A SURVEY OF OPERATING INSPECTION/MAINTENANCE PROGRAMS

RADIAN
CORPORATION

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A SURVEY OF OPERATING INSPECTION/MAINTENANCE PROGRAMS

APPENDIX II

Prepared by:

Radian Corporation
Austin, Texas

for the

United States Environmental Protection Agency
Inspection/Maintenance Staff
2565 Plymouth Road
Ann Arbor, Michigan 48105

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APPENDIX A

ARIZONA

RULES AND REGULATIONS

ARTICLE 10. MOTOR VEHICLES; COMBUSTION ENGINES; FUEL

R9-3-905. Emission standard for mercury

Subpart E of Part 61, Title 40 of the Code of Federal Regulations along with all duly promulgated revisions as of the date of adoption of these Rules and Regulations is herewith adopted by reference.

Historical Note

Adopted eff. May 14, 1979 (Supp. 79-1).

R9-3-906. Emission standard for vinyl chloride

Subpart F of Part 61, Title 40 of the Code of Federal Regulations along with all duly promulgated revisions as of the date of adoption of these Rules and Regulations is herewith adopted by reference.

Historical Note

Adopted eff. May 14, 1979 (Supp. 79-1).

ARTICLE 10. MOTOR VEHICLES; COMBUSTION ENGINES; FUEL

R9-3-1001. Policy and legal authority

A. These Rules and Regulations are adopted pursuant to the authority granted by A.R.S. §§ 36-1707, 36-1717, and 36-1772.

B. The intent of these Regulations is to control the release into the atmosphere of air contaminants from motor vehicles and combustion engines in a manner that insures the health, safety, and general welfare of all the citizens of the State of Arizona.

Historical Note

Former Section R9-3-1001 repealed, new Section R9-3-1001 adopted eff. Jan. 13, 1976 (Supp. 76-1).

R9-3-1002. Definitions

In this Article, unless the context otherwise requires:

1. "Bureau" means the Bureau of Vehicular Emissions Inspection of the Arizona Department of Health Services.

2. "Bureau station" means an official emissions inspection station operated by the Bureau.

3. "Certificate of compliance" means a serially numbered document issued by a State station at the time of inspection indicating that the vehicle has met the emissions standards.

4. "Certificate of exemption" means a serially numbered certificate issued by

the Director exempting a vehicle which is not available within the State for the inspection during the ninety days prior to registration expiration date.

5. "Certificate of inspection" means a serially numbered document indicating that a vehicle has been inspected pursuant to the provisions of A.R.S. § 36-1776 and has passed inspection.

6. "Certificate of waiver" means a serially numbered document indicating that the requirement of passing reinspection has been waived for a vehicle pursuant to A.R.S. § 36-1772.

7. "Constant four-wheel drive vehicle" means any four-wheel drive vehicle with four wheels which cannot be converted to two-wheel drive except by disconnecting one of the vehicle's drive shafts.

8. "Contractor" means a person, business firm, partnership or corporation with whom the Director has a contract which provides for the operation of one or more official emissions inspection stations.

9. "Cruise modes" are loaded driving conditions that are simulated on a chassis dynamometer.

10. "Curb weight" pertains to vehicles less than 6000 pounds GVW and means a vehicle's unloaded weight without fuel and oil plus 300 pounds.

11. "Dealer" means a person or organization licensed by the Arizona Department of Transportation as a new motor vehicle dealer, used motor vehicle dealer, or motorcycle dealer.

12. "Director" means the Director of the Arizona Department of Health Services.

13. "Director's certificate" means a serially numbered document issued by the Director in special circumstances where the Director deems it inappropriate for the vehicle to show evidence of meeting the minimum standards for registration or reregistration.

14. "Electric powered vehicle" is a vehicle that uses electricity as the means of propulsion and does not require the combustion of fossil fuel within the confines of the vehicle in order to generate electricity.

15. "Emissions inspection station permit" means a certificate issued by the Director authorizing the holder to perform vehicular inspections pursuant to this Article.

16. "Exhaust emissions" means products of combustion emitted into the atmosphere from any opening downstream of the exhaust ports of a motor vehicle engine.

17. "Field calibration gas" means a gas with assigned concentrations of CO and HC that is used by a State inspector to check the accuracy of emissions analyzers used by State stations, fleet stations, and vehicular repair facilities.

18. "Fleet emissions inspection station" or "fleet station" means any inspection facility operated under a permit issued pursuant to A.R.S. § 36-1776.

19. "Fuel" means any material that is burned within the confines of a vehicle in order to be used as the means of propelling the vehicle.

20. "Four stroke (4-stroke) vehicle" means a vehicle equipped with an engine that requires two revolutions of the crankshaft for each piston power stroke.

21. "Golf cart" means a motor vehicle having not less than three wheels in contact with the ground, having an unladen weight less than thirteen hundred pounds, which is designed to be and is operated at not more than fifteen miles an hour and is designed to carry golf equipment and persons.

22. "Governmental vehicle" means a registered motor vehicle exempt from the payment of a registration fee, or a Federally owned or leased vehicle.

23. "Inspection" means the mandatory vehicular emissions inspection.

24. "Inspection sticker" means a self-adhesive, serially numbered one and a half by two inch rectangular sticker indicating a governmental vehicle has met the State of Arizona emissions inspection requirements.

25. "Idle mode test" means an exhaust emissions test conducted at only the idle conditions of a loaded mode test.

26. "Loaded mode test" means an exhaust emissions test conducted at the idle, low and/or high cruise test conditions as prescribed in this Article.

27. "Model year" means the date of manufacture of the original vehicle within the annual production period of such vehicle as designated by the manufacturer or if a reconstructed vehicle the first year of titling.

28. "MOL percent" means the percent, by volume, that a particular gas occupies in a mixture of gases at a uniform temperature.

29. "Motorcycle" means a motor vehicle having a seat or saddle for use of the rider and designed to travel on not more than three wheels in contact with the ground, but excluding a tractor.

30. "Official emissions inspection station" means an inspection facility, other than a fleet emissions inspection station, whether placed in a permanent structure or in a mobile unit for conveyance among various locations within the State, for the purposes of conducting inspections of vehicles required to be inspected pursuant to A.R.S. § 36-1772.

31. "Pro-rate vehicle" means any vehicle whose licensing fee in the State is pro-rated by its estimated usage in the State.

32. "Program" means the Mandatory Annual Vehicular Emissions Inspection Program pursuant to A.R.S. Title 36, Chapter 14, Article 3 and this Article 10.

33. "Reconstructed vehicle" means either of the following:

a. A reconstructed special as identified by the code letters "SP" on the portion of the vehicle's Arizona registration card or Arizona certificate of title that is reserved for identification of the vehicle's style.

b. When the vehicle style is not shown on the Arizona registration card or certificate of title, the vehicle shall be considered to be a reconstructed vehicle if the original manufacturer of the complete vehicle cannot be identified from the body.

34. "Standard gases" means gases maintained as a primary standard for determining the composition of working gases, field calibration gases, or the accuracy of analyzers.

35. "State inspector" means an employee of the Bureau designated to perform surveillance functions pursuant to this Article.

36. "State station" means an official emissions inspection station operated by a contractor.

37. "Two stroke (2-stroke) vehicle" means a vehicle equipped with an engine that requires one revolution of the crankshaft for each power stroke.

38. "Vehicle" means any automobile, truck, truck tractor, motor bus or self-propelled or motor-driven vehicle registered or to be registered in this State and used upon the public highways of this State for the purpose of transporting persons or property, except implements of husbandry, roadrollers or road machinery temporarily operated upon the highway.

39. "Vehicular emissions inspector" means an individual who has been licensed by the Director to perform the vehicular emissions inspection for this program.

40. "Working gases" means gases maintained by a facility to perform periodic calibration of emission analyzers.

41. Abbreviations and symbols used herein shall be as follows:

a. A/F means air/fuel
b. CO means carbon monoxide
c. GVW means gross vehicle weight
d. HC means hydrocarbon
e. HP means horsepower
f. LNG means liquified natural gas
g. LPG means liquid petroleum gas
h. MPH means miles per hour
i. MVD means the Motor Vehicle Division of the Arizona Department of Transportation.
j. NDIR means non-dispersive infra-red
k. % means percent
l. PCV means positive crankcase ventilation
m. PPM means parts per million by volume
n. VIN means vehicle identification number

Historical Note

Former Section R9-3-1002 repealed, new Section R9-3-1002 adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1003. Vehicles to be inspected by the mandatory vehicular emissions inspection program

A. All vehicles to be registered or reregistered in Maricopa and Pima Counties for highway use shall be inspected in accordance with this Article at a State station or at a fleet station except for the following:

1. Vehicles over thirteen years of age by model year
2. Electric powered vehicles
3. Pro-rate vehicle
4. Golf carts
5. Vehicles with engine displacements less than 90 cubic centimeters
6. New vehicles registered for the first time after initial retail sale and titling in this State pursuant to A.R.S. § 28-302.
7. Vehicles registered for the first time as a reconstructed special.
8. Vehicles being registered at the time of sale between private individuals except when the change in registration is accompanied by required fees for the year following expiration of the prior registration.
9. Vehicles being registered at the time of sale at a public or private auction except when the change in registration is accompanied by required fees for the year following expiration of the prior registration.
10. Vehicles being registered at the time of sale from a dealer outside Maricopa or Pima Counties to a resident of Maricopa or Pima County, except when the change in registration is accompanied by required fees for the year following expiration of the prior registration.
11. Vehicles being registered at the time of change of name of ownership except when the change in registration is accompanied by required fees for the year following expiration of the prior registration or the change results from the sale by a dealership residing in Maricopa or Pima County.
12. Vehicles for which a current certificate of exemption or Director's certificate has been issued.

B. For the purpose of this Section, over thirteen years of age by model year means that the calendar year of the expiring registration minus the model year of the vehicle as listed on the title or registration card exceeds thirteen years.

C. Governmental vehicles operated in Maricopa or Pima County and not exempted by this Article shall be emissions inspected pursuant to Section R9-3-1017.

Historical Note

Former Section R9-3-1003 repealed, new Section R9-3-1003 adopted eff. Jan. 13, 1976. Amended as an emergency eff. Jan. 19, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1004. State inspection requirements

All vehicles required to be inspected by this Article shall pass inspection by meeting the requirements of R9-3-1006 unless waived pursuant to R9-3-1008.

Historical Note

Former Section R9-3-1004 repealed, new Section R9-3-1004 adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1005. Time of inspection

A. Vehicles required to be inspected pursuant to Section R9-3-1003 shall be inspected at the following times:

1. For vehicles not covered by a fleet station permit, within ninety days prior to each registration expiration date.
2. For vehicles sold by a dealer located in Maricopa or Pima County to a resident of Pima or Maricopa County, by the dealer:
   a. Who holds a fleet station permit, within twelve months prior to the registration or reregistration.
   b. Who does not hold a fleet station permit, within ninety days prior to the registration.
3. For governmental vehicles at least once within twelve months following the date of acquisition by the operating activity in Maricopa or Pima County, date of initial registration, or the date of prior inspection, whichever is applicable.
4. For vehicles owned or leased by a person having a valid fleet station permit, within twelve months following the date of the prior registration or reregistration.
5. For vehicles that are being registered in Maricopa and Pima County under conditions not specified in Paragraphs 1. through 4. of this Section within ninety days prior to registration.

B. Nothing in this Section shall be construed to waive a late registration fee because of failure to meet inspection requirements by the registration deadline.

Historical Note

Former Section R9-3-1005 repealed, new Section R9-3-1005 adopted eff. Jan. 31, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1006. The mandatory vehicular emissions inspection

A. The exhaust emissions inspection for non-diesel powered vehicles shall consist of sampling the exhaust emissions from the vehicle engine in the idle mode and measuring the concentrations of HC and CO in accordance with the requirements specified in Subsection G.

1. For diagnostic purposes only all vehicles powered by internal combustion

engines other than diesel shall be tested utilizing the dynamometer loadings specified unless tested only in the idle mode as prescribed in Subsection B. and D.

2. The loaded mode test consists of placing the vehicle driving wheels on a chassis dynamometer, placing an emissions sampling probe into the tailpipe, and analyzing the collected exhaust samples. The exhaust emissions are sampled with the vehicle operating at steady-state idle and loaded conditions contained in Table 1.

TABLE 1

DYNAMOMETER LOADING TABLE

Vehicle Curb Weight (Pounds)	Engine Displacement (Cubic Centimeters)	High Cruise Mode HP	High Cruise Mode MPH	Low Cruise Mode HP	Low Cruise Mode MPH
All	Less than 126	Idle test only		Idle test only	
Less than 2000	126-200	1.2-2.8	16-22	No test required	
Less than 2000	201-350	2.8-4.1	22-25	No test required	
Less than 2000	351-500	4.1-6.4	25-29	No test required	
Less than 2000	Greater than 500	6.4-8.4	29-32	No test required	
2000-2800	All displacements	11.8-13.6	36-38	2.8-4.1	22-25
2801-3800	All displacements	20.8-23.7	44-46	6.4-8.4	29-32
Greater than 3800	All displacements	26.8-30	48-50	8.4-10.8	32-35

a. Loaded mode test procedure

i. The vehicle shall be tested with the engine running at normal operating temperatures.

ii. The vehicle shall be nearly level when tested in order to prevent abnormal fuel distribution.

iii. The vehicle speed (MPH) as measured from the dynamometer rolls shall be used for all conditions.

iv. The order of the test shall be with the highest load test first and the idle test last.

v. Vehicles with manual transmissions shall be tested in the following manner:

(1) All vehicles shall be run in the highest gear appropriate for the prescribed speed and loading conditions.

(2) Idle mode shall be run with transmission in gear and with clutch disengaged or the transmission in neutral.

(3) During cruise mode, the vehicle shall be driven at a constant throttle position to maintain the cruising speed.

vi. Vehicles with automatic transmissions shall be tested in the following manner:

(1) All test conditions shall be run with the transmission in "drive" or highest gear.

(2) Idle mode shall be run with the transmission in "drive" and the wheels braked.

(3) During cruise mode, the vehicle shall be driven at constant throttle position to maintain specified speed.

vii. Sampling and analytical system for exhaust emissions measurements:

(1) All CO and HC emission analyzers shall have water traps incorporated in their sampling lines. Sampling probes must be capable of taking undiluted exhaust samples from the vehicle's exhaust system.

(2) All 4-stroke and 2-stroke vehicles other than diesel shall be inspected with NDIR analyzers capable of determining concentration of CO in MOL percent with an accuracy of plus-or-minus 0.5% CO from 2 to 10 MOL percent and plus-or-minus 0.25% CO from 0 to 2 MOL percent.

(3) All 4-stroke vehicles other than diesel shall be inspected with NDIR analyzers capable of determining concentrations of HC as N-hexane in PPM with an accuracy of plus-or-minus 100 PPM from 500 to 2000 PPM and plus-or-minus 30 PPM from 0 to 500 PPM.

(4) All 2-stroke vehicles other than diesel shall be inspected with NDIR analyzers or equivalent capable of determining concentrations of HC as propane in PPM with an accuracy of plus-or-minus 1250 PPM from 0 to 25,000 PPM.

viii. Non-diesel powered vehicles with multiple exhaust systems shall be inspected by collecting and averaging samples in one of the following methods:

(1) Collect separate samples from each exhaust.

(2) Manifold exhaust probes which will simultaneously sample approximate equal volumes from each pipe.

(3) Manifold exhaust pipes to collect approximately equal volume samples from each pipe.

(4) Collect samples by a combination of (2) and (3) above. The average concentration shall be used to determine the test results.

B. The idle mode test only shall be performed in lieu of the loaded mode test on any vehicle by an official emissions inspection station if:

1. The vehicle has a tire on a driving wheel with less than 2/32 inch tread, with metal protuberances, or with obviously low tire pressure (as determined by superficial visual inspection) or any other condition that in the opinion of the vehicular emissions inspector precludes loaded testing for reason of safety to personnel, equipment, or vehicle.

2. A vehicle driven by a person who, because of physical incapacity is unable to yield the driver's seat to the emissions inspector.

3. The driver refuses to yield the driver's seat to the emissions inspector or requests only the idle mode test.

4. The vehicle is unable to be tested according to the dynamometer loading table because of the vehicle's inability to attain the speeds specified.

5. The vehicle is equipped with constant four wheel drive.

C. No mandatory vehicular emissions inspection shall be performed by an official emissions inspection station on any vehicle that is carrying, loaded with, or towing a trailer loaded with explosives or any other hazardous material not used as fuel for the vehicle.

D. At the option of the fleet station, vehicles that qualify as part of a fleet station inventory may be tested in the idle mode only.

E. Any diesel-powered motor vehicle except those built primarily as private passenger vehicles should not emit visible exhaust emissions in excess of the standards set forth in Subsection G. when inspected according to any of the following test procedures:

1. When a diesel-powered vehicle is operated on a chassis dynamometer:

a. With the vehicle not under load, select a gear ratio which will produce a maximum vehicle speed of 45-60 MPH at governed or maximum rated RPM if the vehicle has a manual transmission or an automatic transmission with individual gear selection.

b. With engine running at governed or maximum rated engine RPM, at normal operating temperature apply the dynamometer load until such loading reduces the engine RPM to 90% of the governed speed at wide open throttle position or, in the case of vehicles with automatic transmissions with gear kickdown, load the engine to a speed just above the kickdown speed or 90% of governed speed, whichever is the higher speed. If the chassis dynamometer does not have enough horsepower absorption capability to lug the engine down to these speeds, brakes may be used to assist the dynamometer. The opacity reading made over a period of five seconds with the engine under such loading shall be compared with the standard specified in Paragraph G.2. for diesel-powered vehicles.

c. With the engine idling observe the exhaust opacity for five seconds.

2. When a diesel-powered vehicle is loaded by its own brakes:

a. Select a gear ratio which will produce a maximum speed of ten to fifteen MPH at governed engine RPM. Drive vehicle at ten to fifteen MPH at governed engine RPM or maximum rated RPM.

b. Load the engine by applying brakes until engine RPM is loaded down to 90% of the governed or maximum rated engine RPM at wide open throttle positions. If the vehicle does not have a tachometer, the vehicle may be loaded to 90% of governed or maximum rated speed. The opacity reading made over a period of five seconds with the engine under such brake loading shall be the opacity reading used for comparison with the standard specified in Paragraph G.2. for diesel-powered vehicles.

c. With the engine idling observe the exhaust opacity for five seconds.

3. For vehicles equipped with more than one exhaust stack or pipe, the reading taken from outlet giving the highest opacity reading shall be used for comparison with the standard.

4. Opacity readings shall be taken by a licensed emissions inspector certified to visually read opacity or by an opacity meter that is a full flow, direct reading, continuous reading, light extinction type using a collimated light source and photo-electric cell which is accurate within plus or minus 5%.

F. Any diesel-powered motor vehicle built primarily for carrying nine passengers or less should not emit exhaust emission smoke in excess of the visual emissions standards specified in Paragraph G.2. when inspected for a minimum of five continuous seconds at high cruise, low cruise and idle conditions prescribed in Subsection A. for the loaded mode inspection.

G. All non-diesel powered vehicles shall not exceed the idle mode exhaust emissions standards as prescribed in Table 2 when the exhaust emissions are sampled under the conditions prescribed in Subsection A. Any vehicle that exceeds the idle mode standards shall fail the emissions inspection.

1. Emissions from all internal combustion engines other than diesel should normally not exceed the loaded mode standards for HC and CO contained in Table 2. The loaded mode standards are for diagnostic and advisory information.

a. All rotary piston engines shall be treated in the same manner as 4-stroke engines with four cylinders or less.

b. All turbine engines shall be treated as 4-stroke engines having more than four cylinders.

2. Exhaust emissions from diesel powered vehicles should not exceed 20% visual opacity for smoke at the test conditions prescribed in Subsections E. and F. A diesel powered vehicle that exceeds the 20% visual opacity in the idle mode shall fail the emissions test. The loaded tests are for diagnostic and advisory information.

(The next page is 124.)

TABLE 2

EMISSION STANDARDS
(Maximum Allowable)

Type	Vehicle Model Year	Vehicle Curb Weight (Pounds)	Number of Cylinders	High Cruise HC PPM	High Cruise CO %	Low Cruise HC PPM	Low Cruise CO %	Idle Mode HC PPM	Idle Mode CO %
4-stroke Motorcycles	All	All	All	700	8.6			1,800	5.5
4-stroke	1975 and newer	6000 or less	4 cylinders or less	100**	0.9**	120	1.0	250	2.5
4-stroke	1975 and newer	6000 or less	More than 4 cylinders	100*	0.9**	120	1.0	250	2.2
4-stroke	1975 and newer	Greater than 6000	All	300	2.5	300	3.0	350	5.0
4-stroke	1972-1974	All	4 cylinders or less	380**	3.0**	380	3.50	450	6.0
troke	1972-1974	All	More than 4 cylinders	300**	2.50**	300	3.0	400	5.5
troke	1968-1971	All	4 cylinders or less	450**	3.75**	450	4.25	800	6.5
4-stroke	1968-1971	All	More than 4 cylinders	380**	3.00**	380	3.50	750	6.5
4-stroke	1967 and older	All	4 cylinders or less	1000**	5.00**	1000	6.00	1,800	7.5
4-stroke	1967 and older	All	More than 4 cylinders	700**	4.25**	700	5.25	1,200	7.5
2-stroke	All	All	All	18,000*	5.0			18,000*	5.0

*Measured as propane equivalent gas. All other HC values measured as N-hexane.
**Low cruise standard will be substituted for high cruise standard and low cruise will be eliminated if the vehicle weighs less than 2000 pounds curb weight.

3. If a diesel-powered vehicle other than a vehicle built primarily for carrying nine passengers or less fails to meet this standard as determined by visual observation by a vehicular emissions inspector at a State Station, the visual observation must be verified by an opacity meter.

H. Vehicles that are designed to operate with more than one fuel shall be tested on the fuel used by the vehicle at time of inspection. The corresponding emissions standards for that fuel shall apply.

I. All non-diesel powered reconstructed vehicles that are subject to this program shall be inspected for emissions compliance using the emissions standards applicable to vehicles that are thirteen years of age at the time of inspection.

J. Any vehicle other than a diesel-powered vehicle or two-stroke vehicle that emits any visible emissions for ten consecutive seconds or more is "excessive" for the purposes of A.R.S. § 28-955.B.

Historical Note

Former Section R9-3-1006 repealed, new Section R9-3-1006 adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Nov. 1, 1976 (Supp. 76-5). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1007. Evidence of meeting State inspection requirements

A. Any of the following documents, when complete, unaltered and dated no more than ninety days prior to registration expiration date, shall be accepted by the county assessor as evidence that a vehicle is in compliance with the requirements of this Article unless he has reason to believe it is a false document. Documents accompanying a late registration may be dated subsequent to the registration expiration date.

1. Certificate of compliance
2. Certificate of waiver
3. Certificate of exemption
4. Director's certificate

B. Complete and unaltered certificates of inspection dated within twelve months of registration shall be accepted by the county assessor as evidence that a vehicle is in compliance with the requirements of this Article unless he has reason to believe it is a false document.

C. Governmental vehicles for which only weight fees are paid shall be registered without evidence of inspection.

Historical Note

Former Section R9-3-1007 repealed, new Section R9-3-1007 adopted eff. Jan. 13, 1976 (Supp. 76-1). Former Section R9-3-1007 repealed, new Section R9-3-1007 adopted eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1008. Procedure for issuing certificates of waiver

A. A certificate of waiver will be issued upon providing evidence to the Director within 60 days of the initial inspection that repairs have been made to a vehicle that fails the idle test solely because of air-gas mixture in accordance with the following procedure:

1. The inspection report shall be completed by a repairman utilizing an

emissions analyzer registered by the Bureau. In completing the inspection report the following information shall be included:

a. Repairs made

b. Idle emission concentrations of CO and HC before and upon completion of repairs

c. Registration number of emission analyzer used by the repair facility in measuring the emissions concentrations

d. Name and address of facility making the repairs

e. Signature of person certifying repairs were made

f. Date and cost of repairs

2. The completed inspection report including the certificate section shall be submitted to the Bureau with a fee of one dollar, payable to the Arizona Department of Health Services.

3. The certificate section of the inspection report will be embossed and returned to the applicant.

4. The air-gas mixture failure is repaired if the values of both the CO and HC emission concentration when measured by a registered emissions analyzer in the idle test mode are below the maximum allowable concentration specified in Section R9-3-1006.

B. A certificate of waiver will be issued at the time of reinspection to a vehicle failing reinspection if the repairs specified in Section R9-3-1010 have been accomplished as reflected by the reinspection test results or the maximum repair cost specified in Subsection G. thereof has been reached. The following information shall be entered on the inspection report from the previous inspection:

1. Emission related repairs made.

2. Idle emissions concentrations of CO and HC before and after repairs if an NDIR analyzer is used.

3. Registration number of emission analyzer used by the repair facility in measuring the emission concentrations.

4. Name and address of activity making repairs.

5. Signature of person certifying repairs were made.

6. Date of repairs.

7. Cost of emission related repairs as reflected by receipts of purchase.

Historical Note

Former Section R9-3-1008 repealed, new Section R9-3-1008 adopted eff. Jan. 13, 1976 (Supp. 76-1). Former R9-3-1008 repealed, new Section R9-3-1008 adopted eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1009. Reserved

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Repealed eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1010. Low emissions tune-up

A. A low emissions tune-up shall consist of performing the following procedures:

1. Connect tachometer, and if available, connect engine analyzer oscilloscope and HC/CO NDIR analyzer to warmed-up vehicle and record emission values.

2. Inspect for dirty or plugged air cleaner and stuck choke. Replace and repair as required.

3. With air filter installed, adjust idle speed and A/F mixture in accordance with vehicle manufacturer's specifications.

Note: If vehicle is equipped with fuel injection system or an alternate fuel (LPG or LNG) follow manufacturer's recommended adjustment procedure.

4. Check dwell (or point gap) and basic timing according to manufacturer's specifications and adjust as required.

5. Check PCV valve for correct operation and verify free flow through the PCV system passages and hoses. Repair and replace as required.

6. Check vacuum hoses for leaks, repair and replace as required.

7. Make final adjustments in accordance with manufacturer's specifications to idle speed and A/F mixture. If an HC/CO NDIR analyzer is used, perform final idle test in accordance with R9-3-1006 and record HC and CO values.

B. The low emissions tune-up must be performed on all vehicles to qualify for a waiver if the vehicle fails reinspection. No further repairs are required on pre-1968 model year vehicles.

C. No further repairs are required on 1968 and later model year vehicles to qualify for a waiver if the vehicle fails reinspection when a registered HC/CO NDIR analyzer is used in performing the low emissions tune-up and when the idle HC and CO emissions values recorded pursuant to Paragraph A.7. are below those specified in Section R9-3-1006.

D. Recommended repairs required for all 1968 and later model year vehicles except those specified in Paragraph C. are as follows:

1. For vehicles failing CO only, check for high float setting, leaky power valve, faulty or worn needles, seats, jets or improper jet size. Repair and replace as required. Carburetor replacement is not required.

2. For vehicles failing HC or HC and CO, check for faulty spark plugs and faulty, open, crossed, or disconnected plug wires. Repair and replace components as required. Other repairs recommended: check distributor component malfunctions including vacuum advance, faulty points, condenser, or distributor cap crossfire and repair or replace as required.

F. The maximum required repair cost for pre-1968 model year vehicles to qualify for a certificate of waiver is $25.00. The maximum required repair cost for post-1967 model year vehicles is $75.00 or ten percent of the specified dollar value for the make and model year as listed below. This does not prevent the vehicle owner from authorizing or performing more than the required repairs. Vehicle operators who are having their vehicle reinspected shall have repair receipts available when requesting a certificate of waiver.

Vehicle	Market Value
Domestic	
All pre-1968 model year	Not applicable
American Motors:	
1968 All except Jeep	$430
1969 All except Jeep	580
Chrysler:	
1968 Imperial/Chrysler/Dodge/Plymouth	$420
1969 Imperial/Chrysler/Dodge/Plymouth	560
General Motors:	
1968 Chevrolet/Buick/Oldsmobile/Pontiac	$530
1969 Chevrolet/Buick/Oldsmobile/Pontiac	710
1968 Cadillac	620
Ford:	
1968 Ford/Mercury	$540
1969 Ford/Mercury	720
1968 Lincoln	570
Imports	
Austin:	
1968	$250
1969	300
1970	400
1971	540
1972	720
Datsun:	
1968	$460
1969	610
Fiat:	
1968	$470
1969	630
Ford Cortina:	
1968	$280
1969	400
1970	570

Opel:	
1968	$380
1969	500
1970	670
Renault:	
1968	$450
1969	590
Rover:	
1968	$580
Simca:	
1968	$350
1969	450
1970	590
Sunbeam:	
1969	$250
Toyota:	
1968	$580
Reconstructed vehicles:	
1968 - 1970	$300
1971	500
1972	700

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Former Section R9-3-1010 repealed, new Section R9-3-1010 adopted eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1011. Inspection report

A. Each vehicle inspected at a State station shall be provided an inspection report of a design approved by the Director and shall provide for the following information:

1. License plate number
2. Vehicle identification number
3. Model year of vehicle
4. Make of vehicle
5. Style of vehicle
6. Type of fuel
7. Mileage
8. Emissions standards
9. Emissions measurements
10. Recommended repairs

11. Final test results
12. Repairs performed
13. Cost of repairs
14. Registration number of emissions analyzer used in making the repairs
15. Name and address of the business firm or person making repairs
16. Signature of person certifying repairs
17. Date of inspection
18. Serial number of report
19. Inspection number by station and lane.

B. Each vehicle failing the initial inspection shall receive an inspection report supplement supplied by the Bureau containing the following:

1. Diagnostic information
2. Applicable maximum repair costs
3. Instructions for waiver application for correction of air-gas mixture failures.

C. The inspection report will provide a tear-out section to be used as a certificate of compliance for vehicles that pass the inspection or as a certificate of waiver when applicable. The tear-out section is a certificate of compliance when the words "compliance" or "pass" appear in the appropriate location on the printout. The tear-out section is a certificate of waiver when the words "test," "waiver," or "fail," as applicable, appear in the appropriate location on the printout. The tear-out section shall contain the following information:

1. License plate number
2. Vehicle identification number
3. Final results
4. Serial number of the inspection report
5. Date of inspection
6. Model year
7. Make.

D. The certificate of compliance or certificate of waiver shall be submitted to the county assessor with the application for Arizona certificate of title and registration (DOT 48-0510) or an Arizona Registration Card (DOT 48-5113) at the time of registration or reregistration as evidence of meeting the requirement of this Article.

E. Certificates of compliance and certificates of waiver will not be replaced if lost.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Former Section R9-3-1011 repealed, new Section R9-3-1011 adopted eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1012. Inspection procedure and fee

A. Each vehicle that is inspected by a State station must be accompanied by a document such as registration, Certificate of Title, or bill of sale which identifies the vehicle by make, model year, identification number and license plate if applicable.

B. The fee for an emissions inspection at a State station is $5.00 payable in cash at the time of inspection to the contractor unless the vehicle qualifies for an inspection without charge as specified in Section R9-3-1013 or when the fee has been prepaid to the contractor.

C. All inspection fees collected by the contractor shall be forwarded to the Director for each billing period with the invoice for the billing period.

D. State station emissions inspectors shall not recommend repairs or repair facilities.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Former Section R9-3-1012 repealed, new Section R9-3-1012 adopted eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1013. Reinspections

A. Each vehicle which fails its initial inspection is entitled to the first reinspection at no additional charge under the following conditions:

1. Within sixty consecutive calendar days of the initial inspection but not thereafter.
2. Emission related repairs or adjustments have been made.
3. The vehicle is accompanied by the entire inspection report with the following information filled in on the reverse side:
   a. Repairs made
   b. Cost of repairs
   c. Name of activity or person making repairs
   d. Signature of person certifying repairs.

B. A vehicle that fails the reinspection at no additional charge and does not qualify for a waiver under R9-3-1008 shall be provided an inspection report and an inspection report supplement.

C. A vehicle not qualifying for a waiver at the time of reinspection may qualify for a waiver on subsequent reinspection provided the conditions of Paragraph R9-3-1008.B. are met.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Former Section R9-3-1013 repealed, new Section R9-3-1013 adopted eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1014. Waiver surveillance

When a vehicle fails reinspection and it is determined that the repairs required by Section R9-3-1010 have not been accomplished as certified on the initial vehicle inspection report, the certificate of waiver may be withheld as follows:

1. By contractor station management when there is personal knowledge that the required repairs have not been performed or the vehicle operator states that the required repairs have not been performed and there is no intent to perform the repairs prior to retest.

2. By a State inspector when there is less than a 40 percent improvement in emissions and evidence of required repairs is not provided by receipts of purchase or the State inspector determines by an underhood inspection that the required repairs were not performed.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Repealed eff. Jan. 3, 1977 (Supp. 77-1). Adopted eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1015. Reserved

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Repealed eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1016. Licensing of inspectors

A. No person will be licensed as a vehicular emissions inspector unless he has demonstrated his competence to the Bureau by such examination, training, or other standards as the Director may approve.

B. Applications will be obtained from, and approved by, the Bureau.

C. All completed applications will be returned to the Bureau.

D. Any vehicular emissions inspector inspecting a diesel-powered vehicle as prescribed herein must have successfully completed an approved training course for visually reading opacity with the unaided eye within the last six months or must use an opacity meter as prescribed in R9-3-1006.

E. Licenses issued to vehicular emissions inspectors shall be renewed annually on or before the expiration date.

F. Applications for renewal of vehicular emissions fleet inspector's licenses shall be submitted thirty days prior to the current license expiration date.

G. The Department may suspend, revoke, or refuse to renew the license if an applicant has violated any provision of this Article.

H. A vehicular emissions inspector shall inform the Department of any change in his employment status within seven days of such change.

I. Each vehicular emissions inspector shall be assigned a single, unique, non-transferable inspector's number. No vehicular emissions inspector shall be assigned more than one inspector's number during his lifetime.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2).

R9-3-1017. Inspection of governmental vehicles

A. Inspection of governmental vehicles operated in Pima and Maricopa Counties shall be conducted in any of the following manners:

1. As cooperatively scheduled by the Bureau at the Bureau station
2. At a fleet station operated by the governmental entity or
3. At a State station upon payment of the fee.

B. All governmental vehicles except Federally owned vehicles which are excluded from the definition of motor vehicles pursuant to Section 85.1703, Title 40, Code of Federal Regulations shall be inspected in accordance with this Article and shall have an inspection sticker affixed to the vehicle when found to be in conformance with State inspection requirements.

1. All inspection stickers shall be validated by a vehicular emissions inspector prior to installation upon the vehicle. Validation shall be by punching out the current month and year following inspection. This will designate when the vehicle is due for its next annual inspection.

2. All motorcycles with a frame fork head shall have the sticker affixed to the vehicle's frame fork head.

3. All other vehicles when practicable shall have the inspection sticker affixed to the lower left hand exterior corner of the motor vehicle rear window. The left hand corner shall be determined from a position facing the window from outside the vehicle.

4. When it is impracticable to affix the inspection sticker to the lower left hand corner of the rear window, the sticker shall be affixed to the lower left hand corner of the windshield if so equipped when viewed from the driver's position or to some other readily visible location. On Federally owned military vehicles where it is inappropriate to attach the inspection sticker, the inspection sticker may be entered in the vehicle log book.

C. The inspection stickers shall be supplied by the Bureau at no charge to the governmental entity.

D. All inspection stickers shall be designed, issued, and administered, subject to conditions as the Director deems necessary to ensure compliance with these Rules and Regulations. The Bureau shall be the only source or supply for inspection stickers.

E. Governmental entity fleet stations shall inspect all their fleet vehicles in accordance with R9-3-1019 except that no certificate of inspection shall be used for governmental vehicles.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1018. Certificate of inspection

A. Certificates of inspection shall be used by a fleet station other than governmental entity fleet station as evidence that its vehicles have met requirements of this Article.

B. A certificate of inspection shall provide the following information:

1. VIN
2. Model year
3. License number
4. Purpose of inspection
5. Owner of vehicle
6. Date of expiration
7. Fleet station permit number
8. Inspector's signature and number.

C. Certificates of inspection, either complete or incomplete are not transferable.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2).

R9-3-1019. Fleet station procedures, and permits

A. All fleet vehicles for which a fleet station permit has been issued shall be inspected as specified in Section R9-3-1005 while the vehicles are part of the fleet.

B. The exhaust emission inspection conducted on non-diesel-powered vehicles by a fleet station may consist of the loaded mode test or the idle mode test. If the idle mode test is used by a fleet station, idle speed shall be adjusted to manufacturer's specifications if it deviates from the specified value by more than plus or minus 100 R.P.M.

C. Diesel-powered vehicles shall be inspected as prescribed in Subsections R9-3-1006.E. and F.

D. The following apply to permits for fleet stations:

1. Any registered owner or lessee of a fleet of twenty-five or more non-exempt vehicles whose place of business is located in Maricopa or Pima County may apply to the Director for a permit to establish a fleet station. The Director will not issue any fleet station permit until he has found that the applicant:

a. Maintains an established facility for the repair and maintenance of the applicant's fleet of vehicles which meets the following requirements:

i. The repair facility must be exclusively rented, leased, or owned by the fleet operator.

ii. If the facility is for the repair of gasoline-powered vehicles, the following equipment shall be owned or leased by the fleet operator or his employees and in good working condition.

(1) Ignition timing light with timing advance tester
(2) Ignition operated tachometer
(3) Dwell meter
(4) Socket tool for replacing spark-plugs
(5) Spark-plug gap setting tool
(6) Tools for replacing carburetors, distributors, fuel pumps, and ignition coils.

iii. If the facility is for the repair of diesel-powered vehicles, the following equipment shall be owned by or leased by the fleet operator or his employees and in good working condition.

(1) Tools for removing fuel pumps and injectors
(2) Fuel pressure gauge
(3) Tools required by the vehicle manufacturer for field setting of fuel injectors, inlet and exhaust valve clearance, governors, and throttle controls.

b. Employs a person to perform tune-ups of engine and replacement or repair of carburetion and ignition components or diesel fuel system of engines in the vehicle fleet.

c. Provides a suitable space devoted principally to maintaining or repairing the fleet's motor vehicles. Such space shall be of sufficient area to conduct maintenance or repair of at least one fleet motor vehicle.

d. Has obtained the CO and HC emissions analyzer conforming to the requirement of Subdivision R9-3-1006.A.2.a.vii. to conduct the required inspections or has entered into an agreement with the contractor to have the required inspection performed at a State station to provide the required inspections.

e. Employs a licensed vehicular emissions inspector who will perform the necessary inspections or has entered into a separate agreement with a State station to provide the inspections. This inspector may be the same person required by Subparagraph b.

f. Agrees to provide information to the Bureau as prescribed in this Section.

2. Vehicles previously registered and owned by a dealer may be considered part of the dealer's vehicle fleet. The dealer's business inventory that exists at the time of inspection of the dealer's fleet for approval of application by the Bureau shall be used to determine compliance with Paragraph D.1.

3. Application forms may be obtained from the Bureau.

4. All completed applications shall be submitted to the Bureau.

5. Before an original application for a fleet station permit is approved, an inspection of the premises will be made by a State inspector.

6. A fleet station shall not inspect or certify vehicles not owned or leased by the fleet owner unless under a contract with the contractor operating a State station.

7. A fleet station permit shall expire one year from date of issuance.

8. The fleet station permit may be renewed by submittal of a renewal application to the Bureau thirty days prior to expiration.

9. A fleet station permit shall only be applicable to the fleet's inspection facility located at the address shown on the fleet station permit. If a fleet owner wishes to have a permit for inspection facilities at more than one address, then separate permits must be obtained for each facility.

10. Fleet station permits issued by the Director are not transferable.

11. When permit name or address changes do not involve a change of ownership, the permit shall be returned to the Bureau for cancellation and a new permit application shall be submitted. The Director will cancel the returned permit and issue a new permit for the unexpired term.

12. In the event of loss, destruction, or mutilation of the permit, the person to whom it was issued may obtain a duplicate upon furnishing satisfactory proof of the fact. Any fleet that loses a fleet station permit issued by the Director, and after obtaining a duplicate finds the original, shall immediately surrender the original permit to the Bureau.

13. Persons whose permits have expired shall immediately cease the activity requiring a permit, but the Bureau shall accept applications for renewal during the thirty-day period following the date of expiration. In no case may a permit be renewed where application is received more than thirty days after the date of expiration; in such cases, an application for a new permit will be required.

14. A fleet station which does not have a vehicular emissions inspector in its employ or does not have a separate agreement with a State station to provide the inspections, shall immediately cease to operate as a fleet station.

15. When a fleet station permit is surrendered, suspended, or revoked, all unused vehicle certificates of inspection shall be returned to the Bureau for a refund.

16. Surrender of a permit shall not deprive the Department of jurisdiction from carrying out investigative or disciplinary proceedings against the permit holder for violations prior to surrender.

E. The Director may suspend, or revoke a fleet station permit in accordance with A.R.S. §§ 36-1776F and 41-1001 et seq. if the permittee or officer, employee or any partner thereof:

1. Violates any provision of this Article.

2. Has misrepresented a material fact in obtaining a permit.

3. Fails to make and keep records showing vehicles tested as a permittee, or fails to submit such records to the Bureau.

4. Fails to maintain conformance with all qualifying requirements of Subsection D.

5. Does not provide a State inspector access to the information required by this Article.

F. The fleet station permit and licenses of all inspectors employed at the station shall be prominently displayed within the station.

G. A written notification must be submitted to the Bureau by the fleet station operator within seven days of any change of the employment status of the fleet station's vehicular emissions inspector.

H. The inspection equipment shall be as follows:

1. Each fleet station shall be equipped with emission analyzers which meet the specifications contained in R9-3-1006. Only the equipment required to test the types of vehicles in the fleet inventory will be required in the fleet stations.

2. All test equipment and instrumentation shall be maintained in good condition. Instruments requiring periodic calibration shall be calibrated in accordance with instructions and recommendations of the instrument or equipment manufacturer except that recommendations by the Bureau for calibration or intervals between calibration may be a condition of the fleet station permit and shall supersede any and all other conflicting recommendations. A record of calibrations performed on each instrument shall be maintained by the fleet station indicating the date and authentication of the technician performing the previous calibration.

3. The instrument calibration records will be subject to review by the Bureau.

4. Working gases used by the fleet station shall be subject to analysis and comparison to the Bureau's standard gases at any time.

5. Fleet station equipment shall be subject to both scheduled and unscheduled checks for accuracy and condition by the Bureau.

I. Certificates of inspection shall be processed as follows:

1. A certificate of inspection shall be completed and issued for a vehicle after

the vehicle has passed the mandatory vehicular emissions inspection.

2. The expiration date shall be one year from the date that the vehicle has passed the mandatory vehicular emissions inspection.

3. All information required on the certificate of inspection shall be entered with sufficient pressure to ensure that all copies of the certificates are legible.

4. Any certificates of inspection that are incorrect shall have all corrections authenticated by the initials of the vehicular emissions inspector. Voided or unusable certificates shall be presented to the Bureau for replacement without charge.

5. Only the vehicular emissions inspector may sign a certificate of inspection.

6. The original completed certificate will be presented to the county assessor's office for processing of the vehicle's application for title and registration or Arizona registration card.

7. The second copy of each completed certificate of inspection shall be forwarded to the Bureau within three weeks after completion of certificate.

8. The county assessor shall accept the signed certificate as evidence that the vehicle is a fleet inspected vehicle and has met the State's inspection requirements if the certificate is complete and the expiration date has not passed.

9. Certificates may be obtained from the Bureau. Normally the number of certificates purchased shall be sufficient to meet the requirements of the fleet for one year. If the number of vehicles to be inspected by the fleet station is reduced after purchase of the certificates and before their use, the excess certificates may be returned to the Bureau for refund or used in subsequent years.

10. The charge for certificates is one dollar each. The payment for the certificates shall be included with the application for certificates. Checks are to be made payable to the Arizona Department of Health Services.

11. Only the Bureau shall sell or otherwise transfer certificates of inspection.

12. The fleet station operator shall be held responsible for the security and accountability of all his certificates.

13. In the event that any certificates are lost or stolen, the fleet station operator shall notify the Bureau in writing within twenty-four hours and indicate the number of certificates lost and their serial numbers. Refusal or failure to report lost certificates shall be grounds for revoking a fleet station permit.

J. The following data shall be compiled by the fleet station for each vehicle inspected and retained for one year from the date of inspection.

1. The VIN

2. The vehicle's license number where applicable

3. The HC content of the undiluted exhaust (for non-diesel-powered vehicles only)

4. The CO content of the undiluted exhaust (for non-diesel-powered vehicles only)

5. Maximum smoke opacity reading (for diesel-powered vehicles only)

6. The vehicle model year

7. The vehicle make

8. The date of inspection

9. The license number of the vehicular emissions inspector conducting the inspection

10. The third copy of the certificate of inspection issued to the vehicle.

K. Failure to maintain the inspection data specified above shall be reason for revocation of the fleet station permit.

L. Upon his request a State inspector shall be allowed access to any or all of the above inspection data.

M. Fleet vehicles may be subject to reinspection by State inspectors.

N. A waiver may be issued pursuant to Subsection R9-3-1008.B. by a fleet inspector.

1. A fleet inspection waiver report shall be forwarded to the Bureau within three working days from the date of issue. A fleet inspection waiver report will be provided with the purchase of each certificate of waiver.

2. Certificates of waiver may be obtained from the Bureau for one dollar each.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1020. State stations acting as fleet inspection stations

A. State stations may provide inspection services to a holder of a fleet station permit under a separate agreement between the contractor and the holder of a fleet station permit.

B. The State shall not collect or be billed for any inspection fees for any fleet station vehicle inspected under an agreement with the contractor.

C. When a State station is providing inspection services to the holder of a fleet station permit, that portion of the facility being used shall be considered to be operating only as a fleet station and shall be subject only to those requirements except that a fleet station permit is not required as long as the same emission analyzers and dynamometers (if required) are used as when operating as a State station.

D. Certificates of inspection must be purchased from the Bureau by the holder of the fleet station permit and provided to the State station. These certificates must then be used by the State station in accordance with the requirements for fleet stations.

E. The holder of the fleet station permit shall be responsible for maintaining a copy of all used certificates of inspection for a minimum period of one year after the vehicle inspection. These copies shall be available for inspection by the Bureau at all times.

F. Certificates of inspection shall be filled out at the time of inspection by State stations operating as fleet stations in the same manner required of fleet operated fleet stations.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1021. Inspections conducted by fleet inspection stations for State stations

A. The contractor may subcontract with the holder of a fleet station permit for the fleet station to perform mandatory vehicular emissions inspections for the State. Nothing in such a contract shall relieve the contractor from the provisions of its contract with the State.

B. Any fleet station performing the inspections for a State station shall be subject to all the Rules and Regulations applying to the State station.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1).

R9-3-1022. Procedure for waiving inspections due to technical difficulties

A. Any vehicular emissions inspector employed by an official emissions inspection station may issue a Director's certificate for any vehicle that cannot be subjected to the inspection required by this Article because of technical difficulties inherent in the manufacturer's design or construction of the vehicle. A copy of the completed Director's certificate shall be forwarded to the Bureau.

B. The form for the Director's certificate will be supplied by the Bureau.

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Amended eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1023. Certificate of exemption

A. When a vehicle being registered or reregistered in Maricopa or Pima County will not be available for inspection within the State during the ninety-day period prior to the registration or reregistration expiration date, the owner or his agent may apply in writing to the Bureau for a certificate of exemption.

B. The owner or his agent shall complete the affidavit portion of the certificate of exemption form, and submit it to the county assessor as evidence of meeting the requirements of this Article.

Historical Note

[illegible]

R9-3-1024. Reserved

Historical Note

Adopted eff. Jan. 13, 1976 (Supp. 76-1). Repealed eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1025. Inspection of State stations

A. The automatic emission analyzers used by State stations shall be inspected for accuracy by the Bureau at least twice within each 30-day period using field calibration gases named by the Bureau. Manual analyzers shall be inspected at least once every ninety days.

B. A State inspector shall deliver the field calibration gases to a designated employee of the State station. The employee shall then introduce the gases into the State station emissions analyzers and the output readings of the analyzers shall be witnessed and recorded by the State inspector. A copy of the results shall be given to the designated State station employee at the completion of the inspection. The field calibration gases shall be introduced thru the analyzer's calibration port or the sampling probe at the State inspector's prerogative.

C. If the field calibration gases indicate that a State station analyzer is not operating within tolerances prescribed in this Article, the State inspector or the State station designated employee may request that the State station's calibration gases be immediately introduced into the subject analyzer and the results recorded.

D. A State inspector shall not retire a State stations emission analyzer until approved by the Bureau Chief or his designated representative.

E. The State inspector shall report all State station analyzer discrepancies to the Bureau immediately. The Bureau may take any of the following actions:

1. Retirement of the analyzer from service until proper repairs are made
2. An immediate calibration of the discrepant analyzer using the State station working gases
3. A check of the field calibration gases by the Bureau
4. A check of the State stations working gases by the Bureau
5. Require calibration with field working gases.

F. If the Bureau Chief, or his designated representative determines that a State station analyzer should be retired from service until repaired, he shall direct the contractor to retire the subject analyzer immediately and the contractor shall provide the Bureau the inspection number of the last vehicle inspected prior to retiring the analyzer. All oral directives by the Bureau Chief shall be confirmed in writing promptly.

G. Any State station analyzer retired by the Bureau Chief or his designated representative may be returned to service upon its repair and calibration. The Bureau shall be notified immediately upon its return to service, and the contractor's calibration results of the subject analyzer shall be supplied to the Bureau.

H. All State station automatic analyzers shall be calibrated at least once each week and the calibration records shall be submitted to the Bureau on a monthly basis. The following information shall be included in the records as a minimum:

1. Lane and station location of the analyzer
2. Concentration of calibration gases used
3. Reading obtained with each calibration gas before adjustments are made
4. Date of calibration check
5. Signature of technician performing the calibration check.

I. The Bureau shall verify that the State station's dynamometers meet the speed and loading tolerances as prescribed in this Article at least once within each three months. The dynamometers will also be inspected in a manner not requiring removal of any of its parts or its associated equipment other than inspection panels.

Historical Note

Adopted eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2).

R9-3-1026. Inspection of fleet stations

A. State inspectors will check the calibration of emission analyzers used by the fleet stations for the inspection with the field calibration gases at least once within each three months.

B. A fleet station emissions analyzers shall not be used for an official emissions inspection if it does not read the State's field calibration gases within the tolerances prescribed by this Section, if there is a leak in the sampling systems or the calibration port, or if the sample handling system is restricted.

C. The fleet station shall be responsible for calibration of the fleet station emission analyzer.

D. A State inspector may, at his discretion, allow an employee of the fleet station, or someone other than a State inspector and authorized by the fleet station, to calibrate the analyzer utilizing the State's field calibration gases.

E. Any repairman for a fleet station emission analyzer may purchase his own calibration gases from any private source and submit them to the Bureau to have their HC and CO concentrations assigned by the Bureau.

F. A State inspector shall tag a fleet station emission analyzer upon his determining that the analyzer does not meet the requirements of this Section. Such analyzer shall not be used for inspection until the tag is removed by a State inspector. This analyzer failure tag shall be affixed to the analyzer in such a manner that the tag cannot be removed without breaking a seal or mutilating the tag. The tag shall contain the following information as a minimum:

1. A brief statement that the analyzer does not meet State operating requirements for official emissions inspection purposes.
2. The values of the State field calibration gases used and the analyzer readings obtained.

3. The date of the State's inspection.
4. The signature of the State inspector tagging the analyzer.
5. The reason for tagging.

G. An analyzer tagged in accordance with Subsection F. of this Section shall not be returned to service until its accuracy is verified by a State inspector.

H. All fleet stations are responsible for periodic maintenance and calibrations of their emissions analyzers. Repair and maintenance requirements are prescribed in R9-3-1019.

I. A fleet station may lease or borrow an emission analyzer for temporary use while the station's approved analyzer is being repaired provided that a State inspector has approved its use.

J. All fleet station emission analyzers used for the inspections are required to read the field calibration gases within the following tolerances:

1. Within plus 0.50% CO to minus 0.25% CO in the range from 0 to 2% CO
2. Within plus 1.00% CO to minus 0.50% CO in the range from 2% to 10% CO
3. Within plus 60 PPM HC to minus 30 PPM HC in the range from 0 to 500 PPM HC when read as N-HEXANE
4. Within plus 200 PPM HC to minus 100 PPM HC in the range from 500 to 2000 PPM HC when read as N-HEXANE.

Historical Note

Adopted eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1027. Registration of repair industry analyzers

A. Any equipment repair facility or individual who calibrates NDIR HC or CO exhaust emission analyzers may purchase calibration gases from a supplier of his choice, and submit these gases to the Bureau to have their HC and CO concentrations assigned.

B. An automotive repair facility may apply to the Bureau at no charge for registration of NDIR HC and CO analyzers that are used in the repair or adjustment of vehicles pursuant to Sections R9-3-1008 and R9-3-1010.

C. Calibration must be verified by a State inspector before an analyzer may be registered. To qualify for registration the analyzer must have an integral sampling system and read the value of the field calibration gases within the following tolerances:

1. Plus 0.50% CO to minus 0.25% CO in the range from 0 to 2% CO.
2. Plus 1.00% CO to minus 0.50% CO in the range from 2% to 10% CO.
3. Plus 60 PPM HC to minus 30 PPM HC in the range from 0 to 500 PPM HC when read as N-HEXANE.
4. Plus 200 PPM HC to minus 100 PPM HC in the range from 500 to 2000 PPM HC when read as N-HEXANE.

D. Each registered analyzer used by a repair facility shall have a unique registration number assigned by the Bureau. A file will be kept by the Bureau on each analyzer which contains the following information:

1. The manufacturer's serial number
2. The manufacturer's make and model
3. The name and address of the repair facility using the analyzer
4. The date of the analyzer's last inspection by the Bureau and whether it complied with State tolerances.

E. A State inspector shall tag a registered analyzer upon determining that the analyzer does not meet the requirements of this Section. Such analyzer shall not be used for program purposes until the tag is removed by a State inspector.

F. The tag will be removed by a State inspector after the analyzer accuracy is verified.

Historical Note

Adopted eff. Jan. 3, 1977 (Supp. 77-1). Amended eff. Mar. 2, 1978 (Supp. 78-2). Amended eff. Jan. 3, 1979 (Supp. 79-1).

R9-3-1028. Reserved

R9-3-1029. Vehicle emission control devices

For the purpose of A.R.S. § 36-1717, each registered motor vehicle shall have in operating status and condition all emission control devices which were installed by the vehicle manufacturer to comply with Federal requirements for motor vehicle emissions or equivalent replacement parts or devices.

Historical Note

Adopted eff. Jan. 3, 1977 (Supp. 77-1).

R9-3-1030. Visible emissions; diesel-powered locomotives

No person shall cause, suffer, allow or permit discharge into the atmosphere from any diesel-powered locomotive any visible air contaminant for a period greater than 40 consecutive seconds which is of an opacity greater than 40%, except under the following conditions:

1. For a period of four consecutive minutes or less when a locomotive engine is under load after a period of idle.
2. For a period of 40 consecutive minutes or less when starting a cold engine.
3. For periods of three consecutive minutes or less and an aggregate of not more than ten minutes in any one hour, when a locomotive engine is being tested, adjusted or broken in after being rebuilt or repaired.
4. At altitudes exceeding 5,000 feet 50% opacity shall apply.

Historical Note

Adopted eff. Jan. 3, 1977 (Supp. 77-1).

APPENDIX B

CALIFORNIA

CLEANING UP OUR AIR... (Pamphlet)

STATE OF CALIFORNIA VEHICLE INSPECTION PROGRAM HANDBOOK

QUALIFIED MECHANICS HANDBOOK

MECHANICS PROGRAM INFORMATION GUIDE

MVIP PROGRAM FIELD OPERATIONAL PROCEDURES

FLEET STATION HANDBOOK

Cleaning Up Our Air. . .
The California
Vehicle Inspection Program

The California Vehicle Inspection Program is making an important contribution toward cleaning up a serious air pollution problem in Southern California. New cars sold in the state are cleaner than anywhere else in the nation. Making sure they continue to run cleanly is an economical way to control air pollution.

In the South Coast Air Basin when vehicles change ownership or are registered in the state for the first time, they must be inspected at one of 17 computerized inspection centers. This high-technology inspection system separates inspections from repairs, offering an independent, objective report on vehicle performance.

IF YOUR VEHICLE REQUIRES INSPECTION: Take it to one of the 17 inspection centers (inspection hours and local area maps are inside this brochure). Please bring your registration or title "pink slip". The $11 inspection fee is collected at the inspection center, payable by cash or check.

IF IT PASSES: you will receive a Certificate of Compliance and an inspection report showing your test readings. The certificate allows you to complete the registration process at the Department of Motor Vehicles.

IF IT FAILS: you must have repairs made and return for reinspection (details on repair requirements and cost limits are inside this brochure). The retest fee is $7. Once repair requirements have been met, you may complete the registration process.

1/80

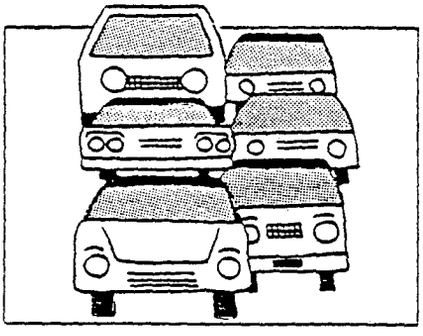
Cleaner Air ...

Many areas of Southern California suffer from serious smog problems. Pollution from our cars is an important part of that problem. That is why California has air pollution control standards that make new cars sold here cleaner than those sold in any other part of the country.

. . . Requires Cleaner Cars

But cars soon begin to pollute if they are not maintained properly. Even new cars with catalytic converters and advanced design anti-smog sytems can become high polluters if certain parts fail or if the car is not properly maintained. Often, these high polluters are undetected because they may not drive any differently and the pollutants emitted from the tailpipe are invisible. The problems not only cause high smog levels but they can rob you of gas mileage too. That is why the State of California requires vehicle smog inspections: to identify the worst polluting vehicles when they are sold as used cars. We help clean up our air by cleaning up our engines.

What Cars Are Tested?



Used cars and light duty trucks weighing up to 8,500 pounds (gross vehicle weight) must be inspected at the new test centers if:

- they are sold to residents of the South Coast Air Basin (parts of Los Angeles, Riverside, San Bernardino, and Santa Barbara counties, and all of Orange and Ventura Counties).
- OR if the car is being registered in California from another state for the first time.

These vehicles cannot be registered until they have been inspected. Either the buyer or the seller may have the inspection performed. The seller—not the buyer—is responsible for any necessary repairs.

Some vehicles do not have to be tested.

- Motorcycles
- Heavy duty vehicles weighing more than 8,500 pounds g.v.w., (these still go to licensed private garages for inspection)
- Vehicles sold to a spouse, child or grandparent
- 1954 model year or older vehicles.
- Diesel powered vehicles

The Test Fee. . .

Inspection fees are collected **at the test center.** The fee for the first inspection is $11. Reinspection is $7. Fees may be paid by cash or by check made payable to CALVIP.

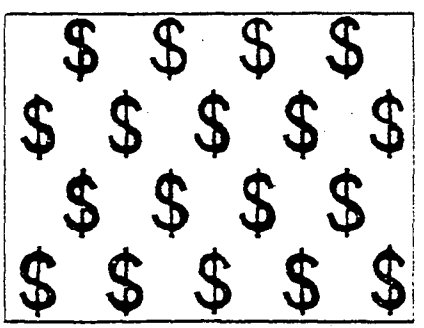
The Test. . .

The six minute test has three steps. FIRST—Appropriate information about the car is entered in a computer. The computer uses this information to select the appropriate emissions standards. SECOND—Emission control systems are checked and a probe in the exhaust tests for smog-forming hydrocarbons and carbon monoxide. THIRD—If the vehicle passes the test, the car owner will receive an inspection report and a Certificate of Compliance which is needed to register the car with the California Department of Motor Vehicles.

If A Vehicle Fails. . .

Your vehicle inspection report tells why your car failed. Unless emissions control devices have been tampered with or removed, most failures can be fixed by a simple tune up. Repairs can be done by the vehicle owner, anyone who does not receive payment for the work, or a state-qualified licensed mechanic. **However,** if the repairs are not performed by a state-qualified, licensed mechanic in a "Blue Shield" Motor Vehicle Pollution Control facility, you **are not** eligible for the waiver from high repair costs described below. Regardless of who does the repairs, you must return to one of the 17 test centers with your test report to have your car reinspected.

Money Savers

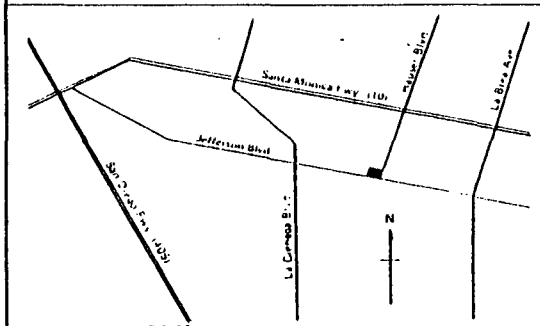


This program has many important cost protections for consumers. If repairs are performed by an approved "Blue Shield" Motor Vehicle Pollution Control facility, you are not required to spend more than $50 for repairs. This limit does not apply if emission control devices have been illegally tampered with or removed. The cost of repairing some parts also may be covered by your automobile manufacturer's warranty. Information on repair requirements and cost limits is available at the test center.

THANK YOU FOR HELPING
CLEAR THE AIR

TEST CENTER HOURS:

Monday: 8 a.m. — 7 p.m.
Tuesday—Friday: 8:00 a.m. — 4:30 p.m.

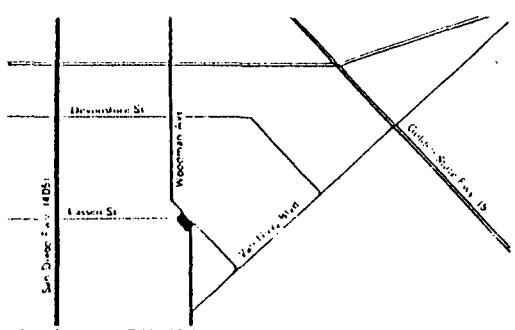


WEST LOS ANGELES

5461 W. Jefferson Blvd
Ph.: (213) 930 0245

From the Santa Monica Fwy. (10) exit La Cienega Blvd. South. Proceed to Jefferson Blvd. Turn left (east) on Jefferson. Proceed 7 blocks east on Jefferson to the corner of Jefferson and Hauser Blvd.

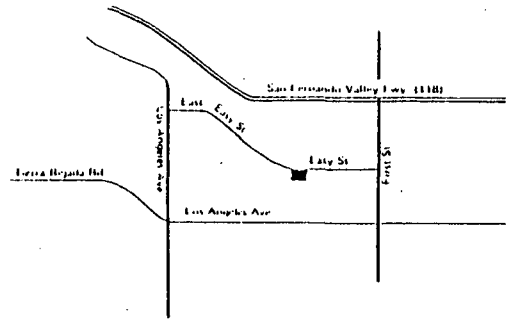
HOURS:
Mon.: 7 a.m.—7 p.m.
Tues.:—Fri.: 7 a.m.—5 p.m.



SAN FERNANDO VALLEY

10944 Woodman Ave
Ph.: (213) 891 1426

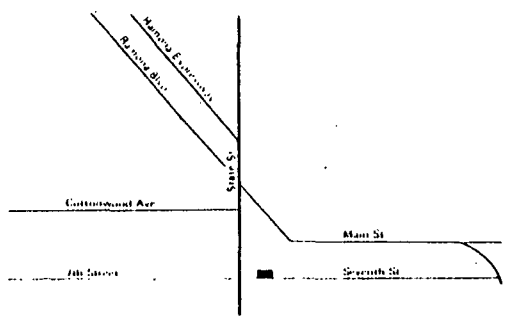
From the 405 Fwy. exit Devonshire St. East. Turn right on Woodman Ave. Proceed 3 blocks south to intersection of Woodman and Lassen.
From the Golden State Fwy. (5) exit Van Nuys Blvd. South. Proceed approx. 8 blocks to Woodman Ave. Right turn on Woodman. Proceed 3 blocks to Woodman and Lassen.



SIMI VALLEY

350 Easy St
Ph.: (805) 526 1322

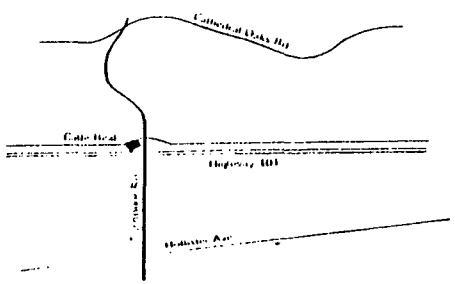
From the San Fernando Valley Fwy. (118) exit First St. South. Proceed 3 blocks south to Easy St. Turn right. The Simi inspection center is approx. 3 blocks west on Easy St.
From the Thousand Oaks area take the Moorpark Fwy. (23) to Tierra Rejada Rd. Proceed to Los Angeles Ave. Turn left on Los Angeles to East Easy St. Turn right.



SAN JACINTO

State St. near Seventh St
Ph.: (714) 654 0211

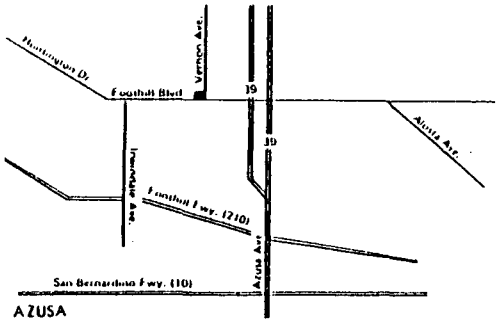
The mobile test facility for the Desert San Jacinto area is parked in San Jacinto on State St. near Seventh St.



GOLETA

4865 Calle Real
Ph.: (805) 967 0706

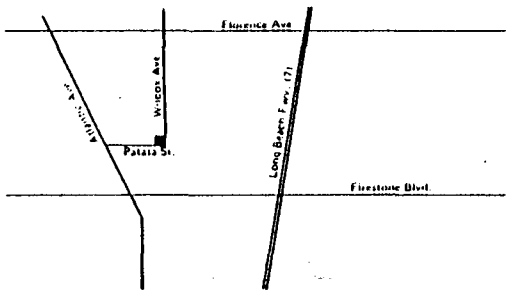
From Highway 101 exit north on Hollister Rd. The test center is located just west of the intersection of Calle Real and Hollister.



AZUSA

805 W. Foothill Blvd.
Ph.: (213) 334 3556

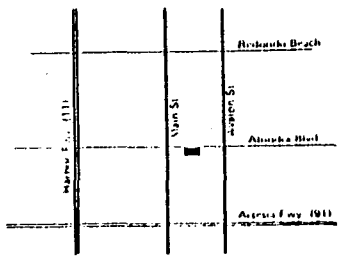
From the Foothill Fwy. (210) take Azusa (39) North. Exit Foothill Blvd. West. The Azusa test center is approx. 6 blocks west of the intersection of Azusa (39) and Foothill Blvd.
Alternate: From the Foothill Fwy. (210) take Irwindale North. Turn right on Foothill. The test center is on the corner of Foothill and Vernon Ave.



CUDAHY

4959 Patata St
Ph.: (213) 562 0572

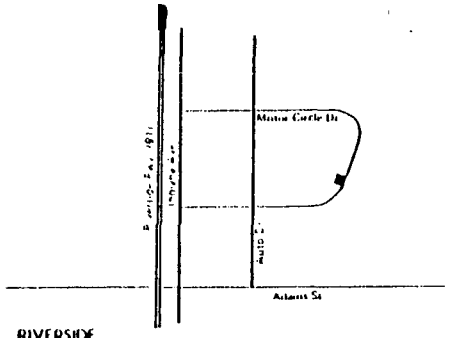
From the Long Beach Fwy. (7) exit Firestone Blvd. West. Turn right on Atlantic. Patata St. is approx. 3 blocks south. Turn right on Patata St.



CARSON

230 E. Alameda Blvd.
Ph.: (213) 538 3465

From Harbor Fwy. exit Alameda Blvd. Proceed east on Alameda Blvd. approx. ½ mile to test center. From 91 west bound exit Avalon. Continue north to Alameda Blvd. Turn left on Alameda. One half block to test center.

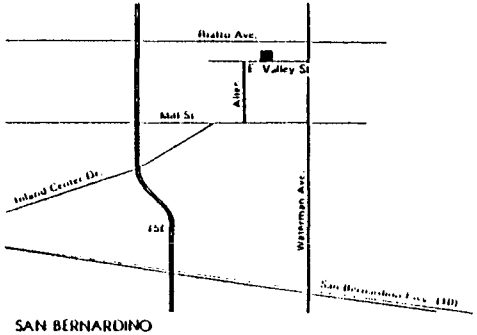


RIVERSIDE

3195 Motor Circle Drive
Ph (714) 688 7958

From the Riverside Fwy (91) exit Atlanta St East. Proceed 7 blocks to Auto Dr. Turn left on Auto Dr. Take the first right onto Motor Circle Dr.

N

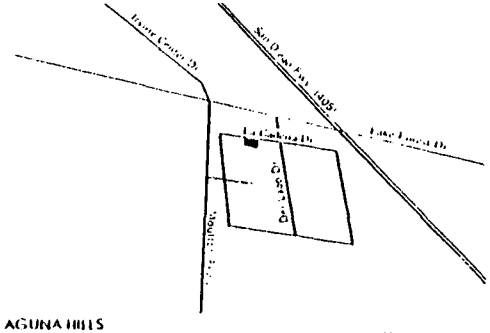


SAN BERNARDINO

2221 Valley St
Ph (714) 884 3619

From 215 exit Mill St. Proceed on Mill to Waterman. Turn left on Waterman. East Valley St is 1 block north of Mill St. Turn left on East Valley St.
From the San Bernardino Fwy (10) exit Waterman North. Turn left on Valley St.

N

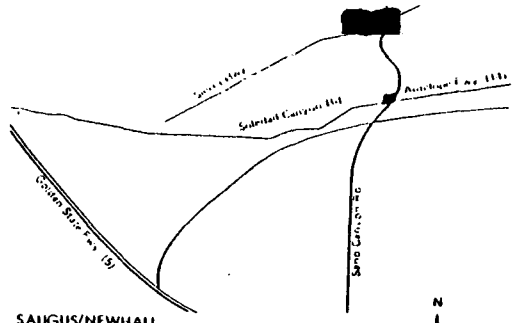


LAGUNA HILLS

[illegible]

From the San Diego Fwy (405) exit Lake Forest Drive West. Proceed one block to Del Lago Dr. Turn left. La Cadena is the first right opposite the Irvine Center.

N

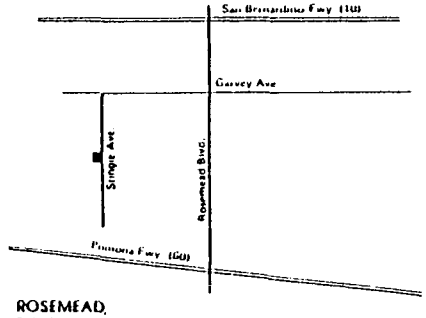


SAUGUS/NEWHALL

Ph (805) 251 1596

From the Antelope Valley Fwy. (14) exit Sand Canyon Rd. and proceed north to Soledad Canyon Rd. The facility is at the corner of Sand Canyon Road and Soledad Canyon Road.

N

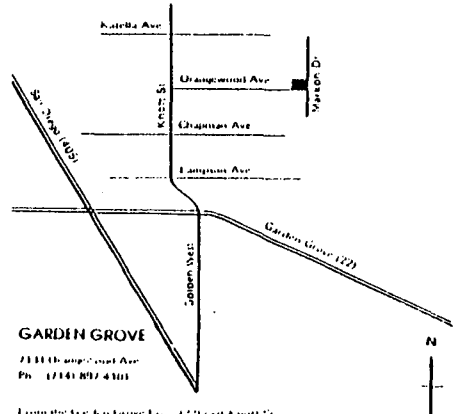


ROSEMEAD

7640 Single Ave
Ph (213) 573 4476

From the San Bernardino Fwy. (10) exit Rosemead Blvd. South. Proceed south to Garvey Ave. Turn right (west) on Garvey. Proceed 3 blocks to Single. Turn left.
From the Pomona Fwy. (60) exit Rosemead Blvd. North. Proceed north to Garvey Ave. Turn left (west) on Garvey. Proceed 3 blocks to Single. Turn left.

N

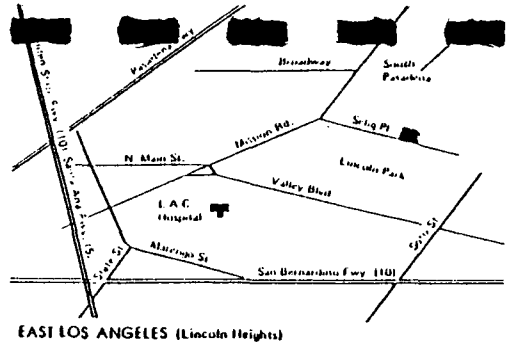


GARDEN GROVE

7111 Orangewood Ave
Ph (714) 897 4301

From the San Bernardino Fwy. (22) exit Kraft St. north bound. Proceed to Orangewood Ave. Turn right on Orangewood. Proceed one block. Turn left at the corner of Malvern and Orangewood.
From the San Diego Fwy. (405) proceed north on Golden West (Kraft St. north of Garden Grove)

N

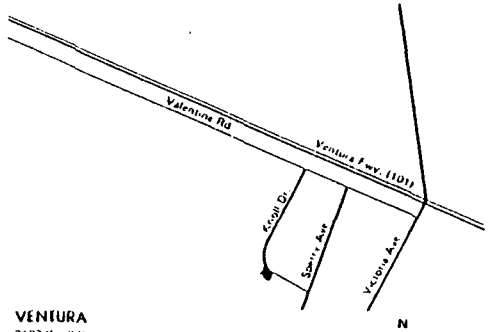


EAST LOS ANGELES (Lincoln Heights)

3847 Selig Place
Ph: (213) 223 0225

From the Santa Ana/Golden State Fwy. south bound (5) exit Mission North. Proceed approx. 7 blocks to Selig (north side of Lincoln Park). Turn right on Selig.
From the Golden State/Santa Ana Fwy. north, exit Main St. Proceed east on Main St. to Mission. Turn right on Selig.

N

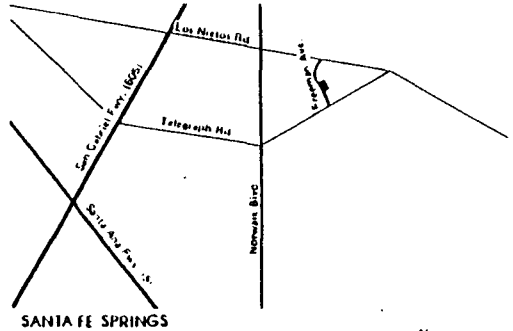


VENTURA

2187 Knoll Drive
Ph (805) 642 5531

From the Ventura Fwy (101) exit Victoria Avenue South. Turn right on Valentine Road (north west). Left turn on Sperry Ave. Turn right on Knoll.

N



SANTA FE SPRINGS

10144 Freeman Ave
Ph (213) 944 0633

From San Gabriel Fwy (605) exit Telegraph Rd East. Freeman Ave. is 6 blocks east of the intersection of Telegraph Rd. and Norwalk Blvd. Turn left on Freeman.

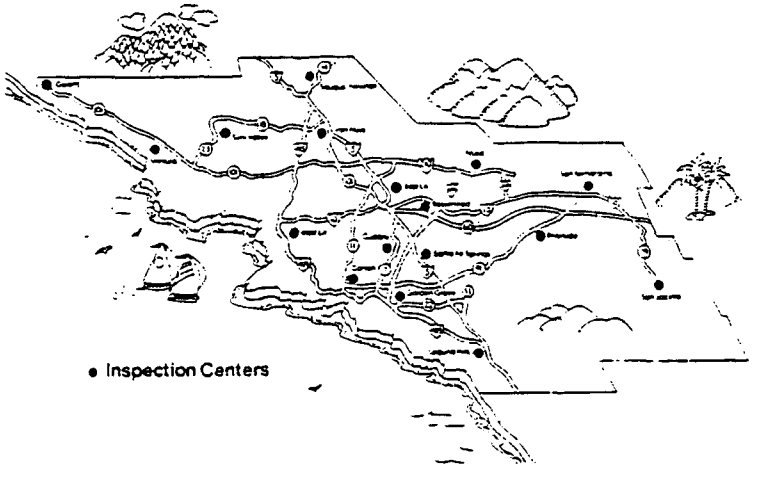
N

Before You Take The Test ...

TUNE UP To save time and expense, make sure that your car has been tuned to **manufacturers specifications** and that its original pollution control equipment is operating properly. **CALL UP** Telephone the nearest station to find out the approximate waiting time, if any. Monday is often the busiest day of the week. Waiting lines are usually shorter between 8 a.m. and 10 a.m. **REMEMBER** Remember to bring your current registration or title to the car and cash or a check to pay the $11 inspection fee.

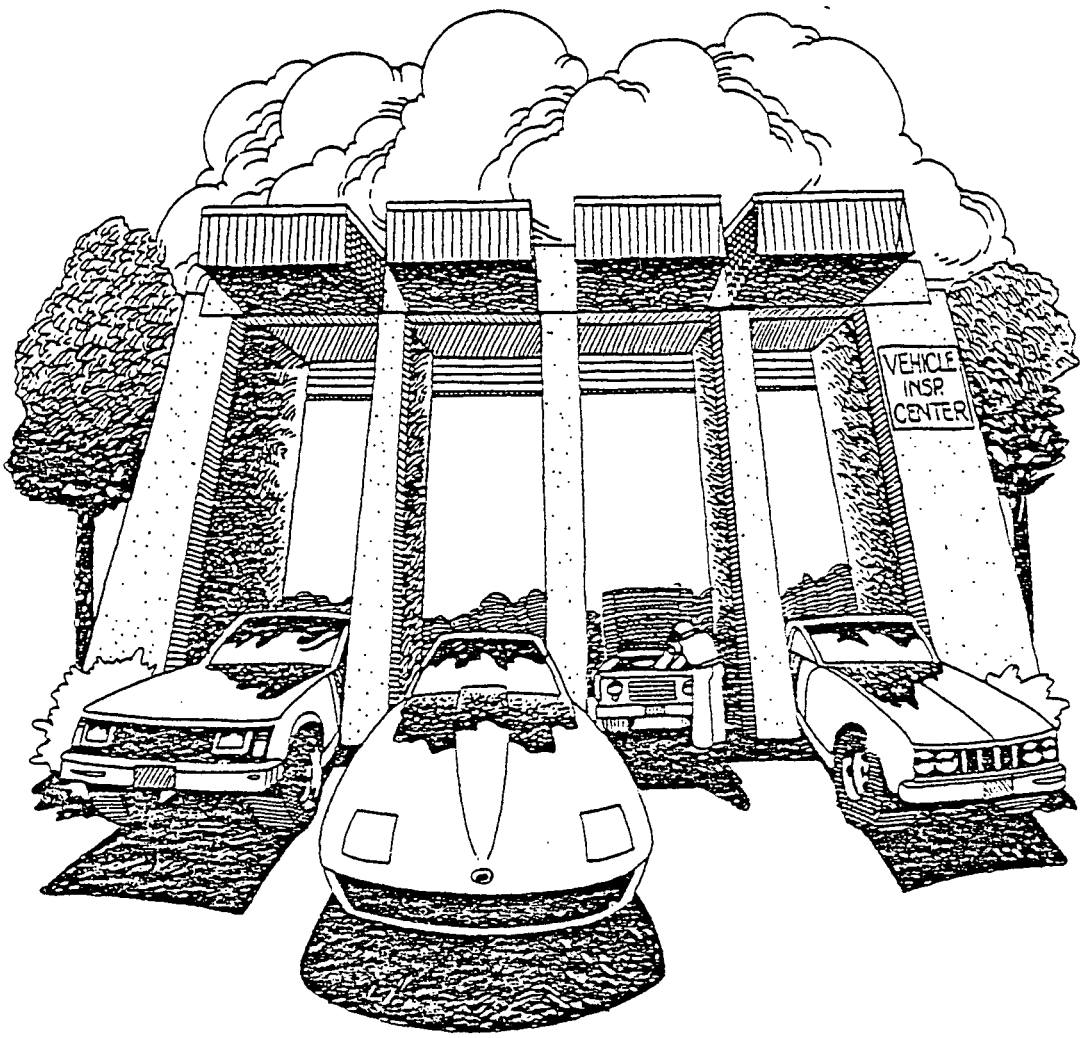
See inside of folder for detailed location maps and telephone numbers for each test center. For general information call toll free 800-432-7377. If you are unable to find a repair facility or if you need technical repair information call the Bureau of Automotive Repair at (213) 575-5005.

California's South Coast Air Basin



State of California

Vehicle Inspection Program Handbook



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WHO needs to have a car inspected? 1-2

WHY is this emissions inspection program needed? . . . 2-3

HOW is a car inspected? 4-5

WHAT if your car fails the test? 6-7

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WHERE can repairs be made? 10

STATION LOCATIONS 11-13

OTHER QUESTIONS? . . . . . Call toll-free information hotline: (800) 432-7377

WHO NEEDS TO HAVE A CAR INSPECTED?

Most used cars and light and medium duty trucks being sold to residents of California or brought into the state from elsewhere must be inspected for smog emissions before the Department of Motor Vehicles will register them.

For residents of Ventura, Orange, and those portions of Riverside, Los Angeles, San Bernardino and Santa Barbara counties shown on pages 8-9, the inspections are handled by 17 new computerized inspection centers under the supervision of the State of California.

This handbook will explain the new computerized inspection center program.

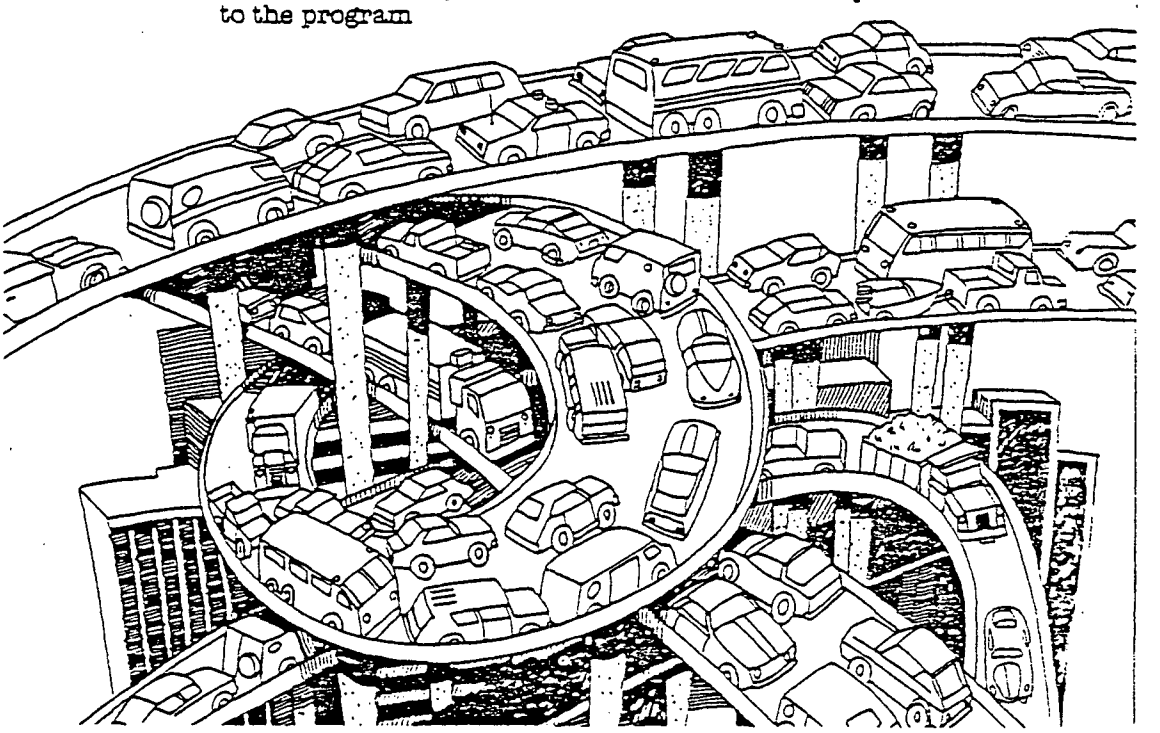
The inspection centers offer extra consumer protection because test results are determined by an independent facility that is not engaged in both diagnosing needed repairs and performing the repairs.

It is the **seller's** responsibility to make any needed repairs. However, either the seller or the buyer may take the vehicle to an inspection center.

NOTE: *Any used car purchased from a dealer must also be inspected, but it is the dealer's responsibility to have the inspection done before the car is sold.*

EXEMPTIONS:

- Motorcycles are **not** subject to the program.
- Heavy duty vehicles (larger than ¾ ton pickup trucks) are **not** subject to the program.
- Vehicles sold to a spouse, child, parent, or grandchild are **not** subject to the program.
- Vehicles of model year 1954 and before are **not** subject to the program

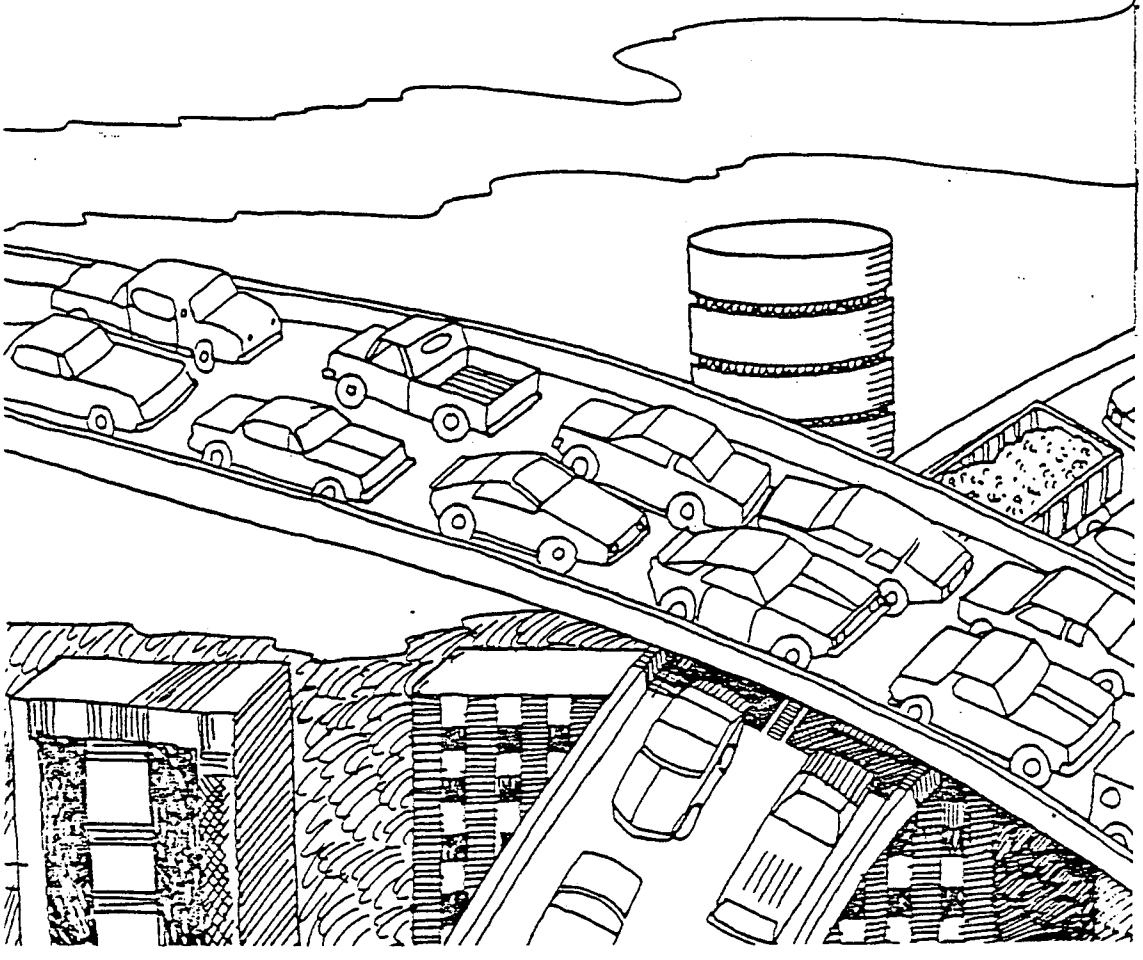


WHY IS THIS EMISSIONS INSPECTION PROGRAM NEEDED?

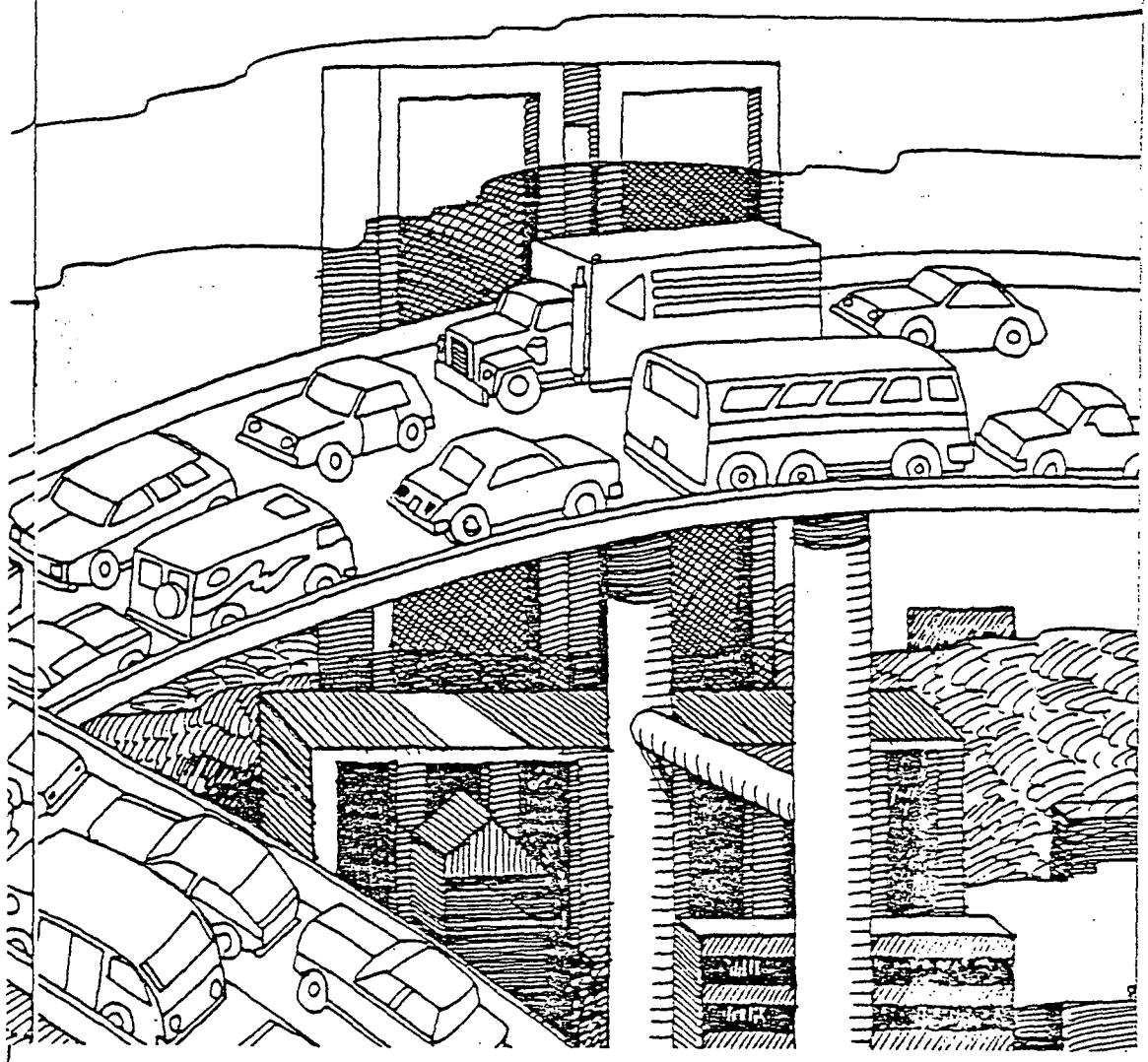
The answer, in a word, is "smog." The control of motor vehicle pollution is critical in the effort to restore healthful levels of air quality to California.

New cars sold in California are cleaner than those sold anywhere else in the country. However, as cars age, things can go wrong. Even late model cars with catalytic converters can become high polluters if not properly maintained, or if certain parts fail. Usually, the driver cannot detect any problems since most pollutants are invisible, and the car's performance may not be affected.

All cars, even older cars which are not factory equipped with emission controls, can produce more than three times more pollution than they should when parts such as carburetors, spark plugs or wiring need repair or adjustment. These problems can also reduce fuel economy.



Tests have shown that about one third of all vehicles have such part failures or maintenance problems. These vehicles can be identified by an emissions test at one of the State's new inspection centers, and the center provides instructions on how to get the problems corrected. A reinspection at the inspection center determines whether repairs were made properly.



HOW IS A CAR INSPECTED?

Vehicles subject to the program must be inspected **before** you complete your registration at the Department of Motor Vehicles (DMV).

The drawing below shows what happens at a Vehicle Inspection Center. You will be asked to stay in the vehicle as the inspector takes it through the three stops inside the Inspection Center.

DO'S

- **Do** call the Inspection Center nearest you before you come. The phone number of each center is listed on pages 11-13. A recording will give you the hours of operation and the approximate waiting time, if any.

- **Do** have your car serviced **before** you have it inspected if it is overdue for a tune-up. Cars that are tuned to manufacturer's specifications and have all original pollution control equipment operating properly will usually pass the test with ease.

- **Do** bring your registration or title ("pink slip").

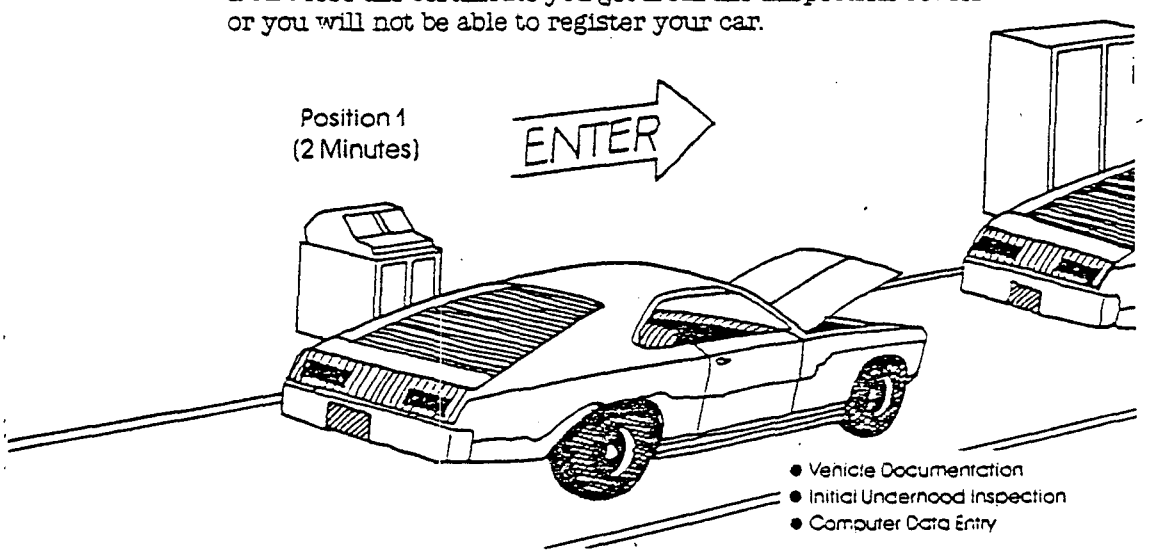
- **Do** unlock or remove any special hood locks or other devices that will make it difficult for the inspector to look at your engine quickly.

DON'TS

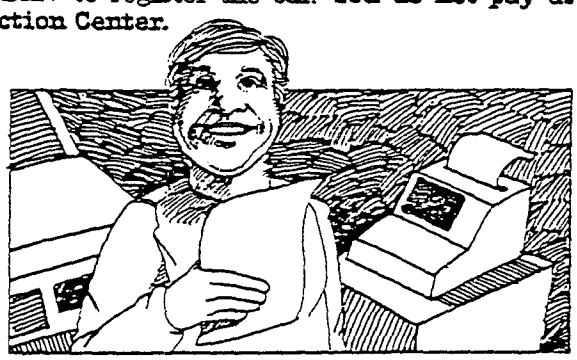
- **Don't** bring a full car load of passengers or pets with you. That will slow down the Inspection Center.

- **Don't** bring a vehicle in for inspection if it's in unsafe condition. Vehicles with leaking oil or coolant or loose exhaust systems will not be tested.

- **Don't** lose the certificate you get from the Inspection Center or you will not be able to register your car.

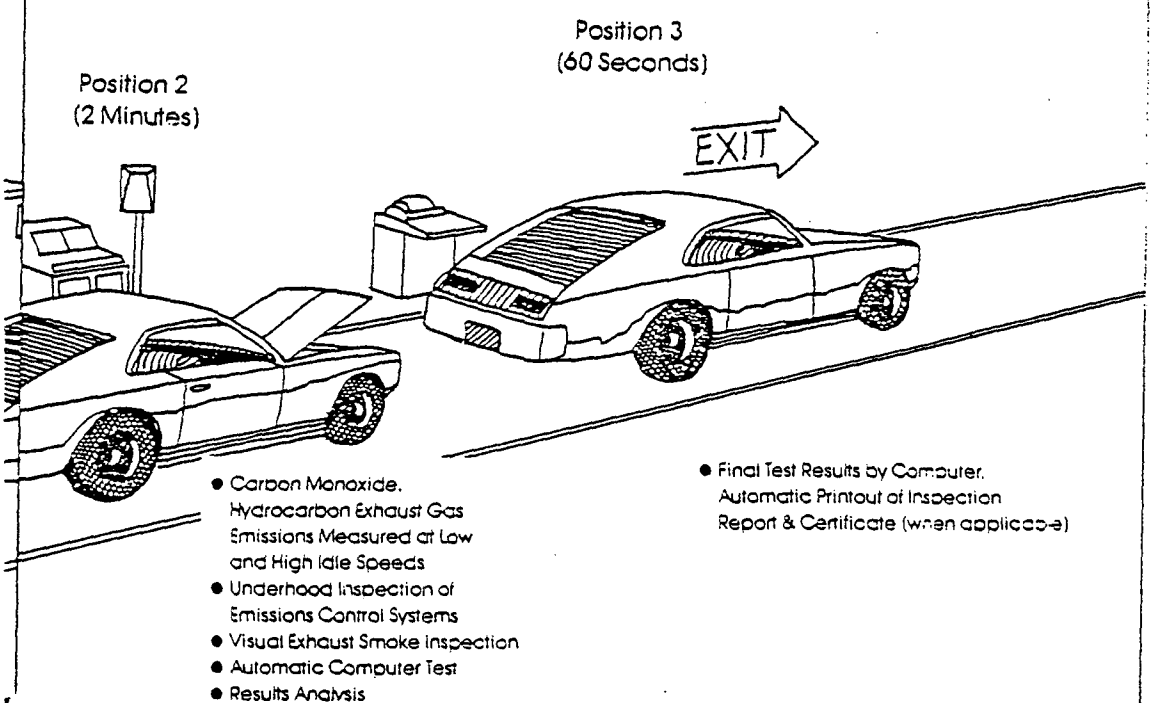


If your vehicle passes inspection, KEEP THE CERTIFICATE and take it to the Department of Motor Vehicles to register the vehicle. The $11 fee for the inspection along with the standard vehicle registration fee will be collected when you go to DMV to register the car. **You do not pay at the Inspection Center.**



If your vehicle fails, take the Vehicle Inspection Report to a repair facility and after repairs have been made, bring it back to the Inspection Center. If the car passes the reinspection (or is granted a "waiver"), then take the certificate to DMV.

See page 6 for additional information regarding what to do if your car fails the test.



WHAT IF YOUR CAR FAILS THE TEST?

Repairs and reinspection are required for all vehicles which fail the first test (the average repair cost is expected to be less than $25). The most common causes for failure are:

- Improper carburetor idle adjustment.
- Worn out spark plugs or defective ignition wires.
- Improper spark timing.

Most failures are due to lack of proper maintenance. A simple tune-up will fix most problems except those that result from emission control devices being tampered with or removed. Repair work can be done by the vehicle owner, anyone who does not receive payment for the work, or a state-qualified mechanic. But you are **not assured** of either passing the retest or receiving a waiver after retest unless the work is done at a state-licensed "Blue Shield" repair facility. State-licensed facilities are those gas stations and other auto repair businesses which display the "Blue Shield" shown on page 10.

If work is done by a "Blue Shield" repair facility, car owners are not required to spend more than $50 for repairs, unless an emissions control system has been illegally tampered with or removed. If the $50 repair limit is reached and the vehicle still fails the test, you will receive a "waiver" that allows you to register the vehicle. The repair limit only applies, however, if the work is done by a state-licensed "Blue Shield" facility.

SOME REPAIRS COVERED BY MANUFACTURER'S WARRANTY

In some cases, part failures may have been caused by a manufacturing defect. The vehicle manufacturer may be responsible for correcting the problem provided the vehicle is **less than five years old,** and has been driven **less than 50,000 miles.**

The emissions warranty **does not** generally cover emissions related adjustments (such as spark timing, dwell, idle air/fuel ratio).

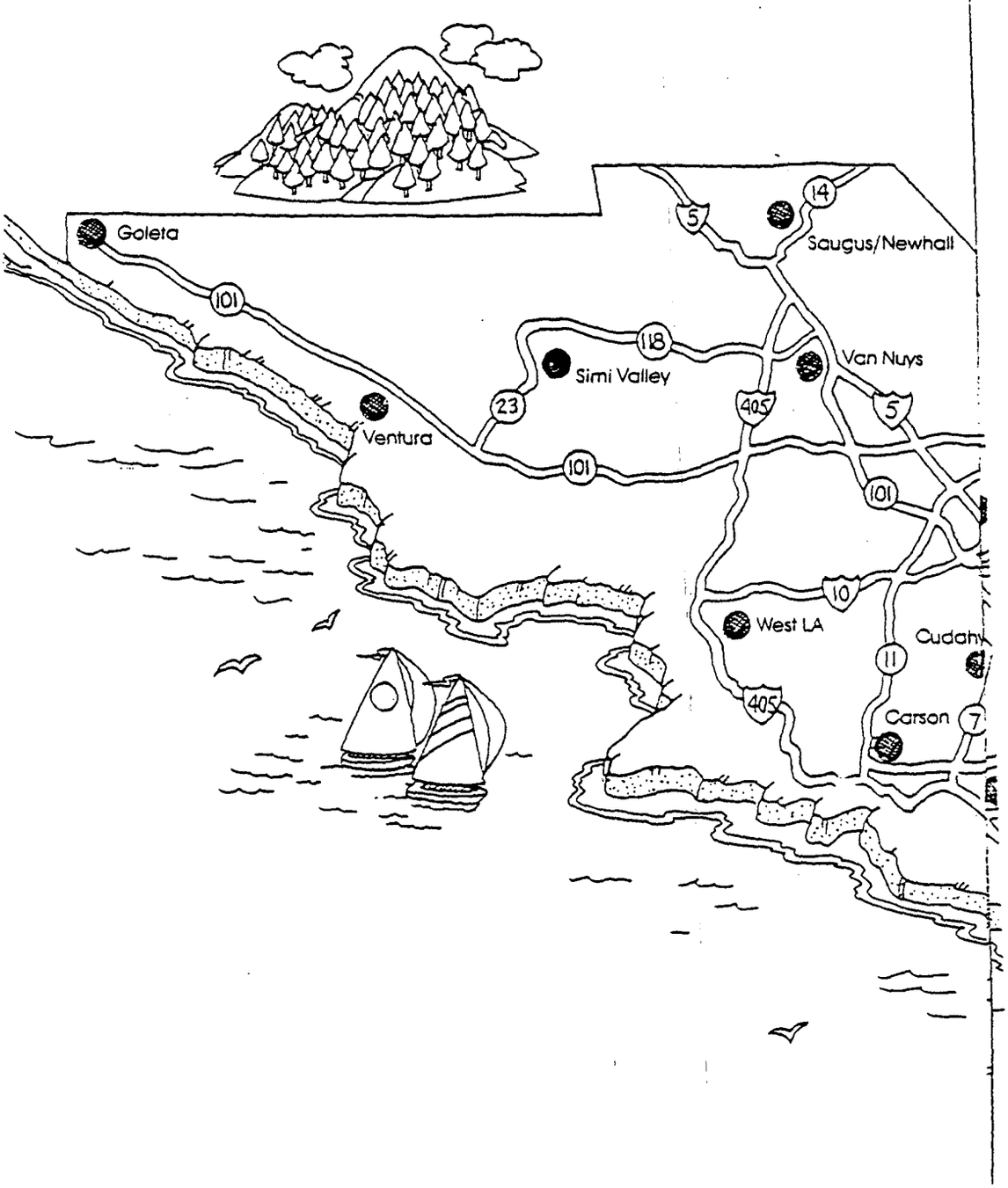
The emissions warranty also **does not** cover routine tune-ups or parts which are beyond the manufacturer's recommended replacement interval. Those parts requiring periodic maintenance or replacement are listed in your owner's manual.

Emissions-related components that are warranted against defects for five years or 50,000 miles (whichever comes first) generally include such items as air injection pumps, catalytic converters, exhaust gas recirculation valves, carburetors and ignition system components.

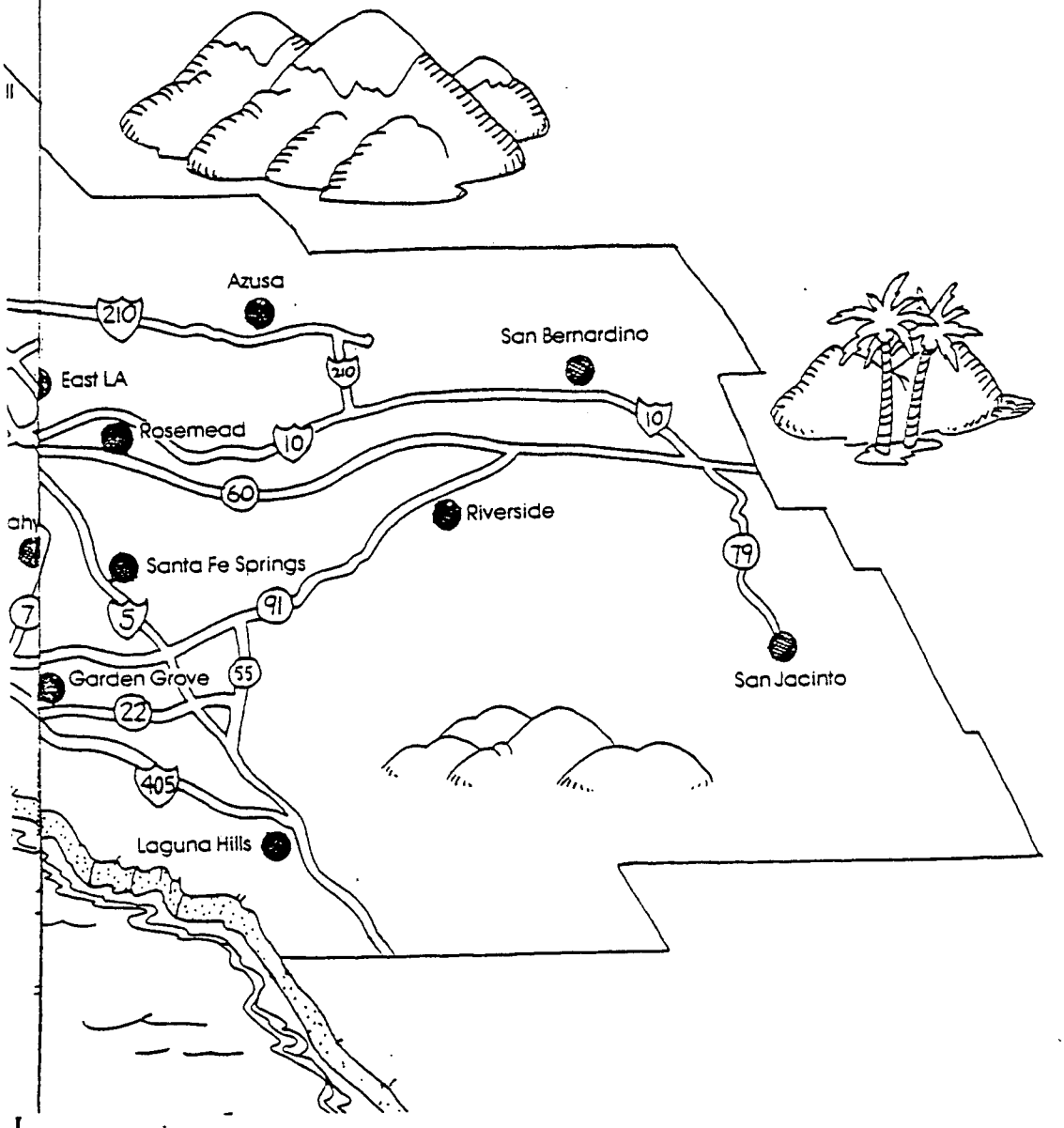
If your vehicle has failed and if you believe that a portion or all of the required repairs may be covered under warranty, consult your vehicle dealer. If your dealer refuses your claim and you disagree, ask for the name and phone number of the manufacturer's zone representative.

WHERE ARE THE INSPECTION CENTERS?

There are 17 inspection centers strategically located in the six-county area shown on this page. The addresses of each station are on pages 11-13, along with telephone numbers



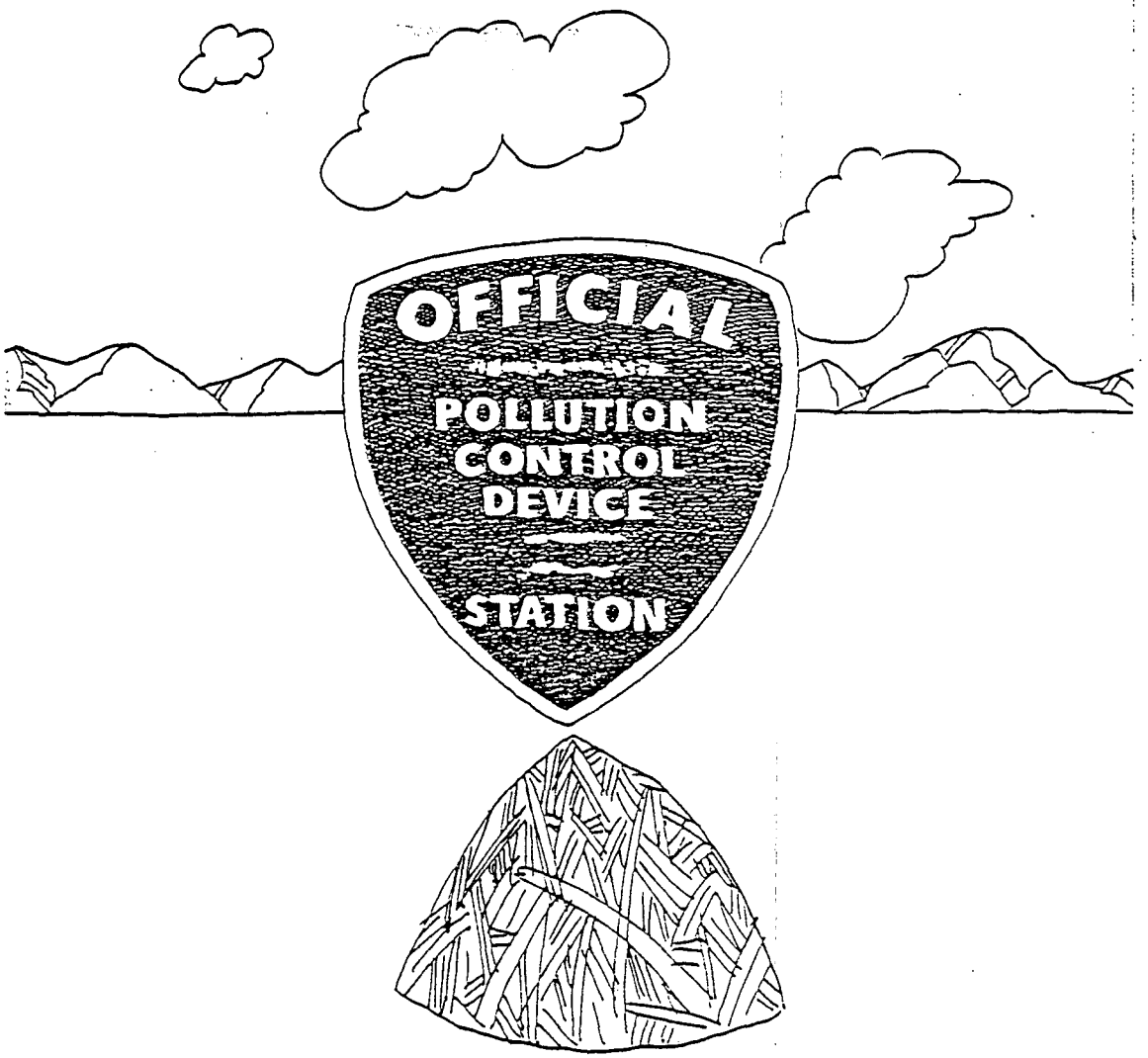
and local maps. You can save time if you call the center to find out approximate waiting times and operating hours before you go.



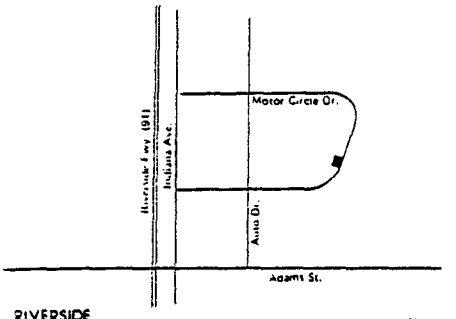
WHERE CAN REPAIRS BE MADE?

Repair work can be done by the vehicle owner, anyone who does not receive compensation, or a state-qualified mechanic. (But you are not eligible for a waiver after retest unless a "Blue Shield" station performs the work – see page 6 on test failures and proper maintenance for an explanation of the waiver. No further repairs are required, even when a vehicle fails reinspection, if the repairs were done at a licensed "Blue Shield" station. State-licensed repair facilities are gas stations and other auto repair businesses which display the "Blue Shield" shown on this page.)

There are approximately 3,800 "Blue Shield" stations in the six counties shown on pages 8-9. This includes many tune-up shops, gas stations and most car dealerships.

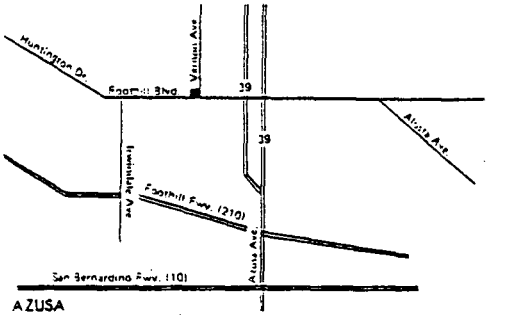


STATION LOCATIONS:



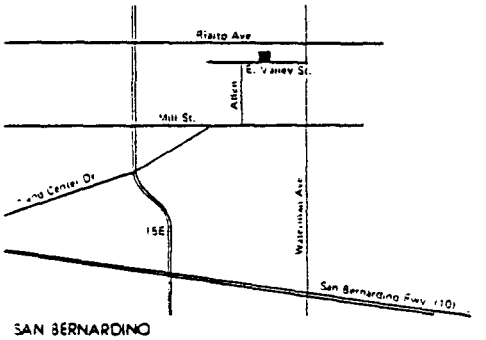
RIVERSIDE
3195 Motor Circle Drive
Ph. (714) 688-7958

From the Riverside Fwy. (91) exit Adams St. East. Proceed 2 blocks to Auto Dr. Turn left on Auto Dr. Take the first right onto Motor Circle Dr.



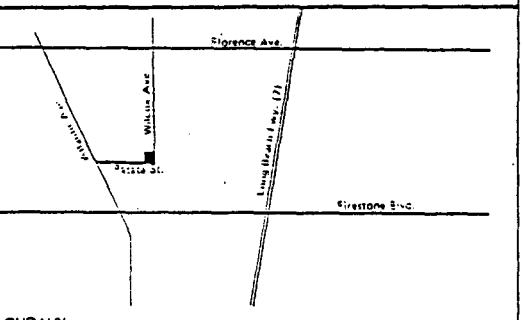
AZUSA
305 W. Foothill Blvd.
Ph. (213) 334-3556

From the Foothill Fwy. (210) take Azusa (39) North. Exit Foothill Blvd. West. The Azusa test center is approx. 6 blocks west of the intersection of Azusa (39) and Foothill Blvd.
Alternate-From the Foothill Fwy. (210) take Irwindale North. Turn right on Foothill. The test center is on the corner of Foothill and Vernon Ave.



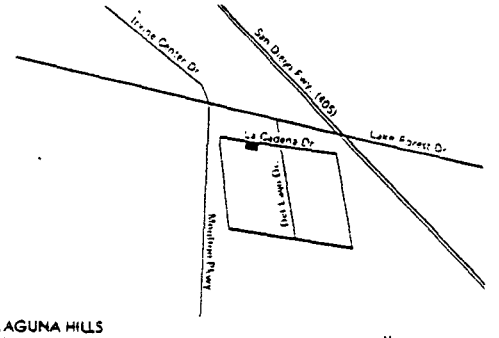
SAN BERNARDINO
222 E. Valley St.
Ph. (714) 884-3619

From 15E exit Mill St. Proceed on Mill to Waterman. Turn left on Waterman. East Valley St. is 1 block north of Mill St. Turn left on East Valley St.
From the San Bernardino Fwy. (10) exit Waterman North. Turn left on Valley St.



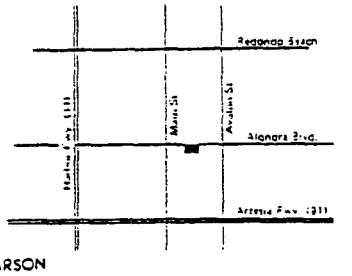
CUDAHY
4959 Patata St.
Ph. (213) 562-0572

From the Long Beach Fwy. (7) exit Firestone Blvd. West. Turn right on Atlantic. Patata St. is approx. 3 blocks north. Turn right on Patata St.



LAGUNA HILLS
23022 La Cadena Dr.
Ph. (714) 837-6233

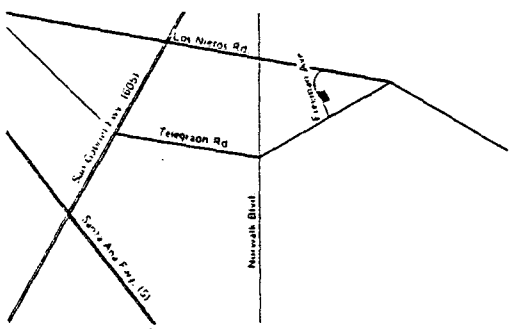
From the San Diego Fwy. (405) exit Lake Forest Drive West. Proceed one block to Del Lago Dr. Turn left. La Cadena is the first right upon entering the business center.



CARSON
230 E. Alondra Blvd.
Ph. (213) 538-3465

From Harbor Fwy. (110) Alondra Blvd. Proceed east on Alondra Blvd. approx. ½ mile to test center. From 91 west bound exit Avalon. Continue north to Alondra Blvd. Turn left on Alondra. One-half block to test center.

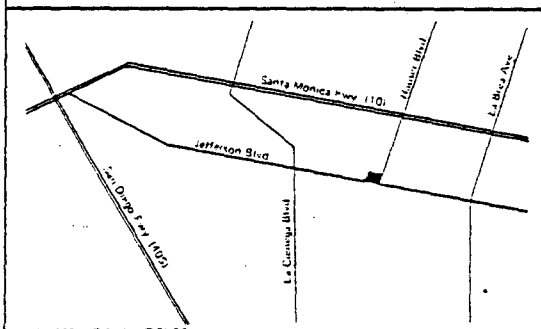
STATION LOCATIONS:



SANTA FE SPRINGS

10144 Freeman Ave.
Ph.: (213) 944-8633

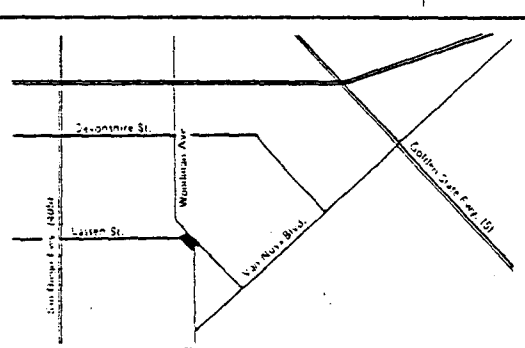
From San Gabriel Fwy. (605) exit Telegraph Rd. East. Freeman Ave. is 6 blocks east of the intersection of Telegraph Rd. and Norwalk Blvd. Turn left on Freeman.



WEST LOS ANGELES

5481 W. Jefferson Blvd.
Ph.: (213) 930-0245

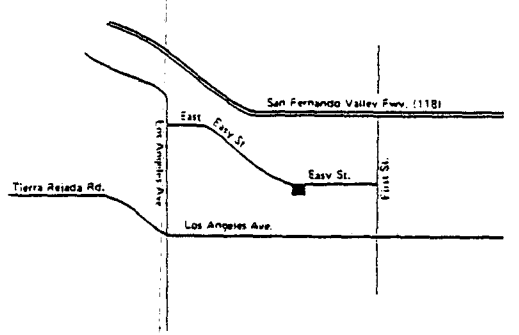
From the Santa Monica Fwy. (10) exit La Cienega Blvd. South. Proceed to Jefferson Blvd. Turn left (east) on Jefferson. Proceed 2 blocks (east) on Jefferson to the corner of Jefferson and Hauser Blvd.



SAN FERNANDO VALLEY

9933 Woodman Ave.
Ph.: (213) 991-1125

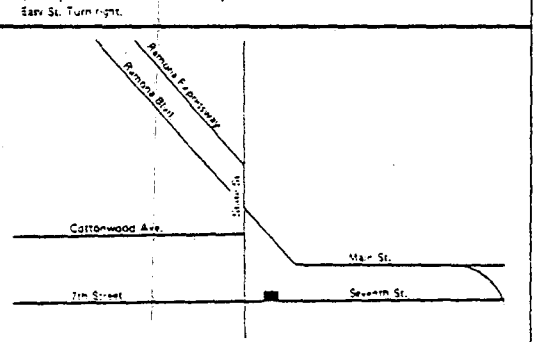
From the 405 Fwy. exit Devonshire St. East. Turn right on Woodman Ave. Proceed 2 blocks south to intersection of Woodman and Lassen.
From the Golden State Fwy. (5) exit Van Nuys Blvd. South. Proceed approx. 3 blocks to Woodman Ave. Right turn on Woodman. Proceed 3 blocks to Woodman and Lassen.



SIMI VALLEY

350 Easy St.
Ph.: (805) 526-1322

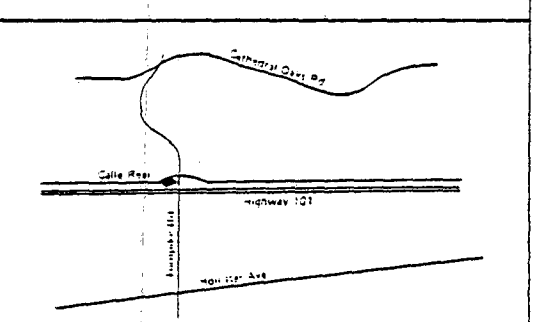
From the San Fernando Valley Fwy. (118) exit First St. South. Proceed 3 blocks south to Easy St. Turn right. The Simi inspection center is approx. 3 blocks west on Easy St.
From the Thousand Oaks area take the Moorpark Fwy. (23) to Tierra Rejada Rd. Proceed to Los Angeles Ave. Turn left on Los Angeles to East Easy St. Turn right.



SAN JACINTO

State St. near Seventh St.
Ph.: (714) 654-8231

The mobile test facility for the Hemet San Jacinto area is parked in San Jacinto on State St. near Seventh St.

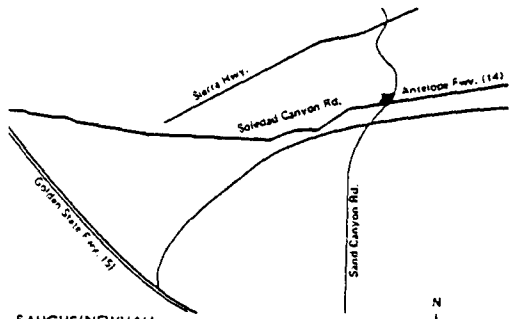


GOLETA

5885 Calle Real
Ph.: (805) 967-0708

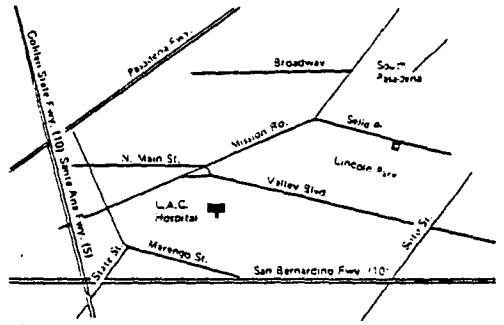
From Highway 101 exit north on Turnpike Rd. The test center is located just west of the intersection of Calle Real and Turnpike.

STATION LOCATIONS:



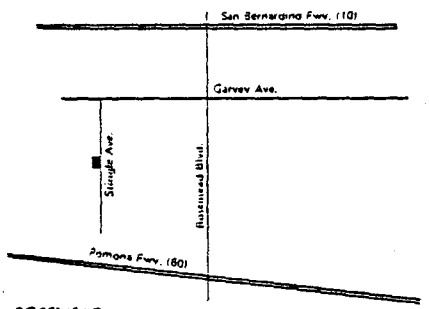
SAUGUS/NEWHALL
Ph.: (805) 251-1596

From the Antelope Valley Fwy. (14) exit Sand Canyon Rd. and proceed north to Soledad Canyon Rd. The facility is at the corner of Sand Canyon Road and Soledad Canyon Road.



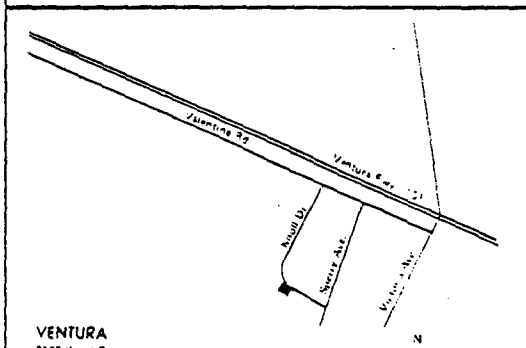
EAST LOS ANGELES (Lincoln Heights)
3847 Selig Place
Ph.: (213) 223-0225

From the Santa Ana/Golden State Fwy. south bound (5) exit Mission North. Proceed approx. 7 blocks to Selig (north side of Lincoln Park). Turn right on Selig. From the Golden State/Santa Ana Fwy. north, exit Main St. Proceed east on Main St. to Mission. Turn right on Selig.



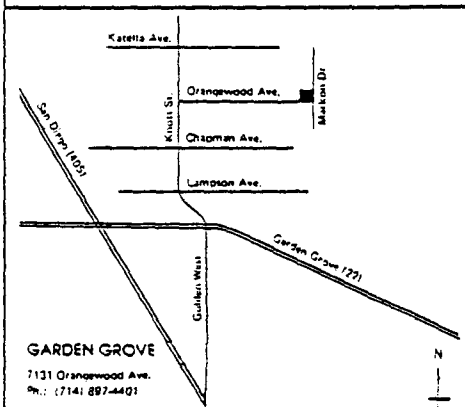
ROSEMEAD
7649 Stingle Ave.
Ph.: (213) 573-4478

From the San Bernardino Fwy. (10) exit Rosemead Blvd. South. Proceed south to Garvey Ave. Turn right (west) on Garvey. Proceed 3 blocks to Stingle. Turn left.
From the Pomona Fwy. (60) exit Rosemead Blvd. North. Proceed north to Garvey Ave. Turn left (west) on Garvey. Proceed 3 blocks to Stingle. Turn left.



VENTURA
2187 Knoll Drive
Ph.: (805) 642-5531

From the Ventura Fwy. (101) exit Victoria Avenue South. Turn right on Valentine Road (northwest). Left turn on Sperry Ave. Turn right on Knoll.



GARDEN GROVE
7131 Orangewood Ave.
Ph.: (714) 897-4401

From the Garden Grove Fwy. (22) exit Knott St. north bound. Proceed to Orangewood Ave. Turn right on Orangewood. Proceed one block. Turn left at the corner of Markon and Orangewood.
From the San Diego Fwy. (405) proceed north on Golden West (Knott St. north of Garden Grove).

State of California
California Motor Vehicle Inspection Program
Post Office Box 2815
Sacramento, California 95812

7995-58 2-79 3SP 25M

2

QUALIFIED MECHANICS HANDBOOK

CALIFORNIA MANDATORY VEHICLE INSPECTION PROGRAM

2/79

NOTE: This is the first edition of the Qualified Mechanics Handbook. It is anticipated that requirements for changes and improvements will be identified during the early stages of program implementation. In approximately six months it is planned to incorporate such changes and make available a revised edition of the handbook. Suggestions for improvement of the handbook are invited and will be considered for inclusion in the revised edition. Your comments should be mailed to the Vehicle Inspection Program Regional Office, 3415 Fletcher Avenue, Suite #2, El Monte, California 91731.

ACKNOWLEDGEMENTS

The Vehicle Inspection Program staff acknowledges the cooperation and helpful input of the many corporations and individuals contacted during the preparation of this handbook.

1. <u>The California Mandatory Vehicle Inspection Program</u>

   A. Purpose
   B. South Coast Air Basin

2. <u>VIP Qualified Mechanic Requirements</u>

   A. How to Become VIP "Qualified"
   B. Term of Certificate of Qualification
   C. Renewal procedure
   D. Lost, destroyed or mutilated Certificate of Qualification
   E. Change of address
   F. Suspension or revocation of Certificate of Qualification
   G. Certificate denial
   H. Voluntary surrender

3. <u>Repair Facility Requirements</u>

   A. Who can repair VIP failed vehicles
   B. Advantages of being an MVPC station
   C. How to become an MVPC station
   D. Record keeping requirements

4. <u>Tools and Equipment</u>

   A. Test equipment
   B. Special tools
   C. Maintenance of tools and equipment
   D. Tune-up specifications

5. <u>Vehicle Inspection Report (VIR)</u>

   A. Explanation of report
   B. Completion of mechanic's portion

6. <u>Emission Control System (ECS) Failures</u>

   A. Repair and replacement
   B. Recommended method of checking catalytic converter operation
   C. Voluntary repairs
   D. Emission control system factory warranty
   E. Tampering of emission control systems
   F. Emission control system waivers

7. <u>Emission Test Failures</u>

   A. Recommended Repair Procedures
      1. Excessive smoke
      2. Low emission tune-up
      3. Idle RPM excessive
      4. Idle air/fuel mixture rich
      5. Misfire at idle
   B. Cost limitation
   C. Voluntary repairs
   D. Waivers

8. <u>Handling of Reinspection Failures</u>

   A. Repairs done by "qualified" mechanic

B. Repairs done by vehicle owner

9. Emissions Still Too High After Recommended Repairs Have Been Performed

A. Causes of high emissions

10. Disputes

A. Disputes with VIP test center
B. Disputes with the unhappy customer

11. Recommended garage carburetor adjustment guidelines

A. Underhood labels
B. Idle adjustment guidelines
C. Manufacturer's special equipment

12. Engine changes

13. Fleet operations

14. Carburetor adjustment techniques

A. General techniques
B. Lean best idle settings
C. Dual pipes

15. Exempt vehicles

16. Emission Control Systems (ECS) abbreviations and definitions

17. Index

18. List of Tables

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TABLE II - "Vehicle Inspection Program Centers" - Page 22

TABLE III - "Exhaust Emission System Diagnostic Chart" - Page 41

SECTION 1

The California Mandatory Vehicle Inspection Program

A. Purpose
B. South Coast Air Basin

This handbook is for automotive mechanics who have been tested and found "qualified" to repair vehicles that have failed the inspection and tests conducted in accordance with the regulations governing the California Mandatory Vehicle Inspection Program. Both the federal and state governments have required vehicle manufacturers to design and build vehicles to meet strict exhaust emission standards. However, without proper maintenance, the vehicles can become "gross emitters". That is, they give off large amounts of pollutants. It has been demonstrated that motor-vehicle-caused air pollution can be reduced when these gross emitters are identified and repaired. The State of California in concert with federal government has declared that air pollution constitutes a significant detriment to the public welfare. To reduce the level of air pollution caused by automobiles, the state will start, in early 1979, a mandatory emissions testing and inspection program in the South Coast Air Basin.

Purpose

The purpose of the California Mandatory Vehicle Inspection Program is to identify those vehicles that are gross emitters of exhaust pollution so that needed maintenance and repairs can be performed.

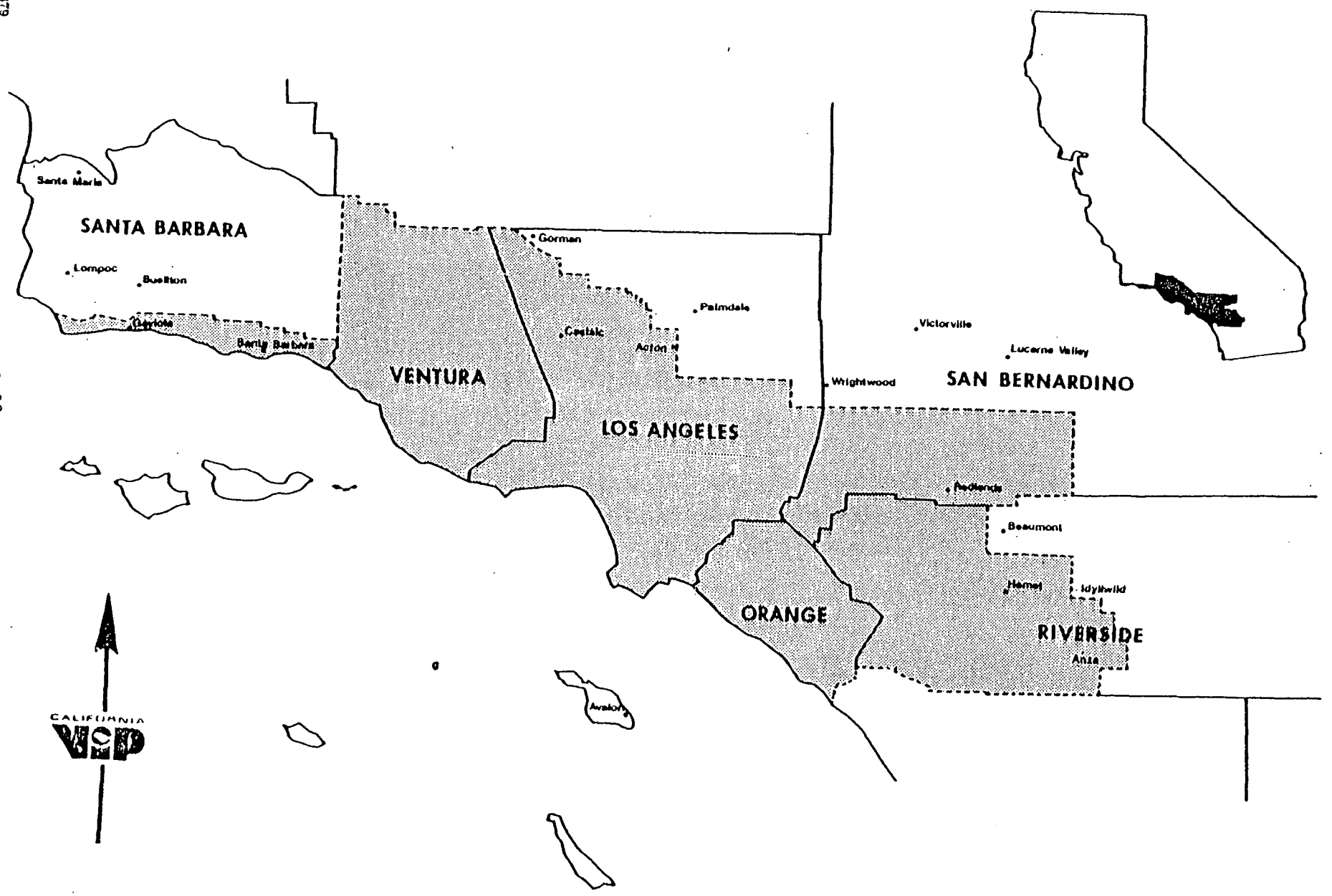
South Coast Air Basin

The South Coast Air Basin (SCAB) consists of Orange and Ventura counties and portions of Santa Barbara, Los Angeles, Riverside and San Bernardino counties. (See map on page 5). A vehicle is affected by the MVIP if the owner resides within one of the zip code areas listed on page 6. Fifteen permanent test centers have been constructed within the SCAB. In addition, two mobile test centers will be provided to handle remote areas.

These test centers are operated by a private contractor and controlled by the State of California.

Under this mandatory inspection and test program, prior to transfer of registration or initial registration in California (SCAB), a vehicle (other than a new vehicle and exempt vehicles listed in Section 15) must be inspected and tested at a state vehicle emission test center before the Department of Motor Vehicles can complete the registration documentation.

Mandatory Vehicle Inspection Area



ZIP CODES WITHIN THE SOUTH COAST AIR BASIN

90001-90099
90201
90210-90215
90220-90224
90230
90240-90242
90245
90247-90249
90250
90254
90255
90260-90262
90265-90266
90270
90272
90274
90277-90278'
90280
90290
90291
90301-90399
90304
90305
90401-90499
90501-90599
90601-90612
90620-90624
90630-90631
90638
90640
90650
90660
90670
90680
90701
90706
90710
90712-90717
90720
90723
90731-90733
90740-90743
90744-90749
90801-90899
91001
91006
91010
91011
91016
91020
91023
91024
91030
91040
91042
91046
91101-91199
91201-91299
91301-91311
91316
91320
91321
91324-91331
91335
91340-91356
91359-91375
91401-91499
91501-91599
91601-91699
91701
91702
91706
91710-91711
91720-91724
91730-91734
91739-91740
91743-91749
91750-91752
91759-91760
91761-91769
91770
91773
91775-91778
91780
91786
91789
91790-91793
91801-91899
92
92302
92305-92306
92314-92333
92601
92621
92624-92638
92640-92645
92660-92686
92701-92799
92801-92899
93001-93010
93013
93015-93018
93021-93023
93030
93040-93043
93060
93063-93067
93101-93199
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92339-92341
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92376
92378
92380-92383
92385-92386
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92396
92399
92401-92499
92501-92599

NOTE: ALL of Orange and Ventura Counties are included in the South Coast Air Basin

SECTION 2

VIP QUALIFIED MECHANIC REQUIREMENTS

A. How to become VIP "qualified"

B. Term of Certificate of Qualification

C. Renewal Procedure

D. Lost, Destroyed or Mutilated Certificate of Qualification

E. Change of Address

F. Suspension or Revocation of Certificate of Qualification

G. Certificate Denial

H. Voluntary Surrender

A. HOW TO BECOME VIP "QUALIFIED"

The California Vehicle Inspection Program (VIP) must insure that there are enough "qualified" mechanics who understand and use cost-effective low emission repair and adjustment procedures. Furthermore, legislation requires that only "qualified" mechanics, employed by registered automotive repair dealers, be authorized to repair or adjust vehicles failing the VIP emission tests.

A dealer who allows an unqualified mechanic to repair or adjust a vehicle failing the VIP test is subject to disciplinary action which may result in suspension of his automotive repair dealer's registration and when applicable, his motor vehicle pollution control (MVPC) station license. The Department of Consumer Affairs, through the VIP Regional Office, issues Certificates of Qualification to mechanics. To receive such a certificate, you must:

1. Attend a VIP orientation seminar.

2. Become familiar with the maintenance and repair procedures recommended by the department.

3. Demonstrate your automotive repair abilities by passing a written examination.

Persons wishing to become qualified are requested to contact the California VIP Regional Office at 3415 Fletcher Avenue, Suite #2, El Monte, California 91731.

Vehicles that go through the VIP test center are given emission tests and are also inspected for required emission control system (ECS) inspection. The "qualified" mechanic is entitled to repair vehicles failing the emission test, but not those that fail the ECS inspection. In order to repair vehicles failing the (ECS) inspection you must have a Class A MVPC installer's license in addition to being qualified. By acceptance of the Certificate of Qualification, you agree to follow the recommended maintenance and repair procedures and adhere to program regulations.

B. TERM OF CERTIFICATE OF QUALIFICATION

The mechanic's Certificate of Qualification is good for three (3) years from the date of issue. Approximately thirty (30) days prior to the expiration date, you will receive a renewal notice in the mail from the VIP Regional Office.

C. RENEWAL PROCEDURE

When you receive your renewal notice, contact the VIP Regional Office and schedule your attendance at a program seminar and requalification examination.

D. LOST, DESTROYED OR MUTILATED CERTIFICATE OF QUALIFICATION

If your Certificate of Qualification is lost, destroyed, or mutilated, you should apply to the VIP Regional Office for a duplicate. If a lost Certificate is later found, return it to the VIP Regional Office.

E. CHANGE OF ADDRESS

Any change of address of your home or place of employment should be reported to the VIP Regional Office. This information is needed so that changes in repair procedures and bulletins can be sent to you. Your renewal notice will also be sent to your listed home address. If you move out of the South Coast Air Basin, you should keep your certificate, because the program is expected to expand to other air basins in California. If you fail to receive a renewal notice within one week of the expiration date of your qualification certificate, contact the VIP regional office.

If you plan to move out of the state, let the VIP Regional Office know so that your name can be placed on the "qualified" mechanics inactive list.

The back cover of this handbook contains detachable addressed cards to allow easy notification of your address changes.

F. SUSPENSION OR REVOCATION OF CERTIFICATION OF QUALIFICATION

The Department of Consumer Affairs may suspend, revoke or refuse to renew the Certificate of Qualification of any mechanic who fails to comply with the specifications or procedures specified by the department. Some examples of conditions that can result in suspension or revocation are:

- Habitually failing to follow recommended repair procedures or department rules and regulations.
- Performing unnecessary repairs.
- Entering false data on the Vehicle Inspection Report.

G. CERTIFICATE DENIAL

The Department of Consumer Affairs may refuse to issue a Certificate of Qualification to any applicant who has had an automotive repair dealer registration revoked, suspended, or denied in accordance with Section 9884.7 of the Business and Professions Code, or who has had an official MVPC station license or MVPC installer's license revoked, suspended or denied in accordance with Sections 9889.1 through 9889.10 of said code.

H. VOLUNTARY SURRENDER

The voluntary surrender of a license or Certificate of Qualification is subject to the following provisions:

(a) If you decide to give up your Certificate of Qualification, the department will still have the right to carry out investigative or disciplinary proceedings against you or the repair shop in which you were working. The Department can also carry out such procedures after the voluntary surrender of an automotive repair dealer's registration or the MVPC station license.

(b) A mechanic holding a Certificate of Qualification, who habitually fails to comply with VIP regulations, must surrender the Certificate of Qualification and stop performing repairs to vehicles that have failed the VIP emissions test.

SECTION 3

REPAIR FACILITY REQUIREMENTS

A. Who can repair VIP failed vehicles

B. Advantages of being an MVPC station

C. How to become an MVPC station

D. Record keeping requirements

Section 9889.60 of Chapter 20.4 of the California Business and Professions Code requires that automotive repair dealers registered pursuant to Section 9884 and/or licensed pursuant to Section 9888.3 of the same chapter and code, who conduct repairs to vehicles failing the VIP test, follow the VIP's recommended specifications and procedures. Any dealer who does not follow such specifications and procedures shall be subject to suspension of his ARD registration or MVPC license by the Department of Consumer Affairs.

WHO CAN REPAIR VIP FAILED VEHICLES

An auto repair dealer does not need a special license to repair vehicles failing the VIP test. The dealer must have a current registration issued by the Bureau of Automotive Repair and may have an MVPC station license. He must, however, have a "qualified" mechanic on the premises to perform the recommended maintenance and repair to vehicles failing the VIP emission test.

In addition to being registered and having the required test equipment, this dealer must employ a "qualified" mechanic in order to made adjustments on failed vehicles. The dealer must insure that all procedures and specifications recommended by the Department are followed when adjustments and/or repairs are made.

B. ADVANTAGES OF BEING AN MVPC STATION

There are three benefits for a dealer who has an MVPC station license and who also employs a "qualified" mechanic holding a MVPC installer's license:

1. Only a "qualified" mechanic holding a MVPC installer's license and working in an MVPC station may repair emission Control Systems (ECS) failed vehicles. ECS failed vehicles are those with missing, disconnected, or inoperative emission control systems.

2. Only an MVPC station with a "qualified" mechanic holding a Class A MVPC installer's license can complete the MVPC statement of the Vehicle Inspection Report stating that a VIP-failed vehicle is in need of further repairs that will exceed the cost limitation and that the vehicle has received a low emission tune-up thus making the vehicle eligible for a waiver.

3. When a vehicle fails reinspection, a waiver will be issued when repairs were made by a "qualified" mechanic holding a Class A MVPC installer's license employed in a licensed MVPC station.

In addition, MVPC stations will continue to inspect and issue Certificates of Compliance to those vehicles exempted from the program that still require Certificates of Compliance upon transfer of registration (i.e. heavy-duty and alternate-fuel vehicles). Also, only MVPC stations may install retrofit emission control devices and clear enforcement documents.

Table I (page 12) is provided to help clarify the activities that may be performed by a "qualified" mechanic, a Class A MVPC installer and a "qualified" mechanic holding a MVPC license.

C. HOW TO BECOME AN MVPC STATION

An automotive repair dealer may obtain an application for an official MVPC station license from the Bureau of Automotive Repair, 3116 Bradshaw Road, Sacramento, California 95827 or from a local bureau representative.

In addition to the application for approval, the dealer is required to have all the test equipment and diagnostic tools noted herein, employ a mechanic who holds a current Class A MVPC installer's license and other requirements as outlined in the MVPC Installers-Adjusters Handbook.

D. RECORD-KEEPING REQUIREMENTS

The automotive repair dealer must keep records of the station's transactions involving the Vehicle Inspection Program for a period of three years. These records shall be open for reasonable inspection by a representative of the Bureau of Automotive Repair, Vehicle Inspection Program.

TABLE I

WHAT DOES "QUALIFIED" MEAN TO THE MECHANIC AND REPAIR FACILITY WITH AN MVPC LICENSE

	"QUALIFIED" MECHANIC HOLDING MVPC CLASS	CLASS A MVPC INSTALLER	"QUALIFIED MECHANIC	MECHANIC
May perform service and maintenance on emission control* equipment (PCV, etc.)	YES	YES	YES	YES
May perform tune-up related repairs not on a failed* Vehicle Inspection Report	YES	YES	YES	YES
May perform low emission tune-up, repairs and adjust-* ments that have been identified on a failed Vehicle Inspection Report. (Must have required equipment.)	YES	NO	YES	NO
May correct vehicles with dismantled, altered or * modified emission control systems.	YES	YES	NO	NO
May correct vehicles with dismantled, altered or * modified emission control systems which are identified on a failed Vehicle Inspection Report	YES	NO	NO	NO
May clear enforcement documents (smog-related)	YES	YES	NO	NO
May issue Certificates of Compliance on vehicles over 8500 pounds GVW and dual fuel powered vehicles. (Must have required equipment.)	YES	YES	NO	NO
May sign the MVPC statement for vehicles with a failed Vehicle Inspection Report that are in need of further repairs that will exceed the cost limitation. (Note: If required, a low emission tune-up must have been performed.)	YES	NO	NO	NO

*THESE DUTIES MAY BE PERFORMED BY THE VEHICLE OWNER OR OTHER NONPROFESSIONAL (BUT NOT FOR COMPENSATION)

SECTION 4
Tools and Equipment

A. Test Equipment
B. Special Tools
C. Maintenance of Tools and Equipment
D. Tune-up Specifications

A. TEST EQUIPMENT

The "qualified" mechanic who performs repairs on vehicles failing the Vehicle Inspection Program emission test must have available the necessary tools, equipment and tune-up specifications to effectively repair the failed vehicles in accordance with recommended maintenance and repair procedures. Following is a list of the required test and diagnostic equipment:

1. Exhaust gas analyzer (dual range) with a 0-10% CO and 0-2000 PPM HC as approved by the Bureau of Automotive Repair.
2. Oscilloscope - ignition analyzer
3. Ammeter
4. Ohmmeter
5. Voltmeter
6. Tachometer
7. Vacuum/pressure gauge
8. Cam-angle dwell meter
9. Ignition timing light
10. Compression test gauge
11. Distributor advance tester

B. SPECIAL TOOLS

It a vehicle manufacturer requires that special tools and/or testing equipment be used to perform the recommended VIP maintenance and repair procedures, or adjustments, the "qualified" mechanic must have available such equipment whenever repairing such vehicles.

C. MAINTENANCE OF TOOLS AND EQUIPMENT

Is is the responsibility of the repair shop owner to make sure that the required tools and equipment are properly maintained. The HC/CO analyzer, in particular, must receive frequent maintenance to insure its accuracy. Filters and sample hoses should be checked often. Gas calibration should be performed frequently according to the manufacturer's recommendations.

NOTE: Whenever an analyzer is subjected to a change of climate or a change in elevation of 1,000 feet or more, the analyzer should be gas calibrated.

D. TUNE-UP SPECIFICATIONS

The "qualified" mechanic must have readily available all necessary tuneup requirements and specifications to effectively repair each VIP-failed vehicle he works on.

SECTION 5

VEHICLE INSPECTION REPORT (VIR)

A. Explanation of Report
B. Completion of Mechanic's Portion

A Vehicle Inspection Report (VIR) will be given to each vehicle operator at the conclusion of the vehicle inspection. It is necessary that the vehicle owner give you the VIR before you start repairs. As a "qualified" mechanic, you must follow the recommended maintenance and repair procedures noted on the VIR and also fill in the necessary information on the back of the form.

A. EXPLANATION OF REPORT

A sample VIR is displayed below. The area labeled "1" on the sample VIR contains the following information:

FINAL RESULTS

The FINAL RESULTS box on the front of the VIR will display the word "PASS", "FAIL" or "REJECT". If the word "PASS" appears, no repairs are required.

REJECT

If the word "REJECT" appears, the vehicle could not be tested. The reason(s) the vehicle could not be tested will be printed in the REJECT REASON box directly below the FINAL RESULTS box. The condition(s) that caused rejection must be repaired before a vehicle can be retested. No cost limitation applies to rejected vehicles.

FAIL

When the word "FAIL" appears in the FINAL RESULTS box, the vehicle has failed either the ECS test or the emission test or both.

EMISSION CONTROL SYSTEMS (ECS) FAILURES

When an ECS failure occurs, a letter representing the system(s) which failed and a number(s) representing the reason(s) for failure will be printed in the ECS FAILURE CODES box directly

to the right of the FINAL RESULTS box. (See area labelled 1 below.) A table of ECS failure code meanings is placed directly above the ECS FAILURE CODES box. ECS system failures must be corrected within the requirements listed in Section 6 of this handbook.

EMISSION TEST FAILURES

When an emission test failure occurs, a number representing the test results will be printed in the EMISSION TEST FAILURE CODE box. The box is located directly to the right of the ECS FAILURE CODES box. A table of EMISSION TEST failure reasons is printed directly above the EMISSION TEST FAILURE CODES box. Probable causes and recommended repairs for emission test failures can be found in Section 7 of this handbook and on the upper portion of the back of the VIR. Emission test failures must be corrected according to the procedures and requirements listed in Section 7.

VEHICLE INSPECTION REPORT

STATE OF CALIFORNIA 0000000

OFFICIAL VEHICLE INSPECTION CENTER

Your vehicle's test results are shown below. If the Final Result box reads FAIL or REJECT, the ECS Codes, the EMISSION TEST FAILURE Codes, or the REJECT REASON areas of this report give the reason for failure or rejection. An indication of this probable cause of failure can be found on the back of this report. The most common adjustments and repairs likely to be required in order for your vehicle to pass reinspection can be found in the Consumer's Handbook published by the Department of Consumer Affairs. The detailed procedures are contained in the "Qualified" Mechanics Handbook published by the Department of Consumer Affairs.

1

EMISSION CONTROL SYSTEMS (ECS) FAILURE CODES

FIRST CHARACTER		SECOND CHARACTER	
A	Crankcase Ventilation System	1	Modified; Device or System not ARB-approved
B	Air Injection System	2	Disconnected/By-passed
C	Engine Modification	3	Missing
D	Air Preheat/Thermostatic Air Cleaner	4	Inoperative EGR Valve
E	Ignition Spark Control		
F	Exhaust Gas Recirculation		
G	Fuel Evaporative System		
H	Exhaust Converter		
I	Retrofit Exhaust Control		
J	Retrofit NOX Control		

EMISSION TEST FAILURE CODES

1 Excessive Smoke
2 Perform Low Emission Tune-up
3 Idle RPM Excessive
4 Idle Air/Fuel Mixture Rich
5 Misfire at Idle

FINAL RESULTS

ECS FAILURE CODES

EMISSION TEST FAILURE CODE

REJECT REASON

If Final Result is REJECT, the vehicle could not be tested for the following reason(s). Noted condition must be corrected before the vehicle can be tested for certification.

The area labeled "2" on the sample VIR contains the identification data for the vehicle. Use the vehicle identification information to verify that the VIR you have is for the same vehicle that you are about to repair.

The STATION NO. box above the LICENSE PLATE box, contains a code for the station at which the inspection was performed. If you need to contact the station which performed the inspection, match the station number to the corresponding number located in Table II at the end of this section.

2

QUEUE NO.	STATION NO.	LANE NO.	TEST MODE	TEST NO.	DATE	TIME

VEHICLE INFORMATION

LICENSE PLATE	VEHICLE IDENTIFICATION NO.	YEAR	MAKE	CYL	WT	MILEAGE	AI/CAT

The area labeled "3" on the sample VIR contains the emission inspection information. In this section, the emission test results and applicable state emission standards are displayed. Vehicles failing the first idle emissions test will also be tested at 2,500 RPM. The results of the 2,500 rpm test will be displayed. After the 2,500 rpm test, a second idle test will be given and the results will also be printed on the VIR. The idle rpm reading taken at the start of the emission testing and the allowable limit for the particular year model vehicle will also be printed on the VIR. NOTE: DO NOT WRITE IN THE BOXES ON THE LOWER FRONT PORTION OF THE FORM.

3

EMISSION INSPECTION INFORMATION

1ST IDLE

	HC (ppm)	CO (%)	OFFICIAL USE ONLY
STATE STANDARD			
EMISSION READINGS			

2500 RPM

HC (ppm)	CO (%)	OFFICIAL USE ONLY

2ND IDLE

	HC (ppm)	CO (%)	OFFICIAL USE ONLY
STATE STANDARD			
EMISSION READINGS			

IDLE RPM

LIMIT _____

READING _____

CUST ☐ L/I ☐ ECS ID ☐ EMS ID ☐ QUAL ☐ CERT ☐ RRR ☐ SMOKE ☐ RETEST ☐

B. COMPLETION OF MECHANIC'S PORTION

The top section of the back side of the VIR contains a description of the "fail" codes and the probable cause for failure along with the recommended repair procedures.

If the final reject box on the front side of this sheet reads "FAIL," the most probable cause of the failure can be found as follows:

1) If there are any ECS Failure Codes shown in the **"ECS Failure Codes"** box, the cause of failure is indicated by the second digit of the code. The Emission Control System must be repaired or replaced.
2) If an **Emission Test Failure Code of "2"** is shown, a low-emission tuneup must be performed to the specifications of the Department of Consumer Affairs. This tuneup consists of adjustments of dwell, timing, idle RPM and carburetor air/fuel mixture.
3) *Probable causes and recommended repairs for the remaining Emission Inspection Codes are shown in the table below:*

CODE	PROBABLE CAUSE OF FAILURE	RECOMMENDED REPAIR *
1	a) Abnormal oil consumption b) Worn or broken rings or valve guides	a) Diagnose and repair cause as required. b) Replace broken or worn parts as required
2	See Item 2) above	
3	a) Incorrect idle adjustment b) Sticking linkage	a) Adjust to manufacturer's specifications. b) Lubricate, repair or replace linkage.
4	a) Incorrect idle mixture b) Dirty air filter c) Choke stuck d) Plugged PCV system	a) Adjust to manufacturer's specifications b) Replace filter. c) Repair choke. d) Repair/replace PCV system.
5	a) Ignition system misfire b) Lean or unbalanced idle mixture c) Vacuum leaks d) Low compression	a) Diagnose and repair or replace faulty parts. b) Adjust to manufacturer's specifications. c) Replace or repair defective parts. d) Diagnose and repair as necessary.

* Refer to Consumer's Handbook on Repair Cost Information

CHECK OFF ITEMS REPAIRED OR REPLACED

Fill in the area labeled "4" on the sample VIR titled CHECK OFF ITEMS REPAIRED OR REPLACED. Identify, with an "X" in either the REQUIRED or VOLUNTARY column, any repairs made to any of the MISCELLANEOUS SYSTEMS or EMISSION CONTROL SYSTEMS. Charges for either labor or parts are considered as repairs. Do not include sales tax. Voluntary repairs are not required by the repair procedures. Voluntary repairs are emissions related repairs not required by the repair procedure but suggested to and authorized by the customer.

TO BE FILLED OUT BY THE REPAIR FACILITY OR VEHICLE OWNER.

CHECK OFF ITEMS REPAIRED OR REPLACED

	MISCELLANEOUS SYSTEMS	REQUIRED	VOLUNTARY	EMISSION CONTROL SYSTEMS	REQUIRED	VOLUNTARY
4	Low Emission Tuneup	_____ 01	_____ 02	Crankcase Control	_____ 21	_____ 22
	Carburetor/Fuel Injection	_____ 03	_____ 04	Air Injection	_____ 23	_____ 24
	Ignition System	_____ 05	_____ 06	Heated Air Inlet	_____ 25	_____ 26
	Vacuum Leaks (Hoses/Gaskets)	_____ 07	_____ 08	Ignition Spark Control	_____ 27	_____ 28
	Choke Repair	_____ 09	_____ 10	Exhaust Gas Recirculation	_____ 29	_____ 30
	Air Filter	_____ 11	_____ 12	Exhaust Converter	_____ 31	_____ 32
	Idle RPM Adjustment	_____ 13	_____ 14	Fuel Evaporation	_____ 33	_____ 34
	Other	_____ 19	_____ 20	Retrofit Device	_____ 35	_____ 36
				Fuel Restrictor	_____ 37	_____ 38
5	PARTS Cost	$_____	$_____			
	LABOR Cost	$_____	$_____			

After repair/adjustments idle emissions readings: HC_____ppm CO_____%

PARTS AND LABOR REPAIR COSTS

In the area labeled "5", write the total cost of both parts and labor. Do not include sales tax when listing parts costs. Required parts costs are recorded on the left and voluntary on the right. The same applies for labor costs.

AFTER REPAIR/ADJUSTMENT IDLE EMISSION READINGS

In the area labeled "6", record the after-repair levels of HC and CO. The final idle emissions readings shall be made with the air injection system connected and operating, the air cleaner installed and all vacuum lines and fuel evaporative control system lines connected as applicable.

Leaks (Hoses/Gaskets)	_____				_____	27	
Choke Repair	_____	09		Gas Recirculation	_____	29	_____
Air Filter	_____	11	_____ 12	Exhaust Converter	_____	31	_____ 32
Idle RPM Adjustment	_____	13	_____ 14	Fuel Evaporation	_____	33	_____ 34
Other	_____	19	_____ 20	Retrofit Device	_____	35	_____ 36
				Fuel Restrictor	_____	37	_____ 38
PARTS Cost	$_____	$_____					
LABOR Cost	$_____	$_____					

After repair/adjustments idle emissions readings: HC_____ppm CO_____%

6

REPAIR STATEMENT

In the area labeled "7", list your Certificate of Qualification number and the repair facility automotive repair dealer (ARD) registration number. Write your signature legibly. The purpose of this statement is to indicate that all of the recommended maintenance and repair procedures as noted on both sides of the VIR were complied with.

REPAIR STATEMENT

7

☐ I CERTIFY THAT REPAIR WAS PERFORMED BY OTHER THAN A STATE "QUALIFIED" MECHANIC.

_____
SIGNATURE

☐ I CERTIFY THAT THE RECOMMENDED REPAIRS WERE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES ESTABLISHED BY THE DEPARTMENT OF CONSUMER AFFAIRS, PURSUANT TO SECTION 9889.50 OF THE BUSINESS & PROFESSIONS CODE.

QUALIFIED MECHANIC'S NUMBER	ARD NUMBER	SIGNATURE

MVPC STATEMENT

You can fill out the MVPC statement labeled 8" on the VIR only if you are a qualified Class "A" installer and are working in an MVPC station.

You may certify:

A. That the vehicle is in need of further repairs that will exceed the cost limitation of $50 and the vehicle has received a low emission tune-up. The additional repairs needed and estimated cost must be shown in the space provided.

B. That all recommended repairs listed on the front of the VIR were performed in accordance with the Qualified Mechanics Handbook. Legibly fill in your licensed installer's number, MVPC station license number, and signature.

MVPC STATEMENT

8

I CERTIFY THAT THIS VEHICLE HAS RECEIVED A LOW EMISSION TUNE-UP IN ACCORDANCE WITH PROCEDURES ESTABLISHED BY THE DEPARTMENT OF CONSUMER AFFAIRS AND:

- ☐ IS IN NEED OF FURTHER REPAIRS THAT WOULD EXCEED THE COST LIMITATION.
- ☐ THAT ALL RECOMMENDED REPAIRS WERE PERFORMED IN ACCORDANCE WITH THE QUALIFIED MECHANICS HANDBOOK.

LICENSED INSTALLER'S NUMBER _____ MVPC STATION NUMBER _____ SIGNATURE _____

Additional repairs needed: _____

Estimated Cost: $ _____

TABLE II

VEHICLE INSPECTION PROGRAM CENTERS

Station Number	City	Address	Nearest Street Intersection	Phone
CA1	West L. A. (Panarama City)	5461 W. Jefferson	Hauser/Jefferson	(213) 930-0245
CA2	Van Nuys	9933 Woodman	Woodman/Lassen	(213) 894-9612
CA3	Simi Valley	Easy Street	Easy/First Street	(805) 526-1322
CA4	Ventura	2187 Knoll Dr.	Knoll/Valentine	(805) 642-5531
CA5	Goleta	4865 Calle Real	Calle Real/Turnpike	(805) 967-9185
CA6	Newhall	Sand Canyon Rd./Soledad		(805) 251-1596
CB1	East L. A. (Lincoln Heights)	3847 Selig	Selig/Mission	(213) 223-0225
CB2	Rosemead	2649 Stingle Ave.	Stingle/Garvey	(213) 280-9284
CB3	Azusa	805 W. Foothill	Vernon/Foothill	(213) 334-3556
CB4	Cudahy	4959 Patata	Wilcox/Patata	(213) 562-0572
CC1	Garden Grove	7131 Orangewood	Markon/Orangewood	(714) 897-4401
CC2	Carson	230 E. Alondra	Alondra/Main	(213) 515-9030
CC3	Santa Fe Springs	10144 Freeman	Telegraph/Freeman	(213) 944-8633
CC4	Laguna Hills	23022 La Cadena	LaCadena/Verdugo	(714) 768-9596
CD1	Riverside	3195 Motor Circle	Auto Center	(714) 688-7958
CD2	San Bernardino	222 E. Valley	Valley/Allen	(714) 884-3619
CD3	San Jacinto	State St./7th St.		(714) 654-8231

SECTION 6

EMISSION CONTROL SYSTEM (ECS) FAILURES

A. Repair and Replacement

B. Recommended method of checking catalytic converter operation

C. Voluntary repairs

D. Emission control system factory warranty

E. Tampering of emission control systems

F. Emission control system waivers

At the VIP test center, each vehicle is given a visual inspection to verify that it is properly equipped with all required emission control devices (federal, California and retrofit).

Vehicles having illegally modified, disconnected and/or removed emission control devices or illegally modified engines are failed. In addition, vehicles equipped with factory-installed exhaust gas recirculation (EGR) valves are functionally tested for valve operation. Vehicles with nonoperating EGR valves are failed.

A. REPAIR AND REPLACEMENT

A vehicle that has failed the ECS portion of the VIP test may be repaired only by a "qualified" mechanic holding a Class A MVPC installer's license and working in an official MVPC station.

Before you repair the vehicle, review the VIR. Make the repairs and/or replacements noted on the face of the VIR. Then make sure the system(s) and components operate as specified by the vehicle manufacturer or retrofit manufacturer, as applicable. Fill out the back of the VIR and have the vehicle owner return to the VIP test center.

B. RECOMMENDED METHOD OF CHECKING CATALYTIC CONVERTER OPERATION

There is no single uniform procedure recommended to verify the correct operation of catalytic converters in repair garages. Each vehicle manufacturer may specify a special procedure for selected year models. There are, however, certain checks that can be made to determine converter condition. Always refer to the vehicle manufacturer's recommended techniques before recommending replacement of the catalytic converter.

A good catalyst may give near zero emission readings at the tailpipe, especially if equipped with air injection. A good catalyst may also mask a number of problems that you would normally see when you use the HC/CO analyzer. If for some reason the catalyst has become nonoperative, you can expect higher HC and CO readings. When you test catalyst-equipped cars, note that some V-8 engines may have a catalyst for each bank of cylinders.

It may become necessary to perform additional tests on catalyst-equipped vehicles to isolate a catalyst fault from faults in the engine.

For problem cases, a few of the additional tests that may be performed are discussed below:

- On air-injected vehicles, you can deactivate the air injection and rerun the test. The levels of HC and CO should be increased.

- Some vehicle manufacturers such as Chrysler and VW may provide a tap upstream of the catalyst, which you can use to exclude the catalyst.

- If it becomes absolutely necessary to sample upstream of the catalyst and no sample port is provided, you can use the EGR port when the vehicle is so equipped. Temporarily remove the EGR valve, leaving it attached to the control line. Plug the intake manifold port and then take a sample from the exhaust port side.

- When the HC/CO readings are low and the customer has a driveability complaint, make sure that the ignition and carburetion adjustments are set in accordance with manufacturer's specifications.

- If the customer complaint is about lack of power or performance, test the exhaust system back pressure using a vacuum gauge. The problem may be a blocked converter or exhaust system.

C. VOLUNTARY REPAIRS

When during the repair or replacement of a failed emission control system(s) or component(s), problems are found in other

emission control system(s) not identified as the cause for failure on the VIR, the following procedure should be followed:

1. Notify the vehicle owner and advise him or her of your findings and recommended repairs and costs. Tell the owner that such additional repairs are voluntary and explain how such repairs will have a positive effect upon emissions reduction as well as vehicle operation and maintenance.

2. Note the vehicle owner's decision on the repair invoice and mark the back of the VIR as appropriate or if in doubt as to what action to take, contact the VIP regional office.

D. EMISSION CONTROL SYSTEM FACTORY WARRANTY

All light-duty vehicles first certified for and sold in California, starting in 1973, are covered by a manufacturer's warranty of five years or 50,000 miles on all emission control components as specified in the Health and Safety Code, Section 43204.

When a vehicle is found to have a defective emission control device, and the vehicle meets the above criteria, notify the vehicle owner that he or she may be eligible for warranty coverage by the vehicle manufacturer. It should be noted that if the vehicle owner has failed to perform the required periodic maintenance or if the car has been tampered with, the dealer may not be required to honor the warranty.

E. TAMPERING OF EMISSION CONTROL SYSTEMS

Both the State of California and the federal government prohibit the tampering of vehicle emission control systems.

Tampering is defined as removing, disconnecting, damaging or rendering inoperative any emission control device, component or element of design installed on a motor vehicle or motor vehicle engine. Tampering includes the misadjustment of engine settings (timing, idle speed, and air/fuel ratio or the use of leaded gas in a car requiring unleaded.

Tampering can also void the vehicle manufacturer's warranty of five years or 50,000 miles on emission control devices.

Remember emission controls are installed to reduce the pollution from motor vehicles. When these devices are removed or rendered inoperative, a vital portion of the state's program to clean up the air has been defeated. Do your part by refusing to tamper with emission controls when asked by customers. Always service and maintain emission systems by using manufacturer's recommended specifications.

F. EMISSION CONTROL SYSTEM WAIVERS

The department is authorized to issue emission control system (ECS) waivers to vehicles that have failed the emission control system (ECS) inspection.

A request for ECS waiver can only be made by a "qualified" mechanic holding a Class A MVPC installer's license and employed by a licensed MVPC station.

A request for ECS waiver shall be made by telephone to the VIP Regional Office when either of the following conditions are encountered: (213-575-7030 ECS waiver information number only).

1. The repair facility is unable to locate replacement components or devices to repair the ECS as noted on the failed VIR.

2. A repairing or replacing (parts and labor) of the ECS components is too costly as determined by the vehicle age, model year and other factors.

The following cost limitation limits shall apply for the purposes of granting a request for ECS waiver.

Year Model	Cost Limit
1955-1965	$85
1966-1974	$150
1975-up	$250

The cost limitations specified above may be revised by the department from time to time.

All vehicles are required to receive a low emission tune-up performed to the specifications of the Department to be eligible for requesting an ECS waiver. The cost of performing the low emission tune-up is not to be included in the ECS cost waiver limits.

When an authorization to allow an ECS waiver is received from the VIP Regional Office, you should write the authorization number on back of the VIR, below the MVPC statement section. Also write the authorization number on the repair invoice.

Direct the motorist to return to the inspection center and notify the inspectors that the vehicle has been granted an ECS waiver authorization number.

SECTION 7

EMISSION TEST FAILURES

A. Recommended Repair Procedures

1. Excessive Smoke
2. Low emission tune-up
3. Idle RPM excessive
4. Idle air/fuel mixture rich
5. Misfire at Idle

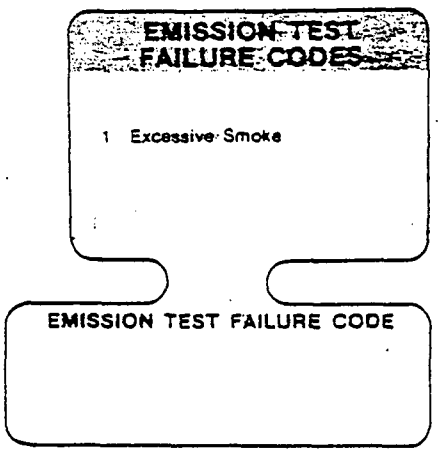
B. Cost Limitation
C. Voluntary Repairs
D. Waivers

A. RECOMMENDED REPAIR PROCEDURES

In this section, you will find a chart describing the recommended repair procedures you will be using in the repair of the vehicles failing the VIP emission test. When a motorist comes in with his vehicle and gives you his failed vehicle inspection report (VIR), look at the block labeled "EMISSION TEST FAILURE CODE". You will find one or more numbers that tell you which repair procedure(s) to follow. On the back of the VIR is a description of the probable cause of failure and recommended repair action. Then look at the chart in this section. Find the repair code number and see what the repair steps are. The most cost-effective (economical) repairs are listed first. The most expensive repairs are listed last. Do the first step given to see whether that will correct the problem. If it does not, continue on step-by-step until the exhaust emissions have been reduced to acceptable levels, or until the cost limit will be exceeded by further repairs. Refer to page 36 regarding voluntary repairs. Stop doing the repair actions when you come to this point. Always conduct the low emission tune-up procedure first when called for.

After you have followed these repair procedures several times, you may prefer to use the quick reference chart at the back of this book.

REPAIR PROCEDURE #1



CAUSE OF FAILURE:

Excessive smoke Emission Test Failure Code 1 shows that the vehicle was failed due to excessive smoke.

RECOMMENDED REPAIR STEPS:

Excessive smoke can be caused by a number of conditions. Some of the conditions can be corrected within the cost limitation (for example, oil leaks, faulty gaskets, seals, automatic transmission modulator, blocked crankcase ventilation, etc). Other conditions may require extensive repairs that will far exceed the cost limitation. The following steps are to be followed when repairing cause(s) of excessive smoke:

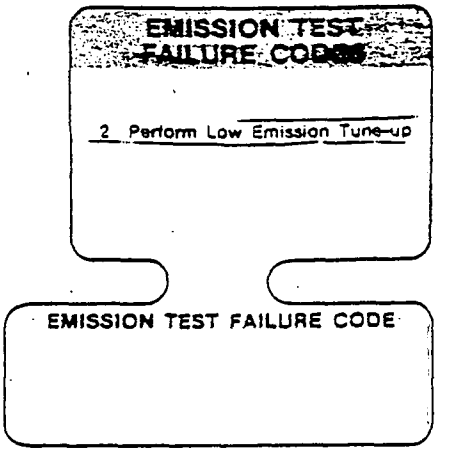
Step 1. Diagnose and repair cause of abnormal oil consumption.

Step 2. Replace broken or worn parts as required.

Step 3. When the repairs have been completed or the customer has decided not to exceed the cost limitation, the mechanics portion of the VIR can now be completed according to the instructions in Section 5B. If repairs were stopped because the cost limit was to be exceeded, a qualified licensed installer must fill out the MVPC statement on the back of the VIR to allow a waiver to be issued.

NOTE: Refer to page 35 for details on cost limitation.

REPAIR PROCEDURE #2



CAUSE OF FAILURE:

Emission Test Failure Code 2 shows that the vehicle is in need of a low emission tune-up.

RECOMMENDED REPAIR STEPS:

The VIP low emission tune-up procedure is defined as adjusting dwell, ignition timing, idle rpm and carburetor idle air/fuel mixture to the appropriate specifications.

All vehicles failing the emission test, and all vehicles for which a waiver is being requested with exception of those failing only the excessive idle rpm will require a low emission tune-up.

Perform the low emission tune-up before performing any other recommeded procedures printed on the VIR. This recommendation is based upon the fact that over 80% of the vehicles failing during the trial inspection program did so because of incorrect engine adjustments. You will be correcting such misadjustments when you perform a low emission tune-up.

Make all checks and adjustments according to the vehicle manufacturer's specifications and procedures. Vehicles equipped with catalytic converter systems require special checkout and adjustment procedures as specified by the vehicle manufacturer. When vehicles are equipped with a retrofit emission control device, refer to the retrofit device manufacturer's literature for any procedures or specifications for adjusting engine settings.

REPAIR PROCEDURE #2 (CONT.)

The steps to be followed when performing a low emission tune-up are as follows:

STEP 1. Check/adjust dwell

Check and, if necessary, adjust the distributor point dwell to manufacturer's specifications. If the points cannot be adjusted or are pitted, replace the points.

If the vehicle is equipped with an ignition system that does not use points, make sure the ignition system is functioning properly. Use an oscilloscope or equivalent to verify proper operation of the ignition system.

STEP 2. Check/adjust ignition timing

Check and, if necessary, adjust the ignition timing according to the appropriate specifications (vehicle or retrofit manufacturer).

Verify the operation of the mechanical and/or vacuum spark advance/retard following the vehicle or retrofit manufacturer's recommended procedures.

STEP 3. Check Idle rpm

Check and, if necessary, adjust the idle rpm to the specifications of the vehicle or retrofit manufacturer.

NOTE: If a large ifle speed adjustment is necessary, recheck initial timing.

STEP 4. Adjust the idle air/fuel mixture

Adjust the idle air/fuel mixture according to the vehicle or retrofit manufacturer's recommended procedure. Recommended idle adjustment procedures may not be available for some vehicles built prior to 1969 (underhood tune-up labels). If idle procedures cannot be obtained from a nationally published tune-up manual, refer to Section 11, Recommended Garage Carburetor Adjustment Guidelines.

Once the low emission tune-up has been completed, measure the HC and CO readings. The readings obtained should be as specified by the manufacturer. If there are no manufacturer specifications, the HC and CO readings should be equal to or less than the typical values listed in the Recommended Garage Carburetor Adjustment Guidelines (Section 11) for that particular year model vehicle.

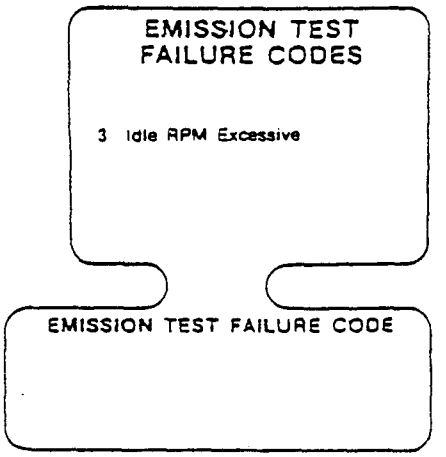
If the HC and/or CO readings exceed the Recommended Garage Carburetor Adjustment Guidelines values listed in Section 11, further repairs are required to bring the vehicle into compliance. When the reading of both HC and CO are equal

to or lower than the manufacturer's specifications or the Recommended

Garage Carburetor Adjustment Guidelines, record the final readings in the spaces provided on the back of the VIR. The mechanics portion of the VIR (See Section 5B for instructions).

If the CO% exceeds the Recommended Garage Carburetor Adjustment Guideline, refer to repair procedure #4 page 32. If the HC ppm exceeds the Recommended Garage Carburetor Adjustment Guideline, refer to repair procedure #5 page 34.

REPAIR PROCEDURE #3



CAUSE OF FAILURE:

The most probable causes for excessive idle speed are:

& Missadjusted Idle stop screws
& Linkage damaged, bent or worn
& Vacuum leak
& Emission Control Device Failure
& Overadvanced ignition timing

If the excessive idle speed is due to a mechanical defect that will cost more than the cost limit refer to Section 7B (Cost Limitation).

RECOMMENDED REPAIR STEPS:

Step 1. Adjust the engine idle speed to manufacturer's specifications. If the vehicle is equipped with a retrofit device, adjust the idle speed according to the retrofit manufacturer's setting.

Step 2. Once the idle PPM has been set to the proper specification, check the HC/CO emission to verify that they do not exceed the vehicle manufacturer's or Recommended Garage Carburetor Adjustment Guidelines listed in Section 11.

Step 3. If the CO reading exceeds the standard, continue repairing the vehicle according to the repair procedure for the Idle Air/Fuel Mixtre Rich (Repair Procedure #4).

Step 4. If the HC reading exceeds the standard, continue repairing the vehicle according to the repair procedure for Misfire at Idle (Repair Procedure #5).

REPAIR PROCEDURE #4

EMISSION TEST FAILURE CODES

4 Idle Air/Fuel Mixture Rich

EMISSION TEST FAILURE CODE

CAUSE OF FAILURE:

Idle air/fuel mixture rich

Emission Test Failure Code 4 shows that the vehicle failed for excessive carbon monoxide (CO) emissions.

High CO readings indicate a rich mixture, therefore, high CO is most likely a carburetion or fuel injection problem. If the CO at 2500 RPM is as high or higher than the CO at idle, the mixture is rich at cruising speeds as well as idle. Continue to perform the step by step repairs until the cause for high emission is corrected or until the cost limit will be exceeded.

RECOMMENDED REPAIR STEPS:

Step 1. Check the CO readings on the front of the Vehicle Inspection Report (VIR). Compare the CO reading at 2500 RPM to the CO reading at 2nd idle. If the CO at 2500 RPM is as high or higher than the CO at 2nd idle, the problem is most likely.

a. Dirty or restricted air cleaner
b. Partially closed choke
c. High float level or leaking float valve
d. Defective power valve or power enrichment device

Step 2. If the CO at idle is substantially greater than the CO at 2500 RPM, the problem is a rich air-fuel mixture. If not already done, adjust the idle air-fuel mixture following the vehicle manufacturer's specification and procedures. If the vehicle is equipped with a retrofit device, follow the device manufacturer's procedures. If no procedure exist or cannot be obtained, refer to Section 14.

Step 3. Measure the CO at idle, if adjusting the idle air/fuel mixture has reduced the CO percentage to a level below the manufacturer's specification or the Garage Carburetor Adjustment Guidelines published in Section 11, the repair is complete. If the CO percentage exceeds manufactures specification or the guideline figures proceed to step 4.

Step 4. Check the positive crankcase valve (PCV) operation, and verify free flow of vacuum through system passages and hoses.

Step 5. If the vehicle is equipped with a fuel evaporation storage system, remove the purge line from the storage canister and monitor the analyzer for a reduction in the idle CO. Such a reduction can indicate the storage canister (or crankcase on some vehicles) is saturated and needs maintenance.

Step 6. Be sure the air bleeds in the carburetor are not clogged. A good way to do this is to spray a degumenting agent into the aire bleeds and then blow them out using shop air.

Step 7. Check for a misadjusted or heavy (fuel saturated) carburetor float.

Step 8. Check to be sure any linkage operated fuel bowl vents operate correctly.

If high CO is still obtained, it may be necessary to rebuild or replace the carburetor. If the vehicle is equipped with fuel injection, refer to the manufacturer's procedure for adjustment and repair. Refer to page 35 for cost limitation.

Step 10. When the repairs have been completed or the customer has decided not to exceed the cost limitation, record the final HC and CO readings in the spaces provided just above the REPAIR STATEMENT on the back of the VIR. If either of the readings exceeds the State Standard printed on the lower front portion of the VIR, the MVPC Statement must be filled out (see page 20). The mechanics portion of the VIR can now be completed according to the instructions in Section 5B.

REPAIR PROCEDURE #5

EMISSION TEST FAILURE CODES

5 Misfire at Idle

EMISSION TEST FAILURE CODE

CAUSE OF FAILURE:

Misfire at Idle Emission Test Failure Code 5 shows that the vehicle failed for excessive hydrocarbons (HC). Continue to perform the step by step repairing until the cause(s) of the high emission is corrected or until the cost limit will be exceeded.

RECOMMENDED REPAIR STEPS:

Step 1. Check for improperly routed vacuum lines, incorrect vacuum sources, faulty or shorted spark plugs, incorrect plug gaps or disconnected, open or crossed plug wires (oscilloscope is recommended). Replace defective wires, clean or replace defective spark plugs. Stop if HC is reduced down to or below level specified in Section 11 for the applicable year model. If not, continue with step 2 or during any step, stop if needed repairs will exceed cost limitation (refer to page 35).

Step 2. Inspect for vacuum leaks and repair as necessary. If high HC continues, go to step 3.

Step 3. Check for distributor malfunctions including (a) defective or sticking vacuum or mechanical advance, (b) missing bypasses, or defective vacuum spark control system components, (c) faulty points, condenser, rotor or distributor cap crossfiring. Repair or replace as required. If high HC continues, go on to step 4.

Step 4. Conduct a cylinder balance or compression verification test. If weak cylinder(s) are found to be the cause for high HC and if the cost of repairing the low compression problem will not exceed the cost limit, make the necessary repairs. See page 23 regarding voluntary repairs.

REPAIR PROCEDURE #5 (CONT.)

Step 5. When the repairs have been completed or the customer has decided not to exceed the cost limitation, record the final HC and CO readings in the space provided just above the REPAIR STATEMENT on the back of the VIR. If either of the readings exceed the State standards printed on the lower front portion of the VIR, the MVPC Statement must be filled out (see page 20). The mechanic portion of the VIR can now be completed according to the instructions in Section 5B.

B. COST LIMITATIONS FOR EMISSION FAILURES

The State Legislature has imposed a cost limitation of $50, not including sales tax. Section 9889.56(e) Business and Professions states that an owner of a vehicle failing for high exhaust emissions is not required to spend more than this amount for the repair of malfunctions that caused the high emissions.

If the cost of further repairs, needed to correct the cause of high emissions will exceed the cost limit, the vehicle owner is not required by law to perform the further repairs. However, the vehicle owner should be notified of the further repairs required to correct the cause of high emissions. The vehicle owner may want you to perform the repairs even though they are not required, particularly if the further repairs will give him better mileage or performance. If the vehicle owner does not wish to exceed the cost limit for further repairs prepare the "MVPC Statement" on the back of the VIR and direct the customer to return the vehicle and forms to the VIP test center.

Only a Class A mechanic can waiver a vehicle by filling not the MVPC statement on the back of the VIR. Therefore a qualified mechanic who is not Class A will direct the customer to an MVPC station with Class A "qualified" mechanic to obtain the information needed to become eligible for a waiver. (See D below).

Items covered by cost limitation and eligible for waiver are:

- high emissions
- high idle speed
- low emission tune-up
- excessive smoke

Items NOT covered by cost limitation and NOT eligible for waiver are:

- rejected vehicles
- disconnected, altered or modified emission control

system (ECS) (see Section 6 for further information.)
- installation of retroft emission control devices

However, the vehicle owner is free to authorize additional repairs which exceed the cost limitation figure. Also, all charges in excess of the quoted estimate require prior approval from the customer.

C. VOLUNTARY REPAIRS

The vehicle owner is free to authorize additional or voluntary repairs and/or maintenance that exceeds the $50.00 limitation.

For example, when you are performing the maintenance and repair procedures, you find a broken plug wire. Examination of the remaining wires leads you to recommend replacement of the total set. However, the cost limitation will be exceeded. Inform the vehicle owner of your findings and recommendations. If he voluntarily authorizes the additional repair, replace the total ignition wire set. If he does not wish to give voluntary authorization for the total set replacement, proceed with replacement of the defective wire or wires up to the cost figure quoted on the customer's estimate, but not to exceed the VIP cost limitation of $50.00.

D. WAIVER

Vehicle Inspection Program regulations allow the state to issue a Certificate of Waiver in place of Certificate of Compliance for failed vehicles.

There are two situations that can occur to fulfill the requirements for waiver.

1. When a "qualified" mechanic with a Class A license in a licensed MVPC station has performed all the VIP recommended maintenance and repair procedure steps and upon return of the vehicle to the VIP test center, the vehicle fails re-inspection, a Certificate of Waiver will be issued.

2. When a "qualified" mechanic with a Class A license in a licensed MVPC station has determined that the failed vehicle is in need of further repairs that will exceed the cost limitation and that the vehicle has received a low emission tuneup, the "qualified" Class A mechanic will indicate his findings on the back of he VIR. The owner will then return to a VIP test center for re-testing and will be issued a Certificate of Waiver.

The Certificate of Waiver will satisfy the requirement for the Department of Motor Vehicles to transfer registration or to complete initial registration into California from outside the state.

SECTION 8

HANDLING OF REINSPECTION FAILURES

A. Repairs done by "qualified" mechanic
B. Repairs done by vehicle owner

A. REPAIRS DONE BY "QUALIFIED" MECHANIC

When a vehicle is returned to your repair facility because of inspection failure, it is recommended that the following actions be taken:

1. Review the reinspection VIR for cause of failure or rejection. Compare the reinspection results with your repair invoice to determine if the correct repairs were made.

2. If the reinspection test values on the VIR for HC and/or CO differ significantly from your after-repair levels, have the calibration of the analyzer checked.

3. When the cause(s) of the reinspection failure differs from the initial reason for failure, notify the vehicle owner and request authorization to repair the vehicle.

4. If you are unable to determine the cause for reinspection failure, you can request assistance by contacting the VIP Regional Office.

B. REPAIRS DONE BY VEHICLE OWNER

A vehicle owner may make his own repairs to a vehicle failing the vehicle inspection test. When he does so, he is required to fill out the back of the VIR indicating self repair. Remember when repairs or adjustments are made for compensation to a failed vehicle, only a "qualified" mechanic is authorized to make them.

After reinspection failure, the do-it-yourselfer may elect to take the vehicle to a repair facility employing a "qualified" mechanic.

The "qualified" mechanic should handle the vehicle as an initial repair. Money spent by do-it-yourselfers on repairs are not counted in the repair cost limitation.

SECTION 9

EMISSION STILL TOO HIGH AFTER RECOMMENDED REPAIRS HAVE BEEN PERFORMED

Recheck emission control systems for proper installation and operation.

Check to see if the engine has been replaced by an engine with different emission controls or an earlier year model, either of which could affect the emission failure standards. If this is the case, note your findings on the repair order and on the back of the VIR in the space just above REPAIR STATEMENT.

Other engine modifications that can adversely effect emissions include increased compression ratios, camshaft changes and carburetor modifications.

If the cause(s) for high emissions are found to be the result of engine modifications and/or emission control system problems, refer to Section 6. If the cause(s) for high emissions are not due to engine modifications, refer to Table II for further diagnosis.

TABLE III

EXHAUST EMISSION SYSTEM DIAGNOSTIC CHART

The arrows indicate higher than normal reading ↑
, or
lower than normal reading ↓

	Approx. Speed	-Idle	-1000 RPM	-2000 RPM	TEST RESULTS	TYPICAL MALFUNCTIONS	RECOMMENDATION
1	CO	↓	↓	↓	Possible Low	Open spark plug wire or fouled plug. (1200 PPM or over).	Verify with scope analysis.
	HC	↑	↑	↑	High any RPM		
2	CO				Normal	Arcing or misaligned points. (600 - 900 PPM).	Verify with scope analysis.
	HC	↑	↑	↑	Unstable		
3	CO	↓			Normal	Intake manifold or vacuum leak - (See also #8). (500 - 1000 PPM).	Verify - should decrease at higher RPM.
	HC	↑	↑		High @ low RPM		
4	CO	↑			High @ idle	P.C.V. valve restricted -or- carburetor misadjusted.	Block P.C.V. valve- if no change - replace valve.
	HC				Normal		
5	CO	↑	↑	↑	High @ any RPM	Restricted air cleaner -or- Choke malfunction	Remove air cleaner- if reading drops, replace air cleaner.
	HC				Normal		
6	CO	↑	↑		High @ idle	Extremely rich carburetor setting.	Set carburetor leaner.
	HC	↑			High @ idle		
7	CO			↓	Low @ high RPM	Ignition misfire at high speed -or- Floating exhaust valves.	Verify with scope.
	HC			↑	High @ high RPM		
8	CO				Normal	Loss of compression. (See also #3).	Check compression.
	HC	↑			High at idle		
9	CO	↓			Very low @ idle	Exceptionally lean carburetor setting resulting in high HC.	Adjust carburetor.
	HC	↑			High at idle		

SECTION 10

DISPUTES

A. Disputes with VIP test center
B. Disputes with the unhappy consumer

A. DISPUTES WITH VIP TEST CENTER

When you or your repair facility has a dispute with a VIP test center, the recommended action to be taken is for you, the "qualified" mechanic, to contact the test center and ask for the manager. You can locate the test center by finding the station under the "Reject Reason" section on the VIR. Match the number with table II on page 21.

If you are not satisfied with the resolution of your problem, contact VIP Regional Office.

B. DISPUTES WITH AN UNHAPPY CUSTOMER

Tact is the first requirement for handling an unhappy customer. Obviously, he feels he has been treated unfairly. In many cases, the problem is communication. Let him tell his side of the story. Usually, the unhappy customer can be satisfied if the service representative looks objectively at the reason for dissatisfaction. The case should be resolved at this level.

In the event the unhappy customer cannot be satisfied and the dispute involves the Vehicle Inspection Program direct the customer to the VIP Regional Office. 3415 Fletcher Avenue, Suite #2, El Monte, CA 91731. Phone # 213-575-7005.

SECTION 11

RECOMMENDED GARAGE CARBURETOR ADJUSTMENT GUIDELINES

A. Underhood labels
B. Idle adjustment guidelines
C. Manufacturer's special equipment

Always use the vehicle manufacturer's carburetor idle air/fuel adjustment procedures when available. Starting in 1972, vehicle manufacturers have been required to attach a vehicle underhood tune-up label in the engine compartment on every vehicle certified for California sale. The tune-up label has a list of engine adjustment specifications and procedures and a list of installed emission control systems. If no label can be found or if the label is illegible, refer to manufacturer's specifications as noted in most nationally published tune-up repair manuals. If the vehicle is equipped with a retrofit system, adjust to retrofit manufacturer's specifications.

A. UNDERHOOD LABELS

Following are some typical examples of underhood tune-up labels:

FORD MOTOR COMPANY
VEHICLE EMISSION CONTROL INFORMATION

SHIFT SCHED. T | MAINT. SCHED A

ENGINE FAMILY 351W "A" (1CVT) EGR/AIR/CATALYST
ENGINE DISPLACEMENT 351 CID
SPARK PLUG ASF-42 GAP .042-.046

VALVE LASH	HYD — NOT ADJ	ALTITUDE	☐ OVER 4000 FT. ☒ UNDER 4000 FT.	
TRANSMISSION/GEAR		AUTO/NEUT	AUTO/DRIVE	MAN/NEUT
IGNITION TIMING				8°BTDC
TIMING RPM				500
CHOKE SETTING				INDEX
FAST IDLE RPM	HIGH CAM			
	KICK DOWN			1500
CURB IDLE RPM	A/C			900
	NON A/C			900
TSP OFF RPM	A/C			500
	NON A/C			500

MAKE ALL ADJUSTMENTS WITH ENGINE AT NORMAL OPERATING TEMPERATURE, A/C AND HEADLIGHTS OFF. CONSULT SERVICE PUBLICATIONS FOR ADDITIONAL INSTRUCTIONS ON THE FOLLOWING PROCEDURES.

IGNITION TIMING - ADJUST WITH HOSES DISCONNECTED AND PLUGGED AT THE DISTRIBUTOR, AND AT THE VACUUM SWITCH, IF EQUIPPED WITH CCT SYSTEM

CURB IDLE - ADJUST WITH ALL VACUUM HOSES CONNECTED, AIR CLEANER IN POSITION, AND THROTTLE SOLENOID POSITIONER ENERGIZED (IF SO EQUIPPED).

IDLE MIXTURE - PRESET AT THE FACTORY. DO NOT REMOVE THE LIMITER CAP(S) EXCEPT IN ACCORDANCE WITH SERVICE PUBLICATIONS

CATALYST

THIS VEHICLE CONFORMS TO U.S.E.P.A. AND CALIFORNIA REGULATIONS APPLICABLE TO 1977 MODEL YEAR NEW MOTOR VEHICLES.

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Refer to Section 16 for a listing of motor vehicle emission control abbreviations and definitions of terms commonly used.

When no procedure exists for carburetor idle air/fuel mixture adjustment (some pre-1969 vehicles), or when there is a need to determine the level of hydrocarbon, refer to the idle adjustment guidelines below. Guidelines for normal levels of hydrocarbon (HC) and carbon monoxide (CO) are listed by year model groups. These levels are considered typical for the year models, for vehicles in good repair, except for vehicles equipped with catalytic converters. Vehicles equipped with catalytic converters should always be tested and adjusted following the manufacturer's recommended procedures and special equipment. Failure to do so can result in damage to the converter and a resulting increase in exhaust emissions.

B. IDLE ADJUSTMENT GUIDELINES

DOMESTIC VEHICLES	NO. CYL.	HC (PPM)	CO (%)
A. 1955 thru 1965	4 or less	900	6.0
	5 or more	700	4.0
B. 1966 thru 1970	4 or less	300	3.0
	5 or more	250	2.5
C. 1971 and later	4 or less	250	2.0
	5 or more	200	2.0

IMPORTED VEHICLES			
A. 1955 thru 1967	4 or less	1100	7.0
	5 or more	900	6.0
B. 1968 thru 1970	4 or less	300	4.5
	5 or more	250	4.0
C. 1971 and later	4 or less	250	4.0
	5 or more	200	3.5

NOTE: Vehicles equipped with air injection systems shall be adjusted to the above specification with air injection system disconnected and plugged. Before reconnecting air system, assure there is adequate air flow from pump outlet. Noncontrolled 1966-67 vehicles (no factory exhaust controls, first sold outside California and foreign) will be adjusted to 1955-65 levels.

C. MANUFACTURER'S SPECIAL EQUIPMENT

Some vehicle manufacturers specify that special tools and/or test equipment be used to diagnose and adjust engine settings. A "qualified" mechanic repairing a vehicle that has failed the VIP emission test must follow the manufacturer's special procedures and must use the special equipment as directed. Failure to do so may result in the suspension of the repair facility's ARD registration and/or MVPC license for failure to follow the specifications and procedures of the department as specified in Section 9889.60 of Chapter 20.4, Business and Professions Code.

For example, some vehicle manufacturers specify that the idle air/fuel ratio be adjusted using a procedure called artificial enrichment, propane gain or propane assisted idle adjustment. When such a procedure is called for and when there are no alternate techniques allowed, the "qualified" mechanic must follow the propane gain procedure and have the necessary special tools or equipment necessary to correctly make the idle setting.

SECTION 12

ENGINE-CHANGES

HOW TO HANDLE VEHICLES WITH ENGINES OF DIFFERENT MAKES OR YEAR MODELS

ENGINE CHANGES

HOW TO HANDLE VEHICLES WITH ENGINES OF DIFFERENT MAKES OR YEAR MODELS

Specially constructed vehicles, such as dune buggies, remanufactured vehicles, restored vehicles or salvaged vehicles may be equipped with various makes, sizes and types of engines. In addition, engine exchanges are quite common in passenger vehicles. When a vehicle is presented to a VIP test center with an engine of questionable origin, the vehicle may be rejected until the engine is identified so that the correct emissions standards group and ECS requirements can be determined. The vehicle owner will be directed to an MVPC station employing a "qualified" Class A MVPC installer to perform the following:

1. Make sure the vehicle and the VIR identification match.

2. Inspect the engine for manufacturer identification numbers.

3. Verify the engine make and year model, using the procedures contained in emission control manuals or manufacturer's shop manuals.

4. Record the findings (e.g. engine make, year manufacturer, CID, California or Federal certified when known) on the back of the VIR if the engine has been changed to a different year, model or make and also record the findings on the repair invoice. Tell the vehicle owner to return to a VIP test center for reinspection.

SECTION 13

FLEET OPERATIONS

An owner of a fleet of 10 or more vehicles affected by this program may become licensed as a VIP Fleet Inspection Operation. This allows the owner of such a fleet to inspect and test his fleet vehicles on his own premises and to issue Certificates of Compliance or Waiver. The department may authorize a fleet owner to inspect and test other fleet vehicles. This plan provided relief to a dealer or a commercial company not wishing to send its vehicles to a VIP test center.

In order to become licensed as a VIP fleet operation, the owner of a fleet of 10 or more affected vehicles must agree to meet, as a minimum the following conditions:

1. Own and operate a fleet of 10 or more vehicles affected by the program.

2. Be currently licensed as an official MVPC station.

3. Have the necessary test and diagnostic equipment as required by the program.

4. Have adequate facilities to conduct inspection on the premises in an area approved by the department.

5. Provide whatever access and cooperation the state deems necessary to facilitate random spot-checks.

6. Employ or have available a "qualified" mechanic who has a Class A MVPC installer's license.

7. Set aside approximately 2 1/2 hours, with the mechanics who will be doing the inspections, for orientation and training in the unique characteristics of fleet inspections and equipment check-out and calibration requirements.

8. Issue certificates, maintain records of repairs and follow departmental regulations.

Legislation permits a licensed fleet operation to perform fleet certification inspections as a service to other fleets with prior department approval. The fleet operation center must assume responsibility for identifying each of its collective members, and must insure their adherence to departmental regulations. To join a collective fleet, the fleet owner must:

1. Own and operate a fleet of 10 or more vehicles affected by the program.

2. Acquire the services of a collective fleet operation to perform the inspection.

3. Provide whatever access and cooperation the state deems necessary to facilitate random spot-checks.

4. Refer all disputes with the collective fleet operation to the VIP Regional Office.

The cost for a fleet operation licensing application is $10 plus an additional $10 for each fleet member. Annual renewal fees are $10 for the fleet operation and $10 for each member. Fleet operations may purchase Certificates at the VIP Regional Office.

If you wish to become a licensed fleet operation, please contact the VIP Regional Office and indicate your interest. A VIP fleet representative will contact you regarding application and inspection procedures.

SECTION 14

CARBURETOR ADJUSTMENT TECHNIQUES

A. General Techniques
B. Lean Best Idle Settings
C. Dual Pipes

A. GENERAL TECHNIQUES

An emission controlled engine requires precise idle mixture adjustment. No longer can you adjust carburetion for highest vacuum or to the best idle. If you adjust a car that way, there is a good chance the car will not pass today's stringent idle emissions requirements. Unfortunately, a car owner often finds that his car does not pass emission tests after tune-up because the mechanic adjusted the mixture screws to give the car owner the best idle he could. The currently accepted method of adjusting idle mixture is with an HC/CO analyzer. Some vehicle manufacturers provide specified levels for CO at idle or you can refer to the levels specified in Section 11 of this handbook. Always refer to the manufacturer's recommended levels and adjustment procedures when available.

Misadjusted or unbalanced carburetion can be either lean (too little fuel for the amount of air) or rich (too much fuel for the amount of air). Correct balance on a two-barrel carburetor is an important adjustment.

Excessively lean carburetion can cause lean misfire and oveneating of the combustion chamber which may result in glowing carbon particles that cause pre-ignition or excessive emission of HC. Pre-ignition has the characteristics of an overadvanced spark. It can lead to detonation, and may burn pistons, burn valves, and in severe cases, even crack cylinder heads.

An excessively rich mixture can cause fouled spark plugs and poor mileage, an extremely rich mixture will also wash oil off the cylinder walls, leading to increased engine wear.

A rich fuel mixture is indicated by high CO readings on the HC/CO analyzer. When looking for the cause of an excessively rich or lean mixture, check the following:

1. A high fuel level in the float bowl, which makes it much easier for venturi vacuum to allow fuel to be pulled out of the carburetor, contributes to a rich mixture. If the fuel level is too low, the engine may starve for fuel. Float level should be set to factory specifications.

2. Main jets of the wrong size or the wrong idle mixture adjustments can cause rich or lean mixtures. Some idle jets feed fuel to the engine when the throttle is open above idle, which means that a too rich or lean idle adjustment could cause a rich or lean mixture in the low cruising range. Whenever a carburetor has been rebuilt, there is always the possibility that someone has installed the wrong jets. Jets should be the size specified by the factory.

3. Metering rods that do not move smoothly in and out of the jets or are actually stuck in one position can drastically upset the mixture. Some rods are exposed, and it is easy to see if they move when you open the throttle. Rods that are concealed cannot be tested by hand to see if they move smoothly.

4. Carburetor dirt deposits can enrich air/fuel mixtures as much as two full numbers at low speeds. The trouble is caused by the gum and dust that collect in the air bleeds and in the throat of the carburetor around the throttle blade.

5. A power valve that is stuck open or that has a ruptured vacuum diaphragm will feed fuel constantly into the main system of the carburetor. The mixture in the cruising range will be extremely rich if this happens. A power valve that is ruptured will feed fuel at all speed ranges and will make the mixture extremely rich. Also, gasket blockage can cause loss of vacuum and can allow the power valve to remain open.

6. An accelerator pump with a worn plunger or a defective check valve can cause a severe hesitation when the driver opens the throttle, because the engine does not get the shot of fuel that it needs. To check the accelerator pump, either on or off the car, open the throttle to see if there is a squirt of fuel directed into the bores with the engine off. The accelerator pump pistons must move freely. Also a sticking or missing check ball will cause a similar problem.

7. The choke is one of the all-time big offenders in the list of causes for rich and lean mixtures. We do not ordinarily think of the choke as causing a lean mixture, but if the choke opens too fast, or is stuck open before the engine is at operating temperature, it can definitely cause a lean condition and result in a stumble. Chokes rarely need adjustment; most of the trouble with them is caused by the choke vacuum brake not working. Valves that are stuck closed because of dust, gum from the gasoline, or bent parts will cause an excessively rich mixture. Also, slow opening of the choke can be caused by a blocked warm air pipe, plugged heat riser, or weak thermostatic spring.

8. A thermostatic air cleaner that sticks in the hot air position may cause a mixture so lean that spark plugs may burn up.

B. LEAN BEST IDLE SETTINGS

Some manufacturers specify that, when the carburetor idle mixture is being set on an engine with emission controls, a lean idle drop method should be followed. When using the lean drop method, monitor the exhaust emission with an HC/CO analyzer to be sure there are no lean misfires (increased or fluctuating HC levels). Always follow the manufacturer's recommended procedure. The following information is provided as a suggested technique, which in most cases will yield smooth idle and low emissions. All other tune-up and emission control systems must be in proper working order and set to manufacturer's specifications before final adjustments can be properly conducted.

Adjust downdraft carburetors (one-two-and four-barrel) as follows:

1. Set idle speed to vehicle manufacturer's specifications and adjust idle mixture to rich condition.

2. Adjust idle mixture to "lean roll" condition (about 20 rpm drop from maximum idle speed). Adjust to rich side about one-half turn. Repeat this step on the opposite mixture screw to establish side-to-side balance on a two-or four-barrel carburetor. Do not look at the analyzer reading when making the adjustment.

Adjustment

3. Observe the idle emission levels after the engine and the analyzer have stabilized for about 13 seconds. If the CO is greater than the manufacturer's specification (if manufacturer's specifications are not available see Section 11), lean the idle mixture by turning the mixture screw clockwise about one-fourth turn. Allow the car and the analyzer to respond to each adjustment for about 10 seconds before proceeding with the next adjustment. On a two- or four-barrel carburetor, turn the other mixture screw the same amount as the first screw to maintain side-to-side balance.

The taper of the idle mixture screw determines the amount the screw must be turned to produce an emission change. A long taper requires more turn. In some cases, a 1/16 turn may cause a CO change of 0.5 to 1.0%. Experience will show you how much turning is required to produce a certain emission change.

REMEMBER

- Maintain side-to-side balance when adjusting two- or four-barrel carburetors.

- Avoid lean misfire (unsteady hydrocarbon readings--HC needed fluctuation). Too lean a mixture will cause lean misfire.

- When a car is left to idle for more than five minutes on a warm day (85 F° or higher), it may emit far too much CO because the fuel in the carburetor bowl heats up. When such overheating occurs, the car should be driven around the block.

- Verify idle rpm when completed. A high idle rpm will tend to lean the mixture and a low idle rpm will tend to enrich the mixture.

C. DUAL PIPES

If the vehicle is equipped with dual pipes, you should always measure the emissions in both pipes during the diagnosis or carburetor adjustment.

SECTION 15

EXEMPT VEHICLES

Section 9889.51 of Chapter 20.4 of the Business and Professions Code gives the department the authority to exempt classes specialized motor vehicles from the exhaust emission inspection portion of the program. Such vehicles can be added to or removed from the program when, in conjunction with the State Air Resources Board, it is determined technologically and economically feasible to do so.

The following vehicles are exempted from the VIP exhaust emissions test area:

- motorcycles
- new vehicles - unregistered*
- vehicles powered by two-cycle engines
- electrically powered vehicles
- diesel powered vehicles
- pre-1955 model year vehicles
- vehicles powered exclusively by alternate fuels (liquified peteroleum gas and natural gas)*
- vehicles over 8,500 lbs. gross vehicle weight*
- vehicles being transferred to a person's grandchild or spouse, parent or child, etc.

*NOTE: Vehicles that are powered exclusively by alternate fuels (liquified petroleum gas and natural gas) and trucks over 8,500 lbs. gross vehicle weight will continue to require emission system inspection in accordance with the Bureau of Automotive Repair's MVPC station program. Also, new unregistered vehicles over 6,001 lbs. gross vehicle weight will require Certificates of Compliance for DMV registration.

SECTION 16

EMISSION CONTROL SYSTEMS (ECS) ABBREVIATIONS AND DEFINITIONS

AAP - Auxiliary Acceleration Pump - A pump that increases driveability during cold engine operation by providing an extra amount of fuel to the acceleration nozzle to supplement the main accelerating pump.

ABPV or ABV - Air Bypass Valve - A backfire-suppressor valve used in air injection systems to divert air to the atmosphere during deceleration; a diverter or dump valve.

Advanced Timing - A condition where the ignition timing is set to fire the spark plug before the piston reaches top dead center (BTDC).

A/F Ratio - Air/Fuel Ratio - The proportion of air to fuel.

AG - Air Guard - The name used by American Motors to describe a system that pumps air into the exhaust manifold to reduce HC and CO emissions.

AIR - Air Injection Reactor System - A system that pumps air into the exhaust manifold to reduce HC and CO emissions.

Air Pollution - The contamination of the air that results from both nature's activity and man's activity.

ASV - Air Switching Valve - A valve in an air injection system that senses intake manifold vacuum and, during heavy load, dumps part of the air pump output to the air cleaner to reduce air injection system pressure.

ATDC - After piston reaches top dead center.

Automotive Emissions - Gaseous and/or particulate substances that originate in and are emitted from motor vehicles, exhaust system, crankcase, fuel tank, and carburetor.

BCDD - Boost Controlled Deceleration Device - A valve that, during deceleration, is triggered into action by high intake manifold vacuum. The valve allows an additional source of air and fuel to enter the intake manifold during deceleration to obtain a more burnable mixture.

BDC - Bottom Dead Center - A condition where ignition timing is set when the piston or engine stroke travel is at bottom dead center.

BHP - Brake Horsepower

BID - Breakerless Inductive Discharge Ignition System - A solid state electronic ignition system that uses a trigger wheel and sensor rather than points.

BPS - Exhaust Back Pressure Sensor

BPV:BPS - Exhaust Back Pressure Transducer Valve - A device used to sense exhaust back pressure changes and control vacuum to the EGR valve in response to these changes.

BTDC - Before Top Dead Center

C - Degrees Centigrade

CAM - Choke Air Modulator Switch

CAP - Cleaner Air Package - First used by Chrysler in 1966.

CAS - Cleaner Air System - Used by Chrysler in 1969.

CAT - Catalytic Converter - A device used in the exhaust system to reduce hydrocarbon and carbon monoxide emissions.

CCEGR - Coolant Control Exhaust Gas Recirculation - A system that prevents exhaust gas recirculation until engine coolant temperature reaches a specific value.

CCS - Controlled Combustion System

CCT - Computer Controlled Timing - A system that feeds input from various engine sensors into a computer. The computer then matches spark timing exactly to engine requirements throughout its full range of operation.

CCV - Closed Crankcase Ventilation

CDI - Capacitive Discharge Ignition - An ignition system that discharges a capacitor into the primary winding of the coil to initiate a high voltage spark at the spark plug.

CEC - Combined Emission Control - A system very similar to most transmission control spark (TCS) systems, except that the vacuum control solenoid also acts as a throttle positioner.

CFM - Cubic Feet Per Minute

CID - Cubic Inch Displacement

CO - Carbon Monoxide - A colorless, odorless, deadly gas that results from a lack of air when hydrocarbons (HC) are burned.

CO2 - Carbon Dioxide - A product of the complete burning of hydrocarbon fuels.

Combustion - The process of burning, which requires a fuel, a source of oxygen, and a source of ignition such as a spark.

CRV - Coasting Richer Valve

CSC - Cold Start Cycle

CSSA - Cold Start Spark Advance System - A system used on 460 CID Fords that allows full intake manifold vacuum to the distributor vacuum advance unit for better driveability when coolant tempeatures are low.

CTAV - Cold Temperature Activated Vacuum - A system used by Ford to select either carburetor ported vacuum or EGR port vacuum for the distributor vacuum advance unit, depending on ambient temperature.

CTO - Coolant Temperature Override Switch - A switch that prevents vacuum from reaching a component until coolant temperature reaches a certain value.

CTVS - Choke Thermal Vacuum Switch - A switch used by Oldsmobile to deny vacuum to either the front or the auxiliary choke vacuum breaks. Its purpose is to slow the opening of the choke and to provide better driveability when the engine is cold.

CV - Check Valve

DAD - Dual Area Diaphragm - A unit, used by Ford on 1973 vehicles, that sensed intake manifold vacuum and EGR vacuum signals and used these signals to achieve mor desirable shift points and smoothness.

DAS - Distributor Advance Solenoid - A device used by Chrysler to give a 7 1/2 spark advance while cranking the engine for easier starting.

DD - Dual Distributor

DDD - Dual Diaphragm Distributor - A distributor vacuum advance unit that uses intake manifold for retard operation and carburetor ported vacuum for timing advance operation.

DDV - Distributor Decel Valve

DMS - Distributor Modulator System - A speed controlled spark system used by Ford in 1970.

DP - Dashpot

DPD - Dual Point Distributor

DRCV - Distributor Retard Control Valve - A valve used in Ford's Cold Start Spark Advance (CSSA) system that allows manifold vacuum to reach the vacuum advance unit and then keeps it there for constant vacuum advance until coolant temperature reaches 128 F. It is used for increased driveability.

DRS - Distributor Retard Solenoid

DSC - Dual Stage Electric Assist Choke - A heating element operated by an electrical control switch, used by Chrysler to prevent prolonged choke operation after initial warmup.

DTVS - Distributor Thermal Vacuum Switch - A switch used by Oldsmobile to direct manifold vacuum to the distributor vacuum advance unit when coolant temperature exceeds approximately 220 F.

DV - Fuel Decel Valve - A valve used by Ford, Saab, and Subaru that provides an additional air/fuel mixture during deceleration.

DVB - Delay Vacuum Bypass System - An optional system used by Ford that bypasses the spark delay valve during cold operation to improve driveability.

DVCS - Distributor Vacuum Control Switch

DVDSV - Differential Vacuum Delay and Separator Valve

DVV - Distributor Vacuum Valve - A valve used by Oldsmobile that allows ported vacuum to the vacuum advance unit until the vacuum reaches 7-8" Hg. The valve then switches to EGR port vacuum.

DVV - Distributor Vacuum Advance Modulator Valve

EAC - Electric Assist Choke

ECS - Evaporation Control System - A system used to prevent the escape of gasoline vapors to the atmosphere from the fuel tank and carburetor.

EDM - Electronic Distributor Modulator - A speed controlled spark system used by Ford in 1970 and 1971.

EFE - Early Fuel Evaporative System

EFI - Electronic Fuel Injection

EGR - Exhaust Gas Recirculation

ESC - Electronic Spark Control

F - Degrees Fahrenheit

FCO - Fuel Cutoff Valve - A valve used by some foreign manufacturers that prevents fuel flow in the carburetor when the engine is shut off.

FEC - Fuel Evaporation Control System

FVR - Fuel Vapor Recovery System

GVW - Gross Vehicle Weight

HAI - Heated Air Inlet System

HC - Hydrocarbons - Any compound that is made up of hydrogen (H) and carbon (C). Gasoline, diesel fuel, and lubricating oil are made up of hydrocarbons.

HEI - High Energy Ignition - An electronic ignition system used by General Motors.

Hg - Mercury

IES - Idle Enrichment Systems - A system used by Chrysler that allows more fuel to enter the cylinders when the engine is cold for better driveability. As the engine warms up the normal air/fuel ratio is restored.

IMCO - Improved Combustion System - A series of engine, carburetion, and ignition modifications made by Ford to reduce exhaust emissions.

IR - Infrared Exhaust Analyzer - An instrument used to measure the unburned hydrocarbons (HC) and carbon monoxide (CO) that are discharged from a vehicle exhaust pipe.

ISS - Idle Stop Solenoid

Manifold Vacuum - The vacuum that results from the pumping action of the pistons and is felt below the carburetor throttle plates and throughout the intake manifold.

MCV - Mixture Control Valve

MFI - Mechanical Fuel Injection

Modulator - A device that controls or regulates the intensity of a vacuum, electrical, or pressure signal.

NOx - Oxides of Nitrogen - Different combinations of oxygen (O) and nitrogen (N) that result from high temperatures in the internal combustion engine.

OC - Oxidation Catalyst (Catalytic Converter) - A device using platinum and palladium that changes HC and CO in the presence of oxygen to water and carbon dioxide.

OSAC - Orifice Spark Advance Control - A device used by Chrysler to apply vacuum to the vacuum advance unit over a period of time. By limiting the timing advance rate, NOx is reduced.

OTVS - Oil Thermal Vacuum Switch - A switch used by Oldsmobile to shut off vacuum to the early fuel evaporation (EFE) valve when oil temperature reaches 150 F.

Oxygen - A colorless, odorless gas that makes up about 20% of our atmosphere and is necessary for combustion or burning to occur.

PCV - Positive Crankcase Ventilation

PTC - Positive Temperature Coefficient Choke Heater

PVA - Ported Vacuum Advance - A port for a vacuum connection that is located above the idle position of the throttle plates. When the throttle plates are in idle position, there is no vacuum at the port. When the throttle is opened, a vacuum signal is available to the vacuum advance unit.

PVS - Ported Vacuum Switch

RDV - Retard Delay Valve

Retarded Timing - A condition where ignition timing is set to fire the spark plug after the piston reaches top dead center (ATDC).

SAVM - Spark Advance Vacuum Modulator - A valve used by Oldsmobile that is sensitive to engine load and varies the vacuum signal strength and source to the distributor in response to engine load.

SCS - Speed Control Switch

SCS - Speed Controlled Spark - A system used on some General Motors cars to prevent any vacuum advance from occurring until a certain speed is reached.

SDV - Spark Delay Valve - A valve in the vacuum advance hose that delays the vacuum signal to the vacuum advance unit.

SPTC - Spark Timing Control System - A dual point distributor system used by Datsun. This system uses a retarded timing for city driving and advanced timing for highway driving. The selection is controlled electrically.

S/S - Ford's Solid State Ignition System

STC - Spark Timing Control System

TAC - Thermostatic Air Cleaner

TAV - Temperature Actuated Vacuum System

TCS - Transmission Controlled Spark

TDC - Top Dead Center - A condition where ignition timing is set when the piston or engine stroke travel is at top dead center.

TDP - Throttle Closing Dashpot

TDR - Time Delay Relay

TIC - Thermal Ignition Control - A device used by Chrysler that shifts the vacuum advance vacuum source from ported vacuum to manifold vacuum when coolant temperature exceeds 225&F.

TO - Thermal Override

TOC - Throttle Opener Control System

TP - Throttle Positioner

TPV - Throttle Poppet Valve

TR - Thermal Reactor - A special design of exhaust manifold that retains heat and keeps the exhaust gases within it for a longer period of time to promote further oxidation or burning of hydrocarbons and carbon monoxide.

Transducer - A device that receives a signal from one system (such as exhaust back pressure) and transfers that signal to another system (such as a vacuum source).

TRS - Transmission Regulated Spark - A system used by Ford that prevents any vacuum advance from occurring until the transmission is shifted into high gear.

TVS - Thermal Vacuum Switch - A temperature sensitive switch that shifts vacuum advance vacuum sources from ported to manifold vacuum when coolant temperatures reach approximately 225&F.

TVSV - Thermostatic Vacuum Switching Valve

TVV - Thermal Vacuum Valve

VAC - Vacuum Advance Control

Vacuum - A pressure that is less than atmospheric pressure. Vacuum is used extensively in motor vehicles for control purposes.

VAV - Vacuum Advance Valve VBV - Vacuum Bias Valve - A valve used by Pontiac to prevent engine surge caused by the EGR system during highway cruise conditions.

VDV - Vacuum Differential Valve - A device used on the Chevette that senses intake manifold vacuum and triggers the bypass valve to dump injected air to the atomosphere during deceleration.

VDV - Vacuum Delay Valve - A valve used by GM to bleed ported vacuum through a small orifice to vacuum advance unit and control vacuum advance rate.

Venturi Vacuum - A weak vacuum signal that originates at the venturi of the carburetor. As engine speed increases, the venturi vacuum signal increases.

VHC - Vacuum Operated Exhaust Heat Control Valve - A vacuum operated heat riser valve used by Ford to cause the exhaust to flow through the intake manifold crossover passage for preheating of the air/fuel mixture.

VIN - Vehicle Identification Number

VRV - Vacuum Reducer Valve - A valve used by GM on some models to reduce vacuum to vacuum advance unity by 1 1/2 - 3" Hg when coolant temperature is greater than 220& to reduce detonation.

VSV - Vacuum Switching Valve - An electrically controlled vacuum switching valve used by Tovota to control their emission control devices.

VTM - Vacuum Throttle Modulator

VTV - Vacuum Transmitting Valve - A valve used by Toyota to limit the rate of vacuum advance.

W/O - Without

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DIAGNOSTIC MESSAGE	QUICK REFERENCE CHART OF RECOMMENDED MAINTENANCE AND REPAIR PROCEDURES
1. EXCESSIVE SMOKE	A. Check for oil leaks, faulty gaskets and seals. B. Check automatic transmission modulator, when so equipped. C. Check for blocked open PCV valve.
2. PERFORM LOW EMISSION TUNE-UP	A. Check and adjust dwell, replace points if necessary B. Verify proper operation of ignition systems which do not have points. Use an oscilloscope or equivalent. C. Check and adjust ignition timing according to appropriate specifications (vehicle or retrofit manufacturer). D. Verify proper operation of the mechanical and/or vacuum spark advance/retard following the vehicle or retrofit manufacturer's recommended procedures. E. Check and adjust idle rpm to the specifications of the vehicle or retrofit manufacturer. F. Adjust the idle air/fuel mixture according to the vehicle or retrofit manufacturer's specifications.
3. IDLE RPM EXCESSIVE	A. Check idle stop screw adjustment. B. Check for damaged, bent or worn linkage. C. Check for vacuum leaks. D. Check for emission control device failure. E. Check for overadvanced timing. F. Adjust idle rpm to vehicle or retrofit manufacturer's specifications. G. Check the HC/CO emissions against the state emission test standards. H. If the CO reading exceeds the standards, go to Diagnostic Message #4 Idle Air/Fuel Mixture Rich. I. If the HC reading exceeds the standards, go to Diagnostic Message #5 Misfire at Idle.
4. IDLE AIR/FUEL MIXTURE RICH	A. Check to ensure engine is at operating temperature. B. Check to be sure choke is open. C. Check air cleaner system. D. Adjust idle air/fuel mixture following vehicle, or if applicable, retrofit manufacturer's specifications and procedures. E. Check PCV system. F. Check fuel evaporation system. G. Check carburetion fuel injection system.
5. MISFIRE AT IDLE	A. Check for improperly routed vacuum lines and incorrect vacuum sources. B. Check for faulty or shorted spark plugs. C. Check for open or crossed spark plug wires. D. Check for vacuum leaks. E. Check for distributor timing malfunctions such as defective or sticking vacuum or mechanical advance mechanisms. F. Check for faulty ignition parts such as points, condenser, rotor and cap. G. Check for leaking valves using a cylinder balance or compression test.

GARAGE IDLE ADJUSTMENT GUIDELINES

Yr. & Cyl.	HC	CO%
DOMESTIC VEHICLES		
1955-65		
4 or less	900	6.0
5 or more	700	4.0
1966-70		
4 or less	300	3.0
5 or more	250	2.5
1971-later		
4 or less	250	2.0
5 or more	200	2.0
IMPORTED VEHICLES		
1955-67		
4 or less	1100	7.0
5 or more	900	6.0
1968-70		
4 or less	300	4.5
5 or more	250	4.0
1971-later		
4 or less	250	4.0
5 or more	200	3.5

NOTE:

1) Vehicles equipped with AIR systems shall be adjusted with the pump disconnected and plugged.

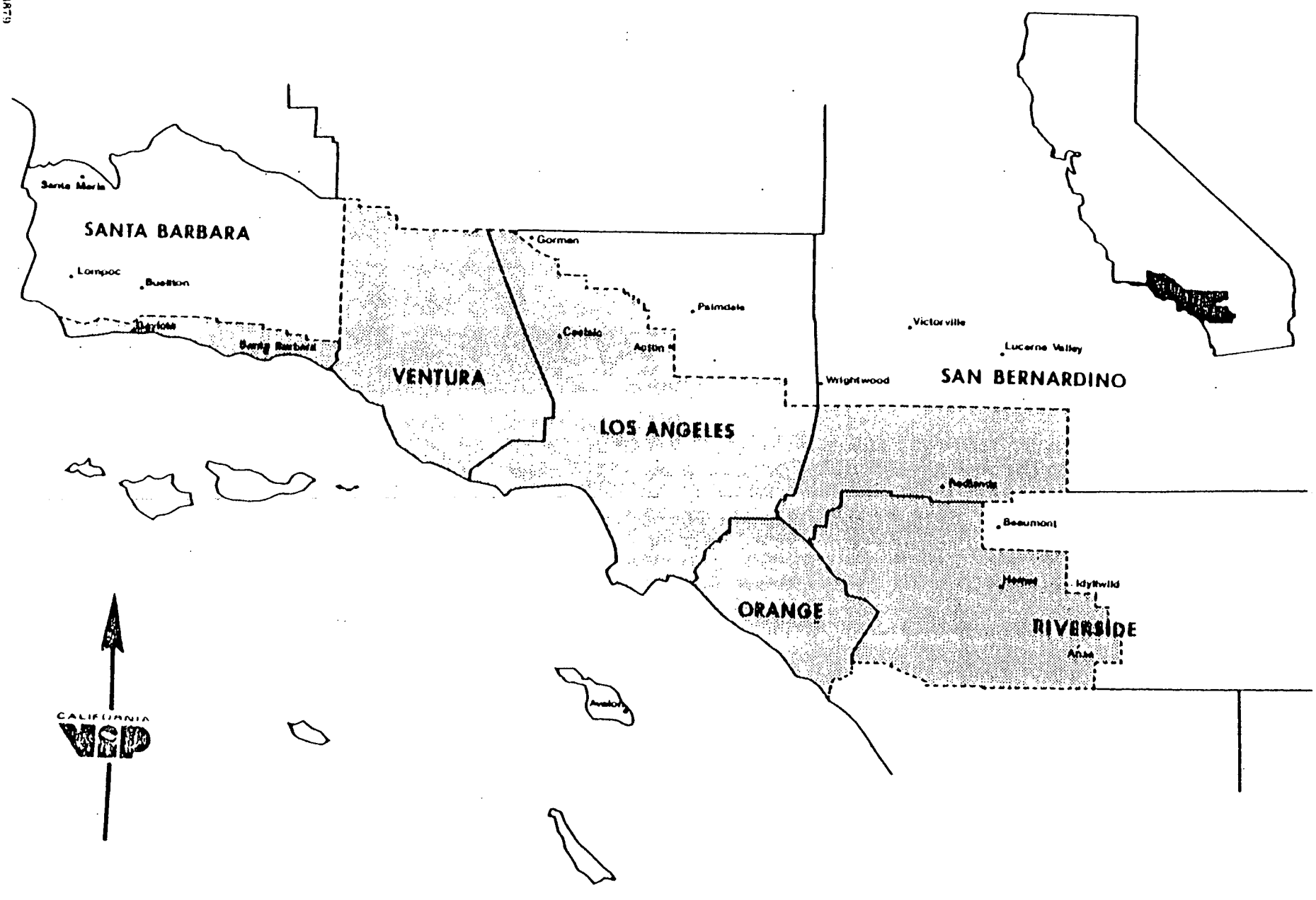
2) Vehicles equipped with catalytic converters shall be adjusted following the manufacturer's procedures, failure to do so can result in damage to the connector.

2

Mechanic's Program Information Guide

MAY 1979

Mandatory Vehicle Inspection Area



I. INTRODUCTION

Please read this study guide before you go to an Orientation Seminar. This material will help you to understand the purposes, goals, and Legislative requirements of the California Vehicle Inspection Program, and contains information covered in Module one of the written examination.

II. AIR POLLUTION AND THE MOTOR VEHICLE

Air pollution is bad for the public health and welfare. In the cities and suburbs of California, most of the air pollution comes from motor vehicles. The South Coast Air Basin has one of the most severe air pollution problems in California.

One of the worst air pollutants is photochemical smog or "Los Angeles" type smog. It is formed when reactive hydrocarbons (HC) and oxides of nitrogen (NO_x) change chemically in the presence of sunlight. The motor vehicle is one of the prime sources of hydrocarbons and oxides of nitrogen. Carbon Monoxide (CO) is another pollutant that comes from the combustion process. Carbon monoxide is formed when there is not enough oxygen present to convert carbon to carbon dioxide.

III. THE QUALIFIED MECHANIC

Let's review why there is a need for Qualified Mechanics. Both the federal and state governments have required vehicle manufacturers to design and build vehicles to meet strict exhaust emission standards. However, without correct periodic maintenance and repairs, the vehicles will become "gross emitters". That is, they will give off large amounts of pollutants.

It has been shown that air pollution can be reduced when these gross emitters are identified and repaired. The Vehicle Inspection Program is setting up inspection centers to identify these vehicles. Once identified, these vehicles in need of maintenance and repair will be directed to repair facilities that employ "Qualified" mechanics knowledgeable in low emission tune-up and cost-effective repairs to lower exhaust emissions.

The Vehicle Inspection Program is required by law to make sure there are enough "Qualified" mechanics to repair the vehicles that do not pass inspection.

To become "Qualified" and receive a Certificate of Qualification, you must:

1. Attend a Vehicle Inspection Program Orientation Seminar.

2. Become familiar with the maintenance and repair procedures recommended by the State.

3. Demonstrate automotive repair abilities by passing a written examination.

The written examination will consist of four parts, covering the following subjects:

1. The Vehicle Inspection Program and its recommended maintenance and repair procedures.

2. Internal combustion engines and automotive electrical ignition systems & basic theory.

3. Fuel systems and emission control system operations.

4. Engine malfunction diagnostic procedures and test equipment usage.

IV. MANDATORY VEHICLE INSPECTION PROGRAM

To reduce the level of automotive-caused air pollution, the State, on March 19, 1979, started a mandatory emission testing and inspection program in the South Coast Air Basin, (S.C.A.B.) which consists of Ventura and Orange Counties and portions of Santa Barbara, Los Angeles, Riverside, and San Bernardino Counties.

After March 19, 1979, MVPC stations will no longer issue Certificates of Compliance for passenger vehicles and light to medium duty vehicles under 8,501 lbs. gross vehicle weight, within S.C.A.B., Certificates for those vehicles will be issued only by State operated inspection centers. Before a vehicle from another state can be registered into California or befc e a registration can be transferred, the vehicle will have to be tested in an official state inspection center.

Certain vehicles are exempt from the Vehicle Inspection Program emission test:

-Motorcycles

-New Vehicles - unregistered

-Vehicles powered by two-cycle engines

-Electrically powered vehicles

-Diesel powered vehicles

-Pre-1955 model year vehicles

-Vehicles powered by alternate fuels (liquified petroleum gas and natural gas)*

-Vehicles over 8,500 lbs. gross vehicle weight*

-Vehicles being transferred between parents, grandparents, child, or spouse

*Note: Vehicles that are powered by alternate fuels (liquified petroleum gas and natural gas) and trucks or motor homes over 8,500 lbs. gross vehicle weight will continue to require emission system inspections in accordance with the Bureau of Automotive Repair's MVPC station program. The B.A.R.'s MVPC stations will continue to clear applicable inforcement documents.

The State inspection centers will conduct the following tests or inspections on vehicles:

1. A visual check for the following unsafe conditions:

-Oil leaks

-Water leaks

-Fuel leaks

-Exhaust leaks

-Other unsafe conditions, such as bulging radiator hose(s), loose fans and loud internal engine noises

Vehicles found with any of the above unsafe conditions will be rejected from the test until such conditions are corrected. Each unsafe condition found will be noted on the Vehicle Inspection Report (VIR). There is no cost limits on rejected items and the mechanic does <u>not</u> have to be "Qualified" to repair rejected vehicles.

2. A visual inspection of the vehicle's factory installed and retrofit emission control systems will be made prior to testing. Any disconnected, modified, missing, or inoperative emission control device will result in the vehicle being failed. A failed Vehicle Inspection Report will be given to the vehicle owner.

3. A test for idle emissions levels of hydrocarbon (HC) and carbon monoxide (CO).

The vehicle is first allowed to stabilize at idle with the transmission in park or neutral; the engine idle RPM is recorded. Next, the exhaust levels of HC and CO are measured by infrared exhaust gas analyzers. Next, the engine speed is increased to 2500 RPM to allow the inspector to functionally check selected emission control devices and to check the vehicle exhaust for excessive smoke. The vehicle engine is then allowed to return to idle and the emission test is completed. The results are recorded and compared to the State idle emission standards, using an automated process controller.

The owner of a vehicle passing inspection and emissions test will:

-Receive a "Passed" Vehicle Inspection Report

-Be issued a Certificate of Compliance (good for 60 days for registration purposes)

The owner of a vehicle failing the emissions test and/or inspection will receive a "Failed" Vehicle Inspection Report with one or more of the following messages:

-Excessive hydrocarbon (HC) and/or carbon monoxide (CO) emissions

-Excessive smoke

-Excessive idle RPM

-Disconnected, modified, missing, or inoperative emission control systems

Before the failed vehicle can be re-inspected, the cause(s) for failure are required to be corrected; or in some cases the vehicle may qualify for a waiver. Remember when repairs are made for compensation, only a "Qualified" mechanic may repair vehicles failing the Vehicle Inspection Program inspection.

V. COST LIMITATION

The owner of a failed vehicle will not be required to spend more than $50 to correct the problems that caused the vehicle to fail the exhaust emissions test.

For example, you complete the low emission tune-up procedure on a vehicle, then determine that the idle CO level is still excessive because of a faulty carburetor. The additional work is estimated to exceed $50 and, therefore, is not required by law. However, if the vehicle owner chooses to have the carburetor repaired, he may do so. You would indicate carburetor repair as a voluntary repair on the back of the Vehicle Inspection Report.

The following conditions have no cost limitation and must be corrected prior to completing the inspection:

- Correction of conditions causing the rejection of the vehicle. Example: No fuel, oil or coolant leaks, abnormal engine noise or large exhaust leaks that could be considered unsafe or affect the validity of the exhaust emission test.

VI. VOLUNTARY REPAIRS

As previously pointed out in the carburetor example, even though there is a cost limitation in the Vehicle Inspection Program, the vehicle owner is free to authorize additional or voluntary repairs and/or maintenance that exceed the $50 limitation.

For example, during the performance of the maintenance and repair procedures you find a broken plug wire. Examination of the remaining wires leads you to recommend replacement of the total set. However, the cost limitation will be exceeded. Inform the vehicle owner of your findings and recommendations. Replace the total ignition wire set only if the owner authorizes the additional repair. If he does not authorize the total replacement set, then only replace the faulty wire or wires within the cost limitation.

VII. WAIVER

The Vehicle Inspection Program has regulations that allow the State to issue a Certificate of Waiver in place of a Certificate of Compliance for a vehicle failing re-inspection.

There are two situations that can occur to fulfill the requirements for waiver. They are:

1. When a "Qualified" mechanic with a Class "A" license in a licensed MVPC station has performed all the Vehicle Inspection Program recommended maintenance and repair procedure steps and the vehicle fails re-inspection, upon return of the vehicle to the State inspection center, a Certificate of Waiver will be issued.

2. When a "Qualified" mechanic with a Class "A" license in a licensed MVPC station has determined that the failed vehicle is in need of further repairs that will exceed the cost limitation and that the vehicle has received a low emission tune-up, the "Qualified" Class "A" mechanic will indicate his findings on the back of the inspection report in the block titled "MVPC Statement". The owner will then proceed to the Vehicle Inspection Center for re-testing and issuance of the Certificate of Waiver.

The Certificate of Waiver will satisfy the requirement for the Department of Motor Vehicles to transfer registration or to complete initial registration into California from another state.

VIII. REQUIRED EQUIPMENT

As a "Qualified" mechanic, you will be required to have the following tools and tune-up equipment available, separately or in combination:

1. Exhaust gas analyzer with a 0-10% carbon monoxide (CO) readout and hydrocarbon (HC) readout of 0-2000 PPM as approved by the Bureau of Automotive Repair. (Dual range required for fleet facilities.)

2. Oscilloscope - ignition analyzer

3. Ammeter

4. Ohmmeter

5. Voltmeter

6. Tachometer

7. Vacuum gauge, pressure gauge

8. Cam angle dwell meter

9. Ignition timing light

10. Compression test gauge

11. Distributor advance tester

You must know the correct usage, maintenance, and calibration requirements of each item of test equipment. You must also be able to interpret the readings of the test equipment and make effective diagnosis and repairs. Also, fleet facilities are required to assure HC and CO analyzer accuracy weekly, using B.A.R. certified calibration gas.

IX. LOW EMISSION TUNE-UP

A vehicle failing the exhaust emissions test shall receive the "low emission tune-up" message on the Vehicle Inspection Report. The Vehicle Inspection Report will also list one or more recommended procedures to be followed to correct the most probable cause for failure.

The low emission tune-up is defined as the basic engine adjustment of:

Dwell - Check and adjust as necessary to manufacturer's specifications. If the vehicle is equipped with an electronic ignition system, follow the manufacturer's recommendations.

Initial timing - Check the initial (basic) engine timing and adjust it as necessary to original equipment manufacturer's (OEM) or applicable retrofit manufacturer's recommended setting. Run the engine to 2500 RPM and verify the mechanical and vacuum advance operation when applicable. To check a vehicle equipped with a vacuum spark advance disconnect system, follow the manufacturer's procedures.

Idle RPM - Check the engine idle RPM and adjust it as necessary to manufacturer's or applicable retrofit manufacturer's specified level.

Carburetor idle air/fuel mixture - Adjust the idle air/fuel mixture following the manufacturer's specifications and procedures. If there are no manufacturer's specifications or procedures, refer to the Vehicle Inspection Program's "Qualified" Mechanic's Handbook.

X. RECOMMENDED MAINTENANCE AND REPAIR PROCEDURES

In addition to the "low emission tune-up" message, there will be one or more failure messages for vehicles with gross emissions of hydrocarbon and/or carbon monoxide or excessive idle RPM.

The low emission tune-up procedure should be followed first, then check your success by measuring the levels of hydrocarbon and/or carbon monoxide. If high emissions continue, perform the recommended maintenance and repair procedure(s) indicated by these messages:

-Idle air/fuel ratio rich

-Misfire at idle

-Combination of the above messages

The recommended procedures contained in the "Qualified" mechanic's handbook were developed to allow the most common and cost-effective (economical) repairs to be listed first. The more expensive repairs are listed last.

Do the first step given, and monitor the emissions to see if the problem is corrected. If not, continue on step by step until the exhaust emissions have been lowered to the manufacturer's specifications or below the appropriate level listed in the Handbook. Stop doing the step by step repairs when you come to that point. Complete the Vehicle Inspection Report, listing the maintenance and repairs you made.

XI. EMISSION CONTROL SYSTEM WAIVERS

The Department is authorized to issue emission control system (ECS) waivers to vehicles that have failed the emission control system (ECS) inspection.

A request for ECS waiver can only be made by a "Qualified" mechanic holding a Class "A" MVPC installer's license and employed by a licensed MVPC station.

A request for ECS waiver shall be made by telephone to the VIP Regional Office when either of the following conditions are encountered: (213 575-7030 ECS waiver information number only).

1. The repair facility is unable to locate replacement components or devices to repair the ECS as noted on the failed VIR.

2. A repairing or replacing (parts and labor) of the ECS components is too costly as determined by the vehicle age, model year and other factors.

The following cost limitation limits shall apply for the purposes of granting a request for ECS waiver.

Year Model	Cost Limit
1955-1965	$85
1966-1974	$150
1975-up	$250

The cost limitation specified above may be revised by the Department from time to time.

All vehicles are required to receive a low emission tune-up performed to the specifications of the Department to be eligible for requesting an ECS waiver. The cost of performing the low emission tune-up is not to be included in the ECS cost waiver limits.

When an authorization to allow an ECS waiver is received from the VIP Regional Office, you should write the authorization number on back of the VIR, below the MVPC statement section. Also write the authorization number on the repair invoice.

Direct the motorist to return to the inspection center and notify the inspectors that the vehicle has been granted an ECS waiver authorization number.

XII. VEHICLE INSPECTION PROGRAM FLEET OPERATIONS

The legislative requirements for implementation of the California Vehicle Inspection Program allows the Department to license any owner of a fleet of 10 or more vehicles affected by this Program to conduct the inspections and tests of fleet vehicles on his own premises utilizing his own facilities and personnel.

The fleet concept provides an opportunity for governmental entities (Federal, State, and local governments), public utilities and private business to become licensed as fleets and perform their own inspection and issue certificates subject to State surveillance. It is emphasized that this is an option and those preferring to utilize the State controlled inspection center, rather than being licensed as fleets, obviously may do so.

A new or used car dealer licensed as an MVIP fleet facility may inspect and test another car dealer's vehicles of 10 or more with prior authorization by the Department. The licensing of car dealers as MVIP fleets will terminate upon implementation of the annual renewal of registration phase of the Program.

Commercial and Dealer Fleets

There are two categories of fleets: those owned and operated by commercial concerns, such as telephone, gas, electric, and aerospace companies; and new/used car dealers. Both fleet categories are required to meet the same inspection and test procedures, have the required test equipment, be an MVPC licensed station and employ a "Qualified" mechanic who holds a current Class "A" MVPC license. Only Dealer Fleets may be authorized to inspect and issue certificates to other fleets. Dealer fleets and collective members will terminate issuance of certificates upon startup of the annual programs.

Collective Fleets

Collective Dealer Fleet operations are licensed and authorized by MVIP to inspect and test other dealer fleets of 10 or more vehicles in addition to their own fleet of vehicles. The Collective Dealer Fleet applicant must list all the other dealers whose vehicles he will be inspecting and testing prior to being granted a license.

Collective Fleet Members

Collective Fleet Members are dealers who have their inspection and testing done by a dealer licensed as a Collective Fleet. Such collective fleet members are required to have a fleet of at least 10 vehicles of the type affected by this program in his inventory at all times.

The Vehicle Inspection Program has a special Legislative provision that allows licensing of businesses or corporations with 10 or more vehicles as a Fleet Operation. This allows the licensed Vehicle Inspection Program fleet operator to inspect and test its fleet vehicles or those of its members, at his place of business and issue Certificates of Compliance or Waiver, with prior State approval.

The fleet operator will be required to have all the required test equipment, employ a licensed MVPC Class "A" "Qualified" mechanic, allow periodic visits by the State representatives and follow specific test and repair procedures.

A Vehicle Inspection Program fleet operations licensed MVPC Class "A", "Qualified" mechanic may only inspect, test, and issue Certificates of Compliance or Waiver for vehicles owned and operated by the fleet or fleet members with prior State approval.

XIII. VEHICLE INSPECTION REPORT (VIR)

A Vehicle Inspection Report (VIR) will be given to each vehicle operator at the conclusion of the vehicle inspection. It is necessary that the vehicle owner give you the VIR before you start repairs. As a "Qualified" mechanic, you must follow the recommended maintenance and repair procedures noted on the VIR and also fill in the necessary information on the back of the form.

A sample VIR is displayed below. The area labeled "1" on the sample VIR contains the following information:

FINAL RESULTS

The FINAL RESULTS box on the front of the VIR will display the word "PASS", "FAIL" or "REJECT". If the word "PASS" appears, no repairs are required.

REJECT

If the word "REJECT" appears, the vehicle could not be tested. The reason(s) the vehicle could not be tested will be printed in

the REJECT REASON box directly below the FINAL RESULTS box. The condition(s) that caused rejection must be repaired before a vehicle can be retested. No cost limitation applies to rejected vehicles. I.E. No fuel, oil, or coolant leaks, abnormal engine noise, or large exhaust leaks that could be considered unsafe or affect the validity of the exhaust emission test.

FAIL

When the word "FAIL" appears in the FINAL RESULTS box, the vehicle has failed either the ECS test or the emission test or both.

EMISSION CONTROL SYSTEMS (ECS) FAILURES

When an ECS failure occurs, a letter representing the system(s) which failed and a number(s) representing the reason(s) for failure will be printed in the ECS FAILURE CODES box directly to the right of the FINAL RESULTS box. (See area labelled 1 below.) A table of ECS failure code meanings is placed directly above the ECS FAILURE CODES box. ECS system failures must be corrected within the requirements listed in Section 6 of this handbook.

EMISSION TEST FAILURES

When an emission test failure occurs, a number representing the test results will be printed in the EMISSION TEST FAILURE CODE box. The box is located directly to the right of the ECS FAILURE CODES box. A table of EMISSION TEST failure reasons is printed directly above the EMISSION TEST FAILURE CODES box. Probable causes and recommended repairs for emission test failures can be found in Section 7 of this handbook and on the upper portion of the back of the VIR. Emission test failures must be corrected according to the procedures and requirements listed in Section 7.

VEHICLE INSPECTION REPORT

STATE OF CALIFORNIA 0000000

OFFICIAL VEHICLE INSPECTION CENTER

Your vehicle's test results are shown below. If the Final Result box reads FAIL or REJECT, the ECS Codes, the EMISSION TEST FAILURE Codes, or the REJECT REASON areas of this report give the reason for failure or rejection. An indication of this probable cause of failure can be found on the back of this report. The most common adjustments and repairs likely to be required in order for your vehicle to pass reinspection can be found in the Consumer's Handbook published by the Department of Consumer Affairs. The detailed procedures are contained in the "Qualified" Mechanics Handbook publisned by the Department of Consumer Affairs.

EMISSION CONTROL SYSTEMS (ECS) FAILURE CODES

FIRST CHARACTER		SECOND CHARACTER	
A	Crankcase Ventilation System	1	Modified: Device or System not ARB-approved
B	Air Injection System	2	Disconnected/By-passed
C	Engine Modification	3	Missing
D	Air Preheat/Thermostatic Air Cleaner	4	Inoperative EGR Valve
E	Ignition Spark Control		
F	Exhaust Gas Recirculation		
G	Fuel Evaporative System		
H	Exhaust Converter		
I	Retrofit Exhaust Control		
J	Retrofit NOX Control		

EMISSION TEST FAILURE CODES

1 Excessive Smoke
2 Perform Low Emission Tune-up
3 Idle RPM Excessive
4 Idle Air/Fuel Mixture Rich
5 Misfire at Idle

FINAL RESULTS

ECS FAILURE CODES

EMISSION TEST FAILURE CODE

REJECT REASON

If Final Result is REJECT, the vehicle could not be tested for the following reason(s). Noted condition must be corrected before the vehicle can be tested for certification.

The area labeled "2" on the sample VIR contains the identification data for the vehicle. Use the vehicle identification information to verify that the VIR you have is for the same vehicle that you are about to repair.

QUEUE NO.	STATION NO.	LANE NO.	TEST MODE	TEST NO.	DATE	TIME

VEHICLE INFORMATION

LICENSE PLATE	VEHICLE IDENTIFICATION NO.	YEAR	MAKE	CYL	WT	MILEAGE	AI/CAT

The area labeled "3" on the sample VIR contains the emission inspection information. In this section, the emission test results and applicable state emission standards are displayed. Vehicles failing the first idle emissions test will also be tested at 2,500 RPM. The results of the 2,500 RPM test will be displayed. After the 2,500 RPM test, a second idle test will be given and the results will also be printed on the VIR. The idle RPM reading taken at the start of the emission testing and the allowable limit for the particular year model vehicle will also be printed on the VIR.

EMISSION INSPECTION INFORMATION

1ST IDLE

	HC (ppm)	CO (%)	OFFICIAL USE ONLY
STATE STANDARD			
EMISSION READINGS			

2500 RPM

	HC (ppm)	CO (%)	OFFICIAL USE ONLY

2ND IDLE

	HC (ppm)	CO (%)	OFFICIAL USE ONLY
STATE STANDARD			
EMISSION READINGS			

IDLE RPM

LIMIT _____

READING _____

CUST ☐ L/I ☐ ECS ID ☐ EMS ID ☐ QUAL ☐ CERT ☐ PRR ☐ SMOKE ☐ RETEST ☐

COMPLETION OF MECHANIC'S PORTION

The top section of the back side of the VIR contains a description of the "fail" codes and the probable cause for failure along with the recommended repair procedures.

If the final reject box on the front side of this sheet reads "FAIL," the most probable cause of the failure can be found as follows:

1) If there are any ECS Failure Codes shown in the "**ECS Failure Codes**" box, the cause of failure is indicated by the second digit of the code. The Emission Control System must be repaired or replaced.
2) If an **Emission Test Failure Code of "2"** is shown, a low-emission tuneup must be performed to the specifications of the Department of Consumer Affairs. This tuneup consists of adjustments of dwell, timing, idle RPM and carburetor air/fuel mixture.
3) Probable causes and recommended repairs for the remaining Emission Inspection Codes are shown in the table below:

CODE	PROBABLE CAUSE OF FAILURE	RECOMMENDED REPAIR *
1	a) Abnormal oil consumption b) Worn or broken rings or valve guides	a) Diagnose and repair cause as required. b) Replace broken or worn parts as required
2	See Item 2) above	
3	a) Incorrect idle adjustment b) Sticking linkage	a) Adjust to manufacturer's specifications. b) Lubricate, repair or replace linkage.
4	a) Incorrect idle mixture b) Dirty air filter c) Choke stuck d) Plugged PCV system	a) Adjust to manufacturer's specifications b) Replace filter. c) Repair choke. d) Repair/replace PCV system.
5	a) Ignition system misfire b) Lean or unbalanced idle mixture c) Vacuum leaks d) Low compression	a) Diagnose and repair or replace faulty parts. b) Adjust to manufacturer's specifications. c) Replace or repair defective parts. d) Diagnose and repair as necessary.

* Refer to Consumer's Handbook on Repair Cost Information

CHECK OFF ITEMS REPAIRED OR REPLACED

Fill in the area labeled "4" on the sample VIR titled CHECK OFF ITEMS REPAIRED OR REPLACED. Identify, with an "X" in either the REQUIRED or VOLUNTARY column, any repairs made to any of the MISCELLANEOUS SYSTEMS or EMISSION CONTROL SYSTEMS. Charges for either labor or parts are considered as repairs. Do not include sales tax. Voluntary repairs are not required by the repair procedures. Voluntary repairs are emissions related repairs not required by the repair procedure but suggested to and authorized by the customer.

TO BE FILLED OUT BY THE REPAIR FACILITY OR VEHICLE OWNER.

CHECK OFF ITEMS REPAIRED OR REPLACED

MISCELLANEOUS SYSTEMS	REQUIRED	VOLUNTARY	EMISSION CONTROL SYSTEMS	REQUIRED	VOLUNTARY
Low Emission Tuneup	_____ 01	_____ 02	Crankcase Control	_____ 21	_____ 22
Carburetor/Fuel Injection	_____ 03	_____ 04	Air Injection	_____ 23	_____ 24
Ignition System	_____ 05	_____ 06	Heated Air Inlet	_____ 25	_____ 26
Vacuum Leaks (Hoses/Gaskets)	_____ 07	_____ 08	Ignition Spark Control	_____ 27	_____ 28
Choke Repair	_____ 09	_____ 10	Exhaust Gas Recirculation	_____ 29	_____ 30
Air Filter	_____ 11	_____ 12	Exhaust Converter	_____ 31	_____ 32
Idle RPM Adjustment	_____ 13	_____ 14	Fuel Evaporation	_____ 33	_____ 34
Other	_____ 19	_____ 20	Retrofit Device	_____ 35	_____ 36
			Fuel Restrictor	_____ 37	_____ 38
PARTS Cost	$_____	$_____			
LABOR Cost	$_____	$_____			

After repair/adjustments idle emissions readings: HC _____ ppm CO _____ %

PARTS AND LABOR REPAIR COSTS

In the area labeled "5", write the total cost of both parts and labor. Do not include sales tax when listing parts costs. Required parts costs are recorded on the left and voluntary on the right. The same applies for labor costs.

AFTER REPAIR/ADJUSTMENT IDLE EMISSION READINGS

In the area labeled "6", record the after-repair levels of HC and CO. The final idle emissions readings shall be made with the air injection system connected and operating, the air cleaner installed and all vacuum lines and fuel evaporative control system lines connected as applicable.

CHECK OFF ITEMS REPAIRED OR REPLACED

MISCELLANEOUS SYSTEMS	REQUIRED	VOLUNTARY	EMISSION CONTROL SYSTEMS	REQUIRED	VOLUNTARY
Low Emission Tuneup	_____ 01	_____ 02	Crankcase Control	_____ 21	_____ 22
Carburetor/Fuel Injection	_____ 03	_____ 04	Air Injection	_____ 23	_____ 24
Ignition System	_____ 05	_____ 06	Heated Air Inlet	_____ 25	_____ 26
Vacuum Leaks (Hoses/Gaskets)	_____ 07	_____ 08	Ignition Spark Control	_____ 27	_____ 28
Choke Repair	_____ 09	_____ 10	Exhaust Gas Recirculation	_____ 29	_____ 30
Air Filter	_____ 11	_____ 12	Exhaust Converter	_____ 31	_____ 32
Idle RPM Adjustment	_____ 13	_____ 14	Fuel Evaporation	_____ 33	_____ 34
Other	_____ 19	_____ 20	Retrofit Device	_____ 35	_____ 36
			Fuel Restrictor	_____ 37	_____ 38
PARTS Cost	$_____	$_____			
LABOR Cost	$_____	$_____			

After repair/adjustments idle emissions readings: HC_____ppm CO_____%

REPAIR STATEMENT

In the area labeled "7", list your Certificate of Qualification number and the repair facility automotive repair dealer (ARD) registration number. Write your signature legibly. The purpose of this statement is to indicate that all of the recommended maintenance and repair procedures as noted on both sides of the VIR were complied with.

MOTORIST OR MECHANIC (AS APPROPRIATE) COMPLETE AND SIGN ONE OF THE FOLLOWING:

MOTORIST REPAIR STATEMENT

I CERTIFY THAT REPAIR WAS PERFORMED BY OTHER THAN A STATE "QUALIFIED" MECHANIC.

_____
SIGNATURE

QUALIFIED MECHANIC'S REPAIR STATEMENT

TO BE COMPLETED BY A QUALIFIED MECHANIC IN A NON-MVPC REGISTERED REPAIR FACILITY

I CERTIFY THAT THE RECOMMENDED REPAIRS WERE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES ESTABLISHED BY THE DEPARTMENT OF CONSUMER AFFAIRS, PURSUANT TO SECTION 9889.60 OF THE BUSINESS & PROFESSIONS CODE.

ARD REGISTRATION NUMBER	QUALIFIED MECHANIC'S NUMBER	SIGNATURE

MVPC STATEMENT

You can fill out the MVPC statement labeled "8" on the VIR only if you are a qualified Class "A" installer and are working in an MVPC station.

You may certify:

A. That the vehicle is in need of further repairs that will exceed the cost limitation of $50 and the vehicle has received a low emission tune-up. The additional repairs needed and estimated cost must be shown in the space provided.

B. That all recommended repairs listed on the front of the VIR were performed in accordance with the Qualified Mechanic's Handbook. Legibly fill in your licensed installer's number, MVPC station license number, and signature.

MVPC REPAIR STATEMENT

TO BE COMPLETED BY A QUALIFIED LICENSED MECHANIC (INSTALLER) IN AN MVPC STATION

I CERTIFY THAT:

☐ ALL RECOMMENDED REPAIRS WERE PERFORMED IN ACCORDANCE WITH THE QUALIFIED MECHANICS HANDBOOK.

☐ THIS VEHICLE IS IN NEED OF FURTHER REPAIRS THAT WOULD EXCEED THE COST LIMITATION AND HAS RECEIVED A LOW-EMISSION TUNE-UP.

ADDITIONAL REPAIRS NEED: _____

Estimated Cost $ _____

MVPC STATION NUMBER | LICENSED INSTALLER'S NUMBER** | SIGNATURE

**DO NOT USE QUALIFIED MECHANIC NUMBER

SUMMARY

In closing, the information in this study guide will provide you with the VIP objectives, recommended repair procedures and the responsibilities of a "Qualified" mechanic.

Upon becoming Qualified you will receive a certificate of Qualification and a Qualified Mechanic's Handbook. This handbook will contain detailed instructions and information concerning the Vehicle Inspection Program.

By review of this material you should have the necessary knowledge to successfully complete part one of the qualification examination.

The remaining examination modules will test your knowledge in the areas outlined on page 3, of this study guide.

TOM EATON

2

MVIP PROGRAM

FIELD OPERATIONAL PROCEDURES

SEPTEMBER 1, 1979

M.V.I.P. PROGRAM

FIELD OPERATIONAL PROCEDURES

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CHAPTER 1

GENERAL GUIDELINES

1.0 Deployment

1.1.0. Inspectors are assigned the duties of conducting field inspections of fleet stations and qualified installers licensed by the Bureau of Automotive Repair. The VIP Fleet Program is composed of two (2) Regions, and deploys a field inspector for each of eight (8) districts within each Region. A field supervisor is assigned to each Region and thus, each has 8 field inspectors.

1.2.0. In determining work responsibility, allowances must be made for travel time. Each county or portion thereof shall have the services of an inspector for that amount of time proportionate to the total number of fleet stations within the area.

2.0 Scheduling

2.1.0. Inspectors shall submit a proposed itinerary for a succeeding week on Friday preceeding that week.

2.1.1. In the event of necessary schedule changes, inspectors shall notify the field supervisor on office duty for that week.

2.2.0. Overtime may be used, with prior approval, to complete an assignment and avoid a return trip on the following day. However, inspectors shall not intentionally begin a periodic inspection at such a time of day, which through the normal course of the inspection, will result in overtime. This lag time can be more efficiently spent (without overtime) by performing spot checks on fleet collective members. Remember, all overtime must receive prior approval.

3.0 Correspondence

3.1.0. Correspondence and communications to and by the VIP fleet program shall be directed to and from the field supervisor at the Regional Headquarters.

3.2.0. Field inspectors shall contact the office-assigned field supervisor at least two (2) times, with exception to previously approved absences, each working day. An inspector will be considered absent without leave if no contact is made prior to 1200 hrs on any given work day.

4.0 Emergency Communications

4.1.0. Field inspectors shall provide the Regional Headquarters with the location at which they may be reached in the event of an emergency. This may be included in the weekly itinerary.

5.0 Conduct On Duty

5.1.0. Clothing worn while on duty shall be restricted to a business suit or slacks and sport coat with shirt and tie of appropriate colors.

5.1.1. Personnel shall be neatly dressed and properly groomed while on duty.

5.2.0. Punctuality in reporting for duty and keeping appointments is mandatory.

5.3.0. A businesslike, professional attitude and demeanor will be assumed at all times while on duty, keeping in mind the importance of service to the public and the industry.

5.4.0. VIP personnel shall refrain from discussing enforcement action or policies outside the VIP program.

6.0. Automotive Equipment

6.1.0. State vehicles are generally assigned directly to district inspectors. Overnight storage of State vehicles is restricted to a State facility and subject to administrative approval.

6.2.0. Each employee is responsible for his assigned equipment. Automotive records will be maintained by the employees who have assigned vehicles.

6.3.0. The travel log and gas checks shall be forwarded to the Regional Headquarters at the end of each month. After review by the field supervisor, they shall be forwarded to the appropriate owning agency prior to the third day of the succeeding month.

6.4.0. State vehicle car washing shall be performed only at a location previously arranged by the Department. Car washes shall not be charged on a vehicle petroleum credit card. Billing shall be arranged from a particular car wash directly to the Department.

7.0 Collisions

7.1.0. Departmental vehicle collisions shall be immediately reported to the field supervisor and the law enforcement agency in whose jurisdiction the collision occured. A request shall be made to the enforcement agency for an investigation. Necessary follow-up reports on appropriate forms will be forwarded to the appropriate personnel by the field supervisor after a review with the involved employee. Remember, the use of seat belts is required.

8.0. Keys

8.1.0. Each employee assigned a State vehicle shall have an extra set of ignition and trunk keys made and bolted to the inside of the rear license plate. Reimbursement for these keys will be made through the submission of a travel expense claim.

8.2.0. Expenses incurred while operating a State vehicle other than those approved for auto repair or credit card use, (i.e. - parking and toll fees) shall be paid through the use of a monthly travel expense claim. (Form # 262)

9.0. Vehicle Idle Time

9.1.0. If an assigned State vehicle is to remain idle for a period in excess of five (5) working days, it will be stored at the VIP Regional Headquarters.

10.0 General Enforcement Guidelines

10.1.0. Enforcement of the requirements of the Business and Professions Code and the California Administrative Code, Title 16, are first regulatory and should be handled in an administrative manner.

10.1.1. The primary purpose of the enforcement aspect of field personnel is to obtain compliance voluntarily by means of education rather than the hard line enforcement of the statutes. If during the course of an inspection the inspector notes a minor violation or infraction of the regulations, he should instruct the errant licensee in the proper method of complying with the regulations. This instruction should be in such a manner that his actions denote a desire to be constructive rather than punitive. By this method, we can gain the confidence of industry and help achieve our desired goals in an efficient, economical manner.

10.2.0. In the event that two (2) visits are unable to affect compliance in a voluntary manner, the inspector will report such information (in writing) to the field supervisor. The file will then be reviewed to determine what type of action is to be taken along with the recommended penalty.

CHAPTER 2

MONTHLY FIELD ACTIVITY REPORT

1.0. The monthly field activity report (Form 77M-17) will reflect all the activities of the S.V.I.S. for a given month. All reports shall cover each working day of that month. Sick time, compensating time off and vacation time will also be indicated on this form.

2.1.0. The vertical columns shall be numbered, corresponding to the dates worked. Unless time off is taken, each days total duty hours shall reflect 8 hours of work. This 8 hours shall be broken down into the horizontal columns entitled: "Insp. time", "Complaint time", "Supervision", "Administration", "Exams", "Presentations", "Office", and "Other".

2.2.0. The initial and periodic boxes shall indicate the total number for that day. Of that total, the number of inspections that failed should be written in the stayed boxes. These boxes are for number tallying and should not reflect time. The time spent on these inspections shall be written in the column entitled, "Insp. Time Inc. Travel".

2.3.0. The section entitled "Complaints" shall be used to breakdown a tally of those contacts that were made (if any) as a result of complaints received at the Regional Office and then assigned to a field inspector. The actual time spent on these types of contacts shall be indicated in the horizontal column entitled, "Complaint Time Including Travel".

2.4.0. The number of HC/CO analyzers inspected shall be totalled in the units inspected column. The number of units inoperative and out of calibration would also be totalled in their respective boxes.

2.5.0. The larger boxes at the far right side of each horizontal column shall be used to total the daily figures into one monthly tally. The totalled duty hours for that month shall reflect the total hours worked. If this figure is not as high as required for that month, an absence request (Form # 634) must be on file in the Regional Office for the amount of hours deficient.

CHAPTER 3

ADMINISTRATIVE REGULATIONS

FLEET INSPECTION PROGRAM

1.0. This chapter contains a quick reference guide which can be used by the S.V.I.S. when advising the fleet centers "RME" of regulatory procedures involving the Vehicle Inspection Program.

1.1.0. The section numbers contained in this quick reference guide shall be used whenever documentation is written advising a fleet center of regulation violations involving the fleets' status. This shall include but is not limited to:

A "Vehicle Inspection Report"

A "Notice of Violation"

QUICK REFERENCE GUIDE

NOTICE OF VIOLATION OF CHAPTER 33, TITLE 16 OF CALIFORNIA ADMINISTRATIVE CODE, SECTION(S)

Administrative Regulations
Vehicle Inspection Program

Filed 3/15/79

ARTICLE 1 - SCOPE OF REGULATIONS

3396	-These regulations apply to inspections & tests in the South Coast Air Basin as required by Chapter 20.4 of the business & professions code
3396.1	-Definitions

ARTICLE 2 - REQUIRED MANDATORY INSPECTION

3396.2 (a)	-Inspection required of 1955 and later and under 8501 lbs GVW vehicles in S.C.A.B.
3396.2 (b)	-Exempt vehicles from V.I.P. inspection
3396.2 (c)	-Fleet concept

ARTICLE 3 - STATE INSPECTION CENTERS

3396.3 (a) (b) (c)	-Inspections must be performed as contracted by the State except licensed fleets (Article 7) a) idle mode b) $11 fee c) rejection criteria

ARTICLE 4 - CERTIFICATES

3396.4	-Authorizes State issuance of certificates of compliance
3396.5 (a)	-Authorizes State issuance of emissions waiver ($50.00 cost limit)
3396.5 (b)	-Authorizes State issuance of ECS waiver (cost limits)
3396.5 (c)	-Authorizes State issuance of emissions waiver when emission repairs performed by qualified installer
3396.5 (d)	-3396.5 (a) & (b) do not include items covered by ECS warranty

3396.6 (a)	-Certificates valid for 60 days from date of issuance including non-dealer fleets
3396.6 (b)	-Dealer fleet certificates valid 60 days from date of sale.

ARTICLE 5 - QUALIFIED MECHANICS

*3396.7 (a)	-Only qualified mechanics may perform repairs for compensation (non-fleet and fleet)
3396.7 (b)	-Applicant must apply on Departmental form
3396.7 (c)	-Must complete a mechanic's seminar and pass written exam to become qualified
*3396.7 (e)	-Qualified mechanic must notify Department of address change or employment change

ARTICLE 6 - ARD'S AND MVPC STATIONS

*3396.8 (a)	-Must follow Department standards, specs & directives and/or mfr specs when adj. servicing or repairing vehicle
*3396.8 (b)	-Must have qualified mechanic available minimum number of hours
*3396.8 (c)	-Only qualified licensed installer may perform failed vehicle "ECS Repairs" for compensation
*3396.8 (d)	-Required equipment and manuals for qualified mechanic must be available; equipment properly calibrated and functioning
*3396.8 (e)	-Written estimate required: repairs, adjustments and/or LETU on failed V.I.R.
*3396.8 (f)	-V.I.R. to be completed by qualified mechanic when any repairs are made to a failed vehicle; V.I.R. must be returned to vehicle owner or operator
*3396.9	-MVPC Station shall not inspect, test, or issue certificates on V.I.P. affected vehicles for transfer of registration
3396.10 (b)	-Shall complete recommended maintenance or repairs on V.I.R. or after LETU certify that cost limits would be exceeded. Must complete and return V.I.R.

*3396.11 -Registration/license subject to suspension for failure to perform LETU or other repairs or adj in accordance with Department procedures

*3396.12 -Registered/licensed facility shall not permit non-qualified mechanic to perform LETU repairs adj or device installations on failed vehicles

ARTICLE 7 - FLEETS

3396.13 (a) -Must be licensed to perform inspections & testing of fleet vehicles

*3396.13 (b) -Fleet facility application requirements:

1) Own 10 or more nonexempt vehicles registered in S.G.A.B.
2) Possess required manuals and equipment properly maintained and calibrated
3) Employ services of licensed installer with Certificate of Qualification
4) Possess current MVPC station license and where applicable, valid ARD registration
5) Not subject to denial under Sec. 480 of Code
6) Not subject to pending accusation
7) Previously held license not still revoked or suspended
8) Submit application on Departmental form

FLEET LICENSE, RENEWAL

3396.14 (a) -Fleet license valid 1 year from date of issuance unless renewed, suspended, rescinded, or terminated, members renewal date correspond with their center

*3396.14 (b) -Fleet shall cease inspection upon expiration of license. Shall submit timely renewal application

3396.14 (c) -Must supply satisfactory proof of lost, destroyed, or mutilated license. If such license is subsequently found, it must be surrendered

3396.14 (d) -For name or address change (not involving change of ownership) must submit license and application for replacement

*3396.14 (e) -Fleet license not transferrable

*3396.15 (a) -Fleet may only inspect vehicles owned by the fleet except as stated in Subsection B

*3396.15 (b) -Authorizes fleet centers at Department's discretion, to have other persons as members. Fleet center must conduct inspection and tests at their fleet center

FLEET FACILITY WITH FLEET MEMBERS

*3396.15 (b) (1) -Member must be an automobile dealer with 10 or more non-exempt vehicle exclusively for sale to the public; or

*3396.15 (b) (2) -At all times owns and operates a fleet of 10 or more non-exempt vehicles exclusively for the use of his employees or for daily or weekly rental to members of the public in the regular course of business

*3396.15 (c) -Requests for fleet members must be generated from fleet center. Must identify name, address, and size of each member. Licensee shall notify Department of changes in fleet members

*3396.15 (d) -Fleet center shall cease certification of members' vehicles when members' inventory falls below 10 vehicles and notify Department

FLEET FACILITY REQUIREMENTS

*3396.16 (a) -Fleet inspection and exhaust measuring shall conform to Stds. (Re. use of emission limits)

*3396.16 (b) -Maintain and have available for performing inspections required equipment, manuals, and handbooks (Re. Weekly cal. gas)

*3396.16 (c) -Licensed fleet to follow V.I.P. procedures for inspections and tests

*3396.16 (d) -Qualified licensed installer to diagnose all causes for failure and perform maintenance and repairs in accordance with Department specs and procedures

*3396.16 (e) -Issuance of certificates only in accordance with Department procedures

*3396.16 (f) -Fleet inspections, testing, certification to be performed only by qualified licensed installer in licensed fleet facility

*3396.16 (g) -Fleet center shall notify Department whenever fleet falls below 10 nonexempt vehicles

FLEET RECORDS & REPORTING REQUIREMENTS

*3396.17 (a) -All data relating to inspections and repairs shall be recorded on prescribed forms

*3396.17 (b) -Maintain data log book and send copy of log sheet within five working days. Qualified licensed installer must record all required information at time of test or inspection

*3396.17 (c) -Retain all required records for not less than three years

FLEET CERTIFICATES

3396.18 (a) -Certificate of Compliance and Certificate of Waiver must be purchased from Department for $11 each. Certificates are not transferrable

3396.18 (c) -Must follow procedure for issuing Certificate of Waiver

*3396.18 (d) -Notify Department within 24 hours of discovery of loss or theft of certificates in writing, with Serial #'s

AUTHORITY FOR DEPT TO INSTRUCT FLEET TO CEASE OPERATIONS
(Use a & b)

3396.19 (a) -Fleet licensee shall immediately cease testing, inspections, or certifying whenever fleet: violates 3396.13 (b) 1, 2, 3. 1) falls below 10 vehicles; 2) does not have required calibrated equipment or books; 3) does not have Class "A" Qualified Mechanic; violates 3396.17 (record keeping section) or fails to provide Department with reasonable access, information and cooperation. Fleet may not resume operations without Department authorization

3396.19 (b) -After fleet premises inspection, or spot checks of system or vehicles, if the Department determines violations of 3396.19 (a), the Department shall order licensee to immediately cease its operations and must receive state authorization before resuming operations

SUSPENSION OR RECISSION OF FLEET FACILITY LICENSE

3396.19 (c) -Fleet license may be suspended or rescinded for:
1) Inspecting when fleet to be inspected falls below 10 vehicles
2) Failure to maintain properly calibrated and operative equipment required by Section 3396.16 (b)
3) Failure to employ the services of a qualified licensed installer for the hours specified in Section 3305 (c)
4) Failure to maintain required records
5) Failure to inspect or test vehicles in accordance with specifications and procedures established by the Department
6) Failure to provide the Department with reasonable access, information, and other cooperation as specified by Section 9889.52 (e) of the code

7) Violation of any provision of Chapter 20.4 of Division 3 of the code or any regulations promulgated pursuant thereto

ARTICLE 8 - LOW EMISSION TUNE-UP

*3396.20 (a) -LETU required of all emission failures before retest

*3396.20 (b) -LETU required of all ECS failures prior to waiver after repairs

LOW EMISSION TUNE-UP PROCEDURES

3396.21 -Required procedure and sequence for low emission tune-up:
1) Dwell
2) Timing
3) RPM
4) A/F Mixture

LOW EMISSION REPAIRS

3396.22 -Repairs shall be performed on a vehicle failing reinspection after a LETU. Repairs to be performed in sequence set forth in Qualified Mechanic's Handbook

* -Enforcement sections and subsections

CHAPTER 4

APPLICATION AND INITIAL INSPECTION PROCEDURES FOR FLEET CENTERS

1.0 Initial Fleet Contact

Fleet Information letters are distributed to dealers at seminars and by various other means. A list of the required equipment, a fleet cost breakdown, and a Fleet Information Request are included. If the dealer is interested in becoming a Fleet Center, he completes and mails the Fleet Information Request Form to the Regional Office. The supervisor in turn distributes the workload among his assigned inspectors.

1.1.0. Prior to the initial inspection, the assigned Station and Vehicle Inspection Specialist (S.V.I.S.) telephones the interested fleet, makes an appointment with the owner or other appropriate representative, and reviews his fleet criteria with him. If the fleet will require an Automotive Repair Dealer's Registration, or it is not currently an MVPC Station, the S.V.I.S. may elect to take this opportunity to direct the fleet owner to the appropriate Bureau divisions. The fleet representative shall also be made aware that his "Qualified" Class "A" Mechanics will receive fleet training at the time of the inspection. These mechanics will also be required to demonstrate their proficiency.

1.2.0. S.V.I.S. or other appropriate state representatives involved in VIP fleet inspections shall be equipped with the following:

- VIP Mechanic's Handbook
- VIP Fleet Handbook
- MVPC Handbook
- Emission Control Systems Application Manual (including tune-up specs.)
- BAR certified gas calibration bottle (high range) w/regulator
- Gas calibration hose kit with probe adapters
- List of BAR approved exhaust gas analyzers

- Examples of the documents to be used by the Fleet Center
- All the forms necessary for the fleet application, inspection, and approval
- A street atlas covering the counties within the S.C.A.B.
- Fleet Mechanic's Training Material (e.g. - Module 4 Handout)
- Activity Reporting Forms

2.0. Fleet Criteria Check

Henceforth, all instructions listed hereon are directed to the S.V.I.S. or other assigned state representative. The letters S.V.I.S. will stand for Station and Vehicle Inspection Specialist or any other applicably assigned Vehicle Inspection Program Representative. These procedures are to be used as guidelines during applicable field operations.

2.1.0. In response to the inquiry, the S.V.I.S. makes a visit to the applicant's facility with a Fleet Application Form, an Inspection Report Form and a Collective Fleet Members Listing. The state representative shall first explain the total fleet concept to the prospective Fleet Center's Representative.

2.1.1. Determine that the applicant is actually the owner of a fleet of 10 or more vehicles subject to inspection.

2.1.2. If the fleet applicant plans to certify vehicles owned by another fleet of 10 or more non-exempt vehicles, the Fleet Center must meet at least one (1) of the following requirements:

1) Be an automotive dealer who holds a New/Used Car Sales Permit, and maintains an inventory of at least 10 non-exempt vehicles available for sale to the public

(OR)

2) Owns and operates in the S.C.A.B., a fleet of at least 10 non-exempt vehicles, exclusively used in the fleet's regular course of business. (e.g. - public utilities/car rental agencies)

2.1.3. Verify that any intended Collective Member is listed on page two of the application form. Each Collective Member must also be an owner of a fleet of 10 or more vehicles subject to the inspection. All intended Collective Members must be approved by the Department prior to the approval and licensing of the Fleet Center. Collective Members added later must be approved by the Department before the Dealer Fleet Center may inspect their vehicles. Whenever a Fleet Center wishes to discontinue inspections on any of its Collective Member's vehicles, the Department shall immediately be notified.

Note: A licensed Fleet Center is not allowed to concurrently be a Collective Member of another Fleet Center.

2.2.0 Ascertain that the prospective fleet holds a valid MVPC Station License. If the fleet applicant repairs autos for compensation, the business must also be registered with the Bureau as an Automotive Repair Dealer (ARD).

2.3.0. Determine that an adequate number of automobile mechanics are employed or available to sufficiently perform the projected volume of inspections. These mechanics must hold both of the following:

- A Valid VIP Certificate of Qualification
- A Valid MVPC Class "A" Installers License

2.4.0. Determine that the designated inspection area is adequate for the projected volume of inspections. Sketch its location on the back side of the Department's copy of the Application Form. Note the hours and days of the week that inspections will be performed.

2.5.0. Ascertain that the applicant has available an adequate amount of service and reference material for the type, make and year/model of vehicles intended to be certified. The fleet is also required to have on hand the current MVPC and VIP Mechanic's Handbooks and their respective bulletins. Upon approval of the Fleet Center, the S.V.I.S. will supply the facility with at least one copy of the current VIP Fleet Handbook. In such cases when at least 90 days have passed since the fleet was last inspected by an MVPC Representative, the S.V.I.S. may elect to review any MVPC Certificates recently issued, and check the station for particular requirements unique to MVPC Rules and Regulations. (Ref. - MVPC Handbook)

2.6.0. Determine that all the required fleet inspection equipment is present and serviceable. This equipment package shall include as a minimum:

- BAR approved HC/CO Analyzer (dual range) (as approved by the Bureau of Automotive Repair)*
- Ignition Analyzer
- Ammeter
- Voltmeter/Ohmmeter
- Tachometer
- Vacuum Pressure Gauge
- Dwell Meter
- Ignition Timing Light
- Compression Tester
- Distributor Advance Tester
- Reference Manuals for emission control system requirements and engine tune-up specifications

*This exhaust analyzer will require a weekly accuracy check with B.A.R. certified gas as outlined in section #3 of the VIP Fleet Handbook.

3.0 <u>Fleet Mechanic's Training</u>

Present Module 4 of the Mechanic's Training Package or the equivalent. (If the mechanic is already Class "A" and Qualified, we may forego this requirement.)

3.1.0. An exhaust gas analyzer accuracy check shall be conducted as follows:

3.1.1. Determine if the analyzer is approved by the Bureau of Automotive Repair.

3.1.2. <u>Have it demonstrated</u> that the exhaust analyzer is in proper working order. Explain the importance of probe insertion depth, and exhaust gas dilution.

3.1.3. Verify that the exhaust analyzer is within tolerance of the B.A.R. gas concentration. The tolerances are:

± .4% CO & ± 100 PPM HC

3.1.4. The B.A.R. gas concentration shall be routed through the analyzer probe, and the flow balanced with the analyzer pump's capability. During this process, the analyzer's low flow indicator may be checked by blocking off the analyzer probe with the pump in operation. For a more detailed description of an analyzer accuracy check, refer to section 3 of the VIP Fleet Handbook.

3.1.5. The analyzer shall also be checked for overall serviceability (e.g. high and low range and trackability operation). An analyzer found to be out of the accuracy tolerance or in need of repair, must be removed from the certification work area. Application of the fleet shall be deferred until such time that the analyzer is repaired or a loaner/substitute is made available.

3.2.0. Henceforth, inspection procedures shall be explained by following along an example of the Data Log Sheet. The S.V.I.S. shall conduct a demonstrative examination at the conclusion of this training for each Qualified Installer. Prospective Fleet Stations not employing a Qualified Installer who (as determined by the S.V.I.S.) thoroughly understands fleet inspection procedures or applicable automotive emission control systems, shall be cause for application deferment.

3.2.1. Explain the top portion of the Data Log, which contains I.D. information about the vehicle in question.

Note: "Year Basis" is the year by which emission standards will be based and/or emission control system requirements. Use the letter codes, as explained in the Fleet Handbook.

3.2.2. Describe the Initial Emission Measurements section. (e.g. - idle/2500/idle.) The "Qualified" Class "A" Mechanic is to write these initial emission measurements in the appropriate boxes, and then compare the lowest of the two idle readings of both HC and CO with the appropriate State Inspection Emission Limits outlined in the VIP Fleet Handbook.

3.2.3. The "Qualified" Class "A" Mechanic should then perform an inspection of all the required emission control devices (ECS). A check in the appropriate boxes of the ECS section of the Data Log will indicate that

these devices are present and operating correctly. (ref.-MVPC Handbook and/or manufacturer's reference material.)

Note: The vehicle manufacturer's reference material should be used for procedures covering the inspection of EGR valves and exhaust converters. Also, section 6-B of the "Qualified Mechanic's Handbook" contains some accepted general instructions on determining the overall condition of catalytic converters.

Any ECS components requiring repair should be listed in section #2 of the Data Log.

3.2.4. If either the first or second initial emission measurements at idle are within the State Emission Limits, and the idle RPM is set to the manufacturer's recommended setting or retrofit manufacturer's setting, and all of the required ECS components are installed and operating properly, the "Qualified" Class "A" Mechanic is <u>not</u> required to perform any of the adjustments described in the "Final Adjustments" section of the Data Log. (Data Log section #3).

3.2.5. If the lowest of the two idle emission measurements of both HC and CO are <u>NOT</u> within the appropriate State Inspection Emission Limits, or the idle RPM is not within specifications, the "Qualified" Class "A" Mechanic must perform the adjustments described in the "Final Adjustments" section of the Data Log (e.g. idle RPM, dwell, timing, and A/F ratio). (Ref.-Underhood labels, service manuals, section #5 of VIP "Fleet Handbook", and State Idle Adjustment Guidelines in Section 11 of "Qualified Mechanic's Handbook").

3.2.6. The "Qualified" Class "A" Mechanic shall be made aware that all emission related repairs (performed as a result of inspection requirements) shall be listed in the "Items Repaired" section #4 of the Data Log.

3.2.7. In all cases, the "Final Measurements" section of the Data Log shall be completed. If the vehicle passed the initial emission measurements, these values shall be entered in this section. If adjustments were required, the final (after adjustment) levels of HC and CO shall be entered in this section of the Data Log. This section also has boxes where the applicable

"State Inspection Emission Limits" of HC and CO shall be entered, which were obtained from section #11 of the VIP "Fleet Handbook".

Note: Thermal reactors are NOT included in the catalytic converter emission limits and should be adjusted accordingly.

Once the vehicle's engine idle RPM is set within manufacturer's specifications, or retrofit manufacturer's specifications, the "Idle RPM" box contained in the "Final Measurements" section of the Data Log shall be completed. There is also a box which shall be checked if the vehicle's engine emits visible particulates (smoke) at a steady state when at 2500 RPM. (Ref.-section #5, VIP "Fleet Handbook".)

3.3.0. Certification procedures are explained as follows:

3.3.1. Explain the two types of certificates that a fleet center may issue: A Certificate of Compliance, and a Certificate of Waiver.

3.3.2. The Certificate of Compliance is issued once the Data Log is completed and the vehicle complies with all of the following: It has passed the applicable "State Inspection Emission Limits (Ref.-VIP Qualified Mechanic's Handbook), all the required emission control equipment is installed and operating properly (Ref.-manufacturer's reference material and MVPC Handbook), the vehicle engine idle RPM is set to specifications (Ref.-manufacturer's specifications), and the vehicle's engine does not emit visible particulates (smoke) at a steady state when at 2500 RPM (Ref.-VIP "Fleet Handbook"). The Certificate of Compliance is completed in triplicate. One copy accompanies other registration documents to the Department of Motor Vehicles, one stays with the vehicle, and a third remains with the fleet records. Fleet-issued certificates are valid for a period of 60 days commencing from the date the vehicle is sold. The Department's copy of the Data Log Sheet shall be mailed to the Regional Office within five (5) working days of certification.

3.3.3. The Certificate of Waiver is issued (in triplicate) whenever the vehicle does not pass the State Inspection Emission Limits and, in an effort to lower the emissions, the cost of repairs will exceed $50. However, the final adjustments described in Section 3.2.5. of these procedures, must have been performed. The

Fleet Center is responsible for maintaining a record of all VIP-related repairs conducted on inspected vehicles.

3.3.4. When a vehicle fails to comply with the requirements outlined in section 3.2.3. of these procedures (e.g.-ECS) (Ref.-section 3327 of Title 16, California Administrative Code), a Certificate of Waiver may be authorized by the Department, provided one of the following situations occur:

1) The Fleet Center cannot locate replacement parts by contacting the vehicle manufacturer's authorized outlet (dealer), and at least two other major suppliers of such parts.

2) The cost of repairing or replacing missing or disconnected ECS systems or components exceeds the maximum dollar figure, as outlined in section #5-C of the VIP "Fleet Handbook". Before an authorization for an ECS waiver may be granted, the fleet of the vehicle involved is required to spend up to this dollar figure, and the vehicle in question must have received a low emission tune-up, as described in the "Final Adjustments" section of the Data Log.

A request for an "ECS" waiver shall be made only by a "Qualified" Class "A" Mechanic. The request shall be made by telephoning or visiting the VIP Regional Office, (213) 575-7030 (number for ECS waiver information only). When the VIP Representative determines that the request for ECS waiver is valid, an authorization number will be granted to the "Qualified" Class "A" Mechanic. The waiver authorization number shall be recorded on the Fleet Data Log Sheet and on the Fleet Certificate of Waiver.

If the vehicle which is to be certified meets ALL of the below criteria, a report of the certification (or waiver) must accompany the Department's copy of the Data Log Sheet. The vehicle:

1) Is owned or leased by a California resident, business, or corporation, and

2) Is a 49-state vehicle with less than 3,000 miles on the odometer, and

3) Has an out-of-state license plate, no license plate, or a temporary license plate. (Ref.-MVPC Information Bulletin 2/77).

This report shall include, as a minimum, the following information:

* The name, address and phone number of the issuing fleet and of the previous owner who brought the vehicle into California.

* The make and model/year of the vehicle.

* The vehicle's identification number.

* The fleet certificate no. and fleet center license number.

Forms to be used for the reporting of these vehicles are included with each Data Log Book.

3.3.6. Explain to the "Qualified" Class "A" Mechanic that a detailed description of the procedures used in Section 3.2.0. through 3.3.5. can be found in the VIP "Fleet Handbook". The S.V.I.S. shall supply this handbook to the fleet center once the inspection is complete and the fleet operation is approved.

4.0. Application Approval or Deferment

The Application and Inspection Report Forms shall be completed prior to approval of the Fleet Center. If approval is to be deferred, the S.V.I.S. shall explain the reason(s) to the appropriate personnel. Write the reason(s) in the comments section of the inspection report. Also provide instructions to contact the VIP Regional Office when the applicant is ready for reinspection. The applicant must always receive a copy of the Inspection Report Form, whether or not approval is deferred. A new Inspection Report is completed by the S.V.I.S. for each reinspection.

4.1.1. The S.V.I.S. shall indicate on the application how much in fees are to be paid. The actual collection of fees will take place at the Regional Office, (or by mail); no fees are to be collected in the field. Once he has approved the Fleet Center, and indicated on the Application Form, how much in fees are to be paid, the S.V.I.S. shall enter his signature and identification number on the form. The S.V.I.S. must now contact the Regional Office in order to obtain a fleet license number. This number shall be written on the Application Form and Inspection Report. The applicant must then receive and sign for a copy of the following:

The Application, the Inspection Report Form, and the current VIP Fleet Handbook. The Fleet Center shall also be supplied with a list of addresses and phone numbers depicting how and where one might obtain State published literature which is applicable to a fleet inspection operation.

4.2.0. The "Qualified Fleet Center" may now purchase books of "Fleet Certificates" from the VIP Regional Office. The Fleet Center's copy of the Application Form must be presented at the Regional Office in order to purchase initial certificate books and pay the initial fees (marked on the application). The fleet license itself will be mailed later. Once received, the permanent license number is used to purchase certificate books. When ititial fees are paid, all copies of the application form will be marked accordingly.

5.0. Application Form Processing

Departmental copies of the Application and Inspection Report Forms are returned to the Regional Office and reviewed. Actual fleet license numbers are issued by the Regional Office and entered into the Data Controller along with the fleet's name, address, license number, and other information as required. The approved Application Form and Inspection Report are then filed. All deferred application documents will be filed separately until such time that they are approved.

5.1.0. The permanent VIP Fleet License is issued and mailed by the VIP Regional Office.

CHAPTER 5

SURVEILLANCE INSPECTION PROCEDURES

FOR FLEET CENTER

1.0. Follow-up surveillance inspections are conducted approximately 60 days after an initial inspection and approximately every 90 days thereafter.

1.1.0. A file containing the current records of the fleet center shall be reviewed prior to the inspection. The SVIS should record or copy pertinent information about the Fleet Center which may be needed during the inspection (e.g. new/used car dealer fleet's, collective member's names).

1.2.0. Introduce yourself to the owner or managing employee as representing the VIP, presenting identification if necessary.

2.0. If required, the ARD license and pertinent signs shall be inspected for validity and proper display.

2.1.0. The VIP Fleet License shall be inspected to determine that it is currently valid and is displayed properly.

2.1.1. The MVPC Station License and all pertinent signs shall be inspected for validity and proper display.

2.2.0. Assure that no changes have taken place in the Fleet Center's status (e.g. name/address).

2.2.1. Assure that all of the Fleet Center's Collective Members are identified on the appropriate forms. If a Collective Member's status has changed and is in violation of Departmental regulations, the Fleet Center shall be instructed to cease inspection of those vehicles until such time that the Collective Member complies.

2.2.2. Assure that the Fleet Center still qualifies for a VIP fleet operation (e.g. 10 or more vehicles).

2.2.3. The Fleet Center's designated work area shall be maintained in a clean and orderly condition (ref.- Section 3305(a), California Administrative Code).

2.2.4. The SVIS shall insure that all the Fleet Center's records are current. (e.g. additional Collective members).

3.0. The mechanic's VIP Certificate of Qualification shall be inspected for validity and proper display.

3.1.0. The mechanic's MVPC Class "A" Installer and/or Adjuster License shall be inspected for validity and proper display.

4.0. During the course of this inspection, while following the procedures from Sections 4.1.0. thru 5.2.2., the SVIS shall conduct a demonstrative examination of each qualified installer. The results of this competency test shall be indicated in Box #16 of the inspection report.

4.1.0. Ascertain that the required tune-up equipment is available (ref.- Fleet Handbook). Check the equipment for evidence of usage and serviceability. Discuss the serviceability of the required equipment with the Qualified Class "A" Mechanic.

4.2.0. Determine that the HC/CO exhaust gas analyzer is of a type approved by the Bureau of Automotive Repair (BAR). The fleet representative shall show evidence that the analyzer has received weekly accuracy checks as per Section #3 of the VIP "Fleet Handbook". Box #15 of the inspection report shall be used to indicate whether or not these checks are being performed.

4.3.0. Verify that the exhaust gas analyzer is within tolerance of the BAR gas concentration of approximately 8.0% CO and 2900 PPM propane (as corrected by the analyzer's conversion factor). The tolerances for these concentrations are ± .4% CO and ± 100 PPM HC.

4.3.1. The BAR gas concentration shall be routed through the analyzer probe, and the flow balanced with the analyzer pump's capability. During this process, the analyzer's low flow indicator may be checked by blocking off the analyzer probe with the pump in operation. For a detailed description of an analyzer accuracy check refer to Section 3 of the VIP Fleet Handbook.

4.4.0. If the analyzer does not meet Departmental requirements, the fleet owner shall be instructed to stop all certification with that analyzer, until such time the discrepancy is corrected and the analyzer has been reinspected; or a loaner/substitute is made available and checked for accuracy by the SVIS.

5.0. Review the fleet's Data Log and Certificate Books for proper adherence to the applicable Departmental regulations. Discuss any discrepancies with the

issuing Qualified Class "A" Mechanic. Indicate on the inspection report the amount of fleet certificates issued since the last periodic inspection, and write the last issued certificate number next to this totalled figure.

5.1.0. Examine the Qualified Mechanic's Handbook, Fleet Handbook, and the MVPC Handbook for current updates and information bulletins.

5.1.1. Assure that current service literature is available to the "Qualified" Class "A" Mechanic, and that the literature applies to the make, model, and year of vehicles being certified.

5.2.0. If possible, perform a surveillance spot-check on at least one vehicle which is on the premises and has recently been certified. This check shall include as a minimum, a functional ECS inspection and a measurement of the HC/CO emissions by using the fleet's exhaust analyzer. If a major discrepancy exists between what was found in the spot-check and what was actually required and certified, the SVIS shall place the "DMV" copy of the "Fleet Certificate" into a state sealed envelope. The issuing "Qualified" Class "A" Mechanic, and the current person in charge at the Fleet Center shall be instructed to correct the problem. The Fleet Center shall also be instructed to recall the SVIS who performed the surveillance inspection when the vehicle in question is in compliance. At this time, the SVIS returns to the site and rechecks the vehicle. When it is determined that the vehicle is in compliance, the SVIS will open the envelope and allow the "Fleet Certificate" to be processed. The Fleet Center is not allowed to open the envelope. The SVIS shall attach the envelope (with the certificate inside) to the vehicle's completed Data Log Sheet. The state sealed envelope is to remain at the Fleet Center until such time that it is opened by a Department representative. The SVIS who originally sealed the certificate is responsible for keeping an adequate record of such certificates, and where and when it was sealed. This procedure for sealing the "Fleet Certificate" is to be used only in the event that the problem with the vehicle cannot be corrected within a reasonable amount of time, while the SVIS is at the scene. Legislation also provides for surveillance of previously certified Collective Fleet Member's vehicles. These spot-checks will not always take place at the Fleet Center. The SVIS may elect to visit the Collective Fleet's premises. When spot-checking vehicles at the Collective's facility, an emission measurement will not usually be

obtainable. However, the functional ECS inspection shall be performed completely. The procedure to follow when a discrepancy is found is essentially the same as used at the Fleet Center. There should exist a copy of the certificate which stays with the vehicle, and in this case, may be used as a reference. The "DMV" copy of the "Fleet Certificate" is not to be removed from the premises by the SVIS. If the DMV copy is on the Collective Member's premises, it is to stay there, whether or not it is to be sealed.

5.2.1. The inspection in Section 5.2.0. of this chapter is limited to the compliance of laws, rules and regulations which are administered by the Department, and the Vehicle Inspection Program in particular.

5.2.2. In such cases when at least 90 days have passed since the fleet was last inspected by an MVPC Representative, the SVIS may elect to review any recently issued MVPC Certificates, and check the station for any particular requirements unique to MVPC Rules and Regulations (ref.- MVPC Handbook).

6.0. Chapter #10 of this manual contains a sample copy of an "MVIP Inspection Report". During the completion of this report, the following guidelines shall be adhered to:

A. Always complete an inspection report when visiting a fleet dealer or qualified repair facility.

B. Whenever a change occurs in a Fleet Center's status which requires file updating, a complete periodic inspection shall be performed and an inspection report completed. For details in handling fleet status changes refer to Chapter #7 of this manual.

C. Each inspection of a Fleet Center shall require a complete inspection report. Separate contacts shall stand on their own, and will be turned in separate from other contacts.

D. For single contacts, when multiple exhaust analyzers are encountered, a separate inspection report will be used for each analyzer. However, all inspection reports for this single contact shall be stapled together prior to submitting this report to the Regional Office. When this

situation occurs, also number these pages in the following manner: Example - 3 pages

Page #1 write: 1 of 3
Page #2 write: 2 of 3
Page #3 write: 3 of 3

E. In the comments section of the top page of each fleet inspection contact, write the words "Pass" or "Fail". This procedure is used to indicate to office personnel whether or not to continue the sale of certificates to the fleet in question.

F. The inspection report contains a box entitled: "Type Inspection". Each report shall have at least one (1) box checked in each verticle column. The left column may contain as many as two (2) checks when a follow up inspection is involved.

The columns are used to explain what type of inspection is being performed on what type of fleet or qualified station.

G. Section #5 of the Fleet Handbook contains information which may be followed when determining conversion factors and acceptable ranges of calibration gas. This section shall be reviewed, by the SVIS, prior to an initial completion of the analyzer section of an inspection report.

H. Any deficiencies checked on an inspection report shall be noted in the comments section, with a statement requesting compliance.

I. All inspection reports shall be signed by the "RME" (Responsible Managing Employee) and the inspecting SVIS. (Include your ID# and District.)

J. Remember - each contact with a Fleet Center requires a complete inspection report. The SVIS should review every box for applicable information, when completing these reports.

6.1.0. Violations of the Administrative Regulations outlined in Chapter #3 of this manual, shall be segregated into three (3) categories or "conditions".

A. Condition #1
These violation(s) are of such minor nature that unless repetitious, the inspector may advise the

fleet "RME" (in writing) that compliance is a must. The violation(s) shall be identified on an inspection report. This report must be signed by the SVIS and the fleet's "RME". If the same minor violation(s) are encountered on two (2) consecutive inspections, the violation(s) shall be handled as those of a condition 2 nature. Examples of minor (condition 1) violations are as follows:

1. Failure to maintain a weekly analyzer accuracy check. (3396.16(a), Title 16)
2. Failure to have adequate manuals and handbooks on hand. (3396.16(a), Title 16)
3. Failure to properly display qualified installer's licenses. (3307(b), Title 16)

B. Condition #2

These violations are of such nature that further certification cannot be permitted by the Department. They shall be clearly checked and described on an inspection report. The comments section shall also contain instructions to cease certification until such time that a reinspection assure compliance. This report shall be signed by both the SVIS and "RME". The fleet's "RME" shall also be advised not to attempt the purchase of certificates until such time that a reinspection assures compliance. The SVIS shall write the word "Fail" (in bold letters) in the comments section of the inspection report.. This will alert office personnel to defer certificate sales until another report is received with the word "Pass". Reports reflecting condition 2 or 3 violations shall always have "Fail" written on them. When no violations are noted, or only condition 1 violations, the word "Pass" shall be written in the comments section of the report. Section 3396.19(a) & (b) of Title 16, California Administrative Code contains clear definitions of such condition 2 violations where certification must cease. Examples of these violations are as follows:

1. Dealer no longer owns 10 vehicles. (3396.19(a), Title 16)
2. Fleet's exhaust analyzer is not within tolerance. (3396.19(a), Title 16)
3. Fleet no longer employs qualified installer. (3396.19(a), Title 16)

C. Condition #3

These violations are severe, and require a written "Notice of Violation" to be issued in addition to all the items in condition 2. Notice of Violations normally initiate an investigation, which may result in license suspension or revocation. The SVIS shall not issue such documents without first notifying his field supervisor. The facts will be reviewed, prior to an investigation. When a written "Notice of Violation" is authorized, the inspector (SVIS) shall seal all available unissued certificates in the same manner as described in Section 5.2.0. of Chapter 5 of this manual. Condition 3 violations are as follows:

1. Two (2) consecutively noted condition 2 violations of relative nature. (3396.19(c), Title 16)
2. Continued certification after written notification to cease. (3396.11,.19, Title 16)
3. Failure to properly inspect vehicle(s) as outlined in Section 3327, Subsections a,b &c of Title 16, California Administrative Code.
4. Violations of Section 9884.7(1), of the Business and Professions Code.
   a. False statement
   b. Fraud
   c. Gross negligence
   d. Failure to comply
   e. Willful departure

Whenever an inspector becomes aware of the commission of any acts that are described in this section, he will document all pertinent facts in a chronological order and secure, if possible, any documentation that would substantiate the violation. Remember, no matter how minor, all violations have the potential of administrative action which may/or may not result in the suspension or revocation of licenses and/or registrations.

6.2.0. The Fleet Inspection Report shall be completed prior to such time that the SVIS will draw any conclusions about the Fleet Center's future status.

6.3.0. If a situation develops at the Fleet Center which requires immediate assistance or advice, a supervisor may be telephoned, and if need be, requested to the scene.

6.4.0. When completed, the inspection report shall be discussed thoroughly with the fleet representative. Any deficiencies noted on the report should be completely understood by the fleet representative (RME).

6.5.0. After failing an inspection, in the event that no contact is made by the licensee within 30 days for reinspection, a phone contact will be made by the inspecting SVIS to ascertain if the licensee desires to remain a licensed fleet.

7.0. When it appears that there exists an intentional violation of State Law, with intent to fraudently misrepresent services to the consumer or to the State of California, the supervisor shall be informed thoroughly of the situation, who in turn may elect to refer the case to the Complaints and Enforcement Division.

7.1.0. Remember, the field personnel's basic duty is to provide assistance in the interpretation of the law by the licensee, thus aiding the licensee in conducting his business within the course and scope of Departmental rules and regulations. If a polite, businesslike approach is adopted by Bureau personnel, compliance will be achieved, and more importantly, accepted.

CHAPTER 6

FLEET CENTER & MEMBER REQUIREMENTS & RESPONSIBILITIES

1.0. This chapter outlines the requirements and responsibilities of both Fleet Centers and their members. A copy of these requirements must be supplied to each Fleet Center and their members, prior to an application approval. A "Request to Add Member" form must also be signed by an "RME" of both the Fleet Center and each member prior to approving any car dealer as a member of a Fleet Center. This form assures the Department that all parties involved have read and understood the requirements and responsibilities for which they are about to undertake.

2.0. Fleet Member Requirements and Responsibilities of the Inspecting Fleet Facility (Applies to Car Dealers)

A Fleet Member is defined as a car dealer that elects not to meet the requirements to become a licensed fleet facility; elects not to send his cars through one of the 17 State controlled inspection centers; and who is authorized by the State to have his vehicles inspected and certified by another car dealer who is licensed as a fleet facility.

To become a fleet member, a dealer must meet the following requirements:

- Own and operate or have in his business inventory 10 or more vehicles affected by the MVIP.
- Furnish proof that a car dealer licensed as an MVIP fleet facility has agreed to perform the inspection and certification of the fleet member's vehicles.
- Provide whatever access and cooperation the State deems necessary to facilitate random inspections of his car inventory.
- Cannot be a fleet facility without specific Department approval.

2.1.0. Responsibility of the Inspecting Fleet Facility

-The licensed fleet facility that has agreed to perform the inspection must identify in his application for license each fleet member whose vehicles he has agreed to inspect and certify.

-If the inspecting fleet facility determines it will no longer inspect a particular fleet member, the Department shall be notified immediately.

-Specific Departmental approval will be required to add any new fleet member not identified in the approved fleet facility license.

-Five working days time will be required for inspection and approval.

-The licensed fleet facility will be responsible for the proper performance of inspection and certification issued, and disputes between inspecting fleet facilities and fleet members may result in revocation of the Fleet Member's license, the inspecting facility license, or both.

-Inspection and certification for fleet member vehicles must be in compliance with the Department's rules and regulations.

-Certificates are not transferrable.

CHAPTER 7

FLEET FILE UPDATING GUIDELINES

1.0. When visiting fleets during a status change, a complete periodic inspection shall be conducted, and reflected on an "Inspection Report". If the fleet should fail this inspection, discontinue to process the status change and turn in the completed "Failed Inspection Report" to the Regional Office. The failed report will defer any further certificate sales until such time that the Fleet Center complies.

2.0. This section gives examples of situations which may occur resulting in the updating of a Fleet Center's file and/or license. The letters "RME" shall stand for, "Responsible Managing Employee". The S.V.I.S. shall follow these guidelines when making contact with the Fleet Center.

2.1.0. WHEN ADDING COLLECTIVE MEMBERS

A. Supply Fleet Center with:

1. Copy of completed inspection report describing the action being taken and signed by the "RME".
2. Copy of new application form when # change is applicable, with "Number Change" written in Reason Box.
3. Copy of (dealer typed) list of collective members.
4. List of collective fleet operation requirements.

B. Supply Office with:

1. Original of completed inspection report describing the action being taken and signed by the "RME".
2. Original of new application form when # change is applicable, with "Number Change" written in Reason Box.
3. New (dealer typed) list of collective members.
4. Completed "Request to Add Member" form for each new collected member.
5. Original green copy of old fleet license when number changes are applicable.

2.1.1. WHEN DROPPING COLLECTIVE MEMBERS

A. Supply Fleet Center with:

1. Copy of completed inspection report describing the action being taken, and signed by "RME".
2. Copy of (dealer typed) list of collective members.

B. Supply Office with:

1. Original of completed inspection report describing action being taken, and signed by "RME".
2. New (dealer typed) list of collective members.

2.1.2. WHEN CHANGING NAMES & ADDRESSES

A. Supply Fleet Center with:

1. Copy of completed inspection report describing action being taken and signed by "RME".
2. Copy of new application form with "Address Change" or "Name Change" written in Reason Box.

B. Supply Office with:

1. Original of completed inspection report describing action being taken and signed by "RME".
2. Original of new application form with "Address Change" or "Name Change" written in Reason Box.
3. Original green copy of old fleet license.

2.1.3. WHEN CHANGING OWNERS

A. Supply Fleet Center with:

1. Copy of completed inspection report describing action being taken and signed by "RME". Note: This is an initial inspection with a new owner. Also describe old fleet, name and number to be cancelled.
2. Copy of new application form with new license number.

B. Supply Office with:

Original of completed inspection report describing action being taken and signed by "RME".

Note: This is an initial inspection with a new owner. Also describe old fleet name and number to be cancelled.

2. Original of new application form with new license number.
3. Original green copy of old fleet license.

2.1.4. WHEN CANCELLING FLEET LICENSE

A. Supply Fleet Center with:

1. Copy of completed inspection report describing action being taken and signed by "RME".

B. Supply Office with:

1. Original of completed inspection report describing action being taken and signed by "RME".
2. Original green copy of fleet license.

2.2.0. Whenever these changes involve the status of an MVPC station license and/or an ARD registration, the S.V.I.S. shall also take the appropriate action necessary to update these files. Refer to the MVPC Program Procedures Manual and/or the MVPC Program Handbook for details on these changes. Copies of the completed forms used for these changes shall be submitted to the Regional Office along with the appropriate VIP documents.

CHAPTER 8

FLEET DATA PROCESSING

1.0. This chapter contains the basic procedures necessary to process incoming fleet related material from the field. Commencing with section 1.1.0., these procedures should normally be followed step by step.

1.1.0. Sort Incoming Mail in Five Stacks

A. Corrected Data Logs
B. Approved Initial Applications
C. Periodic Inspection Reports Pass
D. Periodic Inspection Reports Fail
E. All other

1.2.0. Process Approved Initial Applications

A. Review applications.
B. Pull each approved fleet from assignment file and attach assignment sheet to application.
C. Enter all collective members in catalog.
D. Enter all new fleets and their collectives into E.D.P. (Check alpha x-ref for collective membership) (Use catalog)
E. Check for certificate sales card on each new fleet.(Use fleet files)
F. Make folders for each new fleet and file.
G. Enter all new fleets in fleet inspection records. (Use catalog)

1.3.0. Complete Weekly Fleet Status Report

1.4.0. Process Failed Periodics

A. Review inspection reports.
B. Pull certificate sales card and file.
C. Log each failed report in fleet inspection record. (Hash mark only)
D. File reports in fleet files.

1.5.0. Process Passed Periodics

A. Review inspection reports.
B. Check each passed report with deferred certificate sales file.
C. Log each report in fleet inspection record.
D. File reports in fleet files.

1.6.0. Process Name, Address & Member Changes

A. Enter as other contacts on weekly status report.
B. Enter in E.D.P.
C. Enter name and address changes on memo to Sacramento for new license printing.

1.7.0. Adding & Dropping Collective Members

A. Always add new members to end of list.
B. Dropped members numbers remain blank.
C. Change on E.D.P. (change Fleet Center misc. code).
D. Additional numbers over 26-Z are C1 through C9.
E. Change catalog and update files.

1.8.0. Changing Fleet License Numbers and Name Changes

A. New application must be filled out. In "Reason For Application" box, write in bold letters-"Name Change" and/or "Number Change".
B. Change on E.D.P.
C. Change catalog and card file.
D. Write new number on monthly license reprint list.
E. Send monthly license reprint list at least once a month to Jim Brown.

CHAPTER 9

FIELD SUPERVISION GUIDELINES

1.0. The "S.C.A.B." fleet districts are split into two Regions - Northern and Southern, with a supervisor for each Region. Corrective supervision, performance evaluation, and other administrative duties as related to the field inspectors is the responsibility of the supervisor assigned to that Region.

The Northern Region is assigned the following districts: 2A, 2B, 3A, 3B, 6, 8, 9 and 10.

The Southern Region is assigned the following districts: 1A, 1B, 4A, 4B, 5A, 5B, 7A and 7B.

1.1.0. Each supervisor is to spend two weeks per month (staggered every other week) riding with the inspectors of his Region and spot checking their work.

1.2.0. Each supervisor is to spend two weeks per month (staggered every other week) in the office, reviewing field inspections and overseeing fleet operations.

1.3.0. Both supervisors will keep a joint file of all fleet and personnel activities. Both supervisors will coordinate their activities by phone contacts and a weekly meeting prior to a weekly briefing of the field staff. The field inspector's weekly briefing shall be conducted by the supervisor overseeing fleet operations for that week. Whichever supervisor is overseeing fleet operations for a given week will also attend the weekly management staff meeting.

CHAPTER 10

MVIP FORMS (FLEET)

DEPARTMENT OF Consumer Affairs

BUREAU OF AUTOMOTIVE REPAIR

VEHICLE INSPECTION PROGRAM
REGIONAL OFFICE
3415 FLETCHER AVE., SUITE #2 EL MONTE, CA 91731
PHONE: (213) 575-7005

APPLICATION FOR LICENSE (INITIAL OR RENEWAL)

FOR BUREAU USE ONLY

LICENSE NO.	CODE	FEE	DATE ISSUED

INSTRUCTIONS: [illegible] FOR APPLICATION FOR VEHICLE INSPECTION PROGRAM [illegible] PLEASE TYPE APPLICATION WHEREVER APPLICABLE. [illegible]

APPLICANT (FIRST, MIDDLE, AND LAST NAME)

DOING BUSINESS AS (BUSINESS NAME)

1. BUSINESS ADDRESS (NUMBER, STREET, CITY AND STATE) ZIP

MAILING ADDRESS ZIP

1a. [illegible]

2. **REASON FOR APPLICATION**

[illegible] FLEET OPERATION LICENSE

[illegible] FLEET OPERATION LICENSE

[illegible] FLEET MEMBER LICENSE

[illegible] FLEET MEMBER LICENSE

LICENSE APPLIED FOR *(check blocks as appropriate)*

[illegible] FLEET OPERATIONS LICENSE MVPC # _____

[illegible] USED CAR DEALER FLEET OPERATION LICENSE DMV # _____

4. **APPLICANT'S BACKGROUND**
(If application is for renewal, complete B and C only)

	YES	NO
[illegible] HAS EVER PREVIOUSLY BEEN ISSUED ANY LICENSE BY THIS DEPARTMENT OR THE CALIFORNIA HIGHWAY PATROL [illegible]		
[illegible] HAS ANY LICENSE EVER BEEN SUSPENDED OR REVOKED BY THIS DEPARTMENT, THE CALIFORNIA HIGHWAY PATROL OR BY ANY OTHER STATE AGENCY [illegible]		
EXPLANATIONS (ATTACH IF HERE) _____		

5. **APPLICANT'S CERTIFICATION**

I agree to comply with all laws and regulations applicable to the license for which I am applying and I understand that violation of any law or regulation adopted by the Director of Consumer Affairs pursuant thereto may result in the filing of a criminal action in a court of law or the filing of an administrative action to suspend or revoke the license.

X SIGNATURE OF APPLICANT DATE

6. **INSPECTION AND APPROVAL**

[illegible] REQUIREMENTS PASSED	DISTRICT	BRANCH	DATE
[illegible]		[illegible]	

[illegible]

M.V.I.P. INSPECTION REPORT

FLEET NO.	MVPC NO.	ARC NO.	DATE

STATION NAME	ADDRESS	CITY	ZIP

TYPE INSPECTION
- ☐ INITIAL
- ☐ FOLLOW UP
- ☐ PERIODIC

- ☐ COMMERCIAL FLEET
- ☐ DEALER FLEET
- ☐ COLLECTIVE FLEET
- ☐ QUALIFIED

PHONE NO. | NO. OF CERTIFICATES ISSUED PER WEEK

OWNERS NAME OR RESPONSIBLE MANAGING EMPLOYEE (PRINT)

ANALYZER CALIBRATION INFORMATION

MFR. NAME	MODEL	SERIAL NO.	CO/CO2 FACTOR	DATE LAST CALIBRATED

CORRECTED CAL GAS VALUES

HC _____ PPM PROP. x FACTOR _____ PPM HEX

CO BOTTLE VALUE _____ %

100 PPM ACCEPTABLE RANGE _____ TO _____ PPM

± .4% RANGE _____ TO _____ %

ANALYZER ACCURACY CHECK

METER READINGS		ACCEPTABLE	
HC THRU CAL PORT	_____ PPM	☐ YES	☐ NO
HC THRU PROBE	_____ PPM	☐ YES	☐ NO
CO THRU CAL PORT	_____ %	☐ YES	☐ NO
CO THRU PROBE	_____ %	☐ YES	☐ NO

REMARKS I-R ANALYZER ONLY

GENERAL INSPECTION ITEMS

	YES	NO		YES	NO
1. OFFICIAL SIGN DISPLAYED			9. RECORD OF NOx STICKER MAINTAINED		
2. CURRENT STA. LIC. REG POSTED			10. RECORD OF CERT/ WORK ORDERS MAINTAINED		
3. CURRENT EMPLOYED LIC INST. ADS.			11. REG. TOOLS & EQUIP. AVAIL. & SERVICEABLE		
4. CURRENT EMP. INST. ADS. LIC. (s) DISPLAYED			12. BAR BULLETINS, MECH. HANDBOOK CURRENT		
5. PRICES POSTED			13. TUNE UP SPECS. & SERV. DATA CURRENT		
6. INSPECTION PROCEDURES POSTED			14. HAVE RECEIVED FLEET TRAINING		
7. REQ. INSPECTION STEPS FOLLOWED			15.		
8. CERTIFICATES ISSUED CORRECTLY			16.		

COMMENTS:

_____

_____

_____

_____

_____

_____

_____

INSPECTOR	CLASS A MECH. QUALIFICATION NO.	CLASS A NO.	QUALIFIED CLASS A MECH. QUALIFICATION NO.	CLASS A NO.
INSPECTOR	CLASS A MECH. QUALIFICATION NO.	CLASS A NO.	QUALIFIED CLASS A MECH. QUALIFICATION NO.	CLASS A NO.

_____ OWNER/MANAGER _____ DATE

VEHICLE CERTIFICATION DATA LOG SHEET

DATE

TIME

YEAR MODEL

YEAR MAKE

NO. OF CYL

(1) [illegible] emissions measurement [illegible] and exhaust emission levels (After idle check adj.)

	HC ppm	CO %
FIRST IDLE		
2500 RPM		
SECOND IDLE		

IDLE RPM

(2) Verify the installation and operation of all required emission control devices. Indicate required devices are present and operating by checking appropriate boxes.

- CRANKCASE VENTILATION
- AIR INJECTION
- ENGINE MOD
- AIR PREHEAT THERMOSTATIC
- IGNITION SPARK CONTROL
- EXHAUST GAS RECIRCULATION
- FUEL EVAPORATION
- EXHAUST CONVERTER
- RETROFIT EXHAUST
- RETROFIT NOx CONTROL

(3) [illegible] and measure and adjust if necessary, the following engine adjustments to manufacturers [illegible] NOTE: If equipped with a retrofit device follow retrofit manufacturers recommendations.

ENGINE IDLE RPM

CARBURETOR IDLE A/F ADJ.

IGNITION TIMING (DEGREES)

IGNITION DWELL (DEGREES)

NOTE: [illegible] GASOLINE DIESEL PROPANE

(4) [illegible] indicate by checking all

CARBURETOR FUEL INJECTION

IGNITION SYSTEM

VACUUM LEAKS (HOSES GASKETS)

CHOKE REPAIR

AIR FILTER

(5) [illegible] exhaust emission levels after adjustments and repairs

	HC ppm	CO %
FIRST IDLE		
2500 RPM		
SECOND IDLE		

[illegible] HOS

IDLE RPM

[illegible] have inspected and tested the above vehicle in accordance with the rules and regulations governing vehicle [illegible] Program [illegible] and that the above noted vehicle is in compliance with applicable state emission control [illegible] requirements and said vehicle passes all applicable exhaust emission standards specified by Air Resources Board [illegible] waiver criteria. If waiver issued provide estimate cost and description of additional repairs needed.

PASSED WAIVED

STATE OF CALIFORNIA—AGRICULTURE AND SERVICES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF Consumer Affairs

BUREAU OF AUTOMOTIVE REPAIR
VEHICLE INSPECTION PROGRAM
REGIONAL OFFICE
3415 FLETCHER AVENUE, SUITE F2
EL MONTE, CALIF. 91731
PHONE: (213) 575-7005

REQUEST TO ADD MEMBER

FLEET BUSINESS NAME AND # _____

FLEET BUSINESS ADDRESS _____

FLEET BUSINESS PHONE ( ) _____

YOUR NAME _____ TITLE _____

I REQUEST TO ADD THE FOLLOWING MEMBER

BUSINESS NAME	ADDRESS	ZIP CODE	NEW/USED CAR PERMIT NO.

I HAVE READ AND UNDERSTAND THE FLEET MEMBER REQUIREMENTS AND RESPONSIBILITIES OF THE INSPECTING FLEET FACILITY (APPLIES TO CAR DEALERS).

AUTHORIZED SIGNATURE
FLEET FACILITY _____ DATE _____

AUTHORIZED SIGNATURE
FLEET MEMBER _____ DATE _____

IMPORTANT INSTRUCTIONS
(Read Carefully)

1. CERTIFICATE BOOK
This fleet certificate book contains ten consecutively numbered Certificates in triplicate which are to be used in consecutive order.

2. PREPARATION OF CERTIFICATES
Upon completion of the inspections and tests, requirements specified in the VIP Fleet Handbook:

   A. The Qualified Class "A" installer shall, after determining the vehicle is in compliance, complete the Certificate (in triplicate) showing all required information and signing on the appropriate line.

   B. Detach the blue copy marked "DMV Copy" for forwarding to the Department of Motor Vehicles for registration purposes.

   C. Detach the pink copy marked "Vehicle Copy" and place it in the vehicle.

   D. The third copy shall be retained in the Certificate book.

3. VOID CERTIFICATES
When it is necessary to void a Certificate in accordance with the instructions in the Fleet Facility Handbook, write "Void" on the original (blue) copy and retain all copies in the Certificate book.

4. OBTAINING ADDITIONAL CERTIFICATE BOOKS
Additional Certificate books may be purchased by writing the California Vehicle Inspection Program Regional Office, 3415 Fletcher Avenue, Suite No. 2, El Monte, California 91731. Books will be sold only to a purchaser who properly identifies the name, address and license number of the fleet facility requesting the certificate book(s).

STATE OF CALIFORNIA • VEHICLE INSPECTION PROGRAM

DEPARTMENT OF CONSUMER AFFAIRS

FLEET FACILITIES

FV- 122961

CERTIFICATE OF

☐ COMPLIANCE
☐ NON-COMPLIANCE
☐ WAIVER

VEHICLE IDENTIFICATION NO. | VEHICLE LICENSE NO.

DATE TESTED | DATE ISSUED | FLEET FACILITY LICENSE NO.

FLEET MEMBER NO. | QUALIFIED MECHANIC NO.

QUALIFIED LICENSED INSTALLER SIGNATURE

THE VEHICLE IDENTIFIED ABOVE IS IN COMPLIANCE WITH THE REQUIREMENTS OF SECTION 20.4 TITLE 16, OF THE CALIFORNIA ADMINISTRATIVE CODE GOVERNING VEHICLE INSPECTION PROGRAM FLEET FACILITIES.

D M V COPY

STATE OF CALIFORNIA—AGRICULTURE AND SERVICES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF Consumer Affairs

BUREAU OF AUTOMOTIVE REPAIR

No. B 09057

NOTICE OF VIOLATION

COMPLAINT NO.: | COMPLAINANT:

OWNER:

ESTABLISHMENT: | REGISTRATION NO.

ADDRESS: (STREET) (CITY)

ISSUED TO:

You are hereby notified that you are in violation of Section _____

of the Business and Professions Code and/or Section _____

of Title _____ of the California Administrative Code.

REMARKS:

RECEIVED BY:

BAR REPRESENTATIVE: | DATE

771-22 (REV. 2-77) FILE COPY TRIPLICATE

DEPARTMENT OF Consumer Affairs

BUREAU OF AUTOMOTIVE REPAIR
VEHICLE INSPECTION PROGRAM
REGIONAL OFFICE
3415 FLETCHER AVENUE, SUITE #2
EL MONTE, CALIF. 91731
PHONE: (213) 575-7005

FLEET LICENSE NUMBERING PROFILE

F=Fleet Center

A,B,C,..= Expiration Month - Jan, Feb, Marc

Fleet Center Type*

F	A	2	0	1	0	0	1
C	Z	2	0	1	0	0	1

First number issued will be 1001+. Collective members have same number as their Fleet Center

Fleet Center Type*

A,B,C,..=Collective Member Code - 1,2,3...

C=Collective Member

* The third character denotes the type of Fleet Center. All of the Fleet Center's collective members will have the same number. Listed below is the different types of Fleet Centers.

0 = Commercial	3 = Dealer New/Used
1 = Dealer - New	4 = Dealer New/Used Collective
2 = Dealer - Used	5 = Dealer New Collective

BUREAU OF AUTOMOTIVE REPAIR – MVPC FIELD ACTIVITY – MONTHLY REPORT

MONTH-YEAR	DISTRICT	NAME	TITLE	ID NUMBER

DATES WORKED																								
INSPECTIONS	INITIAL																							
	STAYED																							
	PERIODIC																							
	STAYED																							
	LAMP																							
	BRAKE																							
INSP. TIME	INC. TRAVEL																							

COMPLAINTS

55 – 65		PENDING																						
66 – 70		RECEIVED																						
OTHER		CLOSED																						
COMPLAINT TIME INCLUDING TRAVEL																								

HC/CO ANALYZERS

UNITS INSPECTED																								
UNITS INOPERATIVE																								
OUT OF CALIBRATION																								

OTHER ACTIVITIES HOURS

SUPERVISION																								
ADMINISTRATION																								
EXAMS																								
PRESENTATIONS																								
OFFICE *																								
OTHER **																								
TOTAL DUTY HOURS																								

I hereby certify that the information entered on this report is a true and accurate description of my activity during the period specified.

* TELEPHONES, FILING COUNTER, UP DATING CARD FILES, ETC EXPLAIN ON REVERSE

** VEHICLE SERVICE, STATION TRAVEL LANE, SPECIAL BAR PROSPECTS, ETC EXPLAIN ON REVERSE

SIGNATURE ..... DATE .....

SUPERVISOR .....

77M-17 (7-78)

TOTAL MILES	TOTAL [illegible]

B-159

REVISION RECORD FOR REGISTER 79, No. 28
(July 14, 1979)

TITLE 16. PROFESSIONAL AND VOCATIONAL REGULATIONS

CHAPTER 33. BUREAU OF AUTOMOTIVE REPAIR

This part of Register 79, No. 28, contains all the additions, amendments, and repeals affecting the above-entitled portion of the California Administrative Code which were filed with the Secretary of State from 7-7-79, to and including 7-14-79. The latest prior register containing regulations of the above agency is Register 79, No. 11 (3-17-79).

It is suggested that the section numbers listed below as well as the page numbers be checked when inserting this material in the code and removing the superseded material. In case of doubt rely upon the section numbers rather than the page numbers since the section numbers must run consecutively. It is further suggested that superseded material be retained with this revision record sheet so that the prior wording of any section can be easily ascertained.

SECTION CHANGES

Unless otherwise noted, the sections listed below are amended herein.

3396–3396.22 Certificate of Compliance
3396.5(a),(b),(d)
3396.10
3396.13(b)
3396.15(b),(c)
3396.16(g)
3396.19
3396.21

PLEASE NOTE

A new, simple style for the California Administrative Code is being implemented to cut both printing time and expense. We hope you are pleased with the new format which you will notice in the attached amendments.

PAGE CHANGES

Remove Old Pages	Insert Attached Pages
378.3–378.12	378.3–378.14

SUBCHAPTER 2. MOTOR VEHICLE INSPECTION PROGRAM

DETAILED ANALYSIS

Article 1. General Provisions

Section
3396 Scope of Regulations
3396.1 Definitions

Article 2. Scope of Vehicle Inspection Program

Section
3396.2 Mandatory Inspections, Exemptions

Article 3. State Inspection Centers

Section
3396.3 Inspection Centers

Article 4. Certificates

Section
3396.4 Issuance of Certificates of Compliance
3396.5 Certificates of Waiver
3396.6 Expiration of Certificates

Article 5. Automotive Mechanics Qualification

Section
3396.7 Qualified Mechanics

Article 6. ARD Facilities and Licensed Stations in the SCAB

Section
3396.8 General Requirements
3396.9 Limitations on Issuance of Certificates
3396.10 Vehicle Inspection Report
3396.11 Suspension of Registration and/or License
3396.12 Repairs on Failed Vehicles

Article 7. Fleet Qualifications and Requirements

Section
3396.13 Fleet Facilities Requirements, Applications
3396.14 Fleet Facility License, Renewal
3396.15 Inspection for Fleet Members by Licensed Fleet Facilities
3396.16 General Requirements for Licensed Fleet Facilities
3396.17 Records and Reporting Requirements
3396.18 Fleet Certificates
3396.19 Suspension or Rescission of Fleet Facility License

Article 8. Low Emission Tune-up and Repair Procedures

Section
3396.20 Low Emission Tune-up Requirements for Failed Vehicles
3396.21 Low Emission Tune-up Procedures
3396.22 Low Emission Repairs

Article 1. General Provisions

3396. Scope of Regulations.

This chapter shall apply to vehicle inspections and tests required in the South Coast Air Basin by Chapter 20.4 of the Business and Professions Code, commencing with Section 9889.50 thereof and to the issuance of certificates, mechanic qualifications, repair and adjustment procedures and fleet facilities.

NOTE: Authority cited: Sections 9889.51 and 9889.55(b), Business and Professions Code. Reference: Sections 9889.50 and 9889.51, Business and Professions Code.

HISTORY:

1. New Subchapter 2 (Articles 1–8, Sections 3396–3396.22, consecutive) filed 3-15-79 as an emergency; effective upon filing (Register 79, No. 11). For history of prior Section 3396, see Registers 73, No. 30, 73, No. 37, and 75, No. 19.
2. Certificate of Compliance filed 7-12-79 (Register 79, No. 28).

3396.1. Definitions.

In this chapter, unless the context otherwise requires:

(a) "Director" means the Director of Consumer Affairs.

(b) "Bureau" means the Bureau of Automotive Repair.

(c) "Code" means the Business and Professions Code.

(d) "Department" means the Department of Consumer Affairs, including the Bureau of Automotive Repair.

(e) "GVW" means gross vehicle weight.

(f) "Automotive Repair Dealer" or "ARD" means a person who is registered with the Bureau pursuant to Chapter 20.3 of the Code.

(g) "Licensed MVPC Station" means a repair facility licensed by the Bureau pursuant to Chapter 20.3 of the Code for inspecting, installing, repairing or recharging vehicle emission control devices.

(h) "Licensed Installer" means a person licensed by the Bureau to inspect, install, repair or recharge vehicle emission control devices in licensed stations.

(i) "Inspection Center" means a facility operated by the State or an entity under contract with the State that measures vehicle exhaust emissions, inspects emission control devices and diagnoses the possible cause of malfunctions or maladjustments in such systems.

(j) "SCAB" means the South Coast Air Basin, which includes the counties of Ventura and Orange and portions of the counties of San Bernardino, Riverside, Santa Barbara and Los Angeles and is defined in Section 60104 of Title 17, California Administrative Code, as that section read on January 1, 1976.

(k) "Approved Exhaust Emission Analyzer" means an instrument developed for measuring the hydrocarbon and carbon monoxide emissions from a vehicle's exhaust system which has been approved by the Bureau for use in California.

(l) "Contractor" means an entity under contract with the State to design, build and/or operate inspection centers and perform other functions required by Chapter 20.4 of the Code.

(m) "Vehicle Inspection Report ("VIR") means a document showing the results of the inspections and tests required by Chapter 20.4 of the Code.

(n) "Qualified Mechanic" means a person authorized by the provisions of Chapter 20.4 of the Code to perform recommended maintenance and repairs or low emission tune-ups in a licensed MVPC station or automotive repair facility and who has been issued a certificate of qualification by the department pursuant to Section 9889.52 of the Code.

NOTE: Authority cited: Section 9889.51, Business and Professions Code. Reference: Section 9889.51–Section 9889.61, Business and Professions Code.

Article 2. Scope of Vehicle Inspection Program

3396.2. Mandatory Inspections, Exemptions.

(a) Unless otherwise provided in these regulations, subsequent to March 19, 1979, all 1955 and later model passenger vehicles and trucks with a GVW of less than 8501 lbs. which are to be registered, garaged or housed in the SCAB shall be inspected and tested at an inspection center upon each transfer of registration and, in the case of a motor vehicle previously registered in another state, upon initial registration in California.

(b) The following vehicles within the SCAB are exempt from the mandatory inspection required by Chapter 20.4 of the Code:

(1) motorcycles

(2) unregistered new vehicles certified by the manufacturer for sale in California

(3) pre-1955 model vehicles

(4) vehicles powered by electricity, diesel, liquid petroleum gas or liquid natural gas

(5) vehicles with a GVW greater then 8500 lbs.

(6) vehicles exempted pursuant to Vehicle Code, Section 4000.1(b)

(7) vehicles transferred within 60 days of an inspection by an inspection center or from the date of sale from a licensed fleet facility

(c) A licensed fleet owner may conduct inspections of fleet vehicles at his own premises pursuant to Section 9889.52(e) of the Code.

NOTE: Authority cited: Sections 9889.51 and 9889.55(b), Business and Professions Code. Reference: Sections 9889.51 and 9889.55, Business and Professions Code.

Article 3. State Inspection Centers

3396.3. Inspection Centers.

(a) An inspection center shall test vehicles for compliance with the exhaust emission standards specified by the Air Resources Board in Title 13, California Administrative Code, and shall visually inspect vehicles to determine whether required emission control systems are installed and operating properly. An idle mode test shall be used and selected emission control devices shall be functionally tested. The test procedures for determining compliance are those established by the department pursuant to Section 9889.54 of the Code.

(b) A fee of $11 shall be charged for each vehicle inspected. Said fee shall be paid by the owner of the vehicle to the Department of Motor Vehicles prior to transfer of ownership or initial registration of an out-of-state vehicle in the SCAB.

(e) An inspection center shall not inspect or test a vehicle with a mechanical condition which could cause injury to inspection personnel, the inspection center, test equipment or affect the validity of the test.

NOTE: Authority cited: Sections 9889.51, 9889.52 and 9889.64, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.54 and 9889.64, Business and Professions Code.

Article 4. Certificates

3396.4. Issuance of Certificates of Compliance.

The department, through the inspection center, shall issue a certificate of compliance to the owner or operator of any non-exempt vehicle which has been inspected at an inspection center and has all required emission control equipment and devices installed and functioning correctly and meets the applicable exhaust emission standards as specified by the Air Resources Board in Title 13 of the California Administrative Code.

NOTE: Authority cited: Sections 9889.51 and 9889.56, Business and Professions Code. Reference: Section 9889.56, Business and Professions Code; Section 4602.1 of the Vehicle Code.

3396.5. Certificates of Waiver.

(a) The department shall issue a certificate of waiver through an inspection center for a motor vehicle which meets all of the following requirements:

(1) All required emission control devices are installed and functioning correctly;

(2) The motor vehicle has failed a reinspection after receiving a low emission tune-up;

(3) The inspection center has been given a written estimate, prepared by a qualified licensed installer, that the vehicle is in need of further maintenance and repairs, excluding those necessary to replace defective, altered or missing required emission control devices and that the required maintenance and repairs will cost more than $50.00.

(b) The department shall authorize the issuance of a certificate of waiver for a motor vehicle which meets all of the following conditions:

(1) All required emission control devices are either not installed or are not functioning correctly;

(2) The motor vehicle has failed a reinspection after receiving a low emission tune-up;

(3) The inspection center has been given a written estimate, prepared by a qualified licensed installer, that the vehicle is in need of further maintenance and repairs to the emission control systems or devices which will exceed the department's cost limitations. The department's cost limitations are:

(A) $85 for 1955 through 1965 model year vehicles

(B) $150 for 1966 through 1974 model year vehicles

(C) $250 for 1975 and newer model year vehicles

The cost limitations specified in this subsection may be revised by the department from time to time.

(4) The vehicle has received a waiver authorization number from the bureau.

(c) The department shall issue a certificate of waiver, through an inspection center, for a motor vehicle which fails reinspection after having been repaired or serviced in accordance with the policies and procedures of the department by a qualified licensed installer at a licensed MVPC station.

(d) The costs mandated by subsections (a) and (b) shall not include any costs recoverable by the vehicle's owner under any warranty which applies to emission control systems or devices.

NOTE: Authority cited: Sections 9889.51 and 9889.56, Business and Professions Code. Reference: Sections 9889.51 and 9889.56, Business and Professions Code.

HISTORY

1. Amendment of subsections (a), (b) and (d) filed 7-12-79; effective thirtieth day thereafter (Register 79, No. 28).

3396.6. Expiration of Certificates.

(a) Except as provided in subsection (b), a certificate issued pursuant to Chapter 20.4 of the Code shall be valid for a period of 60 days from the date of issuance.

(b) A certificate issued for a vehicle owned by a dealer fleet owner and intended for resale shall be deemed issued on the date such vehicle is actually sold to a consumer, provided no adjustment to or alteration of any portion of the vehicle emission control system has been made subsequent to inspection or testing.

NOTE: Authority cited: Sections 9889.51 and 9889.55, Business and Professions Code. Reference: Sections 9889.52 and 9889.55, Business and Professions Code.

Article 5. Automotive Mechanics Qualification

3396.7. Qualified Mechanics.

(a) Only a qualified mechanic may perform, for compensation, recommended repairs, adjustments, maintenance or low emission tune-ups on a vehicle failed by an inspection center or a licensed fleet facility.

(b) A mechanic who wishes to qualify to perform such repairs for compensation shall submit an application on a form prescribed by the department.

(c) Each applicant shall attend a mechanics seminar sponsored or approved by the department and pass the written examination given by the department prior to performing such repairs.

(d) The department shall issue a certificate of qualification to a mechanic who has completed a mechanics seminar and passed the written examination.

(e) A qualified mechanic shall notify the department of any change of employment or residence address.

NOTE: Authority cited: Sections 9889.51 and 9889.52, Business and Professions Code. Reference: Sections 9889.50, 9889.51 and 9889.52, Business and Professions Code.

Article 6. ARD Facilities and Licensed Stations in the SCAB

3396.8. General Requirements.

The following general requirements shall apply to this article:

(a) Performance Standards. A vehicle that has failed an inspection shall be adjusted, serviced or repaired in accordance with standards, specifications and directives issued by the department and, where appropriate, by the manufacturer of the device or vehicle.

(b) Qualified Mechanic Requirements. Any repair facility which repairs failed vehicles shall have the services of a qualified mechanic available to it for the number of hours specified in Section 3305(c) of Title 16 of the California Administrative Code.

(c) MVPC Station License Requirements. Installation of, adjustments or repairs to emission control systems on a vehicle failed by an inspection center shall be performed only in a licensed MVPC station by a qualified licensed installer.

(d) Equipment Requirements. Repairs, maintenance or low emission tune-ups shall not be performed on a vehicle failed by an inspection center unless the handbooks and manuals required by the bureau pursuant to Chapter 20.4 of the Code and the equipment required in Section 3326(a) are available for use by the qualified mechanic and the equipment is properly calibrated and functioning.

(e) Estimate Requirement. An ARD shall comply with the requirements of Chapter 20.3, Article 3 of the Code, including, but not limited to the written estimate required therein, prior to performing repairs, adjustments and/or low emission tune-ups on a vehicle failed by an inspection center.

(f) Vehicle Inspection Report. Whenever a licensed or registered repair facility performs repairs recommended by an inspection center, the vehicle inspection report ("VIR") issued by the inspection center shall be completed by the qualified mechanic and returned to the vehicle owner or operator.

NOTE: Authority cited: Sections 9889.51, 9889.52, 9889.57 and 9889.60, Business and Professions Code. Reference: Sections 9889.51, 9889.52 and 9889.60, Business and Professions Code.

3396.9. Limitations on Issuance of Certificates.

On and after March 19, 1979, a licensed MVPC station shall not inspect or test vehicles or issue certificates of compliance or certificates of non-compliance in the SCAB for the purpose of transferring registration on any vehicle included in Section 3396.2(a).

NOTE: Authority cited: Sections 9889.51, 9889.55 and 9889.56, Business and Professions Code. Reference: Sections 9889.50-9889.60, Business and Professions Code and Section 4902.1, Vehicle Code.

3396.10. Vehicle Inspection Report.

(a) The owner or operator of a vehicle which is rejected or fails an inspection at an inspection center shall be given a VIR which identifies the reasons for rejection or failure and lists the recommended maintenance or repairs for failed vehicles.

(b) A registered or licensed repair facility shall complete the maintenance or repairs recommended on the VIR or, based upon the estimate of a qualified licensed installer, certify that repairs, adjustments or installation of emission control systems would exceed the department's repair cost limitations after performing a low-emission tune up. The VIR shall then be completed in accordance with the department's procedures, signed by the qualified mechanic or qualified licensed installer and returned to the vehicle owner or operator.

NOTE: Authority cited: Sections 9889.51 and 9889.52, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.57 and 9889.58, Business and Professions Code.

HISTORY

1. Amendment filed 7-12-79; effective thirtieth day thereafter (Register 79, No. 28).

3396.11. Suspension of Registration and/or License.

Any proceeding under this section shall be conducted in accordance with Chapter 5 (commencing with Section 11500 of the Government Code). An ARD registration or MVPC station license shall be subject to disciplinary action under Chapter 20.4 of the Code for failing to perform a low emission tune up or other repairs or adjustments to a vehicle in accordance with the specifications and procedures established by the department.

NOTE: Authority cited: Sections 9889.51 and 9889.60, Business and Professions Code. Reference: Sections 9889.51, 9889.52 and 9889.60, Business and Professions Code.

3396.12. Repairs on Failed Vehicles.

A registered or licensed repair facility shall not permit a mechanic who has not been qualified by the department to perform low emission tune-ups, repairs, adjustments or installations of emission control devices on a vehicle which fails an inspection.

NOTE: Authority cited: Sections 9889.51, 9889.52 and 9889.60, Business and Professions Code. Reference: Sections 9889.51, 9889.52 and 9889.60, Business and Professions Code.

Article 7. Fleet Qualifications and Requirements

3396.13. Fleet Facilities Requirements, Applications.

(a) A fleet owner may not perform exhaust emission inspections and testing unless he has been licensed by the department.

(b) An applicant for a fleet facility license shall meet the following requirements:

(1) Own a fleet of 10 or more vehicles which are registered in the SCAB and which are not exempt from inspection.

(2) Possess the manuals and the equipment specified in Section 3326(a) and (b) of Title 16, California Administrative Code, and demonstrate that such equipment is properly maintained and calibrated.

(3) Employ the services of a licensed installer who has been issued a certificate of qualification pursuant to Chapter 20.4 of the Code.

(4) Possess a current MVPC station license and, where appropriate, a valid ARD registration.

(5) Is not subject to denial under Section 480 of the code.

(6) Is not presently the subject of a pending accusation.

(7) Was not previously the holder of a license issued under Chapters 20.3 or 20.4 which license has been revoked and never reissued or which license was suspended and the terms of the suspension have not been fulfilled.

(8) Submit an application on a form approved by the department.

NOTE: Authority cited: Sections 9889.51, 9889.52, 9889.56 and 9889.61, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.56 and 9889.61, Business and Professions Code.

HISTORY

1. Amendment of subsection (b) filed 7-12-79; effective thirtieth day thereafter (Register 79, No. 28).

3396.14. Fleet Facility License, Renewal.

(a) A fleet facility license is valid for one year from the date of issuance and shall expire on that date unless renewed, suspended, rescinded or terminated by operation of law.

(b) A fleet facility licensee shall submit a timely and proper renewal application to the department. A fleet facility licensee whose license has expired shall immediately cease to inspect or test vehicles or issue certificates.

(c) Application shall be made to the department for a duplicate license in the event a license is lost, destroyed or mutilated. The person to whom the license was issued shall furnish satisfactory proof of such fact. Upon receipt of such application, a duplicate license will be issued for the unexpired term of the license. Any mutilated or lost license subsequently found shall be surrendered to the department.

(d) In the event of a change of name of the licensee (not involving any change of ownership) or a change in the licensee's address, the license shall be returned to the department with an application for a replacement license for the unexpired term of the license. Upon receipt of the application, the department will cancel the returned license and issue a new license for the unexpired term.

(e) A fleet facility license is not transferrable.

NOTE: Authority cited: Sections 9889.51, 9889.52, 9889.56, 9889.60 and 9889.61, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.56, 9889.60 and 9889.61, Business and Professions Code.

3396.15. Inspection for Fleet Members by Licensed Fleet Facilities.

(a) Except as provided in subsection (b), a fleet facility licensee shall inspect [illegible] certify only vehicles owned by it.

(b) A fleet facility licensee who meets the following requirements may be [illegible]horized by the department, in its discretion, to conduct inspections and tests [illegible] the fleet facility premises for a person who owns 10 or more vehicles not exempt from inspection and who is not a fleet facility applicant or licensee (hereinafter "fleet member"):

(1) Is an automobile dealer in the SCAB, licensed by the Department of Motor Vehicles, who at all times maintains a bona fide inventory on the licensed fleet facility premises of at least 10 or more non-exempt motor vehicles available exclusively for sale to the public; or

(2) At all times owns and operates in the SCAB a fleet of at least 10 non-exempt motor vehicles exclusively for the use of his employees or for daily or weekly rental to members of the public in the regular course of business.

(c) A fleet facility licensee wishing to conduct such inspections shall file a request for authorization with the department on a form prescribed by the department. A licensee shall not conduct inspections or tests for a fleet member until authorization to do so has been granted by the department. The request shall identify the names, addresses and fleet size of each fleet member for whom the fleet facility licensee will conduct inspections. The fleet facility shall notify the department of any changes in the fleet members for whom the licensee is authorized to conduct inspections.

(d) Whenever the inventory of vehicles to be tested by a licensed fleet facility for a fleet member falls below 10 vehicles, the licensed fleet facility shall cease to test, inspect or certify such vehicles and shall notify the department of that fact.

NOTE: Authority cited: Sections 9889.51, 9889.52, 9889.56, 9889.60 and 9889.61, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.56, 9889.60 and 9889.61, Business and Professions Code.

HISTORY:

1. Amendment of subsections (b) and (c) filed 7-12-79; effective thirtieth day thereafter (Register 79, No. [illegible]

3396.16. General Requirements for Licensed Fleet Facilities.

The following general requirements shall apply to this subchapter:

(a) Vehicle inspection and exhaust emission measuring shall conform to the standards set forth in Section 3396.8(a).

(b) A licensed fleet facility shall have the equipment, current handbooks and manuals set forth in Section 3326 of Title 16, California Administrative Code, available for use in inspecting and testing vehicles. Such equipment shall be maintained and calibrated or adjusted in accordance with the instructions of the manufacturer and the requirements of the bureau.

(c) Vehicles shall be inspected and tested in accordance with the procedures specified by the department.

(d) A qualified licensed installer shall diagnose all causes for a vehicle failing inspection or testing and shall perform maintenance and repairs in accordance with the specifications and procedures established by the department prior to retesting the vehicle.

(e) A fleet certificate shall be issued only in accordance with procedures established by the department.

(f) Vehicle inspection, testing and certification shall be performed only by a qualified licensed installer in the licensed fleet facility.

(g) A fleet facility licensee shall notify the department whenever his fleet falls below 10 non-exempt vehicles.

NOTE: Authority cited: Sections 9889.51, 9889.52, 9889.56, 9889.60 and 9889.61, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.56, 9889.60 and 9889.61, Business and Professions Code.

HISTORY:

1. Amendment of subsection (g) filed 7-12-79; effective thirtieth day thereafter (Register 79, No. 28).

3396.17. Records and Reporting Requirements.

(a) All data relating to inspection and repair activities shall be recorded on forms prescribed by the department.

(b) The licensed fleet facility shall maintain a data log book prescribed by the department. All required information shall be recorded by the qualified licensed installer at the time he performs an inspection or test on a vehicle. A duplicate copy of the data log sheet for each vehicle inspected shall be forwarded to the Regional Office in El Monte within five working days.

(c) The records required to be maintained by subsections (a) and (b) shall be retained for a period of not less than three years after the completion of any inspection, test or repairs to which the records refer.

NOTE: Authority cited: Sections 9889.51, 9889.52, 9889.56, 9889.58 and 9889.60, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.56, 9889.58 and 9889.60, Business and Professions Code.

3396.18. Fleet Certificates.

(a) A licensed fleet facility shall order and purchase certificates of compliance and waiver from the department for a fee of $11 per certificate. Certificates are not transferrable and fees are not refundable.

(b) A certificate of compliance shall be issued for any vehicle which complies with the emission control system requirements and meets the exhaust emission standards established by the Air Resources Board in Title 13 of the California Administrative Code.

(c) A certificate of waiver may be issued only in accordance with the procedures established in Section 3396.5(a) and (b)

(d) Within 24 hours after discovering the loss or theft of any certificate the fleet facility licensee shall notify the department in writing of the serial number of each missing certificate

NOTE Authority cited Sections 9889.51, 9889.52, 9889.56 and 9889.61, Business and Professions Code. Reference Sections 9889.51, 9889.52, 9889.56 and 9889.61, Business and Professions Code.

3396.19. Suspension or Rescission of Fleet Facility License.

(a) A fleet facility licensee shall immediately cease to test, inspect, or certify any non-exempt vehicles whenever such person fails to meet the requirements of Section 3396.13(b) (1), (2), or (3), violates Section 3396.17, or fails to provide the department with reasonable access, information and cooperation. The fleet licensee may not resume fleet operations until authorized by the department.

(b) Whenever an authorized representative of the department determines, after an on-site inspection of the fleet facility premises or after spot checks of the inspection system or fleet vehicles, that the licensee is not in compliance with the provisions in paragraph (a), he shall order the licensee to immediately cease its fleet operations. The fleet facility licensee may not resume fleet operations until authorized by the department or, if suspended, until the suspension expires.

(c) A fleet facility license may be suspended or rescinded in accordance with Chapter 5 (commencing with Section 11500) of the Government Code for any the following:

(1) Inspecting or testing vehicles when the fleet to be inspected falls below vehicles.

(2) Failure to maintain properly calibrated and operative equipment required by Section 3396.16(b).

(3) Failure to employ the services of a qualified licensed installer for the hours specified in Section 3305(c).

(4) Failure to maintain required records.

(5) Failure to inspect or test vehicles in accordance with specifications and procedures established by the department.

(6) Failure to provide the department with reasonable access, information and other cooperation as specified by Section 9889.52(e) of the Code.

(7) Violation of any provision of Chapter 20.4 of Division 3 of the Code or any regulations promulgated pursuant thereto.

NOTE Authority cited: Sections 9889.51, 9889.52, 9889.56 and 9889.60, Business and Professions Code. Reference: Sections 9889.51, 9889.52, 9889.56 and 9889.60, Business and Professions Code.

HISTORY:

1. Amendment filed 7-12-79, effective thirtieth day thereafter (Register 79, No 28)

Article 8. Low Emission Tune-up and Repair Procedures

3396.20. Low Emission Tune-up Requirements for Failed Vehicles.

(a) A vehicle which is found to exceed the state vehicle exhaust emission standards shall receive, as a minimum, a low emission tune-up prior to being retested.

(b) Prior to receiving a waiver, a vehicle whose emission control system is missing modified or inoperative shall receive a low emission tune up after corrective repairs have been made

NOTE Authority cited Sections 9889.51 9889.52 9889.56 and 9889.60, Business and Professions Code Reference Sections 9889.51 9889.52, 9889.56 and 9889.60, Business and Professions Code

3396.21. Low Emission Tune-up Procedures.

A low emission tune-up consists of four basic engine checks and adjustments which shall be performed by a qualified mechanic in the following sequence

(1) Check/Adjust Dwell Check and, if necessary, adjust the distributor point dwell to manufacturer's specifications. If the points cannot be adjusted or are pitted, replace the points If the vehicle is equipped with an ignition system which does not use points, verify that the ignition system is functioning properly by testing it with an oscilloscope or equivalent device.

(2) Check/Adjust Ignition Timing. Check and, if necessary, adjust the ignition timing according to the specifications of the vehicle manufacturer or, if a retrofit emission control device has been installed on the vehicle, in accordance with the instructions of the retrofit device manufacturer Verify the operation of the mechanical and/or vacuum spark advance/retard following such manufacturer's recommended procedures.

(3) Idle RPM. Check and, if necessary, adjust the idle rpm to the specifications of the vehicle manufacturer or, if a retrofit emission control device has been installed on the vehicle, in accordance with the instructions of the retrofit device manufacturer. If a large idle speed adjustment is necessary, recheck the initial timing.

(4) Adjust the Idle Air/Fuel Mixture. Adjust the idle air/fuel mixture according to the recommended procedures of the vehicle manufacturer or, if a retrofit emission control device has been installed on the vehicle, in accordance with instructions of the retrofit device manufacturer. If the manufacturer does not recommend an idle adjustment procedure, adjust the idle fuel mixture according to the guidelines and procedures established by the department in the Qualified Mechanics Handbook.

NOTE Authority cited. Sections 9889.51, 9889.52 and 9889.60, Business and Professions Code Reference Sections 9889.51, 9889.52 and 9889.60, Business and Professions Code

HISTORY

1. Amendment filed 7-12-79, effective thirtieth day thereafter (Register 79, No 28)

3396.22. Low Emission Repairs.

Repairs shall be performed on a vehicle which fails reinspection after having received a low emission tune-up. Such repairs shall be performed in the most cost-effective sequence as set forth by the department in the Qualified Mechanics Handbook.

NOTE Authority cited Sections 9889.51, 9889.52, 9889.56 and 9889.60, Business and Professions Code Reference Sections 9889.51, 9889.52, 9889.56 and 9889.60, Business and Professions Code

FLEET STATION HANDBOOK

CALIFORNIA

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SECTION 1

FLEET OPERATIONS

A. Introduction to Fleets

B. Vehicles Affected by VIP

C. Commercial Fleets

D. Collective Fleets

E. Collective Fleet Members

A. Introduction to Fleets

The legislative requirements for implementation of the California Vehicle Inspection Program allows the Department to license any owner of a fleet of 10 or more vehicles affected by this Program to conduct the inspections and tests of fleet vehicles on his own premises utilizing his own facilities and personnel.

The Fleet concept provides an opportunity for governmental entities (Federal, State and local governments), public utilities and private business to become licensed as fleets and perform their own inspection and issue certificates subject to State surveillance. It is emphasized that this is an option and those preferring to utilize the State controlled inspection center, rather than being licensed as fleets, obviously may do so.

A new or used car dealer licensed as an MVIP fleet facility may inspect and test another car dealer's vehicles of 10 or more with prior authorization by the Department. The licensing of car dealers as MVIP fleets will terminate upon implementation of the annual renewal of registration phase of the Program.

B. Vehicles Affected by VIP

The VIP affects most model year motor vehicles within the SCAB which are 1955 and newer and have a GVW less than 8501 lb. (See Section 15 of the Qualified Mechanics Handbook for a list of exempt vehicles.)

C. Commercial and Dealer Fleets

There are two categories of fleets: those owned and operated by commercial concerns, such as telephone, gas, electric and aero-space companies; and new/used car dealers. Both fleet categories are required to meet the same inspection and test procedures, have the required test equipment, be an MVPC licensed station and employ a "qualified" mechanic who holds a current Class "A" MVPC license. Only Dealer Fleets may be authorized to inspect and issue certificates to other fleets. Dealer fleets and collective members will terminate issuance of certificates upon startup of the annual programs.

D. Collective Fleets

Collective Dealer Fleet operations are licensed and authorized by MVIP to inspect and test other dealer fleets of 10 or more vehicles in addition to their own fleet of vehicles. The Collective Dealer Fleet applicant must list

all the other dealers whose vehicles he will be inspecting and testing prior to being granted a license.

E. Collective Fleet Members

Collective Fleet Members are dealers who have their inspection and testing done by a dealer licensed as a Collective Fleet. Such collective fleet members are required to have a fleet of at least 10 vehicles of the type affected by this program in his inventory at all times.

SECTION 2

FLEET REQUIREMENTS

A. Fleet Owner Requirements

B. Licensing Procedure

A. Fleet Owner Requirements

The requirements to be imposed upon persons licensed as _eets are:

1. Vehicle fleets shall at all times consist of 10 or more vehicles of the configuration and weight affected by this Program and all said vehicles must be operated primarily in the geographical area identified as the South Coast Air Basin (SCAB). If the fleet size is reduced below 10 vehicles, the authorization to operate as a fleet is suspended and the MVIP Regional Office is to be notified immediately. (MVIP Regional Office, 3415 Fletcher Avenue, Suite #2, El Monte,213-565-7005)

   Those authorized to act as Collective Dealer fleet inspection operations for other dealer fleets are responsible for the compliance of their collective members with the rules and regulations of the MVIP Fleet Program. If any collective dealer fleet member reduces its fleet to less than 10 vehicles, the licensed collective dealer fleet owner shall stop inspecting vehicles for said member and the VIP Regional Office shall be notified. Failure to do so will result in suspension of the collective dealer fleet license.

2. The fleet inspection procedures shall conform with the Department's rules and regulations and the fleet operating instructions as follows: (a) A fleet must have all required test and diagnosis equipment and tools present and in operating condition. The location for all inspections and tests conducted as a fleet shall be in a designated area approved by the MVIP inspector, (b) the fleet owner is responsible for maintenance and control of forms and records required by the Department, (c) an owner licensed to operate as a collective dealer fleet and all others involved as collective fleet members shall be deemed to have consented to provide the Department with whatever access, information and other cooperation the Department reasonably determines are necessary t_ facilitiate random spot checks, (d) the license to operate as a fleet shall be suspended or rescinded by the MVIP whenever it is determined that the fleet inspections fail to conform to Certificate of Compliance or Wiaver procedures or the owner or other parties acting in his behalf have violated regulations or rules promulgated by the Department, and, (e) a fleet operation shall hold a valid MVPC station license, and employ or have available a mechanic who is VIP-qualified and holds a current MVPC Class "A" installers license.

B. Licensing Procedure

Fleets wishing to become licensed with the Vehicle Inspection Program to inspect and test their vehicles and issue Certificates of Compliance or Waiver may obtain applications from the Vehicle Inspection Program Regional Office, 3415 Fletcher Avenue, Suite #2, El Monte, CA 91731. The telephone number is (213) 565-7005.

SECTION 3

FLEET QUALIFIED MECHANICS REQUIREMENTS

A. Care and Checkout of Required Equipment

B. Equipment Accuracy Check

C. Completion and Forwarding of Data Log Sheets

A licensed fleet operation is required to have employed the services of a mechanic who has received his VIP Certificate of Qualification and holds a valid MVPC Class "A" installers license. In addition, the qualified mechanic is required to attend a training session to become familiar with fleet inspections, test and data recording requirements. Fleet mechanic training sessions will be conducted by the VIP representative during the initial fleet inspection visit.

A. Care and Checkout of Required Equipment

All fleet vehicle inspection and testing shall be conducted in accordance with the procedures contained herein and in an area approved by the Vehicle Inspection Program. The fleet facility shall have all the required test and diagnostic equipment as listed in the Qualified Mechanics Handbook. All required equipment shall be in good condition and maintained in accordance with manufacturer's recommended procedures.

B. Equipment Accuracy Check

The exnaust gas (HC-CO) analyzer shall be check for accuracy at least weekly. BAR certified calibration gas must be used in the accuracy check. The accuracy of the analyzer may be checked at either the bench (gas calibration port) or through the sample probe. VIP inspectors will check accuracy at the probe in order to verify sample system integrity as well as bench accuracy. When the analyzer is checked only at the calibration port, the fleet mechanic is responsible to assure the sample system is not leaking.

1. Acceptability of analyzer accuracy check.

   a. If the ppm reading of HC is within ± 100 ppm of the N-hexane-to-propane equivalent concentration (see "How to use BAR certified gas" on page 11) the HC section is within accuracy limits. For example, if the BAR certified HC gas sample has a concentration of 1632 ppm, the meter reading may vary ± 100 ppm from 1632 ppm. A reading between 1532 and 1732 ppm would be within specified tolerance limits.

   b. Read the CO meter on the 0-10 percent scale. If the CO meter reading is within ±0.4 of the certified CO sample value, the CO section is within acceptable accuracy limits. For example, if the certified CO gas sample value is 8.25%, the meter reading may vary 0.4 from this value. Readings between 7.85% and 8.65% CO would be

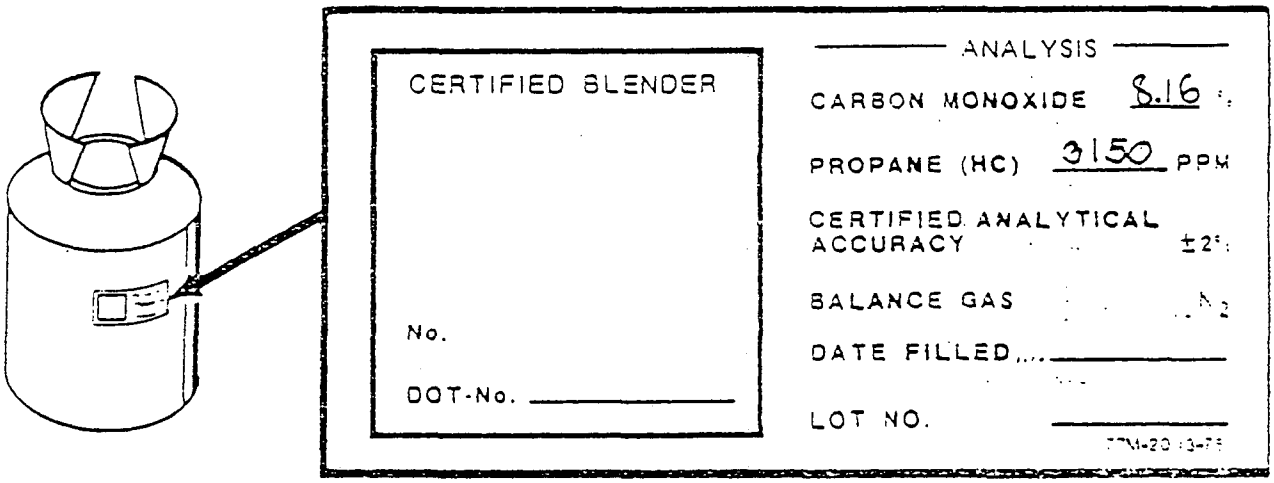
within specified tolerance limits (8.25 - 0.4 = 7.85% or 8.25 + 0.4 = 8.65%).

c. If test results are not within allowable tolerances, analyzer service is required.

NOTE: Analyzer found to be out of the accuracy tolerance or in need of repair must be removed from the certification work area. Inform the station operator/owner that no further certification work may be conducted until the analyzer is correctly calibrated and/or repaired or a loaner/substitute analyzer is made available. When a loaner or substitute analyzer is obtained, the operator shall verify its operation and accuracy prior to performing tests with it.

2. How to use BAR certified gas.

Shown below is a sample of the label required to be attached to each bottle fo BAR certified gas:



BAR certified calibration gas is a propane/carbon monoxide blend in a nitrogen carrier. Each analyzer reads out in parts per million (ppm) of N-hexane on the hydrocarbon (HC) scale. Each analyzer is required to have a unique conversion factor (C or C3-C6) stamped or identified on the instrument. The factor is necessary to determine N-hexane equivalency of propane. The following example illustrates use of this conversion factor:

EXAMPLE: If the BAR certified gas label on the bottle shows 3200 ppm propane and the factor shown (C or C3-C6) on the instrument is 0.51, the N-hexane equivalent of propane is 0.51 x 3200 = 1632 ppm.

NOTE: The correction factor applies only to the hydrocarbons.

The percentage value of carbon monoxide in the gas is read directly from the BAR certified gas label. No conversion is required.

EXAMPLE: If the label on the bottle of BAR certified gas shows 8.25% carbon monoxide, the meter on the analyzer should read about 8.25% if it is in calibration.

RECORDING OF ACCURACY CHECK RESULTS

Enter the results of the analyzer accuracy check on the analyzer accuracy log sheet provided.

C. Completion and Forwarding of Data Log Sheets

The vehicle certification data log sheet shall be filled out completely for each vehicle inspected and signed by the Fleet "Qualified" Class "A" Mechanic. After completing the data log sheet, remove the attached carbon copy and forward it to the VIR Regional Office within five (5) working days.

The Regional Office address: 3415 Fletcher Avenue, Suite #2, El Monte, CA 91731.

SECTION 4

VEHICLE INSPECTION PROCEDURES

Step 1 - Pre-Emission Inspection

Step 2 - Vehicle Identification/Filling out Data Log

Step 3 - Emission Control Systems Inspection

Step 4 - Checking Initial RPM

Step 5 - Insertion of Sample Probe

Step 6 - Initial Emissions Measurement

Step 7 - Smoke Check

Step 8 - Determination of Emissions Test Results

Step 9 - Emissions Failure Repairs

Step 10 - Checking the Success of Emissions Repair

Step 11 - Completion of Data Log

Step 12 - Emissions Waiver

STEP 1 - PRE-EMISSION INSPECTION

Before starting the emission test, verify the following:

* Exhaust gas analyzer is operating within the acceptable accuracy limits, as determined by an accuracy check made within the past week.

* Required tools and equipment are available.

* Vehicle engine temperature has stabilized and the choke is fully open.

* Inspect the vehicle's exhaust system to make sure it is free from leaks or holes which affect the validity of the exhaust measurement. If the vehicle exhaust has holes or rusted-out areas it must be repaired prior to emissions testing.

STEP 2 - VEHICLE IDENTIFICATION/FILLING OUT DATA LOG

A. Vehicle Data Section (see figure below):

VEHICLE CERTIFICATION DATA LOG SHEET

(1) VEHICLE IDENTIFICATION NO.	(2) LICENSE NO.	(3) DATE	(4) TIME	(5) ODOMETER
73FQ87NOR123456	VIP123	3/9/79	14:30	004124

(6) FLEET LICENSE NO.	(7) COLLECTIVE NO.	(8) VEHICLE MAKE	(9) YEAR MODEL	(10) YEAR BASIS	(11) NO. OF CYL.
FC31000		CHEV	78	MM	8

Item (1.) Write the Vehicle Identification Number in the spaces provided. Begin the number on the left side of the area provided (as shown above).

Item (2.) Write the License Number of the vehicle in the spaces provided. Begin the number on the left side of the area provided (as shown above).

Item (3.) Enter the month, day and year in the spaces provided.

Item (4.) Enter the time the vehicle inspection is initiated using the 24 hour clock.

Item (5.) Enter the first 6 digits visible on the speedometer. Do not enter the digit which represents tenths of a mile.

Item (6.) Enter your Fleet License Number in the spaces provided.

Item (7.) Enter the Collective Fleet Number of the member fleet when you are inspecting a vehicle belonging to a collective fleet member. When you are inspecting vehicles belonging to your fleet, leave this area blank.

Item (8.) Enter the first four (4) letters of the name of the vehicle manufacturer. Do not enter model of the vehicle. When certifying a truck, van or motor home, enter a "T" and the truck/van (I.e. C10 or F150 etc.) series number when available, under the vehicle make block.

Item (9.) Enter the Year Model of the testing standards to be used. See #10 below:

Item (10) Enter the Year Basis for the inspection as follows:

NOTE: "Year Basis" is the year by which emission standards and/or emission control system requirements will be based.

a. If the vehicle is not specially constructed and there is no paperwork stating the engine has been changed, enter MM in the space provided. In other words enter MM for all "stock" vehicles. Also enter the model year of the vehicle as described in #9 above.

b. If the vehicle has been specially constructed (dune buggies, etc.) enter SS in the spaces provided. Enter the year model or if no year model is printed on the registration, enter the year first sold as the Year Model in #9 above.

c. If there is paperwork which shows the engine has been changed, enter EE in the spaces provided. Also, enter the model year of the engine in the Year Model area as described in #9 above.

Item (11) Enter the Number of Cylinders of the engine in the spaces provided.

STEP 3 - EMISSION CONTROL SYSTEMS INSPECTION

Inspect the required emission control system (ECS) using the procedures in Section 5 of this handbook. Do not go on to Step 4 until the vehicle has all required emission controls operating or been granted a waiver.

STEP 4 - CHECKING INITIAL RPM

Connect a tachometer and check the initial engine idle RPM. The engine idle RPM shall be adjusted if it varies more than 100 RPM from the manufacturer's specification. If the vehicle is equipped with a retrofit device, use the retrofit manufacturer's specified idle RPM setting when applicable. Record the idle RPM after adjustments in the box provided on Section 1 of data log.

STEP 5 - INSERTION OF SAMPLE PROBE

Insert the HC and CO analyzer probe into the vehicle tail pipe a minimum of eleven (11) inches. If the sample probe cannot be inserted a sufficient depth, an adapter must be used to insure no dilution of the exhaust sample.

STEP 6 - INITIAL EMISSIONS MEASUREMENT

1) Measure and record the initial idle emission levels of hydrocarbon (HC) and carbon monoxide (CO) and enter the readings on the data log sheet in Section 1.

2) Increase the engine speed to 2500 RPM ± 200 RPM and hold until the HC-CO readings stabilize for about 10 seconds. (The transmission should be in park or neutral with the wheels blocked.) Record the readings in Section 1 of the data log.

3) Allow the engine to return to idle and recheck the emission levels. Record the readings in the boxes provided in Section 1 of the data log. NOTE: Exhaust emissions measurements shall be made with the air cleaner installed, all vacuum lines connected and air pump connected and operating.

STEP 7 - SMOKE CHECK

During 2500 RPM phase of the initial emissions measurements, visually check the vehicle exhaust for smoke (excluding water vapor). Smoke is composed of small visible particles of oil and exhaust residue. Vehicles that exhaust visible smoke for greater than 10 seconds at 2500 RPM shall be failed for excessive smoke. Refer to Section 5 of the Qualified Mechanics Handbook for the proper repair procedure. Put findings in Section 5 of data log.

STEP 8 - DETERMINATION OF EMISSIONS TEST RESULTS

Determine the State idle emission limits from Section 11 of this handbook and enter them in Section 5 of the Data Log Sheet.

Compare the HC and CO readings obtained during both idle tests to the State Inspection Emission Limits. If the vehicle emission levels for both HC and CO are less than the State Inspection Emission Limits during the second idle, the vehicle has passed the emissions. Proceed to Step 11. If either of the vehicle idle emission levels are greater than the State Inspection Emission Limits, the vehicle has failed the idle emission test; go to Step 9.

STEP 9 - EMISSIONS FAILURE REPAIRS

Refer to the Low Emission Tune-Up procedures as outlined in Section 7 of the Qualified Mechanics Handbook. Follow the procedure listed for the Low Emission Tune-Up. Disregard references to filling out Vehicle Inspection Report. NOTE: The tune-up standards are always the manufacturer's specifications, or when manufacturer specifications are not available, the Recommended Garage Carburetor Adjustment Guidelines published in Section 11 of the Qualified Mechanics Handbook should be used. Do not use the State Inspection Emission Limits when tuning vehicles. Once the repair procedures have been completed, enter the appropriate data in Sections 3 and 4 of the log sheet.

STEP 10 - CHECKING THE SUCCESS OF EMISSIONS REPAIR

Once the repairs have been completed or the cost of further repairs necessary to reduce emissions would exceed the cost limitation and the fleet owner does not want to perform repairs which are not required to reduce the emissions of HC and CO, record the readings in the first idle boxes in Section 5 of the data log sheet. Increase the engine speed to 2500 ± 200 RPM and hold until the HC and CO readings stabilize. Record the readings obtained. Allow the engine to return to idle and record the readings. Record the final idle speed in the box provided in Section 5 of the data log.

Compare the idle emission readings recorded in Section 5 to the State standards. If both the HC and CO readings during the first or second idle are less than the State standards, you have repaired the emission failure; proceed with Step 11.

If either of the readings exceed the State standards and further repairs would exceed the cost limitation and the fleet owner does not want the further repairs performed, go to Step 12.

STEP 11 - COMPLETION OF DATA LOG

Check the "passed" box at the lower portion of the log sheet. Complete and sign the bottom portion of the log sheet. A Certificate of Compliance may now be issued using the procedure in Section 6 of this handbook.

STEP 12 - EMISSIONS WAIVER

When emission still exceeds the State standards and further repairs will exceed the cost limitation and the fleet owner does not want the repairs performed, the vehicle is eligible for waiver. List the further repairs required in the "comments" portion of Section 5 of the data log sheet. Check the "waived" box at the lower portion of the form and complete and sign the bottom portion of the log sheet. A Certificate of Waiver may now be issued using the procedure in Section VI of this handbook. Make sure the checks and adjustments required in Section 3 of the data log have been completed before a waiver is issued.

SECTION 5

EMISSION CONTROL SYSTEM INSPECTIONS

A. Inspection of Devices

B. Repairs

C. Emission Control System (ECS) Waivers

A. Inspection of Devices

The vehicle to be inspected shall be positioned in the approved work area. All necessary reference manuals needed to determine emission control system requirements and engine adjustment settings shall be readily available to the approved work area.

1. Inspect vehicle to determine that all State and Federally required emission control systems are installed and operating, including retrofit devices as applicable. Such an inspection will consist of, but is not limited to, the following types of systems as applicable to the year model of vehicle being inspected:

   * crankcase ventilation system
   * air injection system
   * engine modification
   * air preheat/thermostatic air cleaner
   * ignition spark control
   * exhaust gas recirculation
   * fuel evaporation system
   * exhaust converter & fuel tank lead restrictor
   * retrofit exhaust control
   * retrofit NOx control indluding windshield sticker

   Vehicles exempted from retrofit device program shall be identified by placing the letter "E" in the appropriate boxes in Section 2 the data log sheet.

   Vehicle emission control system requirements can be found on the vehicle underhood tune-up label or nationally published emission control reference manuals.

   A detailed emissions control system inspection procedure is contained in Section 3327 of the Handbook for Installers and Inspection Stations, Motor Vehicle Pollution Control.

   In addition, verify that the fuel tank lead restrictor is present and not modified on vehicles designed for non leaded fuels.

B. Repairs

Vehicles found with missing, disconnected, modified or inoperative emission control devices can not be certified until repaired or granted a waiver based upon prior approval by the VIP Regional Office as specified below. The results of the emission control systems inspection shall be entered on the fleet inspection data log sheet by indicating a check in the appropriate boxes in Section 2 of the data log.

C. Emission Control System Waivers

The Vehicle Inspection Program is authorized to issue emission control system (ECS) waivers to vehicles that have failed the emission control system inspection.

A request for ECS Waiver shall be made by telephone to the VIP Regional Office when either of the following conditions are encountered:

1. Your repair facility is unable to locate replacement components or devices needed to repair the emission control system, or

2. When the repair or replacement (parts and labor) of the emission control system or components is too costly as determined by the vehicle age, model, year and other factors.

All vehicles are required to receive a low emission tune-up performed according to the procedures of the department to be eligible for receipt of an ECS Waiver.

The procedure to be followed when requesting an ECS Waiver is as follows:

CONDITION 1

Non-availability of replacement components or devices:

* Contact shall be made with a minimum of three major suppliers to determine availability.

* Contact the Regional VIP Office, (213) 575-7030 (waiver informaton only) state the reason for ECS Waiver request and identify the sources contacted.

* The VIP representative will review the facts and if all conditions are met, an ECS waiver authorization number will be issued.

* If the waiver request requires an on-site VIP investigation, a representative will schedule a visit to the fleet facility to inspect the vehicle and make a determination.

* When authorization is granted, the fleet "Qualified" mechanic will enter the authorization number in the space provided on the data log sheet and on the Certificate of Waiver. Also, enter the letter "N" in the applicable ECS box(es) in Section 2 of the data log sheet.

CONDITION 2

When the cost of repairing or replacing inoperative, missing or disconnected ECS systems or components exceeds the maximum dollar figure below as determined by year basis on data log.

1955 to 1965	$ 85
1966 to 1974	$150
1975 and newer	$250

* The ECS Waiver limitation does not include the $50 exhaust emission cost limit.

Before an authorization for ECS cost waiver can be granted, the fleet owner of the vehicle involved is required to spend up to the dollar figure shown above and give the vehicle a low emission tune-up. When it is determined by the fleet "Qualified" Class "A" mechanic in the fleet MVPC licensed station that further ECS repairs or device replacement will exceed the maximum cost limit, the Regional VIP Office shall be contacted at (213) 565-7030 (waiver information only).

When a VIP representative determines that the Request for ECS Waiver is valid, an authorization number will be granted to the "Qualified" Class "A" mechanic. The waiver authorization number shall be recorded by the mechanic on the fleet data log sheet and on the the fleet Certificate of Waiver. Also, place the letter "W" in the applicable ECS box(es) in Section 2 of the data log sheet.

SECTION 6

COMPLETING THE CERTIFICATE

A. Certificate of Compliance

B. Certificate of Non-Compliance Procedure

C. Certificate of Waiver

A VIP licensed fleet operation is authorized to issue three types of certificates (Compliance, Non-Compliance and Waiver). The certificates are available at the Regional Office and have ten (10) in each book. Certificates are in triplicate (three copies). The first copy (blue) is the DMV copy, the second (pink) is a vehicle copy and the third (white) is to be retained in the Certificate Book. Certificates are valid indefinitely when retained by a fleet who is a new/used car dealer. Once a vehicle is sold the Certificate is valid for 60 days from date of issue for subsequent transfers. Therefore, the "date of issue" should be left blank until the vehicle is sold. The fleet operator should enter the date of sale in the "issue date" space on the blue and pink copies.

A. Certificate of Compliance

After completion of all inspections and tests and the vehicle has met all the criteria, mark an "X" in the compliance box, fill in the vehicle license, vehicle identification number and fleet license number. If the vehicle is from a fleet collective member, enter the member number. Enter your qualification number and sign the form. DO NOT ENTER THE DATE OF ISSUE UNTIL THE VEHICLE IS SOLD. Remove the blue and pink copies and retain the white copy in the certificate book.

B. Certificate of Non-Compliance

If the vehicle which is to be certified meets BOTH of the below criteria, see Section VI, Part B.

It is:

1) owned or leased by a California resident, business, or corporation, and

2) A 49-State vehicle with less than 3000 miles on the odometer, OR has over 3000 miles on the odometer and is being transferred to the ultimate purchaser as defined in Section 39055.5 of the Health & Safety Code.

When a vehicle meets the criteria for a certificates of Non-Compliance and passes the inspection and test requirements, a Certificate of Non-Compliance shall be issued.

In addition, a report of issuing a Certificate of Non-Compliance shall be filled out and mailed to the VIP Regional Office within five working days. Report of

issuing a Non-Compliance Certificate forms are included in the back of the vehicle certification data log book.

C. Certificate of Waiver

Before issuing a Certificate of Waiver, verify that the vehicle meets one of the criteria listed below:

* Vehicle has failed the exhaust emission test and received a low emission tune-up and is in need of further repairs that will exceed the $50 cost limitation.

* Vehicle has failed the emission control system inspection and has received a low emissions tune-up and is in need of further repairs or replacement of devices that will exceed the applicable dollar value or replacement components cannot be purchased. Authorization has been received from the VIP Regional Office as outlined in Section V.

SECTION 7

SURVEILLANCE OF FLEET ACTIVITIES BY THE STATE

A. Reinspection of Vehicles

B. Spot-Check of Fleet Qualified Mechanics Competency

C. Review of Records

A. Reinspection of Vehicles

The State will conduct periodic random reinspections of the fleet facility to assure all rules and regulations adopted by the department governing fleet activities are adhered to. On-site reinspection will consist of the following checks as a minimum:

1. HC and CO analyzer accuracy check and verify the accuracy log sheet is maintained current.

2. Review of Data Log Book and certificate records.

3. Reinspection of a sample of vehicles available, which have completed the ECS inspection and exhaust emissions test.

B. Spot-Check of Fleet Qualified Mechanics Competency

The VIP field representative will spot-check fleet qualified mechanics competency by requesting a reinspection of a sample of fleet vehicles previously certified.

The competency check will be completed in the fleet facility designated inspection area, using the fleet equipment and technical reference manuals. The frequency of the spot-checks for competency will be determined by the proficiency demonstrated by the qualified mechanic.

C. Review of Records

During the random reinspections the VIP representative will conduct a thorough review of all fleet records pertaining to the inspection, test and repair of vehicles certified.

SECTION 8

WHO TO CONTACT WHEN FLEET PROBLEMS ARISE

Should problems arise during the inspection and testing of fleet vehicles that are related to the VIP forms, procedures or test requirements, contact the Regional VIP Office at 3415 Fletcher Avenue, Suite #2, El Monte, CA (213)575-7005).

SECTION 9

FLEET LICENSING

A. Initial License

B. Renewal License

C. Lost, Destroyed or Mutilated

D. Change of Address

E. Change of Ownership

F. Termination of Fleet Licensing

A. Initial License

To be eligible for a VIP fleet license, a fleet facility must meet the following criteria:

1. At all times a fleet of 10 or more vehicles which are registered in the SCAB and which are not exempt from inspection.

2. Possess the equipment specified in Section 3326(a) and (b) of Title 16, California Administrative Code and demonstrate that such equipment is properly maintained and calibrated.

3. Employ the services of a licensed MVPC installer who has also been issued a Certificate of Qualification pursuant to Chapter 20.4 of the Business and Professions Code.

4. Possess a current MVPC station license and where appropriate, a valid ARD registration.

5. With prior authorization by the Department, a new or used car dealer licensed as a VIP fleet facility may inspect and test another car dealer's (fleet member's) vehicles provided that his fleet also consists of 10 or more affected vehicles.

6. Submit an application on a form approved by the Department. All fleet members must be identified at time of application.

A fleet facility desiring a VIP fleet license should contact the VIP Regional Office at 3415 Fletcher Avenue, Suite #2, El Monte, CA (213) 565-7005).

B. Renewal License

1. A fleet facility license is valid for one year from the date of issuance and shall expire on that date unless renewed or unless terminated by operation of law.

2. A fleet facility licensee shall submit a timely and proper renewal application to the Department A fleet facility licensee whose license has expired shall immediately cease to inspect or test vehicles or issue certificates.

C. Lost, Destroyed or Mutilated

Application shall be made to the Department for a duplicate license in the event a license is lost, destroyed or mutilated. The person to whom the license was issued shall furnish satisfactory proof to such fact. Upon receipt of such application, a duplicate license will be issued for the unexpired term of the license. Any mutilated or lost license subsequently found, shall be surendered to the Department.

D. Change of Address

In the event of a change of name of the licensee (not involving any change of ownership) or a change in the licensee's address, the license shall be returned to the Department with an application for a replacement license for the unexpired term of the license. Upon receipt of the application, the Department will cancel the returned license and issue a new license for the unexpired term without a fee.

E. Change of Ownership

Any change of ownership of the licensee will require the issuance of a new license as outlined in Section A.

F. Termination of Fleet Licensing

The licensing of vehicle dealers as VIP fleets will terminate upon implementation of the annual renewal of registration phase of the program.

SECTION 10

SUSPENSION OR RESCISSION OF FLEET FACILITY LICENSE

A fleet facility license may be suspended or rescinded for any of the following:

1. The fleet to be inspected falls below affected 10 vehicles.

2. Failure to maintain properly calibrated and operative equipment required in Section 4.A.

3. Failure to employ the services of a qualified licensed installer during vehicle certifications as specified in Section 9.A.3.

4. Failure to maintain required records.

5. Failure to inspect or test vehicles in accordance with specifications and procedures established by the Department.

6. Failure to provide the Department with reasonable access, information and other cooperation as specified by Section 9889.52(e) of the Business and Professions Code.

7. Violation of any provision of Chapter 20.4 of Divison 3 of the Code or any regulations promulgated pursuant thereto.

SECTION 11

STATE INSPECTION EMISSION LIMITS

MODEL YEARS	NUMBER OF CYLINDERS	EMISSION CONTROL SYSTEM	EMISSION STANDARDS HC(PPM)	CO(%)
1955 to 67	4 or less	Without air injection	1850	8.0
1955 to 65	5 or more	Without air injection	1200	9.0
1968 to 70	4 or less	Without air injection	1000	7.0
1968 to 70	4 or less	With air injection	500	3.0
1966 to 70	5 or more	Without air injection	600	7.0
1966 to 70	5 or more	With air injection	450	3.0
1971 to 74	4 or less	Without air injection	500	6.0
1971 to 74	4 or less	With air injection	350	2.25
1971 to 74	5 or more	Without air injection	450	6.0
1971 to 74	5 or more	With air injection	250	2.25
1975 to 79	ALL	NON-CATALYST	350	3.0
1975 to 79	ALL	CATALYST	250	2.0

All exhaust emissions testing shall be made with air injection pump connected and operating as applicable. Vehicles equipped with thermal reactors shall be tested to the non-catalyst specification.

APPENDIX C

NEVADA

AIR QUALITY REGULATIONS FOR MOBILE EQUIPMENT

AUTHORIZED STATION INSPECTOR TEST #2

AUTHORIZED STATION INSPECTOR TEST #3

STATE OF NEVADA

AIR QUALITY REGULATIONS

FOR MOBILE EQUIPMENT

Adopted by

Nevada Environmental Commission
John Fransway, Chairman

Department of Motor Vehicles
S. Barton Jacka, Director

December, 1979

Administered by

Department of Motor Vehicles
S. Barton Jacka, Director
Carson City, Nevada

and

Peace Officers
of the State

WHEREAS, the Nevada State Implementation Plan shows that from the available ambient air quality data for carbon monoxide and oxidants, Clark County, specifically the Las Vegas Valley, and Washoe County, specifically the Truckee Meadows, is in violation of the state and national ambient air quality standards; and

WHEREAS, such standards were promulgated by the United States Environmental Protection Agency and the State Environmental Commission for the express purpose of protecting the health and welfare of the citizens residing therein; and

WHEREAS, the control strategy for reducing carbon monoxide and the oxidant levels by the reduction of the carbon monoxide and hydrocarbon emissions respectively includes the implementation of a strategy for inspecting and maintaining in-use motor vehicles; and

WHEREAS, the Fifty-Ninth Session of the Nevada State Legislature provided guidance to the State Environmental Commission to establish an annual inspection and maintenance program in progressive steps; and

WHEREAS, the State Environmental Commission now deems said inspection program necessary to aid in the achievement of the required ambient air quality standards; and

WHEREAS, the Fifty-Ninth Session of the Nevada State Legislature established authority for the Department of Motor Vehicles to promulgate requirements for licensing and inspecting authorized stations;

NOW THEREFORE BE IT RESOLVED that the State Environmental Commission and the Department of Motor Vehicles promulgate these regulations with the express purpose of developing data upon which to define the reductions in emissions for in-use motor vehicles and to aid in the achievement of the ambient air quality standards which are presently being violated predominantly because of motor vehicle emissions; and

BE IT FURTHER RESOLVED that such progressive step implementation is based on the requirements of Chapter 445 of NRS; and

BE IT FURTHER RESOLVED that a cooperative study be completed by January 1979, such study will show acceptance by and protection of consumers, cost for improvement of air quality, and the effectiveness of the program as a whole; and

BE IT FURTHER RESOLVED that the motor vehicle owner will be provided with information explaining the reasons for the methods of inspections.

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ARTICLE 1 - DEFINITIONS

1.1 Ambient air. That portion of the atmosphere surrounding people, animal, and plant life.

1.2 Approved inspector. An individual person who has qualified by passing the written examination as prepared by the department of motor vehicles, and has successfully demonstrated the ability to operate the required diagnostic equipment, and has been issued a license as an approved inspector.

1.3 Authorized station. As defined in subsection 1 of chapter 445 of NRS, a station licensed by the department of motor vehicles for inspecting motor vehicles and pollution control devices for compliance with chapter 445 of NRS or any applicable federal or commission regulation and for installing, repairing, and adjusting pollution control devices and motor vehicles to meet the commission's requirements.

1.4 Carbon monoxide (CO). A colorless, odorless, highly toxic gas that is a normal byproduct of incomplete fossil fuel combustion.

1.5 Certificate of compliance. A certificate, issued by an approved inspector in an authorized station, which declares that the motor vehicle identified on the certificate is properly equipped with the pollution control devices indicated on the certificate and that such devices conform with the requirements of chapter 445 of NRS and regulations adopted by the state environmental commission.

1.6 Commission. The state environmental commission, as defined in chapter 445 of NRS.

1.7 Crankcase emissions. Air contaminants emitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication systems.

1.8 Department. The department of motor vehicles.

1.9 Diagnostic equipment. Tools used to diagnose engine performance.

1.10 Emission. The act of passing into the atmosphere an air contaminant or a gas stream which contains, or may contain, an air contaminant; or the material passed to the atmosphere.

1.11 Established place of business. (1) The permanent structure owned either in fee or leased with sufficient space to test, inspect, or adjust, if needed, one or more motor vehicles for which a certificate of compliance or evidence of compliance may be issued; and (2) large enough to accommodate the office or offices of an authorized station to provide a safe place to keep the books, certificates of compliance, and all other records of this authorized station, at which site or location the principal portion of such licensee's business shall be open to inspection during usual business hours by any authorized agent of the department of motor vehicles.

1.12 Evidence of compliance, as defined in subsection 3 of chapter 445.610 of NRS, includes a certificate issued when a motor vehicle has been inspected and (a) has the required equipment; or (b) does not meet the emission control requirements after the repairs have been made and the motor vehicle is exempted by the provisions of article 3.15.1.2 or article 3.15.1.3.

1.13 Exhaust emissions. Air contaminants emitted into the atmosphere from any opening downstream from the exhaust ports of a motor vehicle engine.

1.14 Exhaust gas analyzer. A device for sensing the amount of air contaminants in the exhaust emissions of a motor vehicle.

1.15 Fleet owner. An owner or lessee of three or more motor vehicles.

1.16 Fleet station. As defined in subsection 4 of chapter 445.610 of NRS, a facility which is licensed by the department to conduct inspections of the motor vehicles of qualified owners or lessees.

1.17 Gross vehicle weight. The manufacturer's gross weight rating for the individual motor vehicle.

1.18 Heavy-duty motor vehicle. A motor vehicle which is designed primarily:

1. For transportation of property and is rated at more than 6,000 pounds GVW;
2. For transportation of persons and has a capacity of more than 12 persons;
3. As a recreational motor vehicle; or
4. As an off-road utility vehicle.

1.19 Hydrocarbons. A family of compounds containing carbon and hydrogen in various combinations, found especially in fossil fuels.

1.20 Inspection/Maintenance. A strategy to reduce emissions from in-use motor vehicles by identifying vehicles that need emission-related maintenance and requiring that such maintenance be performed.

1.21 Light-duty motor vehicle. A motor vehicle which is designed primarily for:

1. Transportation of property and is rated at 6,000 pounds GVW or less; or
2. Transportation of persons and has a capacity of 12 persons or less.

1.22 Local air pollution control agency. Any city, county, or district air pollution control agency approved by the commission.

1.23 Model year of vehicle. The production period of new motor vehicles designated by the calendar year in which such period ends. If the manufacturer does not designate a production period, the model year with respect to such vehicles shall mean the 12 month period beginning January of the year in which production begins.

1.24 Motor vehicle. As defined in subsection 5 of chapter 445 of NRS, every self-propelled vehicle in, upon, or by which any person or property is, or may be, transported or drawn upon a public highway, except devices moved by human or animal power or used exclusively upon stationary rails.

1.25 New motor vehicle. A motor vehicle that has never been registered with the department, and has never been registered with the appropriate agency of authority of any other state, the District of Columbia, any territory or possession of the United States or foreign state, province, or country.

1.26 Nitrogen oxides. A gas formed in great part from atmospheric nitrogen and oxygen when combustion takes place under high temperature and high pressure, as in internal combustion engines. All oxides of nitrogen except nitrous oxide, as measured by test methods set forth in this part.

1.27 Off-road utility vehicle. A motor vehicle of over 6,000 pounds GVW which has special features for off-road operation, such as four-wheel drive.

1.28 Opacity. The property of a substance tending to obscure vision and measured in terms of percent obscuration. The relationship between opacity and Ringelmann number is approximately equal to the following in shades of white to gray.

Opacity (Percent)	Ringelmann Number
20	1
40	2
60	3
80	4
100	5

1.29 Person. The State of Nevada, any individual, group of individuals, partnership, firm, company, corporation, association, trust, estate, political subdivision, administrative agency, public or quasi-public corporation, or other legal entity.

1.30 Recreational motor vehicle. A vehicle which is primarily designed to provide temporary living quarters for travel, camping or other recreational use and has a GVW of over 6,000 pounds.

1.31 Registered owner. An individual, firm, corporation, or association whose name appears in the files of the motor vehicle registration division of the department of motor vehicles as the person to whom the motor vehicle is registered.

1.32 Ringelmann chart. The chart published by the U.S. Bureau of Mines, which illustrates graduated shades of gray to black, for use in estimating the light obscuring capacity of smoke.

1.33 Smoke. Small particles consisting predominantly, but not exclusively, of carbon, ash, or other combustible material, resulting from incomplete combustion.

1.34 Special mobile equipment. Every motor vehicle not designed or used primarily for the transportation of persons or property and only incidentally operated or moved upon a paved roadway.

1.35 Standard. A standard of performance proposed or promulgated under these regulations.

1.36 Tampering. Rendering inoperative, or intentional misadjustment of any motor vehicle device or element of design intended to control exhaust emissions.

1.37 Used motor vehicle. A motor vehicle that has been registered with the department, or has been registered with the appropriate agency of authority of any other state, the District of Columbia or any territory or possession of the United States or foreign state, province, or country.

1.38 Water. Visible mist or condensed water vapor.

1.39 The abbreviations used in these regulations have the following meanings:

°C - degree celsius (centigrade)
CO - carbon monoxide
GVW - gross vehicle weight
HC - hydrocarbons
kg - kilogram(s)
lb - pound(s)
NO_x - nitrogen oxides
ppm - parts per million

ARTICLE 2 - GENERAL PROVISIONS

2.1 Severability:

2.1.1 These regulations and their various portions are severable. Should any portion thereof be declared invalid or unconstitutional it shall not affect any other portion.

2.2 Circumvention:

2.2.1 No person shall install, construct, or use any device which conceals any emission without resulting in a reduction in the total release of air contaminants to the atmosphere.

ARTICLE 3 - ENVIRONMENTAL COMMISSION REGULATIONS FOR MOBILE EQUIPMENT

3.1 No person shall operate or leave standing on any highway any motor vehicle which is required by state or federal law to be equipped with a motor vehicle pollution control device, unless such device is correctly installed and in operating condition. No person shall disconnect, alter, or modify any such required device. The provisions of this Article shall not apply to an alteration or modification found by the commission not to reduce the effectiveness of any required motor vehicle emission control device. Neither shall the provisions of this Article apply to an alteration or modification of a motor vehicle to fuel use other than gasoline or diesel fuel where such alteration or modification is effected without violating existing federal and state standards for the control of exhaust emissions

3.2 No gasoline-powered motor vehicle shall be operated which emits visible smoke while moving for a distance of more than 100 yards upon the streets, roads, or highways of the state.

3.3 Visible emissions of diesel-powered motor vehicles or special mobile equipment operated at or below 5,000 feet elevation and manufactured on or after January 1, 1970, shall not exceed an opacity of 20 percent for more than 15 consecutive seconds or for periods aggregating more than 5 minutes in any 1 hour. Visible emissions of diesel-powered motor vehicles or special mobile equipment operated at or below 5,000 feet elevation and manufactured before January 1, 1970, shall not exceed an opacity of 40 percent for more than 15 consecutive seconds or for periods aggregating more than 5 minutes in any 1 hour.

3.4 Visible emissions of diesel-powered motor vehicles or special mobile equipment operating above 5,000 feet elevation shall not exceed an opacity of 40 percent for more than 15 consecutive seconds or for periods aggregating more than 5 minutes in any 1 hour.

3.5 Except as provided by federal regulation, no person shall operate a device manufactured on or after January 1, 1970, used exclusively upon stationary rails at or below 5,000 feet elevation where the period of continuous visible emission is of an opacity greater than 40 percent for more than 15 consecutive seconds. Visible emissions for devices used exclusively upon stationary rails operated above 5,000 feet elevation shall not exceed an opacity greater than 60 percent for more than 15 consecutive seconds.

3.6 Except as provided by federal regulation, visible emissions from devices manufactured prior to January 1, 1970, used exclusively upon stationary rails shall not exceed an opacity greater than 60 percent for more than 15 consecutive seconds.

3.7 Exceptions to this Article

3.7.1 Scheduled maintenance or repairs which result in emissions of air contaminants performed in an area determined by the department as constituting a repair shop do not violate this Article.

3.7.2 Diesel-powered motor vehicles and special mobile equipment may exceed the visible emissions set forth in articles 3.3 and 3.4 for not longer than 15 minutes for stationary warm-up of cold engines to achieve operating temperatures.

3.7.3 Visible emissions in excess of those set forth in articles 3.5 and 3.6 do not violate the requirements of this Article if the visible emissions occur:

3.7.3.1 During maintenance or repairs.

3.7.3.2 For a period of 40 consecutive seconds or less during acceleration under load.

3.7.3.3 For a period of 4 consecutive minutes or less when loaded after a period of idle.

3.7.4 The provisions of article 3.9 do not apply to any:

1. Heavy-duty motor vehicle;

2. Light-duty motor vehicle produced 15 or more model years earlier than the current calendar year, as shown in the following examples:

Effective on:

January 1, 1980, all 1965 and older model vehicles are exempt from inspection;

January 1, 1981, all 1966 and older model vehicles are exempt from inspection;

January 1, 1982, all 1967 and older model vehicles are exempt from inspection;

January 1, 1983, all 1968 and older model vehicles are exempt from inspection;

January 1, 1984, all 1969 and older model vehicles are exempt from inspection;

3. Light-duty motor vehicle having an engine displacement of less than 50 cubic inches;

4. Motorcycle;

5. Motor vehicle which is subject to prorated registration pursuant to chapters 706.801 to 706.861 of NRS, inclusive, and is not based in this state;

6. New motor vehicle; or

7. Transfer of:

   (a) Registration or ownership between spouses or companies whose principal business is leasing vehicles; and

   (b) registration if evidence of compliance was issued within 90 days before transfer.

3.7.5 The provisions of article 3.8 do not apply if the requirements contained in article 3.15 are met.

3.8 Motor Vehicle Inspection Standards

3.8.1 Except as provided in articles 3.15 and 4.1 step 5, any motor vehicle which is subject to inspection in accordance with the provisions of chapter 445 of NRS and the timetable set forth in article 3.8, as a condition of compliance with the inspection, must have all required federal and state emission control devices installed and properly operating in accordance with emission control specifications of the motor vehicle manufacturer.

3.8.2 Any light-duty gasoline-fueled motor vehicle which is subject to inspection in accordance with the provisions of chapter 445 of NRS and the timetable set forth in article 3.9, as a condition of compliance with the inspection, must not emit:

1. Visible smoke in its exhaust emissions or in its crankcase emissions when the prescribed inspection test procedure is used; or

2. carbon monoxide (CO) and hydrocarbons (HC) in its exhaust emissions in excess of standards set forth in Table 1 when measured with an approved exhaust gas analyzer and by the prescribed inspection procedure.

Table 1

Exhaust Emission Standards

Model Year of Vehicle	CO (%)	HC (ppm)
Up to and including 1967	7.5	1200
1968 to 1969, inclusive	5.0	600
1970 to 1974, inclusive	4.0	400
1975 and later	3.0	300

NOTE: All measurements shall be made after the engine has been operating for a sufficient period to attain normal operating temperature and the engine has been purged if it has been operating at an idle for more than 5 minutes, subject to the provisions of article 4.1.

3.9 Time of Implementation

3.9.1 All used light-duty motor vehicles shall be inspected and certified as having all federal or state required emission control devices installed and properly operating and shall meet the adopted exhaust emission standards in accordance with the timetable set forth in this Article.

3.9.2

a. Upon change of the registered owner in accordance with chapter 445 of NRS after July 1, 1974, all used light-duty motor vehicles based in Clark County shall be inspected and certified, by an authorized station, that state and federally required emission control devices are installed on the motor vehicle and operating properly and the motor vehicle is in compliance with the emission standards adopted in this Article.

b. In accordance with chapter 445 of NRS, on or after July 1, 1977, all used light-duty motor vehicles being registered to a new owner or being registered for the first time are required to have evidence of compliance, in Clark County.

c. On or after July 1, 1981, all used light-duty motor vehicles being registered or reregistered in Clark County must have evidence of compliance.*

3.9.3

a. Upon change of the registered owner in accordance with chapter 445 of NRS, on or after February 1, 1978, all used light-duty motor vehicles based in Washoe County shall be inspected and certified, by an authorized station, that state and federally required emission control devices are installed on the motor vehicle and operating properly and the motor vehicle is in compliance with the emission standards adopted in this Article.

b. In accordance with chapter 445 of NRS, on or after September 1, 1978, all used light-duty motor vehicles being registered to a new owner or being registered for the first time are required to have evidence of compliance, in Washoe County.

c. On or after July 1, 1981, all used light-duty motor vehicles being registered or reregistered in Washoe County must have evidence of compliance.*

*Note: Subsection 1 of NRS 445.635 provides that the board of county commissioners of any county having a population of 100,000 or more (Clark or Washoe Counties) may by ordinance require that all used motor vehicles being registered or reregistered have evidence of compliance with the emission standards by a specified date before July 1, 1981.

3.9.4 Used light-duty motor vehicles owned by the state and any of its political subdivisions, must be inspected and certified annually if they are based in those counties where a program for annual inspection of motor vehicle emissions has been put into effect. The inspection must certify whether or not state and federally required emission control devices are installed on the motor vehicle and operating properly and the motor vehicle is in compliance with the emission standards prescribed in article 3.8.2 of these regulations.

3.10 Licensing of Authorized Station Required

3.10.1 No person may engage in the business of inspecting, repairing, installing or adjusting a motor vehicle pollution control device for the purpose of issuing a certificate of compliance or an application for a waiver or is entitled to any other license or permit required by chapter 445 of NRS or these regulations until he has applied for and has been issued a license to operate an authorized station.

3.10.2 The department shall investigate any applicant for an authorized station license, and before an applicant for an authorized station is approved, an inspection of the premises will be made by an authorized representative of the department.

3.10.3 No license shall be issued to an appl cant unless the applicant employs at least one approved inspector, who may be the station owner.

3.10.4 The inspections may be performed only at the established place of business by an approved inspector using an exhaust gas infrared analyzer and the diagnostic equipment itemized in article 4.3.1 which have been approved by the department.

3.10.5 The authorized station license and all other licenses issued to approved inspectors shall be displayed in a conspicuous place under glass or other transparent material within the authorized station.

3.10.6 Authorized station shall be required to keep attached to their infrared analyzer manufacturer's quick reference guides for hookup and testing procedures for their infrared equipment.

3.11 Application, Fee for Authorized Stations; Issuance of License Certificate

3.11.1 Application for an authorized station license shall be filed upon forms supplied by the department of motor vehicles, and the applicant shall furnish:

3.11.1.1 Such proof as the department may deem necessary that the applicant qualifies as an authorized station, including proof that the applicant has an established place of business in this state; and

3.11.1.2 Fee of $25.

3.11.2 License expires at midnight on December 31 of each calendar year.

3.11.3 Upon receipt of such application, when satisfied that the applicant is entitled thereto, the department shall issue to the applicant an authorized station license certificate containing the station's name and the address of his fixed place of business.

3.12 Approval of Inspectors

3.12.1 No person will be approved as an inspector unless he has demonstrated his qualifications and ability to the satisfaction of the department by the following:

3.12.1.1 Submitting an application, on the form provided by the department which establishes that the applicant is qualified to make all necessary adjustments of emission control devices according to the manufacturer's specifications, record necessary information, and inspect and test the operation of federally required emission control devices;

3.12.1.2 Submitting a certificate of competence which indicates his technical ability in major motor vehicle tune-ups in accordance with accepted practices of the industry;

3.12.1.3 Submitting a certificate of competence as issued by the manufacturer of an exhaust gas analyzer approved by the department, indicating his ability to adjust and operate that equipment; and

3.12.1.4 Successfully completing a written test, which was prepared by the department, with a grade score of not less than 75 percent and, if required, by performing a practical demonstration of prescribed test procedures.

3.12.1.5 At the discretion of the department, an applicant who fails to pass the inspector test may be required to wait for a period of 7 calendar days before he may retake the approved inspector's test.

3.12.1.6 Every inspector approved by the department shall report in writing to the department every change in his place of employment and any termination of his employment within 10 days after the date when the change or termination occurred.

3.12.2 Upon acceptance and approval of the application, a license as an approved inspector will be issued by the department.

3.13 Fleet Station Licensing Requirements

3.13.1 A license for a fleet station may be issued to an owner or lessee of a fleet of three or more motor vehicles.

3.13.2 Such a station shall meet all the requirements applicable to an authorized station, as set forth by these regulations, except a fleet station may inspect and certify only those motor vehicles which constitute such fleet and may issue certificates of compliance for those fleet motor vehicles which are sold to the public.

3.14 State and Political Subdivision Licensing Requirements and Evidence of Compliance

3.14.1 A license may be issued to any state agency or political subdivision of the state to inspect motor vehicles owned by the state or political subdivision for the purpose of compliance with these regulations.

3.14.2

a. The state agency or political subdivision in complying with these regulations must submit to the department annually a list, in a form prescribed by the department, of those light-duty motor vehicles which are assigned plates as described in NRS 482.368.

b. The list must show compliance with articles 3.8 and 4.1, steps 1 through 4, of these regulations.

3.14.3 A licensee pursuant to this article is exempt from the following articles of these regulations:

a. Bond requirements, 4.6;

b. Certificates of compliance, 4.16, 4.17, 4.18;

c. Sign, 4.5; and

d. Use of waiver, 3.15.

3.15 Application for Waiver

3.15.1 The department may approve an application for a waiver from the emission standards contained in Table 1 of article 3.8 if the application includes:

3.15.1.1 Receipts or other evidence of parts and repairs, including labor, dated not more than 10 days before the date of inspection and before registration. The repair parts must be related to emissions, for example, points, plugs, wires, carburetor kits, vacuum hoses, air filters, and positive crankcase ventilation valves. The repair labor must be related to emissions, for example, carburetor cleaning or rebuilding, or installation of parts related to emissions.

3.15.1.2 An application for a waiver may be approved for a privately owned vehicle if the cost of repair parts, exclusive of a catalytic converter, is at least $25, or $75 for the parts and labor, and if evidence is submitted to the department that the amount has been spent and the parts have been installed.

3.15.1.3 An application for a waiver may be approved for a vehicle dealer only if the combined cost of parts and labor, exclusive of a catalytic converter, and analyzing costs for the vehicle is $75 or more and if evidence is submitted to the department showing that $75 or more has been spent on parts and labor relating to the repairing of the emission deficiency and the parts have been installed.

3.15.1.4 An application for a waiver will not be approved for any vehicle of model year 1975 or later if the vehicle was equipped with a catalytic converter and the converter has been removed.

3.15.2 If a vehicle exceeds the emission standards set forth in article 3.8 and the vehicle requires repair work, the work may be performed by an authorized station or elsewhere.

3.15.3 Upon the submission to the department of an application for a waiver and evidence that the repairs have been made, the department will reinspect the vehicle free of charge and approve or deny the application. This reinspection will be done at the department's test laboratory.

3.15.4 An application for a waiver must contain an identification of the vehicle for which the waiver is sought. Only the department may approve a waiver. An approved waiver permits the registration of the vehicle. An approved waiver expires 90 days after the date of issuance.

3.16 An authorized station shall certify an exemption on the certificate of compliance and issue the certificate for a vehicle with missing pollution control devices, exclusive of a catalytic converter, if the vehicle does not exceed the standards prescribed in article 3.8.2 of these regulations.

ARTICLE 4 - DEPARTMENT OF MOTOR VEHICLES POLLUTION CONTROL REGULATIONS

4.1 Prescribed Inspection Test Procedures

Step 1: A visual inspection must be made of the exhaust system for visible smoke and blowby gases while the engine is at idle and fast idle, and a check of the vehicle must be made to ensure that all emission control devices required by this state and the Federal Government are connected.

Step 2: After the motor vehicle has been brought to normal operating temperature, connect motor vehicle to engine diagnostic equipment. The infrared exhaust analyzer shall be adjusted according to the manufacturer's specifications. Place the probe in the tail pipe. With engine running, record the PPM

Make, model, and year of vehicle	_____
Engine type	_____CID_____CYL
Vehicle identification number	_____
Odometer reading	_____
Before HC and CO readings	_____
Dwell or air gap	_____
Ignition timing	_____
Idle setting (rpm)	_____
After HC and CO readings	_____
Cost of adjustments and parts	_____

Any other information requested on a certificate of compliance or an application for a waiver must be supplied. The department may require additional information before issuance of a certificate of compliance or an application for a waiver.

4.2.2 A list of approved exhaust gas analyzers is on file with the director of the department and may be obtained by writing to:

Department of Motor Vehicles
Registration Division
Emission Control Section
2701 East Sahara Avenue
P.O. Box 1899
Las Vegas, Nevada 89101

Department of Motor Vehicles
Registration Division
Emission Control Section
305 Galletti Way
Reno, Nevada 89502

4.3 Inspection and Certification

4.3.1 The department will inspect authorized stations and certify that they are properly equipped and their personnel are adequately trained to issue certificates of compliance or applications for waiver in accordance with the procedures of the department. On or after January 1, 1980, a person making application to become licensed as an authorized station must provide equipment necessary to perform the inspection required in article 4.1. The equipment must include the following, singly or in combination:

1. Ignition analyzer oscilloscope or equivalent.
2. Ohmmeter.
3. Voltmeter.
4. Tachometer.
5. Vacuum gauge.
6. Cam angle dwell meter.
7. Ignition timing light.
8. Compression tester.
9. State approved infrared analyzer.
10. Distributor advance tester.

Authorized stations licensed before January 1, 1980, have until July 1, 1980, to obtain the necessary equipment.

4.3.2 The department will check the calibration of each exhaust gas analyzer and certify it at intervals of not more than 30 days.

4.3.3 The department will disapprove in writing any authorized station or equipment which is not in compliance. Certificates of compliance must be immediately surrendered, and any test conducted after disapproval will not be acceptable to the department until the instrument is repaired and recertified by the department.

4.3.4 Each authorized station shall have adequate information available for the inspector to determine:

4.3.4.1 What state or federal emission control devices are required for specific motor vehicles.

4.3.4.2 What the motor vehicle manufacturer's emission control performance specifications are for the specific motor vehicle.

4.3.5 The department of motor vehicles, with the technical support of the environmental commission, will establish a written test for licensing of approved inspectors. The approved inspectors shall be qualified to make all necessary adjustments, according to manufacturer's specifications, of emission control devices, record necessary information, and inspect and test for the operation of required emission control devices.

4.3.6 Each authorized station shall maintain and submit the records of all inspections to the department for data evaluation at least once every 14 days.

4.3.7 The department and the commission will interpret and correlate the submitted data to determine the amount of reductions of emissions achieved.

4.3.8 All inspection records at the authorized station shall be maintained at the established place of business for 1 year and shall be made available to the department and the commission or its representative when conducting a compliance inspection.

4.3.9 Forms for applications of waiver will be supplied to all authorized stations by the department. All applications for waiver must be submitted to the Department of Motor Vehicles, Las Vegas Office, 2701 East Sahara Avenue, Las Vegas, Nevada; or the Reno Office, 305 Galletti Way, Reno, Nevada, for approval.

4.4 Responsibility for Obtaining Certificates of Compliance

4.4.1 When a dealer's report of sale is issued, a dealer in used motor vehicles shall furnish evidence of compliance with the emission controls, or an application for a waiver approved by the department, at the same that the dealer's report of sale is issued under the provisions of NRS 482.424. In any other sale or purchase of a motor vehicle, the purchaser is responsible for providing a certificate of complicance or an approved application for a waiver.

4.5 Approved Authorized Station Sign

4.5.1 An authorized station shall post a sign in a conspicuous place indicating the set fee or hourly rate, on a time and material basis, advising the total inspection fee and the $2 certificate fee as approved by the department and shall include the words "Authorized Station".

4.5.1.1 The sign shall be of material that shows a white background with dark contrasting letters and figures.

4.5.1.2 The dimensions of the sign must be no less than 23 inches wide and 23 inches high.

4.5.1.3 All letters and figures appearing on the sign shall not be less than 2 inches in height.

4.6 Authorized Station's Bond; Action on Bond

4.6.1 Before a license for an authorized station is furnished to any person, the department will require that the applicant procure and file with the department a good and sufficient bond in the amount of $1,000 with a corporate surety thereon, duly licensed to do business within the State of Nevada, approved as to form by the attorney general, or place on deposit with the department (a) cash; (b) a bond issued by the United States; or (c) a savings certificate in the amount of $1,000, and conditioned that the applicant shall conduct his business as an authorized station without fraud or fraudulent representation and without violation of the provisions of chapter 445 of NRS or these regulations.

4.6.2 The undertaking in the bond or deposit shall be deemed to include and shall include any fraud or fraudulent representation or violation of any of the provisions of chapter 445 of NRS and these regulations by any approved inspector or employed agent for or on the behalf of the authorized station.

4.6.3 The bond or deposit shall provide that any person injured by the action of the licensee or employee acting on the behalf of the licensee in violation of any provisions of chapter 445 of NRS and these regulations may bring an action on the bond.

4.7 Misleading, Inaccurate Advertising, False Information Exhibited by Authorized Station

4.7.1 No authorized station may intentionally publish, display, or circulate any advertising which is misleading or inaccurate in any material or misrepresents any of the services rendered, products sold, manufactured, handled, or furnished to the public.

4.7.2 The department will provide a brochure for distribution to the public which will explain the reasons and methods for the emission control inspection.

4.8 An authorized station which does not have an approved inspector in its employ shall immediately cease to operate as an authorized station.

4.8.1 An authorized station without an approved inspector as an employee shall remove or cover its sign as an authorized station, shall not inspect and issue any certificate of compliance or application for a waiver and must notify the department that an approved inspector is not employed by the station. If an approved inspector is not employed within 60 days, the authorized station shall surrender its station license and all its forms and supplies to the department.

4.8.2 An authorized station whose license has been cancelled or which has surrendered its license may submit a new application 60 days after the cancellation or surrender.

4.9 Denial, Suspension or Revocation of Authorized Station License: Grounds

4.9.1 The department may deny the issuance of a license for, or suspend or revoke the license of, an authorized station upon any of the following grounds:

4.9.1.1 Failure of the applicant to have an established place of business in this state.

4.9.1.2 Material misstatement on the application.

4.9.1.3 Unfitness of the applicant or licensee.

4.9.1.4 Failure of the licensee to keep at the authorized station all books of certificates of compliance and any material or documents which are used by the authorized station in its inspection program.

4.9.1.5 Willful failure to comply with any of the provisions of these regulations or the directives of the director of the department.

4.9.1.6 Failure or refusal to furnish and keep in force any bond.

4.9.1.7 Failure on the part of the licensee to maintain an established place of business in this state.

4.9.1.8 Failure or refusal by the licensee to pay or otherwise discharge any final judgment rendered and entered against the licensee arising out of any fraud or misrepresentation of any services rendered as an authorized station.

4.9.1.9 Failure of the licensee to maintain any license or bond required by any political subdivision of the state.

4.9.1.10 Issuing or permitting to be issued, either by design or through failure to properly supervise the issuance, any fraudulent application for a waiver.

4.9.1.11 Allowing a certificate of compliance or an application for a waiver to be completed and signed by any person other than the approved inspector of the authorized station who performs the inspection.

4.9.1.12 Failure to notify the department within 24 hours after a certificate of compliance or an application for a waiver has been lost or stolen.

4.9.1.13 Failure on the part of the authorized station or its agents to allow an authorized representative of the department upon the premises of the authorized station in the performance of his duties.

Note: Subsection 2 of NRS 445.634 provides in part:

"2. The department may suspend or revoke the license of a station if:

***

(c) The station has issued a fraudulent certificate of compliance whether intentionally or negligently. A 'fraudulent certificate' includes, but is not limited to:

(1) A back-dated certificate;
(2) A post-dated certificate; and
(3) A certificate issued without an inspection.

(d) The approved inspector does not follow the prescribed test procedure."

4.9.2 For the purposes of article 4.9.1.5, failure to comply with a directive of the director of the department, advising the licensee of his noncompliance with any provisions of these regulations, within 10 days after the licensee's receipt of the directive is prima facie evidence of his willful failure to comply with the directive.

4.9.2.1 When the license of an authorized station has been suspended for cause, the suspension will be no longer than 90 days. Upon suspension, the license of the authorized station must be surrendered to the department.

4.9.2.2 When the license of an authorized station has been revoked for any cause, the principal officers of the authorized station may not reapply for a license as an authorized station within 1 year after the date of the revocation. Upon revocation, the license of the authorized station must be surrendered to the department.

4.9.3 The department is not limited to the grounds listed in article 4.9.1, but may deny the issuance of a license to an applicant or suspend or revoke a license already issued if the department is satisfied that the applicant or licensee is not entitled to the license.

4.10 Hearing by Director of the Department of Motor Vehicles upon Denial of Application, Suspension or Revocation of Authorized Station License

4.10.1 The applicant or licensee may, within 30 days after the receipt of the notice of denial or suspension or revocation, petition the director of the department in writing for a hearing, which will be conducted by the director or his authorized representative.

4.10.2 Upon filing the petition, a date for hearing will be fixed no longer than 20 days after the receipt of the request for hearing, and the applicant or licensee shall have the right to be present at a hearing and testify in his own behalf and to have such other persons as he desires to be present and testify at the hearing.

4.10.2.1 Failure of the applicant or licensee to petition the director of the department in writing for a hearing within the 30-day period constitutes an automatic denial of the application or suspension or revocation of the authorized station's license.

4.10.3 Within 10 days after the hearing, the director of the department or his authorized representative will:

a. Grant or finally deny the application; or

b. Suspend or revoke the license.

4.10.4 Notwithstanding the provisions of articles 4.10.1 to 4.10.3, inclusive, the department may, if the director finds that the action is necessary in the public interest, upon notice to the licensee, temporarily suspend or refuse to renew the license certificate for a period not to exceed 30 days. In any such case, a hearing will be held and a final decision rendered within 30 days after notice of the temporary suspension.

4.11 Application to a District Court of the State of Nevada for Denial, Suspension or Revocation of an Authorized License: Judicial Review

Note: In accordance with NRS 233B.130,

If the application of the licensee is denied, suspended or revoked, the applicant or licensee may, within 30 days after the date of denial, suspension or revocation, appeal to the First Judicial District Court of the State of Nevada, located in Carson City, or in the county of his principal place of business for judicial review.

4.12 Denial of an Inspector's License

4.12.1 The department may refuse to issue a license to an applicant who fails to pass the examination as described in article 3.12.1.4.

4.12.2 The department may refuse to issue a license to an applicant who fails to provide satisfactory evidence of ability and competence.

4.13 Denial, Suspension or Revocation of an Inspector's License

4.13.1 The department may deny the issuance of, suspend or revoke an inspector's license upon any of the following grounds:

4.13.1.1 Failure of the applicant to establish by satisfactory evidence to the department that he is employed by an authorized station.

4.13.1.2 Applicant has knowingly made any false statement or concealed any material fact on his application for a license.

4.13.1.3 Determination by the department that an applicant or approved inspector is not lawfully entitled thereto.

4.13.1.4 Applicant knowingly submits false inaccurate, or misleading information on a certificate of compliance or other records submitted.

4.13.1.5 Failure of an approved inspector to report in writing to the department every change in his place of employment or any termination of his employment within 10 days after the date of the change or termination.

4.13.1.6 He issues a certificate of compliance or an application for a waiver which contains fraudulent information.

4.13.1.7 He does not follow the test procedures prescribed by the department in an inspection.

4.13.1.8 He allows a certificate of compliance or an application for a waiver to be completed by a person who is not an inspector approved by the department.

Note: The term "fraudulent" includes but is not limited to a back-dated document, a post-dated document or a document based on anything other than actual physical inspection at the time of the issuance of the certificate of compliance or application for a waiver.

4.13.1.9 Incompetence of the inspector to perform his duties.

4.13.1.10 Inaccurate determination made by an approved inspector regarding a classification of a heavy-duty motor vehicle.

4.13.2 When an approved inspector's license has been suspended for cause, the suspension will not exceed 90 days. The approved inspector's license must be surrendered to the department.

4.13.3 When an approved inspector's license has been revoked for cause, the person may not reapply for an approved inspector's license for 1 year after the date of revocation. The approved inspector's license must be surrendered to the department.

4.14 Hearing by Director of the Department of Motor Vehicles upon Denial of the Application, Suspension or Revocation of Approved Inspector

4.14.1 The applicant or approved inspector may, within 30 days after receipt of the notice of denial, suspension or revocation, petition the director, in writing, for a hearing which will be conducted by the director or his authorized representative.

4.14.2 Upon filing the petition, a date for hearing will be fixed no longer than 20 days after receipt of the request for a hearing, and the applicant or approved inspector shall have the right to be present at a hearing and testify in his own behalf and to have such other persons as he desires to be present and testify at the hearing.

4.14.2.1 Failure of the applicant or approved inspector to petition the director in writing for a hearing within the 30-day period constitutes an automatic denial of the application or suspension or revocation of the license.

4.14.3 Within 10 days after the hearing, the director or his authorized representative will make written findings of fact and conclusions of law and will:

a. Grant or finally deny the application; or

b. Suspend or revoke the license.

4.14.4 Notwithstanding the provisions of articles 4.14.1 to 4.14.3, inclusive, the department may, if the director finds that the action is necessary in the public interest upon notice to the approved inspector, temporarily suspend or refuse to renew the license for a period not to exceed 30 days. In any such case, a hearing will be held and a final decision rendered within 30 days after notice of the temporary suspension.

4.15 Application to District Court for Denial, Suspension or Revocation of Approved Inspector: Judicial Review

Note: In accordance with NRS 233B.130,

If the application is denied or the license of an approved inspector is suspended or revoked, the applicant or approved inspector may, within 30 days from the date of denial, suspension or revocation, appeal to the First Judicial District Court of the State of Nevada, located in Carson City or in the county of his principal place of business for judicial review.

4.16 Certificate of Compliance

4.16.1 The primary use of the certificate of compliance or evidence of compliance is for a used motor vehicle registration transaction as required by chapter 445 of NRS, requiring that certificates of compliance or evidence of compliance with these regulations be submitted to the department of motor vehicles upon application for registration by an owner of a used motor vehicle.

4.16.2 All books of certificates of compliance and any material or documents which are used by the station in its inspection program must be kept at the authorized station.

4.16.3 If a certificate of compliance or an application for a waiver is not required for registration purposes by article 3.9, the authorized station issuing the certificate or application must remit to the bearer, upon demand, the amount of the fee for the inspection and certificate.

4.17 Certificates of Compliance: Purchase

4.17.1 Certificates of compliance may be purchased only by an approved station and may be obtained from the Department of Motor Vehicles' branch offices, located at 2701 East Sahara Avenue, Las Vegas, Nevada, 89101, and at 305 Galletti Way, Reno, Nevada, 89502.

4.17.1.1 The charge for certificates of compliance is $50 for a book of 25 certificates. For each certificate issued to a fleet station the charge is $2.

4.17.1.2 An authorized station or a fleet station shall not purchase or otherwise obtain a certificate of compliance or an application for a waiver from a source other than the department.

4.18 Responsibility for Completing and Signing Certificates of Compliance and Applications for Waiver

4.18.1 No person other than an approved inspector employed by an authorized station or a fleet station may complete and sign a certificate of compliance or an application for a waiver.

4.18.2 A certificate of compliance or an application for a waiver must include:

1. Information which identifies the person or vehicle dealer who is applying for the certificate or the application;
2. The applicant's address;
3. The year, make, and model identification number of the vehicle;
4. Any additional information on the emission test, which is required by chapter 445 of NRS and these regulations;
5. The name of the authorized station;
6. The signature of the approved inspector; and
7. The time and date of the inspection.

4.19 Fleet Stations

4.19.1 A license for a fleet station may be issued to an owner or lessee of a fleet of three or more motor vehicles.

4.19.2 Such a station shall meet all the requirements applicable to an authorized station, as set forth by these regulations except:

4.19.2.1 That no sign need be displayed and prices need not be posted; and

4.19.2.2 Manufacturer's specifications and instructions are required to be maintained only for those vehicles used and serviced by the fleet station.

4.19.3 A fleet station may inspect and certify only those motor vehicles which constitute its fleet and may issue certificates of compliance for those fleet motor vehicles which are sold to the public.

4.20 Political Subdivision Fleet Station

4.20.1 A fleet station operated by a state agency or a political subdivision of the state shall have its vehicles inspected on an annual basis. Such vehicles must meet the requirements set forth in article 3.8.2.

4.20.2 Such a fleet station shall submit to the department evidence, on forms provided by the department, that the vehicles have been inspected and meet the requirements of article 3.8.2.

Note: NRS 445.710 provides:

> "1. A violation of any provision of NRS 445.610 to 445.710, inclusive, relating to motor vehicles, or any rule or regulation promulgated pursuant thereto relating to motor vehicles, is a misdemeanor. The provisions of NRS 445.610 to 445.710, inclusive, or any rule or regulation promulgated pursuant thereto, shall be enforced by any peace officer.
>
> 2. Satisfactory evidence that the motor vehicle or its equipment conforms to such provisions, rules or regulations, when supplied by the owner of such motor vehicle to the department of motor vehicles within 10 days after the issuance of a citation pursuant to subsection 1 may be accepted by the court as a complete or partial mitigation of the offense."

#3 2

AUTHORIZED STATION INSPECTOR TEST

1. Mechanic A believes that air is injected into the exhaust manifold to continue the burning of exhaust gases and in this way cut down on the amount of pollutants released through the tail pipe.

   Mechanic B says the air injection system is used to neutralize the back pressure in the exhaust system of modern engines using emission control devices.

   A. A only
   B. B only
   C. Both A and B
   D. Neither A or B

2. Distributor centrifugal (mechanical) advance action is governed by:

   A. The speed of the engine
   B. Engine vacuum
   C. The breaker point gap
   D. The temperature of the engine

3. The primary source of vacuum used to open the EGR valve is:

   A. From the intake manifold
   B. Ported from the carburetor
   C. From the exhaust system
   D. PCV system

4. When should the ignition timing be adjusted

   A. Before adjusting the ignition contact points
   B. After adjusting the ignition contact points
   C. Either before or after adjusting the contact points
   D. None of the above

5. Distributor vacuum advance action is governed by:

   A. The number of cylinders in the engine
   B. The load of the engine
   C. Breaker plate movement
   D. The speed of the engine

6. There are several indications as to the performance of a PCV system on a car. Which of the following are probable indications of a PCV system malfunction?

   A. Excessive oil sludge build up around oil filler cap
   B. Blowby fumes coming from an open oil filler cap at idle.
   C. Rough engine idle
   D. All of the above

7. As the rubbing block on the contact points wears:

   A. Dwell angle increases and point gap increases
   B. Dwell angle increases and point gap decreases
   C. Dwell angle decreases and point gap increases
   D. No change occurs

8. Ignition voltage requirements are:

   A. Highest with rich mixture
   B. Highest with lean mixture
   C. Lowest with lean mixture
   D. Mixture does not affect voltage requirements

9. The carburetor operates on the principle of:

   A. Atmospheric pressure
   B. Fuel pump pressure
   C. Positive pressure
   D. Differential pressure

10. Which is not part of a Fuel Evaporation Control System?

   A. Charcoal Canister
   B. Fuel tank vent line
   C. Fuel filter
   D. Overfill limiting valve

11. The thermostatically controlled air cleaner should:

   A. Open hot air passage during warm up
   B. Close hot air passage during warm up
   C. Provide hot air at all times
   D. Provide cool air at all times.

12. When the PCV valve is pinched closed the:

   A. HC will drop to zero
   B. CO will drop to zero
   C. % CO will drop
   D. % CO will increase

13. CO (carbon monoxide) is affected by:

   A. Fuel mixture and choke operation
   B. Misfiring of one or more cylinders
   C. Ignition timing
   D. None of the above

14. A vehicle engine, when started cold, has black smoke coming from the tailpipe, which is the most probable cause?

   <u>Mechanic A</u> says the vacuum kick (break or pull off) is defective

   <u>Mechanic B</u> says the thermostatic controlled door of air cleaner is closed

   Who is right?
   A. Mechanic A only
   B. Mechanic B only
   C. Either mechanic A or B
   D. Neither mechanic A or B

15. Mechanic A says the Exhaust Gas Recirculation (EGR) system is used to reburn some of the exhaust gases and in this way cut down on the amount of hydrocarbon exhaust gas getting into the atmosphere.

Mechanic B says the EGR system is used to recirculate exhaust gas into the combustion chambers to limit the high combustion temperature where NO_x (nitrogen oxide) is produced

A. A only
B. B only
C. Both A and B
D. Neither A or B

16. A faulty valve in the positive crankcase ventilation system will:

A. Decrease exhaust emissions
B. Affect idle stability
C. Increase gasoline mileage
D. All of the above

17. Which of the following methods are used to decrease the carbon monoxide (CO) emission produced by a vehicle?

A. Leaner carburetors and calibrated chokes
B. Exhaust gas recirculation
C. Evaporative loss system
D. None of the above

18. Coil output is maximum while running the engine when the:

A. Rotor is shorted
B. Secondary circuit is opened by disconnecting a plug wire
C. Spark plugs are fouled
D. Plug wire is grounded to engine block

19. Cam dwell or cam angle means:

A. The length of time the points are closed
B. The angle at which the rubbing block contacts the cam
C. The distance between the lobes on the cam
D. The number of degrees of distributor cam rotation during the time the points are open.

20. When operating under a heavy load or wide open throttle, the power system of a carburetor must be able to supply:

A. Richer mixtures
B. Leaner mixtures
C. More vacuum
D. More pressure

21. To properly adjust initial (basic) ignition timing what two instruments are needed?

    A. Timing light and Tachometer
    B. Vacuum gauage add Tachometer
    C. Timing light and Infra-red Machine
    D. Voltmeter and compressor guage

22. Cranking vacuum test indicates the condition of the:

    A. Charging system
    B. Mechanical condition of the engine
    C. Carburetor and fuel pump
    D. Vacuum diaphragm

23. Carburetor idle mixture should be adjusted _____ the ignition timing has been set.

    A. Before
    B. While
    C. Makes no difference
    D. After

24. Excessive point gap results in:

    A. Retarded timing
    B. Reduced dwell
    C. Both A and B
    D. None of the above

25. A cracked intake manifold may cause:

    A. Rich mixture
    B. Noticeable drop in oil pressure
    C. No change
    D. Lean mixture

26. The intermediate section of the scope pattern indicates the condition of the:

    A. Coil and condenser
    B. Spark plugs
    C. Ballast resistor
    D. Ignition points

27. An increase in CO will always be followed by:

    A. A decrease in HC
    B. An increase in HC
    C. No change in HC
    D. None of these.

28. Manifold vacuum is highest at:

    A. Idle
    B. Mid-range
    C. Deceleration and coasting
    D. Under load

29. When a PCV valve and hose are removed from the valve cover and the engine idle is unaffected when the thumb is placed over the end of the valve, but the engine stalls when the valve is removed from the hose, the following is indicated:

    A. Plugged PCV valve
    B. Plugged air cleaner hose
    C. The PCV valve is operating properly
    D. Both B and C

30 Mechanic A says the "ported" vacuum is taken from the atmospheric side of the throttle plate.

Mechanic B says the "ported" vacuum is taken from the engine side of the throttle plate. Who is right?

    A. Mechanic A only
    B. Mechanic B only
    C. Both A and B
    D. Neither mechanic A nor B

SEE NEXT PAGE

	TRUE	FALSE	
1.	____	____	The certificate of compliance is not signed by the inspector upon completion of the inspection.
2.	____	____	It is a misdemeanor to enter false or incorrect data on a certificate of compliance.
3.	____	____	The motor vehicle manufacturer's emission control performance specifications are necessary prior to performing emission tests.
4.	____	____	Motorcycles are required to meet exhaust emission standards.
5.	____	____	An approved inspector must notify the Department of Motor Vehicles in writing within 10 days when changing employment.
6.	____	____	If a certificate of compliance or waiver is issued and is not required for registration purposes by Article 3.7.4 of the Air Quality Regulations the station issuing the certificate shall refund the amount of test and certificate fee on demand.
7.	____	____	Altering, removing, or tampering with emission devices is prohibited by federal law only.
8.	____	____	Leaded gasoline could damage the catalytic converter.
9.	____	____	The maximum penalty for a misdemeanor is a $500.00 fine and six (6) months imprisonment.
10.	____	____	Only Clark and Washoe Counties registrations require emission certificates of compliance at the present time.
11.	____	____	Visible blowby gases are allowable if no smoke is evident at the tailpipe.
12.	____	____	Anyone failing the inspectors test may be required to wait for a period of seven calendar days before they may retake the approved inspector's test.
13.	____	____	Crankcase emissions are contaminants admitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication system.
14.	____	____	It is legal to remove the air pump when headers are installed.
15.	____	____	Ignition timing should be adjusted to plus or minus 8^0 of manufacturers specifications.
16.	____	____	On dual exhausts, readings need not be taken from both exhaust pipes.
17.	____	____	The prescribed test procedures must be followed even when the vehicle meets the required standards on the first inspection.

SEE NEXT PAGE

AUTHORIZED STATION INSPECTOR TEST

	TRUE	FALSE	
18.	____	____	A light duty truck with a GVW of over 6,000 lbs requires a certificate of compliance.
19.	____	____	Thermostatically controlled air cleaners are emission control devices.
20.	____	____	If a vehicle exceeds emission standards as set forth in Article 3.8 and the vehicle requires repair work, this repair work must be performed by an authorized station.

1. Cranking vacuum test indicates the condition of the:

   A. Charging system.
   B. Mechanical condition of the engine
   C. Carburetor and fuel pump
   D. Vacuum diaphragm.

2. Ignition voltage requirements are:

   A. Highest with rich mixture
   B. Highest with lean mixture
   C. Lowest with lean mixture
   D. Mixture does not affect voltage requirements

3. To properly adjust initial (basic) ignition timing what two instruments are needed?

   A. Timing light and Tachometer
   B. Vacuum guage and Tachometer
   C. Timing light and Infra-red Machine
   D. Voltmeter and compressor guage

4. Carburetor idle mixture should be adjusted _____ the ignition timing has been set.

   A. Before
   B. While
   C. Makes no difference
   D. After

5. A cracked intake manifold may cause:

   A. Rich mixture
   B. Noticeable drop in oil pressure
   C. No change
   D. Lean mixture

6. The intermediate section of the scope pattern indicates the condition of the:

   A. Coil and condenser
   B. Spark plugs
   C. Ballast resistor
   D. Ignition points

7. Distributor centrifugal (mechanical) advance action is governed by:

   A. The engine load conditions
   B. Engine vacuum
   C. The breaker point gap
   D. The speed of the engine

8. Distributor vacuum advance action is governed by:

A. The number of cylinders in the engine
B. The load of the engine
C. Breaker plate movement
D. The speed of the engine

9. A faulty valve in the positive crankcase ventilation system will:

A. Decrease exhaust emissions
B. Affect idle stability
C. Increase gasoline mileage
D. All of the above

10. Coil output is maximum while running the engine when the:

A. Rotor is shorted
B. Secondary circuit is opened by disconnecting a plug wire
C. Spark plugs are fouled
D. Plug wire is grounded to engine block

11. When operating under a heavy load or wide open throttle, the power system of a carburetor must be able to supply:

A. Richer mixtures
B. Leaner mixtures
C. More vacuum
D. More pressure

12. The carburetor operates on the principle of:

A. Atmospheric Pressure
B. Fuel pump pressure
C. Positive pressure
D. Differential pressure

13. The primary source of vacuum used to open the EGR valve is:

A. From the intake manifold
B. Ported from the carburetor
C. From the exhaust system
D. PCV system

14. The EGR valve isn't a good place to obtain a gas sample for testing an engine by means of an infra-red exhaust analyzer because:

A. Sample would be from few, not all cylinders
B. Gas is too cold at this point
C. Analyzer probe will not fit
D. Breaking the seal voids warranty

15. Should the EGR system fail, the average car owner will:

A. Object to rough idle
B. Remove it
C. Send for a tow truck
D. Not know it

16. CO (carbon monoxide) is affected by:

A. Fuel mixture and ignition timing.
B. Misfiring of one or more cylinders
C. Choke operation and carburetor preheater controls
D. None of the above

17. When the PCV valve is pinched closed the:

A. HC will drop to Zero
B. CO will drop to Zero
C. % CO will drop
D. PCO will increase

18. An increase in CO will always be followed by:

A. A decrease in HC
B. An increase in HC
C. No change in HC
D. None of these.

19. Which is not part of a Fuel Evaporation Control System?

A. Charcoal Canister
B. Fuel tank vent line
C. Fuel filter
D. Overfill limiting valve

20. When a PCV valve and hose are removed from the valve cover and the engine idle is unaffected when the thumb is placed over the end of the valve, but the engine stalls when the valve is removed from the hose, the following is indicated:

A. Plugged PCV valve
B. Plugged air cleaner hose
C. The PCV valve is operating properly
D. Both B and C

	True	False	
1.	_____	_____	The certificate of compliance is not signed by the inspector upon completion of the inspection.
2.	_____	_____	It is a misdemeanor to enter false or incorrect data on a certificate of compliance.
3.	_____	_____	The motor vehicle manufacturer's emission control performance specifications are necessary prior to performing emission tests.
4.	_____	_____	Motorcycles are required to meet exhaust emission standards.
5.	_____	_____	Carburetor adjustments have nothing to do with HC emissions.
6.	_____	_____	An undetected ignition malfunction will not damage the catalytic converter.
7.	_____	_____	An exhaust gas recirculation valve controls hydrocarbons
8.	_____	_____	Leaded gasoline could damage the catalytic converter.
9.	_____	_____	Excessive CO's are the result of imperfect combustion through improper air-fuel ratio.
10.	_____	_____	Hydro carbons are measured in percentage .
11.	_____	_____	An engine misfire will cause a low HC reading.
12.	_____	_____	It is legal to disconnect, alter, or modify any emission control device.
13.	_____	_____	Crankcase emissions are contaminants admitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication system.
14.	_____	_____	It is legal to remove the air pump when headers are installed.
15.	_____	_____	Ignition timing should be adjusted to plus or minus 8° of manufacturers specifications.
16.	_____	_____	On dual exhausts, readings need not be taken from both exhaust pipes.
17.	_____	_____	Vacuum leaks will cause high CO's at idle.
18.	_____	_____	A light duty truck with a GVW of over 6,000 lbs or more requires a certificate of compliance.
19.	_____	_____	The level of CO in the exhaust of a running engine is affected by engine misfire.
20.	_____	_____	Thermostatically controlled air cleaners are emission control devices.

APPENDIX D

NEW JERSEY

SPECIFICATION FOR EXHAUST GAS ANALYTICAL SYSTEM

LAW AND PUBLIC SAFETY - PROPOSED RULES ON LICENSING OF MOTOR VEHICLE REINSPECTION CENTERS

OPERATIONAL PROCEDURES FOR MOTOR VEHICLE EMISSION REINSPECTION

October 1, 1977

STATE OF NEW JERSEY

SPECIFICATION FOR EXHAUST GAS ANALYTICAL SYSTEM

Technical Advisory Agency:

Department of Environmental Protection
Bureau of Air Pollution Control
P.O. Box 2807
Trenton, N. J. 08625

Using Agency:

Department of Law & Public Safety
Division of Motor Vehicles
25 South Montgomery Street
Trenton, N. J. 08625

Purchase Agency:

Department of the Treasury
Division of Purchase and Property
State House
Trenton, N. J. 08625

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The New Jersey State Department of Environmental Protection (DEP) has adopted state wide inspection standards for the control of carbon monoxide (CO) and hydrocarbons (HC) emissions from light-duty motor vehicles, as described in the New Jersey Administrative Code, Title 7, Chapter 27, Subchapter 15, "Control and Prohibition of Air Pollution From Light Duty Gasoline-Fueled Vehicles, as Amended (See Appendix A). Legal authority for establishing such regulations is contained in the New Jersey Air Pollution Control Act as amended by portions of Public Law 1967, c. 106 Motor Vehicle Law (see Appendix B).

In addition, DEP has proposed a series of amendments to Subchapter 15. These amendments, in part, define three (3) alternative standard schedules for the third phase of the New Jersey auto emission inspection standards. The proposed amended subchapter is contained in Appendix C.

Exhaust emissions tests have been conducted in the state's motor vehicle inspection stations for a period of over four years. The Exhaust Emission Testers (E.E.T. 910-NJ) utilized in these tests were designed and manufactured over five years ago. Since that time, many significant improvements in the state of the art have been examined by the Department or introduced in other state inspection programs. The progressive reduction in the acceptable levels of exhaust emissions mandate tighter overall analytical system accuracy and incorporation of as many of these improvements as practical within the parameters of functional requirements and cost effectiveness.

Therefore, the Department is considering the alternatives of acquisition of new exhaust gas analytical systems, by direct purchase or lease, and/or modernization of the existing E.E.T-910-NJ systems.

The Department is also considering various equipment configuration options and quantity ranges for the new analytical systems. These options are set forth in Par. 1.10 and defined in Section 3 of this specification. Quantity ranges for the modernization alternatives are also set forth in Paragraph 1.10 and defined by addendum to Section 3.

For guidance of potential vendors, Section 1 contains general conditions, provisions, rules and regulations, in addition to those that appear on the bid request form.

Section 2 includes a description of the New Jersey periodic motor vehicle inspection system, the prescribed vehicle emissions inspection procedure and the manner in which the specified system would be used for the inspection of light-duty motor vehicles. The detailed specifications for the exhaust gas analytical system and associated equipment appear in Section 3. Section 4 consists of detailed specifications of the service requirements and an equipment leasing arrangement which is proposed as an additional alternative to procurement.

The specification covers the requirements for an exhaust gas analytical system used to evaluate the exhaust emissions of internal combustion engines under nonloaded (idle) conditions. The emissions to be analyzed are hydrocarbons (HC) and carbon monoxide (CO) as determined by nondispersive infrared methods and defined in the air pollution control code (Subchapter 15). For the purpose of this specification, the devices shall be sensitized to measure carbon monoxide at the 4.74 micron infrared band expressed as percent carbon monoxide, and to measure hydrocarbons as hexane at the 3.41 micron infrared band, expressed as parts per million of hydrocarbons (hexane).

Please note, however, that the proposed amendments to Subchapter 15 (Appendix C) would change the definition of "approved exhaust gas analytical system" to express hydrocarbons as total hydrocarbons expressed in percent, in addition to hexane expressed in parts per million. In order to facilitate this measurement, the infrared band passage has been widened in the proposal to include wavelengths between 3.25 and 3.41 microns.*

The specification also includes technical design alternatives for each of three (3) alternative emission inspection standards as proposed in the amendments to Subchapter 15, digital printout and display utilizing micro processor technology, an analysis of CO_2 emissions, and an RPM sensing device. Vendors are required to submit bids for each of the standard alternatives but may consider bids for micro processor technology, CO_2 analyzer and RPM sensing as optional.

The bidder shall indicate as part of his proposal previous experience in nondispersive infrared detection methods.

*NDIR vendors should be cognizant of this proposed change. However, at this time, vendors need not respond if development is warranted. Instead, the methodology necessary to develop such sensitivity should be discussed.

Section 1

General Conditions, Provisions, Rules and Requirements

1.0 Scope

The exhaust inspection concept employs a self-contained analytical and multiple range readout system for measuring CO and HC concentrations at the vehicle exhaust outlet. Concentrations shall be expressed as percent for CO and as parts per million (ppm) hexane for HC, with a range of 0 - 10% CO ± 2.5% of the indicated concentration from 1 to 7.5% CO and a range of 0 to 2000 ppm ± 2.5% of the indicated value from 100 ppm to 1200 ppm.

The measurement will be made on a stationary vehicle at idle with the transmission in neutral. The analyzers shall have the capacity of measuring the CO and HC concentrations in less than 10 seconds to avoid interference with the normal inspection lane testing rate. Each analytical system shall be capable of analyzing 500 cars in a 12-hour day for six days per week or approximately 120,000 vehicle inspections per year, in indoor and outdoor inspection stations and under ambient weather conditions experienced in New Jersey. Therefore, the system shall be mobile to facilitate placement in the inspection lane and rugged in anticipation of rough handling. Routine servicing of the instrument must be accomplished in less than five minutes to prevent undue delay in the inspection lane.

All interested vendors are requested to submit proposals in accordance with the information and specifications contained herein.

1.1 Omissions, Errors

In the event that any omissions or serious errors are discovered in the specifications, all interested vendors will be notified immediately. After the proposals have been received, the bidders may be required to furnish additional information necessary for clarification. It is to be understood by all bidders that any information requested will be for clarification purposes and will not change the vendor's original bid.

1.2 Vendor's Contact

Vendors submitting proposals may request the Division of Purchase and Property for additional information and clarification as might be needed for the preparation of their bid. Individual vendor conferences will be scheduled to accommodate such requests. Responses affecting the contents of this proposal will be made available to all vendors.

1.3 Evaluation Criteria

The evaluation will be concerned with system quality, operating characteristics, life expectancy, service guarantee, leasing provisions (if applicable), as well as cost.

Responsiveness to the Bid Request shall be a critical factor in the bid evaluation. Failure to respond fully to the technical specifications, general conditions and the alternative proposal of this Bid Request shall constitute sufficient reason for rejection of a bid.

No bids will be considered unless detailed descriptions, technical discussion, specifications, drawings, servicing arrangements and requirements and leasing arrangement (if applicable), have been included with each bid. All bids must include supporting data so that there is no question as to

the equipment, services, etc. being supplied. Broad categorical statements such as "All of the State's specifications and requirements are being met," are not considered adequate supporting evidence.

1.4 Bidders' Conference

There will be a bidders' conference on _____ at _____ a.m. in the Purchase Bureau bid room, first floor, State House, Trenton, New Jersey. The purpose of this conference is to answer questions related to the specifications.

1.5 Bid Rejection

The Director of the Division of Purchase and Property reserves the right to reject any and all bids submitted if such rejection is deemed to be in the best interests of the State of New Jersey.

1.6 Clarification, Addendum

During the bid evaluation, the Director of the Division of Purchase and Property, the Director of the Division of Environmental Quality and the Deputy Director of the Division of Motor Vehicles may request vendors to attend meetings for the purpose of clarifying the bids.

The State reserves the right to addenda the Bid Request document and any such addendum shall become part of this specification.

1.7 Pre-production System and Acceptance

One hundred and twenty (120) days after contract award the successful vendor shall furnish one exhaust gas analytical system for inspection. This pre-production system will become the sample system and all production systems will be identical or, if required, subject to modifications found necessary

to fulfill specifications contained herein. The pre-production system shall be refurbished, if necessary, and delivered as the last unit in the delivery schedule. This system shall be identical and in accordance with the terms of the purchase or lease agreement and all production units shall comply with the manufacturing techniques required for adherence to the specification. Approval in writing of the pre-production system shall constitute acceptance by the Department and serve as notification to ship. Thereafter, the delivery schedule of Section 1.8 shall be followed. Approval of the system shall not relieve the supplier of the responsibility to furnish equipment in accordance with any requirements of this specification.

Any information that the Director of the Division of Purchase and Property sees fit to obtain regarding the ability of a bidder to supply the equipment and render the necessary service will be taken into consideration in making an award. The Director reserves the right to conduct pre-award surveys of prospective vendors' facilities. Such surveys will include, but not be limited to, the following items:

Adequacy of technology base	Management structure	Long lead time items
Personnel Assets	Quality Assurance	Critical components
Production plan & resources	Sub-contractor structure	Tools & fixtures

1.8 Delivery Schedule, Inspection and Certification

The following delivery schedules are required:

<u>New Equipment Alternative:</u>

Item No.		Quantity Awarded	Delivery Schedule*
1A or 1B	(a)	1 to 10 systems	All units 60 days
	(b)	11 to 25 "	" "
	(c)	26 to 75 "	25 units 60 days 50 units 90 days
	(d)	75 to 125 "	25 units 60 days 50 " 90 " 50 " 120 "

Modernized Equipment Alternative:

Item No.	Quantity Awarded	Delivery Schedule
II (A)	(a) 1 to 25 units	Delivery of the initial 10 unit float quantity shall be made within 2 weeks after notification to the vendor of the locations of the initial units to be modernized. The vendor is responsible for pick-up of the testers and return of the modernized units to designated locations within this two-week period. Subsequent lots are to be picked up and returned within a similar two-week period.
II (B)	(b) 26 to 50 "	
II (C)	(c) 51 to 75 "	
II (D)	(d) 76 to 100 units	
II (E)	(e) 100 to 125 "	

*NOTE: All units must be delivered to the vendor's New Jersey service facilities within the number of days specified above after pre-production system acceptance.

Each unit will then be put into proper operating condition and inspected by the vendor per requirements in accordance with a checklist as per Section 3.1.1.14. The Department of Environmental Protection's personnel will certify each inspection, either at the contractor's facilities or at the State's motor vehicle inspection stations, at the option of the State.

Systems will be installed in the State's Department of Motor Vehicles inspection stations by the contractor as per a destination delivery schedule to be developed by the Division of Motor Vehicles. The Division of Motor Vehicles will provide the interfacing necessary for the contractor to complete the final installation at the inspection site. After installation, the contractor will test each instrument and certify its accuracy.

If circumstances beyond the control of the contractor result in a late delivery, it shall be the responsibility and obligation of the contractor to make the details known immediately to the Purchase Bureau, State House, Trenton, New Jersey, as well as the Department of Environmental Protection.

1.9 Service Guarantee

All units must be fully guaranteed, including all parts, labor, replacement parts and maintenance (other than routine) for a period of one (1) year after installation in an inspection station. Each unit will continue to be field tested by the using agency at the inspection site under actual testing conditions for at least one month. If a unit does not meet specifications, it must be repaired or replaced by the vendor. Payment will be authorized upon completion of the field tests.

1.10 Conditions and Alternative Bids

The successful bidder will be the prime contractor for the systems and must comply with all requirements of the purchase contract or lease agreement.

Bids will be publicly opened and read by the Division of Purchase and Property, Purchase Bureau, State House, Trenton, on the date specified on the proposal form. Bidders are requested to furnish five (5) copies in booklet form of their bids.

Bid prices shall show the cost of the following alternatives;

CONTRACT ALTERNATIVE: (New Equipment Systems Only)

Direct Purchase	Equipment Lease
(a) 1 to 10 systems (b) 11 to 25 systems (c) 26 to 75 " (d) 75 to 125 "	For quantity ranges as in direct purchase for five (5) year period with option of purchase at the end of the period. All equipment and service, including parts, labor and maintenance (other than routine), necessary for continuous testing included. The Lease Agreement is contingent to funds being available for this purpose and appropriated by the Legislature. Penalty, closure, and inflationary costs will be negotiated directly with the successful vendor.
All quantity ranges to include one (1) year service for each system (including parts and labor).	

Option for Increased Quantity in Subsequent Fiscal Years:

The State may increase the quantity of the systems called for under the initial contract award by a quantity which when added to the initial award shall not exceed the maximum range quantity of 125 systems.

The exercise of this option shall be at the unit price set forth below. The Director of Purchases may exercise this option at any time preceding July 1, 1978 by giving written notice to the vendor. Delivery of the systems added by the exercise of this option shall commence 60 days after such notice and at the same rate as delivery of the items called for under the basic contract unless the parties otherwise agree.

Inasmuch as the unit price for the basic quantity may contain development, testing, tooling, engineering and other costs not applicable to future quantities, as well as offsetting inflationary cost, vendors are requested to take these factors into consideration and set forth the unit price in the space provided below for the option of future quantities:

Option Quantity Unit Price _____ Each

If the vendor does not indicate a unit price in the space provided above, it will be interpreted to mean that the unit price shown in the schedule is the unit price applicable to the option quantity.

Varying prices may be offered depending on the number of units actually ordered and the date or dates when ordered.

TECHNICAL DESIGN ALTERNATIVES AND OPTIONS:

For each alternative and option, the bid prices shall reflect each equipment alternative. A unit price shall be shown for each of the alternatives as well as quantity ranges below:

Item No.

I. New Equipment Alternatives:

A. Direct Purchase

Alternatives

Basic HC and CO Analytical System for:	(a) 1 to 10	(b) 11 to 25	(c) 26 to 75	(d) 76 to 125
IA1. Phase II Standards schedule (possibly 10 standards)	$ _____	$ _____	$ _____	$ _____
IA2. Phase III adjusted standard schedule (possibly 10 stds)	$ _____	$ _____	$ _____	$ _____
IA3. Phase III optimized standard schedule (possibly 30 stds)	$ _____	$ _____	$ _____	$ _____

Options

IA4. Digital printout and/or visual display capability	$ _____	$ _____	$ _____	$ _____
IA5. HC, CO & CO_2 Analyzer (Absolute CO_2 value from 0 to 16%)	$ _____	$ _____	$ _____	$ _____
IA6. HC, CO & CO_2 Analyzer (Absolute CO2 value from 0 to 16%) plus RPM sensing device	$ _____	$ _____	$ _____	$ _____

B. Lease Equipment

Alternatives

Basic HC and CO Analytical System for:	Annual Unit Lease Cost for Quantity Ranges (a) 1 to 10	11 to 25	26 to 75	76 to 125
IB1. Phase II Standards schedule (possibly 10 standards)	$ _____	$ _____	$ _____	$ _____
IB2. Phase III adjusted standard schedule (possibly 10 stds)	$ _____	$ _____	$ _____	$ _____
IB3. Phase III optimized standard schedule (possibly 30 stds)	$ _____	$ _____	$ _____	$ _____
Options				
IB4. Digital printout and/or visual display capability	$ _____	$ _____	$ _____	$ _____
IB5 HC, CO & CO_2 Analyzer (Absolute CO_2 value from 0 to 16%)	$ _____	$ _____	$ _____	$ _____
IB6. HC, CO & CO_2 Analyzer (Absolute CO_2 value from 0 to 16%) plus RPM sensing device	$ _____	$ _____	$ _____	$ _____

The State reserves the right to select any alternative from the table.

All amounts shall be stated in figures. Careful proofing of these figures is the responsibility of the bidder. Claim of error, after bids are opened, will not be accepted and no changes or correction will be permitted.

Proposals shall be opened for acceptance on bid due date.

All conditions printed on the reverse side of the proposal form are hereby made a part of the conditions under which the bidder's proposal is submitted.

1.11 Demonstration

Bidders, upon request, must demonstrate their proposed systems in prototype form (or in concept form if not manufactured) to the New Jersey State Department of Environmental Protection prior to award to determine compliance with these specifications or for the purpose of demonstrating acceptable alternatives. If requested, bidders must demonstrate their proposed system or concept in a working environment within 10 days of written notification by the Department of Environmental Protection and/or the Purchase Bureau. Arrangements for such demonstrations and consultations shall be made directly with the Bureau of Air Pollution Control, Department of Environmental Protection. Copies of pertinent correspondence must be sent to the Director of the Division of Purchase and Property and Deputy Director of the Division of Motor Vehicles.

Failure to demonstrate the proposed equipment on or before the scheduled date may be sufficient reason to disqualify the manufacturer's entire proposal.

1.12 Award

Award will be made by the Director, Division of Purchase and Property, to the lowest responsible bidder meeting all conditions and specifications and best fulfilling the needs of the using agency.

1.13 Bid Deposit

Each Proposal shall be accompanied by a certified or a cashier's check made payable to the State Treasurer, State of New Jersey, equal to 10 percent of the amount of the proposal, or the vendor must have an Annual Bid Bond on file for the fiscal year ending June 30, 1978 as evidence of good faith, and

to the effect that, if the proposal of the bidder is accepted, the bidder will enter into the contract. Such a bond must be executed by a bonding company authorized to do business in the State of New Jersey.

1.14 Authorization to do Business in the State of New Jersey

If the successful bidder is a corporation not organized under the laws of the State of New Jersey, the award of contract, and payment of consideration thereunder, shall be conditioned upon said corporation promptly filing a certificate of doing business in the State of New Jersey and complying with the provisions of the law of the State of New Jersey in that regard.

1.15 Method of Payment

Payment will be made in installments corresponding to the segments of the delivery schedule established in Section 1.8. Payment will be authorized upon completion of field test check out and written acceptance by the State after installation in the inspection system. The amount of each payment will be equal to the number in each delivery group divided by the total number of units being procured. If the leasing alternative is selected, payments will be made at the end of each quarter or twenty (20) equal payments.

1.16 Performance Bond

The bidder receiving notification of award will be required to submit a Performance Bond in the amount of 30 percent of the total contract. All bonds must be executed by a company authorized to do business in the State of New Jersey provided said bonds meet with the approval of the Director of the Division of Purchase and Property.

The Bond shall be maintained in full force for a period of twelve months after the termination of the full warranty period, (5 years if the equipment

lease contract is selected), to guarantee that the Contractor will make good any faults or defects in the work arising from improper or defective materials, workmanship or service which may appear during that period.

1.17 Schematic Diagrams

Sets of schematic diagrams must be provided. The quantity of diagrams required is dependent on the quantity range awarded under Par. 1.10 as follows:

	Quantity Range	Schematic Diagrams
A.	1 to 10 Systems	2 sets
B.	11 to 25 Systems	5 sets
C.	26 to 75 Systems	10 sets
D.	75 to 125 Systems	10 sets

The diagrams must show:

a. Electrical power distribution

b. Electronic interfacing

c. Gas flow streams including primary and second filter location

d. Panel layouts

e. All electronic circuits (individual components such as logic boards can be shown separately)

f. Electronic layouts (block diagram)

g. Readout panel: Analog or digital meters, switches, gain and zero controls, on and off power switch, year selector switches, weight class switches, no flow indicator, CO_2 option readout and rejection indicator

It is permissible to substitute manufacturer's instruction manuals (containing the required diagrams) or manufacturer's drawings of components, provided they fulfill the requirements of this section.

1.18 Manuals and Operating Instructions

Detailed instruction manuals for each system must be provided. The manuals must describe the operating characteristics of the system including the function of each subsystem. Electrical circuits, optical bench and the sampling system should be described in terms which will provide meaningful assistance for troubleshooting purposes. Manufacturer's operating manuals may be used providing they fulfill the troubleshooting requirements.

A laminated operator instruction guide illustrating the New Jersey vehicle test procedure, calibration techniques and simplified troubleshooting instructions must be provided. One guide per unit must be permanently affixed to the system.

1.19 Training

The vendor shall provide on-the-job training in the test procedure, calibration and routine maintenance requirements. Such instruction will take place at all 38 inspection stations and reach approximately 480 examiners. Specialized maintenance training shall be made available to technical personnel of the DEP. A schedule and description of such training must be included in the bid.

The training program shall be implemented and completed prior to field test check out of systems in each inspection station.

1.20 Maintenance and Calibration Schedule

A schedule of routine maintenance and routine calibration must be provided. Simple maintenance of a nontechnical nature may be conducted by inspection station personnel. This schedule and the suggested personnel for performing this maintenance must be part of the instruction guide.

1.21 Unit Identification

A permanently affixed label shall be attached to a readily visible portion of the system enclosure. The label shall contain the following information:

a. Unit number - each unit delivered must be labeled sequentially from 1 to 125 with the numbers not less than 1/2 inch in height

b. Vendor's name, designated model, serial number and telephone numbers of the party or parties performing service including:

    1. Local field representative
    2. Regional service facility
    3. Calibration information including hydrocarbon/propane factor

1.22 Right of Patenting and Registry

It is understood and agreed that the contractor shall not seek or obtain a patent or any other form of registry for the components involved in this request for bid and that all rights for patenting and registry shall vest exclusively and remain with the State of New Jersey. Excluded from this

understanding and agreement are any components or systems which are already patented, patent pending or registered, as of the date of receipt of this request for bids.

1.23 Right of Termination

The State shall have the right to terminate any contract on 30 days written notice to the contractor. This right shall be in effect during the term of this contract, if in the State's sole judgment, the contractor is failing to fulfill his obligations.

1.24 Assignment

The contractor is prohibited from assigning, transferring, conveying, subletting or otherwise disposing of this Agreement or its rights, title or interest therein or its power to execute such Agreement, to any other person, company or corporation without the previous consent and approval in writing by the State.

Section 2

Prescribed Emission Inspection Procedure at Idle and the New Jersey Periodic Motor Vehicle Inspection

2.0 Scope

In preparing a bid for the design and performance of this exhaust gas analytical system, it is important that vendors become familiar with the operation of the present New Jersey inspection system and the prescribed New Jersey test procedure for exhaust emissions.

2.1 New Jersey Periodic Motor Vehicle Inspection

All vehicles registered by the State of New Jersey, with the exception of non-school buses, heavy duty vehicles and vehicles less than two (2) years old (at first registration date) must be inspected in the State's inspection stations. Passenger vehicles must be inspected once a year, at the time of registration renewal. All state inspection personnel engaged in this procedure are certified by the New Jersey Civil Service Commission. The initial inspection is conducted by Division of Motor Vehicle examiners at state inspection stations. If a vehicle is required to be reinspected, the motorist has the option of returning to the State inspection station or a State licensed reinspection center (private facility) for retest and certification.

The inspection program is administered by the Vehicle Inspection Bureau, of the Division of Motor Vehicles in the Department of Law and Public Safety. The Department of Environmental Protection is empowered to promulgate regulations establishing standards and requirements for the control of air contaminants from motor vehicles. When established, such regulations are administered and enforced by the Division of Motor Vehicles.

The inspection field force is divided into four districts. The inspection stations within these districts come under the supervision of district supervisors. Figure 2.1 shows the present location of the inspection stations in the state. Every county has at least one station and the urban counties contain additional stations to provide greater capacity.

At the present time, there are 38 inspection stations in operation throughout the state. Under this proposal, ultimately all 38 stations are to receive updated or new exhaust gas analytical systems. These consist of three-lane stations, two-lane stations and one-lane stations, for a total of 70 lanes in the inspection system. Some of the stations are single lane stations located in drive-in theaters; all of these consist of an unsheltered strip, 140 feet by 18 feet, with equipment attached to the ground or stored in a nearby, secured facility.

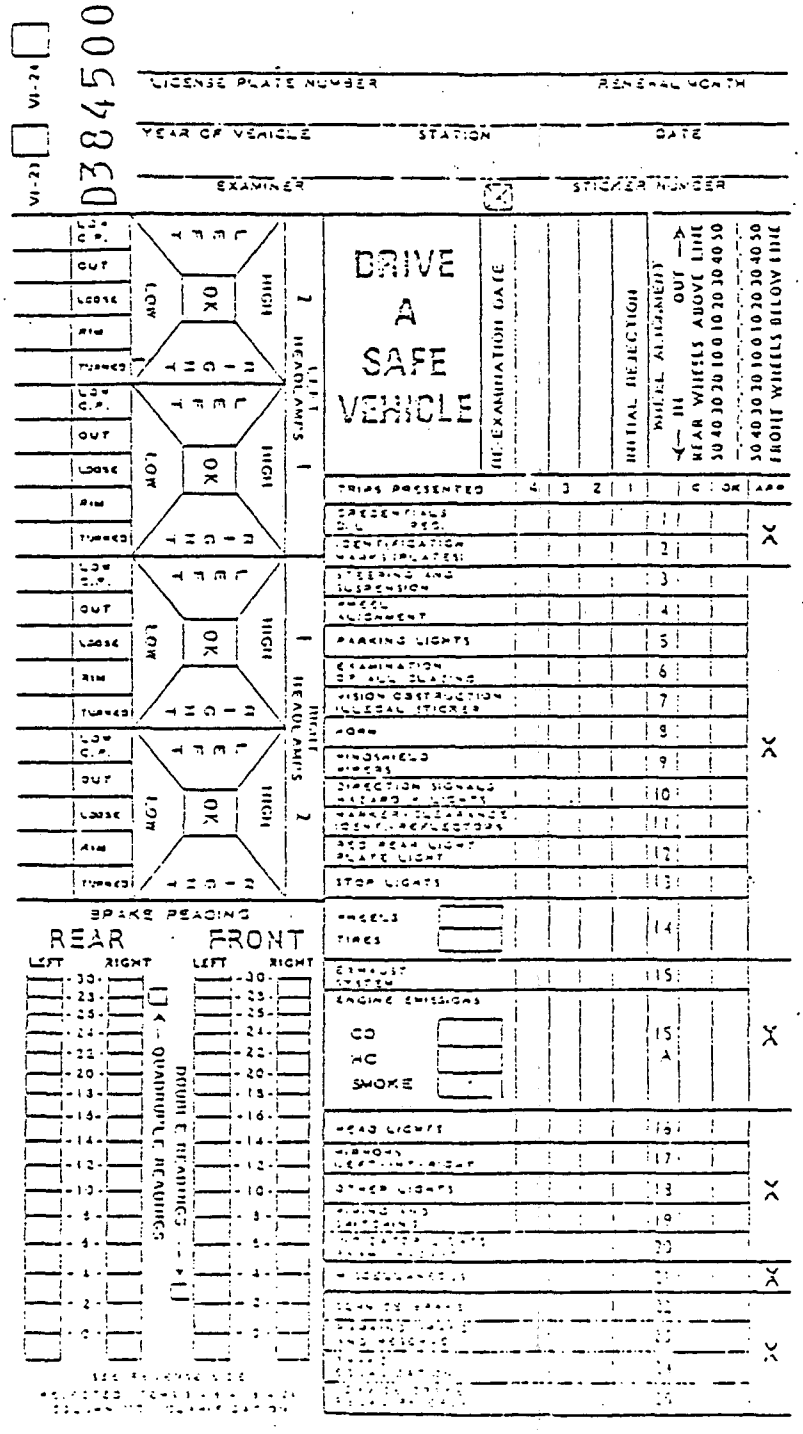
In Appendix D, the individual stations are listed alphabetically by county with the address, type of inspection station, yearly volume and percent capacity indicated. They are located on the map shown in Figure 2.1.

2.2 New Jersey Inspection Station Operation and Layout

Inspection station management is under the administrative control of the station supervisor. Inspection lanes are under the direction of assistant supervisors. In addition to these men, five examiners are needed to operate one inspection lane. In the event that one lane is being utilized at full capacity, station staffing should be flexible enough to allocate up to seven men to this lane.

A single inspection lane consists of 7 inspection points which operate in the sequence indicated.

SAMPLE COPY OF MOTOR VEHICLE INSPECTION CARD



system piping and muffler for holes and leaks.

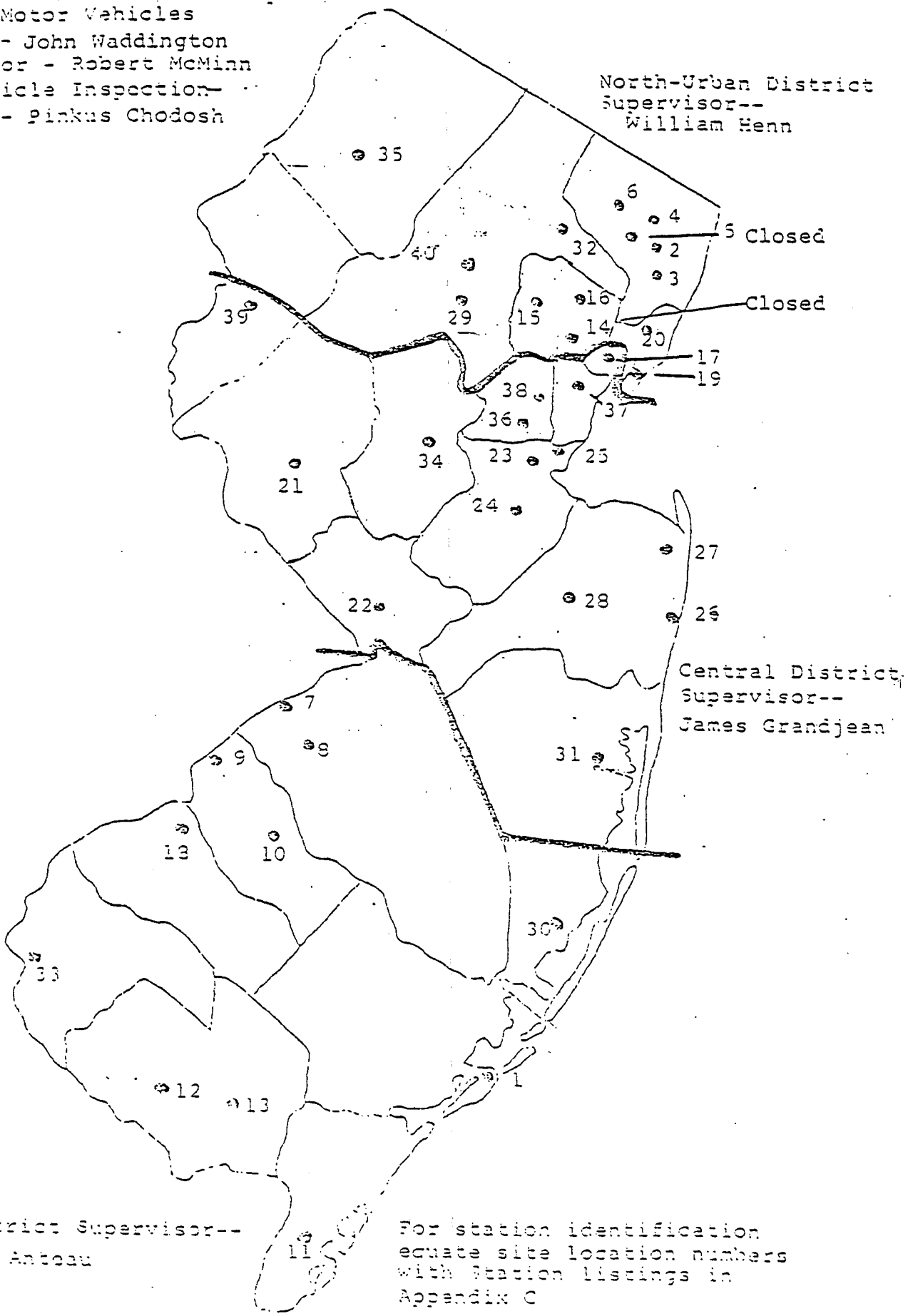
The repaired vehicle must be presented for reinspection at either the state inspection station or licensed reinspection center within 30 days.

Figure 2.2 (Pg. 22A) shows the schematic of a typical lane configuration with the inclusion of the Exhaust Gas Analytical System. The emissions test may be made at any point in the inspection system depending on the station length. Normally, the test will be conducted at the beginning of the inspection lane at the point where credentials are checked. At most inspection stations, retests will be made at the end of the inspection lane (see Figure 2.2). Since some inspection stations exit directly into the street, however, a retest in this position is impossible. Thus, in many cases, the positioning of the emission test will depend upon the individual inspection station, predicated on vehicle flow and the most efficient use of available manpower. In all cases, one unit is required for every inspection lane and an additional unit for retest position and/or backup. In the case of a system breakdown, the retest backup system will replace this system. Therefore, systems must be mobile and of such size as to be transportable in a standard size station wagon.

2.3 The New Jersey Prescribed Emission Inspection Test Procedure

In the present procedure, the motorist positions his vehicle adjacent to the exhaust gas analytical system. At present, the examiner checks the zero control and presses the correct vehicle model year control switch to actuate the appropriate standards. The probe is then inserted in the tailpipe while the vehicle remains at curb idle. Any emission level above the designed standard actuates a red fail light. The results are manually processed on the inspection card. The entire emission inspection requires less than 30 seconds.

Figure 2.1
Department of Law and Public Safety
Division of Motor Vehicles
Director - John Waddington
Deputy Director - Robert McMinn
Bureau of Vehicle Inspection
Ass'nt Chief - Pinkus Chodosh



The test for idle exhaust emissions consists of the following four operations:

Vehicle Operation and Classification

Sampling Procedure

Emission Measurements

Interpretation and Processing of Results

2.3.1 Vehicle Operation and Classification

2.3.1.1 Vehicle Preparation. The idle test is made after the vehicle has reached normal operating temperature. In general, only one test is performed on each vehicle.

2.3.1.2 Vehicle Position. At the inspection checkpoint the motorist positions the vehicle so that the rear axle is adjacent to the emission tester. The transmission shall be in neutral. The hand brake is secured.

2.3.1.3 [Optional] Precondition Mode. The motorist is instructed to accelerate his engine rapidly and hold for a period of eight to ten seconds. The motorist ascertains and maintains the elevated rpm by holding the throttle position constant with the rpm sensing device reading in the designated range. The examiner monitors the engine and observes for smoke during this mode.

The motorist is then instructed to remove his foot from the throttle and allow the engine to return to normal idle rpm.

2.3.1.4 Normalized Idle Mode. The engine is operated at normal idle operating speed until the test is completed.

2.3.2 Sampling Procedure

2.3.2.1 System Check. Before inserting the sample probe in the tailpipe, the examiner checks the CO and HC meter readings. If the meter readings are off the zero band, he calibrates zero and span according to the instrument manufacturer's recommended instructions. If the meter readings are in the zero band, he proceeds with the emission test.

2.3.2.2 Probe Handling. During the normalized idle mode (Section 2.3.1.5), the sampling probe is placed into the exhaust outlet of the vehicle. The probe should be placed as far into the exhaust as possible. However, it must be inserted at least three (3) inches into the tailpipe. In the case of dual exhausts, both exhausts should be tested. The probe shall remain in position in each exhaust for a period of ten (10) seconds, or until a steady reading is monitored in both the HC and CO meters.

2.3.3 Emission Measurements

2.3.3.1 Smoke Measurement. During the precondition mode (Section 2.3.1.3) the examiner observes for visible smoke in the exhaust emissions or in the crankcase emissions.

2.3.3.2 Gaseous Measurement. The examiner ascertains the model year and weight class from the vehicle registration certificate. At the console he then selects the correct vehicle model year control group and (optionally) weight class buttons according to the following table:

Vehicle Model Year Control Group Selector	Vehicle Weight* Class Selector
Up to and including 1967 1968-1969 1970-1974 1975-1979 1980 & Later	#1, #2 and 3

During the normalized idle mode, measurement and standard decision are automatically made of the exhaust stream for the gaseous pollutants, carbon monoxide and hydrocarbons, according to standards established in Subsection 7:27-15.4 Alternatives A, B or C (See Appendix C). The visual display is observed until standard decisions of both contaminants are activated. The measurement is repeated for dual exhausts.

2.3.4 Interpretation and Processing of Results

If steady state emissions levels for either gaseous contaminants from either exhaust outlet and/or visible smoke is observed in excess of standards, the vehicle is not in compliance.

In Column 15A of the inspection card, the examiner or optionally, the printer punches results according to the following practice:

a) If the vehicle is in compliance, punch in the approval (APP) column.

*Subject to amendments proposed in Subchapter 15 (Appendix C)

b) If one or more pollutants (CO, HC or smoke) are not in compliance, punch holes in one or more of the appropriate positions adjacent to the pollutant.

After the results have been punched, the registration card and the inspection card are inserted under the left windshield wiper of the vehicle.

If optional emissions printout is employed, the examiner removes the inspection card from the emission tester console and places it under the windshield.

2.4 Calibration Techniques

2.4.1 Daily Tests. At least once during the workday, or after zero offset has been observed (Section 2.3.2.1), or after routine maintenance has been performed (Section 4.2.1) the exhaust gas analytical system shall be calibrated. Such calibration must be performed according to the instrument manufacturer's recommended instructions.

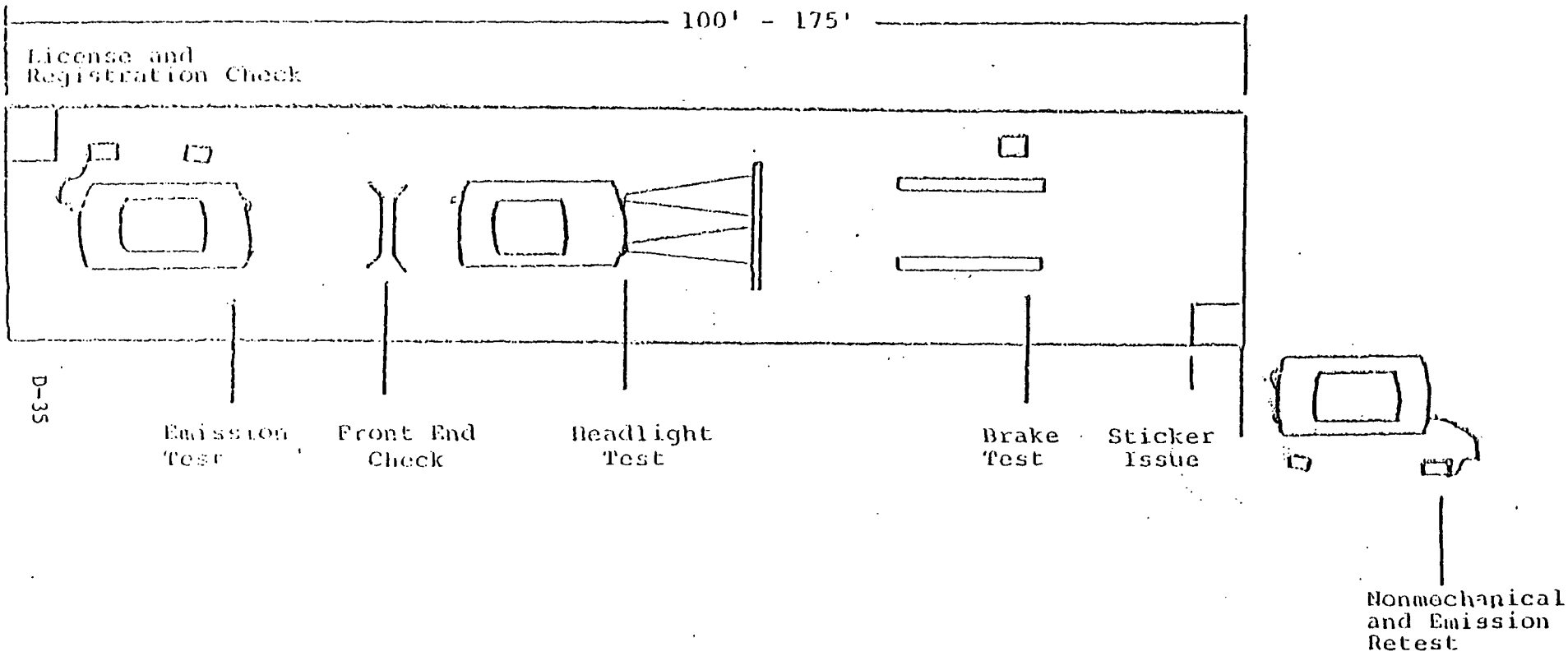
If the system conforms to the requirements, inspection testing may proceed; if it doesn't conform, system corrective action must be taken.

2.4.2 Monthly Tests. At least every 30 days, specified personnel of the Bureau of Air Pollution Control and/or the contractor shall calibrate the systems with a calibration gas technique to be specified by the Bureau of Air Pollution Control.

The designated personnel shall record calibration gas concentrations; instrument readings before and after adjustments, if necessary; date of inspection; and inspector's name on an authorized form.

This will also be recorded on the form which is deposited in a readily accessible part of the system.

Figure 2.2
Typical Motor Vehicle Testing Lane



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Section 3
Part 1
Exhaust Gas Analytical Equipment Specifications

3.0 Scope - New Equipment Option

The exhaust gas analytical equipment specification describes a semi-autom tic, high volume vehicle test system designed for the New Jersey Motor Vehicle Inspection System. Equipment specified in this section is divided into three subsections: Analytical System (Section 3.1), Vehicle, R.P.M. System (Section 3.2) and Equipment Accessories and Interfaces (Section 3.3).

The exhaust emission tester shall include a base console, readout console, and a vehicle rpm sensing system (optional). The readout console shall be mounted in a separate module and shall be capable of remote mounting with heavy-duty cable 20 feet from the base cabinet and shall also include provisions for firm mounting to the base cabinet assembly.

The optional Vehicle R.P.M. System is a semi-automatic device which measures engine revolutions per minute. It shall consist of a sensing device, engine cylinder selector, gain control and readout panel. The device shall be mounted either inside the analytical console or separate from it. The engine hood will <u>not</u> be open during the test.

3.1 General. The analyzer shall be designed for maximum operational simplicity with a minimum number of operation decisions required in the performance of a complete exhaust emissions analysis in less than ten(10) seconds. All components subject to wear, breakage, or distortion shall be easily accessible for adjustment, repair, or replacement through access panels, slide-out shelves or drawers.

The analytical system shall be unaffected by ambient conditions as may occur in the operation of the inspection lanes, including: sand and dust, water splashes, salt spray, projectiles from vehicle wheels, oil and grease, humidity, shock, vibration, electromagnetic interferences, and thermal cycling.

3.1.1 Analytical System

The Analytical System contains the analytical detection equipment, exhaust gas sampling systems, electronic signal and standard selection processing, automatic calibration controls and readout or display panels.

The analyzer shall be capable of analyzing for hydrocarbons (HC), carbon monoxide (CO), and, as an option, carbon dioxide (CO_2) from motor vehicles powered by gasoline internal combustion engines.

3.1.1.1 Safety Provisions. Each analytical system shall be so constructed and shall incorporate safety devices to prevent conditions hazardous to personnel or detrimental to equipment. Circuit breakers shall be used to protect individual circuits and analyzers. All such devices shall be readily accessible. Fuses shall not be used. The system shall be grounded to prevent electric shock.

3.1.1.2 Interchangeability. All parts shall be manufactured to standards which will permit replacement or adjustment of components without requiring modification of parts or basic design.

3.1.1.3 Materials. All materials used in the fabrication of the analyzer shall be new and of the quality necessary to meet the requirements of this specification. Contact between dissimilar metals, especially brass, copper, steel, aluminum or magnesium shall be avoided.

3.1.1.4 Construction. The analyzer shall be complete and all necessary parts and equipment required for satisfactory operation shall be furnished. All screws, pins, bolts and similar parts shall be installed with means to prevent loss of tightness. All parts subject to adjustment or removal shall not be permanently deformed by adjustment or removal.

3.1.1.5 Electrical Power. The analyzer shall operate from the unregulated 120 volt, 60 Hertz supply available in New Jersey's motor vehicle safety inspection stations. Operation shall be unaffected by line noise, voltage and frequency variations equal to or less than those considered normal by the supplying utility company. Maximum system power shall not be greater than 10 amps at 120 volts.

3.1.1.6 Electrical Connections. Connections to conductors and terminal parts shall be of the screw pressure or solder type. When solder connections are used, the conductors and terminal parts shall be mechanically secured with means to prevent loss of tightness.

Interconnecting cables terminating at the control panels shall be constructed with weathertight connectors staked to withstand shock and vibration during operation and movement.

3.1.1.7 Electrical Equipment. Unless otherwise specified all electrical components including motors, starters, switches and wiring shall conform to provisions established by the Underwriters Laboratories, National Electrical Code, and applicable state and local electrical codes.

3.1.1.8 Storage Temperature. While in storage, the analyzer and all components thereof shall be undamaged from ambient air temperatures ranging from 0°F. to 130°F.

3.1.1.9 Operating Temperature. The analyzer and all components shall operate without damage and within specified calibration limits in ambient air temperatures ranging from -20°F to +110°F while exposed to direct sunlight.

3.1.1.10 Humidity Conditions. The analyzer shall operate within the accuracy requirements immediately after exposure to the following conditions: For twenty hours to an ambient air temperature of 100°F ± 10°F, with a relative humidity of not less than 90%, followed immediately by two hours at 100°F ± 10°F at a relative humidity of not less than 99 percent.

3.1.1.11 Temperature Control. Analyzer components which affect sensitivity and calibration shall have their internal temperature controlled to design temperatures when exposed to the prevailing ambient conditions of any inspection station. These include the conditions noted in Section 3.1.1.9 and 3.1.1.10 and also a wind speed up to 40 miles per hour.

3.1.2.12 Radiation Shielding. The entire unit will be designed and shielded to prevent erroneous readings due to conducted or radiated interference such as from ignition systems, fluorescent lights, motors and switching noise.

3.1.1.13 Compatibility. Only materials that are <u>not</u> susceptible to deterioration when in contact with automobile exhaust gases should be used.

3.1.1.14 Quality Assurance. The contractor or vendor shall prepare an inspection procedure which reflects the requirements of the specification. The procedure will be approved by the Department of Environmental Protection.

3.1.2.2 Mechanical Construction

All access panels shall be designed for rapid removal when service is required. External hangers or other means shall be provided on the housing for storing the pickup hose, sample probe, tachometer cable and 120 VAC power line. A compartment shall be provided to store spare filters and, if necessary, spare parts or special tools.

3.1.2.3 Finish. The entire console shall be painted inside and out with a blue, baked enamel as determined by the Department. Labels or indicators which reveal or refer to the manufacturer or supplier of the equipment shall not be visible from outside the unit. (Exceptions to this are the service sticker and Underwriters Laboratory nameplate.)

3.1.2.4 Mobility of Console. During the normal inspection process, it is often desirable to move the console over paved and graded surfaces. Thus, the console shall be equipped with high quality, ball-bearing type wheels with a 360 degree turning radius. Two wheels shall be equipped with locking devices. The wheels shall be equipped with hard rubber tires or equivalent casters designed for the weight and size of the unit. The center of gravity shall be such that routine movement will not cause tipping over of the unit.

3.1.2.5 Internal Construction. The system shall be designed in modular construction form when feasible. For example, power supply, electronics and the infrared detecting devices should be mounted on separate, easily accessible boards, trays, drawers, or modules. No batteries may be used. All mechanical pumps shall be vibration and shock mounted. The electronics

shall be solid state consisting of integrated circuit or equivalent printed circuit boards.

3.1.3 Configuration

The analytic system may be contained in one (1) or two (2) separate enclosures, depending upon human engineering and inspection system configuration. Maximum configuration flexibility is required to conform with the latter (Section 2). If two enclosures are employed they shall consist of a base cabinet and a readout console.

3.1.3.1 Base Cabinet. Generally, the base cabinet shall contain the infrared optical benches, operator control panel, signal process electronics, heating devices, sample and water pumps, filter assemblies, sample handling tubing, flow controls, automatic calibration, and [optionally], the printer and tape storage compartment.

3.1.3.2 Readout Console. The console shall contain two (2) visual HC, CO and [optionally] CO_2 displays - 1) numerical and 2) pass/fail. The numerical display shall consist of an analog or digital display and also must form some type of visual comparison with standards. These output devices shall have a guaranteed accuracy of within $\pm 2\%$ of full scale. The ranges for numerical displays shall be: HC - 0-2000 ppm; CO - 0-10%; [optionally] CO_2 - 0-16%. If digital display is utilized, four (4) digits are required for HC (ppm) and three (3) digits for CO and CO_2 (tenth of percent).

3.1.3.3 Readout Display - Numerical. The console, if separate from the base cabinet, shall contain provisions for maximum flexibility of movement including distance from base cabinet and height above ground. If used remotely it shall be capable of standing free and/or hung from a stanchion. The console shall also have the capability for attachment with the base cabinet.

The meters or output display device shall prominently show vehicle group failure points. These failure point displays or markings shall be so designed as to facilitate adjustment to accommodate future revisions.

Output values must be readable from a distance of 15 feet and an angle of 60° on both sides of the center line. The console shall be designed to minimize glare over this range.

3.1.3.4 Readout Display - Pass/Fail - Readily visible lights shall be provided to indicate pass (green) and fail (red) for HC, CO or both. [Optional] An additional indicator light is to be employed for the CO_2 measurement. The accuracy of the pass/fail set points must be $\pm 2\%$ of the indicated value. The failure lights must accommodate the failure points of each potential standard.

The failure lights must be visible on a sunny day from a distance of at least 12 feet and from 360 degrees.

3.1.3.5 Vehicle Control Group Selector. The failure points for each test must be automatically selected from the analytical console when the motor vehicle examiner activates the appropriate vehicle group selector. Provisions shall be made for five (5) year vehicle control groups (alternately) and two (2) vehicle weight classes. (See Pg. 7, Appendix C.)

3.1.3.6 Panel Layout and Details. The layout of push button switches, lights, etc. on the panel should be detailed and justified by the contractor after considering human engineering and maintenance factors.

Some important human engineering considerations are: a) visibility of numerical display and pass/fail indicator lights from various tailpipe locations; b) accessibility and lighting of the vehicle year control group selector; and c) observation of the RPM during the acceleration precondition.

In addition, the layout of the push button switches and lights on the panel should be determined and justified by the contractor, subject to the requirements that: a) the operator may be wearing heavy gloves; and b) spacing of buttons and lights should be chosen to give the panel a neat appearance.

3.1.3.7 Printer and Data Storage. [Optional] The digitized output from the analytical system shall be capable of being recorded on an alpha-numerical printer. This printer shall be activated so that readings are printed as per the following general format:

Vehicle Year Group: ____ [Optional] Weight Class: ___

	HC	CO	[Optional] Possible leak and/or Fuel Economy Indicator
Test Value	_____	_____	
M. J. Standard	_____	_____	

The size, shape and position of this format will be decided by the using agency.

The printer shall be capable of accepting and printing this format in the appropriate positions ("C" column) on the 4" X 7-1/2" Division of Motor

Vehicle inspection card. In addition, column 15A shall be automatically punched in the appropriate areas (Section 2).

Accommodation and interface with a removable data storage unit shall be provided. The specification for the data storage units is contained in Section 3.3.3.2.

3.1.4 Process Control - Subsystem. The process control system shall perform the functions of accepting, displaying, and reporting all necessary data from the various input sources. In addition, the subsystem shall be capable of making pass/fail decisions and of initiating automatic calibration procedures. DEP is encouraging the use of the latest process control technology in order to develop uniform procedures consistent with inspection lane operations as defined in Section 2.

Bidders are required to submit a process control flow diagram indicating the system logic requirements for each input.

An example of a process to be controlled follows:

1) Enter vehicle year control group and (alternative) vehicle weight class.
2) [Optionally] CO_2 analysis, pass or fail
3) HC & CO analysis, pass or fail
4) Unit in purge mode
5) Automatic zero and span set (recalibration)

3.1.5 Sample Handling Subsystem

3.1.5.1 General. The sampling system consists of two subsystems: 1) internal sampling system; and 2) external sampling system. The external subsystem shall include an insulated probe assembly and a probe

heater for cold weather operation and a durable 20-foot hose with standard fittings to fit the existing N. J. probe assembly. The internal subsystem shall include, but not be limited to, sample pump, bypass pump, appropriate valves for calibration and a low/no flow indicator. Vendor is encouraged to reduce the length and/or inside diameter of the internal sample hose to facilitate sample flow and thus optimize system response time.

Sample line material must be designed to reduce water condensation and absorption-desorption HC condensation. The material must also be designed to reduce kinking of the hose.

A self-draining water trap is required to protect the instruments.

System must be impervious to particulate matter, particles of carbonaceous materials, oil or oil combustion products, gasoline, lead compounds and other additives.

Particulate matter must be physically filtered from the exhaust gas prior to analysis.

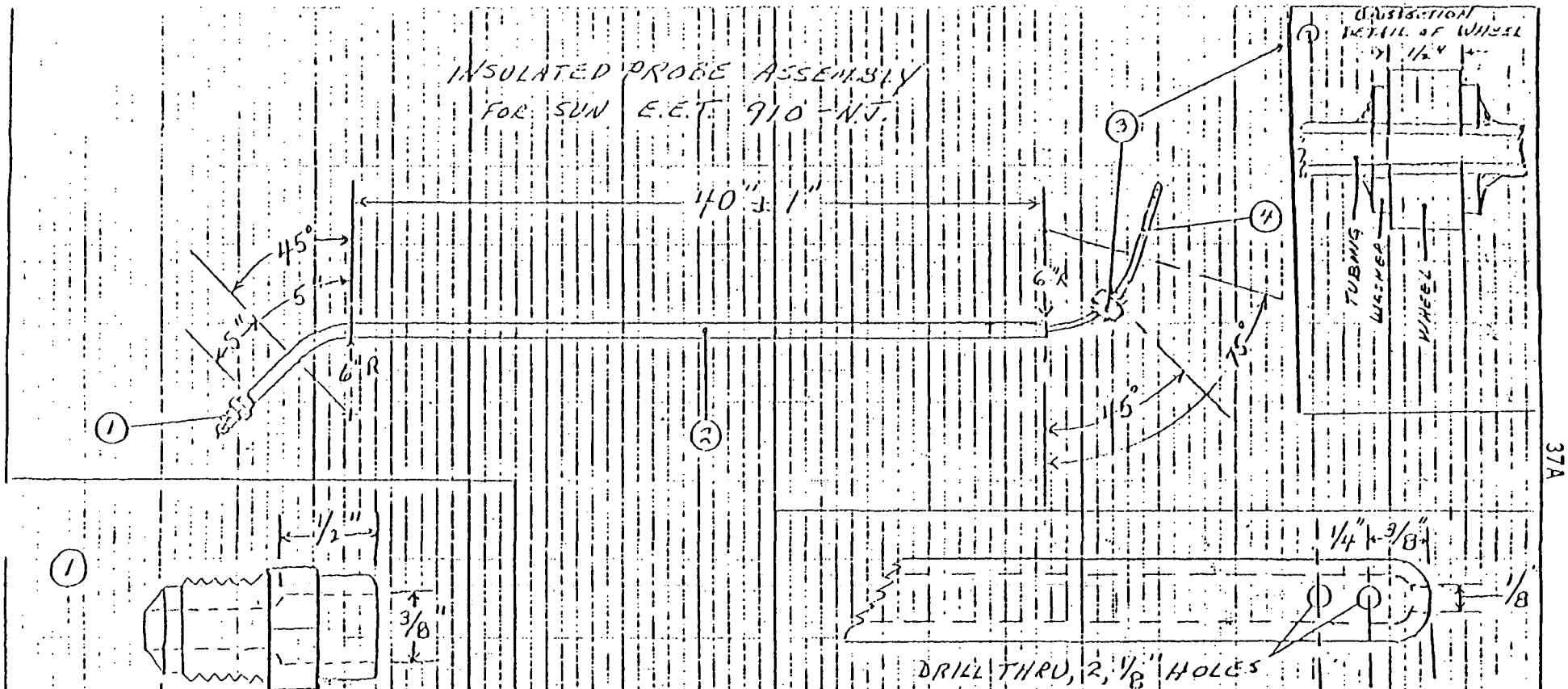
The bidder shall supply a schematic diagram of the sampling system.

3.1.5.2 Sample Probe. The sampling probe shall be fabricated in conformance with Mobile Source lab sketch 1974 - 101 as revised 7/22/76 or approved substantial equal. See Figure 3.3. (Department of Environmental Protection will supply the sample probe.)

3.1.5.3 Sample Hose. The inter-connecting hose shall be of such design and weight that it can easily be handled by the inspector. The hose length shall be twenty feet with a 3/8" female flare fitting compatible with the sample probe. The long hose length is required so that one console can

FIGURE 3.3 SAMPLE PROBE HANDLE

REV 7/22/76
FES 10/3/74



BILL OF MATERIALS

(1)	FITTING (MODIFIED) WEATHERHEAD P.N. 46 x 6 x 2	3/8" MALE FLARE TO 1/8" NPT FEMALE			NOTE: DRILL 1/8 NPTF W/ 3/8" DRILL 1/2" DEEP FOR BRAZING TO (4)
(2)	HOSE, INSULATION OR EQUAL	SYNFLEX 3700-06 NOTE: 50" NOMINAL SYNFLEX PROBE (4) FLUSH W/ FITTING (1)	3/8" ID x 5/8" OD	SANUEL A. MOORE	6-3700-06 AS SHOWN.
(3)	BRAZED WHEEL ASSEMBLY - 1" DIA STEEL x 1/2" WIDE WITH 3/8" HOLE + 1/64" ON SPOT WELD (3 PLACES) TO 1/8 TUBING SEE DETAIL IN INSET ABOVE	THIN WASHERS TO PREVENT WEAR AT BOND OF TUBING	3/4" x 3/8" x 1/8" WASHERS SO THAT WHEEL ROTATES FREELY AT 45° POINT OF 6" RADIUS		BRAZED
(4)	PROBE: STAINLESS STEEL THICKWALL TUBING, NOTE: BRAZE FITTING (1) AS SHOWN. DRILL END AS SHOWN IN DETAIL ABOVE		3/8" OD x 1/4" ID, 54" LONG		

be used for two lanes in the event of a unit failure. The hose shall be of such material that it will not be affected by the exhaust gases and molecular hydrocarbon hang up will be minimized. The hang up from an eight cylinder car with two spark plugs disconnected, after analyzing for one minute. shall be no greater than 10 ppm hexane one minute after removing the sample probe from the vehicle's tailpipe. Hoses and sampling systems which fail to meet this condition will cause high readings and zero drift in the hydrocarbon analyzer.

The hose connection to the console must be reinforced to prevent kinking at the points of maximum bending.

A means of self retraction shall be provided to remove the sample hose from the testing area when not in immediate use. This can be done by a coiled sample hose or by a retraction device.

3.1.5.4 Water Trap. The system shall be designed with a water trap in the bypass sample stream. The water trap shall be continually self-draining through a bypass pump. The trap bowl shall be constructed of a durable transparent material. The water trap and bypass pump should be located as low as possible on the analyzer so that condensed water in the sample hose will drain, by gravity, into them. However, the trap must be placed in a position readily visible to the operator. The sample for the analyzers should be obtained from the top of the water trap.

3.1.5.5 Filtration. The sampling system shall be equipped with particulate filter(s) suitable to maintain the operating performance of the analytical and sampling system without frequent cleaining. The secondary filter capacity must be large enough to effectively filter the samples

obtained during the routine testing of at least 5000 vehicles in the inspection station.

3.1.5.6 Sample & Bypass Pumps. The sample and bypass pumps shall be the positive displacement diaphragm type, with corrosion resistent internal surfaces and capable of minimum operational life of 10,000 hours with no mechanical or electrical failure (or equivalent equal).

The pumps may be either single pumps for the sample and bypass streams or a dual pump for bypass flow and sample flow.

The sample pump shall have integral motor overload protection and permanently lubricated sealed ball bearings.

The bypass pump shall be connected in the sample system so that any water condensed in the water trap is removed by the pump and dumped outside the system. The bypass stream does not pass through the particulate filter.

The bypass and sample pumps shall be activated by a test standby switch.

3.1.5.7 Flow Rate. The flow rate from the pumps shall be sufficient to obtain the overall response time of less than five seconds for 95 percent response to a step input of gas having the full scale concentration of either or both contaminants.

3.1.5.8 Flow Indicator. The system shall be equipped with an indicator which will activate if the sampling flow rate decreases to an extent which will cause an increase in response time of 5 seconds greater than specified in 3.1.5.7.

3.1.5.9 Flow Diagram(s). Bidders shall design and submit flow system diagram(s), subsystems (if appropriate), and piping schematics in accordance with good engineering practices.

3.1.6 Analytical Subsystem.

3.1.6.1 Carbon Monoxide, Carbon Dioxide, and Hydrocarbon Analyzers. The carbon monoxide, carbon dioxide and hydrocarbon analyzers shall be the nondispersive infrared type, sensitized to measure carbon monoxide at the 4.74 micron band, expressed as percent carbon monoxide, to measure carbon dioxide at the 4.35 micron band expressed as percent CO_2, and to measure hydrocarbons as hexane at the 3.41 micron band expressed as parts per million of hydrocarbons (hexane) in air.

Please note, however, that the proposed amendments to Subchapter 15 (Appendix C) would change the definition of "approved exhaust gas analytical system" to express hydrocarbons as total hydrocarbons expressed in percent, in addition to hexane expressed in parts per million. In order to facilitate this measurement, the infrared band passage has been widened by the proposal to include wavelengths between 3.25 and 3.41 microns. NDIR vendors should be cognizant of this proposed change. However, at this time, vendors need not respond if development is warranted. Instead, the methodology necessary to develop such sensitivity should be discussed.

3.1.6.2 Instrument Range. The carbon monoxide analyzer shall have a range of 0-10% and 0-3% resolved in 0.1 increments. The carbon dioxide analyzer shall have a range of 0-16% resolved in 0.1% increments. The hydrocarbon analyzer shall have a range of 0-2000 ppm and 0-300 ppm resolved in 10 ppm increments.

3.1.6.3 Accuracy. Each analyzer shall have an overall, absolute accuracy of ±2-1/2% of indicated value with a dynamic range of 1 to 7.5% and 100 to 1200 ppm HC.

This error shall include, but not be limited to, the resolution limitations incurred when reading the equivalent instrument meters and/or other readout devices by eye at the distance of fifteen (15) feet.

3.1.6.4 Interference Effects. Interference effects of selected components on the CO analyzer shall be measured at zero and 2% CO points. The interference, as indicated in the CO reading, shall be less than those listed below.

Interfering Gas	Apparent Instrument Shifts + % CO
0-15% CO_2	0.05
0-100% CO_2	0.1
0-3% H_2O	0.05
0-3000 ppm NO or NO_2	0.05
0-10% O_2	0.05
Average exhaust mixture	0.05

Interference of selected components on the hydrocarbon analyzer shall be measured at the zero and 200 ppm hexane points. The interference, as indicated by shifts in the hydrocarbon reading, shall be less than 20 ppm hexane for the interfering gases listed above.

3.1.6.5 Relative Response. The hydrocarbon analyzer responds to paraffin hydrocarbon on approximately a carbon atom basis. Lower responses are obtained for olefin, aromatic, and acetylene hydrocarbons. To obtain similar responses from different analyzers to exhaust gas hydrocarbons, the following

relative responses ± 5% of full scale must be obtained from the infrared analyzer:

Hydrocarbon	% Full Scale
1000 ppm hexane	100
2000 ppm propane	100
3000 ppm ethane	92
1500 ppm butene - 1	50
2000 ppm propylene	32
6000 ppm methane	28
1000 ppm benzene	4

3.1.6.6 Response Time. In response to a full scale step input, each analyzer shall reach 95 percent of full scale reading within five seconds if the sample probe is being used and one second if it is not.

3.1.6.7 Zero Drift. Zero drift shall be automatically activated at start-up each day and after every test. Reduce zero drift to less than 10 ppm HC and 0.05% CO. Zero drift should be less than ±2% in eight hours without automatic zero.

3.1.6.8 Span Drift. Span drift shall be electronically controlled to reduce span drift to 10 ppm HC and 0.1% CO. Span drift shall be less than ±2% in eight hours without automatic span control.

3.1.6.9 Warm-Up Time. 95 percent accuracy of readings within five minutes after system is activated.

3.1.6.10 Vibration Effects. The system shall be unaffected by vibrations encountered under normal operating conditions. In addition, the system

shall be unaffected by vibrations under transport conditions in a vehicle or truck.

3.1.7 Calibration. The system shall provide for automatic zero calibration performed after each test; automatic span calibration performed at periodic time intervals; routine daily calibration checks activated manually by the operator; and monthly calibration by specified personnel trained in the use of precision calibration gas mixture.

3.1.7.1 Automatic Zero and Span. The system shall have the capability to perform automatically a zero and span calibration sequence. The sequence shall correct for any short-term drift in the system's electronic circuits. The zero sequence shall be activated automatically after the emission test. The span shall be activated automatically upon command.

3.1.7.2 Daily Calibration. The daily calibration will be conducted by the motor vehicle examiner. This calibration shall take less than 30 seconds and without having to open up the enclosure. For this, the system must be equipped with a mechanical or electronic calibration method which simulates an exhaust sample having a concentration between 50% and 80% of full scale for each analyzer. This calibration shall be of an accuracy which maintains the absolute accuracy specified in Section 3.1.6.3.

3.1.7.3 Monthly Calibration. Calibration will be made at monthly intervals by specified personnel of the Bureau of Air Pollution Control, utilizing techniques recommended by the contractor and approved by the Bureau. This calibration shall be accomplished in minimum time and without having to open the system enclosure.

3.1.7.4 Adjustment Control. Any required calibration adjustments must be easily made to minimize system down time. Any calibration adjustment controls must be internal or shielded. The bidder should describe the cal bration sequence in detail.

3.1.7.5 Calibration Conformance. The systems must be calibrated by the vendor and must conform with the specifications described herein.

a) Check calibration with 3, 5, 7.5 and 9% CO; 3, 5, 10 and 15% CO_2; and 300, 500, 1000, 1500 and 2800 ppm propane.

b) Check response to CO_2. (15% and 100% concentration for CO HC analyzer).

The system must be equipped with accessories which will allow expeditious execution of these tests.

At the time of this laboratory testing (Sections 1.8 and 3.1.1.8) the entire physical and operating condition of the system will be checked. The vendor must supply a simple, easily operable procedure with which to conduct these checks.

3.2 [Optional] Vehicle Preconditioning System

3.2.1 Engine RPM Sensing Device. Because of time and manpower limitations, the RPM sensing unit must be of the remote type designed to measure engine RPM with the engine hood closed. In conditioning the vehicle, measuring the idle RPM, or conducting a 2000 RPM test, the engine speed must be measured. The measurement may be made by using the electromagnetic radiation from the ignition system, pressure pulses, sonetic pulses, or concentration pulses in the exhaust generated by the combustion in each cylinder.

3.2.2 RPM Meter. The RPM readout meter shall be placed so that it can be seen and read by the operator of a motor vehicle. The meter ace shall have a scale of 0-3000 RPM in 50 RPM increments. The 2500 RPM point shall be marked with a red line. The RPM range from 2000 RPM to 2600 RPM shall be cross hatched and a green light provided to indicate this range.

The output meter shall be removable and mounted on a console which can be easily observed by the driver. The console should not interfere with the normal flow of vehicle traffic. Mobility conditions specified in Paragraph 3.1.2.4 shall apply.

3.2.3 Electronics Location. The tachometer electronics shall be incorporated within the vehicle precondition console. It shall be easily serviceable through the front or back panels. It shall be of the intergrate circuit type incorporating replaceable circuit boards of the type indicated in Paragraph 3.1.2.5.

3.2.4 Accuracy. The absolute accuracy of the tachometer should be ±100 RPM. It shall maintain this accuracy on the following types and locations of engines: front or rear engines; 4, 6, or 8-cylinder engines. The unit shall be impervious to conducted or radiated interference, especially from fluorescent lights and ignition systems of vehicles idling in the inspection lane but not being tested or other inspection lanes or in the general vicinity of the inspection station.

3.2.5 General Conditions. The general conditions specified in Paragraph 3.1 shall apply to the vehicle precondition system.

3.2.6 Gain Control. The system must automatically adjust itself to the varying signal levels encountered in normal vehicle ignitions in order to maintain optimum sensitivity.

3.3 Equipment Accessories and Interfaces.

3.3.1 Spare Parts & Accessories. The vendor shall maintain an adequate supply of spare parts and accessories to fulfill service requirements. These shall include, but not be limited to, cables, line filters, sample lines, etc.

3.3.2 Interfaces. It is anticipated at this time that the only interface between the inspection station and the exhaust gas analytical system will be the power cable. The power cable shall be equipped with a standard three prong connector at the inlet and a pull-away type at the analytical system. It shall be 30 feet in length and be extremely durable and waterproof when connected to enclosure.

The interconnecting power and signal cable between the analytical system and the display module shall be extremely durable. Both the cable and its connectors shall be waterproof when connected and the connectors shall be designed to prevent pin damage.

All of the above cables shall be impervious to the environmental conditions described in Section 3.1. Special emphasis shall be placed on cable resistance to cleaning solvents such as kerosene and detergent.

3.3.3 Accessories

3.3.3.1 Probe Heater. 110 Volt AC with 25 foot grounded cord. During cold weather the probe assembly (tip) is inserted in the heater to preclude

freezing of water condensate in the probe, external sample hose, etc. (The probe heater will be furnished by the Department of Environmental Protection.)

3.3.3.2 Data Storage Unit. The unit will consist of a compact recording device capable of transforming analyzer output (carbon monoxide and hydrocarbon concentrations, pass-fail status, model year control group, vehicle weight class, date, and time) into digital format on magnetic tape. The unit will be portable and easily attached and located within the analytical base cabinet. Selection of the model year group and vehicle weight class control buttons will activate the unit. Signaling of the pass-fail status will deactivate the unit. Five (5) units shall be supplied under this contract. Additional units may be purchased on a per unit basis as desired by the state.

Section 3
Part 2
[Optional]

Specification for Modernization and Repair of Exhaust Emission Testers EET-910-NJ

1.0 Purpose

The existing 125 Exhaust Emission Testers (Sun Model EET-910-NJ) have been in use in the harsh environment of New Jersey motor vehicle inspection stations for more than five years. These testers were designed and manufactured over six years ago. Since that time, many significant state-of-the-art improvements have been introduced. Therefore, as an option to the purchase of new testing equipment, it is proposed to incorporate as many of these improvements as practical within a specified number of these units, consistent with the system's functional capacity and cost-effectiveness. In addition, alternating bids accommodating each standard group as proposed in Appendix C and illustrated on Page 54 of this section are required.

1.1 Scope of Repairs

In general, the modernization of the EET-910-NJ units is intended to incorporate the key optical bench components and warm-up time performance features of Sun Electric Corporation Infrared Exhaust Performance Analyzer Model EPA-75, plus certain calibration features of Sun Exhaust Emission Analyzer Model AEA-102 or equivalent analyzers. In addition to these changes, the vendor shall be responsible for repairs or replacement of these components designated below and such other components of the EET-910-NJ testers which are necessary for the efficient testing of vehicles in the inspection lanes:

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a) repair and/or replacement of sampling system components;

b) repair and/or replacement of probe holding brackets and retractor reels which are missing or broken;

c) repair or replacement of base cabinet casters which have been bent or worn sufficiently to affect stability of the tester.

1.2 Unit Identification

A permanently affixed label shall be attached to each modernized EET-910-NJ in such manner and of such size to cover the existing label. The label shall contain the following information:

1) Unit number. Each unit shall retain the number of the unmodified unit. The number shall be not less than 1/2 inch in height.

2) Vendor's name, designated model. i.e. EET-910M75-NJ, and telephone numbers of the party or parties performing service including:

   a) local field representative;

   b) regional service facility;

   c) propane/hexane factor.

1.3 Schematic Diagrams

10 sets of schematic diagrams must be provided. The diagrams must show:

a) electrical power distribution;

b) electronic interfacing;

c) gas flow streams;

d) enclosure layouts;

e) all electronic circuits (individual components such as logic boards can be shown separately)

f) electronic layouts (block diagram)

It is permissible to substitute manufacturer's instruction manuals (containing the required diagrams) or manufacturer's drawings of this section. Diagrams shall be delivered to the Mobile Sources Lab., 380 Scotch Road, West Trenton, NJ 08628.

1.4 Operating Instruction Manual

A supplemental instruction manual for the modified systems must be provided for each unit modernized. The manuals must describe the operating characteristics of the system, including the function of each subsystem. Manufacturers' operating manuals may be used providing they fulfill routine troubleshooting requirements. One copy of each manual shall be placed in the pocket provided in base cabinet of the existing EET-910-NJ testers. An additional ten copies of the manual shall be delivered to the Mobile Sources Lab, 380 Scotch Road, West Trenton, NJ 08628.

1.5 Training

The vendor shall provide training in the test procedure, calibration and maintenance requirements of the modified unit. Such instruction will take place at the Mobile Sources Lab, 380 Scotch Road, West Trenton, NJ 08628. Specialized maintenance training shall be provided to mobile sources labs personnel upon request of the Department.

2.0 Analytical System

2.1 General

The analytical system shall be a modernized unit utilizing new optical bench components of the Sun EPA-75 and automatic calibration components of the Sun AEA-102 models, or equivalent unit, to meet the performance requirements as specified herein. All parts subject to wear, breakage, or distortion shall be extremely durable and also easily accessible for adjustment, repair or replacement. Means shall be provided for removal of at least two sides of the analyzer to provide for ease of maintenance and service.

2.1.1 Safety Provisions (See Paragraph 3.1.1.1)

2.1.2 Interchangeability (See Paragraph 3.1.1.2)

2.1.3 Materials (See Paragraph 3.1.1.3)

2.1.4 Construction (See Paragraph 3.1.1.4)

2.1.5 Electrical Power (See Paragraph 3.1.1.5)

2.1.6 Electrical Connections (See Paragraph 3.1.1.6)

2.1.7 Electrical Equipment (See Paragraph 3.1.1.7)

2.1.8 Storage Temperature (See Paragraph 3.1.1.8)

2.1.9 Operating Temperature (See Paragraph 3.1.1.9)

2.1.10 Humidity Conditions (See Paragraph 3.1.1.10)

2.1.11 Temperature Control (See Paragraph 3.1.1.11)

2.1.12 Radiation Shielding (See Paragraph 3.1.1.12)

2.1.13 Compatibility (See Paragraph 3.1.1.13)

NOTE: Specification requirements for Part 2, Modernization and Repair, which are identical to the requirements of Part 1, Section 3, New Equipment, are included by specific references above.

2.1.14 Electronics. The electronics shall consist of solid state components utilizing glass epoxy, or equivalent, printed circuit boards. Each analytical channel shall have its own electronic system. Interchanging cables terminating at the control panels shall be constructed with water-tight connectors secured to withstand shock and vibrations.

2.2 The Instrument Panel shall contain the following:

2.2.1 HC & CO Meters. The instrument panel shall contain new 8-inch back illuminated meters for both hydrocarbon and carbon monoxide.

Meters shall be constructed with d'Arsonval movements, spring-back jewelled bearings and tamper-proof mechanical, zero adjust; and have a guaranteed accuracy of within ± 2% of full scale and be capable of withstanding a 400% overload without damage. The HC low range scale shall provide a testing capability of 0-500 ppm and the high range scale of 0-2000 ppm. The carbon monoxide meter ranges shall have a low range of 0-3% and a high range of 0 to 10%.

The high range scales should be utilized to measure emission values for pre-1968, 1968-1969, and 1970-1974 vehicle groupings. The low range scales should be utilized to measure emissions for 1975-1979 and the 1980

and later vehicle groupings. The meters shall be conspicuously marked (or illuminated) at vehicle group failure points. These markings shall be so designed as to provide for removal and replacement to accommodate future revisions in failure points.

2.2.2 Zero and Span Adjustments. Each meter shall be adjustable for zero and span from the front panel of the modernized EET-910-NJ (EET-910M78-NJ).

2.2.3 Pass/Failure Indicators. A two (2) inch diameter green light shall be incorporated in the unit and designed to actuate a specified length of time into the emissions test if standards have not been exceeded. Two (2) inch diameter red lights incorporated in the EET-910-NJ units shall indicate failure for CO or HC inspection. The accuracy of the failure set points must be ±1.5% of the full scale range. The EET-910-NJ failure lights must accommodate the failure points of the additional year groupings required in the EET-910M78-NJ units. Each failure light shall remain on until the automatic calibration has re-zeroed the system.

The set points shall be easily adjustable from potentiometers readily accessible inside the console. Five set points for carbon monoxide and hydrocarbons are required at the failure points as illustrated below:

Exhaust Emission Standards for Light-Duty Vehicles
Subject to Inspection by the Division
of Motor Vehicles
and/or
Licensed Reinspection Centers

Alternate A - Phase II

Model Year	Effective Date Aug. 1, 1975 CO(%)	HC(ppm)
Pre-1968	8.5	1400
1968-1969	7.0	700
1970-1974	5.0	500
1975-1979	3.0	300
1980 and Later*	-	-

Alternate B - Adjusted Phase III

	Effective Date Jan. 1, 19	
Pre-1968	7.5	1200
1968-1969	6.0	600
1970-1974	4.0	400
1975-1979	2.0	200
1980 and Later*	-	-

Alternate C - Optimized Phase III

Model Year	CO(%)** Weight Class #1	CO(%)** Weight Class #2 and #3	HC(ppm) (HC(%)) Weight Class #1	HC(ppm) (HC(%)) Weight Class #2 and #3
Pre-1968	9.5	7.5	1300 (1.56)	950 (1.14)
1968-1969	6.0	5.5	500 (0.60)	450 (0.54)
1970-1974	5.5	4.0	450 (0.54)	350 (.42)
1975-1979	2.0	1.5	200 (0.24)	150 (0.18)
1980 and Later*	-	-	- -	- -

*To be promulgated at a later date
**Subject to 10% tolerance

2.2.4 Vehicle Control Group Selector. The failure points for each test must be automatically selected in the analyzer console when the motor vehicle examiner activates the appropriate vehicle group selector. Provisions shall be made for five (5) vehicle year control groups and an optional two (2) vehicle weight classes.

2.2.5 Standby Test & Calibrate Controls. The EET-910-NJ standby test mo e switch and the calibration test mode plunger may be retained or replaced with mode control switching as employed on the EPA-75 tester with automatic calibration.

2.2.6 Flow Meter & Low Flow Indicator. The control panel shall retain the sample flow gauge of the EET-910-NJ. The present flashing red light low or no flow indicator may also be retained in the EET-910M75-NJ testers. Should this low flow indicator be incompatible with the modernized ystem the low or no flow indicator similar to that used on the Sun EPA-75 unit may be utilized.

2.2.7 Panel Layout and Details. The layout of pushbutton switches, lights, etc. on the panel should be determined and justified by the contractor after considering human engineering and maintenance factors and the limitations of the EET-910-NJ cabinet configuration.

2.3 Sample System

2.3.1 General. The present type of sampling system shall be retained in the EET-910M75-NJ model. However, certain components listed below have been found subject to frequent replacement or maintenance to avoid

leaks into the sampling system or to eliminate particulate matter passing through the primary filter assembly. It is also desirable to reduce the length and/or inside diameter of internal hoses to facilitate sample flow and thus optimize sample system response time.

2.3.2 Water Separator (Bypass) Pump - Part No. 303-076. If warranted, shall be replaced by the vendor with a pump of improved efficiency and greater operational life, i.e., not less than 10,000 hours with no mechanical or electrical failure. The pump may be either a single pump or a dual pump for bypass and sample flow.

The bypass pump shall be connected in the sample system so that any water condensed in the water trap is removed by the pump and dumped outside the system. The bypass stream does not pass through the particulate filter. It shall be placed in such location as to provide for ease of maintenance or replacement.

The automatic water drain system utilized in the EPA- 5 tester shall <u>not</u> be used in the EET-910M75-NJ tester.

2.3.3 Primary Filter Assembly Repairs - Part No. 7009-711. The aluminum element retainer on the bulk of the existing primary filter assembly has deteriorated. If warranted, these elements shall be replaced by the contractor and the filter housing and bowl cleaned and reconditioned in such manner as to restore full flow and effectiveness.

The contractor at his option may utilize elements of the secondary filter assembly for replacements for the primary filter.

<u>Note</u>: The secondary filter is to be replaced with the secondary filter assy. No. 30-097 for the EPA-75 tester as part of the modernization project.

The vendor shall return all excess components of the primary and secondary filter assembly to the mobile source control labs for future maintenance use.

2.3.4 Filtration. The sampling system shall be equipped with particulate filter(s) suitable to maintain the operating performance of the analytical and sampling system without frequent cleaning or replacement. The present filter element used in the EET-910-NJ primary filter assembly shall be retained. Filter element No. 301-908 used in the present EPA-75 secondary filter assembly (a throw-away filter) shall be utilized in EET-910M75-NJ tester. The vendor is encouraged to propose alternate filter elements which may be cleaned and reused in order to reduce or eliminate the high inventory levels and costs of the disposable filter element. Advance cleaning techniques such as ultrasonic vibration should be considered.

3.0 Scope of Modernization

The intent of the modernization of the EET-910-NJ tester to the EET-910M75-NJ configuration is to substitute the bulk of the Sun EPA-75 tester components or equivalent testers in the chassis of the EET-910-NJ unit. All features of the EPA-75 unit shall be incorporated unless specifically excluded by this specification. Additionally, the electronically controlled zero drift feature of the Sun AEA-102 Model or equivalent testers shall be incorporated. Relevant product technical data and specifications of the Sun Models EPA-75 and AEA-102 or equivalent tester are hereby incorporated into this specification by reference and shall apply to the modernization of the EET-910-NJ to the EET-910M75-NJ configuration.

3.1 General

Examples of the changes required are:

Replacement of the Beckman NDIR benches with IRI NDIR benches.

Elimination of the EET-910-NJ back pack assembly. Install strip heaters to extend the operational temperature range of the IRI benches to the requirements of Par. 2.1.1.9.

The heater assemblies on the sides of the head frame assembly have required frequent maintenance to avoid excess zero and span drift fluctuations, apparently due to grounding problems. These heaters should be removed, if possible, without loss of operational temperature range capability as specified in Par. 2.1.9.

3.1.2 System Capability. This EET-910-M75-NJ tester shall meet the following performance criteria.

3.1.2.1 Warm-Up Time. 95% accuracy of readings within 5 minutes after system is activated.

3.1.2.2 Response Time. 95% of full reading in the first seven (7) seconds after the probe is inserted into the exhaust system.

3.1.2.3 Accuracy. (See Paragraph 3.1.6.3.)

3.1.2.4 Zero Drift. Each analyzer shall have a zero drift less than ±2% of full scale of the lowest range in eight (8) hours.

3.1.2.5 Span Drift. (Same as Zero Drift.)

3.2 Modernization and Delivery.

The vendor is responsible for pickup of the units at the various inspection stations in conformance with a priority listing to be established by Mobile Source Control labs in collaboration with the vendor.

It is intended to establish a "float" quantity of 10 units to be modernized by the contractor. Upon completion of these testers, the vendor shall deliver the units to the designated inspection stations and pick up a similar quantity of the units for modernization. This procedure shall be repeated until all units have been completed and accepted by the state.

3.2.1 Delivery Schedule. Delivery of the initial 10 unit float quantity shall be two weeks after notification to the vendor of the locations of the initial units to be modernized. The vendor is responsible for pickup of the testers and return of the modernized units to designated locations within this two week period.

Subsequent lots are to be picked up and returned within a similar two week period.

3.3 Quality Assurance.

The contractor shall prepare an inspection procedure which reflects the requirements of the specification. The procedure will be subject to approval by the Department of Environmental Protection.

The contractor shall use the approved procedure when inspecting each modernized unit and shall certify that each item on the list has been satisfied in every unit. A copy of each certified list shall be forwarded to the Department. The Department reserves the right to observe and verify that the procedure is being satisfied and that, in general, every unit performs within the parameters of the specification.

3.4 Inspection and Acceptance

Shall be by Mobile Sources' laboratory personnel after review of contractor's certification and on-site verification of functional performance and other specification requirements at the motor vehicle inspection stations or other designated delivery points.

3.5 Service Guarantee

All units shall be guaranteed by the vendor for performance and all parts, labor, replacement parts and maintenance (other than routine) for a period of one (1) year after installation in an inspection station.

Excluded from this guarantee are those components which were not affected by modernization or repairs required under the specification.

3.6 Method of Payment

Payment will be in installments corresponding to the delivery segments established above. Payment will be authorized upon completion of fieldtests and written acceptance by the state after installation in the inspection system.

Section 4

Equipment Service Requirements and Alternative Lease-Service Contract

4.0 Scope

Since operation in the New Jersey inspection station environment is a rigorous application for the equipment, the technical specifications have emphasized durable equipment. With the service provisions in this section it is intended to assure the normal vehicle throughput rate of the motor vehicle inspection stations by minimizing system down-time and by virtually eliminating the possibility that two systems in the same inspection station might fail simultaneously.

To achieve this goal, the vendor must submit a comprehensive service plan to fulfill the requirements established in Section 1.9 and 4.1 for a period of one year. In addition, an alternative equipment lease-service proposal (Section 4.2) is requested to permit the using agency greater flexibility in assessing its service needs.

4.1 Service Responsibility

4.1.1 Overall Responsibilities

1) Service Guarantee - In accordance with Section 1.9 the vendor shall assume full responsibility for all system servicing including all parts and labor. This includes gas recalibration, as appropriate, after service. These services are to be performed at no additional cost to the state during the one-year warranty period.

2) Post Warranty Service - The vendor agrees to assume service responsibility after expiration of the one-year warranty period. At the option of the state, the service responsibility shall be renewable annually for an additional four (4) year period. The cost for these services shall be determined annually by negotiations.

The following are excluded from vendor responsibility:

a) Intermittent, routine nontechnical maintenance as recommended by the vendor and performed by motor vehicle examiner personnel. (The state shall decide if the recommended maintenance fulfills these requirements.)

b) Periodic gas calibration and performance testing as determined by the Department.

c) The cost of equipment damage due to negligence or vandalism.

4.1.2 Vendor's Service Facility. The vendor shall indicate in the bid response proposal locations of repair facilities. Such facilities shall be operational at the time of bid evaluation and contain a complete stock of replacement parts (including infrared optical benches), accessories and full time service technicians. (As a condition of this specification, the State may ask to inspect such facilities and observe operations during the bid evaluation period.)

Each facility shall have a set of primary calibration standard gases. The vendor must define a format for cross-checking such standards between facilities and the Bureau of Air Pollution Control, Mobile Sources lab.

These standard gases shall include high and low concentrations as follows:

1) Low concentrations —

300 ppm hydrocarbons*

3% carbon monoxide

7% carbon dioxide**

2) High concentrations

1200 ppm hydrocarbons*

7% carbon monoxide

12% carbon dioxide**

Notes: *Expressed as N-Hexane. Propane equipment is required from propane/key factor.
**Not applicable if bidder does not bid on CO_2 equipment option.

4.1.3 Field Representatives. The vendor shall establish regional field representatives geographically located within the state to expedite services as may be required. Representatives' names, location and training must be included in the proposal along with organizational information outlining servicing capabilities, lines of communication and management functions.

4.1.4 Technical Agency-Vendor Communications. Within vendor specified regions the field representatives must have telephone service or answering service available during mobile sources lab hours.

4.1.5 Response to Service Request. The field representative or his designate shall be responsible for attending to a service request within twelve (12) inspection lane working hours after the request was initiated.

4.1.6 Service Report. Effort should be made to service the analytical systems at the inspection site. If it is necessary to replace a system for any reason, the vendor service representative must report the change to the Mobile Sources labs. Such information, as unit replacement number, service representative, region, probable malfunction, verified malfunction, and repair cost must be reported on a written format to the Mobile Sources lab, 380 Scotch Road, West Trenton, NJ 08628.

4.2 Lease Contract Alternative Bid

4.2.1 Lease and Service Contract. An alternative bid is solicited for the systems described herein. This alternative will involve the leasing, rather than purchase of the systems. During the lease period, the vendor must provide all services required in Section 4.1. In addition, the following conditions (Section 4.2.2 through 4.2.7) will prevail.

4.2.2 Motor Vehicle examiners will continue to fulfill the function of inspecting motor vehicles for exhaust emissions and safety.

4.2.3 The period of such a lease and service agreement will be for five (5) years, at which time the state will have the option of purchasing the equipment at a negotiated cost at the end of the period or renegotiate the agreement for an additional time period.

4.2.4 No modifications in equipment, procedures or service necessary to improve the performance or efficiency of the assigned task may be made by the lessor without the written permission of the Bureau of Air Pollution Control.

4.2.5 Any modification in equipment procedures made necessary by state or federal legislation, rules, regulations or by the lessee or using agency may require a renegotiation of terms, conditions or scope of the agreement.

4.2.6 The using agency and lessee is free to inspect calibration equipment and also to perform routine maintenance according to the manufacturer's recommendation.

Appendix A

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

NEW JERSEY ADMINISTRATIVE CODE

TITLE 7, CHAPTER 27

SUBCHAPTER 15

CONTROL AND PROHIBITION OF AIR POLLUTION FROM

LIGHT-DUTY GASOLINE-FUELED MOTOR VEHICLES

Filed: January 6, 1972
Effective: July 5, 1972

Amendment Promulgated June 22, 1973; Effective Date: July 1, 1973
Amendment Promulgated June 28, 1974; Effective Date: July 1, 1974
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Amendment Promulgated January 7, 1976; Effective Date: February 1, 1976

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7:27-15.3 New Motor Vehicle Dealer Inspection Compliance Standard
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7:27-15.5 Exceptions
7:27-15.6 Variances

7:27-15.1 DEFINITIONS

The following words and terms when used in this Subchapter shall have the following meanings, unless the context clearly indicates otherwise.

"Approved exhaust gas analytical system" means a device for sensing the amount of air contaminants in the exhaust emissions of a motor vehicle. For purposes of this Subchapter this shall mean analyzing devices of the nondispersive infrared type sensitized to measure carbon monoxide at the 4.74 micron band expressed as percent carbon monoxide in air and to measure hydrocarbons as hexane at the 3.41 micron band expressed as parts per million of hydrocarbons (hexane) in air. The device shall be of a design meeting "SPECIFICATIONS FOR EXHAUST GAS ANALYTICAL SYSTEM" on file with the State Commissioner of Environmental Protection and approved for use in accordance with the manufacturer's recommended procedures for calibration and maintenance.

"Carbon monoxide" means a non-irritating, colorless, odorless gas at standard conditions which has the molecular form of CO.

"Crankcase emissions" means substances emitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication system.

"Exhaust emissions" means substances emitted into the atmosphere from any opening downstream from the exhaust ports of a motor vehicle engine.

"Hydrocarbons" means compounds whose molecules consist of atoms of hydrogen and carbon only.

"Light-duty" means any motor vehicle designed primarily for transportation of persons or property and registered at 6,000 pounds gross weight or less.

"Model year of vehicle" means the production period of new motor vehicles or new motor vehicle engines designated by the calendar year in which such period ends. If the manufacturer does not designate a production period, the model year with respect to such vehicles or engines shall mean the 12-month period beginning January of the year in which production begins.

"Motor vehicle" means all vehicles propelled otherwise than by muscular power, excepting such vehicles as run only upon rails or tracks.

"New motor vehicle" means a newly-manufactured motor vehicle registered in New Jersey, prior to delivery to the ultimate purchaser.

"New motor vehicle dealer" means a sales agency, his employees, and/or agents licensed pursuant to N.J.S.A. 39:10-19 to sell new motor vehicles.

"Person" means corporations, companies, associations, societies, firms, partnerships and joint stock companies as well as individuals, and shall also include all political subdivisions of this State or any agencies or instrumentalities thereof.

"Pre-delivery checklist" means a schedule of items and procedures which a new motor vehicle dealer is required or requested by a manufacturer to check or follow prior to delivery of a new motor vehicle to the ultimate purchaser.

"Smoke" means small gasborne and airborne particles, exclusive of water vapor, arising from a process of combustion in sufficient number to be observable.

"Ultimate purchaser" means any person, other than a motor vehicle dealer purchasing in his capacity as a motor vehicle dealer, who in good faith purchases a motor vehicle for purposes other than for resale as a motor vehicle dealer.

7:27-15.2 PUBLIC HIGHWAY STANDARD

(a) No person shall operate any light-duty, gasoline-fueled motor vehicle or permit such vehicle which he owns to be operated upon the public highways of the State if the vehicle emits visible smoke in the exhaust emissions or in the crankcase emissions.

(b) The provisions of this subsection shall become effective July 1, 1973.

7:27-15.3 NEW MOTOR VEHICLE DEALER INSPECTION COMPLIANCE STANDARD

(a) Any light-duty, gasoline-fueled new motor vehicle subject to inspection by any new motor vehicle dealer in accordance with regulations promulgated by the New Jersey Division of Motor Vehicles shall, prior to delivery by the new motor vehicle dealer to the ultimate purchaser, conform to the emission specifications prescribed by the manufacturer and/or such specifications as may be prescribed by the manufacturer in the new motor vehicle pre-delivery checklist to assure proper functioning of emission control devices.

(b) Whenever emission specifications are not prescribed, the inspection standards as set forth in Section 15.4(b) (Motor Vehicle Inspection Standard) of this Chapter shall apply to such new motor vehicles.

(c) The provisions of this subsection shall become effective July 5, 1972.

7:27-15.4 MOTOR VEHICLE INSPECTION STANDARDS

(a) Any light-duty, gasoline-fueled motor vehicle which is subject to inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. Titles 39:8-1, as a condition of compliance with said inspection, shall not emit visible smoke in the exhaust emissions or in the crankcase emissions when using the prescribed inspection test procedure.

(b) Any light-duty, gasoline-fueled motor vehicle which is subject to inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. 39:8-1, as a condition of compliance with said inspection, shall not emit carbon monoxide (CO) and/or hydrocarbons (HC) in the exhaust emissions in excess of standards set forth in Table 1, when measured using an approved exhaust gas analytical system and the prescribed inspection procedure.

(c) The provisions of this subsection shall become effective July 5, 1972, subject to the exception set forth in Section 15.5 (Exceptions) of this Chapter.

INSPECTION STANDARDS

VEHICLES SUBJECT TO INSPECTION
BY THE DIVISION OF MOTOR VEHICLES
(Reference N.J.S.A. Titles 39:8-1)

MODEL YEAR OF VEHICLE	EFFECTIVE JULY 5, 1972		EFFECTIVE AUG. 1, 1975		EFFECTIVE JAN. 1, 1977	
	CO(%)	HC(PPM)	CO(%)	HC(PPM)	CO(%)	HC(PPM)
Up to and including 1967	10.0	1600	8.5	1400	7.5	1200
1968-1969	8.0	800	7.0	700	5.0	600
1970-1974	6.0	600	5.0	500	4.0	400
1975-1976			3.0	300*	2.0	200
1977 & Later						

PRESCRIBED INSPECTION TEST PROCEDURE

STEP 1: With the vehicle in neutral gear, all accessories off, handbrake secured, accelerate engine and observe for visible smoke in the exhaust emissions and crankcase emissions.

STEP 2: With the engine running at idle, insert sampling probe of gas analytical system into the engine exhaust outlet. The steady state levels measured as percent carbon monoxide and parts per million of hydrocarbons in the exhaust gas shall be the inspection test result.

NOTE: All measurements are to be made after engine has been operating a sufficient period of time to attain normal operating temperature.

* Effective Oct. 1, 1975.

** To be promulgated at a later date.

7:27-15.5 Exceptions

(a) Noncompliance with standards set forth in Section 15.4 (Motor Vehicle Inspection Standard) of this subsection by any motor vehicle during the period July 5, 1972, to June 30, 1973, shall not be cause for rejection or reinspection.

(b) The provisions of Sections 15.3 (New Motor Vehicle Dealer Inspection Compliance Standard) and 15.4 (Motor Vehicle Inspection Standards) of this Chapter shall not apply to motorcycles or to motor vehicles with an engine displacement of less than 50 cubic inches.

(c) Nothing in this Subchapter is intended to limit or deny the inspection of motor vehicles for exhaust systems in accordance with regulations established pursuant to N.J.S.A. Titles 39:8-1.

7:27-15.6 Variances

(a) Whenever the Director, Division of Motor Vehicles, has reason to believe that any model year of vehicle (or classification of light-duty gasoline-fueled vehicles) up to and including 1967 cannot comply with the emission standards as set forth in Section 15.4 he shall so advise the Commissioner, Department of Environmental Protection, stating the manufacturer, model, year and classification of such vehicles. After consultation with the Commissioner, Department of Environmental Protection, the Director, Division of Motor Vehicles, may waive any inspection standards for such motor vehicles.

(Section Promugated effective July 1, 1974 under N.J.S.A. 52:14B-4 (c).)

NEW JERSEY AIR POLLUTION CONTROL LAWS

Published by the New Jersey State Department of Health, Air Pollution Control Program, John Fitch Plaza, Trenton, N. J. 08625.

MOTOR VEHICLE LAW

Chapters 15 and 16 of P. L. 1966 (Title 39:3-70:1 and 70:2, and Title 26:2C-8:1 to 8:5), as amended by portions of P. L. 1967, c. 106. Supplements the Air Pollution Control Act (1954).

NOTE: Other portions of the 1954 Act, as amended, and other air pollution laws are available. They include:

- General Provisions of 1954 Act as amended
- Emergency Control Act
- Permit for Construction, Installation and Alteration of Equipment
- Air Pollution Scholarship and Intern Program
- Tax Exemption for Air and Water Pollution Control Equipment
- Mid-Atlantic States Air Pollution Control Compact

The provisions concerning motor vehicles contained in the 1966 Supplement to the Air Pollution Control Act (1954) are amended by portions of P. L. 1967, c. 106.

39: 3-70.1

Any motor vehicle which is subject to inspection by the Division of Motor Vehicles or any other duly authorized body shall, as a condition of compliance with said inspection, pass such tests as may be required to demonstrate that the motor vehicle complies with any standards and requirements for the control of air contaminants established by the New Jersey State Department of Health which are applicable to such motor vehicle.

39: 3-70.2

Any person who operates a motor vehicle or owns a motor vehicle which he permits to operated upon the public highways of this State which emits smoke and other air contaminants in excess of standards adopted by the department shall be liable to a penalty of not less than $25.00 nor more than $100.00 which shall be enforced in accordance with the provisions of Chapter 5 of Title 39 of the Revised Statutes.

26: 2C-8.1

The department, after consultation with the Director of the Division of Motor Vehicles, shall have the power to formulate and promulgate, amend and repeal codes, rules and regulations establishing standards and requirements for the control of air contaminants from motor vehicles.

26: 2C-8.2

Any code, rule or regulation establishing standards and requirements for the control of air contaminants from motor vehicles shall be applicable to such classification of motor vehicles as the department shall determine to be necessary to carry out the purpose of this act and shall apply to such motor vehicles not earlier than 180 days following the date of adoption.

26: 2C-8.3

Such codes, rules and regulations shall establish standards and requirements for the control of air contaminants from motor vehicles manufactured with air pollution control devices, systems or engine modifications consistent with the requirements of the "Motor Vehicle Air Pollution Control Act" (77 Stat. 392, 42 U.S.C. 1857) and any amendments and supplements thereto.

26: 2C-8.4

Such codes, rules and regulations shall establish standards and requirements for control of air contaminants which can reasonably be attained by properly functioning motor vehicles without the addition of any air pollution control devices, systems, or engine modifications provided such vehicles were not manufactured with pollution control devices, systems or engine modifications in accordance with the "Motor Vehicle Air Pollution Control Act" (77 Stat. 392, 42 U.S.C. 1857).

26: 2C-8.5

All codes, rules and regulations shall be formulated and promulgated in the manner provided for in Section 8* of the act to which this act is a supplement.

*** Section 8 (P. L. 1954, C. 212, C. 26:2C-8), reprinted here for your convenience, states:**

The department shall have power to formulate and promulgate, amend and repeal codes and rules and regulations preventing, controlling and prohibiting air pollution throughout the State or in such territories of the State as shall be affected thereby; provided, however, that no such code, rule or regulation and no such amendment or repeal shall be adopted except after public hearing to be held after 30 days prior notice thereof by public advertisement of the date, time and place of such hearing, at which opportunity to be heard by the department with respect thereto shall be given to the public; and provided, further, that no such code, rule or regulation and no such amendment or repeal shall be or become effective until 60 days after the adoption thereof as aforesaid. Any person heard at such public hearing shall be given written notice of the determination of the department.

Appendix C

PROPOSED REGULATION

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

NEW JERSEY ADMINISTRATIVE CODE

TITLE 7, CHAPTER 27

SUBCHAPTER 15

CONTROL AND PROHIBITION OF AIR POLLUTION FROM
[LIGHT-DUTY] GASOLINE-FUELED MOTOR VEHICLES

Filed: January 6, 1972
Effective: July 5, 1972

Amendment Promulgated June 22, 1973; Effective Date: July 1, 1973
Amendment Promulgated June 28, 1974; Effective Date: July 1, 1974
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Amendment Promulgated January 7, 1976; Effective Date: February 1, 1976

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7:27-15.1 DEFINITIONS

The following words and terms when used in this Subchapter shall have the following meanings, unless the context clearly indicates otherwise.

"Administrator" means the administrator of the United States Environmental Protection Agency.

"Agency" means the United States Environmental Protection Agency.

"Air pollution control device" means system of components designed by the manufacturer to control air contaminants as required by federal legislation.

"Air pump" means a specific air pollution control device which introduces air in the exhaust manifold to control air contaminants.

"Approved decal" means a preprinted label for recording values of the New Jersey emission inspection test and related information, the design of which is on file with the Commissioner.

"Approved exhaust gas analytical system" means a device for sensing the amount of air contaminants in the exhaust emissions of a motor vehicle. For purposes of this Subchapter this shall mean analyzing devices of the nondispersive infrared type sensitized to measure carbon monoxide at the 4.74 micron band expressed as percent carbon monoxide [in air] and to measure hydrocarbons as [hexane] total carbon at [the 3.41 micron band] a band passage of 3.25 to 3.41 microns expressed as [parts per million of] percent hydrocarbons [hexane in air] as total carbon or equivalent parts per million hydrocarbons expressed as hexane. The device shall be of a design meeting "SPECIFICATIONS FOR EXHAUST GAS ANALYTICAL SYSTEM: on file with the [State] Commissioner [of Environmental Protection] and approved for use in accordance with the [manufacturer's] Department's recommended procedures for calibration and the manufacturer's recommended procedures for [calibration and] maintenance.

"Carbon monoxide" means a [non-irritating] colorless, odorless, tasteless gas at standard conditions [which has the] having a molecular [form of CO] composition of one carbon atom and one oxygen atom.

"Certified automobile emission mechanic" means any person who has completed a training program as stipulated by the Department.

"Commissioner" means the State Commissioner of Environmental Protection.

"Correlative test" means a short vehicle emission test cycle which is statistically related to the official federal test procedure.

"Crankcase emissions" means substances emitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication systems.

"Department" means the New Jersey Department of Environmental Protection.

"Exhaust emissions" means substances emitted into the atmosphere from any opening downstream from the exhaust ports of a motor vehicle engine.

"Expressed as total carbon" means a basis of hydrocarbon measurement in which the hydrocarbon sample is determined by the total number of hexane molecules.

"Expressed as hexane" means a basis of hydrocarbon measurement in which the hydrocarbon sample is determined by the total number of hexane molecules.

"Federal test procedure" means the official vehicle emission test cycle employed by EPA to determine compliance of vehicles with federal standards.

"Fuel economy sticker" means a federally required decal affixed to the left rear window which specifies the EPA measured fuel economy range of a newly purchased vehicle model.

"Gasoline-fueled motor vehicle" means any motor vehicle, other than diesel, originally equipped or modified to be powered by a hydrocarbon fuel.

"Heavy-duty" means any motor vehicle designed primarily for transportation of persons or property and registered in excess of 6,000 pounds gross weight.

"High cruise" means a driving mode of a New Jersey prescribed inspection test procedure for heavy-duty vehicles.

"Hydrocarbons" means compounds whose molecules consist of atoms of hydrogen and carbon only.

"Idle" means the vehicle test mode of a New Jersey prescribed test procedure.

"Idle emission specification" means the carbon monoxide and hydrocarbon emission levels at normal idle RPM as determined and published by the manufacturer.

"Light-duty" means any motor vehicle designed primarily for transportation of persons or property and registered at 6,000 pounds gross weight or less.

"Model year of vehicle" means the production period of new motor vehicles or new motor vehicle engines designated by the calendar year in which such period ends. If the manufacturer does not designate a production period, the model year with respect to such vehicles or engines shall mean the 12-month period beginning January of the year in which production begins.

"Motor vehicle" [means] includes all vehicles propelled otherwise than by muscular power, excepting such vehicles as run only upon rails or tracks.

"New motor vehicle" means a newly-manufactured motor vehicle registered in New Jersey, prior to delivery to the ultimate purchaser.

"New motor vehicle dealer" means a sales agency, [his] its employees, and/or agents licensed pursuant to N.J.S.A. 39:10-19 to sell new motor vehicles.

"Person" [means] includes corporations, companies, associations, societies, firms, partnerships and joint stock companies, as well as individuals, and shall also include all political subdivisions of this State or any agencies or instrumentalities thereof.

["Pre-delivery checklist" means a schedule of items and procedures which a new motor vehicle dealer is required or requested by a manufacturer to check or follow prior to delivery of a new motor vehicle to the ultimate purchaser.]

"Self-inspection record" means a listing of inspection requirements to be performed by new motor vehicle dealers as required by the Division of Motor Vehicles.

"Smoke" means small gasborne and airborne particles, exclusive of water vapor, arising from a process of combustion in sufficient number to be observable.

"Ultimate purchaser" means any person, other than a motor vehicle dealer purchasing in his capacity as a motor vehicle dealer, who in good faith purchases a motor vehicle for purposes other than for resale as a motor vehicle dealer.

"Waiver of compliance" means a declaration of exemption issued by the Department.

"Warranty" means required maintenance service for emission control and/or proper vehicle performance as specified by the vehicle manufacturer.

"Weight class" means a classification of motor vehicles by gross weight as defined and utilized by the Division of Motor Vehicles.

7:27-15.2 PUBLIC HIGHWAY STANDARD

(a) No person shall operate any [light-duty] gasoline-fueled motor vehicle or permit such vehicle which he owns to be operated upon the public highways of the State if the vehicle emits visible smoke in the exhaust emissions or in the crankcase emissions for a period in excess of three consecutive seconds.

[(b) The provisons of this Section shall become effective July 1, 1973.]

(b) No person shall operate any light-duty gasoline-fueled motor vehicle or permit such vehicle which he owns to be operated upon the public highways of the State if the vehicle emits HC or CO in excess of standards as set forth in Table 2.

(c) No person shall operate any heavy-duty gasoline-fueled motor vehicle or permit such vehicle which he owns to be operated upon the public highways of the State if the vehicle emits HC or CO in excess of standards as set forth in Table 3.

7:27-15.3 NEW MOTOR VEHICLE DEALER INSPECTION COMPLIANCE STANDARD

(a) Any [light-duty,] gasoline-fueled new motor vehicle subject to inspection by any new motor vehicle dealer in accordance with regulations promulgated by the New Jersey Division of Motor Vehicles shall, prior to delivery by the new motor vehicle dealer to the ultimate purchaser, conform to [the emission specifications prescribed by the manufacturer and/or such specifications as may be prescribed by the manufacturer in the new motor vehicle pre-delivery checklist to assure proper functioning of emission control devices.] manufacturers' idle emissions specifications for CO and HC or, if none, to the standards as set forth in Table 1.

(b) [Whenever emission specifications are not prescribed, the inspection standards as set forth in Section 15.4(b) (Motor Vehicle Inspection Standard) of this Chapter shall apply to such new motor vehicles.] The exhaust emission test results expressed as percent CO and parts per million of HC shall be recorded on the new motor vehicle self-inspection record for such vehicle prior to delivery to the ultimate purchase, and shall be recorded on an approved decal to be affixed to the side window adjacent to the fuel economy sticker.

[(c) The provisions of this section shall become effective July 5, 1972.]

TABLE I

Exhaust Emission Standards for Newly Manufactured Vehicles
Subject to Inspection by New Car Dealers

Model Year	CO%	Tolerance	HCppm	Tolerance
1975-77 (Air-Pump Equipped)	0.5	± 0.5	50	± 25
1975-77 (Non-Air Pump Eqipped)	1.0	± 0.5	100	± 50

Prescribed Inspection Test Procedure

STEP 1: All measurements are to be made after engine has been operating a sufficient period of time to attain normal operating temperature.

STEP 2: With the vehicle in neutral gear, all accessories off, handbrake secured, accelerate engine and observe for continuous visible smoke in the crankcase emissions after vehicle has reached a steady state condition.

STEP 3: With the engine running at idle, insert sampling probe of gas analytical system into the engine exhaust outlet. The steady state levels measured as percent carbon monoxide and parts per million of hydrocarbons in the exhaust gas shall be the inspection test result.

7:27-15.4 [Motor Vehicle Inspection Standards] Light-Duty Motor Vehicle Inspection Standard

(a) Any light-duty, gasoline-fueled motor vehicle which is subject to inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. Titles 39:8-1 et seq., as a condition of compliance with said inspection, shall not emit visible smoke in the exhaust emissions or in the crankcase emissions for a period in excess of three consecutive seconds when using the prescribed inspection test procedure.

(b) Any light-duty, gasoline-fueled motor vehicle which is subject to inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. Titles 39:8.1 et seq., as a condition of compliance with said inspection, shall not emit carbon monoxide (CO) and/or hydrocarbons (HC) in the exhaust emissions in excess of standards set forth in [Table 1] Table 2, when measured using an approved exhaust gas analytical system and the prescribed inspection procedure.

[(c) The provisions of this Section shall become effective July 5, 1972, subject to the exception set forth in Section 15.5 (Exceptions) of this Chapter.]

[Table I

Inspection Standards

Vehicles Subject to Inspection
by the Division of Motor Vehicles
(Reference N.J.S.A. Titles 39:8-1)

Model Year of Vehicle	Effective July 5, 1972		Effective Aug. 1, 1975		Effective Jan. 1, 1977	
	CO(%)	HC(ppm)	CO(%)	HC(ppm)	CO(%)	HC(ppm)
Up to and including 1967	10.0	1600	8.5	1400	7.5	1200
1968-1969	8.0	800	7.0	700	5.0	600
1970-1974	6.0	600	5.0	500	4.0	400
1975-1976			3.0*	300*	2.0	200
1977 & Later**						

Prescribed Inspection
Test Procedure

STEP 1: With the vehicle in neutral gear all accessories off, handbrake secured, accelerate engine and observe for visible smoke in the exhaust emissions and crankcase emissions.

STEP 2: With the engine running at idle, insert sampling probe of gas analytical system into the engine exhaust outlet. The steady state levels measured as percent carbon monoxide and parts per million of hydrocarbons in the exhaust gas shall be the inspection test result.

NOTE: All measurements are to be made after engine has been operating a sufficient period of time to attain normal operating temperature.

* Effective October 1, 1975
** To be promulgated at a later date.]

TABLE 2

Exhaust Emission Standards for Light-Duty Vehicles
Subject to Inspection by the Division
of Motor Vehicles
and/or
Licensed Reinspection Centers

Alternate A - Phase II

Model Year	Effective Date Aug. 1, 1975 CO(%)	HC(ppm)
Pre-1968	8.5	1400
1968-1969	7.0	700
1970-1974	5.0	500
1975-1978	3.0	300
1979 & Later*		

Alternate B - Adjusted Phase III

Model Year	Effective Date Jan. 1, 1978 CO(%)	HC(ppm)
Pre-1968	7.5	1200
1968-1969	6.0	600
1970-1974	4.0	400
1975-1978	2.0	200
1979 & Later*	-	-

Alternate C - Optional Phase III

Model Year	CO(%)** Weight Class #1	CO(%)** Weight Class #2 and #3	HC(ppm) (HC(%)) Weight Class #1	HC(ppm) (HC(%)) Weight Class #2 and #3
Pre-1968	9.5	7.5	1300 (1.56)	950 (1.14)
1968-1969	6.0	5.5	500 (0.60)	450 (0.54)
1970-1974	5.5	4.0	450 (0.54)	350 (0.42)
1975-1978	2.0	1.5	200 (0.24)	150 (0.18)
1979 & Later*	-	-	- -	- -

* To be promulgated at a later date
** Subject to 10% tolerance

Prescribed Inspection
Test Procedure

STEP 1: All measurements are to be made after engine has been operating a sufficient period of time to attain normal operating temperature.

STEP 2: With the vehicle in neutral gear, all accessories off, handbrake secured, accelerate engine and observe for continuous visible smoke in the crankcase emissions after vehicle has reached a steady state condition.

STEP 3: With the engine running at idle, insert sampling probe of gas analytical system into the engine exhaust outlet. The steady state levels measured as percent carbon monoxide and parts per million of hydrocarbons in the exhaust gas shall be the inspection test result.

7:27-15.5 [Exceptions] Heavy Duty Motor Vehicle Inspection Standard

(a) Any heavy-duty, gasoline-fueled motor vehicle which is subject to inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. Titles 39:8-1, as a condition of compliance with said inspection, shall not emit visible smoke in the exhaust emissions or in the crankcase emissions for a period in excess of three (3) consecutive seconds when using the prescribed inspection test procedure.

(b) Any heavy-duty gasoline-fueled motor vehicle which is subject to self-inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. 39:8-1, as a condition of compliance with said inspection, shall not emit carbon monoxide (CO) and/or hydrocarbons (HC) in the exhaust emissions in excess of standards set forth in Table 3, when measured using an approved exhaust gas analytical system and the prescribed inspection procedure. The exhaust emission test results expressed as percent carbon monoxide (CO) and parts per million of hydrocarbons (HC) in the exhaust emissions shall be recorded on an approved decal and affixed to a side window. Such exhaust emission test shall be conducted at least once every three months in accordance with applicable regulations of the Division of Motor Vehicles.

(c) Any heavy-duty, gasoline-fueled motor vehicle which is subject to inspection by the Division of Motor Vehicles in accordance with the provisions of N.J.S.A. 39:8-1, as a condition of compliance with said inspection, shall not emit carbon monoxide (CO) and/or hydrocarbons (HC) in the exhaust emissions in excess of standards set forth in Table 3, when measured using an approved exhaust gas analytical system and the prescribed inspection procedure.

Table 3

Exhaust Emission Standards for Heavy-Duty Vehicles
Subject to Self-Inspection by Private Fleet Operators
and/or
Inspection by the Division of Motor Vehicles

Model Year of Vehicle	Idle CO(%)	Idle HC(ppm hexane)	High Cruise CO(%)
1970 & Earlier	7.5	700	3.0
1971-1978	4.0	400	2.0
1979*			

* To be promulgated at a later date.

Prescribed Inspection
Test Procedure

STEP 1: All measurements are to be made after engine has been operating a sufficient period of time to attain normal operating temperature.

STEP 2: With the vehicle in neutral gear, all accessories off, handbrake secured, insert the sampling probe of the exhaust gas analyzer into the engine exhaust outlet. Accelerate the engine to high cruise (highest speed possible, but 2500 rpm maximum) and observe for visible smoke in the exhaust emissions after the vehicle has reached a steady state condition.

STEP 3: With the vehicle continuing to operate at high cruise, insert sampling probe of gas analytical system into the engine exhaust outlet. The steady state levels measured as percent carbon monoxide and parts per million of hydrocarbons in the exhaust gas shall be the inspection test result.

STEP 4: Decelerate and allow the engine to operate at idle. The steady state levels measured as percent carbon monoxide and parts per million hydrocarbons in the exhaust gas shall be the inspection results at idle.

7:27-15.6 [Variances] Mechanic Certification

(a) In order to be approved as a certified automobile emissions mechanic, an applicant must complete a training course and pass qualification tests developed and approved by the Department relating to automobile emission control.

(b) The provisions of this subsection shall not become effective until the Commissioner, by Administrative Order, publishes an effective date.

Such date shall be at least 180 days after publication by the Department of a list of approved training courses.

7:27-15.7 Operation of Emission Control Systems

(a) No person shall knowingly disconnect, deactivate, or otherwise render inoperable any air pollution control device which has been installed by the manufacturer on any automobile.

(b) No person shall operate on any highway in this State any motor vehicle in which any air pollution control device installed on such automobile has been disconnected, deactivated, or otherwise rendered inoperable.

7:27-15.8 Warranty Performance

(a) Whenever a motor vehicle is rejected for emissions and if such model vehicle classification is not in compliance with a correlative test as determined by the Administrator of the Environmental Protection Agency, the cost of repair of such vehicle shall be borne by the manufacturer if the owner has complied by the manufacturer's warranty requirements for emission control.

7:27-15.9 [15.5] Exceptions

[(a) Noncompliance with standards set forth in Section 15.4 (Motor vehicle inspection standard) of this Subchapter by any motor vehicle during the period July 5, 1972 to June 30, 1973, shall not be cause for rejection or reinspection.]

(a) [(b)] The provisions of Sections 15.3 [(New Motor Vehicle Dealer Inspection Compliance Standard)] and 15.4 [(Motor Vehicle Inspection Standard)] of this Subchapter shall not apply to motorcycles or to motor vehicles with an engine displacement of less than 50 cubic inches.

(b) [(c)] Nothing in this Subchapter is intended to limit or deny the inspection of motor vehicles for exhaust systems in accordance with regulations established pursuant to N.J.S.A. Title 39:8-1[.], 39:8-2, 39:3-70, 39:3-76, and 39:10-26.

7:27-15.10 [15.6] Variances

[(a) Whenever the Director, Division of Motor Vehicles, has reason to believe that any model year of vehicle (or classification of light-duty gasoline-fueled vehicles) up to and including 1967 cannot comply with the emission standards as set forth in Section 15.4 he shall so advise the Commissioner, Department of Environmental Protection, stating the manufacturer, model, year and classification of such vehicles. After consultation with the Commissioner, Department of Environmental Protection, the Director, Division of Motor Vehicles, may waive any inspection standards for such motor vehicles.]

(a) Whenever the Commissioner has reason to believe that any model year vehicle cannot comply with emission standards set forth in Sections 15.3, 15.4, and 15.5 of this Subchapter, he shall consult with the Director, Division of Motor Vehicles, stating the manufacturer, model year, and classification of such vehicle. The Commissioner, after determining that compliance with emission standards as set forth above is not possible, may waive any emission inspection standard for such vehicle or establish alternative standards for such vehicle. Such waiver or alternative standards may apply to any specific classification deemed necessary, be it by manufacturer, model year, engine displacement, etc.

(b) Whenever the estimated cost of emission compliance for reinspection exceeds one hundred dollars ($100) for a vehicle 10 years or older, the owner of such vehicle may apply to the Department for a waiver of compliance presenting the vehicle repair cost estimate from a licensed reinspection center. Such application must include vehicle license, make, year, date, reinspection center and mechanic's name.

APPENDIX D

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Atlantic County		
1	Atlantic City Wabash and Maryland Ave.	Leased by state Constructed in 1938 Two-lane enclosed station	74,986	16
		Bergen County		
2	Lodi Mill Street off Garibaldi Ave.	State owned Constructed in 1959 Three-lane open side station with additional open air lane attached Expanded into a multi-purpose field installation in 1963	181,631	25
3	Hackensack Drive-In Theater Bergen Pike Little Ferry	Leased by state One lane open-air station	65,885	30
4	Paramus Century Road	State owned Constructed in 1969 Three-lane enclosed station with additional enclosed lane option	187,910	25

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Bergen County (Cont'd)		
6	Ridgewood 156 Chestnut St.	Leased by state Constructed in 1938 One-lane enclosed station with additional open-air lane attached in 1959	83,778	18
		Burlington County		
7	Burlington Drive-In Theater Creek Road, Delanco	Owned by state One-lane open air station	59,086	29
8	Mount Holly Madison Avenue and Route 38	State Owned Constructed in 1938 One-lane enclosed station	85,860	34
		Camden County		
9	Camden 617 Hampton Rd. Merchantville	State-owned Constructed in 1957 Three-lane enclosed station; can be expanded into multi-purpose field installation	193,982	24
10	Atco Route 30	Leased by state Constructed in 1957 One-lane open air station	69,005	34

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Cape May County		
11	Cape May Court House Rt. 4 & Shelby Ave.	State owned Constructed in 1938 One-lane enclosed station	39,322	17
		Cumberland County		
12	Bridgeton Cornwells Drive	State-owned Constructed in 1949 One-lane enclosed station	36,812	16
13	Millville 1406 Wheaton Ave.	State-owned Constructed in 1938 One-lane enclosed station	62,430	26
		Essex County		
14	Livingston Drive-In Theater Route 10	Leased by state Constructed in 1956 One-lane open air station	72,678	36
15	Montclair 16 Label Street	Leased by state Constructed in 1938 Two-lane enclosed station	121,007	25
16	Newark 228 Frelinghuyser Ave.	State-owned Constructed in 1976 Three-lane enclosed station	199,872	28

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Gloucester County		
17	Deptford 725 Egg Harbor Rd. Deptford	State-owned Constructed in Two-lane semi-enclosed station	123,341	47
		Hudson County		
18	Jersey City 177 Roosevelt Ave.	Leased by state Constructed in 1938 Three-lane enclosed station	103,154	14
19	Secaucus County Ave. & Secaucus Road	State-owned Constructed in 1963 Three-lane open-side	119,222	17
		Hunterdon County		
20	Flemington Junction Rt. 12 & Rt. 31	Leased by state Constructed in 1938 One-lane open air	52,264	26
		Mercer County		
21	Trenton Route 1 Brunswick Pike Baker's Basin	State owned Constructed in 1957 Three-lane multi-purpose field installation	169,820	

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Middlesex County		
22	Kilmer Kilmer Rd. & Truman Drive Edison	Owned by state Constructed in 1975 Two-lane semi-enclosed station	93,717	20
23	No. Brunswick Drive-In Theater Rt. 1, Brunswick	Leased by state Constructed in 1956 One-lane open-air station	55,886	28
24	Rahway Woodbridge Ave.	State-owned Constructed in 1958 Three-lane openside station Expanded into multi-purpose field installation in 1963	160,442	21
		Monmouth County		
25	Asbury Park 3rd Avenue & Comstock St.	State-owned Constructed in 1938 Two-lane enclosed station	68,387	15
26	Eatontown Route 36	State owned Constructed in 1958 Three-lane multi-purpose field installation	150,427	21

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Monmouth County (Cont'd)		
27	Freehold Route 9 (1 mile south)	State owned Constructed in 1938 One-lane enclosed station Additional open-air lane-1962	92,492	20
		Morris County		
28	Morristown Ridgedale Ave. & Washington Place	State owned Constructed in 1938 Two-lane enclosed station	133,653	28
		Ocean County		
29	Manahawkin 220 Recovery Road	State owned One lane Semi-enclosed Constructed 1969	34,109	15
30	Toms River Route 166 and James Street	State-owned Constructed in 1938 One-lane enclosed station One additional open air lane	99,233	37

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Passaic County		
31	Wayne 481 Route 46 (east of Rt. 23)	State-owned Constructed in 1958 Three-lane multi-purpose field installation with additional open-air lane attached	204,677	21
		Salem County		
32	Salem Route 45 Mannington Twp.	State owned Constructed in 1938 One-lane enclosed station	36,949	17
		Somerset County		
33	Somerville 61 Central Ave.	Leased by state Constructed in 1938 One-lane enclosed station	74,148	29
		Sussex County		
34	Newton Moran Street	State owned Constructed in 1938 One-lane enclosed station	70,616	30

MOTOR VEHICLE INSPECTION STATIONS
LOCATIONS, TYPES AND NUMBER OF HANDLINGS

No.	Location	Type	Total Annual Initial Handlings	Emission Handlings Per Lane Per Hour
		Union County		
35	Plainfield 1600 S. Second St.	Leased by state Constructed in 1949 One-lane enclosed station with Driver Qualification Center attached Additional open-air lane attached in 1961	89,349	20
36	Union Drive-In Theater Route 22	Leased by state Constructed in 1956 One-lane open-air station	61,324	30
37	Westfield Windsor Ave. off South Ave.	State-owned 2-lane Constructed in 1938 One-lane enclosed Additional open-air lane attached in 1962	100,218	23
		Warren County		
38	Washington Route 31	State-owned Constructed in 1938 One-lane enclosed station	54,888	23
		Morris County		
39	Whippany, Rt. 10 Mt. Pleasant Ave.	Leased by station, One-lane enclsoed. Constructed in 1955	55,390	25

Autoscan, FMC Corporation
Automotive Service Equipment Division
10150 West Jefferson Blvd.
Culver City, California 90230
Attn: Edmund Pelta

Barnes Engineering Company
30 Commerce Road
Stamford, Connecticut 06904
Attn: David A. Winer
Asst. to President

Beckman Instruments, Inc.
Process Instruments Division
2500 Harbor Boulevard
Fullerton, California 92634
Attn: John Blanke
Marketing Manager
Automotive Test Products Dept.

Chrysler Corporation
Huntsville Electronics Division
102 Wynn Drive
Huntsville, Alabama 35805
Attn: T. A. Pape
Mgr., Marketing

Environmental Techtonics
Scott Environmental Systems
County Line Industrial Park
Southamption, Pennsylvania 18966
Attn: Contract Manager

Olson-Horiba Incorporated
1021 Duryea Avenue
Irvine Industrial Complex
Santa Ana, California 92705
Attn: Contract Manager

Kal Equip Company
Otsego, Michigan 49078
Attn: Contract Manager

Sun Electric Corporation
Harlem & Avondale
Chicago, Illinois 61631
Attn: R. C. Gerlach, Mgr.
National Accounts

Philco Ford
Ford Road
Newport Beach, California 92663
Attn: Contract Manager
Emission Control Products
Aeronutronic Division

Northrop Corporation
Electro-Mechanical Division
421 E. Cerritos
Anaheim, California 92801
Attn: Contract Manager

Infrared Industries, Inc.
Electro-Optics Division
P. O. Box 989
Santa Barbara, California 93102
Attn: Contract Manager

The Aerospace Corporation
2350 East El Segundo Boulevard
El Segundo, California 90245
Attn: Contract Manager

Clayton Manufacturing Company
El Monte, California 91734
Attn: Contract Manager

Radian Corporation
8500 Shoal Creek Blvd.
P. O. Box 9948
Auston, Texas 78766
Attn: Contract Manager

2

LAW AND PUBLIC SAFETY

DIVISION OF MOTOR VEHICLES

Proposed Rules On Licensing of Motor Vehicle Reinspection Centers

John A. Waddington, Director of the Division of Motor Vehicles in the Department of Law and Public Safety, pursuant to the authority of N.J.S.A. 39:8-2 proposes to adopt a new regulation concerning the licensing of motor vehicle reinspection centers:

Full text of the proposed regulation follows:

SUBCHAPTER 32. MOTOR VEHICLE REINSPECTION CENTERS

13:20-32.1 License required; license classes

(a) Reinspection centers shall be licensed by the Director prior to engaging in the service of certifying that vehicles initially rejected at a State motor vehicle inspection station have been adjusted, corrected or repaired so as to conform to the standards established by law or regulation.

(b) Reinspection centers shall be licensed in the following classes:

1. Class I licenses shall be issued to reinspection centers to engage in the certification of passenger automobiles, trucks registered for not more than 6,000 pounds, and buses, except school buses and buses subject to the jurisdiction of the Department of Public Utilities.

2. Class II licenses shall be issued to owners or lessees of fleets of 50 or more vehicles (except school buses and buses subject to the jurisdiction of the Department of Public Utilities) which are subject to annual state inspection.

3. Class III licenses shall be issued to reinspection centers to engage in the certification of motorcycles only.

13:20-32.2 Service limits

(a) Class I licenses may be issued to provide "full service" in all vehicle rejection categories or "limited service" in one or more of the following categories:

1. Engine emissions;
2. Brake system;
3. Exhaust system;
4. Steering, suspension, tires and wheels;
5. Glass (windshield, windows);
6. Electrical: All switches, signals, wipers, lenses and lights, including headlight installation and alignment;
7. Miscellaneous: Any rejected item not in other categories.

(b) Class II licenses authorize certification in all vehicle rejection categories, but limited to vehicles owned or operated by the licensee.

(c) Class III licenses authorize certification in all motorcycle rejection categories.

13:20-32.3 Facilities and equipment

(a) Licensed reinspection centers must be housed in a building having a garage-type entrance and one or more service bays.

(b) An engine emissions analyzer, approved by the Department of Environmental Protection, must be available on the premises of all Class I "full service" centers, all Class II centers, and all Class I "limited service" centers licensed to certify repairs in the engine emission category.

(c) A vehicle lift or heavy duty floor jack must be available on the premises of all Class I "full service" centers, all Class II centers, and all Class I "limited service" centers licensed to certify repairs in the brake, steering and suspension system categories.

(d) Headlight aiming equipment, for example, a photoelectric cell aimer, a mechanical aimer or an aiming chart, must be available on the premises of all Class I "full service" centers, all Class II centers, all Class III centers and all Class I "limited service" centers licensed to certify repairs in the electrical category.

(e) Brake testing equipment, for example, a drive-on horizontal scale or roller-type tester, must be available on the premises of all Class I "full service" centers, all Class II centers, all Class III centers and all Class I "limited service" centers licensed to certify repairs in the brake system category. Provided, however, that this brake testing equipment requirements shall be waived where the licensee intends to road test brake repairs.

(f) A tire tread depth gauge calibrated in 32nds of an inch shall be available on the premises of Class I "full service" centers, Class II centers, Class III centers and Class I "limited service" centers licensed to certify repairs in the steering, suspension, tires and wheels category.

13:20-32.4 Applicant qualifications

(a) An applicant must, in the Director's discretion, be a proper person to hold a reinspection center license.

(b) In assessing whether an applicant is a proper person, the Director may consider the character and responsibility of the individual applicant (if natural person), of the individual partners (if partnership) or of the officers and other controlling individuals (if corporation) or anyone else employed by or otherwise associated in business with the applicant.

(c) An applicant must have legal capacity to contract, to be sued and to be liable for all debts.

(d) No applicant shall be entitled to licensure who is under 18 years of age.

(e) The applicant or someone in his employ shall have:

1. At least three years of paid experience in general automotive repair and service, or if applying for a limited service license, in the applicable rejection categories; or

2. Have completed a course in automotive repair at an approved vocational school and at least one year of applicable experience; or

3. Have been certified as a general mechanic, or in the applicable categories, by the National Institute for Automotive Service Excellence.

13:20-32.5 Insurance required

(a) Every licensee is required to maintain liability insurance coverage in the following minimum amounts:

1. For damage to property in any one occurrence: $50,000;

2. For injury to, or death of any one person in any one occurence: $100,000;

3. For injury to, or death of two or more persons in any one occurrence: $300,000.

(b) An applicant shall file, together with his application, proof of insurance coverage in the form of a certificate issued by the carrier containing a clause that ten days prior notice will be given to the Division of any cancellation or termination of the policy.

(c) Failure to maintain such insurance coverage shall be cause for immediate suspension of license.

13:20-32.6 License application, form, content and fee

(a) Applications for licenses shall be made on forms provided by the Division, consisting of two parts, principal and supplementary.

1. The principal application shall elicit information bearing upon the nature and location of the applicant's business, the experience of the applicant and his employees, and the nature of the reinspection license sought by the applicant.

2. The supplementary application shall cover the background of the owner and each partner of an unincorporated business and each principal executive officer and controlling individual of a corporation or association and shall be filed by each such owner, partner, controlling individual or officer.

(b) A non-refundable fee of $10.00 paid by check or money order payable to "New Jersey Division of Motor Vehicles" shall be submitted with the application.

(c) Any qualified person may file application for and be licensed in both Class I (full or limited service) and Class III in which case the fee shall be $10.00 for each class.

(d) When a person licensed in Class I "limited service" makes application to amend the license so as to add rejection categories, a fee of $10.00 shall be paid with the application.

13:20-32.7 License, display of; content

(a) A current reinspection center license certificate shall be conspicuously displayed in the licensee's place of business.

(b) License certificates shall describe the class and rejection categories to which the reinspection center is limited.

13:20-32.8 Identifying mark; reinspection center

(a) An identifying mark bearing the logogram of the Division of Motor Vehicles shall be issued to each licensee except Class II.

(b) Said mark shall be conspicuously displayed on the outside of the reinspection center.

(c) The licensee shall post a sign beneath said mark describing the services offered which shall correspond to the class and limits set forth in the license.

(d) Each licensee shall affix the center's license number in the space provided on the mark.

13:20-32.9 Reinspection approval stickers

(a) The approval sticker shall be composed of two parts, as follows:

1. A base sticker indicating the calendar year validity and sticker serial number; and

2. A registration renewal and inspection month number in the form of an insert which is to be applied to the base sticker.

(b) Base stickers may be purchased by a licensee, by mail or in person, from the Division of Motor Vehicles, Certificate of Ownership Bureau, Licensing Section, 137 East State Street, Trenton, N.J. 08666.

(c) Base stickers shall be purchased at $0.50 per sticker in quantities of 50 or more.

(d) Registration renewal and inspection month inserts shall be provided to licensees at no charge.

(e) Upon the return of base stickers which are not used during the applicable calender year, a credit of $0.50 per sticker shall be given the licensee toward the purchase of current base stickers.

(f) Base stickers shall be secured in a locked place of limited access, such as a safe, cabinet or desk drawer. The licensee is solely responsible for the security of the base stickers. Failure to take necessary security precautions to protect the stickers against loss or theft shall be cause for suspension or revocation of the license.

(g) Base stickers shall be placed on a vehicle only after reinspection has been completed.

(h) When defects detected at State inspection have been repaired or adjusted by the licensee or by an employee on the licensee's payroll, the licensee shall insure, prior to placement of an approval sticker on the vehicle, that the individual who performed the repair or adjustment work has signed his name on the State inspection rejection card next to the applicable rejection category. When defects detected at State inspection have been repaired by someone other than the licensee or employees on the payroll of the licensee, the licensee shall insure, prior to placement of an approval sticker, that the person or persons who reinspect the vehicle have signed the state inspection rejection card at the bottom of its reverse side.

(i) State inspection rejection cards shall be kept separate and apart from the base stickers and shall be kept in a locked place of limited access, such as a safe, desk drawer or cabinet.

(j) The serial number of the base sticker and the date of issue shall be recorded upon the corresponding state inspection rejection card.

(k) Base stickers shall be used in numerical sequence.

(l) Defective and voided stickers shall be returned to the Division of Motor Vehicles within two business days of discovery.

(m) Upon discovering that base stickers have been stolen or are otherwise unaccounted for, the licensee shall notify the Licensing Section within one business day of discovery.

(n) Upon discontinuation of the reinspection certification service by the licensee, all unused base stickers and registration renewal and inspection month inserts shall be forwarded to the Division of Motor Vehicles within 24 hours of discontinuance. In such case, fees paid for unused base stickers will be refundable.

(o) Licensees shall be solely accountable for the base stickers and inserts issued to them by the Division of Motor Vehicles.

13:20-32.10 Records

(a) State inspection rejection cards shall be maintained by the licensee in order corresponding to the base sticker serial number recorded thereon and the date on which the base sticker was issued.

(b) Class I and III licensees shall maintain repair orders and invoices (bills for parts and labor) in the form required by the deceptive automotive repair work and advertising practices regulation (N.J.A.C. 13:45A-1.1 et seq.).

(c) The repair order and invoice number or numbers shall be transcribed onto the state inspection rejection card.

(d) Records required to be maintained by this Section shall remain on file in the licensee's place of business for a period of two years from the date of issuance of the base sticker.

(e) Records required to be maintained by this Section shall be made available by the licensee for examination by employees of the Division of Motor Vehicles at any time during regular business hours. Investigators and other Division of Motor Vehicles personnel shall be granted access to the licensee's property during regular business hours.

(f) Failure to permit investigators and other Division of Motor Vehicles personnel on the premises of the licensee during regular business hours for purposes of conducting reasonable investigations shall be cause for suspension. Such investigations shall include, but shall not be limited to, discussions with customers, examination of machinery, questioning of employees and the employment of such other investigatory techniques as may be necessary for the enforcement of this regulation and the provisions of Title 39, Chapter 8.

13:20-32.11 Certification of reinspection

(a) Each licensed reinspection center shall have the authority to reinspect vehicles covered by the particular center's license and to certify that specific items for which a vehicle was rejected at State inspection have been corrected to conform with the technical standards set forth in the "Manual on Procedures and Standards for Use by Licensed Reinspection Centers". Provided, however, that Class I "limited service" centers may reinspect and certify vehicles only when all of the items for which the vehicle was rejected at state inspection are within the categories enumerated on the center's "limited service" license.

(b) No licensee shall certify that items for which a vehicle was rejected at State inspection have been corrected unless the licensee or an employee on the payroll of the licensee has inspected the vehicle and has determined that all defects detected at State inspection have been corrected to conform with the technical standards set forth in the "manual".

(c) Certification shall be evidenced by the affixation of a reinspection approval sticker on the vehicle in the place specified in the "manual" and by stamping a reinspection approval imprint on the reverse side of the vehicle's registration certificate. Each licensee shall possess a stamp for the purpose of effecting said reinspection approval imprint. Failure to take necessary security precautions to protect the stamp against loss or theft shall be cause for suspension or revocation of the license.

(d) Certification of a vehicle by the licensee or his employee shall constitute the licensee's representation that the licensee or an employee on the licensee's payroll has inspected the vehicle and has determined that the defects detected at State inspection have been corrected to conform with the standards set forth in the "manual".

(e) Class I licensees, upon being presented with a vehicle for repair or adjustment of defects detected at State inspection and for certification, may occasionally opt to "farm out" part of the repair or adjustment work; that is, to have the repair or adjustment work performed with the equipment or by the employees of another firm. Provided, however, that Class I "limited service" centers may exercise said "farming out" option only when all of the items for which the vehicle was rejected at State inspection are within the categories enumerated on the center's "limited service" license. Provided, also, that Class I centers licensed to reinspect glass may always "farm out" their glass repair work.

(f) Repair or adjustment work performed under this "farming out" option shall be deemed to be work performed under the direction of the Class I licensee. Exercise of this option shall not relieve the licensee of his ultimate duty, as set forth in subsections (b), (c) and (d) above, to have the sufficiency of all adjustments or repairs inspected by the licensee or by an employee on the licensee's payroll prior to certification of the vehicle.

(g) Licensees who elect to exercise said "farming out" option may be held vicariously liable, in any subsequent license revocation proceeding, for any unconscionable practice perpetrated on the consumer by the party to whom the work was "farmed out".

(h) The fee which a Class I or III licensee may charge the consumer for affixing a certification sticker shall not exceed $1.00.

(i) The fee which a Class I or III licensee may charge for reinspection of items rejected after State inspection and which have been repaired by the vehicle owner or someone not under the direction of licensee shall not exceed that portion of the licensee's established hourly labor charge for repair service as specified in the "manual" to be the average time required to reinspect a particular rejected item. The consumer shall be notified in advance that the licensee's charge for such reinspection shall not exceed that portion of the labor hourly rate.

(j) Every licensee, other than Class II, shall conspicuously display a schedule of reinspection charges at his place of business and shall file a copy thereof with the Licensing Section of the Certificate of Ownership Bureau. The displayed schedule shall be no smaller than one square foot.

13:20-32.12 Denial, suspension and revocation of license

(a) The Director may deny, suspend or revoke a reinspection center license or refuse renewal thereof for cause, including but not limited to one or more of the following:

1. Violation of any provision of N.J.S.A. 39:8-2 et seq. or of any regulation adopted thereunder, including a finding of guilt made pursuant to Section 10 of the Act;

2. Fraud, or misrepresentation in securing the license or in the conduct of the licensed activity;

3. Making reinspection service charges in excess of those posted in the licensed premises and filed with the Director;

4. Conviction of a crime involving moral turpitude;

5. Violation of the Consumer Fraud Act, P.L. 1967, c. 301 (C.56:8-1 et seq.) or of any regulation adopted thereunder;

6. Other good cause.

(b) The Director may deny, suspend, revoke or refuse renewal of a reinspection center license for a violation of the provisions of N.J.S.A. 39:8-2 et seq., the provisions of these regulations or for other good cause pursuant to the Administrative Procedure Act, P.L. 1968, c.40 (C.52:14D-1 et seq.).

(c) Upon suspension or revocation of a reinspection license, the licensee shall forthwith surrender to the Director the reinspection center license, the reinspection approval stamp, all unused reinspection approval stickers, all state inspection rejection cards, and the reinspection center identification mark.

13:20-32.13 Advertising

Advertising of reinspection service shall include a description of the class and rejection categories in which the center is licensed.

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR POLLUTION CONTROL
MOBILE SOURCE CONTROL SECTION

OPERATIONAL PROCEDURES FOR MOTOR VEHICLE EMISSION REINSPECTION

Required Vehicle Exhaust

Calibration Procedure, Test Procedure and Standards, and Test Equipment

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September 1973

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OPERATIONAL PROCEDURES FOR MOTOR VEHICLE EMISSION REINSPECTION

Required Vehicle Exhaust

Calibration Procedure, Test Procedure and Standards, and Test Equipment

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New Jersey Department of Environmental Protection
Bureau of Air Pollution Control
Mobile Source Control Section
P. O. Box 2807
Trenton, New Jersey 08625

SEPTEMBER 1978

INTRODUCTION

New Jersey Law

New Jersey's air pollution control activity was authorized by the legislature in the "Air Pollution Control Act (1954)". Although state law for many years had prohibited the emissions of excessive smoke from motor vehicles, the legislature passed a law in 1967 which provides the legal basis for the current New Jersey motor vehicle emissions inspection/maintenance program.

Basically, the legislature authorized the State Department of Environmental Protection to establish standards and requirements for the control of air contaminants from motor vehicles. It was stated that vehicles subject to inspection by the Division of Motor Vehicles must meet these standards as a condition of inspection and registration. Provision was also made for fines of $25 to $100 for the operation on highways of vehicles which emit smoke or other pollutants in excess of the prescribed standards.

Actual motor vehicle inspection in New Jersey is under the control of the Division of Motor Vehicles. Vehicles must pass inspection lane requirements before their registration will be validated. Owners of vehicles which are rejected are given a card on which the reason(s) for rejection is indicated by punch-marks. The owner may repair the car himself, or have the work performed at a commercial service facility.

After repairs have been completed, the owner may return his vehicle to an inspection lane for reinspection and certification, or he may have this accomplished at a Licensed Motor Vehicle Reinspection Center.

New Jersey Emissions Standards

New Jersey's emissions standards became effective on July 5, 1972. However, there was an introductory period during which it was not necessary to have vehicles repaired when they failed to meet the emissions standards. This gave the motorist and the mechanic time to become accustomed to the emissions inspection test, and allowed the state time to correct any procedural problems which might appear.

The New Jersey standards, which are designed to protect air quality by ensuring that motor vehicles are maintained in reasonable operating condition, are grouped according to vehicle age. This is done so that the older vehicles, which have no or only partially effective control systems, are permitted greater emissions than are the later models which have more effective controls.

The standards for carbon monoxide are given in percentages. For example, 5.0 percent means that no more than one-twentieth of a car's emissions may be carbon monoxide. The standards for hydrocarbons are given in parts per million (ppm). A standard of 500 parts per million, for example, means that out of one million parts of exhaust, no more than 500 parts can be hydrocarbons. One (1) percent is equal to ten thousand (10,000) part per million. Thus, on the average, a car emits about 100 times as much carbon monoxide as hydrocarbons. As is explained in a later section, the test machine automatically analyzes the contents of the exhaust from a car being inspected, and the mechanic reads the carbon monoxide and hydrocarbons content directly from meters on the machine.

Certain vehicles can be exempt from these emission standards. At the present time, all pre-1968 Saab two-stroke engines are exempt. However, they should be maintained at the lowest possible emissions levels and should not emit excessive smoke. There is a single standard for visible smoke for all model years. The regulation states that the vehicle being inspected "shall not emit visible smoke in the exhaust emissions or in the crankcase emissions" during the two steps of the inspection test procedure.

Inspection of Used Cars

Chapter 76 of the Laws of New Jersey of 1971 requires that the dealer guarantee that any used vehicle which he sells will pass state inspection. Insofar as emissions are concerned, this means that the vehicle meets state standards. If the vehicle should fail inspection for any reason other than that caused by the buyer, the dealer may be deemed a disorderly person and he must refund the full purchase price or repair the vehicle at no cost to the buyer.

However, these requirements do not apply when the buyer signs a waiver stating that he has read and understands the dealer's obligations and waives these obligations and releases the dealer from the requirement to make repairs or refund the full purchase price in event the vehicle fails inspection.

Customer's Rights

The mechanic should be aware of certain state regulations which are designed to protect the customer from misleading repair and advertising practices. These are titled "Deceptive Automotive Repair Work and Advertising Practices" and are published at N.J.A.C. 13:45A-7. It should be noted that they apply only to passenger vehicles, not to trucks. They also apply only when the customer himself brings the vehicle to the shop during normal work hours. Thus, they would not include vehicles which are picked up by shop

personnel, or when the customer merely parks the vehicle at the shop and leaves a set of written instructions as to what is to be done.

The regulation applies to all types of repair facilities, ranging from the one-man corner gas station to the largest garage. The only types of work not covered are changing tires, lubricating vehicles, changing oil, installing light bulbs, batteries and windshield wiper blades and other "minor accessories and services." Thus, it is apparent that labor and parts of emissions control systems and devices are covered.

To meet the requirements of the regulation, the repair shop must:

1. Post in a conspicuous place a required sign which informs the customer of his rights.

2. Obtain a written authorization signed by the customer before any work is started. The customer must be given a copy of this signed authorization, which indicates the nature of the work to be performed or the problem to be corrected and which shows the odometer reading on the vehicle.

3. Give the customer an advance estimate of the cost of the repairs, unless he signs a waiver saying he does not require an estimate. There are three types of estimates: "a price not to exceed $____," "an exact figure to complete a specific repair," or "a detailed breakdown of parts and labor."

4. Return all replaced parts except those under warranty to the customer if he requests them.

5. Give the customer a detailed invoice of all parts and labor when authorized work is completed.

6. Give the customer a copy of all guarantees provided for labor and material.

The New Jersey Division of Consumer Affairs is responsible for administering this regulation. Additional information or copies of the code can be obtained from the Division of Consumer Affairs, Room 504, 1100 Raymond Boulevard, Newark, New Jersey 07102(telephone 201-648-3537).

Repair Facility Identification

Repair facilities which are qualified to participate in the New Jersey inspection/maintenance program receive display identifications to make their qualifications known to the public.

Shops which are licensed by the Division of Motor Vehicles to perform reinspections of vehicles which have been rejected by the state inspection stations and to certify that these vehicles have been repaired so as to meet state standards are known as licensed Motor Vehicle Reinspection Centers. These centers receive an identifying decal for display to the public. This decal is shown in Figure 1.

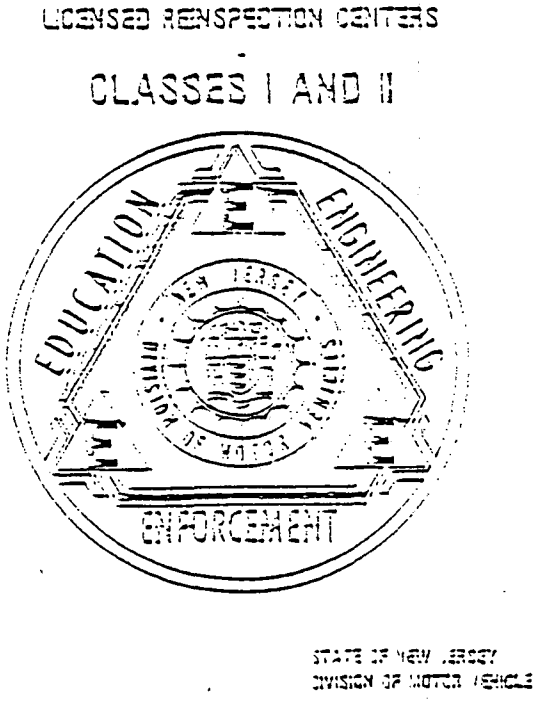

Figure 1.

Mechanics Training Program

Vehicle volume and the potential difficulty of performing correct vehicle diagnosis and maintenance provides incentive for the mechanic to seek specialized training in emission control.

New Jersey has legal authority to achieve a meaningful and effective training program. In 1975, the state legislature enacted PL-156 which allows vehicles which have been rejected for safety as well as emissions to be reinspected at state licensed reinspection centers. DMV licenses such reinspection centers which are qualified and properly equipped. Using personnel from licensed reinspection centers as a nucleus from which to draw trainees, the New Jersey DEP has brought about a training program designed to educate and instruct practicing and gainfully employed auto mechanics in the art of auto emission control maintenance.

A total of 35 Voc/Ed., regional high schools, and community colleges have committed to participation in this program. Initially, the program is offered to mechanics from licensed reinspection centers. At a later date, completion of the program will be made a condition for obtaining a reinspection center license. The program is also being offered to the general public, many of whom are now attempting to learn the science of coping with emission repairs.

Each school has developed its own program under the guidance of the state coordinator to assure uniformity. The format is a 5-session, 20-hour training program. For at least 50 percent of the time, students have "hands-on" training utilizing various late model vehicles. Both the program and the VO/Tech curriculum are based on an official New Jersey Department of Environmental Protection auto emission control manual and an EPA sponsored audio-visual aids package.

In addition, a mobile test van is utilized to reach and acquaint thousands of auto owners throughout the state with the interaction between low emissions and fuel economy. The van is also used to update the VO/Tech schools' staffs and instructors periodically on the latest emission control equipment consistent with future emission control technology evolution

After a mechanic has successfully completed the course, or has been certified by the National Institute of Automotive Service Excellence (NIASE), the licensed reinspection center in which he works will be listed in the handout provided by the Division of Motor Vehicles to every motorist of a rejected vehicle. This handout lists the name and location of licensed reinspection centers which can perform the required service.

CALIBRATION PROCEDURE

Since exhaust analyzers are extremely sensitive instruments, careful maintenance and calibration is necessary. Exhaust gas analyzers are of major assistance to the mechanic when they are in good working order. When they are not in good working order, they can be misleading and the cause of wasted effort.

The basic guide for maintaining any specific analyzer is the manual which comes with the instrument. This manual must be followed to the letter. Since there are major differences between instruction procedures used for the various analyzers, no attempt is made here to provide the detailed guidance which would apply to each of the approved models.

"Zero set" and "span" adjustments are vital. After the analyzer has been warmed up, these adjustments should be performed as described in the manufacturer's manual before each emissions test. Carelessness with these two adjustments will defeat the purpose of the analyzer.

Of equal importance is periodic calibration of the analyzer. The analyzer's accuracy is checked by sampling a standard gas with known concentrations of carbon monoxide and hydrocarbons. The analyzer should accurately identify the composition of this test gas within the permitted tolerances.

Gas calibration should be performed as often as it is necessary to maintain analyzer accuracy. This is at least every two weeks when performed by shop personnel, or every three months when performed by a service contractor. Records of calibration, including date of calibration, calibration gas standard, observed and/or corrected equipment reading and calibrator's signature, should be recorded in a log or on a sticker supplied by the Division of Motor Vehicles.

At Licensed Motor Vehicle Reinspection Centers, Division of Motor Vehicle investigators will check calibration and review calibration procedures at least once every two months. Analyzers which cannot be calibrated within permitted tolerances will be placed "out of service" until repairs have been made by a manufacturer-authorized service/calibration representative. Figure 2 is an illustration of the calibration gas equipment used in the official New Jersey calibration procedure.

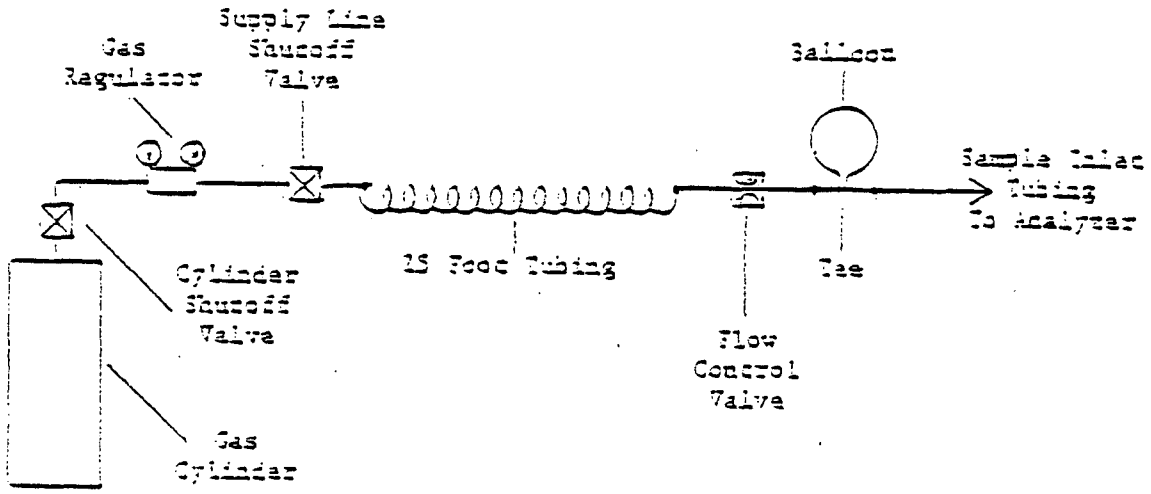

Figure 2.

The official New Jersey calibration procedure is as follows:

1. The analyzer shall be warmed up for at least thirty minutes prior to testing. (Reinspection center personnel shall be responsible for this requirement prior to investigator's visit.)

2. The zero and span control setting should be checked and, if necessary, corrected. If the zero and span cannot be set with drift less than 60 ppm (HC) and 0.3% (CO) over a 30-second period, the calibration certification sticker must be marked disapproved and an out-of-service sticker shall be attached to the analyzer. Figure 3 illustrates the calibration certification and out-of-service stickers. If the zero and span drift are within these limits, continue with the rest of this procedure.

THIS UNIT
HAS BEEN ORDERED

OUT OF
SERVICE

BY THE NEW JERSEY DIVISION
OF MOTOR VEHICLES

This exhaust analyzer shall not be used for emission reinspection until its gas calibration is certified by a Department of Environmental Protection Registered Service Vendor.

New Jersey Division of Motor Vehicles
Licensed Reinspection Center
Exhaust Analyzer Calibration
CERTIFICATION

DATE	SERVICE TYPE OR AGENCY	CAL GAS STD. READING	HC	CO
		=		
		<		
		=		
		<		
		=		
		<		
		=		
		<		
		=		
		<		
		=		
		<		
		=		
		<		
		=		
		<		
		=		
		<		

Figure 3.

3. The calibration gas cylinder will be labeled with the concentration of propane in ppm and CO in percentage. Multiply with calibration gas propane concentration by the propane-hexane factor. This factor should be stamped on the cabinet of the analyzer. If no factor is stamped on the cabinet, use a factor of 0.52. This factor when multiplied by the propane concentration should give you the expected analyzer reading for the hydrocarbon scale. Record this number in the proper blank on the sticker. The expected analyzer reading for the CO scale is simply the CO concentration on the cylinder. Record this number in the proper blank on the sticker.

4. Attach the regulator tightly to the calibration gas cylinder. (Note that this connection utilizes a left-handed thread.) Open the cylinder valve shut-off located on top of the cylinder. Read the gas delivery pressure off the regulator gauge. If it is not approximately 10 lbs., adjust it by turning the T-screw on the regulator. This adjustment must be made with both the supply line shut-off valve and flow control valve open. After adjusting, close the flow control valve.

5. To check for analyzer sample hose leaks, secure the hose tightly over the tip of the sample probe. If a low-flow condition is not indicated on the analyzer, there is a leak in the sample hose system which must be corrected before proceeding.

6. Open the flow control valve until the balloon just barely inflates. After 30 seconds, record the analyzer readings in the proper blanks.

7. Pull the hose off the probe and immediately close the flow-control valve and then the shut-off valve on the cylinder. Recheck the zero on the analyzer as in Step 2. The drift must still be within 60 ppm HC and 0.3% CO or an out-of-service sticker must be issued.

8. Reopen the flow-control valve until the pressure drops to zero on both gauges. Then close all valves and remove the regulator from the cylinder. Replace the cylinder cap.

9. Now compare the analyzer readings you recorded against the expected analyzer readings. If the difference is greater than 100 ppm HC or 0.5% CO, the instrument is out of calibration.

10. Affix the filled-out "gas calibration certification sticker" to the analyzer.

Since the analyzers encountered in the garage system will be of many different makes, problems may be encountered with using this procedure on all of them. If such a problem is encountered, call the DEP lab and a technician will attempt to "talk you through" the procedure.

TEST PROCEDURE AND STANDARDS

The Department of Environmental Protection has specified steps which must be followed in order to conduct an emissions inspection test. These are as follows:

1. The test shall be conducted after the engine has been operating for a sufficient period of time to attain normal operating temperature.

2. With the motor vehicle in neutral gear, all accessories off and the hand brake secured, accelerate the engine to approximately 2500 rpm and hold. Observe for visible smoke in the exhaust emissions and/or crankcase emissions.

   NOTE: Any motor vehicle designed primarily for transportation of persons or property and registered at 6,000 pounds gross vehicle weight or less shall not emit visible smoke from the exhaust system or the crankcase.

3. With the engine operating at idle insert the sample probe of the exhaust analyzer into the vehicle's exhaust pipe. The probe tip shall be inserted at least 6 to 12 inches, or as far as possible, into the tailpipe. For dual exhaust vehicles, check both exhaust pipes; the higher reading shall be the exhaust gas measurement.

4. The steady state emissions levels measured as percent carbon monoxide (CO%) and parts per million of hydrocarbons (HC ppm) in the exhaust shall be the inspection test result. These results shall be compared by vehicle model year and effective date as shown in Table 1.

TABLE 1

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
EXHAUST EMISSIONS STANDARDS

Model Year of Vehicle	CO (%)	HC (ppm)
Pre-1968	8.5	1400
1968-1969	7.0	700
1970-1974	5.0	500
1975-1979	3.0	300

IMPORTANT NOTE: The above standards are New Jersey Inspection standards only, not vehicle performance or manufacturers' recommended standards. Service mechanics should maintain vehicles for inspection or sale so that exhaust emissions levels are in accordance with specifications recommended by the manufacturer or seek reasonable emissions levels as shown in Table 2.

TABLE 2

REASONABLE VEHICLE PERFORMANCE EMISSIONS LEVELS

	CO%	Tolerance	HC (ppm)	Tolerance*
Pre-1968 GM Motor Vehicles	3.0	±2.0	700	±200
Pre-1968 Non-GM Motor Vehicles	3.0	±2.0	500	±200
1968-1969 All Vehicles	3.0	±2.0	300	±100
1970-1974 All Vehicles	1.5	±1.0	200	±100
1975-1979 Catalytic Equipped	0.5	±0.5	50	± 25
1975-1979 Non-Catalytic	1.0	±0.5	100	± 50

* The reasonable HC emissions levels can be achieved by most vehicles. However, some low production vehicles may have reasonable HC emissions levels at or above these levels.

APPROVED TEST EQUIPMENT

Emissions analyzers are highly sensitive instruments which measure the amount of carbon monoxide (CO) and hydrocarbons (HC) in the exhaust gases of a motor vehicle. The analyzer's direct reading meters show the mechanic the percentage of carbon monoxide and the parts per million of hydrocarbons in the exhaust. It should be pointed out that the analyzer also can be of great help to the mechanic with his trouble-shooting when emissions are excessive.

No instruments are used to check smoke emissions from automobiles. These emissions are "read by eyeball".

Although exhaust analyzers come in many sizes, shapes and colors, the basic operating fundamentals of these instruments are the same. Exhaust analyzers draw gas samples from the exhaust system of a vehicle. The analyzer filters the sample to remove the water and any small particles of carbon, or other particulates which would interfere with the analysis. The exhaust sample is then passed to the sample cell where detectors and an infrared light source are used to determine the amount of carbon monoxide and hydrocarbons contained in the sample. The detectors provide information to an amplifier which activates the meters to give direct readings of the percentage of carbon monoxide and the parts per million of hydrocarbons in the exhaust sample.

Analyzers used in the New Jersey emissions inspection test must be approved by the Department of Environmental Protection. These analyzers must be of the type employing the Non-Dispersive Infrared (NDIR) principle. The Bureau of Air Pollution Control periodically publishes a list of approved NDIR analyzers. This does not mean the Department recommends any specific analyzer which appears on the list. It does mean that the analyzers named have been examined and tested by Mobile Source Control technicians. These technicians have certified that the analyzers meet the following specifications established by the Department:

General Specifications

1. The instrumentation shall consist of analyzers, sampling system, readout indicators, etc. necessary to diagnose and properly maintain all vehicles to comply with standards established by the New Jersey State Department of Environmental Protection. The system shall be capable of continuously measuring the concentration of carbon monoxide* and hydrocarbons** in vehicle exhaust emissions from a gasoline engine in the idle mode.

2. A direct readout is required for both carbon monoxide and hydrocarbons.

3. The analyzer shall be simple to operate and maintain by garage personnel. The analyzer shall have sufficient durability and ruggedness for frequent use and continuous analysis at various vehicle exhaust flow rates for long periods in a garage environment. Consequently, the operating temperature range shall be between 32°F and 110°F.

4. The analyzer concentration ranges shall be the following:

	High Range	Low Range
CO range:	0-10%	0-4%
HC range:	0-2000 ppm	0-400 ppm hexane

5. The hexane-propane factor shall be analytically determined at the 6000 ppm carbon concentration and shall be in the range of 0.47 to 0.56. The factor shall be displayed on the outside of the cabinet.

6. Interference from non-interest gases, particulates, and water vapor shall be less than 1% of full scale.

7. The response time for an exhaust gas sample introduced at the probe shall be less than 10 seconds for 90% of the reading.

8. The accuracy of the analyzer shall be greater than ±3% of the full scale reading for all ranges. The zero and span drift shall be no more than ±3% of full scale in two hours.

9. The sample system shall include all components as probe, tubing, pumps, filters, water traps, etc. required to continuously analyze raw exhaust gas. The system shall be easy to clean and maintain.

10. A low flow indicator shall indicate a sample flow degradation sufficient to cause a response time greater than 10 seconds for 90% of the reading.

11. The hydrocarbon hang up shall be measured at 70°F by sampling an idling 8-cylinder engine with one spark plug disconnected to create a concentration between 1500 ppm and 2000 ppm hydrocarbons. After sampling for five minutes, the probe shall be removed from the exhaust pipe and the HC reading shall stabilize within 30 seconds at a reading less than 10% of full scale.

12. The system shall contain a calibration check for performance testing. The calibration method may be a gas standard or other mechanical or electrical method. Air may be used for zero checking. The instrument shall have the capability for gas calibration through both the sampling system and calibration part.

13. Warm-up time shall be as short as possible, but not greater than 15 minutes from a cold start.

14. All electronics shall be solid state.

* (as percent CO) at the 4.74 micron band

** (as ppm hexane) at the 3.41 micron band

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Approved NDIR HC and CO Vehicle Exhaust Test Equipment

The following table is an alphabetic distributor listing of NDIR models evaluated and approved by DEP for use by New Jersey licensed reinspection centers. This listing provides the sales, service, and home office contacts for each distributor.

Models which have been out of production for more than five years will be dropped from the listing at the time of the next revision. The following footnotes apply to models which have been out of production for a period less than five years:

Footnote	Out of production since-
1	12/73
2	12/74
3	12/75
4	12/76
5	12/77
6	6/78
7	8/78

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
AC Spark Plug Division of General Motors	ST-500	AC-Delco One University Plaza Suite 206 Hackensack, NJ 07601 (201)646-1717 (800)352-9880	Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Eastern Electronics 201-5 Essex Street Hackensack, NJ 07601 (201)342-3945 Empire Warehouse Inc. 627 Broadway Long Branch, NJ 07740 (201)222-3804 Fairfield Power Service 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Johnson Electrolab 9th on 44th Street Maplewood, NJ 07040 (201)761-4222 Penn Jersey Stores #37 66 North Delsea Drive Vineland, NJ 08360 (609)696-9705 Phillips Equipment 1861 Hadden Avenue Camden, NJ 08103 (609)365-4300	Mr. Jim Walters Kal-Equipment Co. 411 Washington St. Otsego, Michigan 48078 (800)352-9880

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
AC Spark Plug(Cont)			Quick Tool Repair 832-C Ridgewood Avenue New Brunswick, NJ 08902 (201)846-8084	
			Snap-On Tools Corporation 1275 Bloomfield Avenue Fairfield, NJ 07006 (201)575-1666	
			Sound Service 234 East 3rd Street Plainfield, NJ 07060 (201)753-4250	
			(800)352-9880	

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Allen Test Products	14-, 15-^{5}, 16-, 18-^{5} 23-, 25- Series	Mr. Timothy Donovan 240 Anderson Street Hackensack, NJ 07601 (201)342-5283 Mr. Ira Friedman 36 Bucks Road East Brunswick, NJ 08816 (201)238-6156	Mr. Timothy Donovan 240 Anderson Street Hackensack, NJ 07601 (201)342-5283 Fairfield Power Service 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Kentek Company 415 Third Avenue East North Port, NY 11731 (516)368-7468	Mr. Ken Broome Allen Test Products The Allen Group Inc. 2101 N. Pitcher St. Kalamazoo, Michigan 49007 (616)345-8531

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
American Motors Corp. AMServ Equipment Program	14-, 15-[5], 16-, 18-[5], 23-, 25- Series	Mr. Frank L. Quinn 444 Saw Mill River Rd. Elmsford, NY 10523 (914)345-5700 Mr. Bruce Maler 800 Chester Pike Sharon Hills, PA 19079 (215)337-0230	Mr. Timothy Donovan 240 Anderson Street Hackensack, NJ 07601 (201)342-5283 Fairfield Power Service 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Kentek Company 415 Third Avenue East North Port, NY 11731 (516)368-7468	Mr. Ken Broome Allen Test Products The Allen Group, Inc. 2101 N. Pitcher St. Kalamazoo, Michigan 49007 (616)345-8531

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
American Parts Co. Powerready	370-400	Mr. Torsello 300 Allwood Road Clifton, NJ 07012 (201)778-4700 American Parts Sys. 600 Clark Avenue King of Prussia, PA (215)265-6464 19406	Creston Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Eastern Electronics 201-5 Essex Street Hackensack, NJ 07601 (201)342-3945 Empire Warehouse Inc. 627 Broadway Long Branch, NJ 07740 (201)222-3804 Fairfield Power Service 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Johnson Electrolab 9th on 44th Street Maplewood, NJ 07040 (201)761-4222 Penn Jersey Stores #37 66 North Delsea Drive Vineland, NJ 08360 (609)696-9705 Phillips Equipment 1861 Hadden Avenue Camden, NJ 08103 (609)365-4300	Mr. Jay Kemp American Parts Corp. P. O. Box 3131 7800 W. Park Drive Houston, Texas 77001 Mr. Jim Walters Kal-Equipment Co. 411 Washington Street Otsego, Michigan 48078 (800)352-9880

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
American Parts Co. Poweready (Cont)			Quick Tool Repair 832-C Ridgewood Avenue New Brunswick, NJ 08902 (201)846-8084 Snap-On Tools Corporation 1275 Bloomfield Avenue Fairfield, NJ 07006 (201)575-1666 Sound Service 234 East 3rd Street Plainfield, NJ 07060 (201)753-4250 (800)352-9880	

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Applied Power (formerly Marquette)	40-176[7], 40-176A, 40-220[3], 40-222[3], 40-225[3], 40-227[3], 40-276, 40-753[2], 42-076, 42-151[2], 42-153[2], 42-155[3], 42-156[3], 42-159[4], 42-160[4], 42-161[4]	Mr. John Voyce Applied Power, Inc. 10 Stern Avenue Springfield, NJ 07081 (201)467-3950 Mr. Bob Fry R. D. #1 New Bloomfield, PA 17068 (717)582-2671	Applied Power Inc. 10 Stern Avenue Springfield, NJ 07081 (201)467-3950 Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Empire Warehouse Inc. 627 Broadway Long Branch, NJ 07740 (201)222-3804 Karr Electronics 10 Old Turnpike Road Pleasantville, NJ 08232 (609)645-1144	Mr. Tom Fudali Automotive Division Applied Power Inc. Box 27207 11333 West National Ave. Milwaukee, Wisconsin 53227 (414)321-7000

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Atlas	AET-330, 340[3], 341[3], 342[3], 345[4], 346, 347 AMA-313[7], 313-C, 450, 550 AEA-370, 376 ADC- 120ME[4], 120MAE[4] AET Models may or may not have the AET prefix.	Distributors of Atlas Products (800)558-0664	For Models AET-330 and AMA-450: Sun Electric Corporation 1051 Paulison Avenue Clifton, NJ 07011 (201)778-6331 Sun Electric Corporation 2520 Wyandotte Road Willow Grove, PA 19090 (215)659-7780 For Models AET-340, 341, 342, 345, 346, 347; AMA-313 313-C, 550; AEA-370, 376; ADC-120ME, 120MAE: Automotive Product Service Div. Applied Power Inc. 10 Stern Avenue Springfield, NJ 07081 (201)467-3950 Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Empire Warehouse Inc. 627 Broadway Long Branch, NJ 07740 (201)222-3804 Karr Electronics 10 Old Turnpike Road Pleasantville, NJ 08232 (609)645-1144	Mr. Richard Pfost Atlas Supply Company Diamond Road Springfield, NJ 07081

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Barnes Engineering Co.	8335, 1836	Mr. John Belicka Barnes Engineering Co. 30 Commerce Road Stamford, Conn. 06904 (203)348-5381 (800)243-3498	Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Fairfield Power Serv.Co. 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 (800)243-3498	Mr. John Belicka Barnes Engineering Co. 30 Commerce Road Stamford, Conn. 06904 (203)348-5381

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Beckman Instrument Co.	590	Beckman Instrument Co. 45 Belmont Drive Somerset, NJ 08873 (201)560-0076 Mr. Michael Way Automotive Test Prod. 2500 Harbor Blvd. Fullerton, Calif. 92634 (714)871-4848	Beckman Instruments 45 Belmont Drive Somerset, NJ 08873 (201)560-0076 Karr Electronics Inc. 10 Old Turnpike Rd. Pleasantville, NJ 08232 (609)645-1144 J. C. Miller Tilton Rd. & Burton Ave. Northfield, NJ 08225 (609)646-3737 Phillips Equipment Co. 1861-67 Haddon Avenue Camden, NJ 08103 (609)365-4300	Mr. Michael Way Beckman Instrument Co. Automotive Test Prod. 2500 Harbor Blvd. Fullerton, Calif. 92634 (714)871-4848

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Christie Electric Corp.	EA-74C	J. H. Association 15511 Queen Ann Bridge Road Bowie, Maryland 20716 (301)249-5419 (800)243-3498	R. Dando 4742 Oak Avenue Trevose, PA (215)357-6426 Creston Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Fairfield Power Service Co. 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Five Boro Rubber & Equip. Repairs 5223-18th Avenue Brooklyn, NY 11204 (212)256-1176 H & H Electronics Service 3600 N. Front Street Philadelphia, PA (215)324-5550 Johnson Electrolab Ninth 44th Street Maplewood, NJ 07040 (201)761-4222 Orchard's Hydraulic Service 2421 White Horse Pike Cologne, NJ (609)965-2923	Christie Electric Corp. 3410 W. 67th Street Box 60020 Los Angeles, CA 90060 (213)750-1151

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Christie(Cont.)			Pioneer Auto Parts & Service Co. 3007 N. Fox Street Philadelphia, PA (215)223-9228	
			T & K Charger Service 62 West Second Street Bayonne, NJ 07002 (201)436-4114	
			Wislawn Auto Parts Co. 425-429 E. Cheltem Avenue Germantown, PA (215)844-8200	

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Chrysler Corporation	14-, 15-5, 16-, 18-5, 23-, 25- Series	Mr. V. Salava N.Y. Zone Parts & Service Tappan, NY 10983 (914)627-2200	Eastern Electronics, Inc. 201 Essex Street Hackensack, NJ 07601 (201)342-3945	Mr. T. A. Pope Chrysler Corporation Huntsville Electronics Division 102 Wynn Drive Huntsville, Alabama 35805
	III(P/M), 8CE III, DCE-75, III(P/M) 3838001, MTSE(P/N), HCE III, Mopar Model III, III-C, (P/N) 1-3000	Mr. J. C. Obenschain Box 489 Wayne, PA 19087 (215)687-6110	Wahelan Radio Penn and Harrison Sts. Phila., PA 19124 (215)288-4600	

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Clayton	CSS/310	Harry Wagner 3701 Tonnelle Ave. N. Bergen, NJ 07047 (201)867-2624 (800)243-3498	Creston Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Fairfield Power Service Co. 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 (800)243-3498	Mr. John Belicka Barnes Engineering Co. 30 Commerce Road Stamford, Conn. 06904 (203)348-5381

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Environmental Tectonics Corp.	III-C	Mr. Frank Artz Environmental Tectonics Scott Environmental Systems County Line Industrial Park Southampton, PA 18966 (215)355-9100	Mr. Frank Artz Environmental Tectonics Scott Environmental Systems County Line Industrial Park Southampton, PA 18966 (215)355-9100 Eastern Electronics Inc. 201 Essex Street Hackensack, NJ 07601 (201)342-3945 Wahelan Radio Penn and Harrison Sts. Phila., PA 19124 (215)288-4600	Mr. Frank Artz Environmental Tectonics Scott Environmental Systems County Line Industrial Pk. Southampton, PA 18966 (215)355-9100

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
FMC - Autoscan	IR Series, 570, 710, 705C, 4050 Series, 4080	Mr. Robert Gill R. J. Electronics 1366 Churchville Rd. Southampton, PA 17330 (215)947-1027 (800)421-0682	George Alusick Sales & Service 179 Washington Avenue Dumont, NJ (201)385-3978 Melrose Distributing Co. Glenside, PA (215)887-2425	Dr. Edmond Pelta FMC Corporation Automotive Service Equipment Division 10150 West Jefferson Blvd. Culver City, Calif. 90230 (213)870-9875 (800)421-0682

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Ford Motor Corp. Rotunda	14-, 15-[5], 16-, 18[5], 23-, 25- Series 04-0160, 36-0011, 36-0012, 40-796, 42-720[3], 42-721[3], 42-722[3], 42-729[3], 42-730[3], 42-731[3], 42-732, 42-735 78-0010, 78-0020 78-0009, LLPE-#-IR 02, 04, and 36 Series with IR Analyzers	Mr. Adam Schuff Ford Motor Corp. Parts and Service P. O. Box 816 Pennsauken, NJ (609)662-8021 Mr. W. H. Schank Ford Motor Corp. Newark District Off. U. S. Highway #46 Teterboro, NJ 07609 (201)288-9400	Ford Marketing Corp. Ford Customer Service Div. 1041 Kings Highway Cherry Hill, NJ 08034 (609)662-8021 Ford Motor Corporation Newark District Office U. S. Highway #46 Teterboro, NJ 07609 (201)288-9400	Ford Motor Corporation Newark District Office U. S. Highway #46 Teterboro, NJ 07609 (201)288-9400

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Fox Products Co.	1800[3]	Mr. Bill Hamilton 4720 N. 18th St. Philadelphia, PA 19141 (215)329-2700 Mr. George Reed P. O. Box 145 Dresher, PA 19025 (215)643-7787 (800)243-3498	Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Fairfield Power Service Co. 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 J. C. Miller Tilton Road & Burton Ave. Northfield, NJ 08225 (609)646-3737 (800)243-3498	Fox Products Co. 4720 N. 18th Street Philadelphia, PA 19141 (215)329-2700

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Distributor	Approved Models	Sales	Service	Manuf. of Distributor Home Office
Hamilton Test Systems	Autosense 200	Automotive Sensor Technology 2854 Tolbut Street Philadelphia, PA 19136 (215)698-0826	Hamilton Test Systems Windsor Locks, CT 06095 (203)623-1621 (800)243-2417	Mr. Robert Hansman Hamilton Test Systems Windsor Locks, CT 06905 (203)623-1621

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Horiba	GSM-300[3], GSM-300A, MEXA-300[4], MEXA-300A	Mr. Carl Weik Horiba Instruments, Inc. 3001 Hadley Rd/Sec.5A South Plainfield, NJ 07080 (201)755-0104	Mr. Jean Massirini Horiba Instruments Inc. 3001 Hadley Road/Section 5A South Plainfield, NJ 07080 (201)755-0104	Mr. Max Moore Horiba Instruments, Inc. 1021 Duryea Avenue Santa Ana, Calif. 92705

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Kal-Equip	4094-C[6], 4094-D[6]	Mr. Howie Rogers Rogers and Greenburg 1219 York Road Abbington, PA 19001 (215)887-7175 Mr. Stanley Luddeki S-L Marketing Specialists, Inc. 630 Springfield Aven. P. O. Box 206 Berkeley Heights, NJ (201)464-0930 07922 (800)352-9880	Creston Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Eastern Electronics 201-5 Essex Street Hackensack, NJ 07601 (201)342-3945 Empire Warehouse Inc. 627 Broadway Long Branch, NJ 07740 (201)222-3804 Fairfield Power Service 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Johnson Electrolab 9th on 44th Street Maplewood, NJ 07040 (201)761-4222 Penn Jersey Stores #37 66 North Delsea Drive Vineland, NJ 08360 (609)696-9705 Phillips Equipment 1861 Hadden Avenue Camden, NJ 08103 (609)365-4300	Mr. Jim Walters Kal-Equipment Co. 411 Washington Street Otsego, Michigan 48078 (800)352-9880

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Kal-Equip(Cont)			Quick Tool Repair 832-C Ridgewood Avenue New Brunswick, NJ 08902 (201)846-8084	
			Snap-On Tools Corporation 1275 Bloomfield Avenue Fairfield, NJ 07006 (201)575-1666	
			Sound Service 234 East 3rd Street Plainfield, NJ 07060 (201)753-4250	
			(800)352-9800	

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
King	700[6]	King Electronics 129 Woodstock Drive Newton, PA 18940 (215)357-7036	Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Fairfield Power Service Co. 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 (800)243-3498	King Electronics Co. Brecksville, Ohio 44141

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Distributor	Approved Models	Sales	Service	Manuf. or Distibutors Home Office
NAPA Balkamp	815-8002[6] 14-4787[6]	NAPA Distribution Ctr. 1770 New Durham Road S. Plainfield, NJ 07080 (201)985-7500 Mr. Frank Scharz Quaker City Auto Parts Co. N. Broad Street P. O. Box 162 Middletown, DE 19709 (302)378-9834	Creston Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Eastern Electronics 201-5 Essex Street Hackensack, NJ 07601 (201)342-3945 Empire Warehouse Inc. 627 Broadway Long Branch, NJ 07740 (201)222-3804 Fairfield Power Service 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 Johnson Electrolab 9th on 44th Street Maplewood, NJ 07040 (201)761-4222 Penn Jersey Stores #37 66 North Delsea Drive Vineland, NJ 08360 (609)696-9705 Phillips Equipment 1861 Hadden Avenue Camden, NJ 08103 (609)365-4300	NAPA Balkamp Inc. 2601 South Holt Rd. P. O. Box 41008 Indianapolis, IN 46241 (317)244-7241

Distributor	Approved Models	Sales	Service	Manuf. or Distributors Home Office
NAPA Balkamp(Cont)			Quick Tool Repair 832-C Ridgewood Avenue New Brunswick, NJ 08902 (201)846-8084	
			Snap-On Tools Corporation 1275 Bloomfield Avenue Fairfield, NJ 07006 (201)575-1666	
			Sound Service 234 East 3rd Street Plainfield, NJ 07060 (201)753-4250	
			(800)352-9880	

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Peerless	660, 662, 970[3],975	Rocco Zito Associates 8 Rockaway Place Parsippany, NJ 07054 (201)334-7203 (800)323-4205	Johnson Electrolab Ninth 44th Street Maplewood, NJ 07040 (201)761-4222 Sound Service 234 E. Third Street Plainfield, NJ 07060 (201)753-4250	Mr. Bert Robins Peerless Instrument Co. 6101 Gross Point Rd. Chicago, Illinois 60648 (800)323-4205

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Snap-On Tools	MT-495, MT-496, MT-496S, MT-497S	Mr. Ron Smith Snap-On Tools, Inc. 1275 Bloomfield Ave. Fairfield, NJ 07006 (201)575-1666	Snap-On Tools, Inc. 1275 Bloomfield Aven. Fairfield, NJ 07006 (201)575-1666 Snap-On Tools, Inc. 1810 Underwood Blvd. P. O. Box 173 Delran, NJ 08075	Mr. Gene Olsen Snap-On Tools, Inc. 2801-80th Street Kenosha, Wisconsin

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Stewart-Warner	3160A, 3161	Stewart-Warner Alemite Sales Co. 1075 Lousons Road Union, NJ 07083 (201)687-1100	Stewart-Warner Alemite Sales Co. 1075 Lousons Road Union, NJ 07083 (201)687-1100	Stewart-Warner Corp. Alemite and Instrument Division 1826 Diversey Parkway Chicago, IL 60614 (312)883-6000
		Stewart-Warner Alemite Sales Co. 930 N. 8th Street Philadelphia, PA 19123 (215)922-5430	Stewart-Warner Alemite Sales Co. 930 N. 8th Street Philadelphia, PA 19123 (215)922-5430	

Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Sun Electric	EPA-75, U-912-1, EET-910[1], EET-9101, EET-945, EET-947, 2001, 1115, 910, U-912[1]	Sun Electric Corp. 1051 Paulison Ave. Clifton, NJ 07011 (201)778-6331 Sun Electric Corp. 2520 Wyandotte Road Willow Grove, PA 19090 (215)659-7780	Sun Electric Corp. 1051 Paulison Ave. Clifton, NJ 07011 (201)778-6331 Sun Electric Corp. 2520 Wyandotte Road Willow Grove, PA 19090 (215)659-7780	Mr. Robert Volnec Sun Electric Corp. Harlem and Avondale Chicago, Illinois 60631 (312)631-6000

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Texaco	8335T	Mr. John Belicka Barnes Engineering 30 Commerce Road Stamford, Conn. 06904 (203)348-5381 (800)243-3498	Creston, Inc. 109 Flock Road Trenton, NJ 08619 (609)587-3334 Fairfield Power Service Co. 834 Fairfield Avenue Kenilworth, NJ 07033 (201)241-4099 (800)243-3498	Mr. John Belicka Barnes Engineering Co. 30 Commerce Road Stamford, Conn. 06904 (203)348-5381

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Distributor	Approved Models	Sales	Service	Manuf. or Distributor Home Office
Womaco-Yanaco	EIR-101[2] MARC-1[2]		Quick Tool Repair 832-C Ridgewood Avenue New Brunswick, NJ (201)846-8077 T & K Charger Service 62 W. Second Street Bayonne, NJ 07002 (201)436-4114	Mr. Takamichi Yoshiura Yanagimoto Mfg. Co LTD 28 Joshungamae-Cho, Shimotoba Kushimi-Ku, Kyoto Japan Phone: Kyto 075(611)4311

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APPENDIX E

OREGON

DEQ IDLE EMISSION STANDARDS - MEMO ON GUIDELINES FOR SETTING STANDARDS

PROPOSED MOTOR VEHICLE EMISSION CONTROL INSPECTION TEST CRITERIA, METHODS AND STANDARDS

State of Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Ron Householder

Date: February 6, 1975

From: Bill Jasper

Subject: DEQ Idle Emission Standards

Attached are several alternative proposals for the DEQ idle emission standards. Various guides and patterns were evaluated in composing these standards. Among them were:

1) 50% carbon monoxide reject rate as it was stipulated in DEQ's Clean Air Act IP and TCS;

2) Equitable reject rates among the various classes;

3) Close adherence to the auto manufacturers' recommended maintenance procedures;

4) Simplicity in implementation and enforcement;

5) Various reject rates for CO and HC;

6) Ease and understanding by the general public;

7) Detecting gross emitters.

Motor vehicles manufacturers certify the emission levels of their products to the Federal Government, prior to their sale to the general public. These manufacturers must comply with the same constant volume sampling test procedure (CVS) and meet the same standards or pass limit. Thus, for any given model year, all new motor vehicles sold in the United States do not pollute more than the maximum allowable for the given year of manufacture.

In establishing a regulatory inspection/maintenance program, a number of questions come to mind. In limiting those questions to those regarding the technical justification of any selected standards, the field is reduced to a few germane inquiries. Among these are:

1) How do the test standards relate to the Federal Standards?

2) Are the cars technically and mechanically able to comply with state idle emission standards?

3) Is the operation of the vehicle adversely affected by compliance with the emission standard?

The federal certification emission test is a complex procedure involving a specific driving pattern of a vehicle on a chassis dynamometer and related

endurance mileage accumulation. The total emissions from the driving cycle (which includes idle, cruise, acceleration, and deceleration modes) are determined to ensure the manufacturers' compliance with the federal emission standards. A relationship between idle testing and CVS testing has been established, though it does have low overall correlation. There is, however, a good one-way relationship in that a car with high emissions measured at idle will, with good probability, show high emissions on the CVS test. The reverse, however, does not apply with good probability. This is referred to as an error of omission, and while not enabling a direct correlation between an idle test and the CVS test, indicates that it is possible to identify a portion of those vehicles which would not comply with the federal standards.

EPA regulations specify the maintenance allowed under federal certification and also specify that those engine tune-up specifications and adjustments as recommended by the manufacturer be included on a permanent label readily visible in the engine compartment. Additionally, the manufacturers' documents to the federal government, under the terms of those regulations, that the maintenance instructions on that label are reasonable and necessary to assure compliance with the federal emission standards. These maintenance instructions specify the recommended engine tuning parameters. The vehicle owner's manual lists the manufacturers' recommended maintenance and intervals, and these maintenance recommendations include the checking and adjusting of those same engine parameters. The connection between properly maintained vehicles and the ability of a vehicle to pass the federal emission test is evident since the recommended vehicle maintenance includes those same adjustments and checks which the manufacturers perform during the vehicle certification. These base recommendations are substantially those presented on the engine labels of the vehicles when they are sold. These labels have been on all cars sold in the United States since the 1968 model year and have been permanently affexed and usually include the idle CO setting, since the 1972 model year.

Prior to 1968, most people in the United States demanded and received smooth, soft, high powered automobiles. These cars had a definite feel about them. With the advent of emission controls, the manufacturers made certain changes and added certain devices to their engines in order to reduce the pollution output. Over the past five years, certain modifications more than others have affected the vehicle feel or drivability. Among them are: lowered compression ratios so that most cars sold could use "regular" grade gasoline; changes in the distributor, modifying the spark advance curve; and carburetor changes designed to more accurately measure the fuel to the engine. Vehicles were emission "tuned" as opposed to performance "tuned", and weight and accessory loads increased, compounding mileage changes and resulting in a change in engine design and operation. The result was a different vehicle feel. The fact that the vehicle feels different that it used to is not an indication of lessened reliability. In general, reliability has remained as good as ever, and certain areas have actually increased. Engine wear has been reduced due to

higher engine temperatures reducing acid action on the engine. Improved fuels and lubricants coupled with improved design have helped minimize the maintenance required, while supplying better assurance of longer and continued operation. Tire, suspension, improved lighting, all have contributed to a more reliable vehicle than was available 20 years ago.

Various technical innovations have been incorporated in these vehicles to achieve compliance with the federally mandated emission standards. In DEQ's IP, we were given certain credit for those innovations in obtaining compliance with the Federal ambient air levels. The State was also given credit for CO emission reduction based upon a projected reject rate for any adopted idle emission inspection maintenance program. The reject rate stated by the State was 50%. While there was some discussion between the State and EPA concerning the benefits of such a reject level, 50% is the level which the State has stated in the IP and TCS that it will strive for in order to bring Portland into compliance with the Federal ambient air level.

During the past year, the Department has been conducting a voluntary emission inspection program. During that time, a set of interim idle emission criteria have been in effect. These criteria were designed to detect gross emitters and consisted of a series of classes based upon model year. Evaluation of the data obtained indicated that while a good balance of compliance was achieved between classes based upon year, there was some discrepancy among various makes as to fail rates for a given criteria. There was variation among makes as to the range at which our interim criteria was set above the manufacturers recommendation.

Based upon the above criteria and philosophy, three approaches to carbon monoxide standards are listed. The first approach, Table I, lists a series of standards related to the manufacturers' idle recommendations. The second approach, Table II, lists a series of standards relative to carbon monoxide levels. The third approach, Table III, lists the standards by model year groupings, the same way as is currently being done in the voluntary program. The hydrocarbon standards are basically the same for all three alternatives.

The methodology used in developing Table I is as follows. Analysis of the data from the voluntary program showed that while we were getting about the same reject rate among year classes, further review revealed that there was a disparity among makes as to the reject rates at the interim criteria levels, and further, that there were often large variations within these age groups and when further broken down, this was reflected in the make groups. Additionally, manufacturers' recommendations were often six to 10 times lower than our criteria.

A review of literature available in the service industry (Mitchell, Chilton, and Motors Manuals) was made to determine what the manufacturers'

settings were. Many manufacturers were contacted and their responses clarified their recommendations. The underhood decals were noted in the voluntary inspection program and the values listed there were compared to those obtained in the literature search. With this information available, a listing was drawn up for all motor vehicles such that the recommended standard level was either equal to or greater than the manufacturers' recommendation. The individual values are greater than the manufacturers' idle CO recommendation by 0.5 or 1.0% based upon a value judgment as to the ability of the specific vehicle class' ability to meet those standards. The other values are the same as the manufacturers' upper limit if the manufacturer stipulated a large operating range.

The discussion of the idle CO setting above relates primarily to those vehicles manufactured after 1967. As far as the older vehicles are concerned, the idle CO setting is basically set at 6%. There are several good reasons for this. One is that the experience gained in the voluntary test program indicates that most vehicles can easily operate at these levels. Maximum power tuning normally gives an air/fuel (A/F) ratio of about 12.5 which corresponds to about 5.5% CO while maximum economy tuning A/F is about 13.5 or 3% CO. Thus, normal operation of the pre-emission controlled vehicles is below 6% CO.

Alternative 1 may be considered to be closely related to the highest and best practicable treatment and control since it relies heavily on the manufacturers' experience and know-how in developing a vehicle system capable of being certified. The allowance built into the standards proposed in Alternative 1 should be sufficient to allow for reasonable deterioration and the problems associated with repeatability between the State's inspection test and maintenance provided in the private sector. The service industry, in general, is capable of servicing those automobiles now on the road. Various programs are being continually offered to upgrade and keep the service industry abreast of the new automotive technology both by educational facilities and by the manufacturers themselves. Equipment is available on the marketplace which enables the service industry to ensure the accuracy of their settings. The Department has been circulating the California approval list of infra-red exhaust gas analyzers for over six months. An individual motorist should even be able to adjust his own vehicle simply by following the steps and procedures outlined on the underhood label or in the owner's manual. There is also, in the marketplace, a good supply of acceptable quality tune-up tools well within the reach of the motorist with a desire to do his own work.

Summarizing Alternative 1, the following advantages and disadvantages may be listed. The CO standards rely heavily on the manufacturers' experience and knowledge in determining the correct settings for a given automobile. They are equitable to all car classes in that they require the vehicle to be operated and maintained as it was designed, or rather that its operation approach the highest and best practicable treatment and control for a given design. These standards will detect gross emitters. The single disadvantage is that based upon the experience of the voluntary program, we will have unequitable reject rates among certain vehicle makes. This is softened somewhat by the enforcement tolerance which can be added for the first year.

Alternative 2 listed in Table II, takes an entirely different approach in the presentation of the standards. The listing is not by year and make, but rather by carbon monoxide level. The same basic approach as Alternative 1 is used in classifying vehicle groups into CO classes. The advantage of this approach is that it emphasizes the desired control on carbon monoxide. The disadvantages, in my opinion, outweigh the advantages. They are that it is confusing in format, the relationship between manufacturers is not as evident as the approach in Alternative 1, and in terms of a working standard, it would have to be rewritten in a format similar to Alternative 1.

The last alternative shown in Table III is similar to the criteria currently being used in the voluntary program. In this approach, the only classification is by model year. The levels do not necessarily rely on manufacturers' experience and recommendations. The advantages of this approach are that there are few numbers and classes, simplifying the control groups. It emphasizes the change in federal standards by the chosen year groupings, and it has shown in the voluntary program that comparable reject rates are maintained between year groupings. The disadvantages of this approach are that it does not relate to the manufacturers' recommended levels. It generates unequal reject rates based upon make groups. There are dissimilar allowances over manufacturers' recommended levels, some six to 10 times greater, while others are actually above the limit, thus not necessarily detecting the greater quantity of gross emitters. It necessitates the use of an exemption list, which in a regulatory operation, becomes extremely critical should an inspector overlook a vehicle which may be listed.

All the alternatives contain the same basic set of hydrocarbon standards. These numbers are similar to our interim criteria. Among the reasons for this approach are that hydrocarbon excesses are usually associated with mechanical malfunctions or misadjusted ignition components. In terms of carburetor adjustments, hydrocarbons are little affected with the exception of a lean misfire (the condition where the amount of fuel is so little that the combustion process is effected). Hydrocarbons more nearly coincide with age, and engine cylinder groups. This has been documented in the TRW report for the State of California along with other studies and noted from our own voluntary program. Additionally, there are no definite manufacturers' recommendations for hydrocarbon settings. Our voluntary program has also shown that with values similar to those listed, we will be able to detect gross emitters. These values should not affect the setting of our carbon monoxide standards, and should prove equitable among the various classes.

Diesel vehicles and two-stroke cycle vehicles will be exempt from the hydrocarbon check. This is done because diesel hydrocarbons must be measured by a more sophisticated sampling technique than we will be using. Two-stroke cycle vehicles are exempt because even when they are operating perfectly, the hydrocarbon levels are in the range of 2000 to 4000 ppm. Justification for the exemption is based upon engine design and the low carbon monoxide levels obtainable from both of these engines.

Also in the standards is the need for checking the carbon monoxide balance. This can be done by checking the combined CO plus CO_2 readings. If it is less than 10% it can be readily assumed that we are not getting a correct sample. Engine testing and combustion theory show that the range of this carbon balance is between 11% and 22% and is a function of the air/fuel ratio. Diesels and two-stroke cycle engines should be exempt from this requirement because of the inherent differences in the design which causes change in the mass flow rate, affecting the carbon balance.

Smoke checks should only be made at a steady-state idle, and include both tailpipe and breather. Checks at other conditions, while indicating problems, are outside the current definition and intent of the proposed regulations.

The reject rates associated with Table I are shown in Table IV. Reviewing Table IV, one can see the effect of carbon monoxide and hydrocarbon standards. It is recognized that reject rates are heavier on some particular makes than others. But experience indicates that these classes can be brought into compliance with minimal cost and effects on reliability.

Taking all the factors into consideration, the alternative in Table I is the most justifiable on the basis of a technical recommendation. This approach utilizes the experience and knowledge of the manufacturers in setting the standards and has the best chance of relating to the settings required for compliance with the Federal CVS test.

WPJ:mg

1970

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
1. Alpha Romeo		4.0	1.0
2. AMC			
199,232 6 cylinder	A/F Ratio=14.1	3.5	0.5
304,360,390 V8	14.1	3.5	0.5
3. Audi		4.0	0.5
4. BMW			
1600	0.8-1.0	4.0	0.5
2002	0.8-1.0	4.0	0.5
2500	1.5-2.5	4.0	0.5
2800	1.5-2.5	4.0	0.5
5. British Leyland			
a) Austin America	3.5	5.0	0.5
b) Jaguar		4.0	0.5
c) MG Midget	2.5	5.0	0.5
Sprite Mk IV	2.5	5.0	0.5
MGB	4.5	5.0	0.5
MGC	3.0	5.0	0.5
d) Rover		5.0	0.0
e) Triumph			
Spitfire Mk 3	1.0-3.5	4.0	0.5
TR 6	0.5-2.5	4.0	0.5
GT 6+	0.5-2.5	4.0	0.5
6. Checker		2.5	0.5
7. Chrysler			
198, 225 6 cylinder	A/F Ratio=14.2	1.5	0.5
318, 340, 383 V8	0.5%	1.5	0.5
440, 426 V8		1.5	0.5
8. Citroen		4.0	0.5
9. Colt		6.0	0.0
10. Datsun			
Sedan, Wagon, PU	2.0-4.0	2.5	0.5
1600	2.0±0.2	2.5	0.5
2000	2.0±0.2	2.5	0.5
240Z	2.0	2.5	0.5
11. Ferrari		4.0	1.0
12. Fiat			
850		6.0	0.0
124 Sedan, Wagon, Coupe, Spider		5.0	0.5
13. Ford			
170 6 cyl.	1.0	2.0	0.5
200 6 cyl.	1.5	2.0	0.5
240 6 cyl.		2.0	0.5
250 6 cyl.	1.5	2.0	0.5
302	0.44	2.0	0.5
302 Boss	2.8	2.0	0.5
351C	0.9	2.0	0.5
351W	0.3	2.0	0.5
390	0.12	2.0	0.5
428CJ	2.15	2.0	0.5
429	0.75	2.0	0.5
429CJ	0.35	2.0	0.5
429 Boss	2.3	2.0	0.5
460 Lincoln	1.0	2.0	0.5
14. General Motors			
a) Buick			
250 6 cyl.	E-8	1.5	0.5
350, 455 V8		1.5	

1970

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
b) Cadillac			
472, 500 V8		1.5	0.5
c) Chevrolet			
153 4 cyl.		2.5	0.5
230, 250 6 cyl.		1.5	0.5
307, 350, 400, 402 V8		1.5	0.5
454 V8		1.5	0.5
d) Oldsmobile			
250 6 cyl.		1.5	0.5
350, 455 V8		1.5	0.5
e) Pontiac			
250 6 cyl.		1.5	0.5
350, 400, 455 V8		1.5	0.5
15. Honda		5.0	0.5
16. International		4.0	0.5
17. Mazda		4.0	0.5
18. Mercedes Benz			
220/8	3.0-4.0	5.0	0.5
250/8, 230S/8	1.8-2.8	5.0	0.5
280 SE/8, 280SL/8	3.5-5.0	5.0	0.5
300 SEL/8, 300 SEL/8	3.5-5.0	5.0	0.5
600	3.5-5.0	5.0	0.5
19. Opel			
1.1 engine	2.0	3.0	0.5
1.9 engine		3.0	0.5
20. Peugeot 504	2.5±0.5	4.0	0.5
21. Porsche			
911E	3.0±0.5	5.0	0.5
911S	3.0±0.5	5.0	0.5
911T	3.5-4.5 @1200 rpm	5.0	0.5
914 4 cyl.		5.0	0.5
914 6 cyl.	4.0	5.0	0.5
22. Renault R10, R16		5.0	0.5
23. Rolls Royce, Bentley		4.0	0.5
24. Saab		3.0	0.5
25. Subaru		4.0	0.5
26. Toyota			
3KC		4.0	0.5
3RC		4.0	0.5
2M		4.0	0.5
2MB		4.0	0.5
8RC	2.0-3.0	4.0	0.5
8RC	2.0-3.0	4.0	0.5
F		4.0	0.5
27. Volkswagen			
Type I	2.8-3.1	3.0	0.5
Type II	2.8-3.1	3.0	0.5
Type III	2.8-3.1	3.0	0.5
28. Volvo			
B20B	2.0	4.0	0.5
B30B	2.0	4.0	0.5

1971.

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
1. Alpha Romeo 1750	0.8-2.2	3.0	0.5
2. AMC			
232 6 cyl.	A/F: 13.5 3.0	3.5	0.5
304, 360, 400 V8		3.5	0.5
3. Audi			
Super 90	1.5	2.5	0.5
100 LS	1.5	2.5	0.5
4. BMW			
1600 4 cyl.	0.8-1.0	3.0	0.5
2002 4 cyl.	0.8-1.0	3.0	0.5
2500 6 cyl.	1.5-2.5	3.0	0.5
2800 6 cyl.	1.5-2.5	3.0	0.5
5. British Leyland			
a) Austin	3.5	4.0	0.5
b) Jaguar			
XKE		3.0	0.5
XJ6 Sedan		3.0	0.5
c) MG			
Midget	2.5	3.0	0.5
MGB	4.5	5.0	0.5
d) Rover 3500S	3.5	4.0	0.5
e) Triumph	0.5-2.5	3.0	0.5
6. Checker		2.5	0.5
7. Chrysler	A/F: 14.2		
198, 225 6 cyl	0.5	1.5	0.5
318, 340, 360, 383 V8	0.5	1.5	0.5
400, 426, 440 V8	0.5	1.5	0.5
8. Citroen		3.0	0.5
9. Colt	4.0 $^{+1.0}_{-0.5}$	5.0	0.5
10. Crickett		7.5	0
11. Datsun			
1200 Sedan	2.0	2.5	0.5
510 Sedan, wagon	2.0 air	2.5	0.5
240Z	6.0 pump	2.5	0.5
Pick up	2.0 disc.	2.5	0.5
12. Ferrari		2.5	1.0
13. Fiat			
850 Sedan	4.5 $\pm$ 0.5	5.0	0.5
850 Coupe, Spider, Racer	2.0 $\pm$ 0.5	3.0	0.5
14. Ford			
1600 4 cyl.	1.5	2.0	0.5
2000 4 cyl.	1.2	2.0	0.5
170 6 cyl.	1.0	2.0	0.5
200 6 cyl.	1.5	2.0	0.5
240 6 cyl.	1.0	2.0	0.5
250 6 cyl.	1.5	2.0	0.5
302 V8, Boss	0.4	2.0	0.5
351C, W	0.2	2.0	0.5
390 V8		2.0	0.5
400 V8	0.7	2.0	0.5
429 V8	0.2	2.0	0.5
429 V8	0.3	2.0	0.5
460 V8	0.9	2.0	0.5

1971

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
15. General Motors			
a) Buick		1.5	0.5
250 6 cyl.		1.5	0.5
350, 455 V8		1.5	0.5
b) Cadillac			
472, 500 V8		1.5	0.5
c) Chevrolet			
140, 4 cyl.	2.0	2.5	0.5
250, 6 cyl.	1.0	1.5	0.5
307, 350 V8	0.5	1.5	0.5
400 V8	0.5	1.5	0.5
402, 454 V8	1.0	1.5	0.5
d) Oldsmobile			
250 6 cyl.	1.0	1.5	0.5
350, 455 V8	0.6	1.5	0.5
e) Pontiac			
250 6 cyl.	1.0	1.5	0.5
307, 350, 400, 455	1.0	1.5	0.5
16. Honda		5.0	0.5
17. International		4.0	0.5
18. Mazda			
Piston		4.0	0.5
Rotary		3.0	0.0
19. Mercedes Benz			
220 4 cyl.		5.0	0.5
250 6 cyl.		5.0	0.5
250C, 280S	1.8-2.8	5.0	0.5
280SE, SEL, SL	1.5-3.5	5.0	0.5
280SE/300SEL 8 cyl.	1.5-3.0	5.0	0.5
300 SEL (6.3), 600		5.0	0.5
20. Opel			
1.1 engine		3.0	0.5
1.9 engine		3.0	0.5
21. Peugeot			
304	1.55	3.0	0.5
504	2.50±0.5	3.0	0.5
22. Porsche			
914 4 cyl.			
914 6 cyl.	4.0	5.0	0.5
911T	3.5-4.5 @1200 rpm	5.0	0.5
911E	3.0±0.5	5.0	0.5
911S	3.0±0.5	5.0	0.5
23. Renault			
R10	2.0±0.5	3.0	0.5
R16		3.0	0.5
24. Rolls Royce & Bentley		3.0	0.5
25. Saab 99	2.5	3.0	0.5
26. Subaru	1.0-4.0	4.0	0.5
27. Toyota			
Corolla 3KC		4.0	0.5
Corolla 2TC		4.0	0.5
Corona 8RC	2.0-3.0	4.0	0.5
Crown 2M		4.0	0.5
Land Cruiser F		3.0	0.5
Hi lux 8RC	2.0-3.0	3.0	0.5

1971

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
28. Volkswagen			
Sedan, Conv., Karman Ghia	1.5-3.0	3.0	0.5
Stat. Wagon, Transporter	1.5-3.0	3.0	0.5
Sq. Back, Fast Back		3.0	0.5
29. Volvo			
B20B 4 cyl.	2.0-3.0	4.0	0.5
B20E 4 cyl.	1.0-2.0	4.0	0.5
B30A 6 cyl.	2.5-3.5	4.0	0.5

1972

	Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
1.	Alpha Romeo	0.8-2.0	3.0	0.5
2.	AMC	A/F: 14.0		
	232, 258 6 cyl	1.0-1.5	2.0	0.5
	304, 360, 401 V8	0.5-1.0	2.0	0.5
3.	Audi			
	Super 90	1.5	2.5	0.5
	100 LS	1.0	2.5	0.5
4.	BMW			
	2002	0.8-1.2	3.0	0.5
	2002 Tii	2.0-3.0	3.0	0.5
	Bavaria, 3.0CS	1.0-1.5	3.0	0.5
5.	British Leyland			
	a) Austin Marina		4.0	0.5
	b) Jaguar			
	XKE, XJ2	4.5 (W/O air pump)	3.0	0.5
	XJ6 Sedan	4.5 (W/O air pump)	3.0	0.5
	c) MG			
	Midget	3.0	3.0	0.5
	MGB	3.5	4.0	0.5
	d) Rover		4.0	0.5
	e) Triumph			
	Spitfire Mk 4	0.5-2.5	3.0	0.5
	GT6 Mk 3	0.5-2.5	3.0	0.5
	TR6	0.5-2.5	3.0	0.5
	Stag V8	0.5-2.5	3.0	0.5
6.	Checker		1.0	0.5
7.	Chev LUV			
8.	Chrysler	A/F: 14.2		
	198, 225 6 cyl.	0.5	1.0	0.5
	318, 340, 360	0.5	1.0	0.5
	400, 440	0.5	1.0	0.5
9.	Citroen		3.0	0.5
10.	Colt	3.5-5.0	5.0	0.5
11.	Courier	2.5-4.0	4.0	0.5
12.	Cricket		4.5	0.5
13.	Datsun			
	1200 Sedan	2.0	2.5	0.5
	510	2.0	2.5	0.5
	521, PU 620	2.0	2.5	0.5
	240Z	6.0 (air pump disconnected)	2.5	0.5
14.	Ferrari		2.5	1.0
15.	Fiat			
	850 Spider	2.0±0.5	5.0	0.5
	124 Sedan, Wagon	3.0±0.5	4.0	0.5
	124 Coupe, Spider	2.0±0.5	2.5	0.5
	128 Sedan, Wagon			
16.	Ford			
	1600, 2000 4 cyl.	1.2	2.0	0.5
	170, 200 6 cyl.	1.2	1.0	0.5
	240 6 cyl.	0.5	1.0	0.5
	250 6 cyl.	1.0	1.0	0.5
	302 V8	0.19	1.0	0.5
	351C V8	0.5	1.0	0.5

1972.

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
6. Ford (cont.)			
400 V8	0.1	1.0	0.5
429 V8	0.3	1.0	0.5
460 V8	0.5	1.0	0.5
7. General Motors			
a) Buick 350, 455 V8		1.0	0.5
b) Cadillac 472, 500 V8		1.0	0.5
c) Chevrolet			
140 4 cyl.		1.0	0.5
250 6 cyl.		1.0	0.5
307, 350 V8		1.0	0.5
400, 402, 454 V8		1.0	0.5
d) Oldsmobile 350, 455	0.3	1.0	0.5
e) Pontiac			
250 6 cyl.		1.0	0.5
307, 350 V8		1.0	0.5
400, 455 V8		1.0	0.5
18. Honda			
600 Sedan	2.0-4.0	5.0	0.5
600 Coupe Z	2.0-4.0	5.0	0.5
19. International		3.0	0.5
20. Mazda			
1200	2.5-4.0	4.0	0.5
1600	2.5-4.0	4.0	0.5
616	2.5-4.0	4.0	0.5
808	2.5-4.0	4.0	0.5
RX2	0 -3.0	3.0	0.0
RX3	0 -3.0	3.0	0.0
21. Mercedes Benz			
220	2.0-3.5	4.0	0.5
250	1.0-1.5	4.0	0.5
280SE	1.5-3.5	4.0	0.5
280SE, SEL 4.5	0.5-2.0	4.0	0.5
300 SEL 4.5	0.5-2.0	4.0	0.5
350SL 4.5	0.5-2.0	4.0	0.5
600	1.0-4.0	4.0	0.5
22. Opel 1900			
Sedan	1.5-2.5	3.0	0.5
Wagon	1.5-2.5	3.0	0.5
GT Coupe	1.5-2.5	3.0	0.5
23. Peugeot		3.0	0.5
24. Porsche			
914		3.0	0.5
911T		3.0	0.5
911E		3.0	0.5
911S		3.0	0.5
25. Renault			
R12	2.0	3.0	0.5
R15		3.0	0.5
R16		3.0	0.5
R17		3.0	0.5
26. Rolls Royce & Bentley		3.0	0.5
27. Saab			
A11 V4	2.5	3.0	0.5
99E	3.5	4.0	0.5

1972

	Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
28.	Subaru ffl 1300G	1.0-3.0	3.0	0.5
29.	Toyota			
	3KC	2.0-3.0	4.0	0.5
	2TC	2.0-3.0	4.0	0.5
	13RC	2.0-3.0	4.0	0.5
	4M	1.0-3.0	3.0	0.5
	F	2.0-3.0	3.0	0.5
30.	Volkswagen			
	Type 1		3.0	0.5
	Type 2		3.0	0.5
	Type 3		3.0	0.5
	Type 4		3.0	0.5
31.	Volvo			
	B20B 4 cyl.	1.0-1.5	3.0	0.5
	B20E 4 cyl.	1.0-1.5	3.0	0.5
	B20F 4 cyl.	1.0-1.5	3.0	0.5
	B30A 6 cyl.	2.5	3.0	0.5
	B30E 6 cyl.	1.0-1.5	3.0	0.5
	B30F 6 cyl.	1.0-1.5	3.0	0.5

1973

	Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
1.	Alpha Romeo (all)	0.8-2.2	3.0	0.5
2.	AMC			
	232, 258 6 cyl.	1.0-1.5	2.0	0.5
	304, 360, 401 V8	0.5-1.0	2.0	0.5
3.	Audi (all)	1.0±0.5	2.5	0.5
4.	BMW			
	2002	0.8-1.2	3.0	0.5
	2002 Tii	2.0-3.0	3.0	0.5
	Bavaria & 3.0CS	1.5-2.0	3.0	0.5
5.	British Leyland			
	a) Austin, Austin Healey, Morris, Austin Marina	2.0	2.5	0.5
	b) Jaguar X16 Sedan V12	4.5	3.0	0.5
	c) MG Midget	2.5	3.0	0.5
	MGB	2.5	3.0	0.5
	d) Rover	3.5	4.0	0.5
	e) Triumph			
	Spitfire	0.5-2.5	3.0	0.5
	GT6	0.5-2.5	3.0	0.5
	TR6	0.5-2.5	3.0	0.5
	Stag	0.5-2.5	3.0	0.5
6.	Checker		1.0	0.5
7.	LUV	1.0-3.0	3.0	0.5
8.	Chrysler			
	198, 225 6 cyl.	A/F 14.2	1.0	0.5
	318, 340, 360, 400, 440	0.5	1.0	0.5
9.	Citroen		3.0	0.5
10.	Colt	3.5 +1.0 -0.5	5.0	0.5
11.	Courier	0.8-1.5	2.0	0.5
12.	Crickett		3.0	0.5
13.	Datsun			
	1200	1.5±0.5	2.5	0.5
	1600 & PU	1.5±0.5	2.5	0.5
	1800	1.5±0.5	2.5	0.5
	240Z	1.0-1.6 @1400 rpm	2.5	0.5
14.	Ferrari		2.5	1.0
15.	Fiat			
	850	2.0±0.5	3.0	0.5
	124 Sedan, Wagon	3.0±0.5	4.0	0.5
	124 Coupe, Spider	2.0±0.5	2.5	0.5
	128			
16.	Ford			
	1600, 2000, 4 cyl.	1.5	2.0	0.5
	200 6 cyl.		1.0	0.5
	250 6 cyl.	0.5	1.0	0.5
	302, 351C, 351W	0.5	1.0	0.5
	351	0.6	1.0	0.5
	400, 429	0.5	1.0	0.5
	460	0.4	1.0	0.5

1973.

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
17. General Motors			
a) Buick 350 V8		1.0	0.5
455 V8		1.0	0.5
b) Cadillac 472, 500		1.0	0.5
c) Chevrolet			
140 4 cyl.		1.0	0.5
250 6 cyl.		1.0	0.5
307, 350 V8		1.0	0.5
400, 454 V8		1.0	0.5
d) Oldsmobile	0.3		
250 6 cyl.	0.3	1.0	0.5
350 V8	0.3	1.0	0.5
455 V8		1.0	0.5
e) Pontiac			
250 6 cyl.	0.2	1.0	0.5
350, 400, 455 V8	0.2	1.0	0.5
18. Honda			
600 Sedan, Coupe	2.0-4.0	3.0	0.5
Civic	2.0	3.0	0.5
19. International 345	1.5	3.0	0.5
20. Jensen Healey		4.5	0.5
21. Mazda			
808	1.5-2.5	4.0	0.5
Pick Up	1.5-2.5	4.0	0.5
RX2, RX3	0 -3.0	3.0	0
22. Mercedes Benz			
220	0 -1.5	2.0	0.5
280 & 280C	0 -1.5	2.0	0.5
All 4.5 liter	0.5-2.0	2.0	0.5
23. Opel		2.5	0.5
24. Peugeot		3.0	0.5
25. Porsche			
914	0.0-1.5	3.0	0.5
911T	1.5-2.0	3.0	0.5
911E & S		3.0	0.5
26. Renault		3.0	0.5
27. Rolls Royce & Bentley		3.0	0.5
28. Saab			
All V4	1.5-2.5	3.0	0.5
99E	2.5	3.0	0.5
29. Subaru 1400	1.0-3.0	3.0	0.5
30. Toyota			
3KC	1.0-4.0	4.0	0.5
2TC	1.0-4.0	4.0	0.5
18RC	1.0-4.0	4.0	0.5
4M	1.0-3.0	3.0	0.5
F	1.0-3.0	3.0	0.5
31. Volkswagen			
Type 1		3.0	0.5
Type 2	1.0-3.0	3.0	0.5
Type 3		3.0	0.5
Type 4		3.0	0.5

1973.

Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
32. Volvo			
B20B	2.5	3.0	0.5
B20F	1.0-1.5	3.0	0.5
B30A	2.5	3.0	0.5
B30F	1.0-1.5	3.0	0.5

1974.

	Manufacturer	Factory Idle CO	DEQ Standard	Tolerance
1.	Alpha Romeo 2000	0.8-2.0	3.0	0.5
2.	AMC			
	232 6 cyl.	with air 0.5-1.0	2.0	0.5
	258 6 cyl.		2.0	0.5
	304 V8	without air 1.0-1.5	2.0	0.5
	360 V8		2.0	0.5
	401 V8		2.0	0.5
3.	Audi			
	Fox	1.0±0.6	2.5	0.5
	100LS	1.5±0.5	2.5	0.5
4.	BMW			
	2002	1.0-1.2	2.0	0.5
	2002 Tii	1.5 Max.	2.0	0.5
	Bavaria & 3.0CS	2.0 Max.	2.5	0.5
5.	British Leyland			
	Austin, Austin Healey, Morris, Austin Marina	2.0	2.5	0.5
	Jaguar			
	XJ6	4.5 air	3.0	0.5
	XJ12	4.5 pump	3.0	0.5
	V12 "E" Type	4.5 disc.	3.0	0.5
	MG			
	Midget	2.5	3.0	0.5
	MGB	2.5	3.0	0.5
	Rover		4.0	0.5
	Triumph			
	Spitfire	2.0±1.0	3.0	0.5
	TR6	2.0±1.0	3.0	0.5
6.	Chevrolet LUV	1.0	1.5	0.5
7.	Chrysler Corp.			
	198 6 cyl.	0.5 (Readings with air pump, if any, disconnected)	1.0	0.5
	225 6 cyl.		1.0	0.5
	318 V8		1.0	0.5
	360 V8		1.0	0.5
	400 V8		1.0	0.5
	440 V8		1.0	0.5
8.	Citroen		3.0	0.5
9.	Colt, Dodge			
	1600	3.0-4.5	5.0	0.5
	1200	3.0-4.5	5.0	0.5
10.	Courier, Ford 109.6 cid	less than 2%	2.0	0.5
11.	Crickett, Plymouth		3.0	0.5
12.	Datsun			
	610	3.0 (air disc.)	2.5	0.5
	620	1.5	2.5	0.5
	710	1.5	2.5	0.5
	B210	1.5±0.5	2.5	0.5
	260Z	1.0±1.6 (air disc)	2.5	0.5
13.	Ferrari		2.5	1.0
14.	Fiat			
	124	0.5±0.3	2.5	0.5
	128 sedan, wagon	1.0±0.5	2.5	0.5
	128 X1/9	1.0±0.5	2.5	0.5

1974

Manufacturer	Factory Idle CO	DEQ Standards	Tolerance
15. Ford			
2000cc 4 cyl.	1.0-1.5	2.0	0.5
2300cc 4 cyl.	0.12-0.25	2.0	0.5
2800 V6	0.2-0.5	1.0	0.5
200 6 cyl.	0.2-1.5	1.0	0.5
250 6 cyl.	0.2-1.0	1.0	0.5
302 V8	0.5	1.0	0.5
351W V8	0.5	1.0	0.5
351C V8	0.4	1.0	0.5
400 V8	0.4	1.0	0.5
460 V8	0.05-0.25	1.0	0.5
16. General Motors			
a) Buick			
250 6 cyl.	0.3	1.0	0.5
350 V8	0.3	1.0	0.5
455 V8	0.3	1.0	0.5
b) Cadillac			
472 V8	0.4	1.0	0.5
500 V8	0.4	1.0	0.5
c) Chevrolet			
140 4 cyl.	0.5	1.0	0.5
250 6 cyl.	0.3	1.0	0.5
350 V8	0.5	1.0	0.5
400 V8	0.5	1.0	0.5
454 V8	0.5	1.0	0.5
d) GMC		1.0	0.5
e) Oldsmobile			
250 6 cyl.	0.3	1.0	0.5
350 V8	0.3	1.0	0.5
455 V8	0.3	1.0	0.5
f) Pontiac			
250 6 cyl.	0.2	1.0	0.5
350 V8	0.2	1.0	0.5
400 V8	0.2	1.0	0.5
455 V8	0.2	1.0	0.5
17. Honda Civic 75 cid, 4 cyl.	0.2-1.0	3.0	0.5
18. International Harvester		3.0	0.5
19. Jensen Healey	2.5-4.0	4.5	0.5
J-H Interceptor		4.5	0.5
20. Mazda			
Rotary	0.1-2.0	2.0	
808	4.0	4.0	0.5
Pick-up	1.5-3.5	4.0	0.5
21. Mercedes Benz			
230	0 - 1.5	2.0	0.5
280 & 280C	0 - 1.5	2.0	0.5
4.5 Liter	0.5-2.0	2.0	0.5
22. Opel	1.0-2.0	2.5	0.5
23. Peugeot		3.0	0.5
24. Porsche			
911	1.5±0.5	3.0	0.5
911S Carerra	1.5±0.5	3.0	0.5
914 1.8 1	2.5±0.5	3.0	0.5
914 2.0 1	2.0±1.0	3.0	0.5

1974

	Manufacturer	Factory Idle CO	DEQ Standards	Tolerance
25.	Renault			
	R12	4.0 air	3.0	0.5
	R15	4.0 pump	3.0	0.5
	R17 TL	4.0 disc.	3.0	0.5
	R17 G	2.5-3.0	3.0	0.5
26.	Rolls Royce & Bentley		3.0	0.5
27.	Saab			
	V4	1.5-2.0	3.0	0.5
	99E	2.5 max	3.0	0.5
28.	Subaru 1400	1.0-3.0	3.0	0.5
29.	Toyota			
	3KC	1.0-4.0	4.0	0.5
	2TC	1.0-4.0	4.0	0.5
	18RC	1.0-4.0	4.0	0.5
	4M	1.0-4.0	4.0	0.5
	F	1.0-3.0	3.0	0.5
30.	Volkswagen			
	Type 1	2.0-4.0	3.0	0.5
	Type 2	1.0-3.0	3.0	0.5
	Type 4		3.0	0.5
	Type 14	2.0-4.0	3.0	0.5
	Type 181	2.0-4.0	3.0	0.5
	Dasher	0.6-2.0	2.5	0.5
31.	Volvo			
	B20B	2.5	3.0	0.5
	B20F	1.5	3.0	0.5
	B30A	2.5	3.0	0.5
	B30F	1.0-1.5	3.0	0.5

ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB
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Portland

MORRIS K. CROTHERS
Salem

RONALD M. SOMERS
The Dalles

KESSLER R. CANNON
Director

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. H, March 28, 1975 EQC Meeting

Proposed Motor Vehicle Emission Control Inspection Test Criteria, Methods and Standards

Background

At its meeting of December 20, 1974, the Environmental Quality Commission reviewed a Department report on the status of the voluntary vehicle emission control inspection program. The Commission also authorized the holding of public hearings to consider proposed motor vehicle emission control inspection test criteria, methods, and standards.

Four public hearings were scheduled for the evenings of February 20th in Gresham, February 21st in Oregon City, February 24th in Hillsboro, and February 25th in Portland. These hearings were for the purpose of obtaining additional technical and operational information prior to submitting the finally proposed rules to the Commission. A copy of the Hearings Officer report is attached.

Over 1,300 notices of these public hearings were mailed on January 20 and 21, 1975. Notice of the hearings was published in the Administrative Rules Bulletin on February 1, 1975. Additionally, notice of the hearings was published by Automotive News of the Pacific Northwest in their January issue, received by the Department on February 20, 1975. Various news media also carried the fact that these hearings were being held.

A copy of the Department report that was available at these informational hearings, along with proposed rules, has been included in the Commission's workbooks and is also available at this hearing.

Proposal Overview

Basically, the proposals under consideration call for the emission control inspection of light duty motor vehicles, including 3/4 ton pick-ups and vans, at state operated facilities. The one major exception to this is that fleet operations having 100 or more vehicles may be authorized to inspect their own fleet vehicles. It should be noted that these proposals do not apply to new vehicles upon their initial registration.

These proposals are not intended to require the addition of any pollution control equipment not originally installed on the vehicle model. The proposed requirements are intended to detect those vehicles which have not been properly maintained to minimize pollution. Specific conditions are set for diesel powered and for two-stroke cycle engine vehicles. Neither standards for motorcycles nor for heavy duty vehicles are included in these initial proposals.

Proposal Changes Following the Public Hearings of February 20, 21, 24, and 25, 1975

Section 24-305, Definitions: The only change of substance made here was in the definition of "Light duty motor vehicle fleet operation" (17). The change is the addition of the phrase "excluding those vehicles held primarily for the purposes of resale." This change would generally preclude used car dealers from being licensed as fleet operations.

Section 24-310, Test method: The only change made to the test method was in subsection (7), where the maximum preconditioning time at high idle is now also specified.

Section 24-320, Test criteria: Changes were made to subsections (1) and (2) so that an enforcement tolerance was provided for the first year of regulatory operations. Testimony was received during the earlier public hearings that subsections (3) and (4) should be deleted and thus no inspection of the pollution control equipment be made. The Department rejects his viewpoint. In subsection (6) the phrase, "except that any requirement for evaporative control systems shall be based upon the model year of the chassis" was added. Thus, in those cases when a late engine is to be put into an early chassis, it would not be necessary to also change the fuel tank system.

Section 24-330, Idle standards: Various detail changes have been made to subsection (1), the proposed idle carbon monoxide limits. An additional change recommended to the listed standards you have is the addition of an enforcement tolerance through June, 1976, of 0.5%

for 1975 and subsequent model vehicles. Also, a correction should be made on page 9 for the pre-1968 MG and Triumph. The dash is to be changed to a zero for the enforcement tolerance.

Subsection (2), hydrocarbon standards have likewise been changed in detail. The base standard for pre-1968 model year and 1975 model year vehicles has been increased. The enforcement tolerance for pre-1975 models has also been increased. It is recommended that an enforcement tolerance of 100 ppm be incorporated to standards for the 1975 and subsequent model year vehicles.

Subsection (4) has been added in an attempt to provide an administrative procedure for handling oversight situations until the Commission is able to act on the matter.

Section 24-340, Qualification criteria: Subsection (11) was added to this section.

Section 24-350, Gas analytical system: No changes have been made to this section.

Recommendation

It is the Director's recommendation that following the public hearing and upon consideration of the testimony presented, the proposed criteria, methods and standards be adopted.

KESSLER R. CANNON
Director

RCH:mg
3/19/75

ROBERT W. STRAUB
GOVERNOR

KESSLER R. CANNON
Director

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, OREGON • 97205 • (503) 229-6210

MEMORANDUM

To: Director

From: Peter McSwain

Subject: Vehicle Emission Control Inspection Program Public Hearings Report

MINUTES

After the required publication and notice to required parties, including the most widespread publication feasible to the Department, Public Hearings were conducted as follows:

On the 20th of February in the Council Chambers for the City of Gresham, 150 West Powell Street, Gresham, Oregon.

On the 21st of February in the Clackamas County Health Department Auditorium, 1425 Kaen Road, Oregon City, Oregon.

On the 24th of February in the Washington County Administration Building, 150 North First Avenue, Hillsboro, Oregon.

On the 25th of February in the Council Chambers of the City of Portland, 1220 S.W. 5th Avenue, Portland, Oregon.

All hearings commenced at 7:30 p.m. Attendance was relatively light in view of the issue's potential effect on all registered vehicle owners in the Portland Metropolitan Service District. The most heavily attended meeting was on the evening of February 20, when about forty-five persons were in attendance.

These hearings, though prefaced by the usual rule making hearing requirement of notice, did not, in effect, constitute such. Rather, they were informal, designed for purposes of public information and the gathering of comment to be placed before the Commission in its rule making action.

In large measure, the hearings took the form of public questions about the proposed rules and the program in general. Mr. Householder answered these to everyone's satisfaction and the hearings proved very educational to those who attended.

Comment from two or three public participants was in criticism of the concept of periodic motor vehicle emission control inspection, and/or the wisdom of invoking a program by July 1, 1975. It would seem that ORS 468.360 to 468.405, 481.190 to 481.200, and 483.800 to 483.825 render such criticism beyond the Commission's jurisdiction to resolve. Department personnel explained this to those offering such criticisms.

ISSUES

Taken together, the four hearings resulted in approximately twelve statements offered orally to the record. Those pertinent to the rule making process are set forth in substance below for the attention of interested parties and have been ordered in terms of those portions of the proposed rule in issue.

1) It was questioned whether there ought to be the requirement that a Certificate of Inspection (Section 24-305(4) be affixed to the windshield (Section 24-310(13))since it might result in an untidy appearance and impaired vision.

2) It was vehemently objected by Mr. Craig Adelhaat, an auto mechanic, that factory installed motor vehicle pollution control systems (Section 24-305(11)) should not be required to be maintained on the vehicle (Section 24-320(3)) if the owner or his mechanic are able to bypass or remove such systems and still pass the test as set forth in Section 24-310.

3) It was the opinion of Mr. C.A. McRobert, a Gresham area automobile dealer that, under the present rule, used car lots with 100 or more "in use vehicles" (Section 24-305(16)) would qualify as a light duty motor vehicle fleet operation (Section 24-305(17)) for purpose of self inspection (Section 24-340). Mr. McRobert expressed satisfaction with such a result.

4) It was questioned whether the definition of "Motor Vehicle" ought to be altered so as to be in alignment with the definition used by the Department of Motor Vehicles (whose enforcement procedures are incorporated into the rule (ORS 481.190(2)), and whether the definition of "Motor Vehicle" ought to be worded so as to specifically exclude sports vehicles whose use is solely for racing or other off-road activity but whose registration is required by the Department of Motor Vehicles prior to towing on the highway.

5) Mr. McRobert and several others foresaw problems in the application of Section 24-320(6) because some engines bear no identification mark as to model year, the same having been obliterated. Further, there was question as to whether the rule would require addition of pollution devices carried by the manufacturer for a given engine year but not attached to the engine or replaced normally when one replaces an engine with a later model engine.

Mr. Adelhaat and others questioned whether certain categories of automobiles (such as late 50's and early 60's GM products with full vacuum advance) could pass the criteria set forth in Section 24-330. Porche vehicles were said to be unable to meet any emission requirements that might be formulated by the Department.

It was questioned whether the rule ought to contain an exemption for older owners or others whose funds were insufficient to provide the periodic tuneups which would result if the rule were invoked in present form.

Other issues raised during the hearing proved to flow from a misunderstanding of the proposed rule which could be clarified for the party making inquiry.

Mr. Maurice Baker questioned the Department's efforts in getting the public informed as to the nature of the program and the opportunity to be heard. He was informed that extensive mailing and press release activity within the limitations feasible, given the Department's budget were undertaken but had resulted in less response than was hoped.

CONCLUSION

The Department's Vehicle Inspection Division was represented at all four hearings and will grant due consideration to all relevant testimony for purposes of further evaluation and recommendation to the Commission.

Respectfully submitted,

Peter McSwain

Peter McSwain
Hearings Officer

PWM:vt

BERT W. STRAUB
GOVERNOR

KESSLER R. CANNON
Director

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-6235

MEMORANDUM

TO : General Distribution

FROM : Vehicle Inspection Division

SUBJECT: Proposal for Motor Vehicle Emission Control Inspection Test Criteria, Methods and Standards to be discussed at Public Hearings on February 20, 21, 24, and 25, 1975

Vehicle Inspection Program Background

The Federal Clean Air Act of 1970 directed the Environmental Protection Agency to establish air pollution standards, and required state governments to develop implementation plans for achieving and maintaining compliance with the national standards.

During 1971, the EPA established national ambient air standards for various pollutants, including carbon monoxide, and set the criteria for development of state implementation plans to meet those standards. Also in 1971, Oregon legislation was adopted which directed the Department of Environmental Quality to develop a periodic motor vehicle emission inspection program.

In January, 1972, Governor McCall submitted Oregon's implementation plan to the EPA. This plan included provisions for both transportation control measures and a periodic motor vehicle inspection program to help bring automotive produced pollutants into compliance with national standards. This plan was submitted to the Governor by the Environmental Quality Commission (EQC) following their consideration of the plan and the testimony received at public hearings held in Eugene, Medford, and Portland.

The EQC reviewed a comprehensive staff report regarding motor vehicle emission control activity at its October 25, 1972 meeting. This report contained several recommendations from the Director for Commission approval.

These recommendations, which the commission did approve, were:

1. Approval of the basic concept of a vehicle inspection program as outlined in the report.

2. Authorization for the Director to:

   a. Proceed with arrangements to hold a public hearing to designate those counties in which the program would be enacted.

   b. Prepare necessary legislative proposals to provide specific authorization and funding for state operated inspection facilities.

   c. Request funds from the Emergency Board to initiate a pilot vehicle inspection program.

The basic concept of the inspection program outlined in the staff report was that of state operated facilities conducting annual emission control tests in the four county Portland Metropolitan area. Meeting the standards of the testing program was a requirement for vehicle license renewal as specified in the Oregon laws, passed by the 1971 Legislative Session.

The Commission, at its meeting of March 2, 1973, adopted a rule to initiate the inspection program in Clackamas, Columbia, Multnomah, and Washington Counties beginning January 1, 1974. This rule was later amended to delete Columbia County and to delay initiation of the program until March 31, 1974.

The Oregon State Emergency Board, during their meeting of August 15, 1973, authorized the Department to use the appropriation provided by the 1973 Legislative Assembly for the initiation of a voluntary inspection program. In October, 1973, EPA Administrator Russell Train approved the Transportation Control Strategy for Portland as submitted in final form by Governor McCall. This strategy is actually a part of the implementation plan, but deals specifically with motor vehicle pollutants and their control. The strategy provided in greater detail the specifics for control of motor vehicle pollutants which basically consist of public transportation improvements, a reorganization and management of parking, traffic flow improvements, and a vehicle inspection and maintenance system.

In February, 1974, the Special Legislative Session considered and favorably acted upon a bill which increased the allowable inspection fee to a $5 maximum so as to make the program self supporting from receipt of inspection fees. This legislative action further set the boundaries of the insp ction program as the Metropolitan Service District boundaries surrounding Portland, required an annual inspection rather than just at time of license renewal, and set the start-up date for regulatory operations as July, 1975.

Additional information on the status of the voluntary program and inspection/maintainance programs in some other state is included in Appendix A.

Proposals: Motor Vehicle Emission Control Inspection Test Criteria, Methods, and Standards

The Department began operation of the voluntary inspection program in earnest during 1974. To date, over 35,000 emission tests have been conducted.

The department has used the data and experiences gained from operation of this voluntary program -- as well as studies and experiences from other areas around the country -- in developing these proposals for rules.

Basically, the proposals under consideration call for the emission control inspection of light duty motor vehicles, including 3/4 ton pickups and vans, at state operated facilities. The one major exception to this is that fleet operations having 100 or more vehicles may be authorized to inspect their own fleet vehicles. It should be noted that these proposals do not apply to new vehicles upon their initial registration.

These proposals are not intended to require the addition of any pollution control equipment not originally installed on the vehicle model. The proposed requirements are intended to detect those vehicles which have not been properly maintained to minimize pollution. Specific conditions are set for diesel powered and for two-stroke cycle engine vehicles. Neither standards for motorcycles nor for heavy duty vehicles are included in these initial proposals.

Section 24-305, Definitions: Probably one of the most significant definitions in this section is that of light duty motor vehicles. These vehicles are defined as being self-propelled, used on public roads for transporting persons or commodities, and having a gross vehicle weight of 8,400 pounds or less.

The definition of fleet operation restricts self-inspection to those operations which own, control, or manage, or a combination thereof, not less than 100 Oregon registered in-use, light duty motor vehicles.

Section 24-310, Test Method: The test method described is an idle test with a preconditioning procedure. Vehicles with dual exhausts are to be compared to the standards using the average of the exhaust gas readings.

Section 24-320, Test Criteria: Test criteria are actually very similar to test standards, except that the criteria are not involved with direct measurement of exhaust pollutants. A vehicle will not meet the proposed criteria if the exhaust system leaks excessively, nor if the engine idle speed is set excessively high so that it is operating into the main circuitry of the carburetion system.

All 1968 or newer model vehicles -- it is to be noted that the vehicle model is defined by the engine and not the chassis -- will be inspected to insure that factory installed pollution control systems are properly operational and functional. Specific control systems which must not be disconnected, plugged, or otherwise made inoperative are listed in subsection (3). Subsection (4) specifies that the use of non-original equipment replacement parts solely for the purposes of maintenance according to the manufacturers' instructions or for the repair or replacement of defective or worn out parts, is authorized unless a reasonable basis exists for knowing that such parts will adversely affect emission control efficiency. It is proposed that the Department maintain a

listing of those parts which have been determined to adversely effect emission control efficiency. Subsection (4) further specifies that add-on parts affecting the vehicles' emission control system will be authorized so long as the add-on parts are on the exemption list maintained by the Department.

Appendix B for this report contains a copy of the EPA Mobile Source Enforcement Memorandum No. 1A (Interim Tampering Enforcement Policy), the State of California Air Resources Board Criteria for Determining Compliance with Section 27156 of the Vehicle Code, and a copy of the State of California Air Resources Board Policy on Replacement Parts. Subsections (3) and (4) of the Department's proposals are considered to be consistent with and complementary to these EPA and California policies. While there is little agreement as to what totally constitutes the emission control systems on newer vehicles, it is evident and generally agreed that certain components or systems are part of the overall emission control system. In a paper presented to the Third Annual North American Motor Vehicle Emission Control Conference, Mr. Hannum, Chief Engineer, TRW Replacement Division, itemized components of emission control systems. In reviewing the literature, it appears that the components listed by Mr. Hannum are generally agreed to be part of motor vehicle emission control systems. The listing in subsection (3) contains only those components generally agreed to be part of current emission control systems.

An important factor to consider regarding the anti-tampering criteria is that vehicle manufacturers design and build vehicles to comply with federal emission control requirements. Those requirements currently specify the maximum weight of pollutants permitted to be emitted during a test procedure involving a 25 minute driving cycle. This driving cycle includes an engine start-up, operation at idle, accelerations, cruising at several different speeds, and deceleration. Operation at idle constitutes less than 20% of the driving cycle time. In addition, a 50,000 mile durability test is conducted to insure that the emission control design will maintain emissions within allowable limits if the vehicle is properly maintained.

The conclusion is that emission results using the federal emission test procedures, and not the simpler inspection/maintenance program test procedures, are to be the base in determining whether or not a modification or alteration decreases the efficiency or effectiveness of a pollution control system. This must be viewed as a significant decision since it is possible for a vehicle to meet the simpler emission pass/fail criteria of an inspection/maintenance program and yet have been altered or modified in such a manner so as to not comply with the federal emission standards, and thus be considered in violation of ORS 483.825(2). Likewise, an after-market product or invention may show merit when tested by the inspection/maintenance program procedures and yet would still be considered in violation of ORS 483.825(2) if emissions were increased over baseline values when tested by federal procedures

<u>Section 24-330, Motor Vehicle Emission Control Idle Emission Standards</u>: This section is in three parts. The first subsection specifies idle carbon monoxide limits, the second specifies idle hydrocarbon limits, and the third specifies maximum smoke levels.

The proposed carbon monoxide idle limits are heavily based upon manufacturers' recommended settings. For pre-emission controlled vehicles, those manufactured before 1968 model year, the idle carbon monoxide values are basically set at 6%. Experience gained during the voluntary test program indicates that most of the affected vehicles can easily operate within this limit. It should be noted that maximum power tuning normally gives an air/fuel (A/F) ratio of approximately 12.5:1, which corresponds to about 5.5% CO. Maximum economy tuning A/F ratio is about 13.5:1 or 3% CO.

To determine the recommended settings for vehicles with emission control systems, a review of the service industry literature was made, many manufacturers were contacted, and underhood decal values were noted during the voluntary program operation. From this information, a listing was drawn up for vehicles such that the recommended standard level was either equal to or greater than the manufacturer's recommendation. If the manufacturer specified an acceptable range for idle CO settings, then the upper limit was selected for a standard. If the manufacturer specified a single setting value only, then the proposed standard was set either 0.5% or 1.0% greater based upon a value judgment as to the ability of the specific vehicle classes' ability to meet those standards in actual use.

In addition to the tolerance built into the base standard, it is recommended that an additional tolerance be added to the base standard for the first year of regulatory program operation.

The second subsection lists the proposed hydrocarbon idle limits. The listing is quite similar to that being used in the voluntary program. Among the reasons for this approach are that hydrocarbon excesses are usually associated with mechanical malfunctions or misadjusted ignition settings and components. Hydrocarbon values are not a major effect of carburetor adjustments, except in the case where the carburetor has been set so lean as to cause a lean mis-fire. Hydrocarbon values more nearly coincide with age and engine cylinder groups. This has been documented in a TRW report for the State of California along with other studies, and observed in the results of the voluntary program. The values chosen are intended to detect gross emitters.

Additional information regarding these proposed standards is contained in Appendix C to this report.

Section 24-340, Criteria for qualifications of persons eligible to inspect motor vehicles and motor vehicle pollution control systems and execute certificates: The basic purpose of this section is to specify the licensing requirements for self-inspection by fleet operations. The licenses to be issued would be valid for one year and would be renewable. To be licensed, a fleet operation must own an exhaust gas analyzer as specified in section 24-350, be equipped with a sound meter, and employ a licensed fleet operation vehicle emission inspector. To become licensed as an inspector, a person must satisfactorily complete a Department training program.

Section 24-350, Gas Analytical System Licensing Criteria: This section specifies the requirements for exhaust gas analyzers to be used in the inspection program. The criteria essentially requires either the California approved analyzers for vehicle pollution control stations or the Department specified units as to be used in the state inspection facilities.

STATE OF OREGON
RECEIVED
MAR 27 1975
Dept. of Environmental Quality
Vehicle Inspection Division

Reference No. SM-0188
Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, Michigan 48090

March 20, 1975

Mr. Kessler R. Cannon, Director
Department of Environmental Quality
1234 Southwest Morrison Street
Portland, Oregon 97205

Dear Mr. Cannon:

This is in response to your notice of public hearing concerning the adoption of rules to establish motor vehicle pollution control criteria methods and standards for in-use vehicle emission inspection.

After carefully considering the hearing notice along with the supplemental material that we had previously received from your staff, General Motors must oppose the proposed vehicle emission inspection standards. This opposition is based on our belief that the standards are too stringent and as such will wrongly penalize some vehicles that will meet the required federal vehicle exhaust emission standards.

Table 1, copy attached, of Appendix A of the supplemental material is a summary of test results of vehicles that you have already tested. This table shows that approximately 45-50% of the vehicles are failing the interim idle emission standards. The proposed standards if adopted will result in a greater percentage of vehicles failing your standards. Our experience has been that rejection rates of this magnitude would certainly cause a number of vehicles that would normally meet the federal exhaust emission standards to be wrongly penalized.

To further support our position that the standards are too stringent, consider the idle emission criteria that we are currently using for vehicles produced for sale in California. Depending on the engine family, the pass-fail idle emission criteria used for these vehicles range from .50-1% CO and 70-190 PPM HC. Although most 1975 vehicles will have idle emission substantially below these criteria, some will have emissions near the upper limit and still meet the required exhaust emission standards.

As you probably know, California has vehicle emission standards more stringent than those used in the other forty nine states. All vehicles produced for sale in California are given an idle emission test at the end of the assembly line. From this production, a 2% sample is taken and is given the CVS mass test. Of that sample, 90% of the vehicles are required to pass the California exhaust emission standards before the total production is considered acceptable for sale in that state.

We mentioned our California experience to emphasize the fact that quality control is of necessity a part of our production process and also to point out that the vehicles produced for sale in states other than California are produced at the same assembly plants. Therefore, we would not expect the idle emissions from vehicles produced for sale in Oregon to be significantly different from those produced for sale in California.

It would appear to us that if all vehicles in Oregon are required to pass the inspection standards, the service industry may not have the capacity to handle the volume that you will reject by the proposed standard. This could result in public opposition to your program.

We have discussed the proposed standards with Mr. Ron Householder of your staff and it is our understanding that the rationale for having stringent standards is to require the vehicle to be adjusted as close as possible to manufacturers specification. While we recognize the importance of having vehicles adjusted to manufacturers specifications, we believe that this can also be accomplished by instructions to the repair industry. The instructions would include a statement to the effect that all repairs on emission related components should be done to manufacturers specifications.

We recommend that you reconsider the proposed standards and continue using the interim standards. The interim standards can be adjusted at a future date to correct any errors of commission or omission. Please have this letter made a part of the record during the public hearing on March 28, 1975.

Yours very truly,

T. M. Fisher, Director
Automotive Emission Control

TMF/JCC/etj

Attachment

cc: Ron Householder

GUIDO FOGGINI
Designated Agent of
FERRARI Sefac
c/o FIAT Motor Co.
560 Sylvan Avenue
Englewood Cliffs, NJ 07632

May 7, 1975
Ref. No. 000870

DEPARTMENT OF ENVIRONMENTAL QUALITY
1234 S.W. Morrison Street
Portland, Oregon 97205

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
MAY 9 1975
OFFICE OF THE DIRECTOR

Attention: Mr. Kessler R. Cannon

Dear Mr. Cannon:

Within the test criteria, methods and standards of the Motor Vehicle Emission Control Inspection Program, as adopted by the D.E.Q. of Oregon on March 31, 1975, for vehicles in use within the boundaries of the metropolitan area of the City of Portland we have noticed that the following standards are set for 1975 FERRARI models:

CO = 1.0% + 0.5
HC = 175 ppm + 50

In fact, as far as idle CO is concerned, no value is entered for 1975 FERRARI cars, as a consequence the value listed for vehicles for which no values are entered has to be taken into consideration.

This letter is to inform you that in 1975 Model Year the FERRARI Model DINO 308 GT4, Engine Family F 106 A, has been certified both by the Environmental Protection Agency and the Air Resources Board of California. For that 8 cylinders, 178.61 C.I.D. non-catalyst equipped model the following specifications have been set by the factory:

Tailpipe	CO	=	max. 1.5%
	HC	=	max. 300 ppm
Each cylinder	CO	=	2% ± 1.5%
	HC	=	max. 300 ppm

The enclosed copies of Pages III-21 and III-26, excerpted from Part II of the "Application for 1975 Certification Engine Family F 106 A" on the basis of which the certification has been granted by EPA and ARB include the above information.

Owing to the fact that the specifications set by the factory for idle CO and HC are not compatible with those required by the Oregon D.E.Q. we would appreciate you revising the requirements for this FERRARI Engine Family.

We thank you for your cooperation and we remain at your disposal for any further explanation you may request.

Sincerely yours,

Guido Foggini

B.Fo/bg
Enclosure

1. VEHICLE SPECIFICATIONS: Engine Family F 106 A

Manufacturer FERRARI Model DINO 308 GT 4

Vehicle Serial No. 08200 Engine Code and Serial No. F106 A-C-AI

Engine C.I.D. 178.61 No.Cylinders 8 Compression Ratio 8.8

Advertised SAE HP 240 Bore (in) 3.19 Stroke (in) 2.79

Transmission Manual Axle Ratio 3.7 N/V ratio 47.17

Tire Size 205/70 VR 14 Curb Weight(lbs) 3200 Air Conditioning YES

Carburetor Make WEBER No.of Venturis 2x4 Curve No. 40 DCNF 45/46/47/4

Distributor Make MARELLI Curve No. S 159 B

Exhaust Control System A.I./TR Evaporative Control System C.C.

Crankcase Control System Closed System

Devices and Calibration Values Fast Idle Device - Double Breaker Point Distributors(for calibration values see Vehicle Data Book sheets 10 - 11)

2. ENGINE TUNE-UP SPECIFICATIONS:

Basic Ignition Timing 3 Degrees ATDC at 1000 RPM

Setting Procedure with stroboscopic lamp

Idle Speed 1000 ± 200 RPM in NEUTRAL Dwell 34±3 / 39±3 Idle CO 2% ± 1.5

Setting Procedure with CO/HC analyzer probe in each cylinder

Spark Plug Type CHAMPION N-6-Y Spark Plug Gap (in) 0.02

3. TEST CONDITIONS:

Dynamometer inertia(lbs) 3500 Actual Road Load Power 8.2 at 50 MP

Nominal Fuel Tank Volume(gal) 19.8 Shift Points Federal Standard

Starting Procedure as outlined in the Vehicle Owner's Manual

Alternate Procedures =

4. TRAP LOCATIONS FOR EVAPORATIVE LOSS TEST:

Air Cleaner YES Canister YES Relief Valve YES

Carb.Bowl Vent NO Filler Cap NO Other NO

5. MANUFACTURER'S EMISSION RESULTS:

Location of Test WEBER LAB. BOLOGNA (ITALY) Date of Mfr's Test

HC-Gm/mile 0.480 CO-Gm/mile 5.474

NO_x-Gm/mile(corrected) 0.724 Evap-Gm/test 0.220

CO2-Gm/mile 771.7

ENGINE FAMILY IDENTIFICATION F 105 A

ENGINE C.I.D. 178.61

FUEL SYSTEM CARBURETION

TRANSMISSION M5

EXHAUST CONTROL SYSTEM AIR/TR

EVAPORATIVE CONTROL SYSTEM CANISTER

1. Basic ignition timing 3 ± 2 Degrees A TDC @ 1000 RPM

   Transmission in NEUTRAL

   Setting Procedure WITH STROBOSCOPIC LAMP

2. Idle speed 1000 ± 200 RPM Transmission in NEUTRAL

   Setting Procedure SEE "INSTRUCTION BOOK"

3. Distributor point dwell angle R_1 = 39±3; R_2 = 34±3 degrees

4. Spark plug gap 0.02 inches

   Recommended Type CHAMPION N 6 Y

5. Type of choke MANUAL

6. Recommended idle CO/HC
   TAIL PIPES CO = max 1.5%
   HC = max 500 ppm
   each cylinder CO = 2% ± 1.5%
   HC = max 500 ppm

7. Idle mixture setting procedure (if specified) WITH CO/HC ANALYZER PROBE IN EXHAUST TAIL PIPE AND IN EACH CYLINDER

8. List of any other special tune-up procedures

APPENDIX F

RHODE ISLAND

AMENDMENTS TO THE OFFICIAL MANUAL FOR VEHICLE INSPECTION
EFFECTIVE JANUARY 1, 1979

STATE OF RHODE ISLAND

DEPARTMENT OF TRANSPORTATION

MOTOR VEHICLE SAFETY AND EMISSION CONTROL DIVISION

Amendments to the Official Manual for Vehicle Inspection

Effective January 1, 1979

The attached pages contain amendments to the following regulations:

SECTION 1.12 VEHICLES EXEMPT FROM INSPECTION.

SECTION 1.19 EMISSION INSPECTION STANDARDS.

SECTION 1.23 VOLUNTARY INSPECTIONS.

Keep these amendments with the Official Manual for Vehicle Inspection.

WENDALL J. FLANDERS, DIRECTOR
DEPARTMENT OF TRANSPORTATION

STATE OF RHODE ISLAND
DEPARTMENT OF TRANSPORTATION
MOTOR VEHICLE SAFETY AND EMISSION CONTROL DIVISION

In accordance with Title 31, Chapter 38 of the Motor Vehicle Code Act, the following Rules, Regulations, Procedures and Standards for the inspection of vehicles and related equipment are in addition to the Rules, Regulations, Procedures and Standards as promulgated in the Official Manual for Vehicle Inspection, effective November 1st, 1977.

These Rules, Regulations, Procedures and Standards shall become effective as of January 1st, 1979.

1.19 EMISSION INSPECTION REGULATIONS

All vehicles, except motorcycles, trailers and public conveyance type vehicles shall be inspected and approved before the end of the month and year indicated on the Rhode Island inspection approval sticker affixed to the vehicle.

All motorcycles and trailers shall be inspected and approved before the end of June of each year.

Public conveyance vehicles, including school buses, shall be inspected by scheduled appointment as directed by the Director of Transportation or his designee.

Any vehicle, except public conveyance vehicles, without a valid Rhode Island inspection approval shall be inspected and approved within five (5) business days from the date of registering in Rhode Island.

Any Rhode Island registered vehicle which was out of state during its required inspection period will be allowed five (5) business days upon its return to the State of Rhode Island in which to obtain a certificate of inspection and approval.

The Rejection Report (RN-1) must be used for each vehicle which does not pass inspection. This includes the emission inspection, as well as safety inspection. If the vehicle fails, you are required to make out the rejection report and show the hydrocarbon (HC) and carbon monoxide (CO) numbers which were obtained, along with any other safety defect.

Any owner who feels that his vehicle has been unfairly rejected may have the rejected vehicle reinspected within fourteen (14) days of the initial inspection; the owner may contact the Motor Vehicle Safety and Emission Control Division for a reinspection appointment at the State Inspection Facility.

1.19 EMISSION INSPECTION REGULATIONS (Continued)

The Director of the Department of Transportation or his designee may extend the time within which a certificate of inspection and approval shall be obtained.

The Director of the Department of Transportation or his designee may extend the fourteen (14) day repair or payment period after concluding that such extension is not inconsistent with the inspection laws.

Employees of the Department of Transportation appointed by the Director of the Department of Transportation or his designee may approve or reject any vehicle or any part of any vehicle previously inspected after concluding that such approval or rejection is not inconsistent with the inspection laws.

The Director of the Department of Transportation or his designee may authorize any inspection station to issue a certificate of inspection and approval to any vehicle after concluding that a reasonable effort to meet the emission standards has been made.

The Director of the Department of Transportation or his designee may authorized any inspection station to issue a certificate of inspection or approval to any vehicle after concluding that such approval is not inconsistent with the inspection laws.

The Director of the Department of Transportation or his designee may suspend the registration of any school bus or public conveyance type vehicle from transporting passengers which he determines is in such unsafe condition to transport passengers or which does not meet the requirements established for such school bus or public conveyance type vehicle, provided, however, that any vehicle which has been transporting passengers in violation of such suspension, then such registration shall be immediately suspended by the Department of Transportation and the registration plates and certificates returned to the Department of Transportation forthwith.

Employees of the Department of Transportation appointed by the Director of the Department of Transportation or his designee may immediately suspend the Inspection Permit of any station upon concluding that the emission analyzer or any other emission or safety testing equipment is not working properly or is missing from the inspection station or is not staffed with a State certified inspector.

1.19.1 EMISSION INSPECTION EQUIPMENT

Emission inspection equipment must be capable of performing an idle emission inspection of all vehicles required to be inspected for hydrocarbon in parts-per-million (PPM) and carbon monoxide in percent (CO%). The analyzer shall be a type approved by the Department of Transportation.

Each analyzer shall be equipped with all necessary valves, hoses and other equipment to calibrate the analyzer along with a supply of calibration gases in concentrations that meet the manufacturer's specifications for calibration of the analyzer.

The calibration gases shall be certified by the gas blender to be within ± 2% of the labeled concentrations attached to the gas container. The State reserves the right to examine any gas or equipment used to calibrate emission analyzers.

If the manufacturer of a particular analyzer does not specify a specific concentration for calibration gases, the State will accept calibration gases in concentrations as follows:

HC	(Propane)	3000 PPM
CO	(Carbon Monoxide)	8 %

If the propane-hexane factor is not established, the State will accept .52 as a satisfactory propane-hexane factor.

Each station will be required to gas check the calibration of each analyzer used for inspection at least once each week, and record the results of the calibration check. Periodically, each certified inspector will be required to gas check the calibration of each analyzer used by actual demonstration before a State Inspector. This demonstration does not preclude any calibration check that the State may want to make.

The results of the weekly calibration check shall be properly recorded on forms provided by the Department of Transportation. The completed forms shall be enclosed in the station Inspection Manual for review by State Inspectors. Any analyzer found out of calibration will be ordered out of service and the station subject to immediate suspension for not being properly equipped.

The analyzer shall be capable of being kept in a "warmed-up" condition in the inspection lane or bay and be available for use throughout the normal inspection hours of the station.

1.19.2 EMISSION INSPECTION TEST PROCEDURES AND STANDARDS

1. Instrument must be in a "warmed-up" condition with both HC and CO meters adjusted to zero and proper span setting before each test.

2. Vehicle to be tested must be warmed to its normal operating temperature. It should be pre-conditioned for testing by running the engine at a fast idle (approximately 2000 RPM) for about 15 seconds.

3. With the transmission in a neutral position and the engine at normal idle, insert analyzer probe (hose end) into the exhaust tail pipe and allow a few seconds for the HC and CO meters to stabilize. Record the numbers obtained on the reports provided. Pass or reject vehicle according to standards.

4. Do not approve vehicles with defective exhaust systems such as a broken or missing muffler and/or exhaust piping which could allow excessive air into the exhaust sample and cause faulty emission test readings. Indicate rejection as "defective exhaust system - no emission test."

5. On vehicles with more than one active exhaust tail pipe, take readings from both pipes and record the average of the readings.

6. Remove probe to prevent unnecessary clogging of analyzer.

7. Examine fuel fill area of fuel tank for any missing, broken or loose fitting fuel caps or other conditions which could allow fumes to escape from the fuel tank.

VEHICLES REQUIRED TO BE INSPECTED FOR EMISSIONS SHALL MEET OR BE LESS THAN THE HYDROCARBON (HC) AND CARBON MONOXIDE (CO) EMISSION STANDARDS AS SET FORTH BELOW:

VEHICLE YEAR OF MANUFACTURE	HYDROCARBON HC (PPM)	CARBON MONOXIDE CO (%)
1967 or earlier	1600	10.0
1968 - 1969	800	8.0
1970 - 1974	600	6.0
1975 - after	300	3.0

Cause for rejection:

1. Any vehicle which fails to pass the hydrocarbon or carbon monoxide exhaust emission standard.

2. Defective exhaust system - no emission test.

3. Any missing, broken or loose fitting fuel cap, or other conditions which could allow fumes to escape from fuel tank.

1.19.3 RECOMMENDED EMISSION REPAIR PROCEDURES

PAST EXPERIENCE INDICATES THAT MANY VEHICLES CAN PASS THE IDLE EMISSION TESTS BY ADJUSTING THE CARBURETOR IDLE MIXTURE SCREWS ONLY.

With the owner's permission to repair a vehicle that has failed the carbon monoxide part of the emission tests, it is recommended that you first adjust the carburetor idle mixture screw(s) (according to manufacturer's procedure and within the range of the limiter caps) to a reasonable point below the standard for the particular year of the vehicle and record both hydrocarbon (HC) and carbon monoxide (CO) readings on the form provided.

If the vehicle fails to pass after the idle adjustment and additional repairs are made as part of the inspection, it is required that the hydrocarbon (HC) and the carbon monoxide (CO) readings be recorded along with other information on the form provided.

1.19.4 STAGGERED INSPECTION SYSTEM AND STICKERS

The inspection stickers are designed for yearly use and are to be issued to the public on a monthly staggered basis.

The basic yearly sticker will be purchased by the Inspection Stations from the Motor Vehicle Safety and Emission Control Division and the necessary monthly inserts will be provided at no cost to the station.

These monthly inserts are designed to be applied to the basic yearly sticker and must be issued in accordance with the month in which the particular vehicle is being inspected.

When a vehicle has been approved and the sticker information has been properly recorded, you should proceed as follows:

1. Remove basic yearly sticker from sticker book.
2. Remove protective covering from basic yearly sticker.
3. Select the proper monthly insert number (1-12).
4. Carefully remove one monthly insert number at a time and place it in the space provided on the basic yearly sticker in a manner so that the number is not backwards.
5. Place the completed sticker on the lower right hand corner of the windshield as in the past. <u>Be sure to remove all other inspection stickers and inspection designators</u>.

1.12 VEHICLES EXEMPT FROM INSPECTION

Reference: 31-38-41, 31-23-3, 31-1-9

The following vehicles shall be exempt from inspection:

All trailers or semi-trailers having a gross weight of 1,000 pounds or less.

Special mobile equipment as defined (31-1-9) in the Motor Vehicle Code Act.

A new vehicle which is less than twelve (12) months old from the first purchase date or before it has accumulated twelve thousand (12,000) miles, whichever comes first.

Any vehicle while it is stored on private property.

Vehicles which are limited in their scope of operation which are properly registered with plates identified as farm, antique, in-transit, transporter, bailee, 40 and 8, shriner, racer-tow, temporary registrations, and motorized bicycles.

Any electric or diesel powered vehicle, motorcycles, and those vehicles which are registered for more than 8,000 pounds gross weight will be exempt from the requirements for emission inspection until such time as additional technology and equipment become available.

The exemptions as interpreted do not relieve the owner of such vehicle from the obligation of having a safe vehicle on the public highway.

1.23 VOLUNTARY INSPECTIONS

Any Rhode Island registered vehicle may be inspected on a voluntary basis at any time before the expiration date of the inspection approval sticker which is affixed to the vehicle.

Vehicles not registered in Rhode Island which are presented for inspection shall be inspected in accordance with all regulations for Rhode Island registered vehicles.

Inspection stickers may be issued (according to the month in which they are inspected) to these vehicles after passing the inspection.

The voluntary inspection usually comes about when people are visiting from out of state during their home state inspection period and/or for institutions which may require an inspection sticker before the vehicle is allowed on the premises.