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ABSTRACT

Volume 1 of the 19-volume Highway Safety Program Manual (which provides guidance to State and local governments on preferred highway safety practices) focuses on periodic motor vehicle inspection by: (1) outlining the purpose and objectives of vehicle inspection, (2) establishing Federal authority for the program, and (3) citing general and specific policies regarding a State inspection program. Program development and operations for an inspection system (the number of stations required, program organization, financing, operating requirements and procedures, enforcement, training requirements, system requirements, and special vehicle inspection) are presented. Criteria for program evaluation, means of establishing goals, and methods of measuring and evaluating performance are described. Means of preparing operation, management information, program evaluation, and National Highway Traffic Safety Administration reports are outlined, and the types of reports are explained. Local government participation and funding criteria are briefly described. Appendixes contain the Highway Safety Program Standard One, Periodic Motor Vehicle Inspection; Part 570, Vehicle in Use Inspection Standard; requests for approval of experimental, pilot, or demonstration inspection programs; a glossary of definitions; references; a brief list of representative projects; a list of resource organizations; and special vehicle inspection guidelines. (NH)

Highway Safety Program Manual

NO 1

Periodic Motor Vehicle Inspection

JANUARY 1974

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U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

HIGHWAY SAFETY PROGRAM MANUAL

VOLUME 1

PERIODIC MOTOR VEHICLE INSPECTION

This Manual is designed as a guide for States and their political subdivisions to use in developing highway safety program policies and procedures. It does not supersede requirements of Highway Safety Program Standard No. 1.

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FOREWORD

As part of the Highway Safety Program Manual, this volume is designed to provide guidance to State and local governments on the preferred highway safety practices. Volumes comprising the Manual are:

0. Planning and Administration
1. Periodic Motor Vehicle Inspection
2. Motor Vehicle Registration
3. Motorcycle Safety
4. Driver Education
5. Driver Licensing
6. Codes and Laws
7. Traffic Courts
8. Alcohol in Relation to Highway Safety
9. Identification and Surveillance of Accident Locations
10. Traffic Records
11. Emergency Medical Services
12. Highway Design, Construction, and Maintenance
13. Traffic Control Devices
14. Pedestrian Safety
15. Police Traffic Services
16. Debris Hazard Control and Cleanup
17. Pupil Transportation Safety
18. Accident Investigation and Reporting

The volumes of the Manual supplement the Highway Safety Program Standards and present additional information to assist State and local agencies in implementing their highway safety programs.

The content of the volumes is based on the best knowledge currently available. As research and operating experience provide new insights and information, the Manual will be updated.

The volumes of the Highway Safety Program Manual deal with preferred highway safety practice and in no way commit the Department of Transportation to funding any particular program or project.

Many expert organizations and individuals at all levels of government and in the private sector contributed heavily in the preparation of the volumes of the Manual. The Department appreciates greatly this help in furthering the national program for improving highway safety for all Americans.

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

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C Requests for Approval of Experimental Pilot or Demonstration Motor Vehicle Inspection Programs

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Par. I. Introduction
II. Purpose
III. Specific Objectives

I. INTRODUCTION

A. Since each potential motor vehicle equipment failure creates a threat to its occupants, the occupants of other vehicles, and pedestrians, vehicle maintenance is a public concern. Even normal usage of motor vehicle results in gradual wear, deterioration, or maladjustment of nearly all vehicle equipment with a concomitant increase in the likelihood of an accident if corrective maintenance and repairs are inadequate.

B. States require owners to maintain vehicles operated on public highways in a safe operating condition. But for a substantial percentage of the vehicle population, preventive maintenance and corrective repairs are inadequate, and the vehicles are operated on public thoroughfares in conditions that are beyond reasonable limits of safety.

II. PURPOSE

The purpose of periodic motor vehicle inspection is:

> "To increase, through periodic vehicle inspection, the likelihood that every vehicle operated on the public highways is properly equipped and is being maintained in reasonably safe working order . . .,* thereby reducing the number of vehicle equipment failures which cause or increase the severity of those accidents which do occur.

*Highway Safety Program Standard 1, Periodic Motor Vehicle Inspection.

III. SPECIFIC OBJECTIVES

A. This volume will provide guidelines for a properly planned and administered vehicle inspection program for reducing traffic accidents by lessening the frequency of vehicle equipment failures, thereby contributing to a coordinated national program aimed at upgrading all phases of highway safety, including the highway, the vehicle, and the driver.

B. The Periodic Motor Vehicle Inspection (PMVI) Program has the following specific objectives.

1. To establish minimum acceptable standards of safety with respect to the physical operating condition of vehicles and vehicle equipment.

2. To establish minimum criteria for the establishment and operation of inspection stations.

3. To provide for the periodic inspection of all vehicles registered for use on the public highways to ensure compliance with safety standards.

4. To detect through the Vehicle Inspection Program all defective equipment which can impair the safe operation of the vehicle.

5. To ensure that all defects identified during inspection are corrected within a reasonable time.

6. To evaluate the Vehicle Inspection Program.

7. To improve the Program by incorporating changes based on periodic evaluations and cost-effectiveness considerations.

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The authority for the Highway Safety Program is vested in the Secretary of Transportation in accordance with Chapter 4 of Title 23, U. S. C. (hereinafter referred to as the Highway Safety Act of 1966). Section 402(a) states that:

> "Each State shall have a highway safety program approved by the Secretary, designed to reduce traffic accidents and deaths, injuries, and property damage resulting therefrom. Such programs shall be in accordance with uniform standards promulgated by the Secretary . . . such uniform standards shall include . . . vehicle inspection . . . ."

Pursuant to the requirements of the Highway Safety Act of 1966, the Secretary issued Highway Safety Program Standard 1, entitled Periodic Motor Vehicle Inspection. The Standard appears as Appendix A of this volume.

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CHAPTER III. General Policy	January 1974

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Par. I. General Policy
II. Specific Policies
III. Definitions

I. GENERAL POLICY

A. The general policy of the Department of Transportation is to encourage and support State periodic motor vehicle inspection programs to assure that all vehicles in operation on public thoroughfares are in reasonably safe working order.

B. It is the policy and intent of the Department that a State submit for approval, in accordance with the provisions of the law, a program plan for Periodic Motor Vehicle Inspection (PMVI) that meets the requirements of Highway Safety Program Standard 1, and proposes implementation methods as prescribed in this Manual.

C. It is further intended that the States bring their levels of PMVI program performance up to those called for in the Standard and Manual as rapidly as possible.

D. The Department will consider for approval each proposed trial substitute program in terms of the likelihood that it will be effective in improving the safety qualities of the total population of vehicles in use, and thereby will reduce vehicle crashes and injuries. The supporting justification is to be provided by the State making the request. (See Appendix C)

E. If, at the conclusion of an approved trial period, the effectiveness of the trial substitute program is demonstrated, the

Secretary may consider an appropriate amendment of the Standard and the Manual to allow permanent implementation of the trial substitute program, in whole or part.

II. SPECIFIC POLICIES

Within this broad policy, the following additional specific policies apply:

A. A periodic inspection program should provide that every vehicle registered in the State is inspected at the time of initial registration and at least annually thereafter. In lieu of this, the State may conduct a trial substitute inspection program if it is approved by the Secretary. (See Appendix C regarding "Requests for Approval of Experimental, Pilot, or Demonstration Motor Vehicle Inspection Programs).

B. The program should at once guard against "under-inspection" on the one hand that will permit vehicles in dangerous conditions to pass inspection and "over-inspection" on the other hand that will force the vehicle owner to purchase unneeded repairs.

C. Each State should establish one authority with primary responsibility for the inspection program.

D. Information resulting from motor vehicle inspection should be related to, and coordinated with, other programs such as motor vehicle registration, motorcycle safety, school bus safety, emergency vehicle safety, and police traffic services.

E. The program should provide for recognition, on a reciprocal basis, of inspections performed by other States having similar laws and standards.

F. Nothing in this Manual is intended to restrict the use of "antique, classic, horseless carriage, or show vehicles" in parades or en route to such displays or other operations because of failure to comply with present-day inspection standards, provided that the vehicle is in a reasonably safe working order for travel conditions of the parade or to and from a point of display, or other operating conditions.

G. States are encouraged to adopt standards for inspection procedures issued by standards organizations such as ANSI,* NCUTLO,** etc., providing the procedures equal or exceed criteria issued or endorsed by the DOT; contribute to the implementation of Highway Safety Program Standard 1 and are not at variance with the Standard. However, States are required to adopt the inspection criteria set forth in Appendix B, Vehicle-in-Use Inspection Standards.

H. An approved mechanical defect detection (motor vehicle inspection) program must be considered a necessary component of a State's Annual Work Program (AWP).

III. DEFINITIONS

A. Program

The overall plan for projects and activities whereby a State proposes to comply with Highway Safety Program Standard 1, Periodic Motor Vehicle Inspection. The plan may include some projects that have Federal support under Section 402 of Title 23, U.S.C. and others that have no Federal support.

B. Manual Program

One that meets the provisions of Volume 1, Highway Safety Program Manual - Periodic Motor Vehicle Inspection.

C. Trial Substitute Program

A program that deviates significantly from the procedures described in this Manual, for example, one which substitutes random motor vehicle inspection for the periodic methods called for in the Standard and the Manual. ("Trial substitute program," as defined here is to be interpreted as having the same meaning as "experimental, pilot, or demonstration program," as used in the Highway Safety Program Standard 1.)

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*American National Standards Institute (ANSI), 10 East 40th Street, New York, New York 10016.

**National Committee on Uniform Traffic Laws and Ordinances (NCUTLO), 1776 Massachusetts Ave., N.W., Suite 430, Washington, D.C. 20036

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III. Number of Stations Required
IV. Program Organization
V. Program Financing
VI. Operating Requirements and Procedures
VII. Program Enforcement
VIII. Training Requirements
IX. System Requirements
X. Special Vehicle Inspection
XI. Trial Substitute Programs

I. PROGRAM PLANNING

A. In order to select the type of program best suited to a particular State, the legislature should be fully informed of the relative merits of the different types of inspection programs and the resources required for their operation, and be provided with an evaluation of fiscal requirements.

B. The enabling legislation should allow for maximum flexibility on the part of the official responsible for the implementation and operation of the program, so that he can exercise judgment in meeting the program objectives within the type of system authorized.

C. The framework for the program and sufficient time and resources in terms of facilities, personnel, and budget should be established before the inception of operations.

II. TYPE OF INSPECTION SYSTEM

Various types of inspection systems should be evaluated in the development of a Statewide program, for example:

A. State Licensed or Appointed System

With this system the State licenses or appoints dealers, automotive garages, or service stations to conduct inspections under rules and regulations established by the State. Each dealer, garage, or service station is certified to perform inspections after complying with legal, space, equipment, and personnel requirements.

1. Benefits

   a. Large numbers of dealers, garages, or service stations may be authorized with the added convenience to the general public.

   b. Inspection facilities already exist, which serves to reduce program implementation time.

   c. Time and cost of selecting, building, and staffing facilities are eliminated.

   d. Vehicle owners may elect to have repairs made immediately, by the inspecting facility, thus avoiding the necessity of returning for reinspection.

2. Drawbacks

   a. There is possible lack of uniformity between inspection stations due to their large number and wide variability in size, equipment, staff, and management policies.

   b. Adequately supervising large numbers of inspection facilities is difficult.

   c. A lack of public confidence in the business ethics and practices of the dealer, garage, or service station is possible, because it may benefit from repair work.

B. State Owned and Operated System

Under this system the State purchases or leases buildings and equipment, employs personnel, and exercises direct control over the inspection procedure.

1. Benefits

a. A more uniform inspection of all vehicles is probable due to the limited number of facilities and inspectors involved and the commensurate ease of training and supervision.

b. Vehicle inspections are made by inspectors not personally interested in the proceeds from charges made for repairs.

c. Reinspection of rejected vehicles provides a check on the quality of repairs.

d. The collection of motor vehicle inspection data in a systematic and consistent form is facilitated.

2. Drawbacks

a. The public is inconvenienced due to a limited number of stations.

b. Excessive delay is possible in connection with the initial inspection and reinspection following the correction of defects.

c. Cost of implementing the program is relatively high.

C. A Combination System

This system would derive the benefits from each of the above systems. Thus, State operated stations would be used in communities and cities with high population density and State appointed stations in sparsely populated areas.

1. Benefits

a. There would be a reduction in the number of buildings and equipment required.

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b. Greater uniformity over the majority of inspections can be maintained.

2. Drawbacks

a. There would be adjustment of administrative and supervisory procedures to accommodate two separate methods of motor vehicle inspection operations.

b. Cost of acquiring facilities for State operated system is relatively high.

III. NUMBER OF STATIONS REQUIRED

The number of inspection stations required will depend on the physical characteristics of the State, the number and types of vehicles, inspection requirements, hours of operation, and population density. ANSI standards D7.2* and D7.3** may serve as a guide to States to determine the minimum number of stations required for each type of inspection system.

IV. PROGRAM ORGANIZATION

An effective organization structure is required to carry out the objectives of the PMVI program as passed by the legislature. This organization should function under the direct management and control of an appointed PMVI program administrator.

A. Functions of Organization

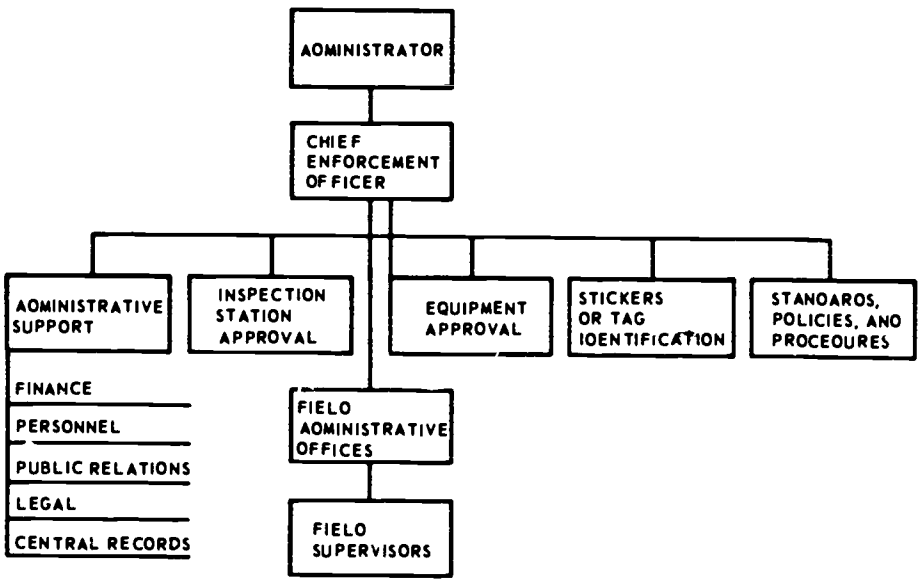
The functions to be performed by the PMVI organization should be defined. The major functions suggested for each type of system are shown in the sample organization charts in Exhibit I.

*American National Standards Institute. American Standard Station Requirements for Inspection of Motor Vehicles, Trailers and Semi-Trailers in Stations Owned and Operated by Regulatory Authority, ANSI Standard D7.2, latest revision.

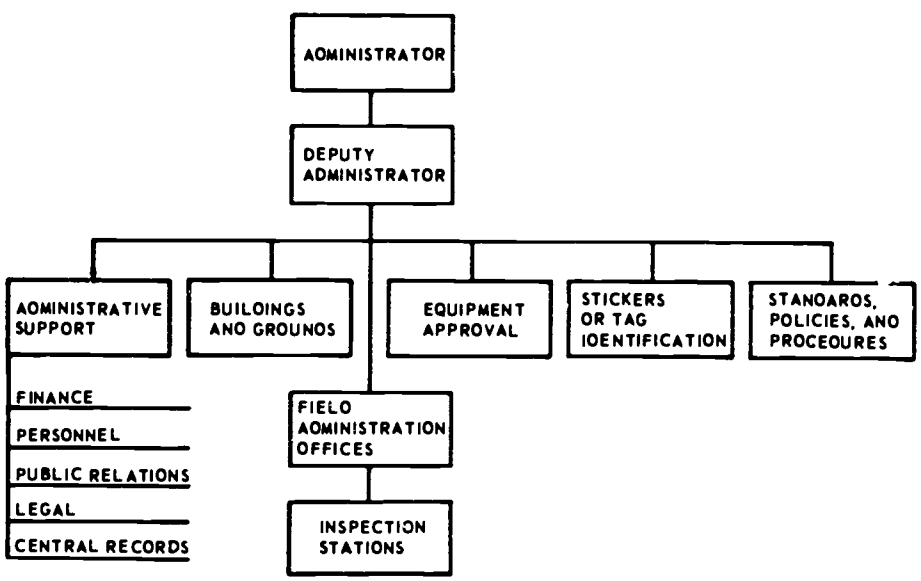
**American National Standards Institute. American Standard Station Requirements for Inspection of Motor Vehicles, Trailers and Semi-Trailers in Stations Appointed and Licensed by Regulatory Authority, ANSI Standard D7.3, latest revision.

EXHIBIT I

SAMPLE ORGANIZATION CHART FOR STATE-APPOINTED MVI SYSTEM



SAMPLE ORGANIZATION CHART FOR STATE-OPERATEO MVI SYSTEM



B. Field Organization

Close supervision and control over inspection stations is vital to the success of the program.

1. Field supervisors are required for both State licensed or appointed and State owned and operated systems.

   a. The qualifications and number of field supervisors are of prime importance, as supervision, inspection, and enforcement of PMVI policies and procedures will probably be under their jurisdiction.

   b. Experience indicates that supervision of PMVI programs by enforcement personnel is advantageous, and their use for this purpose should be considered.

   c. The number of field supervisors required will depend on the number of stations per inspector, the distances between stations, volume of inspections, etc.

2. State employed station personnel are required for a State operated system.

   a. The number of station personnel will depend on the number of inspection stations, the number of lanes per station, and the thoroughness of the inspection.

   b. An inspection station should have a manager/supervisor, clerical support, and sufficient inspectors to handle the inspections without undue delay.

C. Administrative Staff

1. The administrator should have a staff to perform the following administrative functions:

   a. Inspection station application and approval.

   b. Inspection equipment evaluation and approval.

   c. Vehicle certification (sticker) control.

d. Development and updating of standards, policies, and procedures.

e. Program evaluation.

2. The following represents the suggested minimum personnel requirements to carry out PMVI administrative functions:

a. Administrator - To provide for the general supervision, management, and administration of all the division's activities, as well as to provide liaison with the press and other public support groups.

b. Deputy Administrator - To be primarily responsible for liaison and follow-up with field units and the formulation of policies and procedures; in addition, to act for the administrator whenever required.

c. Administrative assistant or secretary to the administrator - To handle all general correspondence and record keeping required by the administrator and the deputy administrator in the performance of their duties.

d. Equipment technician - From his technical knowledge of inspection and motor vehicle equipment (e. g., a background in automotive engineering or extensive inspection experience), to recommend approval and maintenance procedures of equipment suggested for use within the State.

e. Clerks - To provide for the processing of inspection station applications, control over vehicle certification, fulfillment of requisitions from stations for vehicle certification and other forms, and processing of field supervisor and inspection station reports.

D. Staff Support

The administrator should provide staff for the following functions, if assistance cannot be obtained from other agencies.

1. Finance and accounting.

2. Personnel.

3. Public information and relations.

4. Training.

5. Central records.

6. Legal counsel.

7. Insurance and liability coverage.

E. Position Descriptions

Position descriptions covering all headquarters and field positions for both State licensed or appointed and State operated systems should be developed.

V. PROGRAM FINANCING

In any type of system there will be administrative costs and operating expenses. After a program is operational, the operating expenses may be covered by the income from vehicle inspection certifications (stickers) and other fees.

A. Implementation Costs and Operating Expenditures

Initial funding requirements will vary with the system and prevailing costs in the State, the requirements of legislation, and the manner in which funds are managed. Basic needs which must be funded include:

1. Administrative and field staff.

2. Clerical staff.

3. Recruiting and training personnel.

4. Instruction materials and operating equipment for inspection stations.

B. Funding Sources

A PMVI program may be self-supporting and its costs can be borne by those who are direct recipients of its services. PMVI has the following possible sources of funds:

1. Fees for vehicle certification (stickers).

2. Fees for station certification.

3. Fees for state approval of equipment which stations may use.

4. Fees for certification of inspectors.

5. Fees for conducting inspections.

C. Cost to the Public

Inspection and repair charges represent the direct and indirect costs borne by the public for the inspection program.

1 Inspection charges.

The fee charged the motorist for the inspection should be in direct relationship to the amount of time spent on the inspection and the hourly wage rate of the inspectors. Setting of a minimum fee may be considered to provide for variations in hourly rates. In establishing the fees to be charged for inspection, the following should be considered:

a. Costs required to administer the program.

b. Costs of the physical inspection.

c. How much the public may reasonably be expected to pay for the service.

2. Repair charges.

Charges incurred for repairs should be considered as part of normal preventive maintenance costs.

VI. OPERATING REQUIREMENTS AND PROCEDURES

A. Vehicles Subject to Inspection

1. All motor vehicles registered in the State should be included in the State inspection program.

2. All vehicles not currently registered in the State should be inspected within a specified and reasonable time from the date of initial registration and at least annually thereafter. It is recommended that the period of time between initial registration and initial inspection be no longer than 15 calendar days.

3. There should be provisions for recognition, on a reciprocal basis, of inspections performed by other States with similar laws and regulations.

4. Provision should be made for inspecting and certifying those out-of-State vehicles whose inspection certification expires while the vehicle is away from the State in which it is registered.

5. Provision should be made to inspect trucks, trailers, motorcycles, school buses, emergency vehicles, or other "nonpassenger car" vehicles under inspection procedures appropriate to the particular vehicle.

6. The program should provide that any motor vehicle owner is free to select any official inspection station and is not obliged to have any repair work performed at the station where the inspection was made.

B. Inspection Stations

Sufficient State operated, licensed, or authorized inspection stations should be available in such locations and with such hours of operation that the required service to the motoring public is conveniently provided. A program should provide for inspections to be performed at other than stations used by the general public, provided the State's requirements are met. These stations might include:

1. Fleet stations

An organization, private or governmental, operating a fleet of vehicles.

2. Special vehicle inspection stations

   To provide inspection for those vehicles which cannot be conveniently or practically accommodated at normal public stations.

C. Requirements for Authorization

In a state licensed or appointed system, authorization of inspection stations is solely for the benefit of the motoring public and should be provisional and subject to proper conduct of work and compliance with State requirements. Before a certificate of authorization is issued, an inspection station should meet the following requirements:

1. Be an established place of business.

2. Comply with the minimum facility requirements.

3. Employ at least one certified inspector to conduct the inspections.

4. Use approved tools and equipment.

D. State Certification of Inspection Stations

The following procedures should be established for the certification of inspection stations.

1. An application should be made on a form which is designed to:

   a. Identify the applying station through its trade name and mailing address.

   b. Identify the type of ownership and the names and addresses of the owners.

   c. Provide assurance that the owner understands the legal implications of such authorization.

2. The field supervisor of the responsible state agency should examine the inspection station facilities and check the equipment for compliance, calibration, and working order, and

the personnel for competence prior to appointment and periodically thereafter.

3. The field supervisor of the responsible state agency should check that the inspection station has a minimum of one certified inspector.

4. The department should issue a numbered certificate to stations certified to perform inspections, which should be prominently displayed within the vehicle inspection area.

5. Each public inspection station should display an approved sign in a position clearly visible from the roadway, denoting that it is certified as an inspection station.

6. Official certificates, record and report forms, vehicle inspection certification and/or rejection forms (stickers), and a procedure manual should be issued to the inspection station upon authorization.

E. Grounds for Suspension, Cancellation, or Revocation of Station Authorization

The department should suspend, cancel, or revoke inspection station authorization for any of the following reasons.

1. The use of an uncertified inspector for inspecting vehicles should be sufficient cause for immediate suspension of the authorization.

2. Any change in name, ownership, or location of any official inspection station should cancel the authorization of that station.

3. Violation of any law, rule, or regulation issued for the proper conduct of the inspection should result in suspension or revocation of the station authorization.

F. Inspection Station Space Requirements

The facilities required vary with the type of system, whether State operated or State licensed, and the size of the community being served.

1. The latest revision of ANSI Standards D7.2 and D7.3 should serve as a guide for minimum requirements.

2. Adequate level space within the garage for inspection is important. The floor should be in good condition and not slope other than to the front or rear of the vehicle positioned for inspection, and the slope should be uniform and no greater than 2 inches in 25 feet.

3. The length of the inspection area should depend on the method of testing.

4. A minimum width of 12 feet for a one-car station, 24 feet for a two-car station, and 35 feet for a four-car station should be required.

5. If drainage is provided, it should not affect the test procedures or results.

6. Ramps should not be permitted as a substitute for an adequate floor.

7. Any lift which interferes with the inspection practices or procedures should not be permitted in the inspection area.

G. Tools and Equipment

A list of specialized tools and approved equipment required to perform inspections to the desired standards should be compiled. Minimum requirements should include:

1. Headlight testing equipment.

2. An approved brake tester or adequate facilities for brake tests as described in Appendix B, Vehicle-in-Use Inspection Standards.

3. An approved jack or vehicle lifting equipment to inspect suspension and steering components.

H. Certification of Vehicle Inspectors

All inspections should be performed by competent personnel, trained to perform their duties and certified by the State.

1. The examination for certification should require that the applicant:

   a. Be 18 years of age or older.

   b. Hold a valid operator's license for the class of vehicle to be inspected from the State administering the inspection, if the inspection procedure requires operation of the vehicle.

   c. Have a background knowledge of automobile maintenance.

   d. Have a thorough working knowledge of the laws, rules, and regulations established in the official inspection manual.

   e. Be qualified in the use of testing equipment.

   f. Be able to pass a written examination on, or demonstrate his proficiency in, the principles and practices of vehicle inspection.

2. Certified inspectors should be subject to reexamination, for cause, at any time.

3. A certified inspector's certificate should be suspended or revoked for:

   a. Any infraction or violation of the laws, rules, and regulations governing the inspection of vehicles.

   b. Failure to pass an examination.

   c. Revocation, suspension, or failure to renew an operator's license if the inspection procedure requires operating the vehicle.

   d. Unauthorized inspection practices.

I. Items to be Inspected

A detailed list of inspection items and methods of inspection with acceptance and rejection criteria is provided by ANSI Standard D7.1. A minimum list of items which may be included in a motor vehicle inspection program is shown in Exhibit II, following this page. However, the items are subject to change as the program develops. (see Appendix B, Vehicle-in-Use Inspection Standards). The need for change may result from:

1. Governmental requirements.

2. Technological innovations.

3. Environmental differences.

4. Development of more stringent criteria resulting from program evaluation.

5. Public reaction or support.

6. Changes in vehicle design or construction.

J. Certification of Vehicle Inspection

A vehicle inspection certification (sticker) should be used to denote inspection certification or rejection.

1. When developing specifications for vehicle inspection (or rejection) certifications (stickers), the following should be considered:

   a. Size.

   b. Shape.

   c. Color.

   d. Type of adhesive and self-destructive feature.

   e. Serial number.

   f. Inspection and/or expiration date.

EXHIBIT II

LIST OF INSPECTION ITEMS

1. Operator's license (if inspection performed by enforcement personnel)
2. Valid registration
3. License plates (valid, legible, and unobstructed)
4. Brakes (service, parking, and emergency systems)
5. Headlights
6. Signal lights (turn and warning)
7. Other lights
8. Horn
9. Electrical systems
10. Windshield
11. Other windows
12. Rear view mirrors
13. Tires and tire valves
14. Wheels, rims, and wheel hardware
15. Wipers
16. Windshield washers
17. Steering assembly
18. Alignment and suspension
19. Exhaust system
20. Fuel system
21. Hazardous items on, or hazardous conditions of, body, fenders, etc.
22. Hood latch, door latch, and other latches
23. Occupant restraining devices, anchors, and inertia reels (when so equipped)
24. Defrosters or defoggers
25. Vehicle emission control devices and systems (as knowledge and equipment are developed and when so equipped)
26. Auxiliary safety equipment

g. Imprinting required (name of State, etc.).

h. Need, if any, for writing on the sticker.

2. Vehicle inspection certifications (stickers) should be placed on the vehicle in a uniform position for each class of vehicle.

3. Consideration should be given to the special needs of vehicles such as motorcycles,* trailers, buses, and antique vehicles.

VII. PROGRAM ENFORCEMENT

Enforcement of laws, rules, and regulations governing the operation of the periodic motor vehicle inspection program is necessary to ensure compliance with the program objectives.

A. Inspection Station Supervision

Both State licensed or appointed and owned and operated stations must be regularly inspected to ensure that inspection policies and procedures are followed.

B. Public Compliance

An easy means (stickers, etc.) of identifying and controlling violations should be developed, so that enforcement personnel can assure that the public complies with PMVI laws, rules, and regulations.

C. Notification of Vehicle Registration

The vehicle registration department of the State should be notified of any vehicles which are deemed to be in such an unsafe condition as to constitute a menace to safety.

VIII. TRAINING REQUIREMENTS

A. Establishing Programs

It is essential that inspection personnel receive thorough and comprehensive training for the duties they are to perform. Training courses should be developed for:

*See Volume 3, Motorcycle Safety.

1. Administrators and managers.

2. Field supervisors and enforcement personnel.

3. Vehicle inspectors.

B. Course Content

Each course should include the purpose, objectives, and needs of the PMVI program and the requirements and procedures necessary for the trainees to perform their part of the program with maximum effectiveness. Appropriate examinations should be a part of each course.

C. Updating Skills

1. Periodic seminars should be conducted at various locations in the State.

2. All certified inspectors should attend often enough to maintain their competence.

3. The purpose of the seminar should be to review the program, answer questions raised, and inform those attending of changes in the program procedures, items to be inspected, and equipment available.

IX. SYSTEM REQUIREMENTS

The following system requirements should be considered.

A. Procedures

1. No program can be administered with success unless a means is provided to collect and analyze data.

2. The forms and reports used in the PMVI program should be designed in such a manner as to facilitate collection, processing, and reporting of all data necessary for program operation, control, and analysis.

3. An analysis of data processing requirements would suggest that all "management control" information required for program evaluation should be processed at the State or

regional level. The primary functions to be performed at the stations should include the collection and review of inspection forms for completeness and accuracy.

B. System Inputs

1. Program performance input.

In order to maintain operational and historical records which will enable the preparation of management information and reports required for program development and management control, information should be collected on the following:

a. PMVI station applications processed.

b. PMVI station applications approved and rejected.

c. Inspectors trained and certificates issued.

d. Field supervisor reports received.

e. PMVI program complaints received.

f. PMVI station complaints received.

g. Special investigations conducted.

h. Warning letters issued.

i. Hearings held.

j. Certifications suspended.

k. Certifications revoked.

l. Sticker requisitions processed.

m. Sticker refunds processed.

n. Requests for equipment approval.

o. Approval and rejection of vehicles by make and model and/or vehicle equipment.

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2. Vehicle inspection data.

   a. The main body of statistical data in which the PMVI administrator will be interested is compiled from inspection reports.* The information collected will be used as an official record in the event of complaints, as an audit trail of issued inspection stickers, and as the basis for statistical evaluation of program effectiveness.

   b. The minimum information required to construct an acceptable data base includes:

      1) Class of vehicle - Describe whether passenger car, truck, motorcycle, bus, trailer, etc.

      2) Date of inspection - Month, day, year.

      3) Make of vehicle - The name designated by the manufacturer.

      4) Model year - The model year designated by the manufacturer on the certificate of origin.

      5) Vehicle identification number - The number assigned by the manufacturer to identify the vehicle.

      6) Defects by category - The item inspected and the cause for rejection.

      7) Identification of inspector - The name of the inspector and certification number, where appropriate.

      8) Mileage or odometer reading.

C. Program Relationships

   1. In addition to the normal maintenance of operational and historical records required to provide program control, PMVI must coordinate its record and retrieval system with that of other departments. Coordination with the motor vehicle registration program is particularly important to provide a means of determining if registered vehicles have passed the periodic motor vehicle inspection. Information regarding the vehicle number, date of inspection, result of

*NHTSA Program Information Reporting System 134-2, dated December 21, 1972.

inspection, and where relevant, the number associated with the inspection certification (sticker) should be made available to the vehicle registration department.

2. Extensive cross-referencing should be accomplished through the use of data processing wherein all information pertaining to a given vehicle can be amassed in one location, so as to assist in improving the program and, in certain cases, the vehicle itself. It should be possible to relate specific types of defects found at inspection to a specific make, series, and model of vehicle, and use this information in conjunction with that available on accident reports through the traffic records program and vehicle violation reports from the police traffic services program.

X. SPECIAL VEHICLE INSPECTION

Vehicles such as motorcycles, school buses, and antique or old vehicles require special inspection procedures.

A. Antique or Old Vehicles

Antique, old, or special show vehicles should be inspected and be in good working mechanical condition relative to the design, construction, and operation of parts and accessories as would be appropriate at the time of manufacture.

B. Special Vehicles

Special inspection requirements for motorcycles and school buses are outlined in Appendix H.

XI. TRIAL SUBSTITUTE PLANS

A. General

1. To facilitate the processing of a State's proposal, NHTSA has prepared a checklist for evaluating the State plan. Item 9 of Appendix C.

2. This checklist may be used by a State as a guideline for developing and measuring the important factors which will be evaluated by NHTSA for approval.

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

HIGHWAY SAFETY PROGRAM MANUAL

VOLUME 1 Periodic Motor Vehicle Inspection	TRANSMITTAL 37
CHAPTER V. Program Evaluation	January 1974

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I. INTRODUCTION

Program evaluation, involving the periodic measurement and comparison of the performance, progress, and costs necessary to fulfill the objectives and the requirements of the Motor Vehicle Inspection Program as stated in the Standard is needed as a basis for decision making and for State and national program planning.

II. OBJECTIVES OF PROGRAM EVALUATION

A well designed and operated vehicle inspection program is one that accomplishes the established objectives at the minimum possible cost to the State and the motorist.

A. Objectives of Program Evaluation:

1. Establish a procedure for periodically reviewing and evaluating past program operations for the purpose of determining the value of the program and of upgrading program facilities, procedures, and practices.

2. Increase the general awareness of PMVI objectives and the existence, composition, and direct and indirect costs of all program elements, and encourage the adoption of program designs which reflect this awareness.

B. Objectives of Program Evaluation Guidelines:

1. Assist the States in developing program evaluation procedures.

2. Encourage the adoption of uniform evaluation measures and techniques.

3. Assist the States in complying with paragraph II of Standard 1, which requires the submission of an annual evaluation summary.

III. EVALUATION CRITERIA

A. Interpretation of Paragraph II of Standard 1.

1. "The program" should be interpreted as the State-conducted PMVI program, broadly defined to include the functions of:

a. Administration.

b. Inspection.

c. Owner compliance with repair requirements.

d. Enforcement.

e. Reporting.

2. "Periodically" should be interpreted to mean as frequently as the entire vehicle population is inspected but not less frequently than annually.

3. "Evaluated" should be interpreted as subjected to whatever analysis is required to produce an acceptable evaluation summary.

4. "An evaluation summary" should be interpreted as consisting of at least:

a. A quantitative statement of the physical impact of PMVI program activity upon the physical condition of the motor vehicle population.

b. A quantitative statement of program costs.

c. Objective evaluations of the relative merits of the State PMVI program.

B. Other Terminology

1. "Program effectiveness" is a quantitative measure of the extent to which a program accomplishes its objectives. For example, the number of safety-related defects detected and corrected is a measure of program effectiveness.

2. "Program costs" are the direct and indirect costs incurred by the State and the vehicle operator in establishing, conducting, and complying with a PMVI program. They are not the costs saved by the prevention or reduction in severity of collisions.

3. "Program performance" is a formal comparison of program effectiveness with program costs.

4. "Program evaluation" is the process of determining and relating items (1), (2), and (3) above.

IV. ESTABLISHING GOALS

Goals to be Achieved and a Definite Schedule for Implementation Should be Established.

A. Progress should be evaluated periodically to determine not only whether objectives are being realized but whether implementation is proceeding on schedule and within budget.

B. Achievement goals should be established for the overall program and for each separable function, such as:

1. Administration.

2. Inspection.

3. Owner compliance with repair requirements.

4. Enforcement.

V. MEASURING AND EVALUATING PERFORMANCE

Measurement is essentially a process of comparing program achievement or status to a predetermined level of performance.

A. The reference level may include established goals of achievement stated in terms of:

1. Effectiveness (see paragraph VI. A. this chapter).

2. Cost (see paragraph VI. B. this chapter).

3. Performance (see paragraph VI. C. this chapter).

B. Performance of the existing program and the planning of program changes should be based on cost-effectiveness considerations. Program alternatives should be evaluated to determine the alternative which can achieve a specified objective for the least cost.

C. Techniques employed should include planned attempts to determine the impact of program changes through a process of before-and-after measurement.

VI. TECHNIQUES OF MEASUREMENT

Techniques of measurement include:

A. Effectiveness Measurement.

1. As expressed in the Standard, the objective of a PMVI program is:

> ". . . to reduce the number of vehicles with existing or potential conditions which cause or contribute to accidents or increase the severity of accidents which do occur . . ."

2. One or more measures of program effectiveness should be established to determine the extent to which the expressed objective, or other PMVI objectives adopted by the State, is achieved. Two suggested measures of program effectiveness are:

a. Calculation of the average number of safety-related defects per vehicle. Sampling should be conducted throughout the evaluation period without benefit of prior notice.

b. The percent reduction in the number of safety-related defects per vehicle from one period to the next as derived from the preceding paragraph (a).

3. The measure(s) of effectiveness should reflect the fact that the effectiveness of a PMVI program may depend upon:

   a. Coverage and frequency of inspection:

      1) A program which covers 98 percent of the vehicles on the road is more effective, in terms of the expressed objective of reducing the number of safety-related defects, than one that covers only 83 percent.

      2) Semiannual inspection is more effective than annual inspection.

   b. Comprehensiveness of the inspection standards:

      A program which inspects 30 items per vehicle is more effective than one which checks 18 of those same items.

   c. Stringency (tolerance limits) of the inspection standards:

      A program which rejects tires with 2/32's of an inch tread is more stringent than one which rejects tires only when the tread design is worn off.

   d. Detection performance of inspection:

      A program which detects 93 percent of existing safety-related defects as defined by the adopted inspection standard is more effective than one which detects only 85 percent.

   e. Compliance performance of motorists:

      A program which, through strict enforcement, attains 95 percent compliance within 10 - 15 days is more effective than a program which attains only 80 percent compliance in the same period.

f. Other program variables which significantly reduce the number of safety-related defects in vehicles.

4. The value of the two suggested measures of program effectiveness in (2) above is that they measure the results of the PMVI program where most appropriate, that is, the condition of the vehicle population, not at inspection time, but throughout the year. The two measures differ in that the first provides a measure to compare the progress of PMVI programs in different States, while the second provides a measure of program effectiveness for the last period, which may be weighed against the cost expended during that period.

5. The number of defects per vehicle should be weighed by their criticality in terms of safety.

B. Costs

1. Program costs - State.

a. Total program costs should be determined as part of program evaluation.

b. Total program costs include both the costs to the State to conduct the program and the costs to the motorists to comply with the program.

c. Administration costs include the functions of management, personnel, training, reports and statistics, public relations, and field supervision or monitoring.

d. Inspection costs include all costs of operating inspection stations. Inspection costs include:

1) Total payroll expense of all inspection team members and station supervisors or managers, where applicable.

2) Depreciation of buildings and equipment.

3) All operating supplies and other station overhead costs.

e. Compliance costs include all costs of ensuring that motorists correct the defects detected in the process of inspection.

f. Enforcement costs include the costs of personnel, equipment, supervision, and operating expenses directly related to the PMVI program.

g. State costs of program operations should be based on fiscal expenditures, rather than appropriations. Estimated prorations of fiscal expenditures may be used where departmental personnel or resources are engaged in more than one program.

2. Costs to vehicle owners

The costs to the vehicle owner are constituted of both direct costs, the actual fee charged for the inspection, and indirect costs, the repair costs incurred by the motorists to correct defects detected in the process of inspection. Repair costs may be estimated by:

a. Multiplications of Flat Rate Manual charges for the typical repair required for each inspection item by the number of defects recorded.

b. Reporting by repair certification forms.

c. Sampling techniques.

3. Total costs.

Total costs are equal to the sum of the component costs. The suggested cost measure is the total cost per registered vehicle.

C. Performance

Overall program performance should be evaluated by comparing program effectiveness with program costs.

1. Inspection

a. Evaluation of the inspection function should be based upon the ability of the system to detect existing

safety-related defects. Monitoring vehicles immediately after inspection is a suggested means of measuring the effectiveness of the inspection function.

b. Post-inspection monitoring should detect:

1) Inspection items which are overlooked.

2) Standards which are not applied consistently or fully.

3) Carelessness in handling or replacing vehicle components.

2. Compliance with repair requirements

Evaluation of the compliance function should be based upon the completeness and rapidity with which detected defects are corrected. The average elapsed time between detection and correction of defects is a suggested measure of the effectiveness of compliance.

3. Enforcement

The objective of enforcement is to reduce or eliminate the number of vehicles on the roads which have not been inspected as required. The fewer uncertified vehicles, probably the better the enforcement.

VII. RECOMMENDED EVALUATION PROCEDURES

Recommended evaluation procedures should include:

A. Use of Checklist

A checklist should be used initially to evaluate the degree of compliance of the present or proposed inspection program with the requirements of Standard 1 and the recommendations outlined in this volume. A suggested checklist is shown at the end of this chapter and could be used to conduct an evaluation summary.

B. Sampling

1. The condition of the vehicle population, as represented by the average number of vehicle equipment defects detected, should be determined through sampling techniques.

2. Periodic evaluation of the program should be on the basis of current condition of the vehicle population. A lower defect rate represents program accomplishment.

3. Degree of inspection station compliance should be determined by the number of defects detected through sampling vehicles which have just been inspected.

4. The need for program changes and the effectiveness of changes made should be evaluated using sampling techniques.

C. Performance Comparisons

Performance comparisons are best made with multiyear figures. Because of fluctuations from one period to the next in program content, vehicles, and laws, a comparison of total program costs and total program accomplishments should be on the basis of consolidated results for a three- or five-year period, through still expressed in "cost or defects-per-vehicle-per-year" terms.

D. Functional Performance Evaluations

Functional performance, as described in paragraph VI.C. of this chapter, should be compared periodically with previous results and with the performance levels of other PMVI programs. Such comparisons, to be valid, should consider factors such as relative ages and types of vehicles, length of programs, etc.

E. Public Acceptance

1. The attitude of the public toward the PMVI program in general and the program practices, policies, and personnel they encounter should be assessed periodically. Methods of assessment include:

a. Review and summarization of public correspondence.

b. Surveys at point of inspection.

c. Random public polls.

2. The public will be more likely to accept a program if they feel that a valuable service is being provided. The States should emphasize that a PMVI program provides an increase in safety through a decrease in equipment maladjustments or failures which cause or contribute to accidents.

3. Information regarding program effectiveness should receive wide circulation in the public communications media.

VIII. EVALUATION CHECKLIST

It is intended that as records are accumulated, more effective and uniform evaluation procedures will be developed by the NHTSA. Initially, however, answers to the following questions should enable an evaluation of the program to be made.

A. Type of Program

1. Does the program require all vehicles registered in the State to be inspected at least annually?

2. If the State does not require all vehicles registered in the State to be inspected at least annually, what type of inspection program is in operation and what percentage of vehicles registered in the State is inspected? Does the State intend to inspect all registered vehicles in the next year(s)?

3. Are there adequate facilities available to perform inspections? Are facility certification procedures implemented? Does the program allow inspections to be performed at stations other than those used by the general public (for example, fleet, motorcycle, government)?

4. Are facilities inspected by enforcement personnel? Are methods established for evaluating inspection station compliance?

5. Does the program have a method for follow-up and enforcement of defect correction?

6. What changes in the program are planned for implementation in the following year(s)? Will funds and resources be available for these changes?

B. Vehicle and Equipment Coverage

1. Are data collected for each of the following items, by ownership, use, and type of vehicle?

Ownership

a. Individual (owner/operator)

b. Company fleets

c. Governmental

d. Other

Use

a. Private transportation

b. Public transportation

c. Movement of goods

d. Other

Type of Vehicle

a. Passenger car

b. Multipurpose passenger vehicle

c. Motorcycle

d. Motor-driven cycle

e. Truck

f. Truck tractor

g. Chassis cab

h. Trailer

i. Semi-trailer

j. Pole trailer

k. Trailer converter dolly

l. Boat trailer

m. Bus

n. School bus

o. Emergency vehicles - fire engines and ambulances.

2. How many vehicles in each class were inspected? Was this an increase or decrease over the previous year? If inspection of all registered vehicles is not required, how many vehicles in each class were inspected as a percent of those registered in the State?

3. Are all items of equipment listed in Exhibit II inspected? Are records kept of the number of defects by category for each make and model of vehicle?

4. Are data from reports compared and analyzed? Do data show significant trends? What action is proposed?

5. What changes in vehicle or equipment coverage are proposed for next year? What action has been taken for implementing changes?

C. Training

1. Have formal training programs been developed for management, enforcement personnel, and vehicle inspectors, and are they implemented?

2. If training programs are not in operation, what plans have been made and when will they be operational?

3. If program is operational, how many personnel were trained? Was this an increase or decrease over the

previous year? What increase or decrease is projected for the next year?

4. Are funds specifically budgeted for training activities? Are these adequate for future requirements?

5. What was the cost per person trained? Was this an increase or decrease over the previous year? What is the projected cost for the next year?

6. What changes in the training programs are planned for the next year?

7. Have measures been developed to indicate the effectiveness of training programs? (For example, better compliance by vehicle inspectors with the requirements of the program as determined by fewer defects overlooked during the inspection.)

D. Resources

1. Are resources (manpower, equipment, facilities) adequate to achieve goals of PMVI program?

2. Are additional resources required for next year? What action has been taken to obtain resources?

3. Is legislative action required to obtain resources? Has action been sought?

4. Approximately when will resources be available?

E. Program Funding and Operating Expenditures

1. Is a fixed or variable charge made for the inspection fee? Does the charge cover the total cost of inspection?

2. Are inspection facilities (State licensed or appointed) required to pay annual certification fee?

3. Are vehicle inspectors required to pay annual certification fee?

4. Are tool and equipment manufacturers charged fee for testing and approving tools and equipment?

5. Are operating expenditures determined for facilities, equipment, and staffing?

6. Is funding adequate for next year(s)?

7. What action, if any, has been taken to obtain further funds?

8. Approximately when will funds be available?

IX. FACTORS RELATING TO THE ADEQUACY OF THE CONDUCT AND EFFECTIVENESS OF THE PROPOSED TRIAL PROGRAM

A number of factors will be considered in judging whether the proposed trial substitute program has a reasonable potential for improving the safety quality of the total vehicle population during the trial period. These include:

A. The number of inspections that would be carried out in relation to the size of the total motor vehicle population.

B. The degree to which the vehicles to be inspected would be selected to comprise a statistically representative sample of the total vehicle population of the State.

C. The degree to which the scope and quality of the inspection performed on each vehicle would ensure reliable and fair inspection, simultaneously guarding against the possibility that defective vehicles would be passed and the possibility that safe vehicles would be erroneously rejected.

D. Evidence that inspection personnel, administration, and inspection equipment and procedures would permit effective program operation.

E. Procedures to ensure that defective vehicles would be repaired.

F. Evidence as to the adequacy of the proposed recordkeeping system.

X. MEASURES OF PROGRAM EFFECTIVENESS

The safety quality of the total vehicle population is the required and principal measure of program effectiveness in every proposed trial substitute program, both during its operation and for purposes of

reaching final conclusions at the end of the trial period (see A. below). This may be supplemented, as noted in B., below, by several other measures at the option of the State.

A. Safety Quality Level of the Total Vehicle Population

1. The safety quality level of the total population of vehicles throughout the trial period shall be estimated on the basis of an adequate, statistically designed sampling plan.

2. The safety quality level shall be expressed in terms of the percentage of vehicles with single safety defects and/or substandard system performance or any separate combinations of several defects.

3. The systems and components to be included shall be those listed in Exhibit II of the Manual.

B. Supplementary Measures of Program Effectiveness

A State may propose supplementing the required measure of effectiveness (safety quality of vehicles) with quantitative of qualitative measures of certain program elements, with data on accident experience, or with other data.

1. Program Elements

a. A number of elements of the proposed trial substitute program per se may be included to provide additional quantitative criteria for program evaluation, utilizing such data as:

1) number of vehicles inspected,

2) number of vehicles "passed," number of "failures,"

3) number of deficiencies detected by type,

4) the equivalence of the distribution of vehicles in the sample inspected (e.g., according to make-model-year) with that of the total population of vehicles,

5) the probability that a defective vehicle will be passed by the inspection procedure and the probability that a non-defective vehicle will be rejected.

b. Qualitative measures also can be usefully applied including such items as:

1) competency of inspection personnel,

2) items to be inspected,

3) adequacy of the inspection,

4) adequacy of followup procedures,

5) adequacy of the record system.

c. Some of these program elements may not be suitable for comparison with periodic programs. For example, in comparisons of random with periodic procedures, the coverage under random methods by definition would not be identical with the 100% expected coverage under periodic methods. Or, the quality per se of a 5-minute roadside check cannot be expected to match that of a 30-minute check using highly instrumented tests.

2. Crash Involvement

a. Crash frequency of defective vehicles, the relationship between vehicle condition and crashes, and the associated numbers of fatalities and injuries of given severity define the fundamental effectiveness of the program, namely, reduction in traffic deaths and injuries.

b. The use of such data for evaluating program effectiveness is encouraged wherever feasible, with the precautionary note that it is inherently difficult to draw statistically valid conclusions from such data because of the customary absence of properly thorough scrutiny of the mechanical condition of vehicles in crashes; because similar data are not usually available for vehicles not in crashes, but operating under similar conditions; and, because proper attention to other factors also contributing to the same crashes is usually absent.

XI. PROCEDURES FOR EVALUATION OF EFFECTIVENESS

A. Soundly based plans and procedures for the State to evaluate the effectiveness of the trial substitute program must be an

integral part of the proposed trial substitute program. The results of this evaluation and the results of review by the National Highway Traffic Safety Administration will serve as the basis for the Department of Transportation's subsequent determination whether the trial substitute program provides sufficient justification for an appropriate amendment to the Standard and Manual.

B. The evaluation procedures must be directed toward each of two goals:

1. To permit estimates of program effectiveness during the course of operation of the trial substitute program, and

2. To permit a definitive conclusion as to overall program effectiveness to be reached at the end of the trial period. A definitive conclusion would be either:

a. The trial substitute program has proved to be effective and should be considered as a basis for an amendment to the Standard, or

b. The trial substitute program has not proved to be effective and should be discontinued.

C. The procedures and other details of evaluation must be explicitly described at the time the program is proposed; program approval will not be granted if an evaluation methodology is not described in the proposal.

D. The proposed evaluation may be changed if methodological difficulties are encountered in the collection, analysis, or interpretation of the data. Since evaluation procedures constitute an integral part of the trial substitute program, any changes in the evaluation procedures must be approved by the Department of Transportation.

E. Evaluation procedures must utilize the vehicle safety quality level as a measure of effectiveness (see paragraph II. A.) Other measures of effectiveness such as accident involvement may also be included.

F. Appropriate mathematical statistical controls are required to permit valid conclusions to be drawn as to the effect of the

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substitute program during the course of the trial upon its level of vehicle safety quality.

G. The evaluation procedures must analyze changes in vehicle safety quality of the total vehicle population produced by the trial substitute program. This may be accomplished by:

1. Comparing within the State changes in vehicle safety quality associated with changes in intensity and scope of the trial substitute program in operation.

2. Comparing the level of vehicle safety quality in regions having the trial substitute program in effect with that in comparable regions elsewhere in the State having a PMVI Manual Program in effect.

3. Comparing the level of vehicle safety quality achieved by the State's trial substitute program with that achieved by other States having a PMVI Manual Program.

H. The intra-State methods described in III.G.1. and 2. and the inter-State method described in III.G.3, which utilize vehicle safety quality levels as the measure of effectiveness, may be supplemented by others utilizing crash involvement data of one form or another as the basic measure.

I. In considering subsequently whether a trial substitute program should be utilized as a basis for amending Highway Safety Program Standard No. 1, the Department of Transportation will take into consideration all factors related to the trial substitute program. The principal justification for an amendment will rest with a demonstration that the trial substitute program achieved results that were equal or superior to those that could be expected to be achieved under PMVI.

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HIGHWAY SAFETY PROGRAM MANUAL

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CHAPTER VI. Reports	January 1974

(42-01)

Par. I. Introduction
II. Report Preparation
III. Operational Reports
IV. Management Information Reports
V. Program Evaluation Reports
VI. Reports to National Highway Traffic Safety Administration

I. INTRODUCTION

Program development and operation require the establishment of appropriate means of communicating program activity and performance.

A. Effective program management requires that program administrators be continuously informed of the activity and performance of all work stations or activity centers for which they are responsible. In addition, various interested agencies at all levels of government - Federal, State, and local - may need to be informed of the external impacts of PMVI program activity, particularly with respect to:

1. Defects detected.

2. Certification status of vehicles.

B. An administrator should be able to periodically evaluate the performance of the program by comparing program performance statistics with national norms. Specific methods of program evaluation are discussed in Chapter V of this volume.

C. The objective of providing guidelines for specific reports and for reporting systems is to encourage the adoption of uniform

reports which will provide the necessary information required by each State and the NHTSA for determining the methods of vehicle inspection operations which are most effective and efficient in fulfilling program objectives.

II. REPORT PREPARATION

The following factors should be taken into account in the preparation and distribution of reports:

A. Report Form and Content

1. The usefulness of reports depends on the design of forms and the accuracy, reliability, and uniformity of the data collected.

2. Reports prepared for external distribution should follow whatever format is adopted by NHTSA or other agency representing the interests of all State administrators. A common format facilitates use by all interested parties.

3. Charts and graphs should be used to illustrate program progress over multiyear periods and whenever visual display facilitates presentation of program data.

B. Explanation of Statistics

1. In the collection, analysis, interpretation and presentation of quantitative data, it is essential that statistics appearing in reports be fully explained.

2. In order to be useful for purposes of comparison a full explanation should include:

   a. Statistic definition.

   b. Source.

   c. Method of compilation.

C. Timeliness

Timeliness of reports is important for program operation and enforcement. Notices of program changes should be distributed

as soon as they are effected. Periodic evaluation summaries and tabulations should be distributed as soon as possible but not longer than 60 days following the close of the period.

III. OPERATIONAL REPORTS

Operational reports provide the means of communicating the daily program activity to the functional department for review and evaluation. Practicality and usefulness should govern the number, frequency, and types of reports desired. The following operational reports should be considered:

A. Vehicle Inspection Reports

1. Standard 1 requires each State to ensure that inspection stations maintain records which include at least the following information:

   a. Class of vehicle.

   b. Date of inspection.

   c. Make of vehicle.

   d. Model year.

   e. Vehicle identification number.

   f. Defects by category.

   g. Identification of inspector.

   h. Mileage or odometer reading.

2. The official responsible for enforcing compliance should receive records of items a. - f., the serial number of the inspection certificate issued (or the authorized receipt furnished the operator if the vehicle is rejected), plus owner identification, including current local address, where active follow-up methods for failed inspections are employed.

3. Where records of items a. - f. and the serial number of the inspection certificate issued (or the authorized receipt furnished the operator if the vehicle is rejected) are

required for enforcing compliance, inspection results should be submitted to the office of the PMVI administrator at least daily when inspection enforcement is practiced, or at least monthly when no enforcement is practiced.

B. Station Inspection Reports

Reports should be filed by inspectors for both new facilities inspected for certification and existing facilities for compliance. Information regarding the following points should be obtained.

1. Name and address of facility.

2. Maintenance of records.

3. Maintenance of equipment.

4. Personnel added or deleted.

C. Reports to Other PMVI Administrators and Appropriate Organizations

1. Significant changes in program plans, policies, practices or findings should be reported to all interested parties as they develop. Publication in trade periodicals is a practical addition in many cases.

2. Information of interest to other State agencies such as the current number of uncertified or delinquent vehicles should be kept current and distributed on a regular basis.

IV. MANAGEMENT INFORMATION REPORTS

It is suggested that PMVI program operations include the regular preparation of management reports so that program managers can have at their disposal information indicative of the results of their current policies, plans, and operations. These results can support future policy decisions, plans, or operating techniques under consideration. The following reports should be considered:

A. Summary of Vehicle Inspections

1. The Standard requires that:

"The State publishes summaries of records of all inspection stations at least annually, including tabulations by make and model of vehicle."

2. The summary tabulation of station records should contain at least data elements (a), (b), (c), (d), (f), and (h) described in para. III. A. 1. of this chapter. Identification of the vehicle, station, and inspection is not desired. The suggested summary tabulation form is illustrated in Exhibit III, following this page.

B. Summary Comparison of Inspection Facilities

The following data elements should be recorded:

1. Inspection facilities.

2. Number of vehicles inspected per facility.

3. Number of inspectors per facility.

4. Defects by type recorded per facility.

C. Organization Unit Performance Analysis

Periodic performance analysis by organization unit summarized by organization function should be provided and should include:

1. Activity measures showing the work that was accomplished.

2. Expenditure measures showing the time and dollars utilized.

V. PROGRAM EVALUATION REPORTS

The State should periodically evaluate its program and review plans, schedules compared to plans, and operations to provide feedback regarding the function being controlled.

A. The program administrator should have available in report form an evaluation summary consisting of information outlined in paragraph III. A. 4. of Chapter V of this volume. This information should provide a basis for analysis of the program and serve as justification for alterations in practices and procedures.

EXHIBIT III

RECOMMENDED SUMMARY TABULATION OF VEHICLE DEFECTS
CALENDAR YEAR ENDING DECEMBER 31, 1968

CLASS MAKE MODEL	NUMBER OF VEHICLES INSPECTED	DEFECTS					
		(1) STEERING SYSTEM		(2) BRAKING SYSTEM		(3) AND SO ON	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
	10,000	1,500	15 0	980	9 8	2,750	27.5

B. It is suggested that the following reports be compiled as a basis for the evaluation of each program.

1. Vehicle inspection evaluation report.

   Vehicle inspection evaluation reports should include:

   a. Number of vehicles registered.

   b. Number of vehicles inspected.

   c. Number of vehicles with defects.

   d. Number of defects per rejected vehicle.

   e. Accidents caused by defective vehicle equipment (if available through traffic records; see Volume 10).

2. Operating cost analysis.

   Operating cost analysis reports should include:

   a. Revenues received from vehicle inspections.

   b. Revenues received from other sources.

   c. Salary and wage expenditures.

   d. Office and facility rental costs.

   e. Costs of supplies and utilities.

   f. Other expenditures.

   g. Cost of inspection per vehicle.

3. Trend reports.

   Trend reports should be developed for current year, previous year, and five-year average, and should include:

   a. Number of vehicles inspected on a make and model year basis.

b. Number of vehicles with defects on a make and model year basis.

c. Number of defects per rejected vehicle.

d. Cost of inspection program.

e. Cost of inspecting vehicle.

VI. REPORTS TO NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

The Standard requires: "The program shall be periodically evaluated by the State and the National Highway Traffic Safety Administration shall be provided with an evaluation summary. In this context the NHTSA intends initially to ask each State for an evaluation covering those points indicated on the program evaluation checklist included in paragraph VIII of Chapter V of this volume. As the programs develop, the NHTSA intends to establish evaluation reporting procedures which will enable more uniform and meaningful data to be compiled leading to improvements in the practices, procedures, or operation of inspection programs.

HIGHWAY SAFETY PROGRAM MANUAL

VOLUME 1 Periodic Motor Vehicle Inspection	TRANSMITTAL 37
CHAPTER VII. Local Government Participation	January 1974

(42-01)

It is assumed that most inspection programs will be administered by State authorities. Where counties, cities, or other local units conduct the program, the respective local government should follow guidelines set forth in Chapter IV. Enforcement of inspection programs will almost always be dependent on local as well as State police. Therefore, the agency responsible for the PMVI program should have a good working relationship with the police agencies.

HIGHWAY SAFETY PROGRAM MANUAL

VOLUME 1 Periodic Motor Vehicle Inspection	TRANSMITTAL 37
CHAPTER VIII. Funding Criteria	January 1974

(42-01)

I. A State may propose that a trial substitute program be funded under Section 402 of Title 23, U.S.C. (Public Law 89-564, the Highway Safety Act of 1966).

II. This does not apply to research or demonstration projects which are authorized for funding under Section 403 of Title 23, U.S.C. (Public Law 89-564).

APPENDIX A

Highway Safety Program Standard 1

PERIODIC MOTOR VEHICLE INSPECTION

I. PURPOSE

To increase, through periodic vehicle inspection, the likelihood that every vehicle operated on the public highways is properly equipped and is being maintained in reasonably safe working order.

II. STANDARD

Each State shall have a program for periodic inspection of all registered vehicles or other experimental, pilot, or demonstration program approved by the Secretary to reduce the number of vehicles with existing or potential conditions which cause or contribute to accidents or increase the severity of accidents which do occur, and shall require the owner to correct such conditions.

A. The program shall provide, as a minimum, that:

1. Every vehicle registered in the State is inspected either at the time of initial registration and at least annually thereafter, or at such other time as may be designated under an experimental, pilot, or demonstration program approved by the Secretary.

2. The inspection is performed by competent personnel specifically trained to perform their duties and certified by the State.

3. The inspection covers systems, subsystems, and components having substantial relation to safe vehicle performance.

4. The inspection procedures equal or exceed criteria issued or endorsed by the National Highway Traffic Safety Administration.

5. Each inspection station maintains records in a form specified by the State, which include at least the following information:

a. Class of vehicle

b. Date of inspection

c. Make of vehicle

d. Model year

e. Vehicle identification number

f. Defects by category

g. Identification of inspector

h. Mileage or odometer reading

6. The State publishes summaries of records of all inspection stations at least annually, including tabulations by make and model of vehicle.

B. The program shall be periodically evaluated by the State and the National Highway Traffic Safety Administration shall be provided with an evaluation summary.

Issued August 29, 1973
(Effective date: September 28, 1973)

APPENDIX B

PART 570
VEHICLE IN USE INSPECTION STANDARD

Title 49—Transportation

CHAPTER V—NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

[Docket No. 73-9; Notice 2]

PART 570—VEHICLE IN USE INSPECTION STANDARDS

This notice adds Part 570, Vehicle In Use Inspection Standards, to Chapter V, Title 49, Code of Federal Regulations.

Part 570 does not in itself impose requirements on any person. It is intended to be implemented by the States through the highway safety program standards issued under the Highway Safety Act (23 U.S.C. 402) with respect to inspection of motor vehicles with a gross vehicle weight rating of 10,000 pounds or less, except motorcycles and trailers. General provisions regarding vehicle inspection are set forth in NHTSA Highway Safety Program Manual Vol. 1, Periodic Motor Vehicle Inspection. Standards and procedures are adopted for hydraulic service brake systems, steering and suspension systems, tire and wheel assemblies.

Interested persons have been afforded an opportunity to participate in the making of these amendments by a notice of proposed rulemaking published in the FEDERAL REGISTER on April 2, 1973 (38 FR 8451), and due consideration has been given to all comments received in response to the notice, insofar as they relate to matters within the scope of the notice. Except for editorial changes, and except as specifically discussed herein, these amendments and the reasons therefore are the same as those contained in the notice.

Policy considerations.—A total of 120 comments were received in response to the notice. These comments were submitted by State motor vehicle agencies, national safety organizations, motor vehicle associations, vehicle and equipment manufacturers, antique car clubs and owners, public interest groups, and individual citizens. The commenters were predominantly in favor of periodic motor vehicle inspection (PMVI) and the establishment of uniform motor vehicle in use safety standards throughout the United States.

As the NHTSA stated in the prior notice, cost-benefit factors were the primary policy consideration in developing the inspection standards and procedures. The primary concern of the States was the socioeconomic impact on the motoring public as well as the impact on the State itself. The general consensus was that the proposed inspection requirements would require a significant increase in facilities, operating personnel, and equipment. Though cost effectiveness was a predominant concern the States nevertheless felt that inspections should include vehicles over 10,000 pounds gross vehicle weight and be extended to include other vehicle systems. Several States expressed concern for the cost of implementing the proposed standards, estimating it at from $10 to $14 per car. Even though these States favored PMVI and now have PMVI or random inspection they felt that implementation costs would have a decided economic impact.

NHTSA has responded to these comments allowing an optional road test as a check of service brake system performance, adopting neither of the proposed parking brake procedures, and simplifying test procedures where possible so that tests may be conducted with a minimum added expenditure for equipment, personnel, and facilities. These matters will be discussed subsequently.

The establishment of the proposed standards as "minimum requirements" was questioned by several States as leading to a "watering down" of current requirements in those States which currently meet or exceed them. The NHTSA repeats its intent that the standards are not intended to supplant State standards that establish a higher performance or to discourage them from establishing or maintaining standards for other vehicle systems not covered by NHTSA.

A number of comments were received from antique car clubs and individual owners who believe that antique, special interest, and vintage cars should be exempt from the proposed standards. These comments should be directed to the States. Each State has its own definitions and registration requirements for vehicles of this nature, and the NHTSA intends the States to implement Part 570 to the extent that it is compatible with its current requirements for these special vehicles.

Several respondents commented that the proposed standard should be expanded to include lighting, glazing, exhaust, wipers, horns, controls, and instrumentation systems. The consensus was that the cost-benefit ratio would materially increase if these systems were included in the proposed standard since inspection of these systems does not require time-consuming procedures or special tools, and corrective measures are less costly to the owner. Some considered it contradictory that safety systems covered by the Federal standards must meet safety performance requirements at the time of manufacture and not during the service life of the vehicle. As the NHTSA stated in the prior notice, the initial Federal effort is intended to cover those vehicles and vehicle systems whose maintenance in good order has proven critical to the prevention of traffic accidents. Requirements for motorcycles and trailers, and for less critical systems are under study, and the NHTSA intends to take such rulemaking action in the future as may be appropriate to cover them.

Applicability.—A frequent comment was that the standards and procedures should be extended to cover vehicles whose GVWR exceeds 10,000 pounds. Because braking and steering and suspension systems on these vehicles differ materially from those on lighter vehicles, different criteria must be established and the proposed standards simply cannot be extended to cover them. The NHTSA, however, is developing appropriate inspection standards and procedures for heavy vehicles and will propose them in a notice to be issued by mid-October 1973.

Brake systems.—Several comments were received questioning the procedure for determining operability of the brake failure indicator lamp. In some vehicles the parking brake indicator and service brake system failure indicator use the same lamp and the methods of simulating failure vary.

It is realized that the procedure specified by the standard is general in nature and cannot cover all possible systems. In those vehicles where a lamp test cannot be executed in the normal manner the test will have to be conducted in accordance with the manufacturer's specifications, as determined by the vehicle inspector.

The brake system integrity test for fluid leakage has been modified on the basis of comments that it was not stringent enough. It was proposed that decrease in pedal height under 125 pounds force for 10 seconds should not exceed one-quarter of an inch. The requirement adopted is that there be no perceptible decrease in pedal height when 125 pounds of force is applied to the brake pedal and held for 30 seconds.

The brake pedal reserve test has been adopted substantially as proposed, and specifies that the engine be operating at the time of the test. Vehicles with full power (central hydraulic) brake systems are exempted from this test as the service brake performance test will be adequate to test such systems.

The service brake performance test offers the option of a road test, or testing upon a drive-on platform or roller-type brake analyzer (originally proposed under the title "Brake equalization"). States that conduct random inspections, and those that designate agents to perform vehicle inspections, objected strenuously to a test requiring the use of roller-type or drive on test equipment. Consequently, an alternate test has been adopted which requires vehicles to stop from 20 mph in 25 feet or less without leaving a 12-foot wide lane. It is intended that this option be used only by States where it is current practice, and it is hoped that such States where practicable will change to the drive-on brake platform or roller-type brake analyzer tests. The terms "crimped" and "damaged" have been eliminated as causes for rejection of brake hoses, as redundant. If brake discs and drums are not embossed with safety tolerances, the requirement has been added that they be within the manufacturer's recommended specifications.

The primary concern regarding power assist units was that the brake pedal will

rise instead of falling on a full-power brake system when tested according to the procedure proposed. In view of the basic design of a full-power brake system this test would not be a proper check of system operation, and will not be required. As noted earlier, the service brake performance test will be used as the primary test of the full-power brake performance. To accord with the terminology of Standard No. 105a this section has been renamed "Brake power units."

The parking brake system inspection proposal proved controversial. The NHTSA proposed two objective, alternate tests, the first requiring the system to hold the vehicle on a 17 percent grade, and the second requiring the system to stop the vehicle from 20 mph within 54 feet. The first was objected to principally on the ground that each inspection station would have to construct a 17 percent grade. This would present problems for both in-line and bay-type inspection facilities. The stopping distance test, on the other hand, was opposed as a dynamic test more appropriate for service brake evaluation. In view of these objections, the parking brake inspection requirements were not adopted.

Steering and suspension systems.—The primary objections to the steering wheel test for free play concerned the test condition with the engine off on vehicles equipped with power steering, the linear measure of system free play (instead of angular measure to eliminate the variance due to steering wheel diameters), and the 2 inch free play limit for rack and pinion type steering gear.

The tolerance proposed and adopted for steering wheel free play is 2 inches for wheels of 16 inches diameter or less, since few passenger car steering wheels exceed this diameter. However, a table of free play values for older vehicles with steering wheels over 16 inches in diameter has been added to the standard. The requirement to have the engine running is being added to the procedure since steering wheel play can be greater with the engine off than with the engine on for cars equipped with power steering. Steering play on cars equipped with rack and pinion type steering will require further review to determine if the 2 inch tolerance should be changed.

Some comments argued that wheel alignment tolerances were considered too restrictive in the toe-in condition, and too lenient in toe-out. Some comments recommended visual inspection of tire wear as criteria to determine alignment. However, visual inspection of tire wear is not considered a valid method of checking alignment, and therefore was not adopted as an alternate method. No consensus of alternative values could be derived from the comments, and the proposed tolerances of 30 feet per mile have been adopted.

The requirements for the condition of shock absorber mountings, shackles, and U-bolts have been changed from "tight" to "securely attached" as a clarification.

Tire and wheel assembly standards and inspection procedures.—Several comments were received suggesting that rim deformation in excess of one-sixteenth of an inch be permitted, as the proposed tolerance would result in rejection of otherwise safe vehicles. The primary concern of the requirement is air retention, and since vehicles with wheel deformation of one-sixteenth of an inch apparently perform satisfactorily in service without hazard the deformation tolerance has been increased to three thirty-seconds of an inch runout for both lateral and radial bead seat areas.

Effectivity.—Several commenters questioned the proposed effective date, 30 days after publication of the final rule. The NHTSA considers it in the public interest that minimum Federal standards for motor vehicles in use become effective without further delay. Implementation by the States will take place within the context of their highway safety programs, and the plans approved by the NHTSA under the Highway Safety Act, 23 U.S.C. 402.

In consideration of the foregoing, Title 49, Code of Federal Regulations is amended by adding Part 570 to read as set forth below.

Effective date.—September 28, 1973. Since this part does not in itself impose requirements on any person it is determined for good cause shown that an effective date earlier than 180 days after publication of the final rule is in the public interest.

(Secs 103, 108, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.)

Issued on August 29, 1973.

JAMES B. GREGORY,
Administrator.

570.1 Scope.
570.2 Purpose
570.3 Applicability.
570.4 Definitions.
570.5 Service brake system.
570.6 Brake power unit.
570.7 Steering systems.
570.8 Suspension systems.
570.9 Tires.
570.10 Wheel assemblies.

AUTHORITY. Secs. 103, 108, 119, Public Law 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.

§ 570.1 Scope.

This part specifies standards and procedures for inspection of hydraulic service brake systems, steering and suspension systems, and tire and wheel assemblies of motor vehicles in use.

§ 570.2 Purpose.

The purpose of this part is to establish criteria for the inspection of motor vehicles by State inspection systems, in order to reduce death and injuries attributable to failure or inadequate performance of motor vehicle systems.

§ 570.3 Applicability.

This part does not in itself impose requirements on any person. It is intended to be implemented by States through the highway safety program standards issued under the Highway Safety Act (23 U.S.C. 402) with respect to inspection of motor vehicles with gross vehicle weight rating of 10,000 pounds or less except motorcycles or trailers.

§ 570.4 Definitions.

Unless otherwise indicated, all terms used in this part that are defined in 49 CFR Part 571, Motor Vehicle Safety Standards, are used as defined in that part.

§ 570.5 Service brake system.

(a) *Failure indicator.*—The brake system failure indicator lamp, if part of a vehicle's original equipment, shall be operable. (This lamp is required by Federal Motor Vehicle Safety Standard No. 105, 49 CFR 571.105, on every new passenger car manufactured on or after January 1, 1968, and on other types of motor vehicles manufactured on or after September 1, 1975.)

(1) *Inspection procedure.*—Apply the parking brake and turn the ignition to start, and verify lamp operation by other means indicated by the vehicle manufacturer that the brake system failure indicator lamp is operable.

(b) *Brake system integrity.*—The brake system shall demonstrate integrity as indicated by no perceptible decrease in pedal height under a 125 pound force applied to the brake pedal or by no illumination of the brake system failure indicator lamp. The brake system shall withstand the application of force to the pedal without failure of any line or other part.

(1) *Inspection procedure.*—With the engine running on vehicles equipped with power brake systems, and the ignition turned to "on" in other vehicles, apply a force of 125 pounds to the brake pedal and hold for 30 seconds. Note any decrease in pedal height, and whether the lamp illuminates.

(c) *Brake pedal reserve.*—When the brake pedal is fully depressed, the distance that the pedal has traveled from its free position shall be not greater than 80 percent of the total distance from its free position to the floorboard or other object that restricts pedal travel.

Inspection procedure.—Measure the distance (A) from the free pedal position to the floorboard or other object that restricts brake pedal travel. Depress the brake pedal, and with the force applied measure the distance (B) from the depressed pedal position to the floorboard or other object that restricts pedal travel. Determine the percentage as

$$\frac{A-B}{A} \times 100.$$

The engine must be operating when power-assisted brakes are checked. The pedal reserve check is not required for vehicles equipped with full-power (central hydraulic) brake systems, or to vehicles with brake systems designed to operate with greater than 80 percent pedal travel.

(d) *Service brake performance.*—Compliance with one of the following performance criteria will satisfy the requirements of this section. Verify that tire inflation pressure is within the limits recommended by vehicle manufacturer before conducting either of the following tests.

(1) *Roller-type or drive-on platform tests.*—The force applied by the brake on a front wheel or a rear wheel shall not differ by more than 20 percent from the force applied by the brake on the other front wheel or the other rear wheel respectively.

(i) *Inspection procedure.*—The vehicle shall be tested on a drive-on platform, or a roller-type brake analyzer with the capability of measuring equalization. The test shall be conducted in accordance with the test equipment manufacturer's

specifications. Note the left to right brake force variance.

(2) *Road test.*—The service brake system shall stop the vehicle in a distance of 25 feet or less from a speed of 20 miles per hour without leaving a 12-foot-wide lane.

(i) *Inspection procedure.*—The road test shall be conducted on a level (not to exceed plus or minus one percent grade) dry, smooth, hard-surfaced road that is free from loose material, oil, or grease. The service brakes shall be applied at a vehicle speed of 20 miles per hour and the vehicle shall be brought to a stop as specified. Measure the distance required to stop.

(e) *Brake hoses and assemblies.*—Brake hoses shall not be mounted so as to contact the vehicle body or chassis. Hoses shall not be cracked, chafed, or flattened.

(i) *Inspection procedure.*—Examine visually, inspecting front brake hoses through all wheel positions from full left to full right for conditions indicated.

NOTE.—To inspect for (f), (g), and (h) below, remove at a minimum one front wheel and one rear wheel.

(f) *Disc and drum condition.*—If the drum is embossed with a maximum safe diameter dimension or the rotor is embossed with a minimum safety thickness dimension, the drum or disc shall be within the appropriate specifications. These dimensions will be found on motor vehicles manufactured since January 1, 1971, and may be found on vehicles manufactured for several years prior to that time. If the drums and discs are not embossed, the drums and discs shall be within the manufacturer's specifications.

(i) *Inspection procedure.*—Examine visually for condition indicated, measuring as necessary.

(g) *Friction materials.*—On each brake the thickness of the lining or pad shall not be less than one thirty-second of an inch over the rivet heads, or the brake shoe on bonded linings or pads. Brake linings and pads shall not have cracks or breaks that extend to rivet holes except minor cracks that do not impair attachment. Drum brake linings shall be securely attached to brake shoes. Disc brake pads shall be securely attached to shoe plates.

(i) *Inspection procedure.*—Examine visually for conditions indicated, and measure height of rubbing surface of lining over rivet heads. Measure bonded lining thickness over shoe surface at the thinnest point on the lining or pad.

(h) *Structural and mechanical parts.*—Backing plates and caliper assemblies shall not be deformed or cracked. System parts shall not be broken, misaligned, missing, binding, or show evidence of severe wear. Automatic adjusters and other parts shall be assembled and installed correctly.

(i) *Inspection procedure.*—Examine visually for conditions indicated.

§ 570.6 Brake power unit.

Vacuum hoses shall not be collapsed, abraded, broken, improperly mounted, or audibly leaking. With residual vacuum exhausted and a constant 25 pound force on the brake pedal, the pedal shall fall slightly when the engine is started, demonstrating integrity of the power assist system. This test is not applicable to vehicles equipped with full power brake system as the service brake performance test shall be considered adequate test of system performance.

(i) *Inspection procedure.*—With engine running, examine hoses visually and aurally for conditions indicated. Stop engine and apply service brakes several times to destroy vacuum in system. Depress brake pedal with 25 pounds of force and while maintaining that force, start the engine. If brake pedal does not fall slightly under force when the engine starts, there is a malfunction in the power assist system.

§ 570.7 Steering systems.

(a) *System play.*—Lash or free play in the steering system shall not exceed values shown in Table 1.

(i) *Inspection procedure.*—With the engine on and the wheels in the straight ahead position, turn the steering wheel in one direction until there is a perceptible movement of a front wheel. If a point on the steering wheel rim moves more than the value shown in Table 1 before perceptible return movement of the wheel under observation, there is excessive lash or free play in the steering system.

TABLE 1.—STEERING SYSTEM FREE PLAY VALUES

Steering wheel diameter (inches):	*Lash (inches)*
16 or less	2
18	2¼
20	2½
22	2¾

(b) *Linkage play.*—Free play in the steering linkage shall not exceed one-quarter of an inch.

(i) *Inspection procedure.*—Elevate the front end of the vehicle to load the ball joints. Insure that wheel bearings are correctly adjusted. Grasp the front and rear of a tire and attempt to turn the tire and wheel assembly left and right. If the free movement at the front or rear tread of the tire exceeds one-quarter inch there is excessive steering linkage play.

(c) *Free turning.*—Steering wheels shall turn freely through the limit of travel in both directions.

(i) *Inspection procedure.*—Turn the steering wheel through the limit of travel in both directions. Feel for binding or jamming in the steering gear mechanism.

(d) *Alignment.*—Toe-in and toe-out shall not exceed 30 feet per mile, as recorded on a scuff gauge, or equivalent measuring device.

(i) *Inspection procedure.*—Use instructions of measuring device manufacturer.

(e) *Power steering system.*—The power steering system shall not have cracked or slipping belts, or insufficient fluid in the reservoir.

(i) *Inspection procedure.*—Examine fluid reservoir and pump belts for conditions indicated.

§ 570.8 Suspension system.

(a) *Suspension condition.*—Ball joint seals shall not be cut or cracked. Structural parts shall not be bent or damaged. Stabilizer bars shall be connected. Springs shall not be broken, or extended by spacers. Shock absorber mountings, shackles, and U-bolts shall be securely attached. Rubber bushings shall not be cracked, extruded out from or missing from suspension joints. Radius rods shall not be missing or damaged.

(i) *Inspection procedure.*—Examine front and rear end suspension parts for conditions indicated.

(b) *Shock absorber condition.*—There shall be no oil on the shock absorber housing attributable to leakage by the seal, and the vehicle shall not continue free rocking motion for more than two cycles.

(i) *Inspection procedure.*—Examine shock absorbers for oil leaking from within, then with vehicle on a level surface, push down on one end of vehicle and release. Note number of cycles of free rocking motion. Repeat procedure at other end of vehicle.

§ 570.9 Tires.

(a) *Tread depth.*—The tread on each tire shall be not less than two thirty-seconds of an inch deep.

(i) *Inspection procedure.*—Passenger car tires have tread depth indicators that become exposed when tread depth is less than two thirty-seconds of an inch. Inspect for indicators in any two adjacent major grooves at three locations spaced approximately equally around the outside of the tire. For vehicles other than passenger cars, it may be necessary to measure tread depth with a tread gauge.

(b) *Type.*—Vehicles should be equipped with tires on the same axle that are matched in nominal size, construction, and profile.

(i) *Inspection procedure.*—Examine visually. A major mismatch in nominal size, construction, and profile between tires on the same axle, or a major deviation from the size as recommended by the manufacturer (e.g. as indicated on the glove box placard on 1968 and later passenger cars) are causes for rejection.

(c) *General condition.*—Tires shall be free from chunking, bumps, knots, or bulges evidencing cord, ply, or tread separation from the casing or other adjacent materials.

(i) *Inspection procedure.*—Examine visually for conditions indicated.

(d) *Damage.*—Tire cords or belting materials shall not be exposed, either to the naked eye or when cuts or abrasions on the tire are probed.

(i) *Inspection procedure.*—Examine visually for conditions indicated, using an awl if necessary to probe cuts or abrasions.

§ 570.10 Wheel assemblies.

(a) *Wheel integrity.*—A tire rim, wheel disc, or spider shall have no visible cracks, elongated bolt holes, or indication of repair by welding.

(i) *Inspection procedure.*—Examine visually for conditions indicated.

(b) *Deformation.*—The lateral and radial runout of each rim bead area shall not exceed three thirty-seconds of an inch total indicated runout.

(i) *Inspection procedure.*—Using a runout indicator gauge, and a suitable stand, measure lateral and radial runout of rim bead through one full wheel revolution and note runout in excess of three thirty-seconds of an inch.

(c) *Mounting.*—All wheel nuts and bolts shall be in place and tight.

(i) *Inspection procedure.*—Check wheel retention for conditions indicated.

APPENDIX C

REQUESTS FOR APPROVAL OF EXPERIMENTAL, PILOT OR DEMONSTRATION MOTOR VEHICLE INSPECTION PROGRAMS

I. PURPOSE

To describe the policies and conditions under which the Department of Transportation will consider for approval a temporary or trial motor vehicle inspection program that deviates substantially from one that meets the provisions of Highway Safety Program Standard No. 1 and Vol. 1 Highway Safety Program Manual - Periodic Motor Vehicle Inspection.

II. SCOPE

A. "Trial substitute program," as defined here is to be interpreted as having the same meaning as "experimental, pilot, or demonstration program," as used in Highway Safety Program Standard No. 1.

B. A State may propose that a trial substitute program be funded under Section 402 of Title 23, U.S.C. (Public Law 89-564, the Highway Safety Act of 1966).

C. This does not apply to research or demonstration projects which are authorized for funding under Section 403 of Title 23, U.S.C. (Public Law 89-564).

III. DEFINITIONS

A. Program - The overall plan for projects and activities whereby a State proposes to comply with Highway Safety Program Standard No. 1, Periodic Motor Vehicle Inspection. The plan may include some projects that have Federal support under Section 402 of Title 23, U.S.C. and others that have no Federal support.

B. Manual Program - One that meets the provisions of Vol. 1, Highway Safety Program Manual - Periodic Motor Vehicle Inspection.

C. Trial Substitute Program - A program that deviates significantly from the procedures described in the Manual, for example, one which substitutes random motor vehicle inspection for the periodic methods called for in the Standard and the Manual.

IV. GENERAL POLICY

A. It is the policy and intent of the Department that a State submit for approval, in accordance with the provisions of the law, a program plan for Periodic Motor Vehicle Inspection (PMVI) that meets the requirements of Highway Safety Program Standard No. 1, and proposes implementation methods as prescribed in Vol. 1 of the Highway Safety Program Manual - Periodic Motor Vehicle Inspection.

B. It is further intended that the States bring their levels of PMVI program performance up to those called for in the Standard and Manual as rapidly as possible.

C. The Department will consider for approval each proposed trial substitute program in terms of the likelihood that it will be effective in improving the safety qualities of the total population of vehicles in use, and thereby will reduce vehicle crashes and injuries. The supporting justification is to be provided by the State making the request.

D. If, at the conclusion of an approved trial period, the effectiveness of the trial substitute program is demonstrated, the Secretary may consider an appropriate amendment of the Standard and the Manual to allow permanent implementation of the trial substitute program, in whole or part.

V. APPROVAL OF TRIAL SUBSTITUTE PROGRAMS

A. In order to be approved on a trial basis, a proposed trial substitute program shall as a minimum:

1. Clearly state that its purpose and intent is to improve the safety quality of the total vehicle population during the trial period.

2. Demonstrate a strong potential for accomplishing and documenting the intended improvement of the safety quality of the total vehicle population during the trial period. Several factors that will be considered in this regard are described in item VI.

3. Contain well-designed statistical and related procedures that will permit tentative appraisals of program effectiveness during the course of the trial period, and a conclusive evaluation at the end of the trial period. Several factors relating to the adequacy of program appraisal and evaluation are described in item VIII.

4. Demonstrate that if the program is approved all necessary resources in people, money, equipment, and legal authority would be available on the schedule proposed.

B. If approved by the Department of Transportation, a trial substitute program will be approved for one year.

C. A one-year extension may be granted if at the end of the first year or second year there are indications that the program is effective, and that additional time is necessary to reach a definite conclusion.

D. No trial substitute program will be approved for more than three years.

VI. FACTORS RELATING TO THE ADEQUACY OF THE CONDUCT AND EFFECTIVENESS OF THE PROPOSED TRIAL PROGRAM

A number of factors will be considered in judging whether the proposed trial substitute program has a reasonable potential for improving the safety quality of the total vehicle population during the trial period. These include:

A. The number of inspections that would be carried out in relation to the size of the total motor vehicle population.

B. The degree to which the vehicles to be inspected would be selected to comprise a statistically representative sample of the total vehicle population of the State.

C. The degree to which the scope and quality of the inspection performed on each vehicle would ensure reliable and fair inspection, simultaneously guarding against the possibility that defective vehicles would be passed and the possibility that safe vehicles would be erroneously rejected.

D. Evidence that inspection personnel, administration, and inspection equipment and procedures would permit effective program operation.

E. Procedures to ensure that defective vehicles would be repaired.

F. Evidence as to the adequacy of the proposed recordkeeping system.

VII. MEASURES OF PROGRAM EFFECTIVENESS

The safety quality of the total vehicle population is the required and principal measure of program effectiveness in every proposed trial substitute program, both during its operation and for purposes of reaching final conclusions at the end of the trial period (see A below). This may be supplemented, as noted in B., below, by several other measures at the option of the State.

A. Safety Quality Level of the Total Vehicle Population

1. The safety quality level of the total population of vehicles throughout the trial period shall be estimated on the basis of an adequate, statistically designed sampling plan.

2. The safety quality level shall be expressed in terms of the percentage of vehicles with single safety defects and/or substandard system performance or any separate combinations of several defects.

3. The systems and components to be included shall be those listed in Exhibit II of the Manual.

B. Supplementary Measures of Program Effectiveness

A state may propose supplementing the required measure of effectiveness (safety quality of vehicles) with quantitative

or qualitive measures of certain program elements, with data on accident experience, or with other data.

1. Program Elements

   a. A number of elements of the proposed trial substitute program per se may be included to provide additional quantitative criteria for program evaluation, utilizing such data as:

      (1) number of vehicles inspected,

      (2) number of vehicles "passed," number of "failures,"

      (3) number of deficiencies detected, by type,

      (4) the equivalence of the distribution of vehicles in the sample inspected (e.g., according to make-model-year) with that of the total population of vehicles,

      (5) the probability that a defective vehicle will be passed by the inspection procedure and the probability that a non-defective vehicle will be rejected.

   b. Qualitative measures also can be usefully applied including such items as:

      (1) competency of inspection personnel,

      (2) items to be inspected,

      (3) adequacy of the inspection,

      (4) adequacy of followup procedures,

      (5) adequacy of the record system.

   c. Some of these program elements may not be suitable for comparison with periodic programs. For example, in comparisons of random with periodic procedures, the coverage under random methods

by definition would not be identical with the 100% expected coverage under periodic methods. Or, the quality per se of a 5-minute roadside check cannot be expected to match that of a 30-minute check using highly instrumented tests.

2. Crash Involvement

   a. Crash frequency of defective vehicles, the relationship between vehicle condition and crashes, and the associated numbers of fatalities and injuries of given severity define the fundamental effectiveness of the program, namely, reduction in traffic deaths and injuries.

   b. The use of such data for evaluating program effectiveness is encouraged wherever feasible, with the precautionary note that it is inherently difficult to draw statistically valid conclusions from such data because of the customary absence of properly thorough scrutiny of the mechanical condition of vehicles in crashes; because similar data are not usually available for vehicles not in crashes, but operating under similar conditions; and, because proper attention to other factors also contributing to the same crashes is usually absent.

VIII. PROCEDURES FOR EVALUATION OF EFFECTIVENESS

A. Soundly based plans and procedures for the State to evaluate the effectiveness of the trial substitute program must be an integral part of the proposed trial substitute program. The results of this evaluation and the results of review by the National Highway Traffic Safety Administration will serve as the basis for the Department of Transportation's subsequent determination whether the trial substitute program provides sufficient justification for an appropriate amendment to the Standard and Manual.

B. The evaluation procedures must be directed toward each of two goals:

   1. To permit estimates of program effectiveness during the course of operation of the trial substitute program, and

2. To permit a definitive conclusion as to overall program effectiveness to be reached at the end of the trial period. A definitive conclusion would be either:

   a. The trial substitute program has proved to be effective and should be considered as a basis for an amendment to the Standard, or

   b. The trial substitute program has not proved to be effective and should be discountinued.

C. The procedures and other details of evaluation must be explicitly described at the time the program is proposed; program approval will not be granted if an evaluation methodology is not described in the proposal.

D. The proposed evaluation may be changed if methodological difficulties are encountered in the collection, analysis, or interpretation of the data. Since evaluation procedures constitute an integral part of the trial substitute program, any changes in the evaluation procedures must be approved by the Department of Transportation.

E. Evaluation procedures must utilize the vehicle safety quality level as a measure of effectiveness (see Section VII. A). Other measures of effectiveness such as accident involvement may also be included.

F. Appropriate mathematical statistical controls are required to permit valid conclusions to be drawn as to the effect of the substitute program during the course of the trial upon the level of vehicle safety quality.

G. The evaluation procedures must analyze changes in vehicle safety quality of the total vehicle population produced by the trial substitute program. This may be accomplished by:

   1. Comparing within the State changes in vehicle safety quality associated with changes in intensity and scope of the trial substitute program in operation.

   2. Comparing the level of vehicle safety quality in regions having the trial substitute program in effect with that in comparable regions elsewhere in the State having a PMVI Manual Program in effect.

3. Comparing the level of vehicle safety quality achieved by the State's trial substitute program with that achieved by other States having a PMVI Manual Program.

H. The intra-State methods described in VIII.G.1. and 2. and the inter-State method described in VIII.G.3., which utilize vehicle safety quality levels as the measure of effectiveness, may be supplemented by others utilizing crash involvement data of one form or another as the basic measure.

I. In considering subsequently whether a trial substitute program should be utilized as a basis for amending Highway Safety Program Standard No. 1., NHTSA will take into consideration all factors related to the trial substitute program. The principal justification for amendment will rest with a demonstration that the trial substitute program achieved results that were equal or superior to those that could be expected to be achieved under PMVI.

J. NHTSA recognizes that an individual State's experimental design, by its very nature, may require variation in procedures. Our evaluation will consider a State's innovative design or other procedures which the State believes is important in conducting a trial substitute motor vehicle inspection program. Variations will be evaluated in relationship to State conditions to allow for flexible State experimentation.

IX. CHECKLIST FOR EVALUATING STATE PLAN

The checklist covers the areas that should be included in a State's plan. Answers to the following questions should assist in developing an approvable program.

A. Vehicle Safety Quality

1. Are criteria consistent with American National Standards Institute Standard D7.1, Inspection Procedures for Motor Vehicles, Trailers, and Semi-trailers Operated on Public Highways?

2. Are inspection items consistent with those listed in Exhibit II, Chapter IV, Volume I of the Highway Safety Program Manual?

3. Are criteria consistent with paragraph 8, Inspection Equipment, American National Standards Institute Standard D7.2, Station Requirements for Inspection of Motor Vehicles, Trailers and Semi-trailers in Stations Owned and Operated by Regulatory Authority?

B. Total Vehicle Population

1. Is there a representative sampling of total passenger vehicle population?

2. Does the site selection represent characteristics of the State such as:

   a. Urban, suburban and rural locations, and

   b. Geographic and climatic conditions?

3. Is there a method for inspection of commercial and other type vehicles?

C. Commitment of Resources

1. Is there a central agency and person responsible to administer the program?

2. Has a qualified statistician participated in the plan for statistical planning and evaluation?

3. Is there an adequate number of qualified people to perform functions of traffic control, inspection, certification and recordkeeping and exit control?

4. Is there a plan for classroom training covering inspection procedures, testing equipment and items of inspection with emphasis on brakes, steering and suspension systems and tire conditions?

D. Legal Authority

Have procedures been developed to ensure repair of defective vehicles?

E. Documentation

1. Have the data been identified for evaluation?

2. Have data processing systems been planned to meet the needs of evaluation?

3. Has a reporting system been designed to obtain and report data?

F. Statistical Design

1. Is base data of vehicle condition available?

2. What is the plan for random selection of passenger vehicles registered in State?

3. Does the plan include statistical controls to ensure randomly selected vehicles fit passenger vehicle profile by make and model year?

G. Evaluation

1. Are procedures planned for comparing within the State changes in vehicle safety quality of total vehicle population associated with the trial substitute program?

2. Is there a plan for developing procedures or criteria to draw conclusions of effectiveness by the end of the first year?

APPENDIX D

GLOSSARY OF DEFINITIONS

This glossary defines those terms whose meanings may be unclear in the context in which they are used. These definitions are meant to apply only to the usage of these terms in this volume.

Data Base - Those data elements included in the inspection system used for satisfying information requirements.

Dealer - Every person who is (legally) engaged in the business of buying, selling or exchanging vehicles.

Department - The Department of Motor Vehicles or other State department or agency responsible for administering the motor vehicle registration program.

Established Place of Business - The place actually occupied either continuously or at regular periods by a dealer or garage owner where his books and records are maintained and a large share of his business is transacted.

Motor Vehicle - Any vehicle driven or drawn by mechanical power manufactured primarily for use on the public streets, roads, and highways, except any vehicle operated exclusively on a rail or rails.

Motor Vehicle Equipment - Any system, part, or component of a motor vehicle as originally manufactured or any similar part or component manufactured or sold for replacement or improvement of such system, part, or component, or as an accessory or addition to the motor vehicle.

Registration - The process of identifying a particular vehicle and the ownership thereof and the subsequent issuance of a registration certificate and registration plates sanctioning its use on the public highways.

State - Any one of the 50 States, the District of Columbia, and Puerto Rico.

Vehicle - A vehicle is any motor vehicle.

APPENDIX E

REFERENCES

The following is a selected list of recognized authoritative references which may be helpful in implementing the programs specified in this volume. This list is not meant to be a bibliography of all documents available in this field.

American Automobile Association. A Study of Motor Vehicle Inspection: A Summary (1967). American Automobile Association, Foundation for Traffic Safety, 1712 G Street, N. W., Washington, D. C. 20006.

American Petroleum Institute. Procedure Guidelines for Periodic Motor Vehicle Inspection (1967). American Petroleum Institute, 1271 Avenue of the Americas, New York, New York 10020.

Automobile Manufacturers Association. Inspection Handbook for Passenger Cars and Station Wagons (1967). Prepared by the Automobile Manufacturers Association for the American Association of Motor Vehicle Administrators, 1155 15th Street, N. W., Washington, D. C. 20006.

Automotive Service Industry Association. The Reasons for Periodic Vehicle Inspection (1963). Automotive Service Industry Association, 230 North Michigan Avenue, Chicago, Illinois 60601.

Creeden, T. F. Motor Vehicle Inspection, Comparative Study Between State Approved and State Operated Inspection Stations: Massachusetts - New Jersey (1964). Automobile Manufacturers Association, 1619 Massachusetts Avenue, N. W., Washington, D. C. 20006.

Fuchs and Levinson. Motor Accident Mortality and Inspection of Vehicles (1967). National Bureau of Economic Research, Inc., 1755 Massachusetts Avenue, N. W., Washington, D. C. 20036.

Insurance Institute for Highway Safety. Management Manual for Motor Vehicle Inspection (1968). Insurance Institute for Highway Safety, 2600 Virginia Avenue, N. W., Washington, D. C. 20037.

Mayer, A. J. and Hoult, T. F. Motor Vehicle Inspection (1963). Wayne State University, Institute for Regional and Urban Studies, Detroit, Michigan 48202.

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National Committee on Uniform Traffic Laws and Ordinances. Uniform Vehicle Code (1962). National Committee on Uniform Traffic Laws and Ordinances, 1776 Massachusetts Avenue, N. W., Suite 430, Washington, D. C. 20036.

American National Standards Institute. American Inspection Requirements for Motor Vehicles, Trailers and Semi-Trailers Operated on Public Highways, ANSI Standard D7.1, latest revision. United States of America Standards Institute, 10 East 40th Street, New York, New York 10016.

American National Standards Institute. American Standard Station Requirements for Inspection of Motor Vehicles, Trailers and Semi-Trailers in Stations Owned and Operated by Regulatory Authority, ANSI Standard D7.2, latest revision. United States of America Standards Institute, 10 East 40th Street, New York, New York 10016.

American National Standards Institute. American Standard Station Requirements for Inspection of Motor Vehicles, Trailers and Semi-Trailers in Stations Appointed and Licensed by Regulatory Authority, ANSI Standard D7.3, latest revision. United States of America Standards Institute, 10 East 40th Street, New York, New York 10016.

APPENDIX F

REPRESENTATIVE PROJECTS

Examples of projects which may be of benefit in the development and operation of vehicle inspection programs are presented in this appendix.

STATE CONDUCTED PROJECTS

The following projects are being conducted by various States:

A. Arkansas and South Carolina have initiated programs calling for the annual inspection of motor vehicles. The programs include:

1. System development and establishment of procedures.

2. Staffing, training, and equipping of State supervisory personnel.

3. Investigation and licensing of privately owned inspection stations, personnel, and equipment.

4. Administration, supervision, and enforcement of regulations and procedures.

B. One state is engaged in a project to provide that items will be more closely and accurately inspected through the training of additional highway patrol personnel who will:

1. Provide better supervision of the privately owned inspection stations.

2. Conduct training sessions for all private inspection station operators and their employees.

C. One state is conducting a pilot project with an equipped mobile van to:

1. Inspect vehicles observed to be in an unsafe condition.

2. Inspect and report on mechanical conditions of systems and subsystems of vehicles involved in fatal accidents.

3. Check the performance and adequacy of the State certified, privately owned, inspection stations.

APPENDIX G

RESOURCE ORGANIZATIONS

The following is a list of national organizations which can provide information and advice related to motor vehicle inspection.

American Association of Motor Vehicle Administrators
1155 15th Street, N. W.
Washington, D. C. 20005

American Automobile Association
1712 G Street, N. W.
Washington, D. C. 20006

American Petroleum Institute
1801 K Street, N. W.
Washington, D.C. 20016

American Trucking Association
1616 P Street, N. W.
Washington, D. C. 20036

Auto Industries Highway Safety Committee
2000 K Street, N. W.
Washington, D. C. 20006

Automobile Manufacturers Association
1619 Massachusetts Avenue, N. W.
Washington, D. C. 20036

or:
320 New Center Building
Detroit, Michigan 48202

Automotive Service Industry Association (ASIA)
230 North Michigan Avenue
Chicago, Illinois 60601

Insurance Institute for Highway Safety (IIHS)
2600 Virginia Avenue, N. W.
Washington, D. C. 20037

National Automobile Dealers Association (NADA)
2000 K Street, N. W.
Washington, D. C. 20006

National Committee on Uniform Traffic Laws and Ordinances (NCUTLO)
1776 Massachusetts Avenue, N. W., Suite 430
Washington, D. C. 20036

National Highway Traffic Safety Administration
400 7th Street, S. W.
Washington, D. C. 20590

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

Private Truck Council of America Inc.
1317 F Street, N. W.
Washington, D. C. 20004

Society of Automotive Engineers (SAE)
18121 East Eight Mile Road
Detroit, Michigan 48236

American National Standards Institute (ANSI)
10 East 40th Street
New York, New York 10016

Vehicle Equipment Safety Commission
1026 17th Street, N. W.
Washington, D. C. 20036

APPENDIX H

SPECIAL VEHICLE INSPECTION

The purpose of this appendix is to provide guidelines for the inspection of special vehicles. These guidelines are intended to be representative only. As requirements become available for other classes of vehicles, additional guidelines will be transmitted to supplement this appendix. Guidelines for the following classes are included:

Motorcycle Inspection Requirements
Special Vehicle Inspection Requirements – School Buses

I. MOTORCYCLE INSPECTION REQUIREMENTS

7. *MOTORCYCLE VEHICLE INSPECTION

A. Introduction

1. Each motorcycle should successfully pass a safety inspection at the time the motorcycle is initially registered and at least annually thereafter, or at such other time as may be designated under an approved experimental, pilot, or demonstration program implemented by the State.

2. Recommendations for implementing motorcycle vehicle inspection set forth in this volume are intended to supplement, not supersede, recommendations set forth in Volume 1, of this Manual, Periodic Motor Vehicle Inspection.

B. Implementation

1. General

a. American National Standards Institute, American Standard Inspection Requirements for Motor Vehicles, Trailers, and Semitrailers Operated on Public Highways (D7.1-1963) indicates inspection procedures which should be used as a guide whenever practical.

*This section of Appendix F is taken from Volume 3, Motorcycle Safety, Chapter IV.

b. Training given to motor vehicle inspectors should include training on motorcycle inspection procedures.

c. The motorcycle inspector should have passed an examination demonstrating his knowledge of motorcycle inspection procedures.

d. A licensed motorcycle operator should perform all motorcycle operations that may be required as part of the inspection.

2. Recommended Inspection

The items inspected in the State motorcycle inspection should include, but not be limited to, those listed below. It is not intended that this list require removal of wheels or disassembly of major components.

a. Steering and wheel alinement

1) Frame and front fork should not be bent or damaged.

2) Wheels should not be out of line.

3) Components should not be broken, loose, excessively worn, or missing.

4) Steering head bearing should not be loose, broken, or defective.

5) No portion of the handlebars may extend more than 15 inches higher than the level of the seat.

6) Handlebars should not be loose, bent, broken, or damaged.

b. Suspension

1) Motorcycle should not have broken, excessively worn, missing, defective, disconnected, or malfunctioning shock absorbers or other suspension components.

2) Motorcycle should not have broken or sagging springs.

c. Tires, wheels, and rims

1) Tires should not have less than 2/32 of an inch of the tread design remaining, or any part of the ply or cord exposed.

2) There should not be any tread cut or snag on the outside of the tire deep enough to expose the body cords.

3) Sidewalls should not be scuffed, cut, or snagged to the extent that body cords are damaged.

4) Tires should not have any bump, bulge, or knot apparently related to tread or sidewall separation or partial failure of the tire structure.

5) There should not be loose, missing, or defective air valves, bolts, nuts, or lugs.

6) There should not be bent, loose, cracked or damaged wheels, or defective rims or wheel flanges, or missing, broken, bent, loose, or damaged spokes.

7) Wheels should not have missing rivets, studs, or nuts.

8) Wheels should not have broken or out of adjustment bearings.

d. Exhaust system

Exhuast system or its elements, including exhaust guard, should be securely fastened.

e. Fuel system

1) Fuel should not leak at any point in the fuel system.

2) Fuel tank and piping should be securely installed.

3) Fuel tank should be vented.

4) Throttle should be alined and not binding; linkage (including cables) must not be worn, bent, broken, corroded, or missing.

5) Throttle should return to off or idle position when released on models with quick-release throttle.

f. Brakes

1) Brake system should not have worn, missing, or defective pins, cables, rods, clevises, or couplings.

2) Brake system should not have misalined anchor pins; frozen, rusted, or inoperative connections; missing spring clips; improper wheel bearing adjustment; or defective grease retainers.

3) Mechanical parts should not be misalined, badly worn, broken, or missing.

4) Operating levers and pedal shaft should be properly positioned and alined.

5) Motorcycle should not require more than 30 feet to stop from 20 miles per hour.

g. Lamps and reflective devices

1) General

a) Lamps and reflective devices on motorcycles manufactured after December 31, 1968 should comply with State standard substantially equivalent to Federal Motor Vehicle Safety Standard 108, 23 C. F. R. 255. 21.

b) Lamps should be mounted securely to prevent excessive vibration.

c) Lamps should not have defective wiring, improper ground, or a defective switch.

d) Power source should maintain lamps at required brightness for all conditions of operation.

2) Headlamp

a) Light output should be sufficient to make persons and objects clearly visible at night from a distance of at least 350 feet.

b) Dimmer switch on double filament headlamp should be operative.

3) Tail lamp

a) Should be red in color.

b) Should be visible at night under normal atmospheric conditions.

4) Stop signal lamp

a) Should be red or amber in color.

b) Should be visible in normal sunlight from the rear.

c) Should be activated by application of the brake.

d) May be combined with other rear lamps.

e) Should be extinguished when the turn signal lamp is functioning, if combined with the turn signal lamp.

5) License plate lamp

a) Should be white in color.

b) License plates should be visible under normal atmospheric conditions at night from 50 feet to the rear.

c) Should be activated by the same switch that activates the headlamps.

6) Turn signal system, if installed

a) Should be visible from the front sides and rear.

b) Should have amber or white front lamps.

c) Should have red or amber rear lamps.

7) Hazard warning lamps, if installed

a) Should have approved switch.

b) Should flash front and rear turn signals simultaneously.

8) Reflectors

a) Lenses should not be cracked, broken, or missing.

b) Lenses should be clean.

h. Wiring and switches

1) Switches and operating units should be in good condition and function properly.

2) Wiring should be properly installed and insulated, and so located such that damage will not be incurred.

3) All connections should be secure and have no signs of excessive corrosion.

i. Horn

1) Horn should be securely fastened to the vehicle.

2) Horn should be audible under normal traffic conditions for at least 200 feet.

j. Windshield, if installed

1) Should be free of cracks, discoloration, and scratches, and should be mounted so that the driver's vision is not obstructed.

2) Should comply with Federal Motor Vehicle Safety Standard 205.

k. Body items

1) There should not be loose, defective, dislocated, or dangerous items.

2) There should not be defective or dislocated parts projecting from the vehicle.

3) Engine mounting frame or brackets should not be cracked or broken.

4) Fenders and mudguards should not be broken, missing, or of inadequate design.

5) Footrests should be securely mounted and properly located.

6) Seat should be properly and securely attached.

7) If installed, sidecar should be properly attached, and comply with lighting, tire, and braking requirements.

8) Clutch must be alined and not binding; cable or linkage should not be worn, twisted, corroded, broken, or missing.

9) Drive chain should be undamaged, properly adjusted, and lubricated.

10) Lubrication system should not have excessive oil leaks.

11) Center or side stand should be in proper working order.

12) Seats and their springs should not be broken or otherwise defective.

l. Rearview mirror

1) Should permit a clear view to the rear of the vehicle for 200 feet.

2) Should not be cracked or discolored.

3) Should not be missing or improperly installed.

m. Other

Any other component or assembly not previously mentioned, which is in an obviously unsafe condition or which constitutes a hazard to the safe and proper operation of the vehicle, may be deemed sufficient justification to deny inspection certification until such condition or hazard has been corrected.

n. Registration

1) Motorcycle should be properly registered.

2) Registration plate should not be obscured.

3) Registration plate should not be installed more than 30 degrees from the vertical position.

4) Registration plate should be firmly affixed in a position where it does not create a hazard to the operation of the motorcycle.

5) Registration plate should not be affixed with the bottom of the plate less than 12 inches from the ground.

C. Certification of Inspection

1. Upon successful completion of the vehicle inspection each motorcycle should receive a certificate of inspection.

2. This certificate should be of such a form that it can be permanently affixed to the motorcycle.

II. SPECIAL VEHICLE INSPECTION REQUIREMENTS - SCHOOL BUSES

The inspection of a school bus should include checking, in addition to items and components outlined in ANSI D7.1 requirements, that the following items are correctly fitted, adjusted, and in good working condition.

A. Outside

1. Mirrors - crossview, inside, and outside.

2. Front and rear warning flashers.

3. Stop signal arm.

4. Flush rear bumper, so that "hitching" of rides cannot occur.

5. Exhaust tailpipe not protruding.

6. Emergency door unlocked.

7. Lettering and signing – front, side and rear.

B. Inside

1. Service door.

2. Step treads.

3. Aisle mats or runners.

4. Emergency equipment – This should include:

   a. First aid kit

   b. Flares and/or fuses

   c. Fire extinguisher.

5. Seats securely fixed to floor.

6. Emergency door buzzer.

7. Hand hold grips.

8. Glazing.

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