- Odometer readings should be internally consistent. For instance, on the 7P cards, each odometer reading should be equal to or higher than the previous reading.
- The number of purchases recorded on Card 6V01 should equal the number of 7P cards read.
- On 7P cards, price per gallon of fuel should not be greater than the total cost of the purchase and the number of gallons purchased should not be greater than the tank capacity.

Appendix B includes instructions for editors who reviewed the output of the CHECK program. The instructions include a list of valid ranges, plus instructions for what to do about each of the possible error messages produced by the program.

Editors made additions and changes to the FPR Files interactively, using the SUPERWYLBUR line editor. After a batch of updates was made, the CHECK program was run again to create a new generation of the FPR Files. A logbook recorded information on the source of updates to the files.

Every two weeks, all generations of the FPR Files except the current and one previous generation were user-initiated archived for a retention period of seven years.

Instructions used (see Appendix B)

- Editing Procedures: Range and Relationship Checks (performed on the output of the CHECKUP program)

Form used (see Appendix C)

- 1985 RTECS FPR Generation Log

Program used

- CHECK

JCL: CN6212.PRO.FPR85.JCL:CHECK

Source: CN6212.PRO.FPR85.SOURCE:CHECK

Language: PL/1

System

context: CHECK was run whenever changes were made in the FPR Files, during both the entry/editing phase and the MPG evaluation phase. It is one of a series of programs that handled the creation, editing, and evaluation of the FPR Files.

User

interface: Before submitting this job for batch execution, the user changed the month designation of the input file name. He could also change entries in an "error exception" file, which suspended the checking of data fields not yet present in the file.

Upon completion of the job, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Inputs: -- CN6212.PRO.FPR85.MONTHQQ(0)
(Monthly FPR Files)
-- CN6212.PRO.FPR85.RNGEXCP(MONTHQQ)
(Monthly range exceptions file)
-- CN6212.PRO.FPR85.RELEXCP(MONTHQQ)
(Monthly relation exceptions file)
-- CN6212.PRO.FPR85.SOURCE(RANGES)
(Table of range edit specifications)

Outputs: -- CN6212.PRO.FPR85.MONTHQQ(+1)
(Monthly FPR Files -- +1 generation)
-- Range error listing
-- Relation error listing
-- Range exceptions found
-- Relation exceptions found

Program
flow:

CHECK read and stored a table of range check specifications, and separate files containing range and consistency error "exceptions." It then entered a loop to read the FPR File.

CHECK read the specified single-month FPR File, which contained, for each household, a Household Card (5H01), up to 12 Vehicle Cards (6V01), and up to 31 Fuel Purchase Cards (7PXX) for each vehicle. After reading a card, CHECK branched to a specific procedure, based on the type of card read, which checked to see that the file contained no invalid cards and that all cards were in the appropriate order. Invalid card types were trapped in the main READ loop. Vehicle and Fuel Purchase Cards were stored in arrays as they were read.

That process continued until the household ID of the card read differed from that of the previous card. Next, CHECK invoked another procedure to perform range checks on all fields of each card read for the current household, including a check that all unused columns were blank. The procedure wrote error messages when necessary and set a flag indicating whether range errors were found.

Control then returned to the main loop. If no range errors were found, another procedure performed relation checks between various fields for the current household. This procedure checked key relationships among various fields within a single card as well as across different card types. Since CHECK was run on files at various stages of completeness, there was a facility to suspend checking of certain ranges and relationships involving data not yet collected.

Finally, CHECK wrote a line to a summary listing describing the household's status and it reset fields in preparation for the next household. The main loop continued until the end of the file.

4.3.

TRANSFERRING DATA FROM HVI FILES AND STANDARD TANK CAPACITY TABLE

To perform miles-per-gallon (MPG) calculations using fuel purchase data, two other pieces of data also had to be available: make and model information (from the 1V01 Card) and the tank capacity of each vehicle. RAC added this information to the FPR Files in two steps.

First, all HVI Monthly Files were merged together and the SELECTVI program created a new file of 1V01 Cards, containing one record for each vehicle in the survey. The result was the preliminary VNAME File.

Next, the TANKMTC program matched the preliminary VNAME File by make and model to a keyed table of standard tank capacities. RAC compiled this table from detailed automobile statistics published in Automotive News, Consumer Reports, and various new-car brochures. A standard tank capacity for each vehicle was needed so that editors could judge the credibility of the tank capacity reported by the respondents.

The resulting file, (the VNAME File in final format, which would be used in MPG calculations), still consisted of cards labeled 1V01; they would later be relabeled 6V02 by the program MPG. These cards were produced only when MPG calculations were being performed; they were not included in the FPR Data Files.

Vehicles not matched to the standard tank capacity table were coded "998" for the standard tank capacity figure, and those with only a partial match were coded "886." Those cases were printed out, and editors tried to correct or update the table; then the TANKMTC program was rerun.

Programs used

• SELECTVI

JCL: CN6212.PRO.FPR85.JCL:SELECTVI

Source: CN6212.PRO.FPR85.SOURCE:SELECTVI

Language: PL/1

System

context: SELECTVI was run once to create a preliminary version of the VNAME File. The program was run only after an HVI File was determined to be "clean" and complete; thus, no checking of card types was required. It may have been necessary to rerun the program if changes were made to the HVI Files after the initial run.

SELECTVI is one of a series of programs that handled the creation, editing, and evaluation of the FPR Files. It was run by the same JCL stream that ran the programs TANKMTCH and MPG; the temporary file output by SELECTVI was sorted and passed to TANKMTCH.

User

interface: Since SELECTVI read all HVI single-month files on each run, there were no parameters or dataset names for the user to modify. It was executed in the same jobstream as the MPG program.

Upon completion, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Inputs: -- CN6212.PRO.HVI.MONTH01(0)
CN6212.PRO.HVI.MONTH02(0)
CN6212.PRO.HVI.MONTH03(0)
CN6212.PRO.HVI.MONTH04(0)
CN6212.PRO.HVI.MONTH05(0)
CN6212.PRO.HVI.MONTH06(0)
CN6212.PRO.HVI.MONTH07(0)
CN6212.PRO.HVI.MONTH08(0)
CN6212.PRO.HVI.MONTH09(0)
CN6212.PRO.HVI.MONTH10(0)
CN6212.PRO.HVI.MONTH11(0)
CN6212.PRO.HVI.MONTH12(0)
(Current generation of all 12 Monthly HVI Files, concatenated)

Output: -- &T1V01
(Preliminary VNAME File)
-- Production control report

Program
flow:

SELECTVI read an HVI File containing a Household Card (OH01) and up to 12 pairs of Vehicle Cards (1V01 and 1V02) for each household. SELECTVI bypassed cards OH01 and 1V02. When it encountered a 1V01 card, it output the card, thus creating the preliminary VNAME File. When end-of-file was reached, the counters were written to the production control report and the program ended.

• TANKMTCH

JCL: CN6212.PRO.FPR85.JCL:TANKMTCH
Source: CN6212.PRO.FPR85.SOURCE:TANKMTCH
Language: PL/1

System
context:

TANKMTCH was run repeatedly, until users were satisfied that no more additions could be made to the standard tank capacity table and that no more updates would be made to the vehicle data in the HVI Files. TANKMTCH could be run separately, but it was most often run in the same jobstream as the MPG program. It is one of a series of programs that handled the creation, editing, and evaluation of the FPR Files.

User

interface: Since the program read and wrote the same files on each run, there were no parameters or dataset names for the user to modify.

Upon completion, the user checked the JCL log file for proper condition codes and checked the control report for error messages and record counts.

Inputs:

-- &&SRT1V
(Preliminary VNAME File output by SELECTVI and sorted by the utility SORTD)
-- CN6212.PRO.FPR85.TANKCAP
(Standard tank capacity table)

Output:

-- &&MTCH1V
(VNAME File in final format -- to be sorted and passed to the program MPG)

Program
flow:

The jobstream that ran TANKMTCH sorted the VNAME File and the standard tank table by make, model, type code, and year. However, since the table used a value of "86" for type code when it applied to a variety of models, and the years to which an entry applied were stored as a range, it was not possible to perform a file match. Thus, the program began by reading the entire standard tank table into core memory.

The program next looped to read the VNAME File, which contained a single VNAME (6V02) card for each vehicle in the survey. It matched VNAME cards to the table by several variables. If a make-model match was found, the type code was compared to each table entry within that make-model range. If a match was found or if the table code was "86," the year was examined. If the VNAME card year was within the range of the table entry, the number of cylinders and doors was then considered. If values were present in the table for both of these variables and the VNAME values were not both

matched, the VNAME card was considered a partial match and coded as "886" for the standard tank value. If either cylinder or door values were not present in the table, or if both were present and matched, the VNAME card was considered a match and the table tank capacity was placed in the output record.

For any of the matching steps, if no match was found, the record was output and execution continued with the next interaction of the loop.

When the end of file was reached, the counters were written to the production control report and the program terminated.

PERFORMING MPG AND RELATED CALCULATIONS

Because the primary purpose of the FPR Files was to calculate MPG based on actual vehicle use, much emphasis was placed on evaluating the completeness and accuracy of fuel purchase data collected for each vehicle.

Computer procedures were used for a preliminary screening of fuel purchase data to evaluate the record for completeness and to compute MPG for the vehicle (to the extent that the record permitted). Computer procedures were also used to create a formatted hard-copy printout for inspection by an editor, highlighting missing information and variations from normal patterns of fuel consumption.

The MPG program performed MPG and related calculations, processing one month of purchase data per run. It used the VNAME File produced by the program TANKMTCH, first changing the card type in columns 10-13 from 1V01 to 6V02. MPG matched vehicle data from the VNAME File to Fuel Purchase Card data. In the manual review of the MPG output, an editor would decide whether to use the standard tank capacity value (from the 6V02 Card) or the capacity reported by the respondent (from the 6V01 Card).

MPG attempted to calculate three sets of MPG figures:

- MPG for each purchase
- Cumulative MPGs for sets of purchases
- Overall MPG for the vehicle's entire purchase record

If critical data were missing, MPG abandoned the calculation.

If beginning and ending odometer readings were present, the program adjusted for fuel gauge readings as follows:

$$\text{adj} = (\text{startgauge} - \text{endgauge}) * \text{tankcapacity}$$

$$\text{MPG} = \text{miles} / (\text{gallons purchased} + \text{adj})$$

When a vehicle had driven only a few miles between purchases, extreme variations in individual purchase record MPG figures were likely. To take this into account, the MPG program calculated MPG figures for cumulated purchase records as well as for individual purchases. It did that by beginning with a Fuel Purchase Card and cumulating information on miles and gallons for successive purchases until it reached a minimum of 150 miles. An MPG figure was calculated for that cumulation and reported alongside the individual records. Thus, while each purchase was always assigned an individual MPG, a purchase might also appear in combination with others.

The final step in the MPG procedure was to compare MPG figures obtained for each cumulated entry to the overall MPG figure derived for the vehicle. In that way, the consistency of the vehicle's Fuel Purchase Cards could be determined.

To help editors inspect and evaluate MPG figures and the record in general for each vehicle, a system of computer flags or "grades" was used to highlight the internal consistency or inconsistency of the overall vehicle data for the month (see Exhibit 4-1). Grades were printed along with the full set of vehicle data at the end of each MPG run.

In addition to MPG figures, the MPG program counted and flagged all types of missing data as well as certain dubious cases, such as very high vehicle miles or very high MPG for a specific purchase or for all the purchases for one vehicle. All calculations and flags were added to the new generation of the FPR File produced by a successful run of the MPG program.

Program used

- MPG

JCL: CN6212.PRO.FPR85.JCL:MPG

Source: CN6212.PRO.FPR85.SOURCE:MPG

Language: PL/1

System

context: MPG was run repeatedly until editors were satisfied that no more missing data could be supplied and that no more restrictions could be placed on vehicle purchase records to improve their reliability. It is one of a series of programs that handled the creation, editing, and evaluation of the FPR Files.

User

interface: Before submitting this job for batch execution, the user changed the month designation of the input file name in lines 91 and 93 of the JCL. There were no other changes to be made from run to run.

Inputs: -- CN6212.PRO.FPR85.MONTHQQ(0) -
(FPR File for the designated month)
-- &&TAB1V
(Composite VNAME File, produced by the program TANKMTCH and then sorted)

Outputs: -- Formatted MPG listings
 -- CN6212.PRO.FPR85.MONTHQQ(+1)
 (FPR File for the designated month -- +1
 generation)
 -- Production control and error report

Program
flow:

MPG read and stored cards from the FPR File until the household ID changed. For each household, the file contained a Household Card (5H01) and up to 12 Vehicle Cards (6V01) with up to 31 Fuel Purchase Cards (7P) for each vehicle. The cards were stored in an array and pointers were set to indicate vehicle and purchase cards within the array.

Next, a loop for all vehicles in the household was initiated. The household and vehicle were matched to the VNAME File and the respondent's tank capacity estimate from Card 6V01 was compared to standard tank capacity from the VNAME card. If the respondent's estimate was within 50 percent of the standard VNAME value, the standard value was used; otherwise, the respondent's value was used.

Then MPG checked for and flagged critical missing variables and built a table of fuel purchase data, with missing items calculated where possible. This table was used to calculate MPG values for each purchase, flagging those with miles traveled or MPG above certain thresholds. Then the program calculated MPG; in cases where less than 150 miles had been traveled between purchases, purchases were cumulated to represent 150 miles or more before calculating the MPG. Finally, the program calculated MPG values for each unbroken string of purchases in the record and saved the longest string as total MPG for the vehicle. In each of the MPG calculations, the program adjusted for start and end fuel-gauge readings, where available. Total MPG calculations might be limited to a certain set of purchases by start and end codes placed in the 6V01 card by an editor.

Next, MPG calculated cost per gallon for each fuel type used by the vehicle. If a single type and grade represented at least half the gallons purchased, average cost data were placed in the output record.

Once all computations had been made, each cumulated MPG figure was compared to the overall MPG for the vehicle. If all cumulations were within 25 percent of the overall MPG, the record was given a status

Exhibit 4-1: MPG Program Alphabetic Vehicle Status Codes

Summary Code (Card 6V01, <u>Col. 80</u>)		Alphabetic Status (Card 6V03, <u>Col. 80</u>)
4	Vehicle was driven 150 or more miles during purchase record period, and:	
	All cumulative MPG*s are within 25 percent of the overall MPG for this vehicle in this month	A
	All cumulative MPG*s are within 50 percent of the overall MPG for this vehicle	B
	All cumulative MPG*s are within 25 percent of the overall MPG for this month after an adjustment of 25 percent of the tank capacity is made in the appropriate direction.....	C
	All cumulative MPG*s are within 50 percent of the overall MPG after an adjustment of 25 percent of the tank capacity is made in the appropriate direction.....	D
	One or more cumulative MPG*s are outside \pm 50 percent of the overall MPG after an adjustment of 25 percent of tank capacity is made in the appropriate direction.....	F
4	Vehicle was driven less than 150 miles during purchase record period.....	Q
4	Information in Fuel Purchase Card is incomplete; MPG cannot be computed because of missing odometer or gauge readings	R
1	Vehicle was not driven during month (or not driven during purchase record period)	Z
2	Vehicle was driven during month; information in the record indicates that no purchases were made	Y
3	Vehicle was driven during month; information in the record indicates that some purchases were made, but there is no significant information about purchases.....	I
5	Unknown whether vehicle was driven during month; some other type of information about vehicle has been coded as part of record	X

*Cumulative MPG*s refers to calculations for combinations of purchases, as necessary, to equal 150 or more miles traveled as the basis for the MPG.

code of "A". If not, a 50 percent range was checked. If the cumulation still failed, a 25 percent adjustment was made for the fuel gauge and the comparisons were repeated, with a status code finally assigned to the vehicle. See Exhibit 4-1 for the specific criteria for assigning status codes A-F.

MPG then output the completed record, including a new 6V03 card generated entirely within the program, and then considered the next vehicle. When it had processed all vehicles for a household, the program formatted all data for that household on an output listing and read the cards for a new household.

PERFORMING MANUAL EDITORIAL REVIEW PROCEDURES ON MPG PROGRAM OUTPUT

Editors reviewing the MPG program output (generally the same RAC staff members who performed earlier range and consistency edit checks) performed the following specific tasks:

- Added missing information to the basic record when possible, usually by referring to the original purchase records
- Corrected obvious errors, particularly when inconsistencies in the record are identified by relationship checks
- Determined, when appropriate, that only part of the month's record of purchases should be included in the MPG calculations

Before the editors began the MPG review, a supervisor reviewed a list of vehicles for which there was no match in the tank capacity table. The supervisor examined the data for each vehicle and could take one of the following five steps:

- Leave the record as is; the respondent estimate of tank capacity will be used.
- Modify the model code or vehicle type in the HVI Files.
- Modify the existing entry in the Standard Tank Capacity Table.
- Add a new entry to the Standard Tank Capacity Table.
- Insert the correct tank capacity into the FPR Files in the field for the respondent estimate.

In addition to the output from MPG, the editors also had the output from the program MISSPUR (a list of vehicles for which there were data for at least one fuel purchase and missing data for at least one purchase), and a list of range and relationship errors not resolved earlier.

A missing purchase or an error that could not be corrected in some part of the record were the usual reasons for restricting the MPG calculation to part of the set of records obtained for the month. The likelihood of a missing purchase could be judged from the presence of extreme variations in the MPG calculations for cumulated purchases and/or from reports by the respondent at the time of the original data collection. Materials available to the editors included the formatted display of the FPR Files (including the summary statistics and flags created by MPG) and the original data collection and coding documents.

If an editor determined that the MPG calculations should be restricted to a reduced list of purchases, codes were added to Card 6V01 to indicate the first and the last purchase record to be used. These codes were added as follows:

- Columns 74-75: Purchase number of first purchase to be used in calculations (00 if beginning-of-month record should be used for odometer and gauge readings)
- Columns 77-78: Purchase number of final purchase to be used in calculations (95 if end-of-month odometer and gauge readings should be used)

See Appendix B for detailed guidelines for the MPG review tasks.

Editors made additions and changes to the files interactively, using the SUPERWYLBUR line editor. Once all the corrections were input, the MPG program was run again and a new generation of the FPR File was created. The logbook used for range and consistency updates (as explained in Section 4.2) was also used to record MPG-related updates.

Every two weeks, all generations except the current and one previous generation were user-initiated archived for a retention period of seven years.

Instructions used (see Appendix B)

- MPG Editor Review Procedures

Forms used (see Appendix C)

- Additions to Tank Capacity File form
- Modifications to Tank Capacity File form
- Editor Changes: Respondent Estimated Tank Capacity, FPR File form
- Tank Capacity/HVI File Update Worksheet

Programs used

- MISSPUR

JCL

and Source: CN6212.FPR85.PRO.JCL:MISSPUR

Language: SAS

System

context: MISSPUR was run before the first edit of each single-month FPR File to help editors identify Fuel Purchase Cards that might contain inconsistent or erroneous data. It is one of a series of programs that handled the creation, editing, and evaluation of the FPR Files.

User

interface: In the JCL, the user globally changed "QQ" to a two-digit number corresponding to the FPR File month for which MISSPUR was to be run. The job was submitted for batch execution.

Upon completion, the user checked the JCL log and SAS log for proper condition codes and for error messages.

Input: -- CN6212.PRO.FPR85.MONTHQQ(0)
(One of the 12 single-month Fuel Purchase Record Files -- most current generation)

Outputs: -- Listing of vehicles that had data for at least one fuel purchase and that had at least one purchase not recorded by the respondent
-- JCL and SAS log counts and control information

Program
flow:

From a single-month FPR File, MISSPUR read cards until it encountered a 6V01 card or an end of file. It read a household ID, vehicle number, card type, and codes for presence of missing purchases, number of missing purchases, and record summary. When it encountered a 6V01 card, MISSPUR checked for the presence of a missing purchase code not equal to "99" (indicating the number of missing purchase records) and a summary code of "4" (indicating that the vehicle was driven during the month and that information was available for one or more fuel purchases). If those conditions were satisfied, MISSPUR flagged the record and continued looking for an end of file or another 6V01 card. When it reached an end of file, MISSPUR output a list of flagged records and terminated.

• TANKFIX

JCL: CN6212.PRO.FPR85.JCL:TANKFIX

Source: CN6212.PRO.FPR85.SOURCE:TANKFIX

Language: PL/1

System

context: TANKFIX was run after the Fuel Purchase Record Files had been edited and examined for errors. It was used to replace erroneous vehicle tank capacities with the manufacturer's tank capacity, using a transaction file compiled during an editor review of the invalid values. The program output a new generation of each single-month Fuel Purchase

Record File with the correct tank capacity values in place.

User

interface: Since the program read all the single-month Fuel Purchase Record Files, there were no parameters or dataset names for the user to modify.

Upon completion, the user checked the JCL log for proper condition codes and checked the control report for error messages and record counts. To determine whether there were any unmatched transactions, the user compared the list of matched vehicles to the input transaction file.

Inputs:

-- CN6212.PRO.FPR85.MONTH01(0)
-- CN6212.PRO.FPR85.MONTH02(0)
-- CN6212.PRO.FPR85.MONTH03(0)
-- CN6212.PRO.FPR85.MONTH04(0)
-- CN6212.PRO.FPR85.MONTH05(0)
-- CN6212.PRO.FPR85.MONTH06(0)
-- CN6212.PRO.FPR85.MONTH07(0)
-- CN6212.PRO.FPR85.MONTH08(0)
-- CN6212.PRO.FPR85.MONTH09(0)
-- CN6212.PRO.FPR85.MONTH10(0)
-- CN6212.PRO.FPR85.MONTH11(0)
-- CN6212.PRO.FPR85.MONTH12(0)
 (The 12 single-month Fuel Purchase Record Files
 -- most current generation)
-- CN6212.PRO.RESP.RPLCMENT.TANKS
 (Transaction file containing correct tank
 capacity values)

Outputs:

-- CN6212.PRO.FPR85.MONTH01(+1)
-- CN6212.PRO.FPR85.MONTH02(+1)
-- CN6212.PRO.FPR85.MONTH03(+1)
-- CN6212.PRO.FPR85.MONTH04(+1)
-- CN6212.PRO.FPR85.MONTH05(+1)
-- CN6212.PRO.FPR85.MONTH06(+1)
-- CN6212.PRO.FPR85.MONTH07(+1)
-- CN6212.PRO.FPR85.MONTH08(+1)
-- CN6212.PRO.FPR85.MONTH09(+1)
-- CN6212.PRO.FPR85.MONTH10(+1)
-- CN6212.PRO.FPR85.MONTH11(+1)
-- CN6212.PRO.FPR85.MONTH12(+1)
 (The 12 single-month Fuel Purchase Record Files
 -- +1 generation)
-- JCL log and control information

Program

flow:

TANKFIX sorted the Fuel Purchase Record File and the transaction file of tank capacities by household ID and vehicle number, then read both

files. When a record matched on both household ID and vehicle number, TANKFIX replaced the respondent-estimated tank capacity field in the 6V01 card with the amended tank capacity value from the transaction file. It then output the corrected fuel purchase cards and unmatched transaction file records.

SECTION 5: IMPUTATION AND ANNUALIZATION PROCEDURES AND DEVELOPMENT OF THE ANNUALIZED FINAL FILE

For each RTECS vehicle, fuel purchase data were collected for only one month between December 1984 and January 1986. In order to use RTECS data to produce statistics describing the vehicle stock of U.S. households for all of 1985, the data had to be annualized. This section describes the 1985 RTECS annualization procedures.

The principal objectives of the annualization procedures were to estimate the total mileage driven, total gallons of fuel consumed and miles per gallon, and the total cost of fuel, for each vehicle in use by an RTECS household during any part of calendar year 1985.

The resulting Annualized Data File contained these figures for vehicles and summaries for each sample household. That file was used to produce statistics describing the vehicle stock of U.S. households in 1985 and estimates of vehicle miles, fuel consumption, and fuel costs.

Three principal data sets were used in the annualization process:

- 1984 Residential Energy Consumption Survey (RECS4) Household Questionnaire File
- 1985 RTECS Household/Vehicle Information (HVI) Files
- 1985 RTECS Fuel Purchase Record (FPR) Files

The flowcharts on the following pages (Exhibit 5-1) outline the steps used to produce the RTECS Annualized Final File. Sections 5.1-5.4 present further details on imputation, annualization, weighting, and development of the Annualized Final File.

Exhibit 5-1: 1985 RTECS Annualization Procedures Flowcharts (continued)

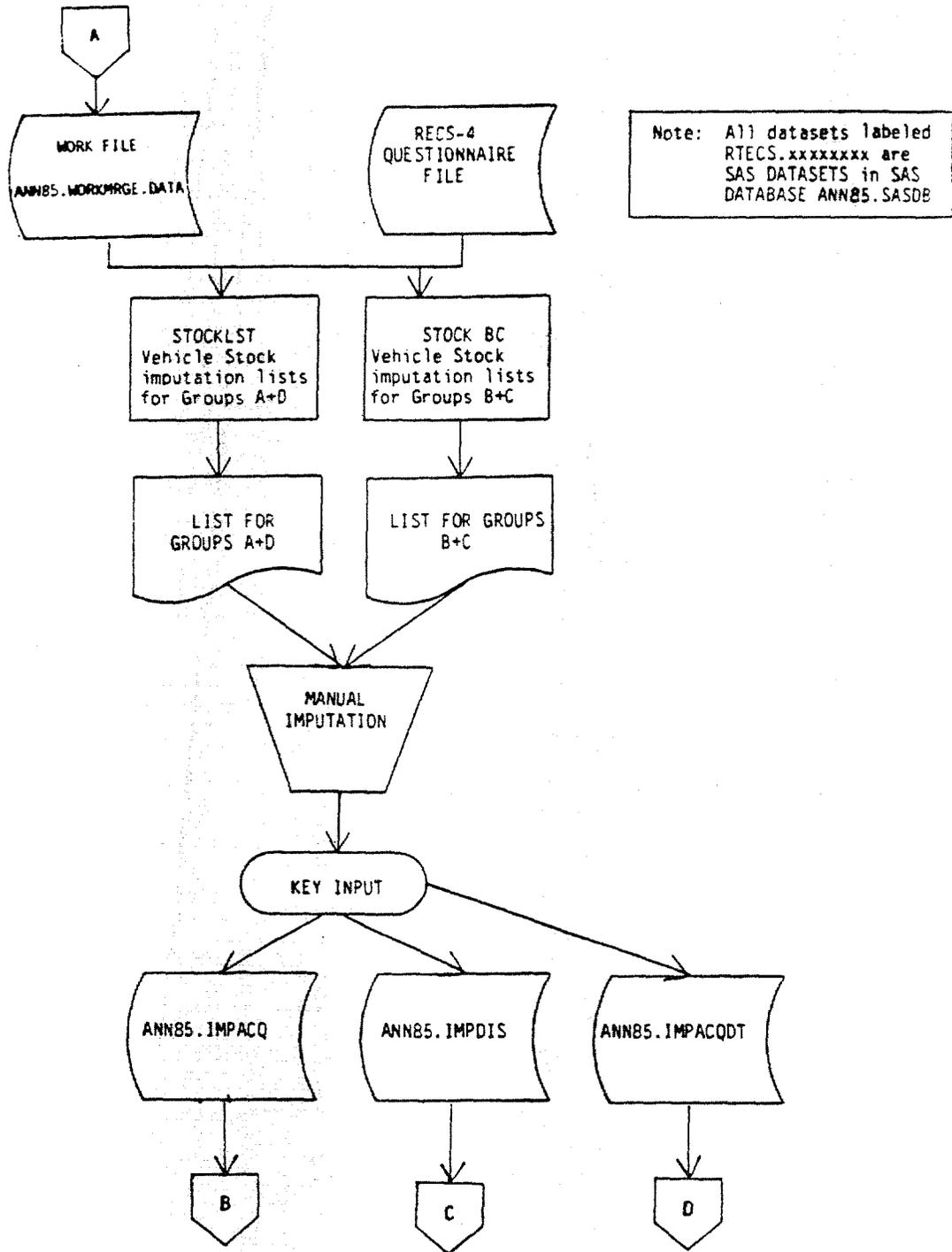


Exhibit 5-1: 1985 RTECS Annualization Procedures Flowcharts (continued)

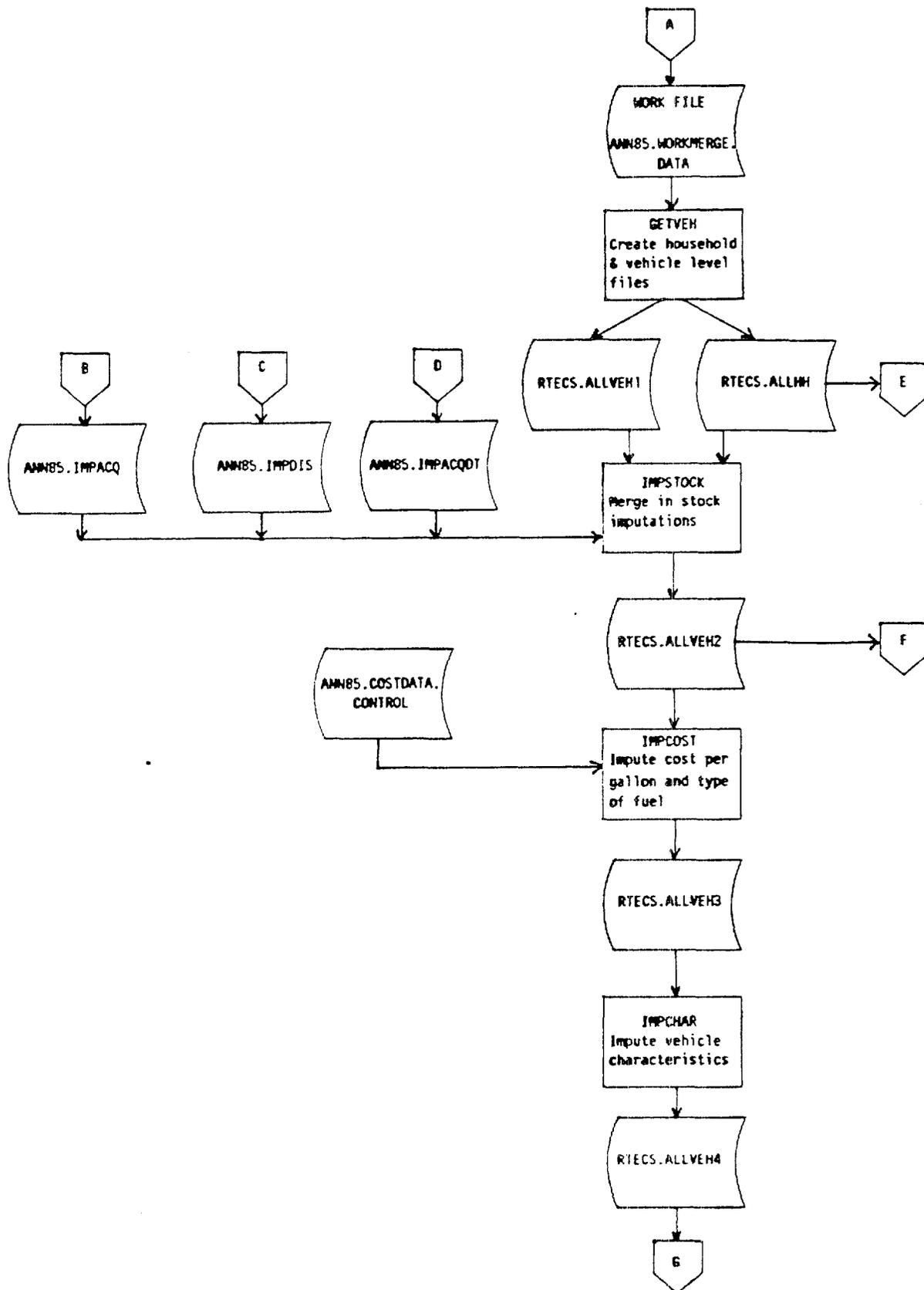


Exhibit 5-1: 1985 RTECS Annualization Procedures Flowcharts (continued)

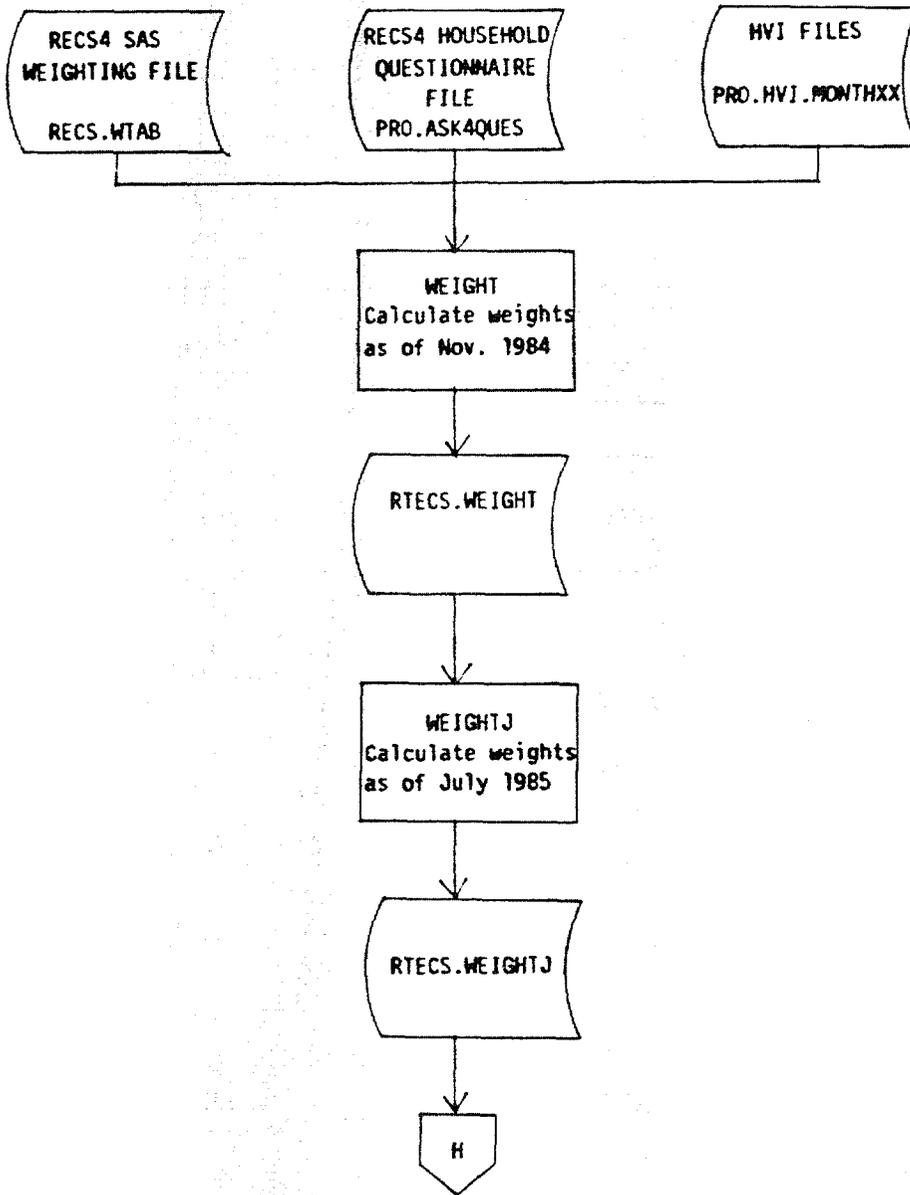


Exhibit 5-1: 1985 RTECS Annualization Procedures Flowcharts (continued)

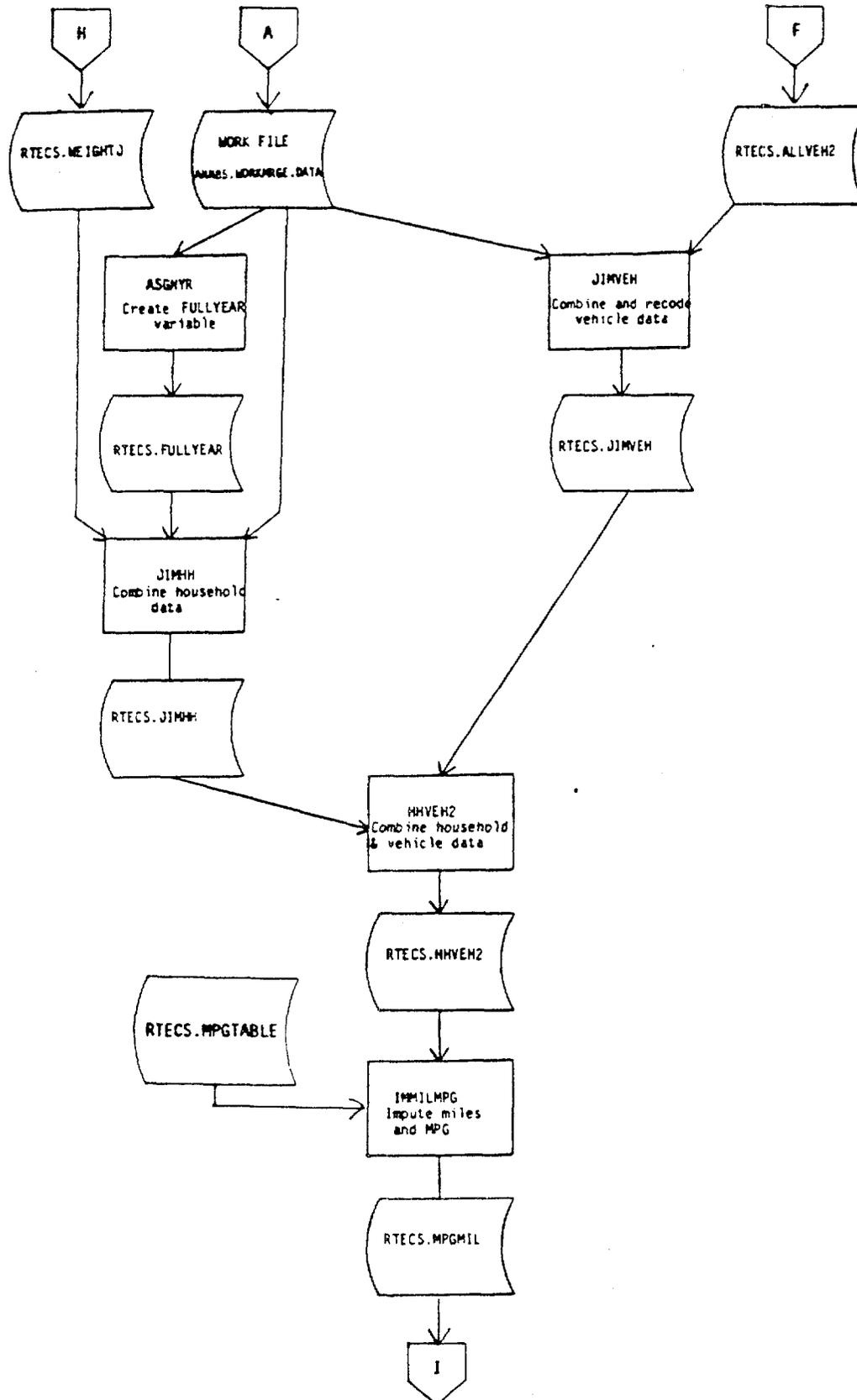


Exhibit 5-1: 1985 RTECS Annualization Procedures Flowcharts (continued)

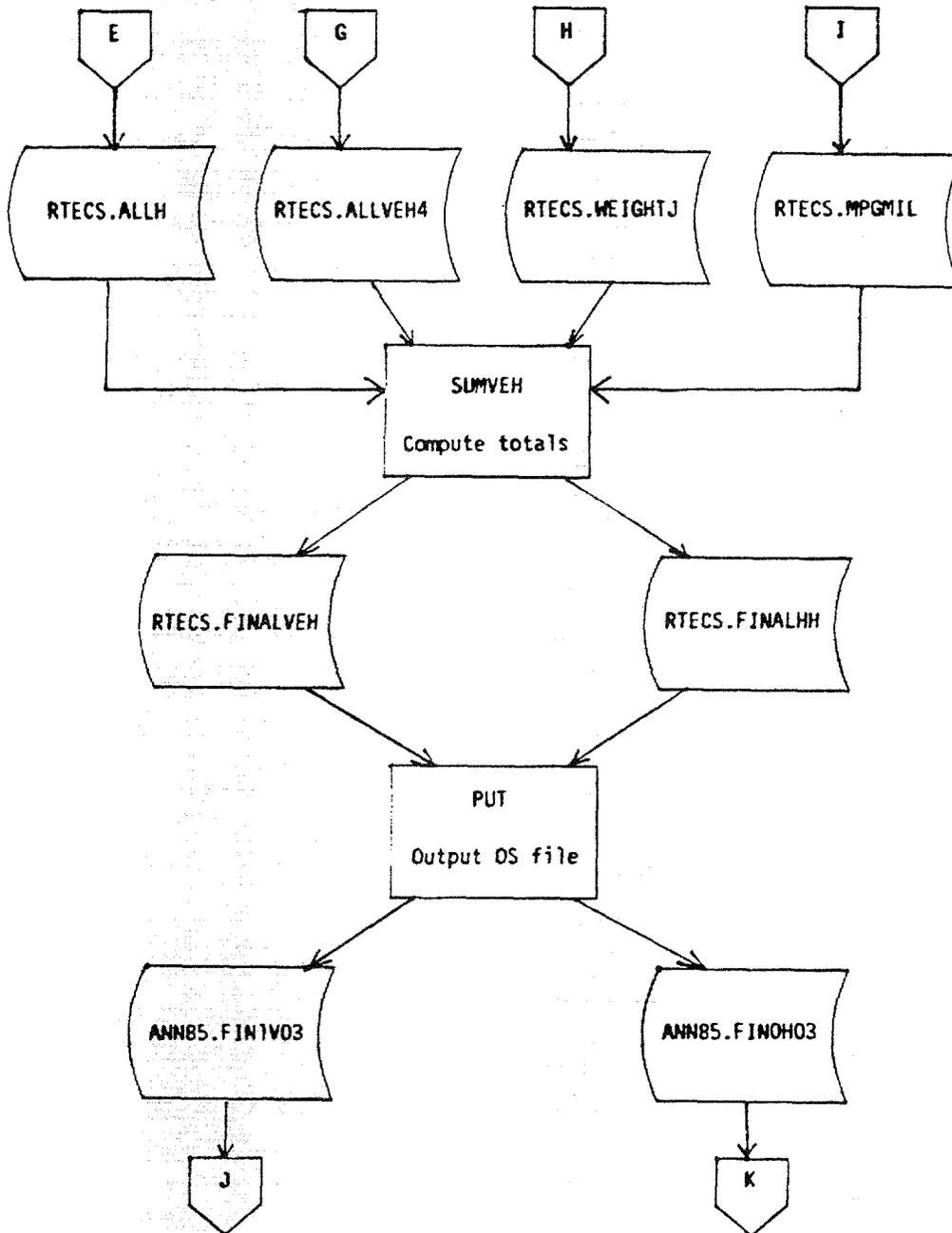
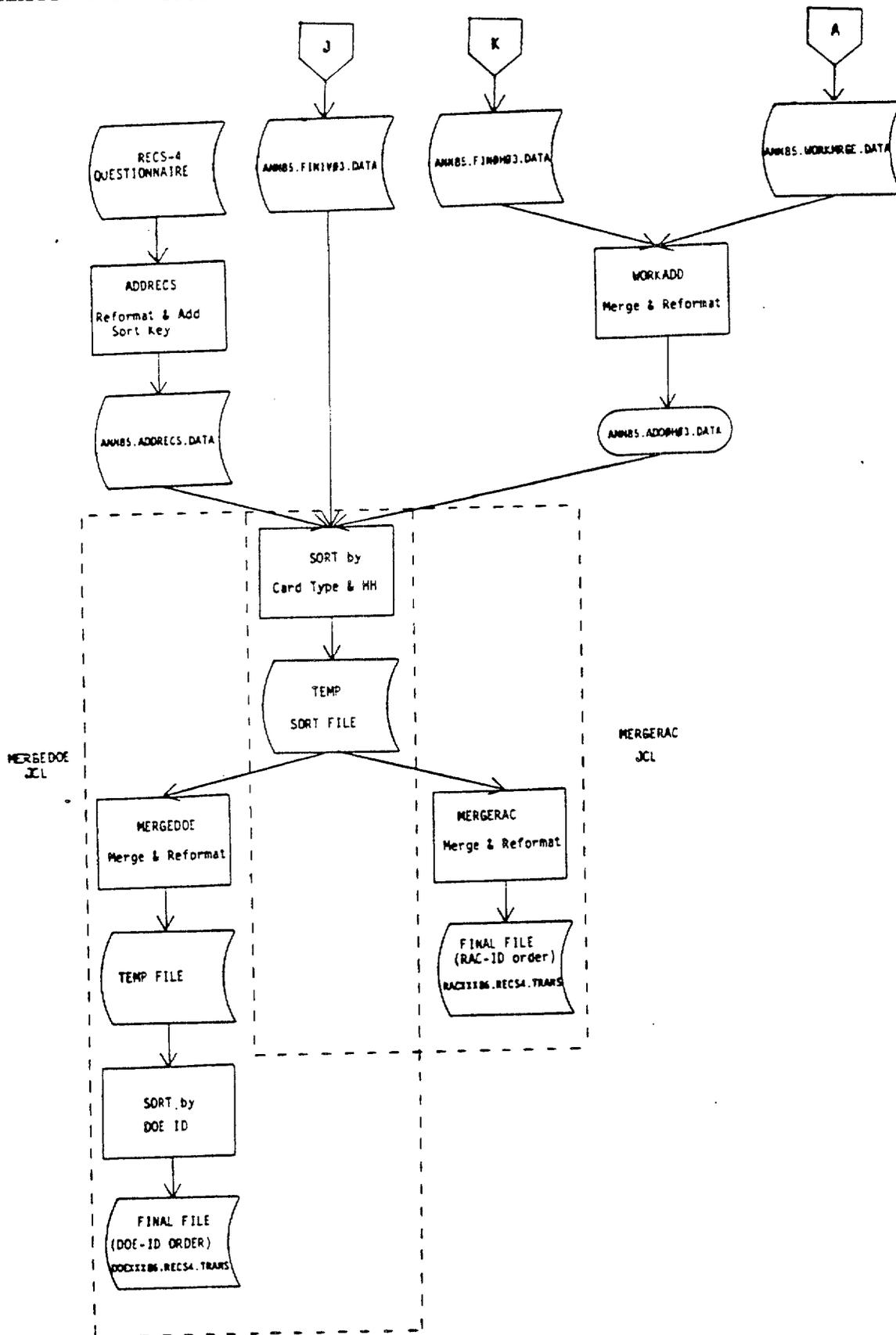


Exhibit 5-1: 1985 RTECS Annualization Procedures Flowcharts (continued)



DEVELOPING THE WORK FILE

To develop a Work File for the imputation and annualization procedures, RAC extracted data from the HVI and FPR files and from the 1984 RECS Household Questionnaire File. The three programs described below developed the Work File.

The Work File, like the HVI and FPR Files, consisted of one multiple-card record for each household. The following cards made up the Work File:

- OH01 -- Household Card 1 (identical to Card OH01 in the HVI Files)
- OH02 -- Household Card 2 (distillation of data from the RECS4 Household Questionnaire File)
- 1V01 -- Vehicle Card 1 (identical to Card 1V01 in the HVI Files)
- 1V02 -- Vehicle Card 2 (identical to Card 1V02 in the HVI Files)
- 6V01 -- Vehicle Information Card (like Card 6V01 in the FPR Files, but produced by the annualization version of the MPG program)
- 6V03 -- VSTAT Card (like Card 6V03 in the FPR Files, but produced by the annualization version of the MPG program)

The file layout of the Work File (CN6212.PRO.ANN85.WORKMRGE.DATA) appears in Appendix A.

Programs used:

- RECSHH

JCL: CN6212.PRO.ANN85.JCL:RECSHH

Source: CN6212.PRO.ANN85.SOURCE:RECSHH

Language: Fortran

System context: RECSHH was one of three programs used to set up the Work File for 1985 RTECS imputation and annualization procedures.

Input: -- VN6615.PRO.ASK4QUES(0)
(RECS4 Household Questionnaire File)

Output: -- CN6212.KBG.ANN85.RECSHH.DATA
(Card OH02 -- distilled RECS4 Household
Questionnaire File data)

Program
flow: RECSHH created an intermediate extract file of data
from the RECS4 Household Questionnaire File, to be
used in creating the preliminary Work File.

The program moved various fields from the
Questionnaire File to an output area. In column 66
of the extract file, it recoded the 12 employment
status fields from the Questionnaire File to a
single value of 0, 1, or 2. It checked vehicle
mileage fields for values greater than 99995 and
blanked them out.

The first 15 characters of the output area were
filled with identification information, including
household ID, sequence number (00), and card type
(OH02), so that the extract file generated would
merge with other files in forming the final Work
File.

- MPG (annualization version)

JCL: CN6212.PRO.ANN85.JCL:MPG

Source: CN6212.PRO.ANN85.SOURCE:MPG

Language: PL/1

System

context: MPG was one of three programs used to set up the
Work File for 1985 RTECS imputation and
annualization procedures.

Inputs: -- CN6212.PRO.FPR85.MONTH01(0)
-- CN6212.PRO.FPR85.MONTH02(0)
-- CN6212.PRO.FPR85.MONTH03(0)
-- CN6212.PRO.FPR85.MONTH04(0)
-- CN6212.PRO.FPR85.MONTH05(0)
-- CN6212.PRO.FPR85.MONTH06(0)
-- CN6212.PRO.FPR85.MONTH07(0)
-- CN6212.PRO.FPR85.MONTH08(0)
-- CN6212.PRO.FPR85.MONTH09(0)
-- CN6212.PRO.FPR85.MONTH10(0)
-- CN6212.PRO.FPR85.MONTH11(0)
-- CN6212.PRO.FPR85.MONTH12(0)
(The 12 single-month Fuel Purchase Record Files
-- most current generation)

-- CN6212.PRO.FPR85.TANKTAB
(Standard tank capacity table)

Output: -- CN6212.KBG.ANN85.VSTAT.DATA
(6V01 and 6V03 Cards)

Program
flow:

MPG read and stored cards from the FPR File until the household ID changed. For each household, the file contained a Household Card (5H01) and up to 12 Vehicle Cards (6V01) with up to 31 Fuel Purchase Cards (7P) for each vehicle. The cards were stored in an array and pointers were set to indicate vehicle and purchase cards within the array.

Next, a loop for all vehicles in the household was initiated. The household and vehicle were matched to the VNAME File and the respondent's tank capacity estimate from Card 6V01 was compared to standard tank capacity from the VNAME card. If the respondent's estimate was within 50 percent of the standard VNAME value, the standard value was used; otherwise, the respondent's value was used.

Then MPG checked for and flagged critical missing variables and built a table of fuel purchase data, with missing items calculated where possible. This table was used to calculate MPG values for each purchase, flagging those with miles traveled or MPG above certain thresholds. Then the program calculated MPG; in cases where less than 150 miles had been traveled between purchases, purchases were cumulated to represent 150 miles or more before calculating the MPG. Finally, the program calculated MPG values for each unbroken string of purchases in the record and saved the longest string as total MPG for the vehicle. In each of the MPG calculations, the program adjusted for start and end fuel-gauge readings, where available. Total MPG calculations might be limited to a certain set of purchases by start and end codes placed in the 6V01 card by an editor.

Next, MPG calculated cost per gallon for each fuel type used by the vehicle. If a single type and grade represented at least half the gallons purchased, average cost data were placed in the output record.

Once all computations had been made, each cumulated MPG figure was compared to the overall MPG for the vehicle. If all cumulations were within 25 percent of the overall MPG, the record was given a status code of "A". If not, a 50 percent range was checked. If the cumulation still failed, a 25

percent adjustment was made for the fuel gauge and the comparisons were repeated, with a status code finally assigned to the vehicle. See Exhibit 4-1 for the specific criteria for status codes A-F.

Unlike the run of the MPG program used to calculate miles per gallon for each vehicle in the FPR Files (explained in Section 4.4), this run of MPG output only Cards 6V01 and 6V03. When the standard tank capacity was used instead of the respondent's estimate, the value from the respondent (in Card 6V01) was replaced with the standard value. When the program had processed all vehicles for a household, it formatted all data for that household on an output listing and read the cards for a new household.

• WORKMRGE

JCL: CN6212.PRO.ANN85.JCL:WORKMRGE

Source: CN6212.PRO.ANN85.SOURCE:WORKMRGE

Language: Fortran

System

context: WORKMRGE used the output from the programs RECSHH and MPG (annualization version), plus the 12 single-month HVI Files, to create the Work File used for RTECS imputation and annualization procedures.

Inputs: -- CN6212.PRO.HVI.MONTH01(0)
-- CN6212.PRO.HVI.MONTH02(0)
-- CN6212.PRO.HVI.MONTH03(0)
-- CN6212.PRO.HVI.MONTH04(0)
-- CN6212.PRO.HVI.MONTH05(0)
-- CN6212.PRO.HVI.MONTH06(0)
-- CN6212.PRO.HVI.MONTH07(0)
-- CN6212.PRO.HVI.MONTH08(0)
-- CN6212.PRO.HVI.MONTH09(0)
-- CN6212.PRO.HVI.MONTH10(0)
-- CN6212.PRO.HVI.MONTH11(0)
-- CN6212.PRO.HVI.MONTH12(0)
(12 single-month HVI Files, current generation; made up of Cards 0H01, 1V01, and 1V02)

-- CN6212.KBG.ANN85.RECSHH.DATA
(Card 0H02 -- distilled RECS4 Household Questionnaire File data)

-- CN6212.KBG.ANN85.VSTAT.DATA
(6V01 and 6V03 Cards output by the annualization version of the MPG program)

Output:

-- CN6212.PRO.ANN85.WORKMRGE.DATA
(Work File)

Program
flow:

WORKMRGE combined preliminary annualization files to create a Work File used for imputations. It read data extracted from the RECS4 Household Questionnaire File (Card OH02), vehicle data from the VSTAT File (Cards 6V01 and 6V03), and data from the single-month HVI Files (Cards OH01, 1V01, and 1V02).

WORKMRGE checked that required cards were present for each household and vehicle, writing error messages or creating dummy cards for missing data. The program changed cases of blank DATE-OF-LAST-CONTACT to 999995. It replaced cases of blank BEGINNING-ODOM-DATE or END-ODOM-DATE in the 1V02 Card with values from the 6V01 Card for the vehicle, provided the 6V01 values were valid. The input cards and any dummy cards created by the program were written to the output file.

5.2. ADJUSTING FOR MISSING AND INCOMPLETE INFORMATION

To adjust for missing and incomplete information, RAC used a number of weighting and imputation procedures. Key data items to be adjusted for included:

- Vehicle acquisitions and dispositions
- Fuel type
- Fuel cost per gallon
- Vehicle characteristics
- Miles driven
- Miles per gallon

The following sections explain how these adjustments were made.

5.2.1. Estimating Vehicle Acquisitions and Dispositions

When RAC did not have vehicle acquisition and disposition data from a household for the full 1985 calendar year, hot-deck imputation procedures were used to borrow data from households whose vehicle stock data were complete. A series of automated and manual procedures was used to perform these imputations.

First, all the households with incomplete vehicle stock data were assigned to imputation groups as shown in Exhibit 5-8. All donor households were assigned to donor group D.

RAC chose donor households by matching them on several variables to households needing imputation. First, all households were assigned to one of three income-level groups; imputation households were matched to donor households within the same income group. Within matching income groups, imputation and donor households were matched on number of vehicles at the time of the RECS4 interview and on the age of the newest vehicle. And, in general, donor households were matched with imputation households whose acquisition/disposition patterns (for whatever period was available) matched most closely.

5.2.1.1. Reasons for missing vehicle stock data

Each time RAC contacted the household -- to get beginning- and end-of-year odometer readings and to collect fuel purchase data following the household's assigned month -- they also asked whether the household had acquired or disposed of any vehicles during the year. In addition, RAC sent a special mid-year mailing to each sample household to ask about changes in the household's vehicle inventory. However, in cases where households were not successfully followed for the entire year, there may have been vehicle acquisitions and dispositions that were not reported.

Exhibit 5-2: Household Groups for 1985 RTECS Vehicle Stock
Imputations

<u>Group</u>	<u>Description</u>	<u>Households</u>	
		<u>Number</u>	<u>Percent</u>
A1	<u>Attrition</u> : RECS interview 12/84 or earlier; Last RTECS vehicle update before 12/31/85; No vehicle stock update after RTECS interview	175	4.4
A2	<u>Attrition</u> : RECS interview 12/84 or earlier; Last RTECS vehicle update before 12/31/85; Vehicle stock updated after RTECS interview	620	15.4
B	<u>Late entry</u> : RECS interview 1/85 or later; Last RTECS vehicle update 12/31/85 or earlier	561	14.0
C1	<u>Late entry & attrition</u> : RECS interview 1/85 or later; Last RTECS vehicle update before 12/31/85; No vehicle stock update after RTECS interview	105	2.6
C2	<u>Late entry & attrition</u> : RECS interview 1/85 or later; Last RTECS vehicle update before 12/31/85; Vehicle stock updated after RTECS interview	193	4.8
D	<u>Donors</u> : RECS interview 12/84 or earlier; Last RTECS vehicle update 12/31/85 or later	2366	58.9
<u>Total Households</u>		4020	100.0

In the 1985 RTECS, two sets of circumstances -- late entry and attrition -- shortened the period for which changes in vehicle stock were reported. Late entry of a household occurred when the RECS4 interview or Mailed Questionnaire was completed after December 31, 1984. In that case, the beginning inventory was as of the date of the RECS4 interview. Attrition of a household occurred when the date of the last RTECS contact occurred before January 1, 1986, either because the household refused to continue participation or because RAC was unable to contact the household to obtain an update of their vehicle inventory. In some cases, both late entry and attrition occurred, attenuating the desired annual record at both ends of the calendar year.

5.2.1.2. Rules for matching imputation households to donor households

To deal with the wide variety of circumstances encountered in the RECS4 and RTECS contacts, hot-deck imputation procedures were used. Households requiring vehicle stock imputations were grouped as shown in Exhibit 5-2. Donor households -- Group D -- were those followed for the full calendar year.

RAC grouped households into three broad categories based on 1985 income:

- Group 1: Under \$17,500
- Group 2: \$17,500-\$34,999
- Group 3: \$35,000 or more

Households requiring imputations were matched to donor households from the same income category. Within the matching income group, donor and donee households were further matched on number of vehicles at the time of the RECS4 interview and on the age of the newest vehicle:

- Number of vehicles: 0
- Number of vehicles: 1
 - 1 -- Vehicle year = 1978 or earlier
 - 2 -- Vehicle year = 1979-1982
 - 3 -- Vehicle year = 1983-1985
- Number of vehicles: 2 or more
 - 1 -- Year of newest vehicle = 1978 or earlier
 - 2 -- Year of newest vehicle = 1979-1982
 - 3 -- Year of newest vehicle = 1983-1985

Additional rules for matching an imputation group household to a specific donor group household are given in "Instructions for Vehicle Stock Imputations" in Appendix B. The general principle followed was that, within the span of time for which vehicle stock was updated in RTECS contacts, the acquisition and/or disposition

pattern of the imputation group household was matched to the acquisition/disposition pattern of a donor group household for the same time period.

5.2.1.3. Performing vehicle stock imputations

The acquisition/disposition record of the donee household subsequent to the date of the last successful contact was borrowed from the Group D household with which it was matched. Computer and manual procedures were used in combination to carry out the imputations.

Households included in the vehicle stock imputations could "acquire" entire vehicles by imputation. These imputed acquired vehicles were numbered starting at 21. These vehicles borrowed a date of acquisition, type, make, model, year, number of cylinders, type of transmission, number of doors, respondent estimate of MPG, type of fuel, MPG, MPG quality flag, and MPG month from the donor vehicle. None of those variables were separately flagged as imputed since a vehicle number of 21 or higher indicated that all the variables were imputed. Other household-related vehicle characteristics (such as number of drivers, use of vehicle on the job, air-conditioning, miles traveled, and cost of fuel) were imputed for all other vehicles and individual imputation flags were set for the variables. By definition, an imputed acquired vehicle had an imputed acquisition date and number of days in use by the household. An imputed acquired vehicle might also have an imputed disposition date if the donor vehicle was disposed of during the RTECS year. Imputed number of days was indicated by the IMDAYSXX flag.

For households in Groups A, B, and C, where acquisition and/or disposition could be imputed, the IMDAYSXX flag was set only if the RTECS contact with a Group A2 household was in March 1985 and the donor household had no acquisitions or dispositions between March 1985 and December 31, 1985, no acquisitions or dispositions were imputed for the household, and the IMDAYSXX flags for all household vehicles were set at 0. However, the IMPSTOK flag for the household was set to indicate that the household was in Group A2 and could have had imputations for acquisitions and/or dispositions.

Group B households that completed Mailed Questionnaires for RECS4 could have an acquisition date imputed for vehicles that were not imputed acquired vehicles. These vehicles might have an IMDAYSXX flag of 1 or 3, but the vehicle number was less than 20.

5.2.1.4. Results of the 1985 vehicle stock imputation procedures

About 93 percent of the RTECS sample households were contacted one or more times for updates on their vehicle stock. Only 7 percent (groups A1 and C1 in Exhibit 5-2) were not successfully contacted for this purpose at least once. Altogether, 41 percent of RTECS

sample households were included in the vehicle stock imputation procedure for at least a portion of the RTECS year, because of either late entry or attrition or some combination of the two.

Of 8,491 vehicles in the RTECS Annualized Final File, 375 (4.4 percent) were imputed as acquired and 300 (3.5 percent) were imputed as disposed of during the year.

For all RTECS households, the information on household vehicle stock that was reported during the RECS4 interview was present in the RTECS data files. These RECS vehicles were numbered from 01-04 in the RTECS files, since a maximum of four vehicles could be described in the RECS interview. A RECS vehicle disposed of before January 1, 1985, was not included in the RTECS Final File. RTECS vehicles numbered 05-20 were vehicles reported during RTECS contacts. Some of those vehicles were actually acquired prior to the beginning of the RTECS year and therefore had a month acquired (MOACQXX) of "95" in the Annualized Final File.

Instructions used (see Appendix B)

- Instructions for Vehicle Stock Imputations
(These instructions originally appeared in RAC's manual, Residential Transportation Energy Consumption Survey Volume IV: Annualization Procedures, which served as a training manual and basic reference for RTECS operating staff working on the annualization procedures.)

Programs used

- STOCKLST

Source: CN6212.PRO.ANN85.SOURCE: STOCKLST
(JCL included in source code)

Language: SAS

System

context: This is one of two programs that produced listings used for vehicle stock imputations, which were then done manually. STOCKLST produced the listings for household groups A1 and A2.

Inputs: -- CN6615.PRO.ASK4QUES(0)
(RECS4 Household Questionnaire File)

-- CN6212.PRO.ANN85.WORKMRGE.DATA
(Work File)

Output: Printouts for vehicle stock imputation groups A1, A2, and D

Program
flow:

STOCKLST extracted needed variables from the RECS4 Household Questionnaire File and RTECS Work File. It also created the following new variables: RTECSYR, based on household ID and sample month; INCOME (three income groups); and YRNEW (three groups for age of newest vehicle).

Where acquisition or disposition dates were given as a range of dates, the acquisition or disposition date was set as the midpoint of the two dates.

STOCKLST output formatted listings for imputation groups A1 and A2, and for donor group D.

- STOCKBC

Source: CN6212.PRO.ANN85.SOURCE: STOCKBC
(JCL included in source code)

Language: SAS

System

context: This is one of two programs that produced listings used for vehicle stock imputations, which were then done manually. STOCKBC produced the listings for household groups B, C1, and C2.

Inputs: -- CN6615.PRO.ASK4QUES(0)
(RECS4 Household Questionnaire File)
-- CN6212.PRO.ANN85.WORKMRGE.DATA
(Work File)

Output: Printouts for vehicle stock imputation groups B, C1, C2, and D

Program
flow:

STOCKBC is virtually identical to the previous program, STOCKLST, except that it picked up dates of acquisition for RECS4 vehicles acquired after the beginning of 1985 from the RECS4 Household Questionnaire File and included them in the listings. As a result, it output a new list for donor group D along with the listings for imputation groups B, C1, and C2.

- GETVEH

Source: CN6212.PRO.ANN85.SOURCE:GETVEH
(JCL included in source code)

Language: SAS

System

context: Using the RTECS Work File as input, GETVEH produced two SAS datasets to be used by the program IMPSTOCK, the last of the programs used for vehicle stock imputation.

Input: -- CN6212.PRO.ANN85.WORKMRGE.DATA
(RTECS Work File)

Outputs: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLHH
(Household-level SAS dataset)

-- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH1
(Vehicle-level SAS dataset)

Program

flow: GETVEH read household- and vehicle-level variables from the RTECS Work File. It constructed several new variables, including SAS dates of acquisition and disposition based on the dates on the 1V02 Card. If the acquisition or disposition code was 1 or 2 (on or before date given), the date was set as the date given. If the code was 3 (between two dates), the date was set as the midpoint of the two dates.

Groups for vehicle stock imputations (A1, A2, B, C1, C2, and D) were set based on the date of the RECS4 interview and the date of last contact. Acquisition dates that were equal to the RECS interview date were set to missing, since that indicated a vehicle in use by the household prior to RTECS. For households with the RECS interview occurring after 12/31/84, the acquisition date was set to the 15th of the month and year indicated in the RECS interview if the month and year were between October 1984 and June 1985.

GETVEH output two SAS datasets -- one at the household level and one at the vehicle level.

• IMPSTOCK

Source: CN6212.PRO.ANN85.SOURCE:IMPSTOCK
(JCL included in source code)

Language: SAS

System

context: IMPSTOCK was run after runs of the programs STOCKLST, STOCKBC, and GETVEH, and after the manual imputation procedures, as the final step in vehicle stock imputation.

Inputs: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH1
(Vehicle-level SAS dataset output by GETVEH)

-- CN6212.PRO.ANN85.IMPACQ
-- CN6212.PRO.ANN85.IMPDIS
-- CN6212.PRO.ANN85.IMPACQDT
(Three datasets keyed in following manual
imputation procedures)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH2
(Vehicle-level SAS dataset)

**Program
flow:**

This program merged in acquisition and disposition dates that were determined during the vehicle stock imputation process and keyed into three new files. Matching by household ID and vehicle number, these acquisition and disposition dates were added to the vehicle record. For imputed acquired vehicles, where the entire vehicle and its acquisition/disposition dates were "borrowed" from a donor vehicle, the following were read from the IMPACQ file: imputation household ID, imputation vehicle number, donor household ID, donor vehicle number, donated acquisition date, and donated disposition date. These transactions were matched to potential donor vehicles by donor household ID and vehicle number, and the vehicle characteristics to be borrowed were picked up. The following variables were picked up from a donor vehicle: type, make, model, year, number of cylinders, type of transmission, number of doors, estimated MPG, fuel type, LOGMPG, LOGSTATUS, and LOGMONTH. These imputed acquired vehicles were then added to the rest of the RTECS vehicles.

Acquisition and disposition dates for all vehicles were then adjusted for the different RTECS years so that all dates corresponded to the 1985 calendar year. Vehicles disposed of before the beginning of 1985 or acquired after the end of 1985 were eliminated, since they were not eligible.

The VEHUSE variable was set to indicate the portions of the year when the vehicle was in use by the household.

These changes were incorporated into the output SAS dataset RTECS.ALLVEH2.



Imputing Fuel Type and Annualizing Cost-per-Gallon Figures

Summary codes for type of fuel were determined from the fuel purchase data for each vehicle for which the same type of fuel was reported for more than half of the gallons purchased. For vehicles that could not be assigned summary codes, fuel type was imputed by a hot-deck procedure. The sort variables were vehicle type, year, and make. There were 4,677 RTECS vehicles (55.1 percent) for which fuel type was imputed.

For vehicles for which the fuel purchase records contained information (number of gallons purchased and total cost) on at least five gallons of fuel, average cost per gallon was computed from the fuel purchase data. If cost per gallon was less than .899 or greater than 1.656, it was set to missing.

However, these average costs were based on fuel purchases for only one calendar month for each vehicle. To adjust cost per gallon to an annual basis, control figures were derived from the Bureau of Labor Statistics (BLS) Consumer Price Index average pump price series. Monthly pump prices (cost per gallon) for each Census region and three types of fuel (unleaded regular, leaded regular, and unleaded premium) were extracted from BLS tables. The 12 monthly figures from 1985 were then averaged within each cell of the cross-tabulation of Census region and fuel type. Finally, a ratio was computed for each month of 1985 and type of fuel within Census region as:

Annual average of BLS figures for region and type of fuel
Monthly BLS figure for region and type of fuel

Since BLS figures for the diesel/gasohol/propane class are not available, the ratio adjustment for vehicles these types of fuels was computed as the average of the ratios for the three main fuel types by month within Census region.

Fuel types used by 1985 RTECS vehicles were grouped into four categories:

- Regular unleaded gasoline
- Regular leaded gasoline
- Premium gasoline (both leaded and unleaded)
- Diesel, gasohol, or propane

Each vehicle was assigned a ratio adjustment figure based on the type of fuel used, the month in which fuel purchase records were kept, and Census region. The annually adjusted cost per gallon was computed for each vehicle with non-missing cost as:

$$\text{Cost per gallon (NEWCPG)} = \text{Cost} * \text{Ratio}$$

A mean within-class procedure was used to impute cost per gallon for vehicles with missing data. For vehicles with non-missing NEWCPG and unimputed type of fuel, an unweighted mean NEWCPG was computed with Census division and type of residence (MSA, central city; MSA outside central city; or non-MSA) for each of the three major types of fuel. For the diesel, gasohol/propane fuel type, the averages were computed only within Census division because the number of cases was too small to include a further breakdown by type of residence.

Each vehicle with a missing cost per gallon was assigned the mean cost for its fuel type, Census division, and (for the three main fuel types) type of residence. There were 4,601 vehicles (54.2 percent) for which cost per gallon was imputed.

Program used

• IMPCOST

Source: CN6212.PRO.ANN85.SOURCE:IMPCOST
(JCL included in source code)

Language: SAS

System context: IMPCOST was run following the program IMPSTOCK to impute fuel type and cost per gallon. It created a SAS dataset that was then used by the program IMPCHAR.

Inputs: -- CN6212.PRO.ANN85.WORKMRGE.DATA
(RTECS Work File)

-- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH2
(SAS dataset produced by the program IMPSTOCK)

-- CN6212.PRO.ANN85.COSTDATA.CONTROL
(File of Bureau of Labor Statistics control figures)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH3
(SAS dataset containing imputed fuel type and adjusted cost per gallon)

Program flow: IMPCOST picked up Census division and 1980 type-of-residence code for each household from the Work File and merged them into the ALLVEH2 vehicle-level file. It set fuel type to missing if it was not coded as either leaded regular gasoline (111), unleaded regular gasoline (121), leaded premium gasoline (112), unleaded premium gasoline (122), diesel (299), gasohol (399), or other

(499). The program set four values for a summary fuel code: 1 = unleaded regular, 2 = unleaded regular, 3 = premium, 4 = special, and 9 = unknown. It recoded AREA1980 as a summary of the GEO1980 type of residence code, and recoded Census region (REGION) from DIVISION.

IMPCOST set LOGCOST (cost per gallon from FPR Files) to missing if it was less than 89.9 cents or greater than 165.6 cents. Using the non-missing cost data for vehicles with known type of fuel, the program computed a ratio of the annual mean to each monthly mean for each fuel type within Census region. This figure was never used in the 1985 RTECS, but was computed for comparison to the ratio based on Bureau of Labor Statistics (BLS) figures.

The program read in BLS control figures from the COSTDATA.CONTROL file, with one BLS figure (CONTMO) for each fuel code (only types 1, 2, and 3), region, and month. It averaged the single-month figures, giving an annual figure (CONTANN) for each fuel code and region. It constructed a ratio (CONTRAT) for each month/fuel code/region as $CONTRAT = CONTANN/CONTMO$. The ratio for FUELCODE = 4 was the average of the other three ratios for the region and month.

IMPCOST then imputed type of fuel for all vehicles where it was missing. It used a hot-deck procedure, with a sort by vehicle type, year, and make. The program set the initial value of TYPEFL in the hot-deck as 111 (leaded regular gasoline) since the first vehicles in the sequence were old station wagons. When the value was imputed, the IMPFUEL imputation flag was set.

The program then merged in (by FUELCODE, REGION, and LOGMONTH) the control ratios to adjust monthly figures to annual figures. It computed a new adjusted cost per gallon (NEWCPG) by $NEWCPG = LOGCOST * CONTRAT$. It used cases with unimputed fuel type to construct averages. The program computed mean NEWCPG for each FUELCODE/DIVISION/AREA1980 for FUELCODES of 1, 2, and 3. For FUELCODE = 4, it averaged only for DIVISION. It merged these mean values into the vehicle records, set missing values of NEWCPG to the appropriate averages, and set the IMPGAL imputation flag to 1. The program then output the SAS dataset ALLVEH3.

5.2.3. Imputing Vehicle Characteristics

These vehicle characteristics were imputed by the hot-deck method; the list shows the sorting variables for each imputed variable.

- Number of cylinders (CYLS) -- type, make, model, and year of vehicle
- Presence of air conditioning (AIR) -- type, make, and year of vehicle; and AIA zone
- Type of transmission (TRNS) -- type, make, model, and year of vehicle
- Number of doors (DOORS) -- type, make, model, and year of vehicle
- Vehicle used on the job (JOBUSE) -- Employment status of household; type, make, and year of vehicle
- Number of regular drivers (DRIVES) -- Number of drivers in household; type, make, and year of vehicle

Exhibit 5-3 shows the numbers and percentages of vehicles for which each characteristic was imputed.

Program used

- IMPCHAR

Source: CN6212.PRO.ANN85.SOURCE:IMPCHAR
(JCL included in source code)

Language: SAS

System context: IMPCHAR used the SAS dataset RTECS.ALLVEH3, produced by the program IMPCOST, to perform hot-deck imputations for vehicle characteristics. It produced the SAS dataset RTECS.ALLVEH4, one of the four datasets used by the program SUMVEH.

Inputs: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH3
(SAS dataset output by the program IMPCOST)

-- CN6212.PRO.ANN85.WORKMRGE.DATA
(RTECS Work File)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH4
(SAS dataset containing imputed vehicle characteristics and their imputation flags)

Exhibit 5-3: 1985 RTECS Imputations for Vehicle Characteristics

<u>Characteristic</u>	<u>Vehicles</u>	
	<u>Number</u>	<u>Percent</u>
Cylinders	2,109	24.8
Air conditioning	1,893	22.3
Type of transmission	1,630	19.2
Number of doors	1,641	19.3
Vehicle used on the job	1,888	22.2
Number of drivers	1,871	22.0

Program
flow:

IMPCHAR extracted relevant vehicle-level variables from the RTECS.ALLVEH3 file. It extracted additional hot-deck sort variables (AIAZONE, EMPLSTAT, and RECSDRVS) from the Work File and added them to each vehicle record. It set "missing-information" codes for each variable to blanks. Since the respondent estimate of miles per gallon (MPGEST) would not be imputed, the program set that variable to "98".

IMPCHAR sorted the file by VTYPE, MAKEC, MODEL C, and VYEAR for the imputation of CYLS, TRANS, and DOORS. It set the initial values as CYLS = 06, TRANS = 1, and DOORS = 04. This initial value was used only if the first vehicle record had missing values for the variable; in this case, a flag was set for the variable for the first vehicle. Otherwise, the program reset the retained value to the value of the variable for the first vehicle. If the second vehicle had a missing value for one of the variables, IMPCHAR set the value to the retained value and set a flag for that variable for the second vehicle. If the second vehicle had a non-missing value, the program replaced the retained value with that value. IMPCHAR repeated that process for all subsequent vehicles.

The program then sorted the file by VTYPE, MAKEC, AIAZONE, and VYEAR for the imputation of AIR. It set the initial value as AIR = 0 and performed the hot-deck procedure described about.

Next, IMPCHAR sorted the file by EMPLSTAT, VTYPE, MAKE, and VYEAR for the imputation of JOBUSE. It set the initial value as JOBUSE = 0 and performed the hot-deck procedure.

The program then sorted the file by RECSDRVS, VTYPE, MAKEC, and VYEAR for the imputation of DRIVES. It set the initial value as DRIVES = 1 and performed the hot-deck procedure.

Finally, IMPCHAR merged the vehicle characteristic variables and their imputation flags with the RTECS.ALLVEH3 dataset, producing RTECS.ALLVEH4. It produced frequency distributions of the variables and their flags.

Imputing and Adjusting Annual Miles Driven

A primary RTECS data collection objective was to obtain odometer readings of each eligible vehicle, both at the beginning and at the end of the year or as close as feasible to the time of an acquisition or disposition within the year. RAC contacted most households by phone or by mail specifically for this purpose. When households were scheduled to provide fuel purchase records for January or December, the beginning- or end-of-year odometer readings were taken from the fuel purchase information.

Depending on the type of information actually available, annual miles for RTECS vehicles were based directly on these odometer readings or were adjusted or imputed based on the number of days the household had use of the vehicle.

Procedures were developed for each of five groups of vehicles:

- Group 1: Total miles is an adjusted amount, based on odometer readings for a span of 46 days or more
- Group 2: Total miles is an adjusted amount, based on odometer readings for a span of 22-45 days
- Group 3: Total miles is an imputed amount, based in part on the respondent's estimate (from the RECS4 interview) of miles the vehicle was driven in the 12 months preceding the RECS4 interview
- Group 4: Total miles is an imputed amount; vehicle was not driven during the purchase record month; no estimate of miles driven is available from the RECS4 interview
- Group 5: Total miles is an imputed amount; vehicle not included in Groups 1-4, including vehicles acquired by imputation

These group numbers were also used as codes for the variable IMMILE in the Annualized Final File. As shown in Exhibit 5-4, 54.6 percent of all vehicles were in groups 1 and 2, for which annual miles were adjusted based on actual odometer readings; annual miles for 45.4 percent of vehicles were imputed (groups 3-5).

The adjustment/imputation procedures for miles driven all followed the same strategy:

First, miles driven were calculated for a full 365-day year.

Next, the fraction (a) corresponding to the actual period of possession for the vehicle was calculated.

Exhibit 5-4: 1985 RTECS Vehicle Groups for Annual Miles
Adjustments and Imputations

<u>Group</u>	<u>Description</u>	<u>Vehicles</u>	
		<u>Number</u>	<u>Percent</u>
1	Adjusted, 46 or more days	4,437	52.3
	270 or more days	(3,184)	(8.7)
	180-269 days	(517)	(6.1)
	46-179 days	(736)	(37.5)
2	Adjusted, 22-45 days	193	2.3
3	Imputed, based on miles reported in RECS interview	1,652	19.4
4	Imputed, vehicle not driven during purchase record month	137	1.6
5	Imputed, all other	2,072	24.4
TOTAL VEHICLES		8,491	100.0

The calculation in (a) was carried out in different ways for the five vehicle groups. For groups 1 and 2, RAC took account of the monthly variations in percent of annual miles traveled per day, based on estimates calculated from RTECS data (e.g., .298 of 1 percent per day in July, as compared to .236 of 1 percent per day in January). For group 1, RAC then adjusted the observed percentage, and corresponding odometer span, to 100 percent. For group 2, RAC adjusted the observed percentage and corresponding odometer span to 8.333 percent (i.e., a "perfect month" = 1/12), and then applied the regression model

$$\text{mileslyr} = 3782 + 7.283 * (\text{miles in "perfect month"}) \quad (R^2 = .51)$$

For groups 3 and 5, RAC used simple regression models. For group 3, the model was:

$$\text{Mileslyr} = 4111 + .5214 * (\text{RECS4 estimate of annual miles}) \quad (R^2 = .28)$$

For group 5, the model was:

$$\begin{aligned} \text{mileslyr} = & -15562 + 195 * (\text{number of drivers}) \\ & + 171 * (\text{1985 income}) - 86 * (\text{age of head of household}) \\ & + 628 * \text{VTYPESW} - 384 * \text{VEHYRS23} + 2086 * \text{JOBUSE} \quad (R^2 = .43) \end{aligned}$$

where

VTYPESW = 1 if vehicle type is a station wagon and 0 otherwise
 JOBUSE = 1 if vehicle is used on the job, and 0 otherwise
 VEHYRS23 = 1.5 * 365 vehicle days, and 0 otherwise

The imputations for group 4 were based on random selections from the empirical distribution of annual miles for like vehicles (i.e., not driven during the purchase month).

Having calculated (a), RAC took account of the monthly variations in percent of annual miles traveled per day and calculated the percentage of 365-day travel that corresponded to the actual period of possession of the vehicle. This percentage was then multiplied by (a) to estimate miles driven.

Programs used

- ASGNYR

Source: CN6212.PRO.ANN85.SOURCE:ASGNYR
 (JCL included in source code)

Language: SAS

System

context: This is one of the programs used in the initial steps of imputing annual miles driven and MPG

Inputs: -- CN6212.PRO.ANN85.WORKMRGE.DATA
 (RTECS Work File)

 -- CN6615.PRO.ASK4QUES(0)
 (RECS4 Household Questionnaire File)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.FULLYEAR
 (SAS dataset containing a variable (FULLYEAR)
 indicating the portion of the year when each
 household participated in RTECS)

Program
flow: ASGNYR was a modification of the program STOCKLST
 (described in Section 5.2.1) that output the
 variable FULLYEAR.

The FULLYEAR variable was used by the program JIMHH
and in subsequent modeling steps.

• JIMHH

Source: CN6212.PRO.ANN85.SOURCE:JIMHH
 (JCL included in source code)

Language: SAS

System
context: Using the RTECS Work File, and the variables
 WEIGHTJ (produced by the program WEIGHTJ, which is
 described in Section 5.3) and FULLYEAR (produced by
 the program ASGNYR), this program created a file of
 household-level variables that was used by the
 program HHVEH2.

Inputs: -- CN6212.PRO.ANN85.WORKMRGE.DATA
 (RTECS Work File)

 -- CN6212.PRO.ANN85.SASDB.RTECS.WEIGHTJ
 (SAS dataset created by the program WEIGHTJ)

 -- CN6212.PRO.ANN85.SASDB.RTECS.FULLYEAR
 (SAS dataset created by the program ASGNYR)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.JIMHH
 (SAS dataset containing household-level
 variables from the Work File)

Program
flow: JIMHH selected 12 household-level variables from
 the Work File. It picked up the variables WEIGHTJ
 and FULLYEAR from the SAS datasets RTECS.WEIGHTJ
 and RTECS.FULLYEAR. It also created a new
 variable, PHONECT, which was equal to 1 when the

sequence of fuel purchase contacts was started with a telephone call; otherwise, it was set to 0.

JIMHH created a file of household-level variables to be used for imputing annual mileage and miles per gallon.

• JIMVEH

Source: CN6212.PRO.ANN85.SOURCE:JIMVEH
(JCL included in source code)

Language: SAS

System context: Using the RTECS Work File, this program created a file of vehicle-level variables that was used by the program HHVEH2.

Inputs: -- CN6212.PRO.ANN85.WORKMRGE.DATA
(RTECS Work File)
-- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH2
(SAS dataset output by the program IMPSTOCK)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.JIMVEH
(SAS dataset containing a file of vehicle-level variables)

Program flow:

JIMVEH selected pertinent vehicle-level variables from the vehicle cards of the Work File and merged them into one dataset. This dataset was then merged into RTECS.ALLVEH2, creating a dataset of eligible vehicles with the appropriate variables. The program then concatenated the appropriate year onto the beginning and ending fuel purchase record dates for later use.

The remaining portion of the program constructed the following new variables:

- ODOMDAYS (the number of days between the beginning and ending odometer dates) had to be greater than or equal to 46 days if it was to be used in later computations
- ODOMMILE (the number of miles traveled between the beginning and ending odometer readings) was set to missing if ODOMDAYS was missing
- Two sets of single-month variables were set for each eligible vehicle. The first set was single-month odometer days. Using the beginning and ending odometer dates, JIMVEH calculated the number of odometer days in each month of the

RTECS year for a particular vehicle. The second set of variables was the single-month number of days the vehicle was owned by the respondent. The program used acquisition and disposition dates to compute the number of days in each month of the RTECS year that the vehicle was owned by the respondent.

-- HHVEHYRS (the number of vehicles owned by the household throughout the RTECS year) was computed by calculating the total number of days of vehicle ownership and dividing by 365.

- HHVEH2

Source: CN6212.PRO.ANN85.SOURCE:HHVEH2

Language: SAS

System

context: HHVEH2 used the datasets output by the programs JIMHH and JIMVEH to create a data file that would be used by the program IMMILMPG to impute annual miles and miles per gallon.

Inputs: -- CN6212.PRO.ANN85.SASDB.RTECS.JIMHH
(SAS dataset output by the program JIMHH)

-- CN6212.PRO.ANN85.SASDB.RTECS.JIMVEH
(SAS dataset output by the program JIMVEH)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.HHVEH2
(SAS dataset to be used by the IMMILMPG program)

Program

flow: HHVEH2 merged the JIMHH and JIMVEH files. It then created a set of new variables (MILESV1, MILESV2, MILESV3, and MILESV4) -- vehicle-level annual mileage estimates based on the RECS4 annual mileage estimate (RECSMILE).

- IMMILMPG

This program was also used to impute miles per gallon; see the description of IMMILMPG in Section 5.2.5.

5.2.5. Imputing Miles per Gallon

The first step in estimating MPG was to divide RTECS vehicles into two groups: those for which fuel purchase records were missing or suspect and those for which usable MPG estimates could be derived directly from purchase records. MPGs from fuel purchase records rated A, B, C, or D (as determined by the program MPG, explained in Section 4.4), were considered usable.

Usable MPGs could not be derived from fuel purchase data that, for any of the following reasons, were missing or considered suspect:

- The household may not have had use of the vehicle during the month in which fuel purchases were recorded. That is, the vehicle may have been disposed of before or acquired after the purchase record month.
- The vehicle may have been driven very few miles or not at all during the purchase record month. For a vehicle driven very few miles, small variations between fuel gauge readings and actual contents of the fuel tank at the beginning and/or end of the month can distort the MPG computation.
- Inconsistencies within the purchase data or among MPG figures calculated from successive purchases may suggest inaccurate or incomplete recording of fuel purchases.
- RAC may have been unable to contact the household to obtain fuel purchase data at all, or the household may have refused to undertake keeping such data even though they may have cooperated in other aspects of data collection.

Vehicles with usable MPG estimates were then grouped into 92 type/make/model/year classes that were judged to be similar in terms of MPG. Summary statistics for location and spread were computed for each of the 92 MPG classes.

Using these summary statistics, RAC identified 37 vehicles as outliers and carefully reviewed paper records for these cases. Of these, 21 cases were judged to be incomplete or to contain other errors, and their purchase records were recoded as unusable. The remaining 16 cases were considered unusual but internally consistent, and these records were retained in the fuel purchase records without change. After outliers were eliminated (less than 1 percent of all vehicles in all 92 classes), only four of the 92 classes had distributions that were confirmed as non-normal.

For the vehicles with usable MPGs, the MPG was computed from the data for a single calendar month, and had to be adjusted slightly to account for seasonal variations, since past studies indicated that MPG averages are highest in summer and lowest in winter. Adjustment factors were computed for each purchase record month as the ratio of the overall average MPG for all vehicles to the average value for the month. The average values for the months were smoothed using running means before the ratios were computed.

For vehicles for which usable MPGs could not be derived from purchase records, the MPGs were imputed using the summary statistics from the appropriate MPG class. Vehicles in the four MPG classes with non-normal distributions were assigned the median MPG within the class. Vehicles in each of the remaining 88 classes were assigned the median MPG for their class, plus a

random error from a normal distribution whose standard deviation was taken as the minimum of the standard deviation for their MPG class and the 3/4 interquartile range for their class.

Exhibit 5-5 presents information on the number of vehicles for which MPG figures were imputed.

Program used

• IMMILMPG

Source: CN6212.PRO.ANN85.SOURCE:IMMILMPG
(JCL included in source code)

Language: SAS

System context: Following the run of the HHVEH2 program, IMMILMPG performed all imputations for annual miles and miles per gallon.

Inputs: -- CN6212.PRO.ANN85.SASDB.RTECS.HHVEH2
(SAS database output by the program HHVEH2)

-- CN6212.PRO.ANN85.SASDB.RTECS.MPGTABLE
(SAS dataset created during preliminary analysis by the program CN6212.PRO.ANN85.JIMS.PGMS:NO3)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.MPGMIL
(SAS dataset containing imputed annual miles and miles per gallon)

Program flow:

IMMILMPG first determined groups for adjustments or imputations of miles traveled. Next, it imputed miles per gallon (MPG) for vehicles with missing or unacceptable MPG data. It also scaled single-month MPG to adjust for seasonal variation.

IMMILMPG included percentages, cutoffs, and model equations that were developed in preliminary analysis. These earlier exploratory programs are members of the partitioned dataset (PDS) CN6212.PRO.ANN85.JIMS.PGMS and are not covered in this documentation. (IMMILMPG is almost identical to the member NO4A in that PDS.)

Exhibit 5-5: 1985 RTECS MPG Estimates and Imputations

	<u>Vehicles</u>	
	<u>Number</u>	<u>Percent</u>
MPG estimated from fuel purchase records	3,412	40.2
MPG imputed		
Vehicle not driven during purchase record month, or driven less than 150 miles	757	8.9
Fuel purchase records collected but not usable	556	6.5
Vehicle in use by household at time fuel purchase records were collected; household refused, or other nonresponse	2,257	26.6
Vehicle disposed of before, or acquired after, fuel purchase record data collection (includes vehicles disposed of prior to sample month or acquired during or after sample month)	1,509	17.8

PERFORMING WEIGHTING AND ESTIMATING PROCEDURES

Approximately 4,000 households were included in the RTECS sample. By the end of 1985, these households had had the use of more than 8,000 vehicles, including those disposed of or acquired during the year.

In order to retain as many as feasible of the fragments of information available in the RTECS files, RAC included all RTECS sample households and all vehicles in the annualization process, even those for which actual RTECS data were fragmentary or absent. This approach created a greater need for imputing for missing information than would an approach of discarding from the sample those households which did not meet the completeness criteria. However, this approach simplified the weighting procedures needed to produce meaningful estimates for all U.S. households.

The first computation in developing RTECS household weights was to set a preliminary RTECS weight equal to

$$\frac{\text{1984 RECS household weight}}{\text{Probability of selection of the household for the RTECS subsample}}$$

For each RTECS household, the probability of selection was $P=1.000$ or the number computed as follows, whichever was lower:

If the household was high mileage --

$$P = \frac{1288}{\text{Rate per 10,000,000 households applicable to SSU}}$$

If the household was low mileage --

$$P = \frac{545}{\text{Rate per 10,000,000 households applicable to SSU}}$$

An RTECS household weight computed in this way was, in effect, appropriate for development of estimates for all U.S. households as of November 1984 (the center point of the RECS4 data collection). The time frame for RTECS data, however, was calendar year 1985. Conceptually, the RTECS data are longitudinal rather than cross-sectional in nature. Vehicle stock of a given household may change during the year, and households may form or dissolve. It is probably well beyond the scope of RTECS activity to deal with the complexities of longitudinal household estimation. Although a good deal of work has been done on this problem as it relates to other studies, decisions have yet to be made on whether households that form or dissolve during a time period of interest are to be considered part of the universe for estimation purposes.

For the 1985 RTECS, RAC created a mixture of cross-sectional and longitudinal data. The vehicle portion of the data file shows changes in vehicle stock during the RTECS time frame, with dates of acquisition and disposition as they apply. Household formations and dissolutions are not, however, reflected in the estimating procedure.

The sequence of final weighting steps involved use of an independent estimate of households as of July 1985, based on Current Population Survey (CPS) data. The 1985 population controls were extrapolated from the March 1984 and March 1985 CPS data, as shown in Exhibit 5-6, for each of the four Census regions and for the three categories of household type/size. Because the breakdowns by community type were not available from the March 1985 CPS, the controls for region by community type were extrapolated from the March 1983 and March 1984 CPS and then adjusted to match the estimated July 1985 regional totals; see Exhibit 5-7.

The preliminary November weights were then reweighted to the July 1985 control totals through three ratio adjustments similar to those used in the 1984 RECS weighting procedure. These ratio adjustments were carried out separately for original and revised sample SSUs.

The first ratio adjustment was determined using totals for the cross-tabulation of Census region and type of residence; see Exhibit 5-8. After the first adjustment was applied to the preliminary weight, the second ratio adjustment was computed using totals for one-person male, one-person female, and all other households; see Exhibit 5-9. The third ratio adjustment was determined using totals for Census region and type of residence computed after the application of the second adjustment; see Exhibit 5-10.

The final weights, after the application of the three ratio adjustments, reflect estimates of total households as of July 1985.

Programs used:

• WEIGHT

Source: CN6212.PRO.ANN85.SOURCE:WEIGHT
(JCL included in source code)

Language: SAS

System

context: WEIGHT used the SAS dataset containing the RECS4 weight, the RECS4 Household Questionnaire File, and the RTECS HVI Files to compute the initial RTECS weight, as of November 1984, for each RTECS household. That weight was used by the program WEIGHTJ to create the final RTECS weight.

Inputs: -- CN6615.PRO.RECS4.SASDB.RECS.WTAB
 (SAS dataset containing RECS4 weight)

 -- CN6615.PRO.ASK4QUES(0)
 (RECS4 Household Questionnaire File)

 -- CN6212.PRO.HVI.MONTH01(0)
 -- CN6212.PRO.HVI.MONTH02(0)
 -- CN6212.PRO.HVI.MONTH03(0)
 -- CN6212.PRO.HVI.MONTH04(0)
 -- CN6212.PRO.HVI.MONTH05(0)
 -- CN6212.PRO.HVI.MONTH06(0)
 -- CN6212.PRO.HVI.MONTH07(0)
 -- CN6212.PRO.HVI.MONTH08(0)
 -- CN6212.PRO.HVI.MONTH09(0)
 -- CN6212.PRO.HVI.MONTH10(0)
 -- CN6212.PRO.HVI.MONTH11(0)
 -- CN6212.PRO.HVI.MONTH12(0)
 (12 single-month HVI Files, current generation)

Output: -- CN6212.PRO.ANN85.SASDB.RTECS.WEIGHT
 (SAS dataset containing preliminary RTECS weight)

Program
 flow:

WEIGHT picked the variables IFIN, VALUE, CODE, and RECS4WT from the RECS4 weighting file. It created an intermediate variable, FRACTION, for each household. For high-mileage households (MILESGRP = 1), FRACTION was equal to

$(IFIN * VALUE) / (1288 * CODE)$

and for low-mileage households (MILESGRP = 2 or 8), FRACTION was equal to

$(IFIN * VALUE) / (545 * CODE)$.

If FRACTION was less than or equal to 1, the RTECS weight was set equal to the RECS4 weight; otherwise, the RTECS weight was equal to RECS4WT * FRACTION.

The program summed this preliminary RTECSWT by RECODE70, REGION, and SSUGRP for manual computation of the first ratio to adjust the weights to July 1985 control totals.

• WEIGHTJ

Source: CN6212.PRO.ANN85.SOURCE:WEIGHTJ
 (JCL included in source code)

Language: SAS

**System
context:**

WEIGHTJ used the output from the program WEIGHT to produce a final RTECS weight as of July 1985. This final weight was used by the program JIMHH (described in Section 5.2.4) when it created a file used for imputing annual miles and miles per gallon.

Input:

-- CN6212.PRO.ANN85.SASDB.RTECS.WEIGHT
(SAS dataset containing the preliminary RTECS weight)

Output:

-- CN6212.PRO.ANN85.SASDB.RTECS.WEIGHTJ
(SAS dataset containing the final RTECS weight)

**Program
flow:**

WEIGHTJ applied three sets of ratio adjustment factors to the initial RTECS weight to produce the final RTECS weight. RAC wrote the program in stages, as the output from each application of ratios was used to determine the ratios in the next step. The resulting program included all the ratio adjustments needed to output the final RTECS weight.

Exhibit 5-6: Sequence of Final Weighting Steps for 1985 RTECS:
 Determination of July 1985 Control Totals from March 1984 and
 March 1985 Regional and One-Person Counts

Determination of July 1985 control totals
 from March 84 and March 85 regional and one-person counts

	March 84	March 85	Est. July 85 Half-samples	
Northeast	18,199	18,348	18,397.7	9,198.8
North Central	21,456	21,697	21,777.3	10,888.7
South	28,809	29,561	29,836.3	14,919.2
West	16,943	17,163	17,236.3	8,618.2
TOTAL	85,407	86,789	87,249.7	43,624.8
One person	19,954	20,602	20,818.0	10,409.0
Male	7,529	7,922	8,053.0	4,026.5
Female	12,425	12,680	12,765.0	6,382.5
All others	65,453	66,187	66,431.7	33,215.8
TOTAL	85,407	86,789	87,249.7	43,624.8

July 85 estimated as $(85-84) \times 4/12 + 85$

Exhibit 5-7: Sequence of Final Weighting Steps for 1985 RTECS:
RTECS Weighting Census Estimates

RTECS Weighting Census Estimates
July 1985 household counts -- estimates use straight line method

	CPS	July 1985 Adjusted Projected	July 85 RECS half- sample	March 1983	March 1984	Unadjusted July 85 Projected
Northeast	18,398	18,398	9,199.0	17926	18199	18,563
Metro in CC		6,020	3,010.0	5983	6022	6,074
Metro out CC		8,463	4,231.7	8187	8338	8,539
Nonmetro		3,915	1,957.3	3756	3839	3,950
North Central	21,777	21,777	10,888.5	21331	21456	21,623
Metro in CC		6,279	3,139.6	5908	6048	6,235
Metro out CC		8,025	4,012.6	8113	8051	7,968
Nonmetro		7,473	3,736.3	7310	7357	7,420
South	29,839	29,839	14,919.5	28120	28809	29,728
Metro in CC		8,108	4,054.1	7434	7710	8,078
Metro out CC		9,486	4,743.2	8751	9051	9,451
Nonmetro		12,244	6,122.2	11935	12048	12,199
West	17,236	17,236	8,618.0	16541	16943	17,479
Metro in CC		5,577	2,788.4	5485	5558	5,655
Metro out CC		7,969	3,984.5	7533	7768	8,081
Nonmetro		3,690	1,845.2	3523	3617	3,742
TOTAL	87,250					

Unadjusted July 85 computed as $((B4-B3) * 16/12) + B4$

Exhibit 5-8: Sequence of Final Weighting Steps for 1985 RTECS:
Determination of First Ratio Adjustment for Weight J

1985 RTECS Weighting Determination of 1st ratio adjustment for WEIGHTJ Original sample SSUs					1985 RTECS Weighting Determination of 1st ratio adjustment for WEIGHTJ Revised sample SSUs				
Census Region	Total U.S.	Type of Residence (RECODE70)			Census Region	Total U.S.	Type of Residence (RECODE70)		
		Metro in CC 1	Metro out CC 2	Non- metro 4			Metro in CC 1	Metro out CC 2	Non- metro 4
Total US					Total US				
JUL85	43,625.0	12,992.1	16,972.0	13,661.0	JUL85	43,625.0	12,992.1	16,972.0	13,661.0
RTECSWT	43,296.5	12,824.8	16,882.4	13,589.3	RTECSWT	42,727.3	12,750.1	16,511.5	13,465.7
Northeast					Northeast				
JUL85	9,199.0	3,010.0	4,231.7	1,957.3	JUL85	9,199.0	3,010.0	4,231.7	1,957.3
RTECSWT	8,982.9	2,955.5	4,174.6	1,852.8	RTECSWT	9,214.8	3,096.1	4,131.9	1,986.8
RATIO1	1.024056	1.018440	1.013677	1.056401	RATIO1	0.998285	0.972190	1.024153	0.985151
North Central					North Central				
JUL85	10,888.5	3,139.6	4,012.6	3,736.3	JUL85	10,888.5	3,139.6	4,012.6	3,736.3
RTECSWT	10,980.7	3,070.8	4,025.5	3,884.4	RTECSWT	10,731.0	3,035.1	4,075.5	3,620.4
RATIO1	0.991603	1.022404	0.996795	0.961873	RATIO1	1.014677	1.034430	0.984566	1.032013
South					South				
JUL85	14,919.5	4,054.1	4,743.2	6,122.2	JUL85	14,919.5	4,054.1	4,743.2	6,122.2
RTECSWT	14,792.8	3,867.5	4,895.0	6,030.3	RTECSWT	14,347.6	3,848.8	4,427.6	6,071.2
RATIO1	1.008564	1.048248	0.968988	1.015239	RATIO1	1.039860	1.053341	1.071280	1.008400
West					West				
JUL85	8,618.0	2,788.4	3,984.5	1,845.2	JUL85	8,618.0	2,788.4	3,984.5	1,845.2
RTECSWT	8,540.1	2,931.0	3,787.3	1,821.8	RTECSWT	8,433.9	2,770.1	3,876.5	1,787.5
RATIO1	1.009121	0.951347	1.052068	1.012844	RATIO1	1.021828	1.006606	1.027860	1.032395

Exhibit 5-9: Sequence of Final Weighting Steps for 1985 RTECS:
 Determination of Second Ratio Adjustment for Weight J

1985 RTECS Weighting
 Determination of 2nd ratio adjustment for WEIGHTJ
 Original sample SSUs

Total U.S.
 JUL85 43624.8
 RTECSWT 43625.4

One person male
 JUL85 4026.5
 RTECSWT 3752.6
 RATIO2 1.072989

One person female
 JUL85 6382.5
 RTECSWT 6553.9
 RATIO2 0.973847

All other households
 JUL85 33215.8
 RTECSWT 33318.9
 RATIO2 0.996905

1985 RTECS Weighting
 Determination of 2nd ratio adjustment for WEIGHTJ
 Revised sample SSUs

Total U.S.
 JUL85 43624.8
 RTECSWT 43625.6

One person male
 JUL85 4026.5
 RTECSWT 3961.1
 RATIO2 1.016510

One person female
 JUL85 6382.5
 RTECSWT 6286.9
 RATIO2 1.015206

All other households
 JUL85 33215.8
 RTECSWT 33377.6
 RATIO2 0.995152

Exhibit 5-10: Sequence of Final Weighting Steps for 1985 RTECS:
Determination of Third Ratio Adjustment for Weight J

1985 RTECS Weighting Determination of 3rd ratio adjustment for WEIGHTJ Original sample SSUs					1985 RTECS Weighting Determination of 3rd ratio adjustment for WEIGHTJ Revised sample SSUs				
Census Region	Total U.S.	Type of Residence (RECODE70)			Census Region	Total U.S.	Type of Residence (RECODE70)		
		Metro in CC 1	Metro out CC 2	Non- metro 4			Metro in CC 1	Metro out CC 2	Non- metro 4
Total US					Total US				
JUL85	43,625.0	12,992.1	16,972.0	13,661.0	JUL85	43,625.0	12,992.1	16,972.0	13,661.0
RTECSWT	43,624.9	13,000.0	16,971.6	13,653.3	RTECSWT	43,624.8	13,005.6	16,963.8	13,655.4
Northeast					Northeast				
JUL85	9,199.0	3,010.0	4,231.7	1,957.3	JUL85	9,199.0	3,010.0	4,231.7	1,957.3
RTECSWT	9,198.5	3,015.5	4,223.8	1,959.2	RTECSWT	9,200.2	3,011.2	4,234.0	1,955.0
RATIO1	1.000054	0.998176	1.001870	0.999030	RATIO1	0.999869	0.999601	0.999456	1.001176
North Central					North Central				
JUL85	10,888.5	3,139.6	4,012.6	3,736.3	JUL85	10,888.5	3,139.6	4,012.6	3,736.3
RTECSWT	10,886.2	3,135.4	4,019.9	3,730.9	RTECSWT	10,905.1	3,148.4	4,015.1	3,741.6
RATIO1	1.000211	1.001339	0.998184	1.001447	RATIO1	0.998477	0.997204	0.999377	0.998583
South					South				
JUL85	14,919.5	4,054.1	4,743.2	6,122.2	JUL85	14,919.5	4,054.1	4,743.2	6,122.2
RTECSWT	14,912.2	4,058.3	4,735.9	6,118.0	RTECSWT	14,904.6	4,055.4	4,735.4	6,113.8
RATIO1	1.000489	0.998965	1.001541	1.000686	RATIO1	1.000999	0.999679	1.001647	1.001373
West					West				
JUL85	8,618.0	2,788.4	3,984.5	1,845.2	JUL85	8,618.0	2,788.4	3,984.5	1,845.2
RTECSWT	8,628.0	2,790.8	3,992.0	1,845.2	RTECSWT	8,614.9	2,790.6	3,979.3	1,845.0
RATIO1	0.998840	0.999140	0.998121	1	RATIO1	1.000359	0.999211	1.001306	1.000108

DEVELOPING THE ANNUALIZED FINAL FILE

The annualized data and weights described in the preceding sections were included in rectangular data files developed for the Department of Energy and for public use. Miles, gallons of fuel, and cost totals were computed at the household as well as at the vehicle level.

Selected data were extracted from the 1984 RECS Household Questionnaire File for inclusion in the RTECS Annualized Final File. Some additional codes pertaining to RTECS response rates were also included in the final file -- date of last contact, and result codes for beginning and ending odometer readings, mid-year contacts, and fuel purchase records.

Programs used:

• SUMVEH

Source: CN6212.PRO.ANN85.SOURCE:SUMVEH
(JCL included in source code)

Language: SAS

System context: SUMVEH combined all vehicle variables (output from the programs GETVEH, IMPCHAR, WEIGHTJ, and IMMILMPG) to create final SAS vehicle- and household-level files.

Inputs: -- CN6212.PRO.ANN85.SASDB.RTECS.ALLVEH4
(SAS dataset output by the program IMPCHAR)

-- CN6212.PRO.ANN85.SASDB.RTECS.MPGMIL
(SAS dataset output by the program IMMILMPG)

-- CN6212.PRO.ANN85.SASDB.RTECS.ALLHH
(SAS dataset output by the program GETVEH)

-- CN6212.PRO.ANN85.SASDB.RTECS.WEIGHTJ
(SAS dataset output by the program WEIGHTJ)

Outputs: -- CN6212.PRO.ANN85.SASDB.RTECS.FINALVEH
(Final vehicle-level file)

-- CN6212.PRO.ANN85.SASDB.RTECS.FINALHH
(Final household-level file)

Program flow: Starting with the file RTECS.ALLVEH4, the program added final MPG and MILES figures and imputation flags from RTECS.MPGMIL. It defined period of vehicle use (PERIOD) based on month of acquisition

and disposition. If the vehicle was acquired before July 1, 1985, and disposed of on or after July 1, 1985 (or not disposed of), SUMVEH set a variable to show that the vehicle was owned on July 1, 1985 (HADJUL1 = 1). The program computed gallons of fuel used by each vehicle (GALS) as MILES/MPG * 10 (since MPG was in tenths) and rounded to a whole number. It computed cost of fuel (COST) for each vehicle as GALS * NEWCPG/1000 (since NEWCPG was in cents and COST had one implied decimal place) and rounded it to a whole number.

SUMVEH checked vehicles to see that DAYS was greater than zero except in the case of vehicles acquired on 12/31/85. Those vehicles were not owned for a whole day, but were owned during the RTECS year. The final vehicle-level file was written to RTECS.FINALVEH.

For each household, SUMVEH summed values for all household vehicles to give number of vehicles owned on July 1 (VSJUL85), total vehicle days (VEHDAYS), total vehicles owned by the household (HHVEH), total miles (HHMILES), total gallons (HHGALS), and total cost (HHCOST). It computed average vehicles owned by the household (AVGVEHS) as VEHDAYS/365 * 100 and rounded to a whole number. This variable had two implied decimal places.

SUMVEH set the RYEAR and IMPSTOCK summary codes for the final file based on RTECSYR and GROUP. It merged variables from RTECS.ALLHH, the new summary variables, and the weights from RTECS.WEIGHTJ to give the final household-level file, RTECS.FINALHH.

- PUT

Source: CN6212.PRO.ANN85.SOURCE:PUT

Language: SAS

System

context: PUT used the outputs from the program SUMVEH to write vehicle- and household-level OS files. Those files were used by the programs WORKADD, MERGEDOE, and MERGERAC to create the Annualized Final Files.

Inputs: -- CN6212.PRO.ANN85.SASDB.RTECS.FINALVEH
(Final vehicle-level file)

-- CN6212.PRO.ANN85.SASDB.RTECS.FINALHH
(Final household-level file)

Outputs: --CN6212.PRO.ANN85.FIN1V03
(Vehicle-level OS file)
-- CN6212.PRO.ANN85.FIN0H03
(Household-level OS file)

Program
flow:

PUT wrote vehicle- and household-level imputation files from the final SAS files RTECS.FINALVEH and RTECS.FINALHH. The layouts of the imputation files are shown in Appendix A.

• ADDRECS

JCL: CN6212.PRO.ANN85.JCL:ADDRECS

Source: CN6212.PRO.ANN85.SOURCE:ADDRECS

Language: Fortran

System
context:

Using the RECS4 Household Questionnaire File, ADDRECS created an intermediate extract file prior to the execution of the programs MERGEDOE and MERGERAC.

Input: -- CN6615.PRO.ASK4QUES(0)
(RECS4 Household Questionnaire File)

Output: -- CN6212.KBG.ANN85.ADDRECS.DATA
(Intermediate extract file)

Program
flow:

ADDRECS moved various fields from the RECS4 Household Questionnaire File to an output area. It summed annual consumption and cost variables across all five fuels and placed the results in the output area. It checked variables for values of all 9s, which were treated as 0.

ADDRECS filled the first 15 characters of the output area with identification information, including household ID, sequence number (00), and a card type (OH02) so that the extract record generated would merge correctly with other records in forming the Annualized Final Files.

• WORKADD

Source: CN6212.PRO.ANN85.SOURCE:WORKADD
(JCL included in source code)

Language: SAS

System
context: WORKADD used the RTECS Work File and part of the
output from the program PUT to create an
intermediate file to be used in the creation of the
Annualized Final Files by the programs MERGEDOE and
MERGERAC.

Inputs: -- CN6212.PRO.ANN85.WORKMRGE
(RTECS Work File)

-- CN6212.PRO.ANN85.FINOH03
(Household-level imputation file output by the
program PUT)

Output: -- CN6212.PRO.ANN85.ADDOH03.DATA
(Intermediate file to be used by MERGEDOE)

Program
flow: WORKADD added data from the Work File to the
intermediate household-level imputation file
(FINOH03), creating a new file. It read in input
files as SAS datasets, then merged them. It
printed errors for any unmatched records from
either file. It then merged the two datasets and
wrote them to the output file.

• MERGEDOE

JCL: CN6212.PRO.ANN85.JCL:MERGEDOE

Source: CN6212.PRO.ANN85.SOURCE:MERGEDOE

Language: Fortran

System
context: MERGEDOE merged data from several intermediate
files (output from the programs ADDRECS, WORKADD,
and PUT) into the Annualized Final DOE File.

Inputs: -- CN6212.KBG.ANN85.ADDRECS.DATA
(Intermediate file output by ADDRECS)

-- CN6212.PRO.ANN85.ADDOH03.DATA
(Intermediate file output by WORKADD)

-- CN6212.PRO.ANN85.FIN1V03.DATA
(intermediate vehicle-level imputation file
output by PUT)

Output: -- CN6212.PRO.ANN85.DOEM~~MM~~YY.RECS4.TRANS
(Annualized Final DOE File; ~~MM~~ = month and YY =
year) . . .

Program
flow:

MERGEDOE merged data from three intermediate files, by household ID and card type, into a rectangular DOE-use tape.

It first read and stored all data for a household (RECS4 Household Questionnaire Data on Card OH02, imputed household-level data on Card OH03, and vehicle data on Card LV03 -- one card per vehicle).

Next, the program moved household-level variables to the appropriate columns of the output area. It entered a loop to process each LV03 Card for the household, moving vehicle data to the appropriate slot in the output area.

The program wrote the record, initialized areas, and read data for the next household.

• MERGERAC

JCL: CN6212.PRO.ANN85.JCL:MERGERAC

Source: CN6212.PRO.ANN85.SOURCE:MERGERAC

Language: Fortran

System
context: MERGERAC merged data from several intermediate files (output from the programs ADDRECS, WORKADD, and PUT) into the Annualized Final RAC File.

Inputs: -- CN6212.KBG.ANN85.ADDRECS.DATA
(Intermediate file output by ADDRECS)
-- CN6212.PRO.ANN85.ADDOH03.DATA
(Intermediate file output by WORKADD)
-- CN6212.PRO.ANN85.FIN1V03.DATA
(intermediate vehicle-level imputation file
output by PUT)

Output: -- CN6212.PRO.ANN85.RACMMYY.RECS4.TRANS
(Annualized Final RAC File; MMM = month and YY =
year)

Program
flow:

MERGERAC was identical to the program MERGEDOE, except that it moved the RAC ID to columns 1-4 of the output record. This ID was not moved by program MERGEDOE.

APPENDIX A:

FILE LAYOUTS

<u>Sample File</u>	A-2
Card 00 (Household Card).....	A-2
Cards 01-12 (Vehicle Cards).....	A-3
<u>Household/Vehicle Information File</u>	A-4
Card OH01(Household Card).....	A-4
Card 1V01 (Vehicle Card).....	A-8
Card 1V02 (Vehicle Card).....	A-10
<u>Fuel Purchase Record File</u>	A-16
Card 5H01 (Household information from purchase records).....	A-16
Card 6V01 (Vehicle information from purchase records).....	A-17
Card 6V02 (VNAME Card).....	A-21
Card 6V03 (VSTAT Card).....	A-22
Card 7Pxx (Purchase information).....	A-27
<u>Work File</u>	A-29
List of Cards Contained in Work File.....	A-29
Card OH02 (Household Card).....	A-29
<u>Final Household-Level Imputation File</u>	A-31
<u>Final Vehicle-Level Imputation File</u>	A-32
<u>RTECS Annualized Final File</u>	A-34
File Layout, and Source of Each Variable.....	A-34
TPL Codebook.....	A-38

SAMPLE FILE: Card 00 (Household Card)

The program CREATE used the Sample File to produce the HVI Files.

<u>Col.</u>	<u>Variable</u>
1-4	Household ID
9-10	Card type (00)
11-13	PSU
14-16	SSU
17-18	HU
19-22	Month and year of RECS4 interview (MMYY)
23-24	Number of people in household (RECS4 Q.96)
25-26	Householder education (RECS4 Q. 106)
27-28	Total number of household vehicles (RECS4 Q. 78)
29	Number of vehicles described in RECS4 questionnaire
35	Miles group for sample selection
36-38	Sequence number for sample selection
39	Selected code
40-41	Matrix cell
42-43	Sample month
44-45	Labels batch run number
46-47	Vehicle/no-vehicle flag
50-51	Contact code
79-80	Second label run number

SAMPLE FILE: Cards 01-12 (Vehicle Cards)

<u>Col.</u>	<u>Variable</u>
1-4	Household ID
9-10	Card type (01-12)
11-12	Vehicle type code
13-24	Vehicle make name
25-26	Vehicle model year
27-38	Vehicle model name
39	Vehicle obtained in last 12 months (RECS4 Q. 82)
40-43	Month and year vehicle obtained if 39 = 1 (RECS4 Q. 83; MMY)
44-48	Miles driven since vehicle obtained if 39 = 1 (RECS4 Q. 84)
49-53	Miles driven in last 12 months if 39 = 2 (RECS4 Q. 85)
55-64	Vehicle model supplemental name
66	"D" if vehicle has been dropped from household vehicle stock

HOUSEHOLD/VEHICLE INFORMATION FILE: Card OH01

<u>Col.*</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
01-04 (H01-04)	HHID-- Household ID no.	Range: 1001-6495, 7001-7203
07-08 (H09-10)	VEHNUM-- Vehicle no.	00 (computer generated)
10-13	CARD-- Card type and no.	OH01 (computer generated)
15	HHGP-- Household group	(computer generated, based on household ID) 1 (IDs 1001-4325) 2 (IDs 4326-5150) 3 (IDs 5151-5450) 4 (IDs 5451-6000) 5 (IDs 6001-6375) 6 (IDs 6376-6482, 7001-7102) 7 (IDs 6483-6495, 7103-7203)
17-18 (H42-43)	SAMPMO-- Sample month	Range: 01-12 (month assigned for fuel purchase data collection; computer generated)
20-25	RECSDATE-- Date of 1984 RECS interview	(computer generated; from RECS4 Household Questionnaire File 949-954)
27-29 (H11-13)	PSURAC-- RAC PSU no.	(computer generated)
30-32 (H14-16)	CLUSTRAC-- RAC SSU no.	(computer generated)
33-34 (H17-18)	HHURAC-- RAC housing unit no.	(computer generated)
36 (H35)	MILESGP-- Miles group for selection	(computer generated) 1--high miles 2--low miles

* Column numbers in parentheses indicate source of items carried over from the Sample File to the HVI File by the program CREATE; "H" and "V" indicate whether the item was in the Household or the Vehicle Card in the Sample File.

HOUSEHOLD/VEHICLE INFORMATION FILE: Card OH01 (continued)

<u>Col.*</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
38-40 (H36-38)	SAMPSEQ-- Sample selection sequence	(computer generated)
42-43 (H40-41)	SAMPCELL-- Sample matrix cell	Range: 11-13,21-23, 31-33 (computer generated)
45-46 (H50-51)	HHSTATUS-- Household current status code	Range: 11-13, 21-23, 32, 41-43, 51 (used for end-of-year contacts)
<p>+++++</p> <p><u>Use telephone procedure</u></p> <p>11 -- Standard contact approach</p> <p>12 -- Refusal conversion approach (special advance letter and/or interviewer training)</p> <p>13 -- Other special handling (code is rarely used)</p> <p><u>Use mail procedure</u></p> <p>21 -- Standard mail approach</p> <p>22 -- Refusal conversion approach</p> <p>23 -- Other special handling (code rarely used)</p> <p><u>Include only for Social Security Questions</u></p> <p>32-- Refusal conversion approach (code rarely used)</p> <p><u>Delete from all end-of-year contacts</u></p> <p>41 -- Untouchable (prior refusal considered to be firm and final; conversion attempt impractical)</p> <p>42 -- Current address of household unknown; all efforts to trace have been completed</p> <p>43 -- Other -- Household still exists as far as can be determined, but should not be contacted (code rarely used)</p> <p>51 -- Household dissolved, no longer exists</p> <p>NOTE: Codes 11-13 and 32 indicate RAC believes it has a usable phone number. Other codes indicate they may or may not have a usable phone number.</p> <p>+++++</p>		
49-50	NUMVELIG-- Number of eligible vehicles	Range: 01-12 (count of Sample File vehicles not coded "dropped" in col. 66 of Vehicle Card; computer generated)

* Column numbers in parentheses indicate source of items carried over from the Sample File to the HVI File by the program CREATE; "H" and "V" indicate whether the item was in the Household or the Vehicle Card in the Sample File.

HOUSEHOLD/VEHICLE INFORMATION FILE: Card OH01 (continued)

NOTE: For all the remaining codes on Card OH01, refer to the Coding Instructions for Turnaround Forms, found in Appendix B, for additional details.

<u>Col.</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
52	BODOMCT-- Beginning odometer contact type	1--Basic contact by phone 2--Basic contact by mail 9--Not applicable 0--Contact not attempted
53	BODOMRC-- Beginning odometer result code	1--Some data collected 5--No data collected 6--Refusal 9--Not applicable 0--Household terminated participation earlier
55	FUELPCT-- Fuel purchase contact type	1--Basic contact by phone 2--Personal contact completed 3--Personal contact attempted, not completed 9--Not applicable 0--Contact not attempted
56	FUELPRC-- Fuel purchase result code	1--Some FPR data collected 2--No FPR data collected, but vehicle stock updated 5--No data collected 6--Refusal, or untouchable status at time of contact 9--Not applicable 0--Household terminated participation earlier
58	MIDYRCT-- Mid-year contact type	1--Basic contact by phone 2--Basic contact by mail 0--Contact not attempted

HOUSEHOLD/VEHICLE INFORMATION FILE: Card OH01 (continued)

Col.	Variable Name and Definition	Legal Codes
59	MIDYRRC-- Mid-year contact result code	Range: 1-6, 0
	+-----+ 1 -- Vehicle acquisition and/or disposition information obtained (no address/telephone change) 2 -- Household address/telephone change information obtained (no vehicle acquisition/disposition) 3 -- Vehicle information AND address/telephone change obtained 4 -- Telephone contact completed; no address/phone/vehicle changes 5 -- No cards returned from mail contact OR telephone contact not completed 6 -- Refusal at time of this contact 0 -- Household terminated participation earlier (legal only if column 58 is also "0") +-----+	
61	EODOMCT-- Ending odometer contact type	1--Basic contact by phone 2--Basic contact by mail 9--Not applicable 0--Contact not attempted
62	EODOMRC-- Ending odometer result code	1--Some data collected 5--No data collected 6--Refusal 9--Not applicable 0--Household terminated participation earlier
64-65	LASTMO-- Month of last contact	Range: 01-12 Most recent month when household's vehicle stock was checked, and updated as necessary
66-67	LASTDY-- Day of last contact	Range: 01-31
68-69	LASTYR-- Year of last contact	Range: 84-86

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V01

<u>Col.*</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
01-04 (H01-04)	HHID-- Household ID no.	
07-08 (V09-10)	VEHNUM-- Vehicle no.	Range: 01-12 (Imputed acquired vehicles are numbered 21 or higher, but do not appear in HVI Files)
10-13	CARD-- Card type and no.	1V01 (computer generated)
15-16 (V11-12)	VTTYPE-- Vehicle type	01--Station wagon 02--Automobile 03--Jeep or similar vehicle 04--Passenger van or minibus 05--Cargo van 06--Pickup truck 07--Other truck 08--Motor home 21--Other 98--Unknown
18-19	MAKEC-- Vehicle make code	Range: 01-05, 08-12, 14-36, 39, 41-44, 51, 53-59, 63-95, 98 (See Appendix C for vehicle make codes and names)
21-32 (V13-24)	MAKEN-- Vehicle make name	(See Appendix C for vehicle make codes and names)
34-35 (V25-26)	VYEAR-- Vehicle year	Range: 35-86, 98
37-38	MODEL C-- Vehicle model code	(See Appendix C for vehicle model codes and names; see Appendix D for Matrix of legal code combinations for MAKEC and MODEL C)
40-51 (V27-38)	MODEL N-- Vehicle model name	(See Appendix C for vehicle model codes and names)
53-64 (V55-64)	MODEL S-- Vehicle model supplemental name	(This field is used primarily for notations related to load capacity of trucks)

* Column numbers in parentheses indicate source of items carried over from the Sample File to the HVI File by the program CREATE; "H" and "V" indicate whether the item was in the Household or the Vehicle Card in the Sample File.

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V01 (continued)

<u>Col.</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
66-67	CYLS-- Number of cylinders	04--4-cylinder 05--5-cylinder 06--6-cylinder 08--8-cylinder 09--Rotary 10--Electric 21--Other 98--Unknown
69	AIR-- Presence of air conditioning	0--No 1--Yes 8--Unknown
70	TRANS-- Type of transmission	1--Automatic 2--Manual shift 8--Unknown
71	DOORS-- Number of doors	2--2-door 3--3-door 4--4-door 5--5-door 8--Unknown 9--Not applicable
73	JOBUSE-- Vehicle used on the job	0--No 1--Yes 8--Unknown
74	NONBUS-- Nonbusiness use	0--No 1--Yes 8--Unknown 9--Not applicable
75	DRIVES-- No. of regular drivers	0-6--Number of regular drivers 7--7 or more 8--Unknown
77-78	MPGEST-- Miles per gallon respondent estimate	Range: 04-59, 98 04-59--Mileage estimate 98--Unknown

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V02

<u>Col.*</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
01-04 (H01-04)	HHID-- Household ID no.	
07-08 (V09-10)	VEHNUM-- Vehicle no.	Range: 01-12 (Imputed acquired vehicles, 21 and up, don't appear in HVI Files)
10-13	CARD-- Card type and no.	1V02 (computer generated)
15	ACQNUM-- Acquisition code	1--Before date specified 2--On date specified 3--Between dates

Code in col. 15 applies to vehicle acquisition dates in cols. 17-29. In the HVI Files produced by the program CREATE, col. 15 was set to 1 if the vehicle number was less than 5 (household had it at the time of the RECS4 interview). If the household had the vehicle at the time of the RECS4 interview (RECSDATE), the date of the RECS interview appears in cols. 17-22 (the date is 040185 for Mailed Questionnaires).

Code 2 is used only if the vehicle was acquired during 1985 and the specific acquisition date is known.

Code 3 is used to indicate a time span during which the vehicle was acquired. Columns 17-22 indicate the beginning of the time span and columns 24-29 indicate the end of the time span.

17-18**	BMOACQ-- Begin month vehicle acquired	The acquisition date can be no earlier than RECSDATE. If VEHNUM < 5, the acquisition date is
19-20	BDYACQ-- Begin day vehicle acquired	RECSDATE
21-22	BYRACQ-- Begin year vehicle acquired	

* Column numbers in parentheses indicate source of items carried over from the Sample File to the HVI File by the program CREATE; "H" and "V" indicate whether the item was in the Household or the Vehicle Card in the Sample File.

** Range and consistency checks for dates in Card 1V02:

- All dates must be between October 1984 and January 1986, inclusive.
- Ranges: Month = 01-12; Day = 01-31, 98; Year = 84-86
- If month = 02, then day < 29 or = 98
- If month = 04, 06, 09, or 11, then day < 31 or = 98
- If month = 01, 03, 05, 07, 08, 10, or 12, then day < 32 or = 98

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V02 (continued)

<u>Col.</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
24-25**	CMOACQ-- Close month vehicle acquired	Columns 24-29 are blank unless column 15 = 3. Close date must be later than acquisition date in columns 17-22.
26-27	CDYACQ-- Close day vehicle acquired	
28-29	CYRACQ-- Close year vehicle acquired	
31	ODOMBC-- Beginning odometer code	1--Odometer reading OK 2--Odometer reading questionable 3--Odometer not working 5--Not obtained, other reason
33-38	BMILES-- Beginning odometer reading	Range: 000000-299999, Blank If ODOMBC = 3 or 5, BMILES must be blank If VYEAR=85-86, BMILES < 50,000 If VYEAR=84, BMILES < 100,000 If VYEAR=83, BMILES < 150,000 If VYEAR=82, BMILES < 200,000 If VYEAR<82, BMILES < 250,000
40-41**	BMOMIL-- Beginning odometer month	If col. 42-43 is not blank, then col. 40-45 must be later than 122084;
42-43	BDYMIL-- Beginning odometer day	If col. 24-29 is not blank and is later than 122084, col. 40-45 must be later than or equal to col. 24-29;
44-45	BYRMIL-- Beginning odometer year	If col. 24-29 is blank and col. 17-22 is not blank and is later than 122084, col. 40-45 must be equal to or later than col. 17-22.
47	ODOMECC-- Ending odometer code	1--Odometer reading OK 2--Odometer reading questionable 3--Odometer not working 5--Not obtained, other reason

** Range and consistency checks for dates in Card 1V02:

- All dates must be between October 1984 and January 1986, inclusive.
- Ranges: Month = 01-12; Day = 01-31, 98; Year = 84-86
- If month = 02, then day < 29 or = 98
- If month = 04, 06, 09, or 11, then day < 31 or = 98
- If month = 01, 03, 05, 07, 08, 10, or 12, then day < 32 or = 98

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V02 (continued)

<u>Col.</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
49-54	EMILES-- Ending odometer reading	Range: 000000-299999 If ODOME3 = 3 or 5, EMILES must be blank; EMILES BMILES
56-57**	EMOMIL-- Ending odometer month	If col. 56-61 not blank, then: If col. 40-45 not blank, col. 56-61 must be later than or equal to col. 40-45;
58-59	EDYMIL-- Ending odometer day	If col. 40-45 is blank and col. 24-29 is not blank, col. 56-61 must be later than or equal to col. 24-29;
60-61	EYRMIL-- Ending odometer year	If col. 40-45 and col. 24-29 are both blank and col. 17-22 is not blank, col. 56-61 must be later than or equal to col. 17-22.

** Range and consistency checks for dates in Card 1V02:

- All dates must be between October 1984 and January 1986, inclusive.
- Ranges: Month = 01-12; Day = 01-31, 98; Year = 84-86
- If month = 02, then day < 29 or = 98
- If month = 04, 06, 09, or 11, then day < 31 or = 98
- If month = 01, 03, 05, 07, 08, 10, or 12, then day < 32 or = 98

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V02 (continued)

<u>Col.</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
63	DISNUM-- Disposition code	1--Before date specified 2--On date specified 3--Between dates

This code applies to the vehicle disposition dates in columns 65-70.

If the household still has the vehicle, columns 63-70 are left blank.

If the household disposed of the vehicle before 1/1/85, col. 63 was coded 1 and cols. 65-70 were coded 010185.

Code 2 is used only if the vehicle was disposed of during 1985 and if the specific disposition date is known.

Code 3 is used to indicate a time span during which the vehicle was disposed of. Columns 65-70 indicate the beginning of the time span and columns 72-77 indicate the end of the time span.

65-66**	BMODIS-- Begin month vehicle disposed	If DISNUM is blank, col. 65-70 is blank. If DISNUM is present, col. 65-70 must be present and:
67-68	BDYDIS-- Begin day vehicle disposed	If col. 56-61 present, col. 65-70 must be later than or equal to col. 56-61;
69-70	BYRDIS-- Begin year vehicle disposed	If col. 40-45 and col. 56-61 present, col. 65-70 must be later than or equal to col. 40-45; If col. 40-45 and col. 56-61 blank and col. 24-29 present, col. 65-70 must be later than or equal to col. 24-29; If col. 40-45, 56-61, and 24-29 are blank and col. 17-22 present, col. 65-70 must be equal to col. 17-22.

**** Range and consistency checks for dates in Card 1V02:**

- All dates must be between October 1984 and January 1986, inclusive.
- Ranges: Month = 01-12; Day = 01-31, 98; Year = 84-86
- If month = 02, then day < 29 or = 98
- If month = 04, 06, 09, or 11, then day < 31 or = 98
- If month = 01, 03, 05, 07, 08, 10, or 12, then day < 32 or = 98

HOUSEHOLD/VEHICLE INFORMATION FILE: Card 1V02 (continued)

<u>Col.</u>	<u>Variable Name and Definition</u>	<u>Legal Codes</u>
72-73**	CMODIS-- Close month vehicle disposed	Cols. 72-77 blank unless DISNUM = 3; must be later than col. 65-70
74-75	CDYDIS-- Close day vehicle disposed	/
76-77	CYRDIS-- Close year vehicle disposed	
79	VCODE-- Vehicle current status code	0--Household no longer has vehicle, or vehicle ineligible 1--Eligible vehicle currently in use by household

The vehicle status code is created by the program CHECKUP. It is determined by the acquisition and disposition dates (col. 17-29 and 65-77) and by the vehicle supplemental status code (col. 80) if it is present.

Generally, if a vehicle was reported to RAC but was never eligible or becomes ineligible (though not really disposed of) during the year, RAC created a disposition code and disposition date to show when it became ineligible. A vehicle supplemental status code was also added to the file to show the special nature of the vehicle.

If the vehicle was never eligible, the disposition code and date should be equal to the acquisition code and date. For example, if a vehicle was reported in the RECS4 personal interview but was never eligible, the disposition code would be "1" and the disposition date would be the date of the RECS interview.

If the vehicle was eligible for part of the year but became ineligible (for instance, if the household kept it but dismantled it for parts), the disposition code and date should be based on the time when the vehicle became ineligible.

**** Range and consistency checks for dates in Card 1V02:**

- All dates must be between October 1984 and January 1986, inclusive.
- Ranges: Month = 01-12; Day = 01-31, 98; Year = 84-86
- If month = 02, then day < 29 or = 98
- If month = 04, 06, 09, or 11, then day < 31 or = 98
- If month = 01, 03, 05, 07, 08, 10, or 12, then day < 32 or = 98

FUEL PURCHASE RECORD FILE:
Card 5H01 (Household information from purchase records)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
01-04	Household ID no.	1001-6495, 7001-7205
07-08	Vehicle no.	00
10-13	Card type and no.	5H01 (computer generated)
17-18	Record month (month for which purchase records were collected)	01-12
22-23	Assigned month (usually same as record month)	01-12
25	Month code	Range: 1-3 Indicates whether record month is: Originally assigned month (1) Substitute month (2) Additional month (3)
27	Procedure used to collect purchase records	1--Telephone 2--Mail 3--Mixed (telephone and mail)
29	Number of vehicles for which data were collected	1-8

FUEL PURCHASE RECORD FILE:
Card 6V01 (Vehicle information from purchase records)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
01-04	Household ID no.	
07-08	Vehicle no.	01-12
10-13	Card type and no.	6V01 (computer generated)
17-18	Record month (month for which purchase records were collected)	01-12, 99
20-21	Month of beginning odometer reading	01-12, 99 (Assumed to be record month unless otherwise indicated)
22-23	Day of beginning odometer reading	1-31, 98, 99 (First day of record month unless otherwise indicated)
25-30	Beginning odometer reading	Range: 0-150000, 999995, 999998, 999999 999995 -- Odometer not working
32-33	Beginning fuel gauge reading	Range: 00-16 (sixteenths of tank) 00--empty or below empty 16--Full or above full 95--Fuel gauge not working 98--Unknown, or date differs from date of beginning odometer reading 99--Not applicable
35	Is fuel gauge accurate?	0--No 1--Yes 5--Doesn't work 8--Unknown
37-39	Fuel tank capacity as reported by household (Tenths of gallons)	Range: 90-400, 995, 998, 999 995--Two fuel tanks 998--Unknown 999--Not applicable
41-42	Month of ending odometer reading	01-12, 99 (Assumed to be record month unless otherwise indicated)
43-44	Day of ending odometer reading	1-31, 98, 99 (Last day of record month unless otherwise indicated)

FUEL PURCHASE RECORD FILE: Card 6V01 (continued)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
46-51	Ending odometer reading	0-150000, 999995, 999998, 999999 999995--Odometer not working
53-54	Ending fuel gauge reading	00-16 (sixteenths of tank) 95--Fuel gauge not working 98--Unknown, or date differs from ending odometer reading 99--Not applicable
56	Are all purchases reported?	1-- Respondent reports that all purchases are included in record 2-- Respondent reports one or more purchases are missing 3-- Editor's judgment: One or more purchases missing in period covered by record (recoded from "2" during MPG review) 4-- Editor's judgment: Purchases appear complete for period covered by record (recoded from "2" during MPG review) 9-- Not applicable
58-59	No. of missing purchases	01-10, 98, 99
61	Was vehicle driven the usual number of miles?	1-- About the usual number of miles 2-- More than usual 3-- Less than usual 8-- Unknown 9-- Not applicable
63-66	Usual number of miles	0010-5000, 9998, 9999 Applicable only if code "2" or "3" in col. 61

FUEL PURCHASE RECORD FILE: Card 6V01 (continued)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
68-69	Reason, if vehicle not driven	<u>Vehicle disposed of</u> 11-- Given away 12-- Sold 13-- Traded in for another vehicle 14-- Destroyed in accident 15-- Other 18-- Disposed of vehicle, method unknown <u>Driver-related reason</u> 21-- Don't drive at this time of year 22-- License lost or suspended 23-- Driver away (vacation, business, service, etc.) 24-- Driver ill 25-- Other 28-- Driver-related, reason unknown 31-- <u>Vehicle under repair or waiting for service</u> 35-- <u>Other reasons</u> 98--Unknown 99--Not applicable
71-72	No. of purchases recorded	0-31
74-75	Editor codes to restrict purchases used in MPG calculations	Purchase number of first purchase to be used in MPG calculations (00 if beginning of month record should be used for odometer and gauge readings)
77-78	Editor codes to restrict purchases used in MPG calculations	Purchase number of final purchase to be used in MPG calculations (95 if end of month odometer and gauge readings are to be used)
79	Editor changes in card	1-- Beginning or ending odometer and/or gauge reading codes (may also include other changes) 2-- All other changes (not including odometer and/or gauge readings) Blank--No editor change

FUEL PURCHASE RECORD FILE: Card 6V01 (continued)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
80	Summary code for type of information about vehicle	1*-- Vehicle not driven during month (or during purchase record period) 2*-- Vehicle driven during month; information in record indicates no purchases were made 3*-- Vehicle driven during month; information in record indicates some purchases were made, but there is no significant information about purchases 4**-- Vehicle driven during month; information available for one or more purchases 5*-- Unknown whether vehicle driven during month; some other type of information about vehicle has been coded as part of record

* There are no 7P cards for this vehicle.

** There are one or more 7P cards for this vehicle.

FUEL PURCHASE RECORD FILE:
Card 6V02 -- VNAME Card
(Vehicle information from HVI File, plus standard tank capacity)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
01-04	Household ID no.	
07-08	Vehicle no.	01-12
10-13	Card type and no.	6V02 (computer generated)
15-16	Vehicle type code	Range: 01-08, 21, 98
18-19	Make numeric code	Range: 01-05, 08-12, 14-36, 39, 41-44, 51, 53-59, 63-95, 98
21-32	Make (alpha)	
34-35	Vehicle Year	Range: 35-86, 98
37-38	Model numeric code	
40-51	Model (alpha)	
53-64	Model (supplemental alpha)	
66-68	Standard tank capacity	Tenths of gallon

Columns 15-64 are taken directly from Card 1V01 in the HVI File.

Columns 66-68 are from the Standard Tank Capacity File.

File editing must not be done directly on the contents of this card. Any indicated changes should be made in Card 1V01 in the HVI File and/or in the Standard Tank Capacity File.

FUEL PURCHASE RECORD FILE:
Card 6V03 -- VSTAT Card
(Vehicle data computed from purchase records)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
01-04	Household ID no.	
07-08	Vehicle no.	01-12
10-13	Card type and no.	6V03
17-18	Record month	Same as Card 6V01, col. 17-18
20-23	Starting and ending odometer and fuel gauge reading flags, which indicate whether "good" values have been recorded in appropriate columns of Card 6V01.	A-Z-- Missing information "--" indicates good value is present
		<u>Range of "good" values</u>
20	Starting odometer (cols. 25-30 of 6V01)	000000-999990
21	Ending odometer (cols. 46-51 of 6V01)	000000-999990
22	Starting gauge (cols. 32-33 of 6V01)	00-16
23	Ending gauge (cols. 53-54 of 6V01)	00-16
24	Tank capacity	T-- Standard figure used (from Card 6V02, col. 66-68) R-- Respondent's estimate used (from Card 6V01, col. 37-39) N-- No tank capacity available

The respondent's estimate is compared with the standard capacity for the vehicle make, model, and year. If both figures are present and within a designated range, the standard figure is used for computations. If figures differ by more than 50 percent, or if the standard figure is not available, the respondent's estimate is used.

NOTE: All entries in Card 6V03 are computer generated.

FUEL PURCHASE RECORD FILE:
Card 6V03 -- VSTAT Card (continued)
(Vehicle data computed from purchase records)

<u>Col.</u>	<u>Variable Definition</u>
25-32	Missing information in reported purchases -- shows the frequency of selected types of missing information. MPG cannot be computed if one or more of the following is missing: <ul style="list-style-type: none">• Odometer or gauge reading from preceding purchase. (If the first reported purchase, "preceding" is interpreted as the record for the beginning of the month.)• Odometer, gauge, or gallons from current purchase. Entries are the number of missing observations of the following types:
25-26	Odometer readings
27-28	Gauge readings
29-30	Gallons purchased
31-32	MPG cannot be computed
33-36	First and final purchases for which both odometer and gauge readings are present. These figures are inserted into the record only under the following conditions: <ul style="list-style-type: none">• Figures have not been inserted by the editor in Card 6V01, col. 74-75 and 77-78• One or more of beginning and/or end of month odometer or gauge readings are missing. Dashes are inserted into the record otherwise.
33-34	First purchase no. for which both odometer and gauge readings are present
35-36	Final purchase no. for which odometer and gauge readings are present

FUEL PURCHASE RECORD FILE:
Card 6V03 -- VSTAT Card (continued)
(Vehicle data computed from purchase records)

<u>Col.</u>	<u>Variable Definition</u>
37-47	<p>Summary information for cost and type of fuel</p> <p>Average cost of fuel per gallon is computed whenever cost information is available in the record for 5 or more gallons of fuel. For this computation, gallons and total cost of fuel are summed (only when both figures are present for specified purchases) and average cost is computed as:</p> <p style="text-align: center;"><u>Total cost</u> Total gallons</p> <p>Summary codes for type of fuel are reported only when the same codes appear in the purchase record for more than half of the gallons purchased (Cards 7Pxx, col. 32-34). "More than half" is determined separately for each of the three types of fuel codes.</p>
37-40	Gallons of fuel for which cost information is available (gallons and total price); rounded number of gallons
41-44	Average cost per gallon of fuel (tenths of cents)
45-47	Codes for type of fuel

FUEL PURCHASE RECORD FILE:
Card 6V03 -- VSTAT Card (continued)
(Vehicle data computed from purchase records)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
48	Overall mileage flag	# -- Overall mileage above 2,000 miles Blank -- Overall mileage under 2,000 miles
49	Overall MPG flag	* -- Overall MPG of 40.0 or more Blank -- Overall MPG under 40.00
56-59	Total miles driven in month	Computed only when beginning and ending odometer readings are both present. Otherwise blank.
60-64	Total miles used for MPG computations	Determined in this priority sequence: <ul style="list-style-type: none"> • Based on first and final purchases recorded if entries have been made by editor in Card 6V01, col. 74-75 and 77-78 • Based on first and final purchases recorded in Card 6V03, if figures are present in columns 33-34 and 35-36 • Same as col. 56-59 if figure is present in those columns
65-68	Total gallons used for MPG computation, before gauge adjustment	Gallons used, in tenths
69-73	Total gallons used for MPG computation, after gauge adjustment	Gallons used, in tenths
74-77	Overall MPG, in tenths	$\frac{\text{Total miles (col. 60-64)}}{\text{Total gallons used (col. 69-73)}}$

FUEL PURCHASE RECORD FILE:
Card 6V03 -- VSTAT Card (continued)
(Vehicle data computed from purchase records)

Col. Variable Definition and Codes

80 Alphabetic status flag

Vehicle was driven 150 or more miles and:

- A -- All cumulative MPG*s are within 25 percent of the overall MPG for this vehicle in this month
- B -- All cumulative MPG*s are within 50 percent of the overall MPG for this vehicle
- C -- All cumulative MPG*s are within 25 percent of the overall MPG for this month after an adjustment of 25 percent of the tank capacity is made in the appropriate direction
- D-- All cumulative MPG*s are within 50 percent of the overall MPG after an adjustment of 25 percent of the tank capacity is made in the appropriate direction
- F -- One or more cumulative MPG*s are outside ± 50 percent of the overall MPG after an adjustment of 25 percent of tank capacity is made in the appropriate direction

- Q -- Vehicle was driven less than 150 miles during purchase record period

- R -- Information in purchase record is incomplete; MPG cannot be computed because of missing odometer or gauge readings

- Z -- Vehicle was not driven during month (or not driven during purchase record period)

- Y -- Vehicle was driven during month; information in the record indicates that no purchases were made

- I -- Vehicle was driven during month; information in the record indicates that some purchases were made, but there is no significant information about purchases

- X -- Unknown whether vehicle was driven during month; some other type of information about vehicle has been coded as part of record

*Cumulative MPG*s refers to calculations for combinations of purchases, as necessary, to equal 150 or more miles traveled as the basis for the MPG.

FUEL PURCHASE RECORD FILE:

Card 7Pxx -- Purchase information (one card per purchase)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
01-04	Household ID no.	
07-08	Vehicle no.	01-12
10-13	Card type and no.	7P01-7P12
12-13	Purchase no.	
17-18	Record month	
20-21	Month of purchase	01-12, 98, 99
22-23	Day of purchase	1-31, 98
25-30	Odometer reading	000000-150000, 999995, 999998
32-34	Gallons purchased (tenths)	010-400, 998
36-39	Total cost (\$\$\$)	0100-5000, 9998
41-44	Price per gallon (tenths of cents)	0750-1750, 9998
46	Was tank filled?	1--Yes 2--No 3--Don't know
48-49	Fuel gauge reading after purchase	Range: 00-16, 95, 98 00-- Empty or below empty 16-- Full or above full 95-- Fuel gauge is broken 98-- Unknown
51	Fuel type	1--Gasoline 2--Diesel 3--Gasohol 8--Unknown
52	Leaded/unleaded	1--Leaded 2--Unleaded 3--Don't know 9--Not applicable

FUEL PURCHASE RECORD FILE:
Card 7Pxx -- Purchase information (continued)

<u>Col.</u>	<u>Variable Definition</u>	<u>Legal Codes</u>
53	Regular/premium	1--Regular 2--Premium 3--Don't know 9--Not applicable
55	Editor changes in card during MPG review	1-- Number of gallons purchased (may include other changes) 2-- Price and/or total cost (no change in number of gallons purchased, but may include other changes) 3-- All other changes (not involving numbers of gallons purchased, price per gallon, or total cost) Blank-- No editor change

WORK FILE

The RTECS Work File consists of the following six cards:

- OH01 -- from HVI Card OH01
- OH02 -- from the RECS4 Household Questionnaire File (layout shown below)
- 1V01 -- from HVI Card 1V01
- 1V02 -- from HVI Card 1V02
- 6V01 -- Card 6V01 as produced by the MPG program
- 6V03 -- Card 6V03 as produced by the MPG program

For each household, there is one OH01 Card and one OH02 Card. For each vehicle (even if there is no FPR data for that vehicle), there is one of each of the other four cards.

WORK FILE: Card OH02

<u>Col.</u>	<u>Variable</u>	<u>RECS4 Source Column</u>
01-04	Household ID	1-4
07-08	"00"	--
10-13	Card number -- "OH02"	--
15-20	RECS4 weight	1211-1216
21	1980 residence code	1337
22	Census division	1342
23-24	Month vehicle #1 acquired*	359-360
25-26	Year vehicle #1 acquired*	361-362
27-28	Month vehicle #2 acquired*	382-383
29-30	Year vehicle #2 acquired*	384-385
31-32	Month vehicle #3 acquired*	420-421
33-34	RECS4 number of vehicles	348-349
35-36	Number of drivers	345-346

*Blank for Mailed Questionnaires (Household ID greater than 7000)

WORK FILE: Card OH02 (continued)

<u>Col.</u>	<u>Variable</u>	<u>RECS4 Source Column</u>
37-38	Number of household members	628-629
39-40	1985 income	1060-1061
41-42	Education of householder	634-635
43-44	Age of householder	505-506
45-49	Miles last 12 months, vehicle #1*	368-372
50-54	Miles last 12 months, vehicle #2*	391-395
55-59	Miles last 12 months, vehicle #3*	429-433
60-64	Miles last 12 months, vehicle #4*	452-456
65	AIA zone	1344
66	Household members' employment status	Based on RECS4 Q. 96: 1 = someone employed full time 2 = someone employed part time; no one employed full time 3 = no one employed
67-68	Year vehicle #3 acquired*	422-423
69-70	Month vehicle #4 acquired*	443-444
71-72	Year vehicle #4 acquired*	445-446

*Blank for Mailed Questionnaires (Household ID greater than 7000)

Final Household-Level Imputation File
(CN6212.PRO.ANN85.FINOH03.DATA)

<u>Column</u>	<u>Variable</u>
01-04	HHID
07-08	"00"
10-13	"OH03"
15-16	VSJUL85
17-19	AVGVEHS
20-21	VSMAX
22-27	TOTMILES
28-33	TOTGALS
34-39	TOTCOST
40	RTECSYR
41	IMPSTOCK
42-47	WEIGHTJ

Final Vehicle-Level Imputation File
(CN6212.PRO.ANN85.FIN1V03.DATA)

<u>Column</u>	<u>Variable</u>
01-04	HHID
07-08	Vehicle number
10-13	"1V03"
15-16	VTTYPE
17-18	MAKEC
19-20	VYEAR
21-22	MODEL C
23-24	CYLS
25	AIR
26	TRNS
27	DOORS
28	JOBUSE
29	DRIVES
30-31	RMPC
32	Filler
33	VEHUSE
34-35	MOACQ
36-37	MODIS
38-40	DAYS
41-43	MPG
44-48	MILES
49-53	GALS
54-58	COST
59-62	ACOST

Final Vehicle-Level Imputation File (continued)
(CN6212.PRO.ANN85.FIN1V03.DATA)

<u>Column</u>	<u>Variable</u>
63	FTYPE
64	FLEAD
65	FGRADE
66	IMDAYS
67	IMMILE
68	IMMPG
69	IMGAL
70	IMFUEL
71	IMCYLS
72	IMAIR
73	IMTRAN
74	IMDOOR
75	IMJOBU
76	IMDRVS

RTECS ANNUALIZED FINAL FILE
File Layout

This file layout shows column positions for each variable in the RTECS Annualized Final File, along with the source for each variable. The source files for these variables were:

- RECS -- RECS4 Household Questionnaire File
- OH03 -- Final Household-Level Imputation File
- IV03 -- Final Vehicle-Level Imputation File
- OH01 -- Card OH01 of the Work File

For a more complete explanation of each variable, see the TPL Codebook following this file layout.

<u>Column</u>	<u>Variable</u>	<u>Source File and Column Numbers</u>
01-04	IDDOE	RECS 1357-1360
05	REGIONC	RECS 1341
06	DIVISION	RECS 1342
07	AREA1980	RECS 1338
08-09	NDRIVERS	RECS 345-346
10-11	INCOME85	RECS 1060-1061
12-13	HHAGE	RECS 505-506
14-15	HEADED	RECS 2069-2070
16	ORIGIN	RECS 632
17	SDESCENT	RECS 633
18-19	NHSLDMEM	RECS 628-629
20-21	FUELHEAT	RECS 31-32
22-29	BTUSINK	RECS Sum for all fuels
30-35	HFUELTOT	RECS Sum for all fuels
36-40	HDD65	RECS 1419-1423
41-45	CDD65	RECS 1376-1380

RTECS ANNUALIZED FINAL FILE
File Layout (continued)

<u>Column</u>	<u>Variable</u>	<u>Source File and Column Numbers</u>
46	AIAZONE	RECS 1344
47-51	HEATED	RECS 971-975
52-53	VSJUL85	OH03 15-16
54-56	AVGVEHS	OH03 17-19
57-58	VSMAX	OH03 20-21
59-64	TOTMILES	OH03 22-27
65-70	TOTGALS	OH03 28-33
71-76	TOTCOST	OH03 34-39
77	BODOMCT	OH01 52
78	BODOMRC	OH01 53
79	FUELPCT	OH01 55
80	FUELPRC	OH01 56
81	MIDYRCT	OH01 58
82	MIDYRRC	OH01 59
83	EODOMCT	OH01 61
84	EODOMRC	OH01 62
85-90	DATELAST	OH01 64-69
91	RTECSYR	OH03 40
92	IMPSTOCK	OH03 41
93-98	WEIGHTJ	OH03 42-47
99	POOR100	RECS 2073
100	POOR125	RECS 2074
101-102	V# VEHL	1V03 7-8
103-164	VARS VEHL	1V03 15-76

RTECS ANNUALIZED FINAL FILE
File Layout (continued)

<u>Column</u>	<u>Variable</u>	<u>Source File and Column Numbers</u>
165-170	Filler	
171-172	V# VEH2	1V03 7-8
173-234	VARS VEH2	1V03 15-76
235-240	Filler	
241-242	V# VEH3	1V03 7-8
243-304	VARS VEH3	1V03 15-76
305-310	Filler	
311-312	V# VEH4	1V03 7-8
313-374	VARS VEH4	1V03 15-76
375-380	Filler	
381-382	V# VEH5	1V03 7-8
383-444	VARS VEH5	1V03 15-76
445-450	Filler	
451-452	V# VEH6	1V03 7-8
453-514	VARS VEH6	1V03 15-76
515-520	Filler	
521-522	V# VEH7	1V03 7-8
523-584	VARS VEH7	1V03 15-76
585-590	Filler	
591-592	V# VEH8	1V03 7-8
593-654	VARS VEH8	1V03 15-76
655-660	Filler	
661-662	V# VEH9	1V03 7-8
663-724	VARS VEH9	1V03 15-76

RTECS ANNUALIZED FINAL FILE
File Layout (continued)

<u>Column</u>	<u>Variable</u>	<u>Source File and Column Numbers</u>
725-730	Filler	
731-732	V# VEH10	1V03 7-8
733-794	VARS VEH10	1V03 15-76
795-800	Filler	
801-802	V# VEH11	1V03 7-8
803-864	VARS VEH11	1V03 15-76
865-870	Filler	
871-872	V# VEH12	1V03 7-8
873-934	VARS VEH12	1V03 15-76
935-936	Filler	
937	AREA1970	RECS 1336
938-940	DOEPSU	RECS 1347-1349
941-944	RACID	OH03 01-04

TPL CODEBOOK FOR 1985 RTECS ANNUALIZED FINAL FILE

```

1. //JMSUTPL JOB (6212.RTECS.,20.,.1), 'RTECS', TIME=(,21)
2. //RTECS CB EXEC CBKSINGL.
3. // CBSP=65,
4. // CBN='RTECS CB',
5. // CBSTATE=NEW,
6. // CBPREFIX='CN6212.BSD'
7. //CB.CODEBOOK DD *
8. NEW RTECS CB CODEBOOK
9. LRECL=944 BLKSIZE=7552 RECFM=FB
10. O1 TRANSPORTATION_STUDY_FILE RECORD LEVEL 0
11. @C CODEBOOK NAME: CN6212.PRO.RTECS.RAC.RECS4. e
12. @C TPL.CODEBOOK e
13. @C e
14. @C THE FILE, PRJ.DOEJULB6.RECS4.TRANS. IS A e
15. @C RECTANGULAR FILE WITH EACH HOUSEHOLD IN THE e
16. @C STUDY HAVING A RECORD LENGTH OF 940. e
17. @C e
18. @C COLUMNS 1-51 AND 93-100 ARE DERIVED OR e
19. @C TRANSFERRED FROM THE RECS-84 PERSONAL e
20. @C INTERVIEW DATA FILE AND ARE DESCRIPTIVE OF e
21. @C THE HOUSEHOLD. e
22. @C e
23. @C COLUMNS 52-92 HAVE SUMMARY DATA ABOUT THE e
24. @C VEHICLES OF A GIVEN HOUSEHOLD. e
25. @C e
26. @C DATA FOR A MAXIMUM OF TWELVE VEHICLES e
27. @C OF A GIVEN HOUSEHOLD START IN COLUMN 101. e
28. @C e
29. @C EACH VEHICLE HAS 70 COLUMNS ALLOCATED. e
30. @C FIELDS ARE 9-FILLED WHEN NOT APPLICABLE. e
31. @C E.G., FOR HOUSEHOLDS WITH ONE VEHICLE, e
32. @C THE FIELDS FOR THE REMAINING ELEVEN VEHICLES e
33. @C ARE 9-FILLED. e
34. @C e
35. @C OUTLINE OF FILE e
36. @C e
37. @C HOUSEHOLD CHARACTERISTICS COLS 1 - 51 e
38. @C SUMMARY OF DATA ON VEHICLES e
39. @C IN HOUSEHOLD COLS 52-92 e
40. @C JULY WEIGHT, WEIGHTJ: COLS 93-98 e
41. @C HOUSEHOLD POVERTY LEVEL COLS 99-100 e
42. @C VEHICLE 01: COLS 101-170 e
43. @C 02: 171-240 e
44. @C 03: 241-310 e
45. @C 04: 311-380 e
46. @C 05: 381-450 e
47. @C 06: 451-520 e
48. @C 07: 521-590 e
49. @C 08: 591-660 e
50. @C 09: 661-730 e
51. @C 10: 731-800 e
52. @C 11: 801-870 e
53. @C 12: 871-940 e
54. @C e
55. @C FOR VEHICLES: LAST 6 COLUMNS ARE BLANK IN e
56. @C EACH SET OF 70 CHARACTERS. e
57. @C e
58. @C e
59. @C SOURCES AND/OR ADJUSTMENTS TO DATA: e
60. @C e

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61.      eC SOURCES AND/OR ADJUSTMENTS TO DATA ARE      e
62.      eC INDICATED IN SOURCE/IMPUTATION FLAGS FOUND   e
63.      eC FOR EACH VEHICLE IN THE LAST 11 FIELDS      e
64.      eC OF DATA. OF PARTICULAR IMPORT ARE THE FLAGS e
65.      eC IMMILE01-IMMILE12 AND IMMPG01-IMMPG12.      e
66.      eC DEFINED AS FOLLOWS:                          e
67.      eC                                              e
68.      eC ** IMMILE01 - IMMILE12                        e
69.      eC 1: TOTAL MILES IS AN ADJUSTED AMOUNT, BASED  e
70.      eC UPON AT LEAST A 46 DAY SPAN OF GOOD DATA.   e
71.      eC 2: TOTAL MILES IS AN ADJUSTED AMOUNT,          e
72.      eC WHERE DATA SPANS 22 TO 45 DAYS.                 e
73.      eC 3: TOTAL MILES IMPUTED; NO TSTUDY DATA BUT      e
74.      eC RECS3 ESTIMATE OF 12-MONTH MILES IS              e
75.      eC AVAILABLE.                                         e
76.      eC 4: TOTAL MILES IMPUTED; VEHICLE NOT              e
77.      eC DRIVEN DURING PURCHASE RECORD MONTH.             e
78.      eC 5: TOTAL MILES IMPUTED; CASES NOT COVERED        e
79.      eC BY SITUATIONS (1-4) ABOVE, INCLUDING             e
80.      eC VEHICLES ACQUIRED BY IMPUTATION.                e
81.      eC                                              e
82.      eC ** IMMPG01-IMMPG12                                e
83.      eC 0: MPG WAS NOT IMPUTED (AND WAS THUS              e
84.      eC AVAILABLE FROM PURCHASE RECORD FILE.)           e
85.      eC THE FIGURE FOR MPG FROM PURCHASE                  e
86.      eC RECORD MONTH WAS ADJUSTED TO OBTAIN              e
87.      eC AN OVERALL ESTIMATE FOR 365 DAYS.                 e
88.      eC 1: MPG WAS IMPUTED. THIS APPLIES TO ALL          e
89.      eC VEHICLES WITH INCOMPLETE OR UNACCEPTABLE        e
90.      eC DATA.                                             e
91.      eC                                              e
92.      eC                                              e
93.      eC THE DOEID NUMBERS RANGE FROM 1001-6688. THE      e
94.      eC 4020 HOUSEHOLDS IN THE 1985 TRANSPORTATION       e
95.      eC STUDY SAMPLE INCLUDE 39 LOCATED IN ALASKA AND   e
96.      eC HAWAII. FOR MAIL QUESTIONNAIRE HOUSEHOLDS,     e
97.      eC THE ORIGINAL DATA APPEAR, WITH THE EXCEPTION  e
98.      eC OF COLS 8-21, 47-51, AND 99-100 (WHICH          e
99.      eC REPRESENT DATA FROM THEIR SURROGATE.)           e
100.     eC                                              e
101.     eC CHANGES MADE IN THIS CODEBOOK:  JF 8/4/86      e
102.     eC                                              e
103.     02 IDDOE 'DOE ID NUMBER 1001'                  OBS 4
104.     e 0001 - 0004:  e
105.     02 REGIONC 'CENSUS REGION 0005'                CON 1
106.     e 0005 - 0005:  e
107.     'NORTHEAST'          = 1
108.     'NORTHCENTRAL'      = 2
109.     'SOUTH'              = 3
110.     'WEST'              = 4
111.     )
112.     02 DIVISION 'CENSUS DIVISION 0006'             CON 1
113.     e 0006 - 0006:  e
114.     'NEW ENGLAND'       = 1
115.     'MIDDLE ATLANTIC'   = 2
116.     'EAST NORTH CENTRAL' = 3
117.     'WEST NORTH CENTRAL' = 4
118.     'SOUTH ATLANTIC'    = 5
119.     'EAST SOUTH CENTRAL' = 6
120.     'WEST SOUTH CENTRAL' = 7

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121.	'MOUNTAIN'	= 8	
122.	'PACIFIC'	= 9	
123.)		
124.	02 AREA1980 '1980 RESIDENCE SUMMARY CODES 0007'		CON 1
125.	@ 0007 - 0007: @		
126.	@C IN CITY = INSIDE CENTRAL CITY @		
127.	@C OUT CITY = OUTSIDE CENTRAL CITY @		
128.	'METRO IN CITY'	= 1	
129.	'METRO OUT CITY'	= 2	
130.	'NONMETRO'	= 4	
131.)		
132.	02 NDRIVERS 'NUMBER OF DRIVERS IN HOUSEHOLD 0008'		CON 2
133.	@ 0008 - 0009: @		
134.	'NONE'	= 00	
135.	'ONE'	= 01	
136.	'TWO'	= 02	
137.	'THREE'	= 03	
138.	'FOUR'	= 04	
139.	'FIVE'	= 05	
140.	'SIX'	= 06	
141.	'SEVEN'	= 07	
142.	'EIGHT'	= 08	
143.	'NINE'	= 09	
144.	'TEN'	= 10	
145.	'NO ANSWER'	= 98	
146.)		
147.	02 INCOME85 'TOTAL COMBINED FAMILY INCOME 1985 0010'		CON 2
148.	@ 0010 - 0011: @		
149.	@C IMPUTED OR ORIGINAL DATA FOR 1985 INCOME. @		
150.	'LESS THAN \$ 5,000'	= 01	
151.	'\$ 5,000 - \$ 7,499'	= 02	
152.	'\$ 7,500 - \$ 9,999'	= 03	
153.	'\$10,000 - \$12,499'	= 04	
154.	'\$12,500 - \$14,999'	= 05	
155.	'\$15,000 - \$17,499'	= 06	
156.	'\$17,500 - \$19,999'	= 07	
157.	'\$20,000 - \$24,999'	= 08	
158.	'\$25,000 - \$34,999'	= 09	
159.	'\$35,000 OR MORE'	= 10	
160.)		
161.	02 HHAGE 'AGE OF HOUSEHOLDER 0012'		OBS 2
162.	@ 0012 - 0013: @		
163.	@C 95 = 95 OR OLDER @		
164.	02 HEADED 'ATTAINED EDUCATION OF HOUSEHOLDER 0014'		CON 2
165.	@ 0014 - 0015: @		
166.	@C TAKEN FROM Q 106, 107 OF RECS 84 SURVEY @		
167.	'NO SCHOOLING'	= 00	
168.	'FIRST GRADE'	= 01	
169.	'SECOND GRADE'	= 02	
170.	'THIRD GRADE'	= 03	
171.	'FOURTH GRADE'	= 04	
172.	'FIFTH GRADE'	= 05	
173.	'SIXTH GRADE'	= 06	
174.	'SEVENTH GRADE'	= 07	
175.	'EIGHTH GRADE'	= 08	
176.	'NINTH GRADE'	= 09	
177.	'TENTH GRADE'	= 10	
178.	'ELEVENTH GRADE'	= 11	
179.	'TWELFTH GRADE'	= 12	
180.	'1 YEAR COLLEGE'	= 13	

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181.	'2 YEARS COLLEGE'	= 14	
182.	'3 YEARS COLLEGE'	= 15	
183.	'4 YEARS COLLEGE'	= 16	
184.	'5 OR MORE YEARS'	= 17	
185.)		
186.	02 ORIGIN 'RACE OF HOUSEHOLDER 0016'		CON 1
187.	e 0016 - 0016: e		
188.	'WHITE'	= 1	
189.	'BLACK OR NEGRO'	= 2	
190.	'AM INDIAN, AK NATIVE'	= 3	
191.	'ASIAN, PACIFIC ISLD'	= 4	
192.	'OTHER'	= 5	
193.)		
194.	02 SDESCENT 'HOUSEHOLDER OF SPANISH ORIGIN 0017'		CON 1
195.	e 0017 - 0017: e		
196.	'YES'	= 1	
197.	'NO'	= 0	
198.)		
199.	02 NHSLDMEM 'NUMBER OF HOUSEHOLD MEMBERS 0018'		CON 2
200.	e 0018 - 0019: e		
201.	'ONE MEMBER'	= 01	
202.	'TWO'	= 02	
203.	'THREE'	= 03	
204.	'FOUR'	= 04	
205.	'FIVE'	= 05	
206.	'SIX'	= 06	
207.	'SEVEN'	= 07	
208.	'EIGHT'	= 08	
209.	'NINE'	= 09	
210.	'TEN'	= 10	
211.	'ELEVEN'	= 11	
212.	'TWELVE OR MORE'	= 12	
213.)		
214.	02 FUELHEAT 'MAIN HOME HEATING FUEL 0020'		CON 2
215.	e 0020 - 0021: e		
216.	'PIPED GAS'	= 01	
217.	'LPG'	= 02	
218.	'FUEL OIL'	= 03	
219.	'KEROSENE OR COAL OIL'	= 04	
220.	'ELECTRICITY'	= 05	
221.	'COAL OR COKE'	= 06	
222.	'WOOD'	= 07	
223.	'SOLAR COLLECTORS'	= 08	
224.	'OTHER'	= 21	
225.	'NO FUEL USED'	= 00	
226.)		
227.	02 BTUSINK 'ANNUAL ENERGY, IN THOU OF BTUS, USED 0022' OBS B		
228.	e 0022 - 0029: 99999999e		
229.	ec ELECTRIC: CONVERTED AT 3412 BTUS PER e		
230.	ec KILOWATT HOUR e		
231.	ec UTILITY GAS: CONVERTED AT 100,000 BTUS e		
232.	ec PER THERM e		
233.	ec FOR CONVERTING GALLONS OF FUEL OIL INTO e		
234.	ec BTUS, THE FOLLOWING CONVERSION FACTORS WERE e		
235.	ec MULTIPLIED TIMES GALLONS: e		
236.	ec 138,690 FOR FUEL OIL NO. 2 e		
237.	ec 135,000 FOR FUEL OIL NO. 1 e		
238.	ec LPG: CONVERTED AT 100,000 BTUS PER e		
239.	ec THERM e		
240.	ec KEROSENE: CONVERTED AT 135,000 BTUS e		

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241.	EC PER GALLON @	
242.	EC 9999999 = NOT APPLICABLE @	
243.	02 HFUELTOT 'ESTIMATED COST OF ENERGY IN DOLLARS 0030'	OBS 6
244.	@ 0030 - 0035: 999999@	
245.	EC ESTIMATED COST OF ENERGY IN DOLLARS @	
246.	EC 999999 = NOT APPLICABLE @	
247.	02 HDD65 'HEATING DD TO BASE 65 4-84 TO 3-85 0036'	OBS 5
248.	@ 0036 - 0040: @	
249.	02 CDD65 'COOLING DD TO BASE 65 4-84 TO 3-85 0041'	OBS 5
250.	@ 0041 - 0045: @	
251.	02 AIAZONE 'AIA WEATHER ZONE 0046'	CON 1
252.	@ 0046 - 0046: @	
253.	EC CDD = COOLING DEGREE DAYS @	
254.	EC HDD = HEATING DEGREE DAYS @	
255.	EC ZONE 1 = LESS THAN 2000 CDD; MORE THAN 7000 HDD @	
256.	EC ZONE 2 = LESS THAN 2000 CDD; 5500-7000 HDD @	
257.	EC ZONE 3 = LESS THAN 2000 CDD; 4000-5499 HDD @	
258.	EC ZONE 4 = LESS THAN 2000 CDD; 2000-3999 HDD @	
259.	EC ZONE 5 = LESS THAN 2000 CDD; LESS THAN 2000 HDD @	
260.	EC ZONE 6 = MORE THAN 2000 CDD; LESS THAN 2000 HDD @	
261.	EC ZONE 7 = MORE THAN 2000 CDD; 2000-3999 HDD @	
262.	'ZONE 1' = 1	
263.	'ZONE 2' = 2	
264.	'ZONE 3' = 3	
265.	'ZONE 4' = 4	
266.	'ZONE 5' = 5	
267.	'ZONE 6' = 6	
268.	'ZONE 7' = 7	
269.)	
270.	02 HEATED 'TOTAL SQ FT HEATED AREA 0047'	OBS 5
271.	@ 0047 - 0051: @	
272.	EC INFORMATION TAKEN FROM RECS B2 AS @	
273.	EC APPROPRIATE. @	
274.	02 VSJUL85 'NUMBER OF VEHICLES AT JULY 1, 1985 0052'	CON 2
275.	@ 0052 - 0053: @	
276.	'NO VEHICLES' = 00	
277.	'ONE VEHICLE' = 01	
278.	'TWO' = 02	
279.	'THREE' = 03	
280.	'FOUR' = 04	
281.	'FIVE' = 05	
282.	'SIX' = 06	
283.	'SEVEN' = 07	
284.	'EIGHT' = 08	
285.	'NINE' = 09	
286.	'TEN' = 10	
287.	'ELEVEN' = 11	
288.	'TWELVE' = 12	
289.)	
290.	02 AVGVHES 'AVERAGE NUMBER OF VEHICLES IN 1985 0054'	OBS 3
291.	@ 0054 - 0056: @	
292.	EC SUM OF DAYS FOR ALL VEHICLES DIVIDED BY 365; @	
293.	EC IMPLIED DECIMAL POINT AFTER FIRST DIGIT @	
294.	02 VSMAX 'NUMBER OF DIFFERENT VEHICLES DURING YR 0057'	CON 2
295.	@ 0057 - 0058: @	
296.	'NO VEHICLES' = 00	
297.	'ONE VEHICLE' = 01	
298.	'TWO' = 02	
299.	'THREE' = 03	
300.	'FOUR' = 04	

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301.	'FIVE'	= 05	
302.	'SIX'	= 06	
303.	'SEVEN'	= 07	
304.	'EIGHT'	= 08	
305.	'NINE'	= 09	
306.	'TEN'	= 10	
307.	'ELEVEN'	= 11	
308.	'TWELVE'	= 12	
309.)		
310.	02 TOTMILES 'TOTAL VEHICLE MILES 0059'		OBS 6
311.	@ 0059 - 0064: 999999@		
312.	02 TOTGALS 'TOTAL GALLONS OF FUEL 0065'		OBS 6
313.	@ 0065 - 0070: 999999@		
314.	02 TOTCOST 'TOTAL COST OF FUELS IN DOLLARS 0071'		OBS 6
315.	@ 0071 - 0076: 999999@		
316.	02 BODMCT 'BEGINNING ODOMETER CONTACT CODE 0077'		CON 1
317.	@ 0077 - 0077: 9@		
318.	'TELEPHONE CONTACT'	= 1	
319.	'MAIL CONTACT'	= 2	
320.	'CONTACT NOT ATTEMPTED'	= 0	
321.	'NOT APPLICABLE'	= 9	
322.)		
323.	02 BODMRC 'BEGINNING ODOMETER RESULT CODE 0078'		CON 1
324.	@ 0078 - 0078: 9@		
325.	'SOME DATA COLLECTED'	= 1	
326.	'NO DATA, NOT REFUSAL'	= 5	
327.	'REFUSED'	= 6	
328.	'TERMINATED EARLIER'	= 0	
329.	'NOT APPLICABLE'	= 9	
330.)		
331.	02 FUELPC 'FUEL PURCHASE CONTACT CODE 0079'		CON 1
332.	@ 0079 - 0079: 9@		
333.	'TELEPHONE CONTACT'	= 1	
334.	'PERSONAL COMPLETED'	= 2	
335.	'PERSONAL ATTEMPTED'	= 3	
336.	'CONTACT NOT ATTEMPTED'	= 0	
337.	'NOT APPLICABLE'	= 9	
338.)		
339.	02 FUELPRC 'FUEL PURCHASE RESULT CODE 0080'		CON 1
340.	@ 0080 - 0080: 9@		
341.	'SOME PURCHASE DATA'	= 1	
342.	'OTHER DATA COLLECTED'	= 2	
343.	'NO DATA, NOT REFUSAL'	= 5	
344.	'REFUSED'	= 6	
345.	'TERMINATED EARLIER'	= 0	
346.	'NOT APPLICABLE'	= 9	
347.)		
348.	02 MIDYRCT 'MIDYEAR CONTACT TYPE 0081'		CON 1
349.	@ 0081 - 0081: @		
350.	'TELEPHONE CONTACT'	= 1	
351.	'MAIL CONTACT'	= 2	
352.	'CONTACT NOT ATTEMPTED'	= 0	
353.)		
354.	02 MIDYRRC 'MIDYEAR RESULT CODE 0082'		CON 1
355.	@ 0082 - 0082: @		
356.	'VEHICLE INFO ONLY'	= 1	
357.	'ADDRESS INFO ONLY'	= 2	
358.	'VEHICLE AND ADDRESS'	= 3	
359.	'NO CHANGE'	= 4	
360.	'NO CONTACT'	= 5	

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361. 'REFUSED' = 6
 362. 'TERMINATED EARLIER' = 0
 363.)
 364. 02 EODOMCT 'ENDING ODOMETER CONTACT TYPE 0083' CON 1
 365. @ 0083 - 0083: 9@
 366. 'TELEPHONE CONTACT' = 1
 367. 'MAIL CONTACT' = 2
 368. 'CONTACT NOT ATTEMPTED' = 0
 369. 'NOT APPLICABLE' = 9
 370.)
 371. 02 EODOMRC 'ENDING ODOMETER RESULT CODE 0084' CON 1
 372. @ 0084 - 0084: 9@
 373. 'SOME DATA COLLECTED' = 1
 374. 'NO DATA, NOT REFUSAL' = 5
 375. 'REFUSED' = 6
 376. 'TERMINATED EARLIER' = 0
 377. 'NOT APPLICABLE' = 9
 378.)
 379. 02 DATELAST 'DATE OF FINAL CONTACT 0085' OBS 6
 380. @ 0085 - 0090: 999999@
 381. @C DATE OF LAST UPDATE OF HOUSEHOLD @
 382. @C VEHICLE STOCK. @
 383. 02 RTECSYR 'SPECIFIC CALENDAR PERIOD 0091' CON 1
 384. @ 0091 - 0091: @
 385. @C CODES SPECIFIY BEGINNING AND ENDING OF 365 DAY @
 386. @C PERIOD WHICH COINCIDE WITH SCHEDULED ODOMETER @
 387. @C READING DATES. @
 388. 'DECEMBER 31' = 1
 389. 'JANUARY 5' = 2
 390. 'JANUARY 10' = 3
 391. 'JANUARY 15' = 4
 392.)
 393. 02 IMPSTOK 'VEHICLE STOCK IMPUTED 0092' CON 1
 394. @ 0092 - 0092: @
 395. @C GROUPS A1, A2, B, C1, C2 INCLUDE HOUSEHOLDS THAT DID @
 396. @C NOT PARTICIPATE IN STUDY FOR FULL YEAR AND @
 397. @C THEREFORE COULD HAVE HAD VEHICLE ACQUISITION @
 398. @C AND/OR DISPOSITION IMPUTED. HOUSEHOLDS IN @
 399. @C GROUP D, DONOR HOUSEHOLDS, DID PARTICIPATE FOR A @
 400. @C FULL YEAR AND DID NOT HAVE VEHICLE STOCK IMPUTED. @
 401. 'GROUP A1' = 1
 402. 'GROUP A2' = 2
 403. 'GROUP B' = 3
 404. 'GROUP C1' = 4
 405. 'GROUP C2' = 5
 406. 'GROUP D' = 6
 407.)
 408. 02 WEIGHTJ 'JULY 1985 WEIGHT 0093' OBS 6
 409. @ 0093 - 0098: @
 410. 02 POOR100 'BELOW 100 PERCENT OF POVERTY 0099' CON 1
 411. @ 0099 - 0099: @
 412. @C POVERTY DEFINED AS 100 PERCENT OF POVERTY LINE. @
 413. @C POVERTY LINE VARIES WITH FAMILY SIZE (1-9), AGE AND @
 414. @C 1984 FAMILY INCOME. FOR FAMILY SIZE OF : @
 415. @C 1 - AGE 65 AND OVER, LESS THAN \$ 5,000 @
 416. @C 1 - AGE 64 AND UNDER, LESS THAN \$ 5,000 @
 417. @C 2 - AGE 65 AND OVER, LESS THAN \$ 6,000 @
 418. @C 2 - AGE 64 AND UNDER, LESS THAN \$ 7,500 @
 419. @C 3 - LESS THAN \$ 9,000 @
 420. @C 4 - LESS THAN \$11,000 @

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421.	ec 5 - LESS THAN \$12,500 @	
422.	ec 6 - LESS THAN \$14,000 @	
423.	ec 7 - LESS THAN \$15,000 @	
424.	ec 8 - LESS THAN \$17,500 @	
425.	ec 9 OR MORE - LESS THAN \$20,000 @	
426.	'POOR 100%'	= 1
427.	'NONPOOR'	= 0
428.)	
429.	02 POOR125 'BELOW 125 PERCENT OF POVERTY 0100'	CON 1
430.	e 0100 - 0100: @	
431.	ec POVERTY DEFINED AS 125 PERCENT OF POVERTY LINE. @	
432.	ec POVERTY LINE VARIES WITH FAMILY SIZE (1-9), AGE @	
433.	ec AND 1984 FAMILY INCOME. FOR FAMILY SIZE OF : @	
434.	ec 1 - AGE 65 AND OVER, LESS THAN \$ 6,000 @	
435.	ec 1 - AGE 64 AND UNDER, LESS THAN \$ 7,500 @	
436.	ec 2 - AGE 65 AND OVER, LESS THAN \$ 7,500 @	
437.	ec 2 - AGE 64 AND UNDER, LESS THAN \$ 9,000 @	
438.	ec 3 - LESS THAN \$10,000 @	
439.	ec 4 - LESS THAN \$14,000 @	
440.	ec 5 - LESS THAN \$15,000 @	
441.	ec 6 - LESS THAN \$17,500 @	
442.	ec 7 - LESS THAN \$20,000 @	
443.	ec 8 - LESS THAN \$22,500 @	
444.	ec 9 OR MORE - LESS THAN \$27,500 @	
445.	'POOR 125%'	= 1
446.	'NONPOOR'	= 0
447.)	
448.	02 VEHNUM01 'VEHICLE ID NUMBER, V01, 0101'	CON 2
449.	e 0101 - 0102: 99@	
450.	'ONE'	= 01
451.	'TWO'	= 02
452.	'THREE'	= 03
453.	'FOUR'	= 04
454.	'FIVE'	= 05
455.	'SIX'	= 06
456.	'SEVEN'	= 07
457.	'EIGHT'	= 08
458.	'NINE'	= 09
459.	'TEN'	= 10
460.	'ELEVEN'	= 11
461.	'TWELVE'	= 12
462.	'IMPUTED ADDITIONAL V'	= 21
463.	'IMPUTED ADDITIONAL V'	= 22
464.	'IMPUTED ADDITIONAL V'	= 23
465.	'IMPUTED ADDITIONAL V'	= 24
466.	'NOT APPLICABLE'	= 99
467.)	
468.	02 TYPE01 'VEHICLE TYPE, V01, 0103'	CON 2
469.	e 0103 - 0104: 99@	
470.	'STATION WAGON'	= 01
471.	'AUTOMOBILE'	= 02
472.	'JEEP-LIKE VEHICLE'	= 03
473.	'PASSENGER VAN'	= 04
474.	'CARGO VAN'	= 05
475.	'PICKUP TRUCK'	= 06
476.	'OTHER TRUCK'	= 07
477.	'MOTOR HOME'	= 08
478.	'OTHER'	= 21
479.	'NO ANSWER'	= 98
480.	'NOT APPLICABLE'	= 99

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481.)		
482.	02	VMAKE01 'VEHICLE MAKE CODE, V01, 0105'	OBS 2
483.		@ 0105 - 0106: 99@	
484.		@C MAKECODE REFERS TO THE SPECIFIC VEHICLE @	
485.		@C MAKE CODES WHICH ACCOMPANY THIS CODEBOOK @	
486.		@C 95 = OTHER @	
487.		@C 98 = NO ANSWER @	
488.		@C 99 = MOTOR HOME IF COLUMN 0103 - 0104 = 08 @	
489.	02	YEAR01 'VEHICLE MODEL YEAR, V01, 0107'	OBS 2
490.		@ 0107 - 0108: 99@	
491.		@C 98 = NO ANSWER @	
492.		@C 99 = NOT APPLICABLE @	
493.	02	MODEL01 'VEHICLE MODEL CODE, V01, 0109'	OBS 2
494.		@ 0109 - 0110: 99@	
495.		@C MODEL01 REFERS TO THE VEHICLE MODEL @	
496.		@C NAME CODES WHICH ACCOMPANY THIS CODEBOOK @	
497.		@C 95 = OTHER @	
498.		@C 98 = NO ANSWER @	
499.		@C 99 = MOTOR HOME IF COLUMN 0103 - 0104 = 08 @	
500.	02	CYLS01 'NUMBER OF CYLINDERS, V01, 0111'	CON 2
501.		@ 0111 - 0112: 99@	
502.		'1-CYLINDER' = 01	
503.		'2-CYLINDER' = 02	
504.		'3-CYLINDER' = 03	
505.		'4-CYLINDER' = 04	
506.		'5-CYLINDER' = 05	
507.		'6-CYLINDER' = 06	
508.		'8-CYLINDER' = 08	
509.		'ROTARY' = 09	
510.		'OTHER' = 21	
511.		'NO ANSWER' = 98	
512.		'NOT APPLICABLE' = 99	
513.)		
514.	02	AIRO1 'PRESENCE OF AIR CONDITIONING, V01, 0113'	CON 1
515.		@ 0113 - 0113: 9@	
516.		'YES' = 1	
517.		'NO' = 0	
518.		'NO ANSWER' = 8	
519.		'NOT APPLICABLE' = 9	
520.)		
521.	02	TRNS01 'TYPE OF TRANSMISSION, V01, 0114'	CON 1
522.		@ 0114 - 0114: 9@	
523.		'AUTOMATIC' = 1	
524.		'MANUAL' = 2	
525.		'NO ANSWER' = 8	
526.		'NOT APPLICABLE' = 9	
527.)		
528.	02	DOORS01 'NUMBER OF DOORS, V01, 0115'	CON 1
529.		@ 0115 - 0115: 9@	
530.		'2-DOOR' = 2	
531.		'3-DOOR' = 3	
532.		'4-DOOR' = 4	
533.		'5-DOOR' = 5	
534.		'NO ANSWER' = 8	
535.		'NOT APPLICABLE' = 9	
536.)		
537.	02	JOBUSE01 'VEHICLE USED ON THE JOB, V01, 0116'	CON 1
538.		@ 0116 - 0116: 9@	
539.		'YES' = 1	
540.		'NO' = 0	

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541.	'NO ANSWER'	= 8	
542.	'NOT APPLICABLE'	= 9	
543.)		
544.	02 DRIVES01 'NUMBER OF REGULAR DRIVERS, V01, 0117'		CON 1
545.	@ 0117 - 0117: 9@		
546.	'NONE'	= 0	
547.	'ONE'	= 1	
548.	'TWO'	= 2	
549.	'THREE'	= 3	
550.	'FOUR'	= 4	
551.	'FIVE'	= 5	
552.	'SIX'	= 6	
553.	'SEVEN'	= 7	
554.	'NO ANSWER'	= 8	
555.	'NOT APPLICABLE'	= 9	
556.)		
557.	02 RMPG01 'MPG PROVIDED BY RESPONDENT, V01, 0118'		OBS 2
558.	@ 0118 - 0119: 99@		
559.	@C IF BOTH IN-TOWN AND HIGHWAY MPG GIVEN @		
560.	@C ONLY IN-TOWN MPG RECORDED @		
561.	@C 98 = NO ANSWER @		
562.	@C 99 = NOT APPLICABLE @		
563.	02 FILLER		1
564.	@ 0120 - 0120: @		
565.	02 VEHUSE01 'TIME PERIOD HSHLD HAD USE OF V01, 0121'		CON 1
566.	@ 0121 - 0121: 9@		
567.	'FULL YEAR'	= 1	
568.	'BEGINING OF YEAR ONLY'	= 2	
569.	'END OF YEAR ONLY'	= 3	
570.	'MIDDLE OF YEAR ONLY'	= 4	
571.	'NOT APPLICABLE'	= 9	
572.)		
573.	02 MDACG01 'MONTH ACQUIRED, V01, 0122'		CON 2
574.	@ 0122 - 0123: 99@		
575.	'JANUARY'	= 01	
576.	'FEBRUARY'	= 02	
577.	'MARCH'	= 03	
578.	'APRIL'	= 04	
579.	'MAY'	= 05	
580.	'JUNE'	= 06	
581.	'JULY'	= 07	
582.	'AUGUST'	= 08	
583.	'SEPTEMBER'	= 09	
584.	'OCTOBER'	= 10	
585.	'NOVEMBER'	= 11	
586.	'DECEMBER'	= 12	
587.	'HAD V01 AT START 1985'	= 95	
588.	'NOT APPLICABLE'	= 99	
589.)		
590.	02 MODISO1 'MONTH DISPOSED, V01, 0124'		CON 2
591.	@ 0124 - 0125: 99@		
592.	'JANUARY'	= 01	
593.	'FEBRUARY'	= 02	
594.	'MARCH'	= 03	
595.	'APRIL'	= 04	
596.	'MAY'	= 05	
597.	'JUNE'	= 06	
598.	'JULY'	= 07	
599.	'AUGUST'	= 08	
600.	'SEPTEMBER'	= 09	

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601.	'OCTOBER'	= 10	
602.	'NOVEMBER'	= 11	
603.	'DECEMBER'	= 12	
604.	'HAD VO1 AT END 1985'	= 95	
605.	'NOT APPLICABLE'	= 99	
606.)		
607.	02 DAYS01 'NUMBER OF DAYS HSHLD HAD VO1, 0126'		OBS 3
608.	e 0126 - 0128: 999e		
609.	ec 998 = NO ANSWER e		
610.	ec 999 = NOT APPLICABLE e		
611.	02 MPG01 'MPG IN TENTHS OF MILES, VO1, 0129'		OBS 3
612.	e 0129 - 0131: 999e		
613.	ec 998 = NO ANSWER e		
614.	ec 999 = NOT APPLICABLE e		
615.	02 MILES01 'TOTAL MILES IN 1985 FOR VO1, 0132'		OBS 5
616.	e 0132 - 0136: 99999e		
617.	02 GALS01 'TOTAL GALLONS IN 1985 FOR VO1, 0137'		OBS 5
618.	e 0137 - 0141: 99999e		
619.	02 COST01 'TOTAL COST OF FUEL IN 1985 FOR VO1, 0142'		OBS 5
620.	e 0142 - 0146: 99999e		
621.	ec COST IN DOLLARS e		
622.	02 ACOST01 'AVERAGE COST PER GALLON, VO1, 0147'		OBS 4
623.	e 0147 - 0150: 99999e		
624.	ec IN TENTHS OF CENTS e		
625.	02 FTYPE01 'FUEL TYPE, VO1, 0151'		CON 1
626.	e 0151 - 0151: 9e		
627.	'GASOLINE'	= 1	
628.	'DIESEL'	= 2	
629.	'GASAHOL'	= 3	
630.	'PROPANE'	= 4	
631.	'NOT APPLICABLE'	= 9	
632.)		
633.	02 FLEAD01 'FUEL LEADED OR, NOT, VO1, 0152'		CON 1
634.	e 0152 - 0152: 9e		
635.	'LEADED'	= 1	
636.	'UNLEADED'	= 2	
637.	'DONT KNOW'	= 3	
638.	'NOT APPLICABLE'	= 9	
639.)		
640.	02 FGRADE01 'GRADE OF FUEL, VO1, 0153'		CON 1
641.	e 0153 - 0153: 9e		
642.	'REGULAR'	= 1	
643.	'PREMIUM'	= 2	
644.	'DONT KNOW'	= 3	
645.	'NOT APPLICABLE'	= 9	
646.)		
647.	02 IMDAYS01 'NUMBER OF DAYS IMPUTED, VO1, 0154'		CON 1
648.	e 0154 - 0154: 9e		
649.	'NOT IMPUTED'	= 0	
650.	'ACQUISITON ONLY IMP'	= 1	
651.	'DISPOSITION ONLY IMP'	= 2	
652.	'ACG AND DISP IMPUTED'	= 3	
653.	'NOT APPLICABLE'	= 9	
654.)		
655.	02 IMMILE01 'TOTAL MILES, SOURCE, VO1, 0155'		CON 1
656.	e 0155 - 0155: 9e		
657.	'ADJ-D, 46 PLUS DAYS'	= 1	
658.	'ADJ-D, 22-45 DAYS'	= 2	
659.	'IMPUTED, NO TS, R4'	= 3	
660.	'IMPUTED, 0-MILE/MO'	= 4	

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661.	'IMPUTED, ALL OTHERS'	= 5	
662.	'NOT APPLICABLE'	= 9	
663.)		
664.	02 IMMPG01 'MPG IMPUTED, V01, 0156'		CON 1
665.	e 0156 - 0156: 9e		
666.	'MPG NOT IMPUTED'	= 0	
667.	'MPG IMPUTED'	= 1	
668.	'NOT APPLICABLE'	= 9	
669.)		
670.	02 IMGAL01 'COST PER GALLON IMPUTED, V01, 0157'		CON 1
671.	e 0157 - 0157: 9e		
672.	'NOT IMPUTED'	= 0	
673.	'IMPUTED'	= 1	
674.	'NOT APPLICABLE'	= 9	
675.)		
676.	02 IMFUEL01 'FUEL TYPE IMPUTED, V01, 0158'		CON 1
677.	e 0158 - 0158: 9e		
678.	'NOT IMPUTED'	= 0	
679.	'IMPUTED'	= 1	
680.	'NOT APPLICABLE'	= 9	
681.)		
682.	02 IMCYLS01 'CYLINDERS IMPUTED, V01, 0159'		CON 1
683.	e 0159 - 0159: 9e		
684.	'NOT IMPUTED'	= 0	
685.	'IMPUTED'	= 1	
686.	'NOT APPLICABLE'	= 9	
687.)		
688.	02 IMAIRO1 'AIR CONDITIONING IMPUTED, V01, 0160'		CON 1
689.	e 0160 - 0160: 9e		
690.	'NOT IMPUTED'	= 0	
691.	'IMPUTED'	= 1	
692.	'NOT APPLICABLE'	= 9	
693.)		
694.	02 IMTRAN01 'TRANSMISSION TYPE IMPUTED, V01, 0161'		CON 1
695.	e 0161 - 0161: 9e		
696.	'NOT IMPUTED'	= 0	
697.	'IMPUTED'	= 1	
698.	'NOT APPLICABLE'	= 9	
699.)		
700.	02 IMDOOR01 'NUMBER OF DOORS IMPUTED, V01, 0162'		CON 1
701.	e 0162 - 0162: 9e		
702.	'NOT IMPUTED'	= 0	
703.	'IMPUTED'	= 1	
704.	'NOT APPLICABLE'	= 9	
705.)		
706.	02 IMJOB01 'USE ON THE JOB IMPUTED, V01 0163'		CON 1
707.	e 0163 - 0163: 9e		
708.	'NOT IMPUTED'	= 0	
709.	'IMPUTED'	= 1	
710.	'NOT APPLICABLE'	= 9	
711.)		
712.	02 IMDRV01 'NUMBER OF DRIVERS IMPUTED, V01, 0164'		CON 1
713.	e 0164 - 0164: 9e		
714.	'NOT IMPUTED'	= 0	
715.	'IMPUTED'	= 1	
716.	'NOT APPLICABLE'	= 9	
717.)		
718.	02 FILLER		6
719.	e 0165 - 0170: e		

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Variables for Vehicles 02-11 correspond to those listed above for Vehicle 01.

3440.	02	VEHNUM12 'VEHICLE ID NUMBER, V12, 0871'		CON 2
3441.		@ 0871 - 0872: 99@		
3442.		'ONE'	= 01	
3443.		'TWO'	= 02	
3444.		'THREE'	= 03	
3445.		'FOUR'	= 04	
3446.		'FIVE'	= 05	
3447.		'SIX'	= 06	
3448.		'SEVEN'	= 07	
3449.		'EIGHT'	= 08	
3450.		'NINE'	= 09	
3451.		'TEN'	= 10	
3452.		'ELEVEN'	= 11	
3453.		'TWELVE'	= 12	
3454.		'IMPUTED ADDITIONAL V'	= 21	
3455.		'IMPUTED ADDITIONAL V'	= 22	
3456.		'IMPUTED ADDITIONAL V'	= 23	
3457.		'IMPUTED ADDITIONAL V'	= 24	
3458.		'NOT APPLICABLE'	= 99	
3459.)		
3460.	02	TYPE12 'VEHICLE TYPE, V12, 0873'		CON. 2
3461.		@ 0873 - 0874: 99@		
3462.		'STATION WAGON'	= 01	
3463.		'AUTOMOBILE'	= 02	
3464.		'JEEP-LIKE VEHICLE'	= 03	
3465.		'PASSENGER VAN'	= 04	
3466.		'CARGO VAN'	= 05	
3467.		'PICKUP TRUCK'	= 06	
3468.		'OTHER TRUCK'	= 07	
3469.		'MOTOR HOME'	= 08	
3470.		'OTHER'	= 21	
3471.		'NO ANSWER'	= 98	
3472.		'NOT APPLICABLE'	= 99	
3473.)		
3474.	02	VMAKE12 'VEHICLE MAKE CODE, V12, 0875'		OBS 2
3475.		@ 0875 - 0876: 99@		
3476.		@C MAKECODE REFERS TO THE SPECIFIC VEHICLE @		
3477.		@C MAKE CODES WHICH ACCOMPANY THIS CODEBOOK @		
3478.		@C 95 = OTHER @		
3479.		@C 98 = NO ANSWER @		
3480.		@C 99 = MOTOR HOME IF COLUMN 0873 - 0874 = 08 @		

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3481.	02 YEAR12 'VEHICLE MODEL YEAR, V12, 0877'		OBS 2
3482.	e 0877 - 0878: 99e		
3483.	eC 98 = NO ANSWER e		
3484.	eC 99 = NOT APPLICABLE e		
3485.	02 MODEL12 'VEHICLE MODEL CODE, V12, 0879'		OBS 2
3486.	e 0879 - 0880: 99e		
3487.	eC MODEL12 REFERS TO THE VEHICLE MODEL e		
3488.	eC NAME CODES WHICH ACCOMPANY THIS CODEBOOK e		
3489.	eC 95 = OTHER e		
3490.	eC 98 = NO ANSWER e		
3491.	eC 99 = MOTOR HOME IF COLUMN 0873 - 0874 = 08 e		
3492.	02 CYLS12 'NUMBER OF CYLINDERS, V12, 0881'		CON 2
3493.	e 0881 - 0882: 99e		
3494.	'1-CYLINDER'	= 01	
3495.	'2-CYLINDER'	= 02	
3496.	'3-CYLINDER'	= 03	
3497.	'4-CYLINDER'	= 04	
3498.	'5-CYLINDER'	= 05	
3499.	'6-CYLINDER'	= 06	
3500.	'8-CYLINDER'	= 08	
3501.	'ROTARY'	= 09	
3502.	'OTHER'	= 21	
3503.	'NO ANSWER'	= 98	
3504.	'NOT APPLICABLE'	= 99	
3505.)		
3506.	02 AIR12 'PRESENCE OF AIR CONDITIONING, V12, 0883'		CON 1
3507.	e 0883 - 0883: 9e		
3508.	'YES'	= 1	
3509.	'NO'	= 0	
3510.	'NO ANSWER'	= 8	
3511.	'NOT APPLICABLE'	= 9	
3512.)		
3513.	02 TRNS12 'TYPE OF TRANSMISSION, V12, 0884'		CON 1
3514.	e 0884 - 0884: 9e		
3515.	'AUTOMATIC'	= 1	
3516.	'MANUAL'	= 2	
3517.	'NO ANSWER'	= 8	
3518.	'NOT APPLICABLE'	= 9	
3519.)		
3520.	02 DOORS12 'NUMBER OF DOORS, V12, 0885'		CON 1
3521.	e 0885 - 0885: 9e		
3522.	'2-DOOR'	= 2	
3523.	'3-DOOR'	= 3	
3524.	'4-DOOR'	= 4	
3525.	'5-DOOR'	= 5	
3526.	'NO ANSWER'	= 8	
3527.	'NOT APPLICABLE'	= 9	
3528.)		
3529.	02 JOBUSE12 'VEHICLE USED ON THE JOB, V12, 0886'		CON 1
3530.	e 0886 - 0886: 9e		
3531.	'YES'	= 1	
3532.	'NO'	= 0	
3533.	'NO ANSWER'	= 8	
3534.	'NOT APPLICABLE'	= 9	
3535.)		
3536.	02 DRIVES12 'NUMBER OF REGULAR DRIVERS, V12, 0887'		CON 1
3537.	e 0887 - 0887: 9e		
3538.	'NONE'	= 0	
3539.	'ONE'	= 1	
3540.	'TWO'	= 2	

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3541.	'THREE'	= 3	
3542.	'FOUR'	= 4	
3543.	'FIVE'	= 5	
3544.	'SIX'	= 6	
3545.	'SEVEN'	= 7	
3546.	'NO ANSWER'	= 8	
3547.	'NOT APPLICABLE'	= 9	
3548.)		
3549.	02 RMPG12 'MPG PROVIDED BY RESPONDENT, V12, 0888'		OBS 2
3550.	@ 0888 - 0889: 99@		
3551.	@C IF BOTH IN-TOWN AND HIGHWAY MPG GIVEN @		
3552.	@C ONLY IN-TOWN MPG RECORDED @		
3553.	@C 98 = NO ANSWER @		
3554.	@C.99 = NOT APPLICABLE @		
3555.	02 FILLER		1
3556.	@ 0890 - 0890: @		
3557.	02 VEHUSE12 'TIME PERIOD HSHLD HAD USE OF V12, 0891'		CON 1
3558.	@ 0891 - 0891: 9@		
3559.	'FULL YEAR'	= 1	
3560.	'BEGINING OF YEAR ONLY'	= 2	
3561.	'END OF YEAR ONLY'	= 3	
3562.	'MIDDLE OF YEAR ONLY'	= 4	
3563.	'NOT APPLICABLE'	= 9	
3564.)		
3565.	02 MOACQ12 'MONTH ACQUIRED, V12, 0892'		CON 2
3566.	@ 0892 - 0893: 99@		
3567.	'JANUARY'	= 01	
3568.	'FEBRUARY'	= 02	
3569.	'MARCH'	= 03	
3570.	'APRIL'	= 04	
3571.	'MAY'	= 05	
3572.	'JUNE'	= 06	
3573.	'JULY'	= 07	
3574.	'AUGUST'	= 08	
3575.	'SEPTEMBER'	= 09	
3576.	'OCTOBER'	= 10	
3577.	'NOVEMBER'	= 11	
3578.	'DECEMBER'	= 12	
3579.	'HAD V12 AT START 1985'	= 95	
3580.	'NOT APPLICABLE'	= 99	
3581.)		
3582.	02 MODIS12 'MONTH DISPOSED, V12, 0894'		CON 2
3583.	@ 0894 - 0895: 99@		
3584.	'JANUARY'	= 01	
3585.	'FEBRUARY'	= 02	
3586.	'MARCH'	= 03	
3587.	'APRIL'	= 04	
3588.	'MAY'	= 05	
3589.	'JUNE'	= 06	
3590.	'JULY'	= 07	
3591.	'AUGUST'	= 08	
3592.	'SEPTEMBER'	= 09	
3593.	'OCTOBER'	= 10	
3594.	'NOVEMBER'	= 11	
3595.	'DECEMBER'	= 12	
3596.	'HAD V12 AT END 1985'	= 95	
3597.	'NOT APPLICABLE'	= 99	
3598.)		
3599.	02 DAYS12 'NUMBER OF DAYS HSHLD HAD V12, 0896'		OBS 3
3600.	@ 0896 - 0896: 999@		

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3601.	ec 998 = NO ANSWER e	
3602.	ec 999 = NOT APPLICABLE e	
3603.	02 MPG12 'MPG IN TENTHS OF MILES, V12, 0899'	OBS 3
3604.	e 0899 - 0901: 999e	
3605.	ec 998 = NO ANSWER e	
3606.	ec 999 = NOT APPLICABLE e	
3607.	02 MILES12 'TOTAL MILES IN 1985 FOR V12, 0902'	OBS 5
3608.	e 0902 - 0906: 99999e	
3609.	02 GALS12 'TOTAL GALLONS IN 1985 FOR V12, 0907'	OBS 5
3610.	e 0907 - 0911: 99999e	
3611.	02 COST12 'TOTAL COST OF FUEL IN 1985 FOR V12, 0912'	OBS 5
3612.	e 0912 - 0916: 99999e	
3613.	ec COST IN DOLLARS e	
3614.	02 ACOST12 'AVERAGE COST PER GALLON, V12, 0917'	OBS 4
3615.	e 0917 - 0920: 99999e	
3616.	ec IN TENTHS OF CENTS e	
3617.	02 FTYPE12 'FUEL TYPE, V12, 0921'	CON 1
3618.	e 0921 - 0921: 9e	
3619.	'GASOLINE' = 1	
3620.	'DIESEL' = 2	
3621.	'GASAHOL' = 3	
3622.	'PROPANE' = 4	
3623.	'NOT APPLICABLE' = 9	
3624.)	
3625.	02 FLEAD12 'FUEL LEADED OR NOT, V12, 0922'	CON 1
3626.	e 0922 - 0922: 9e	
3627.	'LEADED' = 1	
3628.	'UNLEADED' = 2	
3629.	'DONT KNOW' = 3	
3630.	'NOT APPLICABLE' = 9	
3631.)	
3632.	02 FGRADE12 'GRADE OF FUEL, V12, 0923'	CON 1
3633.	e 0923 - 0923: 9e	
3634.	'REGULAR' = 1	
3635.	'PREMIUM' = 2	
3636.	'DONT KNOW' = 3	
3637.	'NOT APPLICABLE' = 9	
3638.)	
3639.	02 IMDAYS12 'NUMBER OF DAYS IMPUTED, V12, 0924'	CON 1
3640.	e 0924 - 0924: 9e	
3641.	'NOT IMPUTED' = 0	
3642.	'ACQUISITON ONLY IMP' = 1	
3643.	'DISPOSITION ONLY IMP' = 2	
3644.	'ACQ AND DISP IMPUTED' = 3	
3645.	'NOT APPLICABLE' = 9	
3646.)	
3647.	02 IMMILE12 'TOTAL MILES, SOURCE, V12, 0925'	CON 1
3648.	e 0925 - 0925: 9e	
3649.	'ADJ-D, 46 PLUS DAYS' = 1	
3650.	'ADJ-D, 22-45 DAYS' = 2	
3651.	'IMPUTED, NO TS, R4' = 3	
3652.	'IMPUTED, 0-MILE/MO' = 4	
3653.	'IMPUTED, ALL OTHERS' = 5	
3654.	'NOT APPLICABLE' = 9	
3655.)	
3656.	02 IMMPG12 'MPG IMPUTED, V12, 0926'	CON 1
3657.	e 0926 - 0926: 9e	
3658.	'MPG NOT IMPUTED' = 0	
3659.	'MPG IMPUTED' = 1	
3660.	'NOT APPLICABLE' = 9	

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3661.)			
3662.	02	IMGAL12 'COST PER GALLON IMPUTED, V12, 0927'		CON 1
3663.		e 0927 - 0927: 9e		
3664.		'NOT IMPUTED'	= 0	
3665.		'IMPUTED'	= 1	
3666.		'NOT APPLICABLE'	= 9	
3667.)			
3668.	02	IMFUEL12 'FUEL TYPE IMPUTED, V12, 0928'		CON 1
3669.		e 0928 - 0928: 9e		
3670.		'NOT IMPUTED'	= 0	
3671.		'IMPUTED'	= 1	
3672.		'NOT APPLICABLE'	= 9	
3673.)			
3674.	02	IMCYLS12 'CYLINDERS IMPUTED, V12, 0929'		CON 1
3675.		e 0929 - 0929: 9e		
3676.		'NOT IMPUTED'	= 0	
3677.		'IMPUTED'	= 1	
3678.		'NOT APPLICABLE'	= 9	
3679.)			
3680.	02	IMAIR12 'AIR CONDITIONING IMPUTED, V12, 0930'		CON 1
3681.		e 0930 - 0930: 9e		
3682.		'NOT IMPUTED'	= 0	
3683.		'IMPUTED'	= 1	
3684.		'NOT APPLICABLE'	= 9	
3685.)			
3686.	02	IMTRAN12 'TRANSMISSION TYPE IMPUTED, V12, 0931'		CON 1
3687.		e 0931 - 0931: 9e		
3688.		'NOT IMPUTED'	= 0	
3689.		'IMPUTED'	= 1	
3690.		'NOT APPLICABLE'	= 9	
3691.)			
3692.	02	IMDOOR12 'NUMBER OF DOORS IMPUTED, V12, 0932'		CON 1
3693.		e 0932 - 0932: 9e		
3694.		'NOT IMPUTED'	= 0	
3695.		'IMPUTED'	= 1	
3696.		'NOT APPLICABLE'	= 9	
3697.)			
3698.	02	IMJOBUI2 'USE ON THE JOB IMPUTED, V12 0933'		CON 1
3699.		e 0933 - 0933: 9e		
3700.		'NOT IMPUTED'	= 0	
3701.		'IMPUTED'	= 1	
3702.		'NOT APPLICABLE'	= 9	
3703.)			
3704.	02	IMDRVS12 'NUMBER OF DRIVERS IMPUTED, V12, 0934'		CON 1
3705.		e 0934 - 0934: 9e		
3706.		'NOT IMPUTED'	= 0	
3707.		'IMPUTED'	= 1	
3708.		'NOT APPLICABLE'	= 9	
3709.)			
3710.	02	FILLER		2
3711.		e 0935 - 0936: e		
3712.	02	AREA1970 '1970 RESIDENCE SUMMARY CODES 0937'		CON 1
3713.		e 0937 - 0937: e		
3714.		@C IN CITY = INSIDE CENTRAL CITY e		
3715.		@C OUT CITY = OUTSIDE CENTRAL CITY e		
3716.		'METRO IN CITY'	= 1	
3717.		'METRO OUT CITY'	= 2	
3718.		'NONMETRO'	= 4	
3719.)			
3720.	02	STRAT 'DOE PAIR NUMBER 0938'		OBS 2

TPL CODEBOOK FOR 1985 RTECS ANNUALIZED FINAL FILE (continued)

3721. e 0938 - 0939: e
3722. eC DOE VARIABLE ONLY, NOT ON PUBLIC USE TAPE e
3723. eC THIS VARIABLE IS THE FIRST 2 DIGITS OF DOE PSU e
3724. eC IT IS USED IN COMBINATION WITH PAIR FOR COMPUTING e
3725. eC SAMPLING VARIANCES e
3726. 02 PAIR 'DOE ODD-EVEN REPLICATE 0940' CON 1
3727. e 0940 - 0940: e
3728. eC DOE VARIABLE ONLY, NOT ON PUBLIC USE TAPE e
3729. eC THIS VARIABLE IS THE LAST DIGIT OF DOE PSU e
3730. eC IT IS USED IN COMBINATION WITH STRAT FOR e
3731. eC COMPUTING SAMPLING VARIANCES e
3732. 'EVEN HALF-SAMPLE' = 0
3733. 'ODD HALF-SAMPLE' = 1
3734.)
3735. 02 IDRAC 'RAC ID NUMBER 0941' OBS 4
3736. e 0941 - 0944: e
3737. eC RAC VARIABLE ONLY, NOT ON DOE TAPE e
3738. END RTECSCB CODEBOOK
3739. /**
3740. //

APPENDIX B:

CODING AND EDITING INSTRUCTIONS FOR RTECS STAFF

The coding and editing instructions in this appendix were originally included in three manuals prepared by the survey contractor, Response Analysis Corporation (RAC):

- 1985 Residential Transportation Energy Consumption Survey (RTECS)
Volume II: Household/Vehicle Information Files
- 1985 Residential Transportation Energy Consumption Survey (RTECS)
Volume III: Fuel Purchase Record Files
- 1985 Residential Transportation Energy Consumption Survey (RTECS)
Volume IV: Annualization Procedures

RAC prepared these three manuals to serve as training manuals and basic reference manuals for RTECS operating staff.

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PART B. CODING INSTRUCTIONS AND SPECIMEN FORMS

During the course of the 1985 Residential Transportation Energy Consumption Survey (RTECS), households are contacted several times and asked to provide information about vehicles used by household members. This information includes --

- a description of each vehicle and its equipment
- the date(s) on which a household acquires or disposes of any vehicle
- odometer (mileage) readings at the beginning and end of the year and/or at the time a vehicle is acquired or disposed of by the household
- fuel purchases made for vehicles during one specified month of the year.

In the coding process for the Household/Vehicle Information (HVI) files, we will be transcribing information about each of these topics, except fuel purchases, from questionnaires onto coding sheets. The data that are transcribed will be key-entered and stored in computer files for ongoing use in processing RTECS data.

Four coding forms will be used to transcribe the information (see specimen forms at the end of this section). The first of these, the initial coding form produced by computer program FORMINIT, will be used to enter data on vehicle characteristics and beginning odometer readings, to the extent that these data are available at the time this coding step is carried out. The other three forms are called "turnaround" coding forms, produced by program FORMTURN. They will be used both to add new data and to correct (edit) information already contained in the HVI files. The information to be transcribed to each of these forms will be found in one or more sources -- in questionnaires completed by telephone interviewers or in person at the respondent's household, or on cards mailed in by respondents. Coders will be provided with the coding forms and the appropriate source documents.

The information in the HVI files is contained in three separate "cards," each of which contains up to 80 columns (or characters) of data. These cards are the household card, called OH01, and two vehicle cards, 1V01 and 1V02. Each variable in the file is presented under its card type and column number in Parts D, E, and F of this manual.

Of the coding forms, only the initial coding form has spaces for data from more than one card. The initial coding form has space to record selected information for cards 1V01 and 1V02. The turnaround coding forms are specific to a single card -- OH01, 1V01, or 1V02. Below we discuss each of the forms in turn, starting with the initial coding form.

Initial coding form (FORMINIT). FORMINIT is used to transcribe information on vehicle characteristics and beginning odometer readings from questionnaires and odometer reading cards.

Data coded to FORMINIT will come primarily from these sources:

- A questionnaire (F4739-40) used by telephone interviewers for beginning-of-year odometer reading calls. This questionnaire generally contains background information on vehicle characteristics, as well as beginning odometer readings.
- A questionnaire (F4739-57) used for in-person contacts with households that cannot be reached by telephone. This questionnaire generally contains background information on vehicle characteristics, but does not contain beginning odometer readings.
- Cards (Form M) filled in and mailed back by households that do not have telephones. These cards contain beginning odometer readings.

All of the source documents for a given household will be found in a file folder for that household. The folders are kept together by assigned fuel purchase data collection month (SAMPMO), in sequence within each month by Household Identification Number (HHID).

Computer printouts for FORMINIT show one line for each vehicle that has ever been reported as part of the vehicle stock of the household (up to the time of the computer run of the FORMINIT listings). The FORMINIT listings are also organized by SAMPMO with vehicle listings in sequence by HHID within month, and by vehicle number (VEHNUM) within household.

When VEHNUM is in the range 1-4, the vehicle was reported as used by a member of the household at the time of the original RECS interview (usually in October or November 1984). When VEHNUM is 5 or higher, the vehicle was reported as acquired following the date of the RECS interview. Households that have never reported a vehicle do not appear in the FORMINIT listings.

Turnaround coding forms (TURNAROUND). The purposes of the turnaround coding forms are to make additions to and changes to data for both households and vehicles. These forms will be generated periodically to update the HVI file.

Two main cycles of update activity will take place. The first cycle of updates will generally come sometime before the end of calendar year 1985. The purpose of this cycle is to bring the files up to date for vehicles acquired or disposed of during the year, to the extent that this information is available, and in general to enter all additional data that are available in the data collection files. Computer checks may disclose that some variables have been miscoded -- the codes are outside the valid range for the variable and/or are logically inconsistent with other entries. These range or consistency error messages will show up on computer printouts and must be checked in the data collection files.

The second update cycle will take place in early 1986, after end-of-year odometer readings are collected. The purpose of this update is to enter and check additional information that is available from the final set of contacts with RTECS households.

At the time of each update cycle, coders will receive instructions on which fields are to be coded or edited*. They will pull the appropriate source documents from the Household File Folder and examine each until all information has been obtained for each vehicle listed. Complete detail on codes and instructions for each variable is contained in Parts D, E, and F of this manual.

*See coding instructions for FORMINIT, pp B-8 - B-16; and coding instructions for turnaround forms, pp B-17 - B-38.

Specimen of Initial Coding Form - 1985 RTECS

V E H I D N O 1-4 7-8 10-13	YEAR	MAKE	MODEL	CYLS	A I R S E S E S	D O R S E S	J O B S E S	R P G	C A R D	B E G I N N I N G O D O M E T E R	D A T E (M O B Y R)
1785 01 1V01	73	FORD	MAVERICK					1V02			
1790 01 1V01	84	AMC	EAGLE					1V02			
1804 01 1V01	67	FORD	MUSTANG					1V02			
1836 01 1V01	71	OLDSMOBILE	VISTA CRUISE					1V02			
1894 01 1V01	68	OLDSMOBILE	CUTLASS					1V02			
1911 01 1V01	73	BUICK	LESABRE					1V02			
1912 01 1V01	76	TOYOTA	COROLLA					1V02			
1917 01 1V01	81	DATSUM	MAXIMA					1V02			
1922 01 1V01	77	CHEVROLET	S-10					1V02			
1922 02 1V01	76	VOLVSWAGON	RABBIT					1V02			
1922 03 1V01	74	FORD	PINTO					1V02			
1932 01 1V01	53	PNG-10	MIDGET					1V02			
1933 01 1V01	76	CHEVROLET	CAMARO					1V02			
1933 02 1V01	75	CHRYSLER	CORDOBA					1V02			
1933 05 1V01	72	FORD	PINTO					1V02			
2006 01 1V01	84	MERCURY	BROUGHAM					1V02			
2010 01 1V01	78	OLDSMOBILE	CUTLASS					1V02			
2010 02 1V01	84	CHEVROLET	CELEBRITY					1V02			
2010 05 1V01	76	CHEVROLET	CHEVETTE					1V02			
3045 05 1V01	84	FORD	MUSTANG					1V02			

Specimen of Turnaround Coding Form 0101

Run date: 04/27/86 Time: 1037

HVID	CARD	140P	15	17-18	NO	RECS	DATE	144	STATUS	COMMENT	BEGINNING	FUEL	MIDYEAR	ENDING	LABY
1019	0001	1	01	101684	11	1	1	1	1	1	1	1	1	1	01 04 86
1029	0001	1	01	101784	11	1	1	1	1	1	1	1	1	1	01 03 86
1041	0001	1	01	101704	21	1	1	1	1	1	1	1	1	1	04 01 85
1056	0001	1	01	101884	11	1	1	1	1	1	1	1	1	1	01 16 86
1066	0001	1	01	102184	11	1	1	1	1	1	1	1	1	1	01 05 86
1079	0001	1	01	101484	23	1	1	1	1	1	1	1	1	1	01 03 86
1094	0001	1	01	101384	11	1	1	1	1	1	1	1	1	1	01 04 86
1100	0001	1	01	101084	11	1	1	1	1	1	1	1	1	1	01 09 84
1120	0001	1	01	102084	11	1	1	1	1	1	1	1	1	1	08 05 85
1134	0001	1	01	101784	21	1	1	1	1	1	1	1	1	1	01 04 86
1141	0001	1	01	102084	12	1	1	1	1	1	1	1	1	1	01 03 86
1160	0001	1	01	102084	21	1	1	1	1	1	1	1	1	1	01 03 86
1193	0001	1	01	102084	11	1	1	1	1	1	1	1	1	1	01 06 86
1205	0001	1	01	102384	11	1	1	1	1	1	1	1	1	1	01 04 86
1233	0001	1	01	102384	11	1	1	1	1	1	1	1	1	1	01 03 86
1242	0001	1	01	102384	11	1	1	1	1	1	1	1	1	1	01 03 86
1244	0001	1	01	102284	11	1	1	1	1	1	1	1	1	1	01 04 86
1281	0001	1	01	102384	11	1	1	1	1	1	1	1	1	1	12 31 85
1291	0001	1	01	102284	22	1	1	1	1	1	1	1	1	1	01 13 86
1295	0001	1	01	101884	11	1	1	1	1	1	1	1	1	1	01 04 86
1387	0001	1	01	102084	11	1	1	1	1	1	1	1	1	1	01 04 86

05

* A provision for a comment code appeared on this form, but was not used for the 1985 RTECS.

Specimen of Turnaround Coding Form 1V82

Run date: 04/27/86 Time: 1037

V	C	D	ACQUISITION	C	D	READING DATE	C	D	READING DATE	C	D	ENDING	C	D	DISPOSITION	C	D	STATUS	STAGE	STATUS	STAGE	STATUS
1-4	7-0	10-13	15	17-22	24-29	31	33-38	40-45	47	49-54	56-61	63	65-70	72-77	79	81	83	85-90	92	94	96	98
1019	01	1V02	1	101484		31	33-38	40-45	47	49-54	56-61	63	65-70	72-77	79	81	83	85-90	92	94	96	98
1019	02	1V02	1	101484								029310	123185									
1019	03	1V02	1	101484																		
1019	05	1V02	3	080185	083185							006125	123185									
1041	01	1V02	1	101784																		
1041	04	1V02	3	032485	040185																	
1056	01	1V02	1	101884																		
1056	02	1V02	1	101884																		
1066	01	1V02	1	102184																		
1066	02	1V02	1	102184																		
1079	01	1V02	1	101484																		
1094	01	1V02	1	101384																		
1094	02	1V02	3	050185	053185																	
1100	01	1V02	1	101084																		
1120	01	1V02	1	102084																		
1120	02	1V02	1	102084																		
1134	01	1V02	1	101784																		
1141	01	1V02	1	102084																		
1141	02	1V02	1	102084																		
1141	03	1V02	1	102084																		
1141	05	1V02	3	040185	043085																	
1141	06	1V02	3	120185	123185																	

CODING INSTRUCTIONS FOR FORMINIT

1. The information you need to code FORMINIT is usually part of the data collected during the ODOMETER READING CALLS (F4739-40). Some or all of the information, however, may appear in one of the other data collection forms in the household folder.
2. Households that have never reported use of a vehicle do not appear in the FORMINIT listings. There is no coding to do for these households at this stage of processing.
3. As you work on the codes for each vehicle, check the household and vehicle numbers to be sure you are on the proper line.
4. Do not make changes or add information on FORMINIT for make, year, or model of the vehicle.
5. If you see a reference in the folder to a vehicle that does not appear on the FORMINIT, call it to the attention of your supervisor. Do not add it to the FORMINIT during this stage of processing.
6. Put a dash (-) to the left of the HHID after you complete the entries for each vehicle (including the vehicles for which nothing is entered because no information is available).

CODING INSTRUCTIONS FOR FORMINIT - PAGE 2

Card 1V01 codes (cols 66-78)

1. If answers to none of the questions are available, leave all spaces for this group of questions blank.
2. If answers to one or more of these questions are available, codes must be entered for each question.

Use the unknown codes (8 or 98) as necessary.

3. You are responsible for two consistency checks within this set of codes --

Consistency between type of vehicle and DOORS.

DOORS is coded "not applicable" (9) if type is not AUTOMOBILE or STATION WAGON.

Consistency between JOBUSE and NONBUS.

NONBUS is coded "not applicable" (9) if JOBUSE is not 1.

4. If the respondent's MPG estimate is recorded in tenths of miles, round to the nearest whole number. (Round .5 up to the next higher number).

If the respondent's estimate is a range of MPG, code the midpoint.

Examples:

<u>Respondent's Estimate</u>	<u>Code</u>
14-16	15
14-17	16 (Rounded up from 15.5)

CODING INSTRUCTIONS FOR FORMINIT - PAGE 3

 1V01 66-67 CYLS NUMBER OF CYLINDERS

B23.* How many cylinders does the engine have, or
 is it a rotary engine?

- 4-cylinder 04
- 5-cylinder 05
- 6-cylinder 06
- 8-cylinder 08
- Rotary 09
- Electric 10
- Other 21
- Unknown 98

* Data collected in Background Questionnaire; question
 numbers may vary on different versions of the
 questionnaire.

 1V01 69 AIR PRESENCE OF AIR CONDITIONING

B24. Does the vehicle have air conditioning?

- Yes 1
- No 0
- Unknown 8

 1V01 70 TRANS TYPE OF TRANSMISSION

B25. Does the vehicle have an automatic
 transmission or a manual shift?

- Automatic 1
- Manual shift (standard). 2
- Unknown 8

CODING INSTRUCTIONS FOR FORMINIT - PAGE 4

 1V01 71 DOORS NUMBER OF DOORS

B26. Is it a 2-door or 4-door or what?
 (Applicable only to automobiles and station wagons.)

2-door 2
 3-door 3
 4-door 4
 5-door 5
 Unknown 8
 Not applicable 9

 1V01 73 JOBUSE VEHICLE USED ON THE JOB

B27. Is your vehicle used on the job by anyone
 from your household, not counting going to and
 from work?

Yes 1
 No 0
 Unknown 8

 1V01 74 NONBUS NONBUSINESS USE

B28. Is it also used for nonbusiness (personal)
 purposes? (Applicable only if vehicle is used
 on the job.)

Yes 1
 No 0
 Unknown 8
 Not Applicable 9

CODING INSTRUCTIONS FOR FORMINIT - PAGE 5

 IV01 75 DRIVES NUMBER OF REGULAR DRIVERS

B29. About how many drivers use this vehicle on a regular basis?

Number of regular drivers 0-6
 Seven or more 7
 Unknown 8

 IV01 77-78 MPGEST MILES PER GALLON RESPONDENT ESTIMATE

B30. About how many miles per gallon do you usually get with this vehicle? (IF RESPONDENT GIVES MPG FOR BOTH IN-TOWN AND HIGHWAY DRIVING, WRITE DOWN IN-TOWN MPG ONLY)

MPG estimate 04-59
 Unknown 98

CODING INSTRUCTIONS FOR FORMINIT - PAGE 6

Card 1V02 codes (cols 31-45)

1. Beginning odometer reading information should be coded only from F4739-40 (ODOMETER READING CALLS) or from odometer reading cards mailed back by respondents who could not be reached by telephone.

If the odometer reading call was not completed (and there are no mail-back cards in the file), all of the spaces for BEGINNING ODOMETER READING should be left blank, including col 31.

2. When an odometer reading has been obtained, code 1 should generally be used for col 31.

Code 2 should be used when a note indicates that the odometer reading is an approximation or suspect in some way.

If code 1 or 2 is entered for col 31, both the odometer reading and the date must be filled in.

3. Enter the codes for odometer not working (3) or not obtained for other reasons (5), as appropriate.

If code 3 or 5 is entered for col 31, both the reading and the date should be left blank.

4. If tenths of miles are included in the odometer reading, drop the tenths from the information that is entered. Include leading zeros in the entries as appropriate. For example, all of the following -- 18,079 or 18,079.2 or 18,079.9 -- should be recorded as

0 1 8 0 7 9
- - - - -

5. Watch for notes that indicate that the odometer goes only up to 99,999, and that the odometer has "turned over" (i.e., actually gone past 100,000). In this case, enter your best understanding of the total number of miles that the vehicle has been driven.

CODING INSTRUCTIONS FOR FORMINIT - PAGE 7

6. Unless answers or notes on the odometer reading page indicate another specific date, assume that the reading was recorded on the date specified at the top of the computer printout page or on the mail-back card. Leading zeros should always be entered as necessary. For example, January 5, 1985 would be entered as --

01 05 85
-- -- --

If there is some ambiguity about the date, record the date shown on the computer-printed page or mail-back card and use code 2 in column 31.

CODING INSTRUCTIONS FOR FORMINIT - PAGE 8

 1V02 31 ODOMBC BEGINNING ODOMETER CODE

 Odometer reading OK 1
 Odometer reading questionable 2
 Odometer not working 3
 Not obtained, other reason 5

 1V02 33-38 B Miles BEGINNING ODOMETER READING

 Range: 000000-299999; BLANK
 If ODOMBC = 3 or 5 then B Miles must be blank
 If YYEAR =85-86 then B Miles < 50,000
 If YYEAR=84 then B Miles<100,000
 If YYEAR=83 then B Miles<150,000
 If YYEAR=82 then B Miles<200,000
 If YYEAR<82 then B Miles<250,000

 1V02 40-41 BMOMIL BEGINNING ODOMETER MONTH

 If Begin Odometer Date is not blank then;
 A) Must be later than 122084;
 B) If close acquisition date is NOT blank,
 and close acquisition date is later than
 122084, must be later than or equal to
 close acquisition date;
 C) If close acquisition date is blank and begin
 acquisition date is NOT blank and begin
 acquisition date is later than 122084, then
 must be equal to or later than begin acquisition
 date

CODING INSTRUCTIONS FOR FORMINIT - PAGE 9

1V02	42-43	BDYMIL	BEGINNING ODOMETER DAY See notes for BMOMIL
1V02	44-45	BYRMIL	BEGINNING ODOMETER YEAR See notes for BMOMIL

CODING INSTRUCTIONS FOR TURNAROUND FORMS

These instructions are specific to the final coding phase for the Household/Vehicle Information files. Each of the three HVI Cards (OH01, 1V01, 1V02) has its own turnaround coding form (FORMTURN); we will be making additions and changes to data concurrently on all three cards as we go through the household file folders.

Use a black pencil for changes and additions to codes. To change a code on the turnaround form, cross out the existing code and write the new code above the one you have crossed out. To add a code, write it in the blank space that appears on the form for that card and column.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 2

Card #H01 - FORMTURN

Codes that appear in the portion of the card prior to cols 45-46 are computer generated codes and should not be changed clerically. Some of the codes (through col 25) appear on FORMTURN because they are needed for reference; other codes (cols 27-43) do not appear on FORMTURN.

HH status (cols 45-46) and comment (col 47)

A code for HH status will always appear in the file, indicating the status at the time of preparation for end-of-year data collection. Although it is possible that it should be edited in order to correct an earlier error, changes in this code should be made only as instructed by your supervisor.

The comment code has not been used for the 1985 RTECS; the space should be left blank.

NOTE: Number of eligible vehicles (cols 49-50) is in the computer file; it is a computer-generated code -- it does not appear on FORMTURN and should not be changed clerically.

Contact and result codes, and date of last contact (cols 52-69)

This complete set of codes must be entered on FORMTURN during this coding phase. Now that all data collection has been completed, a record of all contacts with the household will appear in the household file folder. First check that data collection materials are in chronological sequence -- this will facilitate work during this coding sequence.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 3

Card OH01 - FORMTURN (cont'd)

Beginning odometer contact type and result codes

Contact type (BODOMCT - col 52)

These codes apply whether or not the household actually had a vehicle at the time the beginning-of-year odometer reading contact was scheduled for the household. If the household did not have a vehicle the purpose of the contact was to check to determine whether the household had acquired a vehicle since the date of the most recent contact (usually the date at which the RECS personal interview or mailed questionnaire was completed).

Basic contact by phone 1

This code applies if a telephone contact with the household was attempted. Use of this code generally means that we had (or thought we had) an active telephone number for the household.

Basic contact by mail 2

This code applies if a mailing was made to the household; use of this code generally means that we did not have an active telephone number for the household at the time beginning odometer readings for the household were started.

Not applicable 9

See special rules below.

Contact not attempted 0

This code applies only if household had terminated participation in RTECS at an earlier stage of data collection. For all other households, codes 1, 2, or 9 must be used.

Special rule for "not applicable" code:

Code 9 is used only for households for which fuel purchase records were expected to provide beginning odometer readings for household vehicles. Generally, these households --

- were assigned to January as the sample month, with ID#s in range 1001-4325; or were assigned to May-August as the sample month with ID#s in range 6483-6495 or 7103-7203;
- had one or more vehicles at the time of the RECS interview;
- had telephones when the first RTECS contacts were attempted.

For these households, the codes in cols 55-56 apply to the fuel purchase contacts.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 4

Card OH01 - FORMTURN (cont'd)

Contact result code (BODOMRC - col 53)

A code must be entered in this column for each household, regardless of what code was entered for contact type.

Some data collected 1

This code means that a contact with the household was completed, and some information collected. As a minimum, we should have obtained an up-to-date record of vehicles in use by the household (or determined that the household did not have a vehicle at the time of this contact).

It is not necessary to evaluate the quality or completeness of the information collected.

No data collected (refusal codes do not apply) 5

This code applies to a wide range of cases in which other possible codes do not apply. Usually it will mean that a telephone contact was attempted but not completed (no answer, number disconnected, etc.) -- or that materials were mailed to a household with no telephone, but none of the materials were returned.

Refusal at time this data collection was attempted 6

This code means that a contact was attempted, but that no data was collected -- the respondent refused to provide any of the information requested.

Not applicable 9

See special rules for BODOMCT. (Code col 53 = 9 only if col 52 = 9).

Household terminated participation at an earlier point 0

A contact was not attempted at the time that odometer readings were scheduled. (Code col 53 = 0 only if col 52 = 0).

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 5

Card OH01 - FORMTURN (cont'd)

Fuel purchase contact and result code

These contacts were attempted only for households with one or more vehicles at the time of the most recent contact preceding the scheduled month for fuel purchase records. Two types of contacts were planned --

- contacts starting with a personal visit to the household (households without telephones);
- contacts starting with a telephone call (households with telephones).

For some households there will be indication in the household file folder that we attempted at two or more different times to obtain fuel purchase records. In these cases you will generally record the codes that best fit the overall set of contacts and results.

NOTE

For telephone households there are generally three separate calls during the sequence of contacts pertaining to fuel purchase records --

- 1 - to update information about vehicle stock of the household;
- 2 - to check on receipt of fuel purchase logs, and answer questions about use of the logs;
- 3 - to collect information pertaining to fuel purchase records.

The fuel purchase contact and result codes refer to the entire sequence of calls. The date of last contact with the household will sometimes be the date of the first or second call in this sequence of contacts.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 6

Card OH01 - FORMTURN (cont'd)

Contact type (FUEL PCT - col 55)

Basic contact by phone 1

This code applies whenever the sequence of contacts was started by an attempt to make a telephone contact with the household.

Personal contact completed 2

This code used for either of the following: a personal contact was made at the household and fuel purchase logs were left with the household; or a personal contact was made and it was determined that the household had no vehicle at the time of the contact.

Personal contact attempted but not completed 3

This code means that fuel purchase logs were not left with the household (household believed to have one or more vehicles).

Not applicable 9

Telephone household with no vehicle at time contacts for fuel purchase record data collection were started.

Contact not attempted 0

No contact applies if household terminated participation in RTECS at an earlier stage of data collection.

Coding Instructions for Turnaround Forms (continued)

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 7

Card OH01 - FORMTURN (cont'd)

Result code (FUELPRC - col 56)

- Some FPR data collected 1
At this point we are not attempted to evaluate the quality or completeness of the data. This code applies whenever some data were processed for the FPR file.
- No FPR data collected, but vehicle stock was updated during the sequence of contacts (includes those households that verified that they had no vehicle at the time of the personal contact) 2
- No data collected (attempt made to contact household; refusal codes do not apply) 5
- Refusal (or untouchable status) at time of this contact 6
This code means that a contact was attempted, but that no data was collected -- the respondent refused to provide any of the information requested.
- Not applicable 9
Telephone household with no vehicle at time of fuel purchase data collection. Code col 56 = 9 only if col 55 = 9.
- Household terminated participation at an earlier point 0
(Code col 56 = 0 only if col 55 = 0).

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 8

Card OH01 - FORMTURN (cont'd)

Midyear contact type and result code

These contacts were intended primarily to check on current addresses and telephone numbers for RTECS households and to update information about vehicle stock. There were two types of contacts --

- Telephone contacts to households (only those with telephones) that did not have a vehicle at the time of the preceding contact with the household.

Household folders will include a telephone contact form if this kind of contact was completed or attempted with the household.

- A mailing including return cards for changes in address or telephone number, or changes in vehicle stock, for all other households (except those for which RTECS contacts had been terminated at some earlier date).

Some evidence of a mail contact will be included in the household file folder if one or more cards for address, telephone, or vehicle changes were returned by the household. Mailing guides used for midyear contacts will usually have to be consulted in order for these codes to be entered.

Contact type (MIDYRCT - col 58)

Basic contact by telephone	1
Basic contact by mail	2
Contact not attempted	0

"No contact" applies if household has terminated participation at an earlier stage of data collection.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 9

Card OH01 - FORMTURN (cont'd)

Result code (MIDYRRC - col 59)

Vehicle acquisition and/or disposition information obtained (no address/telephone change) . . .	1
Household address/telephone change information obtained (no vehicle acquisition/ disposition)	2
Vehicle information AND address/ telephone change obtained.	3
Telephone contact completed - no address/telephone/vehicle changes.	4
No cards returned from mail contact, <u>or</u> telephone contact not completed	5
Refusal at time of this contact.	6
Household terminated participation at an earlier point. (Code col 59 = 0 <u>only if col 58 = 0</u>).	0

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 10

Card OH01 - FORMTURN (cont'd)

Ending odometer contact type (EODOMCT - col 61) and result code (EODOMRC - col 62)

Special rules apply to households for which purchase record data collection was scheduled for December; see rules on p. 11.

For all other households the rules for both contact type and result code are parallel to the rules used for beginning odometer readings. There is, however, an additional requirement for a match between these codes and the HHSTATUS code as it appears in the final version of the file. See p. 11.

Contact type (EODOMCT - col 61)

Basic contact by phone 1

This code applies if a telephone contact with the household was attempted. Use of this code generally means that we had (or thought we had) an active telephone number for the household.

Basic contact by mail. 2

This code applies if a mailing was made to the household; use of this code generally means that we did not have an active telephone number for the household at the time beginning odometer readings for the household were started.

Not applicable 9

See special rules on p. 11.

Contact not attempted. 0

This code applies only if household had terminated participation in RTECS at an earlier stage of data collection. For all other households, codes 1, 2, or 9 must be used.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 11

Card OH01 - FORMTURN (cont'd)

Contact result code (EODOMRC - col 62)

A code must be entered in this column for each household, regardless of what code was entered for contact type.

Some data collected. 1

This code means that a contact with the household was completed, and some information collected. As a minimum, we should have obtained an up-to-date record of vehicles in use by the household (or determined that the household did not have a vehicle at the time of this contact).

It is not necessary to evaluate the quality or completeness of the information collected.

No data collected (refusal codes do not apply) . . . 5

This code applies to a wide range of cases in which other possible codes do not apply. Usually it will mean that a telephone contact was attempted but not completed (no answer, number disconnected, etc.) -- or that materials were mailed to a household with no telephone, but none of the materials were returned.

Refusal at time this data collection was attempted 6

This code means that a contact was attempted, but that no data was collected -- the respondent refused to provide any of the information requested.

Not applicable 9

See special rules on following page.
(Code col 62 = 9 only if col 61 = 9.)

Household terminated participation at an earlier point 0

A contact was not attempted at the time that odometer readings were scheduled.
(Code col 62 = 0 only if col 61 = 0).

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 12

Card OH01 - FORMTURN (cont'd)

Special Rules for EDOMCT (col 61) and EDOMRC (col 62)

Codes must match as follows:

<u>Col 61</u> <u>EDOMCT</u>	<u>Col 62</u> <u>EDOMRC</u>	<u>MHSTATUS</u>
1	1,5,6	11-13
2	1,5,6	21-23
9	9	11
0	0	32, 41-43, 51

Code 9 is used in both cols 61 and 62 for households for which we collected, or attempted to collect, fuel purchase records for the month of December. Generally, these households --

- were assigned to December as the "sample" month; or were assigned to January with ID#s in range 4326+; or December was a substitute month for another month previously assigned;
- had one or more vehicles at the time of the most recent contact preceding December;
- had telephones.

For these households, the codes in cols 55-56 apply to the December fuel purchase contacts.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 13

Card OH01 - FORMTURN (cont'd)

Date of last contact (cols 64-69)

This is the date of the last contact with the household, by mail or telephone, at which the vehicle stock of that household was checked and brought up-to-date, as necessary. In the majority of cases this will be the contact for end-of-year odometer readings, or for the December fuel log for households from which we attempted to obtain a record of purchases for that month. Note that in some cases we will have checked the vehicle status at the end of the year even if we did not get odometer readings or fuel purchase records.

At the same time you code the date of last contact with the household you are also responsible for checking the active list of "current" vehicles (as of the date recorded in date of last contact) against vehicles actually listed as current on FORMTURN for card 1V02 (1V02, col 79 = 1). Any discrepancies should be checked with your supervisor.

If there is no record of a "completed" contact with the household at any time during the year (including RTECS calls made during December 1984), the last contact date should be left blank.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 14

Card 1V01 - FORMTURN

Most of the data on this card will be included in the file before the final coding phase takes place. Occasionally, however, some additional information will have been obtained about a vehicle during the end-of-year data collection, or there may be information about a vehicle acquired or disposed of that has not already been entered in the file.

One specific check that should be made at this point is the set of currently active vehicles listed on FORMTURN against the listing of household vehicles at the time it was last verified with the household (see Card 0H01 - date of last contact).

If an additional eligible vehicle has been acquired, and it does not already appear in the file, use a blank version of the turnaround coding form to enter all of the required information for card 1V01. (Make the required entries for Card 1V02 at the same time.)

During this coding phase you must also enter numeric codes for vehicle make (cols 18-19) and vehicle model (cols 37-38) if they do not already appear on the turnaround form. Use the rules in Section H of the manual to determine where specific codes should appear and when codes for unknown (98) or not applicable (99) should appear.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 15

Card 1V01 - FORMTURN (cont'd)

When making changes or new entries in the vehicle characteristics portion of Card 1V01 (cols 66-78) some special rules apply; These are the same as rules used for FORMINIT coding --

1. If answers to none of the questions in this group (cols 66-78) are available, leave all spaces for this group of questions blank.
2. If answers to one or more of these questions (cols 66-78) are available, codes must be entered for each question.
Use the unknown codes (8 or 98) as necessary.
3. You are responsible for two consistency checks within this set of codes --

Consistency between type of vehicle and DOORS.

DOORS is coded "not applicable" (9) if type is not AUTOMOBILE or STATION WAGON.

Consistency between JOBUSE and NONBUS.

NONBUS is coded "not applicable" (9) if JOBUSE is not 1.

4. If the respondent's MPG estimate is recorded in tenths of miles, round to the nearest whole number. (Round .5 up to the next higher number.)

If the respondent's estimate is a range of MPG, code the midpoint.
Examples:

<u>Respondent's Estimate</u>	<u>Code</u>
14 - 16	15
14 - 17	16 (Rounded up from 15.5)

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 16

Card 1V02 - FORMTURN

Acquisition codes (cols 15-29)

For vehicles that the household had at the time of the original 1984 RECS interview, the codes in col 15 and in cols 17-22 should already be in place in the file. See the instructions in Part F if it is necessary to interpret (or change) codes for those columns.

For vehicles acquired after the date of the original 1984 RECS interview, the codes in col 15, and in cols 17-22 and 24-29, depend on the information available about the date that the vehicle was acquired.

If the exact date is known, use code 2 for col 15; code the date acquired in cols 17-22; leave 24-29 blank.

Frequently, for vehicles acquired during the year you will be able to determine a span of time within which the vehicle was acquired, but the specific date will be unknown. In this case, use code 3 in col 15, and the boundary dates for the span of time in cols 17-22 (earliest date) and cols 24-29 (latest date).

Example 1: The household respondent tells us that the vehicle was acquired in March, but the specific day in March is unknown. The appropriate codes are --

col 15: 3
cols 17-22: 030185
cols 24-29: 033185

Example 2: In a household contacted on 1/3/86 we learn that the household has acquired an additional vehicle and that an odometer reading was recorded on 12/31/85. There is no additional information on the date the vehicle was acquired. However, the preceding contact to collect fuel purchase records was on 10/4/85; the additional vehicle was not mentioned by the household at that time. We must assume that the additional vehicle was acquired by the household sometime between 10/4/85 and 12/31/85. The appropriate codes are --

col 15: 3
cols 17-22: 100485
cols 24-29: 123185

NOTE: See following page for special rules for definition of the RTECS "year".

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 17

Card 1V02 - FORMTURN (cont'd)

Rules on definition of the RTECS "year"

The exact dates for the beginning and end of the 1985 RTECS year vary for different groups of households. The end of the 365-day period coincides with planned date for end-of-year odometer readings as follows:

<u>Assigned month for household</u>	<u>HHIDS</u>	<u>Planned date for end-of-year odometer reading: after last use on --</u>
01, 12	All IDs	12/31/85
02-11	5151+	12/31/85
02-06	1001-4325	1/5/86
07-11	1001-4325	1/10/86
02-11	4326-5150	1/15/86

This means that we are not interested in vehicle acquisitions or dispositions that occurred after the date in the right-hand column above.

Example: On 1/14/86 we made the end-of-year odometer reading call to HH#3562 household assigned to July (Month 07) and found that a vehicle was acquired on 1/12/86. As shown above, the last day of the 365-day RTECS year is 1/10/86. Therefore, we do not record the acquisition of that vehicle.

We do record information about acquisitions or dispositions that occurred before the beginning of the RTECS year, or anytime during the year.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 18

Card 1V02 - FORMTURN (cont'd)

Beginning odometer codes (col 31-45)

These codes will be in the file for almost all vehicles for which they are available. Some exceptions will be vehicles acquired during the year for which beginning odometer readings were not picked up at the time of FORMINIT coding.

IMPORTANT NOTE: Do not use odometer readings from fuel purchase data collection -- either for the beginning-of-year or end-of-year odometer readings. The fuel purchase data collection figures will sometimes, in fact, serve as surrogates for the beginning-of-year and/or end-of-year readings, but a computer program will be used as required to pick these up from fuel purchase records.

The beginning odometer reading codes are the same as those used for FORMINIT coding.

1. If a beginning odometer reading is not available, all of the spaces for BEGINNING ODOMETER READING should be left blank, including col 31.
2. When an odometer reading has been obtained, code 1 should generally be used for col 31.

Code 2 should be used when a note indicates that the odometer reading is an approximation or suspect in some way.

If code 1 or 2 is entered for col 31, both the odometer reading and the date must be filled in.

3. Enter the codes for odometer not working (3) or not obtained for other reasons (5), as appropriate.

If code 3 or 5 is entered for col 31, both the reading and the date should be left blank.

4. If tenths of miles are included in the odometer reading, drop the tenths from the information that is entered. Include leading zeros in the entries as appropriate. For example, all of the following -- 18,079 or 18,079.2 or 18,079.9 -- should be recorded as

018079

5. Watch for notes that indicate that the odometer goes only up to 99,999, and that the odometer has "turned over" (i.e., actually gone past 100,000). In this case, enter your best understanding of the total number of miles that the vehicle has been driven.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 19

Card 1V02 - FORMTURN (cont'd)

Ending odometer readings (cols 47-61)

This information will usually be found in the end-of-year contact questionnaire.

In some cases, ending odometer readings will have been obtained in an earlier contact if we learned that the household had disposed of the vehicle.

The ending odometer codes are similar to those used for beginning odometer readings.

1. If an ending odometer reading is not available, all of the spaces for ENDING ODOMETER READING should be left blank, including col 47.
2. When an odometer reading has been obtained, code 1 should generally be used for col 47.

Code 2 should be used when a note indicates that the odometer reading is an approximation or suspect in some way.

If code 1 or 2 is entered for col 47, both the odometer reading and the date must be filled in.

3. Enter the codes for odometer not working (3) or not obtained for other reasons (5), as appropriate.

If code 3 or 5 is entered for col 47, both the reading and the date should be left blank.

4. If tenths of miles are included in the odometer reading, drop the tenths from the information that is entered. Include leading zeros in the entries as appropriate. For example, all of the following -- 18,079 or 18,079.2 or 18,079.9 -- should be recorded as

018079

5. Watch for notes that indicate that the odometer goes only up to 99,999, and that the odometer has "turned over" (i.e., actually gone past 100,000). In this case, enter your best understanding of the total number of miles that the vehicle has been driven.

Just as in the case of beginning odometer readings, ending readings should not be picked up from fuel purchase record questionnaires. In some cases, however, it may be desirable to look at odometer readings in fuel purchase questionnaires in order to resolve discrepancies or apparent inconsistencies between beginning and ending figures obtained in other data collection contacts.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 20

Card IV02 - FORMTURN (cont'd)

Disposition codes (cols 63-77)

If not already in the file, these codes should be entered when the vehicle has been disposed of prior to the last contact with the household. All codes are left blank if the household still had the vehicle at the time of the most recent contact.

For vehicles disposed of, the codes in col 63, and in 65-70 and 72-77, depend on information available about the data.

The basic rules for vehicle disposition codes and dates are the same as for acquisitions; see rules for card IV02, cols 15-29, including the special rules for definition of the RTECS year.

CODING INSTRUCTIONS FOR TURNAROUND FORMS - PAGE 22

Card 1VQ2 - FORMTURN (cont'd)

Supplemental status codes (VSUPP - col 80)

Heavy truck*	U
Business use only**	V
Dismantled or dilapidated; used for parts; immobile vehicles used as a source of power for a piece of machinery, etc.	W
Used primarily for display or competition (racing cars, antique cars, etc.)	X
In permanent storage; other vehicles not intended for use for transportation purposes.	Y

*Farm trucks, dump trucks, wreckers, flatbeds, and other trucks over 1 ton should generally be assigned this supplemental status code.

**A government-owned vehicle, company vehicle, or other vehicle not owned by a household member is eligible for inclusion in RTECS provided it is ordinarily kept at home and is available to household members for their personal use 15 or more days out of the month.

Summary of Rules for Disposition Dates and Supplemental Vehicle Status Codes

	<u>Disposition Code and Date</u>	<u>Supplemental Vehicle Status Code</u>
Household currently has eligible vehicle	None	None
Household has (or had) ineligible vehicle	Yes	U,V,W,X,Y
Household no longer has eligible vehicle	Yes	None

1985 RTECS
VALIDITY OF BLANKS IN HVI FILE

VARIABLE NAME	CARD	COLUMN RANGE	BLANKS IN FIELD		
			ALWAYS ALLOWED	SOMETIMES ALLOWED *	NEVER ALLOWED
HHID	OH01	1--4			X
VEHNUM	OH01	7--8			X
CARD	OH01	10--13			X
HHGP	OH01	15			X
SAMPMO	OH01	17--18			X
RECSDATE	OH01	20--21			X
RECSDATE	OH01	22--23			X
RECSDATE	OH01	24--25			X
MILESGP	OH01	36			X
SAMPCELL	OH01	42--43			X
HHSTATUS	OH01	45--46		X	
NUMVELIG	OH01	49--50			X
BODOMCT	OH01	52		X	
BODOMRC	OH01	53		X	
FUELPCT	OH01	55		X	
FUELPRC	OH01	56		X	
MIDYRCT	OH01	58		X	
MIDYRRC	OH01	59		X	
EODOMCT	OH01	61		X	
EODOMRC	OH01	62		X	
LASTMO	OH01	64--65	X		
LASTDY	OH01	66--67	X		

* Blanks are valid in these fields prior to the final phase of HVI coding.

Information for Editing CHECKUP Program Output (continued)

VARIABLE NAME	CARD	COLUMN RANGE	BLANKS IN FIELD		
			ALWAYS ALLOWED	SOMETIMES ALLOWED	NEVER ALLOWED
LASTYR	0H01	68--69	X		
HHID	1V01	1--4			X
VEHNUM	1V01	7--8			X
CARD	1V01	10--13			X
VTYPE	1V01	15--16			X
MAKEC	1V01	18--19		X	
VYEAR	1V01	34--35			X
MODEL	1V01	37--38		X	
CYLS	1V01	66--67	X		
AIR	1V01	69	X		
TRANS	1V01	70	X		
DOORS	1V01	71	X		
JOBUSE	1V01	73	X		
NONBUS	1V01	74	X		
DRIVES	1V01	75	X		
MPGEST	1V01	77--78	X		
HHID	1V02	1--4			X
VEHNUM	1V02	7--8			X
CARD	1V02	10--13			X
ACQNUM	1V02	15		X	
BMOACQ	1V02	17--18		X	
BDYACQ	1V02	19--20		X	
BYRACQ	1V02	21--22		X	
CMOACQ	1V02	24--25	X		
CDYACQ	1V02	26--27	X		
CYRACQ	1V02	28--29	X		

VARIABLE NAME	CARD	COLUMN RANGE	BLANKS IN FIELD		
			ALWAYS ALLOWED	SOMETIMES ALLOWED	NEVER ALLOWED
ODOMBC	1V02	31	X		
BHILES	1V02	33--38	X		
BHOMIL	1V02	40--41	X		
BDYMIL	1V02	42--43	X		
BYRMIL	1V02	44--45	X		
ODOSEC	1V02	47	X		
EMILES	1V02	49--54	X		
EHOMIL	1V02	56--57	X		
EDYMIL	1V02	58--59	X		
EYRMIL	1V02	60--61	X		
DISNUM	1V02	63	X		
BHODIS	1V02	65--66	X		
BDYDIS	1V02	67--68	X		
BYRDIS	1V02	69--70	X		
CHODIS	1V02	72--73	X		
CDYDIS	1V02	74--75	X		
CYRDIS	1V02	76--77	X		
VCODE	1V02	79			X
VSUPP	1V02	80	X		

HVI CONSISTENCY CHECKS AND ERROR MESSAGES

ERROR#	MESSAGE	RELATIONSHIP
.1	HEGP and HEID do not match.	If: HEGP=1 Then: HEID=1001-4325 HEGP=2 HEID=4326-5150 HEGP=3 HEID=5151-5456 HEGP=4 HEID=5451-6000 HEGP=5 HEID=6001-6375 HEGP=6 HEID=6376-6482 7001-7102 HEGP=7 HEID=6483-6495 7103-7203 HEGP=8 HEID=7501-7521
2	DOORS does not match VTYPE	If DOORS EQ 9 then VTYPE GT 2.
3	DOORS does not match VTYPE	If DOORS NE 9 then VTYPE EQ 1 or 2.
4	JOBUSE does not match NONBUS	If JOBUSE EQ 1 then NONBUS EQ 0, 1 or 8.
5	JOBUSE does not match NONBUS	If JOBUSE EQ 0 or 8 then NONBUS EQ 9.
6	EMILES is less than BEMILES	If EMILES and BEMILES are not blank then EMILES is GE BEMILES.
7	blank	
8	blank	
9	blank	
10	1V01 and 1V02 VERNUMS are not equal	If CARD EQ 1V01 and 1V02 then VERNUM(1V01) EQ VERNUM(1V02)
11	VERNUMS are not in sequence	VERNUMS in sequence from 01-04 with 05 the next allowable #.
12	SAMPNO does not equal HVI File Month	If HVI File Month EQ I then SAMPNO EQ I.
13	RECS MO. does not match RECS YR.	If RECS MO. EQ 01-04 then RECS YR EQ 85. If RECS MO. EQ 10-12 then RECS YR EQ 84.
14	RECS DAY is not in RECS MO.	If RECS MO EQ 02 then RECS DAY is LT 29 or EQ 98. If RECS MO EQ 04 or 11 then RECS DAY is LT 31 or EQ 98. If RECS MO EQ 01, 03, 10, 12 then RECS DAY is LT 32 or EQ 98.
15	(BODOMCT is 9 but EODOMCT is 9) or (EODOMCT is 9 but BODOMCT is 9)	If BODOMCT EQ 9 then EODOMCT NE 9. If EODOMCT EQ 9 then BODOMCT NE 9.
16	BODOMCT or BODOMRC is 0 but BODOMRC does not equal BODOMCT	If BODOMCT EQ 0 or BODOMRC EQ 0 then BODOMRC EQ BODOMCT.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

17	BODONCT or BODONRC is 9 but BODONRC does not equal BODONCT	If BODONCT EQ 9 or BODONRC EQ 9 then BODONRC EQ BODONCT.
18	BODONCT is 1 or 2 but BODONRC is not 1, 5 or 6	If BODONCT EQ 1 or 2 then BODONRC EQ 1, 5 or 6
19	FUELPCY does not match FUELPRC	If FUELPCY EQ 0 or FUELPRC EQ 0 then FUELPRC EQ FUELPCY.
20	FUELPCY does not match FUELPRC	If FUELPCY EQ 1 then FUELPRC EQ 1, 2, 5 or 6.
21	FUELPCY does not match FUELPRC	If FUELPCY EQ 2 then FUELPRC EQ 1 or 2.
22	FUELPCY does not match FUELPRC	If FUELPCY EQ 3 then FUELPRC EQ 5 or 6.
23	FUELPCY or FUELPRC is 9 but FUELPRC does not equal FUELPCY	If FUELPCY EQ 9 or FUELPRC EQ 9 then FUELPRC EQ FUELPCY.
24	Household has no vehicle but FUELPCY is 1	If there are no 1V01 cards then FUELPCY EQ 9 or 0.
25	MIDYRCT does not match MIDYRRC	If MIDYRCT EQ 0 then MIDYRRC EQ 0.
26	MIDYRCT does not match MIDYRRC	If MIDYRCT EQ 1 then MIDYRRC NE 0.
27	MIDYRCT does not match MIDYRRC	If MIDYRCT EQ 2 then MIDYRRC NE 4 and 0.
28	EODONCT or EODONRC is 0 but EODONRC does not equal EODONCT	If EODONCT or EODONRC EQ 0 then EODONCT EQ EODONRC
29	EODONCT is 1 or 2 but EODONRC is not 1, 5 or 6	If EODONCT EQ 1 or 2 then EODONRC EQ 1, 5 or 6.
30	EODONCT or EODONRC is 9 but EODONRC does not equal EODONCT.	If EODONCT EQ 9 or EODONRC EQ 9 then EODONCT EQ EODONRC.
31	EODONCT and BESTATUS do not agree	If EODONCT EQ 0 then BESTATUS EQ 32 or 41-43 or 51.
32	EODONCT and BESTATUS do not agree	If EODONCT EQ 1 then BESTATUS EQ 11-13.
33	EODONCT and BESTATUS do not agree	If EODONCT EQ 2 then BESTATUS EQ 21-23.
34	EODONCT and BESTATUS do not agree	If EODONCT EQ 9 then BESTATUS EQ 11.
35	Result Code is CT 4 or EQ 0 but Last Contact Date is not blank	If BODONRC, FUELPRC, MIDYRRC and EODONRC CT 4 or EQ 0 then LASTMO, LASTYA, LASTDY are blank.
36	Last Contact Date is blank but Result Code is LE 4 or NE 0	If LASTMO, LASTYA, LASTDY are blank then BODONRC, FUELPRC, MIDYRRC and EODONRC CT 4 or EQ 0.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

37	LASTMO does not match LASTYR	If LASTMO EQ 1 then LASTYR EQ 85 or 86.
38	LASTMO does not match LASTYR	If LASTMO EQ 2-11 then LASTYR EQ 85.
39	LASTMO does not match LASTYR	If LASTMO EQ 12 then LASTYR EQ 84 or 85.
40	LASTDY is not in LASTMO	If LASTMO EQ 2 then LASTDY LT 29. If LASTMO EQ 1,3,5,7,8,10 or 12 then LASTDY is LT 32. If LASTMO EQ 4,6,9 or 11 then LASTDY is LT 31.
41	Last Contact Date is not blank and is LT the RECSDATE	If LASTMO, LASTDY, LASTYR NE blank then LASTMO, LASTDY, LASTYR is GT the RECSDATE.
42	Result Code is GT 0 and LT 5 but Last Contact Date is blank	If BODOMRC, FUELPRC, MIDYRRC or EODOMRC is LT 5 or GT 0 then LASTMO, LASTDY, LASTYR NE blank.
43	NONBUS is 0 but VCODE is not 0	If NONBUS is 0 then VCODE EQ 0.
44	NONBUS is 0 but JOBUSE is not 1 or VSUPP is not V	If NONBUS is 0 then JOBUSE EQ 1 and VSUPP EQ V.
45	CYLS is 09 but MAKEC is not 75	If CYLS EQ 09 then MAKEC EQ 75.
46	MAKEC is Other Truck but VTYPE is not 7	If MAKEC EQ 03,05,14,16,17,20,21,23,27,30,32,41,42,43 or 44 then VTYPE EQ 07.
47	MAKEC is 95 or 98 but MODEL C is not 99	If MAKEC EQ 95 or 98 then MODEL C EQ 99.
48	CYLS, AIR, TRAN, DOOR, JOBUSE, NONBUS, DRIVE or MPG is blank but cols. 66-78 are not blank	If CYLS, AIR, TRANS, DOORS, JOBUSE, NONBUS, DRIVES or HPGEST is blank then cols. 66-78 should all be blank.
49	ACQNUM does not match begin. and close. acq. dates.	If ACQNUM EQ 1 or 2 then BMOACQ, BDYACQ, BYRACQ NE blank.
50	ACQNUM does not match begin. and close. acq. dates.	If ACQNUM EQ 1 or 2 then CMOACQ, CDYACQ, CYRACQ EQ blank.
51	ACQNUM is 1 but begin. acq. date does not equal RECSDATE	If ACQNUM EQ 1 then BMOACQ, BDYACQ, BYRACQ EQ RECSDATE.
52	ACQNUM is 2 but begin. acq. date is LE RECSDATE	If ACQNUM EQ 2 then BMOACQ, BDYACQ, BYRACQ is GT the RECSDATE.
53	ACQNUM does not match begin. and close. acq. dates.	If ACQNUM EQ 3 then BMOACQ, BDYACQ, BYRACQ, CMOACQ, CDYACQ, CYRACQ are NE blank.
54	ACQNUM does not match begin. and close. acq. dates.	If ACQNUM EQ 3 then CMOACQ, CDYACQ, CYRACQ is GT BMOACQ, BDYACQ, BYRACQ.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

55	Begin. acq. date is LT RECSDATE	BHOACQ, BDTACQ, BYRACQ is GE RECSDATE.
56	BEGIN MILEAGE DATE does not match ACQ. DATES	If ACONRM EQ 3 and BHMIL, BDMIL, BYRMIL are not blank then BHMIL, BDMIL, BYRMIL is GE CONOACQ, CDTACQ, CYRACQ.
57	VBEHNM is LT 5 but ACONRM is not 1	If VBEHNM is LT 5 then ACONRM EQ 1.
58	ODONBC does not match begin. odom. date	If ODOMBC EQ 1 or 2 then BHMIL, BDMIL, BYRMIL is not blank.
59	ODONBC does not match BMILES	If ODOMBC EQ 1 or 2 then BMILES is not blank.
60	ODONBC does not match begin. odom. date	If ODOMBC EQ 3 or 5 then BHMIL, BDMIL, BYRMIL is blank.
61	ODONBC does not match BMILES	If ODOMBC EQ 3 or 5 then BMILES is blank.
62	BODONRC is not 1 but begin. odom. date is not blank	If BODONRC NE 1 then BHMIL, BDMIL, BYRMIL is blank.
63	BODONRC is not 1 but ODOMBC is not blank	If BODONRC NE 1 then ODOMBC is blank.
64	Begin. odom. date does not match begin. acq. date or 12/20/84	If BHMIL, BDMIL, BYRMIL is not blank then BHMIL, BDMIL, BYRMIL is GE BHOACQ, BDTACQ, BYRACQ or GT 12/20/84.
65	ODONBC is not blank but BODONRC is not 1	If ODOMBC NE blank then BODONRC EQ 1.
66	VYEAR does not match BMILES	If VYEAR EQ 85-86 then BMILES is LT 50,000. If VYEAR EQ 84 then BMILES is LT 100,000. If VYEAR EQ 83 then BMILES is LT 150,000. If VYEAR EQ 82 then BMILES is LT 200,000. If VYEAR is LT 82 then BMILES is LT 250,000.
67	ODONEC does not match EMILES or ending odometer date	If ODOMEC EQ 1 or 2 then EMILES, BHMIL, BDMIL, BYRMIL are NE blank.
68	ODONEC does not match EMILES or ending odometer date	If ODOMEC EQ 3 or 5 then EMILES, BHMIL, BDMIL, BYRMIL are blank.
69	EODONRC is not 1 but end. odom. date is not blank	If EODONRC NE 1 then BHMIL, BDMIL, BYRMIL is blank.
70	EODONRC is not 1 but ODOMEC is not blank	If EODONRC NE 1 then ODOMEC is blank.
71	ODONEC is not blank but EODONRC is not 1	If ODOMEC NE blank then EODONRC EQ 1.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

72	BODMRC is not 1 but EMILES is not blank	If BODMRC NE 1 then EMILES EQ blank.
73	EODMRC is not 1 but EMILES is not blank	If EODMRC NE 1 then EMILES EQ blank.
74	Ending odometer date is LE beginning odometer date	If EMOMIL, EDYMIL, EYRMIL NE blank and ENOMIL, EDYNIL, EYRNIL NE blank then EMOMIL, EDYNIL, EYRNIL is GT EMOMIL, EDYMIL, EYRMIL.
75	Ending odometer date is LT beginning acquisition date	If EMOMIL, EDYMIL, EYRMIL NE blank and ENOMIL, EDYNIL, EYRNIL NE blank then EMOMIL, EDYNIL, EYRNIL is GT EMOACQ, EBYACQ, EYRACQ.
76	Ending odometer date is LT closing acquisition date	If EMOMIL, EDYMIL, EYRMIL EQ blank and CMOACQ, CDYACQ, CYRACQ NE blank then ENOMIL, EDYNIL, EYRNIL is GT CMOACQ, CDYACQ, CYRACQ.
77	Begin. disposition date is LT end. odom. date	If EMODIS, EDYDIS, EYRDIS is NE blank and ENOMIL, EDYNIL, EYRNIL is NE blank then EMODIS, EDYDIS, EYRDIS is GE ENOMIL, EDYNIL, EYRNIL.
78	Begin. disposition date is LT begin. odom date	If EMODIS, EDYDIS, EYRDIS is NE blank and EMOMIL, EDYMIL, EYRMIL is NE blank then EMODIS, EDYDIS, EYRDIS is GE EMOMIL, EDYMIL, EYRMIL.
79	Begin. disposition date is LT close. acq. date	If EMODIS, EDYDIS, EYRDIS is NE blank and CMOACQ, CDYACQ, CYRACQ is NE blank then EMODIS, EDYDIS, EYRDIS is GE CMOACQ, CDYACQ, CYRACQ.
80	Begin. disposition date is LT begin. acq. date	If EMODIS, EDYDIS, EYRDIS is NE blank and EMOACQ, EBYACQ, EYRACQ is NE blank then EMODIS, EDYDIS, EYRDIS is GE EMOACQ, EBYACQ, EYRACQ.
81	Close. disposition date is LE begin. disp. date	If CMODIS, CDYDIS, CYRDIS is NE blank then CMODIS, CDYDIS, CYRDIS is GT EMODIS, EDYDIS, EYRDIS.
82	EMSTATUS is GT 23 but EMILES is not blank	If EMSTATUS is GT 23 then EMILES EQ blank.
83	EMSTATUS is GT 23 but ODOMEC is not blank	If EMSTATUS is GT 23 then ODOMEC EQ blank.
84	EMSTATUS is GT 23 but end. odom. date is not blank	If EMSTATUS is GT 23 then ENOMIL, EDYNIL, EYRNIL EQ blank.
85	DISNUM does not match begin. and close. disposition dates	If DISNUM EQ 1 or 2 then EMODIS, EDYDIS, EYRDIS NE blank.
86	DISNUM does not match begin. and close. disposition dates	If DISNUM EQ 1 or 2 then CMODIS, CDYDIS, CYRDIS EQ blank.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

87	DISNUM does not match begin. and close. disposition dates	If DISNUM EQ 3 then BHODIS, BDYDIS, BYRDIS are NE blank.
88	DISNUM does not match begin. and close. disposition dates	If DISNUM EQ 3 then CHODIS, CDYDIS, CYRDIS are NE blank.
89	VCODE is 1 but DISNUM is not blank	If VCODE EQ 1 then DISNUM is blank.
90	VCODE does not match begin. disp. date	If VCODE EQ 1 then BHODIS, BDYDIS, BYRDIS are blank.
91	VCODE does not match close. disp. date	If VCODE EQ 1 then CHODIS, CDYDIS, CYRDIS are blank.
92	VCODE is 1 but VENUM is 0	If VCODE EQ 1 then VENUM is GT 0.
93	VCODE is 0 but DISNUM is blank	If VCODE EQ 0 then DISNUM is not blank.
94	VCODE does not match begin. disp. date	If VCODE EQ 0 then BHODIS, BDYDIS, BYRDIS are not blank.
95	VSUPP is not blank but VCODE is not 0	If VSUPP is not blank then VCODE EQ 0.
96	VSUPP is not blank but DISNUM is not 1, 2 or 3	If VSUPP is not blank then DISNUM EQ 1-3.
97	VSUPP equals V but JOBUSE is not 1	If VSUPP EQ V then JOBUSE EQ 1.
98	VSUPP equals V but MONBUS is not 0	If VSUPP EQ V then MONBUS EQ 0.
99	VSUPP equals 0 but VTYPE is NE 6 or 7	If VSUPP EQ 0 then VTYPE EQ 06 or 07.
100	Begin. acq. month does not match begin. acq. year	If BHOACQ EQ 10-12 then BYRACQ EQ 84 or 85. If BHOACQ EQ 02-09 then BYRACQ EQ 85. If BHOACQ EQ 01 then BYRACQ EQ 85 or 86.
101	Close. acq. month does not match close. acq. year	If CHOACQ EQ 10-12 then CYRACQ EQ 84 or 85. If CHOACQ EQ 02-09 then CYRACQ EQ 85. If CHOACQ EQ 01 then CYRACQ EQ 85 or 86.
102	Begin. edon. month does not match begin. edon. year	If BHOEIL EQ 12 then BYEIL EQ 84 or 85. If BHOEIL EQ 01 then BYEIL EQ 85 or 86. If BHOEIL EQ 02-11 then BYEIL EQ 85.
103	End. edon. month does not match end. edon. year	If ENOEIL EQ 01 then EYEIL EQ 85 or 86.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

		If EMOHIL EQ 02-11 then EYRNIL EQ 85. If EMOHIL EQ 12 then EYRNIL EQ 84 or 85.
104	Begin. disp. month does not match begin. disp. year	If BMODIS EQ 01 then BYRDIS EQ 85 or 86. If BMODIS EQ 02-09 then BYRDIS EQ 85. If BMODIS EQ 10-12 then BYRDIS EQ 84 or 85.
105	Close. disp. month does not match close. disp. year	If CMODIS EQ 01 then CYRDIS EQ 85 or 86. If CMODIS EQ 02-09 then CYRDIS EQ 85. If CMODIS EQ 10-12 then CYRDIS EQ 84 or 85.
106	BODOMCT is 9 but SAMPNO or HEGP is not 1	If BODOMCT EQ 9 then SAMPNO EQ 01 and HEGP EQ 1.
107	BODOMCT is 9 but SAMPNO is not 5, 6, 7, 8 or HEGP is not 7	If BODOMCT EQ 9 then SAMPNO EQ 05, 06, 07, 08 and HEGP EQ 7.
108	EODOMCT is 9 but SAMPNO is not 12	If EODOMCT EQ 9 then SAMPNO EQ 12.
109	EODOMCT is 9 but SAMPNO is not 1 and HEGP is LE 1	If EODOMCT EQ 9 then SAMPNO EQ 1 and HEGP is GT 1.
110	HESTATUS does not match EODOMCT	If HESTATUS is GT 23 then EODOMCT EQ 0.
111	HESTATUS does not match EODOMCT	If HESTATUS EQ 21-23 then EODOMCT EQ 2.
112	HESTATUS does not match EODOMCT	If HESTATUS EQ 12 or 13 then EODOMCT EQ 1.
113	Day is invalid for month	If BMOACQ EQ 2 then BDYACQ is LT 29. If BMOACQ EQ 1, 3, 5, 7, 8, 10 or 12 then BDYACQ is LT 32. If BMOACQ EQ 4, 6, 9 or 11 then BDYACQ is LT 31.
114	Day is invalid for month	If CMOACQ EQ 2 then CDYACQ is LT 29. If CMOACQ EQ 1, 3, 5, 7, 8, 10 or 12 then CDYACQ is LT 32. If CMOACQ EQ 4, 6, 9 or 11 then CDYACQ is LT 31.
115	Day is invalid for month	If BMOHIL EQ 2 then BDYHIL is LT 29. If BMOHIL EQ 1, 3, 5, 7, 8, 10 or 12 then BDYHIL is LT 32. If BMOHIL EQ 4, 6, 9 or 11 then BDYHIL is LT 31.

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

116	Day is invalid for month	If EMONIL EQ 2 then EDYHIL is LT 29. If EMONIL EQ 1,3,5,7,8,10 or 12 then EDYHIL is LT 32. If EMONIL EQ 4,6,9 or 11 then EDYHIL is LT 31.
117	Day is invalid for month	If BMODIS EQ 2 then BDYDIS is LT 29. If BMODIS EQ 1,3,5,7,8,10 or 12 then BDYDIS is LT 32. If BMODIS EQ 4,6,9 or 11 then BDYDIS is LT 31.
118	Day is invalid for month	If CMODIS EQ 2 then CDYDIS is LT 29. If CMODIS EQ 1,3,5,7,8,10 or 12 then CDYDIS is LT 32. If CMODIS EQ 4,6,9 or 11 then CDYDIS is LT 31.
119	Invalid combo. of sample month and vehicle card #2 dates	If SAMPHO EQ 01 or 12 then BMOACQ, BDYACQ, BYRACQ, CMOACQ, CDYACQ, CYRACQ, BMOHIL, BDYHIL, BYRHIL, BMODIS, BDYDIS, BYRDIS and CMODIS, CDYDIS, CYRDIS are LE 12/31/85.
120	Vehicle card #2 dates invalid for this sample month/BEID	If SAMPHO is GE 02 and LE 11 and BEID is GE 5151 then BMOACQ, BDYACQ, BYRACQ, CMOACQ, CDYACQ, CYRACQ, BMOHIL, BDYHIL, BYRHIL, BMODIS, BDYDIS, BYRDIS and CMODIS, CDYDIS, CYRDIS are LE 12/31/85. If SAMPHO is GE 02 and LE 06 and BEID is GE 1001 and LE 4325 then BMOACQ, BDYACQ, BYRACQ, CMOACQ, CDYACQ, CYRACQ, BMOHIL, BDYHIL, BYRHIL, BMODIS, BDYDIS, BYRDIS and CMODIS, CDYDIS, CYRDIS are LE 12/31/85. If SAMPHO is GE 07 and LE 11 and BEID is GE 1001 and LE 4325 then BMOACQ, BDYACQ, BYRACQ, CMOACQ, CDYACQ, CYRACQ, BMOHIL, BDYHIL, BYRHIL, BMODIS, BDYDIS, BYRDIS and CMODIS, CDYDIS, CYRDIS are LE 01/10/86. If SAMPHO is GE 02 and LE 11 and BEID is GE 4326 AND LE 5150 then BMOACQ, BDYACQ, BYRACQ, CMOACQ, CDYACQ, CYRACQ, BMOHIL, BDYHIL, BYRHIL, BMODIS, BDYDIS, BYRDIS and CMODIS, CDYDIS, CYRDIS are LE

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

01/15/86.

- | | | |
|-----|--|--|
| 121 | MODELIC invalid for MAKEC | See the make and model matrix |
| 122 | LASTCNTC (last contact date) is not consistent with result codes, SAMPNO or BEGP | <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and SAMPNO EQ 12 and BEGP EQ 1 then LASTNO, LASTDY, LASTYR is LT 02/01/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and SAMPNO is GE 02 and GE 06 and BEGP EQ 1 then LASTNO, LASTDY, LASTYR is LT 02/06/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and SAMPNO is GE 07 and GE 11 and BEGP EQ 1 then LASTNO, LASTDY, LASTYR is LT 02/11/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and BEGP EQ 2 then LASTNO, LASTDY, LASTYR is LT 02/16/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and BEGP EQ 3 then LASTNO, LASTDY, LASTYR is LT 03/01/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and BEGP EQ 4 then LASTNO, LASTDY, LASTYR is LT 04/01/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and BEGP EQ 5 then LASTNO, LASTDY, LASTYR is LT 05/01/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and BEGP EQ 6 then LASTNO, LASTDY, LASTYR is LT 07/01/85.</p> <p>If BODONRC EQ 1 and FUELPRC, MIDYARC, EODONRC are GT 4 or LT 1 and BEGP EQ 7 then LASTNO, LASTDY, LASTYR is LT 08/01/85.</p> |
| 123 | EODONRC EQ 1 but LASTCNTC (last contact date) is LT 12/31/85 | <p>If EODONRC EQ 1 and SAMPNO EQ 01 or 12 and BEGP EQ 1 or BEID is GT 5150 then LASTNO, LASTDY, LASTYR is GE 12/31/85.</p> <p>If EODONRC EQ 1 and SAMPNO is GE 02 and GE 06 and BEGP EQ 1 then LASTNO, LASTDY, LASTYR is GE 01/05/86.</p> |

HVI CONSISTENCY CHECKS AND ERROR MESSAGES - (cont'd)

If EODMRC EQ 1 and SAMPNO is GE
07 and GE 11 and BECP EQ 1 then
LASTMO, LASTDY, LASTYR is GE 01/10/86.

If EODMRC EQ 1 and BECP EQ 2
then LASTMO, LASTDY, LASTYR is
GE 01/15/86.

124 MIDYRRC EQ 1-4 but LASTCNTC(last
contact date) is LT 07/11/85.

If MIDYRRC EQ 1, 2, 3 or 4 then
LASTMO, LASTDY, LASTYR is GT
01/15/86.

PART B. CODING AND DATA ENTRY INSTRUCTIONS

RAC F4739-131
Revised 011386

Preparation of Fuel Purchase Records for Data Entry

1. Materials will be prepared for data entry in a separate batch for each record month.

The record month is the month for which purchase records were obtained. It is possible that in some cases the fuel purchases will be spread over more than one calendar month - in these cases the record month should be designated as --

- the assigned sample month, if that month is part of the period covered by the purchase record information;
- otherwise, designate the record month as the month in which the beginning odometer reading is obtained (or, if there is no beginning odometer reading, the month in which the first purchase occurs).

2. Records for a household are included in the batch for a record month only when some data were obtained for one or more vehicles. If no data were obtained, the household is not included in the batch of materials for a record month.

It is not necessary at this point to determine whether fuel purchase records are complete or whether they will be useful in deriving an MPG estimate for the vehicle.

In most cases, the "presence of data" in the record will mean that all or most of the information that we have asked for has been obtained. However, all of the following qualify as "presence of data" for purposes of processing the record for data entry --

- the record indicates that a vehicle was not driven during the month;
- a vehicle was driven during the month, but the record indicates that no fuel purchases were made;
- an odometer reading for a vehicle is available in the record, even if no other information is available.

If there are fragments of information, and you are not certain whether to include the record in the batch for data entry, show the record to your supervisor.

B-1

When you conclude that a record should not go into the batch for data entry, sort those into a separate "NO DATA" group. After these records are received, the contact record sheets will be stamped "NO DATA" and the data collection forms will be returned to the household folder.

3. Preparation for data entry includes editing and coding for three types of cards --

- a card for each household (Card 5H) -- the same household may appear in two or more different record months;
- a card for each vehicle (Card 6V) for which data were obtained for the record month (including cards for vehicles that were not driven during the month);
- a card for each fuel purchase (Card 7P).

Cards 5H and 6V are coded on separate coding sheets. Card 7P is edited directly on the record of purchases for the vehicle.

4. Edit the purchase record data for Card 7P in red. The primary tasks are to clarify entries, as necessary, and to round off entries when more digits are recorded than we want in the final record. Follow the specific instructions for each item.

In some cases it may be desirable to copy a record over onto another form so that it will appear less confusing for the keypuncher.

5. Unless otherwise specified, use standard codes -- "B" for no answer; "9" for not applicable. For multi-digit codes: no answer is coded as "98," "998," etc.; not applicable is coded as "99," "999," etc. Some exceptions are noted for the purchase record card.

6. After coding is completed for a household, detach the purchase record page(s) from the rest of the material for the household. Only the coding forms for Cards 5H and 6V and the purchase record pages for Card 7P will be sent to keypunching.

Revised 011586

Preparation of Fuel Purchase Records for Data Entry

Supplemental Instructions

1. Vehicle with two fuel tanks

Card 6VØ1, cols 37-39: Use code 995 for vehicles for which two or more fuel tanks are reported. This rule applies even if the capacity is given for each tank separately, or in combination.

Thus, special codes for cols 37-39 are as follows:

- Two fuel tanks 995
- Unknown tank capacity. 998

2. Special rule for vehicles disposed of prior to beginning of fuel purchase record month

In this special case, all card 6VØ1 codes from col 20 through col 66 are treated as not applicable; use code 9, 99, 999, etc., as appropriate. The remainder of the codes on this card are:

- Cols 68-69 One of the codes for vehicle disposition must be used. 11-15 or 18
- Cols 71-72 Number of purchases recorded.00
- Col 80 Summary code. 1

Note, however, that if a vehicle was disposed of after the beginning of the purchase record period, there are a variety of types of information about the vehicle that might be present in the record (including some fuel purchases) and the usual codes for "unknown" apply if the information is not available in the record.

3. Special rule for vehicle not driven during the month (other than those disposed of prior to the beginning of the month)

For these vehicles, all card 6VØ1 codes for col 41 through col 66 are treated as not applicable; use codes 9, 99, 999, etc., as appropriate. The codes at the end of this card are:

- Cols 68-89 The appropriate code for reason that the vehicle was not driven
- Cols 71-72 Number of purchases recorded.00
- Col 80 Summary code. 1

011586

Supplemental Instructions (continued)

4. Rules for dates of beginning and ending odometer readings, if actual odometer reading is unknown.

If the beginning odometer reading (card 6V81, cols 25-30) is unknown, also code the date (cols 20-23) as unknown.

The same rule applies for ending odometer readings -- if the odometer reading (cols 46-51) is unknown, also code the date (cols 41-44) as unknown. (Note, however, that if the vehicle was not driven during the month, both the ending odometer reading and the date are coded as not applicable.)

5. Missing information for type of fuel -- card 7P, cols 51, 52, 53

If there is no information about type of fuel, the three codes that should be entered and circled are

⑧ ⑨ ⑨

That is, treat the leaded/unleaded and premium/regular codes as not applicable.

Occasionally answers are marked for leaded/unleaded and regular/premium, but nothing has been marked in the "fuel type" column. In this case, assume that the fuel type is "gasoline" -- mark that answer and circle code "1" in the fuel type column.

Preparation of Fuel Purchase Records for Data Entry

Card 5H Coding Instructions

Columns

1-4	Household #	
7-8	ββ	
10-11	Card type (5H)	
12-13	Sequence (βi)	
17-18	Record month	This is the month for which the purchase record was collected. Use normal calendar month codes (January = 01, February = 02, etc.)
22-23	Assigned month	Month assigned in the RTECS sample (will usually be the same as record month). Use normal calendar month codes.
25	Month code	Record month is: Originally assigned month 1 Substitute month. 2 Additional month. 3
27	Data collection procedure	Code for procedure used to collect purchase records (This may differ from the procedure normally used to contact household) Telephone 1 Mail. 2 Mixed-telephone and mail. 3

Card 5H
Columns

29 Number of vehicles
 for which data
 were collected

Data may be actual fuel purchase records, or simply an indication that the vehicle was not driven during the month, or that no fuel was purchased.

The presence of an odometer reading in the record also qualifies as "data", even if no other information is available in the record.

If there is fragmentary information, check with your supervisor to determine whether it qualifies as "data".

F4739-133
123085

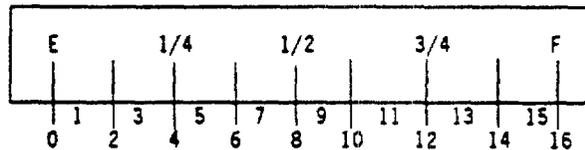
Preparation of Fuel Purchase Records for Data Entry

Card 6V01 Coding Instructions

Columns

1-4	Household #	
7-8	Vehicle #	
10-11	Card type (6V)	
12-13	Sequence (01)	
17-18	Record month	
20-23	Date of beginning odometer reading (month/day)	This is the first day of "record month" unless otherwise indicated.
25-30	Beginning odometer reading	If odometer is not working ... 999995
32-33	Beginning fuel gauge reading	Beginning fuel gauge reading is assumed to be on same date as beginning odometer reading. If date is different, code "unknown" for fuel gauge reading.

Code is from "00" (empty or below empty) to
"16" (fuel or above full) for sixteenths of
tank.



If fuel gauge not working... 95

Card 6V01 Coding Instructions (continued)

Card 6V01
Columns

35	Is fuel gauge accurate?	Yes 1 No. 0 Doesn't work. 5
37-39	Fuel tank capacity as reported by household	Tenths of gallons
41-44	Date of ending odometer reading (month/day)	Assumed to be last day of "record month" unless otherwise indicated.
46-51	Ending odometer reading	If odometer not working ... 999995
53-54	Ending fuel gauge reading	This is assumed to be on same date as ending odometer reading. If date is different, code "unknown" for fuel gauge reading. If fuel gauge is not working ... 95
56	Are all purchases recorded?	All included in record. 1 One or more missing 2
58-59	Number of missing purchases	
61	Was vehicle driven the usual number of miles?	About usual number of miles 1 More than usual 2 Less than usual 3
63-66	Usual number of miles	Applicable only if code "2" or "3" in column 61.

Card 6V01 Coding Instructions (continued)

Card 6V01
Columns

68-69	Reason, if vehicle not driven	<u>Disposed of vehicle</u> Given away. 11 Sold. 12 Traded-in for another vehicle . . 13 Destroyed in accident 14 Other 15 Disposed of vehicle method unknown. 18 <u>Driver related reason</u> Don't drive at this time of year. 21 License lost or suspended 22 Driver away (vacation, business, service, etc.). 23 Driver ill. 24 Other 25 Driver related, reason unknown. . 28 <u>Vehicle under repair or waiting for service</u> 31 <u>Other reasons</u> 35
71-72	Number of purchases recorded	
74-75 77-78	Editor codes	These codes are used in the MPG review process to restrict the series of purchases to be used in MPG calculations. These codes are not included in the initial coding and data entry procedures.

Card 6V01
Columns

80	Summary code for type of information about vehicle	Vehicle was not driven during month (or not driven during purchase record period)	1*
		Vehicle was driven during month -- information in the record indicates that no purchases were made	2*
		Vehicle was driven during month -- information in the record indicates that some purchases were made, but there is no significant in- formation about purchases	3*
		Vehicle was driven during the month -- information is available in record for one or more purchases	4**
		Unknown whether vehicle was driven during month -- some other type of information about vehicle has been coded as part of record	5*

*No 7P cards for this vehicle

**One or more 7P cards for this vehicle

F4739-134
123085

Preparation of Fuel Purchase Records for Data Entry

Card 7P Editing Instructions

Columns

1-4	Household #	Check to be sure that HH# and Vehicle # are clearly written in upper right-hand corner of record sheet.
7-8	Vehicle #	
10-11	Card type (7P)	
12-13	Purchase #	Every line must be used. If a line has been skipped (or crossed out) the purchase numbers must be changed to be consecutive, or the entire record must be rewritten. If a continuation sheet has been used, the numbers must continue consecutively from one sheet to the next.
17-18	Record month	Keep in mind during the coding process that all records in a given "batch" must be for the same record month.
20-23	Date of purchase (month/day)	If it is necessary to clarify an entry write all four digits in red. For example, March 12 would be written as "0312". However, it is not necessary to rewrite entries such as 3/12 or 3-12 if they are unmistakable in meaning.
25-30	Odometer reading	The two primary editing tasks are to clarify entries and drop decimals for numbers that are written in tenths of miles.

Card 7P Editing Instructions (continued)

Card 7P
Columns

32-34 Gallons purchased (tenths of gallons) Clarify entries, as required. In some cases liters must be translated to gallons; sometimes gallons must be rounded to tenths from more detailed entries.

Leading zeros need not be entered (however, if you are rewriting any part of a number, write all three digits in red).

For example, if 7.0 gallons has been written as "7 -", rewrite the entry as "070".

Some new pumps show gallons purchased in hundredths or even thousandths. Round off to the nearest tenth of gallon. If the detail of the entry is "5 hundredths" or "50 thousandths", round to the next higher number of tenths.

For example --

Round 7.35 gallons to "074"

Round 8.650 gallons to "087"

To translate "half-gallons" to gallons, divide the entry for half-gallons by "2".

To translate liters to gallons, divide the entry for liters by "3.7853".

36-39 Total cost (\$\$cc) It is not necessary to put in leading zeros. However, if you rewrite any part of the entry, write in all four digits.

41-44 Price per gallon (tenths of cents) If the price is recorded for liters or half-gallons, the figure must be translated to price per gallon.

Multiply a half-gallon price by "2".

Multiply a liter price by "3.7853".

46 Was tank filled? Circle the appropriate code number and box. If "no answer", circle "3".

Card 7P Editing Instructions (continued)

Card 7P
Columns

- | | | |
|-------|--------------------------------------|--|
| 48-49 | Fuel gauge reading
after purchase | Code is from "00" (empty or below empty)
to "16" (full or above full) for sixteenths
of gallons.

If fuel gauge is broken 95.

This code must always be written in and
circled in red. |
| 51 | Fuel type | Circle the correct code number and box. |
| 52 | Leaded/unleaded | Question applies only if gasoline was
purchased. Circle the correct code number
and box.

If diesel or gasahol was purchased, write in
and circle "9".

If gasoline was purchased, and there is no
answer to this question, circle the box and
code number "3". |
| 53 | Regular/premium | Question applies only if gasoline was
purchased. Circle the correct code number
and box.

If diesel or gasahol was purchased, write in
and circle "9".

If gasoline was purchased, and there is no
answer to this question, circle the box and
code number "3". |

TRANSPORTATION STUDY PURCHASE FILE

RECORD TYPE 7P
 C15 10-11 = 7P

RECORD MONTH

17-18

MM 1-4 VEHICLE # 7-8

PUR- CHASE #	DATE	TOTAL VEHICLE MILEAGE	GALLONS PURCHASED	TOTAL COST	PRICE PER GALLON	WAS TANK FILLED?	FUEL GAUGE READING AFTER PURCHASE	FUEL TYPE USED	IF GASOLINE PURCHASED	
									LEADED/ UNLEADED	REGULAR/ PREMIUM
12-13 01	20-23	25-30	32-34	36-39	47-49	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.	1/4 1/2 3/4 48 49	<input checked="" type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> D.S.	<input type="checkbox"/> LEADED <input checked="" type="checkbox"/> UNLEADED <input type="checkbox"/> D.S.	<input type="checkbox"/> REGULAR <input checked="" type="checkbox"/> PREMIUM <input type="checkbox"/> D.S.
02						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
03						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
04						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
05						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
06						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
07						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
08						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
09						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				
10						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.S.				

TRANSPORTATION STUDY PURCHASE FILE
Instructions for Key Entry Supervisor

Summary of task

This task is divided into 12 batches -- one batch for each purchase record month (01 through 12). Each record month must be put on a separate tape.

There are three types of records. Put all types of records on one tape for each record month -- the sequence is not important.

We refer to the three types of records as Cards 5H, 6V, and 7P.

The format for each of the three cards is attached. Cards 5H and 6V should not present a problem.

Card 5H is keypunched in cols 1-29. Columns are blank if they do not appear on the coding sheets.

Note that cols 7-8 and 10-13 are the same for all Card 5H records.

Also for any one record month, cols 17-18 are the same.

Card 6V* is keypunched in cols 1-80. Columns are blank if they do not appear on the coding sheets.

Note that cols 10-13 are the same for all Card 6V records.

As for Card 5H, cols 17-18 are the same for any one record month.

Card 7P is keypunched in cols 1-53.

See data sheet and notes attached.

Note that data are being entered directly from data collection forms. Data are often edited in red. Red entries always take precedence over black or other colors.

All codes on all record types are numeric except for col 11. Col 11 is alpha.

All data entry must be 100% verified.

Show charge number on invoices as RAC 4739-FPR.

*These materials refer specifically to card type 6VØ1. Cards 6VØ2 and 6VØ3 are not part of the initial data entry procedure.

TRANSPORTATION STUDY PURCHASE FILE

Instructions for Key Entry Supervisor (continued)

Card 7P -- Layout and notes (also see attached data page)

Cols

- 1-4 HH identification
- 5-6 Blank
- 7-8 Vehicle number
 Always 2 digits -- put in leading zero if not present.
- 9 Blank
- 10-11 Card type (7P)
- 12-13 Purchase number
 Always 2 digits -- put in leading zero if not present.
- 14-16 Blank
- 17-18 Record month
 Always 2 digits -- put in leading zero if needed.
- 19 Blank
- 20-23 Date of purchase (month/day)
 All four digits must be punched.
 Note that entries are made in a variety of ways.
 Examples:
 3/3 should be punched 0303
 3/11 should be punched 0311
 3-8 should be punched 0308
- 24 Blank
- 25-30 Total vehicle mileage (odometer reading).
 Must be 6 digits. Put in leading zeros if needed.
- 31 Blank

Instructions for Key Entry Supervisor (continued)

TRANSPORTATION STUDY PURCHASE FILE

Instructions for Key Entry Supervisor (continued)

Card 7P -- Layout and notes, continued

Cols

32-34 Gallons purchased (tenths of gallons)

Three digits must be punched. Put in leading (or sometimes trailing) zeros as required. Examples:

73 should be punched 073

7- should be punched 070

35 Blank

36-39 Total cost (\$\$cc)

Four digits must be punched. Put in leading or trailing zeros as required. Examples:

14- should be punched 1400

725 should be punched 0725

Note: 9998 may be written in; it is a code for "no answer" or "unknown".

41-44 Price per gallon (tenths of cents)

Four digits must be punched. A leading zero will sometimes be required if the price per gallon is less than one dollar. Example:

999 should be punched 0999

Generally speaking, the price range valid for this year is about \$0.89.0 to \$1.89.9.

Note: 9998 may be written in; it is a code for "no answer" or "unknown".

45 Blank

46 Was tank filled?

Valid codes are 1,2,3

FPR Editing Procedures: Range and Relationship Checks (continued)

1985 RTECS
FUEL PURCHASE RECORD FILE
RANGE CHECKS

<u>Columns</u>	<u>#</u>	<u>Field</u>	<u>Ranges</u>
<u>CARD 5H</u>			
1- 4	1	Household I.D.	1001-6495,7001-7205
17-18	2	Record month	1-12
22-23	3	Assigned month	1-12
25	4	Month code	1-3
27	5	Collection type	1-3
29	6	Number of vehicles	1-8
<u>CARD 6V</u>			
17-18	7	Record month	1-12
20-21	8	Beginning date month	1-12,99
22-23	9	Beginning date day	1-31,98,99
25-30	10	Beginning odometer	0-150000,999998,999995,999999
32-33	11	Beginning gauge	0-16,98,95,99
35	12	Gauge accurate	0-1,8,5,9
37-39	13	Tank capacity (tenths)	90-400,998,999,995
41-42	14	End date month	1-12,99
43-44	15	End date day	1-31,98,99
46-51	16	End odometer	0-150000,999995,999998,999999
53-54	17	End gauge	0-16,98,95,99
56	18	Complete	1-2,8,9*
58-59	19	# missing purchases	1-10,99,98
61	20	Use	1-3,8,9

* After MPG editing begins, codes 3 and 4 are valid.

FPR Editing Procedures: Range and Relationship Checks (continued)

<u>Columns</u>	<u>#</u>	<u>Field</u>	<u>Ranges</u>
<u>CARD 6V</u>			
63-66	21	Usual miles	10-5000,9998,9999
68-69	22	Why not drive	11-15,18,21-25,28,31,35,98,99
71-72	23	# purchases	0-31
80	24	Summary code	1-5
<u>CARD 6V</u>			
20-21	25	Purchase month	1-12,98,99
22-23	26	Purchase date	1-31,98
25-30	27	Odometer	0-150000,999995,999998
32-34	28	Gallons (tenths)	10-400,998
36-49	29	Cost (\$\$\$)	100-5000,9998
41-44	30	Price/gal (tenths)	750-1750,9998
46	31	Tank filled	1-3
48-49	32	Gauge	0-16,98,95
51	33	Fuel type	1-3,8
52	34	Lead/unlead	1-3,9
53	35	Grade	1-3,9

1985 RTECS
 FUEL PURCHASE RECORD FILE
 INSTRUCTIONS FOR RELATIONSHIP CHECKS

<u>Error #</u>	<u>Message</u>	<u>Instructions</u>
1	Month code of 1 but actual not = assigned date	Pull the file. Either the month code should = '2' or the assigned month has been coded incorrectly.
2	Month code of 2 and actual = to assigned date	Pull the file. Either the month code should = '1' or the assigned month has been coded incorrectly.
3	NOT ASSIGNED	
4	Record month differs from parameter month	This is probably a keypunch error. Check to see if all other dates are correct. If the situation is not clear, pull the file and show the supervisor.
5	HH card vehicles not = 6V cards read	Pull the file. This is probably a keypunch error. (e.g., either the number of vehicles recorded is incorrect or a vehicle card has been duplicated, etc.).
6	7P purchase dates not in ascending order	Pull the file. Make sure the purchase card belongs to that vehicle. In most cases this is a keypunch error.
7	6V begin month not = parameter month	Same instructions as for error #4.
8	6V begin date not = end date month	Same instructions as for error #4.
9	6V begin day > end date day	Same instructions as for error #4.
10	6V begin odometer > ending odometer	Pull the file. This is probably a keypunch error (e.g., beginning odometer is 135600 and ending odometer is 035818. The leading 1 was probably left out of the ending reading. It is also possible that a beginning reading might include a decimal figure, 17251.1 is keypunched as 172511).
11	6V odoms indicate no miles, but why not driven 99	Pull the file. If the vehicle was not driven, there should be a reason why it wasn't. Correct as appropriate.

FPR Editing Procedures: Range and Relationship Checks (continued)

<u>Error #</u>	<u>Message</u>	<u>Instructions</u>
12	6V same vehicle number on two successive 6V cards	Pull the file. This is probably a keypunch error. (e.g., a household cannot have <u>two</u> vehicle 01's).
13	6V successive 6V cards not in ascending sequence	Pull the file. This error should never come up since TSCHECK sorts the purchase file before checks are run. This may indicate a serious error has occurred.
14	6V purchases not = number of 7P cards read	Pull the file. This is probably a keypunch error. Either the number of purchases is not correct or there might be some 7P cards missing.
15	7P purchase date is not in parameter month	Same instructions as for error #4.
16	7P odometer reading less than previous reading	Pull the file. This is probably a keypunch error. (e.g., a leading 1 was left out or the mileage includes a decimal figures).
17	7P purchase cards for this vehicle not in sequence by 1	Pull the file. This is probably a keypunch error. Either the purchase cards were misnumbered or a purchase card was not keypunched at all.
18	7P record month not = parameter month	Same instructions as for error #4.
19	7P gallons purchased price less than cost	Errors #19 and 20 will not come up until we are ready to do MPG. It will be located in the relation exception file until then.
20	7P gallons purchased price greater than cost	
21	7P tank filled say yes, gauge not reading full	Pull the file. If this is keypunch error, correct as appropriate. Respondents may have recorded the gauge before the tank has been filled. If the situation is not clear cut, leave this error alone.
22	7P last purchase odometer greater than 6V end odom	Pull the file. This is probably a keypunch error. (e.g., a leading 1 was left out or the mileage includes a decimal figure).

<u>Error #</u>	<u>Message</u>	<u>Instructions</u>
23	NOT ASSIGNED	
24	7P this P. fuel differs from first purchase	Pull the file. This error checks for use of diesel and gasoline in the same vehicle. This may be a keypunch/coding error or it is possible the particular vehicle uses both types of fuel.
25	7P diesel fuel with lead or grade not = 9	Pull the file. Either the fuel type is incorrect (i.e., it is not diesel or gasohol) or lead/grade categories were incorrectly checked.
26	7P non-diesel fuel with lead or grade = 9	Same instructions as for error #25.
27	6V beginning date day is not in month	Pull the file. This is probably a keypunch error (e.g., you cannot have a 31st day in February).
28	6V ending date day is not in month	Same instructions as for error #27.
29	7P purchase date day is not in month	Same instructions as for error #27.
30	6V begin/end gauge 95, but accurate is not 5	Pull the file. Either the gauge has been coded incorrectly, (i.e., it does work) or the gauge accuracy code is wrong.
31	7P last purchase gauge is less than 6V end gauge	Pull the file. In most cases this problem arises from sloppy gauge markings (e.g., the last purchase gauge may be recorded as 13 and the ending gauge is marked more towards 14. If the situation is not clear cut, leave this error alone).
32	7P gallons purchased exceeds tank capacity	This error will not come up until we are ready to do MPG. It will be located in the relation exception file until then. When we are ready for this check, pull the file. If the respondent's answer seems more logical than the standard tank capacity, change the tank capacity to the respondent's answer. If neither the standard tank capacity or the respondent's answer solves the problem, see the supervisor.

FPR Editing Procedures: Range and Relationship Checks (continued)

<u>Error #</u>	<u>Message</u>	<u>Instructions</u>
33	6V no missing purchases but number missing not 99	Pull the file. There may be missing purchases indicated and that column was keypunched incorrectly or there are no missing purchases and the number of missing purchases field has been incorrectly coded. Correct as appropriate.
34	6V purchases missing, but number missing is 99	Same instructions as for error #33.
35	6V normal or no use, but usual miles not 9999	Pull the file. Either column may have been coded incorrectly. Correct as appropriate.
36	6V more/less than usual use, but usual miles 9999	Same instructions as for error #35.
37	5H mailed resp. -- cols 35, 61 not 8, 63-66 not 9s	Pull the file. This is probably a coding error. If the data were mailed in, the information for columns 35 and 61 were not asked and should be made unknown. (col 63-66 becomes 9's).
38	6V one editor code is blank, the other is filled	This error will not come up until the first round MPG checks have been completed. When this error does appear it is probably an input error as these two columns will be created by editors to indicate which parts of a record are usable.
39	6V gauge accuracy is 5, but begin/end gauge is not 95	Same instructions as for error #30.
40	6V gauge accuracy is 5, but not all 7P gauges 95	Same instructions as for error #30.
41	6V odoms indicate miles, but why not driven not 99	Same instructions as for error #11.
42	7P vehicle number does not match vehicle card	This is probably a keypunch error. It may indicate a missing 6V card. Check with supervisor.
43	6V summary does not agree with purchases	Pull the file. This is probably a coding error. Check real number of purchases and change either number of purchases or summary code.

FPR Editing Procedures: Range and Relationship Checks (continued)

<u>Error #</u>	<u>Message</u>	<u>Instructions</u>
44	6V summary is 1 but reason-not-driven not 99	Pull the file. This is probably a coding error. Change either summary code or reason-not-driven code.
45	6V summary is 2 to 5 but reason-not-driven not 99	Same instructions as for error #44.
46	6V 1st odom unknown begin date known	Pull the file. If the beginning odom is really unknown then change the beginning odom date to 9998. Otherwise correct beginning odom.
47	6V 1st odom 99 begin date not 99	Pull the file. If the beginning odom is really not applicable (vehicle disposed before purchase record month) then change beginning odom date to 9999. Otherwise correct beginning odom.
48	6V last odom unknown last date known	Same instructions as for Error #46 but for ending odometer.
49	6V last odom 99 last date not 99	Same instructions as for error #47 but for ending odometer.
50	6V vehicle not driven but purchase not 0	Pull the file. Either the vehicle not driven field or the number of purchases field is incorrect and must be corrected.
51	7P Fuel = 8 and lead or grade not = 9	Pull the file. Correct either the fuel type so that it is not 8 or change lead and grade to 9.
52	7P Fuel not = 1 and lead or grade <3	Pull the file. Correct either fuel type (change it to 1) or lead or grade (change to 9).
53	6V vehicle not driven but fields 20-39 = 9	Pull the file. Most likely error is that one of the fields in 20-34 was coded as not applicable (99) rather than as unknown (98). Correct as appropriate.
54	6V vehicle not driven but fields 41-66 not = 99	Pull the file. Most likely error is that one of the fields in 41-66 was coded as unknown (98) rather than as not applicable (99). Correct as appropriate.

MPG Editor Review Procedures

The purposes of this step are to review the MPG program output and, following the guidelines in these instructions, to --

- add missing information to the basic record when possible (usually by referring back to the original purchase records);
- correct obvious errors, particularly when inconsistencies in the record are identified by relationship checks;
- determine, when appropriate, that only part of the record of purchases should be included in the MPG calculations; and
- revise summary codes (card 6VØ1, col 80) for type of information about the vehicle, as necessary, based on your review of the total record.

Materials available to editors are the output of the MPG program, a list of range and relationship errors that have not been resolved at earlier points in the process, and a list of vehicles for which the respondent reported that one or more purchases had not been recorded in the purchase data (these coded entries also appear in the MPG program output).

Listing of unknown/unmatched vehicle tanks

Before the editors begin the MPG review, the supervisor will review a list of vehicles for which there was no match to the tank capacity tables. Each vehicle in the list will be examined. Possible treatments include: 1) leave as is (the respondent estimate will be used), 2) modify the model code or vehicle type, 3) modify the existing entry in the tank capacity tables, 4) add a new entry to the tank capacity tables, or, 5) insert the correct tank capacity in the field for the respondent estimate. The supervisor will use fuel purchase paper records, a hard copy of the tank capacity tables, automobile brochures, industry periodicals, and calls to automobile dealers as guidelines when choosing the best solution for a particular vehicle. Specimens of each form used by the supervisor in the tank capacity review procedure can be found on pages C-13 and C-16.

MPG program output

The MPG program processes one month of purchase data per run and provides a formatted hard-copy display for inspection by the editor. The display includes the complete coded record of purchases (7P cards) as well as the coded summary records from the Fuel Purchase Record (FPR) file for the household (card 5H) and vehicle (card 6VØ1). In addition, the hard copy display includes --

- vehicle identification (make, year, model) picked up from the HVI file -- this appears in card 6VØ2 of the MPG printout;
- standard tank capacity of the vehicle -- cols 66-68 of card 6VØ2;
- results of calculations of MPG figures:
 - o MPG for each purchase
 - o cumulated MPGs for sets of purchases
 - o overall MPG for the vehicle's entire purchase record;
- highlights of missing information and variations from the average pattern of fuel consumption for the vehicle;
- an overall evaluation of quality of the record (alphabetic status code) based on criteria contained in program MPG specifications.

The hard copy display is designed to systematize and simplify the editor review process. Page C-31 shows an annotated specimen of the printout. Because of the large number of items of information displayed, the detailed printout is not annotated. At the outset of your editing activity you will often find it necessary to refer to Page C-31. Earlier experience indicates, however, that you will quickly learn to identify the symbols and location in the printout of specific items of information.

MPG program calculations

The procedure used for MPG calculations takes into account the number of miles driven between purchases and includes an adjustment for differences

between fuel gauge readings at the times of fuel purchases. The adjustment is made as follows:

$$\text{MPG} = \text{Miles} / (\text{Gallons purchased} + \text{Adj})$$

$$\text{where Adj} = \frac{\text{Startgauge} - \text{Endgauge}}{16} * \text{tank capacity}$$

Following is a numerical example, using selected information in a purchase record:

Purchase #	Odometer reading	Gallons purchased	Fuel gauge code ^g	Miles	MPG
1	012427	n	16	n	n
2	012647	4.2	8	220	15.5

g - Fuel gauge reading codes are to nearest 16th of tank capacity
 n - Figures not relevant

Fuel tank capacity = 20 gallons

$$\text{Adj} = \frac{8}{16} * 20 = 10 \text{ gallons}$$

$$\text{MPG} = 220 / (4.2 + 10) = 15.5$$

The example shows the importance of taking changes in level of fuel in the tank into account. Calculation of MPG based on miles traveled and gallons purchased, without the fuel gauge adjustment, would have resulted in an MPG of $220 / 4.2 = 52.4$ MPG compared to the 15.5 MPG calculated with the adjustment.

The adjustments are particularly important to the procedure for evaluating the patterns of information recorded for a series of purchases as well as for calculation of overall MPG for vehicles not used a great deal during the purchase record month. On the other hand, vehicle fuel gauges vary in

accuracy and in the ease with which they can be read. Thus some leeway for gauge errors and recording errors must be allowed in the evaluation of the purchase record. (The criteria used by the MPG program to evaluate the overall record are described in the next section.)

When the required information is available in the purchase record, the program calculates and displays a number of different MPG figures, with all figures appropriately adjusted for differences in gauge readings --

- MPG for the first purchase, based on miles traveled between the beginning-of-month odometer reading and the first fuel purchase;
- MPG for each purchase after the first based on miles traveled between purchases;
- for the final purchase of the month, an MPG figure is computed to take into account the accumulated miles traveled between the purchase preceding the final purchase and the end-of-month odometer reading;
- an overall MPG for the entire purchase record based on total miles traveled and total gallons of fuel purchased during the purchase record month.

The program also executes a number of variations in procedure under the following circumstances.

If fewer than 150 miles are traveled between two purchases, or between the beginning of month and the first purchase: In addition to the individual purchase MPG, the program computes an MPG based on an accumulation of 150 miles or more for two or more purchases. The MPG "grading" system is based on these cumulative MPG's for combinations of purchase.

If the beginning-of-month odometer and/or gauge reading is missing, the MPG calculations start with the first purchase for which both readings are present.

If odometer and/or gauge readings are missing for a specific purchase (within a sequence of purchases), an MPG based on that specific purchase is not calculated. However, the purchase with the missing odometer or gauge reading is placed in a combination of purchases in which the first and final purchases (or when appropriate, the beginning or end of month) include complete information on odometer and gauge readings.

Evaluation of overall purchase record

The MPG program display includes an overall evaluation of the record (alphabetic status code) as well as symbols to show variations from normal patterns of fuel consumption. The status codes are based in part on coders' interpretations of the type of information available in the record (summary codes inserted in the record at the time of the initial coding step) and in part on MPG program evaluation criteria.

The complete list of alphabetic status codes is shown on the following page. Codes based specifically on coders' interpretation of records are I, X, Y, and Z. All other purchase records are "graded" according to criteria specified in the MPG program.

MPG Program Alphabetic Vehicle Status Codes

Summary
Code --
Card 6VØ1
Col 80

Alphabetic
Status --
Card 6VØ3
Col 80

4	Vehicle was driven 150 or more miles during purchase record period and:	
	All cumulative MPGs* are within 25 percent of the overall MPG for this vehicle in this month.	A
	All cumulative MPGs are within 50 percent of the overall MPG for this vehicle.	B
	All cumulative MPGs are within 25 percent of the overall MPG for this month after an adjustment of 25 percent of the tank capacity is made in the appropriate direction.	C
	All cumulative MPGs are within 50 percent of the overall MPG after an adjustment of 25 percent of the tank capacity is made in the appropriate direction	D
	One or more cumulative MPGs are outside plus or minus 50 percent of the overall MPG, after an adjustment of 25 percent of tank capacity is made in the appropriate direction.	F
4	Vehicle was driven less than 150 miles during purchase record period	Q
4	Information in purchase record is incomplete; MPG cannot be computed because of missing odometer or gauge readings	R
1	Vehicle was not driven during month (or not driven during purchase record period)	Z
2	Vehicle was driven during month -- information in the record indicates that no purchases were made	Y
3	Vehicle was driven during month -- information in the record indicates that some purchases were made, but there is no significant information about purchases	I
5	Unknown whether vehicle was driven during month -- some other type of information about vehicle has been coded as part of record	X

*Cumulative MPGs refers to calculations for combinations of purchases, as necessary, to equal 150 or more miles traveled as the basis for the MPG.

Making changes based on the MPG output

Each new run of the program starts with the current generations of the HVI and FPR files. Thus, required changes in the relevant computer files are made in three different ways --

- changes in vehicle identification (card 6V02 of the MPG file): These changes must be made in the corresponding version of the HVI file, card IV01.
- changes in FPR information, cards 5H, 6V01, or 7P: These changes are made directly in the appropriate cards of the FPR file.
- changes in computed information, such as total miles, or MPG figures: These changes will automatically be made in next MPG run, based on updates you make to FPR information.

General guidelines for MPG review

The MPG program systematically identifies vehicle records that require editor attention and flags specific aspects of the records to be inspected closely. The alphabetic status codes provide an overall set of priorities for editor attention as follows:

LEAST
ATTENTION
should be
given to:

I,R,X,Y,Z

Based on coder examination of the complete records, or on criteria within the MPG program, information in the record cannot be used to compute an MPG.

MORE
ATTENTION
should be
given to:

Q,A

Status Q indicates that the vehicle was driven less than 150 miles. Generally, MPG computed for these vehicles will not be used in estimates based on RTECS data because they are too subject to variation due to small errors in fuel gauge readings. However, the cost per gallon information will be used.

Gallons/cost relationship errors should be checked, along with any other specific aspects of the record that are flagged as possible problems by the MPG programs.

Status A vehicles generally display a consistent pattern of fuel consumption. There are, however, specific circumstances related to A status vehicles that should be carefully inspected. These are discussed below.

MOST
ATTENTION
should be
given to:

B,C,D,F

Our experience indicates that about one-fifth of vehicles will be assigned one of these status codes in the initial set of MPG runs. These codes indicate the presence of minor or major variations in the pattern of fuel consumption reported for the vehicle. The record for each of these vehicles should be carefully inspected.

In carrying out the MPG review you will be able to inspect the display of the entire FPR file for the household, vehicles, and purchases, as well as statistics computed by MPG and flags for various types of problems. You will want to refer to original paper records for many kinds of problems. Using the points below as general guidelines, your judgment should be based on the entire array of materials available to you.

1. Keep in mind that the principal uses of the FPR data are (1) to compute an MPG for the vehicle and (2) to compute an average cost per gallon for the period during which purchase records were kept. Generally, the reliability of each of these figures increases with the number of fuel purchases on which the computations are based.

2. Some variations in fuel consumption occur, of course as a result of the pattern of use of a vehicle -- for example in the difference between in-town and long distance driving. These kinds of differences could easily result in variations of 25 to 50 percent in MPG over a series of purchases. Nonetheless, when the MPG flags variations in the pattern of fuel consumption, the objective is to look for possible explanations in the materials available to you --
 - look for likely transpositions of figures in the original record of fuel purchases;
 - look for errors in transcribing figures or in data entry, or for possible differences in interpretation of figures.
 - check the list of fuel purchase records for which respondent has reported one or more missing purchases; use the procedure described in the guidelines on the following page to help determine how each of these cases is to be handled.

3. Although, in general, as many purchases as possible should be retained in the record for computations of MPG and average cost per gallon, it will sometimes be desirable to restrict the calculations to a reduced list of purchases. A missing purchase, or error that cannot be corrected in some part of the record, is the usual reason for restricting the MPG calculation to part of the set of records obtained for the month. The likelihood of a missing purchase can be judged from the presence of extreme variations in the MPG calculations for cumulated purchases and/or from reports by the respondent at the time of the original data collection. If an editor concludes that the MPG calculations should be restricted to a reduced list of purchases, codes must be added to card 6VØ1 to indicate the first and final purchase record to be used. These codes are added as follows:

Purchase number of first purchase to be used in calculations (00 if beginning of month record should be used for odometer and gauge readings). . . Cols 74-75

Purchase number of final purchase to be used in calculations (95 if end of month odometer and gauge readings are to be used) Cols 77-78

4. Each respondent report of a missing purchase (Card 6VØ1, col 56, code 2) must be reviewed and the code edited to 3 or 4, based on your conclusions about the total record.

One or more purchases missing in period covered by record 3

Purchases appear to be complete during period covered by record 4

5. Status A vehicle records must be reviewed carefully when the MPG is based on only one cumulated purchase.
6. In some cases an editor will conclude that a vehicle record graded by the MPG program as A, B, C, D, or F, should not be used at all for calculating MPG. For these vehicles, the summary code in card 6VØ1, col 80, must be changed from 4 to 3.

Guidelines for gallons/cost relationship errors

Relationships of gallons of fuel purchased, price per gallon, and total cost of purchase are checked by the relationships program (checks #19 and #20). An error message appears when the total cost of the purchase differs by \$1.00 or more from the product of number of gallons and price per gallon. These relationship checks were not included in the earlier phase of work with the FPR file but are now included as part of the MPG review procedure.

There are, of course, a number of possible reasons for errors in the gallons/cost relationship checks. Any one (or more) of the three figures could have been communicated or recorded incorrectly at one of the multiple points of the data recording and entry process. It is also possible that the total cost, as recorded, includes purchases in addition to fuel for the vehicle.

Checks for gallons/cost relationships are included as part of the MPG review so that the fuel consumption pattern of the vehicle can be used among the guidelines for resolution of errors. If the number of gallons purchased, as recorded, fits within the normal pattern of fuel consumption for the vehicle, chances are good that the error is in the price per gallon or in the total cost of the fuel purchase. Conversely, if gallons as recorded falls outside the normal pattern of consumption for the vehicle, the chances are good that the error is in the gallons figures.

These relationship checks are carried out only if all three of the figures -- gallons, price per gallon, and total cost -- are part of the FPR record. (Under some conditions, when two of the figures are present in the record, but the third is not, the MPG program automatically inserts the third figure correctly. This is done when gallons and price per gallon are present in

the record, and also when total cost and price per gallon are present).

Principal resolutions of the gallons/cost check are to --

- accept two of the three figures, and recompute the third;
- accept only the gallons figure, and convert both price per gallon and total cost to unknown;
- convert all three figures to unknown.

The choice among the above depends on the amount of information available in the complete FPR for the vehicle as well as on the general consistency of information in the total record and for the specific purchases.

Each gallons/cost relationship error must be checked. The starting point is the set of FPR paper records. Look for possible errors in the interpretation and/or data entry for figures involved in the discrepancy. Look also for obvious defects or errors in the way information was recorded in the original records. Some examples include --

- misplaced (or missing) decimal points
- entries consistently in round numbers for both number of gallons and total dollars (one or the other is likely to be incorrect)
- number of gallons far above a reasonable tank capacity
- price per gallon far outside a reasonable price range.

A good deal of judgment must be used in resolving gallons/cost discrepancies. If however, there is no reasonably definite indication of the source of the problem, the guidelines on the following pages should be used.

Guidelines for Gallons/Cost Relationship Checks

	GALLONS*PRICE<COST (Relationship Check #19)	GALLONS*PRICE>COST (Relationship Check #20)
MPG for cumulated purchase (150 miles or more) is within 10% of overall MPG -- <u>or</u> MPG comparison not possible (all A records based on a single cumulated purchase, plus all Q and R records)	Accept gallons; delete price/cost data for purchase.	Accept gallons; delete price/cost data for purchase.
MPG for cumulated purchase is more than 10% <u>higher</u> than overall MPG for vehicle.	Gallons purchased is likely to be too low. Edit gallons purchased to be consistent with cost/price.	Delete all gallons/price/cost data for purchase.
MPG for cumulated purchase is more than 10% <u>lower</u> than overall MPG for vehicle.	Delete all gallons/price/cost data for purchase.	Gallons purchased is likely to be too high. Edit gallons purchased to be consistent with cost/price.

Guidelines for gallons purchase exceeds tank capacity

Relationships involving gallons of fuel purchased and fuel tank capacity (check #32) are also included as part of the MPG review procedure. This error message appears when the number of gallons purchased exceeds the tank capacity reported by the respondent.

All gallons purchased/tank capacity errors must be checked. Editors should begin by checking the fuel purchase paper records. Look for possible errors in the interpretation and/or data entry for figures involved in the discrepancy. If no problems are encountered, bring the problem to the attention of the supervisor. The supervisor will look for an incorrect entry in the tank capacity tables by referencing sources used to compile the tables. Sources include industry periodicals, automobile brochures, and calls to local automobile dealers. If necessary, the existing entry in the tank capacity tables will be modified to reflect the correct value. Other options include adding a new entry to the tables or editing the model code to unknown (in which case the MPG program will use the respondent estimate).

MPG Editor Review Procedures (continued)

Editor changes in Card 6V01

Changes made during the MPG editor review procedure, in any variable on Card 6V01, should be coded in col 79, including changes to or from unknown codes.

Col 79

Beginning or ending odometer and/or gauge reading codes (may also include other changes)	1
All other changes (not including odometer and/or gauge readings)	2
No editor change	Blank

Editor changes in Card 7P

Changes made during the MPG review procedure, in any variable on Card 7P, should be coded in col 55, including changes to or from unknown codes.

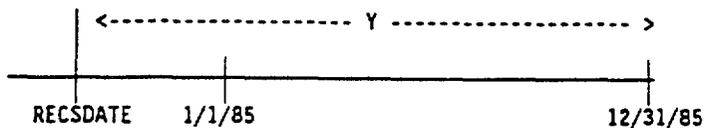
Col 55

Number of gallons purchased (may include other changes)	1
Price and/or total cost (no change in number of gallons purchased, but may include other changes)	2
All other changes (not involving numbers of gallons purchased, price per gallon, or total cost)	3
No editor change	Blank

Instructions for Vehicle Stock Imputations

Procedure for Imputation Group A1

These are ATTRITION households. The RECS interview (RECSDATE) was completed sometime before 1/1/85. However, there was no RTECS update after the RECS interview. Therefore the period that we're interested in is Period Y -- the entire span of time from RECS date through the end of the RTECS year. We have no information for period Y and must impute for the entire period.



Follow the rules on the next page to select a donor household for each of the households in Imputation Group A1. After the donor is selected, any acquisition (ACQ) and/or disposition (DIS) activity of the donor household, within period Y, is imputed to the imputation group household. Record information for ACQ on the form for IMPACQ (see p. C-12) and for DIS only on the form for IMPDIS (see p. C-13).

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group A) (continued)

1. Find same donor subgroup: VEHICLES
INCOME
RTECSYR
YRNEW (doesn't apply if VEHICLES = 0)
2. Within donor subgroup, find same REGION and AREA1980.
3. Locate specific position in PSU-SSU-HU sequence.
4. Donor HH is first one listed above imputation HH with same month of RECSDATE.

Notes: If match not available for REGION, AREA1980, and month of RECSDATE, drop AREA1980 and circle back through HHs in region for same month of RECSDATE.

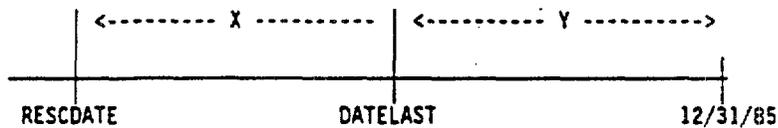
If match still not available for REGION and month of RECSDATE, circle back through all of subgroup for same month of RECSDATE.

5. Do not impute ACQ or DIS of ineligible vehicles (letter symbol shown in VSUPP column).
6. When DIS(s) are to be imputed from multiple possibilities, dispose of same VEHNUM, or closest possible to same VEHNUM (randomly select lower or higher VEHNUM when necessary).
7. Check off imputation group HHs as you go along.

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group A2

These are also ATTRITION households. The RECS interview (RECSDATE) was completed sometime before 1/1/85. In this imputation group, however, there was at least one RTECS followup after the RECS interview. We therefore know about any ACQ and/or DIS activity of the imputation group household during period X -- the period between RESDATE and the date of the last RTECS vehicle update (DATELAST).



Note: For group A2, RECSDATE is before 1/1/85.
DATELAST may be before or after 1/1/85.

Follow same procedure as Group A1, but also match on ACQ-DIS pattern between RECSDATE and DATELAST.

ACQ-DIS pattern is simple count of number of actions of each type (not including ineligible vehicles).

Instructions for Vehicle Stock Imputations (continued)

Notes on Special Rules for Imputation Groups A1 and A2

Special Rule #1.

Using the normal matching rules, a donor HH is selected that has a Vehicle #05 or higher, but no ACQDATE is shown for the vehicle.

The interpretation of this special case is that the vehicle was not listed in the RECS questionnaire. However, it was later reported by the HH as having been part of the HH vehicle stock at the time of the RECS interview.

The procedure to use depends on whether the donor HH has been selected for a HH in imputation group A1 or A2 --

If for an A1 HH: Impute the vehicle as acquired, but do not show an acquisition date.

If for an A2 HH: Do not impute the vehicle as acquired.

The reason for the difference is that group A2 HHs have already had a chance to report this kind of special case at the time of one of the RTECS contacts. However, the Group A1 HHs were not contacted during RTECS and thus did not have a chance to report this kind of special case.

Special Rule #2.

This rule applies only if VEHICLES = 1 or 2.

If YRNEW is unknown for an imputation group HH, use donor group for YRNEW = 2.

Special Rule #3.

This rule applies only if VEHICLES = 1 or 2.

If match cannot be found within a subgroup as normally defined, go to the "next" YRNEW group as follows:

<u>Imputation group HH</u> <u>YRNEW</u>	<u>Go to donor group</u> <u>YRNEW</u>
1	3
2	1
3	2

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group B

These are LATE ENTRY households. The RECS interview (RECSDATE) was completed sometime after 1/1/85. The period that we're interested in is divided into two segments.



Segment X is the part of the period preceding RECSDATE. Segment Y is the part following RECSDATE.

All of Group B HHs were contacted at some time on or after 12/31/85 and vehicle stock brought up-to-date at that time. Therefore, we know about all ACQ and DIS in Segment Y.

How much we know about Segment X depends on whether we have a RECS personal interview (HH ID# under 7000) or a mailed questionnaire (HH ID# 7001 or higher).

Personal interviews: We know about vehicles ACQ in Segment X (provided the HH still had the vehicle at RECSDATE). These vehicles have a month and year of acquisition shown under RECSACQ.

We do not know about vehicles disposed of in Segment X.

Mailed questionnaires: We do not know about either ACQ or DIS in Segment X.

Steps 1-3 in the procedures below are the same for personal interviews and mailed questionnaires.

1. Find same donor subgroup: VEHICLES
INCOME
YRNEW (doesn't apply if VEHICLES = 0)
2. Within donor subgroup, find same REGION and AREA1980.
3. Locate specific position in PSU-SSU-HU sequence.

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group B (continued)

4P. Personal interviews only (ID# under 7000)

Find first donor HH preceding the position determined in Step 3 that matches the imputation group HH on --

- ACQ pattern between 1/1/85 and RECSDATE for imputation HH (Segment X).

There are two types of imputations for these HHs.

- (1) Vehicles disposed of between 1/1/85 and RECSDATE for the imputation HH (Segment X). These vehicles must always be listed on the ACQ and DIS list -- this is because the vehicle does not yet appear in the computer file for the imputation HH, and thus must always be "acquired" before it is disposed of. The date of acquisition is--
 - 12/31/84 if donor household did not acquire the vehicle on or after 1/1/85
 - the actual date of acquisition by the donor HH if the vehicle was acquired (and disposed of) by the donor HH on or after 1/1/85.
- (2) Vehicles ACQ and/or DIS between RECSDATE for the imputation HH and 12/31/85 (Segment Z).

Follow the same rules as those used for Imputation Group A1.

4M. Mailed questionnaires only (ID# 7001 or higher)

Find first donor HH preceding the position determined in Step 3. No additional matching is required for these HHs.

There are also two types of imputations for these HHs.

- (1) Nothing is known about Segment X for the imputation group HH. Thus we will sometimes be imputing a date of ACQ for a vehicle that is already part of the computer record for the mailed questionnaire HH. These ACQ dates go on a special list (see p.C-14).

In the same way as for personal interview HHs, vehicles disposed of by the donor HH in Segment X are both "acquired" and disposed of for the imputation group HH. The guidelines for dates are the same as those for personal interview HHs.

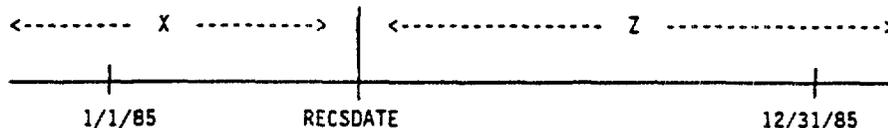
- (2) Vehicles ACQ and/or DIS between RECSDATE for the imputation HH and 12/31/85 (Segment Z).

Follow the same rules as those used for Imputation Group A1.

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group C1

These households are LATE ENTRY and ATTRITION. The special characteristic for Group C1 is that we have only the vehicle information that we obtained at the time of the RECS personal interview or mailed questionnaire. The period that we are interested in is divided into two segments:



This time we call the second segment "Z" because we have no information for this period of time for the imputation group HHs.

Steps 1-3 are the same as for Imputation Group B, for both personal interviews and for mailed questionnaire HHs.

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group C1 (continued)

4P. Personal interviews only (ID# under 7000)

Find first donor HH preceding the position determined in Step 3 that matches the imputation group HH on both --

- ACQ pattern between 1/1/85 and RECSDATE for imputation HH (Segment X);
- ACQ and DIS pattern between RECSDATE for imputation HH and 12/31/85 (Segment Y).

The only vehicles to be imputed for this group of HHs are those disposed of between 1/1/85 and RECSDATE for the imputation HH. These vehicles must always be listed on the ACQ and DIS list -- this is because the vehicle does not yet appear in the computer file for the imputation HH, and thus must always be "acquired" before it is disposed of. The date of acquisition is --

- 12/31/84 if donor household did not acquire the vehicle on or after 1/1/85
- the actual date of acquisition by the donor HH if the vehicle was acquired (and disposed of) by the donor HH on or after 1/1/85.

4M. Mailed questionnaires only (ID# 7001 or higher)

Find first donor HH preceding the position determined in Step 3 that matches the imputation group HH on --

- ACQ and DIS pattern between RECSDATE for imputation HH and 12/31/85 (Segment Y).

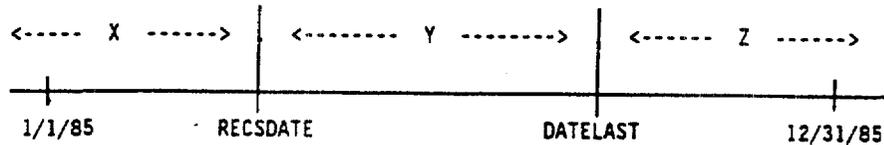
Nothing is known about Segment X for the imputation group HH. Thus we will sometimes be imputing a date of ACQ for a vehicle that is already part of the computer record for the mailed questionnaire HH. These ACQ dates go on a special list.

In the same way as for personal interview HHs, vehicles disposed of by the donor HH in Segment X are both "acquired" and disposed of for the imputation group HH. The guidelines for dates are the same as those for personal interview HHs.

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group C2

These households are also LATE ENTRY and ATTRITION. For this group, however, there were also some RTECS contacts. Thus there is a middle period (Segment Y) between RECSDATE and DATELAST.



Steps 1-3 are the same as for Imputation Group B, for both personal interview and mailed questionnaire HHs.

4P. Personal interviews only (ID# under 7000)

Find first donor HH preceding the position determined in Step 3 that matches the imputation group HH on both --

- ACQ pattern between 1/1/85 and RECSDATE for imputation HH (Segment X);
- ACQ and DIS pattern between RECSDATE and DATELAST for imputation HH (Segment Y).

There are two types of imputations for these HHs.

- (1) Vehicles disposed of between 1/1/85 and RECSDATE for the imputation HH (Segment X). These vehicles must always be listed on the ACQ and DIS list -- this is because the vehicle does not yet appear in the computer filed for the imputation HH, and thus must always be "acquired" before it is disposed of. The date of acquisition is--
 - 12/31/84 if donor household did not acquire the vehicle on or after 1/1/85;
 - the actual date of acquisition by the donor HH if the vehicle was acquired (and disposed of) by the donor HH on or after 1/1/85.
- (2) Vehicles ACQ and or DIS between DATELAST for the imputation HH 12/31/85 (Segment Z).

Follow the same rules as those used for Imputation Group A1.

Instructions for Vehicle Stock Imputations (continued)

Procedure for Imputation Group C2 (continued)

4M. Mailed questionnaires only (ID# 7001 or higher)

Find first donor HH preceding the position determined in Step 3 that matches the imputation group HH on --

- ACQ and DIS pattern between RECSDATE and DATELAST for imputation HH (Segment Y).

There are also two types of imputations for these HHs.

- (1) Nothing is known about Segment X for the imputation group HH. Thus we will sometimes be imputing a date of ACQ for a vehicle that is already part of the computer record for the mailed questionnaire HH. These ACQ dates go on a special list.

In the same way as for personal interview HHs, vehicles disposed of by the donor HH in Segment X are both "acquired" and disposed of for the imputation group HH. The guidelines for dates are the same as those for personal interview HHs.

- (2) Vehicles ACQ and/or DIS between DATELAST for the imputation HH and 12/31/85 (Segment Z).

Follow the same rules as those used for Imputation Group A1.



APPENDIX C:

FORMS USED DURING DATA MANIPULATION

<u>Form Name</u>	<u>Page</u>
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Odometer Reading Call Form.....	C-4
Turnaround Coding Form OH01 (specimen copy).....	C-14
Turnaround Coding Form 1V01 (specimen copy).....	C-15
Turnaround Coding Form 1V02 (specimen copy).....	C-16
Fuel Purchase Data Collection Telephone Questionnaire.....	C-17
Vehicle-Disposed-of Card.....	C-27
Vehicle-Acquired Card.....	C-28
Address Change or Correction Card.....	C-29
1985 RTECS HVI Generation Log.....	C-30
Transportation Study Purchase File: Card 5H Coding Form.....	C-31
Transportation Study Purchase File: Card 6V01 Coding Form...	C-32
Telephone Data Collection Form (specimen, coded for Card 7P).....	C-33
1985 RTECS FPR Generation Log.....	C-34
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Tank Capacity/HVI File Update Worksheet.....	C-38



Initial Coding Form

Specimen of Initial Coding Form - 1985 RTECS

VEH		MAKE	YEAR	MODEL	CYLS	A R S	T R S	D O R S	J N D	R H P G	C A R D	BEGINNING ODOMETER	DATE
1-4	7-8	21 - 32	34-35	40-51	66-67	69	70	71	73	74	75	READING	(MO DY YR)
1910	1910	21 - 32	34-35	40-51	66-67	69	70	71	73	74	75	33-38	40 - 45
1765	01	FORD	73	MAVERICK	-	-	-	-	-	-	-	1V02	-
1790	01	AMC	84	EAGLE	-	-	-	-	-	-	-	1V02	-
1804	01	FORD	67	MUSTANG	-	-	-	-	-	-	-	1V02	-
1836	01	OLDSMOBILE	71	VISTA CRUISE	-	-	-	-	-	-	-	1V02	-
1896	01	OLDSMOBILE	68	CUTLASS	-	-	-	-	-	-	-	1V02	-
1911	01	BUICK	73	LESABRE	-	-	-	-	-	-	-	1V02	-
1912	01	TOYOTA	76	COROLLA	-	-	-	-	-	-	-	1V02	-
1917	01	DATSUN	81	MAXIMA	-	-	-	-	-	-	-	1V02	-
1922	01	CHEVROLET	77	S-10	-	-	-	-	-	-	-	1V02	-
1922	02	VOLKSWAGON	76	RABBIT	-	-	-	-	-	-	-	1V02	-
1922	03	FORD	74	PINTO	-	-	-	-	-	-	-	1V02	-
1952	01	MG-TD	53	MIDGET	-	-	-	-	-	-	-	1V02	-
1953	01	CHEVROLET	76	CARIARO	-	-	-	-	-	-	-	1V02	-
1953	02	CHRYSLER	75	CORDOBA	-	-	-	-	-	-	-	1V02	-
1953	05	FORD	72	PINTO	-	-	-	-	-	-	-	1V02	-
2006	01	MERCURY	84	BROUGHAM	-	-	-	-	-	-	-	1V02	-
2010	01	OLDSMOBILE	78	CUTLASS	-	-	-	-	-	-	-	1V02	-
2010	02	CHEVROLET	84	CELEBRITY	-	-	-	-	-	-	-	1V02	-
2010	05	CHEVROLET	76	CHEVETTE	-	-	-	-	-	-	-	1V02	-
3045	05	FORD	84	MUSTANG	-	-	-	-	-	-	-	1V02	-

Odometer Reading Call Form

F4739-40
Form: Yellow

OMB NO. 1905-0086
EIA 429

NATIONAL SURVEY OF FUEL PURCHASES FOR
VEHICLES - ODOMETER READING CALLS

HOUSEHOLD ADDRESS

RESPONDENT RECEIVED \$1.00 IN
MAILING WITH ODOMETER READING
CARDS.

CALLS START JANUARY 2, 1985

	CALL RECORD			COMPLETE	BUSY SIGNAL	NO ANSWER	RESPONDENT NOT AVAILABLE	REFUSAL	OTHER	INTERVIEWER	NOTES (EXPLAIN OTHER RESULT)	AT.
	DAY OF WEEK	DATE	TIME									
1				C	B	NA	X	R	O			
2				C	B	NA	X	R	O			
3				C	B	NA	X	R	O			
4				C	B	NA	X	R	O			
5				C	B	NA	X	R	O			
6				C	B	NA	X	R	O			
7				C	B	NA	X	R	O			
8				C	B	NA	X	R	O			

*EXPLAIN

ASK FIRST TO SPEAK WITH THE PERSON WHOSE NAME APPEARS ON THE LABEL. IF HE/SHE IS NOT AVAILABLE, THE INTERVIEW MAY BE COMPLETED WITH HUSBAND OR WIFE.

Hello, this is _____ . I'm calling from Response Analysis in Princeton, New Jersey, about the Department of Energy survey on vehicles.

Do you have the total mileage (odometer) reading(s) for your vehicle(s)?

IF RESPONDENT HAS CARD(S) OR GETS COMPLETED CARD(S) WHILE YOU WAIT, CONTINUE WITH ODOMETER READING(S) ON COMPUTER PAGE.

IF RESPONDENT CANNOT GET CARD(S) WHILE YOU WAIT, ARRANGE DATE AND TIME TO CALL BACK. MARK RESULT AS "OTHER."

Odometer Reading Call Form (continued)

Date specified for odometer readings:
 After last use on Monday, December 31, 1984

12
 HH#

I have a description of the vehicles mentioned at the time of our most recent contact with your household --

VEHICLE #	01	02	03	
TYPE	AUTOMOBILE	PICKUP TRUCK	PICKUP TRUCK	
MAKE	DODGE	FORD	GMC	
MODEL YEAR	85	82	81	
MODEL NAME	DAYTONA	F-150 PICKUP	C-2500	
Do you still have (VEHICLE LISTED ABOVE)?	() YES () NO -- USE GREEN PAGE			
IF HOUSEHOLD STILL HAS VEHICLE: Have I described it correctly?	() YES () CHANGED ABOVE			
What was the total mileage?				
Was the mileage recorded on (DATE SPECIFIED ABOVE)?	() YES () NO			
IF NO: On what date was it recorded?	MONTH: _____ DAY: _____	MONTH: _____ DAY: _____	MONTH: _____ DAY: _____	MONTH: _____ DAY: _____

Odometer Reading Call Form (continued)

USE THIS PAGE ONLY IF HOUSEHOLD NO LONGER HAS
ONE OR MORE OF VEHICLES LISTED ON COMPUTER PAGE(S)

Form green

<p>VEHICLE # <input type="checkbox"/> RECORD VEHICLE # EXACTLY AS SHOWN ON COMPUTER PAGE</p> <p>In what month and year did you dispose of this vehicle?</p> <p>_____ MONTH _____ YEAR</p> <p>Do you happen to know the total mileage (odometer) reading of the vehicle at the time that you disposed of it? (Just approximately.)</p> <p>_____ MILES</p> <p>() DON'T KNOW</p>
<p>VEHICLE # <input type="checkbox"/> RECORD VEHICLE # EXACTLY AS SHOWN ON COMPUTER PAGE</p> <p>In what month and year did you dispose of this vehicle?</p> <p>_____ MONTH _____ YEAR</p> <p>Do you happen to know the total mileage (odometer) reading of the vehicle at the time that you disposed of it? (Just approximately.)</p> <p>_____ MILES</p> <p>() DON'T KNOW</p>
<p>VEHICLE # <input type="checkbox"/> RECORD VEHICLE # EXACTLY AS SHOWN ON COMPUTER PAGE</p> <p>In what month and year did you dispose of this vehicle?</p> <p>_____ MONTH _____ YEAR</p> <p>Do you happen to know the total mileage (odometer) reading of the vehicle at the time that you disposed of it? (Just approximately.)</p> <p>_____ MILES</p> <p>() DON'T KNOW</p>
<p>VEHICLE # <input type="checkbox"/> RECORD VEHICLE # EXACTLY AS SHOWN ON COMPUTER PAGE</p> <p>In what month and year did you dispose of this vehicle?</p> <p>_____ MONTH _____ YEAR</p> <p>Do you happen to know the total mileage (odometer) reading of the vehicle at the time that you disposed of it? (Just approximately.)</p> <p>_____ MILES</p> <p>() DON'T KNOW</p>

Odometer Reading Call Form (continued)

PV-2
F4739-03

IF HOUSEHOLD HAS ONE OR MORE VEHICLES LISTED ON COMPUTER-PRINTED PAGE, CONTINUE WITH Q. B5.

IF HOUSEHOLD HAS NONE OF THE VEHICLES LISTED ON COMPUTER-PRINTED PAGE, SKIP TO Q. B15.

MATCH VEHICLE NUMBERS TO THOSE ON
COMPUTER-PRINTED PAGE

B5. How many cylinders does the engine have, or is it a rotary engine?

- 1-CYLINDER
- 2-CYLINDER
- 3-CYLINDER
- 4-CYLINDER
- 5-CYLINDER
- 6-CYLINDER
- 8-CYLINDER
- ROTARY
- ELECTRIC
- OTHER (SPECIFY):

VEHICLE NUMBER			
01 []	02 []	03 []	04 []
02 []	02 []	02 []	02 []
03 []	03 []	03 []	03 []
04 []	04 []	04 []	04 []
05 []	05 []	05 []	05 []
06 []	06 []	06 []	06 []
08 []	08 []	08 []	08 []
09 []	09 []	09 []	09 []
10 []	10 []	10 []	10 []
21 []	21 []	21 []	21 []
DON'T KNOW	98 []	98 []	98 []
B6. Does the vehicle have air conditioning?	YES	1 []	1 []
	NO	0 []	0 []
B7. Does it have an automatic transmission or a manual shift?	AUTOMATIC	1 []	1 []
	MANUAL SHIFT	2 []	2 []
IF AUTOMOBILE OR STATION WAGON, ASK:			
B8. Is it a 2-door or 4-door or what?	2-DOOR	2 []	2 []
	3-DOOR	3 []	3 []
	4-DOOR	4 []	4 []
	5-DOOR	5 []	5 []
B9. Is this vehicle used on the job by anyone in your household, not counting going to and from work?	YES	1 []	1 []
	NO	0 []	0 []
IF "YES", ASK:			
B10. Is it also used for non-business (personal) purposes?	YES	1 []	1 []
	NO	0 []	0 []
B11. About how many people drive this vehicle on a regular basis?	NUMBER OF REGULAR DRIVERS		
B12. About how many miles per gallon do you usually get with this vehicle? (IF RESPONDENT GIVES MPG FOR BOTH IN-TOWN AND HIGHWAY DRIVING, WRITE DOWN IN-TOWN MPG ONLY.)	MPG		

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69

70

73

74

Odometer Reading Call Form (continued)

B13. Do you or other members of your household own or have the regular use of any cars, trucks, vans, or similar vehicles, in addition to (MAKE AND MODEL YEAR FROM COMPUTER-PRINTED PAGE)?

- 1 YES
- 0 NO -- SKIP TO Q. B 31.

IF "YES," ASK:

B14. How many additional vehicles do you have?

- 1 ONE
 - 2 TWO
 - 3 THREE
 - 4 FOUR OR MORE
- } SKIP TO Q. B17.

IF HOUSEHOLD NO LONGER HAS ANY OF THE VEHICLES LISTED ON COMPUTER-PRINTED PAGE, ASK:

B15. Do you or other members of your household now own or have the regular use of any cars, trucks, vans, or similar vehicles?

- 1 YES
- 0 NO -- SKIP TO Q. B 31.

IF "YES," ASK:

B16. How many vehicles do you have?

- 1 ONE
 - 2 TWO
 - 3 THREE
 - 4 FOUR OR MORE
- } ASK Q. B17.

Odometer Reading Call Form (continued)

IF "ONE OR MORE VEHICLES" ON Q. B14 OR B16 ASK:

B17. What type(s) of vehicle(s) is it (are they)?

- STATION WAGON
- AUTOMOBILE
- JEEP OR SIMILAR VEHICLE
- PASSENGER VAN OR MINIBUS
- CARGO VAN
- PICKUP TRUCK
- OTHER TRUCK
- MOTOR HOME
- OTHER (SPECIFY):

	A	B	C	D
01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>				
IF "PICKUP TRUCK" OR "OTHER TRUCK," ASK:				
B18. About how many tons capacity does the truck have, -- quarter-ton, half-ton, three-quarter ton, or more?	<input type="checkbox"/> 1/4	<input type="checkbox"/> 1/4	<input type="checkbox"/> 1/4	<input type="checkbox"/> 1/4
	<input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2
	<input type="checkbox"/> 3/4	<input type="checkbox"/> 3/4	<input type="checkbox"/> 3/4	<input type="checkbox"/> 3/4
TONS	<hr/>	<hr/>	<hr/>	<hr/>
DDN'T KNOW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>				
B19. Please tell me the make and model year (of each vehicle). (ENTER LAST TWO DIGITS OF MODEL YEAR.)	MAKE	MAKE	MAKE	MAKE
	MODEL YEAR	MODEL YEAR	MODEL YEAR	MODEL YEAR
	19	19	19	19
<hr/>				
B20. What is the model name (of each one)?	MODEL NAME	MODEL NAME	MODEL NAME	MODEL NAME
<hr/>				
B21. In what month and year did you get this vehicle.	MONTH	MONTH	MONTH	MONTH
	YEAR	YEAR	YEAR	YEAR
	19	19	19	19
<hr/>				
B22a. What was the total mileage (odometer) reading after last use of the vehicle on	MILES	MILES	MILES	MILES
DEC 31 1984	<hr/>	<hr/>	<hr/>	<hr/>
<hr/>				
B22b. Was the odometer reading recorded on the date specified?	<input type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	<input type="checkbox"/> NO	<input type="checkbox"/> NO	<input type="checkbox"/> NO	<input type="checkbox"/> NO
<hr/>				
IF "NO," ASK:				
B22c. On what date was it recorded?	<hr/>	<hr/>	<hr/>	<hr/>

Odometer Reading Call Form (continued)

IF "NONE OR MORE VEHICLES" ON
Q. B14 OR B16 CONTINUE:

B23. How many cylinders does the engine have, or is it a rotary engine?
 1-CYLINDER
 2-CYLINDER
 3-CYLINDER
 4-CYLINDER
 5-CYLINDER
 6-CYLINDER
 8-CYLINDER
 ROTARY
 ELECTRIC
 OTHER (SPECIFY):

A	B	C	D
01 []	01 []	01 []	01 []
02 []	02 []	02 []	02 []
03 []	03 []	03 []	03 []
04 []	04 []	04 []	04 []
05 []	05 []	05 []	05 []
06 []	06 []	06 []	06 []
08 []	08 []	08 []	08 []
09 []	09 []	09 []	09 []
10 []	10 []	10 []	10 []
21 []	21 []	21 []	21 []

DON'T KNOW

98 []	98 []	98 []	98 []
--------	--------	--------	--------

B24. Does the vehicle have air conditioning?
 YES
 NO

1 []	1 []	1 []	1 []
0 []	0 []	0 []	0 []

B25. Does it have an automatic transmission or a manual shift?
 AUTOMATIC
 MANUAL SHIFT

1 []	1 []	1 []	1 []
2 []	2 []	2 []	2 []

IF AUTOMOBILE OR STATION WAGON, ASK:

B26. Is it a 2-door or 4-door or what?
 2-DOOR
 3-DOOR
 4-DOOR
 5-DOOR

2 []	2 []	2 []	2 []
3 []	3 []	3 []	3 []
4 []	4 []	4 []	4 []
5 []	5 []	5 []	5 []

B27. Is this vehicle used on the job by anyone in your household, not counting going to and from work?
 YES
 NO

1 []	1 []	1 []	1 []
0 []	0 []	0 []	0 []

IF "YES", ASK:

B28. Is it also used for non-business (personal) purposes?
 YES
 NO

1 []	1 []	1 []	1 []
0 []	0 []	0 []	0 []

B29. About how many people drive this vehicle on a regular basis?
 NUMBER OF REGULAR DRIVERS

_____	_____	_____	_____
-------	-------	-------	-------

B30. About how many miles per gallon do you usually get with this vehicle? (IF RESPONDENT GIVES MPG FOR BOTH IN-TOWN AND HIGHWAY DRIVING, WRITE DOWN IN-TOWN MPG ONLY.)
 MPG

_____	_____	_____	_____
-------	-------	-------	-------

Odometer Reading Call Form (continued)

B31. Does anyone who was a member of your household on November 1, 1984 live somewhere else now?

0[] NO -- SKIP TO Q. B34.

1[] YES

OHC1
30

IF "YES," ASK:

B32. Who is that? DESCRIBE PERSON OR PERSONS BELOW

	RELATIONSHIP	SEX		AGE
		FEMALE	MALE	
A				
B				
C				
D				
E				

B33. FOR EACH PERSON MENTIONED WHO IS AGE 16 OR OVER, ASK:

We may need to be in touch with (him/her/each of them) about this survey, also. Could you tell me where I can reach (him/her/them)?

PERSON _____ NAME: _____
 STREET: _____
 CITY AND STATE: _____ ZIP: _____
 PHONE: _____
 (Area code)

PERSON _____ NAME: _____
 STREET: _____
 CITY AND STATE: _____ ZIP: _____
 PHONE: _____
 (Area code)

Odometer Reading Call Form (continued)

P-8
Odometer Reading Calls

B38. Thank you very much. We will be sending a note to you soon to tell you about the next phase of our study.

Have a nice (day/evening).

(Interviewer)

(Date Completed)

(Time Completed)

Specimen of Turnaround Coding Form OH01

Run date: 06/27/86 Time: 1037

HHID CARD	HOP	MO	RECS DATE	M4	STATUS COMMENT	BEGINNING ODOMETER TYPE RESULT	FUEL PURCHASE TYPE RESULT	MIDYEAR CONTACT TYPE RESULT	ENDING ODOMETER TYPE RESULT	LAST CONTACT MO	LAST CONTACT DY	LAST CONTACT YR					
													52	53	54	55	56
1019	OH01	1	01	101684	11	*	9	1	1	2	5	1	1	1	01	04	86
1029	OH01	1	01	101784	11		1	9	1	4	1	1	1	1	01	03	86
1041	OH01	1	01	101784	21		2	2	2	2	2	2	2	2	04	01	83
1056	OH01	1	01	101884	11		9	2	1	2	3	1	1	1	01	16	86
1066	OH01	1	01	102184	11		9	1	1	2	5	1	1	1	01	05	86
1079	OH01	1	01	101484	22		9	2	2	2	2	2	2	2			
1094	OH01	1	01	101384	11		9	1	1	2	5	1	1	1	01	03	86
1100	OH01	1	01	101084	11		9	1	1	2	5	1	1	1	01	04	86
1120	OH01	1	01	102084	11		9	1	2	2	5	1	1	1	01	09	86
1134	OH01	1	01	101784	21		9	1	2	2	1	2	2	2	08	05	83
1141	OH01	1	01	102084	12		9	1	6	0	0	1	1	1	01	04	86
1180	OH01	1	01	102084	21		9	1	5	2	5	2	2	2			
1193	OH01	1	01	102084	11		9	1	1	2	5	1	1	1	01	03	86
1205	OH01	1	01	102284	11		9	1	1	2	5	1	1	1	01	06	86
1233	OH01	1	01	102384	11		9	1	2	2	5	1	1	1	01	04	86
1242	OH01	1	01	102384	11		9	1	1	2	5	1	1	1	01	03	86
1244	OH01	1	01	102284	11		9	1	1	2	5	1	1	1	01	05	86
1281	OH01	1	01	102284	11		9	1	1	2	5	1	1	1	01	04	86
1291	OH01	1	01	102284	22		9	1	1	2	5	2	2	2	12	31	83
1293	OH01	1	01	101884	11		9	1	2	2	5	1	1	1	01	13	86
1327	OH01	1	01	102084	11		1	2	2	2	2	2	2	2	01	04	86

* A provision for a comment code appeared on this form, but was not used for the 1985 RTECS.

Specimen of Turnaround Coding Form 1V01

Run date 06/27/86 Time 1037

VEH #	CARD	TYPE	NAME	MAKE	YEAR	MODEL CODE	MODEL	MODEL B	C	T	P	D
1-4	7-0 10-13	13-16	18-19	21-32	34-35	37-38	40-51	53-64	66-67	69-71	73-75	77-78
1019 01	1V01	02	08	BUICK	80	11	REGAL		06	012	092	16
1019 02	1V01	02	15	DODGE	80	21	OMNI		04	023	092	17
1019 03	1V01	01	33	PLYMOUTH	77	18	VOLARE					
1019 05	1V01	02	19	FORD	85	77	TEMPO		04	014	092	25
1041 01	1V01	02	33	PLYMOUTH	73	06	FURY		08	114	092	12
1041 05	1V01	02	19	FORD	70	25	LTD		08	114	091	12
1056 01	1V01	02	15	DODGE	79	16	MAGNUM		08	112	091	15
1056 02	1V01	06	15	DODGE	84	85	150		08	119	111	09
1066 01	1V01	02	19	FORD	80	38	THUNDERBIRD		08	112	091	12
1066 02	1V01	02	19	FORD	78	17	FAIRMONT		06	112	091	18
1079 01	1V01	02	19	FORD	82	76	ESCORT					
1094 01	1V01	02	90	TOYOTA	74	24	GELIGA		04	122	091	24
1094 02	1V01	04	93	VOLKSWAGEN	79	03	CAMPER		04	029	092	24
1094 05	1V01	02	11	CHEVROLET	85	72	CAVALIER		04	124	092	23
1100 01	1V01	02	19	FORD	81	76	ESGRT		04	022	091	55
1120 01	1V01	02	11	CHEVROLET	78	27	IMPALA		08	114	091	18
1120 02	1V01	06	19	FORD	80	30	F-100 1/2 TON		06	119	091	20
1134 01	1V01	02	18	DODGE	72	04	CHARGER		08	012	091	18
1141 01	1V01	02	93	VOLKSWAGEN	82	11	SCIROCCO					
1141 02	1V01	02	93	VOLKSWAGEN	74	01	BUG					
1141 05	1V01	06	11	CHEVROLET	77	24	G-20					
1141 05	1V01	02	93	VOLKSWAGEN	85	02	GTI		04	122	092	98
1141 06	1V01	02	93	VOLKSWAGEN	86	05	GOLF		04	122	092	98

Fuel Purchase Data Collection Telephone Questionnaire

F4739-31 OMB NO. 1905-0068 (Expires 8/31/86)
EIA-141

HOUSEHOLD ADDRESS:

NATIONAL SURVEY OF FUEL PURCHASES FOR VEHICLES
DATA COLLECTION -- THIRD CALL

FUEL PURCHASES IN JANUARY 1985

CALLS START FEBRUARY 1, 1985

	CALL RECORD			BUSY-REGULAR	BUSY-FTS	NO ANSWER	RESPONDENT N.A.	LANGUAGE	DISCONNECT	OTHER	REFUSAL	COMPLETE	INTERVIEWER	NOTES
	DAY OF WEEK	DATE	TIME											
1				0	1	2	3	4	5	6	8	9		
2				0	1	2	3	4	5	6	8	9		
3				0	1	2	3	4	5	6	8	9		
4				0	1	2	3	4	5	6	8	9		
5				0	1	2	3	4	5	6	8	9		
6				0	1	2	3	4	5	6	8	9		

*NOTES BELOW ON: Contact person Best time for contact Moving Other

ASK FIRST TO SPEAK WITH THE PERSON WHOSE NAME APPEARS ON THE LABEL. IF HE/SHE IS NOT AVAILABLE, THE INTERVIEW MAY BE COMPLETED WITH HUSBAND OR WIFE.

Hello, this is _____ . I'm calling from Response Analysis in Princeton, New Jersey, about the Department of Energy survey.

Would this be a convenient time to collect the information on fuel purchases for vehicles that you've been keeping for us?

(Let's begin with . . . READ MAKE, MODEL YEAR, AND MODEL NAME FROM FIRST ATTACHED SHEET.)

NUMBER OF VEHICLES FOR THIS HOUSEHOLD:	
FINAL RESULT	
<input type="checkbox"/>	COMPLETE DATA
<input type="checkbox"/>	PARTIAL DATA
<input type="checkbox"/>	CONTACTED, NO DATA
<input type="checkbox"/>	NO CONTACT

Fuel Purchase Data Collection Telephone Questionnaire (continued)

Vehicle # _____

PURCHASE #	DATE	TOTAL VEHICLE MILEAGE	GALLONS PURCHASED	TOTAL COST	PRICE PER GALLON	WAS TANK FILLED?	FUEL GAUGE READING AFTER PURCHASE	FUEL TYPE USED	IF GASOLINE PURCHASED	
									LEADED/UNLEADED	REGULAR/PREMIUM
01						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
02						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
03						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
04						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
05						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
06						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
07						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
08						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
09						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.
10						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.K.	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> F	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.K.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.K.

USE BUFF CONTINUATION SHEET(S) IF MORE THAN 10 PURCHASES FOR THIS VEHICLE. MARK BOX () IF CONTINUATION SHEET IS USED.

PURCHASE NUMBER	NOTE OR PROBLEM

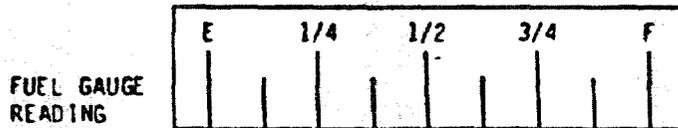
- ADD NOTES AT RIGHT AS NECESSARY:
- If any of above purchase quantities or prices are for liters or half-gallons
 - To explain any missing entries
 - To describe any problems related to purchases above

Fuel Purchase Data Collection Telephone Questionnaire (continued)

A. What was the total vehicle mileage before the first use of the (VEHICLE IDENTIFICATION) in January?

BEGINNING
ODOMETER READING

B1. How full was the tank before the first use of the vehicle?



B2. To the best of your knowledge, is the fuel gauge accurate?

1 [] YES
0 [] NO

COMMENT:

C. About how many gallons does the fuel tank of this vehicle hold?

GALLONS

NOTE DETAILS BELOW IF VEHICLE HAS MORE THAN ONE FUEL TANK:

HH # _____ Vehicle # _____

IF VEHICLE WAS DRIVEN IN JANUARY
CONTINUE BELOW:

D. What was the total vehicle mileage after the last use of this vehicle in January?

ENDING ODOMETER READING

--	--

E. How full was the fuel tank after the last use of the vehicle?

FUEL GAUGE READING

E	1/4	1/2	3/4	F					

F1. Were all fuel purchases in January recorded in the log, or were there fuel purchases that might have been missed?

- 1 [] ALL INCLUDED (NONE MISSING)
- 2 [] ONE OR MORE MISSING

IF "ONE OR MORE MISSING," ASK:

F2. About how many purchases are missing?

NUMBER OF PURCHASES MISSING

--

R1. Was this vehicle driven about the usual number of miles during the month of January, or was it driven more than usual or less than usual?

- 1 [] ABOUT USUAL NUMBER OF MILES
- 2 [] MORE THAN USUAL
- 3 [] LESS THAN USUAL

IF "MORE THAN USUAL" OR "LESS THAN USUAL"

R2. About how many miles per month would this vehicle usually be driven -- just approximately?

_____ MILES PER MONTH

IF VEHICLE WAS NOT DRIVEN IN JANUARY, MARK HERE [] AND ASK QUESTION BELOW:

S. What were the reasons that this vehicle was not used during January?

[] NO LONGER HAVE VEHICLE (SPECIFY BELOW; THEN ASK ITEM T)

11 [] GIVEN AWAY

12 [] SOLD

13 [] TRADED IN FOR ANOTHER VEHICLE

14 [] DESTROYED IN ACCIDENT

15 [] OTHER (SPECIFY): _____

[] DRIVER-RELATED REASON (SPECIFY BELOW)

21 [] DON'T DRIVE AT THIS TIME OF YEAR

22 [] LICENSE LOST OR SUSPENDED

23 [] DRIVER AWAY (VACATION, BUSINESS, SERVICE, ETC.)

24 [] DRIVER ILL

25 [] OTHER (SPECIFY): _____

31 [] VEHICLE UNDER REPAIR OR WAITING FOR SERVICE

35 [] OTHER REASON (SPECIFY): _____

IF HOUSEHOLD NO LONGER HAS VEHICLE, ASK ITEM T:

T. When was the vehicle (DISPOSED OF)?

(GET DATE AS SPECIFICALLY AS POSSIBLE:)

DATE: _____ (Month) _____ (Day) _____ (Year)

CONTINUE WITH NEXT VEHICLE.

IF THIS IS THE LAST VEHICLE, SAY: Thank you very much. Please keep the information that you gave me for a week or two -- just in case one of our research directors has a question. Have a nice day/evening!

Fuel Purchase Data Collection Telephone Questionnaire (continued)

<p>825. Does it have an automatic transmission or a manual shift?</p>	<p>AUTOMATIC MANUAL SHIFT</p>	<p>1 [] 2 []</p>	<p>70</p>	<p>A. What was the total vehicle mileage before the first use of the (VEHICLE IDENTIFICATION) in January?</p>	<p>BEGINNING ODOMETER READING</p>
<p>IF AUTOMOBILE OR STATION WAGON, ASK: 826. Is it a 2-door or 4-door or what?</p>	<p>2-DOOR 3-DOOR 4-DOOR 5-DOOR</p>	<p>2 [] 3 [] 4 [] 5 []</p>	<p>71</p>	<p>B1. How full was the tank before the first use of the vehicle?</p>	<p>FUEL GAUGE READING</p>
<p>827. Is this vehicle used on the job by anyone in your household, not counting going to and from work?</p>	<p>YES NO</p>	<p>1 [] 0 []</p>	<p>73</p>	<p>82. To the best of your knowledge, is the fuel gauge accurate?</p>	<p>1 [] YES 0 [] NO</p>
<p>IF "YES," ASK: 828. Is it also used for non-business (personal) purposes?</p>	<p>YES NO</p>	<p>1 [] 0 []</p>	<p>74</p>	<p>COMMENT:</p>	
<p>829. About how many people drive this vehicle on a regular basis?</p>	<p>NUMBER OF REGULAR DRIVERS</p>	<p>_____</p>	<p>75</p>	<p>C. About how many gallons does the fuel tank of this vehicle hold?</p>	<p>GALLONS</p>
<p>830. About how many miles per gallon do you usually get with this vehicle? (IF RESPONDENT GIVES MPG FOR BOTH IN-TOWN AND HIGHWAY DRIVING, WRITE DOWN IN-TOWN MPG ONLY.)</p>	<p>MPG</p>	<p>_____</p>	<p>77-78</p>	<p>NOTE DETAILS BELOW IF VEHICLE HAS MORE THAN ONE FUEL TANK:</p>	

F4739-34

Fuel Purchase Data Collection Telephone Questionnaire (continued)

Vehicle # _____

PURCHASE #	DATE	TOTAL VEHICLE MILEAGE	GALLONS PURCHASED	TOTAL COST	PRICE PER GALLON	WAS TANK FILLED?	FUEL GAUGE READING AFTER PURCHASE	FUEL TYPE USED	IF BASOLINE PURCHASED LEADED/ UNLEADED	REGULAR/ PREMIUM
01						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
02						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
03						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
04						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
05						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
06						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
07						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
08						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
09						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.
10						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> GASOLINE	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> D.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> D.R.

IF MORE THAN 10 PURCHASES FOR THIS VEHICLE. MARK BOX () IF CONTINUATION SHEET IS USED.

PURCHASE NUMBER	NOTE OR PROBLEM

- AND NOTES AT RIGHT AS NECESSARY:
- If any of above purchase quantities or prices are for liters or half-gallons
 - To explain any missing entries
 - To describe any problems related to purchases above

Fuel Purchase Data Collection Telephone Questionnaire (continued)

A. What was the total vehicle mileage before the first use of the (VEHICLE IDENTIFICATION) in January?

BEGINNING ODOMETER READING

--	--

B1. How full was the tank before the first use of the vehicle?

FUEL GAUGE READING

E	1/4	1/2	3/4	F

B2. To the best of your knowledge, is the fuel gauge accurate?

1 [] YES
0 [] NO

COMMENT:

C. About how many gallons does the fuel tank of this vehicle hold?

GALLONS

NOTE DETAILS BELOW IF VEHICLE HAS MORE THAN ONE FUEL TANK:

Vehicle # _____

IF VEHICLE WAS NOT DRIVEN IN JANUARY, MARK HERE [] AND ASK QUESTION BELOW:

5. What were the reasons that this vehicle was not used during January?
- [] NO LONGER HAVE VEHICLE (SPECIFY BELOW; THEN ASK ITEM 1)
- 21 [] GIVEN AWAY
 - 22 [] SOLD
 - 23 [] TRADED IN FOR ANOTHER VEHICLE
 - 24 [] DESTROYED IN ACCIDENT
 - 25 [] OTHER (SPECIFY): _____
- [] DRIVER-RELATED REASON (SPECIFY BELOW)
- 21 [] DON'T DRIVE AT THIS TIME OF YEAR
 - 22 [] LICENSE LOST OR SUSPENDED
 - 23 [] DRIVER AWAY (VACATION, BUSINESS, SERVICE, ETC.)
 - 24 [] DRIVER ILL
 - 25 [] OTHER (SPECIFY): _____
- 26 [] VEHICLE UNDER REPAIR OR WAITING FOR SERVICE
- 27 [] OTHER REASON (SPECIFY): _____

IF HOUSEHOLD NO LONGER HAS VEHICLE, ASK ITEM 1:

1. When was the vehicle (DISPOSED OF)?
- (GET DATE AS SPECIFICALLY AS POSSIBLE:)
- DATE: _____ (Month) _____ (Day) _____ (Year)

IF VEHICLE WAS DRIVEN IN JANUARY CONTINUE BELOW:

D. What was the total vehicle mileage after the last use of this vehicle in January?

--	--

ENDING ODOMETER READING

E. How full was the fuel tank after the last use of the vehicle?

E	1/4	1/2	3/4	F

FUEL GAUGE READING

F1. Were all fuel purchases in January recorded in the log, or were there fuel purchases that might have been missed?

- 1 [] ALL INCLUDED (NONE MISSING)
- 2 [] ONE OR MORE MISSING

IF "ONE OR MORE MISSING," ASK:

F2. About how many purchases are missing?

--

NUMBER OF PURCHASES MISSING

R1. Was this vehicle driven about the usual number of miles during the month of January, or was it driven more than usual or less than usual?

- 1 [] ABOUT USUAL NUMBER OF MILES
- 2 [] MORE THAN USUAL
- 3 [] LESS THAN USUAL

IF "MORE THAN USUAL" OR "LESS THAN USUAL"

R2. About how many miles per month would this vehicle usually be driven -- just approximately?

_____ MILES PER MONTH

CONTINUE WITH NEXT VEHICLE.

IF THIS IS THE LAST VEHICLE, SAY: Thank you very much. Please keep the information that you gave me for a week or two -- just in case one of our research directors has a question. Have a nice day/evening!

Vehicle-Disposed-of Card



**RESIDENTIAL
ENERGY
CONSUMPTION
SURVEY**

EJA-141
DME No. 1905-006E
Expires 8/31/86

VEHICLE IDENTIFICATION

PLEASE RETURN THIS CARD TO US ...

- If your household has already disposed of this vehicle
or
- If your household disposes of this vehicle anytime before January 15, 1986.

FILL IN BELOW BEFORE RETURNING CARD

- Date that your household disposed of this vehicle

_____	_____	_____
Month	Day	Year
- Total mileage (odometer reading) of the vehicle on date of disposition (if known) . . .

_____	Miles
-------	-------

PLEASE SEE REVERSE SIDE OF CARD FOR ADDITIONAL INSTRUCTIONS.

THANK YOU FOR YOUR HELP!



RESIDENTIAL ENERGY CONSUMPTION SURVEY

EIA-141 OMB No. 1905-0068 Expires 8/31/86

HOUSEHOLD ADDRESS

PLEASE RETURN THIS CARD TO US...

- If your household has acquired a vehicle that is not listed on a yellow card, or
• If your household acquires another vehicle anytime before January 15, 1986.

FILL IN BELOW BEFORE RETURNING CARD

- Vehicle make: _____ Model year: _____ Model name: _____
• Date that your household acquired this vehicle [Month Day Year]
• Total mileage (odometer reading) of this vehicle [Miles]
• Date that you recorded mileage (odometer reading) [Month Day Year]

PLEASE SEE REVERSE SIDE OF CARD FOR ADDITIONAL INSTRUCTIONS.

THANK YOU FOR YOUR HELP!

Address Change or Correction Card



**RESIDENTIAL
ENERGY
CONSUMPTION
SURVEY**

ADDRESS CHANGE OR CORRECTION

EIA-141
DMS No. 1905-0068
Expires 8/31/86

PLEASE RETURN THIS CARD TO US ...

- If the name, address, and telephone number shown at the right are not correct
- or
- If your household moves any-time before January 15, 1986
- or
- If your telephone number changes before January 15, 1986

HOUSEHOLD ADDRESS:

MAKE CHANGES BELOW BEFORE RETURNING CARD

Name: _____

Street Address: _____

City and State: _____ Zip Code: _____

Telephone number at which you can be reached: _____ Please circle location of telephone:
Home Work Other

PLEASE SEE REVERSE SIDE OF CARD FOR ADDITIONAL INSTRUCTIONS.

TRANSPORTATION STUDY PURCHASE FILE

Record Type 7P
 015 10-11 = 7P
 Record Month 17-18
 Vehicle # 7-8

PURCHASE #	DATE	TOTAL VEHICLE MILEAGE	GALLONS PURCHASED	TOTAL COST	PRICE PER GALLON	WAS TANK FILLED?	FUEL GAUGE READING AFTER PURCHASE	FUEL TYPE USED	IF GASOLINE PURCHASED	
									LEADED/UNLEADED	REGULAR/PREMIUM
12-13 01	20-23	20-30	32-84	36-39	41-44	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
02						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
03						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
04						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
05						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
06						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
07						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
08						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
09						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.
10						<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> O.R.	1/4 1/2 3/4	<input type="checkbox"/> GASOLINE <input type="checkbox"/> DIESEL <input type="checkbox"/> O.R.	<input type="checkbox"/> LEADED <input type="checkbox"/> UNLEADED <input type="checkbox"/> O.R.	<input type="checkbox"/> REGULAR <input type="checkbox"/> PREMIUM <input type="checkbox"/> O.R.

4739
022086

1985 RTECS - FPR Generation Log

&PRO.FPR85.MONTH__

Date: _____

Job #: _____

File updated by: _____

Run from: _____

Additions to &PRO.FPR85.RNGEXCP:MONTH__ ? [] YES DATE _____ [] NO

Additions to &PRO.FPR85.RELEXCP:MONTH__ ? [] YES DATE _____ [] NO

Source of this group of changes:

CHECK run -- Date _____ Time _____

MPG run -- Date _____ Time _____

PROGRAM RUN: &PRO.FPR85.JCL:CHECK []
&PRO.FPR85.JCL:MPG []

INPUT GENERATION # : _____

OUTPUT GENERATION #: _____

NOTES: _____

APPENDIX D:

FORMS PRODUCED BY ETECS PROGRAMS

The following forms were produced by the programs HVILABELS and HVIPAGES.

<u>Form</u>	<u>Pages</u>
Vehicle Labels.....	D-3
Background Questionnaire Page.....	D-4
Vehicle Stock Page.....	D-5
Odometer Reading Page.....	D-6

Vehicle Labels

Specimen of Vehicle Labels

Y	M09-1001-V01	M09-1001-V01	Y	M09-1001-V01	Y	M09-1001-V01
Make	Model	Model	Make	Model	Make	Model
PONTIAC	75 CATALINA	FONTIAC	75 CATALINA	PONTIAC	75	CATALINA
Y	M09-1001-V02	M09-1001-V02	Y	M09-1001-V02	Y	M09-1001-V02
Make	Model	Model	Make	Model	Make	Model
CHEVROLET	73 MONTE CARLO	CHEVROLET	73 MONTE CARLO	CHEVROLET	73	MONTE CARLO
M	M09-1039-V01	M09-1039-V01	M	M09-1039-V01	M	M09-1039-V01
Make	Model	Model	Make	Model	Make	Model
TOYOTA	80 COROLLA	TOYOTA	80 COROLLA	TOYOTA	80	COROLLA
M	M09-1043-V05	M09-1043-V05	M	M09-1043-V05	M	M09-1043-V05
Make	Model	Model	Make	Model	Make	Model
DODGE	79 RANCHARGER	DODGE	79 RANCHARGER	DODGE	79	RANCHARGER
T	M09-1082-V01	M09-1082-V01	T	M09-1082-V01	T	M09-1082-V01
Make	Model	Model	Make	Model	Make	Model
CHEVROLET	70 NOVA	CHEVROLET	70 NOVA	CHEVROLET	70	NOVA
T	M09-1082-V02	M09-1082-V02	T	M09-1082-V02	T	M09-1082-V02
Make	Model	Model	Make	Model	Make	Model
MAZDA	72 MINI-TRUCK	MAZDA	72 MINI-TRUCK	MAZDA	72	MINI-TRUCK
T	M09-1099-V01	M09-1099-V01	T	M09-1099-V01	T	M09-1099-V01
Make	Model	Model	Make	Model	Make	Model
PONTIAC	73 GRAND AM	PONTIAC	73 GRAND AM	PONTIAC	73	GRAND AM
T	M09-1099-V02	M09-1099-V02	T	M09-1099-V02	T	M09-1099-V02
Make	Model	Model	Make	Model	Make	Model
DODGE	74 DART	DODGE	74 DART	DODGE	74	DART

HOUSEHOLDS WITH ONE OR MORE VEHICLES
AT TIME OF MOST RECENT CONTACT

B1. I have a description of the vehicle(s) mentioned at the time of our most recent contact with your household --

VEHICLE NUMBER	01	02		
TYPE*	STATION WAGON	AUTOMOBILE		
MAKE	FORD	DATSUN		
MODEL YEAR	76	81		
MODEL NAME	PINTO	230ZX		
Do you still have (VEHICLE LISTED ABOVE)?	<input type="checkbox"/> YES <input type="checkbox"/> NO**			
IF YES Have I described it correctly?	<input type="checkbox"/> YES <input type="checkbox"/> CHANGED ABOVE			

**IF VEHICLE IS PICK-UP OR OTHER TRUCK AND CAPACITY IS NOT INDICATED ABOVE:

About how many tons capacity does the truck have?	<input type="checkbox"/> 1/4 TON			
	<input type="checkbox"/> 1/2 TON			
	<input type="checkbox"/> 3/4 TON			
	<input type="checkbox"/> ___ TONS			

**IF HOUSEHOLD NO LONGER HAS VEHICLE:

When was vehicle disposed of?	MONTH: _____	MONTH: _____	MONTH: _____	MONTH: _____
	YEAR: _____	YEAR: _____	YEAR: _____	YEAR: _____

This is our current record of vehicles for this household

VEHICLE #	01	02	03	04
TYPE	AUTOMOBILE	AUTOMOBILE	AUTOMOBILE	AUTOMOBILE
MAKE	CHEVROLET	CHEVROLET	FORD	TOYOTA
MODEL YEAR	72	72	76	76
MODEL NAME	IMPALA	CORVETTE	MUSTANG	COROLLA
IF HOUSEHOLD NO LONGER HAS VEHICLE: When was vehicle disposed of?	MONTH: _____ YEAR: _____	MONTH: _____ YEAR: _____	MONTH: _____ YEAR: _____	MONTH: _____ YEAR: _____

Odometer Reading Page

Date specified for odometer readings:
After last use on Sunday, June 30, 1985

09
HH# 7129

I have a description of the vehicles mentioned at the time of our most recent contact with your household --

VEHICLE #	01	02		
TYPE	AUTOMOBILE	PICKUP TRUCK		
MAKE	HONDA	FORD		
MODEL YEAR	84	78		
MODEL NAME	ACCORD	RANGER		
Do you still have (VEHICLE LISTED ABOVE)?	<input type="checkbox"/> YES <input type="checkbox"/> NO -- USE GREEN PAGE	<input type="checkbox"/> YES <input type="checkbox"/> NO -- USE GREEN PAGE	<input type="checkbox"/> YES <input type="checkbox"/> NO -- USE GREEN PAGE	<input type="checkbox"/> YES <input type="checkbox"/> NO -- USE GREEN PAGE
IF HOUSEHOLD STILL HAS VEHICLE: Have I described it correctly?	<input type="checkbox"/> YES <input type="checkbox"/> CHANGED ABOVE			
What was the total mileage?				
Was the mileage recorded on (DATE SPECIFIED ABOVE)?	<input type="checkbox"/> YES <input type="checkbox"/> NO			
IF NO: On what date was it recorded?	MONTH: _____ DAY: _____	MONTH: _____ DAY: _____	MONTH: _____ DAY: _____	MONTH: _____ DAY: _____

APPENDIX E:

VEHICLE MAKE AND MODEL CODES

This list presents the numeric make and model codes that were used to identify vehicle makes and models in the RTECS files.

The list was included in RAC's manual, 1985 RTECS Vol. II: Household/Vehicle Information Files, which was used as a training manual and basic reference manual for RTECS operating staff.



PART H. VEHICLE MAKE AND MODEL CODES

VEHICLE MAKE CODES

Alfa Romeo (Italy) . . .	51	Freightliner	20 ^a	Pantera (Italy)	80
AM General	01	FWD	21a	Peterbilt	32a
American Motors	02	GMC	22	Peugeot (France)	81
Arrow (code as Ply- mouth)	33	Honda (Japan)	68	Plymouth	33
Aston Martin (England)	53	Imperial	24	Pontiac	34
Audi (West Germany)	54	International	25	Porsche (West Germany)	82
Austin (England)	55	Isuzu	73	Rambler (code as American Motors)	02
Autocar	03 ^a	Jaguar (England)	69	Renault (France)	83
Avanti Motors	04	Jeep	26	Rolls-Royce (England)	84
Bentley (England)	56	Jensen (England)	70	Rover (England)	85
BMW (West Germany)	57	Kenworth	27 ^a	Saab (Sweden)	86
Brockway	05 ^a	Lancia Beta (Italy)	71	Shelby American	36
Buick	08	Lincoln	28	Simca (France)	87
Cadillac	09	Lotus (England)	72	Studebaker	39
Capri (code as Mercury)	29	LUV Pickup (code as Chevrolet)	11	Subaru (Japan)	88
Checker	10	Mack	17 ^a	Sunbeam (England)	89
Chevrolet	11	Marmon	23 ^a	Toyota (Japan)	90
Chrysler	12	Maserati (Italy)	74	Triumph (England)	91
Citroen (France)	59	Mazda (Japan)	75	Volkswagen (West Germany)	93
Courier Pickup (code as Ford)	19	Mercedes-Benz (West Germany)	76	Volvo (Sweden)	94
Crane Carrier	14 ^a	Mercury	29	Walter	41 ^a
Cricket (code as Ply- mouth)	33	Merkur	35	White	42 ^a
Daimler (England)	63	MG (England)	77	White Freightliner	43 ^a
Datsun (Japan)	64	Mitsubishi	58	White Western Star	44 ^a
DeLorean (Northern Ireland)	92	Nissan	64 ^b	Willys (code as Jeep)	26
Diamond Reo	16 ^a	NSU (West Germany)	78	Yugo	62
Dodge	15	Oldsmobile	31	Other Make	95
English Ford (England)	67	Opel (West Germany/ Japan)	79	Unknown	98
Fabco	18 ^a	Oshkosh	30 ^a		
Ferrari (Italy)	65				
Fiat (Italy)	66				
Ford	19				

^aSee page H-59 for model codes.

^bNissan code changed to 64 in final stages of 1985 RTECS processing. Code in RECS-4 file is 52.

Notes to Vehicle Model Codes

1. A code in one set of parentheses is a general code to be used only if the vehicle cannot be classified elsewhere.

EXAMPLE: CHEVROLET

P Series Step Van, n.e.c.	(59)
P-10 (1/2 ton).	56
P-20 (3/4 ton).	57
P-30 (1 ton).	58

Use (59) as a code for a P Series Step Van if there is insufficient information to code the vehicle as a P-10, 56; P-20, 57; or a P-30, 58.

The initials n.e.c. stand for "not elsewhere classified."

2. Some makes have one or more models with similar names or numbers. In these cases, it is important to classify a vehicle as a particular model only if all the necessary information to do so is available. The names of models that are partial duplicates are starred * on the code lists.
3. Page H-59 contains the names of makes producing trucks and buses that are generally used as commercial vehicles. These makes are footnoted on page H-1.
4. If a specific vehicle make has been coded, but a specific model cannot be assigned, use one of the following standard codes, as appropriate:

Other model	95
Unknown model	98

5. If vehicle make is "other" (code 95) or "unknown" (code 98), assign "not applicable" code to vehicle model.

Not applicable	99
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01 AM GENERAL

1/4 ton Delivery (P.O.) . .	01
1/2 ton Delivery (P.O.) . .	.02
1 ton Delivery (P.O.) . . .	03
2 ton Truck	04
5 ton Truck	05
6 ton Truck	06

02 AMERICAN MOTORS (RAMBLER)

For Jeeps, see Make 26 JEEP

Ambassador (includes DPL)	01
AMX.	21
American	03
Classic.	05
Concord.	07
DPL (See Ambassador)	
Eagle.	30
Gremlin.	08
Hornet (includes Sportabout).	09
Javelin.	11
Kamback	02
Marlin	12
Matador.	13
Pacer.	15
Rambler.	17
Rebel.	19
Spirit	22
Sportabout (see Hornet)	
SX-4	04

04 AVANTI MOTORS

Avanti II. 01 |

08 BUICK

Apollo	01
Centurion.	02
Century (includes Luxus) .	03
Electra (includes Park Avenue).	05
Estate Wagon	06
Grand National (see Regal)	
Grand Sport (G.S.)	19
Invicta.	07
LeSabre.	09
Limited.	21
Luxus (see Century)	
Opel (Isuzu)	10
Park Avenue (see Electra)	
Regal (includes Grand National. Do not include Somerset Regal).	11
Riviera.	12
Skyhawk.	14
Skylark.	13
Somerset	04
Special.	15
Sport Wagon.	17
Wildcat.	18

09 CADILLAC

Biarritz (see Eldorado)	
Calais (62 Series)	01
Cimarron (1981+, J-Car). .	12
DeVille (63 Series). . . .	02
Eldorado (includes Biarritz, Touring Coupe). .	03
Elegante (see Seville)	
Fleetwood (60 Series, Brougham Sedan, Brougham Coupe)	04
Fleetwood Limousine (75 Series, formerly 67 Series)	05
Fleetwood (ambulance, hearse, etc.)	06
Fleetwood Brougham Coupe (1980+) (see Fleetwood)	
Fleetwood Brougham Sedan (1980+) (see Fleetwood)	
J-Car (see Cimarron)	
Seventy Five (see Fleetwood Limousine)	
Seville (includes Elegante).	07
Sixty Special (see Fleetwood)	
Touring Coupe (see Eldorado)	

10 CHECKER

Aerobus (Wagon)	01
Limousine	02
Marathon	03
Superba	05

11 CHEVROLET

Astro	06	C-10 Suburban (see Suburban)	
Bel Air (includes Townsman Wagon)	01	C-20 (3/4 ton)	24
Berlinetta	48	C-30 (1 ton)	25
Beauville Van (see G Series)		C-40 (2 ton), C-50 (2 1/2 ton), C-60 (3 ton), C-65 (4 1/2 ton)	61
Biscayne	03	Camaro (includes Camaro Z-28, IROC-Z)	46
Blazer (K-5) (1/2 ton utility-type vehicle) (includes Cheyenne, Custom, Scottsdale, Silverado in C-10 and K-10 Blazer) n.e.c	(77)	Camaro Z-28 (see Camaro)	
C-10 Blazer (two-wheel drive)	78	Camino, El (see El Camino)	
K-10 Blazer (four-wheel drive)	78	Caprice	07
S-10 Blazer (two-wheel drive)	76	Caravan (see G Series)	
T-10 Blazer (four-wheel drive)	17	Cargo Van (see G Series)	
Bonadventure (see G Series)		Cavalier (1981+, J-Car, includes Z24)	72
Brookwood Wagon (see Impala)		Celebrity (includes Eurosport)	74
Bruin (5 ton)	61	Chevvelle (300)	09
C Series (two-wheel drive pickups, trucks) (includes Cheyenne, Scottsdale, Silverado, F-44, Custom Stepside, Fleetside, and Blazer in C-10 only) n.e.c.	(08)	Chevette (includes Scooter)	11
C-10 (1/2 ton)	60	Chevy Van (includes Chevy Van 110 and Chevy Van 125) (see G Series)	
C-10 Blazer (see Blazer)		Chevy II	12
		Cheyenne (see C Series, K Series, Blazer)	
		Citation (includes X-11)	71
		Concours Wagon (see Malibu)	

11 CHEVROLET (Continued)

Conquista (see El Camino)		Hi Cube Van, G-30 (see G Series)	
Corsa.	18	High Sierra	70
Corvair.	19	Impala (includes Brookwood Wagon, Kingswood Wagon).	27
Corvette	21	IROC-Z (see Camaro)	
Custom (see Blazer, C Series, G Series, K Series)		J-Car (see Cavalier)	
Durango (see S-10 Pickup)		K Series (four-wheel drive pickups) (includes Cheyenne, Custom, Scottsdale, Silverado, Stepside, Fleetside, and Blazer in K-10 only) n.e.c.	(10)
El Camino Pickup (1/2 ton) (Conquista, Royal Knight, Supersport).	22	K-5 Blazer (see Blazer)	
Eurosport (see Celebrity)		K-10 (1/2 ton).	13
F44 (see C Series)		K-10 Blazer (see Blazer)	
Fleetside Pickup (see C Series, K Series)		K-10 Suburban (see Suburban)	
G Series (passenger and cargo vans) (includes Caravan, Custom, Chevy Van, Chevy Van 110, Chevy Van 125, Panel, Sportvan, Beauville, Bonaventure, Nomad: G-20) n.e.c.	(02)	K-20 (3/4 ton).	28
G-10 (1/2 ton)	14	K-30 (1 ton).	33
G-20 (3/4 ton)	15	Kingswood Wagon (see Impala)	
G-30 (1 ton)	16	Laguna.	30
G-30 Hi Cube, RV Cutaway Van.	73	LUV Pickup (1/2 ton) (Mikado).	31
Greenbriar Wagon (see Malibu)		Malibu (includes Concours Wagon, Greenbriar Wagon).	32
		Mikado (see LUV)	

11 CHEVROLET (Continued)

Mirage (Monza)	54	Silverado (see C Series, K Series, Blazer)	
Monte Carlo.	34	Spectrum.	04
Monza.	35	Sport (see S-10 Pickup)	
Nomad, G-20 Van (see G Series)		Sportvan (see G Series)	
Nova	37	Sprint.	05
P Series Step Van, n.e.c.	(59)	Stepside Pickup (see C Series, K Series)	
P-10 (1/2 ton)	56	Step Van (see P Series)	
P-20 (3/4 ton)	57	Suburban (1/2 ton utility- type vehicle, C and K Series)	41
P-30 (1 ton)	58	Supersport (see El Camino Pickup)	
Panel Van (see G Series)		T-10 Blazer (see Blazer)	
Passenger Van (see G Series)		T-10 Pickup (four-wheel drive)	20
Pickup Trucks (see C Series, K Series, El Camino Pickup, LUV Pickup)		Tahoe (see S-10 Pickup)	
1/2 ton n.e.c.	(45)	Townsmen Wagon (see Bel Air)	
3/4 ton n.e.c.	(65)	Van (see G and P Series)	
1 ton n.e.c.	(66)	Vega.	43
Royal Knight (see El Camino Pickup)		Vega Panel Express.	44
RV Cutaway Van, G-30 (see G Series)		X-11 (see Citation)	
S-10 Blazer (see Blazer)		Z24 (see Cavalier)	
S-10 Pickup (1982+) (1/2 ton, two-wheel drive) (includes Durango, Sport, and Tahoe)	75	Z-28 (see Camaro)	
Scooter (see Chevette)		Single Unit Truck	61
Scottsdale (see C Series, K Series, Blazer)		Tractor for Truck	62
		School Bus.	63

12 CHRYSLER

300.	01
Chrysler Imperial	
Prior to 1976: Code as Make 24, Model 05	
1981+.	10
Cordoba (includes Corinthian, LS).	02
Corinthian (see Cordoba)	
Custom (see Newport)	
E-Class.	11
Fifth Avenue	13
Imperial (see Chrysler Imperial)	
Laser.	12
Le Baron (includes Medallion, Salon, Special)	03
LS (see Cordoba)	
Medallion (see Le Baron)	
Newport (includes Custom, Royal)	04
New Yorker	05
Royal (see Newport)	
Salon (see Le Baron)	
Saratoga	06
Special (see Le Baron)	
Town and Country Wagon . .	07
Windsor.	08

15 DODGE

400.	91	B250 (3/4 ton wagon, van) (includes Maxivan, Maxiwagon, and Mini-Ram Wagon)	78
600.	92	B300 (1 ton wagon, van) (includes Maxivan, Maxiwagon).	15
AD100 Ramcharger (see Ramcharger)		B350 (1 ton wagon, van) (includes Maxivan, Maxiwagon).	79
AD150 Ramcharger (see Ramcharger)		Big Horn (see B Series, D Series, W Series, and Ramcharger)	
Aries (K-Car).	20	Caravan	09
Aspen.	01	CB 300, 350, 400, 450 (3/4-1 ton Kary Van).	71
AW100 Ramcharger (see Ramcharger)		Challenger.	03
AW150 Ramcharger (see Ramcharger)		Charger	04
B Series (Passenger Wagons and Cargo Vans) (includes Custom, Custom S.E., Royal, Royal S.E., Big Horn, Tradesman Vans, Sportsman Wagons, Maxivans in B200, B250, B300, B350; Maxi-wagons in B200, B250, B300, B350; and Mini-Ram Wagons in B150 and B250) n.e.c.	(13)	Colt (includes RS. Do not include Colt Vista).	05
B100 (1/2 ton wagon, van)	49	Colt Vista.	34
B150 (1/2 ton wagon, van) (includes Mini-Ram Wagon)	77	Conquest.	06
B200 (3/4 ton wagon, van) (includes Maxivan, Maxiwagon).	70	Coronet	07
		Crestwood Wagon (see Monaco)	
		Custom 880, auto.	10
		Custom (see B Series, D Series, W Series, Ramcharger)	
		Custom S.E. (see B Series, D Series, W Series, Ramcharger)	

15 DODGE (Continued)

D Series (two-wheel drive pickups, trucks) (includes Royal, Royal S.E., Custom, Custom S.E., Big Horn, Utiline, Sweptline for D100, D150, D200, D250, D300, D350, D400, D450) n.e.c.	(18)	K-Car (see Aries)	
D50 Pickup (1/2 ton) (includes Ram 50 Custom, Ram 50 Royal, Ram 50 Sport, Ram 50 Big Horn).	75	Kary Van (see CB Series)	
D100 Pickup (1/2 ton).	84	Lancer.	14
D150 Pickup (1/2 ton).	85	Magnum XE	16
D200 Pickup (3/4 ton).	86	Matador	17
D250 Pickup (3/4 ton).	23	Maxivan (see B200, B250, B300, B350 Series)	
D300 Pickup (1 ton).	87	Maxiwagon (see B200, B250, B300, B350 Series)	
D350 Pickup (1 ton).	26	Medallion (see Diplomat)	
D400 Pickup (1 ton).	88	Mini-Ram Wagon (see B150, B250 Series)	
D450 Pickup (1 ton).	29	Mirada.	73
D500, D600, D700, D800 (1 1/2-4 tons)	61	Miser (see Omni)	
Dart (Demon, Swinger, 330, 440).	12	Monaco (includes Royal Monaco, Crestwood Wagon).	19
Daytona.	02	024 Hatchback (includes De Tomaso).	08
Demon (see Dart)		Omni (includes Miser)	21
De Tomaso (see 024 Hatchback)		Pickup (see D Series, W Series)	
Diplomat (includes Medallion, Salon).	44	1/2 ton n.e.c.	(31)
Econo-Van.	72	3/4 ton n.e.c.	(59)
		1 ton n.e.c.	(60)
		Pioneer	22
		Phoenix.	24
		Polara (500)	25

15 DODGE (Continued)

Power Ram (see W Series)		Utiline Pickup (see D Series, W Series)	
Power Wagon (see W Series)		Van (Passenger, Cargo) (see B Series)	
Ram 50 (see D50 Series)		Vista (see Colt Vista)	
Ramcharger (1/2 ton utility vehicle) (includes AD100, two-wheel drive; AD150, two-wheel drive; AW100, four-wheel drive; AW150, four-wheel drive) (also includes any of the above in Custom, Custom S.E., Royal, Royal S.E., and Big Horn packages)	27	W Series (four-wheel drive pickups) (also known as Power Ram and Power Wagon) (includes Custom, Custom S.E., Royal, Royal S.E., Big Horn, Sweptline, Utiline) n.e.c.	(65)
Rampage Pickup	93	W50 (Power Ram 50)	94
Royal Monaco (see Monaco)		W100 Pickup (1/2 ton)	66
Royal (This is a specific model, not a package)	45	W150 Pickup (1/2 ton)	67
RS (see Colt)		W200 Pickup (3/4 ton)	68
Salon (see Diplomat)		W250 Pickup (3/4 ton)	69
Seneca	30	W300 Pickup (1 ton)	32
Sportsman Wagon (see B100 through B350 Series)		W350 Pickup (1 ton)	33
St. Regis	46	W400 Pickup (1 ton)	89
Super Bee	38	W450 Pickup (1 ton)	90
Sweptline Pickup (see D Series, W Series)		Wagon (Passenger) (see B series)	
Swinger (see Dart)		Single Unit Truck	61
Tradesman Van (see B100 through B350 Series)		Tractor for Truck	62
		School Bus	63

<p>Aerostar 02</p> <p>Boss (see Mustang)</p> <p>Bronco U100, U150 (1/2 ton utility-type vehicle) (includes Custom). 01</p> <p>Bronco II 04</p> <p>Camper Special (see F-250, F-350 Series)</p> <p>Captain's Club (see E Series)</p> <p>Cargo Van (see E Series)</p> <p>Chateau (see E Series)</p> <p>Club Wagon (see E Series)</p> <p>Cobra (see Mustang)</p> <p>Country Sedan (see Galaxie 500)</p> <p>Country Squire Wagon (see LTD)</p> <p>Courier Pickup (1/2 ton) 05</p> <p>Crown Victoria (see LTD)</p> <p>Custom (see Bronco, E Series, F Series)</p> <p>Custom 500 (a car) 06</p>	<p>E Series (includes Club Wagons, Econoline Vans, Superwagons in E150, E250, E350; and Supervans in E150, E250, and E350) (also includes Custom, Chateau, Captain's Club, King of Clubs) n.e.c. . . (54)</p> <p style="padding-left: 20px;">E100 (1/2 ton). 08</p> <p style="padding-left: 20px;">E150 (1/2 ton) (includes Superwagons, Supervans). 09</p> <p style="padding-left: 20px;">E200 (3/4 ton). 10</p> <p style="padding-left: 20px;">E250 (3/4 ton) (includes Superwagons, Supervans). 11</p> <p style="padding-left: 20px;">E300 (1 ton). 12</p> <p style="padding-left: 20px;">E350 (1 ton) (includes Superwagons, Supervans). 13</p> <p>Econoline Vans (see E Series)</p> <p>Edsel 52</p> <p>Elite 14</p> <p>Escort</p> <p style="padding-left: 20px;">Prior to 1981: code as Make 67, Model 08</p> <p style="padding-left: 20px;">Escort (U.S., 1981+) (World Car) 76</p> <p>EXP 37</p> <p>Explorer (see F Series)</p>
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19 FORD (Continued)

F Series (pickups, trucks) (includes Custom, Explorer, Styleside, Flareside, SuperCab in F-150, F-250) (Camper Special in F-250, F-350) n.e.c. (07)	Heritage (see Thunderbird)
F-100 Pickup (1/2 ton) 30	King of Clubs (see E Series)
F-150 Pickup (1/2 ton) (includes SuperCab) 31	L800, LN-600, LN700, LN-800. 61
F-250 Pickup (3/4 ton) (includes SuperCab, Camper Special) 33	Lariat (see Ranger Pickup)
F-350 Pickup (3/4-1 ton) (includes Camper Special) 35	LTD (includes Crown Victory, Country Squire Wagon). 25
F-500, F-600, F-700, F-800 (1 1/2-4 ton). 60	Mach I (see Mustang)
Fairlane 15	Maverick. 27
Fairmont (includes Futura). 17	Mustang 55
Falcon 18	Passenger Van (see E Series)
Fiesta 20	Pickup (see Courier, F Series, Ranchero, and Ranger)
Flareside (see F Series)	1/2 ton n.e.c. (16)
Ford 300 45	3/4 ton n.e.c. (19)
Futura (see Fairmont)	1 ton n.e.c. (22)
Galaxie 500 (Country Sedan) 23	Pinto (includes Pony) 48
Ghia (see Mustang)	Pony (see Pinto)
Granada. 24	Ranchero Pickup (1/2 ton). 50
Grande 69	Ranch (Station) Wagon 70
Gran Torino (see Torino)	Ranger Pickup 74
	Shelby Cobra (see Make 36 SHELBY AMERICAN)
	Sprint. 51
	Standard. 36

19 FORD (Continued)

Styleside (see F Series)		Town Landau (see Thunderbird)	
SuperCab (see F-150, F-250 Series)		U100 (See Bronco)	
Supervan (see E150, E250, E350)		U150 (See Bronco)	
Superwagon (see E150, E250, E350)		World Car (see Escort)	
Taurus	03	XL	42
Tempo	77	Single Unit Truck	61
Thunderbird (includes Heritage, Town Landau) . .	38	Tractor for Truck	62
Torino (includes Gran Torino).	39	School Bus	63
Torino (Police Special). .	40		

Caballero Pickup (includes Diablo) (1/2 ton)	14	Gaicho (see G-2500 Series)	
C Series (two-wheel drive pickups, trucks) (includes Sierra, Sierra Classic, Sierra Grande) n.e.c.	(34)	Jimmy (1/2 ton utility-type vehicle) (C-1500, K-1500, S-15, T-15 Series) n.e.c. (01)	
C-1500 (1/2 ton pickup).	29	C-1500 Jimmy (two-wheel drive).	06
C-1500 Suburban (see Suburban)		K-1500 Jimmy (four-wheel drive).	06
C-1500 Jimmy (see Jimmy)		S-15 Jimmy (two-wheel drive).	07
C-2500 (3/4 ton pickup).	30	T-15 Jimmy (four-wheel drive).	15
C-2500 Suburban (see Suburban)		K Series (four-wheel drive pickups) (includes Sierra, Sierra Classic, Sierra Grande) n.e.c.	(35)
C-3500 (1 ton pickup).	31	K-1500 (1/2 ton pickup)	36
C-5000, C-6000, C-6500 (2 1/2 - 4 1/2 tons)	61	K-1500 Suburban (see Suburban)	
Diablo (see Caballero)		K-1500 Jimmy (see Jimmy)	
G Series (passenger and cargo vans) (includes Vandura, Rally, Rally STX; Gaicho in G-2500; and Vandura Special, Magna Van, and Rally Camper Special in G-3500) n.e.c.	(11)	K-2500 (3/4 ton pickup)	37
G-1500 (1/2 ton)	03	K-2500 Suburban (see Suburban)	
G-2500 (3/4 ton) (includes Gaicho).	04	K-3500 (1 ton pickup)	38
G-3500 (1 ton) (includes Magna Van, Vandura Special)	05	Magna Van (see G-3500 Series)	
G-3500 Rally Camper Special.	19	P Series (walk-in vans) (Value Vans) n.e.c.	(13)
		P-1500 (1/2 ton).	08
		P-2500 (3/4 ton).	09
		P-3500 (1 ton).	10

22 GMC (Continued)

Pickup (see C Series, K Series, Caballero, Sprint)

1/2 ton n.e.c. (39)

3/4 ton n.e.c. (40)

1 ton n.e.c. (41)

Rally (see G-1500, G-2500, G-3500 Series)

Rally Camper Special (see G-3500 Rally Camper Special)

Rally STX (see G-1500, G-2500, G-3500 Series)

S-15 Jimmy (see Jimmy)

S-15 Pickup (two-wheel drive) 42

Safari 16

Sierra (see C-1500, C-2500, C-3500 Series)

Sierra Classic (see C-1500, C-2500, C-3500 Series)

Sierra Grande (see C-1500, C-2500, C-3500 Series)

Sprint Pickup (1/2 ton) . 02

Suburban (also known as Suburban Carryall) (C-1500, C-2500 Series; K-1500, K-2500 Series). . . 12

T-15 Jimmy (see Jimmy)

T-15 Pickup (four-wheel drive). 17

Value Van (see P-1500, P-2500, P-3500 Series)

Vandura (see G-1500, G-2500, G-3500 Series)

Vandura Special (see G-3500 Series)

Single Unit Truck 61

Tractor for Truck 62

School Bus. 63

Other Bus 64

24 IMPERIAL

Crown.	02
Crown Limousine.	03
Custom	04
Le Baron	05
Chrysler Imperial	
Prior to 1976.	05
1981+: code as Make 12, Model 10	

25 INTERNATIONAL

150 Pickup.	08
200 Pickup.	09
300 Pickup.	06
500 Series Pickup	34
510 Truck	61
900 Series Pickup	12
1010 Series Pickup (1/2 ton)	01
1110 Series Pickup (1/2 ton)	02
1210 Series Pickup (3/4 ton)	03
1310 Series Pickup (1 ton)	04
MS 1210 Truck (walk- in truck)	30
MS 1510 (walk-in truck)	13
Scout and Scout II Traveler Wagon.	33
Scout and Scout II Traveltop Utility Ve- hicle	22
Scout II Terra Pickup	20
Scout II XLC (four-wheel drive).	18
Scout SS II	19
Terra Pickup (see Scout II Terra Pickup)	
Travelall Wagon (100, 110, 120 Series).	17

25 INTERNATIONAL (Continued)

Traveler Wagon (see Scout
and Scout II Traveler
Wagon)

Travelette Cab (1200
and 1300 Series) 24

Traveltop (see Scout and
Scout II Traveltop
Utility Vehicle)

Single Unit Truck 61

Tractor for Truck 62

School Bus. 63

Camper (see J Series)		Gladiator, Willys four-wheel drive (1 ton) 28, 38, 48 Series, Townside pickup, Thriftside pickup	14
Cherokee Chief Wagon	08	Golden Eagle (see CJ Series, J Series)	
CJ Series (includes Golden Eagle, Laredo, and Renegade packages) n.e.c.	(15)	Golden Hawk (see J Series)	
CJ3 (Open Body)	02	Honcho (see J Series)	
CJ4 (Open Body)	03	J Series (four-wheel drive pickups) (includes Camper, Honcho, Snow Boss, Custom, Laredo, Pioneer, Renegade, Golden Eagle, Golden Hawk, SL Sport, SR Sport, Townside Sportside) n.e.c.	(18)
CJ5 (four-wheel drive, 1/4 ton)	04	J-10 Pickup	29
CJ6 (four-wheel drive, 1/2 ton)	05	J-20 Pickup	30
CJ7 (four-wheel drive, 1/2 ton)	06	J100 Series	
CJ8 (see Scrambler)		Panel Delivery	11
Comanche Pickup	16	Wagoneer	07
Commando (four-wheel drive, 1/4 ton)	01	Laredo (see CJ Series, J Series)	
Custom (see J Series)		Panel Delivery (see J100 Series)	
DJ5 (two-wheel drive) (1/4 ton) Jeep (Post Office type vehicle)	28	Pickup (see Gladiator Series, J Series)	
Gladiator Series pickups n.e.c.	(17)	1/2 ton n.e.c.	(19)
Gladiator, Willys four-wheel drive (1/2 ton) 25, 26, 35, 36, 45, 46 Series, Townside pickup, Thriftside pickup	12	3/4 ton n.e.c.	(20)
Gladiator, Willys four-wheel drive (3/4 ton) 27, 37, 47 Series, Townside pickup, Thriftside pickup	13	1 ton n.e.c.	(21)

26 JEEP (Continued)

Pioneer (see J Series)

Renegade (see CJ Series,
J Series)

Scrambler (four-wheel
drive utility-type
vehicle) (also known
as CJ8) (includes SL
Sport, SR Sport) 22

SL Sport (see J Series,
Scrambler)

Snow Boss (see J Series)

Sportside pickup (see J
Series)

SR Sport (see J Series,
Scrambler)

Thriftside pickup (see
Gladiator Series)

Townside pickup (see
Gladiator Series and
J Series)

Wagoneer (see J100
Series)

Willys Pickup (see
Gladiator Series)

Willys Traveler 09

Willys Station Wagon. . . 10

28 LINCOLN

Continental.	01
Continental Limousine. . .	02
Continental Mark II. . . .	03
Continental Mark III . . .	04
Continental Mark IV. . . .	05
Continental Mark IV Limousine.	06
Continental Mark V	07
Continental Mark VI	08
Continental Mark VII. . . .	13
Premiere.	09
Town Car (includes Town Coupe, Town Sedan). . . .	11
Versailles.	10

29 MERCURY

Black Magic (see Capri)		Cyclone (see Comet)	
Bobcat	01	Grand Marquis (includes Colony Park Wagon). . . .	33
Caliente	04	LN-7 (see Lynx)	
Capri (also known as Black Magic) (includes U.S. or Import Capri 1600, 2000, 2300, 2600, and 2800). . .	32	Lynx (includes LN-7). . .	35
Capri 1600 (Import) (see Capri)		Marauder.	12
Capri 2000 (Import) (see Capri)		Marquis	13
Capri 2300 (Import) (see Capri)		Meteor.	30
Capri 2600 (Import) (see Capri)		Monarch	15
Capri 2800 (Import) (see Capri)		Montclair	16
Colony Park Wagon (see Grand Marquis)		Montego	17
Comet (Cyclone).	07	Monterey.	19
Commuter Wagon	09	Park Lane	21
Cougar.	10	Sable	03
		Topaz	36
		XR-7.	34
		Z-7	02
		Zephyr.	23

35 MERKUR

XR4Ti. 01 |

31 OLDSMOBILE

88 (see Super 88)		Hurst/Olds.	11
98 (includes Regency). . .	19	Jetfire (see F-85)	
442.	12	Jetstar 88.	13
Calais	05	Ninety Eight (see 98)	
Ciera.	09	Omega (includes ES 2500, Sport Omega).	23
Custom Cruiser Wagon . . .	01	Regency (see 98)	
Cutlass (includes Cutlass Cruiser Wagon, Salon). . .	02	Royale (see Delta 88)	
Cutlass Cruiser Wagon (see Cutlass)		Salon (see Cutlass)	
Delmont 88	04	Sport Omega (see Omega)	
Delta 88 (includes Royale).	06	Starfire.	15
Dynamic 88	08	Super 88 (also 88). . . .	16
ES 2500 (see Omega)		Toronado (includes XSC) .	17
F-85 (Jetfire)	10	Vista Cruiser Wagon . . .	18
Firenza.	03	XSC (see Toronado)	

33 PLYMOUTH

2.2 (see Turismo)		Maxiwagon (see Voyager Wagons)	
Arrow (automobile)	24	Miser (see Horizon)	
Arrow pickup (includes Arrow Custom pickup, Arrow Sport pickup) . . .	04	PB Series (see Voyager Wagons)	
Barracuda (includes Cuda)	02	PD100 Trailduster (see Trailduster)	
Belvedere	03	PD150 Trailduster (see Trailduster)	
Caravelle	01	PW100 Trailduster (see Trailduster)	
Champ	31	PW150 Trailduster (see Trailduster)	
Colt (do not include Colt Vista)	34	Regent (see Satellite)	
Colt Vista	07	Reliant (K-Car)	19
Conquest	37	Road Runner (includes GTX)	11
Cricket	05	Sapporo (includes Technica)	12
Cuda (see Barracuda)		Satellite (includes Regent, Sebring)	13
Duster (see Valiant)		Savoy	14
Euro Sedan (see Horizon)		Scamp (automobile only) (see Valiant)	
Fury (includes I, II, III, Fury Police Special, Gran Coupe, Sport Fury, Suburban Wagon, VIP) . . .	06	Scamp (pickup only)	28
Fury Police Special (see Fury)		Sebring (see Satellite)	
Gran Coupe (see Fury)		Signet (see Valiant)	
Gran Fury (includes Gran Fury Sport)	09	Sport Fury (see Fury)	
GTX (see Road Runner)		Suburban Wagon (see Fury)	
Horizon (includes Euro Sedan, Miser)	35	TC3 (see Turismo)	
K-Car (see Reliant)		Technica (see Sapporo)	

33 PLYMOUTH (Continued)

Trailduster (special purpose vehicle) (includes PD100, two-wheel drive; PD150, two-wheel drive; PW100, four-wheel drive; PW150, four-wheel drive)	16	Voyager PB100 Wagon (1/2 Ton)	20
Turismo (includes 2.2, TC3)	27	Voyager PB150 Wagon (1/2 Ton)	08
Valiant (Duster, Scamp -- automobile only, Signet) .	36	Voyager PB200 Wagon (3/4 Ton) (includes Maxiwagon)	21
Van (see Voyager Wagons)		Voyager PB250 Wagon (3/4 Ton) (includes Maxiwagon)	25
VIP (see Fury)		Voyager PB300 Wagon (1 Ton) (includes Maxiwagon)	22
Vista (see Colt Vista)		Voyager PB350 Wagon (1 Ton) (includes Maxiwagon)	26
Volare	18	Wagons (Passenger vans) (see Voyager Wagons)	
Voyager Wagons (Passenger vans) (includes Maxiwagon in PB200, PB250, PB300, and PB350 Series) n.e.c. .	(29)		

34 PONTIAC

1000 (includes T-1000) . . .	02	Star Chief	18
2000 (includes J-2000) . . .	26	Sunbird	19
6000	04	T-1000 (see 1000)	
Americana (see Grand Prix)		Tempest	20
Astre	01	Trans Am (see Firebird)	
Bonneville (includes Model G)	03	Ventura	22
Catalina	05		
Espirit (see Firebird)			
Executive	07		
Fiero	06		
Firebird (includes Espirit, Formula, Trans Am)	09		
Formula (see Firebird)			
Grand Am	10		
Grand LeMans (see LeMans)			
Grand Prix (includes Americana)	11		
Grand Ville	13		
Grand Safari Wagon	12		
GTO	14		
J-2000 (see 2000)			
LeMans (includes Grand LeMans)	15		
Model G (see Bonneville)			
Parisienne	08		
Phoenix	17		

36 SHELBY AMERICAN

Cobra (AC Cobra)	01
GT 350	02
GT 500	03
GT	04

39 STUDEBAKER

Avanti ^a	01
Challenger	02
Champion	03
Commander	04
Cruiser	06
Daytona	07
Golden Hawk (see Hawk)	
Grand Turino Hawk (see Hawk)	
Hawk (includes Grand Turino Hawk, Golden Hawk, Silver Hawk)	09
Land Cruiser	05
Lark	10
President	12
Regal	13
Scotsman	08
Silver Hawk (see Hawk)	
Wagonaire (Station Wagon)	19
Workstar/Powerstar pickup, n.e.c.	(18)
Workstar/Powerstar pickup (1/2 ton)	15
Workstar/Powerstar pickup (3/4 ton)	16
Workstar/Powerstar pickup (1 ton)	17

^aAvanti II, see Make 04 AVANTI MOTORS.

51 ALFA ROMEO

Alfetta (GT, Sport Sedan)	02
Giulia (includes T.I.)	03
Graduate	01
GTV-6	10
Guilietta	12
Roadster Dueto 1600	08
Sport Sedan (see Alfetta)	
Sprint Veloce	09
T.I. (see Giulia)	
1750 Series (includes Berlina, GT Veloce, and Spider Veloce)	04*
2000 Series (Berlina, GT Veloce, and Spider Veloce)	05*
2600 Series	06

53 ASTON MARTIN

AM-8	07
DB-4	01
DB-5 (Volante)	02
DB-6	03
DBS	04
Lagonda	08
V8 Coupe	09
Vantage	06
Volante (see DB-5)	

54 AUDI	
Coupe GT	02
Fox (80 Series)	01
Super 90 (see 90 Series)	
Quattro	05
4E (see 4000 Series)	
5+5 (see 4000 Series)	
80 Series (see Fox)	
90 Series (includes Super 90)	04
100 Series	06
4000 Series (4E, 5+5)	10
5000 Series (includes Diesel and Turbo)	08

55 AUSTIN	
A-35	16
A-40	06
A-55	07
A60 (Cambridge)	08
Allegro (110, 1300, 1500, 1750, Deluxe, Super, HL)	01*
America	02
Austin-Cooper	03
Austin-Healey 3000	13
Austin-Healey Sprite	14
Austin Mini-Moke Tourer	04
Cambridge (see A60)	
Export (see 850)	
Marina	12
Maxi Series (1500, 1750, HL)	05*
Metro (1981+)	15
Morris (see 850)	
40 (see A-40)	
55 (see A-55)	
60 (see A60)	
100	17
850 (Export, Morris)	09
1800	10
2200	11

56 BENTLEY

S2 Saloon	01*
S3 Saloon	02*
T Series (Saloon, Corniche)	03*
Mulsanne (1981+)	04*

57 BMW

Bavaria (see 3.0 Series)	
Cabriolet (see 2000 Series)	
Tii (see 2000 Series)	
Touring (see 2000 Series)	
3.0 Series (Bavaria, 3.0, 3.3, etc.)	11
300 Series (320i, 325e, etc.)	01
500 Series (528i, 530, etc.)	02
600 Series (630, 633i, etc.)	03
700 Series (733i, etc.) .	04
1500 Series	05
1600 Series (1600, 1602, etc.)	06
1800 Series (1800, 1802, etc.)	07
2000 Series (Touring, Cabriolet, Tii, Turbo, etc.; includes 2002) . .	08
2002 (see 2000 Series)	
2500 Series	09
2800 Series	10

59 CITROEN

AMI (6, 9, Berline Break)	01*
AMI Super (Berline Break)	03*
BX	02
2CV (4, 6, Mehari 2+2) . .	05*
CX (2000, 2200)	06
D Series (Special, Super, Pallas, 5, 9, 19, 20, 21)	07*
Dyane (6)	09*
G Special (Berline, X, Birotor, Break, 1220, Pallas)	10*
SM	12

63 DAIMLER

SP - 250	01
Series Two Sovereign . .	02
Series Two Sovereign Limousine (Londoulette) .	03
Series Two Double Six (Vanden Plas)	04

64 DATSUN (See Nissan Also)

B210 (see 210)		200SX	05
Bluebird	28	210 (B210, HLB210, Honeybee)	06
Cedric	29	240Z	07
F10 (10)	31	260Z	08
HLB210 (see 210)		280Z, 280Z 2+2, 280ZX, 280ZX 2+2 (includes Turbo)	09
Honeybee (see 210)		310 (SPL310)	10
King Cab (see 620, 720 Series)		311	11
L60 (see Patrol)		410	12
LB110 (see 1200)		411 (PL411, RL411)	14
Li'l Hustler (see 620, 720 Series)		510 (PL510)	15
Maxima (includes 810) . . .	24	520 Pickup	16
Patrol (also known as L60)	30	521 Pickup (PL521)	17
Pickup (see 520, 521, 620 Series, 720 Series)		610 (PL610)	18
1/2 ton n.e.c.	(02)	620 Pickup (prior to 1980) n.e.c.	(21)
PL411 (see 411)		Short (Li'l Hustler, Deluxe, Standard). . . .	33
PL510 (see 510)		Long W.B. (Stretch, Deluxe)	34
PL521 (see 521 Pickup)		King Cab	35
PL610 (see 610)		Chassis & Cab	36
PL710 (see 710)		710 (PL710)	22
RL411 (see 411)			
SPL310 (see 310)			
Stretch (see 620, 720 Series)			
110 (LB110) (see 1200)			

64 DATSUN (Continued)

720 Pickup (1980+)	
n.e.c.	(13)
Short (Li'l Hustler, Deluxe, Standard) . . .	19
Long W.B. (Stretch, Deluxe)	23
King Cab	25
Chassis & Cab	39
810 (see Maxima)	
1200 (includes 110, LB110)	26
1600	27
1800	37
2000 Roadster	38

67 ENGLISH FORD

Anglia	01
Capri II (1300, 1600, 2000, 3000, Ghia)	02*
Consul	03
Consul (2000, 2500, 3000)	04*
Cortina (1300, 1600, 2000, GT, Lotus)	06*
Escort (100, 1300, RS1600, RS2000)	08*
Granada (3000, Ghia) . .	10*
Mark III Zodiac	12
Zephyr	13

65 FERRARI	
America	08
BB Berliner Boxer	06
Daytona	10
GTO	11
Mondial 8	12
Super America	09
246 Dino	07*
250	01
275	02
308 (Dino, GT4, GTB, GTC, GTS)	03*
330	04
365	05

66 FIAT	
Brava	29
Mirafiori (see 131 Series)	
Racer (see 850)	
Roadster (see 1200)	
Special Rally (see 128 Series)	
Spider 2000 (see 124 Series)	
Sport Abarth Rally (see 124 Series)	
Strada	30
X 1/9	24
124 Series (includes Spider 2000, 1800, Sport Abarth Rally)	01
128 Series (includes Special Rally)	09
131 (includes Mirafiori).	15
500	19
600	20
850 (Coupe, Racer, Spider, Wagon)	22
1200 (includes Roadster).	26
1500	25
1800 (see 124 Series)	
2100	27

68 HONDA	
Accord (LX, CVCC)	06
Civic (includes Civic 1200, Civic 1300, Civic 1500, and CVCC)	11
Civic 1200 (see Civic)	
Civic 1300 (see Civic)	
Civic 1500 (see Civic)	
CRX	13
CVCC (see Accord, Civic)	
LX (see Accord)	
Motorcycles (do not code)	
600 (Mini Car)	05
Prelude	07

73 ISUZU ^a	
1-Mark (Coupe, Sedan) . . .	01
Impulse	03
Pickup (includes Long Bed, Diesel, and 4x4)	02
P'up (see Pickup)	
Trooper (utility-type vehicle).	04

^aNew make as of March 1981.

69 JAGUAR

E-Type (V12) Series 3. . . .	03
Mark II (3.8 Litre). . . .	04
Mark IX.	05
Mark X	06
S.	10
Vanden Plus (see XJ6)	
XJ (5, 6, 6C, 6L, J12, 12C, S, 12L).	01
XK.	02
XKE	09
340	07
420	08

70 JENSEN

Healey.	01
Interceptor	02
Interceptor II.	03
Interceptor III	04
Jensen-Healey	05

71 LANCIA BETA	
Appia	01
Beta (1300, 1400, 1600, 1800)	02
Flavia	05
Fulvia (Safari, Coupe, Monte Carlo)	06
HPE, Lancia Beta	10
Scorpion	07
Zagato	09

72 LOTUS	
Eclat	07
Elan	01
Elite	09
Esprit	03
Europa Special	04
Plus 2	08
Sprint	05
Super Seven	06

74 MASERATI

Biturbo.	11
Bora 4700.	01
Frua 4200.	02
Ghibli	04
GT 3500.	03
Indy 4900.	05
Khamsin.	06
Merak SS	07
Mistral.	09
Quattroporte	08
Sebring 2+2.	10

75 MAZDA

B Series pickups (Mini Pickup) n.e.c.	(35)
B1600 Pickup.	14
B1800 Pickup (Standard and Long Bed)	15
B2000 Pickup (Sundowner, Sundowner LB, Long Bed)	32
B2200 Pickup.	37
Cosmo	18
GLC	28
Mini Pickup (see B Series)	
Mizer	23
R-100 Sport Coupe	33
Rotary Pickup, RE	07
RX-2.	01
RX-3, RX-3 SP	02
RX-4.	04
RX-7.	30
Sundowner (see B Series)	
323	03
616	08
618	09
626	34
808	10
1200.	12
1800 (Sedan, Station Wagon).	36

76 MERCEDES-BENZ

6.9.	25	560 Series.	11
180 Series	01	600 Series.	23
180 D Series	02	Single Unit Truck	61
190 Series	03	Tractor for Truck	62
190 D Series	04	School Bus.	63
200 Series	05	Other Bus	64
200 D Series	06		
220 Series	07		
220 D Series	08		
230 Series	09		
240 D Series	12		
250 Series	13		
280 Series	15		
300 CD (see 300 D Series)			
300 Series	17		
300 D Series (includes 300 CD, 300 SD, and 300 TD Wagon).	18		
300 SD (see 300 D Series)			
300 TD (see 300 D Series)			
350.	19		
380 Series	28		
420	10		
450 Series	21		
500 Series	29		

77 MG	
A Series (1600)	01
B Series (Mark II)	02*
C Series (GT and Roadster)	06
MGB.	08
Magnette (Mark II)	03*
Midget (Mark II, Mark III, 1500)	04*
Princess (1100)	05
Sport Sedan.	07

58 MITSUBISHI (1983+)	
Cordia.	01
Galant.	09
Mighty Max Pickup	02
Mirage.	10
Montero (utility-type vehicle)	08
"S" Pickup.	03
"SP" Pickup	04
"SPX" Pickup.	05
Starion	06
Tredia.	07

64 NISSAN* (1982+)	
(See Datsun Also)	
300 ZX	04
NX (see Pulsar)	
Pulsar (includes NX)	01
Sentra	20*
Stanza	03

78 NSU	
110	07
Prinz	10
Prinz 4	01
Prinz 30.	02
Prinz 1000.	03
Prinz 1200.	04
RO-80 (Rotary Engine)	06
Spider (Rotary Engine).	08
Sport Prinz	09
TT Series	05

* NISSAN make code changed to 64 in final stage of 1985 RTECS processing; SENTRA model code changed to 20. These codes are 52 and 02, respectively in RECS-4 data file.

79 OPEL

Ascona	01
Commodore (GS)	03
Corsa.	02
Kadett (L)	04*
Manta (L, SR, GT, 1900). . .	06*
Opel Isuzu (see Make 08 Buick)	
Rekord (L, 2100)	08*
Sportswagon.	09
51	11
53	12
54	13
57	14
57L.	15
57R.	16
77	17
T77.	18
W77.	19
Y69.	20
Y77.	21

80 PANTERA

Pantera	01
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81 PEUGEOT	
104.	01
204.	02
204 Diesel	03
304.	06
403.	18
403 Diesel	19
404.	08
404 Diesel	09
504.	12
504 Commercial	16
504 Diesel	13
505.	20
604.	17

82 PORSCHE	
Carrera	13
Targa (see 911)	
Turbo (not to be confused with Turbo Carrera or 924 Turbo).	14
Turbo Carrera (also known as 930)	08
356	01
911 (includes Targa). . .	02
912	03
914 (includes 914/6-Six Cylinder)	04
924	06
924 Turbo (also known as 931).	11
928	09
930 (see Turbo Carrera)	
931 (see 924 Turbo)	
944	15

83 RENAULT

Alliance	02
Cabriolet (see R17)	
Caravelle.	11
Dauphine	12
Encore	14
Fuego.	07
Gordini (see R17)	
Le Car (see R5)	
R4	01
R5 (includes Le Car) . . .	03
R6	04
R8	05
R10.	13
R12.	06
R15.	08
R16.	09
R17 (includes Cabriolet, Gordini)	10
R 18i.	18
Sportwagon	19

84 ROLLS-ROYCE

Camargue.	01
Corniche.	02
Mulsanne.	11*
Phantom Limousine	03
Silver Cloud.	07
Silver Cloud II	04
Silver Cloud III.	05
Silver Shadow II.	06
Silver Spirit (1981+) . . .	09
Silver Spur (1981+)	10
Silver Wraith II.	08

85 ROVER	
100	01
2000	02
2200	03
3500	04
Land-Rover	10
Land-Rover "88" Wagon . . .	05
Land-Rover "88" Diesel Wagon	06
Land-Rover 109 Wagon . . .	07
Land-Rover 109 Diesel Wagon	08
Mark II (3 Litre)	09

86 SAAB	
Monte Carlo GT 850	05
Sonett III (see 97 Series)	
93	01
95 Series Station Wagon .	02
96 Series (V4 Coupe, Sedan)	03
97 (includes Sonett III)	08
99 Series (includes Turbo)	04
900 Series (includes Turbo)	07
9000 Series	06

87 SIMCA	
Aronde	06
Bertone.	07
Etoile	08
Vedette.	09
5.	01
1000	02
1118	03
1204	04

88 SUBARU	
Brat.	12
DL (includes front-wheel drive and four-wheel drive).	17
GF.	13
GL (includes front-wheel drive and four-wheel drive).	14
GLF	16
Leone	09
Pickup (see Brat)	
Rex	04
Standard Hatchback (in- cludes front-wheel drive and four-wheel drive) . .	18
Star.	06
360	08
1300 G.	10

89 SUNBEAM

Alpine (I, II, IV, V) . . .	01*
Alpine - Ford	02*
Arrow	03
IMP (Sport, Mark II) . . .	05
Rapier (III H120)	06
Tiger	07
1725	08

90 TOYOTA

4Runner (utility-type vehicle)	03	Pickup, n.e.c.	(20)
1200 Corolla (see Corolla)		Longbed (includes Deluxe Longbed, four-wheel drive Deluxe Longbed, SR 5 Sport Longbed, four-wheel drive, SR5 Sport Longbed)	33
1600 Corolla (see Corolla)		SR5 Sport (includes four-wheel drive SR5 Sport)	30
1800 Corolla (see Corolla)		Standard (Deluxe, four-wheel drive Deluxe).	09
1900 Sedan	27	3/4 ton.	11
2000 Celica (see Celica)		1 ton.	10
2200 Celica (see Celica)		Cab/Chassis (Camper, Commercial).	13
Camry.	35	Starlet	15
Carina	01	Supra (includes L Type) .	32
Celica (includes 2000, 2200).	24	Tercel.	31
Chinook.	07	Tiara	23
Corolla (includes 1200, 1600, 1800).	25	Van	17
Corona	12		
Cressida	28		
Crown.	14		
FJ 60 (see Land Cruiser)			
L Type (see Supra)			
Land Cruiser (FJ 60) . . .	16		
Mark II.	18		
MR2.	02		

91 TRIUMPH

GT-6	08
Herald	09
Spider (see TR-7)	
Spitfire (includes 1500) .	10
Sports 6	20
Stag	11
TR-3	13
TR-4	14
TR-4A.	15
TR-6	16
TR-7 (includes TR-7 Spider).	17
TR-8	19
TR-250	18
1200	01
1500 (see Spitfire)	
2000	03

92 DELOREAN^a

DeLorean.	01
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^aNew make as of 1981

93 VOLKSWAGEN

Beetle, Super (Type 1) (see Bug)		Squareback (see Type 3)	
Bug (1200, 1300, 1500, Super Beetle)	01	Standard (see Pickup)	
Bus (Van) Type 2 (includes Kombi)	03	Station Wagon (to be used when no specific model has been given (Dasher and Squareback excluded)	17
Dasher (includes Diesel) .	04	Super Beetle (see Bug)	
Fastback (see Type 3)		The Thing (Type 181)	14
Golf	05	Type 3 (includes 311 Fastback, 361 Squareback, and 1600 Variant Fastback or Notchback)	24
GTI	02	Type 4 (see 411, 412)	
Jetta	28	Vanagon (includes Vanagon Camper, Models P22, P27)	25
Karmann Ghia	06	181 (see The Thing)	
Kombi (see Bus)		311 (Fastback) (see Type 3)	
LX Truck (see Pickup)		361 (Squareback) (see Type 3)	
Notchback (see Type 3)		411 (part of Type 4)	15
P22 (see Vanagon)		412 (part of Type 4)	16
P27 (see Vanagon)		1200 (see Bug)	
Pickup (includes Rabbit Pickup, Standard Sport Truck, LX Truck)	26	1300 (see Bug)	
Quantum	20	1500 (see Bug)	
Rabbit (automobile only) (includes Convertible, Diesel)	09	1600 (variant) (Squareback, Fastback, or Notchback) (see Type 3)	
Rabbit Pickup (see Pickup)			
Scirocco	11		
Sport Truck (see Pickup)			

94 VOLVO

Bertone.	02	544	15
Diesel Volvo (includes Sedan, Wagon).	04	740	06
DL	17	760	05
GL	09	1800 S/E/ES (P-1800). . .	16
GLE.	18	Single Unit Truck	61
GLT (includes GLT Turbo) .	13	Tractor for Truck	62
122.	01	School Bus.	63
140 Series (includes 142, 144, and 145 Wagon). . . .	03	Other Bus	64
142 (see 140 Series)			
144 (see 140 Series)			
145 Wagon (see 140 Series)			
160 Series (includes 162, 164, and 165 Wagon). . . .	07		
162 (see 160 Series)			
164 (see 160 Series)			
165 Wagon (see 160 Series)			
240 Series (includes 242, 244, and 245 Wagon). . . .	19		
242 (see 240 Series)			
244 (see 240 Series)			
245 Wagon (see 240 Series)			
260 Series (includes 262, 264, and 265 Wagon). . . .	12		
262 (see 260 Series)			
264 (see 260 Series)			
265 Wagon (see 260 Series)			

62 YUGO

GV 01 |

03	AUTOCAR	23	MARMON
05	BROCKWAY	27	KENWORTH
14	CRANE CARRIER	30	OSHKOSH
16	DIAMOND REO	32	PETERBILT
17	MACK	41	WALTER
18	FABCO	42	WHITE
20	FREIGHTLINER	43	WHITE FREIGHTLINER
21	FWD	44	WHITE WESTERN STAR

Single Unit Truck.	61
Tractor for Truck.	62
School Bus	63
Other Bus.	64

