



**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20591**

GUIDE FOR TRUCK WEIGHT STUDY MANUAL

April 1971

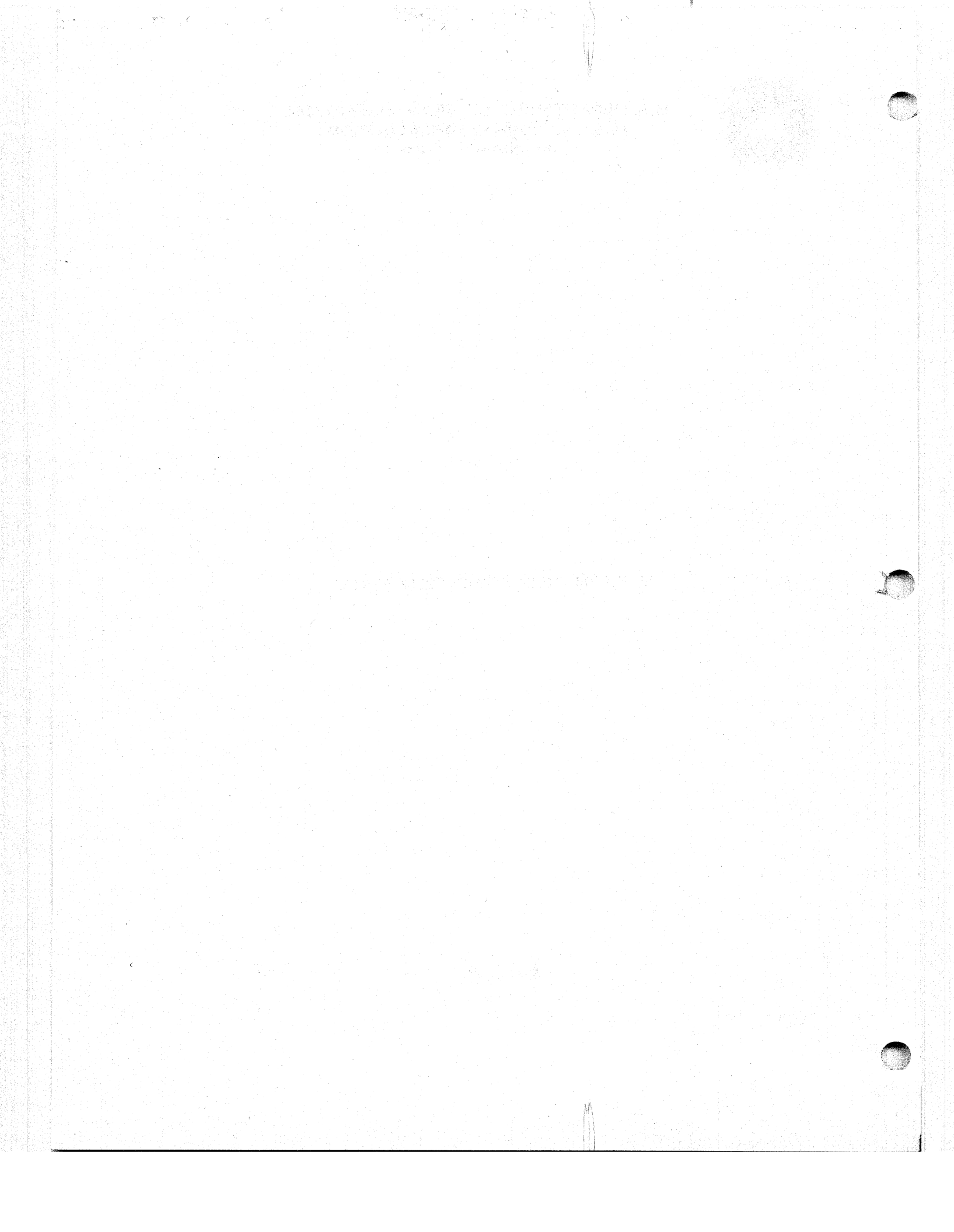


Table of Contents

	<u>Page</u>
Chapter I - General	1
A. Introduction	1
B. Purpose of Guide	2
C. Methods of Obtaining Truck Weight Data	2
D. Reliability and Accuracy	3
Chapter II - Operating Weight Stations	5
A. Types of Weighing Equipment	5
B. Locating Truck Weight Stations	6
C. Station Layout	9
D. Period of Operation	10
E. Weighing Procedure	10
F. Measurements	12
G. Sampling the Traffic Stream	12
Chapter III - Vehicle Classification Counts at Weight Stations	14
Chapter IV - New Methods	16
A. Dynamic Weighing	16
B. Mail Questionnaire Survey for Determining Commodity Movement	17
Appendix A - Field Edit of Truck Weight Data	1-A through 7-A
Appendix B - Summarizing Truck Weight Data: The FHWA Program Battery and Summary Tables	1-B through 31-B
Appendix C - Preparation of Weight and Classification Data: Coding Instructions	
Number 2 Cards - Station Identification Data	
Number 4 Cards - Vehicle Classification Data	
Number 7 Cards - Truck Weight Data	

The first part of the document describes the initial phase of the project, which involved a comprehensive review of the existing system and the identification of key areas for improvement. This phase was critical in establishing a clear understanding of the current state and the goals for the new system.

The second part of the document details the implementation of the new system, highlighting the challenges faced and the strategies used to overcome them. The implementation was a complex process that required close coordination between all stakeholders and a strong focus on user training and support.

The final part of the document provides a summary of the project's outcomes and the lessons learned. It demonstrates that the new system has successfully met the project's objectives and is now fully operational, providing significant benefits to the organization.

The project was completed on time and within budget, demonstrating the effectiveness of the project management plan and the dedication of the project team. The successful implementation of the new system is a testament to the organization's commitment to continuous improvement and innovation.

The project has also highlighted the importance of clear communication and collaboration throughout the project lifecycle. Regular meetings and updates were essential for keeping all stakeholders informed and engaged, ensuring that the project remained on track and met the organization's needs.

Looking ahead, the organization is committed to monitoring the performance of the new system and making any necessary adjustments to ensure its long-term success. The project has provided valuable insights into the complexities of system implementation and will serve as a model for future projects.

CHAPTER I - GENERAL

A. Introduction

This guide describes efficient procedures to be employed in studies for obtaining data on truck weights and commodity movements. These data are necessary for transportation planning at both the State and National levels. These studies are part of the engineering and economics investigations financed in accordance with Section 307(c), Title 23, U.S. Code "Highways," and conducted by the State highway departments in cooperation with the U.S. Department of Transportation, Federal Highway Administration.

The administration of the highway program at both State and National levels **requires** that decisions be made on such matters as design criteria, equitable tax bases, regulation of vehicle operation, and the determination of the relative position of highway transportation in the National economy. A knowledge of the volumes of traffic using highway facilities and the proportion of vehicles of each of the several classes is necessary. It is also fundamental to know the range and frequencies of the loads imposed upon the facilities, the dimensions of the vehicles, and the commodities carried.

Truck weight data collected annually by the States are the bases for estimating annual travel by each type of truck, the ton-miles of cargo hauled via highway, year-to-year changes in axle and gross weight frequencies, and comparison of the characteristics of actual usage with administrative policies. The results are used at the State and National levels in the consideration of transportation policy, allocation of highway costs and revenue, size and weight regulations, establishment of geometric design criteria related to the size and weight of vehicles, in pavement design for the establishment of procedures and design criteria, and for a variety of special administrative, planning, design and research studies. At the State level truck weight data are used in calculating pavement loading in 18-kip equivalents or other comparable procedure, and in bridge loading analysis in terms of both bending moment and fatigue. Safety studies require data relating class of operation, vehicle type, time, highway type, and State registration to provide exposure rates related to available accident data. Planning, program budgeting, and administrative studies require axle and total weight distribution data which can be related to operational characteristics, taxation rates, incremental construction and maintenance responsibility, and enforcement effectiveness.

The continuity of the trends beginning in 1936 provides important indications of changing patterns in transportation by highway compared to rail and other modes, and provides a measure of the effect of changing policies and regulations, changes in economic activity, and technological advances. The annual reporting by each State of consistent reliable data which is representative of truck usage of the various highway and street systems is essential to the continuation of reliable output from these studies and analyses.

B. Purpose of guide

This guide has been developed to serve a threefold purpose:

1. Provide guidance in selecting locations for and operating truck weight stations, both permanent and portable, using traditional weighing methods;
2. Provide information on emerging techniques for obtaining truck weight and commodity movement data such as dynamic weighing and mail questionnaire methods; and
3. Organize, and document the detailed instructions for coding data for the annual trucking characteristics study and the submission of these data to the Program Management Division, Federal Highway Administration.

Chapter II contains a discussion of the selection and operation of weight stations. Chapter III describes the need for and methods of obtaining vehicle classification data in connection with truck weighing operations. Dynamic weighing and mail questionnaires are discussed in Chapter IV. Appendix A describes the field edit computer program available for editing the annual truck weight and classification data prior to submittal to FHWA. Appendix B describes the FHWA battery of computer programs for summarizing truck weight and classification data. Appendix C contains detailed coding instructions for use by the States in preparing data for submittal to FHWA.

C. Methods for obtaining truck weight data

The two general methods for obtaining weight data currently employed by highway departments are permanent platform scales and portable scales. Permanent platform scales are operated by some States at port-of-entry locations or other points on major

highways near State borders. Platform scales may also be operated at other selected locations throughout the State. These stations may serve the dual purpose of providing highway planning data and monitoring truck weights for law enforcement purposes. It is desirable to suspend enforcement weighing while planning data are being gathered.

Light weight portable scales are generally operated for short periods of time at the same location for a number of years. Normally, the stations are operated for one or two 8-hour shifts during daylight hours on weekdays. The field work is usually accomplished during the summer months utilizing temporary personnel. Manual vehicle classification counts are obtained during the period the weight station is in operation.

Data from these annual trucking characteristics studies are summarized in a series of tables. Prior to 1970 it was the responsibility of each State highway department to analyze the data collected and prepare a report containing these tables. Arrangements have now been made for the data to be transmitted to the Program Management Division, Federal Highway Administration, in the form of data processing cards or card images on magnetic tape. Appropriate summary tables are then prepared by computer and returned to the States. In order to satisfy the need for these data at the State level, it is desirable that each highway department prepare an annual report which includes basic tables and a suitable narrative which can be made available to all users. Appendix B contains a discussion and samples of the summary tables.

D. Reliability and accuracy

The success and value of all uses of the truck weight data depend on the reliability and accuracy of the data collected in the field. The field procedures must be directed toward reliability of data, while at the same time giving full consideration to efficiency of operation and the safety of the traveling public and the field staff. There must be a continuing effort to develop citizen understanding and appreciation for the State and Federal governments' efforts to provide more efficient and convenient transportation. Each of these considerations must be weighed in selecting each station location, scheduling the work and assigning personnel to each task, sampling from the traffic stream, interviewing, and obtaining weights and dimensions.

The importance of accuracy can best be illustrated by considering the consequences of inaccuracy. An error in collecting one item of data for a vehicle may result in all data for that vehicle being discarded, even though all other data items are correct. This wastes the efforts of all those involved in obtaining the data. If data for several vehicles are unusable, the proportions for certain attributes will likely be distorted. Similarly, bias in sampling from the traffic stream is likely to distort proportions and relationships such as weight distributions and proportions of loaded vehicles. Since these data are used for year-to-year comparisons in developing trends, the effects may be carried forward undetected for several years.

It is important to recognize that weighing operations cannot be conducted with perfection due to many factors, some of which are discussed in Chapter II. However, if procedures described herein are used consistently from year to year, the results will be satisfactorily accurate and fulfill the need for trend data on truck weights.

Inconsistencies in the vehicle classification count data--used for expanding the sample of vehicles of each type weighed--can also cause serious problems. Imbalances in vehicle type proportions resulting from differences in proportions at different times may cause significant distortions in travel estimates by vehicle type, as well as weight distributions for design and ton-mile trends. These inconsistencies carry forward for several years.

Inconsistencies in vehicle type identification between the classification count and truck weight data can cause poor estimates of ton-mile and other trend data.

CHAPTER II - OPERATING WEIGHT STATIONS

A. Types of weighing equipment

Truck weights are obtained using permanent platform scales and lightweight portable scales. Portable scales in common use by highway departments can be transported in automobiles or pick-up trucks. Usually one man is required to operate each portable scale. Most portable scales are capable of weighing only one end of an axle. In order to weigh both ends of an axle or all axles of a truck or combination simultaneously, two or more portable scales must be used in combination. Scales generally may be placed on the roadway or shoulder and truck wheels positioned on the scale platform. For best results, scale sites should be prepared so that scale platforms are level with the roadway. In recent years several self-propelled or towed scales have been developed for enforcement or planning purposes. However, these scales often require more site preparation and do not offer the flexibility of movement of the smaller scales.

The two main categories of platform truck scales are full truck scales and axle scales. Since most highway departments utilize the former, the following discussion will be confined to the type which will weigh an entire unit at once.

Generally, platform scale mechanisms consist of a system of levers, pivots, knife edges and bearing points which collect and transmit pressures exerted on the deck to a central rod which in turn activates the reading device. Some of the devices for reading or recording scale weights are activated electronically, while others are purely mechanical. Among the mechanical devices are weight-o-graphs, beams, and dials.

The weight-o-graph is a variation of the beam type reading device and is attached to the beam pull rod. It consists of a calibrated ribbon that is reflected by magnifying mirrors onto an opaque glass screen. The screen is lighted from behind and weights are indicated by a stationary pointer.

The familiar beam type reading device consists of a notched metal beam mounted horizontally on a pillar. Some models have a second (tare) beam below and parallel to the main beam. A sliding poise on the main beam is moved to a balance point and held in place by means of the notched edges of the beam. Figures are etched into a

<u>System</u>	<u>Mileage</u>		<u>Number of stations</u>
	<u>Rural</u>		
Interstate	Under 400	---	2
	400-1,000	---	4
	Over 1,000	---	5
Other Federal-aid primary	Under 1,000	---	2
	1,000-4,000	---	4
	Over 4,000	---	5
Federal-aid secondary	---	---	1
<u>Urban</u>			
F-A primary extensions including Interstate			2
F-A urban			1
F-A secondary or local			1

A substantial proportion of intercity truck travel in certain States is carried by toll roads. In some areas, travel by certain vehicle types is confined almost entirely to the toll roads. In these instances, arrangements should be made with the toll authorities to operate truck weight stations to obtain proper representation of this truck traffic. Two feasible methods are to weigh at service areas or on free roads at important access points.

Weighing at service areas is preferable in most cases since a more nearly representative sample of all trucks using the route can be obtained. Portable weight stations could be located at or near truck parking areas, with all trucks required to pull into the service area for weighing.

If stations must be located on connecting roads, only those locations at which a high proportion of toll road truck traffic enters or leaves should be used as portable weight stations.

Toll road connections to major bridges, approaches to large cities, and junctions with other major truck routes are also appropriate for obtaining weights of toll road truck traffic.

C. Station layout

The following series of activities in collecting weight data for planning should be considered when laying out a truck weight station, both permanent or portable:

1. Sampling from main highway
2. Interviewing
3. Measuring
4. Weighing

Classification counting is generally done independently of the other activities.

For night operations, adequate lighting is essential to enable the station personnel to obtain and record the data efficiently and correctly, as well as for the safety of the entire operation. The best arrangement for this purpose is a series of electric lights raised above the site and connected to a commercial power source. These facilities are generally available only at permanent scale locations.

Roadside signing is important for both permanent and temporary weigh stations. The signing should indicate that the weighing is for planning purposes and that all trucks are subject to weighing, not just the heavier types. As a minimum, signs should instruct truckers to reduce speed, advise that weighing operations for planning purposes only are in progress, and indicate turn-off points or that a flagman will be directing traffic. Signs should be appropriately spaced for the operating speed of the highway. Further guidance on the size, color and placement of appropriate warning signs may be found in:

1. "Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways," AASHO, 1970
2. "Manual on Uniform Traffic Control Devices for Streets and Highways," June 1961.

The reliability and usefulness of truck weight data depend on the care with which vehicles are weighed. Available data show that for the greatest consistency all wheels of the truck or combination should be on the same horizontal plane with brakes released at the time of weighing. If brakes must be set when weighing with portable scales, they should be released after the vehicle has been stopped on the scales and then reset. To provide reliable data for all axles, the weight of each axle of a tandem axle group should be determined separately since available design and weight information indicate that a large proportion of these assemblies places an appreciably greater load on one of the two axles.

Normally only one weighman is required on a platform scale. With portable scales, one man is required for each scale. Although two men can handle four scales, this practice is not recommended due to the inefficient and slow operation that results.

F. Measurements

The distance between axles for each truck weighed should be measured to permit more accurate calculation of pavement and bridge loadings. Axle spacings should be measured with the vehicle components drawn out in a straight-line. Axle spacings for vehicles carried slant-back should be measured between axles on the pavement.

G. Sampling the traffic stream

It is important that a representative sample of each vehicle type be weighed at each station. The distributions of axle and gross weights by weight intervals and the percentages of loaded vehicles of each type are determined solely from the sample of vehicles selected for weighing.

A procedure which has been used successfully in several States to assure unbiased probability sampling at locations where volumes are so great that all passing trucks cannot be weighed is suggested. Using this procedure, each shift of operation is subdivided into short intervals. Intervals of 10 or 15 minutes have been used. The frequently occurring vehicles are assigned one or more intervals each hour on a systematic probability sampling basis. During the assigned period every passing vehicle of the designated type is stopped and weighed. Vehicle types for which periods have been

designated are not stopped during undesigned periods. Usually the infrequent vehicle types are stopped and weighed during all periods so that 100 percent samples of these types are obtained. Sampling rates which have been practicable at typical locations provide for weighing of 2-axle, 4-tire trucks--both panels and pickup trucks (2P) and other 4-tire (2S)--during every fourth interval; 2-axle, 6-tire trucks (2D) every third interval; weighing of tractor semi-trailer combinations (2S1, 2S2, and 3S2) during three intervals out of every four; and weighing of all additional vehicle types during all intervals. Thus, more than one of the vehicle type categories designated for sampling may be designated for a given interval. At lower volume locations, it may be desirable to sample 100 percent of all semi-trailer combinations. Where volumes are extremely high, it may be necessary to reduce sampling rates so that 100 percent of each designated vehicle type can be selected for weighing in an interval. Other sampling rates, 100 percent of all 3S2's for example, or intervals other than 10 or 15 minutes may be more suitable in some States. When a single vehicle or a fleet of similar trucks **passes a station several times a day, no vehicle** need be weighed more than twice, once loaded and once empty, and a sample of three empty and three loaded truck weighings is adequate for the fleet. All passing vehicles should be counted.

When weighing both directions of a highway, three alternate procedures are available. The preferred method is to weigh each direction independently of the other in separate operations; i.e., one or more 8-hour shifts in one direction and one or more 8-hour shifts in the other direction.

The second method is to weigh two hours in one direction then weigh two hours in the other direction, etc., until the 8-hour shift is complete. When using this method it is desirable to have two sets of equipment available to minimize change-over time.

The third method is to weigh both directions at the same time. This method may be used when an existing enforcement station has been designed to accept traffic from the two directions without creating traffic hazards and unreasonable delays.

CHAPTER III - VEHICLE CLASSIFICATION COUNTS AT WEIGHT STATIONS

Manual vehicle classification counts should be made of the main traffic lanes either upstream or downstream from the truck weight station when operated for the Annual Trucking Characteristics Study. Manual counts should be made for a period of 24 hours including the 8-hour shift when trucks are weighed. Volume data for this 24-hour period only should be submitted to FHWA with truck weight data. Additional counts should be submitted separately and be properly marked.

Vehicle classification is based primarily on axle and wheel arrangement. However, passenger cars and 4-tired trucks are subclassified by size categories. The criteria outlined below provide two size categories for passenger cars and two size categories for 4-tired trucks. These criteria should be used as guidelines since it is impossible to draw a sharp line between these subclassifications.

Passenger Cars

Standard and compact passenger car.--Approximately one ton or greater shipping weight and longer than approximately 14 feet in overall length.

Small passenger car.--Approximate shipping weight of less than one ton and approximately 14 feet or less in overall length.

4-Tired Trucks

Light 4-tired trucks.--Generally one ton rated capacity or less having light bodies (panel, pickup, minivan, etc., but not multi-stop or standup delivery) and having passenger car type axles, hubs, wheels, and tires.

Heavy 4-tired trucks.--Always one ton rated capacity or more and having heavy truck type axles, hubs, wheels, and tires. Usually carries general truck type bodies including multi-stop or standup delivery. If light truck bodies are used, they will be large size with extra capacity.

For a vehicle towing a trailer or another motor vehicle, the type is usually based on the load carrying axles of both units, as used for semi-trailer and full trailer combinations. In order

to provide uniform classification for trend purposes, light trailers capable of being pulled by passenger cars and 4-tired trucks should be classified in the same category as the pulling unit. Heavy trailers (balance trailers with either dual tires of multiple axles) capable of being pulled only by 6-tire or larger trucks should be classified in the same category as the equivalent tractor and semi-trailer combination.

Vehicles may be classified in the full detail provided by the coding instructions. As a minimum, vehicles should be classified into the following categories:

- In State passenger cars - standard and compact
- In State passenger cars - small
- Out-of-State passenger cars - standard and compact
- Out-of-State passenger cars - small
- Motorcycles and motorscooters
- Commercial buses
- School and other non-revenue buses
- Light 4-tire trucks (2P)
- Heavy 4-tire trucks (2S)
- 2-axle, 6-tire trucks (2D)
- 3-axle trucks (3A)
- 4-axle or more trucks (4A+)
- 2-axle tractor, 1-axle semi-trailer (2S1)
- 2-axle tractor, 2-axle semi-trailer (2S2)
- 3-axle tractor, 2-axle semi-trailer (3S2)
- 2-axle truck, 1-axle balanced trailer (2-1)
- 2-axle truck, 2-axle full trailer (2-2)
- 3-axle truck, 2-axle full trailer (3-2)
- 2-axle tractor, 1-axle semi-trailer, 2-axle full trailer (2S1-2)
- 3-axle tractor, 1-axle semi-trailer, 2-axle full trailer (3S1-2)
- 3-axle tractor, 2-axle semi-trailer, 3-axle full trailer (3S2-3)

Other combinations should be coded in accordance with the detailed coding instructions. Detailed instructions for coding both truck weight and vehicle classification data are found in Appendix C.

CHAPTER IV - NEW METHODS

A. Dynamic weighing

One important development in the field of truck weighing in recent years has been the active interest in dynamic weighing systems for determining weights while a truck is in motion. Presently used procedures for collecting truck weight data using portable or fixed pit scales have certain disadvantages. These include the interruption of normal traffic flow, time delays to the truck driver and occasionally other motorists, poor safety conditions, and a limited sample of truck weights.

Dynamic weighing systems will enable vehicles to be weighed continuously without interruption as they move in the normal traffic stream. In addition to providing weight data, some systems include a means to determine speed and axle spacings. Axle spacing allows vehicle classification determination. Dynamic weighing does not afford the opportunity for obtaining interview data from the driver such as commodity hauled, origin and destination and whether the truck is loaded or empty.

Several dynamic weighing systems have been developed over the years having similar designs and operating characteristics. The scales themselves generally consist of one or more platforms built into the roadway, level with the pavement surface. The platform may be a single one covering a complete lane to intercept an entire axle, or one or two smaller platforms to intercept wheels on either one side or both sides of the vehicle respectively. Some platforms are small and portable and require minor alteration to the pavement for installation while other platforms are large massive structures which require pits under the pavement. In either case the platform is usually supported by load cells which detect vertical forces as a vehicle passes over the scales. The load cell is generally composed of strain gages which vary an electrical current in relation to the deflection of the load cell and which is interpreted by instrumentation as a force or weight.

The electrical signals that come from the scales may be handled in several different ways. For some applications, the data may be processed at the weighing site and displayed visually on a screen or strip chart. Data may be recorded at the site on magnetic tape with processing carried out at a central computer installation. A combination of these methods may be used.

As part of the National Cooperative Highway Research Program, a study was completed and reported upon in 1969 entitled, "Analytical Study of Weighing Methods for Highway Vehicles in Motion."^{2/} This study involved an investigation of the error associated with weighing vehicles in motion, the mathematical methods that could be used to determine axle weights to within 5 percent of their static weight, and a description of the physical equipment that could be used in conjunction with the various methods.

The findings of the study indicated that the major error associated with dynamic scales is caused by the dynamic effects or oscillations of the vehicle as it passes over the scale. This effect may produce a weight variation of as much as 30 to 40 percent for any axle. The wave form or cycle of force of vehicles was determined, and it was concluded that present use of the dynamic scales **does not allow** an accurate sample to be made of this wave form and thus the weight because of the short duration of measurement. One recommendation was to increase the number of scales so that the wave form could be sampled at more points, thus allowing a better determination of its overall characteristics to be made. An economical system consists of **simple averaging of data over** several platforms using available equipment which will provide an accuracy within 5 to 6 percent, depending on the dynamic effects, for about \$40,000 to \$45,000. Increased accuracies can be obtained but only with much larger increases in costs.

Dynamic weighing is now reaching the stage of advanced development and field testing. In the not too distant future these systems will likely become available for operational use by State highway departments.

B. Mail questionnaire survey for determining commodity movement

1. Background

The various uses of truck weight data and their importance at both the State and National levels are explained in Chapter I. One of the most important of these uses at the National level is the annual estimate of ton-miles of commodities hauled by highway. Until recently the sole source of data for these estimates was the Annual Trucking Characteristics Study and vehicle classification counts conducted by the State highway departments. This technique has several disadvantages. Among them are:

^{2/} Herrick, R. Clyde; "Analytical Study of Weighing Methods for Highway Vehicles in Motion," National Cooperative Highway Research Program Report 71, The Franklin Institute Research Laboratories, 1969.

- a. Truck weighing is generally conducted only during summer months; therefore, data collected are not representative of all 12 months.
- b. Each State normally operates only a relatively few truck weight stations, generally concentrated in rural areas on high-type highways. Thus, the movement of commodities over many miles of highway may not be represented in the sample data.
- c. Intracity truck traffic, which is a significant portion of the total, is not adequately sampled.

Because of these difficulties, the annual estimates of ton-miles of commodities hauled, by type, **are** not as comprehensive as desired. The following discussion describes a procedure which has been tested in three States and may be adopted for making these estimates.

2. Procedures

In most States the motor vehicle registration file can be used to select a sample of truck registrants to receive a questionnaire. Ideally the study should be conducted over a 1-year period. If necessary, the data collection period may be shortened. The size of the sample will depend on the precision of the estimate desired. It is anticipated that in order to attain a standard error of ± 10 percent at the 0.95 confidence level in the total ton-mile estimate for a National study, a sample of 10 thousand truck registrations would be required.

The study is essentially an office procedure. The entire sample of registrations should be selected and the travel days assigned before the start of data collection. The sample should be sorted into three groups on the basis of registered gross weight: 12,000 pounds and lighter, 12,001-26,000 pounds, and over 26,000 pounds. When sampling from the registration file must be accomplished manually, a final sample of vehicles in each weight group should be selected at different sample rates from those initially selected. This is done to avoid a large sample of lighter trucks. When the registration file is automated and sampling is done by computer, the desired sampling rates for each weight group can be obtained during the initial selection.

The response rate will vary according to the follow-up technique employed. The following procedures were tested in three States in each of which 819 questionnaires were mailed:

- a. A mail reminder to one-third of the sample posted to arrive on the assigned travel day or on the following day,
- b. A telephone reminder to one-third of the sample made on the travel day or the following day, and
- c. No reminder to the last third of the sample.

In addition to the reminders, follow-up questionnaires were employed in the following manner:

- a. Mailed to each non-respondent one week after the original mailing, and
- b. A second follow-up questionnaire mailed to non-respondents two weeks after the original mailing with an assigned substitute travel day.

Questionnaires received after a predetermined time such as three weeks after the original mailing are counted as non-responses. Table IV-1 shows the results of these follow-up techniques in the three test States. In all cases the two follow-up questionnaires were mailed to all registrants when replies were not received.

Mail follow-up questionnaires with reminders produced the most consistent results and **this procedure is recommended.**

3. Questionnaire and control card

Four questionnaires of increasing complexity have been tested in pilot studies conducted in the three test States. The simplest questionnaire collected information only on commodity type, weight and mileage. The most complete questionnaire obtains data on commodity type and weight, origin and destination and land use. The pilot study results indicate that the additional data obtained on the complex questionnaire **are** worth the increased effort and somewhat lower response rate. In addition, the quality of the response as to weight and distance was improved. This recommended questionnaire is shown in Figure IV-1.

After the sample of truck registrants has been selected and before questionnaire mailing begins, a control card (Figure IV-2) should be prepared for each respondent. This control card contains the vehicle license number, sample travel day, and details the schedule of all activities associated with the respondent. Control cards can be used to schedule office work and monitor progress of the study. Space is provided to record the final response status of each questionnaire.

Table IV-1 - Return rate of questionnaires, based on the number of a given complexity mailed at least once, classified by questionnaire complexity, State and reminder type, (Pilot Truck Commodity Study data from three States)

Questionnaire complexity	Study State	Reminder type			Total Received %	Number mailed at least once
		Mail %	Phone %	None %		
Least complex	Missouri	28.78	27.80	27.80	84.38	205
	New York	24.39	22.93	21.46	68.78	205
	Wisconsin	28.78	29.76	24.88	83.42	205
	Average per State	27.32	26.83	24.72	78.87	205
Second stage of complexity	Missouri	28.78	29.27	24.88	82.93	205
	New York	23.90	25.37	21.46	70.73	205
	Wisconsin	29.90	29.90	26.47	86.27	204
	Average per State	27.52	28.18	24.27	79.97	204.67
Third stage of complexity	Missouri	28.78	29.76	26.34	84.88	205
	New York	22.55	23.50	22.06	68.14	204
	Wisconsin	29.27	29.76	27.32	86.35	205
	Average per State	26.06	27.69	25.25	79.80	204.67
Most complex	Missouri	25.98	25.98	25.49	77.45	204
	New York	23.90	20.49	20.49	64.88	205
	Wisconsin	28.78	25.85	24.88	79.51	205
	Average per State	26.22	24.10	23.61	73.93	204.67
All questionnaires	Missouri	28.08	28.21	26.13	82.42	819
	New York	23.69	23.08	21.37	69.14	819
	Wisconsin	29.18	28.82	25.89	83.89	819
	Average per State	26.98	26.70	24.46	78.14	819

STATE DEPARTMENT OF TRANSPORTATION
in cooperation with
U. S. FEDERAL HIGHWAY ADMINISTRATION

TRUCK USAGE STUDY

--	--	--	--	--	--	--	--	--	--	--	--

License # _____

M _____

Y _____

W _____

The license number at the right identifies a motor vehicle which you registered in

The following questions concern its use together with any trailer during a 24-hour period starting at: 2 A.M. on _____ (DATE)

Some of the questions request the weights of items in your truck. If you find that such questions cannot be answered with any degree of accuracy, please list the number or quantity of items and the measure of the quantity.

SECTION A - GENERAL INFORMATION

<p>1. Which classification describes your vehicle? (CHECK ONE)</p>	<p>1) <input type="checkbox"/> Single unit with 4 tires 2) <input type="checkbox"/> Single unit with 6 tires 3) <input type="checkbox"/> Single unit with 10 tires 4) <input type="checkbox"/> Combination, tractor-semitrailer 5) <input type="checkbox"/> Combination, truck-full trailer 6) <input type="checkbox"/> Combination, tractor-semi & full trailer 7) <input type="checkbox"/> Combination, truck-two trailers 8) <input type="checkbox"/> Other _____ (PLEASE SPECIFY)</p>																																								
<p>2. How many axles on each unit? (CHECK THE APPROPRIATE COLUMN FOR EACH UNIT)</p>	<table border="1"> <thead> <tr> <th rowspan="2">Vehicle Unit</th> <th colspan="4">Number of Axles</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Truck alone or power vehicle</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Semitrailer or first trailer, if any</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Second trailer, if any</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Vehicle Unit	Number of Axles				1	2	3	4	Truck alone or power vehicle					Semitrailer or first trailer, if any					Second trailer, if any																				
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Second trailer, if any																																									
<p>3. What is the body type of each unit? (CHECK THE APPROPRIATE COLUMN FOR EACH COMPONENT EXCEPT A TRACTOR)</p>	<table border="1"> <thead> <tr> <th></th> <th>Flatbed</th> <th>Van-refrig.</th> <th>Van-other</th> <th>Pickup or box</th> <th>Dump</th> <th>Reck</th> <th>Tank</th> <th>Equipment carrier</th> <th>If other, describe</th> </tr> </thead> <tbody> <tr> <td>Truck</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Semitrailer</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Full trailer</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(MOBILE CRANES AND UTILITY SERVICE TRUCKS ARE TWO EXAMPLES OF EQUIPMENT CARRIERS)</p>		Flatbed	Van-refrig.	Van-other	Pickup or box	Dump	Reck	Tank	Equipment carrier	If other, describe	Truck										Semitrailer										Full trailer									
	Flatbed	Van-refrig.	Van-other	Pickup or box	Dump	Reck	Tank	Equipment carrier	If other, describe																																
Truck																																									
Semitrailer																																									
Full trailer																																									
<p>4. What was the condition of your vehicle at 2 A.M. on the date specified above? (CHECK ONE)</p>	<p>In working condition and:- <input type="checkbox"/> In motion toward a destination (GO TO ITEM 5) <input type="checkbox"/> Parked overnight en route to a destination . . (GO TO ITEM 5) <input type="checkbox"/> Parked overnight not en route to a destination (GO TO ITEM 6) Not in working condition and:- <input type="checkbox"/> Repaired during the 24-hour period (GO TO ITEM 6) <input type="checkbox"/> Not repaired during the 24-hour period (PLEASE RETURN QUESTIONNAIRE)</p>																																								
<p>5. What was the starting point for this trip?</p>	<p>_____ (CITY, TOWN, OR COUNTY) _____ (STATE)</p>																																								
<p>6. List the items that were in your vehicle at 2 A.M. on the specified date and their weights (or quantities). Check "vehicle empty", if appropriate. (If "mixed freight", list the 3 items taking up the most space, their weights, and the weights of the remainder of the load)</p>	<table border="1"> <thead> <tr> <th>0) <input type="checkbox"/> Vehicle empty</th> <th>Weight in Pounds or the Quantity and Measure</th> </tr> </thead> <tbody> <tr> <td>Items in vehicle at 2 A.M.</td> <td></td> </tr> <tr> <td>1) _____</td> <td></td> </tr> <tr> <td>2) _____</td> <td></td> </tr> <tr> <td>3) _____</td> <td></td> </tr> <tr> <td>4) Remainder of load</td> <td></td> </tr> </tbody> </table>	0) <input type="checkbox"/> Vehicle empty	Weight in Pounds or the Quantity and Measure	Items in vehicle at 2 A.M.		1) _____		2) _____		3) _____		4) Remainder of load																													
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2) _____																																									
3) _____																																									
4) Remainder of load																																									
<p>7. How many miles was the vehicle driven during the 24-hour period following 2 A.M. on the specified date?</p>	<p>Miles _____ (GO TO ITEM 8) <input type="checkbox"/> Not driven . . . (PLEASE RETURN QUESTIONNAIRE)</p>																																								
<p>8a. During the 24-hour period, how many stops did the vehicle make to deliver or pickup items or people or other purpose?</p>	<p>Stops _____ (ANY RETURN TO HOME BASE SHOULD ALSO BE COUNTED AS A STOP) (SEE INSTRUCTIONS IN ITEM 8b)</p>																																								
<p>8b. If your answer to item 8a shows 10 stops or fewer, answer the questions in Section B for each stop (destination). Do not answer Section C. If your answer to item 8a shows 11 stops or more, answer the questions in Section C for the first five stops and for the last five stops. Do not answer Section B.</p>																																									

SECTION B - FOR TRUCKS WITH NO MORE THAN 10 STOPS

FIRST DESTINATION

- a) Where was the vehicle first driven after 2 A.M.?
- b) What type of place is it?
- c) How many miles is this place from where the vehicle was at 2 A.M.?
- d) Did your vehicle get there within the 24-hour period after 2 A.M.?
- e) What was the purpose for this stop?
(CHECK ONE)
- f) Please list the items delivered and their weights (or quantities).
- g) Please list the items picked up and their weights (or quantities).
- h) Was your vehicle driven elsewhere within the 24-hour period?

To: _____
(CITY, TOWN, COUNTY) (STATE)

(ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

Miles _____

Yes . . . (GO TO ITEM e)
 No . . . (PLEASE RETURN QUESTIONNAIRE)

1) Deliver or pickup commodities - (GO TO ITEM f)
2) Transport driver or passengers - (GO TO ITEM h)
3) Refuel, eat, or rest - (GO TO ITEM h)

Yes . . . (GO TO NEXT BOX)
 No . . . (PLEASE RETURN QUESTIONNAIRE)

SECOND DESTINATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) Did your vehicle get there within the 24-hour period after 2 A.M.?
- e) What was the purpose for this stop?
(CHECK ONE)
- f) Please list the items delivered and their weights (or quantities).
- g) Please list the items picked up and their weights (or quantities).
- h) Was your vehicle driven elsewhere within the 24-hour period?

To: _____
(CITY, TOWN, COUNTY) (STATE)

(ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

Miles _____

Yes . . . (GO TO ITEM e)
 No . . . (PLEASE RETURN QUESTIONNAIRE)

1) Deliver or pickup commodities - (GO TO ITEM f)
2) Transport driver or passengers - (GO TO ITEM h)
3) Refuel, eat, or rest - (GO TO ITEM h)

Yes . . . (GO TO NEXT BOX)
 No . . . (PLEASE RETURN QUESTIONNAIRE)

THIRD DESTINATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) Did your vehicle get there within the 24-hour period after 2 A.M.?
- e) What was the purpose for this stop?
(CHECK ONE)
- f) Please list the items delivered and their weights (or quantities).
- g) Please list the items picked up and their weights (or quantities).
- h) Was your vehicle driven elsewhere within the 24-hour period?

To: _____
(CITY, TOWN, COUNTY) (STATE)

(ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

Miles _____

Yes . . . (GO TO ITEM e)
 No . . . (PLEASE RETURN QUESTIONNAIRE)

1) Deliver or pickup commodities - (GO TO ITEM f)
2) Transport driver or passengers - (GO TO ITEM h)
3) Refuel, eat, or rest - (GO TO ITEM h)

Yes . . . (GO TO NEXT BOX)
 No . . . (PLEASE RETURN QUESTIONNAIRE)

- | | | | |
|-----------------------|--|-----------------------------|---|
| TYPES
OF
PLACES | 1. Railyard | 7. Factory building | 13. Other non-residential structure |
| | 2. Airport | 8. Office building | 14. Residential structure |
| | 3. Boat dock or pier | 9. Barn or silo | 15. Construction site |
| | 4. Store or market | 10. Animal pens | 16. Farm field or other field |
| | 5. Truck terminal | 11. Garage, service station | 17. Quarry, gravel pit, stone crusher, etc. |
| | 6. Warehouse other than a truck terminal | 12. Truck stop | 18. Forest |
| | | | 19. Other type of place |

FOURTH DESTINATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes . . . (GO TO NEXT BOX)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p>
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FIFTH DESTINATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes . . . (GO TO NEXT BOX)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p>
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SIXTH DESTINATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes . . . (GO TO NEXT BOX)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p>
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|--------------------------------|--|--|---|
| <p>TYPES
OF
PLACES</p> | <p>1. Railyard
2. Airport
3. Boat dock or pier
4. Store or market
5. Truck terminal
6. Warehouse other than a truck terminal</p> | <p>7. Factory building
8. Office building
9. Barn or silo
10. Animal pens
11. Garage, service station
12. Truck stop</p> | <p>13. Other non-residential structure
14. Residential structure
15. Construction site
16. Farm field or other field
17. Quarry, gravel pit, stone crusher, etc.
18. Forest
19. Other type of place</p> |
|--------------------------------|--|--|---|

SEVENTH DESTINATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <hr style="border-top: 1px dashed black;"/> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes . . . (GO TO NEXT BOX)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p>
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EIGHTH DESTINATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <hr style="border-top: 1px dashed black;"/> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes . . . (GO TO NEXT BOX)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p>
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NINTH DESTINATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <hr style="border-top: 1px dashed black;"/> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes . . . (GO TO NEXT BOX)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p>
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|---|---|---|---|
| <p>TYPES</p> <p>OF</p> <p>PLACES</p> | <p>1. Railyard</p> <p>2. Airport</p> <p>3. Boat dock or pier</p> <p>4. Store or market</p> <p>5. Truck terminal</p> <p>6. Warehouse other than a truck terminal</p> | <p>7. Factory building</p> <p>8. Office building</p> <p>9. Barn or silo</p> <p>10. Animal pens</p> <p>11. Garage, service station</p> <p>12. Truck stop</p> | <p>13. Other non-residential structure</p> <p>14. Residential structure</p> <p>15. Construction site</p> <p>16. Farm field or other field</p> <p>17. Quarry, gravel pit, stone crusher, etc.</p> <p>18. Forest</p> <p>19. Other type of place</p> |
|---|---|---|---|

TENTH DESTINATION

<p>a) Where was the vehicle driven at this time?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) Did your vehicle get there within the 24-hour period after 2 A.M.?</p> <p>e) What was the purpose for this stop? (CHECK ONE)</p> <p>f) Please list the items delivered and their weights (or quantities).</p> <p>g) Please list the items picked up and their weights (or quantities).</p> <p>h) Was your vehicle driven elsewhere within the 24-hour period?</p>	<p>To: _____ (CITY, TOWN, COUNTY) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p><input type="checkbox"/> Yes . . . (GO TO ITEM e)</p> <p><input type="checkbox"/> No . . . (PLEASE RETURN QUESTIONNAIRE)</p> <p>1) <input type="checkbox"/> Deliver or pickup commodities - (GO TO ITEM f)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO ITEM h)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO ITEM h)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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SECTION C - MULTISTOP TRIPS (FOR TRUCKS WITH 11 OR MORE STOPS)

FIRST DESTINATION IN MULTISTOP OPERATION

<p>a) Where was the vehicle first driven after 2 A.M.?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from where the vehicle was at 2 A.M.?</p> <p>d) What was the purpose for this stop? (CHECK ONE)</p> <p>e) Please list the items delivered and their weights (or quantities).</p> <p>f) Please list the items picked up and their weights (or quantities).</p>	<p>To: _____ (ADDRESS OR OTHER LOCATION) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p>1) <input type="checkbox"/> Deliver or pick up commodities - (GO TO ITEM e)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO NEXT BOX)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO NEXT BOX)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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SECOND DESTINATION IN MULTISTOP OPERATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) What was the purpose for this stop? (CHECK ONE)</p> <p>e) Please list the items delivered and their weights (or quantities).</p> <p>f) Please list the items picked up and their weights (or quantities).</p>	<p>To: _____ (ADDRESS OR OTHER LOCATION) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p>1) <input type="checkbox"/> Deliver or pick up commodities - (GO TO ITEM e)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO NEXT BOX)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO NEXT BOX)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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- | | | |
|---|---|---|
| <p>TYPES OF PLACES</p> <p>1. Railyard</p> <p>2. Airport</p> <p>3. Boat dock or pier</p> <p>4. Store or market</p> <p>5. Truck terminal</p> <p>6. Warehouse other than a truck terminal</p> | <p>7. Factory building</p> <p>8. Office building</p> <p>9. Barn or silo</p> <p>10. Animal pens</p> <p>11. Garage, service station</p> <p>12. Truck stop</p> | <p>13. Other non-residential structure</p> <p>14. Residential structure</p> <p>15. Construction site</p> <p>16. Farm field or other field</p> <p>17. Quarry, gravel pit, stone crusher, etc.</p> <p>18. Forest</p> <p>19. Other type of place</p> |
|---|---|---|

THIRD DESTINATION IN MULTISTOP OPERATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) What was the purpose for this stop?
(CHECK ONE)
- e) Please list the items delivered and their weights (or quantities).
- f) Please list the items picked up and their weights (or quantities).

To: _____
(ADDRESS OR OTHER LOCATION) (STATE)

(ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

Miles _____

- 1) Deliver or pick up commodities - (GO TO ITEM e)
 2) Transport driver or passengers - (GO TO NEXT BOX)
 3) Refuel, eat, or rest - (GO TO NEXT BOX)

FOURTH DESTINATION IN MULTISTOP OPERATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) What was the purpose for this stop?
(CHECK ONE)
- e) Please list the items delivered and their weights (or quantities).
- f) Please list the items picked up and their weights (or quantities).

To: _____
(ADDRESS OR OTHER LOCATION) (STATE)

(ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

Miles _____

- 1) Deliver or pick up commodities - (GO TO ITEM e)
 2) Transport driver or passengers - (GO TO NEXT BOX)
 3) Refuel, eat, or rest - (GO TO NEXT BOX)

FIFTH DESTINATION IN MULTISTOP OPERATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) What was the purpose for this stop?
(CHECK ONE)
- e) Please list the items delivered and their weights (or quantities).
- f) Please list the items picked up and their weights (or quantities).

To: _____
(ADDRESS OR OTHER LOCATION) (STATE)

(ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

Miles _____

- 1) Deliver or pick up commodities - (GO TO ITEM e)
 2) Transport driver or passengers - (GO TO NEXT BOX)
 3) Refuel, eat, or rest - (GO TO NEXT BOX)

- | | | | |
|--------|--|-----------------------------|---|
| TYPES | 1. Railyard | 7. Factory building | 13. Other non-residential structure |
| OF | 2. Airport | 8. Office building | 14. Residential structure |
| PLACES | 3. Boat dock or pier | 9. Barn or silo | 15. Construction site |
| | 4. Store or market | 10. Animal pens | 16. Farm field or other field |
| | 5. Truck terminal | 11. Garage, service station | 17. Quarry, gravel pit, stone crusher, etc. |
| | 6. Warehouse other than a truck terminal | 12. Truck stop | 18. Forest |
| | | | 19. Other type of place |

FOURTH FROM THE LAST STOP IN MULTISTOP OPERATION

- a) Where was the vehicle driven at this time?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) What was the purpose for this stop?
(CHECK ONE)
- e) Please list the items delivered and their weights (or quantities).
- f) Please list the items picked up and their weights (or quantities).

To: _____
(ADDRESS OR OTHER LOCATION) (STATE)
 (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

- Miles _____
- 1) Deliver or pick up commodities - (GO TO ITEM e)
 - 2) Transport driver or passengers - (GO TO NEXT BOX)
 - 3) Refuel, eat, or rest - (GO TO NEXT BOX)

THIRD FROM THE LAST STOP IN MULTISTOP OPERATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) What was the purpose for this stop?
(CHECK ONE)
- e) Please list the items delivered and their weights (or quantities).
- f) Please list the items picked up and their weights (or quantities).

To: _____
(ADDRESS OR OTHER LOCATION) (STATE)
 (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

- Miles _____
- 1) Deliver or pick up commodities - (GO TO ITEM e)
 - 2) Transport driver or passengers - (GO TO NEXT BOX)
 - 3) Refuel, eat, or rest - (GO TO NEXT BOX)

SECOND FROM THE LAST STOP IN MULTISTOP OPERATION

- a) Where was the vehicle driven next?
- b) What type of place is it?
- c) How many miles is this place from the previous place?
- d) What was the purpose for this stop?
(CHECK ONE)
- e) Please list the items delivered and their weights (or quantities).
- f) Please list the items picked up and their weights (or quantities).

To: _____
(ADDRESS OR OTHER LOCATION) (STATE)
 (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)

- Miles _____
- 1) Deliver or pick up commodities - (GO TO ITEM e)
 - 2) Transport driver or passengers - (GO TO NEXT BOX)
 - 3) Refuel, eat, or rest - (GO TO NEXT BOX)

- | | | | |
|-----------------------|--|-----------------------------|---|
| TYPES
OF
PLACES | 1. Railyard | 7. Factory building | 13. Other non-residential structure |
| | 2. Airport | 8. Office building | 14. Residential structure |
| | 3. Boat dock or pier | 9. Barn or silo | 15. Construction site |
| | 4. Store or market | 10. Animal pens | 16. Farm field or other field |
| | 5. Truck terminal | 11. Garage, service station | 17. Quarry, gravel pit, stone crusher, etc. |
| | 6. Warehouse other than a truck terminal | 12. Truck stop | 18. Forest |
| | | 19. Other type of place | |

NEXT TO THE LAST STOP IN MULTISTOP OPERATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) What was the purpose for this stop? (CHECK ONE)</p> <p>e) Please list the items delivered and their weights (or quantities).</p> <p>f) Please list the items picked up and their weights (or quantities).</p>	<p>To: _____ (ADDRESS OR OTHER LOCATION) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p>1) <input type="checkbox"/> Deliver or pick up commodities - (GO TO ITEM e)</p> <p>2) <input type="checkbox"/> Transport driver or passengers - (GO TO NEXT BOX)</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest - (GO TO NEXT BOX)</p> <p>_____ _____ _____ _____ _____</p>
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LAST STOP IN MULTISTOP OPERATION

<p>a) Where was the vehicle driven next?</p> <p>b) What type of place is it?</p> <p>c) How many miles is this place from the previous place?</p> <p>d) What was the purpose for this stop? (CHECK ONE)</p> <p>e) Please list the items delivered and their weights (or quantities).</p> <p>f) Please list the items picked up and their weights (or quantities).</p>	<p>To: _____ (ADDRESS OR OTHER LOCATION) (STATE)</p> <p><input type="checkbox"/> (ENTER THE NUMBER SHOWN BELOW FOR THAT PLACE)</p> <p>Miles _____</p> <p>1) <input type="checkbox"/> Deliver or pick up commodities - (GO TO ITEM e)</p> <p>2) <input type="checkbox"/> Transport driver or passengers</p> <p>3) <input type="checkbox"/> Refuel, eat, or rest -</p> <p>_____ _____ _____ _____ _____</p>
--	---

THANK YOU. PLEASE RETURN QUESTIONNAIRE

<p>TYPES OF PLACES</p> <p>1. Railyard</p> <p>2. Airport</p> <p>3. Boat dock or pier</p> <p>4. Store or market</p> <p>5. Truck terminal</p> <p>6. Warehouse other than a truck terminal</p>	<p>7. Factory building</p> <p>8. Office building</p> <p>9. Barn or silo</p> <p>10. Animal pens</p> <p>11. Garage, service station</p> <p>12. Truck stop</p>	<p>13. Other non-residential structure</p> <p>14. Residential structure</p> <p>15. Construction site</p> <p>16. Farm field or other field</p> <p>17. Quarry, gravel pit, stone crusher, etc.</p> <p>18. Forest</p> <p>19. Other type of place</p>
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Figure IV-2

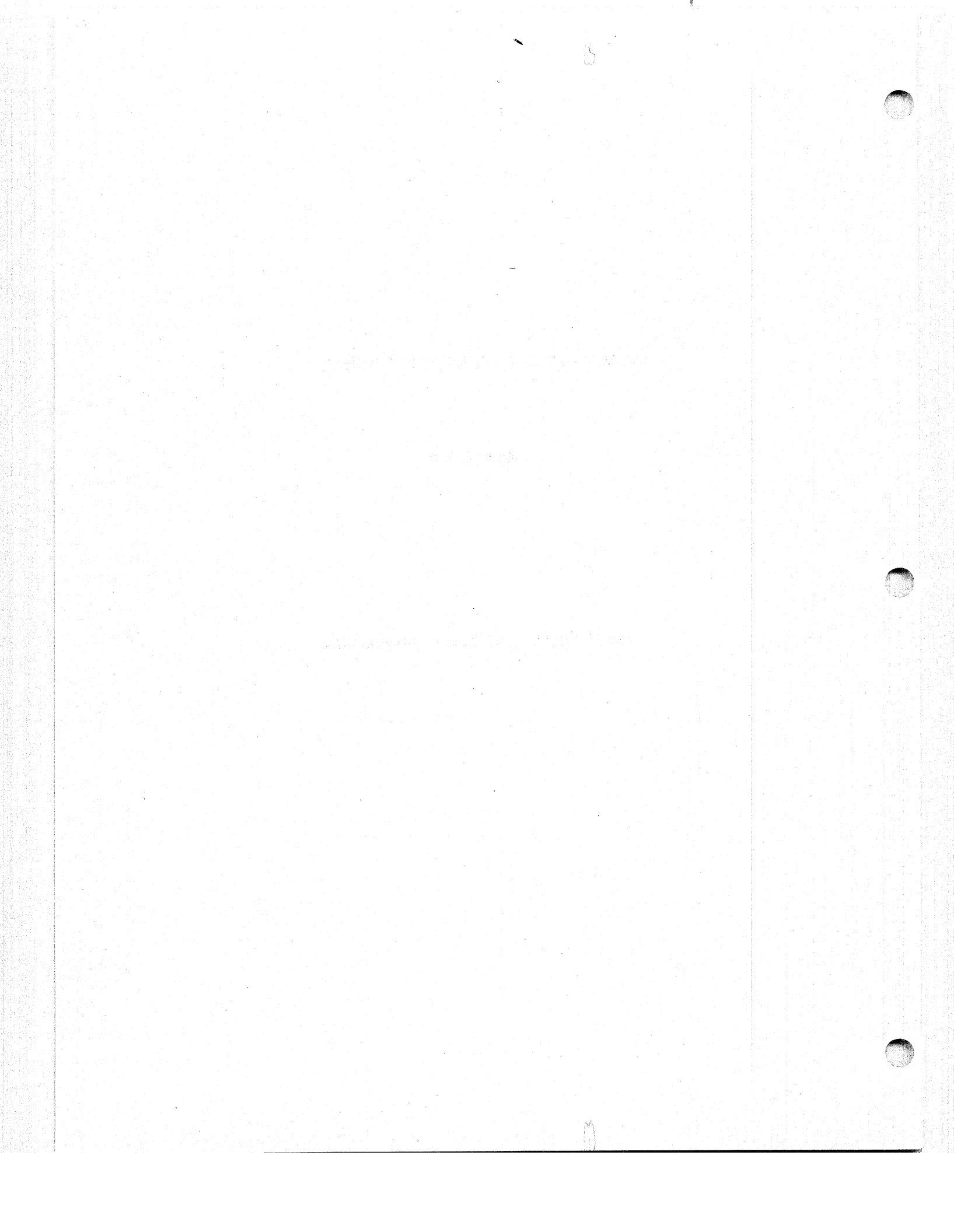
1. LICENSE NUMBER A 16335		TRUCK USAGE PILOT STUDY CONTROL CARD - 1			2. IDENTIFICATION NUMBER XX 05 07 36 007 STATE MONTH DAY WEIGHT Seq.#			
ACTIVITY CONTROL					3. DAY OF WEEK Thursday			
					4. TYPE OF ACTIVITY		5. SCHEDULED 5. DAY 6. DATE	
(A) MAIL		Mon. 5/4		✓		11. NOTES:		
(B) MAIL REMINDER		Wed. 5/6		✓				
(C) MAIL FOLLOW UP - 1		Mon. 5/11		✓				
(D) MAIL FOLLOW UP - 2		Mon. 5/18		✓				
(E) SUBSTITUTE TRAVEL DAY		Thurs 5/21		✓				
(F) CUT-OFF DAY		Mon. 5/25						
REG. NAME: REG. ADDRESS:					18. DATE RECEIVED: 5/25			
9. FINAL RESPONSE STATUS (CHECK ONE)		ANSWERED ALL OR IN PART	REFUSED	TRUCK SOLD OR WRECKED	UNDELIVERABLE	DATA NOT AVAILABLE	RECEIVED AFTER CUT-OFF	NOT RECEIVED
✓								

Above entries are for illustrative purposes only

GUIDE FOR TRUCK WEIGHT STUDY MANUAL

Appendix A

Field Editing of Truck Weight Data



I. Introduction

Prior to the submittal of truck weight study data to the Federal Highway Administration, the number 4 classification count cards and number 7 truck weight cards should be edited by the State using the field edit program. (Refer to Appendix C for card formats.) This appendix describes the COBOL program which was made available to the States by FHWA Notice dated December 2, 1970. Its use indicated a considerable improvement in running time efficiency as compared to the earlier FORTRAN version developed by the Federal Highway Administration. In addition to the computer editing, a manual edit by visual examination and review of the listing of the sorted file should be performed by Federal Highway Administration division office personnel prior to their forwarding the data and edit run listings to Washington.

The COBOL program is described in the following sections:

- II. General description
- III. Description of data file for input
- IV. Parameter cards
- V. The edit process
- VI. Printed output

II. General description

The original version of this COBOL truck weight edit program was written by the California Department of Public Works, Division of Highways. The California program has now been modified jointly by personnel of that State and the Federal Highway Administration to make it usable by other States able to process IBM S/360 COBOL F level or American National Standard COBOL programs on their computer. The program source decks for either language are available upon request to the Program Management Division, Office of Highway Planning, Federal Highway Administration.

The program edits the number 4 and number 7 cards (both face and continuation) for any one State's data for the year specified in the single control card. It will accept data card images as system input and produces a master file on tape or disk of the valid records passing the edit. All records input are listed and, in addition, error messages for each invalid record are listed in the right-hand margin after skipping one line and listing the invalid record. Any record with one or more errors is not written in the new master file, even though it is listed on the printout.

The program is also used to update the old master file and produce a new master file. Individual records may be deleted, new records may be added, and old records may be replaced with a new correct record.

III. Description of data file for input

The input file of original data records or update records can contain either the 4 cards, the 7 cards, or both. The records must be sorted in ascending order from column 1 through column 17 and column 77 through column 80. If data are not properly sorted, the program will come to an abnormal end when it hits the first record out of sort. The original data, master file on tapes, should not be resorted for update runs as this old master was originally created from a sorted file. The update records must be in the same sort as the original data records. Replacement records are records with each item in the columns 1-17 and 77-80 being identical to records on the old master. If columns 18-75 are blank, then the original record is deleted from the file. If the input record is complete and there is no match on the old master file, then the record is added as a new record to the new master file at the proper sort location. Any complete record which matches in columns 1-17 and 77-80 and has data between 18 and 76 will replace the existing record.

On the first run of the data file, the input master file is dummied, because all records will come in on the update file. On later runs the new master file from the last run is used as the input master file. The input master file data are not edited again.

IV. Parameter cards

Only one parameter card is input to the program. This card must be the first data record in the update file. It contains a "1" in column 1, the truck weight study State code in columns 2 and 3, and the last two digits of the year of the data being edited in columns 4 and 5. The 4 cards, 7 cards, or 4 and 7 cards can follow this record.

V. The edit process

- A. The face card of a number 4 card series may be a complete set by itself and have a "0" in column 80. If it contains a "1" in column 80 it must be followed by from one to eight continuation cards with the last card indicated by a "9" in column 80. Intermediate cards may carry any number other than 0, 1, or 9 in column 80.
- B. The face card of a number 7 card series may also be a complete set by itself and, therefore, would have a "0" in column 80. If a second card is to follow then the first card will contain a "1" in column 80 and the second card will contain a "9" in column 80. If a pair of cards make up a set, then they will be edited as a single record. Total weights in columns 42-45 of the face card must be the total of the axle weight fields between columns 46 and 60 of the face card and columns 29 and 52 of the continuation card. Also, the wheelbase in columns 73-76 of the face card must equal the total of the entries in the axle spacing fields between columns 61 and 72 of the face card and columns 42 and 76 of the continuation card.

- C. Another check that will be made is to ensure that no alphabetic characters exist in the number 7 face card commodity code columns 36-40. If the old code P4lnn exists, it will not be treated as an error but will be converted to 43nn0 and written on the master file.
- D. No data records will be edited twice with the exception of some 7 cards where one of a pair was accepted on the old master, but the second is in the update file. Since the two cards make one record, the edit process will cover both cards after the update of the record is completed.
- E. Warning: Appendix C on preparation of truck weight and classification data specifies that all data fields which have an entry must be filled with leading or trailing zeros. If not, this edit rejects the record.
- F. Other specific edits performed on each card type are indicated on the following pages.

VI. Printed output

Each page of the output will have a heading which will include the program name, the statement "loadometer listing for card type (4 or 7)" and two rows of numbers which indicate the column of the output. This is followed by 40 lines of listed cards and/or error messages.

The final output of the program will be a summary of records processed which will include the following:

Records read is defined as the total number of transactions input from both the input file and old master file.

Records written is defined as the number of good data records written out on the error-free new master file.

Error records is defined as the number of transactions read as input but not output to the error-free new master due to one or more errors.

Face sets is defined as the number of input transactions with column 80 equal to "zero."

Continuation sets is defined as the number of input transactions with column 80 equal to "one."

Classification Card Valid Edit Values

<u>Face card 4</u>	<u>Continuation card 4</u>
Col. 1 =4	Col. 1-17 =face card preceding it
Col. 2-3 =must agree with col. 2-3 of parameter card	Col. 18-23=numeric or blank
Col. 4-5 =01-12, 31-32, 41, 42	Col. 24-27= " " "
Col. 6-8 =numeric or alpha (not blank)	Col. 28-33= " " "
Col. 9 =0-9	Col. 34-37= " " "
Col. 10-11=must agree with col. 4-5 of parameter card	Col. 38-43= " " "
Col. 12-13=01-12	Col. 44-47= " " "
Col. 14-15=01-31	Col. 48-53= " " "
Col. 16-17=00-23	Col. 54-57= " " "
Col. 18-22=numeric or blank	Col. 58-63= " " "
Col. 23-27= " " "	Col. 64-67= " " "
Col. 28-32= " " "	Col. 68-75=blank
Col. 33-37= " " "	Col. 76 =any value (not checked)
Col. 38-40= " " "	Col. 77-79=numeric
Col. 41-44= " " "	Col. 80 =any value 2-9
Col. 45-47= " " "	
Col. 48-51= " " "	
Col. 52-55= " " "	
Col. 56-59= " " "	
Col. 60-62= " " "	
Col. 63-65= " " "	
Col. 66-69= " " "	
Col. 70-73= " " "	
Col. 74-75=blank	
Col. 76 =any value (not checked)	
Col. 77-79=numeric	
Col. 80 =0 and must <u>not</u> be followed by a continuation, or =1 and must be followed by a continuation	

Weight Card Valid Edit Values

<u>Face card 7</u>		
Col. 1	=7	
Col. 2-3	=must agree with col. 2-3 of parameter card	Col. 70-72=numeric or blank
Col. 4-5	=01-12, 21-31	Col. 73-76=sum of 61-72 fields and 56-76 on continuation card
Col. 6-8	=numeric or alpha (not blank)	Col. 77-79=numeric
Col. 9	=0-9	Col. 80 = 0 or 1
Col. 10-11	=must agree with col. 4-5 of parameter card	
Col. 12-13	=01-12	<u>Continuation card 7</u>
Col. 14-15	=01-31	Col. 1-28 =face card preceding it
Col. 16-17	=00-23	Col. 29-31=
Col. 18-23	=greater than 199999 numeric	Col. 32-34=
Col. 24-25	=11-94	Col. 35-37=
Col. 26	=1-5, 9	Col. 29-52 numeric or blank, see face card 42-45
Col. 27-28	=numeric	Col. 38-40=
Col. 29-31	"	Col. 41-43=
Col. 32	=1-3, 5, 6, 9	Col. 44-46=
Col. 33-34	=numeric	Col. 47-49=
Col. 35	=1-3, 9	Col. 50-52=
Col. 36-40	=numeric or col. 36-38="P41"	Col. 53-55=
Col. 41	=0, 1, 2	Col. 56-58=
Col. 42-45	=sum of 46-60 fields and 29-52 on continuation card	Col. 59-61=
Col. 46-48	=numeric or blank	Col. 62-64=
Col. 49-51	" " "	Col. 65-67=
Col. 52-54	" " "	Col. 68-70=
Col. 55-57	" "" "	Col. 71-73=
Col. 58-60	" " "	Col. 74-76=
Col. 61-63	" " "	Col. 77-79=numeric
Col. 64-66	" " "	Col. 80 =9
Col. 67-69	" " "	

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GUIDE FOR TRUCK WEIGHT STUDY MANUAL

Appendix B

Summarizing Truck Weight Data —
The FHWA Program Battery and
Summary Tables

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I. Introduction

In order for the results of the annual trucking characteristics study to be of value to the many users, the results must be made available in an appropriate form. Vehicle classification and truck weight data are submitted annually by the highway departments to the Program Management Division in the form of punched data cards or card images on magnetic tape. The data are processed by computer and summary tables are produced and returned to the States. This series of tables replaces the series of "W" tables previously submitted annually by each State to the Federal Highway Administration.

This appendix provides a brief description of several computer programs in the analysis battery and sample output from each. The following programs are discussed in the sections indicated:

- II. Unit edit
- III. Edit sort
- IV. Edit merge
- V. W-1, W-2 report
- VI. W-3 report
- VII. Weight frequency report (formerly W-4 and W-5)
- VIII. W-6 report
- IX. W-7 report

Modifications to the output listings are anticipated and will be made as time allows, with initial efforts directed to revision of the weight frequency reports.

II. Unit edit program

Although all vehicle classification and truck weight data should have been processed by the field edit program prior to submittal to FHWA, the data are processed by two additional editing procedures prior to producing the summary tables. The first of these is unit edit. This program checks individual cards or card images (number 4 or number 7 cards) for format and range acceptability. The following steps are performed:

- A. All input records (cards or card images on magnetic tape) are listed; those records with errors are preceded by the appropriate error message.
- B. Records with errors are punched on cards to facilitate correction and resubmittal to the unit edit program.
- C. Records which meet the unit edit requirements for format readability and field acceptance are placed on magnetic tape for subsequent processing.

The unit edit program checks individual data fields and columns for unacceptable blanks and alphabetic characters. Data fields are checked for acceptable ranges of data. When the program detects one or more errors in a card, the appropriate error messages are printed followed by the card. Some errors are critical which means no further edit checks will be made. Following is a description of possible error messages:

- ALPHbbnn - A nonnumeric character was detected in an integer or real number field.
- RNGEbbnn - The value in the field is not one of those acceptable to the field.
- TYPEbb01 - The input data consist of both classification and truck weight data cards. Only one or the other is acceptable.
- STTNbb08 - The station field is blank.
- BLNKbbnn - The field, which must be coded, is blank.
- bb - Designates blank columns in the message.
- nn - Designates the last column of the field.

The results of the unit edit and edit-merge programs will be transmitted to the States on a regular basis along with the summary tables. They provide the State with a listing of data received by the Federal Highway Administration and a listing of unacceptable and rejected data. Therefore, discussions of these programs are included to provide information on the editing procedures performed prior to producing the summary tables.

The following table specifies some of the checks that are made and the program where each is accomplished. The card formats referred to are in Appendix C.

<u>Cols.</u>	<u>Field</u>	<u>Range</u>	<u>Card type</u>	<u>Program</u>
1	Card type	4 or 7	4 or 7 respectively and only one type at a time	Unit edit
2-3	State	1-9, 11-19, 21-29, 31-37, 41-44, 51-58, 61-66	4, 7	Unit edit
4-5	Highway system	1-12, 21-32, 41-42	4, 7	Unit edit

<u>Cols.</u>	<u>Field</u>	<u>Range</u>	<u>Card type</u>	<u>Program</u>
10-11	Year	Same as specified in control card for all records	4, 7	Unit edit
12-13	Month	1-12	4, 7	Unit edit
14-15	Day	1-31	4, 7	Unit edit
16-17	Hour	00-23	4, 7	Unit edit
18-23	Vehicle type	200,000 - 889,998	7	Unit edit
24-25	Body type	11-94	7	Unit edit
26	Engine/fuel type	1-4, 8, 9	7	Unit edit
32	Basis of registration	1-6, 9	7 face card	Unit edit
35	Class of operation	1-3, 9	7 face card	Unit edit
36-40	Commodity code	00000 if col. 41 = 0. Not 00000 if col. 41 = 1 or 2	7 face card	Unit edit
41	Empty or loaded	0-2	7 face card	Unit edit
42-45	Total weight	Total weight must equal sum of axle weights	7 face card	Edit-merge
73-76	Total wheelbase	Total wheelbase must equal sum of axle spacings	7 face card	Edit-merge
77-79	Sequence number	Nonzero. Correct match between face and continuation	4, 7 4, 7	Unit edit Edit-merge
80	Continuation	0, 1, 9 0, 1-9	7 4	Edit-merge Edit-merge

III. Edit sort program

The program accepts either truck weight or classification data that have been successfully passed through the unit edit program. These magnetic tapes contain 82-character length records. The edit sort

program sorts the data on the input tapes into the order required for the master tapes and subsequent processing. The table below shows the priority of the sort.

<u>Priority</u>	<u>Columns</u>	<u>Description</u>
1	2-3	State
2	4-5	Highway system
3	6-8	Station
4	9	Direction
5	12-13	Month
6	14-15	Day
7	16-17	Hour
8a	76-79	Serial number (number 4 cards)
8b	77-79	Serial number (number 7 cards)
9	80	Continuation code

IV. Edit-merge program

The edit-merge program performs the following functions:

- A. Creates the initial master classification or truck weight tape for a particular year.
- B. Updates an existing master tape with additions, corrections, or both, creating a new master file.
- C. Ensures that the master tape being created is processable; i.e., records are complete and in sequential order. This is the second of the two editing steps performed on data submitted from the field.

The edit-merge program accepts two tape files as input: an old master file to be updated, and additions and corrections that have been passed successfully through the unit edit and edit sort programs. When an initial master tape is to be created, a dummy file replaces the old master file as input to the edit-merge program. The output from the edit-merge is:

- A. New or updated master classification or truck weight tape.
- B. Listing of records in error preceded by the appropriate error message.
- C. Punched 80-character error records with the characters in columns 81 and 82 replacing the characters in columns 4 and 5 to facilitate corrections by duplication. Corrected cards are submitted to the unit edit and edit sort programs prior to resubmittal to the edit-merge.

Processing of records by the edit-merge program includes the following checks:

- A. If the continuation code = 0, the next card must be a face card (continuation code = 0 or 1).
- B. For classification face cards (type = 4), if the continuation code = 1, up to 8 continuation cards may follow with codes numbered 2-9. No matter how many continuation cards are in the set, the last card in the set must have a continuation code of 9.
- C. For a truck weight card set (type = 7), only a 9 continuation card may follow a 1 card.
- D. The file may contain either truck weight or classification records, but not both.
- E. If any errors are found in a card set, the entire set (face card and its continuation cards) is flagged, listed, and punched. No cards from the set will be written on the master file.
- F. If truck weight records are being processed, additional checks are made of axle weights and spacings, and their totals.
- G. If the card set has no errors, it is written on the master file.

When an error is detected, the message will be printed out followed by the record(s) in error. RESCUE means REsubmit Corrected card(s) to the Unit-Edit program.

***HEADER CARD (0 OR 1 IN COL. 80) IS MISSING
User response: RESCUE

***MISSING CONTINUATION CARD OR RECORD
Explanation: A face record was encountered before the
record set was complete.
User response: RESCUE

***NEITHER TOTAL WEIGHT NOR WHEELBASE EQUALS SUM OF AXLE
WEIGHTS AND SPACINGS RESPECTIVELY
User response: Check to see if face and continuation cards
belong together. RESCUE

***NUMBER OF AXLE SPACINGS DOES NOT CORRESPOND WITH NUMBER
OF AXLE WEIGHTS
User response: RESCUE

***NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE

User response: RESCUE

***SERIAL NUMBERS DO NOT MATCH

Explanation: A face card is followed by a continuation card with an unequal serial number.

User response: RESCUE

***TOTAL WEIGHT DOES NOT EQUAL SUM OF AXLE WEIGHTS

User response: RESCUE

***TOTAL WHEELBASE DOES NOT EQUAL SUM OF AXLE SPACINGS

User response: RESCUE

Sample output of the edit-merge is shown in table B-1.

V. W-1, W-2 report

A series of computer programs, the station description report and ACUM system, have been developed to tabulate information previously presented in the W-1 and W-2 tables. The station description report is a presentation of station identification data from the number 2 cards (see Appendix C). This information was previously found in the W-1 table. A sample copy of the station description report is shown in table B-2.

The ACUM system consists of three main programs: ACCUMU, PRNTW1, and PRNTW3. The PRNTW3 program will be discussed in section VI. The initial program, ACCUMU, performs the following functions:

- A. Reads edited classification and truck weight data for the study year and prior year.
- B. Accumulates count and weight data (loaded and empty, gas, diesel, and other) for each vehicle type within the desired report breakdown of station, highway system, State, census division, and Nation.
- C. Creates tape output for reports categorized as above.

The ACCUMU program stores vehicle classification and truck weight data for the current and previous year. The stored data are later used as input to the programs that print the W-1, W-2 report, W-3 report, and W-7 report. Four edited master tapes of classification and truck weight data are required input to the ACCUMU program. The output of ACCUMU consists of one total tape and one subtotal tape. Each has data accumulated within the categories of station, highway system, State, census division, and Nation. The total tape has data for each vehicle type and for groupings of vehicle types, while the subtotal tape has data only for groupings of vehicle types.

Table B-1 - ~~444~~ ~~xxxx~~ ~~xxxx~~ Output

***FIRST READ INSTRUCTION FOR THE MASTER TAPE PRODUCED AN EOF CONDITION - WILL PROCESS SORT TAPE ONLY	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 105216908141720100011990003681000000330340420702802102310304326304204511530	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10364690623132010007919900036414300020106022091028025	106178208 049222390
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10367690623082010007919900016014300020078030031017	1101176 02860560
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10367690623082010007919900016814300020070027027016	106113 02190740
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10368690623122020001219900036813790010065024030011	106153 02592250
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10391690701122100023199000365139900101704005402703302314718203703704031540	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 103956907011222100041199000569300000022055122023022	177178038 03932100
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1036869062310221000771990003652000000170244069044034	105368209 06821320
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10391690701092210007919900036814300020118031032027028	112234029 03750480
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1039169070109221000881990003692000000164030055037044	069280030 03790550
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1032569070306221000212990001671242001073309015815416616512204427004104770240	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1035369071112210004129900036512510010246069084051042	097255042 03942940
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10367690623082210007929900036914300020190024065058043	096412206 07140750
*** NUMBER OF AXLE SPACINGS DOES NOT CORRESPOND WITH NUMBER OF AXLE WEIGHTS	
716 1035369082115221300231990003661000000082054013015	133215024 03720900
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10368690623102220001219900016910000000993028029020016	110160038 03081500
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10368690623102220007719900016710000000208028059060061	100380053 05331150
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1036869062312220007719900016710000000174031063035045	108403209 07202030
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10368690623102220007919900016324300020171033063041034	107355209 06711300
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1036869062312220008819900016810000002160300820400360281074	1002402405652220
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10367690623082220004129900016824400010465090150117108	124220042 03860790
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10367690623082220005129900036510000000274083091045055	123272044 04390820
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1036769062308232000212990003681243001070109314714316215610004328004304660680	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1036769062308232000412990003621357001038508610307805506111004128404204770610	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 103676906230823200041299000369101390107508515014815014210104328204104670660	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 1036769062308232000412990003681265001041208410009706208909704023604204150690	
*** NUMBER OF AXLES DOES NOT CORRESPOND WITH TYPE OF VEHICLE	
716 10357690711083210002119900036814021010048024024	107 01071000
*** NUMBER OF AXLE SPACINGS DOES NOT CORRESPOND WITH NUMBER OF AXLE WEIGHTS	
716 1036469062311321000412990003651209001017207207016012	072314 03861550
*** NUMBER OF AXLE SPACINGS DOES NOT CORRESPOND WITH NUMBER OF AXLE WEIGHTS	

Table B-2.

Station Description Report

(This page to be supplied at a later date.)

Since both the PRNTW1 and PRNTW3 programs use the same output tape of ACCUMU, either one may be executed sequentially following the initial program. The PRNTW1 program reads the classification and truck weight data output from ACCUMU, computes the specified columns and lines, and prints the W-1, W-2 report in accordance with the table requirements. This report is a tabulation, by station and vehicle type, of the number of vehicles counted, number of trucks weighed and a percentage distribution of each for the current and previous years. Vehicle types are grouped into the following major categories: passenger cars, buses, single-unit trucks, tractor-semitrailer combinations, and truck-full trailer combinations. Each of these categories is further subdivided into specific vehicle types according to the six-digit vehicle code presented in Appendix C. This summary combines in one table information previously presented separately in the W-1 and W-2 tables. A sample W-1, W-2 report for all stations in Virginia is shown in table B-3.

VI. W-3 report

The PRNTW3 program is used to produce the W-3 report. This program also reads the tape output generated by the ACCUMU program and then prints the W-3 tables. The W-3 report is composed of all truck vehicle types commencing with the single-unit trucks and excluding motorcycles, passenger cars, and buses. Each report is divided into gas, diesel, other, and combined fuel reports. Within these divisions information is presented on number of loaded and empty vehicles, average weight, and average loads by vehicle type for the current year and a previous year. Subtotals are calculated for single-unit trucks, tractor-semitrailer, truck-full trailer, total combinations, and total trucks and combinations. Totals for all trucks are also reported. These reports follow the structure of the old W-3 tables. A sample W-3 report is shown in table B-4.

VII. Weight frequency report (formerly W-4 and W-5)

The weight frequency report program (WTFREQ) reads the sorted truck weight data and computes several frequency distributions of axle weights and spacings. The program computes the total 18-kip equivalents for both rigid and flexible pavements and breaks each into 12 categories. For rigid pavements, the 12 categories are for pavements with "D2" values of 6 through 11 and values for "P" equal to 2.0 and 2.5 for each "D2" value. Similarly the flexible pavement tables are broken into six groups having "SN" values of 1 through 6 and further subdivided by "P" values of 2.0 and 2.5. The WTFREQ program also computes the maximum bending moments on bridges with spans of 40, 60, 80 and 100 feet for each vehicle weighed.

The program produces summary tables including the following weight and axle spacing tables for each State by highway system for each vehicle type:

- A. Number of vehicles empty and loaded, average weight, average carried load.

TABLE W1,W2

STATE OF VIRGINIA

TOTAL

VEHICLE TYPE	NUMBER COUNTED			PERCENTAGE DISTRIBUTION			DISTRIBUTION			NUMBER WEIGHED		PERCENT DIST. OF NUMBER WEIGHED		WEIGHED AS A PERCENT OF COUNTED	
	1970	1969	RATIO	TOTAL VEHICLES 1970	1969	RATIO	TRUCKS & COMB. 1970	1969	RATIO	1970	1969	1970	1969	1970	1969
PASSENGER VEHICLES															
30000	806	602	1.34	0.27	0.21	1.29									
MOTORCYCLE-SCOOTER	806	602	1.34	0.27	0.21	1.29									
PASSENGER CARS															
61000	11315	10008	1.13	3.85	3.54	1.09									
SMALL IN STATE	11315	10008	1.13	3.85	3.54	1.09									
62000	5196	4216	1.23	1.77	1.49	1.18									
SMALL OUT OF STATE	5196	4216	1.23	1.77	1.49	1.18									
SUBTOTAL, SMALL	11315	10008	1.13	3.85	3.54	1.09									
71000	139882	140554	1.00	47.56	49.77	0.96									
STD-COMP IN STATE	139882	140554	1.00	47.56	49.77	0.96									
72000	82418	74482	1.11	28.02	26.37	1.06									
STD-COMP OUT STATE	82418	74482	1.11	28.02	26.37	1.06									
SUBTOTAL, STD-COMP	222300	215036	1.03	75.58	76.14	0.99									
IN STATE ALL CARS	151197	150562	1.00	51.40	53.31	0.96									
OUT STATE ALL CARS	87614	78698	1.11	29.79	27.87	1.07									
SUBTOTAL PASS. CARS	238811	229260	1.04	81.19	81.18	1.00									
150000	1387	1535	0.90	0.47	0.54	0.87									
COMMERCIAL BUSES	1387	1535	0.90	0.47	0.54	0.87									
160000	144	66	2.18	0.05	0.02	2.09									
SCHOOL, NON-REV BUS	144	66	2.18	0.05	0.02	2.09									
SUBTOTAL ALL BUSES	1531	1601	0.96	0.52	0.57	0.92									
TOTAL ALL PASS VEH	241148	231463	1.04	81.99	81.96	1.00									
SINGLE-UNIT TRUCKS															
200000	21653	20580	1.05	7.36	7.29	1.01	40.87	40.39	1.01	2100	1986	25.58	25.86	9.70	9.65
PANEL AND PICKUP	21653	20580	1.05	7.36	7.29	1.01	40.87	40.39	1.01	2100	1986	25.58	25.86	9.70	9.65
210000	1104	1418	0.78	0.38	0.50	0.75	2.08	2.78	0.75	230	245	2.80	3.19	20.83	17.28
211000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	0	0.01	0.0	0.0	0.0
2-AXLE, 4 TIRE	1104	1418	0.78	0.38	0.50	0.75	2.08	2.78	0.75	231	245	2.81	3.19	20.92	17.28
220000	8164	7670	1.06	2.78	2.72	1.02	15.41	15.05	1.02	2055	1890	25.03	24.61	25.17	24.64
2-AXLE, 6 TIRE	8164	7670	1.06	2.78	2.72	1.02	15.41	15.05	1.02	2055	1890	25.03	24.61	25.17	24.64
230000	1712	1402	1.22	0.58	0.50	1.17	3.23	2.75	1.17	473	380	5.76	4.95	27.63	27.10
3-AXLE, OR MORE	1712	1402	1.22	0.58	0.50	1.17	3.23	2.75	1.17	473	380	5.76	4.95	27.63	27.10
TOTAL SINGLE UNITS	32633	31070	1.05	11.09	11.00	1.01	61.59	60.98	1.01	4859	4501	59.18	58.61	14.89	14.49
COMBINATIONS															
TRACTOR-SEMITRAILER															
321000	1505	1555	0.97	0.51	0.55	0.93	2.84	3.05	0.93	278	292	3.39	3.80	18.47	18.78
322000	5289	5329	0.99	1.80	1.89	0.95	9.98	10.46	0.95	807	856	9.83	11.15	15.26	16.06
2 AXLE TRCTR	6794	6884	0.99	2.31	2.44	0.95	12.82	13.51	0.95	1085	1148	13.22	14.95	15.97	16.68
331000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	9	0.15	0.12	0.0	0.0
332000	13557	12993	1.04	4.61	4.60	1.00	25.59	25.50	1.00	1918	1686	23.36	21.95	14.15	12.98
3 AXLE TRCTR	13557	12993	1.04	4.61	4.60	1.00	25.59	25.50	1.00	1930	1695	23.51	22.07	14.24	13.05
SUBTOTAL	20351	19877	1.02	6.92	7.04	0.98	38.41	39.02	0.98	3015	2843	36.72	37.02	14.81	14.30
TOTAL COMBINATIONS	20351	19877	1.02	6.92	7.04	0.98	38.41	39.02	0.98	3015	2843	36.72	37.02	14.81	14.30
TOTAL TRUCK & COMB.	52984	50947	1.04	18.01	18.04	1.00	100.00	100.00	1.00	7874	7344	95.91	95.62	14.86	14.41
TOTAL ALL VEHICLES	294132	282410	1.04	100.00	100.00	1.00									

Table B-3

STATE OF VIRGINIA
 COMBINED FUEL TYPES REPORT FOR HIGHWAY SYSTEM 1
 CENSUS DIVISION S. ATLANTIC (NGRTH)
 TABLE W-3 NUMBER OF LOADED AND EMPTY VEHICLES, AVER. WEIGHT, AND AVER. LOADS BY VEHICLE TYPE

Table B-4

VEHICLE TYPE	YEAR OF SURVEY	EST. NO. COUNTED	AVER. WT. LBS.	TOTAL VEHICLES	LOADED VEHICLES			EMPTY VEHICLES		
					PERCENT	ESTIMATED NO. LOADED	AVER. LOAD WT. LBS.	PERCENT	ESTIMATED AVER. EMPTY NO. EMPTY	WT. LBS.
200000	1970	6790.	4895.61	26.69	1812.	5512.68	73.31	4978.	4672.25	840.
	1969	6441.	4827.78	24.92	1605.	5463.69	75.08	4836.	4616.70	847.
	RATIO	1.054	1.014	1.071	1.129	1.009	0.976	1.029	1.012	0.992
PANEL AND PICKUP	1970	6790.	4895.61	26.69	1812.	5512.68	73.31	4978.	4672.29	840.
	1969	6441.	4827.78	24.92	1605.	5463.69	75.08	4836.	4616.70	847.
	RATIO	1.054	1.014	1.071	1.129	1.009	0.976	1.029	1.012	0.992
210000	1970	240.	6229.23	50.77	122.	6639.39	49.23	118.	5806.25	833.
	1969	495.	6024.56	43.86	217.	6396.00	56.14	278.	5734.38	662.
	RATIO	0.485	1.034	1.158	0.561	1.038	0.877	0.425	1.013	1.259
2-AXLE, 4 TIRE	1970	240.	6229.23	50.77	122.	6639.39	49.23	118.	5806.25	833.
	1969	495.	6024.56	43.86	217.	6396.00	56.14	278.	5734.38	662.
	RATIO	0.485	1.034	1.158	0.561	1.038	0.877	0.425	1.013	1.259
220000	1970	2364.	13010.92	59.18	1399.	14958.28	40.82	965.	10187.54	4771.
	1969	2140.	13089.90	58.44	1291.	15330.62	41.56	889.	9938.89	5392.
	RATIO	1.105	0.994	1.013	1.119	0.976	0.982	1.085	1.025	0.885
2-AXLE, 6 TIRE	1970	2364.	13010.92	59.18	1399.	14958.28	40.82	965.	10187.54	4771.
	1969	2140.	13089.90	58.44	1291.	15330.62	41.56	889.	9938.89	5392.
	RATIO	1.105	0.994	1.013	1.119	0.976	0.982	1.085	1.025	0.885
230000	1970	343.	25980.47	35.16	121.	39968.87	64.84	222.	18396.39	21572.
	1969	373.	26307.25	48.18	180.	36281.13	51.82	193.	17033.33	19248.
	RATIO	0.920	0.988	0.730	0.671	1.102	1.251	1.151	1.080	1.121
3-AXLE, OR MORE	1970	343.	25980.47	35.16	121.	39968.87	64.84	222.	18396.39	21572.
	1969	373.	26307.25	48.18	180.	36281.13	51.82	193.	17033.33	19248.
	RATIO	0.920	0.988	0.730	0.671	1.102	1.251	1.151	1.080	1.121
SUBTOTAL SINGLE-UNIT	1970	9737.	10174.19	43.01	4188.	13530.13	56.99	5549.	7641.41	2603.
	1969	9449.	10302.01	42.95	4059.	14296.09	57.05	5390.	7294.71	2884.
	RATIO	1.030	0.988	1.001	1.032	0.946	0.999	1.029	1.048	0.902

COMBINATION

TRACTOR-SEMITRAILER

321000	1970	774.	28469.56	64.35	498.	31904.05	35.65	276.	22270.73	9633.
	1969	700.	27898.46	64.39	451.	31454.10	35.61	249.	21468.08	9986.
	RATIO	1.106	1.020	0.999	1.105	1.014	1.001	1.107	1.037	0.965
322000	1970	2534.	37668.60	77.55	1965.	41440.11	22.45	569.	24639.77	16800.
	1969	2367.	36634.35	72.96	1727.	41335.13	27.04	640.	23952.08	17383.
	RATIO	1.071	1.028	1.063	1.138	1.003	0.830	0.889	1.029	0.966
2 AXLE	1970	3308.	35582.03	74.56	2466.	39573.27	25.44	842.	23886.82	15686.
	1969	3067.	34266.53	70.64	2166.	38893.60	29.36	901.	23135.66	15758.
	RATIO	1.079	1.038	1.055	1.138	1.017	0.867	0.935	1.032	0.995
331000	1970	0.	43600.00	75.00	0.	47266.65	25.00	0.	32600.00	14667.
	1969	0.	33625.00	50.00	0.	42900.00	50.00	0.	24350.00	18550.
	RATIO	0.0	1.297	1.500	0.0	1.102	0.500	0.0	1.339	0.791
332000	1970	6618.	50677.15	74.01	4898.	57771.29	25.99	1720.	30471.19	27300.
	1969	6355.	52222.09	77.28	4911.	58637.70	22.72	1444.	30395.09	28243.
	RATIO	1.041	0.970	0.958	0.997	0.985	1.144	1.191	1.003	0.967
3 AXLE	1970	6618.	50648.63	74.02	4899.	57728.42	25.98	1719.	30479.44	27249.
	1969	6355.	52130.69	77.15	4903.	58587.57	22.85	1452.	30330.10	28257.
	RATIO	1.041	0.972	0.959	0.999	0.985	1.137	1.184	1.005	0.964
SUBTOTAL	1970	9926.	45556.13	74.20	7365.	51562.52	25.80	2561.	28281.91	23290.
	1969	9422.	45443.65	74.71	7039.	51617.68	25.29	2383.	27203.03	24609.
	RATIO	1.053	1.002	0.993	1.046	0.999	1.020	1.075	1.040	0.946
TOTAL COMBINATIONS	1970	9926.	45556.13	74.20	7365.	51562.52	25.80	2561.	28281.91	23290.
	1969	9422.	45443.65	74.71	7039.	51617.68	25.29	2383.	27203.03	24609.
	RATIO	1.053	1.002	0.993	1.046	0.999	1.020	1.075	1.040	0.946
TOTAL TRUCK & COMB.	1970	19663.	26419.34	57.33	11273.	36130.25	42.67	8390.	13371.59	16184.
	1969	18871.	26682.96	57.76	10899.	36800.17	42.24	7972.	12850.13	16968.
	RATIO	1.042	0.990	0.993	1.034	0.982	1.010	1.052	1.041	0.954
TOTAL ALL VEHICLES	1970	104942.	26419.34	57.33	60164.	36130.25	42.67	44778.	13371.59	3032.
	1969	101048.	26682.96	57.76	58362.	36800.17	42.24	42686.	12850.13	3169.
	RATIO	1.039	0.990	0.993	1.031	0.982	1.010	1.049	1.041	0.957

Table B-4

- B. Average weight of axles (kips).
- C. Average axle spacing (feet).
- D. Weight frequency distribution - all axles - as single.
- E. Cumulative percent of weights - all axles - as single.
- F. Weight frequency distribution - single axles.
- G. Cumulative percent of weights - single axles.
- H. Weight frequency distribution - tandem axles.
- I. Cumulative percent of weights - tandem axles.
- J. Frequency distribution - feet - all axle spacing.
- K. Cumulative percent - feet - all axle spacing.
- L. Frequency distribution - all vehicles - total weight.
- M. Frequency distribution - all vehicles - wheelbase.

A sample of this output for vehicle type 221300 on highway system 1 in Florida is shown in table B-5.

Summary tables of 18-kip axle equivalence factors are prepared for each highway system by vehicle type and fuel type. Each vehicle weighed is shown with 24 equivalence factors, 12 each for rigid and flexible pavement. At the bottom of each table, the average equivalence factors are presented for the vehicle type. For each vehicle and fuel type separate tables are prepared for rigid and flexible pavement. A sample table of 18-kip axle equivalent factors is shown in table B-6.

The third series of tables output from the WTFREQ program is the maximum bending moments for each vehicle within vehicle type for each of four spans. As in the previous two series of tables, bridge moment tables are prepared for each highway system, vehicle type, and fuel type. Bridge moments are computed in the subroutine KWBRDG. A sample bending moment table is shown in table B-7.

VIII. W-6 report

Reports W-6 and W-7 are prepared by a sequence of programs and sorts with an initial input of the current year's truck weight data combined at the State level. The first step is to sort the current year's truck weight data by State, highway system, vehicle type, station, date, direction, and serial number and continuation code. This sorted truck weight data, along with AASHO and State weight limits, is input to program W7PREP.

STATE OF FLORIDA HIGHWAY SYSTEM 1 1969

Table B-5

NUMBER	% OF E+L	% OF ALL	AV. WT.	AV. CAR. LOAD	FUEL TYPE = 1
EMPTY	28.571	25.000	10.900		
LOADED	71.429	62.500	19.460		
SUBTOTAL	100.00		17.014	8.560	

	AVERAGE WEIGHT OF AXLES (KIPS)			
	A	B	C	D
EMPTY SINGLE	3.500	5.600	1.000	0.0
TANDEM	0.0	0.0	0.0	2.600
LOADED SINGLE	4.280	8.240	6.150	7.300
TANDEM	0.0	0.0	0.0	5.033
AVERAGE CARRIED LOAD				
SINGLE	0.780	2.640	5.150	7.300
TANDEM	0.0	0.0	0.0	2.433

	AVERAGE AXLE SPACING (FEET)			
	A-B	B-C	C-D	D-E
EMPTYS	43.350	14.350	27.450	3.100
LOADED	36.700	12.760	19.460	5.600

WEIGHT FREQUENCY DISTRIBUTION - ALL AXLES - AS SINGLE					
KIPS	A	B	C	D	TOTL
1	0	0	4	2	6
2	1	0	2	1	4
3	4	0	1	1	6
4	1	4	0	0	5
5	1	0	0	0	1
6	0	1	0	0	1
7	1	1	0	1	3
8	0	1	0	0	1
9	0	0	1	0	1
15	0	1	0	0	1

CUMULATIVE PERCENT OF WEIGHTS - ALL AXLES - AS SINGLE					
KIPS	A	B	C	D	TOTL
1	100.00	100.00	50.00	60.00	79.31
2	87.50	100.00	25.00	40.00	65.52
3	37.50	100.00	12.50	20.00	44.83
4	25.00	50.00	12.50	20.00	27.59
5	12.50	50.00	12.50	20.00	24.14
6	12.50	37.50	12.50	20.00	20.69
7	0.00	25.00	12.50	0.00	10.34
8	0.00	12.50	12.50	0.00	6.90
9	0.00	12.50	0.00	0.00	3.45
15	0.00	0.00	0.00	0.00	0.00

WEIGHT FREQUENCY DISTRIBUTION - SINGLE AXLES					
KIPS	A	B	C	D	TOTL
1	0	0	2	0	2
2	1	0	1	0	2
3	4	0	0	0	4
4	1	4	0	0	5
5	1	0	0	0	1
6	0	1	0	0	1
7	1	1	0	1	3
8	0	1	0	0	1
9	0	0	1	0	1
15	0	1	0	0	1

Table B-5 (Con.)

CUMULATIVE PERCENT - FEET - ALL AXLE SPACING

FEET	A-B	B-C	C-D	TOTL
2	100.00	100.00	80.00	95.24
3	100.00	100.00	20.00	80.95
10	87.50	87.50	20.00	71.43
11	37.50	87.50	20.00	52.38
13	37.50	87.50	0.00	47.62
14	25.00	62.50	0.00	33.33
16	12.50	50.00	0.00	23.81
17	0.00	37.50	0.00	14.29
25	0.00	25.00	0.00	9.52
26	0.00	12.50	0.00	4.76
38	0.00	0.00	0.00	0.00

FREQUENCY DISTRIBUTION - ALL VEHICLES - TOTAL WT.

KIPS NUMBER	PERCENT	CUMULATIVE PERCENT
8	12.50	87.50
9	12.50	75.00
12	12.50	62.50
13	25.00	37.50
14	12.50	25.00
16	12.50	12.50
39	12.50	0.00

FREQUENCY DISTRIBUTION - ALL VEHICLES - WHEEL BASE

FEET NUMBER	PERCENT	CUMULATIVE PERCENT
21	12.50	87.50
31	12.50	75.00
32	12.50	62.50
33	12.50	50.00
38	12.50	37.50
39	12.50	25.00
41	12.50	12.50
53	12.50	0.00

CUMULATIVE PERCENT OF WEIGHTS - SINGLE AXLES

KIPS	A	B	C	D	TOTL
1	100.00	100.00	50.00	100.00	90.48
2	87.50	100.00	25.00	100.00	80.95
3	37.50	100.00	25.00	100.00	61.90
4	25.00	50.00	25.00	100.00	38.10
5	12.50	50.00	25.00	100.00	33.33
6	12.50	37.50	25.00	100.00	28.57
7	0.00	25.00	25.00	0.00	14.29
8	0.00	12.50	25.00	0.00	9.52
9	0.00	12.50	0.00	0.00	4.76
15	0.00	0.00	0.00	0.00	0.00

Table B-5 (Con.)

WEIGHT FREQUENCY DISTRIBUTION - TANDEM AXLES

KIPS	A	B	C	D	TOTL
2	0	0	0	1	1
3	0	0	0	1	1
5	0	0	0	1	1
6	0	0	0	1	1

CUMULATIVE PERCENT OF WEIGHTS - TANDEM AXLES

KIPS	A	B	C	D	TOTL
2	0.0	0.0	0.0	75.00	75.00
3	0.0	0.0	0.0	50.00	50.00
5	0.0	0.0	0.0	25.00	25.00
6	0.0	0.0	0.0	0.00	0.00

FREQUENCY DISTRIBUTION - FEET - ALL AXLE SPACING

FEET	A-B	B-C	C-D	TOTL
2	0	0	1	1
3	0	0	3	3
10	1	1	0	2
11	4	0	0	4
13	0	0	1	1
14	1	2	0	3
16	1	1	0	2
17	1	1	0	2
25	0	1	0	1
26	0	1	0	1
38	0	1	0	1

18 KIP AXLE EQUIVALENCE FACTORS
 RIGID PAVEMENT

REG. CLASS E	OF OR	D2=6	D2=7	D2=8	D2=9	D2=10	D2=11	CUM
TYPE GP.	OP. L	P=2.0	P=2.5	P=2.0	P=2.5	P=2.0	P=2.5	TOTAL
21	99	1.9600	2.0300	1.9500	2.0000	2.0700	2.0800	2.0800
21	99	0.0809	0.0708	0.0708	0.0708	0.0708	0.0708	2.00
21	99	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	2.07
41	99	0.0060	0.0050	0.0050	0.0050	0.0050	0.0050	2.08
41	99	0.7100	0.6900	0.7100	0.6900	0.6800	0.6800	2.09
41	99	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	2.78
41	99	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	2.80
41	99	0.0720	0.0720	0.0720	0.0720	0.0620	0.0620	2.87
41	99	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	2.87
41	99	2.8600	2.8600	2.8300	2.9000	3.0300	3.0500	2.91
42	99	0.1400	0.1300	0.1400	0.1300	0.1200	0.1200	3.05
42	99	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	3.05
42	99	3.8600	3.8200	3.8700	3.6800	3.9400	3.9900	3.05
42	99	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	3.05
42	99	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	3.05
42	99	3.8800	4.0700	3.7600	4.1300	4.2100	4.2700	3.05
42	99	0.1000	0.0900	0.0900	0.0800	0.0800	0.0800	3.05
52	99	4.2800	4.4900	4.1400	4.5600	4.6500	4.7200	3.05
AVERAGES		1.0469	1.0015	1.0358	0.9769	1.0491	1.0635	1.0358

18 KIP AXLE EQUIVALENCE FACTORS
 FLEXIBLE PAVEMENT

REG. CLASS E	OF OR	SN=1	SN=2	SN=3	SN=4	SN=5	SN=6	CUM
TYPE GP.	OP. L	P=2.0	P=2.5	P=2.0	P=2.5	P=2.0	P=2.5	TOTAL
21	99	1.1300	1.1400	1.1500	1.1600	1.1700	1.1800	1.17
21	99	0.0302	0.0410	0.0408	0.0409	0.0410	0.0410	1.21
21	99	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	1.22
41	99	0.0020	0.0060	0.0060	0.0060	0.0060	0.0060	1.23
41	99	0.3600	0.3800	0.3900	0.4200	0.4600	0.4800	1.63
41	99	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	1.65
41	99	0.0002	0.0008	0.0009	0.0009	0.0008	0.0007	1.65
41	99	0.0306	0.0430	0.0420	0.0540	0.0430	0.0320	1.68
41	99	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	1.72
41	99	1.6700	1.6800	1.6900	1.7100	1.7400	1.7600	3.43
42	99	0.0700	0.0700	0.0800	0.0800	0.0900	0.0800	3.51
42	99	0.0120	0.0160	0.0150	0.0160	0.0160	0.0140	3.52
42	99	2.2200	2.2100	2.2200	2.1900	2.1500	2.1900	5.68
42	99	0.0500	0.0600	0.0600	0.0700	0.0500	0.0500	5.74
42	99	0.0300	0.0400	0.0400	0.0500	0.0400	0.0300	5.77
42	99	2.4900	2.3900	2.3300	2.3200	2.2600	2.2800	8.05
42	99	0.0500	0.0600	0.0700	0.0900	0.0700	0.0600	8.11
52	99	2.6700	2.6600	2.6500	2.5900	2.5400	2.5700	10.61
AVERAGES		0.5997	0.6037	0.6046	0.6237	0.6032	0.5965	0.5918

Table B-6

Table B-7

STATE OF FLORIDA HIGHWAY SYSTEM I 1969
 VEHICLE TYPE = 332000 FUEL TYPE = 1

BRIDGE MOMENTS

(KIP FT)

BODY TYPE	REGISTERED WEIGH GP.	CLASS OF OPERATION	EMPTY OR LOADED	SPAN				CUM TOTAL 100 FT.	CUM COUNT
				40 FT.	60 FT.	80 FT.	100 FT.		
21	99	1	1	-309.500	-534.609	-801.004	-1095.503	-0.10955029E 04	1
21	99	1	1	-127.600	-209.390	-354.189	-501.189	-0.15966919E 04	2
21	99	1	0	-106.450	-200.200	-320.199	-440.199	-0.20368909E 04	3
41	99	1	0	-109.010	-189.209	-301.029	-416.029	-0.24529202E 04	4
41	99	1	1	-278.990	-454.479	-689.809	-928.309	-0.33812295E 04	5
41	99	1	0	-97.880	-169.814	-278.814	-387.814	-0.37690435E 04	6
41	99	1	0	-73.225	-138.079	-229.579	-321.079	-0.40901228E 04	7
41	99	1	1	-130.770	-271.859	-423.859	-575.859	-0.46659805E 04	8
41	99	1	0	-142.415	-241.415	-365.729	-512.229	-0.51782070E 04	9
41	99	2	1	-332.109	-613.784	-945.463	-1291.963	-0.64701680E 04	10
42	99	1	0	-181.910	-298.409	-476.754	-660.754	-0.71309180E 04	11
42	99	1	1	-133.100	-223.549	-350.624	-483.624	-0.76145391E 04	12
42	99	1	1	-371.094	-688.134	-1034.134	-1386.133	-0.90006719E 04	13
42	99	1	0	-172.530	-288.030	-436.229	-601.229	-0.96018984E 04	14
42	99	1	0	-145.665	-241.965	-374.119	-522.119	-0.10124016E 05	15
42	99	1	1	-362.475	-602.409	-922.638	-1279.138	-0.11403152E 05	16
42	99	2	0	-163.980	-279.919	-431.859	-591.359	-0.11994512E 05	17
52	99	1	1	-368.780	-611.539	-929.539	-1288.038	-0.13282547E 05	18
			AVERAGES	-200.404	-347.599	-536.975	-737.919		

The AASHO and State weight limit input provide the program weight limit controls which determine whether a truck weight is in excess. W7PREP has two binary tape outputs: (1) a tape containing a record of each vehicle in excess of a State or AASHO limit; and (2) a tape of summarized weight excess data. The first is used to produce the W-6 report and the second is used to produce the W-7 report. The W-6 output tape is sorted by highway system, vehicle type, percent excess of AASHO limits and percent excess of State limits. The sorted W-6 tape is used by the W-6 print program.

The PRNTW6 program accepts the sorted W-6 tape and produces the W-6 report. The report consists of a right and left page for each line of report. The proper page number is printed on both right and left pages to facilitate their alinement in the final table. The following discussion of the W-6 report is illustrated in table B-8.

The W-6 report is a listing showing the characteristics of the vehicles which exceed AASHO and State limits and is in the same format as the old W-6 table. The calculation of vehicles in excess of AASHO recommendations^{1/} provides a comparison between States and between years when State laws are changed. This information is useful in formulating revised weight limits, setting up enforcement programs, and in modifying design standards for highway sections where a certain type of hauling predominates.

The currently applicable AASHO policy^{1/} indicates that "It shall be the responsibility of each State to interpret the maximum permissible gross axle group weights into a simplified scheme for checking individual axle weights and total gross vehicle weights at monitoring scales." These recommendations must be uniformly interpreted to insure regional and national comparability of weight limit excesses in table W-6. Table I, on page 15 of the AASHO policy (see table B-9), is used to check the internal axle weights for all possible axle groups, using the proper number of axles and corresponding axle spacing. In addition, table I is used to determine when the maximum allowable weights for those vehicles or axle groups is such that if allowed would likely exceed another weight restriction in table I.

The maximum percent to the nearest tenth of a percent in excess of the currently applicable AASHO recommended limits and State law is listed in columns 3 and 4, respectively. The maximum percentage in excess of AASHO limits is equal to the highest percentage listed under axle load, gross weight, or maximum axle group. For State law, the maximum in excess would be on the same basis where applicable. In States where there is a statutory tolerance, violations should be calculated from the basic legal weight plus the legal tolerance.

^{1/} "Policy on Maximum Dimensions and Weights of Motor Vehicles to be Operated over the Highways of the United States." Officially adopted by the American Association of State Highway Officials, December 7, 1964.

Table B-9

TABLE I
COMPUTED GROSS WEIGHT TABLE
 For various spacings of axle groupings
BASED ON AASHO H18 (44) BRIDGES WITH OVERSTRESSES NOT TO EXCEED 30 PERCENT
 Weight Formula $W = 500 \left(\frac{LN}{N-1} + 12N + 32 \right)$

Distance in feet between the centers of any group of two or more consecutive axles (wheelbases)	Maximum computed weight in pounds for any group of two or more consecutive axles (wheelbases)				
	2 axles	3 axles	4 axles	5 axles	6 axles
4					
5					
6					
7					
8	32000				
9	37000	40500			
10	38000	41500			
11	39000				
12	40000	43000	48000		
13		43500	48500		
14		44500	49500		
15		45000	50000		
16		46000	50500		
17		46500	51500		
18		47500	52000		
19		48000	52500		
20		49000	53500		
21		49500	54000		
22		50500	54500		
23		51000	55500		
24		52000	56000		
25		52500	56500		
26		53500	57500		
27		54000	58000		
28		55000	58500		
29		55500	59500		
30		56500	60000		
31		57000	60500		
32		58000	61500		
33		58500	62000		
34		59500	62500		
35		60000	63500		
36			64000		
37			64500		
38			65500		
39			66000		
40			66500		
41			67000	71500	
42			68000	72000	
43			68500	73000	
44			69500	73500	
45			70000	74000	
46			70500	74500	
47			71500	75500	
48			72000	76000	
49			72500	76500	81000
50			73500	77000	81500
51			74000	78000	82500
52			74500	78500	83000
53			75500	79000	83500
54			76000	79500	84500
55			76500	80500	85000
56			77500	81000	85500
57			78000	81500	86000
58			78500	82000	87000
59			79500	83000	87500
60			80000	83500	88000

Note: The loads are computed to the nearest 500 lbs. The maximum spacing between axles is limited to 30,000 lbs. and the load on any two axles spaced 8 ft. or less is 32,000 lbs. Loaded vehicles of 7 or more axles regardless of type and of loadings are not permitted. The weight formula given above should be applied to determine the permissible loads of vehicles whenever the load on the front axle is considerably less than the permissible load.

22-B

TABLE II
PERMISSIBLE GROSS LOAD TABLE
 FOR CERTAIN TYPICAL VEHICLES IN REGULAR OPERATION ILLUSTRATING WHEN TOTAL COMPUTED GROSS WEIGHT OR THE AXLE LOADINGS CONTROL THE PERMISSIBLE GROSS LOAD OF THE VEHICLE.
 Weight Formula $W = 500 \left(\frac{LN}{N-1} + 12N + 32 \right)$

(A)—Permissible Gross Load of Vehicle Limited by Axles (B)—Computed Gross Load Controls

Distance in feet between the centers of any group of two or more consecutive axles	Maximum load in pounds carried on any group of two or more consecutive axles							
	2 Axles		3 Axles		4 Axles		5 Axles	
	Type 1	Type 2	Type 3-51	Type 3-52	Type 3-53	Type 3-54	Type 3-55	All Types
4								
5								
6								
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Note: The loads are computed to the nearest 500 lbs. The maximum spacing between axles is limited to 30,000 lbs. and the load on any two axles spaced 8 ft. or less is 32,000 lbs. Loaded vehicles of 7 or more axles regardless of type and of loadings are not permitted. The weight formula given above should be applied to determine the permissible loads of vehicles whenever the load on the front axle is considerably less than the permissible load.

Columns 5 and 6 show the type of excess by numeric codes as follows:

- 1 or SA - single axle
- 2 or GW - gross weight
- 3 or AG - axle group

Tandem axle overloads should be included in the axle group category. Additional codes for other bases used in certain States are established by the State using codes 4 through 8.

Column 7 shows the class of operation of the vehicle by numeric code as shown in the coding instructions in Appendix C.

Commodity carried is shown in column 8. The standard commodity codes, pages 54-C through 69-C, are used for entries in this column. The basic code consists of five digits and is similar to the Standard Industrial Classification (SIC) code. It is arranged so that summaries by commodity groups may be obtained at successively higher levels by dropping the low order code number. Since the first two digits represent the major industry group, it is particularly important that the first two digits for a commodity be correctly coded.

Body type is shown in column 9. This is the numeric code shown in the coding instructions. This serves to further clarify the commodity information as well as indicate body types which may contribute to overloads.

Station number is shown in column 10 and provides a means of relating overloads to special conditions which are noted in the station description report. Examples of significant conditions are "operated during harvest in wheat area," "in oil field," "on main route from marble quarry," and "on main supply route to (name) construction site."

Calculated percentages to the nearest tenth of a percent in excess of AASHO recommendations are shown in columns 26 through 31. Percentages are shown for each axle found to be in excess. If the total weight of the vehicle is excessive, the percentage is shown in column 32. The axle group in excess by the maximum percentage, if any, is identified in column 33 and the percentage in excess shown in column 34. Tandem axles are included in determining and calculating the percentage excess for axle groups. The identification of axle group is by the letters representing the extreme axles in the group.

IX. W-7 report

The PRNTW7 program computes the percentages and prints the W-7 report consisting of numbers and percentages of overweight trucks for the current and prior years. The program reads two tapes created by the

W-7 PREP program: one containing current year's overweight truck data and the other containing prior year data. This report presents data on tandem and accumulative percentage of vehicles not in excess and in excess by specified percentages of State law and AASHO recommendations. The format for the W-7 report is the same as the old W-7 table. See table B-10 for a sample output of the PRNTW7 program.

The number and percent of vehicles exceeding specified maximums and the frequency and magnitude of violations for the current and prior year are compared in the table. The total number of vehicles of each vehicle type weighed, from the W-1, W-2 report, and 100.0 percent are shown on alternate lines in column 4. The number and percentage not in excess of AASHO recommendations or State laws are shown similarly in columns 5 and 12. The numbers and percentages in excess by each of six categories are shown in columns 6 through 11 and 13 through 18.

The numbers of violations in each of the six percentage categories are counted. These counts are then accumulated starting from the highest group to determine the number of violations in each of the six categories. The categories are:

1. All violations
2. Violations exceeding the legal limit by 5 percent or more
3. Violations exceeding the legal limit by 10 percent or more
4. Violations exceeding the legal limit by 20 percent or more
5. Violations exceeding the legal limit by 30 percent or more
6. Violations exceeding the legal limit by 50 percent or more

Thus, group 5 includes all those in group 6 plus any violations exceeding the limit by 30 through 49 percent; group 4 includes all those in group 5 plus those exceeding the limit by 20 through 29 percent; and so on. This frequency distribution is prepared for both the State laws and the AASHO recommended limits. In States where there is a statutory tolerance, the percent excess is based on the basic legal weight and the legal tolerance is disregarded.

Table B-10

STATE OF VIRGINIA

TABLE B-7 HHS: NUMBER AND ACCUMULATIVE PERCENTAGE OF VEHICLES NOT IN EXCESS AND IN EXCESS BY SPECIFIED PERCENTAGES OF VIRGINIA LAW AND AASHO RECOMMENDATIONS WEIGHED AT 27 STATIONS DURING 1969 AND AT 27 STATIONS DURING 1970

TYPE OF VEHICLE OR PT	NO	YR	WEIGHT	AASHO RECOMMENDATIONS										LAW										
				ALL IN EXCESS					NOT IN EXCESS					ALL IN EXCESS					NOT IN EXCESS					
				5-	10	20	30	50	5-	10	20	30	50	5-	10	20	30	50	5-	10	20	30	50	
SINGLE-UNIT TRUCKS																								
200000	NO	70	2056	0	2056	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	1941	0	1937	0	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				0.0	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PANEL AND PICKUP	NO	70	2056	0	2056	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	1941	0	1937	0	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				0.0	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	NO	70	182	0	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	199	0	199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				0.0	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
211000	NO	70	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				0.0	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-AXLE, 4 TIRE																								
220000	NO	70	2012	0	2003	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	1847	7	1840	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				0.45	99.55	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-AXLE, 6 TIRE																								
230000	NO	70	425	0	331	61	28	9	3	1	119	306	97	65	18	3	2	0	0	0	0	0	0	0
	PT	70	333	77	256	55	21	3	0	0	86	247	72	52	16	0	0	0	0	0	0	0	0	0
				0.38	99.62	0.11	0.05	0.05	0.05	0.05	4.01	95.99	1.73	0.87	0.11	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
3-AXLE, OR MORE																								
340000	NO	70	425	0	331	61	28	9	3	1	119	306	97	65	18	3	2	0	0	0	0	0	0	0
	PT	70	333	77	256	55	21	3	0	0	86	247	72	52	16	0	0	0	0	0	0	0	0	0
				0.38	99.62	0.11	0.05	0.05	0.05	0.05	4.01	95.99	1.73	0.87	0.11	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SUBTOTAL SINGLE UNIT																								
350000	NO	70	425	0	331	61	28	9	3	1	119	306	97	65	18	3	2	0	0	0	0	0	0	0
	PT	70	333	77	256	55	21	3	0	0	86	247	72	52	16	0	0	0	0	0	0	0	0	0
				0.38	99.62	0.11	0.05	0.05	0.05	0.05	4.01	95.99	1.73	0.87	0.11	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
COMBINATION																								
360000	NO	70	230	0	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	244	1	243	0	0	0	0	0	3	227	0	0	0	0	0	0	0	0	0	0	0	0
				0.0	100.00	0.0	0.0	0.0	0.0	0.0	1.30	98.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR-SEMITRAILER																								
370000	NO	70	100.00	0.41	99.59	0.0	0.0	0.0	0.0	0.0	3.69	96.31	0.41	0.41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PT	70	100.00	0.41	99.59	0.0	0.0	0.0	0.0	0.0	3.69	96.31	0.41	0.41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				0.41	99.59	0.0	0.0	0.0	0.0	0.0	3.69	96.31	0.41	0.41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

322000	NO	70	759	42	717	11	7	1	1	0	78	681	30	15	5	1	0
	PT	70	809	55	754	24	14	3	1	0	98	711	41	21	8	3	0
	PT	70	100.00	5.53	94.47	1.45	0.92	0.13	0.13	0.0	10.28	89.72	3.95	1.98	0.66	0.13	0.0
	PT	69	100.00	6.80	93.20	2.97	1.73	0.37	0.12	0.0	12.11	87.89	5.07	2.60	0.99	0.37	0.0
	NO	70	585	42	947	11	7	1	1	0	81	908	30	15	5	1	0
	PT	70	1053	56	997	24	14	3	1	0	107	946	42	22	8	3	0
	PT	70	100.00	4.25	95.75	1.11	0.71	0.10	0.10	0.0	8.19	91.81	3.03	1.52	0.51	0.10	0.0
	PT	69	100.00	5.32	94.68	2.28	1.33	0.28	0.09	0.0	10.16	89.84	3.99	2.09	0.76	0.28	0.0
	NO	70	12	0	12	0	0	0	0	0	2	10	0	0	0	0	0
	PT	70	100.00	0.0	100.00	0.0	0.0	0.0	0.0	0.0	16.67	83.33	0.0	0.0	0.0	0.0	0.0
	PT	69	100.00	11.11	88.89	0.0	0.0	0.0	0.0	0.0	22.22	77.78	0.0	0.0	0.0	0.0	0.0
	NO	70	1870	239	1631	53	13	3	1	0	349	1521	88	25	8	3	0
	PT	70	1639	222	1417	41	12	0	0	0	340	1299	81	19	3	0	0
	PT	70	100.00	12.78	87.22	2.83	0.70	0.16	0.05	0.0	18.66	81.34	4.71	1.34	0.43	0.16	0.0
	PT	69	100.00	13.54	86.46	2.50	0.73	0.0	0.0	0.0	20.74	79.26	4.94	1.16	0.18	0.0	0.0
	NO	70	1882	239	1643	53	13	3	1	0	351	1531	88	25	8	3	0
	PT	69	1648	223	1423	41	12	0	0	0	342	1306	81	19	3	0	0
	PT	70	100.00	12.70	87.30	2.82	0.69	0.16	0.05	0.0	18.65	81.35	4.68	1.33	0.43	0.16	0.0
	PT	69	100.00	13.53	86.47	2.49	0.73	0.0	0.0	0.0	20.75	79.25	4.92	1.15	0.18	0.0	0.0
	NO	70	2871	281	2590	64	20	4	2	0	432	2439	118	40	13	4	0
	PT	69	2701	279	2422	65	26	3	1	0	449	2252	123	41	11	3	0
	PT	70	100.00	9.79	90.21	2.23	0.70	0.14	0.07	0.0	15.05	84.95	4.11	1.39	0.45	0.14	0.0
	PT	69	100.00	10.33	89.67	2.41	0.96	0.11	0.04	0.0	16.62	83.38	4.55	1.52	0.41	0.11	0.0

TRUCK-FULL TRAILER

	NO	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PT	69	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TRACTOR, SEMI & 1 TRL

	NO	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PT	69	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TRUCK & 2 TRAILERS

	NO	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PT	69	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TRACTOR, SEMI & 2 TRL

	NO	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PT	69	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TRUCK & 3 TRAILERS

	NO	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PT	70	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PT	69	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TOTAL COMBINATIONS

	NO	70	2871	281	2590	64	20	4	2	0	432	2439	118	40	13	4	0
	PT	70	100.00	9.79	90.21	2.23	0.70	0.14	0.07	0.0	15.05	84.95	4.11	1.39	0.45	0.14	0.0
	PT	69	100.00	10.33	89.67	2.41	0.96	0.11	0.04	0.0	16.62	83.38	4.55	1.52	0.41	0.11	0.0

TOTAL TRUCK & COMB.

	NO	70	7021	367	6654	126	52	10	5	2	614	6407	231	113	33	8	4
	PT	70	100.00	5.09	94.91	1.68	0.64	0.17	0.07	0.01	8.44	91.56	3.42	1.64	0.42	0.09	0.03
	PT	69	100.00	5.23	94.77	1.79	0.74	0.14	0.07	0.03	8.75	91.25	3.29	1.61	0.47	0.11	0.06

TOTAL ALL VEHICLES

	NO	70	7547	384	7163	127	48	13	5	2	614	6407	258	124	32	7	2
	PT	70	100.00	5.09	94.91	1.68	0.64	0.17	0.07	0.01	8.44	91.56	3.42	1.64	0.42	0.09	0.03
	PT	69	100.00	5.23	94.77	1.79	0.74	0.14	0.07	0.03	8.75	91.25	3.29	1.61	0.47	0.11	0.06

GUIDE FOR TRUCK WEIGHT STUDY MANUAL

Appendix C

Coding Instructions for Annual Trucking
Characteristics Study

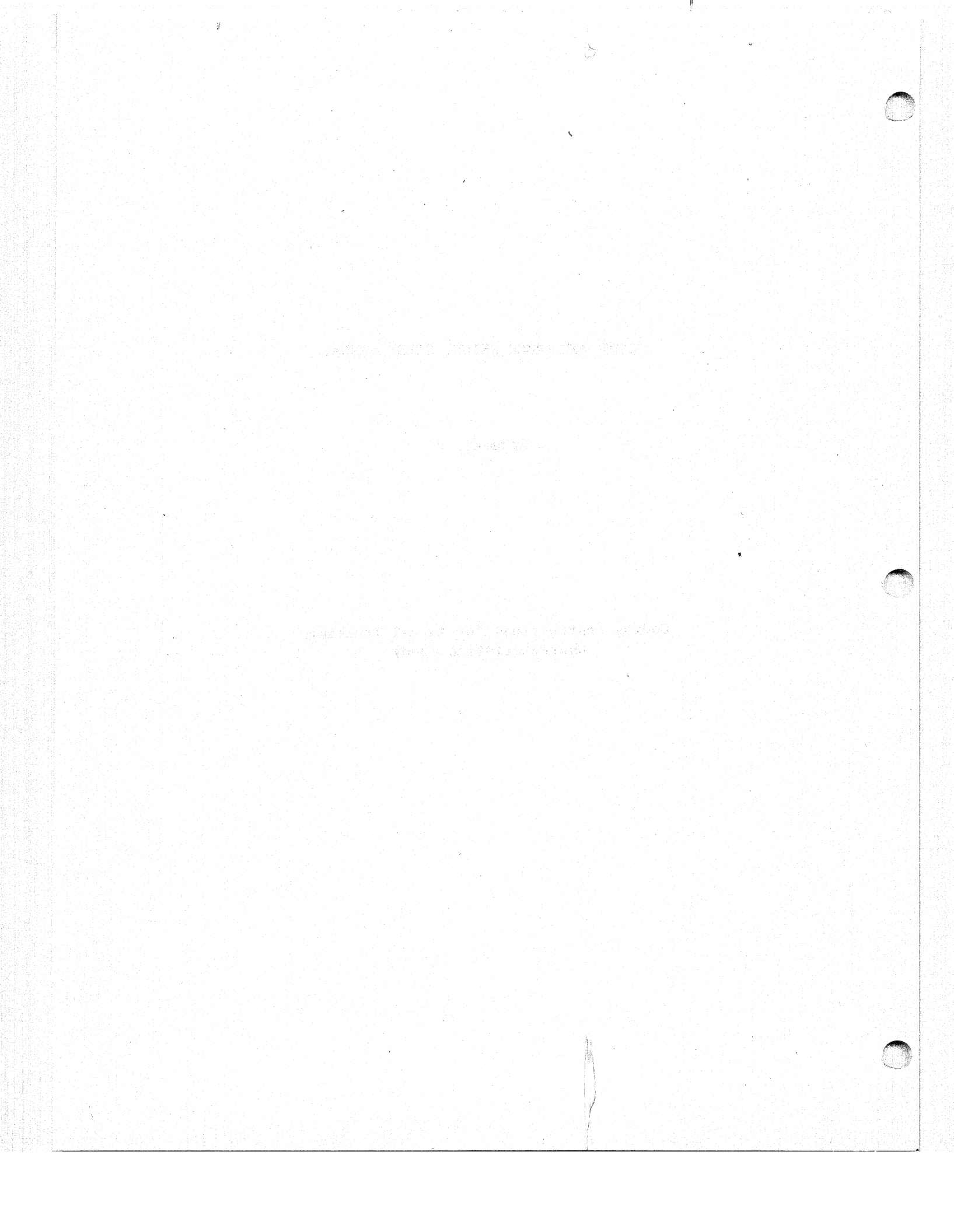


TABLE OF CONTENTS

	<u>Page</u>
Part I - Introduction	1-C
I. General comments	1-C
II. State codes	2-C
A. By Census Division	2-C
B. Alphabetical listing of State codes - sequenced by Census Division	3-C
III. Highway system codes	4-C
IV. Station identification	6-C
V. Direction of travel codes	6-C
VI. Year of current data	6-C
Page II - Station Description Cards	7-C
I. General	7-C
II. Card formats - cards 2.1 through 2.3	8-C - 12-C
III. Descriptive codes	
A. Route number category	7-C
B. Coding scheme for rural-urban classification	13-C, 14-C
C. Functional classification codes	15-C, 16-C
D. Pavement type	17-C, 18-C
E. Median type	18-C
F. Cross section code	18-C, 19-C
G. Control of access code	19-C
H. Pavement condition rating system	20-C, 21-C
I. Type of site	22-C
J. Land use	23-C
K. Type of equipment used for study	24-C
L. Length of scale	24-C
M. Nearest traffic control devices	24-C
N. Road surface condition	25-C
O. Weather at time of study	25-C
P. Card sequence numbers	25-C
Part III - Vehicle Classification and Weight Data	26-C
I. General	26-C
II. Card formats	27-C
A. Number 4 card - vehicle classification data	28-C, 29-C
B. Number 7 card - truck weight data	30-C, 31-C

III. Vehicle type, coding scheme	32-C
A. General	32-C
B. Coding schemes for personal passenger vehicles, buses and single-unit trucks	33-C - 36-C
C. Vehicle codes for semitrailer and/or full trailer	37-C, 38-C
D. Vehicle coding chart	38-C, 40-C
E. Example vehicle type codes	42-C, 43-C
F. Old two-digit vehicle type codes and usual equivalent six-digit code	44-C
IV. Body type definitions and codes	45-C - 48-C
V. Engine type	48-C
VI. Basis of registration	49-C, 50-C
VII. Gross registered weight group	51-C
VIII. Class of operation	52-C
IX. Standard commodity codes for reporting purposes	53-C - 69-C
X. Loaded or empty	70-C
XI. Special coding problems	71-C - 74-C

Part I
Introduction

I. General comments

This appendix contains detailed instructions for coding field data in the Annual Trucking Characteristics Study. Data from any other weighing operations conducted by a highway department may also be recorded utilizing these procedures. The card formats and coding instructions have been developed to provide input to the battery of computer programs utilized by the Program Management Division in summarizing the annual truck weight data submitted by the States and producing the "W" series of tables.

Field data are punched in the following sets of cards:

- Number 2 cards - Station description data
- Number 4 cards - Vehicle classification data
- Number 7 cards - Truck weight data

Certain types of data are common to all three sets of cards and their coding schemes are described in this part. Part II contains instructions for coding the Number 2 cards while Part III describes the Number 4 & 7 cards. While the Number 4 and 7 cards are not new, their regular use in their present format began in 1969. The Number 2 cards are new with the issuance of this appendix. In several instances samples of coded data are provided to help avoid confusion and provide answers to questions that have arisen in the past.

The system of State codes described on page 2-C is sequenced by Census division for ease of data manipulation. Care should be taken to avoid confusion with alphabetically sequenced coding systems used in other studies.

City and county codes may be found in the IBM manual "Numerical Code for States, Counties and Cities of the United States" (C20-8073). This manual shows both the old 3-digit and new 4-digit city codes. The new 4-digit code is to be used. This coding scheme is presently encouraged for use in urban and statewide origin-destination studies. The coding scheme is developed in such a manner as to facilitate the addition of new counties and cities.

In order to avoid difficulties in data processing, blank fields or columns should be avoided. Where a particular field or column is not applicable, zeros should be coded unless otherwise indicated.

II. State codes

(All cards, columns 2-3)

A. By Census Division

<u>Code</u>	<u>New England (01)</u>	<u>Code</u>	<u>West North Central (07)</u>
01	Connecticut		(West of Mississippi River)
02	Maine	31	Iowa
03	Massachusetts	32	Kansas
04	New Hampshire	33	Minnesota
05	Rhode Island	34	Missouri
06	Vermont	35	Nebraska
		36	North Dakota
	<u>Middle Atlantic (02)</u>	37	South Dakota
07	New Jersey		<u>West South Central (08)</u>
08	New York		
09	Pennsylvania	41	Arkansas
		42	Louisiana
	<u>South Atlantic (North) (03)</u>	43	Oklahoma
		44	Texas
11	Delaware		<u>Mountain (09)</u>
12	District of Columbia		
13	Maryland		
14	Virginia	51	Arizona
15	West Virginia	52	Colorado
		53	Idaho
	<u>South Atlantic (South) (04)</u>	54	Montana
		55	Nevada
16	Florida	56	New Mexico
17	Georgia	57	Utah
18	North Carolina	58	Wyoming
19	South Carolina		<u>Pacific (10)</u>
	<u>East North Central (05)</u>		
		61	California
21	Illinois	62	Oregon
22	Indiana	63	Washington
23	Michigan		<u>(11)</u>
24	Ohio		
25	Wisconsin		
		64	Alaska
	<u>East South Central (06)</u>	65	Hawaii
		66	Puerto Rico
	(East of Mississippi River)		
26	Alabama		
27	Kentucky		
28	Mississippi		
29	Tennessee		

B. Alphabetical listing of State codes - sequenced by Census Division

<u>Code</u>	<u>Symbol</u>	<u>Description</u>	<u>Code</u>	<u>Symbol</u>	<u>Description</u>
26	AB	Alabama	15	WV	West Virginia
51	AR	Arizona	25	WI	Wisconsin
41	AK	Arkansas	58	WY	Wyoming
61	CA	California	64	AS	Alaska
52	CO	Colorado	65	HI	Hawaii
01	CT	Connecticut	66	PR	Puerto Rico
11	DE	Delaware			
12	DC	D. C.	67	GU	Guam
16	FL	Florida	68	VI	Virgin Islands
17	GA	Georgia			
53	ID	Idaho	70	CAN	Canada (general)
21	IL	Illinois	79	ALB	Alberta
22	IN	Indiana	81	BC	British Columbia
31	IA	Iowa	77	MAN	Manitoba
32	KS	Kansas	73	NB	New Brunswick
27	KY	Kentucky	71	NF	Newfoundland
42	LA	Louisiana	72	NS	Nova Scotia
02	ME	Maine	76	ONT	Ontario
13	MD	Maryland	75	PEI	Prince Edward Island
03	MA	Massachusetts	74	QUE	Quebec
23	MI	Michigan	78	SAS	Saskatchewan
33	MN	Minnesota	83	NWT	Northwest Territories
28	MS	Mississippi	82	YUK	Yukon
34	MO	Missouri			
54	MT	Montana	90		Mexico
35	NB	Nebraska	92		Baja California
55	NV	Nevada	89		Chihuahua
04	NH	New Hampshire	88		Coahuila
07	NJ	New Jersey	95		Durango
56	NM	New Mexico	94		Mexico, D. F.
08	NY	New York	87		Nuevo Leo
18	NC	North Carolina	91		Sonora
36	ND	North Dakota	86		Tamaulipas
24	OH	Ohio	93		Veracruz
43	OK	Oklahoma	96		Other Mexico
62	OR	Oregon			
09	PA	Pennsylvania	97		Central America
05	RI	Rhode Island			
19	SC	South Carolina	98		South America
37	SD	South Dakota			
29	TN	Tennessee			
44	TX	Texas			
57	UT	Utah			
06	VT	Vermont			
14	VA	Virginia			
63	WA	Washington			

III. Highway System Codes
(All cards, columns 4-5)

<u>Code</u>	<u>System</u>
01	Interstate, rural, final location
02	Interstate, urban, final location
03	Other FA primary, rural
04	Other FA primary, urban
05	FA secondary rural, State jurisdiction
06	FA secondary urban, State jurisdiction
07	FA secondary rural, local jurisdiction
08	FA secondary urban, local jurisdiction
09	Other State highways, rural (Non-FA)
10	Other State highways, urban (Non-FA)
11	Local rural roads
12	Local city streets
21	Toll road on Interstate, rural $\frac{1}{/}$
22	Toll road on Interstate, urban $\frac{1}{/}$
29	Other State highways rural, toll (Non-FA) $\frac{1}{/}$
31	Interstate, rural, present location
32	Interstate, urban, present location
41	Interstate, rural, former traveled-way
42	Interstate, urban, former traveled-way
69	State highways, rural (Non-FA), parkway prohibiting trucks $\frac{1}{/}$
70	State highways, urban (Non-FA), parkway prohibiting trucks $\frac{1}{/}$

For the Interstate system, codes 01 and 02 should be used where the station is on final location mileage which is in status group 1 as defined in PPM 10-6. Where the station is on presently traveled Interstate mileage not constructed to these standards, it should be coded 31 or 32. In some cases, this type mileage may actually be on a system other than Interstate. Stations which were previously Interstate traveled-way should be coded 41 or 42 for three years after the opening to traffic of parallel final Interstate mileage and then recoded to another highway system. In cases where the road section was once considered Interstate traveled-way mileage,

$\frac{1}{/}$ The coding for toll roads is as follows: For toll roads on which trucks are permitted, add 20 to the appropriate system code above. For example, code 24 would be a toll facility on the Federal-aid primary urban system, not Interstate. For toll parkways on which trucks are not permitted, 60 should be added to the appropriate system code.

but the presently traveled route, not in the final category, is considered to be on another location, only the currently applicable code should usually be shown. In complicated situations, particularly in urban areas, where several routes were considered to be Interstate traveled-way at different times, the most recently designated would usually be selected. Other formerly traveled routes might well be designated if, in the judgment of those familiar with the traffic characteristics of the various routes over the years, the particular location was on the major route used for the longer through-type trips until most of these trips were diverted upon opening of the completed interstate route.

IV. Station identification

(All cards, columns 6-8)

There is provision for a three column alphabetic, numeric, or mixed alpha numeric designation. Station identification field entries must be identical in all cards for a station. Differences in characters, including spaces, blanks, hyphens, etc., prevent proper match. This applies to the station identification number 2 cards, vehicle classification number 4 cards, and the truck weight number 7 cards which must be matched during various stages of the processing. Station identification numbers should be right justified, filled with leading zeros. Only the numbers and the 26 letters of the alphabet should be used if possible. Special characters available in usual computer codes may be used if a State finds it essential. Many States have station numbers which incorporate county, highway district, latitude and longitude, grid coordinates, and other attributes which may be of considerable value. Due to the variety of practices it appears feasible to allow for only three characters. These additional items of data are provided for in the station description card.

V. Direction of travel

(All cards, column 9)

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
1	N	North
2	NE	Northeast
3	E	East
4	SE	Southeast
5	S	South
6	SW	Southwest
7	W	West
8	NW	Northwest
9	NSC	North - South (or Northeast - Southwest) combined
0	EWC	East - West (or Southeast - Northwest) combined

VI. Year of current data

(All cards, columns 10-11)

The last two digits of the year are recorded in columns 10-11 of the number 2, 4 and 7 cards. For all data collected in a calendar year these two columns should be consistent.

Part II
Station Description Cards

I. General

The number 2 cards provide a means for computer storage of truck weight station descriptions. Information formerly submitted by the highway departments in the W-1 tables along with a limited amount of additional data is included in the station description cards. Data are punched into three cards in this series, which are:

- Card 2.1 - Station characteristics card
- Card 2.2 - Descriptive comments card
- Card 2.3 - Station shift card

These data are to be submitted to the Program Management Division in the form of punched cards at the same time as the number 4 and number 7 cards.

In order to properly identify these cards, a "2" should be punched in column 1 of all cards. A "1," "2," or "3" should be punched in column 80 of each card, as appropriate, to identify it within the number 2 card series. Card 2.2 provides 64 columns for alphanumeric comments and description. If more space is required to adequately describe the station location, additional 2.2 cards may be used. When more than one 2.2 card is used for a station, the total number of 2.2 cards should be punched in columns 78-79 of all 2.2 cards. The card sequence number for this card type should be punched in columns 76-77.

All fields of numerical data on the number 2 cards should be completely punched using leading and trailing zeros where appropriate.

II. Card formats

Pages 8-C through 12-C contain the formats for the station description cards. The formats are presented on a suggested coding form. Page references are provided for easy reference to the desired coding schemes shown in Section C of this part. Columns 1-11 are common to all of the number 2, 4 and 7 cards. The descriptive codes for the data in these common fields are found in Part I.

III. Descriptive codes

A. Route number category (card 2.1, column 12)

<u>Code</u>	<u>Description</u>
1	Interstate
2	U. S.
3	State
4	County
0	Other

Station Characteristics Card - Type 2.1

<u>Card col.</u>	<u>Description</u>	<u>Ref. page</u>
1	Station description card code	<u>2</u>
2 - 3	State code number	-- 2-C, 3-C
4 - 5	Highway system	-- 4-C
6 - 8	Station identification number (alphanumeric)	--- 6-C
9	Direction of travel	_ 6-C
10 - 11	Year of current data	-- 6-C
12	Route number category	_ 7-C
13 - 17	Route number of principle route	-----
18 - 19	Rural-urban category code	-- 13-C
20 - 22	County _____ county code	--- 1-C
23 - 26	City _____ city code	--- 1-C
27 - 28	Functional classification, where applicable	-- 15-C
29 - 30	Current speed limit - cars	--
31 - 32	Current speed limit - trucks	--
33 - 38	Average daily traffic, year prior to year of study	-----
39 - 42	Average daily load, year prior to year of study	-----
43 - 46	Total vehicles weighed, year prior to year of study	-----
47 - 48	Year station was established	--

C-8

C-6

<u>Card col.</u>	<u>Description</u>	<u>Ref. page</u>
49 - 50	Total number of lanes in main roadways	--
51 - 53	Total width of pavement in main roadways	---
54 - 55	Pavement type, north or east bound roadway	-- 17-C
56 - 57	Pavement type, south or west bound roadway	-- 17-C
58	Median type	-- 18-C
59 - 60	Median width (feet)	--
61 - 62	Pavement thickness (inches)	--
63 - 64	Cross section code	-- 18-C, 19-C
65	Control of access code	-- 19-C
66	Pavement condition rating system code	-- 20-C
67 - 68	Pavement condition, north or east bound roadway	-- 20-C, 21-C
69 - 70	Pavement condition, south or west bound roadway	-- 20-C, 21-C
71	Type of site	-- 22-C
72 - 75	Land use abutting north or east bound roadway	---- 23-C
76 - 79	Land use abutting south or west bound roadway	---- 23-C
80	Characteristics data card, code = 1	<u>1</u>

Descriptive Comments Card - Type 2.2

<u>Card col.</u>	<u>Description</u>	<u>Ref. page</u>
1	Station description card code	<u>2</u>
2 - 3	State code number	-- 2-C, 3-C
4 - 5	Highway system	-- 4-C
6 - 8	Station identification number (alphanumeric)	-- 6-C
9	Direction of travel	-- 6-C
10 - 11	Year of current data	-- 6-C
12 - 75	Alphanumeric comments and/or data concerning station location, street name, equipment make and model and other pertinent data	
76 - 77	Card sequence number for 2.2 cards	--
78 - 79	Total number of 2.2 cards for this station	--
80	Descriptive comments card, code = 2	<u>2</u>

10-C

Station Shift Card - Type 2.3

<u>Card col.</u>	<u>Description</u>	<u>Ref. page</u>
1	Station description card code	2
2 - 3	State code number	2-C, 3-C
4 - 5	Highway system	4-C
6 - 8	Station identification number (alphanumeric)	6-C
9	Direction of travel	6-C
10 - 11	Year of current data	6-C
12 - 13	Starting time - month	
14 - 15	Starting time - day	
16 - 17	Starting time - hour	
18 - 19	Starting time - minute (where applicable)	
20 - 21	Ending time - month	
22 - 23	Ending time - day	
24 - 25	Ending time - hour	
26 - 27	Ending time - minute (where applicable)	
28 - 29	Classification counters	
30 - 31	Interviewers	
32 - 33	Loadometer operators	
34 - 35	Measurements	

<u>Card col.</u>	<u>Description</u>	<u>Ref. page</u>
36 - 37	Recorders	---
38 - 39	Supervisors	---
40 - 41	Weigh masters	---
42 - 43	Police	---
44 - 45	Flagmen	---
46 - 47	Other (unclassified)	---
48 - 49	Type of equipment used for study	--- 24-C
50 - 52	Length of scale (feet)	--- 24-C
53 - 57	Nearest traffic control devices, north or east from station	--- 24-C
58 - 62	Nearest traffic control devices, south or west from station	--- 24-C
Columns 63 through 69 concerning weather conditions are optional.		
63 - 65	Atmospheric temperature, degrees F.	---
66	Road surface condition	--- 25-C
67	Weather at time of study	--- 25-C
68 - 69	Average wind velocity	---
70 - 71	Open	---
72 - 75	Shift card sequence number for this station	--- 25-C
76 - 79	Total number of shift cards for this station	--- 25-C
80	Station shift card, code = 3	<u>3</u>

12-C

NOTE: Columns 48 through 62 need not be repeated in continuation cards.

B. Coding Scheme for Rural-Urban Classification

Metropolitan-municipal size category		Rural-urban category										
		Census-rural		Census-urban				Census-urbanized				
		Federal-aid rural	Federal-aid urban	Federal-aid rural	Federal-aid urban	Federal-aid rural	Federal-aid urban	Federal-aid rural	Federal-aid urban			
		P*	P*	P*	P*	P*	P*	P*	P*			
Outside standard metropolitan statistical area												
Outside Federal-aid urban limit												
A. Nonmunicipal	10	15	/	/	/	/	/	/	30	35	/	/
B. Municipality less than 2,500	11	16	/	/	/	/	/	/	31	36	/	/
C. Municipality 2,500 to 4,999			/	/	12	17	/	/	32	37	/	/
D. Municipality 5,000 to 24,999			/	/	13	18	/	/	33	38	/	/
E. Municipality 25,000 to 49,999			/	/	14	19	/	/	34	39	/	/
Inside Federal-aid urban limit												
A. Nonmunicipal	/	/	20	25	/	/	/	/	/	/	40	45
B. Municipality less than 2,500	/	/	21	26	/	/	/	/	/	/	41	46
C. Municipality 2,500 to 4,999	/	/	/	/	/	/	22	27	/	/	42	47
D. Municipality 5,000 to 24,999	/	/	/	/	/	/	23	28	/	/	43	48
E. Municipality 25,000 to 49,999	/	/	/	/	/	/	24	29	/	/	44	49
Inside standard metropolitan statistical area												
Outside Federal-aid urban limit												
A. Nonmunicipal	50	55	/	/	/	/	/	/	70	75	/	/
B. Municipality less than 2,500	51	56	/	/	/	/	/	/	71	76	/	/
C. Municipality 2,500 to 4,999			/	/	52	57	/	/	72	77	/	/
D. Municipality 5,000 to 24,999			/	/	53	58	/	/	73	78	/	/
E. Municipality 25,000 to 49,999			/	/	54	59	/	/	74	79	/	/
F. Municipality 50,000 and over			/	/			/	/	90	95	/	/
Inside Federal-aid urban limit												
A. Nonmunicipal	/	/	60	65	/	/	/	/	/	/	80	85
B. Municipality less than 2,500	/	/	61	66	/	/	/	/	/	/	81	86
C. Municipality 2,500 to 4,999	/	/	/	/	/	/	62	67	/	/	82	87
D. Municipality 5,000 to 24,999	/	/	/	/	/	/	63	68	/	/	83	88
E. Municipality 25,000 to 49,999	/	/	/	/	/	/	64	69	/	/	84	89
F. Municipality 50,000 and over	/	/	/	/	/	/	/	/	/	/	91	96

13-C

* "P" denotes a location within an urbanized area planning study boundary or cordon.

Examples of coding for rural-urban classification:

1. Rural station, outside a standard metropolitan statistical area and outside a Federal-aid urban boundary, and not in a municipality: code "10" in columns 18-19 on card 2.1. The same location, when within an urbanized area planning study boundary or cordon, would be coded "15."
2. Urban station, outside a standard metropolitan statistical area and inside a Federal-aid urban boundary, and within a municipality having a population of between 5,000 and 25,000: code "23" in columns 18-19 on card 2.1. The same location, when within an urbanized area planning study boundary or cordon, would be coded "28."
3. Urban station, inside a standard metropolitan statistical area and inside a Federal-aid urban boundary, and not in a municipality: code "80" in columns 18-19 on card 2.1. The same location, when within an urbanized area planning study boundary or cordon, would be coded "85."

C. Functional classification codes
(Card 2.1, columns 27-28)

<u>Code</u>	<u>Description</u> <u>Rural</u>
	Principal Arterials
Ø1	Interstate
Ø2	Other
Ø3	Minor arterial Collector road system
Ø4	Major collectors
Ø5	Minor collectors
Ø6	Local Road
	<u>Small Urban Area - 5,000 to 9,999 Population</u>
	Principal Arterial Streets
11	Interstate
12	Other freeways and expressways
13	Other principal arterial streets
14	Minor arterial streets
15	Collector street
16	Local street
	<u>Small Urban Area - 10,000 to 24,999 Population</u>
	Principal Arterial
21	Interstate
22	Other freeways and expressways
23	Other
24	Minor Arterial
25	Collector
26	Local

C. Functional classification codes (con.)

(Card 2.1, columns 27-28)

Small Urban Area 25,000 - 49,999 Population

<u>Code</u>	Principal Arterials
31	Interstate
32	Other freeways and expressways
33	Other principal arterials
34	Minor arterial street
35	Collector street
36	Local street

Urbanized Area - Over 50,000 Population

	Principal Arterials
41	Interstate
42	Other freeways and expressways
43	Other principal arterial
44	Minor arterial street
45	Collector street
46	Local street

D. Pavement type
(Card 2.1, columns 54-57)

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
01	A	Primitive
02	B	Unimproved
03	C	Graded and drained
04	D	Soil surfaced
05	E	Gravel or stone
06	F	Bituminous surface-treated
07	G-1	Mixed bituminous - low type (less than 7 inches combined thickness surface and base)
08	G-2	Mixed bituminous - high type (7 inches or more combined thickness surface and base, or equivalent)
09	G-3	Mixed bituminous surface (resurfacing with 1 inch or more on portland cement concrete base)
10	G-4	Mixed bituminous surface (new construction with 1 inch or more mixed bituminous surface on portland cement concrete base)
11	H-1	Bituminous penetration - low type (less than 7 inches combined thickness surface and base)
12	H-2	Bituminous penetration - high type (7 inches or more combined thickness surface and base, or equivalent)
13	H-3	Bituminous penetration surface (resurfacing with 1 inch or more on portland cement concrete base)
14	H-4	Bituminous penetration surface (new construction with 1 inch or more bituminous surface on new portland cement concrete base)
15	I	Bituminous concrete, sheet asphalt, or rock asphalt
16	I-3	Bituminous concrete, sheet asphalt, or rock asphalt (resurfacing with 1 inch or more on portland cement concrete base)
17	I-4	Bituminous concrete, sheet asphalt, or rock asphalt (new construction with 1 inch or more bituminous surface on new portland cement concrete base)
18	J	Portland cement concrete
19	J-3	Portland cement concrete (resurfaced with bituminous wearing surface less than 1 inch thickness)
20	J-4	Portland cement concrete (new construction with bituminous wearing surface less than 1 inch thickness)

D. Pavement type (con.)
(Card 2.1, columns 54-57)

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
21	K	Brick
22	L	Block
		Other (steel, wood, etc.)

E. Median type
(Card 2.1, column 58)

<u>Code</u>	<u>Median type</u>
1	Grass, sod
2	Soil, stone or other loose aggregate
3	Parkland, business, residential or other types of occupancy
4	Couplet
5	Portland cement concrete pavement
6	Bituminous concrete pavement
7	Other
9	None

F. Cross section code
(Card 2.1, columns 63-64)

<u>Code</u>	<u>Description</u>
01	one-way, not constructed as divided highway, no curb and gutter
02	two-way, two-lane, no curb and gutter
03	two-way, three-lane, no curb and gutter
04	one-way, not constructed as divided highway, with curb and gutter
05	two-way, two-lane, with curb and gutter
06	two-way, three-lane, with curb and gutter
11	multilane undivided, no frontage road, no curb and gutter
12	multilane undivided, with frontage road, N or E bound side, no curb and gutter
13	multilane undivided, with frontage road, S or W bound side, no curb and gutter
14	multilane undivided, with frontage road, both sides, no curb and gutter

F. Cross section code (con.)
(Card 2.1, columns 63-64)

<u>Code</u>	<u>Description</u>
21	multilane undivided, no frontage road, with curb and gutter
22	multilane undivided, with frontage road, N or E bound side, with curb and gutter
23	multilane undivided, with frontage road, S or W bound side, with curb and gutter
24	multilane undivided, with frontage road, both sides, with curb and gutter
31	multilane divided, no frontage road, no curb and gutter
32	multilane divided, with frontage road, N or E bound side, no curb and gutter
33	multilane divided, with frontage road, S or W bound side, no curb and gutter
34	multilane divided, with frontage road, both sides, no curb and gutter
41	multilane divided, no frontage road, with curb and gutter
42	multilane divided, with frontage road, N or E bound side, with curb and gutter
43	multilane divided, with frontage road, S or W bound side, with curb and gutter
44	multilane divided, with frontage road, both sides, with curb and gutter

G. Control of access code
(Card 2.1, column 65)

<u>Code</u>	<u>Description</u>
0	No control
1	Partial
2	Full

H. Pavement condition rating system
(Card 2.1, column 66)

<u>Code</u>	<u>Description</u>
1	Present serviceability
2	Individual present serviceability rating
3	Present serviceability rating
4	Present serviceability index
5	Other
0	None

References:

1. HRB Bulletin 250, "The Pavement Serviceability - Performance Concept."
2. National Cooperative Highway Research Program Report No. 7, "Comparison of Different Methods of Measuring Pavement Condition."

Definition:

To fulfill the requirements of the Road Test, rather ordinary terms were given specific definitions as follows:

Present serviceability--the ability of a specific section of pavement to serve high-speed, high-volume, mixed (truck and automobile) traffic in its existing condition. (Note that the definition applies to the existing condition--that is, on the date of rating--not to the assumed condition the next day or at any future or past date.) Although this definition applies to the Road Test and may apply to any primary highway system, the definition could easily be modified for use with city streets, farm roads, etc. Obviously, serviceability must be defined relative to the actual use of the road.

Individual present serviceability rating--an independent rating by an individual of the present serviceability of a specific section of roadway made by marking the appropriate point on a scale on a special form (Fig. 1). This form also includes provision for the rater to indicate whether or not the pavement is acceptable as a primary highway. For the Road Test application, when rating highways other than those in the primary system, the rater was instructed to exclude from consideration all features not related to the pavement itself, such as right-of-way width, grade, alignment, shoulder and ditch condition, etc.

Acceptable ?		5	Very Good
Yes	<input type="checkbox"/>	4	Good
No	<input type="checkbox"/>	3	Fair
Undecided	<input type="checkbox"/>	2	Poor
		1	Very Poor
		0	
Section Identification _____		Rating	
Rater _____	Date _____	Time _____	Vehicle _____

Figure 1. Individual present serviceability rating form.

Present serviceability rating (hereafter PSR)--the mean of the individual ratings made by the members of a specific

panel of men selected for the purpose by the Highway Research Board. This panel was intended to represent all highway users. It included experienced men, long associated with highways, representing a wide variety of interests, such as highway administration, highway maintenance, a federal highway agency, highway materials supply (cement and asphalt), trucking, highway education, automotive manufacture, highway design, and highway research.

Present serviceability index (hereafter PSI)--a mathematical combination of values obtained from certain physical measurements of a large number of pavements so formulated as to predict the PSR for those pavements within prescribed limits.

Performance index (hereafter PI)--a summary of PSI values over a period of time. There are many possible ways in which the summary value can be computed. Perhaps the simplest summary consists of the mean ordinate of the curve of PSI against time."

Most "P" values will exceed 1.5; the very best pavements being rated between 4.0 and 4.5 and the very worst rated less than 1.5.

I. Type of site
(Card 2.1, column 71)

<u>Code</u>	<u>Description</u>
1	Station located on pavement (traveled lane)
2	Station located on shoulder
3	Safety rest area
4	Frontage road
5	Off-ramp
6	On-ramp
7	Other public land
8	Privately owned land
9	Turnoff for study station which removes traffic from through lanes (example: permanent scale site)
0	Other

J. Land Use
(Card 2.1, columns 72-79)

<u>Code</u>	<u>Description</u>
1100	Low density residential, lots one acre or more
1600	Suburban residential, single family on lots under one acre
1700	Multi-family residential, semi-detached, duplex, row houses, garden apartments
1800	High density apartments of four stories or more, apartment hotels
3600	Manufacturing, light industry and landscaped industrial parks
3700	Heavy industry, including large manufacturing plants, scrap yards, equipment storage
4000	Transportation, communication and utilities, rail, water, air and highway terminals, power stations, transmitter sites
5100	Trade, wholesale warehouses, storage yards, and offices
5000	Retail, neighborhood shopping and strip commercial
5900	Retail, regional shopping and central business
6000	District services, financial, governmental educational, professional, personal, repair construction
7700	Low density cultural entertainment, recreation and historical at open areas, parks, water areas
7800	High density cultural, cultural centers, theaters, museums, amusement
8000	Resource production or extraction, farms, and developed forests, fisheries, mines
9000	Undeveloped land, water, forests
9900	Other or no specific code

These codes, consistent with the "Standard Land Use Coding Manual" at the one-digit level, are for indicating land use on each side of the highway. Since a 4-digit field is provided, States may utilize the full 4-digit codes if they so desire.

K. Type of equipment used for study
(Card 2.3, columns 48-49)

<u>Code</u>	<u>Description</u>
01	Portable
02	Chassis-mounted, towed
03	Platform or pit
04	Weighing in motion

L. Length of scale
(Card 2.3, columns 50-52)

Code the total length of scale platform(s) in the direction of travel to the nearest foot. The usual portable scales should be coded as 2-feet long.

M. Nearest traffic control devices
(Card 2.3, columns 53-62)

This field is used to indicate the distance in feet to the nearest traffic control device preceding the weight station and the type of control device. Punch the distance to the nearest control device, to the nearest foot, in columns 53-55, and 58-60. The following coding scheme should be used for punching columns 56-57, and 61-62. When there are no control devices within 1,000 feet of the station, this field should be punched with five zeros.

<u>Code</u>	<u>Description</u>
01	No passing zone
02	Speed zone
03	Traffic signal (stop and go)
04	Flashing beacon--red
05	Flashing beacon--yellow
06	Stop sign
07	Yield sign
08	School zone signal or sign
09	Manual pedestrian control
10	Other
00	None

N. Road surface condition
(Card 2.3, column 66)

<u>Code</u>	<u>Description</u>
1	Dry
2	Wet
3	Slushy
4	Ice
5	Packed snow
6	Unplowed snow, less than 3 inches
7	Unplowed snow, more than 3 inches
0	Unknown or not applicable

O. Weather at time of study
(Card 2.3, column 67)

<u>Code</u>	<u>Description</u>
1	Clear
2	Cloudy
3	Fog or haze
4	Rain
5	Rain showers
6	Thunderstorm
7	Snow
8	Sleet or freezing rain
0	Unknown or not applicable

P. Shift card sequence number and total number of shift cards
(Card 2.3, columns 72-79)

When weighing operations are conducted in more than one shift, 2.3 cards should be punched for each shift. Enter the appropriate sequence number in columns 72-75 and the total number of shift cards (card 2.3) for the station in columns 76-79.

Part III
Vehicle Classification and Weight Data

I. General

Data for the trucking characteristics studies are recorded on the following three tabulating card types:

- Card No. 2 - Station Identification Data
- Card No. 4 - Vehicle Classification Count Data
- Card No. 7 - Truck Weight Data

The following pages contain the card formats and coding instructions for the numbers 4 and 7 cards. With the exception of the station identification data, all of the required input to Federal Highway Administration's computer program battery for analyzing and summarizing the truck weight data is contained on these two cards.

In developing these programs, a number of States have assisted by reviewing procedures, formats, and coding. Four States--Missouri, New York, Texas, and Wyoming--have provided real 1966 and 1967 data to test the coding instructions, overall concepts and computer programs. In several cases coding procedures different from those in previous truck weight instructions have been developed. Perhaps the greatest change is in the vehicle type codes developed in response to suggestions from several States. This code has been expanded from the former two-digit code to a six-digit code which has been designed for flexibility so that all vehicle types and axle arrangements can be included. While this theoretically provides for one million different vehicle types, it appears that most States will require fewer than 30 different codes for the truck weight studies. To facilitate the processing of national summaries, a new State code to group States by census divisions and regions has been developed.

Those responsible for coding truck weight data should be particularly conscious of the need for completely filling the data fields with leading or trailing zeros, as appropriate. Blank columns in fields with coded data are not acceptable.

The data coded in columns 1-11 of both the number 4 and number 7 cards are common, with the possible exception of column 9. It is possible that column 9 on the number 4 card will be coded for non-directional travel, while the corresponding number 7 cards will show directional travel.

The number 4 card may be continued on 2 or more cards when it is necessary to record data for vehicle types other than the 14 types provided for on the face of the number 4 card. Similar provisions has been made for recording axle weights and spacing on the number 7 cards. Where continuation cards are used care should be taken to insure the proper coding of columns 76-79 and 80 of the No. 4 card and columns 77-79 and 80 of the No. 7 card.

The following pages of this Appendix contain the card formats and coding instructions for the number 4 and 7 cards. Pages 71-C to 74-C contain comments on coding problems which have arisen in the past.

II. Card formats

Pages 28-C through 31-C contain the card formats for the number 4 and 7 cards.

Vehicle Classification Card 4 1/

Cols.	No. of cols.	Numeric only or Alpha-numeric	Description of item	Ref. page
1	1	N	Vehicle classification card code: 4 in col. no. 1;	
2-3	2	N	State code number: 01-66;	2-C
4-5	2	N	Highway system: 01-12, 31, 32, 41, 42;	4-C
6-8	3	A	Station identification (alpha or numeric) right justified;	6-C
9	1	N	Direction of travel: 1-9, 0; N=1, NE=2---NW=8; both N and S or NE and SW=9; both E and W or SE and NW=0;	6-C
10-11	2	N	Year data were gathered: last two digits of year	
12-13	2	N	Month " " : 01=Jan., 12=Dec.	
14-15	2	N	Date " " : 01-31	
16-17 ^{1/}	2	N	Hour of day: code beginning of hour for which count is taken 00 through 23, 1 p.m.=13 for count between 1 p.m. and 2 p.m.	
18-22	5	N	No. of in-state passenger cars - standard and compact	
23-27	5	N	" " " " - small compact	
28-32	5	N	" " out-of-state passenger cars - standard and compact	
33-37	5	N	" " " " - small compact	
38-40	3	N	" " motor scooters and motorcycles	
41-44	4	N	No. of commercial buses	
45-47	3	N	" " school and nonrevenue buses	
48-51	4	N	No. of 2P, panel and pickup trucks,	
52-55	4	N	" " 2S, other 4-tire trucks;	
56-59	4	N	" " 2D, 2-axle, 6-tire trucks	
60-62	3	N	" " 3A, 3-axle trucks	
63-65	3	N	" " 2S1, 2-axle tractor, 1-axle semitrailer	
66-69	4	N	" " 2S2, " " , 2-axle "	
70-73	4	N	" " 3S2, 3-axle " , " "	
74-75	2	N	Blank	
76-79	4	N	Card serial or ID number: same for continuation card. Serial numbering should start with "0001" for the first hour counted at each station each year and continue consecutively with no numbers omitted for as many cards as are needed. A continuation card will carry the same number as the card it supplements.	71-C
80	1	N	Continuation card indicator (0=this is only card, 1=another to follow)	

1/ The description of items for card columns 1-17 is the same for all #4 and #7 cards and continuation cards.

Continuation of Vehicle Classification Card 4 1/

Cols.	No. of cols.	Numeric only or Alpha-numeric	Description of item	Ref. page
1	1	N	Vehicle classification card code: 4 in col. no. 1	
2-3	2	N	State code number: 01-66;	2-C
4-5	2	N	Highway system:	4-C
6-8	3	A	Station identification (alpha or numeric) right justified;	6-C
9	1	N	Direction of travel: 1-9, 0; N=1, NE=2 - - - NW=8; both N and S or NE and SW=9; both E and W or SE and NW=0;	6-C
10-11	2	N	Year data were gathered: last two digits of year	
12-13	2	N	Month " " " : 01=Jan., 12=Dec.	
14-15	2	N	Date " " " : 01-31	
16-17	2	N	Hour of day: code beginning of hour for which count is taken 00 through 23, 1 p.m.=13 for count between 1 p.m. and 2 p.m.	
18-23	6	N	Vehicle type code (see new vehicle codes)	32-C - 44-C
24-27	4	N	Vehicle count for above type	
28-33	6	N	Vehicle type code	
34-37	4	N	Vehicle count for above type	
38-43	6	N	Vehicle type code	
44-47	4	N	Vehicle count for above type	
48-53	6	N	Vehicle type code	
54-57	4	N	Vehicle count for above type	
58-63	6	N	Vehicle type code	
64-67	4	N	Vehicle count for above type	
68-75	8		Blank	
76-79	4	N	Card serial or ID number: same for continuation card. Serial numbering should start with "0001" for the first hour counted at each station each year and continue consecutively with no numbers omitted for as many cards as are needed. A continuation card will carry the same number as the card it supplements.	71-C
80	1	N	Continuation card indicator (2 through 8 = additional cards, 9 = last card; if there is a single continuation card, it should have a "9" in column 80 since it is the "last" continuation card.)	

1/ Used for vehicle types other than those described at columns 48-73 for the number 4 card format of the preceding page.

Truck Weight Tabulating Card 7 ^{1/}

Cols.	No. of cols.	Numeric only or Alpha-numeric	Description of item	Ref. page
1	1	N	Truck weight tabulation card code: 7 in col. no.1	
2-3	2	N	State code number: 01-66;	2-C
4-5	2	N	Highway system: 01-12, 31, 32, 41, 42;	4-C
6-8	3	A	Station identification (alpha or numeric) right justified;	6-C
9	1	N	Direction of travel: 1-9, 0; N=1, NE=2 - - - NW=8; both N and S or NE and SW=9; both E and W or SE and NW=0;	6-C
10-11	2	N	Year data were gathered: last two digits of year	
12-13	2	N	Month " " " : 01=Jan., 12=Dec.	
14-15	2	N	Date " " " : 01-31	
16-17	2	N	Hour of day: code beginning of hour for which count is taken 00 through 23, 1 p.m.=13 for count between 1 p.m. and 2 p.m.	
18-23	6	N	Vehicle type code: see new vehicle codes	32-C - 44-C
24-25	2	N	Body type code: 11-94;	45-C-48-
26	1	N	Engine: 1-4, 9;	48-C C
27-28	2	N	Gross registered weight group code:	51-C
29-31	3	N	Registered weight (thousands of pounds): zeros if not determined;	
32	1	N	Basis of registration: 1-6, 9;	49-C-50-
33-34	2	N	Model year of truck or tractor: 99 if not determined;	
35	1	N	Class of operation: 1=private, 2=hire under ICC, 3=other for hire, 9=does not apply;	52-C
36-40	5	N	Commodity code:	53-C-69-
41	1	N	Empty or loaded: 0=empty, 1=loaded, 2=does not apply;	70-C C
42-45	4	N	Total weight of truck or combination (hundreds of pounds)	
46-48	3	N	A-axle weight (hundreds of pounds)	
49-51	3	N	B- " " (" " ")	
52-54	3	N	C- " " (" " ") Unused axle	
55-57	3	N	D- " " (" " ") weight and	
58-60	3	N	E- " " (" " ") spacing	
61-63	3	N	(A-B) axle spacing (feet and tenths) fields are	
64-66	3	N	(B-C) " " (" " ") blank.	
67-69	3	N	(C-D) " " (" " ")	
70-72	3	N	(D-E) " " (" " ")	
73-76	4	N	Total wheel base (feet and tenths)	
77-79	3	N	Card serial number (same for continuation card) The serial number should start with "001" for the first truck weighed at each station each shift. Continuation cards should have the same number as the cards they supplement. (0=this is only card, 1=another to follow)	71-C
80	1	N		

^{1/} Used for vehicles having no more than 5 axles or for first 5 axles of larger combinations.

Continuation of Truck Weight Tabulating Card 7 ^{1/}

Cols.	No. of cols.	Numeric only or Alpha-numeric	Description of item	Ref. page
1	1	N	Truck weight tabulation card code: 7 in col. no 1	1
2-3	2	N	State code number: 01-66;	2-C
4-5	3	N	Highway system: 01-12, 31, 32, 41, 42;	4-C
6-8	3	A	Station identification (alpha or numeric) right justified;	6-C
9	1	N	Direction of travel: 1-9, 0; N=1, NE=2---NW=8; both N and S or NE and SW=9; both E and W or SE and NW=0;	6-C
10-11	2	N	Year data were gathered: last two digits of year	
12-13	2	N	Month " " " : 01=Jan., 12=Dec.	
14-15	2	N	Date " " " : 01-31	
16-17	2	N	Hour of day: code beginning of hour for which count is taken 00 through 23, 1 p.m.= 13 for count between 1 p.m. and 2 p.m.	
18-23	6	N	Vehicle type code: see new vehicle codes	32-C-44-C
24-25	2	N	Body " " :	45-C-48-C
26	1	N	Engine " : 1-4, 9;	48-C
27-28	2	N	Gross registered weight group code:	51-C
			<u>Axle Representation</u> ^{2/}	
29-31	3	N	F-axle weight (hundreds of pounds) Unused axle weight	
32-34	3	N	G- " " (" " ") and spacing fields	
35-37	3	N	H- " " (" " ") are blank.	
38-40	3	N	I- " " (" " ")	
41-43	3	N	J- " " (" " ")	
44-46	3	N	K- " " (" " ")	
47-49	3	N	L- " " (" " ")	
50-52	3	N	M- " " (" " ")	
53-55	3	N	(E-F) axle spacing (feet and tenths)	
56-58	3	N	(F-G) " " (" " ")	
59-61	3	N	(G-H) " " (" " ")	
62-64	3	N	(H-I) " " (" " ")	
65-67	3	N	(I-J) " " (" " ")	
68-70	3	N	(J-K) " " (" " ")	
71-73	3	N	(K-L) " " (" " ")	
74-76	3	N	(L-M) " " (" " ")	
77-79	3	N	Card serial number (same as on first card)	71-C
80	1	N	Continuation card indicator (9-last card) ^{2/}	

^{1/} Used for truck combinations having 6 or more axles.
^{2/} If a vehicle has more than 13 axles this same format is used for the 14th (N) through 21st (U) axles using a continuation indicator of 2 in column 80 of the second card and a 9 in the third card.

III. Vehicle type, coding scheme

A. General

Codes for all vehicle types are given in this section. For the truck weight study the passenger car and bus codes will not be used since these vehicles are adequately identified by fields in the vehicle classification card 4, and will not be included in the truck weight tabulating card 7. When filling in the vehicle type code no columns should be left blank. Leading and trailing zeros should be used where appropriate to fill out the field.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
C ₁		<u>General vehicle types</u> (C ₁) ^{1/}
0	PV	Personal passenger vehicles
1	BU	Buses
2	SU	Single-unit trucks
3	TS	Tractor + semitrailer
4	TF	Truck + 1 full trailer
5	SF	Tractor + semitrailer + 1 full trailer
6	FF	Truck + 2 full trailers
7	S2	Tractor + semitrailer + 2 full trailers
8	3F	Truck + 3 full trailers
		Subtotal of all combinations
9	--	(not to be used in coding)

^{1/} C₁, C₂, etc. refer to the first, second, etc., thru the 6th column of the six-digit vehicle type code.

B. Coding schemes for personal passenger vehicles, buses, and single-unit trucks

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
C ₁ C ₂ C ₃ C ₄ C ₅ C ₆		<u>Personal passenger vehicles (C₁, C₂)</u>
0 1	MC	Motorcycle
0 2	MS	Motorscooter
0 3	MB	Motorcycle or motorscooter
0 4	STP	Standard auto
0 5	CMP	Compact auto
0 6	SMP	Small auto
0 7	SCP	Standard and compact
0 8	CSP	Compact and small
0 9	--	Subtotal of all passenger vehicles (not to be used in coding)

Registration modifiers (C₃)

See page 35-C when it is desired that this be coded.

Light trailer modifiers (C₄)

See page 36-C when it is desired that this be coded.

State of registration (C₅, C₆)

See page 2-C when it is desired that this be coded.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
C ₁ C ₂ C ₃ C ₄ C ₅ C ₆		<u>Buses (C₁, C₂)</u>
1 1	ICB	Bus, commercial--intercity
1 2	TCB	Bus, commercial--transit
1 3	SCB	Bus, commercial--sightseeing
1 4	OCB	Bus, commercial--other
1 5	CB	Bus, commercial--any type
1 6	SNB	Bus, school and nonrevenue
1 7	CNB	Bus, camper
1 8	NB	Bus, all nonrevenue type
1 9	--	Subtotal of all buses (not to be used in coding)

Registration modifiers (C₃)

See page 35-C.

Axle, tire modifiers (C₄)

-- 0 --	X	Axle arrangement not recorded
-- 1 --	2S	2-axle, 4-tire
-- 2 --	2D	2-axle, 6-tire
-- 3 --	3A	3-axle
-- 4 --	4A	4-axle or more
-- 9 --	--	Subtotal of all arrangements (not to be used in coding)

State of registration (C₅, C₆)

See page 2-C when it is desired that this be coded.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
<u>Single-unit trucks (C₁, C₂)</u>		
2 0	2P	Light 2-axle, 4-tire truck, panel and pickup
2 1	2S	Heavy 2-axle, 4-tire truck, standup delivery
2 2	2D	2-axle, 6-tire truck (dual tires or super singles)
2 3	3A	3-axle truck
2 4	4A	4-axle truck
2 5	5A	5-axle truck
2 6	6A	6-axle truck
2 7	7A	7-axle truck
2 8	8A	8-axle or more truck
2 9	--	Subtotal of all single-unit trucks (not to be used in coding)

Registration modifiers (C₃)

See below.

Trailer modifiers (C₄)

See page 36-C.

State of registration (C₅, C₆)

Optional for special purpose studies and not required for the regular truck weight study. If use is desired see page 2-C.

Registration modifiers for all single-unit vehicle types (C₃)

-- 0	X	State registration not recorded
-- 1	IS	In State, all
-- 2	OS	Out-of-State, all
-- 3	INS	In State, nongovernment owned
-- 4	ISG	In State, government owned
-- 5	OSN	Out-of-State, nongovernment owned
-- 6	OSG	Out-of-State, government owned
-- 7	FG	Federal government owned
-- 9	--	Subtotal of all registrations (not to be used in coding)

Light trailer modifiers for passenger vehicles and single-unit trucks (C4)

Trailer types and axle arrangements for truck combinations are covered beginning on page 37-C. As in prior years, all light trailers having passenger car type or smaller wheels are classified with the pulling vehicle. As stated on page 37-C of the instructions, heavy trailers with dual tires or heavy truck type single tires should be classified in the appropriate combination category. If the States so desire, passenger car and single-unit trucks pulling light trailers may be classified separately from these vehicle types without trailers. They may be counted and entered in the fields in the number 4 continuation card using the appropriate vehicle code. For those single-unit trucks pulling light trailers which are weighed the same vehicle code will be used in the number 7 card.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
--- 0 ---	X	No trailer
--- 1 ---	CMT	Camp trailer (canvas or collapsible)
--- 2 ---	MHT	Travel or mobile home
--- 3 ---	CT	Cargo trailer
--- 4 ---	BT	Boat trailer
--- 5 ---	ET	Towed equipment
--- 6 ---	AT	Auto towed
--- 7 ---	TT	Towed truck
--- 8 ---	SB	Tractor(s) or single-unit truck(s) with front axles on unit ahead (slantback)
--- 9 ---	T	Any or all types trailed vehicles

C. Vehicle codes for semitrailer and/or full trailer combinations

The coding for truck combinations has been designed to allow maximum flexibility in coding numbers of units, types of units and axle arrangements for combinations of up to four units. Codes for vehicle type category and number of units (C₁) are given under "General vehicle types" on page 32-C. Examples for all vehicle type groups are given on pages 42-C and 43-C.

Semitrailers which have a fifth wheel on the rear to be used when pulling a second semitrailer behind the first should be treated as a regular semitrailer, full trailer combination.

Power unit - number of axles (C₂)

"9" in C₂ followed by "0000" indicates a subtotal for the type indicated in C₁. This and other total codes may be produced during computer processing and should not be used in coding.

Trailer units - axles and arrangements (C₃, C₄, and C₅ for first, second, and third trailer unit, respectively)

(dual tires or heavy duty type trailers)

<u>Code</u>	<u>Description</u>
0	No trailer
1	Single-axle trailer
2	2-axle trailer
3	3-axle trailer
4	4-axle trailer
5	5-axle trailer
6	6-axle trailer
7	2-axle trailer with one spread tandem ^{1/}
8	3-axle trailer with one spread tandem
9	4-axle trailer with one spread tandem

1/ Identification of Spread Tandems During Classification

The normal spacing between the axles of a tandem is about 4 feet. Table 1, page TCS-39 of the "Instructions for Annual Trucking Characteristics Study," transmitted with IM 50-4-66(4), illustrates that no weight advantage is gained by increasing the spacing until the spacing becomes greater than 8 feet. Where a three-axle tandem arrangement (3S3) is used, it is also likely that one axle will be placed 9 feet or more from the others to gain load advantage. It is often apparent that vehicles with spread tandems are designed to transport liquids or other high density commodities. While regulations differ by State, satisfactory results are obtained when vehicles, with axle spacing observed to be about double or more the usual tandem spacing, are classified as having spread tandems.

C₆ is a modifier in the sixth digit of the code to cover out of the ordinary units with more than one set of spread tandem axles and/or trailers carried piggyback.

<u>Code</u>	<u>Description</u>
0	No special modification required
1	One spread tandem on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , C ₅ .
2	Two spread tandems on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , C ₅ .
3	Three spread tandems on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .
4	One trailer (assumed to be the last one) piggyback and no spread tandems except those indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .
5	One trailer (assumed to be the last one) piggyback and one spread tandem on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .
6	One trailer (assumed to be the last one) piggyback and two sets of spread tandems on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .

C₆ is a modifier in the sixth digit of the code to cover out of the ordinary units with more than one set of spread tandem axles and/or trailers carried piggyback.

7	Two trailers piggyback and no spread tandems except those indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .
8	Two trailers piggyback and one spread tandem on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .
9	Two trailers piggyback and two sets of spread tandems on pavement in addition to any indicated by 7, 8, or 9 in C ₃ , C ₄ , or C ₅ .

D. Vehicle coding chart

The next two pages contain a vehicle coding chart which illustrates the use of the 6-digit coding scheme. Use of this chart may simplify the efforts of field personnel in determining vehicle codes.

Vehicle Type Coding Chart

	1st Character	2nd Character	3rd Character	4th Character	5th Character	6th Character
Passenger vehicles	basic vehicle type = 0	(C) vehicle type	(A) registration modifier	(B) light trailer modifier	State of registration	
Buses	basic vehicle type = 1	(D) vehicle type	(A) registration modifier	(E) axle & tire modifier	State of registration	
Single-unit trucks	basic vehicle type = 2	(F) total axles	(A) registration modifier	(B) light trailer modifier	State of registration	
Tractor + semitrailer	basic vehicle type = 3	total axles on power unit	(G) total axles on first trailer	code = 0	code = 0	(H) special modifier
Truck + full trailer	basic vehicle type = 4	total axles on power unit	(G) total axles on first trailer	code = 0	code = 0	(H) special modifier
Tractor + semitrailer + full trailer	basic vehicle type = 5	total axles on power unit	(G) total axles on first trailer	(G) total axles on second trailer	code = 0	(H) special modifier
Truck + full trailer + full trailer	basic vehicle type = 6	total axles on power unit	(G) total axles on first trailer	(G) total axles on second trailer	code = 0	(H) special modifier
Tractor - semitrailer + 2 full trailers	basic vehicle type = 7	total axles on power unit	(G) total axles on first trailer	(G) total axles on second trailer	(G) total axles on third trailer	(H) special modifier
Truck + 3 full trailers	basic vehicle type = 8	total axles on power unit	(G) total axles on first trailer	(G) total axles on second trailer	(G) total axles on third trailer	(H) special modifier

39-C

Letter in block refers to a table on the following page.

Table A

- 0 State registration not recorded
- 1 In-State, all
- 2 Out-of-State, all
- 3 In-State, nongovernment owned
- 4 In-State, government owned
- 5 Out-of-State, nongovernment owned
- 6 Out-of-State, government owned
- 7 Federal government owned

Table B

- 0 No trailer
- 1 Camp trailer
- 2 Mobile home
- 3 Cargo trailer
- 4 Boat trailer
- 6 Towed auto
- 7 Towed truck
- 8 "Slantback"
- 9 Any or all types
trailed vehicles

Table C

- 1 Motorcycle
- 2 Motorscooter
- 3 Motorcycle or
motorscooter
- 4 Standard auto
- 5 Compact auto
- 6 Small auto
- 7 Standard and
compact auto
- 8 Compact and
small auto

Table D

- 1 Bus, intercity, commercial
- 2 Bus, transit, commercial
- 3 Bus, sightseeing, commercial
- 4 Bus, commercial, other
- 5 Bus, commercial, any type
- 6 Bus, school and nonrevenue
- 7 Bus, camper
- 8 Bus, all nonrevenue type

Table E

- 0 Axle arrangement not recorded
- 1 Two-axle, four-tire
- 2 Two-axle, six-tire
- 3 Three-axle
- 4 Four-axles or more

Table F

- 0 Panel and pickup
- 1 Heavy two-axle, four-tire
- 2 Two-axle, six-tire
- 3 Three-axle
- 4 Four-axle
- 5 Five-axle
- 6 Six-axle
- 7 Seven-axle
- 8 Eight-axles or more

Table G

- 0 No Trailer
- 1 Single-axle trailer
- 2 Two-axle trailer
- 3 Three-axle trailer
- 4 Four-axle trailer
- 5 Five-axle trailer
- 6 Six-axle trailer
- 7 Two-axle trailer with one spread tandem
- 8 Three-axle trailer with one spread tandem
- 9 Four-axle trailer with one spread tandem

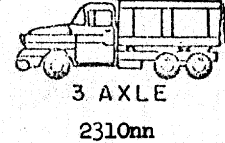
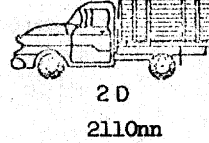
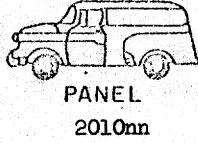
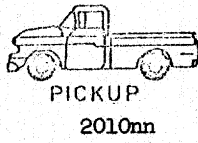
Table H

- 0 No special modification
- 1 One spread tandem on pavement in addition to any
indicated by 7, 8, 9 in C3, C4, C5.
- 2 Two spread tandems on pavement in addition to any
indicated by 7, 8, 9 in C3, C4, C5.
- 3 Three spread tandems on pavement in addition to any
indicated by 7, 8, 9 in C3, C4, C5.
- 4 One trailer piggyback and no spread tandems except
those indicated by 7, 8, 9 in C3, C4, C5.
- 5 One trailer piggyback and one spread tandem on pavement
in addition to any indicated by 7, 8, 9 in C3, C4, C5.

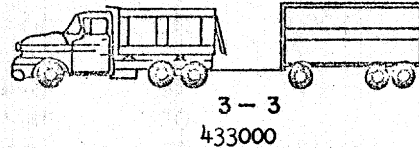
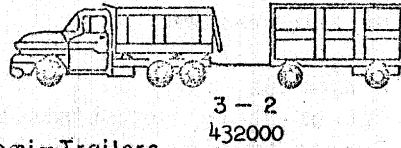
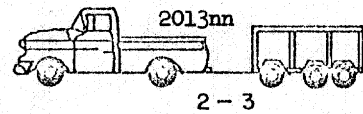
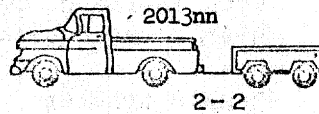
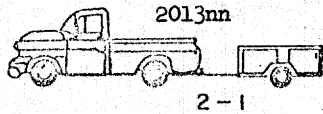
- 6 One trailer piggyback and two sets of spread tandems
on pavement in addition to any indicated by 7, 8,
9 in C3, C4, C5.
- 7 Two trailers piggyback and no spread tandems except
those indicated by 7, 8, 9 in C3, C4, C5.
- 8 Two trailers piggyback and one spread tandem on
pavement in addition to any indicated by 7, 8,
9 in C3, C4, C5.
- 9 Two trailers piggyback and two sets of spread tandems
on pavement in addition to any indicated by 7,
8, 9 in C3, C4, C5.

Typical Vehicle Type and Codes

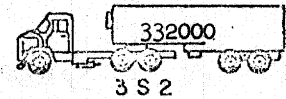
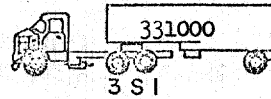
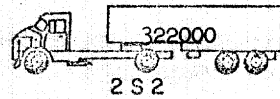
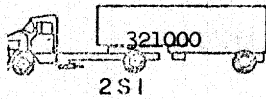
Trucks



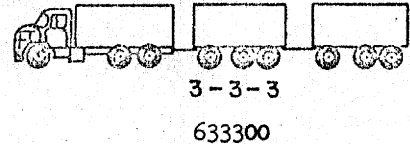
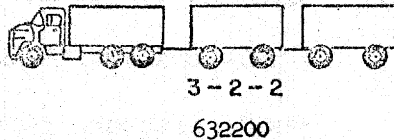
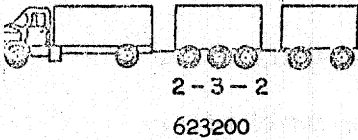
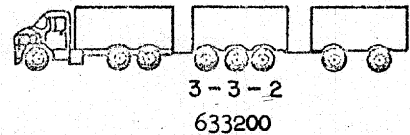
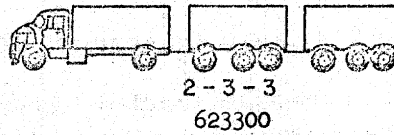
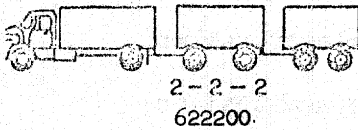
Trucks and Trailers



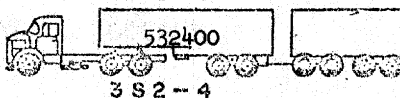
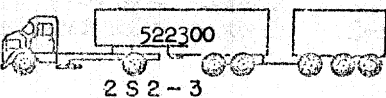
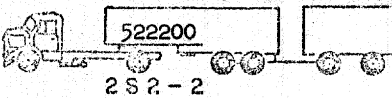
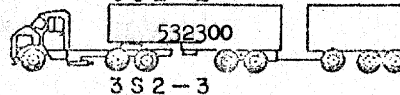
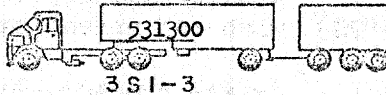
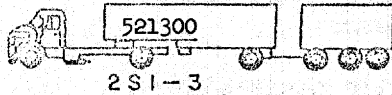
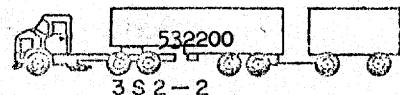
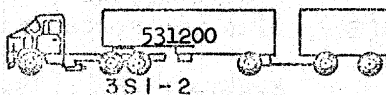
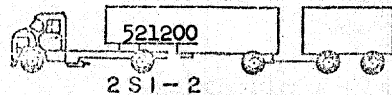
Trucks and Semi-Trailers



Trucks and Trailers



Tractors and Semi-Trailers



E. Example vehicle type codes

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
042100	STP	Standard passenger car
	OS	with out-of-state registration
	CMT	with camp trailer
121200	TCB	Commercial transit bus
	IS	with in-state registration
	2D	with 2-axles, 6 tires
231500	3A	3-axle truck
	IS	with in-state registration
	ET	with towed equipment
230000	3A	3-axle tractor
	X	with registration not recorded
	NTR	without semitrailer
232800	3A	3-axle tractor
	OS	with out-of-state registration
	SB	with 3-axle tractor carried slantback
321000	2S1	2-axle tractor, 1-axle semitrailer (5th wheel coupling)
322000	2S2	2-axle tractor, 2-axle semitrailer
331000	3S1	3-axle tractor, 1-axle semitrailer
332000	3S2	3-axle tractor, 2-axle semitrailer
337000	3S2(S)	3-axle tractor, 2-axle semitrailer with one spread tandem
333000	3S3	3-axle tractor, 3-axle semitrailer
338000	3S3(S)	3-axle tractor, 3-axle semitrailer with one spread tandem
338001	3S3(2S)	3-axle tractor, 3-axle semitrailer with two spread tandems
349001	4S4(2S)	4-axle tractor, 4-axle semitrailer with two spread tandems
532200	3S2-2	3-axle tractor, 2-axle semitrailer, 2-axle full trailer

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
332004	3S2P	3-axle tractor, 2-axle semitrailer carried piggyback.
532204	3S2-2P	3-axle tractor, 2-axle semitrailer, 2-axle full trailer piggybacked
532200	3S2S2	3-axle tractor, 2-axle semitrailer with 5th wheel, 2-axle semitrailer Note that this combination is coded the same as the 3S2-2.
732220	3S2-2-2	3-axle tractor, 2-axle semitrailer, 2-axle full trailer, 2-axle full trailer
732227	3S2-2P-2P	3-axle tractor, 2-axle semitrailer, 2-axle full trailer, 2-axle full trailer, both full trailers carried piggyback
432000	3-2	3-axle truck, 2-axle full trailer
832220	3-2-2-2	3-axle truck, 2-axle full trailer, 2-axle full trailer, 2-axle full trailer
832227	3-2-2P-2P	3-axle truck, 2-axle full trailer 2-axle full trailer, 2-axle full trailer, last 2 full trailers carried piggyback

F. Old two-digit vehicle type codes
and usual equivalent six-digit code

<u>Old</u>	<u>New</u>	<u>Old</u>	<u>New</u>	<u>Old</u>	<u>New</u>
01	041000	26	333000	58	522400
02	042000	27	342000	59	523100
03	051000	28	343000	61	523200
04	052000	29	344000	62	523300
05	061000	31	421000	63	523400
06	062000	32	422000	64	531100
07	071000	33	423000	65	531200
08	072000	34	432000	66	531300
09	030000	35	433000	67	531400
11	200000	36	434000	68	532100
12	210000	37	431000	69	532200
13	220000	38	441000	71	532300
14	230000	39	442000	72	532400
15	240000	41	443000	73	533100
16	091900	42	444000	74	533200
17	092900	51	521100	75	533300
19	290900	52	521200	76	533400
21	321000	53	521300	77	622100
22	322000	54	521400	78	622200
23	331000	55	522100	79	632200
24	332000	56	522200		
25	323000	57	522300		

IV. Body type definitions and codes (columns 24-25, card no. 7)

Light truck

These bodies are found primarily on lighter trucks. Where other bodies, such as multistop delivery, are encountered on light trucks, the correct body type code should be used.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
11	PNL	<u>Panel</u> - A fully enclosed body of limited capacity which includes driver's compartment.
12	PU	<u>Pickup</u> - A small open box or express body.
13	LUT	<u>Light utility</u> - A body designed to carry readily accessible tools, equipment, and supplies in integrally constructed compartments, with or without other cargo spaces.
14	PNC	<u>Personnel and cargo</u> - A body with large integral enclosed passenger compartment and a separate open box or express body.
15	CYL	<u>Carryall or minibus</u> - An enclosed utility body with side windows and one or more removable seats designed for transporting either passengers, light cargo or both. (Station wagons are considered to be passenger cars and are not included in this category.)

General truck and semitrailer bodies

21	FLT	<u>Platform, flat, or stake</u> - A body having a floor without sides or roof, with or without readily removable stakes which may be tied together with chains, slats, or panels.
22	LOB	<u>Low-bed trailer</u> - A truck trailer with a platform body constructed to provide a low loading height and designed for the transportation of extremely heavy or bulky property.
23	RAK	<u>Rack</u> - A body with fixed slatted sides and headboard.
24	STK	<u>Livestock rack</u> - A rack body with or without roof designed primarily for transportation of livestock.
25	RIG	<u>Riggers or oil field</u> - A platform body of heavy construction equipped with a rear end roller or bullnose adapted for loading by winch or crane mounted on the vehicle and designed primarily for rigging, construction, or work in oil fields.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
26	LUM	<u>Lumber</u> - A platform body usually with transverse rollers designed primarily for the transportation of sawed lumber.
27	LOG	<u>Log, or pipe</u> - A body comprised of sill, bolsters, with or without headboard, with provision for uprights, and designed primarily for the transportation of logs, poles, pipes, or other loads which may be boomed. (Use body type codes 21 or 23 for trucks hauling pulpwood.)
28	CNP	<u>Canopy</u> - An express body with fixed or removable uprights and roof which may be integral or separate from cab.
31	EXP	<u>Express</u> - An open box body with or without flareboards.
32	BOX	<u>Open top box or van</u> - A body with high closed sides and ends and a movable top, which usually is a tarpaulin cover.
33	GRN	<u>Grain</u> - A low-side open-box primarily designed to transport dry fluid commodities in bulk.
34	DMP	<u>Dump</u> - A low-side open-box body, designed primarily to transport dry fluid commodities in bulk, which can be tilted or otherwise manipulated to discharge its load by gravity.
35	HOP	<u>Hopper</u> - A body which is capable of discharging its load by gravity or mechanical power through means other than tilting, and usually loaded from the top.
41	VAN	<u>Van</u> - A fully enclosed body designed primarily for the transportation of packaged commodities.
42	REF	<u>Insulated van</u> - A van body designed primarily for the transportation of commodities or the vending of food, beverages, or confections at controlled temperatures. It may be provided with equipment for refrigeration or heating.
43	MOV	<u>Furniture or moving van</u> - A van body designed primarily for transportation of furniture or household goods. Customarily, when truck-mounted, it includes an integral driver's compartment.
51	TNK	<u>Tank</u> - A body designed for bulk liquid commodities other than petroleum.
52	OIL	<u>Petroleum tank</u> - A tank body designed for transportation of petroleum products.
53	DST	<u>Bituminous material distributor</u> - A tank body provided with means for distributing hot bituminous material under pressure, usually equipped with means for heating the material.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
54	BOT	<u>Bottler</u> - A body designed primarily for the transportation of cased bottled beverages on open or closed shelves, A-frames, or pallets.
61	DEL	<u>Multistop or standup delivery</u> - A fully enclosed body with driver's compartment integral and designed for easy access.
62	AUT	<u>Automobile transporter</u> - A body designed primarily for the transportation of other vehicles.
63	ARM	<u>Armored car (not military)</u> - An enclosed cargo body with integral driver's compartment so constructed as to protect cargo and crew from overt attack.
64	BTC	<u>Boat carrier</u> - A body designed to transport 2 or more boats.
71	MIX	<u>Concrete mixer or agitator</u> - A body designed and equipped to mix or agitate concrete.
72	WRK	<u>Wrecker</u> - A body designed primarily for transportation of equipment for salvaging disabled vehicles and equipped with means for hoisting and towing such vehicles.
73	UTL	<u>Utilities</u> - A body designed primarily for the transportation of tools, equipment, and supplies for construction, maintenance, and repair purposes.
74	GAR	<u>Garbage and refuse</u> - A dump body designed primarily for the collection of garbage and refuse. It is frequently equipped within the body.
75	CON	<u>Container</u> - A body designed to transport bundled, stacked, or palletized commodities or special containers, with special lifting, locking, or loading devices.
76	EQP	<u>Equipment</u> - Any truck mounted or other self-propelled wheeled equipment designed for highway travel, such as truck-mounted cranes, well drills, compressors, etc.
77	CHS	<u>Bare chassis</u> - A cargo type vehicle with no provision for carrying load. This code should be used also for the body type when one truck, without a body, is transporting a second without a body, where the front wheels of the second rest on the first.

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
78	SHP	<u>Shop</u> - A body constructed for use as a shop, laboratory, office, or for a similar purpose with tools, equipment, or supplies to be used, operated, or dispensed from inside the body. Insulated bodies designed for vending hot or cold foods, beverages, or confections should be coded 42, insulated van body.
79	DWL	<u>Dwelling body</u> - A body, other than shop body, designed for use as an abode with bunk(s), including house body and camper body.
88	NTR	<u>Truck-tractor without semitrailer or trailer</u> - Any vehicle constructed primarily to pull a semitrailer, full trailer, pole trailer, house trailer, or equipment.
89	ELG	Empty log truck carrying pole trailer.
91	INT	<u>Intercity bus</u> - A body constructed with reclining seats, and large separate cargo compartment for transporting persons on journeys of long duration.
92	SUB	<u>Suburban bus</u> - A body constructed with fixed or reclining seats, overhead passenger luggage space, provision for standing passengers, with or without quick opening separate entrance and exit doors.
93	TRN	<u>City transit bus</u> - A body constructed with fixed seats, provision for a high proportion of standing passengers, with quick opening entrance and exit doors.
94	SCH	<u>School bus</u> - A light bus body constructed for the transportation of students.

V. Engine type (Column 26, Card No. 7)

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
1	G	Gasoline
2	D	Diesel
3	P	Propane
4	T	Turbine
8	O	Other*
9	N	Not determined

*If code 8 is used for a significant number of vehicles in your State, please provide details of these new vehicle types in narrative form to the Federal Highway Administration.

VI. Basis of registration

The classification of basis of registration is based on table MV-103, Highway Statistics, 1966, with primary consideration given to the basis which contributes the predominant proportion of the registration fees paid in each State.

Description of basis and States (with code) where each type is used predominantly:

Code Symbol Description

Gross weight of combination

1 GC Alabama (26), Arkansas (41), Connecticut (01),
Delaware (11), Georgia (17), Idaho (53),
Illinois (21), Indiana (22), Iowa (31),
Kansas (32), Kentucky (27), Maine (02),
Massachusetts (03), Minnesota (33),
Mississippi (28), Missouri (34), Nebraska (35),
New Hampshire (04), New Jersey (07),
New York (08), North Carolina (18),
North Dakota (36), Oklahoma (43), Rhode
Island (05), South Carolina (19),
Tennessee (29), Utah (57), Vermont (06),
Virginia (14), Washington (63), West
Virginia (15), Wisconsin (25)

Gross weight of units separately

2 GS Montana (54), Oregon (62), Pennsylvania (09),
Texas (44)

Empty weight of units separately

3 EC Alaska (64), Arizona (51), California (61),
Colorado (52), Florida (16), Hawaii (65),
Michigan (23), Nevada (55), Ohio (24),
Wyoming (58), District of Columbia (12)

Chasis weight

5 CH Maryland (13), New Mexico (56),
South Dakota (37)

Gross weight of load carrying axles

6 LA Louisiana (42)

Code Symbol Description

Not determined or does not apply

This code may be used in the case of vehicles from Canada or Mexico when the basis of registration is not known. The necessity for use of this code may also arise in cases where the power unit and the trailing unit are registered in different States with different bases of registration such that a meaningful registered weight cannot be obtained; e.g., power unit registered on gross weight of units separately and trailing unit registered on empty weight.

9 ND

VII. Gross registered weight group (Columns 27-28, Card No. 7)

<u>Code</u>	<u>GRW</u>
02	0 - 3,999
06	4,000 - 7,999
10	8,000 - 11,999
14	12,000 - 15,999
18	16,000 - 19,999
23	20,000 - 25,999
29	26,000 - 31,999
36	32,000 - 39,999
45	40,000 - 49,999
55	50,000 - 59,999
65	60,000 - 79,999
85	80,000 - 99,999
95	100,000 and more
99	Not determined or does not apply

VIII. Class of operation (Column 35, Card No. 7)

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
1	PVT	Privately operated vehicles in general service. The load carried is the property of the owner of the vehicle.
2	ICC	For hire operation under certification of the Interstate Commerce Commission; such vehicles bear a plate displaying the "MC" number of permit or certificate.
3	OFH	Other for hire operation; all vehicles not bearing ICC identification carrying cargo not the property of the owner of the vehicle.
9	NA	Class of operation not determined or does not apply. This code may be used for vehicles from Canada or Mexico.

IX. Standard commodity codes for reporting purposes^{1/}

This five-digit commodity code was developed by the Bureau of the Budget in cooperation with Federal transportation reporting and regulatory agencies and the transportation industry. By dropping the right-hand digits, the commodities can be grouped in categories. The code is consistent with the Standard Industrial Classification (SIC) code used for other purposes. Categories are also consistent with the "Standard Land Use Coding Manual" prepared by the Bureau of Public Roads and the Urban Renewal Administration. Basic codes 01 through 41 represent major groups. The Association of American Railroads, Transportation Building, Washington, D.C., has expanded the commodity code to seven digits to provide additional detail; extended it through code 47111 to include special categories of railroad traffic and prepared an alphabetical index to facilitate coding. The AAR code may be purchased from the association.

For use in truck weight studies, motor-vehicle-use studies, and areawide goods movements studies, the Federal Highway Administration has extended the codes through 899 to correspond with applicable SIC codes. This provides special codes for the service industries and for the transportation of people.

The extended passenger and service industry codes apply primarily to single-unit trucks, and should not be used where a regular commodity code in the 01-42 series applies. The service related commodity codes provide a better description of certain loads. For example, "Laundry, cleaning commodities related to laundry, cleaning and dyeing linen supply, diaper service, rug cleaning services," code 721, describes the load better than the commodity codes 231 through 239 for types of apparel. Selected codes in the SIC codes 46 through 67 covering pipeline and transportation services, communications, wholesale and retail trade, finance, insurance, and real estate have been included, but none of the government codes in the 90 series are included. Nearly all the commodities related to these industry groups are in the basic commodity series 01 through 47.

Data fields on the number 7 and number 7 continuation cards provide 5 columns for coding commodities. If less than 5-digit detail is coded, trailing zeros should be coded. State highway departments may, at their discretion, utilize the full 5-digit detail in the coding scheme developed by the Association of American Railroads.

IX. STANDARD COMMODITY CODES FOR REPORTING PURPOSES ^{1/}

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
00000	<u>EMPTY VEHICLE</u>	0129	Miscellaneous fresh fruits and tree nuts, incl. cane and bush berries, cranberries, strawberries, coconuts, cocoa beans, vanilla beans; nuts, edible, in shell, except peanuts; cactus fruit, figs, hovenas, loquats, prickly pears, n.e.c.
01	<u>FARM PRODUCTS</u>	01295	Coffee, green
011	Field crops	013	Fresh vegetables
0112	Cotton, raw, incl. not ginned or baled, samples, linters, noils, nubs, sweepings, n.e.c.	0131	Bulbs, roots, and tubers, with or without tops (except potatoes), beets, carrots, onions (green), parsnips, radishes, rutabagas, turnips, artichoke tubers, shallots, celery roots, dasheens (malangas), horseradish roots, cassavas, celeriac, chives, garlic, leeks, oyster plant, salsify, vegetable oysters, n.e.c.
01121	Cotton in bales	01318	Onions, dry
01131	Barley	0133	Leafy fresh vegetables, incl. broccoli, brussels sprouts, cabbage, spinach, kale, chard, collards, cauliflower; rhubarb (pie plant), anise, celery, cabbage, chicory, cress, endives, greens, parsley, pepper grass, rape, savoy, sorrel, sprouts, n.e.c.
01132	Corn, except popcorn, maize	01334	Celery
01133	Oats	01335	Lettuce
01134	Rice, rough	0134	Dry ripe vegetable seeds, etc., used as food (except artificially dried) incl. lentils, lupines, cowpeas (except blackeye), n.e.c.
01135	Rye	01341	Beans, dry, ripe
01136	Sorghum grains, incl. milo maize (dried), Egyptian wheat, n.e.c.	01342	Peas, dry
01137	Wheat, except buckwheat, incl. emmer, durum (amber or red)	0139	Miscellaneous fresh vegetables, incl. beans (green, string, lima, wax) and peas (green), sweet corn, cucumbers, peppers, pumpkins, squash, eggplant, artichokes, asparagus, lentils, okra (gumbo), yuccas, n.e.c.
01139	Grain, incl. buckwheat, spelt, n.e.c.	01392	Watermelons
0114	Oil seeds, oil nuts, oil kernels, except edible tree nuts, n.e.c.	01394	Tomatoes
01141	Cottonseeds	01398	Melons, except watermelons, incl. muskmelons, cantaloupes, casaba, christmas, honeydew, mango, osage, persian, n.e.c.
01142	Flaxseeds (linseeds)	014	Livestock and livestock products
01143	Peanuts, edible, raw, in the shell, incl. shelled, not salted	0141	Livestock, incl. calves, goats and kids, n.e.c.
01144	Soybeans (soya beans)	01411	Cattle, incl. bulls, cows, heifers, oxen, steers
0115	Field seeds, except oil seeds, incl. grass seed (lawn), popcorn, ear or shelled, not popped, n.e.c.	01413	Hogs and pigs, incl. barrows, boars, sows
0119	Miscellaneous field crops, except chopped, ground or pulverized, n.e.c.	01414	Sheep, incl. ewes, lambs, rams, wethers
01191	Hay, forage, except chopped, ground or pulverized, incl. alfalfa, alsike, clover, lespedeza, timothy; swamp grass, dried	0142	Dairy farm products, except pasteurized, incl. fresh milk (unprocessed), farm-separated cream, n.e.c.
01192	Hops (malt)	0143	Animal fibers, silk fibers (raw), mohair; hair, alpaca (in grease), cattle, goat, hog, horse (not curled), horse mane or tail (drawn, not curled), hog bristle, other than crude, n.e.c.
01193	Leaf tobacco	01431	Wool
01194	Sweet potatoes, fresh or green, yams	015	Poultry and poultry products
01195	Potatoes, fresh or green, other than sweet	0151	Live poultry, incl. chickens, turkeys, ducks, geese, pigeons, baby chicks, poults, etc., n.e.c.
01196	Straw, except chopped, ground or pulverized, incl. flax, threshed grain or rice	0152	Poultry eggs, market eggs, hatching eggs (chicken and turkey), n.e.c.
01197	Sugar beets		
012	Fresh fruits and tree nuts		
0121	Citrus fruits, incl. citrons, not melons, grapefruit, kumquats, lemons, limes, mandarins, oranges, pomelos, shaddockes, tangelos, tangerines, n.e.c.		
0122	Deciduous fruits, incl. apricots, cherries, kaki, medlars, nectarines, pawpaws, pears, persimmons, plums, prunes, pomegranites, quinces, n.e.c.		
01221	Apples		
01224	Grapes		
01226	Peaches		
0123	Tropical fruits, except citrus, incl. alligator pears, ananas, avacados, bread fruit, calavos, flavacados, granadillas, guavas, mangos, marmalade plums, olives (fresh), papayas, pineapples, plantains, sapodillas, tararinds, n.e.c.		
01232	Bananas		

1/ Abbreviations included in this code are listed following the descriptions.

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	CODE	DESCRIPTION
01	<u>FARM PRODUCTS</u> (cont'd)	105	Bauxite and other aluminum ores, incl. crude bauxite ores, calcined or activated bauxite ores, kyanite ore, aluminum ores, and n.e.c.
019	Miscellaneous farm products	106	Manganese ores, including direct-shipping ores, crude; beneficiating-grade ores, crude; manganese concentrates and agglomerates
0191	Horticultural specialties, incl. cut flowers, flower bulbs and tubers, flower plants, herbs (seeds, leaves, roots, etc.), mushrooms (fresh), vegetable and berry plants, flower and vegetable seeds, nursery stock (shrubs, vines, fruit and shade trees, etc.), chopped, ground and pulverized straw, hay and related agricultural products, comb honey (in section frames) and n.e.c.	107	Tungsten ores, including crude tungsten ores, tungsten concentrates
0192	Animal specialties, incl. horses, ponies, mules, asses, and burros, wild animals (live); game (live), dogs, cats, and rabbits (live); hides, skins, and pelts not tanned, except cattle, pig, goat, sheep, mule, horse and marine animal; snails, ostrich, bees in hives, ivory (scrap or shavings), animal and poultry manure, and n.e.c.	108	Chromium ores, including crude chromium ores, chromium concentrates
		109	Miscellaneous metal ores and concentrates, incl. mercury, titanium, radio-active (uranium, radium, etc.), vanadium, molybdenum, and n.e.c.
08	<u>FOREST PRODUCTS</u>	11	<u>COAL</u>
084	Gums and barks, crude	111	Anthracite coal, including waste
0842	Barks, crude; gums, crude except latex and allied gums (crude rubber)	11111	Raw anthracite (lump)
08423	Latex and allied gums, crude natural rubber, (chicle, gutta-percha, latex (liquid rubber); rubber, guayule or natural, crude	11112	Cleaned or prepared anthracite (crushed, screened, or sized)
086	Miscellaneous forest products	112	Bituminous coal and lignite, including waste
0861	Miscellaneous forest products, incl. Christmas trees, decorative evergreens, mistletoe, holly, ferns, tree seeds, except oil seeds, and n.e.c.	1121	Bituminous coal, including raw bituminous, cleaned or prepared bituminous (crushed, screened, sized), raw lignite (lump), prepared lignite (crushed, screened, sized)
09	<u>FRESH FISH AND OTHER MARINE PRODUCTS</u>	13	<u>CRUDE PETROLEUM, NATURAL GAS, AND NATURAL GASOLINE</u>
091	Fresh fish and other marine products	131	Crude petroleum and natural gas, incl. petroleum or shale oil, petroleum residue solidified
0912	Fresh fish, including frozen unpackaged fish, except packaged	132	Natural gasoline, except liquefied petroleum gases
09121	Finfish, fresh or frozen, not packaged, and n.e.c.	14	<u>NONMETALLIC MINERALS, EXCEPT FUELS</u>
09122	Shellfish, incl. clams, oysters or scallops, in shell; crabs or lobsters, live; shrimp, and n.e.c.	141	Dimension stone, quarry
09123	Whale products, incl. whalebone, manufactured and unmanufactured	142	Crushed and broken stone, incl. riprap, fluxing stone, furnace limestone, fluxing limestone, dolomite, raw
09131	Marine products, incl. shells (oyster, crab, clam, etc.), marine animal skins, untanned; except whale skins; miscellaneous marine products (fish roe, livers, bladders, etc.), sea grass, sponges; terrapins, turtles (live), and n.e.c.	14211	Agricultural limestone
10	<u>METALLIC ORES</u>	14219	Crushed and broken stone, incl. riprap, and n.e.c.
101	Iron ores, including direct-shipping ores, crude; iron concentrates, iron agglomerates	144	Sand and gravel
10112	Beneficiating-grade ores, crude	14411	Sand (aggregate and ballast)
102	Copper ores, incl. crude copper ores, copper concentrates and precipitates	14412	Gravel (aggregate and ballast)
103	Lead and zinc ores, incl. crude lead and zinc ores combined, lead-zinc concentrates combined	14413	Industrial sand and gravel
1031	Lead ores, incl. crude lead ores, lead concentrates	145	Clay, ceramic and refractory minerals
1032	Zinc ores, incl. crude zinc ores, zinc concentrates	14511	Bentonite, feldspar, magnesite and brucite, fullers earth, and n.e.c.
104	Gold and silver ores, incl. crude ores or tailings, concentrates, mill bullion, gold precipitates	14512	Fire clay
		14514	Kaolin and ball clay
		147	Chemical and fertilizer minerals, incl. fluospar, and n.e.c.
		14711	Barite
		14713	Potash, soda and borate
		14714	Phosphate rock
		14715	Rock salt
		14716	Sulphur
		148	* Water, raw, for construction or irrigation (See 2086 under "Food")

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	DESCRIPTION	CODE	DESCRIPTION
14	<u>NONMETALLIC MINERALS, EXCEPT FUELS (cont'd)</u>		2023	Condensed, evaporated milk and dry milk, incl. dry milk products, ice cream mix and ice milk mix
149	Miscellaneous nonmetallic minerals, except fuels, incl. mica, talc, soapstone and pyrophyllite, natural abrasives, except sand and industrial diamonds, peat, diatomaceous and infusorial earths, except fuller's earth, and n.e.c.		2024	Ice cream and related frozen desserts
14911	Gypsum and anhydrite		2025	Cheese and other special dairy products, incl. cottage cheese, casein products, special dairy products and by-products, and n.e.c.
14913	Native asphalt and bitumens		2026	Processed whole milk, skim milk, cream and other fluid products, incl. bulk fluid milk, incl. skim milk and cream; packaged (glass or paper) fluid milk, incl. skim milk and cream, buttermilk drinks, chocolate drinks and other flavored milk drinks, milk condensed, evaporated, dried; milk fats, dry
14914	Pumice and pumacite			
*14919	Soil, loam, top, soil, earth, fill dirt, n.e.c.			
19	<u>ORDNANCE AND ACCESSORIES</u>		203	Canned and preserved fruits, vegetables and sea foods
191	Guns, howitzers, mortars, and related equipment, over 30 mm.		2031	Canned and cured sea foods, incl. canned fish and other sea food, canned sea food soup, stews and chowders, smoked, salted, pickled, dried, cooked fish, fish roe and livers
192	Ammunition, except for small arms (over 30 mm.), incl. artillery ammunition, guided missiles (completely assembled), bombs, mines and parts, and n.e.c.		2032	Canned specialties, incl. canned baby foods, except meat, canned soups, except frozen soups and sea food soups, canned beans, breads, macaroni products etc., sandwich spreads, welsch rarebit, soldiers rations, ravioli, and n.e.c.
193	Full tracked combat vehicles and parts, incl. tanks and parts, self-propelled weapons and parts		2033	Canned fruits and vegetables, incl. hominy or mushrooms, fruit juices, except cider, vegetable juices, except sauerkraut or brine, catsup or other tomato sauces, jams, jellies or preserves, fruit or vegetable by-products, (pomaces, molasses, seeds, apple wastes) and n.e.c.
194	Sighting and fire control equipment		2034	Dried and dehydrated fruits and vegetables (except field dried seeds) and soup mix, dried and dehydrated potatoes and potato products, except potato chips
195	Small arms, 30 mm. and under, incl. machine guns, 30 mm. and under, and n.e.c.		2035	Pickled fruits and vegetables, sauces and seasonings, salad dressings, pickles and other pickled products, meat sauces (except tomato) and unfinished pickles, mayonnaise and sandwich spreads
196	Small arms ammunition, 30 mm. and under		2036	Fresh or frozen packaged fish, incl. frozen packaged fish and other sea food, fresh packaged fish and other sea food
199	Miscellaneous ordnance and accessories or parts		2037	Frozen fruits, fruit juices, vegetables and specialties, incl. juices and ades, frozen prepared foods and soups, except sea food
20	<u>FOOD AND KINDRED PRODUCTS</u>		204	Grain mill products
201	Meat (including poultry and small game), fresh, chilled or frozen		2041	Flour and other grain mill products, incl. wheat bran, middlings and shorts, rye flour and meal, corn meal or flour, except animal and poultry feeds, buckwheat flour or meal, oat meal or flour, grain mill by-products, grain mill products, and n.e.c.
2011	Meat, fresh or chilled, except salted, incl. carcasses (whole or part) primal and fabricated cuts, boneless meat, variety meats (edible organs), and n.e.c.		20421	Wheat flour, except blended and prepared
2012	Meat, fresh frozen, except salted, incl. carcasses (whole or part) primal and fabricated cuts or boneless meat, variety meats (edible organs), sausage material, and n.e.c.		20423	Prepared feeds for animals and fowls, except canned; hay, straw
2013	Meat products, incl. lard, meats and sausage (cooked, cured, dried, and smoked or preserved, including salted), sausage, fresh; food only, animal oil tallow, edible; meat extracts, cracklings edible; skins or rinds, except glue stock; and n.e.c.		2043	Canned feed for animals and poultry
2014	Animal by-products, inedible, incl. animal bones, grease and inedible tallow, animal refuse, tankage, meat meal, dried blood and related products, animal oil mill products, incl. foots, inedible; and n.e.c.		2044	Cereal preparations, incl. cooked, uncooked, flakes, shredded, granulated, popped, or puffed
20141	Hides, skins and pelts, not tanned (cattle, pig, goat, sheep, mule and horse)		2045	Milled rice, flour and meal, incl. rice cleaned, rice flour, bran or meal, brewers' rice, milled rice or by-products, and n.e.c.
2015	Dressed poultry, small game, and related products, fresh, chilled or canned, incl. dressed chickens and turkeys, dressed poultry and frozen game, canned poultry and small game, liquid dried or frozen eggs, poultry and small game by-products, incl. quills, poultry trimmings, fats, egg shells, feathers, and n.e.c.		2046	Blended or prepared flour, incl. prepared flour phosphated (self-rising), prepared flour mixes (pancake, biscuit, cake, pie crusts, etc.)
2016	Dressed poultry, small game and related products, fresh-frozen, incl. dressed chickens, dressed turkeys, dressed poultry incl. ducks, geese or pigeons, dressed small game incl. rabbits, poultry and small game by-products			Corn starch, sirup, oil, sugar and by-products (wet process) incl. dextrine, corn, tapioca, other; corn oil, starch other than corn (potatoes, wheat, rice, etc), wet process corn by-products, wet corn mill products, and n.e.c.
202	Dairy products			
2021	Creamery butter			

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	CODE	DESCRIPTION
20	<u>FOOD AND KINDRED PRODUCTS</u>	2096	Shortening, table oils, margarine and other edible fats and oils, incl. shortening and cooking oils, except corn oil; and n.e.c.
20461	Corn sirup, (glucose) dehydrated, unmixed	2097	Ice, natural or manufactured
20462	Corn starch	2098	Macaroni, spaghetti, vermicelli, and noodles (dry)
20463	Corn sugar, granulated or powdered, tamers corn sugar		
205	Bakery products, incl. bread and other bakery products, biscuits, crackers, pretzels, dry bakery products (ice cream cones; mixed carload with dog biscuits, with potato chips) and n.e.c.	21	<u>TOBACCO PRODUCTS</u>
206	Sugar (beet and cane)	211	Cigarettes
2061	Sugar mill products and by-products, bagasse, and n.e.c.	212	Cigars
20611	Raw cane and beet sugar	213	Cheewing or smoking tobacco, snuff
20616	Sugar molasses, except blackstrap	214	Stemmed and redried tobacco, incl. tobacco by-products, leaf (cuttings, scraps, dust, refuse, etc.)
20617	Blackstrap molasses		
2062	Sugar, refined, cane and beet, incl. granulated, cubes, tablets, powdered, liquid or syrup, rock candy sugar syrup, syrup not medicated, maple syrup refined	22	<u>BASIC TEXTILES</u>
20625	Sugar refining by-products	221	Cotton broad woven fabrics, incl. cotton duck and allied fabrics, cotton sheeting, and cotton broad woven fabrics n.e.c., incl. cotton and wire comb., book binder cloth, window shade cloth; upholstery, textiles, gauze, bagging
20626	Pulp, molasses, beet	222	Man-made fiber and silk broad woven fabrics
207	Confectionery and related products, candy and other related products, incl. candy, bars, bulk, packaged; salted, roasted, coated and blanched nuts; chocolate coatings and syrups, decorations, cough candy, fruit or fruit peel (chrysalized or stuffed), cotton candy, cocoa, cocoa butter, butterscotch or fudge sauce, and n.e.c.	223	Wool broad woven fabrics, incl. wool and chiefly wool blankets
208	Beverages and flavoring extracts	224	Narrow fabrics, incl. woven and braided knit fabrics
20821	Beer, ale, porter, stout, bottled, barrels, kegs, or cans	225	Carpets and rugs, textile, incl. mats; carpets, rugs, woven or tufted, incl. cotton rugs, and n.e.c.
20823	Malt extract and brewers' spent grains	228	Yarn and thread, incl. cotton or wool, mixed yarn; man-made fiber or silk yarn
2084	Malt, malt flour, malt sprouts, malt by-products, and n.e.c.	229	Miscellaneous basic textiles, incl. felt goods, except woven felts or hats; lace goods; padding and upholstery fillings, except foam rubber and vinyl; fibres and flock (fibers recovered from processed waste, fibers and flock, n.e.c.); artificial leather, oilcloth and other impregnated and coated fabrics, except rubberized; bonded fiber fabrics (nonwoven fabrics); jute vegetable fibers (except cotton), and n.e.c.
20851	Wines, brandy, and brandy spirits, incl. champagne (also spoiled), vermouth, and n.e.c.	2296	Tire cord and fabrics
20851	Distilled, rectified and blended liquors (except brandy), incl. alcohol, in bond, other than denatured or wood; whiskies, spirits, other than denatured; rum, incl. denatured; liqueurs n.e.c.	2297	Wool and mohair (scoured, combed, carbonized), tops, noils, nubs, slubs and grease; incl. noils, nubs or slubs all fibers
20859	By-products of liquor distilling	2298	Cordage and twine (hard or soft)
* 2086	Water, in bulk, bottled or canned, soft drinks, mineral waters		
2087	Miscellaneous flavoring extracts and flavoring syrups and compounds except chocolate syrups; incl. emulsions, beverage bases and flavoring syrups	23	<u>APPAREL AND OTHER FINISHED TEXTILE PRODUCTS, INCLUDING KNIT</u>
209	Miscellaneous food preparations and kindred products, incl. desserts (ready to mix), chips (corn, potato, etc.), sweetening syrups and molasses, baking powder and yeast, vinegar and cider, spices, tea incl. instant, canned goods, mixed; food preparations, and n.e.c.	231	Men's, youths', and boys' clothing
20911	Cottonseed oil, crude or refined	233	Women's, misses', girls', and infants' clothing
20914	Cottonseed cake, meal and other by-products	235	Millinery, hats and caps (mens), millinery goods n.e.c.
20921	Soybean oil, crude or refined	237	Fur goods, incl. gloves, mittens, robes or rugs, and n.e.c.
20923	Soybean cake, meal, flour, grits, and other by-products	238	Miscellaneous apparel and accessories, incl. gloves or mittens (except all leather) dress or work; robes or dressing gowns, raincoats and other waterproof garments, leather or sheep lined clothing, belts (clothing and sanitary), apparel (hose supporters, suspenders, handkerchiefs, sweaters, bathing suits, clothing (fur or fur lined), and n.e.c.
2093	Vegetable and nut oils and by-products, except cottonseed and soybean incl. linseed oil, crude or refined; vegetable oil seed cake, meal and other by-products, and n.e.c.		
2094	Marine fats and oils, incl. marine oil mill products, marine oil mill by-products (meal, scrap, tankage)		
2095	Roasted coffee, including instant coffee		

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	CODE	DESCRIPTION
23	<u>APPAREL AND OTHER FINISHED TEXTILE PRODUCTS, INCLUDING KNIT</u>	244	Wooden containers, incl. boxes and cases, crates, carriers, and coops, fruit and vegetable baskets and hampers, baskets and hampers n.e.c., cooerage, box shoocks, wooden containers and container accessories n.e.c.
239	Miscellaneous fabricated textile products, incl. curtains, draperies, tapestries; housefurnishings (bed linens, towels and wash cloths (cotton)), tablecloths and napkins, and related textile articles (except lace), pillows, dusters, mops (incl. hose type), slip covers, comforters or quilts, mats, covers (mattress, toilet seat, ironing board), cushions, hassocks, and n.e.c.; textile bags; canvas products (tents, awnings, tarpaulins, sails, and n.e.c.), embroideries and stamped art goods, apparel findings or related products (cap bands, slide fasteners and material; shirt or collar linings, tops, waistbands; corset steel trimmings, hatters fur; birds, feathers or plumes, tips or trimmings (millinery); fabricated textile products incl. auto seat covers, sleeping bags, parachutes, belts (cartridge or hand grenade carriers), dry goods other than cotton n.e.c., fenders (boat or dock); pot holders and stove mats, harness bands, head and wrist bands, and n.e.c.	249	Miscellaneous wood products, incl. rattan, bamboo and willow ware, except furniture, baskets, and hampers; lasts and related products, all materials; cork products, hand tool handles, scaffolding equipment, ladders and ladder parts, wooden ware, wooden novelties, and wooden flatware; wood products incl. poles, rods or stakes (finished), and n.e.c.; billboards or sign frames and related articles; seats, bathtub or toilet; laundry tub covers, radiator covers or guards, sink drain boards or related articles; bottle stoppers, ice cream sticks, paint paddles or pencil slats, quilting frames or curtain stretchers, boards or tables (ironing), pallets or skids, wood particle board or hardboard; masts, spars or oars, wooden and related boat accessories, pipe, conduit, or fittings (wooden), fencing or gates, wood; wood reels or spools; wood products incl. slats, tooth picks, clothes pins, tilting frames, mallets, templets, miter boxes, drawing boards, rollers, cutting boards, picture or mirror frames, rollers, yard sticks, bee hives and honey frames (knocked down); wood flour, bark flour, and n.e.c.
24	<u>LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE</u>	2491	Creosoted or oil treated wood products, incl. piling, posts, timbers, props, etc.; ties (railroad, mine, etc.), creosoted or oil treated wood products, and n.e.c.
241	Primary forest products (pulpwood, piling, posts, logs, bolts, etc.)	25	<u>FURNITURE AND FIXTURES</u>
24111	Sawlogs (foreign and native wood)	251	Household and office furniture (except concrete, stone, or terra cotta), incl. chairs, rockers, benches and stools, tables and desks; sofas, studio couches, couches, settees, day-ports and love seats (incl. convertible); buffets, servers, china and corner closets, mattresses and bedsprings, beds (except hospital), dressers, vanities, and chests of drawers, cabinets and cases (phonograph, radio, television, music, record, sewing, smoking, filing, kitchen) and n.e.c.; infants and children's furniture, and n.e.c.
24112	Ties, hewn railroad and mine, wooden	253	Public building and related furniture (except concrete, stone, or terra cotta), incl. school furniture; seats for public conveyances, automobiles, trucks, aircraft, school buses and railroad cars; theatre and auditorium seats, stadium and bleacher seats, incl. circus; church furniture; public building furniture (bulletin boards, book stacks (incl. iron brackets, floor framing, stairs, railings, standards and shelves); booths, stalls, kennels, benches (kd; exhibition); post office equipment, and n.e.c.
24113	Logs and bolts, short, wooden	254	Partitions, shelving, lockers, office and store fixtures, incl. wood partitions, shelves, lockers, show or display cases or racks, counters, office and store fixtures (incl. blocks, (counter display, butcher), booths (election and telephone), bins, railings, and n.e.c.); metal lockers, partitions, shelving, office or store fixtures
24114	Pulpwood logs, incl. pulpwood bolts, refuse or waste	259	Miscellaneous furniture and fixtures (except concrete, stone, or terra cotta), incl. venetian blinds or shades, curtain rods, hospital beds, restaurant furniture (exc. table arm chairs), booths (moving picture, paint or varnish spraying kd) and n.e.c.
24115	Pulpwood chips		
24116	Woodposts, poles and piling		
24117	Fuelwood, hogfuel or cordwood (kindling, wood shavings briquettes)		
24118	Wood mine props or mine timbers, incl. mine blocks, boards, caps, lagging, stulls, wedges or pit posts		
24119	Primary forest products, incl. bark (ground or powdered), corkwood (refuse also), cuttings, willow; stumps, timber, cactus, resinous or chemical wood, fustic or logwood dyewoods, and n.e.c.		
242	Lumber and dimension stock		
2421	Lumber (foreign or native), incl. softwood or hardwood dimension stock, furniture parts or vehicle stock, flooring; lumber n.e.c. (incl. balsa wood, casket or coffin material, dowels, plugs, shims, sheathing, cleats, and n.e.c.)		
24212	Sawed ties (railroads, mine, etc.)		
2429	Miscellaneous sawmill and planing mill products, shingles, cooerage stock, wood chips, shavings, and sawdust, except pulpwood chips; excelsior, baled or bulk; cigar box lumber or veneer, sawmill and planing mill products, and n.e.c.		
243	Millwork, veneer, plywood, prefabricated structural wood products		
2431	Millwork (except metal covered), incl. window units, window and door frames and jams, doors and shutters (incl. door units) wood; window sash, incl. combination screen and storm sash (except wooden screens), wood mouldings; millwork products (cabinetwork to be built in, not complete stairwork, treads, risers, balusters, brackets, crooks, newels, rails, etc., exterior millwork, incl. porch columns, porch rails, newels, or trellises, etc.; exterior entrances or window screens, wood framed, and n.e.c.		
2432	Veneer and plywood, incl. prefabricated wooden buildings, structural members, wood laminates, ready-cut wood buildings, panels or sections for prefabricating buildings, structural framing		

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	DESCRIPTION	CODE
26	<u>PULP, PAPER AND ALLIED PRODUCTS</u>	<u>CHEMICALS AND ALLIED PRODUCTS</u>	28
261	Pulp and pulp mill products	Industrial inorganic and organic chemicals	281
26111	Pulp, pulp mill by-products (pitch, liquor, residuum, screenings) etc.	Sodium, potassium, and other basic inorganic chemical compounds and chlorine, incl. chlorine and other inorganic bleaching compounds, sodium chlorides, potassium alkalis, potassium compounds, barium, calcium, magnesium, and strontium compounds; alkalis (caustic sodium, hydroxide, residue) and n.e.c.	2812
262	Paper, except building paper incl. uncoated ground wood paper and fine thin or book paper; special industrial paper (incl. paper car liners), sanitary tissue stock, cigarette (uncut), honeycomb (expanded and other), crepe tissue, crepe wadding papers; paper not printed n.e.c.	Sodium compounds, except sodium alkalis	28123
26211	Newspaper	Industrial gases (compressed and liquefied), incl. acetylene, carbon dioxide, elemental gases, and n.e.c.	2813
26216	Coarse paper, incl. wrapping paper	Crude products from coal tar, petroleum and natural gas, incl. crude oil and light oil products, incl. related products from petroleum raw materials; coal tar acids, incl. related products from petroleum raw materials; tar bases, incl. related products from petroleum raw materials; products from medium and heavy oil, incl. related products from petroleum raw materials; crude products from coal tar, n.e.c.; also dyes or dye (cyclic) intermediates, incl. organic pigments (lakes or toners), organic dyes and other white opaque pigments; white extender and colored pigments, metallic powders, ceramic colors, and n.e.c.	2814
263	Paperboard, pulpboard and fiberboard, except insulating board (bidg.)	Inorganic pigments, incl. titanium, lead, zinc, antimony compounds and other white opaque pigments; ceramic colors, and n.e.c.	2816
264	Converted paper and paperboard products (except containers and boxes); coated or glazed paper, oiled, waxed or wax laminated paper (except wrapping paper), gummed products, incl. pressure-sensitive tapes, laminated or coated wrapping paper, coated or glazed paper (incl. paper-machine coated paper), fly or insect paper, and n.e.c.; envelopes, wallpaper, office supplies, die-cut paper or paperboard products and cardboard, coated paperboard, closures for bottles, cans, jars, caps, covers, tops, etc.; pressed or molded pulp goods, sanitary paper products, miscellaneous converted paper products (incl. office paper supplies, wrapping products, business machine supplies, packing, etc., and n.e.c.); bituminous fiber pipe (sewer and drainage) and conduit, incl. fittings; egg cartons, cases and related articles; flower pots, Jardinieres and vases; pressed and molded pulp goods n.e.c.	Miscellaneous industrial organic chemicals, incl. acyclic organic chemicals, miscellaneous cyclic chemical products, glycols or glycerines, synthetic perfume or flavoring materials, chemical warfare gases, and n.e.c.	2818
2643	Paper bags, incl. grocers' and variety bags, and n.e.c.	Alcohols	28184
265	Containers and boxes, paperboard, fiberboard and pulpboard, incl. sanitary food containers, fiber cans, tubes, drums and similar products; baskets, hampers, till boxes, pallets, skids, or platforms	Miscellaneous industrial inorganic chemicals, incl. ammonia and ammonia compounds; acids (nitric, inorganic, except sulphuric), compounds (cobalt, copper, iron, nickel, zinc, aluminum), radio-active or nuclear chemicals, chemical catalysts preparations; industrial inorganic chemicals (incl. reagent or high purity chemicals, and n.e.c.)	2819
266	Building paper and building board,	Sulphuric acid	28193
2661	Building paper and building board, incl. insulating board, construction paper, insulating material, construction panels and partitions, siding or forms, flooring tile (fiberboard), flush pipe boards (fibre)	Plastic materials and synthetic resins, synthetic rubbers and fibers, incl. nonvulcanizable elastomers	282
26613	Wallboard, except hardboard	Synthetic rubber	28212
27	<u>PRINTED MATTER</u>	Synthetic organic fibers	28213
271	Newspapers	Drugs (biological products, medicinal chemicals, botanical products and pharmaceutical preparations) for human and veterinary use	283
272	Periodicals	Soap, detergents, and cleaning preparations, perfumes, cosmetics, and other toilet preparations, incl. specialty cleaning preparations (incl. polishing or sanitation preparations), waxes or polishing preparations and related products, surface active agents, finishing agents, sulfonated oils and assistants	284
273	Books	Soap and other detergents, except specialty cleansers, incl. synthetic organic detergents (incl. washing soda, cleaning compounds (scouring or washing, soap stock) and n.e.c.)	2841
274	Miscellaneous printed matter, incl. catalogues, directories, business service publications or advertising materials, maps, charts, atlases, almanacs or globe covers, sheet music, cards or tickets (except greeting cards), envelopes, cards, wrappers (gov't), calendars and calendar pictures, seals, labels, tags (except greeting), printed matter (incl. blueprints, building or commercial) and n.e.c.	Paints, varnishes, lacquers, enamels, and allied products, incl. shellacs, solvents, thinners, paint oils or driers and related products, putty or calking compounds and allied products, basic paint materials, resins, etc.	285
276	Manifold business forms	Gum and wood chemicals, incl. softwood distillation products	286
277	Greeting cards, seals, labels, and tags	Agricultural chemicals, incl. pesticides and other synthetic organic agricultural chemicals, insecticides, rodenticides, fungicides, herbicides, plant hormones, and n.e.c.	287
278	Blankbooks, looseleaf binders and devices, incl. pads, tablets		
279	Products of service industries for the printing trades, incl. electrotype, engravers, lithographic or stereotype plates, shells, blocks or bars		

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
28	<u>CHEMICALS AND ALLIED PRODUCTS (cont'd)</u>	31	<u>LEATHER AND LEATHER PRODUCTS</u>
2871	Fertilizers	311	Leather, tanned or finished, incl. cattle and calf hide and kip side leathers, sheep, lamb, goat and kid leather, horse, colt, mule, ass, and pony leather, and n.e.c.
289	Miscellaneous chemical products, incl. glues, adhesives, and sizes, gelatin (except ready-to-eat desserts, printing ink, fatty acids, chemicals or chemical preparations, essential oils, fireworks or pyrotechnics, water treating compounds, blacks, charcoals, packed aged chemical compounds, chemicals or chemical preparations n.e.c.	312	Industrial leather belting and packing
2892	Explosives, except ammunition	313	Boot and shoe cut stock and findings, all materials
28991	Salt	314	Footwear, except rubber (incl. house slippers)
		315	Leather gloves and mittens, incl. dress and work gloves and mittens
		316	Luggage, handbags, and other personal leather goods (all materials)
		319	Miscellaneous leather goods (saddlery, harness and whips, and n.e.c.)
29	<u>PETROLEUM OR COAL PRODUCTS</u>	32	<u>STONE, CLAY AND GLASS PRODUCTS</u>
291	Products of petroleum refining, except liquefied petroleum gases	321	Flat glass, incl. sheet (window) glass, plate, laminated, including safety glass; and n.e.c. (leaded, flashed, rough, rolled)
29111	Gasoline, jet fuels and other high volatile petroleum fuels, except natural gasoline	322	Glass and glassware, pressed and blown, incl. glass products, (except flat glass and glass containers), table, kitchen, art and novelty glassware, lighting and electronic glassware, glass fiber (except yarn) mirrors, glass bricks, blocks, skylight, and related products, and glass products n.e.c. (incl. optical, beads, marbles, pellets, crystals, etc.)
29112	Kerosene	3221	Glass containers, and glass caps or covers
29113	Distillate fuel oil	324	Hydraulic cement
29114	Lubricating and similar oils and derivatives	32411	Cement, hydraulic, portland or natural, inc. masonry cement or puzzolan; ready-mix cement and concrete, dry
29115	Lubricating greases	325	Structural clay products
29116	Asphalt, tar or pitches (petroleum, cokeoven, coal tar)	3251	Brick and structural clay tile
29117	Residual fuel oil, other low volatile petroleum fuels, incl. diesel oil, fuel or gas oil, and petroleum oil, n.e.c.	32511	Brick, (except ceramic glazed and refractory brick), incl. glazed brick or structural hollow tile
29119	Products of petroleum refining (benzene, naphthalene crude, turbine fuel, refined petroleum oil n.e.c.)	3253	Ceramic wall and floor tile
2912	Liquefied petroleum gases and coal gases	3255	Refractories, clay and nonclay (except dead burned magnesia or magnesite)
295	Paving and roofing materials	3259	Miscellaneous structural clay products, incl. sewer pipe and fittings, drain tile, terra cotta (architectural), and structural clay products n.e.c. (wall coping, slabs, etc.)
2951	Paving mixtures and blocks	32594	Roofing tile, clay or earthen.
2952	Asphalt felt and coatings, incl. asphalt and tar saturated felts, boards, roofing and siding; asphalt and tar coatings, cements and pitches; tar paper, and n.e.c.	326	Pottery and related products, incl. vitreous china plumbing fixtures, incl. china or earthenware fittings or bathroom accessories, semivitreous plumbing fixtures, fittings or earthenware plumbing fixture accessories or fittings, vitreous china table or kitchen articles, porcelain electrical supplies, steatite and other ceramic electrical supplies, pottery products n.e.c.
299	Miscellaneous petroleum and coal products, incl. lubricants or similar compounds, except petroleum, coal tar (cyclic) dyes or intermediates; and n.e.c.	327	Concrete, gypsum, and plaster products
29911	Coke and coal briquettes	3271	Concrete products, incl. concrete brick and block, posts, poles, piling, tile, conduits, pipe, culverts, drains, structural shapes, reinforced concrete; concrete products n.e.c. incl. chutes, vaults, wells, ready-mix concrete (wet),
30	<u>RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS</u>	3274	Lime
301	Tires and inner tubes, incl. pneumatic tires, inner tubes, tread rubber, tire sundries and repair materials, tires or related products, incl. solid rubber tires, and n.e.c.	3275	Gypsum products, incl. lath, plaster, gypsum building materials, gypsum products (incl. land plaster, phosphatic clay or sand, ground)
302	Rubber footwear, incl. rubber and plastic combined	328	Cut stone and stone products, incl. cut granite, limestone, marble, slate, soapstone or talc and their related products, and n.e.c.
303	Reclaimed rubber		
306	Miscellaneous fabricated rubber products, incl. rubber hose and tubing, sponge and foam rubber goods, rubber belts and belting, rubber floor and wall coverings, druggists' and medical sundries, fabricated rubber products n.e.c.		
307	Miscellaneous plastics products, incl. plastic dinnerware and house wares, pipes, hose tubing and fittings, molded plastic products, unsupported vinyl and polyethylene film and sheeting, unsupported plastic floor and wall coverings; expanded or foamed plastics; laminated sheets, rods, and tubes; plastic closures for bottles or cans, closures for glasses or jars, bands, caps, covers, discs or tops, fabricated plastic products n.e.c. incl. footwear made wholly of plastic		

60-0

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	CODE	DESCRIPTION
32	<u>STONE, CLAY AND GLASS PRODUCTS</u> (cont'd)	333	(cont'd) slab or ingot, etc.; pig, slab or ingot, etc. (incl. magnesium and magnesium base alloys, manganese and manganese base alloys, molybdenum and molybdenum base alloys, nickel and nickel base alloys, titanium and titanium base alloys) miscellaneous nonferrous and nonferrous base alloy metal residues, incl. solder, babbitt and type metal residues, primary nonferrous and nonferrous base alloy metal slab, pig, or ingot, etc., and n.e.c.; tin pig, slab, ingots, etc. incl. tin base alloy
329	Abrasives, asbestos, and miscellaneous nonmetallic mineral products, incl. asbestos friction material, asbestos-cement shingles or clapboard, asphalt or vinyl asbestos floor tile (except linoleum, asphalt felt base or supported plastic floor or wall coverings, cork tile), asbestos products n.e.c., steam or other packing, pipe or boiler covering, gaskets, all types; packing or asbestos insulations (except leather, rubber or metal); minerals ground or otherwise treated, vermiculite, exfoliated, loose; other light weight aggregates, clays or slugs (except diatomaceous or infusorial earth); dead burned magnesite or magnesite; ground talc, soapstone or pyrophyllite, feldspar; crushed or ground uncalcined gypsum, also gypsite or anhydrite; ground mica, natural graphite ground or refined (incl. blended); other minerals or earths, ground, incl. otherwise treated; mineral wool, sheet mica products, sand-lime brick, blocks or tile, magnesite floor covering, stucco, and nonmetallic mineral products n.e.c.	3331	Primary copper and copper base alloys smelter products, incl. pig, slab or ingots, etc.; copper matte, speiss (flue dust, residues, etc.)
3291	Abrasive products, incl. nonmetallic artificial (synthetic) sized grains, powders, and flour abrasives; nonmetallic bonded abrasive products, incl. diamond abrasives; nonmetallic coated abrasive products; metal abrasives; and abrasive products n.e.c.	3332	Primary lead and lead base alloys smelter products, incl. pig, slab, ingots, bullion, etc. (except solder, babbitt or type metal); matte, speiss or flue dust; dross, slag, skimmings, etc.
33	<u>PRIMARY METAL PRODUCTS</u>	3333	Primary zinc and zinc base alloys smelter products, incl. spelter, pig, slab, ingot, etc.; dross, residues, ashes, etc.
331	Steel works and rolling mill products	3334	Primary aluminum and aluminum base alloys smelter products, incl. pig, slab or ingots, billets, blooms, etc.; residues, etc.
33111	Pig iron	335	Nonferrous metal basic shapes, and misc. nonferrous metal basic shapes, incl. plate, sheet, strip, rods, bars, pipe or tubing, (incl. magnesium and magnesium base alloy, lead and lead base alloys, nickel and nickel base alloys, zinc and zinc base alloys) titanium basic shapes; welding rods, bars, and wire; solder, babbitt, and type metal, and n.e.c.
33112	Slag	3351	Copper, brass or bronze and other copper base alloy basic shapes, incl. copper, brass or bronze and other copper base alloy rods and bars, plate, sheet, strip, pipe and tube, and n.e.c.
33113	Coke, screenings and breeze	3352	Aluminum and aluminum base alloy basic shapes except aluminum foil incl. plate, sheet, rods, bar, structural shapes, pipe, tube, and n.e.c.
33119	Coke oven and blast furnace products n.e.c., except ammonia, sulphate or liquid chemical or oil	3357	Nonferrous wire, including insulated wire, incl. aluminum and aluminum base alloy wire, cable or bare; copper and copper base alloy wire, strand or cable, bare; nonferrous metal and nonferrous base alloy wire, bare; wire and cable insulated (all types) incl. enameled or covered
3312	Primary iron and steel products, except coke oven by-products	336	Nonferrous and nonferrous base alloy castings, incl. magnesium and magnesium base alloy castings, zinc and zinc base alloy castings, lead and lead base alloy castings, and n.e.c.
33121	Steel ingot and semi-finished shapes	3361	Aluminum and aluminum base alloy castings, incl. cast aluminum cooking utensils
33122	Steel plates (or iron)	3362	Brass, bronze, copper, and copper base alloy castings,
33123	Sheet or strip, iron or steel except tin mill products	339	Miscellaneous primary metal products, incl. metal powder flakes or paste, nonferrous metal nails, brads or spikes, staples, and primary metal products n.e.c.
33124	Steel bars, bar shapes or rods, iron or steel	3391	Iron and steel forgings
33125	Structural shapes, mill products, also piling, steel mill products	3392	Nonferrous forgings (metal)
33126	Steel pipe, tubes or fittings		
33127	Tin mill products		
33128	Railway track material (rails, joint bars, tie plates or related products)		
33129	Primary iron or steel products n.e.c.		
3313	Ferro alloys, incl. ferromanganese, ferrochrome, ferrosilican, and n.e.c.		
3315	Steel wire, nails, and spikes, incl. noninsulated ferrous wire rope, cable and strand; steel nails and spikes (except railway), staples, tacks, brads, steel wire except miscellaneous fabricated wire products		
332	Iron and steel castings		
33211	Iron and steel cast pipe and fittings, and n.e.c.		
333	Nonferrous metals primary smelter products (slab, ingot, pig, etc. and residues), miscellaneous primary nonferrous and nonferrous base alloy basic metal products (anodes, cathodes, billets, blooms, pig,		

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	CODE	DESCRIPTION
34	<u>FABRICATED METAL PRODUCTS, EXCEPT ORDNANCE, MACHINERY, AND TRANSPORTATION EQUIPMENT</u>	346	Metal stampings, incl. vitreous enameled metal products (cooking, or kitchen utensils, refrigerator parts, washing machine parts, etc.); stamped or spun hospital utensils (cooking or kitchen household utensils); automobile stampings; metal closures (caps, covers, bottoms, or tops); metal boxes, baskets, buckets or pails; crates (except shipping); dispensers, napkins, tissue or towel, etc. (also holders or containers); metal stampings, n.e.c.
341	Metal cans	348	Miscellaneous fabricated wire products (except steel) incl. springs, fencing or fence posts or gates, fittings; cloth or other woven wire products; wire chain; barbed or twisted wire; welded wire fabric or mesh; fabricated wire products n.e.c.
342	Cutlery, hand tools, and general hardware, incl. table or kitchen cutlery and related articles, razor blades or razors (except electrical); scissors or shears, pocket knives (inc. other folding blade knives); hand or edge tools incl. mechanics hand service tools, light forged handles (except machine), files, rasps or file accessories, shovels, spades, scoops or scrapers; heavy forged tools (sledges, picks, pick matts, mauls, tampers or bars); agricultural hand tools or parts (forks, hoes, bushers, rakes, rollers, weeders, etc. except wheeled transportation equipment); hand tools n.e.c. (except machine), hand saws or saw blades and saw accessories; builders or cabinet hardware incl. fireplace equipment, door or window hardware, also dampers, irons, or fire screens, hinges, hasps or butts, cabinet hardware, hinges or locks, hooks, clamps, clips or fasteners, shelf hardware or hangers, and builders hardware n.e.c.; miscellaneous hardware incl. transportation equipment, furniture (office or household) hardware; vacuum or insulated bottles, jugs or chests; hose fittings, nozzles, couplings or hose reels; harness or saddlery hardware, hardware n.e.c.	349	Miscellaneous fabricated metal products, incl. safes or vaults, steel springs (except wire springs), fabricated metal products n.e.c.; metal collapsible tubes (toothpaste, cosmetic, etc.); metal foil or leaf
343	Plumbing fixtures and heating apparatus, except electric incl. metal sanitary ware (enameled iron ware, except vitreous sanitary ware; cast iron sanitary ware, metal sanitary ware other than cast iron; plumbing fixture fittings (brass goods), trim (bath, shower, sink or lavatory fittings, lavatory legs, strainers etc. or industrial; warm air burners, residential heating equipment, except electric, incl. oil burners, radiators or connectors; domestic heating stoves (except electric) steel heating boilers; parts for nonelectric heating equipment, other heating equipment, and n.e.c.	3491	Metal barrels, drums, kegs and pails, incl. steel shipping barrels
344	Fabricated structural metal products, incl. sheet metal products, except containers, such as boxes, kegs, etc.; architectural and miscellaneous metal work; metal doors, sash, frames, molding or trim (incl. metal covered); metal molding, trim or store fronts (except automobile); metal storm sash, incl. combination screen, storm sash and storm doors; metal window or door screen, metal strips fabricated plate products (boiler shop products) incl. heat exchangers or steam condensers, steel plate for pipe, penstocks, tunnel linings, etc.; steel power boilers or parts and attachments, gas cylinders or pressure tanks, metal tanks, plate products n.e.c. sheet metal roofing, ceiling or siding, culverts or flumes, irrigation pipes or similar articles; comices or skylights, roof ventilators; stove pipe, elbows or ducts, furnace or chimney fittings; roof drainage equipment; bins, vats or tubs covered with metal; awnings or canopies, scaffolding or ladders and related articles; stairs, staircases, balconies, fire escapes, railings, portable gangways, platforms, stairways, etc; prefabricated metal buildings or parts incl. portable or parts; ornamental metal work incl. lamp posts, latticework, grillwork, etc.; architectural metal work and sheet metal products n.e.c.	3494	Valves and pipe fittings (except plumbers' brass goods and fittings), fabricated pipe and fabricated pipe fittings, incl. metal valves for piping, plumbing or heating systems; metal fittings for piping systems, metal unions; metal pipe coils;
341	Fabricated structural metal products for buildings, bridges, rail or highway, ships, boats or barges, transmission towers or poles, posts except fence posts	35	<u>MACHINERY, EXCEPT ELECTRICAL</u>
345	Bolts, nuts, screws, rivets, washers, and other industrial fasteners (dowel, cotter pins, toggle or expansion bolts, etc.)	351	Engines and turbines, incl. steam engines or turbines, steam turbine generator sets; steam, gas or hydraulic turbines
		352	Generator set units or parts; steam engines or parts; outboard motors and parts; internal combustion engines, except aircraft and automotive, and n.e.c.
		353	Farm machinery and equipment, incl. wheel tractors, parts or attachments, except contractors off-highway tractors; planting machinery or parts incl. seeding or fertilizing machinery or parts; plows, listers, harrows or parts incl. rollers, pulverizers, stalk cutters or parts; harvesting machinery or parts incl. hay machinery or parts; machines for preparing crops for market incl. also for use; barn, varyard or poultry equipment, and farm machinery or equipment n.e.c.
		3531	Construction, mining and materials handling equipment, incl. elevators or moving stairways, equipment or parts; conveyors or conveying equipment (except farm elevators) incl. attachments or accessories; hoists or industrial cranes incl. monorail systems, overhead traveling cranes
		3532	Construction, machinery and equipment, incl. contractors' off-highway wheel and tracked tractors; parts and attachments for tracking and contractors' off-highway wheel and tracked tractors; power cranes, draglines, shovels and tractor-shovel-loaders and parts; mixers, pavers, and related equipment; scrapers, graders, rollers, and off-highway trucks, trailers, and wagons; construction machinery and equipment n.e.c.; railway maintenance machinery and equipment and parts (locomotive cranes, rail layers, ballast spreaders, etc.)
			Mining machinery and equipment, except oil field machinery and equipment, incl. underground mining machinery or parts and equipment; crushing or pulverizing plants or parts, screening plants or parts; and n.e.c.

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
35	<u>MACHINERY, EXCEPT ELECTRICAL</u> (cont'd)	358	Service industry machines, incl. automatic merchandising (coin operated only), commercial laundry incl. dry cleaning or pressing, refrigerators or refrigeration machinery, complete air conditioning units (except household), heat transfer equipment, compressors or units, condensing units, ice making machinery or equipment; dehumidifying, air conditioning or cooling equipment; refrigerators or machinery n.e.c.; miscellaneous service industry machines n.e.c. (commercial cooking equipment, food warming equipment, commercial or industrial vacuum cleaners, parts, or attachments; water softeners, purifiers, floor waxing, polishing or scrubbing machines, carpet sweepers, dishwashing machines, etc., and n.e.c.)
3533	Oil field machinery and equipment, incl. oil or gas field drilling machinery, production machinery or equipment; parts and equipment for oil or gas field drilling and production machinery; oil or gas field tools; oil or gas field machinery or equipment n.e.c.	359	Miscellaneous machinery and parts, except electrical, incl. pistons, piston rings, carburetors; internal combustion valves, intake incl. exhaust; flexible metal hose or tubing except flexible conduit; amusement or carnival machines and equipment except coin operated; and n.e.c.
3537	Industrial trucks, tractors, trailers, and stackers incl. parts; also metal skids, pallets or platforms	36	<u>ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES</u>
354	Metalworking machinery and equipment, incl. machine tools, metal cutting types (boring or drilling, gear cutting or finishing, grinding or polishing, milling, lathes (spinning also), parts, and n.e.c.); machine tools metal forming types (punching, shearing or bending, forming or riveting, presses or forging presses, metal container making, die casting, parts and n.e.c.) special dies or tools, incl. die sets, jigs or fixtures, industrial molds or patterns; machine tool accessories, measuring devices, (small cutting tools for machine tools, for metal working machinery, precision measuring tools, measuring devices and machine tool accessories n.e.c.; metalworking machinery incl. rolling mill machinery or equipment; power driven hand tools, parts and accessories; acetylene welding; automotive maintenance equipment, lifts or runways; and n.e.c.	361	Electrical transmission and distribution equipment, incl. measuring instruments and test equipment; meters, watt-hour or parts; ampere-hour, demand or other integrating meters or parts; test equipment for testing electrical radio, communication circuits, or motors; indicating or measuring instruments and recording instruments; power or distribution, and specialty transformers (transformers or fluorescent ballasts, power regulators, boosters, or reactors, parts for transformers, and n.e.c.); switchgear or switchboard apparatus (switchgear, power switchgear assemblies or other switching or interrupting devices, circuit breakers, fuses or fuse equipment, and n.e.c.)
355	Special industry machinery, except metalworking machinery, incl. food products machinery (dairy or milk plant machinery and equipment, bakery machinery or equipment, meat or poultry packing, fruit canning or packing (vegetable also), bottling, flour mill or grain mill, and food products machinery n.e.c.); textile machinery and parts for textile machinery and attachments; woodworking machinery, paper industry machinery, parts and attachments; printing trades machinery or equipment, presses (except plates or matrices), miscellaneous special industry machinery (chemical machinery or equipment incl. chemical manufacturing industries only); foundry machinery or equipment (except metal furnaces, molds or patterns); plastic-working machinery or equipment, rubber working machinery or equipment, petroleum refinery machinery or equipment; cotton ginning machinery or equipment; clay working machinery (brick, tile or ceramics), and special industry machinery n.e.c.	362	Electrical industrial apparatus, incl. motors and generators, land transportation motors or parts, also generators or control equipment or parts, prime mover generator sets (except steam or hydraulic turbine); motor generator sets, includes parts or supplies for motors, generators or motor generator sets and n.e.c.; industrial controls or parts, welding apparatus (arc or resistance welding machines, components or accessories, electrodes); carbon products, electrical application; graphite products for electrical application or carbon electrodes; miscellaneous electrical industrial apparatus (capacitors for industrial use except for electronic application, rectifying apparatus or parts, and n.e.c.)
356	General industrial machinery and equipment, incl. pumps, air or gas compressors, pumping equipment, measuring or dispensing pumps; industrial pumps hydraulic fluid power pumps or motors; domestic water systems or pumps, pump jacks or cylinders; air or gas compressors except all refrigerant; parts or attachments for pumps, air or gas compressors or pumping equipment; measuring or dispensing pumps, and n.e.c.; ball or roller bearings incl. mounted, parts and components; blowers, exhaust or ventilating fans, filters; dust collection equipment, air purification equipment, air washers or filters; mechanical power transmission equipment incl. plain bearings; mechanical equipment n.e.c. for power transmission only; industrial process furnaces or ovens; miscellaneous industrial machinery and equipment n.e.c., incl. packaging or wrapping machines (except food), filters or strainers, hydraulic jacks, centrifugals or separators (except cream), gas generating equipment or other general machinery or equipment n.e.c.	363	Household appliances, incl. electric housewares or fans, razors or dry shavers, small electric cooking, heating appliances; electric irons, food or drink mixers or blenders (whippers, juicers, grinders, slicers or choppers), electric bed coverings and heating pads or parts, small household electric appliances and attachments; housewares (curling irons, knife sharpeners, vibrators, hand or face dryers, can openers, vaporizers, etc. and n.e.c.); household vacuum cleaners, parts, attachments, sewing machines or parts except cases or cabinets separately; miscellaneous household appliances incl. water heaters, dishwashing machines, floor waxing or polishing machines, waste food disposers or other household service machines, and n.e.c.
357	Office, computing and accounting machines, incl. cash registers, electronic data processing machines and associated equipment, calculating machines, typewriters or parts, scales or balances (except laboratory) addressing, dictating, duplicating machines, and n.e.c.	3631	Household cooking equipment, all types except small (incl. ranges or ovens, parts, surface cooking equipment or parts)

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
36	<u>ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES</u> (cont'd)	3714	Motor vehicle parts and accessories, incl. gear frames, internal combustion engines or parts, brakes, steering gears, wheels
3632	Household refrigerators and home and farm freezers, all types	3715	Truck trailers
3633	Household laundry equipment, incl. washing machines or dryers, washer-dryer combinations or parts, other household laundry equipment (incl. ironing machines or equipment, wringers or laundry equipment parts)	372	Aircraft and parts, incl. complete military aircraft, commercial transport aircraft, missile engines or parts, propellers or parts, and miscellaneous aircraft parts or equipment n.e.c.
364	Electric lighting and wiring equipment, incl. lamps, electric (also sealed beam), fixtures (residential, commercial, institutional or industrial type), vehicular lighting equipment, flood lighting equipment (also area lighting equipment), lighting fixtures or parts n.e.c. (flashlights, lanterns, miners lights, emergency warning lights, mercury or sodium vapor lighting equipment or related equipment except lamp shades); current carrying wire devices (also lightning rods), convenience or power outlets or sockets, switches except knife, time, solenoid or automotive; overhead trolley line material, current and noncurrent carrying wiring devices n.e.c.; pole line or transmission hardware, electric conduits or conduit fittings, flexible conduits	373	Ships and boats, incl. inboard motor boats, outboard, nonpropelled ships (barges or dredges), car floats, pontoon or portable bridges, and n.e.c.
365	Radio and TV receiving sets, except communication types, incl. household and automotive radios, and radio phonograph combinations, household television receivers, incl. television combinations, phonograph records, record blanks and prerecorded tapes	374	Railroad equipment, incl. locomotives or tenders, parts for all type locomotives, railroad or street cars (except railway maintenance machinery, equipment or parts), passenger train cars, freight train cars, street cars incl. self-propelled railroad cars; maintenance or repair cars (weed burners, inspection, etc.); car wheels, and parts for railroad or street cars n.e.c.
366	Communication equipment, incl. telephone or telegraph (switching or switchboard equipment); radio or TV transmitting equipment (apparatus or signaling or detection)	375	Motorcycles, bicycles, and parts, except velocipedes, tricycles, or parts, incl. motorbikes, motorscooters (bodies and chassis, or side cars, parts or accessories)
367	Electronic components and accessories, incl. tubes except x-ray, solid state semiconductor devices (diodes, transistors or cells), miscellaneous electronic components and accessories	379	Miscellaneous transportation equipment, incl. trailer coaches, housing type, house trailers, hand carts or wagons or parts, wheelbarrows or parts, horse-drawn or similar vehicle parts, sleighs, sleds or parts, transportation equipment, parts or accessories n.e.c. except industrial trucks, tractors, trailers or stackers or parts
369	Miscellaneous electrical machinery, equipment, and supplies, incl. storage batteries or plates, primary batteries (dry or wet), radiographic x-ray apparatus (fluoroscopic, therapeutic, or other x-ray apparatus or x-ray tubes) internal combustion engine equipment (electrical only), electrical machinery, equipment or supplies n.e.c.; Christmas tree bulbs or sets except tree decorations; lamp components except glass blanks	38	<u>INSTRUMENTS, PHOTOGRAPHIC AND OPTICAL GOODS, WATCHES AND CLOCKS</u>
37	<u>TRANSPORTATION EQUIPMENT</u>	381	Engineering, laboratory, and scientific instruments, incl. aircraft flight or nautical, navigational, automatic pilots, surveying or drafting, laboratory or scientific instruments incl. laboratory furniture, engineering instruments (laboratory or scientific instruments n.e.c.)
371	Motor vehicles and motor vehicle equipment	382	Measuring, controlling, and indicating instruments, incl. gas, water or other liquid meters and recording devices, weather measuring instruments or gauges, mechanical measuring and controlling instruments n.e.c., automatic temperature controls
3711	Motor vehicles	383	Optical instruments and lenses, incl. range or height finders or for sight or fire control equipment (except sight or fire control equipment)
37111	Passenger cars, assembled, also air cars	384	Surgical, medical, and dental instruments and supplies, also apparatus, incl. hospital, dental or opticians furniture operating room furniture except hospital beds; orthopedic supplies and appliances (prosthetic or surgical); dental equipment or supplies (cement, plaster, impression compound)
37112	Truck tractors, and trucks, assembled	385	Ophthalmic or opticians' goods incl. spectacles, eyeglasses or sunglasses, related ophthalmic or opticians goods except optical instruments or lenses
37113	Motor coaches, assembled (incl. trolley busses) and fire department vehicles except chemical fire extinguishing equipment or parts		
37114	Combat vehicles except tracked		
37115	Passenger cars, knocked down or chassis		
37116	Trucks or busses, knocked down, or chassis (also truck tractors, motor coaches, or fire department vehicles)		
37119	Motor vehicles n.e.c. (snow planes, tractors, trailers; floats, etc)		
3712	Passenger car bodies and body parts		
3713	Truck and bus bodies and body parts		

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
38	<u>INSTRUMENTS, PHOTOGRAPHIC AND OPTICAL GOODS, WATCHES AND CLOCKS (cont'd)</u>	399	Miscellaneous manufactured products-B, incl. furs, dressed or dyed; signs or advertising displays incl. luminous tubing or bulb signs, nonelectric advertising signs, displays; advertising novelties, nonelectric road or traffic signs; umbrellas, parasols, canes or parts; manufactured products n.e.c. incl. chemical fire extinguishing equipment and parts; coin operated amusement and service machines; beauty or barber shop furniture and equipment; hair work (braids, nets, switches, toupees, wigs etc.); tobacco pipes or cigarette holders, accessories or parts; Christmas tree or holiday decorations except tree bulbs or sets; and n.e.c. (animal heads(stuffed or mounted) skirt forms, masks, theatrical scenery frames, serving trays, battery plugs (automobile), ventilators, etc.)
386	Photographic equipment and supplies, incl. developing equipment, photocopy, microfilming, blueprinting, van dyke or white printing equipment, still or motion picture equipment, film magazine or parts, photographic sensitized film or plates, sensitized photographic paper or cloth, prepared photographic chemicals, and n.e.c.		
387	Watches, clocks, clockwork operated devices, and parts		
39	<u>MISCELLANEOUS PRODUCTS OF MANUFACTURING</u>		
391	Jewelry, silverware, and plated ware, incl. precious metal (if taken) jewelers findings, materials or scrap, lapidary work or cut or polished diamonds; silverware or plated ware, stainless steel ware or flatware	40	<u>WASTE AND SCRAP MATERIALS</u>
393	Musical instruments and parts, incl. pianos, organs, (parts also); musical instruments or accessories and parts (except cases and benches) incl. accordions, batons, drums, harmonicas, etc.	401	Ashes, incl. coal, bagasse, cactus, cotton (boll, burr or cotton-seed hull), kelp, manure, rice hull, sage brush, photo silver, (sensitized paper), film, wood, tan bark, ash, vegetable or rice straw
394	Toys, amusement, incl. games, dolls or stuffed toy animals, childrens vehicles (except bicycles, motorcycles or parts), baby or doll carriages, strollers, walkers; velocipedes, tricycles or parts; wagons, sleds or parts, and childrens vehicles or parts n.e.c.	402	Waste and scrap, except ashes
3949	Sporting and athletic goods, incl. fishing tackle, equipment or parts; billiard or pool tables, playing supplies, balls, cues or parts, bowling alleys, balls or supplies and parts; golf clubs, balls or equipment, supplies or parts; tennis equipment or balls incl. badminton, baseball, basketball, cricket, football, hockey, soccer, softball and supplies or parts; playground or gymnasium equipment and parts; and n.e.c.	4021	Metal scrap, waste and tailings, (incl. alloys), incl. brass, bronze, copper, lead, zinc, aluminum, nonferrous metal and n.e.c.
395	Pens, pencils, and other office and artists' materials, incl. pens or parts, pencils or crayons, marking devices, carbon paper or inked ribbons	40211	Iron and steel scrap, wastes and tailings
396	Costume jewelry, novelties, buttons, and notions (except precious or semi-precious metals or stone), incl. feathers, plumes or artificial flowers or fruits (except glass, Christmas trees, evergreens, mistletoe or holly, ferns); buttons or parts, needles, pins, hooks, eyes, and similar notions: zippers or slide fasteners	4022	Textile waste, scrap and sweepings
398	Miscellaneous manufactured products-A, incl. brooms or brushes (parts also), paint or varnish brushes, rollers; hand carpet sweepers (except commercial or industrial); linoleum or asphalt-felt base coverings and other hard surface floor or wall coverings, incl. supported plastic floor or wall coverings except cork tile or asphalt or vinyl asbestos floor tile; matches, candles or tapers, lamp shades; morticians goods (except concrete) incl. caskets or coffins completely lined or trimmed, unlined caskets or coffins all materials, casket or coffin parts, and n.e.c.	4023	Wood scrap or waste (incl. wood fibre felt scraps or clippings)
		4024	Paper waste and scrap
		4025	Chemical or petroleum waste incl. spent
		4026	Rubber and plastic scrap and waste
		4027	Stone, clay or glass waste or scrap
		4028	Leather waste or scrap incl. old worn out shoes
		4029	Miscellaneous waste or scrap (incl. garbage), n.e.c.

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
41	<u>MISCELLANEOUS FREIGHT SHIPMENTS</u>	47	<u>SMALL PACKAGED FREIGHT SHIPMENTS</u>
411	Miscellaneous freight shipments, including used plant or office equipment, records or supplies; household goods or emigrant movables; mixed shipments, n.e.c. carload (also truckload or bargeload); miscellaneous freight shipments n.e.c. (US mail moving as freight)	471	Small packaged freight shipments, incl. LCL or LTL where it is impossible to determine the predominant industry
41111	Outfits or kits		
41114	Articles, used (except for repair, reconditioning, returned empty or remelting)		
41115	Articles, used, returned for repair or reconditioning		
412	Miscellaneous commodities not taken in regular freight service		
42	<u>CONTAINERS, SHIPPING, RETURNED EMPTY</u>		
421	Containers, shipping, returned empty, incl. carriers or devices, incl. (containers) bags, barrels, bottles, boxes, crates, cores, drums, kegs, reels, tubes or carriers, n.e.c.; (devices) blocking, bolsters, cradles, pallets, racks, skids, etc.		
422	Trailers, semitrailers, returned empty (only when carried as a load by another vehicle)		
44	<u>FREIGHT FORWARDER TRAFFIC</u> (not usually separately identified in truck weight studies)		
45	<u>SHIPPER ASSOCIATION OR SIMILAR TRAFFIC</u> (not usually separately identified in truck weight studies)		
46	<u>MISCELLANEOUS MIXED SHIPMENTS, EXCEPT FORWARDER, SHIPPER ASSOCIATION</u>		
461	All freight rate shipments, n.e.c., incl. TOFC (use for sealed trailers or van sized containers directly to or from a flat car when so identified and commodity cannot be identified)		
46112	Loaded, commodity not determined		
462	Mixed shipments on one factor rates consistency of commodities representing two or more major industry groups where it is impossible to determine the predominant industry.		
			The codes which follow are provided for use where needed, principally to identify the transportation of people and unusual loads made up of a variety of commodities usually related to a service industry or activity. Ordinarily they apply to single-unit trucks where codes from 01 through 42 are inappropriate.
		43000	<u>PASSENGER TRANSPORTATION</u>
		43110	Local and suburban mass transportation over regular route, on regular schedule, or having fixed terminals, including limousine or bus service to airports.
		43190	Local passenger transportation for hire within municipalities and suburbs, including sightseeing, and limousine service.
		43210	Taxicabs, passenger transportation for hire not having fixed schedule, route, or terminals served.
		43310	Intercity or rural bus providing scheduled passenger service on established routes.
		43320	Intercity or rural highway passenger transportation for hire, n.e.c., not on regular schedule.
		43410	Local passenger charter service, not on regular schedule, within municipalities and suburbs.
		43420	Passenger charter, except local, principally outside single or contiguous municipalities and suburbs.
		43510	School buses primarily engaged in transportation of students to and from school, including public and private nursery, elementary, secondary, trade, and technical schools, colleges, seminaries, etc.
		43600	Private vehicle transporting people, not for hire.
		43610	Private automobile transporting people.
		43620	Private bus transporting people, not for hire.
		43630	Truck transporting people primarily, may have small amount of tools or supplies, n.e.c. Code service and utility vehicles with crews under categories 48, 49, and 70 through 89.
		43690	Truck used primarily for transportation of driver or passengers, loaded with tools or equipment, n.e.c. Code service and utility vehicles with crews under categories 48, 49, and 70 through 89.

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>	<u>CODE</u>	<u>DESCRIPTION</u>
48	<u>COMMUNICATION</u> , mixed tools and service equipment, n.e.c.	702	Rooming and boarding houses, tourist homes, with or without board, on a fee basis - permanent and transient guests.
481	Telephone communication primarily mixed tools and service equipment, n.e.c., related to voice, wire, or radio, including domestic and international marine, mobile, and aeronautical service.	703	Trailer parks, camps and day camps, sporting and recreational camps, boys and girls' camps, fishing and hunting camps, and dude ranches.
482	Telegraph communication, primarily mixed tools and service equipment, n.e.c., related to nonvocal wire or radio, including domestic, international, marine, and aeronautical nonvoice service between designated persons.	704	Organization hotels and lodging houses, on a membership basis, sorority and fraternity houses (if open to general public, 701).
483	Radio and television primarily mixed tools and service equipment, n.e.c., related to broadcasting.	72	<u>PERSONAL SERVICES</u>
489	Other point-to-point communication, mixed, tools and service equipment related to electronic service, excluding radio and television repair 762.	721	Laundries, laundry services, and cleaning and dyeing plants; power, family and commercial linen supply, diaper service, self-service laundry, rug cleaning, except repairs (727).
49	<u>ELECTRIC, GAS, AND SANITARY SERVICE</u>	722	Photographic studios, including commercial photography.
491	Electric service, mixed tools and service equipment, n.e.c., related to companies engaged in generation, transmission, or distribution of electric energy for sale.	723	Beauty shops
492	Gas, mixed tools and service equipment, n.e.c., related to production, transmission, distribution, or sale of natural gas, liquified petroleum gas (LPG), manufactured or mixed gas by pipeline. For LPG in containers, see 131 and 2912.	724	Barber shops
493	Electric, or gas services combined, mixed tools and service equipment, n.e.c., related to companies engaged in production, transmission, distribution, and sale of electricity or gas and some other service.	725	Shoe repair and hat cleaning
494	Water supply, mixed tools and service equipment, n.e.c., related to distribution and sale of water primarily for domestic, commercial, or industrial use.	726	Funeral service and crematories
495	Sanitary service, mixed tools and service, n.e.c., related primarily to collection, transportation, treatment, and disposal of liquid or solid wastes. Excludes ashes 401, waste, scrap, garbage 402.	727	Pressing, alterations, and garment repair, fur repair and storage.
496	Steam companies, mixed tools and service equipment, n.e.c., related primarily to production, distribution, and sale of steam.	729	Miscellaneous personal services, n.e.c., including clothing rental, rug cleaning, porter baggage service, seamstress, etc.
497	Irrigation, mixed tools and service equipment, n.e.c., related primarily to operation of water supply for irrigation.	73	<u>MISCELLANEOUS BUSINESS SERVICES</u>
70	<u>HOTELS, ROOMING HOUSES, CAMPS, AND OTHER LODGING PLACES</u> , on a fee basis.	731	Advertising, including commercial art, billboards, displays, illuminated or mechanical advertising signs and displays, handbill distributors.
701	Hotels, tourist courts, auto courts, motels, motor hotels, cabin camps, tourist camps, tourist cabins, and hotels, except apartment hotels (651), rooming and boarding houses, private residences known as tourist homes (702), and sporting and recreational camps (703).	732	Consumer credit, mercantile, and adjustment collection and reporting agencies.
		733	Duplicating, addressing, blueprinting, photocopying, mailing and stenographic agencies, other than printing.
		734	Services to dwellings and other buildings including window cleaning, disinfecting and exterminating, janitorial, floor waxing, and related services other than repair, construction, and painting.
		735	News syndicate reporting services.
		736	Private employment agencies other than theatrical or motion pictures.
		739	Business service, n.e.c., including airplane rental, armored car, bottle exchanges, drafting service, auctioneers of tangible personal property for use (excluding commodities or raw materials for further processing), laboratories and testing establishments, engineers, surveyors, architects, management and consulting services.

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

CODE	DESCRIPTION	CODE	DESCRIPTION
75	<u>AUTOMOTIVE REPAIR, SERVICING, AND GARAGES SERVING THE PUBLIC</u>	803	Osteopathic physicians.
751	Vehicle rental without driver.	804	Chiropractors.
752	Parking lots, garages, structures.	806	Hospitals, establishments primarily engaged in providing hospital facilities, and clinics or dispensaries except sanatoriums, rest homes, convalescent homes, curative baths or spas, in which medical or surgical services are not a main function (809).
753	Repair shops and garages including top and body, battery, ignition, auto electric, radiator, tires, paint, auto glass, and general and special repair.	807	Medical and dental laboratories, except manufacturers of artificial teeth other than to order (384).
754	Automotive services, n.e.c., including cleaning and washing, but not fuel supply or lubrication (service stations are retail trade--50-59--and petroleum products are commodities 13 and 29).	809	Health and allied services, n.e.c. - Sanatorium, convalescent and rest homes in which medical or surgical services are not a main function, registered optometrists prescribing or fitting glasses, registered nurses engaged in the independent practice of their profession, associations or groups formed primarily to provide medical or other health service and facilities to their members, and Christian Science practitioners, except optometrists primarily engaged in selling as well as prescribing and fitting glasses (599) nurses registries (736), establishments such as Blue Cross, Blue Shield plans whose members are supplied services by independent physicians or hospitals under contract (632).
76	<u>MISCELLANEOUS REPAIR SERVICES</u>		
762	Electrical and electronic repair, appliances, radio, television, and miscellaneous n.e.c., except armatures and motors (769).	81	<u>LEGAL SERVICES</u> - Establishments offering legal advice or service on a contract or fee basis, the head(s) of which are members of the bar.
763	Watches, clocks, jewelry.	811	Legal services.
764	Reupholstery and furniture repair.	82	<u>EDUCATIONAL SERVICE</u>
769	Miscellaneous repair and related services, n.e.c., including bicycles and motorcycles, leather goods, armature rewinding and motor repair, locks, guns, musical instruments, awnings, business machines, cesspool cleaning, farm machinery, furnace cleaning, knife sharpening, scales, sewing machines, ships, boats, taxidermists, tractors, typewriter repair and rental.	821	Elementary and secondary schools, below university grades, ordinarily grades 1 through 12, both denominational and sectarian, including schools having junior college grades in conjunction with secondary grades, military academies, kindergartens, nursery schools, and schools for retarded children.
78	<u>MOTION PICTURES</u> , including motion picture production and distribution.	822	Colleges and universities, junior colleges, professional, normal and dental schools, except schools having junior college grades in conjunction with secondary grades (821).
79	<u>AMUSEMENT AND RECREATIONAL SERVICES</u> , charging a fee and nongovernmental.	823	Libraries.
791	Dance halls, schools and studios.	829	Schools and educational services, n.e.c., - Specialized nondegree granting schools, such as music, dramatic, language schools, child guidance clinics, civil service and other short term examination preparatory schools, and vocational counseling, also elementary, secondary schools or colleges for handicapped - braille, sign language or vocational, except dancing school (791).
792	Theaters (except motion picture - 78); bands, orchestras, and entertainers.	84	<u>MUSEUMS, ART GALLERIES, BOTANICAL AND ZOOLOGICAL GARDENS</u>
793	Bowling, billiards, and pool	841	Museums and art galleries.
794	Sports promoters, clubs, or public commercial golf courses, bathing beaches, swimming pools, skating rinks, riding academies, golf and country clubs, race tracks and stables, boat clubs, amusement centers, concessions, athletic clubs, carnivals, expositions, horse shows, picnic grounds, boat rental, shooting galleries or clubs, tennis and yacht clubs, n.e.c., amusement and recreational services, concessions, or clubs for which there is a charge or paid membership.	842	Arboreta, botanical and zoological gardens.
80	<u>MEDICAL AND OTHER HEALTH SERVICES</u> , including associations providing services to members, but excluding medical insurance (63).	86	<u>NONPROFIT MEMBERSHIP ORGANIZATIONS</u>
801	Physicians and surgeons except veterinarians.	861	Business associations - nonprofit membership organizations promoting business interest.
802	Dentists and dental surgeons.	862	Professional membership organizations of professional persons advancing interests of their profession.

STANDARD COMMODITY CODE FOR REPORTING PURPOSES

<u>CODE</u>	<u>DESCRIPTION</u>
86	<u>NONPROFIT MEMBERSHIP ORGANIZATIONS (con.)</u>
863	Labor unions and similar labor organizations of workers for advancement of labor interests.
864	Civic, social, and fraternal associations - nonprofit membership organizations engaged in civic, social, or fraternal activities including volunteer fire departments, except golf and country clubs (794), insurance offices maintained by fraternal organizations - major group (63).
865	Political organizations - established to promote the interests of a national, State, or local political party or candidate.
866	Religious organizations operated for worship or promotion of religious activities, includes religious schools operated by religious organization, except establishments maintained by religious organizations such as educational or charitable institutions, hospitals, publishing houses, and reading rooms.
867	Charitable organizations providing charitable services, includes orphanages, Red Cross, except business establishments owned and operated by charitable institutions which are classified according to the primary activity carried on by such establishments.
869	Nonprofit membership organizations, n.e.c., includes Community Chest, and United Givers Funds.
88	<u>PRIVATE HOUSEHOLDS</u>
881	Private households which employ workers who serve on or about the premises in occupations usually considered as domestic service, includes cooks, maids, butlers, personal secretaries, managers of personal affairs, outside workers such as gardeners, caretakers, and other maintenance workers, includes laundresses performing work in their own homes or the homes of others, except households of farming establishments are classified by major groups 01 and 02.
89	<u>MISCELLANEOUS SERVICE</u> - n.e.c.
891	Engineering and architectural service.
892	Nonprofit educational and scientific research agencies, nonprofit establishments primarily engaged in research, archeological expeditions, nonprofit associations with primary purpose the dissemination of information for public health or welfare, planned parenthood associations, except commercially operated research agencies.
893	Accounting, auditing, and bookkeeping service including punch card accounting on a fee basis.
899	Services, n.e.c., artists studios, authors, commercial artists, lecturers, radio commentators, song writers, weather forecasters, writers, cloud seeding, family (marriage), counseling service, newspaper columnists, psychologists, weather modification (rain makers).

ABBREVIATIONS

aao.	Also applies on
incl.	Including
kd.	Knocked down
mm.	Millimeter
n.e.c.	Not elsewhere classified

X. Loaded or empty (Column 41, Card No. 7)

<u>Code</u>	<u>Symbol</u>	<u>Description</u>
0	E	Empty
1	LP	Loaded with a product
2	NP	Non-commodity movement (utility or mounted equipment, etc.)

XI. Special coding problems

A. General comments

Columns 2-3, State code number, should be the same in all #4 and #7 cards and contain the code of the State in which the data are collected.

B. Identification of 2P (2-axle, 4-tire trucks, less than one ton capacity) Versus 2S (2-axle, 4-tire trucks, one ton or greater capacity) While Classifying

All multistop or standup delivery trucks, and all large 4-tire trucks with flatbed, dump or other heavy cargo bodies, should be classified as 2S. Pickups and panels, if they have heavy truck type hubs or axles, or are noticeably larger and longer than the standard pickup, should be classified as 2S. All other usual pickups and panels should be classified as 2P, including minivans (Ford Econoline, Volkswagen, etc.) and standard pickups with additional racks or camper bodies. It is recognized that erroneous classification may result in some cases. The loading and operational characteristics of the standup delivery trucks, which account for the majority of the 2S type, are quite different from panels and pickups. The extra effort to measure these differences are necessary to account for rural and urban goods movement.

C. Vehicle classification card 4

Card number 4, columns 76-79, --Serial numbering should start with "0001" for the first hour counted at each station each year and continue consecutively with no numbers omitted for as many cards as needed. An entry of "000" is not a valid code. Ordinarily there will be one number 4 record for each hour counted. Where continuation cards are used to provide for additional vehicle types, the continuation card will carry the exact same serial number in columns 76-79, including zeros, as the card it supplements. Where each direction of travel is counted separately, numbering for each should start with 0001 for the first hour counted and proceed consecutively. Number 4 cards are desired for all seasonal counts obtained at weight stations as well as for the weight period.

States may wish to make a distinction between demountable camper bodies on pick-up trucks and permanently installed camper bodies on other 4-tire trucks. If desired the vehicle counts may be entered on the continuation of the number 4 cards. The last two digits of the six-digit vehicle code may be used to indicate

the body type. For example a pick-up truck carrying a demountable camper body should be coded 201079. A heavy 2-axle truck with a permanently installed dwelling unit body should be coded 211079. (See pages 45-C to 48-C for body types.)

D. Continuation of vehicle classification card 4

Columns 18-75.--The fields included in these columns provide space for coding vehicle type and count for vehicles which fall outside the more common vehicle types recorded on the first card. Any fields on this card which are not needed may be left blank. If a vehicle type is coded, however, all six columns of the field should be coded using leading and trailing zeros where appropriate.

Where it is expected that number 4 continuation cards will be needed, it has been suggested that fields be preselected and always used for the same vehicle types to reduce coding errors and facilitate keypunching. For example, if piggyback 3S2 pole trailers and 3S2's with spread tandems are expected columns 18-23 could be coded 332004 and columns 28-33 could be coded 33700 in all cases. Succeeding fields would be used when needed for other vehicle types.

E. Truck weight tabulating card 7

Columns 24-25 and 36-40.--For trucks carrying permanently mounted equipment such as air compressors, cranes, welding units, and drilling rigs, code "76" in columns 24-25. The appropriate commodity code from the 35 or 36 series (pages 64-C to 64-C) should be coded in columns 36-40. For example, a truck-mounted welding unit would be coded "76" in columns 24-25 and "3531" in columns 36-40.

Columns 27-28, gross registered weight group code.--This field will be used for coding the gross registered weight in weight ranges. The weight ranges and corresponding codes are shown on page 51-C. The registered weight to the nearest thousand pounds will be coded in columns 29-31. For those States which register combinations on the basis of gross weight of units separately, the gross weights of all units in a combination should be summed and used in determining the gross registered weight group. Vehicles which are registered in their "home" States on the basis of empty weight or chassis weight present a problem. When such a vehicle bears a "prorate" plate indicating that it is licensed to operate in another State, which does register on a gross weight basis, it may be possible to obtain the gross weight assigned to that vehicle by the "prorate" State. If so, this weight should be used in assigning the gross weight group code. When no gross registered weight figure can be obtained, this field should show 99.

Columns 29-31, registered weight.--The weight entered here will be the appropriate weight for the basis of registration in the "home" State of the vehicle whether gross weight or empty weight. The sum of the registered weights for all units of the combination should be used.

Column 32, basis of registration.--The basis of registration in the "home" State of the vehicle should be entered in this column. The codes for basis of registration and lists of the States using each basis are given on pages 49-C and 50-C.

Columns 33-34, model year of truck or tractor.--It is recognized that this may be difficult to determine, particularly for those makes of trucks or tractors which vary only slightly or not at all in appearance from year to year. The information can be obtained from the registration papers for most States, but several States do not require model year on the registration. In some cases the interviewer may be able to find out from the driver. With experience, members of the truck weight crew should learn to recognize identifying characteristics of model year for the principal makes. In other cases the model year can be determined within a two- to four-year range. Estimates within this range are desired where exact determinations are not feasible. Otherwise this field should show 99.

Column 41, "Empty or loaded" (0 = empty, 1 = loaded, 2 = does not apply).--The code "2" is to be used for vehicles which are not empty but could not be considered as transporting a commodity. Examples are trucks with permanently or semipermanently mounted equipment such as compressors, cranes, generators, augers, well drilling rigs, etc., and utility trucks such as those used by gas, telephone and power companies, and by electrical, plumbing and heating contractors.

Card number 7, columns 77-79.--For the number 7 truck weight card, the serial number should start with "001" for the first truck weighed at each station each shift. An entry of "000" is not a valid code. Each direction should be numbered separately if it is possible that the total for both directions will exceed "999." A continuation card with 9 in column 80 should have the same serial number as the face card it supplements. Since it is expected that some number 7 cards may be edited out of the file, continuous serial numbering without omissions is not essential.

F. Coding retractable axles

In processing State submitted 1969 weight data a problem developed in coding axle weights of trucks with one or more axles retracted from contact with the pavement. Axle spacing should, in these cases, be measured to and include these retracted axles and coded in the number 7 cards. A dummy weight of 100 lbs. should be coded for this retracted axle on the number 7 cards.

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