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PTI/APWA Equipment Information System User's Guide

Public Technology, Inc, Washington, D C

Prepared for

Department of Housing and Urban Development, Washington, D C Assistant Secretary for Policy Development and Research

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PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

USER'S GUIDE

U.S. Department of Housing and Urban Development
Office of Policy Development and Research

PUBLIC TECHNOLOGY, INC., WASHINGTON, D.C. AND SAN JOSE, CA.

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This document is one of a series comprising documentation for the PTI/APWA Equipment Management Information System, a system tailored to the special needs of locall governments, developed by Public Technology, Inc. and the American Public Works Association. The User's Guide provides detailed descriptions and explanations of all nontechnical aspects of the system with which users are concerned; including input forms, output reports, and operating procedures.

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USER'S GUIDE

U.S. Department of Housing and Urban Development
Office of Policy Development and Research
Washington, D.C.

Prepared Under Contract #H-2106R

by

Public Technology, Inc.
1140 Connecticut Ave., NW
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INTRODUCTION

Improving Equipment Management

State and local governments rely heavily on motor equipment for the delivery of services. The costs of maintaining this equipment constitute a substantial government expense. Consequently, fleet management affects both the quality of transportation-dependent services, and overall government expenditures.

Effective equipment management requires the maintenance of detailed records for equipment utilized by the various organizational units within a jurisdiction. Vast amounts of data must be collected and analyzed regularly in order to effectively monitor equipment operations. A computer-based management information system can greatly enhance the equipment management function.

With the help of local officials and equipment managers across the country, Public Technology, Inc. and the American Public Works Association have developed an equipment management information system.* Using the PTI/APWA Equipment Management System, local administrators and equipment managers can maximize equipment availability, while controlling the costs of fleet operation and maintenance.

Capabilities of the PTI/APWA Equipment Management System

The equipment management system monitors all fleet operations, digesting and analyzing great amounts of operational data. The system does not make decisions; rather, it provides managers with the information they need for decision making.

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*Financial support to structure and test the package was shared by Public Technology, Inc. (PTI); and the Department of Housing and Urban Development (HUD), Office of Policy Development and Research; the American Public Works Association (APWA); Dade County, Florida; and the cities of Milwaukee, Wisconsin; and Ft. Lauderdale, Florida.

Information provided by the system enables managers to:

- Minimize equipment operating and maintenance costs;
- Minimize equipment downtime;
- Schedule preventive maintenance;
- Provide detailed accountability for fuel usage;
- Provide information for comparing equipment performance;
- Prepare interdepartmental billings;
- Determine optimal rental rates; and
- Establish equipment replacement needs.

Obtaining the System

The equipment management system is available in a package consisting of a set of computer programs, sample input forms and output reports, and supporting system documentation. In each recipient jurisdiction, the system is implemented by a project team composed of representatives of top management, fleet management personnel, and representatives of agencies impacted by the system. Technical assistance and user training is available from Public Technology, Inc., 1140 Connecticut Avenue, Northwest, Washington, D.C. 20036.

System Documentation

Equipment management system documentation includes documentation relating to on-going system operations, and material addressing system implementation. The former can be broken into two types--user and data processing oriented documentation. (Refer to Table I-1).

Table I-1

PTI/APWA EQUIPMENT MANAGEMENT SYSTEM

DOCUMENTATION

	User-Oriented Documents	Data Processing-Oriented Documents
Overview Documentation	Chief Executive's Report	
Working Documentation	User's Guide Forms Completion Instructions	Program Documentatio_
Transfer Documentation	Implementation Handbook	Testing Procedures

User-oriented documentation includes the "Chief Executive's Report", the User's Guide, Forms Completion Instructions, and Implementation Handbook. The "Chief Executive's Report" provides top management with a summary of system benefits, operations, and implementation requirements. The User's Guide (this document) is a non-technical document for those involved in the day-to-day operation of the system, and for those who receive system reports.

Forms Completion Instructions provide instructions for completing input forms described in the User's Guide. Finally, the Implementation Handbook serves as a manual for members of an interdepartmental project team responsible for installing the system.

Data processing oriented documentation includes the Program Documentation and Testing Procedures. A reference document, the Program Documentation is written for an audience of data processing analysts and programmers. It explains the proper run sequence for computer programs, necessary computer data fields, and the logic of each program. Testing Procedures is used by data processing personnel to initially install basic computer programs on local equipment.

The User's Guide provides detailed descriptions and explanations of all aspects of the system with which users are directly concerned--input forms, output reports, operation procedures, and the steps required for system implementation. While the Equipment Manager and the Data Control Clerk* should be thoroughly familiar with the User's Guide, other system users need to know and understand only those portions relating to their respective duties. An extensive table of contents enables users to locate pertinent sections of the document.

*The responsibilities of the Data Control Clerk are described in Section 1.1.4.

The Guide will be consulted most frequently by equipment management personnel; it also provides interested departments or divisions with information about the capabilities and operating characteristics of the system. Departments and divisions with an interest in equipment management are listed in Table I-2.

How the Guide is Organized

Section 1, "System Overview", presents general information about the system, and requirements for implementation. Section 2 presents information about individual input forms and output reports, and system processes and procedures. This section, entitled "Module Descriptions", is divided into six subsections, reflecting the modular design of the equipment management system. Each subsection deals with one system module, and the forms, reports, processes, and procedures associated with that module. Appendices A, B, and C contain samples of all input forms, samples of all output reports, and the AFWA Equipment Code, respectively.

Table I-2

DEPARTMENTS OR DIVISIONS INTERESTED
IN EQUIPMENT MANAGEMENT

Agency	Interest
• Office of the City Manager or Chief Administrator	• Information generated by the system in support of policy development and management decisions
• Agencies Using Fleet Equipment	• Reduced equipment expenses; increased equipment availability
• Cost Accounting and Finance Departments	• The compatability of cost information generated by the system with present accounting needs
• Budgeting Department	• Information generated by the system in support of budget requests
• Purchasing Department	• Information generated by the system in support of equipment purchase specifications

SYSTEM OVERVIEW

1.1 SYSTEM OPERATIONS

1.1.1 System Structure

The PTI/APWA Equipment Management System is designed for maximum flexibility in any given jurisdiction. The system is composed of six modules performing major system functions, each of which may be modified (or in some cases deleted) without affecting the rest of the system. Modular design allows jurisdictions to enhance or alter the system according to their needs with minimal effort. Each of the six modules is surveyed below. (Detailed module descriptions are presented in Section 2.)

The Equipment Inventory Module accumulates basic data about each piece of equipment. Successful operation of all other system modules depends on information maintained in the Inventory Module. This module generates several reports describing overall fleet characteristics and produces information about individual fleet equipment.

The Fuel Module accumulates data on the quantity of fuel and other commodities (e.g., oil and antifreeze) dispensed to equipment, and calculates the cost of these items. This data establishes a detailed audit trail of all fuel issued from the jurisdiction's pumps. The system responds to queries about fuel dispensed during any period, from any pump, to any or all equipment. Monthly fuel cost and quantity data are maintained for two years for each piece of equipment.

The Repair Module accumulates data regarding the quantity and cost of labor, parts, and commercial work for each equipment repair, along with data about the reasons for each repair and types of repairs performed. Information is generated for the evaluation of repair characteristics and trends for individual pieces of equipment and for various types of equipment.

The Preventive Maintenance Module monitors Preventive Maintenance operations and State Inspections and produces monthly reports listing all equipment due or overdue for Preventive Maintenance servicing and State Inspections. The module thus facilitates scheduling for a Preventive Maintenance program, which can help to reduce overall repair costs and equipment downtime.

The Billing Module draws on cost information maintained in the Inventory, Fuel, and Repair Modules to produce lists of costs incurred each month by agencies using fleet equipment. Costs are calculated for each vehicle on the basis of rental rates, pool charge rates, or actual expenses.

The General Module draws on the information from the other five modules to produce comprehensive management reports. These reports contain many types of information at various levels of aggregation, enabling management to evaluate equipment according to a number of different criteria.

1.1.2 System Equipment Identification Codes

To allow the equipment management system to effectively monitor fleet operations and generate useful management information, each piece of equipment is assigned two identification codes. The first, a six character code, designates individual equipment on all system forms and reports. The second, the APWA Equipment Classification Code, designates equipment according to descriptive category. The APWA code, presented in Appendix C, classifies equipment by type, size, drive and transmission, power plant, displacement or horsepower, and model year.

Several system reports present information aggregated for each "major" APWA class of equipment, identified by the first two characters of the code. Table 1-1

Table 1-1

MAJOR APWA CLASSES

(Major classes of equipment are identified by the first two characters of the eight character APWA code: ↓ ↓ [ ][ ][ ][ ][ ][ ][ ][ ])

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
1A	Sedan	3R	Mobile Unit	6C	Spec Terr Veh
1B	Station Wagon	3S	Service Truck	8A	Bed Trailer
1C	Jeep	3U	Fire/Rescue	8B	Trl - Van/Dump
1D	Ambulance - CV	3W	Other Trucks	8C	Trl-Mobile Home
1K	Motorcycle	4A	Light Tractor	8D	Tank Trailer
1N	Scooter	4G	Trac-Hvy-Rig	8F	Ref. Trailer
2A	Bus	4N	Trac-Hyv-Art	9A	Asphalt Work
2C	Carryall	4X	Crawler Tract	9B	Cmpct/Convey
2E	Dump Truck	5A	Backhoe	9C	Mixer
2G	Flatbed Truck	5B	Crane	9D	Mudjack
2K	Panel Truck	5C	Loader	9E	Roller - Pneu
2L	Pickup Truck	5D	Shovel	9F	Misc. Paving
2P	Tank Truck	5E	Scraper	9J	Grnd - Mower
2R	Truck Tractor	5K	Landfill/Comp	9K	Shred/Spray
2T	Utility Truck	5L	Grader	9L	Vac Cleaner
2V	Van Truck	5M	Roller/Pneu	9P	Boiler/Cleaner
3A	Ref Comp Frnt	5N	Roller/Steel	9Q	Compressor/Air
3B	Ref Comp Side	5P	Heater/Planer	9R	Flood Light
3C	Ref Comp Rear	5R	Sweeper	9S	Generator
3D	Ref Comp Art.	5W	Misc Equipment	9T	Lub/Fld Unit
3J	Street Sanit	5X	Misc Equipment	9U	Miscellaneous
3M	Pave. Maint.	6A	Plane		
3P	Trk - Excv/Load	6B	Boat		

presents these two-character code designations, and the corresponding equipment description.

1.1.3 System Inputs and Outputs

Data and/or instructions are submitted to the equipment management system on input forms. Operations-oriented forms such as Fuel Transaction Records, Repair Orders, and Pump Reading Forms are submitted to the system daily, weekly, or monthly. Report request forms are submitted when certain reports are needed. System maintenance forms (i.e., data correction forms, forms for changing system parameters, etc.) are submitted as necessary.

The equipment management system generates two types of reports--management/operations reports and data control reports. Some reports in the first category directly support equipment operations, such as the scheduling of preventive maintenance and the preparation of interdepartmental invoices. Others provide information in support of planning and management decisions relating to budgeting for equipment, decreasing equipment downtime, identifying fleet cost trends, and so forth. Management/operations reports are produced monthly for the most part, although several must be requested.

The system also produces reports for data control. Data control reports are produced whenever data is submitted to the system. They monitor system functions and identify data errors.

1.1.4 The Data Control Function

Data submitted to the equipment management system must be valid and legible. Erroneous data must be promptly corrected and resubmitted to the system.

One individual must be assigned the responsibility for these "control" functions: the Data Control Clerk.* Successful operations of the system depends upon this individual.

The Data Control Clerk must be thoroughly familiar with the equipment management system. The Clerk's responsibilities include:

- Reviewing data prior to submission to the system (to eliminate obvious errors);
- Determining the cause of and correcting input errors identified by the system;
- Submitting request forms for system reports;
- Coordinating system maintenance activities, such as changing the status of equipment, notifying the system of equipment reassigned from one organization to another, and so forth.

Expertise in data processing is NOT a qualification for the position of Data Control Clerk. The Clerk is an employee of the Equipment Management Office, not the Data Processing Agency, who interfaces between the Equipment Manager, equipment operations personnel, and the data processing personnel.

The amount of time required to perform the data control function depends on fleet size. Jurisdictions with smaller fleets may assign additional responsibilities to the Data Control Clerk.

1.1.5 The Monthly Reporting Cycle

The equipment management system operates on a monthly cycle. During each month data is supplied to the system on Repair Orders, Fuel Transaction Records, Pool Tickets, and other input forms. These forms are forwarded from equipment

*The detailed responsibilities of the Data Control Clerk are described in the module processes described in Section 2.

shops, fueling sites, and operating agencies to the Data Control Clerk in the Equipment Management Office. The Data Control Clerk batches these forms, verifies their completeness and correctness, and forwards them to the Data Processing Agency where they are input to the equipment management system.

The system checks all forms and produces reports identifying errors. Forms are returned for correction to the Data Control Clerk, who forwards corrected forms to the Data Processing Agency for resubmission to the system. Once all the data for a reporting period has been submitted to the system, and errors corrected and resubmitted, month-end processing can begin.

Month-end processing updates all computer files and generates monthly reports. Reports are then forwarded from the Data Processing Agency to the Data Control Clerk for distribution to the Equipment Manager, repair shops, operating agencies, and staff agencies. Table 1-2 depicts the monthly flow of system forms and reports.

The monthly reporting cycle need not begin on the first day of every month. The Equipment Management Office, the Data Processing Agency, and other agencies supplying data to the system should determine acceptable dates. They should recognize that as much as a week may elapse from the closing date for a reporting period until the production of reports. (Refer to the General Module for details about month-end processing.)

Table 1-2

FLOW OF SYSTEM FORMS AND REPORTS

Step	Agent	Activity
1.	Using Agency, Repair Shop, and Fuel Site Personnel	Submit forms to the Data Control Clerk
2.	Data Control Clerk	Batches and verifies forms, and forward these to the Data Processing Agency
3.	Data Processing Agency	Submits data on forms to equipment management system
4.	EMIS	Produces error listings
	CONDITION: If there are any errors on input forms,	
5.	Data Control Clerk	Corrects errors and resubmits forms to data processing (Return to Step 2); otherwise
6.	EMIS	Updates files and produces system reports
7.	Data Processing Agency	Forwards reports to Data Control Clerk
8.	Data Control Clerk	Distributes and/or files reports

1.2 SYSTEM IMPLEMENTATION

1.2.1 Management Commitment

Successful implementation of the equipment management system requires the cooperation of the many different agencies that will be affected by the system. These include, in addition to the equipment agency, all agencies that use fleet equipment, and agencies that are concerned with fleet policy and finance. In order to obtain needed cooperation from affected agencies, the city manager or chief administrative official (CAO) must give full backing to the system, and inform all affected agencies of the potential system impact.

In addition to top management commitment, successful implementation requires the confidence and support of those who will operate and use the system on a regular basis. These individuals, among them the Equipment Manager, the Data Control Clerk, shop foremen, and other line personnel, should be briefed on the nature and purpose of the system prior to system implementation.

1.2.2 Minimum Operating Requirements

The following are minimum technical requirements for system installation:

- 64K Computer;*
- ANSI-COBOL Compiler;
- Card Reader;
- 132 Character Line Printer;
- Data Storage devices capable of making four sequential files accessible to one computer program; and

*The largest program in the system requires slightly over 50,000 characters of core storage as compiled on an IBM 370-155.

- General purpose sort utilities.

1.2.3 Implementation Tasks

The implementation of the equipment management system involves the following tasks:

- Organize for implementation;
- Develop workplan;
- Review system documentation;
- Obtain, compile, and test computer programs;
- Perform analysis of equipment management operations;
- Identify necessary system modifications;
- Develop and test modifications; and
- Implement modified system.

1.2.4 The Implementation Process

A general discussion of implementation follows. Detailed step-by-step instructions can be found in the Implementation Handbook.

1. Organize for Implementation

The project team is the single most important factor in the successful implementation of the equipment management system. The project team plans the implementation of the system and monitors progress. The team should consist of representatives of all agencies affected by the system, to ensure that the implemented system meets the needs of all these agencies, and that it is fully accepted by them. All project team members should have a familiarity with the objectives and requirements of the system. Examples of the duties of the project team include:

- Reviewing system forms and reports to determine whether they are appropriate for the jurisdiction;
- Suggesting revised procedures; and
- Reviewing the system implementation schedule.

A representative from the City Manager's or CAO's office--the Project Team Leader--guides the implementation effort. Duties of the Project Team Leader include:

- Addressing policy questions;
- Handling liaison with the various departments involved;
- Ensuring administrative and technical tasks are executed properly; and
- Representing top management in decision making.

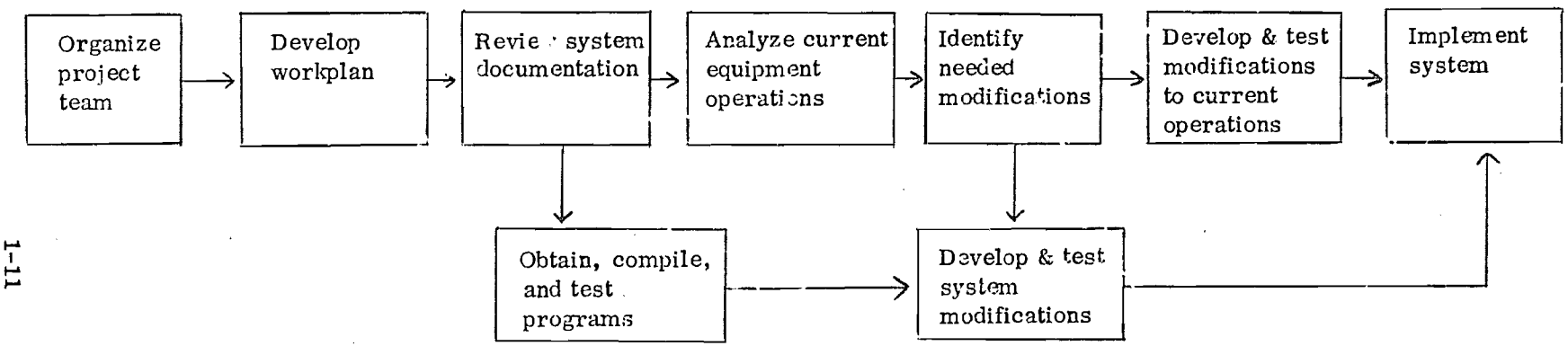
The project team should meet formally at regular intervals, at least once every two weeks. At these meetings, participants should review implementation progress, identify tasks that remain to be accomplished, and make decisions as the regarding possible alternative approaches.

2. Develop Workplan

As a part of its responsibility to plan and monitor system implementation, the project team should develop an implementation workplan sensitive to the resources available within the jurisdiction and the feasibility of accomplishing each task within a specified time period. Figure 1-1 depicts the sequence of major system implementation activities. An actual implementation workplan would be keyed to duties of team members. The workplan would identify key personnel associated with each task and itemize the products of each major task.

Figure 1-1

IMPLEMENTATION ACTIVITIES



3. Review System Documentation

Implementation of the PTI/APWA Equipment Management System will inevitably entail certain modifications to the system, and certain modifications to present equipment management practices. These modifications may be minor, or they may be extensive. In order to evaluate modification requirements for a particular jurisdiction, all project team members should become thoroughly familiar with the system as described in the User's Guide. The project team member(s) representing the Data Processing Agency should also study the system Program Documentation.

4. Compile and Test Computer Programs

When the computer programs and the system documentation are received, the programs should be installed on the recipient jurisdiction's computer, and tested using the test data that accompanies the programs. Testing Procedures should be followed carefully. ONLY THOSE DATA PROCESSING MODIFICATIONS NECESSARY TO COMPILE THE PROGRAMS SHOULD BE MADE.

5. Analyze Current Equipment Operations

Using system documentation as a reference, the project team should analyze and document all aspects of present equipment operations that might be affected by the equipment management system, including:

- Input forms;
- Output forms; and
- Procedures.

Personnel and organizational entities that would perform each system function should be identified. Where no comparable function is currently performed, the team should analyze the impact on the organization of initiating that function. The team

should identify those who will receive each report produced by the system, and where each will be filed. They should identify where the data required to complete each input form can be found.

6. Determine Necessary Modifications

The analysis described in the preceding section will disclose discrepancies between the system and current equipment operations. In order to accomodate the system, the project team may wish to modify current operations; or it may wish to modify certain system functions; or it may decide on some combination of modifications to current operations and to the system.

7. Develop and Test Modifications

When all necessary modifications have been determined, each should be worked out in detail. The project team must carefully consider the impact of each modification on other modifications, and on the system as a whole. All modifications to programs, procedures, or forms should be tested as part of the complete system. System documentation should be altered to accomodate final modifications.

8. Implement Modified System

When the modified system has been completely tested, it should be operated provisionally until successful performance has been demonstrated. Until the system has been proven operational with all modifications, a jurisdiction should retain the capability to revert to the previous mode of operation.

Because of the interdependence of system modules, implementation sequence is critical. System modules should be implemented in this order:

1) Equipment Inventory Module

2) Fuel and Repair Modules

3) Billing Module

4) Preventive Maintenance Module

5) General Module

2. MODULE DESCRIPTIONS

2.1 EQUIPMENT INVENTORY MODULE

2.1.1 --Module Overview--

Module Operations

The Equipment Inventory Module is the cornerstone of the equipment management system. This module maintains a Master File that contains descriptive and functional information about each piece of equipment in the fleet. Other modules in the system rely on the information in the Equipment Inventory Master File for proper functioning. Thus, the Equipment Inventory Module controls the rest of the equipment management system.

Detailed data about each piece of equipment is initially entered into the Inventory Module via the Equipment Inventory Form. This data (and data that subsequently enters the system regarding a specific piece of equipment) is stored in a unique record in the Equipment Inventory Master File.

Data concerning the operations, maintenance, and billing for each piece of equipment is continually fed into the Equipment Inventory Module from other modules. For each piece of equipment in the fleet, a record in the inventory master file accumulates fueling data, maintenance and repair data, odometer (or hourmeter) readings, billing data, and preventive maintenance data.

Input Data

Basic equipment data is input to the Equipment Inventory Module on the Equipment Inventory Form. This form provides space for data on equipment identification, characteristics, organizational assignment, billing rates, and so forth.

Module forms also notify the system when a piece of equipment is temporarily

out of service, permanently removed from the fleet, assigned to a new organization, and when inventory data must be modified.

Data collected by other modules updates operations, maintenance, and billing information maintained in the Equipment Inventory Module. Routine odometer (or hourmeter) reading updates enter the Equipment Inventory Module from other modules, but special meter reading corrections can be input directly to the Equipment Inventory Module.

Output Information

The Equipment Inventory Module can produce detailed or summary information about equipment in the fleet. Inventory information can be generated for a single piece of equipment, or for specified groups of equipment. Groups of equipment can be specified as follows:

- All equipment assigned to a particular agency or organization;
- All equipment of a type or class designated according to the APWA code; or
- All equipment of a specified type or class assigned to a particular organization.

In addition to inventory information presentations, the Equipment Inventory Module can generate information about which fleet equipment are assigned to each of the various using agencies in a jurisdiction. The module also periodically generates a list of equipment that has been deadlined for more than one month.

Finally, the module produces information that enables the Data Control Clerk to monitor system operations.

Module Processes

The objectives of the Equipment Inventory Module are accomplished in a number

of discrete, but related processes. Processes provide the system with data about the fleet, and instruct the system to produce reports containing needed information. Each process involves a series of actors in the following activities:

- Filling out forms;
- Batching and transporting forms;
- Processing data by computer;
- Producing accurate system reports; and
- Transmitting reports to appropriate parties.

Equipment Inventory Module operations include the processes shown in Table 2.1-1.

Table 2.1-1

EQUIPMENT INVENTORY MODULE PROCESSES

• ADDING EQUIPMENT TO THE FLEET	• Performed when new equipment joins the fleet
• DELETING EQUIPMENT FROM THE FLEET	• Performed when equipment is permanently removed from the fleet
• CHANGING EQUIPMENT INVENTORY DATA	• Performed when inventory data presently maintained by the system must be modified
• CHANGING EQUIPMENT ODOMETER OR HOURMETER READING	• Performed when the system maintains an inaccurate meter reading
• DEACTIVATING (DEADLINING) EQUIPMENT	• Performed when equipment is deadlined for repairs or otherwise temporarily removed from service
• REACTIVATING EQUIPMENT	• Performed when equipment is returned to service
• REQUESTING EQUIPMENT INVENTORY DATA	• Performed when 'Equipment Inventory Summary (or Detail) Report' is requested
• REQUESTING THE 'FLEET INVENTORY ASSIGNMENT SUMMARY'	• Performed when the 'Fleet Inventory Assignment Summary' is requested

2.1.2 EQUIPMENT INVENTORY MODULE

--Module Input Forms--

Equipment Inventory Module data is collected on two forms--the Equipment Inventory Form and the Meter/Status Change Form. The Equipment Inventory Form, which some refer to as the "birth certificate", introduces new equipment to the system, and as such constitutes the single most important system input form. Miscellaneous inventory-related data is entered into the system on the Meter/Status Change Form. Two other forms are used to request system reports containing inventory information.

The forms and their use are described in Table 2.1-2. Copies of all forms can be found in Appendix A.

Table 2.1-2

EQUIPMENT INVENTORY MODULE INPUTS

Form Title	Purpose	Associated Processes	Responsibility For Completion	Filing and Retention
Equipment Inventory Form (EMID01)	To record inventory data for new equipment; to alter/delete inventory data already entered in the system	• ADDING EQUIPMENT TO THE FLEET • CHANGING EQUIPMENT INVENTORY DATA	Completed by Data Control Clerk as necessary	Form is filed in Equipment Management Office
Meter/Status Change Form (EMID02)	To modify incorrect meter information; to indicate that a piece of equipment has been removed from service, temporarily deactivated (deadlined), or reactivated	• DELETING EQUIPMENT FROM THE FLEET • CHANGING EQUIPMENT ODOMETER OR HOURMETER READING • DEACTIVATING (DEADLINING) EQUIPMENT • REACTIVATING EQUIPMENT	Completed by Data Control Clerk as required	A note indicating the meter or status change is filed in the Equipment Management Office
'Equipment Inventory Report' Request Form (EMID03)	To request the 'Equipment Inventory Detail Report' or the 'Equipment Inventory Summary Report'	• REQUESTING INVENTORY DATA	Completed by Data Control Clerk at the request of the Equipment Manager or other authorized person	Form is discarded after Data Control Clerk determines that the proper report has been generated
'Fleet Inventory Assignment Summary' Request Form (EMID04)	To request the 'Fleet Inventory Assignment Summary' Report	• REQUESTING THE 'FLEET INVENTORY ASSIGNMENT SUMMARY'	Completed by Data Control Clerk at the request of the Equipment Manager or other authorized person	Form is discarded

2.1.3 EQUIPMENT INVENTORY MODULE

--Module Outputs: Management/Operations Reports--

Copies of all reports can be found in Appendix B.

***

'Equipment Inventory Detail Report' (EMIR09)

When Produced

On request

Relevant Process(es)

REQUESTING EQUIPMENT INVENTORY DATA

Contents

Comprehensive information about all fleet equipment, or about one or more pieces of equipment selected according to the following criteria:

1) Equipment number
2) APWA class
3) Organizational assignment

Any combination of these criteria may be used to designate a group of equipment. For example, equipment managers might request the report for all sedans (APWA class) assigned to the police department detective squad. Or, they might request the report for all station wagons of a particular model year, with a particular drive and transmission type. (Refer to the discussion of the APWA code, Appendix C.)

For each piece of equipment, the report includes one page of information, in the following categories:

- Miscellaneous descriptive
- Operations

- Maintenance
- Billing rates

Organization

Variable depending on equipment specified in request. Information will be ordered by:

- Equipment Number, and/or by
- Organizational Assignment, and/or by
- APWA class.

Use

- To evaluate replacement needs
- To analyze repair problems for a particular piece or group of equipment

***

'Equipment Inventory Summary Report' (EMIR10)

When Produced

On request

Relevant Process(es)

REQUESTING EQUIPMENT INVENTORY DATA

Contents

Summary version of 'Equipment Inventory Detail Report', with one line of information for each piece of equipment included in the report. Information for each piece of equipment includes:

- Current odometer (or hourmeter) reading;
- Current value; and
- Total costs incurred over the life of the equipment.

Organization

Same as for 'Fleet Inventory Detail Report'

Use

- To evaluate replacement needs

***

'Equipment Inventory No-Match Report' (EMIR11)

When Produced

Whenever inventory information is requested (using the Equipment Inventory Report Request Form) about equipment for which the system has no data. For example, information might be requested for a specified class of equipment assigned to a particular organization. Normally the 'Equipment Inventory Detail (or Summary) Report' would be generated; however, if no equipment of the specified type are assigned to that organization, the system generates the 'Equipment Inventory No-Match Report'.

Relevant Process(es)

REQUESTING EQUIPMENT INVENTORY DATA

Contents

List of those pieces or groups of equipment for which the system has no information.

Organization

Same as for 'Equipment Inventory Detail Report'

Use

- To determine whether certain types of equipment are present in the fleet.

***

'Fleet Inventory Assignment Summary' (EMIR12)

When Produced

On request

Relevant Process(es)

REQUESTING THE 'FLEET INVENTORY ASSIGNMENT SUMMARY' REPORT

Contents

A matrix showing which equipment are assigned to each organization in the jurisdiction. Totals are listed for assigned equipment in each of the eight major APWA classes.

Organization

Information ordered according to organization code numbers.

Use

- As background for budget preparation
- For review of fleet assignments

***

'Equipment Deletions' Report (EMIR04)

When Produced

Whenever the system is notified that a piece of equipment has been deleted from the fleet.

Relevant Process(es)

DELETING EQUIPMENT FROM THE FLEET

Contents

A listing of all information accumulated in the Equipment Inventory Master File for each piece deleted piece of equipment. The information is broken into the following categories:

- Miscellaneous descriptive
- Operations
- Maintenance
- Billing rates

Format and content is the same as in the 'Equipment Inventory Detail Report'.

Organization

Information presented in order by equipment number.

Use

- To verify that the correct equipment record has been deleted from system files
- To review the lifetime performance of equipment in connection with future purchasing decisions (a valuable aid to the Equipment Manager and Purchasing Department)

***

'Equipment Deactivated (Deadlined) More Than One Month' Report (EMIR06)

When Produced

Every time Equipment Inventory Module transactions are processed. Equipment is not listed on this report until it has been deactivated (deadlined) for at least one month. Thereafter equipment will continue to be listed on this report until that equipment is back in service, and the system so notified.

Relevant Process(es)

DEACTIVATING (DEADLINING) EQUIPMENT

REACTIVATING EQUIPMENT

Contents

One line of information for each piece of equipment that has been deactivated (deadlined) for more than one month. Information includes the equipment number, organizational assignment, and deactivation date.

Organization

Equipment listed according to equipment number.

Use

- Alerts the Equipment Manager to equipment that has been out of service for an excessive length of time, so decisions can be made regarding that equipment

2.1.4 EQUIPMENT INVENTORY MODULE

--Module Outputs: Data Control Reports--

Copies of all Reports can be found in Appendix B.

***

'Inventory Transaction Error Listing' (EMIR01)

When Produced

Whenever information is added, deleted, or modified on the Equipment Inventory Master File using the Equipment Inventory Form or Meter/Status Change Form.

Relevant Process(es)

ADDING EQUIPMENT TO THE FLEET

DELETING EQUIPMENT FROM THE FLEET

CHANGING EQUIPMENT INVENTORY DATA

CHANGING EQUIPMENT ODOMETER (OR HOURMETER) READING

DEACTIVATING (DEADLINING) EQUIPMENT

REACTIVATING EQUIPMENT

Contents

This report presents all inventory transactions in their data processing input formats. Any transactions that have been improperly submitted show asterisks under the fields in error. To the right of the asterisks is a message indicating the column numbers of the problem field, and a brief statement of the error condition. Counts are provided at the end of the report showing the number of transactions submitted to the system.

Organization

Transactions are listed by equipment number and transaction type.

Use

- To identify errors on the Equipment Inventory Form or the Meter/Status Change Form

***

'Inventory Update Error Listing' (EMIR02)

When Produced

Whenever information is added, deleted, or modified on the Equipment Inventory Master File using the Equipment Inventory Form or the Meter/Status Change Form.

Relevant Process(es)

ADDING EQUIPMENT TO THE FLEET

DELETING EQUIPMENT FROM THE FLEET

CHANGING EQUIPMENT INVENTORY DATA

CHANGING EQUIPMENT ODOMETER (OR HOURMETER) READING

DEACTIVATING (DEADLINING) EQUIPMENT

REACTIVATING EQUIPMENT

Contents

This report lists all transactions that cannot be processed because they are logically inconsistent with data already maintained by the system. Examples of logical inconsistencies include attempting to add a piece of equipment to the Master File that is already in the file, deleting or deactivating equipment that is not included in the file,

and so forth. Each erroneous input transaction is presented along with a message describing the problem condition.

Whether or not there are any logical errors in the data being processed, this report lists the number of pieces of equipment currently in the Equipment Inventory Master File, the number added, and the number deleted.

Organization

Transactions listed by equipment number and transaction type.

Use

- To identify logical errors in inventory transactions

***

'Fleet Additions' Report (EMIR03)

When Produced

Whenever the system is notified of new equipment added to the fleet.

Relevant Process(es)

ADDING EQUIPMENT TO THE FLEET

Contents

For each piece of equipment added to the fleet, the report displays all information initially recorded on the Equipment Inventory Form.

Organization

Information ordered according to equipment number.

Use

- To ensure that correct data is entered into the system.

***

'Fleet Data Modifications' Report (EMIR05)

When Produced

Whenever changes to equipment inventory data are submitted to the system on the Equipment Inventory Form or the Meter/Status Change Form.

Relevant Process(es)

CHANGING EQUIPMENT INVENTORY DATA

Contents

This report consists of one line for each data item modified. All data modified for one piece of equipment appears in sequence.

For each data change, the affected piece of equipment is identified. The report then lists the data field to be modified, previous contents of the field, and revised contents of the field.

Organization

Data changes presented in order according to equipment number.

Use

- To verify modifications in inventory data

***

'Inventory Master File Deletions' Report (EMIR07)

When Produced

Whenever an equipment record is dropped from the Equipment Inventory Master File. This occurs one month after the system is notified that equipment has been deleted from the fleet, or that equipment has been assigned to a different using organization within the jurisdiction.

Relevant Process(es)

DELETING EQUIPMENT FROM THE FLEET

Contents

A listing of equipment whose records have been dropped from the Master File. The report indicates whether equipment has been deleted from the fleet or reassigned to a different using organization.

Organization

Equipment listed according to equipment number.

Use

- To verify that appropriate records are dropped from the Equipment Inventory Master File

***

'Select Card Edit/Error Listing' (EMIR08)

When Produced

Whenever the Equipment Inventory Report Request Form is submitted to the Data Processing Agency.

Relevant Process(es)

REQUESTING EQUIPMENT INVENTORY DATA

Contents

Displays all information recorded on the 'Equipment Inventory Report' Request Form (i.e., information specifying pieces or groups of equipment for which inventory data is desired).

Asterisks appear under any field that has been improperly filled in (e.g., when alphabetic characters have been entered in a numeric field). To the right of the asterisks appears a brief explanation of the error condition. If there are no errors, no asterisks or error comments appear.

Organization

Material is sequenced in the order it appears on the 'Equipment Inventory Report' Request Form.

Use

- To identify errors on the 'Equipment Inventory Report' Request Form

2.1.5 EQUIPMENT INVENTORY MODULE

--Module Processes--

ADDING EQUIPMENT TO THE FLEET

Function

When new equipment is added to the fleet, basic inventory data about that equipment must be entered into the system, via the Equipment Inventory Form. Data submitted on this form is stored in the Equipment Inventory Master File, on a unique record created for each new piece of equipment. Until the completed Equipment Inventory Form is submitted, the system cannot process any transactions involving the new equipment (e.g., fuel issue, repairs, preventive maintenance.)

Inputs

- Equipment Inventory Form

Outputs

- 'Inventory Transaction Error Listing'
- 'Inventory Update Error Listing'
- 'Fleet Additions' Report

Procedure

Table 2.1-3 describes the step-by-step procedure to be followed to advise the system about equipment added to the fleet.

Table 2.1-3

Procedure For ADDING EQUIPMENT TO THE FLEET

Step	Agent	Activity
1.	Equipment Shop	Receives equipment
2.	Equipment Shop	Forwards information about equipment to Data Control Clerk
3.	Data Control Clerk	Fills out Equipment Inventory Form and submits this form to Data Processing Agency
4.	Data Processing Agency	Submits data on form to EMIS
5.	EMIS	Produces the 'Inventory Transaction Error Listing,' 'Inventory Update Error listing,' and 'Fleet Additions' report
6.	Data Processing Agency	Forwards listings and report to Data Control Clerk
7.	Data Control Clerk	Reviews error listings; verifies the 'Fleet Additions' report against data on Equipment Inventory Forms
	CONDITION: If, because of errors, the 'Fleet Additions' report does not list some or all of the equipment (i.e., the data is not entered into the system)	
8.	Data Control Clerk	Corrects errors on Equipment Inventory Form; sends corrected Form back to Data Processing Agency (Return to Step 4)

	CONDITION: If the data is entered in the system, but with errors,	
9.	Data Control Clerk	Initiates the process CHANGING EQUIPMENT INVENTORY DATA to correct the errors
10.	Data Control Clerk	Creates a file for each piece of equipment and files the Equipment Inventory Form therein; files the 'Fleet Additions' report in a separate file

***

DELETING EQUIPMENT FROM THE FLEET

Function

When a piece of equipment is permanently removed from the fleet, the system must be notified via the Meter/Status Change Form. When the form is processed, the system generates a report showing all data for that equipment currently maintained in the Equipment Inventory Master File. Thirty days later, the system drops the record maintained in the Equipment Inventory Master File for that piece of equipment.

If the system is inadvertently instructed to delete the wrong piece of equipment, the Data Processing Agency should be notified so that it may correct the error.*

Even after the record for a piece of equipment is dropped from the Master File, records of operating and maintenance history are maintained in other files for two additional years.

Inputs

- Meter/Status Change Form

Outputs

- 'Inventory Transaction Error Listing'
- 'Inventory Update Error Listing'
- 'Equipment Deletions' Report
- 'Inventory Master File Deletions' Report

---

*Error correction involves use of the Master File Maintenance Program and the Master File Maintenance Input Form. Data processing personnel should refer to Program Documentation, General Module, Volume I, Section 32.2 and Appendix B.

Procedure

Table 2.1-4 describes the step-by-step procedure required to notify the system about equipment deleted from the fleet.

***

CHANGING EQUIPMENT INVENTORY DATA

Function

This process updates data previously submitted to the system on the Equipment Inventory Form. The following are examples of situations requiring the process:

- Change of license plate number;
- Improvements added to equipment (e.g., installation of a two-way radio in a passenger vehicle);
- Change in billing rate for a piece of equipment; and
- Reassignment of a piece of equipment to a different organization.

To ensure accurate system reporting, changes in billing rates or organizational assignments must be submitted to the system promptly.

Inputs

- Equipment Inventory Form

Outputs

- 'Inventory Transaction Error Listing'
- 'Inventory Update Error Listing'
- 'Fleet Data Modifications' Report

Procedure

Table 2.1-5 describes the step-by-step procedure required to update inventory data.

Table 2.1-4

Procedure For DELETING EQUIPMENT FROM THE FLEET

Step	Agent	Activity
1.	Equipment Management Office	Removes equipment from the fleet; notifies Data Control Clerk
2.	Data Control Clerk	Completes the Meter/Status Change Form and submits it to the Data Processing Agency
3.	Data Processing Agency	Submits the data on the form to the EMIS
4.	EMIS	Produces the 'Inventory Transaction Error Listing,' the 'Inventory Update Error Listing', and the 'Equipment Deletions' report
5.	Data Processing Agency	Submits error listings and report to Data Control Clerk
6.	Data Control Clerk	Reviews error listings; verifies the 'Equipment Deletions' report against data on Meter/Status Change Forms
	CONDITION: If errors are found,	
7.	Data Control Clerk	Submits corrected Meter/Status Change Form to Data Processing Agency (Return to Step 3)
8.	Data Control Clerk	Forwards accurate 'Equipment Deletions' Report to Equipment Manager
9.	Equipment Manager	Reviews 'Equipment Deletions' report and returns to Data Control Clerk
10.	Data Control Clerk	Files 'Equipment Deletions' report

11.	EMIS	30 days following generation of 'Equipment Deletions' report, deletes the equipment record from the Master File; generates 'Inventory Master File Deletion' report (historical fuel and repair information is retained for two years in other system files)
12.	Data Processing Agency	Forwards the 'Inventory Master File Deletions' report to Data Control Clerk
13.	Data Control Clerk	Closes out file for equipment removed from the fleet

Table 2.1-5

Procedure For CHANGING EQUIPMENT INVENTORY DATA

Step	Agent	Activity
1.	Equipment Management Office	Determines equipment inventory data should be changed and notifies Data Control Clerk
2.	Data Control Clerk	Enters the appropriate change information on Equipment Inventory Form and submits form to Data Processing Agency
3.	Data Processing Agency	Submits data on form to EMIS
4.	EMIS	Produces the 'Inventory Transaction Error Listing,' 'Inventory Update Error Listing,' and the 'Fleet Inventory Data Modifications' report
5.	Data Processing Agency	Forwards listings and report to Data Control Clerk
6.	Data Control Clerk	Reviews error listings; verifies the 'Fleet Inventory Data Modifications' report against the Equipment Inventory Form
	CONDITION: If, because of errors, the 'Fleet Inventory Data Modifications' report does not show changes that should have been made, or shows incorrect changes,	
7.	Data Control Clerk	Corrects errors on Equipment Inventory Form; sends corrected form back to Data Processing Agency (Return to Step 3)
8.	Data Control Clerk	Files Equipment Inventory Form; files the 'Fleet Inventory Data Modifications' report

***

CHANGING EQUIPMENT ODOMETER (OR HOURMETER) READINGS

Function

Meter readings for all equipment enter the system via Fuel Transaction Records. For equipment billed on a rental basis, additional meter readings enter the system via the 'Monthly Meter Report'/Form.

Current equipment odometer (or hourmeter) readings are maintained in the Equipment Inventory Master File. These readings are updated at the end of each monthly reporting period by the last reading submitted to the system during the period.

Occasionally incorrect meter readings may enter the system due to:

- An inaccurate reading entered on a form;
- Turn-over of the meter;
- A broken meter.

Incorrect meter readings can disrupt system operations, since equipment performance evaluations, billing for rental equipment, and preventive maintenance scheduling are all based on these readings.

Meter readings can be corrected using the procedure for CHANGING EQUIPMENT ODOMETER OR HOURMETER READINGS.

Inputs

- Meter/Status Change Form

Outputs

- 'Inventory Transaction Error Listing'

- 'Inventory Update Error Listing'
- 'Fleet Data Modifications' Report

Procedure

Table 2.1-6 describes the step-by-step procedure to change incorrect meter readings.

***

DEACTIVATING (DEADLINING) EQUIPMENT

Function

Equipment may be deactivated--temporarily removed from service--due to the need for extensive repairs (deadlining), or due to a temporary equipment surplus. In addition, equipment slated for auction may be deactivated for several months before it is finally disposed of and deleted from the fleet.

Once a piece of equipment has been placed on deactivated status, the system will respond accordingly:

- The equipment will not be included in equipment performance evaluation reports and statistical reports.
- Transactions involving the equipment (e.g,, fueling or repairs) will be noted on error listings, to bring these transactions to the attention of system personnel.
- Agencies that pay a flat monthly rate for use of the equipment will not be billed for that amount. (Other expenses normally charged to the using agency will be billed).
- The equipment will not be scheduled for preventive maintenance.
- Every time equipment inventory transactions are processed, the system will generate a report listing all equipment that have been deactivated for more than one month. This equipment is brought to the attention of the equipment manager so that he may take appropriate action.

Table 2.1-6

Procedure For CHANGING EQUIPMENT ODOMETER
(OR HOURMETER) READING

Step	Agent	Activity
1.	Equipment Management Office	Determines the meter reading on a piece of equipment is invalid; notifies Data Control Clerk of the correct reading
2.	Data Control Clerk	Completes the Meter/Status Change Form with the correct meter reading and submits it to the Data Processing Agency
3.	Data Processing Agency	Submits the data on the form to the EMIS
4.	EMIS	Changes meter reading (if data is submitted correctly); produces the 'Inventory Transaction Error Listing,' the 'Inventory Update Error Listing,' and the 'Fleet Inventory Data Modifications' report
5.	Data Processing Agency	Submits error listings and 'Fleet Inventory Data Modifications' report to Data Control Clerk
6.	Data Control Clerk	Receives error listings, verifies the 'Fleet Inventory Data Modifications' report against the new meter reading reported by the Equipment Management Office
	CONDITION: If errors are found,	
7.	Data Control Clerk	Corrects errors on the Meter/Status Change Form and resubmits it to Data Processing Agency (Return to Step 3)
8.	Data Control Clerk	Files Meter/Status Change Form; files 'Fleet Inventory Data Modifications' report

Inputs

- Meter/Status Change Form

Outputs

- 'Inventory Transaction Error Listing'
- 'Inventory Update Error Listing'
- 'Fleet Data Modifications' Report
- 'Equipment Deactivated More Than One Month' Report

Procedure

Table 2.1-7 describes the step-by-step procedure to notify the system when equipment is deactivated (deadlined).

***

REACTIVATING EQUIPMENT

Function

When deactivated or deadlined equipment is returned to regular service, the REACTIVATING EQUIPMENT process is performed. Once the equipment is again placed on active status, the system will process all transactions in a normal fashion, and will include the equipment in all relevant reports.

Inputs

- Equipment Meter/Status Change Form

Outputs

- 'Inventory Transaction Error Listing'

Table 2.1-7

Procedure For DEACTIVATING (DEADLINING) EQUIPMENT

Step	Agent	Activity
1.	Equipment Management Office	Decides to deactivate (or deadline) a piece of equipment; informs Data Control Clerk
2.	Data Control Clerk	Completes the Meter/Status Change Form and submits it to the Data Processing Agency
3.	Data Processing Agency	Submits the data on the form to the EMIS
4.	EMIS	Produces the 'Inventory Transaction Error Listing,' the 'Inventory Update Error Listing,' and the 'Fleet Inventory Data Modifications' report
5.	Data Processing Agency	Submits error listings and 'Fleet Inventory Data Modifications' report to the Data Control Clerk
6.	Data Control Clerk	Review error listings; verifies the 'Fleet Inventory Data Modifications' report against data on the Meter/Status Change Form
	CONDITION: If errors are found,	
7.	Data Control Clerk	Resubmits corrected Meter/ Status Change Form to Data Processing Agency (Return to Step 3)
8.	Data Control Clerk	Files Meter/Status Change Form; files 'Fleet Inventory Data Modifications' report
9.	EMIS	When the equipment has been deactivated for 30 days or more, lists the equipment on the 'Equipment Deactivated More Than One Month' report. (This report is generated every time inventory transactions are processed.)

10.	Data Processing Agency	Forwards the 'Equipment Deactivated More Than One Month' report to Data Control Clerk
11.	Data Control Clerk	Brings report to the attention of the Equipment Manager
12.	Equipment Manager	Reviews list of deactivated equipment and takes appropriate action
13.	Data Control Clerk	Files report

- 'Equipment Update Error Report'
- 'Fleet Data Modifications' Report

Procedure

Table 2.1-8 describes the step-by-step procedure required to notify the system when equipment is reactivated.

***

REQUESTING EQUIPMENT INVENTORY DATA

Function

This process is used to obtain up-to-date equipment inventory data. The process generates summary or detailed information in response to requests from management. Information can be requested about a particular piece of equipment, class of equipment, all equipment assigned to a particular organization, or a particular class of equipment assigned to an organization.

When the system cannot respond to a request for inventory data, (because the information is not in the system), it generates the 'Equipment Inventory No-Match Report'.

Inputs

- Equipment Inventory Report Request Form

Outputs

- 'Select Card Edit/Error Listing'
- 'Equipment Inventory Summary Report'
- 'Equipment Inventory Detail Report'
- 'Equipment Inventory No-Match Report'

Table 2.1-8

Procedure For REACTIVATING EQUIPMENT

Step	Agent	Activity
1.	Equipment Management Office	Reactivates equipment; notifies Data Control Clerk
2.	Data Control Clerk	Completes the Meter/Status Change form with the reactivation information; submits the form to the Data Processing Agency
3.	Data Processing Agency	Submits the data on the forms to the EMIS
4.	EMIS	Produces the 'Inventory Transaction Error Listing,' the 'Inventory Update Error Listing,' and the 'Fleet Inventory Data Modifications' report
5.	Data Processing Agency	Forwards error listings and 'Fleet Inventory Data Modifications' report to Data Control Clerk
6.	Data Control Clerk	Reviews error listings; verifies the 'Fleet Inventory Data Modifications' report against data on the Meter/Status Change Form
	CONDITION: If errors are found,	
7.	Data Control Clerk	Submits corrected Meter/Status Change Form to Data Processing Agency (Return to Step 3)
8.	Data Control Clerk	Files Meter/Status Change Form; files 'Fleet Inventory Data Modifications' report

Procedure

Table 2.1-9 describes the step-by-step procedure for obtaining the 'Equipment Inventory Detail (or Summary) Report.'

***

REQUESTING THE FLEET INVENTORY ASSIGNMENT SUMMARY

Function

This process is used to obtain current information about the assignment of equipment to various using organizations. Although the system updates fleet assignment information monthly, the need for this information may arise only a few times a year.

Inputs

- Fleet Inventory Assignment Summary Request Form

Outputs

- 'Fleet Inventory Assignment Summary'

Procedure

Table 2.1-10 describes the step-by-step procedure for obtaining the 'Fleet Inventory Assignment Summary.'

Table 2.1-9

Procedure For REQUESTING EQUIPMENT INVENTORY DATA

Step	Agent	Activity
1.	Equipment Management Office	Submits requests for reports to Data Control Clerk
2.	Data Control Clerk	Fills out the Equipment Inventory Report Request Form; submits this form to Data Processing Agency
3.	Data Processing Agency	Submits the data on the form to the EMIS
4.	EMIS	Produces the 'Select Card Edit/Error Listing,' and any combination of the following three reports: • 'Equipment Inventory Detail Report' • 'Equipment Inventory Summary Report' • 'Equipment Inventory No-Match Report'
5.	Data Processing Agency	Forwards the edit/error listing and all reports to the Data Control Clerk
6.	Data Control Clerk	Checks edit/error listing and reports for accuracy
	CONDITION: If any errors are found,	
7.	Data Control Clerk	Submits necessary correction information to Data Processing Agency (Return to Step 3)
8.	Data Control Clerk	Forwards all correct reports to requesting personnel

Table 2.1-10

Procedure For REQUESTING THE 'FLEET INVENTORY ASSIGNMENT SUMMARY'

Step	Agent	Activity
1.	Equipment Management Office	Submits request for 'Fleet Inventory Assignment Summary' to Data Control Clerk
2.	Data Control Clerk	Submits 'Fleet Inventory Assignment Summary' Request Form to Data Processing Agency
3.	Data Processing Agency	Submits data on form to EMIS
4.	EMIS	Produces 'Fleet Inventory Assignment Summary'
5.	Data Processing Agency	Forwards 'Fleet Inventory Assignment Summary' to Data Control Clerk
6.	Data Control Clerk	Receives 'Fleet Inventory Assignment Summary' and forwards it to the authorized requesting personnel in the Equipment Management Office
7.	Equipment Management Office	Uses 'Fleet Inventory Assignment Summary' as needed

2.2 FUEL MODULE

2.2.1 --Module Overview--

Module Operations

The Fuel Module monitors fuel use and equipment mileage (or hourage). Whenever fuel is dispensed to equipment at a government fueling facility, the particulars of the transaction are recorded. Transaction records provide the system with data about commodities dispensed--fuel, oil, and miscellaneous--as well as current odometer (or hourmeter) readings for equipment receiving fuel. Periodically fuel pump readings are submitted to the system so that actual quantities of fuel dispensed can be determined. The system is also supplied with up-to-date unit cost figures for commodities dispensed, so that the costs associated with each transaction can be calculated. These figures are established by the jurisdiction.

Basic fueling data--contained in individual transaction records--is accumulated in a file called the Month-to-Date Fuel File. The system uses data in this field to prepare most fuel module reports. At the end of each month, the system totals fuel transaction data for each piece of equipment (calculating total commodities used, costs, and mileage for the month). This summary data is entered on records on the Fuel History File, a file which contains two years of monthly summary data for each piece of equipment. The Month-to-Date Fuel File is cleared at the end of each month. However, the detailed transaction data contained in that file is recorded on a magnetic tape that can be saved for reference by the jurisdiction.

The equipment management system uses fueling data for the following purposes:

- To monitor irregularities in fuel transactions;

- To monitor discrepancies between authorized and actual quantities of fuel dispensed;
- To determine appropriate charges to agencies using equipment; and
- To monitor equipment performance (on the basis of gas mileage).

Input Data

The Fuel Module receives data from several sources. Fuel transaction data is recorded on fuel tickets, fuel log sheets, or automated dispensing devices (the mode of data capture is a local option). Transaction records are usually collected daily. Fuel pump readings are recorded on a form submitted weekly. (Each pump is assigned a unique number for identification purposes). Adjustments to unit cost rates for each type of fuel, oil, hydraulic fluid, transmission fluid, and antifreeze are submitted by the equipment manager, and can be changed at any time.

Output Information

The Fuel Module produces a weekly fuel 'Pump Reconciliation Report' to help account for all fuel dispensed. A detailed report is available listing all fuel transactions at any given pump during a specified time period. Also available is a report listing all fuel transactions involving specified equipment during a given time period. For each vehicle included in the report, gas mileage figures for the period are shown.

Many jurisdictions find the information maintained in the Fuel History File of considerable value in preparing intra-jurisdiction fuel allocation programs, and in analyzing fuel consumption and costs. Jurisdictions wishing to use information in this file must access the data with locally developed computer programs appropriate to the proposed use.

Module Processes

The objective of the Fuel Module are accomplished in a number of discrete, but related processes. Processes provide the system with data about fueling operations, and instruct the system to produce reports containing needed information. Each process involves a series of actors in the following types of activities:

- Filling out forms;
- Batching and transporting forms;
- Processing data by computer;
- Producing accurate system reports; and
- Transmitting reports to appropriate parties.

The Fuel Module includes the processes shown in Table 2.2-1.

Table 2.2-1

FUEL MODULE PROCESSES

• DISPENSING FUEL AND OTHER COMMODITIES	• Performed whenever fuel, oil, transmission fluid, hydraulic fluid, or antifreeze is dispensed to a piece of equipment
• RECONCILING FUEL TRANSACTION RECORDS AND PUMP READINGS	• Performed weekly after the processing of all fuel transactions (DISPENSING FUEL AND OTHER COMMODITIES) and submission of weekly pump readings
• CHANGING THE PRICE OF FUEL AND OTHER COMMODITIES	• Performed whenever the Equipment Manager decides to change unit costs applied to fuel and other commodities dispensed at the pump
• REQUESTING THE 'FUEL TRANSACTIONS BY PUMP NUMBER' REPORT	• Performed whenever the report is requested
• REQUESTING THE 'FUEL TRANSACTIONS BY EQUIPMENT NUMBER' REPORT	• Performed whenever the report is requested

2.2 FUEL MODULE

2.2.2 --Module Input Forms--

Fuel Module Data is collected on three forms--the Fuel Transaction Record Form, the Fuel Pump Reading Form, and the Fueling Commodity Cost Change Form. The Fuel Transaction Record Form supplies the system with data regarding the dispersing of fuel and other commodities to individual pieces of equipment. Weekly fuel pump readings are recorded and submitted to the system on the Fuel Pump Reading Form. Unit costs for fuel and other commodities dispensed at the pump are supplied on the Fuel Commodity Cost Change Form.

Two other forms are used to request system reports containing information about fuel transactions. The forms and their use are described in Table 2.2-2. Copies of all forms can be found in Appendix A.

Table 2.2-2

FUEL MODULE INPUTS

Form Title	Purpose	Associated Processes	Responsibility For Completion	Filing and Retention
Fuel Transaction Record Form (EMFD01)	To record data regarding commodities dispensed at the pump, including fuels, oil, hydraulic fluid, antifreeze, and transmission fluid. The form also records current odometer (or hourmeter) readings for equipment receiving fuel.	• DISPENSING FUEL AND OTHER COMMODITIES • RECONCILING FUEL TRANSACTIONS AND PUMP READINGS	Varies with jurisdiction	Forms may be discarded when data has been processed satisfactorily
Fuel Pump Reading Form (EMFD02)	To record fuel pump readings on a weekly basis	RECONCILING FUEL TRANSACTIONS WITH PUMP READINGS	Varies with jurisdiction	May be discarded following completion of the reconciliation process; however, the forms may be saved for use in analyzing fuel needs
Fuel Commodity Cost Form (EMFD05)	To notify the system of changes in the costing rates for commodities dispensed at the pump, including fuels, oil, hydraulic fluid, antifreeze, and transmission fluid	CHANGING THE PRICE OF A FUELING COMMODITY	Completed by the Data Control Clerk on instructions from the Equipment Manager	May be filed by the Data Control Clerk for reference purposes (the form records date of, and authorizing signature for, the cost charge)
'Fuel Transactions By Equipment Number' Request Form (EMFD03)	To request the 'Fuel Transactions By Equipment Number' Report	REQUESTING THE 'FUEL TRANSACTIONS BY EQUIPMENT NUMBER' REPORT	Completed by the Data Control Clerk when requested by the Equipment Manager	Form may be discarded when report is received
'Fuel Transactions By Pump Number' Request Form (EMFD04)	To request the 'Fuel Transactions By Pump Number' Report	REQUESTING THE 'FUEL TRANSACTIONS BY PUMP NUMBER' REPORT	Completed by the Data Control Clerk when requested by the Equipment Manager	Form may be discarded when report is received

FUEL MODULE

2.2.3 --Module Outputs: Management/Operations Reports--

Copies of all reports can be found in Appendix B.

***

'Pump Reconciliation Report' (EMFR02)

When Produced

Weekly (unless interval changed by jurisdiction)

Relevant Process(es)

RECONCILING FUEL TRANSACTION RECORDS AND PUMP READINGS (must be preceded by the processing of all fuel transactions for the period; refer to DISPENSING FUEL AND OTHER COMMODITIES).

Contents

Page 1 of the report lists for each pump:

- Actual gallons dispensed according to pump readings;
- Gallons dispensed according to fuel transaction records; and
- The difference between these two figures.

Also noted are those pumps for which no pump reading or no fuel transactions were submitted to the system.

Page 2 of the report contains summary information regarding each type of fuel dispensed (e.g., regular, low lead, high test, diesel fuel, and kerosene). Information includes total quantity dispensed, quantity reported on fuel transaction records, and the difference between these quantities, along with the costs associated with each of the fuel quantities listed.

Organization

Page 1 material sequenced by pump number;

Page 2 material sequenced by fuel type.

Use

- To account for dispensed fuel
- To determine fuel purchasing needs

***

'Fuel Transactions By Pump Number' (EMFR06)

When Produced

On request

Relevant Process(es)

REQUESTING THE 'FUEL TRANSACTIONS BY PUMP NUMBER' REPORT

Contents

Information on fuel transactions at specified pumps. Information can be generated for one or more pumps in the jurisdiction. For each pump specified, the report lists all fuel transactions that occured during a designated reporting period. The report also lists total quantities and costs of the fuel and commodities dispensed at each specified pump during the reporting period.

The selection of a reporting period is limited only by the length of time a jurisdiction retains detailed fuel transaction data.

Organization

Material is sequenced by pump number, transaction date, and fuel transaction record number.

Use

- To account for fuel dispensed.
- To use as an audit trail for cost accounting records.
- To determine which pumps are most often used, to support decisions regarding purchasing of fuel and allocation of fuel to various fueling sites.
- To analyze fueling activities and operations.

***

'Fuel Transactions By Equipment Number' (EMFR05)

When Produced

On request

Relevant Process(es)

REQUESTING THE 'FUEL TRANSACTIONS BY EQUIPMENT NUMBER' REPORT

Contents

Data on fuel transactons for specified equipment. Data can be generated for one or more pieces of equipment or for all fleet equipment. For each piece of equipment specified, the report lists all fuel transactions, as well as gas mileage figures (in miles per gallon), for a designated reporting period.

The selection of a reporting period is limited only by the length of time a jurisdiction retains detailed fuel transaction data.

Organization

Material is sequenced by equipment number, transaction date, and odometer (or hourmeter) reading.

Use

- To account for fuel dispensed;
- To evaluate the performance of individual equipment (on the basis of gas mileage);
- To use as an audit trail for direct charge billings and cost accounting records.

FUEL MODULE

2.2.4 --Module Outputs: Data Control Reports--

Copies of all reports can be found in Appendix B.

***

'Fuel Transaction Error Listing' (EMFR01)

When Produced

Whenever fuel transaction records are processed by the system.

Relevant Process(es)

DISPENSING FUEL AND OTHER COMMODITIES

Contents

A list of all submitted fuel transactions in their data processing input formats. Any transactions that have been improperly submitted show asterisks under the fields in error. To the right of the asterisks is a message indicating the column numbers of the problem field, and a brief statement of the error condition.

The report also lists current costing rates for fuel and other commodities dispensed at the pump.

Finally, the report lists the total number of transactions processed, and the number of errors.

Organization

Material sequenced by equipment number and odometer (or hourmeter) reading.

Use

- To identify fuel transaction errors
- To check current fuel/commodity costing rates

FUEL MODULE

2.2.5 --Module Processes--

DISPENSING FUEL AND OTHER COMMODITIES

Function

In order to keep track of operating costs, the system must be informed of fuel, oil, hydraulic fluid, transmission fluid, and antifreeze dispensed to each piece of equipment. Data regarding every fuel transaction must be recorded and submitted to the system. A fuel transaction occurs each time a piece of equipment receives fuel, oil, hydraulic fluid, transmission fluid, or antifreeze.

Fuel transaction data may be recorded in any number of ways, at the discretion of the jurisdiction. Transactions may be recorded on individual fuel tickets, or listed sequentially on a fuel sheet. Alternatively, data may be recorded automatically with special fuel dispensing equipment. Fuel transaction records must include the identification number of the dispensing pump as well as the quantity dispensed. The system costs out all fuel transactions. When using agencies are billed for fuel and other commodities dispensed to their assigned equipment, charges are based on fuel transaction data. This data also updates records in the Fuel History File and the Equipment Inventory Master File.

Fuel transaction records may be processed as often as the jurisdiction finds convenient. Data will be accumulated by the system for use in RECONCILING FUEL TRANSACTIONS AND PUMP READINGS. Reconciliation is usually performed for a weekly period. All transactions for any reconciliation period must be processed before RECONCILING FUEL TRANSACTIONS AND PUMP READINGS.

Inputs

- Fuel Transaction Record Forms

Outputs

- 'Fuel Transaction Error Listing'

Procedure

Table 2.2-3 describes the step-by-step procedure used to record and process fuel transaction data.

***

RECONCILING FUEL TRANSACTION RECORDS AND PUMP READINGS

Function

In order to ensure that all dispensed fuel is accounted for in recorded fuel transactions, quantities of fuel recorded on fuel transaction records must be compared with actual quantities of fuel dispensed according to pump readings. To facilitate this comparison, each fuel pump is identified by a unique number. Whenever fuel is dispensed from a pump, the identification code for that pump is entered on the corresponding transaction record. The system compares the total amount of fuel dispensed at a particular pump according to fuel transaction records with the amount of fuel dispensed according to pump reading. Pump readings are taken at the beginning and the end of the reconciliation period.

RECONCILING FUEL TRANSACTIONS AND PUMP READINGS will usually be performed on a weekly basis. Before reconciliation, all fuel transaction records for the week must be processed (see DISPENSING FUEL AND OTHER COMMODITIES), and weekly pump readings submitted.

Table 2.2-3

Procedure For DISPENSING FUEL AND OTHER COMMODITIES

Step	Agent	Activity
1.	Authorized Employees	Bring equipment to fueling location for fuel, oil, hydraulic fluid, transmission fluid, antifreeze
2.	Pump Attendant/ Authorized Employee	Pumps fuel and adds any necessary lubricants or commodities
3.	Pump Attendant/ Authorized Employee	Fills out Fuel Transaction Record Form with all necessary information
4.	Data Control Clerk	Batches Fuel Transaction Records by pump number and date
5.	Data Control Clerk	Scans input forms for obvious errors, and makes appropriate corrections
6.	Data Control Clerk	Sends forms to Data Processing Agency
7.	Data Processing Agency	Submits data on forms to EMIS
8.	EMIS	Processes data and produces the 'Fuel Transaction Error Listing'
9.	Data Processing Agency	Sends forms and the 'Fuel Transaction Error Listing' to Data Control Clerk
10.	Data Control Clerk	Checks the 'Fuel Transaction Error Listing'
	CONDITION: If errors are found,	
11.	Data Control Clerk	Corrects information and resubmits corrected forms to Data Processing Agency when new transactions are processed (Return to Step 7)
12.	Data Control Clerk	Verifies all data is correct and files the forms and the 'Fuel Transaction Error Listing'

For any given reconciliation period (usually a week), the system takes into consideration all transactions through the last full day of the period. Pump readings must therefore be taken after the last transaction on this final day. When fuel pumps close down before midnight, a reading might be taken when the pumps close, or else before they open the next day. Readings on pumps open twenty-four (24) hours a day must be taken at midnight on the last day of the reconciliation period, since the system will attempt to reconcile all transactions for that day.

Inputs

- Fuel Pump Reading Form (Fuel transaction data will have entered the system in the process for DISPENSING FUEL AND OTHER COMMODITIES)

Outputs

- 'Pump Reconciliation Report'

Procedure

Table 2.2-4 describes the step-by-step procedure for reconciling amounts of fuel dispensed according to transaction records with amounts dispensed according to pump readings.

***

CHANGING THE PRICE OF FUEL AND OTHER COMMODITIES

Function

In order for the system to keep an accurate record of operating costs for fleet equipment, and also for billing purposes, the equipment management system must be

Table 2.2-4

Procedure For RECONCILING FUEL TRANSACTION RECORDS
AND PUMP READINGS

Step	Agent	Activity
1.	Pump Attendant/ Authorized Employee	Records fuel pump readings for the week on the Fuel Pump Reading Form
2.	Pump Attendant/ Authorized Employee	Submits the form to Data Control Clerk
3.	Data Control Clerk	Forwards forms to Data Processing Agency only after verifying that all Fuel Transaction Records for the week have been processed (see DISPENSING FUEL AND OTHER COMMODITIES)
4.	Data Processing Agency	Submits data on the forms to EMIS
5.	EMIS	Processes the data and produces the 'Pump Reconciliation Report'
6.	Data Processing Agency	Forwards Pump Reading Forms and the 'Pump Reconciliation Report' to Data Control Clerk
7.	Data Control Clerk	Reviews the report for errors
	CONDITION: If errors are listed on the Report, then:	
8.	Data Control Clerk	Corrects Pump Reading Forms and resubmits to Data Processing Agency (Return to Step 4)
9.	Data Control Clerk	Forwards error free report to the Equipment Manager.
10.	Equipment Manager	Uses the report for appropriate management decisions
11.	Equipment Manager	Returns report to Data Control Clerk
12.	Data Control Clerk	Files 'Pump Reconciliation Report' and Pump Reading Forms

supplied with the unit costs to be applied to fuel, oil, hydraulic fluid, transmission fluid, and antifreeze.

New rates can be entered into the system at any time, at the instruction of the Equipment Manager. Fuels and other commodities dispensed at the pumps will be costed at the rate most recently submitted to the system.

Inputs

- Fuel/Commodity Cost Change Form

Outputs

- None (updated rates are listed on the 'Fuel Transaction Error Listing')

Procedure

Table 2.2-5 describes the step-by-step procedure for adjusting prices for fuel, oil, hydraulic fluid, transmission fluid and antifreeze.

***

REQUESTING THE 'FUEL TRANSACTIONS BY PUMP NUMBER' REPORT

Function

The Equipment Management System can produce a list of fuel transactions that took place at particular fuel pumps occuring during any specified period (assuming the jurisdiction has retained detailed fuel transaction data for that period). The Equipment Manager should request the 'Fuel Transactions by Pump Number' Report, indicating the appropriate pump number(s) and time period(s).

Table 2.2-5

Procedure For CHANGING THE PRICE OF FUEL AND COMMODITIES

Step	Agent	Activity
1.	Equipment Management Office	Determines that the costing rate of a fuel or other commodity must be changed
2.	Equipment Management Office	Fills out the Fuel/Commodity Cost Change Form, and submits form to Data Control Clerk
3.	Data Control Clerk	Checks form for any errors and submits data to Data Processing Agency
4.	Data Processing Agency	Submits data on the form to EMIS
5.	Data Processing Agency	Returns form to Data Control Clerk, indicating the price has been changed
6.	Data Control Clerk	Files the Fuel/Commodity Cost Change Form, and checks to see that future 'Fuel Transaction Error Listings' show the new prices

Inputs

- Fuel Transaction by Pump Number Request Form

Outputs

- 'Fuel Transactions by Pump Number' Report

Procedure

Table 2.2-6 describes the step-by-step procedure for obtaining the 'Fuel Transaction by Pump Number' Report.

***

REQUESTING THE 'FUEL TRANSACTIONS BY EQUIPMENT NUMBER' REPORT

Function

The Equipment Management System can produce a list of all fuel transactions involving specified equipment occuring during designated time period (assuming the jurisdiction has retained detailed fuel transaction data for that period). The Equipment Manager should request the 'Fuel Transaction by Equipment Number' Report, indicating the appropriate equipment number(s) and time period(s).

Inputs

- Fuel Transactions by Equipment Number Request Form

Outputs

- 'Fuel Transactions by Equipment Number' Report

Table 2.2-6

Procedure For REQUESTING THE 'FUEL TRANSACTIONS BY PUMP NUMBER' REPORT

Step	Agent	Activity
1.	Equipment Manager	Determines the need for the 'Fuel Transactions by Pump Number' Report
2.	Equipment Management Office	Fills out the Fuel Transactions by Pump Number Request Form and forwards it to Data Control Clerk
3.	Data Control Clerk	Checks the form for any errors and submits it to the Data Processing Agency
4.	Data Processing Agency	Submits data on the form to EMIS
5.	EMIS	Produces the 'Fuel Transaction by Pump Number' Report
6.	Data Processing Agency	Returns the request form and report to Data Control Clerk
7.	Data Control Clerk	Verifies the report is accurate and forwards the report to the Equipment Management Office
8.	Equipment Management Office	Uses the report for decision making, and files for future reference

Procedure

Table 2.2-7 describes the step-by-step procedure for obtaining the 'Fuel Transactions by Equipment Number' Report.

Table 2.2-7

Procedure For REQUESTING THE 'FUEL TRANSACTIONS BY EQUIPMENT NUMBER' REPORT

Step	Agent	Activity
1.	Equipment Manager	Determines the need for the 'Fuel Transaction by Equipment Number' Report
2.	Equipment Management Office Office	Fills out the Fuel Transactions by Equipment Number Request Form and forwards it to Data Control Clerk
3.	Data Control Clerk	Checks the form for any errors and submits it to the Data Processing Agency
4.	Data Processing Agency	Submits the data on the form to the EMIS
5.	EMIS	Produces the 'Fuel Transaction by Equipment Number' Report
6.	Data Processing Agency	Returns the request form and report to Data Control Clerk
7.	Data Control Clerk	Verifies the report is accurate and forwards the report to the Equipment Management Office
8.	Equipment Management Office	Uses the report for decision making and files for future reference

2.3 REPAIR MODULE

2.3.1 --Module Overview--

Module Operations

The Repair Module monitors all fleet repair operations, and provides information crucial to the efficient management of the fleet. Repair Orders supply the system with answers to the following questions:

- Why was the equipment brought in for work?
- What type of work was done?
- Who did the work?
- What was the cost of parts and commercial work?
- How long was the piece of equipment out of service?

The Equipment Management Office supplies the system with the rates to be applied to the labor of each shop employee, for billing and/or accounting purposes.

Repair Orders are processed daily and repair data accumulated in the Month-to-Date Repair Order File. At the end of a monthly reporting period, repair data is consolidated and used to determine charges to agencies that are billed directly for repairs to their assigned equipment. This same monthly data updates equipment histories maintained in the Equipment Inventory Master File. Finally, consolidated repair data is entered in the Repair Order History File, which maintains two years of repair data. The system uses data in this file to produce most Repair Module reports, and to prepare several reports for the General Module.

Input Data

The Repair Module requires data from two sources: from the repair shop and

from the Equipment Management Office. Repair shops provide all Repair Order data on a form (or forms) of their own design, while the Equipment Management Office supplies labor rates.

Repair Orders can be processed at any time, but all Repair Orders for a given monthly period must be processed before reports are generated. The Equipment Management Office can supply updated employee labor rates at any time.

Output Information

The Repair Module produces information about individual equipment repair histories, activities in each repair shop, and fleetwide repair characteristics. Equipment management personnel can use this information to compare the repair characteristics of individual pieces of equipment, to compare characteristics of different types of equipment, to compare repair activities in different shops, and to compare past and present repair activities.

Module Processes

The objectives of the Repair Module are accomplished in a number of discrete, but related processes. Processes provide the system with repair-related data, and instruct the system to produce reports containing needed information. Each process involves a series of actors in the following activities:

- Filling out forms;
- Batching and transporting forms;
- Processing data by computer;
- Producing accurate system reports; and
- Transmitting reports to appropriate parties.

Repair Module operations include the processes shown in Table 2.3-1.

Table 2.3-1

REPAIR MODULE PROCESSES

• REPAIRING EQUIPMENT	• Performed when equipment is brought in for maintenance or repairs.
• SUPPLYING SHOP EMPLOYEE RATES	• Performed when shop personnel change, and when the Equipment Management Office changes shop labor rates for one or more employees.
• REQUESTING THE 'MAINTENANCE AND REPAIR ACTIVITY LISTING'	• Performed when the 'Maintenance and Repair Activity Listing' is requested

REPAIR MODULE

2.3.2 --Module Input Forms--

Repair Module data is collected on two forms--the Repair Order Form and the Shop Employee Rate Form. The Repair Order Form* contains all data on repairs. The Shop Employee Rate Form sets hourly rates for each mechanic (or a flat rate for all repair labor which determines the cost of labor expended on repairs). One additional form is used to request individual repair histories for equipment.

The forms and their use are described in Table 2.3-2. Copies of all forms can be found in Appendix A.

*The Repair Order Form suggested in Appendix A may be adapted to local needs. Repair Order data may be submitted on more than one form.

Table 2.3-2

REPAIR MODULE INPUTS

Form Title	Purpose	Associated Processes	Responsibility For Completion	Filing and Retention
Repair Order Form (EMRD01)	To record repair and maintenance data	• REPAIRING EQUIPMENT • PERFORMING PREVENTIVE MAINTENANCE	Varies with jurisdiction	Filed in the repair shop; a copy may be filed in the Equipment Management Office
Employee Rate Setting Form (EMRD03)	To notify the system of changes in repair personnel and changes in the rates for repair labor.	• SETTING EMPLOYEE HOURLY RATES	Completed by the Data Control Clerk	
'Maintenance and Repair Activity Listing' Request Form (EMRD02)	To request the 'Maintenance and Repair Activity Listing'	• REQUESTING THE 'MAINTENANCE AND REPAIR ACTIVITY LISTING'	Completed by the Data Control Clerk at the request of the Equipment Manager	Discarded when report has been validated

REPAIR MODULE

2.3.3 --Module Outputs: Management/Operations Reports--

Copies of all reports can be found in Appendix B.

***

'Maintenance and Repair Activity Listing' (EMRR07)

When Produced

On request

Relevant Process(es)

REQUESTING THE 'MAINTENANCE AND REPAIR ACTIVITY LISTING'

Contents

Information about all maintenance and repairs performed on a particular piece (or pieces) of equipment during a specified period of time. Up to two years of information is available. On the report form the equipment managers must specify the equipment, and the time period, in which they are interested.

The report provides relevant information about the equipment, along with the following information for each type of repair and maintenance performed:

- Labor hours and cost;
- Parts cost;
- Commercial cost; and
- Total cost.

In addition, the report shows repair and maintenance totals for the reporting period, and for the life of the equipment to date. The report also lists the cost per mile

(or hour) for maintenance and repairs to date (total maintenance and repair costs to date divided by total mileage (or hourage) to date).

Organization

Information organized by equipment number, repair date, and repair type.

Use

- As an audit trail for billing and cost accounting
- To determine which equipment should be replaced (by a review of repair history)
- To aid in the diagnosis current repair problems (by a review of repair history)
- To justify the purchase of replacement equipment

***

'Cause of Repair Report' (EMRR13)

When Produced

At the end of each monthly reporting period.

Relevant Process(es)

None

Contents

Comparative and historical information about the reasons for, and the costs of, all maintenance and repair work performed on fleet equipment. The report presents aggregate information for each major APWA equipment class on two pages of printout. Information is provided for the following time intervals:

- The monthly period for which the report is generated;
- The previous monthly reporting period;
- The year-to-date; and
- The previous year-to-date.

Under the heading "Cause of Repair"* the report lists each possible reason for repair or maintenance work (e.g., breakdown, accident, preventive maintenance, State Inspection). The number of repairs associated with each "Cause of Repair" is recorded on the report, along with labor hours and labor costs expended on those repairs. In addition, numbers of repairs, labor hours, and labor costs are each shown as a percentage of the relevant total.

Organization

Material organized by APWA class code (first two characters only), and cause of repair.

Use

- To develop fleetwide repair strategies, on the basis of trends identified in the report.
- To evaluate the success of fleetwide repair strategies, on the basis of comparisons provided by the report.
- To identify high cost factors (e.g., high breakdown rate for a particular type of vehicle).
- To evaluate the success of the Preventive Maintenance program (e.g., are there fewer breakdowns fleetwide?).
- To evaluate the equipment operation training and safety program (e.g., are accidents reduced fleetwide?).

*Each "Cause of Repair" corresponds to a "Reason Brought In" listed on the Repair Order.

***

'Shop Performance Report' (EMRR11)

When Produced

At the end of the monthly reporting period

Relevant Process(es)

None

Contents

Comparative and historical information about shop performance. Information is provided for each shop, for each of the following time intervals:

- The monthly period for which the report is generated;
- The previous monthly reporting period;
- The year-to-date; and
- The previous year-to-date.

The report includes the following performance statistics:

- Average number of labor hours per repair order;
- Average total cost per Repair Order;
- Percentage of repairs completed in 24 hours; and
- Percentage of repairs completed in 24-48 hours.

In addition the report lists total labor hours; total expenditures for labor, parts, and commercial work; total number of repair orders; and the number of Preventive Maintenance activities, road calls, scheduled repairs, unscheduled repairs, and emergency repairs.

Organization

Material presented by repair shop.

Use

- To evaluate the adequacy of shop manning levels (e.g., is there a backlog of repairs?)
- To evaluate shop productivity trends (e.g., are repairs requiring more or fewer labor hours, on the average?)

***

'Shop Performance Analysis By Type Of Repair' Report (EMRR12)

When Produced

At the end of each monthly reporting period.

Relevant Process(es)

None

Contents

Comparative and historical information about repair activities in each shop. Information is provided for each of the following time intervals:

- The monthly period for which the report is generated;
- The previous monthly reporting period;
- The year-to-date; and
- The previous year-to-date.

The report presents information about each type of repair performed (e.g., brakes, clutch, cooling system, diagnosis/road testing).

For each repair type, the report provides the following:

- The number of Repair Orders showing repair work of this type;
- The number of scheduled (as opposed to unscheduled or emergency) repairs;
- The number of labor hours expended for this type of repair; and
- Costs associated with this repair type (labor, parts, commercial, and total costs).

Organization

Material presented in order by repair shop, and type of repair.

Use

- To identify high cost factors (e.g., types of repairs with high labor costs, or a high number of emergency repairs of a particular type)
- Developing repair strategies to reduce high cost factors, or to reduce the frequency of emergency repair types
- To identify trends in repair types (e.g., which types of repairs are performed more frequently, or less frequently, in each shop?)
- To evaluate shop manning levels (e.g., can the shop staff handle current repair loads?)

REPAIR MODULE

2.3.4 --Module Outputs: Data Control Reports--

Copies of all reports can be found in Appendix B.

***

'Repair Order Transaction Error Listing' (EMRR01)

When Produced

Whenever Repair Orders are processed by the system.

Relevant Process(es)

REPAIRING EQUIPMENT

Contents

A list of all repair transactions submitted to the system (each Repair Order constitutes one transaction). All repair data is shown in its data processing input format. Asterisks appear under fields containing improper or erroneous data. To the right of asterisks is a message indicating the column number of the problem field, and a brief statement of the error condition.

Organization

Transactions listed by equipment number and Repair Order number.

Use

- To identify data errors on Repair Orders

REPAIR MODULE

2.3.5 --Module Processes--

REPAIRING EQUIPMENT

Function

Repair and maintenance activities constitute the major expense of maintaining a fleet. In order to keep track of repair operations, the system must be supplied with data regarding all repairs performed on equipment. For each repair, the following types of data are required:

- Identification of the piece of equipment;
- Labor hours expended;
- Reason for work (e.g, breakdown, preventive maintenance, state inspection);
- Work Class (e.g., scheduled, non-scheduled, emergency);
- Type of repair (e.g., brakes, clutch, cooling system, diagnosis road testing); and
- Time out of service (downtime).

The equipment management system allows for variations in the format of the basic Repair Order, as long as the required data is provided. Similarly, the procedure for completing a Repair Order may be tailored to shop operations. To ensure consistent and accurate completion of Repair Orders, a professional service writer should enter on the form all data except for that which a mechanic or parts man supplies. The latter should provide hours worked, repair types, and parts costs.

Repair Orders should be routed to the Data Control Clerk whenever repairs are completed; the system can process Repair Orders at any time. On the closing date for

a monthly reporting period, all Repair Orders must be closed out (whether or not repairs are completed) and forwarded to Data Control. This enables the system to account for all repair work for the month. For each incomplete repair job, a service writer prepares a continuation Repair Order.

Inputs

- Repair Orders

Outputs

- 'Repair Order Transaction Error Listing'

Procedure

Table 2.3-3 describes the step-by-step procedure to fill out and process Repair Orders.

***

SUPPLYING SHOP EMPLOYEE RATES

Function

The equipment management system calculates labor costs for each repair transaction on the basis of labor hours expended and shop employee labor rates. Shop employees record hours worked on Repair Orders submitted to the system, while the Equipment Management Office supplies the system with labor rates for each employee. Rates established by the Equipment Management Office reflect accounting practices in the jurisdiction, and may not correspond to actual hourly wages.

Shop employee rates are submitted on the Shop Employee Rate Form. The form

Table 2.3-3

Procedure For REPAIRING EQUIPMENT

Step	Agent	Activity
1.	Using Agency	Bring(s) equipment to the shop for repairs
2.	Service Writer	Fill(s) in the basic repair information on Repair Order
3.	Shop Foreman	Assigns repair work to mechanic
4.	Mechanic	Enters the following information on the Repair Order • Employee number and hours worked on each repair type • Any parts used, their cost, and the associated repair type
5.	Service Writer	Closes out the repair order when work is completed, or when the cutoff date for a monthly reporting period is reached. A continuation Repair Order must be filled out for each repair incomplete at the end of a reporting period
6.	Service Writer	Forwards completed Repair Orders to the Data Control Clerk
7.	Data Control Clerk	Checks Repair Orders for any errors and submits forms to the Data Processing Agency
8.	Data Processing Agency	Submits data on Repair Orders to the EMIS
9.	EMIS	Processes the data and produces the 'Repair Order Transaction Error Listing'
10.	Data Processing Agency	Returns the Repair Orders and the 'Repair Order Transaction Error Listing' to the Data Control Clerk

11.	Data Control Clerk	Checks the report for any errors
	CONDITION: If errors are listed,	
12.	Data Control Clerk	Investigates errors and resubmits corrected Repair Orders to the Data Processing Agency (Return to Step 8)
13.	Data Control Clerk	Files error listing according to jurisdiction requirements; returns Repair Orders to the repair shop for filing; may file Repair Order copy in Equipment Management Office

should be completed whenever rates must be established for new employees and whenever present rates for individual employees must be changed. The form should also be used to delete rate information for employees no longer with the jurisdiction.

Inputs

- Shop Employee Rate Form

Outputs

None

Procedure

Table 2.3-4 describes the step-by-step procedure for supplying shop employee rate information.

***

REQUESTING THE 'MAINTENANCE AND REPAIR ACTIVITY LISTING'

Function

The equipment management system can produce information about all repairs and maintenance performed on a particular piece (or pieces) of equipment during a specific period of time. Equipment Managers should request the 'Maintenance and Repair Activity Listing' specifying the equipment, and the time period, in which they are interested.

Inputs

- Maintenance and Repair Activity Listing Request Form

Table 2.3-4

Procedure For SUPPLYING SHOP EMPLOYEE RATES

Step	Agent	Activity
1.	Equipment Management Office	Sets labor rate for new shop employee, changes labor rate for present shop employee, or identifies an employee no longer working in the shop
2.	Equipment Management Office	Fills out the Shop Employee Rate Form and submits it to the Data Control Clerk
3.	Data Control Clerk	Checks the data and sends form to the Data Processing Agency
4.	Data Processing Agency	Submits data on the form to EMIS, when processing Repair Orders
5.	Data Processing Agency	Returns the Shop Employee Rate Form to Data Control Center, indicating that the change is accomplished
6.	Data Control Clerk	Files the form for future reference

Outputs

- 'Maintenance and Repair Activity Listing'

Procedure

Table 2.3-5 describes the step-by-step procedure for obtaining the 'Maintenance and Repair Activity Listing'.

Table 2.3-5

Procedure For REQUESTING THE 'MAINTENANCE AND REPAIR ACTIVITY LISTING'

Step	Agent	Activity
1.	Equipment Manager	Fills out 'Maintenance and Repair Activity Listing' Request Form and forwards it to the Data Control Clerk
2.	Data Control Clerk	Checks the request form for any errors and then submits the form to the Data Processing Agency
3.	Data Processing Agency	Submits data on the form to the EMIS
4.	EMIS	Processes the data and produces the 'Maintenance and Repair Activity Listing'
5.	Data Processing Agency	Returns the request form and the 'Maintenance and Repair Activity Listing' to the Data Control Clerk
6.	Data Control Clerk	Checks listing for validity and forwards to the Equipment Management Office
7.	Equipment Management Office	Uses the report for decision making and files for future reference

2.4 BILLING MODULE

2.4.1 --Module Overview--

Module Operations

The Billing Module monitors costs incurred each month by using agencies for the operation and maintenance of fleet equipment. Information produced by the Billing Module is used to prepare invoices for interdepartmental billing. In jurisdictions that do not bill for equipment use, the information is valuable for cost accounting and budgeting purposes.

Information is produced in support of three types of billing:

- Billing for rental charges--billing at a flat monthly rate and/or a per mile (or per hour) rate (the system accomodates progressive per-mile rates; e.g., 10¢/mile for the first 1000 miles, 20¢/mile for the second 1000 miles, etc.);
- Billing for direct charges--billing for the actual costs of fuel used, repairs, and maintenance work; and
- Billing for pool equipment charges--billing for the use of pool equipment, at rates based on time used (e.g., hours or days) and/or miles traveled.

The b lling type and billing rate for each piece of fleet equipment is established by the Equipment Management Office. In general, costs for repairs to pool equipment and equipment billed on a rental basis are not included in charges to using agencies. However, under special circumstances (e.g., for accident repairs) such costs can be charged to the user by checking a box on the Repair Order form.

Input Data

The Billing Module receives data from several sources. Data regarding billing type and rates for each piece of equipment is maintained in the Equipment Inventory

Module. Monthly and commodity expenses are calculated by the Fuel Module, while monthly repair and maintenance costs are calculated by the Repair Module.

Month-end mileage (or hourage) figures for equipment billed on a rental basis are submitted directly to the Billing Module on the 'Monthly Meter Report'/Form. Odometer readings reported in Fuel Transactions usually provide month-end mileage figures for all other equipment; however, at the option of the Equipment Manager the 'Monthly Meter Report'/Form can be used to collect exact month mileage figures for all equipment.

Output Information

The Billing Module produces a monthly report, 'Departmental Billing--Direct and Rental Charges', that itemizes costs incurred for equipment billed on a direct charge basis, and lists charges for pool equipment and equipment billed on a rental basis. Total charges to each agency or fund are provided.

Module Processes

The objectives of the Billing Module are accomplished in a number of discrete, but related processes. Processes provide the system with data about the fleet, and instruct the system to produce certain reports containing needed information. Each process involves a series of actors in the following activities:

- Filling out forms;
- Batching and transporting forms;
- Processing data by computer;
- Producing accurate system reports; and

- Transmitting reports to appropriate parties.

Billing Module processes are shown in Table 2.4-1.

Table 2.4-1

BILLING MODULE PROCESSES

• USING MOTOR POOL EQUIPMENT	• Performed whenever motor pool equipment is borrowed
• COLLECTING MONTHLY METER READINGS	• Performed at the end of each monthly reporting period
• BILLING FOR THE USE OF EQUIPMENT	• Performed at the end of each monthly reporting period

BILLING MODULE

2.4.2 --Module Inputs--

Billing Module data is collected on two forms used exclusively in the Billing Module--the 'Monthly Meter Report'/Form, and the Pool Ticket. Other data used by the Billing Module is collected on the Equipment Inventory Form (Equipment Inventory Module), and the Month-End Data Form (General Module).

The 'Monthly Meter Report'/Form lists equipment by equipment number, providing space to enter a date and meter reading. It is used to provide the system with final equipment odometer (or hourmeter) readings for each monthly reporting period. These readings enable the system to calculate charges for vehicle usage based on miles traveled (or hours operated) for the month.

The Pool Ticket supplies the system with all data regarding the use of motor pool equipment.

Billing parameters for each piece of equipment are supplied to the system on the Equipment Inventory Form.

The Month-End Data Form is used to instruct the system regarding monthly production of the 'Monthly Meter Report'/Form. Normally the report/form lists equipment billed for usage (i.e., on a rental basis); it can be instructed to list equipment billed for actual costs incurred (i.e., on a direct charge basis), or all fleet equipment.

The forms and their use are described in Table 2.4-2. Copies of all forms can be found in Appendix A.

Table 2.4-2

BILLING MODULE INPUTS

Form Title	Purpose	Associated Processes	Responsibility For Completion	Filing and Retention
Monthly Meter Report/Form* (EMBR03)	To record final monthly meter readings for equipment billed on a rental basis (occassionally for equipment billed on a direct charge basis, or for all fleet equipment)	• COLLECTING MONTHLY METER READINGS	Completed by using agencies	Discarded when data accurately entered in system
Pool Ticket (EMBD01)	To record all data regarding the use of motor pool equipment	• USING MOTOR POOL EQUIPMENT	Completed by motor pool personnel and/ or equipment operator	Retained by the Equipment Management Office until charges associated with pool ticket have been confirmed by the billed agency
Equipment Inventory Form (EMID01)	To supply billing parameters for each piece of fleet equipment	• ADDING EQUIPMENT TO THE FLEET • CHANGING EQUIPMENT INVENTORY DATA (Refer to the Equipment Inventory Module)	Completed by Data Control Clerk as necessary	Form is filed in Equipment Management Office
Month-End Data Form (EMGD03)	To request the 'Monthly Meter Report'/Form listing all fleet equipment, or equipment billed on a direct charge basis	• CLOSING OUT A MONTHLY REPORTING PERIOD (Refer to the General Module)	Equipment Management Office	Discarded when month-end reports are validated

*This report/form is produced by the system each month. At the end of each reporting period, data is entered on the report/form and submitted to the system. The report/form is thus both a system input and a system output.

BILLING MODULE

2.4.3 --Module Outputs: Management/Operations Reports--

Copies of all reports can be found in Appendix B.

***

'Departmental Billing--Direct and Rental Charges' Report (EMBR02)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

BILLING FOR EQUIPMENT OPERATION AND MAINTENANCE

Contents

Detailed and summary information concerning costs incurred by each using organization for the operation and maintenance of fleet equipment. Costs are itemized for equipment billed on a direct charge basis. Charges for equipment billed on a rental basis are listed along with any special charges (e.g., accident repair charges). Charges for the use of motor pool equipment are also listed.

For each piece of equipment listed direct charges include the costs of all parts, labor, and commercial work incurred for equipment maintenance and repairs, plus the cost of fuel, oil, and other commodities used.

Listed rental charges are calculated on the basis of a fixed monthly rate and/or a unit charge for mileage (or hourage) for each piece of equipment. Pool charges are calcualted similarly, but the fixed rate for equipment use is an hourly or daily

rate. Charges for equipment rented at a flat monthly rate are prorated (to the nearest $\frac{1}{4}$ month) if the equipment is assigned to an organization for less than a full month.

Organization

Costs are presented by organization, fund (where applicable), and equipment number.

Use

- To account for monthly operation and maintenance costs for equipment
- To prepare invoices for interdepartmental billing

***

'Monthly Meter Report'/Form* (EMBR03)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

COLLECTING MONTHLY METER READINGS

Contents

Lists of fleet equipment and their final odometer (or hourmeter) reading for the reporting period. Final meter readings are used as the beginning readings for the next reporting period. Blanks are provided for the using agency to record new meter readings at the end of the next reporting period.

*This report/form is produced by the system each month. At the end of each reporting period data is entered on the report/form and submitted to the system. The report/form is thus both a system input and a system output.

Lists are generated for each organization. Normally lists include only equipment billed on a rental basis. (To calculate appropriate charges for rental equipment, an accurate month-end mileage /or hourage/ figure is needed.) At the option of the Equipment Management Office, lists can be generated for equipment billed on a direct charge basis, or for all fleet equipment.

Organization

Equipment listed by agency and equipment number.

Use

- To obtain month-end mileage (or hourage) data so the system can calculate monthly charges for equipment billed on a rental basis
- To obtain monthly mileage (or hourage) data so the system can determine accurate per-mile (or per-hour) costs for equipment operation and maintenance

BILLING MODULE

2.4.4 --Module Outputs: Data Control Reports--

Copies of all Reports can be found in Appendix B.

***

'Billing Transaction Error Listing' (EMBR01)

When Produced

Whenever the 'Monthly Meter Report'/Form or Pool Tickets are submitted to the system.

Relevant Process(es)

USING POOL EQUIPMENT

COLLECTING MONTHLY METER READINGS

Contents

A list of all Pool Ticket transactions or 'Monthly Meter Report'/Form entries in their data processing input formats. Any improper (or improperly submitted) transactions or entries show asterisks under the fields in error. To the right of the asterisks is a message indicating the column numbers of the problem field, and a brief statement of the error condition.

Organization

Transactions or entries are listed by equipment number.

Use

- To identify improper Pool Ticket transactions, or errors on Pool Tickets

- To identify errors in 'Monthly Meter Report'/Form entries

BILLING MODULE

2.4-5 --Module Processes--

USING MOTOR POOL EQUIPMENT

Function

In order to calculate appropriate charges to agencies using motor pool equipment, data must be collected every time a pool vehicle (or other equipment) is used. The Pool Ticket is used to collect this data. Part of the ticket is filled out when a piece of equipment is checked out; the ticket is completed when the equipment is returned. Charges to the using agency (which are listed on the 'Departmental Billings--Direct and Rental Charges' report) are based on time used (e.g., hours or days) and/or miles traveled.

Pool tickets may be processed at any time during the month. Data is accumulated by the system for use in preparing the monthly 'Departmental Billings--Direct and Rental Charges' report.

Inputs

Pool tickets

Outputs

Billing Transaction Error Listing

Procedure

Table 2.4-3 describes the step-by-step procedure used to record and process data regarding the use of motor pool equipment.

Table 2.4-3

Procedure for USING MOTOR POOL EQUIPMENT

Step	Agent	Activity
1.	Authorized Individual	Checks out pool equipment, and fills out the start time, day, and meter reading on the Pool Ticket
2.	Authorized Individual	Returns pool equipment, and fills out the end time, day, and meter reading on the Pool Ticket
3.	Motor Pool Agency	Batches tickets and forwards them to Data Control Clerk
4.	Data Control Clerk	Checks the Pool Tickets for errors and forwards them to the Data Processing Agency
5.	Data Processing Agency	Submits data on tickets to EMIS
6.	EMIS	Produces the 'Billing Transaction/Error Listing'
7.	Data Processing Agency	Forwards the Pool Tickets and the error listing to Data Control Clerk
8.	Data Control Clerk	Checks the error listing
		CONDITION: If errors are found;
9.	Data Control Clerk	Corrects those tickets in error and resubmits them to the Data Processing Agency (Return to Step 5)
10.	Data Control Clerk	Files tickets and error listing as necessary

***

COLLECTING MONTHLY METER READINGS

Function

The equipment management system monitors equipment mileage (or hourage) for the following purposes:

- To compute appropriate charges to agencies for the use of the equipment;
- To calculate the per-mile (or per-hour) cost of equipment operation and maintenance; and
- To determine when Preventive Maintenance and State Inspections should be scheduled.

Odometer (or hourmeter) readings are recorded in every fuel transaction and submitted to the system. (A fuel transaction occurs whenever a piece of equipment receives fuel or other commodities dispensed at the pump.) Final meter readings for a reporting period may be submitted to the system on the 'Monthly Meter Report'/Form. In the absence of a meter reading submitted on this report/form, the system adopts the most recent fuel transaction meter reading as the final reading for the reporting period.

For some equipment, the most recent fuel transaction meter reading may date back several days before the end of a reporting period; this equipment may subsequently accumulate substantial additional mileage (or hourage). To compute charges based on monthly miles traveled (or hours operated) the system requires accurate month-end meter readings. Therefore, unless instructed otherwise, the equipment management system generates the 'Monthly Meter Report'/Form for all equipment billed on a rental basis, so that accurate month-end meter readings can be recorded on the form.

To enhance the accuracy of system reporting, and to more carefully monitor fleet operations, Equipment Managers may wish to periodically (or regularly) require using agencies to report month-end mileage (or hourage) for direct charge as well as rental equipment. They may instruct the system to generate the 'Monthly Meter Report'/Form for equipment billed on a direct charge basis, or for all fleet equipment regardless of billing basis. To generate different versions of the 'Monthly Meter Report'/Form, refer to CLOSING OUT A MONTHLY REPORTING PERIOD (General Module).

At the beginning of a monthly reporting period, each agency using fleet equipment receives a 'Monthly Meter Report'/Form listing equipment for that agency. At the end of a reporting period, the agency enters final odometer (or hourmeter) readings for all equipment listed on the report/form, and submits the form to the Data Control Clerk. When equipment is transferred to a different using agency--or removed from service before the end of a reporting period--the final date of service, and mileage (or hourage) as of that date are entered on the form.

The 'Monthly Meter Report'/Form should only be used for routine reporting of month-end mileage (or hourage), and not to correct irregular meter readings reported to the system. Irregular readings may result from meter turnover, a broken meter, or installation of a new meter. Correction of such irregular readings must be made using the Meter/Status Change Form in the process for CHANGING EQUIPMENT ODOMETER (OR HOURMETER) READINGS (refer to the Equipment Inventory Module).

Inputs

- 'Monthly Meter Report'/Form

Outputs

- 'Billing Transaction Error Listing'
- 'Monthly Meter Report'/Form

Procedure

Table 2.4-4 describes the step-by-step procedure for collecting monthly mileage (or hourage) data.

***

BILLING FOR THE USE OF EQUIPMENT

Function

The 'Departmental Billing--Direct and Rental Charges' report shows costs incurred each month by using agencies for the operation and maintenance of fleet equipment. Costs are calculated for each piece of equipment on the basis of billing criteria established on the Equipment Inventory Form--direct charge billing, rental billing, and pool vehicle billing.

The Equipment Management Office uses this information to prepare bills for equipment users.

Inputs

- 'Departmental Billings--Direct and Rental Charges Report'

Outputs

- Departmental Invoices

Procedure

Table 2.4-5 describes the step-by-step procedure for charging agencies for the use of fleet equipment.

Table 2.4-4

Procedure For COLLECTING MONTHLY METER READINGS

Step	Agent	Activity
1.	EMIS	Generates a new 'Monthly Meter Report'/ Form
2.	Data Processing Agency	Sends report/form to the Data Control Clerk
3.	Data Control Clerk	Checks report/form and distributes appropriate sections to the different jurisdiction agencies using fleet equipment
4.	Agencies Using Equipment	Maintain the report/form in their files for the current month; fill in the date and meter reading at the end of the reporting period; forward the completed report/form to Data Control Clerk
5.	Data Control Clerk	Checks for obvious errors and forwards the report/form to the Data Processing Agency
6.	Data Processing Agency	Submits data on the form to the EMIS
7.	EMIS	Produces 'Billing Transaction Error Listing'
8.	Data Processing Agency	Forwards report/form and error listing to Data Control Clerk
9.	Data Control Clerk	Checks error listing
		CONDITION: If errors are found;
10.	Data Control Clerk	Corrects errors and resubmits data on to the Data Processing Agency (Return to Step 6)
11.	Data Control Clerk	Notifies Data Processing Agency that correct data has been entered in the system; retains report/form as necessary

Table 2.4-5

Procedure For BILLING FOR THE USE OF EQUIPMENT

Step	Agent	Activity
1.	EMIS	Produces the 'Departmental Billing--Direct and Rental Charges' Report during month-end processing
2.	Data Processing Agency	Forwards report to the Data Control Clerk
3.	Data Control Clerk	Checks the report for accuracy and forwards it to the Equipment Management Office
4.	Equipment Management Office	Prepares actual invoices for charges to using agencies, or prepares interdepartmental transfer of funds based on information in the report

PREV MAINT
Overview

2.5 PREVENTIVE MAINTENANCE MODULE

2.5.1 --Module Overview--

Module Operations

A well designed Preventive Maintenance Program improves the efficiency of fleet operations and reduces costs. Preventive Maintenance (PM) consists of servicing (lubrications, adjustments, etc.) and inspection of each piece of equipment performed at regular intervals. Intervals are based on miles traveled (or hours operated), and elapsed calendar time. PM keeps equipment performance at optimum levels, extends the useful life of equipment, and reduces the incidence of unscheduled and emergency repairs.

The Preventive Maintenance Module provides scheduling support for Preventive Maintenance and State Inspection programs. The module is designed for the PM program recommended by the American Public Works Association (although it can be adapted to the requirements of any jurisdiction). As such, the module can accomodate up to three levels of PM servicing-levels designated A, B, and C. Level C is comprehensive (and performed least frequently), level B is intermediate, and level A is least comprehensive (and performed most frequently). The Equipment Manager establishes a PM sequence for each piece of equipment consisting of up to eight steps (e.g., AAABAAAC), and sets the interval between servicing (e.g., 3 months or 3000 miles). Where appropriate, the State Inspection Interval is set as well. For each piece of equipment, the Equipment Inventory Form is used to supply the system with PM and State Inspection requirements, along with a shop assignment for all PM and inspection work. The equipment management system synchronizes State Inspections with Preventive Maintenance servicing.

Each time a piece of equipment receives Preventive Maintenance or a State Inspection, a Repair Order supplies the system with relevant data (level of PM performed, odometer [or hourmeter] reading, date of servicing). This data is entered in the Equipment Inventory Master File. The Preventive Maintenance Module monitors subsequent meter readings supplied to the system, and elapsed calendar time, to determine when equipment is again due for PM or State Inspection. At the end of each monthly reporting period, the system generates information indicating equipment due for PM or State Inspection in the coming month, and equipment overdue for PM or Inspection. The appropriate level of PM is indicated.

Input Data

The Preventive Maintenance Module requires two types of data: data establishing PM and State Inspection parameters, and data about PM and Inspection activities.*

PM and Inspection parameters include the following for each piece of equipment:

- Required PM service and State Inspection intervals;
- Required PM sequence (e.g., AAABAAAC); and
- Shop assignments for PM and Inspection work.

The following data is collected for each piece of equipment:

- Date of PM or Inspection;
- Odometer or hourmeter reading when serviced; and
- Type of PM performed (i.e., step in the PM sequence).

*The determination of costs associated with PM and State Inspection is not a function of the Preventive Maintenance Module. Labor hours and parts costs for PM or Inspections are submitted to the Repair Module (or the Repair Order).

Output Information

Monthly, the Preventive Maintenance Module generates lists of equipment due for PM or Inspection during the coming month, and equipment overdue for PM or Inspection. One list is generated for each shop to which equipment is assigned for PM or Inspection work. Shop personnel use the lists to set up actual work schedules, in consultation with agencies using the equipment.

Along with the scheduling lists, the Preventive Maintenance Module produces information regarding the overall status of the Preventive Maintenance program. A matrix shows the number of pieces of equipment due and overdue for each type of PM at each shop.

Module Processes

The objectives of the Preventive Maintenance Module are accomplished in a number of discrete, but related, processes. Processes provide the system with data regarding PM, and instruct the system to produce certain reports containing needed information. Each process involves a series of actors in the following activities:

- Filling out forms;
- Batching and transporting forms;
- Processing data by computer;
- Producing accurate system reports; and
- Transmitting reports to appropriate parties.

Preventive Maintenance Module processes are shown in Table 2.5-1.

In addition to these processes, other processes included in other modules are crucial to Preventive Maintenance Module operations: ADDING EQUIPMENT TO THE

Table 2.5-1

PREVENTIVE MAINTENANCE MODULE PROCESSES

• SCHEDULING PREVENTIVE MAINTENANCE AND STATE INSPECTIONS	• Performed monthly by repair shops in consultation with agencies using equipment
• PERFORMING PREVENTIVE MAINTENANCE AND STATE INSPECTIONS	• Executed whenever equipment is brought in for PM or inspection work

FLEET (Equipment Inventory Module) and REPAIRING EQUIPMENT (Repair Module). The former process supplies the system with Preventive Maintenance and Inspection timing parameters and shop assignments. The latter process supplies the system with data regarding all PM servicing and State Inspections.

PREVENTIVE MAINTENANCE MODULE

2.5.2 --Module Inputs--

Preventive Maintenance Module data is collected on two forms -- the Equipment Inventory Form, and the Repair Order Form. Preventive Maintenance and Inspection requirements for each piece of equipment in the fleet are supplied to the system on the Equipment Inventory Form. This data includes recommended time and mileage (or hourage) intervals, recommended PM sequence (e.g., AAABAAAC), and a shop assignment for all PM and Inspection work. The Repair Order form supplies the system with data regarding all PM and inspection activities.

The forms are described in Table 2.5-2. Copies of all forms can be found in Appendix A.

Table 2.5-2

PREVENTIVE MAINTENANCE MODULE INPUTS

Form Title	Purpose	Associated Processes	Responsibility For Completion	Filing and Retention
Equipment Inventory Form (EMID01)	To record timing requirements and shop assignments for Preventive Maintenance and State Inspections	• ADDING EQUIPMENT TO THE FLEET • CHANGING EQUIPMENT INVENTORY DATA (Refer to the Equipment Inventory Module)	Completed by the Data Control Clerk for all equipment (per instructions from the Equipment Manager)	Form is filed in a central Equipment Management Office
Repair Order Form (EMRD01)	To record data on all Preventive Maintenance and State Inspection activities	• REPAIRING EQUIPMENT (Refer to the Repair Module)	Varies with jurisdiction; usually completed by shop personnel	Filed in the repair shop; a copy may be filed in the Equipment Management Office

PREV MAINT Mgt/
Operations Reports

PREVENTIVE MAINTENANCE MODULE

2.5.3 --Module Outputs: Management/Operations Reports--

Copies of all reports can be found in Appendix B.

***

'Preventive Maintenance Scheduling' Report (EMMR01)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

SCHEDULING PREVENTIVE MAINTENANCE AND STATE INSPECTIONS

Contents

A list of all equipment overdue for Preventive Maintenance (PM) or State Inspection, and all equipment due for Preventive Maintenance or State Inspection during the coming month. Since each piece of equipment is assigned to a particular shop for all PM and State Inspection work, a section of the report is produced for each shop that handles Preventive Maintenance work, listing equipment to be serviced at that shop. Following the list, a summary of the numbers of equipment due or overdue for Preventive Maintenance at that shop is presented, along with grand totals for the jurisdiction.

The equipment management system allows for scheduling of up to three different levels of Preventive Maintenance (levels designated A, B, or C). On each report, equipment due or overdue for Preventive Maintenance or State Inspection is listed according to the urgency of service, and the level of Preventive Maintenance required. For each PM level, equipment are grouped by assigned organization to facilitate actual scheduling of work by shop personnel.

The system synchronizes the scheduling of State Inspections with Preventive Maintenance. Equipment due for State Inspection is designated by an asterisk next to the State Inspection date listed on the report. Equipment overdue for State Inspection is designated by two asterisks.

For each piece of equipment listed, the following is presented:

- Vehicle description and organizational assignment;
- Preventive Maintenance scheduling information;
- Date for next required State Inspection; and
- Space for shop personnel to record date of service.

Organization

Equipment listed according to assigned Preventive Maintenance shop, Preventive Maintenance Status (due or overdue), Preventive Maintenance Level (A, B, or C), and organizational assignment.

Use

- To schedule equipment for Preventive Maintenance and State Inspections
- As in-shop month-to-month records of PM and inspection activities
- To monitor overall Preventive Maintenance Program status

PREVENTIVE MAINTENANCE MODULE

2.5.4 --Module Processes--

SCHEDULING PREVENTIVE MAINTENANCE OR STATE INSPECTIONS

Function

Preventive Maintenance (PM), and State Inspection requirements for all fleet equipment are submitted to the system on the Equipment Inventory Form. On the basis of these requirements, and data regarding ongoing PM and Inspection activities, the equipment management system produces a monthly listing of all equipment due (or overdue) for Preventive Maintenance and State Inspection.

Each piece of equipment in the fleet is assigned to a particular shop for all PM and State Inspection work. For each shop, the system produces a list of equipment requiring Preventive Maintenance or State Inspection, and one sheet of summary information. The summary sheets are retained by the Equipment Management Office for analysis, while the Preventive Maintenance Scheduling lists are forwarded to those responsible for scheduling PM and State Inspections.

In most jurisdictions, PM and State Inspections are scheduled in the repair shop by shop personnel in consultation with agencies using equipment. The using agency and the shop should determine a mutually acceptable schedule for leaving the equipment at the shop.

Each repair shop should retain the Preventive Maintenance Scheduling list, and use the space provided to record the completion date of each Preventive Maintenance service and State Inspection. When a new list is received at the beginning of the next month, this list should be compared with the list for the previous month. The new list

will include previously listed equipment that have received PM or an Inspection after the closing date for the reporting period. Shop personnel should delete from the new list any equipment that has already received PM.

Inputs

'Preventive Maintenance Scheduling Report'

Outputs

A one month schedule for Preventive Maintenance and State Inspections for each shop (prepared by shop personnel).

Procedure

Table 2.5-4 shows the step-by-step procedure used to establish a monthly schedule for Preventive Maintenance and State Inspection for each repair shop.

***

PERFORMING PREVENTIVE MAINTENANCE AND STATE INSPECTIONS

Function

In order to keep track of Preventive Maintenance and State Inspections, the system must be supplied with data regarding all PM and Inspection activities. The following data is required:

- Level of Preventive Maintenance performed;*

*The system allows for up to three different levels of Preventive Maintenance, designated A, B, or C. Level C is comprehensive and performed least frequently, level B is intermediate, and level A is least comprehensive and performed at frequent intervals.

Table 2.5-4

Procedure For SCHEDULING PREVENTIVE MAINTENANCE
OR STATE INSPECTIONS

Step	Agent	Activity
1.	EMIS	Produces a monthly 'Preventive Maintenance Scheduling' report showing equipment due or overdue for PM (and State Inspection)
2.	Data Processing Agency	Sends the report to the Data Control Clerk
3.	Data Control Clerk	Validates the report; separates shop summaries from PM scheduling lists; submits summaries to Equipment Management Office for analysis and filing; forwards scheduling lists to individual shops
4.	Shop Foreman	Receives PM scheduling list and uses it to set date when each piece of equipment will be brought in to the shop. Dates are set in consultation with agencies using the equipment

- Cost of parts, labor, and commercial work;
- Odometer (or hourmeter) reading when PM or inspection is performed; and
- Date of PM or inspection.

This data enables the system to determine the costs of maintaining and inspecting equipment, and to determine when future maintenance and inspections should take place. Since much of the data required is the same for that of repairs, the Repair Order form is used.

Inputs

Repair Order form (indicating State Inspection or Preventive Maintenance and Preventive Maintenance level)

Outputs

'Repair Order Transaction Error Listing'

Procedure

The recording and processing of Repair Orders containing Preventive Maintenance data is accomplished in the procedure for REPAIRING EQUIPMENT (refer to the Repair Module).

2.6 GENERAL MODULE

2.6.1 --Module Overview--

Module Operations

General Module operations are interwoven with the operations of all other modules. General Module Operations encompass monthly system processing, which updates system files with data collected by all system modules during the monthly reporting period. In addition, the General Module generates a series of comprehensive reports drawing on the information in these updated files. Finally, General Module process is used to correct errors detected in system reports by management and operations personnel.

Comprehensive reports are intended for use by high level management for control and evaluation of fleet operations. Using programs developed in-house, a jurisdiction may easily produce its own specialized reports from information maintained in system files.

Input Data

The General Module draws on data from other system modules. Miscellaneous data for month-end processing is submitted on the Month-End Data Form. Parameters for the General Module 'Equipment Exception Condition Report' are submitted on the Exception Condition Limits form.

Output Information

The General Module generates the following six management reports:

- The 'Fleet Summary Report', providing a one-page profile of fleet operations and expenses;
- The 'Class Performance Comparison--Detail' report, comparing how different organizations use equipment;

- The 'Equipment/Organization Performance Report', providing comparative information about equipment performance;
- The 'Cost-Billed Report', comparing actual costs of fleet operations with charges to using agencies;
- The 'Equipment Exception Condition Report', listing equipment that should be investigated by the Equipment Manager or his staff; and
- The 'Meter Range Report', comparing the performance of equipment in ten different odometer ranges.

The General Module generates one data control report that monitors errors in month-end processing.

Module Processes

The objectives of the General Module are accomplished in three discrete but related processes. Processes provide the system with data about the fleet, and instruct the system to produce certain reports containing needed information. Each process involves a series of actors in the following activities:

- Filling out forms;
- Batching and transporting forms;
- Processing data by computer;
- Producing accurate system reports; and
- Transmitting reports to appropriate parties.

General Module processes are shown in Table 2.6-1.

Table 2.6-1

GENERAL MODULE PROCESSES

• CLOSING OUT A MONTHLY REPORTING PERIOD	• Performed at the end of each reporting period
• SETTING EXCEPTION CONDITION LIMITS	• Performed to establish parameters for the 'Equipment Exception Condition Report'
• ALTERING INCORRECT SYSTEM DATA	• Performed whenever erroneous information is detected in system reports

GENERAL MODULE

2.6.2 --Module Inputs--

The General Module uses data from all system modules to produce reports presenting comprehensive information about the fleet. Several reports require miscellaneous data not entered into the system on routine data input forms. This data is entered on the Month-End Data Form. Parameters for the General Module 'Equipment Exception Condition Report' are submitted on the Exception Condition Limits form.

General Module processes are shown in Table 2.6-2.

Table 2.C-2

GENERAL MODULE INPUTS

Form Title	Purpose	Associated Processes	Responsibility For Completion	Filing and Retention
Month-End Data Form (EMGD01)	To record miscellaneous data required for month-end processing	• CLOSING OUT A MONTHLY REPORTING PERIOD	Data collected and entered on form by Data Control Clerk	Form discarded when monthly processing is completed
Exception Condition Limits (EMGD02)	To establish or alter exception condition criteria for equipment classes designated by the first two characters of the APWA equipment code	• SETTING ERROR CONDITIONS	Completed by Data Control Clerk at the instruction of the Equipment Manager	Form discarded when Data Control Clerk verifies new limits on 'Equipment Exception Condition Report'

GENERAL MODULE

2.6.3 --Module Outputs: Management/Operations Reports--

Copies of all reports can be found in Appendix B.

***

'Fleet Summary Report' (EMGP01)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

CLOSING OUT A MONTHLY REPORTING PERIOD

Contents

A one page summary of management information regarding fleet status.

Current and historical information is provided in the following subject areas:

- Fleet inventory (number of equipment in each APWA class, and total inventory value);
- Repair labor (hours available and expended);
- Equipment operations (miles traveled [or hours operated] and fuel consumed);
- Fleet costs; and
- Fleet earnings (from interdepartmental billings).

Use

- To evaluate trends in fleet costs and equipment operations and maintenance

- To evaluate the composition of the fleet
- To project future budgetary needs

***

'Class Performance Comparison--Detail' Report (EMGR02)

When Produced

At the end of the monthly reporting period

Relevant Process(es)

CLOSING OUT A MONTHLY REPORTING PERIOD

Contents

A comparison of the performance of equipment used by different organizations. Comparisons are by APWA equipment class, and performance statistics are provided for the latest reporting period and for the three previous periods. The following statistics figures are among those included in the report:

- Average miles (or hours) of operation per month;
- Average downtime per month;
- Average cost per mile for operation and maintenance; and
- Average total monthly operation and maintenance cost per unit.

For equipment in each APWA class, the system calculates statistics for each using agency, as well as for the jurisdiction as a whole. Thus the performance of any class of equipment can be compared from one organization to another, and from one organization to a jurisdiction-wide average.

Organization

Performance information presented in order by APWA class and assigned organization.

Use

- To determine appropriate billing rates to using organizations
- To identify organizations needing new equipment
- To identify equipment performance problems in using organizations

***

'Equipment/Organization Performance Report' (EMGR03)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

CLOSING OUT A MONTHLY REPORTING PERIOD

Contents

Detailed information about the performance of each piece of equipment in each APWA class. Equipment is grouped by using agency to facilitate the comparison of equipment performance within each agency. Performance figures are provided for the latest reporting period, and for the life of the equipment. The following performance figures are included in the report:

- Percent downtime per month;

- Miles (or hours) per gallon;
- Cost per mile for operation and maintenance; and
- Total operation and maintenance costs.

Organizational totals and averages are presented when appropriate. Fleetwide totals and averages for each class of equipment are presented to facilitate comparisons.

Organization

Information presented in order by APWA class, assigned organization, and equipment number.

Use

- For follow-up analysis of problems identified in the 'Class Performance Comparison Detail' report
- To identify problem equipment
- To identify trends in equipment performance

***

'Cost-Billed Report' (EMGR04)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

CLOSING OUT A MONTHLY REPORTING PERIOD

Contents

A comparison of actual equipment costs with charges to using agencies.

For each piece of equipment, costs of operation, maintenance, depreciation, and insurance are shown,* along with charges billed to the using agency. The difference between costs and charges is listed, and costs are also calculated as a percentage of charges. For equipment that is billed on a direct charge basis, costs should equal charges (unless certain costs, such as depreciation and insurance, are not billed). Costs and charges vary from month to month for equipment billed on a rental basis.

The report presents information for the latest reporting period, and for the year to date. Totals and averages for each using agency are also shown.

Organization

Information is ordered by assigned agency and equipment number.

Use

- To determine the adequacy of billing rates
- To identify high cost equipment

***

'Equipment Exception Condition Report' (EMGR05)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

SETTING EXCEPTION CONDITIONS

CLOSING OUT A MONTHLY REPORTING PERIOD

*Operation and maintenance costs include costs of fuel and other commodities and cost of repair labor, parts, and commercial work. Most of these costs are set by the Equipment Management office and may include a mark up. Therefore costs listed in the report may not reflect actual costs.

Contents

A list of equipment that warrant the attention of the Equipment Manager. The report lists equipment meeting one or more of the following criteria (known as "exception conditions"):

- Unusually low monthly mileage;
- Unusually high monthly mileage;
- High per mile (or hour) costs for operation and maintenance;
- Equipment approaching salvage value;
- High oil consumption;
- High number of repair types performed;
- Unusual amount of downtime;
- High amount of repair rework;
- Unusually high repair costs;
- High costs for commercial work due to road call
- High gasoline consumption;
- High gasoline consumption relative to miles traveled;
- High parts costs relative to total repair costs;
- High accident repair costs; and
- High number of accidents.

The Equipment Manager establishes threshold limits for each of the fifteen exception conditions listed above. Different limits apply to each of the APWA equipment classes (as defined by the first two characters of the APWA code). For instance, a limit of

510 miles/month might be established for the "high mileage" condition for sedans. Any sedan driven more than 510 miles during a given month would be listed on the report.

For each piece of equipment listed on the report, all violated limits are specified, along with the nature of the violation. Thus for the sedan, a limit of 510 miles would be listed along with the actual mileage figure.

Organization

Equipment meeting exception criteria are listed by APWA code and equipment number.

Use

- To identify problem equipment
- To identify potential repair problems

***

'Meter Range Report' (EMGR08)

When Produced

At the end of each monthly reporting period

Relevant Process(es)

CLOSING OUT A MONTHLY REPORTING PERIOD

Contents

Information for the comparison of equipment with different amounts of wear (measured by total mileage or hourage). For each APWA equipment class (specified by the first two characters of the APWA code), information is presented for equipment in each of ten odometer (or hourmeter) ranges. Information provided includes the following:

- Number of vehicles in odometer (or hourmeter) range;
- Average miles (or hours) operated per month;
- Average per mile (or hour) operating costs;
- Average per mile (or hour) maintenance costs;
- Average number of repairs;
- Average percent downtime; and
- Number of road calls.

Organization

Information presented for each APWA class

Use

- To establish equipment replacement needs
- To determine Preventive Maintenance needs

GENERAL MODULE

2.6.4 --Module Outputs: Data Control Reports--

Copies of all reports can be found in Appendix B.

***

'Master File Update Error Listing' (LMGR06)

When Produced

At the end of each monthly reporting period, before General Module management/ operations reports are generated

Relevant Process(es)

CLOSING OUT A MONTHLY REPORTING PERIOD

Contents

A list of irregularities identified by the system during the monthly update of information in the Equipment Inventory Master File. The report identifies irregular fuel information, repair information, preventive maintenance information, and miscellaneous cost information.

Organization

Problem records listed according to equipment number.

Use

- To identify and correct irregular information maintained by the system

GENERAL MODULE

2.6.5 --Module Processes--

CLOSING OUT A MONTHLY REPORTING PERIOD

Function

Before the equipment management system can generate any month-end reports, all data for the month must be submitted to and accepted by the system. During month-end processing, data for the month updates records in the Equipment Inventory Master File, and the system generates General Module reports, drawing on the updated file.

The Data Control Clerk must make certain that all forms dated during the reporting period are processed before month-end processing begins.* These forms include the following, used to input data to all modules:

- Equipment Inventory Forms
- Meter/Status Change Forms
- Fuel Transaction Record Forms
- Fuel Pump Reading Forms
- Repair Order Forms
- Pool Tickets
- 'Monthly Meter Report'/Forms

In addition to initial processing of the forms, all errors identified on various error listings must be corrected and resubmitted prior to month-end processing.**

---

*Forms are processed according to individual procedures described in Module Descriptions for the first five system modules.

**Certain errors can be corrected at a later date. Refer to procedures described for individual module processes.

Due to the time required for the collection and processing of forms and the correction of data errors, month-end processing may be delayed for up to a week after the closing date for the reporting period. To begin month-end processing, the Data Control Clerk must obtain data needed to complete the Month-End Data Form, and submit the completed form to the Data Processing Agency.

Inputs

Month-End Data Form

Outputs

'Master File Update Error Listing'

'Fleet Summary Report'

'Class Performance Comparison--Detail' Report

'Equipment/Organization Performance Report'

'Cost-Billed Report'

'Equipment Exception Condition Report'

'Meter Range Report'

Procedure

Table 2.6-3 describes the step-by-step procedure for closing out a monthly reporting period.

***

SETTING EXCEPTION CONDITION LIMITS

Function

Table 2.6-3

Procedure For CLOSING OUT A MONTHLY REPORTING PERIOD

Step	Agent	Activity
1.	Data Control Clerk	Verifies that all equipment inventory, fuel, and repair data for the month has been submitted to the system and that all data errors have been corrected
2.	Data Control Clerk	Obtains data needed for Month-End Data Form, forwards completed form to the Data Processing Agency
3.	Data Processing Agency	Submits data on form to EMIS, and initiates month-end processing
4.	EMIS	Generates 'Master File Update Error Listing,' generates all General Module management/ operations reports*
5.	Data Processing Agency	Forwards error listing and reports to Data Control Clerk
6.	Data Control Clerk	Reviews error listing, checks reports for accuracy
	CONDITION: If errors are found;	
7.	Data Control Clerk	Investigates errors, submits corrections at the end of the next reporting period; forwards reports to Equipment Management Office
8.	Equipment Management Office	Uses reports for management decisions, and forwards them to appropriate officials as necessary

*In some jurisdictions, the General Module management/operations reports are not produced until after errors identified on the error listing have been corrected.

Every month the equipment management system scans Master File records for each piece of equipment to determine whether any of the following conditions apply:

- Unusually low monthly mileage;
- Unusually high monthly mileage;
- High per mile (or hour) costs for operation and maintenance;
- Equipment approaching salvage value;
- High oil consumption;
- High number of repair types performed;
- Unusual amount of downtime;
- High amount of repair rework;
- Unusually high repair costs;
- High costs for commercial work due to road calls;
- High gasoline consumption;
- High gasoline consumption relative to miles traveled;
- High parts costs relative to total repair costs;
- High accident repair costs; and
- High number of accidents.

Equipment meeting one or more of these conditions are listed on the monthly 'Equipment Exception Condition Report,' and the pertinent condition(s) identified.

The Equipment Manager establishes threshold limits (i.e., a high mileage threshold, a cost threshold for repairs, etc.) for each of these fifteen exception conditions. A separate set of limits is specified for each APWA equipment class designated by the first two characters of the APWA code.

Initial limits are set during implementation of the system, or any time thereafter. After several months of system operation the Equipment Manager may determine that certain exception condition limits require modification; original limits may have been unrealistically high or low. The Exception Condition Limits form is used to initialize and modify exception limits.

Inputs

Exception Condition Limits Form

Outputs

None (The 'Exception Condition Report' is generated in the process for CLOSING OUT A MONTHLY REPORTING PERIOD)

Procedure

Table 2.6-4 describes the step-by-step procedure for initializing or modifying exception condition criteria.

***

ALTERING INCORRECT SYSTEM DATA

Function

The equipment management system routinely checks all incoming data for accuracy and consistency with information presently maintained in system files. Questionable data is identified in error listings so that it can be corrected by the Data Control Clerk and resubmitted to the system. Occasionally errors escape detection. Such errors may result from submitting duplicate forms to the system, from failing to

Table 2.6-4

Procedure For SETTING EXCEPTION CONDITIONS

Step	Agent	Activity
1.	Equipment Manager	Determines appropriate exception condition limits for a particular equipment class (designated by first two characters of APWA code)
2.	Equipment Management Office	Completes Exception Condition Limits form accordingly; forwards to Data Control Clerk
3.	Data Control Clerk	Checks accuracy of form entries; forwards form to Data Processing Agency
4.	Data Processing Agency	Submits data on the form to the EMIS; returns form to Data Control Clerk
5.	Data Control Clerk	Retains form until next 'Equipment Exception Condition Report' is received; verifies report against form; discards form

submit forms, or from submitting erroneous data that the system can't identify. When errors go undetected, equipment management personnel or other officials will eventually discover erroneous information in one or more system reports.

Incorrect system information can be corrected in several ways, depending on the nature of the error. Corrections usually involve one of several processes in different modules, using one of several different forms. Certain corrections can only be made by the Data Processing Agency.

The Equipment Inventory Form is used to change any data initially submitted on that form. The Meter/Status Change Form is used to correct equipment meter readings. Erroneous fuel or repair information can often be corrected by submitting fictional fuel or repair transactions to the system; values listed in these transactions adjust totals maintained in system files.

The following processes may be relevant to the correction of errors:

- CHANGING EQUIPMENT INVENTORY DATA
- CHANGING ODOMETER (OR HOURMETER) READINGS
- DISPENSING FUEL AND OTHER COMMODITIES
- REPAIRING EQUIPMENT
- USING MOTOR POOL EQUIPMENT

If the Data Control Clerk identifies errors that cannot be corrected using routine input forms and processes, the Data Processing Agency should be consulted. Data Processing Agency personnel can alter any information maintained in system files.

Inputs

Appropriate input form determined by Data Control Clerk

Outputs

Outputs vary depending on process selected by Data Control Clerk.

Procedure

Procedure varies depending on process selected by Data Control Clerk.

APPENDIX A

INPUT FORMS

PUNCH ON ALL CARDS

TRANSACTION TYPE	EQUIPMENT NUMBER
ADD TO FLEET = 2 MODIFY RECORD = 5 COL. 1	COL. 2-7 →

PTI/APWA Equipment Management System

Form No: EMIDØ1

EQUIPMENT INVENTORY FORM

DATE___/___/___

1 (80)

APWA CODE	DATE RECEIVED	DEPRECIATION DATA: ESTIMATED LIFE (1 = MONTHS, 2 = MILES 1000's, 3 = HOURS 100's)	SALVAGE VALUE	P.O. AMOUNT	ASSIGNED ORGANIZATION CODE
(8-15)	MO DAY YR (16-21)	22-24	25	$ 26-30	$ 31-38	39-44

PM DATA

PM INTERVAL: MONTHS	PM INTERVAL: MILES OR HOURS	PM SEQUENCE (TYPES A, B, C)	ASSIGNED PM LOC.	METER UNIT (H, M, OR X)	ACCIDENT REPAIRS – BILL USER Y OR N	BILLING BASIS: RENTAL = R, DIRECT CHARGE = D	INSURANCE SCHEDULE(S)	NORMAL DUTY HOURS PER MONTH
45-46	47-51	52-59	60-63	64	65	66	67-69	70-72

2 (80)

BILLING DATA

FLAT RATE	M = MONTHS, D = DAY, C = CLOCK HR.	BASIC USE RATE	USE RATE B	USE RATE C
$ 8-13	PER 14	$ 15-20	$ 21-26 OVER 27-31 UNITS	$ 32-37 OVER 38-42 UNITS

DATA ON UNIT REPLACED BY THIS UNIT

OLD EQUIP. NO.	DATE RELEASED	OLD P.C. NUMBER	GVWR (POUNDS)	IMPROVEMENTS ADDED	FUEL TANK CAPACITY	FUEL TYPE
43-48	MO DAY YR 49-54	55-62	63-68	$ 69-75	76-78	79

3 (80)

DESCRIPTION	FUND NUMBER	STATE INSPECTION EVERY	ASSIGNED SERV. LOCATION	HIGHWAY CODE (1 = CITY, 2 = HIGHWAY, 3 = OFF-ROAD)
8-27	28-39	MO. 40-41	42-45	46

CHASSIS DATA

CHASSIS MFR. CODE	MODEL NUMBER	SERIAL NUMBER	MODEL YEAR
47-50	51-57	58-77	78-79

4 (80)

TITLE NUMBER	PROPERTY CONTROL NUMBER	PURCHASE ORDER NUMBER	LICENSE TAG NUMBER
8-16	17-24	25-32	33-41

BODY DATA (IF DIFFERENT FROM CHASSIS DATA)

DOMICILE CODE	BODY MFR. CODE	MODEL NUMBER	SERIAL NUMBER	MODEL YEAR
42-45	46-49	50-57	58-77	78-79

Form No: EMIDØ2

PTI/APWA Equipment Management System

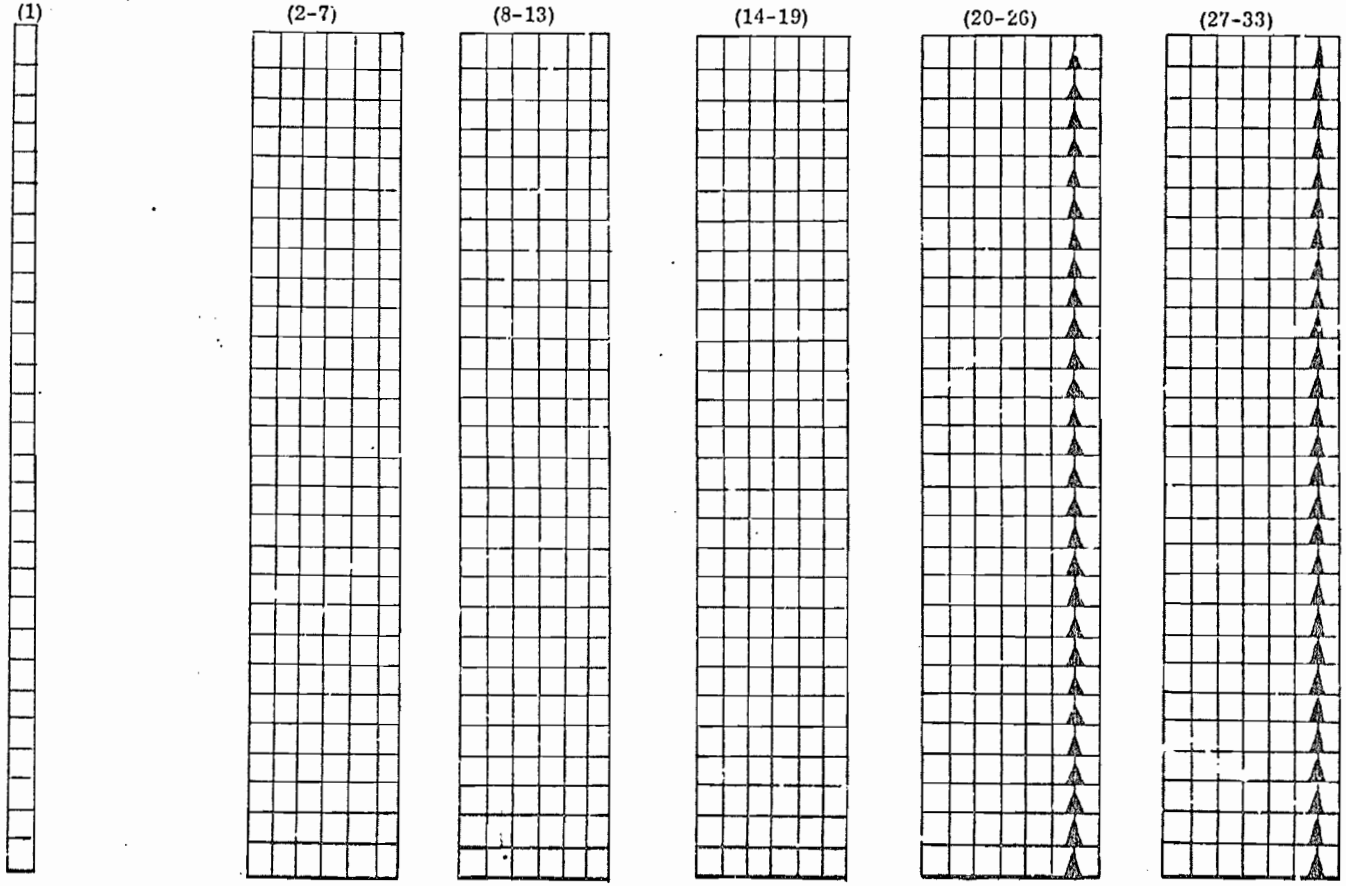
METER/STATUS CHANGE FORM

DATE_____

TRANSACTION TYPES

1 = remove from fleet
3 = deactivate
4 = reactivate
6 = meter reading change

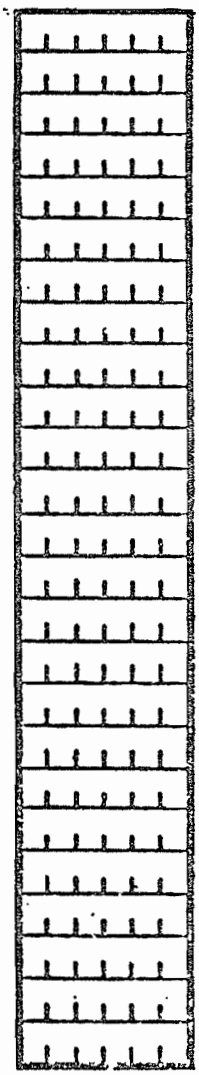
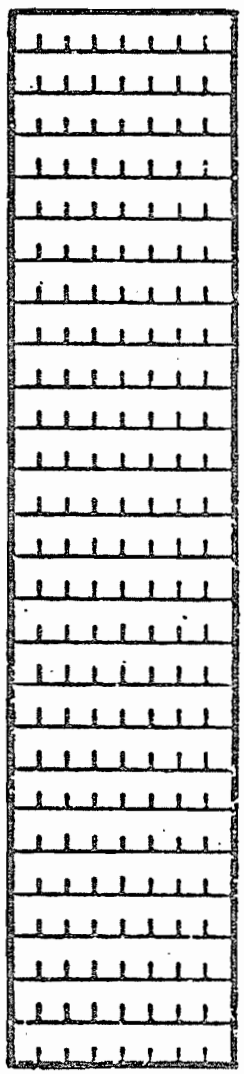
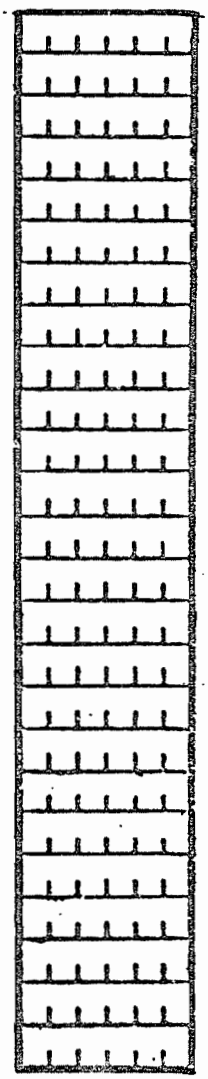
Transaction Type	Equipment Number	Equipment Number	Organization Code	Corrected Meter Reading	Meter Reading at Failure
(1)	(2-7)	(8-13)	(14-19)	(20-26)	(27-33)



PTI/APWA Equipment Management System Form No: EMID(

EQUIPMENT INVENTORY REPORT REQUEST FORM

Date of Request __/__/__ Needed by __/__/__

SUMMARY "S" OR DETAIL "D" (1)	EQUIPMENT NO. OR "ALL" (2-7)	APWA CODE (8-15)	ORGANIZATION CODE (16-21)
			

FLEET SUPERINTENDENT SIGNATURE

Form No: EMID0

PTI/APWA Equipment Management System

'FLEET INVENTORY ASSIGNMENT SUMMARY' REQUEST FORM

DATE: ___/___/___

DATA PROCESSING: Produce the Fleet Inventory Assignment Summary Report (EMIR12) using the most current data available.

Signature: _____

Telephone: _____

Form No: EMFDØ1

PTI/APWA Equipment Management System

FUEL TRANSACTION FORM

FUEL TICKET

1 3 Pump Number

4 9 Ticket Number

10 15 Mon Day Year Date

City of Sample-ville

16 21 Vehicle Number

22 28 Vehicle Meter Reading

Driver Signature

Department

Attendant Signature

Fuel Dispensing Location

29 31 Fuel (gal)

32 33 Oil (qts)

34 35 Trans. Fluid (qts)

36 37 Anti-Freeze (qts)

38 39 Hyd. Fluid (qts)

Pump Number (1 3)

Ticket Number (4 9)

Date: Mon Day Year (10 15)

FUEL TRANSACTION RECORD FORM (EMFDØ1)
(Version 2)

Line No.	Vehicle Number (16 21)	Vehicle Meter Reading (22 28)	Fuel (Gal.) (29 31)	Department	Oil (Qts.) (32 33)	Auto. Trans. Fluid(qts) (34 35)	Anti-Freeze (Qts.) (36 37)	Hydraulic Fluid (Qts.) (38 39)	Received by
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									

Form No: EMFDØ2

Date: ___/___/___
Mo Day Yr

Location: _____

PTI/APWA Equipment Management System

FUEL PUMP READING FORM

Pump Number	Beginning Pump Reading	Beginning Date Mon	Day	Year	Ending Pump Reading	Ending Date Mon	Day	Year		REMARKS
1 2 3	5 – – – – – – 12	14 15	16 17	18 19	21 – – – – – – 28	30 31	32 33	34 35	37	

Note: 1) Place "X" under "Bypass" (Column 37) if pump reading faulty, otherwise leave blank. If faulty, explain under "Remarks" column. 2) Position to right of decimal (Columns 12 and 28) are for tenths of a gallon.

Form No: EMFDØ3

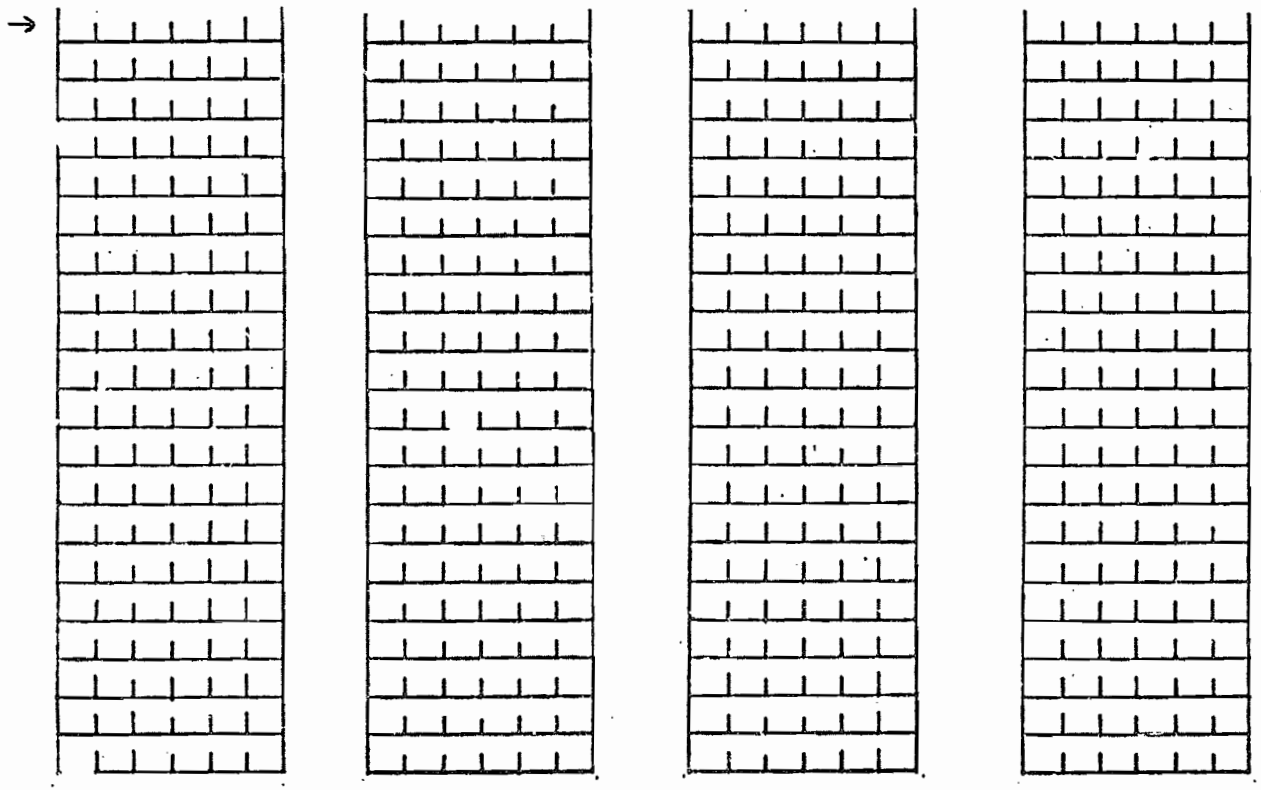
PTI/APWA Equipment Management System

'FUEL TRANSACTIONS BY EQUIPMENT NUMBER' REPORT REQUEST FORM

Date: __/__/__
mo. day yr.

Specify the dates for which data is requested: From __/__/__ To __/__/__
mo. day yr. mo. day yr.

Print the word ALL in the top row of the left column if data is requested for all equipment fleet wide; otherwise enter the equipment numbers (up to 100) for which data is requested.



Form No: EMFDØ4

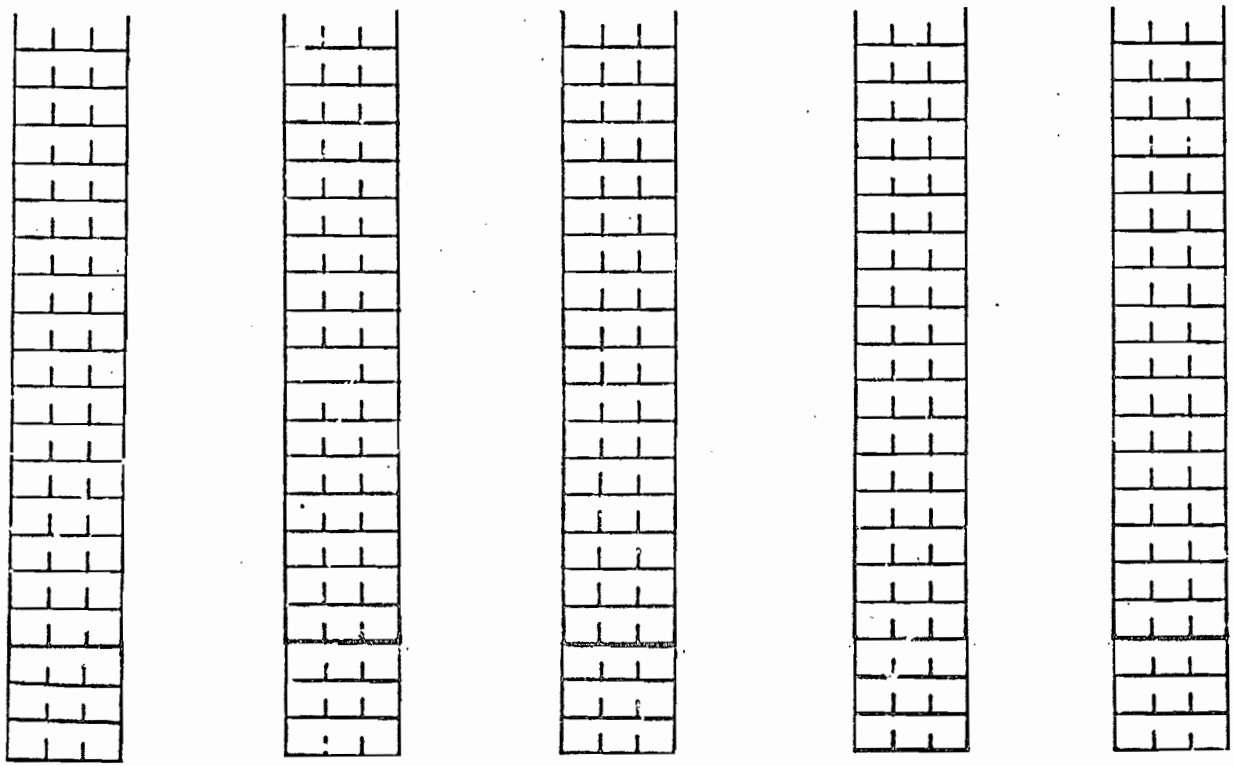
PTI/APWA Equipment Management System

'FUEL TRANSACTIONS BY PUMP NUMBER' REPORT REQUEST FORM

Date: ___/___/___
mo. day yr.

Specify the dates for which data is requested: From ___/___/___ To ___/___/___
mo. day yr. mo. day yr.

Print the word A L L in the top row of the left column if data is requested for all pumps; otherwise enter the pump numbers (up to 100) for which data is requested.



Form No: EMFDØ5

PTI/APWA Equipment Management System

Date: ___/___/___
Mo Day Yr

FUEL/COMMODITY COST FORM

APPROVED BY: _____
(Authorizing Signature)

Sc	COST	FUEL/COMMODITY NAME	REMARKS	IDENT
(1)	(3-6)	(8-25)		(79-80)
A	Ø	REGULAR (GALS)		F C
B	Ø	LO-LEAD (GALS)		F C
C	Ø	HI-TEST (GALS)		F C
D	Ø	DIESEL (GALS)		F C
E	Ø	KEROSENE (GALS)		F C
F	Ø	OIL (QTS)		F C
G	Ø	ANTI-FREEZE (QTS)		F C
H	Ø	HYDRAULIC FLUID (QTS)		F C
I	Ø	TRANS FLUID (QTS)		F C
	Ø			F C
	Ø			F C
	Ø			F C
	Ø			F C
	Ø			F C
	Ø			F C
	Ø			F C
	Ø			F C
	Ø			F C

PTI/APWA Equipment Management System

Reproduced from best available copy.

Form No: EMRDØ1

REPAIR ORDER FORM

Form AV 131 Rev. 6/75

EQUIP. NUMBER (1-6) | R.O. NUMBER (7-12) | A A / B B (13-14) | FACILITY (15-18) | METER READING (19-25) / 10

(CHECK ONE ONLY) Col. 26 — WORK CLASS: SCHEDULED (x) | NON SCHEDULED (y) | EMERGENCY (z)

USER ORG.

BILL TO USER (y) ☐ 27 | ROAD CALL (y) ☐ 28 | REPAIR COVERED BY WARRANTY (y) ☐ 29

Repair Types (for information only)

Body & Cab Maintenance	Heating & Ventilation	01
	Cab Fixtures	02
	Instruments & Gauges	03
	Glass	04
	Air Conditioning	05
	Cab Metal	06
	Mounted Body	07
Chassis	Axles – Front	11
	Axles – Rear	12
	Brakes	13
	Frame	14
	Steering	15
	Suspension	16
	Tires/Tracks	17
	Wheels/Bogies	18
Drive Train	Clutch	23
	Drive Shaft(s)	24
	Power Take Off	25
	Transmission – Main	26
	Transmission – Aux. & Trans. Case	28
	Chain Drive	29
Electric System	Charging System	31
	Cranking System	32
	Ignition System	33
	Lighting System	34
	Battery	35
Engine	Air Intake System	41
	Cooling System	42
	Exhaust System	43
	Fuel System	44
	Power Plant	45
	Pollution Control	46
Accessories/ Attachments	Accessories – General	51
	Accessories – Electrical	52
	Expendable Items	53
	Power Tail Gate	55
	Radio Equipment	56
	Winches	58
	Vehicle Coupling System	59
	Buckets	61
	Blades	62
	Brooms/Brushes	63
	Cables	64
	Hoisting Devices	65
	Heating & Refrigeration–Cargo	66
Hydraulic/Pressure Trans. Syst.	Pump	71
	Cylinders & Frame	72
	Lines & Controls	73
	Blower	74
	Compressor	75
Aux. Power System	APS Power Plant	81
	APS Cooling System	82
	APS Fuel System	83
	APS Electrical System	84
	APS Transmission	85
	APS Chain	86
Other Activities	Cleaning/Washing	90
	Painting	91
	Towing	92
	Dispatch Road Testing	93
	Lubrication	94
	PM - A	95
	PM - B	96
	PM - C	97
	Mounted System Lubrication	98
	Mounted System Activity	99

LABOR (LR - Col. 13-14)

ON	OFF	EMPLOYEE NUMBER	HRS. /10	REPAIR TYPE	COST

PARTS (PT - Col. 13-14)

QTY	PART #	NO. OR DESCRIPTION	UNIT COST	REPAIR TYPE	TOTAL COST

COMMERCIAL COST (CM - Col. 13-14)

VENDOR NAME	INVOICE #	LABOR $	PARTS $	REPAIR TYPE	TOTAL $

TOTAL COMMERCIAL

TOTAL DIRECT LABOR

TOTAL MATERIALS

TOTAL JOB COST

INSTRUCTIONS:

MECHANIC COMMENTS:

REASON BROUGHT IN (CHECK ONE ONLY) (Col. 30)

BREAKDOWN	(A)
ACCIDENT	(B)
DAMAGE IN OPERATION	(C)
THEFT/ VANDALISM	(D)
DAILY SCHEDULE	(E)
NEEDED DURING PM OR OTHER WORK	(F)
SEASONAL PREPARATION	(G)
DRIVERS REQUEST	(H)
MANAGEMENT REQUEST	(I)
REWORK	(K)
PRE-DELIVERY MAKE READY	(L)
MODIFICATIONS	(M)
CONVERSION	(N)
SPECIAL STUDY	(P)
PREVENTIVE MAINTENANCE	(R)
RECALL	(S)
STATE INSPECTION	(T)
WARRANTY	(U)

WORK STARTED: MO. / DAY / YR. (31-34) TIME HOUR MIN. AM PM (35-39)

COMPLETED (40-43) TIME HOUR MIN. AM PM (44-48)

OPERATING TIME LOST (HRS) HOUR MIN. (50-51)

OUT OF SERVICE DATE: TIME: AM PM

WORK AUTHORIZATION:

WORK COMPLETED (APPROVAL):

A-11

Form No: EMRDØ2

DATE_____

PTI/APWA Equipment Management System

EMPLOYEE RATE SETTING FORM

EMPLOYEE NUMBER (1-9)	HOURLY RATE (10-13)*	EMPLOYEE NAME	Check One A	C	D	**

* - Triangle indicates decimal in hourly rate

** - A = Add, C = Change, D = Delete

_____

Authorized Signature

DATE ___/___/___ Form No: EMRDØ3

PTI/APWA Equipment Management System

'MAINTENANCE AND REPAIR ACTIVITY LISTING' REQUEST FORM

1. Specify dates for which data is requested

From: ____/____/____ (mo day yr.) TO ____/____/____ (mo day yr.)

2. Do you want information for equipment all or only selected equipment? (check appropriate box)

ALL VEHICLES ☐ SELECTED VEHICLES ☐

If you checked the selected vehicles box, submit a list of equipment numbers in the space provided below (Maximum of 50 vehicles).

Card Columns					
1	2	3	4	5	6

Card Columns					
1	2	3	4	5	6

Card Columns					
1	2	3	4	5	6

BILLING MODULE INPUT FORMS

NOTE

'Monthly Meter Report'/Form (EMBR03) included in Appendix B, Billing Module Reports

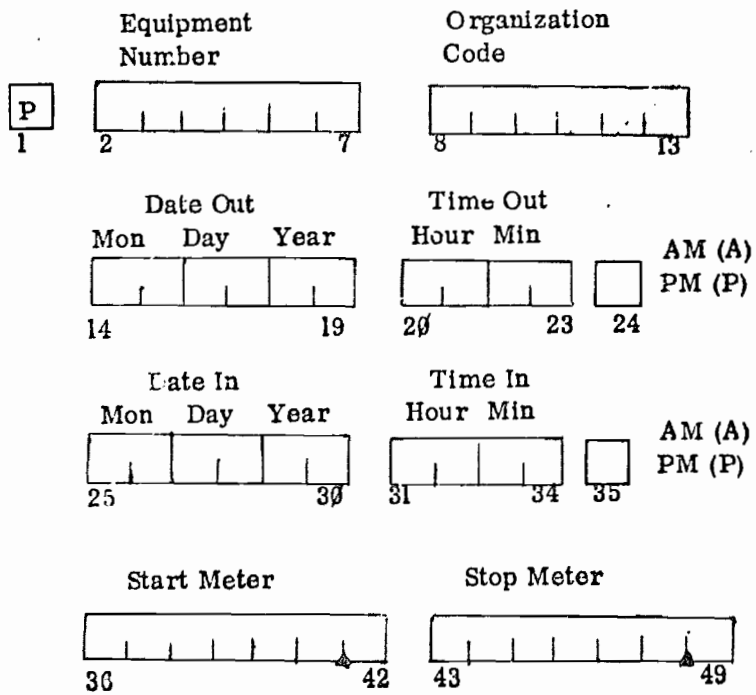
Equipment Inventory Form (EMID01) included with Equipment Inventory Module Input Forms

Information for Month-End Processing form included with General Module forms

Form No: EMBDØ1

PTI/APWA Equipment Management System

MOTOR POOL TICKET



BY: _____
(Authorizing Signature)

DATE: _____

PREVENTIVE MAINTENANCE MODULE INPUT FORMS

NOTE

Equipment Inventory Form (EMID01) included with Equipment Inventory Module Input Forms

Repair Order Form (EMRD01) included with Repair Module Input Forms

Form No: EMGD

DATE ___ / ___ / ___

PTI/APWA Equipment Management System

EXCEPTION CONDITION LIMITS FORM

APWA CLASS . . . ☐☐

Note: Place an asterisk in the left most position of any limit for which no information is requested.

CONDITION

LOW METER UNITS-CM . . . . . ☐☐☐☐☐

HIGH METER UNITS-CM . . . . . ☐☐☐☐☐

COST PER MILE/HOUR-CM . . . . . ☐☐☐☐☐

WITHIN (X) DOLLARS OF SALVAGE VALUE, (X) = ... ☐☐☐

HIGH OIL CONSUMPTION (QUARTS)-CM . . . . . ☐☐☐

MORE THAN Y REPAIR TYPES THIS MONTH, Y = ... ☐☐☐

DOWN TIME (HOURS)-CM . . . . . ☐☐☐

REWORK (NUMBER)-CM . . . . . ☐☐

TOTAL COST OF REPAIRS-CM . . . . . ☐☐☐☐☐

COMMERCIAL COST FOR ROAD CALLS-CM . . . . . ☐☐☐☐

FUEL CONSUMPTION (GALLONS)-CM . . . . . ☐☐☐☐☐

PERCENT PARTS COST OF TOTAL REPAIR COST-CM . . . . . ☐☐

TOTAL COST OF ACCIDENTS-CM. . . . . ☐☐☐☐☐

TOTAL NUMBER OF ACCIDENTS-CM . . . . . ☐☐☐

CM = CURRENT MONTH

Form No: EMGDØ3

PTI/APWA Equipment Management System

MONTH-END DATA FORM

1. Period ending date ___/___/___ (For use on all month-end reports)

2. Start of new year processing ☐ YES ☐ NO

3. Overhead Costs (all shops) ☐☐☐☐☐☐.☐☐

4. Available Labor Hours (all shops) ☐☐☐☐☐.☐

5. Available Employees (all shops) ☐☐☐☐.

6. Shop Numbers with number of employees in each (maximum of 20 shops)

Shop #	# of employees	Shop #	# of employees
1	5	1	5
8	12	8	12
15	19	15	19
22	26	22	26
29	33	29	33
36	40	36	40
43	47	43	47
50	54	50	54
57	61	57	61
64	68	64	68

7. Unless otherwise specified - the 'Monthly Meter Report'/Form will be produced only for equipment billed on a rental basis.

☐ Option 1 - Direct Charge (D)

☐ Option 2 - Rental and Direct (B)

APPENDIX B

REPORTS

*** INVENTORY TRANSACTION ERROR LISTING ***

CARD IMAGE

```
        1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
```

CARD IMAGE	CARD COL.	ERROR MESSAGE
2 2LA2FC2A022259 721 100 1582900122180303000ABABABAC 2MYD 176 1 ******	02-07	EQUIPMENT NUMBER MISSING/CARD REJECTED
2 G2 **********	01-80 02-07	INVALID CARD 1 / RESUBMIT ENTIRE RECORD EQUIPMENT NUMBER MISSING/CARD REJECTED
2 FORD 1/2 TON PICKUP 12 1 F100 F1019A-21774 593 **********	01-80 02-07	INVALID CARD 1 / RESUBMIT ENTIRE RECORD EQUIPMENT NUMBER MISSING/CARD REJECTED
2 184308 2938 211 4 **********	01-80 02-07	INVALID CARD 1 / RESUBMIT ENTIRE RECORD EQUIPMENT NUMBER MISSING/CARD REJECTED
**********	01-80	CARD 1 MISSING FOR ADD/RECORD REJECTED
2201016 100 G2 **********	01-80	CARD 1 MISSING FOR ADD/RECORD REJECTED
2000940 BA4FC3B040361 601 100 2055860122040303000ABABABAC 2MYD 176 1 ********	08-15	INVALID CHARACTER/RECORD REJECTED
2000940 G2 **********	01-80	INVALID CARD 1 / RESUBMIT ENTIRE RECORD
2000940PLY 4 DR STA WAG 12 1 256 2517-158831 613 **********	01-80	INVALID CARD 1 / RESUBMIT ENTIRE RECORD
2000940743394 3146 204 4 **********	01-80	INVALID CARD 1 / RESUBMIT ENTIRE RECORD
50010012LA2FC2B081861 721 100 1494000160070303000ABABABAC 2MYR 176 1		
5001001 100 G2		
50010011/2 TON PU DODGE 12 1 R6D100 1161-146601 613		
50010011121721 3166 4		
001018 G2 *	01	INVALID TRANSACTION/CARD REJECTED
20010161CA1HC3C0A06621201 100 2411300111060303000ABABABAC 2MYR 176 1 ******	16-21	INVALID DATE/RECORD REJECTED

```
RUN DATE: MAY  3, 1976                        CITY OF SAMPLEVILLE                                            PAGE NO:     1
                                    PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM
                                                                                                    PROGRAM NUMBER: EMIP03
                                         *** INVENTORY UPDATE ERROR LISTING ***                      REPORT NUMBER: EMIR02

                        CARD IMAGE
         1         2         3         4         5         6         7         8  CARD
12345678901234567890123456789012345678901234567890123456789012345678901234567890  COL.   ERROR MESSAGE

186314286314200031 2
             ******                                                               14-19  WRONG ORGANIZATION - REJECTED

6812694812694019202002120900209 09                                                       INVALID USE STATUS CODE - REJECTED

21279141AA4FD4K02017314210030000121496124962250312 4AABAACAA0001HYDABC180       1       DUPLICATE EQUIPMENT NO. - REJECTED
2127914049141C001010                                        005900          025E2
21279142 DR SEDAN                           1200021FORD9214C31                  3
21279141460900102                             11                              734

612493112493200300400314790031779
 ************                                                                      2-13  TRANS EQUIP NO'S NOT EQUAL - REJECTED
```

*** FLEET ADDITIONS ***

THE FOLLOWING EQUIPMENT HAS BEEN ADDED TO THE FLEET

EQUIP NO.	001018	FLAT RATE		DESCRIPTION	FORD ECONOLINE VAN	TITLE NO	1161760
APWA CODE	2VA1FC3C	BASIC RATE		FUND CODE	002716	PROP NO	6723Y
DATE RECEIVED	02/20/62	USE RATE B		ST. INSP FREQ	12 MOS.	P O NO.	627A
EST. LIFE	72 MONTHS	OVER		SERVICE SHOP	0040	LIC TAG	9963
SALVAGE VALUE	$100	USE RATE C		HIGHWAY CODE	CITY	DOMICILE	204
PURCH. AMOUNT	$1620.55	OVER		CHASSIS MAKE	FORD	BODY MK	
ORGANIZATION	012204	REPL EQUIP		CHASSIS MODEL	E143	BODY MOD	
PM INTERVAL MO.	3	REPLACED		CHASSIS SER NO	E14SH-245711	BODY SER	
PM INTERVAL	3000 MI	REPL PROP.		CHASSIS YEAR	1962	BODY YR	
PM SEQUENCE	ABABABAC	GROSS WT.	3500				
PM LOCATION	0002	IMPROVEMENT	$.00				
METER UNIT	MILES	TANK CAP.	25 GALLONS				
BILL ACCIDENT	YES	FUEL TYPE	HI-TEST				
BILLING BASIS	DIRECT CHRG						
INSUR. SCHED.	A-B-C						
DUTY HR/MO	176						

EQUIP NO.	001034	FLAT RATE	$25.00 PER MONTH	DESCRIPTION	CHEV 1/2 TON PU	TITLE NO	1171404
APWA CODE	2LA2FC2C	BASIC RATE	$.100 PER MI	FUND CODE	18243	PROP NO	1438W
DATE RECEIVED	04/03/62	USE RATE B	$.090	ST. INSP FREQ	12 MOS.	P O NO.	146B
EST. LIFE	72 MONTHS	OVER	100 MI	SERVICE SHOP	0042	LIC TAG	11690
SALVAGE VALUE	$100	USE RATE C	$.080	HIGHWAY CODE	CITY	DOMICILE	52
PURCH. AMOUNT	$1685.02	OVER	500 MI	CHASSIS MAKE	CHEV	BODY MK	
ORGANIZATION	016088	REPL EQUIP		CHASSIS MODEL	C1404	BODY MOD	
PM INTERVAL MO.	3	REPLACED		CHASSIS SER NO	2C1444A110567	BODY SER	
PM INTERVAL	3000 MI	REPL PROP.		CHASSIS YEAR	1962	BODY YR	
PM SEQUENCE	ABABABAC	GROSS WT.	3750				
PM LOCATION	0002	IMPROVEMENT	$.00				
METER UNIT	MILES	TANK CAP.	22 GALLONS				
BILL ACCIDENT	YES	FUEL TYPE	REGULAR				
BILLING BASIS	RENTAL						
INSUR. SCHED.	C-D-E						
DUTY HR/MO	176						

*** EQUIPMENT REMOVED FROM FLEET ***

THE FOLLOWING EQUIPMENT HAS BEEN REMOVED FROM THE FLEET

EQUIP. NUMBER	DESCRIPTION	MAKE	CLASS CODE	ASSIGNED ORGANIZATION	ORGN. CODE	CURRENT METER	CURRENT VALUE	OPERATING AND MAINT. $ LTD	DEPREC. AND INSUR. $ LTD
001240	UNIVERSAL WILLY	JEEP	1CA2CB1D	PW WATER CONTROL	011126	65419.8	$100	$6927.84	$815.90

MISCELLANEOUS DESCRIPTIVE:

BODY MAKE		BILLING BASIS	RENTAL	LIC. TAG NO.	11981	DOMICILE	211
BODY MODEL		FUND CODE	9683	TITLE NO.	1284093	INSUR. SCHED.	P-J-R
BODY SERIAL		EST. LIFE	120 MO	METER UNIT	MILES	PROPERTY NO.	14392
BODY YEAR		SALVAGE VALUE	$100	DUTY HR/MO.	176	GROSS WEIGHT	4880
CHAS MAKE	JEEP	UNIT DEP. AMT	$15 / MO	PURCH. ORD. NO.	143813	OLD EQUIP. NO.	
CHAS MODEL	CJ3B	PURCHASE AMT.	$2008.27	IMPROVEMENTS	$0.00	REPLACED	
CHAS SERIAL	57348-116982	DATE RECEIVED	08/20/63	BILL ACCIDENTS	YES	OLD PROP. NO.	
CHAS YEAR	1963			HIGHWAY CODE	CITY		

OPERATIONS:

MILES CM	831.3	FUEL GAL. CM	55.4	OIL QT. CM	2.0	TOTAL OPER. $ YTD	$107.55
MILES LTD	65419.8	FUEL $ CM	$22.16	OIL QT. LTD	192.4	TOTAL OPER. $ LTD	$1957.77
INSUR. $ CM	$12.50	FUEL GAL. LTD	4361.3	OIL-MISC $ CM	$1.43	FUEL TANK CAP.	25
DEPREC. $ CM	$0.00	FUEL $ LTD	$1744.52	OIL-MISC $ LTD	$213.25	FUEL TYPE	REGULAR

MAINTENANCE:

DOWNTIME CM	4	LABOR HR. CM	2.5	PM STOP	9002	METER LAST PM	60113.2
DOWNTIME LTD	59	LABOR $ CM	$30.00	PM INTERVAL (MO)	3	SERVICE SHOP	9000
REP. ORD. CM	1	LABOR $ LTD	$4741.50	LAST PM	02/15/76	ST. INSP. FREQ. (MO)	12
REP. ORD. LTD	63	PARTS $ CM	$12.30	PM INTERVAL (MI/HR)	3000	LAST STATE INSP.	02/15/76
ROAD CALLS CM	0	PARTS $ LTD	$1842.30	PM FREQUENCY	ABABABAC	ACCIDENT $ CM	$0.00
ROAD CALLS LTD	5	COMML $ CM	$0.00	NEXT PM TYPE	A	ACCIDENT $ LTD	$1214.33
		COMML $ LTD	$475.00	PM SEQUENCE NO.	1	TOTAL MAINT. $ LTD	$4970.07

RENTAL:

FLAT RATE	$5.00 PER DAY	RENTAL $ CM	$105.00	RENTAL B	$0.080 OVER 100 MILES
		RENTAL $ YTD	$623.80		
BASIC RATE	$0.100 PER MILE	RENTAL $ LTD	$23112.50	RENTAL C	$0.060 OVER 200 MILES

*** CM = CURRENT MONTH *** YTD = YEAR TO DATE *** LTD = LIFE TO DATE ***

*** FLEET INVENTORY DATA MODIFICATIONS ***

INVENTORY DATA HAS BEEN CHANGED ON THE FOLLOWING VEHICLES AS INDICATED:

EQUIP. NUMBER	DESCRIPTION	MAKE	APWA CODE	ASSIGNED ORGANIZATION	ORGAN. CODE	FIELD CHANGED	OLD CONTENTS	NEW CONTENTS
001013	ECONOLINE VAN	FORD	2VA1FC3C	PARKS PLAN & DEVL	012204	TANK CAP.	000	030
						FUEL TYPE	B	A
001240	UNIVERSAL MILTY	JEEP	1CA2FBID	PW WATER CONTROL	01126	EST LIFE	072	084
						SALV VALUE	00300	00100
						PM MONTHS	03	06
						BILL BASIS	R	D
002050	4 DR STA WAG	PLYM	1BA4FC3J	PARKS PLAN & DEVL	012204	LIC TAG NO.	A14392	591293

RUN DATE: MAY 3, 1976

CITY OF GAINESVILLE
EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** VEHICLES DEADLINED MORE THAN ONE MONTH ***

PROGRAM NUMBER: EMIR03
REPORT NUMBER: EMIR06

THE FOLLOWING EQUIPMENT HAS BEEN DEACTIVATED (DEADLINED) MORE THAN ONE MONTH:

EQUIP. NUMBER	DESCRIPTION	MAKE	AMIA CODE	ASSIGNED ORGANIZATION	ORGN. CODE	DATE IN SERVICE	CURRENT METER	CURRENT VALUE	TOTAL COSTS	DATE DEADLINED
001507	4 DR SEDAN	PLYM	1AA4FD4G	PARKS SOUTH DIST	012213	04/20/72	33190.0	$1190.00	$2236	04/01/76
001673	2 DR SEDAN	PLYM	1AA2FC2H	POOL CARS	016088	03/22/76	1000.0	$2760.00	3537	03/15/76
002026	4 DR SEDAN	PLYM	1AA2FC3J	POOL CARS	016088	08/29/75	6110.3	$2400.00	$1226	03/15/76

RUN DATE: MAY 3, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PAGE NO:

PROGRAM NUMBER: EMIP
REPORT NUMBER: EMIR

*** INVENTORY FILE DELETIONS ***

THE FOLLOWING EQUIPMENT HAS BEEN REMOVED FROM THE INVENTORY MASTER FILE:

EQUIP. NUMBER	DESCRIPTION	MAKE	APWA CODE	ASSIGNED ORGANIZATION	ORGN. CODE	DATE IN SERVICE	STATUS CODE	STATUS DESCRIPTION	DATE LAST STATUS CHANGE
002046	CARRYALL	INTL	2CA2FD2J	PW ENG SERVICES	011106	09/30/63	1	DELETED	04/01/75
002059	4 DR STA WAG	PLYM	1BA4FC3J	PARKS PLAN & DEVL	012204	10/31/68	1	DELETED	02/27/74
002064	1/2 TON PU	CHEV	2LA2FC3K	PW R & D MAINT	011125	11/07/68	1	DELETED	10/11/71

** SELECT CARD EDIT/ERROR LISTING **

CARD IMAGE 0 1 2 3 4 5 6 7 8 12345678901234567890123456789012345678901234567890123456789012345678	CARD COLS	ERROR MESSAGE
DALL 00001100		
SALL 00001101		
D0009401BA4FC3B012204 00001102		
D0010161CA2HC3C011106 00001103		
D0012411CA2FB1D011126 00001104		
D0016781AA2FC3H016088 00001105		
D0020261AA2FC3J016080 00001106		
D0021161AA4FD4K01608J 00001107 ******	16-21	BAD ORGANIZATION CODE/ RECORD REJECTED
D00A1161AA4FD4K016088 00001108		
D0010161CA2HC3C011106 **********	01-80	NO MATCH FOUND IN MASTER FILE
D0012411CA2FB1D011126 **********	01-80	NO MATCH FOUND IN MASTER FILE
D0020261AA2FC3J016080 **********	01-80	NO MATCH FOUND IN MASTER FILE
D00A1161AA4FD4K016088 **********	01-80	NO MATCH FOUND IN MASTER FILE

*** EQUIPMENT INVENTORY DETAIL REPORT ***

CRITERIA FOR REPORT -
ALL EQUIPMENT

EQUIP. NUMBER	DESCRIPTION	MAKE	CLASS CODE	ASSIGNED ORGANIZATION	ORGN. CODE	CURRENT METER	CURRENT VALUE	OPERATING AND MAINT. $ LTD	DEPREC. AND INSUR. $ LTD
000711	1/2 TON PICKUP	FORD	2LA2FC2A	PARKS SOUTH DIST	012218	28995.4	$100	$12814.23	$3816.59

MISCELLANEOUS DESCRIPTIVE:

BODY MAKE		BILLING BASIS	DIRECT CHRG	LIC. TAG NO.	2938	DOMICILE	211
BODY MODEL		FUND CODE	216913B	TITLE NO.	134308	INSUR. SCHED.	A-D-J
BODY SERIAL		EST. LIFE	72 MO	METER UNIT	MILES	PROPERTY NO.	60096
BODY YEAR		SALVAGE VALUE	$100	DUTY HR/MO.	176	GROSS WEIGHT	4550
CHAS MAKE	FORD	UNIT DEP. AMT	$20 / MO	PURCH. ORD. NO.	A14691	OLD EQUIP. NO.	
CHAS MODEL	F100	PURCHASE AMT.	$1582.90	IMPROVEMENTS	$0.00	REPLACED	
CHAS SERIAL	F10J9A-21774	DATE RECEIVED	09/22/59	BILL ACCIDENTS	YES	OLD PROP. NO.	
CHAS YEAR	1959			HIGHWAY CODE	CITY		

OPERATIONS:

MILES CM	2899.8	FUEL GAL. CM	186.6	OIL QT. CM	4.0	TOTAL OPER. $ YTD	$155.35
MILES LTD	128095.4	FUEL $ CM	$72.16	OIL QT. LTD	479.3	TOTAL OPER. $ LTD	$3342.29
INSUR. $ CM	$10.00	FUEL GAL. LTD	8416.1	OIL-MISC $ CM	$3.13	FUEL TANK CAP.	20
DEPREC. $ CM	$00.00	FUEL $ LTD	$1854.30	OIL-MISC $ LTD	$250.17	FUEL TYPE	REGULAR

MAINTENANCE:

DOWNTIME CM	1	LABOR HR. CM	2.0	PM SHOP	0002	METER LAST PM	24103.3
DOWNTIME LTD	765	LABOR $ CM	$30.00	PM INTERVAL (MO)	3	SERVICE SHOP	0008
REP. ORD. CM	1	LABOR $ LTD	$5914.32	LAST PM	01/15/76	ST. INSP. FREQ. (MO)	12
REP. ORD. LTD	102	PARTS $ CM	$40.00	PM INTERVAL (MI/HR)	3000	LAST STATE INSP.	10/29/75
ROAD CALLS CM	0	PARTS $ LTD	$2814.02	PM SEQUENCE	ABABABAC	ACCIDENT $ CM	$0.00
ROAD CALLS LTD	14	COMERL $ CM	$100.00	NEXT PM TYPE	A	ACCIDENT $ LTD	$0.00
		COMERL $ LTD	$743.60	PM SEQUENCE NO.	1	TOTAL MAINT. $ LTD	$9471.94

RENTAL:

FLAT RATE	$5.00 PER DAY	RENTAL $ CM	$162.50	RENTAL B	$0.080 OVER 100 MILES
		RENTAL $ YTD	$609.30		
BASIC RATE	$0.100 PER MILE	RENTAL $ LTD	$18429.05	RENTAL C	$0.060 OVER 200 MILES

*** CM = CURRENT MONTH *** YTD = YEAR TO DATE *** LTD = LIFE TO DATE ***

RUN DATE: MAY 24, 1976

CITY OF SAMPLEVILLE
PEI/APHA EQUIPMENT MANGEMENT INFORMATION SYSTEM
*** EQUIPMENT INVENTORY SUMMARY REPORT ***

PROGRAM NUMBER: EMIP05
REPORT NUMBER: EMIR10

CRITERIA FOR REPORT -
ALL EQUIPMENT

EQUIP. NUMBER	DESCRIPTION	MAKE	CLASS CODE	ASSIGNED ORGANIZATION	ORGN. CODE	CURRENT METER	CURRENT VALUE	OPERATING AND MAINT. $ LTD	DEPREC. AND INSUR. $ LTD
000711	FORD 1/2 TON PICKUP	FORD	2LA2FC2A	PARKS SOUTH DIST	012218	29995.4	$100	$12814.23	$3816.59
000940	PLY 4 DR STA WAG	PLYM	1BA4FC3B	PARKS PLAN & DEVL	012204	81114.2	$100	$11072.59	$832.59
001001	1/2 TON PU DODGE	DODG	2LA2FC2B	CSA BLDG MAINT	016007	64317.7	$520	$8837.50	$1119.36
001016	JEEP 4 WHL DR/WINCH	JEEP	1CA1HC3C	PU ENG SERVICES	011106	60003.0	$840	$7125.20	$1119.26
001018	FORD ECONOLINE VAN	FORD	2VA1FC3C	PARKS PLAN & DEVL	012204	10143.1	$2500	$1494.62	$1221.11
001034	CHEV 1/2 TON PU	CHEV	2LA2FC2C	POOL CARS	016088	7684.1	$2720	$832.54	$72.01
001236	FORD FALCON STA BUS	FORD	2VA1FC3D	PARKS PLAN & DEVL	012204	86998.0	$100	$1478.24	$122.41
001240	JEEP UNIVERSAL WILLY	JEEP	1CA2FB1D	PU WATER CONTROL	011126	65419.8	$700	$6927.84	$815.99
001440	RAMBLER AM 2 DR SDN	RAMB	1AA2FC3G	B & Z DIRECTOR	012301	15100.2	$1200	$1826.83	$221.83
001507	PLY 4 DR SDN	PLYM	1AA4FD4G	PARKS SOUTH DIST	012218	33190.0	$1190	$2236.06	$330.56
001611	FORD FALCON 2 DR SDN	FORD	1AA2FC3G	TAX ASSESSOR	013301	76219.2	$100	$11031.58	$921.58
001678	VALIANT 2DR SDN	PLYM	1AA2FC3H	POOL CARS	016088	1080.0	$2760	$537.16	$120.76
001680	VALIANT 2 DR SDN	PLYM	1AA2FC3H	POOL CARS	016088	14446.8	$2210	$1432.14	$220.63
001693	VALIANT 2 DR SDN	PLYM	1AA2FC3H	B & Z DIRECTOR	012301	9140.0	$2900	$1125.66	$1940.46
001694	VALIANT 2 DR SDN	PLYM	1AA2FC3H	B & Z DIRECTOR	012301	8108.6	$2790	$1031.66	$180.69
002026	VALIANT 4 DR SDN	PLYM	1AA2FC3J	POOL CARS	016088	6110.3	$2480	$1225.87	$125.87
002046	INTL CARRYALL	INTL	2CA2FD2J	PU ENG SERVICES	011106	8601.8	$3570	$946.93	$64.93
002050	PLY 4 DR STA WAG	PLYM	1BA4FC3J	PARKS PLAN & DEVL	012204	47475.0	$100	$5247.41	$241.41
002054	CHEV 1/2 TON PU	CHEV	2LA2FC3K	PU R & B MAINT	011125	91122.2	$100	$8826.87	$422.76
002116	CHEV 4 DR SDN	CHEV	1AA4FD4K	POOL CARS	016088	8346.3	$100	$1142.09	$129.82

RUN DATE: MAY 3, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** EQUIPMENT INVENTORY NO MATCH REPORT ***

PROGRAM NUMBER: EMI705
REPORT NUMBER: EMIR11

CRITERIA FOR REPORT -
EQUIPMENT NO. 123456
APWA CODE 1A
ORGANIZATION NO. 012345

CRITERIA FOR REPORT -
EQUIPMENT NO. 124370

CRITERIA FOR REPORT -
EQUIPMENT NO. 013736
ORGANIZATION NO. 101230

RUN DATE: MAY 2, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PROGRAM NUMBER: EMIP06
REPORT NUMBER: EMIR12

*** FLEET INVENTORY ASSIGNMENT SUMMARY ***

ASSIGNED ORGN.	ORGN. CODE	NUMBER OF VEHICLES: CLASS 1 AUTO/MCYC	CLASS 2 TRK-GEN P	CLASS 3 TRK-SPEC	CLASS 4 TRACTORS	CLASS 5 CONST/MIT	CLASS 6 AIR/WATER	CLASS 8 TRAILERS	CLASS 9 NONSELFPR	TOTAL UNITS
PW ENG SERVICES	011106	14	3	1	1	0	5	0	2	26
PW R & B MAINT	011125	8	2	1	3	0	3	2	16	35
PW WATER CONTROL	011126	20	0	1	1	0	2	1	5	30
PARKS PLAN & DEVL	012204	5	6	9	6	6	6	6	28	72
PARKS SOUTH DIST	012210	3	5	8	1	3	2	2	9	33
B & Z DIRECTOR	012301	4	0	0	0	0	0	0	0	4
TAX ASSESSOR	013301	3	0	0	0	0	0	0	0	3
CSA BLDG MAINT	016007	52	10	26	2	0	0	0	1	91
POOL CARS	016088	146	47	13	0	0	0	0	0	206
T O T A L S		260	73	59	14	9	18	11	61	505

RUN DATE: FEB 3, 1976
PERIOD ENDING: JAN 31, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PROGRAM NUMBER: EMFR01
REPORT NUMBER: EMFR01

*** FUEL TRANSACTION ERROR LISTING ***

** COMMODITY RATES **

* FUEL($/GALLON) *					*	* MISCELLANEOUS($/QUART) *			
REGULAR	LO-LEAD	HI-TEST	DIESEL	KEROSENE	*	OIL	ANTI-FREEZE	HYDRAULIC FLUID	TRANS FLUID
$0.50	$0.55	$0.60	$0.40	$0.25	*	$0.70	$1.00	$0.80	$0.90

** FUEL TRANSACTION ERRORS **

CARD IMAGE 1 2 3 4 1234567890123456789012345678901234567890	CARD COL.	ERROR MESSAGE
00200000201427600094000002000 20 01 01 *******	10-15	INVALID DATE - TRANSACTION REJECTED
00300002401127600103400028001 00		FUEL NOT CORRECT TYPE FOR THIS VEHICLE - TRANSACTION ACCEPTABLE
00100002501137600124000024001 00		FUEL NOT CORRECT TYPE FOR THIS VEHICLE - TRANSACTION ACCEPTABLE
00200003201167600167800000001 00 *******	22-28	TRANS MILEAGE .0 MASTER MILEAGE .0-TRANS ALLOWED
00300003301247600163400095601 00 ******	16-21	INVALID VEHICLE NUMBER - TRANSACTION REJECTED
00100002201247600242600035001 00 ******	16-21	INVALID VEHICLE NUMBER - TRANSACTION REJECTED
00400003401227600245400020601 00 ******	16-21	INVALID VEHICLE NUMBER - TRANSACTION REJECTED

RUN DATE: MAR 19, 1975
PERIOD ENDING: MAR 17, 1975

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** PUMP RECONCILIATION REPORT ***

PROGRAM NUMBER: EMFP02
REPORT NUMBER: EMFR02

PUMP NO.	PUMP READING ON	PUMP READING OFF	PUMP READING PERIOD	GALLONS DISPENSED	GALLONS REPORTED ON FUEL TICKETS	GALLONS DIFFERENCE	FUEL TYPE
101	20143.9	21341.0	3/10/75 - 3/17/75	1197.1	1086.3	110.8-	GAS-LOW LEAD
102	9146.2	14192.1	3/10/75 - 3/17/75	5045.8	5041.3	4.5-	GAS-REGULAR
104	124361.4	125962.2	3/11/75 - 3/17/75	1600.8	1662.1	61.3	DIESEL
105	12961.0	12961.0	3/11/75 - 3/16/75	0.0	(NONE REPORTED)		GAS-REGULAR
107	(NONE REPORTED)				89.3	89.3	GAS-REGULAR
201	3346.2	9146.8	3/10/75 - 3/17/75	5800.6	5718.3	82.3-	GAS-HIGH TEST
312	(NONE REPORTED)				(NONE REPORTED)		KEROSENE

RUN DATE: MAR 19, 1975
PERIOD ENDING: MAR 17, 1975

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PROGRAM NUMBER: EMFP02
REPORT NUMBER: EMFR02

*** PUMP RECONCILIATION REPORT ***

COMMODITY TYPE	REPORTING UNIT	QUANTITY DISPENSED	QUANTITY REPORTED ON FUEL TICKETS	QUANTITY DIFFERENCE	PERCENT DIFFERENCE	COST PER UNIT	COST OF QUANTITY DISPENSED	COST OF QUANTITY REPORTED ON FUEL TICKETS	COST OF DIFFERENCE
GAS-REGULAR	GALLONS	5045.8	5130.6	89.3	1.8	$.37	$1866.95	$ 1898.32	$31.37
GAS-LOW LEAD	GALLONS	1197.0	1086.3	110.8-	9.3-	$.39-	$466.87	$423.66	$43.21
GAS-HIGH TEST	GALLONS	5800.6	5718.3	82.3-	1.4-	$.41	$2378.25	$2344.50	$33.75-
DIESEL	GALLONS	1600.8	1662.0	60.3	3.8	$.32	$512.26	$530.87	$19.61
KEROSENE	GALLONS	0.0	0.0	0.0	0.0	$.25	$.00	$.00	$.00
					** FUEL TOTAL **		$5224.33	$5198.35	$25.98-

RUN DATE: MAR 5, 1976 — CITY OF SAMPLEVILLE — PAGE NO: 1

RPT PER: FEB 1, 1975-FEB 28, 1975 — FTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PROGRAM NUMBER: EMFP05
REPORT NUMBER: EMFR05

* SELECTED VEHICLES * — *** FUEL TRANSACTIONS BY EQUIPMENT NUMBER ***

VEHICLE DESCRIPTION	ASSIGNED ORGANIZATION	TICKET NUMBER	DATE	PUMP NUMBER	METER READING	MILES/HOURS TRAVELED	FUEL TYPE	FUEL GAL	FUEL COST	OIL QTS	OIL COST	MISC COST
EQUIP. NO. 607321	FINANCE DEPT	772612	2/16/75	042	65127.6	123.6 MI	REGULAR	12.2	$6.10	0.0	$0.00	$0.00
1972 CHEV		861721	2/25/75	037	65378.3	250.7 MI	REGULAR	20.6	$10.30	1.0	$0.65	$0.37
2 DR YELLOW SEDAN												
		** VEHICLE TOTAL **		(MPG= 11.4)		374.3 MI		32.8	$16.40	1.0	$0.65	$0.37
EQUIP. NO. 729049	POLICE-TRAFFIC	861721	2/09/75	141	37456.6	211.2 MI	HIGH TEST	17.6	$8.80	0.0	$0.00	$0.00
1974 FORD		861722	2/10/75	141	37678.6	222.0 MI	HIGH TEST	18.5	$9.30	1.0	$0.65	$2.00
4 DR POLICE SPECIAL		891763	2/11/75	098	37887.4	208.8 MI	HIGH TEST	17.4	$8.90	0.0	$0.00	$0.00
		912416	2/14/75	141	38083.0	195.6 MI	HIGH TEST	16.3	$9.20	0.0	$0.00	$0.00
		918142	2/15/75	150	38229.4	146.4 MI	HIGH TEST	12.2	$6.10	0.0	$0.00	$0.00
		** VEHICLE TOTAL **		(MPG= 12.0)		984.0 MI		82.0	$41.30	1.0	$0.65	$2.00

RUN DATE: MAR 6, 1975 — CITY OF SAMPLEVILLE — PAGE NO: 1
REPT PER: FEB 1, 1975-FEB 28, 1975 — PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM
PROGRAM NUMBER: EMFP05
REPORT NUMBER: EMFR06

* SELECTED PUMPS * — *** FUEL TRANSACTIONS BY PUMP NUMBER ***

PUMP NUMBER	FUEL TYPE	EQUIPMENT NUMBER	VEHICLE DESCRIPTION	ASSIGNED ORGANIZATION	TICKET NUMBER	DATE	FUEL GAL	FUEL COST	OIL QTS	OIL COST	MISC COST
037	REGULAR	607321	1972 CHEV 2 DR YELLOW SEDAN	FINANCE DEPT	772612	2/16/75	12.2	$6.10	0.0	$0.00	$0.00
		418960	1970 FORD 4 DR POLICE SPECIAL	POLICE-TRAFFIC	772613	2/16/75	14.6	$7.30	1.0	$0.65	$0.50
		121300	1972 CHEV 2 DR SEDAN	WELFARE DEPT	772614	2/18/75	9.3	$4.65	0.0	$0.00	$0.00
		180900	1968 CHEV 2 DR BLACK COUP	PUBLIC WORKS	772615	2/19/75	10.2	$5.10	0.0	$0.00	$1.00
		300814	1970 RAMB 2 DR GREEN SEDAN	WELFARE DEPT	772616	2/21/75	15.8	$7.90	2.0	$1.30	$0.00
		000001	1974 CADI 4 DR WHITE LIMOUSINE	MAYORS OFFICE	772617	2/24/75	21.2	$10.60	1.0	$0.65	$0.86
		000416	1953 WHIT 2 DR PICKUP	PUBLIC WORKS	772618	2/25/75	11.0	$5.55	1.0	$0.65	$0.00
		100203	1969 HD MOTORCYCLE	POLICE-TRAFFIC	772619	2/27/75	3.3	$1.65	0.0	$0.00	$1.43
		000314	1965 REO 2 DR RED DUMP TRUCK	PUBLIC WORKS	772620	2/28/75	7.3	$3.65	0.0	$0.00	$0.00
				** PUMP TOTAL **			104.9	$52.50	5.0	$3.25	$3.79
042	HIGH TEST	348617	1973 FORD 4 DR POLICE SPECIAL	POLICE-CRIME	740140	2/15/75	10.6	$5.30	1.0	$0.65	$0.00
		349213	1972 CHEV 2 DR POLICE SPECIAL	POLICE-VICE SQ	740141	2/22/75	15.3	$7.65	0.0	$0.00	$2.92
		314982	1974 CHEV 4 DR POLICE SPECIAL	POLICE SPECIAL	740142	2/22/75	9.8	$4.90	0.0	$0.00	$0.00
				** PUMP TOTAL **			35.7	$17.85	1.0	$0.65	$2.92

RUN DATE: MAY 17, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PROGRAM NUMBER: EMRP01
REPORT NUMBER: EMRR01

*** REPAIR ORDER TRANSACTION ERROR LISTING ***

```
                                  CARD IMAGE
        1         2         3         4         5         6         7         8  CARD   ERROR MESSAGE
12345678901234567890123456789012345678901234567890123456789012345678901234567890  COL.

 00711000001AA1115000100OXY  E01020900B01021000A00100
******                                                                            01-06  EQUIP NO NOT IN MASTER FILE-TRANS REJECTED
                             *                                                    39-39  INVALID MONTH-DAY-TIME OF DAY-TRAN REJECTD

MM1016000004PT95001000 03001000 01005000
**********************************************************************************  01-80  HEADER MISSING/IN ERROR-SET REJECTED
******                                                                            01-06  EQUIP NO NOT IN MASTER FILE-TRANS REJECTED

000711000001CM01010A00
**********************************************************************************  01-80  HEADER MISSING/IN ERROR-SET REJECTED
               ******                                                             17-22  COST MISSING OR NOT NUMERIC-REC REJECTED
000711000001LR 102020000 005 04
000711000001LR 101010000 005 01 101010000 005 02 102020000 005 03
000711000001PT01001000 02001000 03001000 04001000

000940000002AA1115000200OY   A01020900A01030900A02400
000940000002CM04010000
000940000002LL 103030000 020 01 103030000 030 02 103030000 030 03
          **                                                                      13-14  IDENTIF R CODE INVALID - RECORD REJECTED
000940000002PT99005000 01005000 02010000 02010000 03020000 03020000

00100100A003PT23005000 23005000 23005000 45010000 45010000 45010000
**********************************************************************************  01-80  HEADER MISSING/IN ERROR-SET REJECTED
      ******                                                                      07-12  REPAIR ORDER NO NOT NUMERIC-TRANS REJECTED

001001000003AA1115000300OZZ  B01030900A01030500P00800
                           *                                                      27-27  IDENTIFIER CODE INVALID - RECORD REJECTED
001001000003LR 114040000 040 23 105050000 040 45
            *********                                                           16-24  INVALID EMPLOYEE NO - RECORD REJECTED

001016000004AA1115000400OXN  R01040900A01041200A00300
                           *                                                      27-27  IDENTIFIER CODE INVALID - RECORD REJECTED
001016000004LR 101010000 010 95 101010000 010 03 101010000 010 01

001018000005AA1115000500OXY  E01050900A
                                 *********                                      40-48  COMPLETED IS BLANK-SUBSTITUTED TODAYS DATE
001018000005LR 101010000 010 01 102020000 010 02 103030000 010 03
001018000005LR 104040000 010 04 105050000 010 05
001018000005PT16013000 17014000 18015000
001018000005PT07007000 11008000 12009000 13010000 14011000 15012000
001018000005PT01001000 02002000 03003000 04004000 15005000 06006000

001236000006AA1115000600OXY  E01080900A01101100A05000
001236000006LR 101010000 010 03 102020000 020 23
001236000006PT23010000 03009000
```

EQUIP. NUMBER	MAKE	DESCRIPTION	APWA CODE	BILL CODE	DATE IN SERVICE	EXPECTED LIFE	*-EXP. RETIREMENT-* METER	DATE	CURRENT METER	METER USAGE CURRENT MO.
000711	FORD	FORD 1/2 TON PICKUP	2LA2FC2A	D	09/22/59	72 MNTH	029995	5/03/76	129995	2899

SHOP ACTIVITY

--SERVICE DATE- FROM - TO	METER READING	REPAIR NUMBER	SHOP NO.	REPAIR TYPE	REPAIR DESCRIPTION	*------LABOR ------* HOURS	COST	PARTS COST	COMM. COST	TOTAL COST
01/02/76-01/02/76	28149	001141	1115	03	INSTRMT & GAUGES	0.5	5.00	10.00	0.00	15.00
				02	CAB FIXTURES	0.5	5.00	10.00	0.00	15.00
				01	HEATING & VENTILA	0.5	5.00	10.00	100.00	115.00
				04	GLASS	0.5	5.00	10.00	0.00	15.00
										160.00 *
					REPORTING PERIOD TOTALS----	2.0	20.00	40.00	100.00	160.00 **
					LIFE TO DATE TOTALS--------	52.6	$5914.32	$2814.02	$743.60	$9471.94 ***
					COST PER METER UNIT LIFE TO DATE	$0.07				

****

EQUIP. NUMBER	MAKE	DESCRIPTION	APWA CODE	BILL CODE	DATE IN SERVICE	EXPECTED LIFE	*-EXP. RETIREMENT-* METER	DATE	CURRENT METER	METER USAGE CURRENT MO.
000940	PLYM	PLY 4 DR STA WAG	1BA4FC3B	R	04/03/61	60 MNTH	081114	5/03/76	81114	1530

SHOP ACTIVITY

--SERVICE DATE- FROM - TO	METER READING	REPAIR NUMBER	SHOP NO.	REPAIR TYPE	REPAIR DESCRIPTION	*------LABOR------* HOURS	COST	PARTS COST	COMM. COST	TOTAL COST
01/02/76-01/03/76	80998	001139	1115	11	AXLES-FRONT	3.0	30.00	200.00	0.00	230.00
				13	BRAKES	2.0	20.00	100.00	0.00	120.00
				14	FRAME	0.0	0.00	0.00	100.00	100.00
				26	TRANSMISSION-MAIN	3.0	30.00	400.00	0.00	430.00
										880.00 *
					REPORTING PERIOD TOTALS----	8.0	80.00	700.00	100.00	880.00 **
					LIFE TO DATE TOTALS--------	614.3	$4300.10	$1916.30	$542.50	$6758.90 ***
					COST PER METER UNIT LIFE TO DATE	$0.08				

****

EQUIP. NUMBER	MAKE	DESCRIPTION	APWA CODE	BILL CODE	DATE IN SERVICE	EXPECTED LIFE	* EXP. RETIREMENT-* METER	DATE	CURRENT METER	METER USAGE CURRENT MO.
001001	DODG	1/2 TON PU DODGE	2LA2FC2B	R	08/18/61	72 MNTH	064317	5/03/76	64317	2140

SHOP ACTIVITY

--SERVICE DATE- FROM - TO	METER READING	REPAIR NUMBER	SHOP NO.	REPAIR TYPE	REPAIR DESCRIPTION	*------LABOR------* HOURS	COST	PARTS COST	COMM. COST	TOTAL COST
01/03/76-01/03/76	62190	001144	1115	23	CLUTCH	4.0	40.00	150.00	0.00	190.00

RUN DATE: MAY 2, 1976
PERIOD ENDING: APR 30, 1976

CITY OF SAMPLEVILLE
PCI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** SHOP PERFORMANCE REPORT ***

PROGRAM NUMBER: EMRP11
REPORT NUMBER: EMRR11

SHOP NUMBER - 1115 *****

ITEM	THIS PERIOD	LAST PERIOD	THIS YEAR TO DATE	LAST YEAR TO DATE
NO. OF EMPLOYEES	24	27	N/A	N/A
LABOR HOURS	563	579	2103	2019
EXPENDITURES ($)				
LABOR	$5919.20	$5814.30	$21,941.30	$19,832.10
PARTS	$2559.99	$3313.95	$9,814.29	$10,003.02
CONTRACTUAL COSTS	$200.00	$680.00	$1,402.50	$1,550.50
TOTAL	$8679.19	$9808.25	$33,158.09	$31,385.62
WORK PERFORMED				
REPAIR ORDERS	144	147	501	466
PM INSPECTIONS	51	39	223	191
ROAD CALLS	20	22	64	67
SCHEDULED REPAIRS	76	89	256	247
UNSCHEDULED REPAIRS	49	25	147	159
EMERGENCY REPAIRS	19	33	104	60
PERFORMANCE STATISTICS				
AVE. LAB. HR. / RO	4	4	4	4
AVE. $ / RO	$60.27	$66.72	$43.79	$42.56
% COMPLETED IN 24 HRS.	80	73	N/A	N/A
% COMPLETED 24-48 HRS.	16	15	N/A	N/A

RUN DATE: MAY 2, 1976
PERIOD ENDING: APR 30, 1976

CITY OF SAYREVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** SHOP PERFORMANCE ANALYSIS BY TYPE OF REPAIR ***

PROGRAM NUMBER: EMRP12
REPORT NUMBER: EMRR12

SHOP NUMBER - 1115

REPAIR TYPE - 01 ****
HEATING & VENTILA

	THIS PERIOD	LAST PERIOD	THIS YEAR TO DATE	LAST YEAR TO DATE
REPAIR ORDERS				
TOTAL	4	1	14	6
SCHEDULED	3	1	11	6
LABOR HOURS	4	6	51	19
REPAIR COSTS				
LABOR	$85.00	$25.50	$170.00	$68.50
PARTS	$170.00	$192.00	$543.10	$243.86
COMMERCIAL	$100.00	$0.00	$196.84	$29.18
TOTAL	$355.00	$217.50	$909.94	$341.54

REPAIR TYPE - 02 ****
CAB FIXTURES

	THIS PERIOD	LAST PERIOD	THIS YEAR TO DATE	LAST YEAR TO DATE
REPAIR ORDERS				
TOTAL	3	11	21	19
SCHEDULED	2	7	4	10
LABOR HOURS	4	44	83	102
REPAIR COSTS				
LABOR	$115.00	$192.10	$250.14	$231.30
PARTS	$230.00	$57.80	$99.80	$103.40
COMMERCIAL	$0.00	$111.20	$141.50	$25.50
TOTAL	$345.00	$361.10	$491.44	$360.20

REPAIR TYPE - 03
INSTRMT & GAUGES

	THIS PERIOD	LAST PERIOD	THIS YEAR TO DATE	LAST YEAR TO DATE
REPAIR ORDERS				
TOTAL	5	6	20	36
SCHEDULED	4	6	20	31
LABOR HOURS	6	23	114	174

RUN DATE: MAY 2, 1976
PERIOD ENDING: APR 30, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** CAUSE OF REPAIR REPORT ***

PAGE NO: 1

PROGRAM NUMBER: EMRP13
REPORT NUMBER: EMRR13

APWA CLASS CODE - LA - 3RK PICKUP STD

CAUSE OF REPAIR	THIS PERIOD			LAST PERIOD			THIS YEAR TO DATE			LAST YEAR TO DATE		
	REPAIRS	LABOR		REPAIRS	LABOR		REPAIRS	LABOR		REPAIRS	LABOR	
	NUMBER	HOURS	COST	NUMBER	HOURS	COST	NUMBER	HOURS	COST	NUMBER	HOURS	COST
	%	%	%	%	%	%	%	%	%	%	%	%
BREAKDOWN	3	21	210	0	0	0	10	101	1010	12	165	1650
	5	10	10	0	0	0	4	13	13	5	20	20
ACCIDENT	1	40	400	2	14	140	16	175	1750	8	89	890
	2	19	19	2	6	6	6	22	22	3	11	11
THEFT/VANDLSM	1	5	50	3	8	80	7	22	220	16	61	610
	2	2	2	4	3	3	3	3	3	6	7	7
DAILY SCHEDUL	15	42	420	9	25	250	45	147	1470	42	209	2090
	24	20	20	11	10	10	16	19	19	16	25	25
DRIVER REQUST	21	12	120	36	102	1020	73	56	560	75	52	520
	33	6	6	44	41	41	29	7	7	29	6	6
REWORK	2	19	190	4	61	610	9	91	910	10	77	770
	3	9	9	5	24	24	3	12	12	4	9	9
PREV MAINT	12	26	260	16	32	320	57	97	970	41	96	960
	19	12	12	20	13	13	21	12	12	16	11	11
STATE INSP	5	3	30	11	8	80	40	18	180	47	19	190
	8	1	1	14	3	3	15	2	2	18	2	2
WARRANTY	3	45	450	0	0	0	11	78	780	9	75	750
	5	21	21	0	0	0	4	10	10	3	9	9

RUN DATE: APR 20, 1976

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** BILLING TRANSACTION ERROR LISTING ***

PROGRAM NUMBER: EMBP01
REPORT NUMBER: EMBR01

```
                CARD IMAGE
        1         2         3         4         5     CARD
12345678901234567890123456789012345678901234567890   COL.     ERROR MESSAGE

M0009400122040401760900A0418760500P00261530031296

P0010010160070501760900A0418760500P03241680362197
           ******                                     14-19    DATE OUT GREATER THAN DATE IN - TRANSACTION REJECTED

M0010160111060401760900A0415760500P00987140109623

X0010340160380403761900A1417760500B      0631493
*                                                     1        INVALID BILLING CODE - TRANSACTION REJECTED
                    ****                              20-23    INVALID TIME - TRANSACTION REJECTED
                         ******                       25-30    INVALID DATE - TRANSACTION REJECTED
                                *                     35       INVALID TIME CODE - TRANSACTION REJECTED
                                 *******              36-42    INVALID METER READING - TRANSACTION REJECTED

P0016800160830418760900A0419760200P00342870034701
```

ORGANIZATION - 012204 PARKS PLAN & DEVL FUND NUMBER - 841396

EQUIPMENT-NO - 000940 PLY 4 DR STA WAG

FLAT RATE	30 DAYS	AT	1.000	PER DAY	30.00	04/01 09:00 AM- 04/30 05:00 PM
BASIC USE RATE	1010 MILES	AT	.010	PER MILE	10.10	

VEHICLE SUBTOTALS

VEHICLE TOTAL 40.10

****

EQUIPMENT-NO - 001013 FORD ECONOLINE VAN

REPAIR NUMBER	SHOP NO.	LABOR COST	PARTS COST	COMM. COST	TOTAL COST OF REPAIR	*-------FUEL-------* GALLONS	COST	*-------OIL--------* QUARTS	COST	MISC. COST	FUEL + OIL + MISC
						6.0	3.00			.51	
000005	1115	270.00	1,200.00		1,470.00						
VEHICLE SUBTOTALS		270.00	1,200.00		1,470.00	6.0	3.00			.51	3.51

VEHICLE TOTAL 1,473.51

****

EQUIPMENT-NO - 0012 6 FORD FALCON STA BUS

REPAIR NUMBER	SHOP NO.	LABOR COST	PARTS COST	COMM. COST	TOTAL COST OF REPAIR	*-------FUEL-------* GALLONS	COST	*-------OIL--------* QUARTS	COST	MISC. COST	FUEL + OIL + MISC
						11.0	5.50	.2	.14	.20	
000006	1115	50.00	99.99		149.99						
VEHICLE SUBTOTALS		50.00	99.99		149.99	11.0	5.50	.2	.14	.20	5.84

VEHICLE TOTAL 155.83

****

FUND TOTAL 1669.44
ORGANIZATION TOTAL 1669.44

ASSIGNED ORGANIZATION - 016038 - PUBLIC WELFARE

TRANSACTION TYPE (1)	EQUIP. NUMBER (2-7)	ORGN. NUMBER (8-13)	STARTING DATE (14-19)	ENDING DATE (25-30)	STARTING METER READING (36-42)	ENDING METER READING (43-49)	VEHICLE DESCRIPTION ←THIS LINE FOR USE BY DATA PROCESSING	VEHICLE LICENSE NO.
M	001034	016038	04/01/76	---/---/---	87519.8	---------.--	62 CHEV 1/2 TON PU	11690
M	001678	016038	04/01/76	---/---/---	65142.3	---------.--	67 VAL 2 DR SEDAN	16749
M	001680	016038	04/01/76	---/---/---	98293.0	---------.--	67 VAL 2 DR SEDAN	2863
M	002026	016038	04/01/76	---/---/---	46712.1	---------.--	68 VAL 4 DR SEDAN	18726
M	002116	016038	04/01/76	---/---/---	55545.3	---------.--	69 CHEV 4 DR SEDAN	18998

TO BE USED WHEN A VEHICLE IS ASSIGNED TO YOUR ORGANIZATION

M	------	016038	--/--/--	---/---/---	-------.--	---------.--
M	------	016038	--/--/--	---/---/---	-------.--	---------.--
M	------	016038	--/--/--	---/---/---	-------.--	---------.--
M	------	016038	--/--/--	---/---/---	-------.--	---------.--
M	------	016038	--/--/--	---/---/---	-------.--	---------.--

RUN DATE: MAR 3, 1975

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PM FACILITY: NORTHWEST GARAGE

*** PREVENTIVE MAINTENANCE SCHEDULING FOR MARCH, 1975 ***

PROGRAM NUMBER: EMMP02
REPORT NUMBER: EMMR01

THE FOLLOWING VEHICLES ARE DUE FOR C TYPE PM THIS MONTH:

VEHICLE DESCRIPTION	ASSIGNED ORGANIZATION	TYPE LAST PM	DATE LAST PM	METER READING LAST PM	PM SCHEDL BASIS	WEEKS UNTIL DUE	DATE PM PERFORMED MM DD YY	DATE NEXT STATE INSP
EQUIP. NO. 180900 1973 FORD 4 DR POLICE SPECIAL	POLICE-CRIME 000400	A	9/30/74	98143.2 MI	3000 MI 6 MO	3 WEEKS	(/ /)	3/15/75 *
EQUIP. NO. 348617 1972 CHEV 2 DR GREEN SEDAN	WELFARE DEPT 010132	B	12/19/74	43195.1 MI	3000 MI 3 MO	2 WEEKS	(/ /)	2/09/75 **

* DUE NOW FOR STATE INSPECTION

** OVERDUE FOR STATE INSPECTION

RUN DATE: MAR 3, 1975

CITY OF SAMPLEVILLE
PTI/APUA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PROGRAM NUMBER: EMMP02
REPORT NUMBER: EMMR01

FACILITY TOTALS:

*** PREVENTIVE MAINTENANCE SCHEDULING FOR MARCH 1975 ***

PM FACILITY	PM TYPE	OVERDUE	DUE NOW	DUE IN 1 WEEK	DUE IN 2 WEEKS	DUE IN 3 WEEKS	TOTAL
NORTHWEST GARAGE	A	10	14	3	5	5	37
	B	6	1	2	0	2	11
	C	1	2	0	1	1	5
	TOTAL PM	17	17	5	6	8	53
	* TOTAL ST INSP	3	6				9

* EVERY VEHICLE SCHEDULED FOR STATE INSPECTION ALSO SCHEDULED FOR PM

CITY OF SAMPLEVILLE

RUN DATE: MAR 3, 1975 PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

PERIOD ENDING: FEB 28, 1975

PROGRAM NUMBER: EMGP01
REPORT NUMBER: EMGR01

*** FLEET SUMMARY REPORT ***

	CURRENT PERIOD	PREVIOUS PERIOD	PERCENT CHANGE	SAME PERIOD LAST YEAR	PERCENT CHANGE
EQUIPMENT INVENTORY					
CLASS 1 - AUTOS, MOTORCYCLES & SCOOTERS	501	496	1.0	375	33.6
CLASS 2 - TRUCKS, GENERAL PURPOSE	263	267	-1.5	220	19.6
CLASS 3 - TRUCKS, SPECIAL PURPOSE	125	131	-4.5	106	17.9
CLASS 4 - TRACTORS	43	39	10.2	35	22.8
CLASS 5 - CONSTRUCTION & MAINTENANCE EQUIP.	102	107	-4.7	98	4.0
CLASS 6 - AIRCRAFT,WATERCRAFT & SPEC TERRAIN	3	2	50.0	0	N/A
CLASS 8 - TRAILERS	45	41	9.8	41	9.8
CLASS 9 - OTHER NON SELF-PROPELLED VEHICLES	101	95	6.3	90	12.2
TOTAL UNITS OF EQUIPMENT	1183	1178	0.4	965	22.5
EQUIPMENT ADDED	20	10	100.0	5	300.0
EQUIPMENT RETIRED	15	0	N/A	20	-0.25
NET VALUE OF FLEET INVENTORY	$6624801.56	$6596801.53	0.4	$5404506.61	22.6
MAINTENANCE PROGRAM					
SHOP EMPLOYEES	43	41	4.9	35	22.9
LABOR HOURS AVAILABLE	7588	7236	4.9	6180	22.9
LABOR HOURS - DIRECT	7568	7216	4.9	6160	22.9
LABOR HOURS - INDIRECT	20	20	0.0	20	0.0
LABOR HOURS - % SCHEDULED	65.2	62.2	1.7	45.2	44.4
LABOR HOURS - % UNSCHEDULED	30.7	33.0	-7.1	45.2	-32.1
LABOR HOURS - % EMERGENCY	4.1	4.8	-13.5	9.7	-57.5
AVERAGE PERCENT DOWNTIME	15.1	18.1	-16.9	25.6	-41.2

**********	CURRENT PERIOD	**** PREVIOUS ** PERIOD	PERCENT CHANGE	******** THIS ********** YEAR TO DATE	LAST ***** YEAR TO DATE	PERCENT ** CHANGE
EQUIPMENT OPERATION DATA						
MILES OPERATED BY 1015 VEHICLES	1249248	1243968	0.4	2493216	2038080	22.3
HOURS OPERATED BY 60 VEHICLES	60436	60432	0.0	120868	101501	19.0
GASOLINE CONSUMED-GALLONS	59468	59488	0.0	118724	100041	18.7
DIESEL FUEL CONSUMED-GALLONS	10631	10525	1.0	21156	20041	5.6
FLEET COST DATA						
FUEL	25050.46	24164.20	3.6	50414.66	38405.26	31.3
OIL,MISC COSTS	600.00	600.00	0.0	0.00	0.0	0.0
DIRECT COSTS - LABOR	11563.25	9462.65	22.2	21025.90	15626.40	34.6
- PARTS	9650.24	8640.50	11.7	18290.74	13246.21	38.1
- COMMERCIAL	563.25	106.40	429.37	669.65	1425.35	-53.0
OVERHEAD COSTS	0.00	0.00	0.0	0.00	0.00	0.0
INSURANCE	9956.91	9956.91	0.0	19913.82	14503.20	37.3
DEPRECIATION	5625.60	5241.30	7.3	10866.90	9264.35	17.3
TOTAL COSTS	63009.71	58171.96	8.3	121181.67	92470.77	31.0
FLEET EARNINGS DATA						
DIRECT BILLED	45246.20	46406.25	-2.5	91652.45	81246.21	12.8
RENTAL BILLED	2640.01	2640.01	0.0	5280.02	3061.45	72.5
POOL BILLED	1504.60	1504.60	0.0	3009.20	2045.61	47.1
COST/BILLED RATIO	68.6	85.0	108.2	78.8	93.0	200.1

RUN DATE: MAR 3, 1975
PERIOD ENDING: FEB 28, 1975

CITY OF SAMPLEVILLE
PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** CLASS PERFORMANCE COMPARISON - DETAIL ***

PROGRAM NUMBER: EMGP02
REPORT NUMBER: EMGR02

APWA CLASS CODE	ASSIGNED ORGANIZATION	MILE HOUR CODE	THIS PERIOD / (PREVIOUS THREE PERIODS) NO. OF UNITS	AVERAGE MILE/HOUR USED	AVERAGE % DOWNTIME	AVERAGE REPAIR COSTS	AVERAGE NUMBER REP ORD	AVERAGE MPG/HPG	AVERAGE CPM/CPH OPER.	AVERAGE CPM/CPH MAINT.	AVERAGE CPM/CPH TOTAL	TOTAL OPER + MAINT. COST PER UNIT
1A AUTOS/SEDANS	101246 POLICE/TRAF DIV	MI	250 (223)	1202 (1563)	15.05 (17.26)	463.21 (521.65)	2.0 (2.4)	17.6 (17.5)	.08 (.11)	.38 (.40)	.46 (.51)	1016.13 (1025.16)
	101346 FIRE/INSPEC DIV	MI	20 (18)	1556 (2041)	12.06 (14.02)	230.20 (302.65)	1.0 (1.7)	12.4 (14.1)	.07 (.06)	.14 (.12)	.21 (.18)	556.96 (625.31)
	101446 LICENSE DEPT	MI	150 (130)	1010 (1201)	9.01 (10.06)	56.35 (58.21)	1.6 (1.3)	15.2 (15.1)	.03 (.04)	.08 (.10)	.11 (.14)	167.45 (174.31)
	ALL ORGN	MI	420 (371)	1256 (1601)	12.04 (13.78)	249.92 (294.17)	1.5 (1.8)	15.0 (15.5)	.06 (.07)	.20 (.21)	.26 (.27)	580.18 (608.26)

APWA CLASS - 1A - SEDANS

ASSIGNED ORGANIZATION - 012218 - PARKS SOUTH DIST

EQUIPMENT NUMBER/ DESCRIPTION	METER/ HOUR CODE	THIS PERIOD / (LIFE TO DATE) MILES/ HOURS USED	PERCENT DOWN TIME	TOTAL REPAIR COST	TOTAL REPAIR ORDERS	MPG OR HPG	CPM/CPH OPER.	CPM/CPH MAINT.	CPM/CPH TOTAL	TOTAL $ OPER. + MAINT.
001507	MI	460	1.6	14	2	16.3	0.02	0.03	0.05	24
PLY 4 DR SDN		(23492)	(N/A)	(1746)	(17)	(18.9)	(0.02)	(0.13)	(0.15)	(2236)
** ORGANIZATION - TOTALS		460	N/A	14	2	N/A	N/A	N/A	N/A	24
		(23492)	(N/A)	(1746)	(17)	(N/A)	(N/A)	(N/A)	(N/A)	(2236)
	AVERAGES	460	1.6	14	2	16.3	0.02	0.03	0.05	24
		(23492)	(N/A)	(1746)	(17)	(18.9)	(0.02)	(0.13)	(0.15)	(2236)

ASSIGNED ORGANIZATION - 012301 - B & Z DIRECTOR

001440	MI	705	5.0	47	2	20.6	0.02	0.07	0.09	61
RAMBLER AM 2 DR SDN		(15100)	(N/A)	(1296)	(25)	(21.7)	(0.02)	(0.09)	(0.11)	(1827)
001693	MI	140	15.8	325	1	18.4	0.02	2.32	2.34	328
VALIANT 2 DR SDN		(9140)	(N/A)	(1130)	(11)	(17.3)	(0.03)	(0.12)	(0.15)	(1126)
001694	MI	450	0.0	0	0	17.5	0.02	0.00	0.02	10
VALIANT 2 DR SDN		(8109)	(N/A)	(1019)	(12)	(17.9)	(0.02)	(0.13)	(0.15)	(1032)
** ORGANIZATION - TOTALS		1295	N/A	372	3	N/A	N/A	N/A	N/A	399
		(32349)	(N/A)	(3445)	(48)	(N/A)	(N/A)	(N/A)	(N/A)	(3985)
	AVERAGES	431	6.9	124	1	18.8	0.02	0.80	0.82	133
		(10783)	(N/A)	(1148)	(16)	(18.9)	(0.02)	(0.11)	(0.14)	(1328)

ASSIGNED ORGANIZATION - 013301 - TAX ASSESSOR

001611	MI	1871	25.0	142	1	12.5	0.03	0.76	0.79	202
FORD FALCON 2 DR SDN		(76219)	(N/A)	(8341)	(55)	(14.9)	(0.03)	(0.11)	(0.14)	(11032)
** ORGANIZATION - TOTALS		1871	N/A	142	1	N/A	N/A	N/A	N/A	202
		(79219)	(N/A)	(8341)	(55)	(N/A)	(N/A)	(N/A)	(N/A)	(11032)
	AVERAGES	1871	25.0	142	1	12.5	0.03	0.76	0.79	202
		(76219)	(N/A)	(8341)	(55)	(14.9)	(0.03)	(0.11)	(0.14)	(11032)

CITY OF SAMPLEVILLE

RUN DATE: MAY 3, 1976
PERIOD ENDING: APR 30, 1976

PAGE: 1

PROGRAM NUMBER: EMCR04
REPORT NUMBER: EMCR04

PRI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** COST-BILLED REPORT ***

ORGANIZATION - 016000 - POOL CARS

EQUIP. NUMBER	DESCRIPTION	APWA CODE	CHARGE TYPE	MI/HR USED		% DOWN TIME	THIS PERIOD OPER COST	THIS PERIOD MAINT COST	THIS PERIOD DEPREC + INS	THIS PERIOD TOTAL COSTS	THIS PERIOD TOTAL BILLED	THIS PERIOD DIFFERENCE COST VS BILLED $	THIS PERIOD DIFFERENCE COST VS BILLED %	YEAR TO DATE DIFFERENCE COST VS BILLED $	YEAR TO DATE DIFFERENCE COST VS BILLED %
001034	CHEV 1/2 TON PU	2LA3FC2C	RENTAL	1541	M	0.0	55	0	22	77	185	108	240.3	75-	14
001678	VALIANT 2DR SDN	1AA2FC3H	RENTAL	792	M	8.6	23	27	20	43	95	52	220.9	114	17
001680	VALIANT 2 DR SDN	1AA2FC3H	RENTAL	314	M	14.1	9	51	20	60	38	22-	63.3	3	1
002026	VALIANT 4 DR SDN	1AA2FC3J	RENTAL	78	M	3.1	3	12	25	15	9	6-	60.0	10-	3
001116	CHEV 4 DR SDN	1AA4FD4K	DIRECT	1243	M	25.9	36	341	29	377	149	228-	39.5	97	9
									TOTAL	572	476	96-	83.2	51	8
									AVERAGE	114	95	19-	83.3	2	4

CITY OF SAMPLEVILLE
PTI/ARMA EQUIPMENT MANAGEMENT INFORMATION SYSTEM

*** EQUIPMENT EXCEPTION CONDITION REPORT ***

RUN DATE MAY 3, 1976
PERIOD ENDING: APR 30, 1976

PROGRAM NUMBER: EMGP05
REPORT NUMBER: EMGR05

CLASS CODE 1A — CLASS DESCRIPTION: SEDAN

EQUIP. NUMBER	MAKE	DESCRIPTION	ORGN.	TOTAL MILEAGE	EXCEPTION TYPE	EXCEPTION LIMIT	EXCEPTION VALUE	*-MAINT. AND OPER. $-* THIS MO.	*-MAINT. AND OPER. $-* TOTAL LIFE
001440	RAMB	2 DR SDN	012301	15100.2	HIGH MILEAGE	510	705	26.83	1826.33
					NUMBER REPAIR TYPES	2	13		
					COMM COST -ROAD CALL	100	200		
					GAS CONSUMP -- GAL.	10	10		
001507	PLYM	4 DR SDN	012212	33190.0	HIGH MILEAGE	510	860	36.06	2236.06
					GAS CONSUMP -- GAL.	10	10		
001611	FORD	FALCON 2 DR SDN	013301	76219.2	HIGH MILEAGE	510	750	31.58	11031.58
					CPM/CPH	.10	.12		
					LIMIT YEAR SALV VAL	100	0		
					GAS CONSUMP -- GAL.	10	20		
					GAS CONSUMPTION COMPARED TO MILES/HOURS USED	10 100	20 750		
001678	PLYM	VALIANT 2DR SDN	016088	1080.0	HIGH MILEAGE	510	600	37.16	93.30
					GAS CONSUMP -- GAL.	10	30		
					GAS CONSUMPTION COMPARED TO MILES/HOURS USED	10 100	30 500		
001680	PLYM	VALIANT 2 DR SDN	016088	14446.8	HIGH MILEAGE	510	750	32.14	1432.14
					CPM/CPH	.10	.12		
					GAS CONSUMP -- GAL.	10	18		
					GAS CONSUMPTION COMPARED TO MILES/HOURS USED	10 100	18 250		
001693	PLYM	VALIANT 2 DR SDN	012301	9140.0	HIGH MILEAGE	510	840	25.66	1125.66
					CPM/CPH	.10	.18		
					GAS CONSUMP -- GAL.	10	1		
001694	PLYM	VALIANT 2 DR SDN	012301	8108.6	HIGH MILEAGE	510	650	31.66	1031.66
					GAS CONSUMP -- GAL.	10	20		
					GAS CONSUMPTION COMPARED TO MILES/HOURS USED	10 100	20 450		

RUN DATE: MAY 5, 1976 CITY OF SAUGERVILLE PAGE NO: 1
PERIOD ENDING: APR 30, 1976 PTI/APWA EQUIPMENT MANAGEMENT INFORMATION SYSTEM
PROGRAM NUMBER: EMGR06
*** MASTER FILE UPDATE ERROR LISTING *** REPORT NUMBER: EMGR06

FUEL OR R.O. RECORD IMAGE

```
        1         2         3         4         5         6         7         8         9
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
```

RECORD COL.	ERROR MESSAGE
	03214700123900241306314720131300 8473
1-6	NO MATCH ON FUEL FILE EQUIP NO
7-12	NO MATCH ON FUEL FILE ORG CODE
	13129700312 11AA1493122LA2FC2A162504017604 1576X0031296Y B00752Y
1-6	NO MATCH ON R.O. FILE EQUIP NO
16-21	NO MATCH ON R.O. FILE ORG CODE

EQUIPMENT NO: 001016 HAD PM TYPE A SCHEDULED BUT HAD PM TYPE B PERFORMED ON 4/12/76. NEXT PM SCHEDULED WILL BE TYPE A.

	10349621467111234912834789102900301 46
1-6	NO MATCH ON FUEL FILE EQUIP NO
	13129710320 11AA1212322LA2FC2A312541003190921 8X69341221YYB21031Y
16-21	NO MATCH ON R.O. FILE ORG CODE

EQUIP. NO. 911213, ORG. CODE 001020, INSURANCE SCHEDULE ADF, DOES NOT MATCH INSURANCE COST TABLE - INSURANCE COST NOT CALCULATED.

*** CLASS OPERATING AND MAINTENANCE CHARACTERISTICS BY METER RANGE ***

CLASS 1A: SEDANS

* CHARACTERISTICS *	METER RANGE IN MILES 0- 9,999	10,000- 19,999	20,000- 29,999	30,000- 39,999	40,000- 49,999	50,000- 59,999	60,000- 69,999	70,000- 79,999	80,000- 89,999	90,000+
TOTAL NUMBER OF VEHICLES	37	45	56	50	27	13	29	6	19	43
AVERAGE MILES OPERATED	2,862	2,104	3,091	2,507	3,618	2,989	1,943	1,987	1,221	1,311
AVERAGE OPERATING COST PER MILE	$.020	$.023	$.026	$.029	$.032	$.035	$.038	$.039	$.046	$.058
AVERAGE MAINTENANCE COST PER MILE	$.035	$.045	$.060	$.075	$.112	$.133	$.136	$.140	$.148	$.201
AVERAGE NUMBER OF REPAIRS	2	4	3	6	5	8	10	9	10	14
AVERAGE PERCENT DOWNTIME	6.6%	8.7%	12.0%	13.1%	11.8%	16.9%	18.3%	19.0%	17.8%	33.1%
TOTAL NUMBER OF ROAD CALLS	5	7	10	12	8	7	14	19	22	43

APPENDIX C

APWA CLASSIFICATION CODE

INSTRUCTIONS FOR USE OF THE CODING TABLES

Structure of the Coding System

The system utilizes an eight-digit, alpha-numeric code which is structured as shown in Figure 1.

The system has been modularized so that throughout the code particular digit locations specify certain characteristics of the equipment. In general, the first digit indicates the class to which the unit belongs; the second and third digits carry information about the unit type; the fourth digit specifies a measure of the unit's size; the fifth digit indicates the vehicle's drive and transmission configuration; the sixth digit describes the unit's power plant; the seventh digit specifies the displacement or horsepower of the power plant; and the eighth digit indicates the model year. Special circumstances within some classes require a slight variation in this pattern, but in general the code follows this design.

Units of equipment are grouped into eight major classes. These classes are constructed primarily on the basis of unit configuration. The conceptual framework used in forming these classes is as follows:

Class 1 - Automobiles, Motorcycles, and Scooters: In addition to the vehicles listed in the title, this class includes the small jeep-type units (CJ5, Scout, Landcruiser, etc.).

Class 2 - General-Purpose Trucks: Trucks with configurations which are readily adaptable to a variety of uses are placed in this class. This includes pickups, dump trucks, flat bed trucks, etc.

Class 3 - Special-Purpose Trucks: Trucks outfitted in a manner which generally limits their use to a specific purpose are located in this class. Typical of the vehicles in this group are refuse compactor trucks, street sweeper trucks, fire trucks, etc.

Class 4 - Tractors: This class includes wheeled and crawler tractors with or without attachments. This class does not include integral units which are built up around an attachment in such a manner that the identity of the tractor as a separate unit is lost. For example, a tractor which has a front loader attached to it will be found in this class, whereas, the wheel loaders which are constructed as

Digit Location	1	2	3	4	5	6	7	8
Digit Field	Numeric	Alpha	Alpha	Numeric	Alpha	Alpha	Numeric	Alpha
Characteristic Usually Specified	Class	Subclass and/or Unit Type		Size	Drive and Transmission	Power Plant	Horsepower or Displacement	Model Year

Figure 1
GENERAL CONFIGURATION OF APWA CODE

integral units would be placed in Class 5.

Class 5 - Construction and Maintenance Equipment (Self-propelled): This class includes integral units which, based on their configurations, are generally used in excavating, loading, grading, compaction, paving, and maintenance activities. Tractors having attachments that can be removed from the base unit so completely that other equipment could be mounted belong in Class 4. Trucks are excluded from this class.

Class 6 - Aircraft, Watercraft, and Special-Terrain Vehicles: This class includes airplanes, helicopters, boats, and special-terrain vehicles such as snowmobiles and swamp buggies.

Class 7 - This class is left open for future expansion.

Class 8 - Trailers: Major trailer types are included here. Most of the units listed are used for the transportation of equipment or material.

Class 9 – Other Non-self-propelled Equipment: Other significant pieces of equipment which do not provide their own propulsion are included in this class. The units may be equipped with motors which provide power for the operation of the machine but these motors should not provide motive propulsion for the unit. This class encompasses various portable, unmounted units; integral wheeled equipment; skid- or trailer-mounted units; and equipment temporarily truck-mounted. Hand tools and stationary equipment are not listed in the tables.

Because the tables are arranged primarily on the basis of configuration, units which have the same functional purpose but different configurations are located on different pages. For example, mechanical street sweepers mounted on truck chassis are found in Class 2, Special-Purpose Trucks, while three-wheel sweepers are found in Class 5, Construction and Maintenance Equipment (Self-Propelled), and towed sweeper brooms are found in Class 9, Other Non-self-propelled Equipment.

An index is provided to assist the user in locating equipment units within the tables.

Assigning Equipment Codes

To assign a code number to a particular piece of equipment complete the following steps:

1. Turn to the page that lists the unit in question. The proper page can be located by referring to either of two sources--the table of contents which lists the general titles of the classes of equipment and their page numbers *or* the index which lists each unit alphabetically and provides the first two or three digits of the code. Be certain that you're in the right class; as noted above, units with the same basic descriptions can have various configurations and will thus be found in different classes, e.g., a backhoe may be mounted on a truck, attached to a tractor, or constructed as a self-propelled integral unit; there will be a distinct code number for each.
2. Select the eight digits of the code by referring to the list of options provided for each digit location, choosing the numeral or letter beside the description which fits the unit being coded. Pick the most restrictive description possible for each piece of equipment.

For example, if one were interested in locating the code number for a 1972 general-purpose sedan, which has a wheelbase of 116 inches, an 8-cylinder, 250 cubic inch gasoline engine, and a manual transmission, he should proceed as follows:

1. Turn to page 1 which lists automobiles, Class 1.
2. The first digit location is already filled with the digit "1" indicating the class number of the vehicle.
3. From the list beneath the second and third digit location, "Vehicle Type," pick the letters "AA" indicating that it is a general-purpose sedan. These letters are placed in the second and third positions, respectively.
4. The fourth digit location is assigned the numeral "3" to indicate that the wheelbase of the vehicle

falls between 112 inches and 118 inches.

5. The fifth digit location is assigned the letter "F " to show that the car has a manual transmission and two-wheel drive.
6. The letter "D" is chosen from the "Power Plant" list and placed in the sixth digit location indicating that the vehicle has an 8-cylinder, gasoline, piston engine.
7. The seventh digit space is filled with the numeral "3" to show that the engine's displacement falls within the 176-275 cubic inch range.
8. Finally, the letter "N" is placed in the last location indicating that the car is a 1972 model.

Thus, the eight-digit code assigned to this vehicle is "1AA3FD3N." All other vehicles with the same characteristics will be assigned the same code number. Any vehicle which has a different engine, model year, transmission, etc., will be assigned a distinctly different code number. Thus, an automobile which is identical to the above unit except for the fact that it has an automatic transmission and is a 1973 model would be assigned the code number "1AA3ED3P."

Revisions and Additions to the Code

This coding system contains the units which were considered to be commonly maintained by local government units; however, users of the code will no doubt find that they maintain certain units which are not listed in the tables. To provide nationwide consistency in the code, APWA will assign code numbers to those major units that are reported missing from the table. To report these exceptions, please contact APWA headquarters, giving full descriptions of the significant characteristics of the equipment.

EQ. MENT CODE TABLES

VEHICLE TYPE

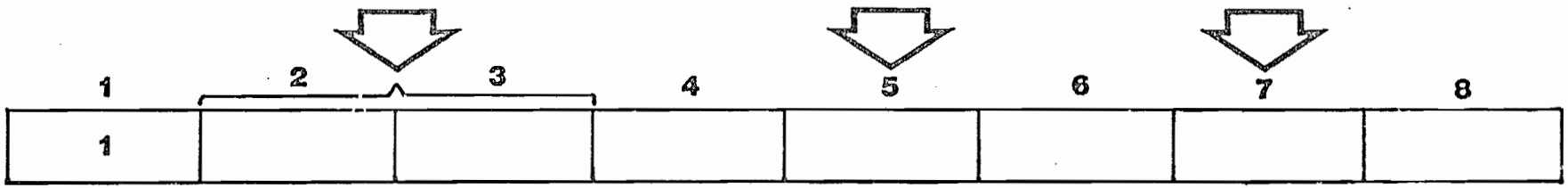
Code	Abbreviated Description	Full Description
AA	SDN GEN PUR	Sedan, general purpose
AL	SDN POL SPC	Sedan, police special
BA	STAWAG GEN PUR	Station Wagon, general purpose
BL	STAWAG POL SP	Station Wagon, police special
CA	JEEP	Jeep type vehicle
DA	AMBUL AUTO	Ambulance, auto conversion
KA	MTRCYCL	Motorcycle, without sidecar
KL	MTRCYCL SCAR	Motorcycle, with sidecar
NA	SCTR	Scooter
NL	SCTR DUMP	Scooter, dump body

DRIVE AND TRANSMISSION

Code	Description
A	2 x 1, automatic
B	2 x 1, manual
C	3 x 2, automatic
D	3 x 2, manual
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more



WHEELBASE

Code	Description
1	99 in. or less
2	100-111 in.
3	112-118 in.
4	119-126 in.
5	127 in. or more

POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

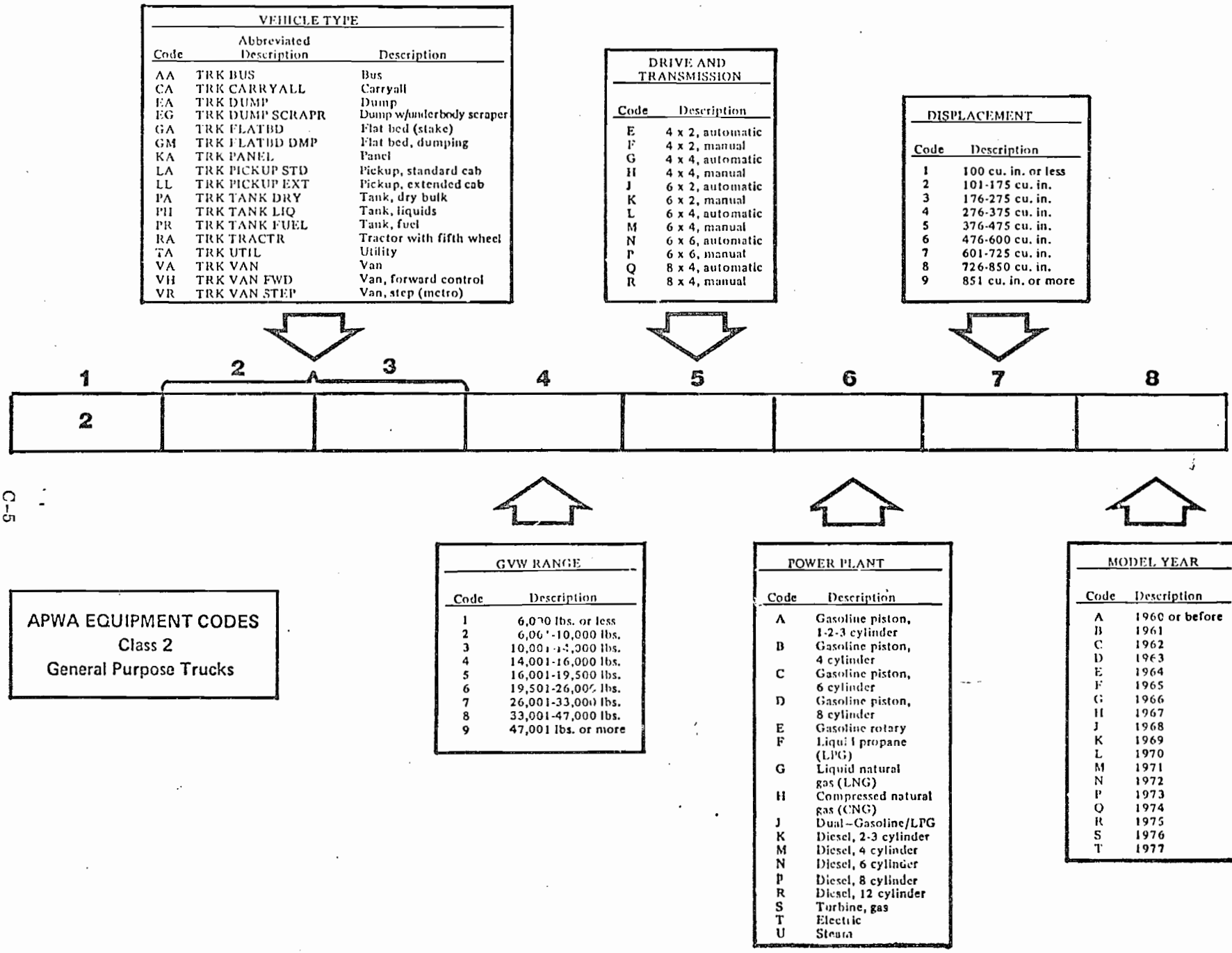
MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

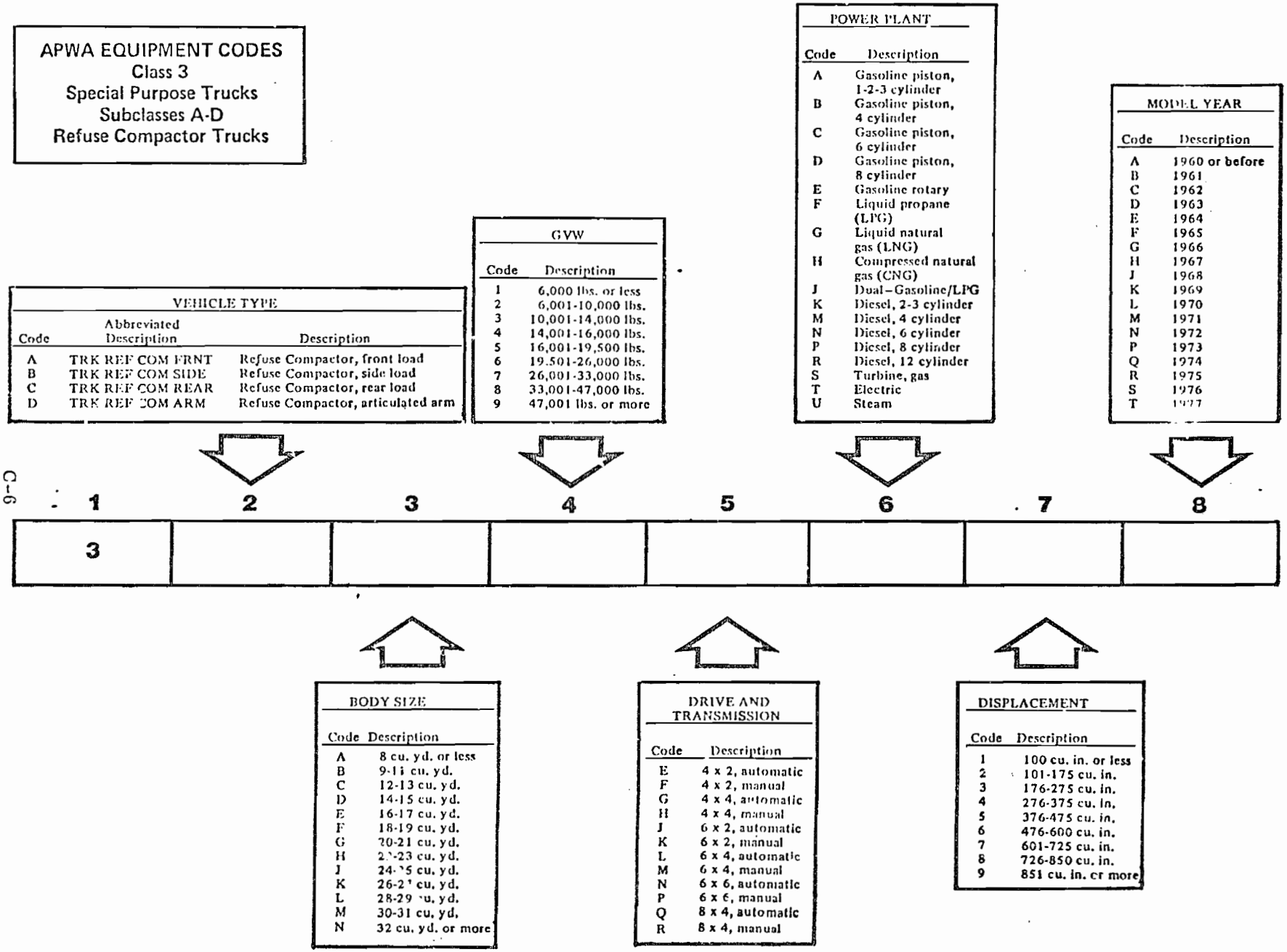
APWA EQUIPMENT CODES

Class 1

Automobiles, Motorcycles and Scooters


VEHICLE TYPE
Code | Abbreviated Description | Description
AA TRK BUS Bus
CA TRK CARRYALL Carryall
EA TRK DUMP Dump
EG TRK DUMP SCRAPR Dump w/underbody scraper
GA TRK FLATBD Flat bed (stake)
GM TRK FLATBD DMP Flat bed, dumping
KA TRK PANEL Panel
LA TRK PICKUP STD Pickup, standard cab
LL TRK PICKUP EXT Pickup, extended cab
PA TRK TANK DRY Tank, dry bulk
PH TRK TANK LIQ Tank, liquids
PR TRK TANK FUEL Tank, fuel
RA TRK TRACTR Tractor with fifth wheel
TA TRK UTIL Utility
VA TRK VAN Van
VH TRK VAN FWD Van, forward control
VR TRK VAN STEP Van, step (metro)
DRIVE AND TRANSMISSION
Code Description
E 4 x 2, automatic
F 4 x 2, manual
G 4 x 4, automatic
H 4 x 4, manual
J 6 x 2, automatic
K 6 x 2, manual
L 6 x 4, automatic
M 6 x 4, manual
N 6 x 6, automatic
P 6 x 6, manual
Q 8 x 4, automatic
R 8 x 4, manual
DISPLACEMENT
Code Description
1 100 cu. in. or less
2 101-175 cu. in.
3 176-275 cu. in.
4 276-375 cu. in.
5 376-475 cu. in.
6 476-600 cu. in.
7 601-725 cu. in.
8 726-850 cu. in.
9 851 cu. in. or more
1 2 3 4 5 6 7 8
2
GVW RANGE
Code Description
1 6,000 lbs. or less
2 6,001-10,000 lbs.
3 10,001-14,000 lbs.
4 14,001-16,000 lbs.
5 16,001-19,500 lbs.
6 19,501-26,000 lbs.
7 26,001-33,000 lbs.
8 33,001-47,000 lbs.
9 47,001 lbs. or more
POWER PLANT
Code Description
A Gasoline piston, 1-2-3 cylinder
B Gasoline piston, 4 cylinder
C Gasoline piston, 6 cylinder
D Gasoline piston, 8 cylinder
E Gasoline rotary
F Liquid propane (LPG)
G Liquid natural gas (LNG)
H Compressed natural gas (CNG)
J Dual-Gasoline/LPG
K Diesel, 2-3 cylinder
M Diesel, 4 cylinder
N Diesel, 6 cylinder
P Diesel, 8 cylinder
R Diesel, 12 cylinder
S Turbine, gas
T Electric
U Steam
MODEL YEAR
Code Description
A 1960 or before
B 1961
C 1962
D 1963
E 1964
F 1965
G 1966
H 1967
J 1968
K 1969
L 1970
M 1971
N 1972
P 1973
Q 1974
R 1975
S 1976
T 1977
APWA EQUIPMENT CODES
Class 2
General Purpose Trucks

APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclasses A-D
Refuse Compactor Trucks



VEHICLE TYPE

Code	Abbreviated Description	Description
A	TRK REF COM FRNT	Refuse Compactor, front load
B	TRK REF COM SIDE	Refuse Compactor, side load
C	TRK REF COM REAR	Refuse Compactor, rear load
D	TRK REF COM ARM	Refuse Compactor, articulated arm

GVW

Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

1	2	3	4	5	6	7	8
3							

BODY SIZE

Code	Description
A	8 cu. yd. or less
B	9-11 cu. yd.
C	12-13 cu. yd.
D	14-15 cu. yd.
E	16-17 cu. yd.
F	18-19 cu. yd.
G	20-21 cu. yd.
H	22-23 cu. yd.
J	24-25 cu. yd.
K	26-27 cu. yd.
L	28-29 cu. yd.
M	30-31 cu. yd.
N	32 cu. yd. or more

DRIVE AND TRANSMISSION

Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

VEHICLE TYPE

Code	Abbreviated Description	Full Description
A	TRK ST FLSH	Power street flusher
C	TRK MECH SWP	Four wheel mechanical sweeper
E	TRK VAC SWP	Four wheel vacuum sweeper, with broom(s)
G	TRK VAC CB CLN	Vacuum loader/catch basin cleaner w/o sweeper or flusher
H	TRK VAC CB CLN S	Vacuum loader/catch basin cleaner w/vacuum sweeper, w/o flusher
J	TRK VAC CB CLN F	Vacuum loader/catch basin cleaner w/o sweeper, w/street flusher
K	TRK VAC CB CLN SF	Vacuum loader/catch basin cleaner w/vacuum sweeper and street flusher
N	TRK CB CLN CLAM	Catch basin cleaner, clamshell orange-peel
P	TRK CB CLN EJUC	Catch basin cleaner, hydraulic eductor
Q	TRK CB CLN VAC	Catch basin cleaner, vacuum w/jet sewer cleaner
R	TRK PWR RDR	Power rodder (auger)
T	TRK PWR BUC	Power bucket
V	TRK WTR JET	Water jet
X	TRK RDR BUC JET	Combination rodder, bucket and/or jet

DRIVE AND TRANSMISSION

Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

1	2	3	4	5	6	7	8
3	J						

GVW RANGE

Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

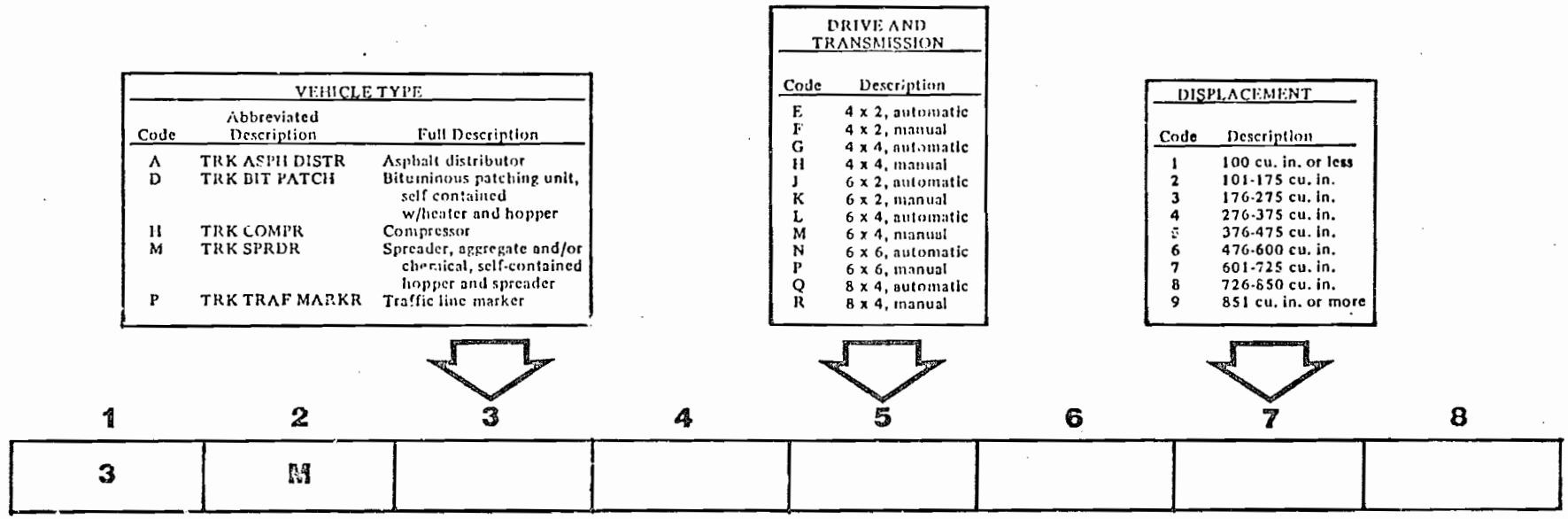
APWA EQUIPMENT CODES

Class 3

Special Purpose Trucks

Subclass J

Street Sanitation and Sewer Cleaning Trucks



VEHICLE TYPE		
Code	Abbreviated Description	Full Description
A	TRK ASPH DISTR	Asphalt distributor
D	TRK BIT PATCH	Bituminous patching unit, self contained w/heater and hopper
H	TRK COMPR	Compressor
M	TRK SPRDR	Spreader, aggregate and/or chemical, self-contained hopper and spreader
P	TRK TRAF MARKR	Traffic line marker

DRIVE AND TRANSMISSION	
Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT	
Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

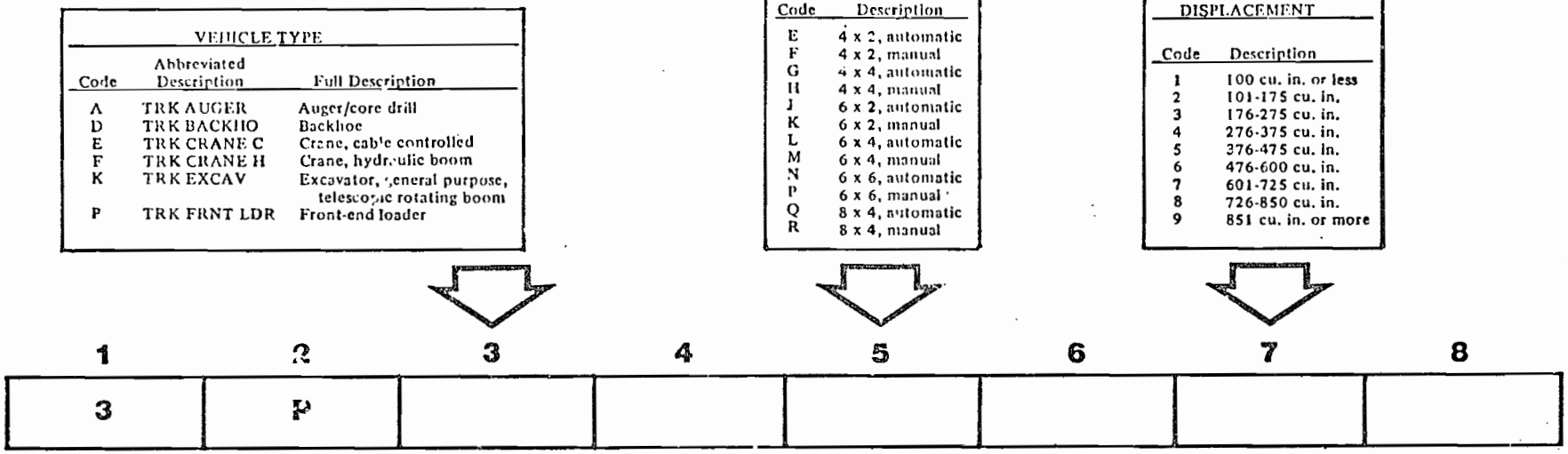
1	2	3	4	5	6	7	8
3	M						

GVW RANGE	
Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

POWER PLANT	
Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual-Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR	
Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1
N	2
P	3
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclass M
Pavement Maintenance Trucks



1	2	3	4	5	6	7	8
3	P						

VEHICLE TYPE

Code	Abbreviated Description	Full Description
A	TRK AUGER	Auger/core drill
D	TRK BACKHO	Backhoe
E	TRK CRANE C	Crane, cable controlled
F	TRK CRANE H	Crane, hydraulic boom
K	TRK EXCAV	Excavator, general purpose, telescopic rotating boom
P	TRK FRNT LDR	Front-end loader

DRIVE AND TRANSMISSION

Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

GVW RANGE

Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

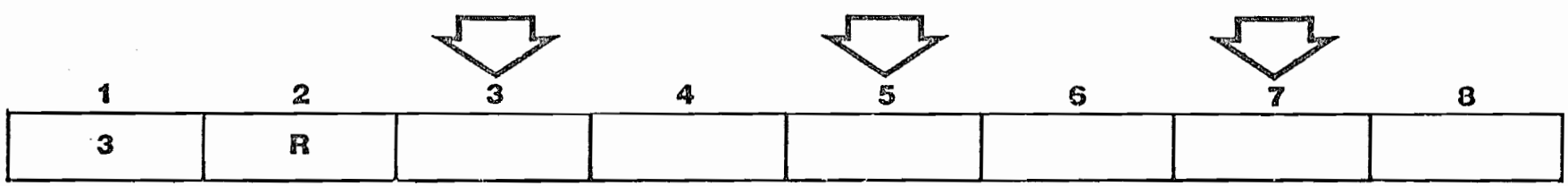
POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclass P
Excavation and/or Loading Trucks



VEHICLE TYPE

Code	Abbreviated Description	Full Description
A	TRK MOBL COMM	Mobile unit–communications center
C	TRK MOBL DENT	Mobile unit–dental
F	TRK MOBL LAB	Mobile unit–laboratory
G	TRK MOBL LIBR	Mobile unit–library
J	TRK MOBL MED	Mobile unit–medical
L	TRK MOBL OFF	Mobile unit–office
N	TRK MOBL SEWR	Mobile unit–TV sewer inspection
R	TRK MOBL WRKSHP	Mobile unit–workshop
S	TRK MOBL X-RAY	Mobile unit–X-Ray
V	TRK MOBL ZOO	Mobile unit–zoo

DRIVE AND TRANSMISSION

Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

GVW RANGE

Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

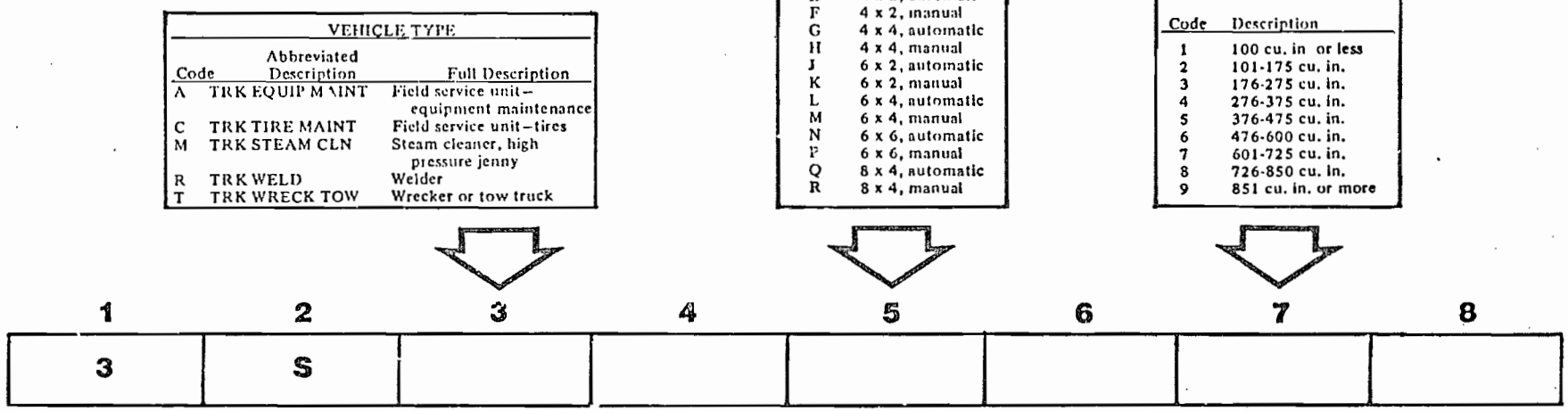
POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston; 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclass R
Mobile Units



1	2	3	4	5	6	7	8
3	S						

VEHICLE TYPE

Code	Abbreviated Description	Full Description
A	TRK EQUIP MAINT	Field service unit–equipment maintenance
C	TRK TIRE MAINT	Field service unit–tires
M	TRK STEAM CLN	Steam cleaner, high pressure jenny
R	TRK WELD	Welder
T	TRK WRECK TOW	Wrecker or tow truck

DRIVE AND TRANSMISSION

Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

GVW RANGE

Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

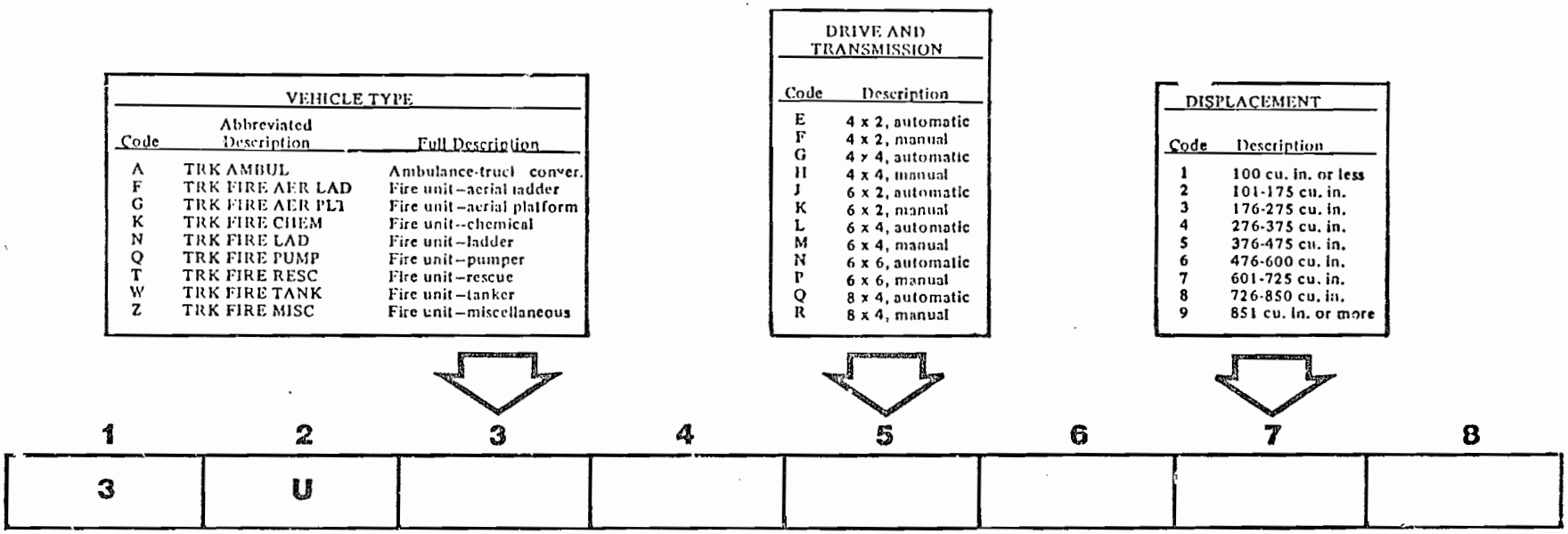
POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclass S
Service Trucks



APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclass U
Fire and Rescue Trucks

GVW RANGE

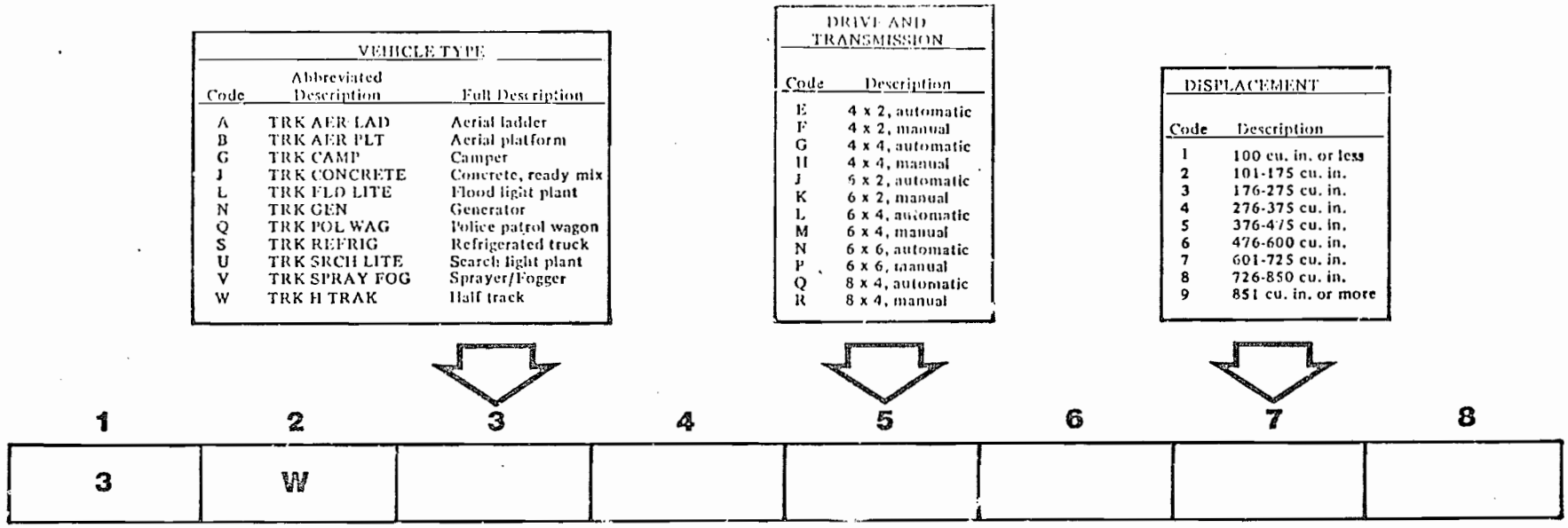
Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977



VEHICLE TYPE

Code	Abbreviated Description	Full Description
A	TRK AER LAD	Aerial ladder
B	TRK AER PLT	Aerial platform
G	TRK CAMP	Camper
J	TRK CONCRETE	Concrete, ready mix
L	TRK FLD LITE	Flood light plant
N	TRK GEN	Generator
Q	TRK POL WAG	Police patrol wagon
S	TRK REFRIG	Refrigerated truck
U	TRK SRCH LITE	Search light plant
V	TRK SPRAY FOG	Sprayer/Fogger
W	TRK H TRAK	Half track

DRIVE AND TRANSMISSION

Code	Description
E	4 x 2, automatic
F	4 x 2, manual
G	4 x 4, automatic
H	4 x 4, manual
J	6 x 2, automatic
K	6 x 2, manual
L	6 x 4, automatic
M	6 x 4, manual
N	6 x 6, automatic
P	6 x 6, manual
Q	8 x 4, automatic
R	8 x 4, manual

DISPLACEMENT

Code	Description
1	100 cu. in. or less
2	101-175 cu. in.
3	176-275 cu. in.
4	276-375 cu. in.
5	376-475 cu. in.
6	476-600 cu. in.
7	601-725 cu. in.
8	726-850 cu. in.
9	851 cu. in. or more

GVW RANGE

Code	Description
1	6,000 lbs. or less
2	6,001-10,000 lbs.
3	10,001-14,000 lbs.
4	14,001-16,000 lbs.
5	16,001-19,500 lbs.
6	19,501-26,000 lbs.
7	26,001-33,000 lbs.
8	33,001-47,000 lbs.
9	47,001 lbs. or more

POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 3
Special Purpose Trucks
Subclass W
Other Trucks

APWA EQUIPMENT CODES
Class 4
Tractors with or without Attachments

TRACTOR TYPE

Code	Abbreviated Description	Full Description
A	TRAC LIGHT	4 wheel industrial, utility or general purpose tractor
G	TRAC HEAVY RIG	4 wheel heavy-duty contractor type tractor–rigid frame
N	TRAC HEAVY ART	4 wheel heavy-duty, contractor type tractor–articulated frame
X	TRAC CRAWL	Crawler tractor

DRIVE AND TRANSMISSION

Code	Description	Code	Description
A	Rear wheel drive, direct drive, manual shift	M	Front wheel drive, torque converter, power shift
B	Rear wheel drive, direct drive, power shift	N	Front wheel drive, hydrostatic
C	Rear wheel drive, torque converter, manual shift	S	4-whl. or crawler drive, direct drive, manual shift
D	Rear wheel drive, torque converter, power shift	T	4-whl. or crawler drive, direct drive, power shift
E	Rear wheel drive, hydrostatic	U	4-whl. or crawler drive, torque converter, manual shift
J	Front wheel drive, direct drive, manual shift	V	4-whl. or crawler drive, torque converter, power shift
K	Front wheel drive, direct drive, power shift	W	4-whl. or crawler drive, hydrostatic
L	Front wheel drive, torque converter, manual shift		

NET ENGINE HORSEPOWER

Code	Description
1	0- 30 NEHP
2	31 - 60 NEHP
3	61-100 NEHP
4	101-150 NEHP
5	151-225 NEHP
6	226-300 NEHP
7	301-400 NEHP
8	401-500 NEHP
9	501 NEHP or more

1	2	3	4	5	6	7	8
4							

ATTACHMENTS

Code	Description	Code	Description
A1	No attachment	K1	Ditcher–wheel type
B1	Various attachments, changed frequently	K5	Ditcher–ladder type
C1	Scraper	M1	Auger
E1	Loader, front–less than 1.0 cu. yd. bucket	N1	Tamper
E2	Loader, front–1.0-1.9 cu. yd.	P1	Crane
E3	Loader, front–2.0-2.9 cu. yd.	P1	Sideboom
E4	Loader, front–3.0-3.9 cu. yd.	S1	Winch
E5	Loader, front–4.0-4.9 cu. yd.	T1	Bulldozer
E6	Loader, front–5.0-5.9 cu. yd.	T4	Angle dozer
E7	Loader, front–more than 5.9 cu. yd.	T8	Snow blade
G1	Backhoe–digging depth less than 10 ft.	U1	Ripper
G2	Backhoe–digging depth 10-15 ft.	V1	Snowblower
G3	Backhoe–digging depth 16-20 ft.	W1	Sweeper
G4	Backhoe–digging depth more than 20 ft.	X1	Mower-sickle
H1	Backhoe and front loader–digging depth less than 10 ft.	X2	Mower-rotary
H2	Backhoe and front loader–digging depth 10-15 ft.	X3	Mower-reel
H3	Backhoe and front loader–digging depth 16-20 ft.	X4	Mower-gang
H4	Backhoe and front loader–digging depth more than 20 ft.	X5	Mower-flail
		Y1	Forklift

POWER PLANT

Code	Description
A	Gasoline piston, 4 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES

Class 5

Construction and Maintenance Equipment

(Self-propelled)

Subclass A-E

Excavating and Loading Equipment

UNIT TYPE

Code	Abbreviated Description	Full Description
AA	BACKHO INT HYD	Backhoe (integral unit) hydraulic
AL	BACKHO INT MECH	Backhoe (integral unit) mechanical
BA	CRANE LIFT	Crane, lifting
BB	CRANE CLAM	Crane, clamshell excavator
BC	CRANE DRAG	Crane, dragline
BD	CRANE VAR	Crane, various attachments
BG	DITCH WHL	Ditcher, wheel type
BN	DITCH LAD	Ditcher, ladder type
BU	EXCAV GEN PUR	Excavator, general purpose telescopic rotating boom
CA	LDR INT ART	Loader (integral unit) articulated frame
CL	LDR INT RIG	Loader (integral unit) rigid frame
DA	SHOV HYD	Shovel, power, hydraulic
DL	SHOV MECH	Shovel, power, mechanical
EA	SCRAPR 21 NLOAD	Scraper and hauling unit, 2-whl tractor single engine, not self-loading
ED	SCRAPR 21 SLOAD	Scraper and hauling unit, 2-whl tractor, single engine, self-loading
EG	SCRAPR 22 NLOAD	Scraper and hauling unit, 2-whl tractor, dual engine, not self-loading
EK	SCRAPR 22 SLOAD	Scraper and hauling unit, 2-whl tractor, dual engine, self-loading
EW	SCRAPR 42 SLOAD	Scraper and hauling unit, 4-whl tractor, dual engine, self-loading

MOUNTING AND TRANSMISSION

Code	Description
A	Crawler mounted, direct drive, manual shift
B	Crawler mounted, direct drive, power shift
C	Crawler mounted, torque converter, manual shift
D	Crawler mounted, torque converter, power shift
E	Crawler mounted, hydrostatic
V	Wheel mounted, direct drive, manual shift
W	Wheel mounted, direct drive, power shift
X	Wheel mounted, torque converter, manual shift
Y	Wheel mounted, torque converter, power shift
Z	Wheel mounted, hydrostatic

POWER PLANT

Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual - Gasoline/LPG
K	Diesel, 2-3 cylinder
L	Diesel, 4 cylinder
M	Diesel, 6 cylinder
N	Diesel, 8 cylinder
P	Diesel, 12 cylinder
R	Turbine, gas
S	Electric
T	Steam
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

1	2	3	4	5	6	7	8
5							

C-15

SIZE OR CAPACITY

Backhoes (Digging Depth)

Code	Description
1	10 ft. or less
2	11-15 ft.
3	16-20 ft.
4	21 ft. or more

Scrapers (Hauling Capacity)

Code	Description
1	10 cu. yd. or less
2	11-13 cu. yd.
3	14-16 cu. yd.
4	17-19 cu. yd.
5	20-22 cu. yd.
6	23-25 cu. yd.
7	26-28 cu. yd.
8	29 cu. yd. or more

Cranes (Lifting Capacity)

Code	Description
1	4 tons or less
2	5- 15 tons
3	16- 30 tons
4	31- 45 tons
5	46- 60 tons
6	61- 75 tons
7	76- 90 tons
8	91-120 tons
9	121 tons or more

Loaders & Shovels (Bucket Capacity)

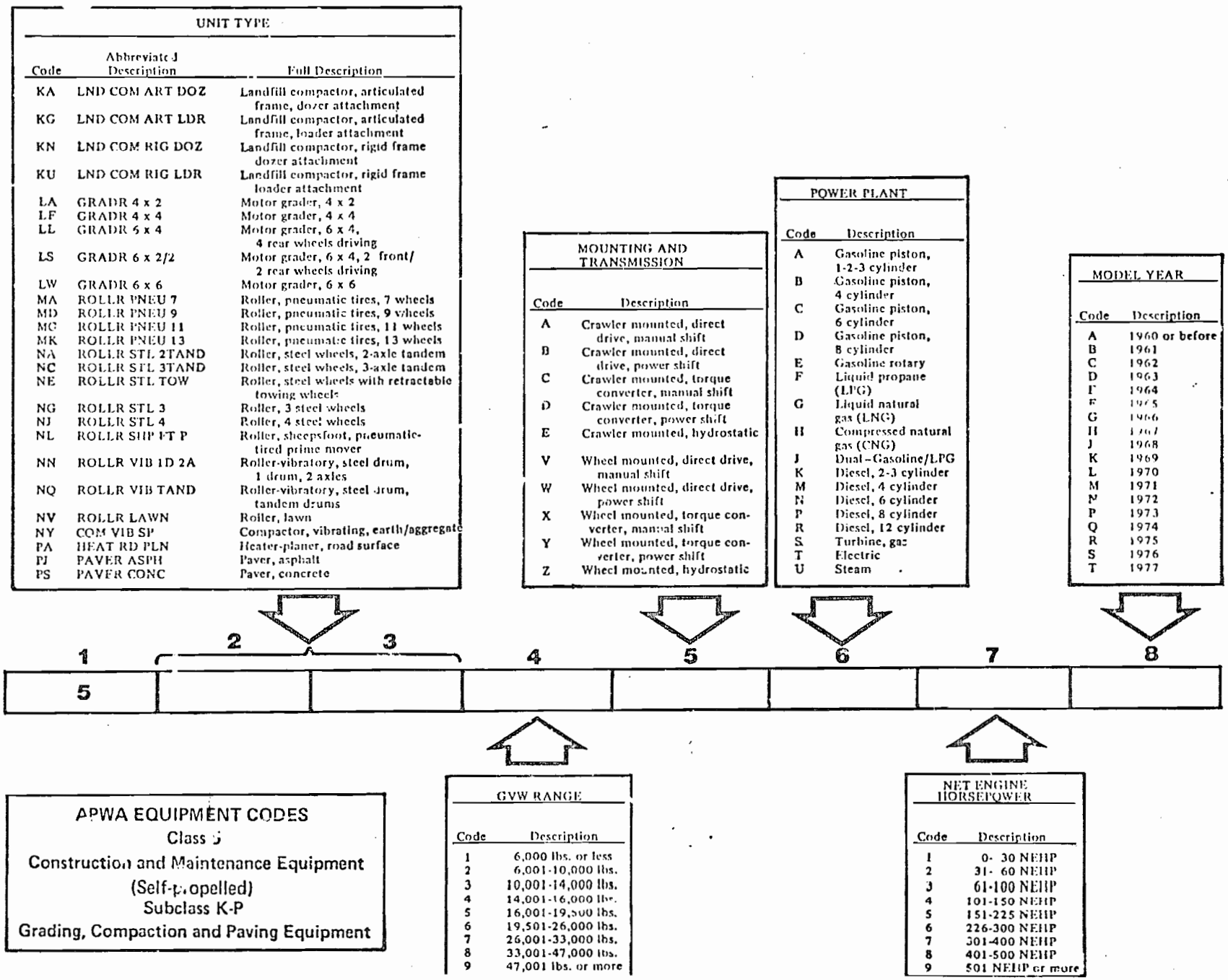
Code	Description
1	0.9 cu. yd. or less
2	1.0-1.9 cu. yd.
3	2.0-2.9 cu. yd.
4	3.0-3.9 cu. yd.
5	4.0-4.9 cu. yd.
6	5.0-5.9 cu. yd.
7	6.0-6.9 cu. yd.
8	7.0-7.9 cu. yd.
9	8.0 cu. yd. or more

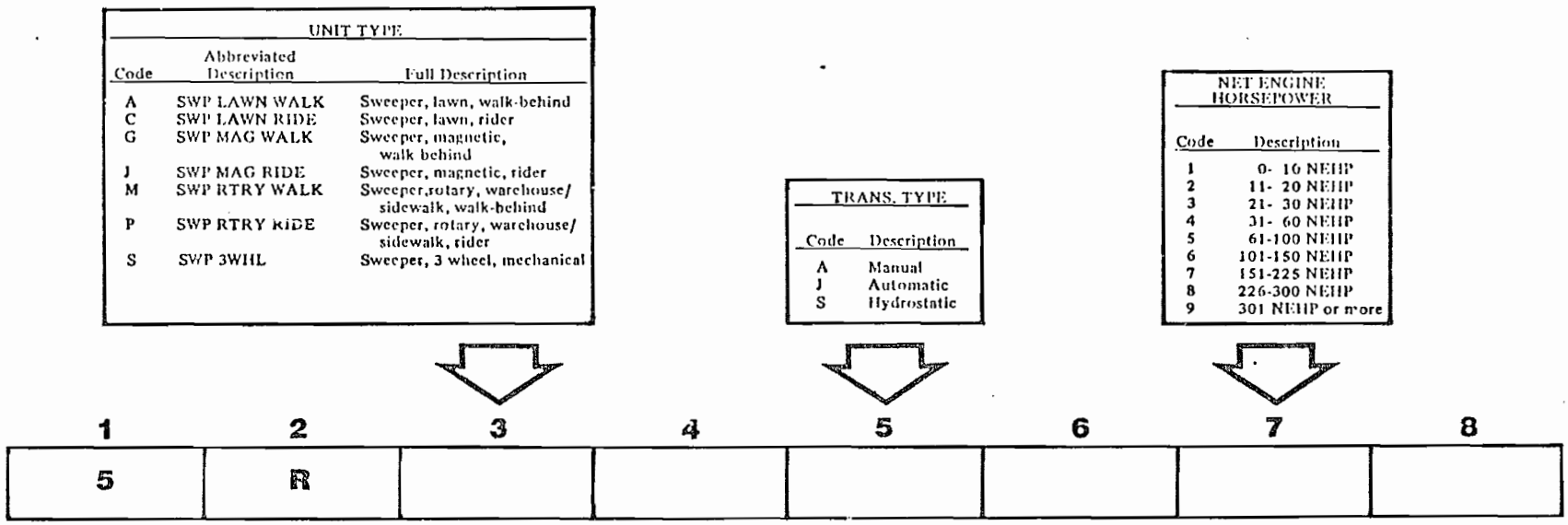
Other Units

Code	Description
0	No specification

NET ENGINE HORSEPOWER

Code	Description
1	0- 30 NEHP
2	31- 60 NEHP
3	61-100 NEHP
4	101-150 NEHP
5	151-225 NEHP
6	226-300 NEHP
7	301-400 NEHP
8	401-500 NEHP
9	501 NEHP or more


UNIT TYPE
Code | Abbreviated Description | Full Description
KA | LND COM ART DOZ | Landfill compactor, articulated frame, dozer attachment
KG | LND COM ART LDR | Landfill compactor, articulated frame, loader attachment
KN | LND COM RIG DOZ | Landfill compactor, rigid frame dozer attachment
KU | LND COM RIG LDR | Landfill compactor, rigid frame loader attachment
LA | GRADR 4 x 2 | Motor grader, 4 x 2
LF | GRADR 4 x 4 | Motor grader, 4 x 4
LL | GRADR 6 x 4 | Motor grader, 6 x 4, 4 rear wheels driving
LS | GRADR 6 x 2/2 | Motor grader, 6 x 4, 2 front/2 rear wheels driving
LW | GRADR 6 x 6 | Motor grader, 6 x 6
MA | ROLLR PNEU 7 | Roller, pneumatic tires, 7 wheels
MD | ROLLR PNEU 9 | Roller, pneumatic tires, 9 wheels
MC | ROLLR PNEU 11 | Roller, pneumatic tires, 11 wheels
MK | ROLLR PNEU 13 | Roller, pneumatic tires, 13 wheels
NA | ROLLR STL 2TAND | Roller, steel wheels, 2-axle tandem
NC | ROLLR STL 3TAND | Roller, steel wheels, 3-axle tandem
NE | ROLLR STL TOW | Roller, steel wheels with retractable towing wheels
NG | ROLLR STL 3 | Roller, 3 steel wheels
NJ | ROLLR STL 4 | Roller, 4 steel wheels
NL | ROLLR SHP FT P | Roller, sheepsfoot, pneumatic-tired prime mover
NN | ROLLR VIB 1D 2A | Roller-vibratory, steel drum, 1 drum, 2 axles
NQ | ROLLR VIB TAND | Roller-vibratory, steel drum, tandem drums
NV | ROLLR LAWN | Roller, lawn
NY | COM VIB SP | Compactor, vibrating, earth/aggregate
PA | HEAT RD PLN | Heater-planer, road surface
PJ | PAVER ASPH | Paver, asphalt
PS | PAVER CONC | Paver, concrete
MOUNTING AND TRANSMISSION
Code | Description
A | Crawler mounted, direct drive, manual shift
B | Crawler mounted, direct drive, power shift
C | Crawler mounted, torque converter, manual shift
D | Crawler mounted, torque converter, power shift
E | Crawler mounted, hydrostatic
V | Wheel mounted, direct drive, manual shift
W | Wheel mounted, direct drive, power shift
X | Wheel mounted, torque converter, manual shift
Y | Wheel mounted, torque converter, power shift
Z | Wheel mounted, hydrostatic
POWER PLANT
Code | Description
A | Gasoline piston, 1-2-3 cylinder
B | Gasoline piston, 4 cylinder
C | Gasoline piston, 6 cylinder
D | Gasoline piston, 8 cylinder
E | Gasoline rotary
F | Liquid propane (LPG)
G | Liquid natural gas (LNG)
H | Compressed natural gas (CNG)
J | Dual-Gasoline/LPG
K | Diesel, 2-3 cylinder
M | Diesel, 4 cylinder
N | Diesel, 6 cylinder
P | Diesel, 8 cylinder
R | Diesel, 12 cylinder
S | Turbine, gas
T | Electric
U | Steam
MODEL YEAR
Code | Description
A | 1960 or before
B | 1961
C | 1962
D | 1963
E | 1964
F | 1965
G | 1966
H | 1967
J | 1968
K | 1969
L | 1970
M | 1971
N | 1972
P | 1973
Q | 1974
R | 1975
S | 1976
T | 1977
1
2
3
4
5
6
7
8
5
APWA EQUIPMENT CODES
Class 5
Construction and Maintenance Equipment
(Self-propelled)
Subclass K-P
Grading, Compaction and Paving Equipment
GVW RANGE
Code | Description
1 | 6,000 lbs. or less
2 | 6,001-10,000 lbs.
3 | 10,001-14,000 lbs.
4 | 14,001-16,000 lbs.
5 | 16,001-19,500 lbs.
6 | 19,501-26,000 lbs.
7 | 26,001-33,000 lbs.
8 | 33,001-47,000 lbs.
9 | 47,001 lbs. or more
NET ENGINE HORSEPOWER
Code | Description
1 | 0- 30 NEHP
2 | 31- 60 NEHP
3 | 61-100 NEHP
4 | 101-150 NEHP
5 | 151-225 NEHP
6 | 226-300 NEHP
7 | 301-400 NEHP
8 | 401-500 NEHP
9 | 501 NEHP or more



UNIT TYPE

Code	Abbreviated Description	Full Description
A	SWP LAWN WALK	Sweeper, lawn, walk-behind
C	SWP LAWN RIDE	Sweeper, lawn, rider
G	SWP MAG WALK	Sweeper, magnetic, walk behind
J	SWP MAG RIDE	Sweeper, magnetic, rider
M	SWP RTRY WALK	Sweeper,rotary, warehouse/ sidewalk, walk-behind
P	SWP RTRY RIDE	Sweeper, rotary, warehouse/ sidewalk, rider
S	SWP 3WHL	Sweeper, 3 wheel, mechanical

TRANS. TYPE

Code	Description
A	Manual
J	Automatic
S	Hydrostatic

NET ENGINE HORSEPOWER

Code	Description
1	0- 10 NEHP
2	11- 20 NEHP
3	21- 30 NEHP
4	31- 60 NEHP
5	61-100 NEHP
6	101-150 NEHP
7	151-225 NEHP
8	226-300 NEHP
9	301 NEHP or more

UNIT FEATURES

Code	Description
1	w/o vacuum, w/elevating hopper
2	w/o vacuum, w/std. (fixed) hopper
3	w/vacuum, w/elevating hopper
4	w/vacuum, w/std. (fixed) hopper

POWER PLANT

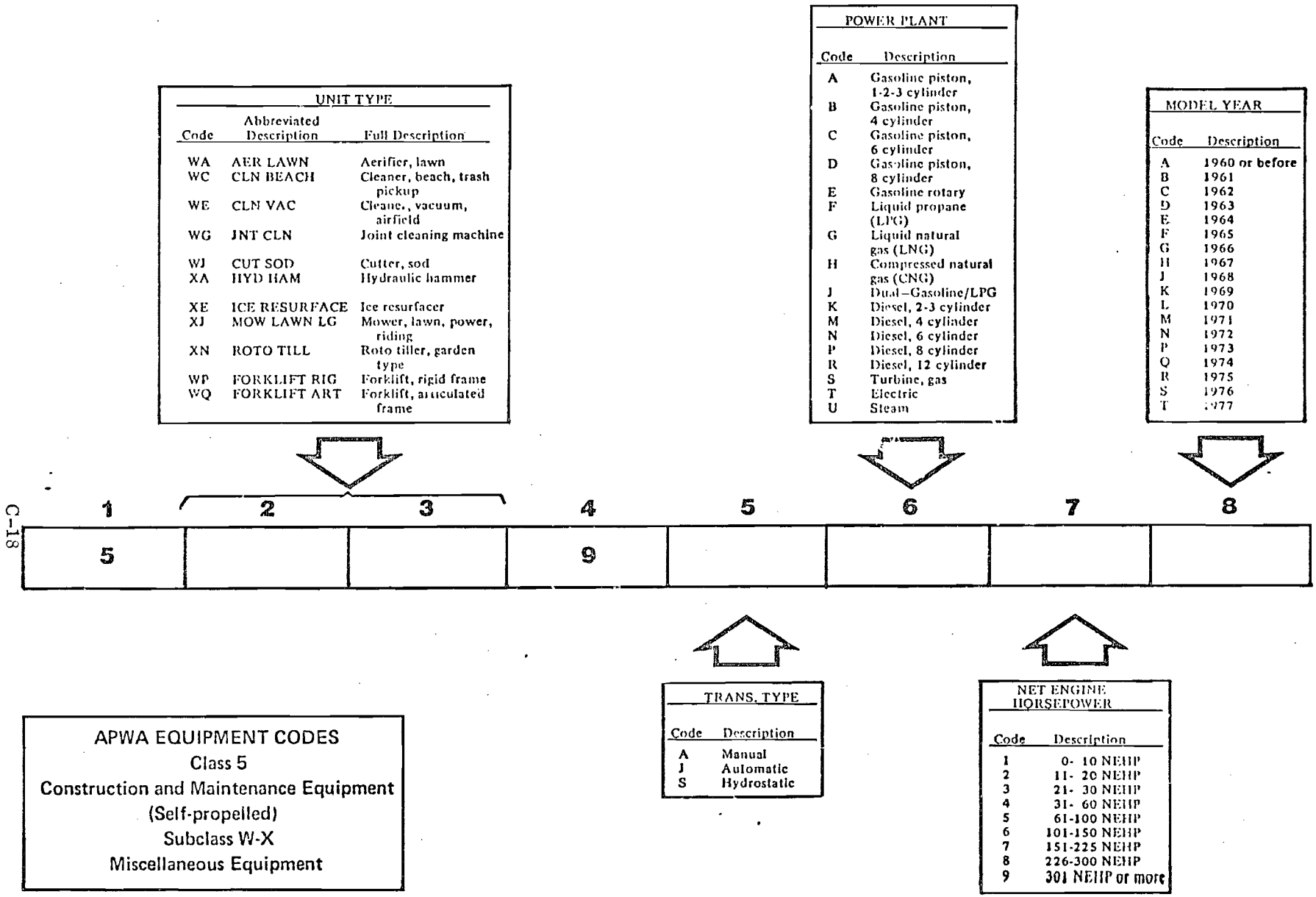
Code	Description
A	Gasoline piston, 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual-Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
Y	Electric
U	Steam

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 5
Construction and Maintenance Equipment
(Self Propelled)

Subclass R
Sweepers.



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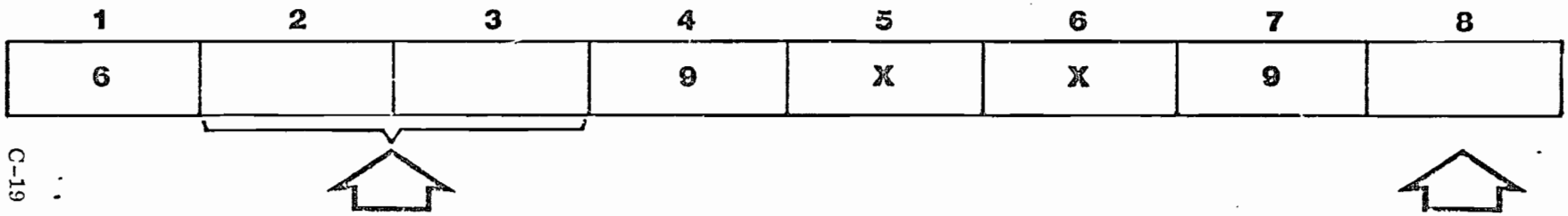
APWA EQUIPMENT CODES
Class 5
Construction and Maintenance Equipment
(Self-propelled)
Subclass W-X
Miscellaneous Equipment

APWA EQUIPMENT CODES
Class 6
Aircraft, Watercraft and Special Terrain Vehicles
Subclass A-B
Aircraft and Watercraft

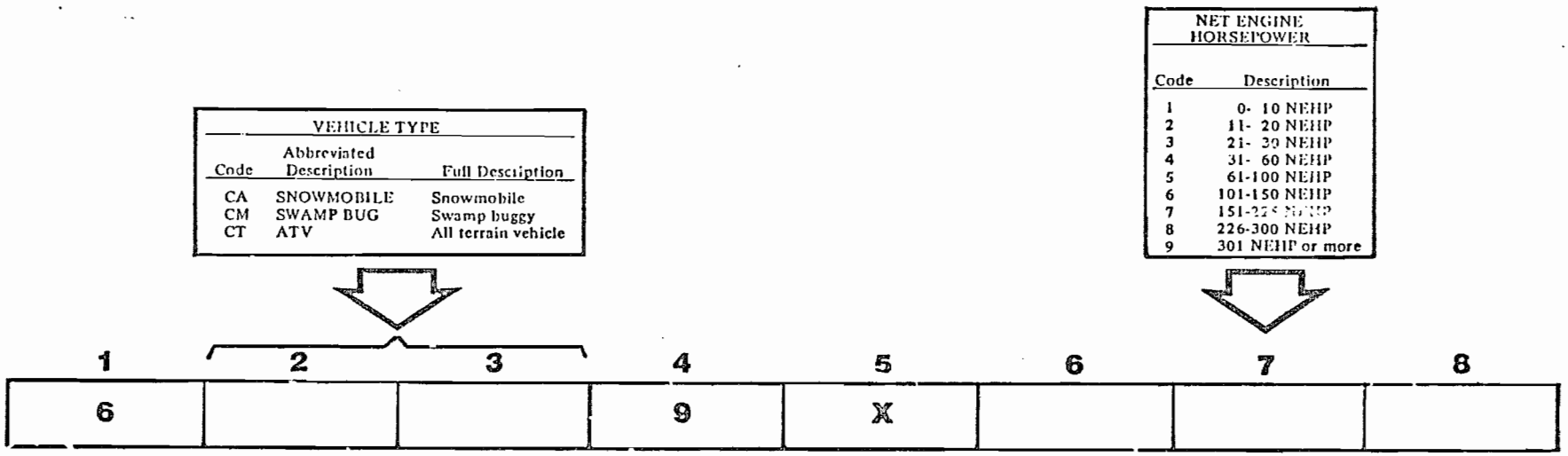


VEHICLE TYPE

Code	Abbreviated Description	Full Description
AA	PLANE SINGLE	Airplane, single engine, propeller
AD	PLANE MULTI	Airplane, multi engine, propeller
AM	HELICOPTER	Helicopter
BA	BOAT FIRE	Boat, fire
BD	BOAT INBRD	Boat, inboard motor
BG	BOAT OUTBRD	Boat, outboard motor
BK	BOAT HOVER	Hovercraft
BN	SCOW STL	Scow (or barge) steel
BR	SCOW WOOD	Scow (or barge) wood

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977



VEHICLE TYPE

Code	Abbreviated Description	Full Description
CA	SNOWMOBILE	Snowmobile
CM	SWAMP BUG	Swamp buggy
CT	ATV	All terrain vehicle

NET ENGINE HORSEPOWER

Code	Description
1	0- 10 NEHP
2	11- 20 NEHP
3	21- 30 NEHP
4	31- 60 NEHP
5	61-100 NEHP
6	101-150 NEHP
7	151-225 NEHP
8	226-300 NEHP
9	301 NEHP or more

POWER PLANT

Code	Description
A	Gasoline piston 1-2-3 cylinder
B	Gasoline piston, 4 cylinder
C	Gasoline piston, 6 cylinder
D	Gasoline piston, 8 cylinder
E	Gasoline rotary
F	Liquid propane (LPG)
G	Liquid natural gas (LNG)
H	Compressed natural gas (CNG)
J	Dual–Gasoline/LPG
K	Diesel, 2-3 cylinder
M	Diesel, 4 cylinder
N	Diesel, 6 cylinder
P	Diesel, 8 cylinder
R	Diesel, 12 cylinder
S	Turbine, gas
T	Electric
U	Steam

MODEL YEAR

Code	Model Year
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

APWA EQUIPMENT CODES
Class 6
Aircraft, Watercraft and Special Terrain Vehicles
Subclass C
Special Terrain Vehicles

TRAILER TYPE

Code	Abbreviated Description	Full Description
AA	TLR FLATBD	Flat bed
AE	TLR LOWBD	Low bed
AJ	TLR TILT	Tilt trailer
AN	TLR BOAT	Boat carrier
BA	TLR VAN	Van
BR	TLR DMP	Dump
CA	TLR MOB HOME	Mobile home (or office)
DA	TLR TANK GP	Tank, general purpose
DJ	TLR TANK FUEL	Tank, fuel (gasoline, diesel, heating, etc.)
DS	TLR TANK ASPH	Tank, asphalt
FA	TLR REF TSFR 0	Refuse transfer less than 25 cu. yd.
FB	TLR REF TSFR 25	Refuse transfer, 25-50 cu. yd.
FC	TLR REF TSFR 50	Refuse transfer, 51-75 cu. yd.
FD	TLR REF TSFR 76	Refuse transfer, more than 75 cu. yd.
FG	TLR REF COM R0	Refuse compactor, rear load, less than 25 cu.yd.
FH	TLR REF COM R25	Refuse compactor, rear load, 25-50 cu. yd.
FJ	TLR REF COM R51	Refuse compactor, rear load, 51-75 cu. yd.
FK	TLR REF COM R76	Refuse compactor, rear load, more than 75 cu. yd.
FN	TLR REF COM S0	Refuse compactor, side load, less than 25 cu. yd.
FP	TLR REF COM S26	Refuse compactor, side load, 25-50 cu. yd.
FQ	TLR REF COM S51	Refuse compactor, side load, 51-75 cu. yd.
FR	TLR REF COM S76	Refuse compactor, side load, more than 75 cu. yd.

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

1	2	3	4	5	6	7	8
8					X	9	

APWA EQUIPMENT CODES
Class 8
Trailers

CAPACITY RANGE (Gross)

Code	Description
0	Does not apply
1	0- 5 tons
2	6-10 tons
3	11-15 tons
4	16-20 tons
5	21-25 tons
6	26-30 tons
7	31-35 tons
8	36-40 tons
9	41 tons or more

OVERALL LENGTH

Code	Description
A	0-4 ft.
B	5-10 ft.
C	11-15 ft.
D	16-20 ft.
E	21-25 ft.
F	26-30 ft.
G	31-35 ft.
H	36-40 ft.
J	41-45 ft.
K	46-50 ft.
L	51 ft. or more

APWA EQUIPMENT CODES
Class 9
Other Non-self-propelled Equipment

UNIT MOUNTING

Code	Description
1	Unmounted, portable
3	Skid mounted
5	Trailer mounted
6	Truck mounted, temporary
7	Wheeled integral unit

1	2	3	4	5	6	7	8
9				X	X	9	

UNIT TYPE

Code	Abbreviated Description	Full Description
	– Paving and Earthwork Equipment –	
AA	ASH HEATR	Asphalt heater
AG	ASPH KETTL	Asphalt Kettle
AN	ASPH SPRDR	Asphalt spreader
AU	AUGER	Auger, earth, vertical or horizontal
BA	COM VIB	Compactor, vibrating, earth/aggregate
BE	CONVEYR AUGER	Conveyor, aggregate, auger
BG	CONVEYR BELT	Conveyor, aggregate, belt or trough
BN	CURB PAVER	Curb paver
BS	DIGGR HOLE	Digger, posthole, power-driven
BW	DRILL CORE	Drill, core
CB	MIX CONC 3	Mixer, concrete, 3 1/2 sack
CD	MIX CONC 5	Mixer, concrete, 5 sack
CE	MIX CONC 6	Mixer, concrete, 6-7 sack
CJ	MIX CONC 10	Mixer, concrete, 10-11 sack
CN	MIX CONC 14	Mixer, concrete, 14-16 sack
CT	MIX MORT	Mixer, mortar or plaster
DA	MUDJACK	Mudjack (pavement raiser)
EC	ROLLR PNEU 45	Roller, pneumatic tires, 4 front/5 rear
EE	ROLLR PNEU 56	Roller, pneumatic tires, 5 front/6 rear
EG	ROLLR PNEU 67	Roller, pneumatic tires, 6 front/7 rear
EL	ROLLR PNEU WOB	Roller, pneumatic tires, wobble wheel
ER	ROLLR SHP FT	Roller, sheepsfoot
FA	SAW CONC	Saw, concrete, self-powered
FK	STABILIZER	Stabilizer, asphalt road material mixer
FP	SPRDR AGG	Spreader, aggregate or salt
FV	TAMPER	Tamper, mechanical, self-powered
	– Grounds Maintenance and Forestry Equipment –	
JA	BURNER	Burner, weed
JJ	CHIPPR BRUSH	Chipper, brush, drum type w/fixed knives
JS	MOW LAWN SM	Mower, lawn, power, non-riding
KB	SHREDDR	Shredder (Mulcher)
KE	SPRAYR	Sprayer, decontamination/insecticide
KR	SPRDR FERT	Spreader, fertilizer
KT	STUMP CUT	Stump cutter
LS	VAC LEAF	Vacuum cleaner, leaf and litter, non-riding
	– Service and Other Equipment –	
PA	BOILER	Boiler, steam
PJ	CLN SAND BLST	Cleaner, sand blasting
PS	CLN STEAM	Cleaner, steam, high pressure jenny
QA	COMPR 0	Compressor, air 0-60 CFM
QB	COMPR 61	Compressor, air, 61-105 CFM
QC	COMPR 106	Compressor, air, 106-160 CFM
QD	COMPR 161	Compressor, air, 161-210 CFM
QE	COMPR 211	Compressor, air, 211-315 CFM
QF	COMPR 316	Compressor, air, 316-600 CFM
QG	COMPR 601	Compressor, air, 601-1000 CFM
QH	COMPR 1001	Compressor, air, 1001 CFM or more
RA	FLD LITE	Flood light plant
SA	GEN 0	Generator, 0-4 KW
SB	GEN 5	Generator, 5-15 KW
SC	GEN 16	Generator, 16-30 KW
SD	GEN 31	Generator, 31-60 KW
SE	GEN 61	Generator, 61-150 KW
SF	GEN 151	Generator, 151-250 KW
SG	GEN 251	Generator, 251 KW or more
TA	LUBE UNIT	Lubricator, field service unit
TG	PWR RDR	Power rodder (sewer cleaner)
TN	PUMP CENT	Pump, centrifugal
TP	PUMP DIA	Pump, diaphragm
TS	PUMP RTRY	Pump, rotary
UA	SRCH LITE	Search light plant
UG	SWP BROOM	Sweeper, broom, towed
UN	TRAF MARKR	Traffic line marker
UU	WELDER	Welder

MODEL YEAR

Code	Description
A	1960 or before
B	1961
C	1962
D	1963
E	1964
F	1965
G	1966
H	1967
J	1968
K	1969
L	1970
M	1971
N	1972
P	1973
Q	1974
R	1975
S	1976
T	1977

INDEX

This index lists all units found in the preceding coding tables. Following each entry are the first two or three digits of the unit's code number.

Throughout the index, the mounting, propulsion, etc., of the units are listed where they seem appropriate. Please note that the term "non-self-propelled" does not mean that the unit is not equipped with a motor; it simply means that the unit does not provide its own locomotion. Non-self-propelled units may be unmounted (not stationary) or mounted on skids, a trailer, or a wheeled frame (integral unit).

Decontamination/Insecticide Sprayer: Non-self propelled	9KE
Dental Mobile Unit	3RC
Diaphragm Pump	9TP
Digger:	
Post hole, power-driven, portable	9BS
(See also, Backhoe, Shovel, Ditcher, etc.)	
Distributor: Asphalt, truck	3MA
Ditcher:	
Integral unit	5BG-5BN
Tractor-mounted	4A-4X
Dragline Crane: Integral unit	5BC
Drill: Core, non-self-propelled	9BW
Drop Hammer: (See Hydraulic Hammer)	
self-propelled unit	5XA
Drybulk Tank: Truck-mounted	2PA
Dump Body:	
Scooter	1NL
Trailer	8BR
Dump Truck	2EA
Dump Truck with Underbody Scraper	2EG
Emergency Vehicle (See Ambulance or Rescue Unit)	
End Loader (See Loader)	
Excavator, General Purpose, Telescopic Rotating Boom:	
Integral unit	5BU
Truck-mounted	3PK
Fertilizer Spreader: Non-self-propelled	9KR
Field Service Unit:	
Equipment maintenance, truck	3SA
Tires, truck	3SC
Fire Boat	6BA
Fire Unit:	
Aerial ladder	3UF
Aerial platform	3UG
Chemical	3UK
Ladder	3UN
Miscellaneous	3UZ
Pumper	3UQ
Rescue	3UT
Tanker	3UW
Flat Bed:	
Trailer	8AA
Truck, dumping	2GM
Truck (stake)	2GA
Flood Light Plant:	
Non-self-propelled	9RA
Truck-mounted	3WL
Flusher: Power street, truck-mounted	3JA
Fogger/Sprayer:	
Truck	3WV
(See Sprayer, decontamination/insecticide) non-self-propelled	9KE
Forklift:	
Integral unit	5WP-5WQ
Tractor-mounted	4A-4X
Forward Control Van: Truck	2VH
Four-Wheel:	
Mechanical sweeper truck	3JC
Vacuum sweeper truck with broom(s)	3JE
Front Loader: Integral unit	5CA-5CL
Front-End Loader:	
Tractor-mounted	4A-4X
Truck	3PP

Fuel Tank:	
Trailer	8DJ
Truck	2PR
Garbage Truck (Compactor)	3A-3D
General Purpose:	
Sedan	1AA
Station wagon	1BA
Tank trailer	8DA
Tractor	4A
Generator:	
Non-self-propelled	9SB-9SG
Truck-mounted	3WN
Golf Cart (See Scooter)	
Grader: Motor	5LA-5LW
Half-Track Truck	3WW
Hammer: Hydraulic, self-propelled unit	5XA
Heater:	
Asphalt, non-self-propelled	9AA
Planer, road surface, self-propelled unit	5PA
Helicopter	6AM
Hole Digger: (See Digger, post hole, power-driven)	9BS
Hovercraft	6BK
Hydraulic Hammer: Self-propelled unit	5XA
Ice Resurfacer: Self-propelled unit	5XE
Inboard Motor Boat	6BD
Industrial-Type Tractor (with or without attachments)	4A
Jeep-Type Vehicles	1CA
Jet: Water, truck-mounted	3JV
Joint Cleaning Machine: Self-propelled unit	5WG
Kettle: Asphalt, non-self-propelled	9AG
Laboratory Mobile Unit	3RF
Ladder:	
Aerial, truck-mounted	3WA
Aerial, fire unit	3UF
Fire unit	3UN
Ladder-Type Ditcher: Integral unit	5BN
Landfill Compactors,	5KA-5KU
Lawn Equipment:	
Aerifier, self-propelled unit	5WA
Mower, power, nonriding	9JS
Mower, power, riding	5XJ
Roller, self-propelled	5NV
Sweeper, self-propelled	5RA-5RC
Library Mobile Unit	3RG
Loader:	
Front, tractor-mounted	4A-4X
Front-end truck	3PH
Integral unit	5CA-5CL
Low Bed Trailer	8AE
Lubricator: Field service unit, non-self propelled	9TA
Magnetic Sweeper	5RG-5RJ
Marker, Traffic Line:	
Non-self-propelled	9UN
Truck	3MP
Medical Mobile Unit	3RJ
Miscellaneous: Fire unit	3UZ
Mixer:	
Concrete, non-self-propelled	9CB-9CN
Concrete, truck-mounted	3WJ
Mortar or plaster, non-self-propelled	9CT
(See Stabilizer, asphalt road material mixer, non-self-propelled)	9FK

Mobile Home (or office): Trailer-mounted	8CA
Mobile Unit:	
Communications center	3RA
Dental	3RC
Laboratory	3RF
Library	3RG
Medical	3RJ
Office	3RL
TV sewer inspection	3RN
Workshop	3RR
X-Ray	3RS
Zoo	3RV
Mortar or Plaster Mixer	9CT
Motorcycle:	
With sidecar	1KL
Without sidecar	1KA
Motor Grader	5LA-5LW
Mower:	
Lawn, nonriding	9JS
Lawn, riding	5XJ
Tractor-mounted	4A-4X
Mudjack	9DA
Mulcher (See Shredder) non-self-propelled	9KB
Office Mobile Unit	3RL
Outboard Motor Boat	6BG
Pan: (See Scraper and Hauling Unit)	5EA-5EW
Panel Truck	2KA
Patrol Grader	5LA-5LW
Pavement Breaker: (See Hydraulic Hammer) self-propelled unit	5XA
Pavement Raiser (See Mudjack)	9DA
Paver:	
Asphalt, self-propelled	5PJ
Concrete, self-propelled	5PS
Pickup:	
Extended cab	2LL
Standard cab	2LA
Planer/Heater: Road surface, self-propelled unit	5PA
Police Vehicle:	
Patrol Wagon	3WQ
Sedan, police special	1AL
Station wagon, police special	1BL
Power Bucket Truck (sewer cleaner)	3JT
Power Rodder (sewer cleaner):	
Non-self-propelled	9TG
Truck	3JR
Power Street Flusher Truck	3JA
Pump:	
Centrifugal	9TN
Diaphragm	9TP
Rotary	9TS
Pumper: Fire unit	3UQ
Ready Mix Concrete Truck	3WJ
Refrigerated Truck	3WS
Refuse Vehicle:	
Compactor trailer	8FG-8FR
Compactor truck	3A-3D
Scooter, dump body	1NL
Transfer trailer	8FA-8FD
Rescue Unit: Fire truck	3UT
Resurfacer: Ice, self-propelled unit	5XE
Ripper: Tractor-mounted	4A-4X
Rodder:	
Bucket and/or jet combination, truck-mounted	3JX
Power (sewer cleaner), non-self-propelled	9TG
Power (sewer cleaner), truck	3JR

Roller:	
Self-propelled	5MA-5NV
Towed	9EC-9ER
Rotary Pump	9TS
Rotary Sweeper: Warehouse/sidewalk, self-propelled unit	5RM-5RP
Roto Tiller: Garden type	5XN
Salt or Aggregate Spreader: Non-self-propelled	9FP
Sand Blasting Cleaner	9PJ
Saw: Concrete, power-driven, non-self-propelled	9FA
Scooter	1NA-1NL
Scow (or Barge):	
Steel	6BN
Wood	6BR
Scraper and Hauling Unit	5EA-5EW
Scraper: Tractor-mounted	4A-4X
Searchlight Plant:	
Non-self-propelled	9UA
Truck-mounted	3WU
Sedan:	
General-purpose	1AA
Police special	1AL
Sheep's Foot Roller:	
Self-propelled, pneumatic-tired prime mover	5NL
Towed	9ER
Shovel: Power, integral unit	5DA-5DL
Shredder (mulcher): Non-self-propelled	9KB
Sideboom: Tractor-mounted	4A-4X
Snow Blade: Tractor-mounted	4A-4X
Snowblower: Tractor-mounted	4A-4X
Snowmobile	6CA
Sod Cutter: Self-propelled unit	5WJ
Sprayer:	
Decontamination/insecticide, non-self-propelled	9KE
Fogger, truck-mounted	3WV
Spreader:	
Aggregate and/or chemical (salt), self-contained hopper and spreader truck	3MM
Aggregate or salt, non-self-propelled	9FP
Asphalt, non-self-propelled	9AN
Fertilizer, non-self-propelled	9KR
Squad Car (See Sedan, police special)	1AL
Stabilizer: Asphalt road material mixer, non-self-propelled	9FK
Stake Truck (Flat bed)	2GA
Station Wagon:	
General-purpose	1BA
Police special	1BL
Steam Boiler: Portable	9PA
Steam Cleaner High-Pressure Jenny:	
Non-self-propelled	9PS
Truck-mounted	3SM
Steel Scow (or Barge)	6BN
Step Van (Metro)	2VR
Stump Cutter: Non-self-propelled	9KT
Swamp Buggy	6CM
Sweeper:	
Broom, towed	9UG
Four-wheel	3JC-3JE
Three-wheel	5RA-5RV
Tractor-mounted	4A-4X
Tamper:	
Mechanical, self-powered, non-self-propelled	9FV
Tractor-mounted	4A-4X

END

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