PERIODIC MOTOR VEHICLE INSPECTION

A DISCUSSION OF THE DIAGNOSTIC LANE CONCEPT

by

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16. Abstract

This report presents a review of the motor vehicle diagnostic inspection program conducted by NHTSA during 1975-1976. The general conclusion of this study supports the findings of a more general analysis by the Comptroller General that the value of motor vehicle inspection has been "neither proven nor unproven."

A sample of the data from the demonstration program was analyzed to ascertain the degree of variation in the data among the inspection sites, and it was found to be large. Appendices to the report include a listing of the vehicle components inspected at each site, and a brief description of the component rejection criteria used in the program.

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I. INTRODUCTION

Periodic Motor Vehicle Inspection (PMVI) has been legislated in many states and cities for a number of decades. Other governments have rejected the institution of such programs either because the need for them was not felt or because the administrative costs were seen as too high. Inspection was seen initially as a safety countermeasure, and its purpose was to prevent accidents by decreasing the number of defective (and therefore unsafe) vehicles operating on the highways.

Many attempts have been made to justify PMVI on the basis of its benefits from the standpoint of safety. These attempts have been largely unsuccessful, or their conclusions have been, at best, debatable. A recent report by the General Accounting Office[1] states that the effectiveness of PMVI, from the point of view of enhancing vehicle safety, has not been demonstrated with any certainty.

Inspection, however, does lead to an upgrading of the condition of vehicles on the road, as has been shown in a number of instances. In addition, it has been demonstrated that the greater the frequency of the inspections, the better the condition of the vehicles. It seems obvious that improvement of the condition of vehicle components which are critical to steering, braking, lighting, etc., should result in an overall safety benefit to society by reducing accident frequency. The direct relationship between inspection and accident frequency has, however, never been satisfactorily demonstrated; thus it is difficult to state the value of PMVI in a cost/benefit sense.

Recent developments in diagnostic inspection procedures suggest applications of PMVI to areas other than safety. These include:

a) Pollution
b) Fuel Economy
c) Consumer Information
d) Defect Detection
e) Feedback for design/management of PMVI systems
f) Feedback for vehicle design (to Manufacturer)

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[1] Effectiveness of Motor Vehicle Inspection: Neither Proven nor Unproven, Report to Congress by the Comptroller General of the United States, CED-78-18, 20 December 1977.

The National Highway Traffic Safety Administration (NHTSA) designed and conducted a demonstration program on PMVI under Title III of the Cost Savings Act. In so doing, there was an opportunity to explore a number of the applications cited above.

The purpose of this report is to review the results of the NHTSA demonstration program, and to comment on what additional knowledge about motor vehicle inspection has resulted.

II. BACKGROUND

In the late 1920's and early 1930's several states adopted periodic inspection of all motor vehicles as a part of their safety program. Many of the more densely populated states followed during the next thirty-five years, and, when the Congress created the National Highway Safety Bureau, the one specific countermeasure dictated in the act was that the new bureau should promote motor vehicle inspection among those states which did not have it.

In 1968 Little[2] surveyed responsible officials in all states to determine their positions relative to mandatory inspection programs. Those in states which already had inspection programs in operation reported that they worked adequately, and that they believed they were useful in the prevention of accidents. Those in states which did not have programs reported that they believed that inspection would lead to accident reduction, but that concern about such abuses as gouging of the public, graft, and administrative expenses had inhibited any positive action.

In 1969 McCutcheon and Sherman[3] obtained data on the condition of vehicles at the time of inspection in four jurisdictions with different inspection periods, ranging from three per year in Memphis, twice a year in Cincinnati, once a year in Washington, D. C., and essentially never at a site in Michigan. Their work showed clearly that more frequent inspection resulted in lower outage rates for many components, and is one demonstration of the effectiveness of PMVI in improving the condition of vehicles in use.

NHTSA has sponsored a number of studies relative to safety inspection since 1968. Some early efforts were made to prove that

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[2] Little, J. W., Politics and Vehicle inspection, Highway Safety Research Institute, Ann Arbor, Michigan Rep. No. PuF-8, Sept 1968; and Federal Politics in State Vehicle Inspection Programs, Arizona State Law Journal, Vol. 1969, No. 3, 1969, 341-368.

[3] McCutcheon, R. W. and Sherman, H. W., The influence of Periodic Motor Vehicle Inspection on Mechanical Condition, Highway Safety Research Institute, Ann Arbor, Michigan, Rep. No. PhF-1, July 1968

inspection reduced accidents, notably in studies conducted by TRW[4] and later by Ultra-Systems.[5] Operations Research, Incorporated,[6] analyzed the inspection problem for NHTSA and rated vehicle components in terms of their outage frequency and criticality, serving as a basis for inspection system design. There was continuing pressure put on states which had not adopted PMVI programs, including the threat of applying a loss-of-highway-money penalty. Other states were permitted to carry out experiments with alternative approaches to inspection, such as check-lane operations (in California, Michigan, and Ohio). Generally such "alternative" experiments were permitted only under the stipulation that the state would have to prove a greater accident reduction with the alternative system than with a conventional PMVI, and states were asked to promise adoption of a full periodic system if this did not occur.

Some theoretical expositions of the inspection process have been produced. Geoffrey Grime[7] developed a model of the relationship between inspection and vehicle condition in 1954. O'Day and Creswell[8] developed a simulation model to permit prediction of outage rates as a function of average component life and owner repair practices. Salter,[9] at Rand, developed a conceptual approach for the combination of diagnostic inspection facilities and vehicles with built-in

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[4] TRW Systems Group, Automated Diagnostic Systems--Vehicle Inspection, summary, Final Report: Phase I, 26 March, 1968, NHTSA Contract FH-11-6538

[5] Fisher, F. G., Biche, P, and Eidemiller, R., Safety Status of Vehicles-in-Use Study, Ultrasystems, Inc., July 1973, NHTSA Contract DOT-HS-094-2-253.

[6] Eisner, H., Kalin, S. R., Wells, E. N., and Williams, P. D., An Investigation of Used Car Safety: Final Report, Operations Research Inc., Silver Spring, Md., June 1968.

[7] Grime, G., Vehicle Characteristics and Road Accidents: Effects of Design and Maintenance, Road Research Laboratory, Crowthorne (England), Sept 1954.

[8] See, for example, "An Analytical Model of Motor Vehicle Inspection", by J. Creswell and J. O'Day, HSRI Research, 1968

[9] Salter, R. G., A Road Test Concept for Dynamic Motor Vehicle Diagnostic Evaluation, The Rand Corporation, July, 1977. 1968.

instrumentation to match the facilities. He proposed a simple cost/benefit model--not on the basis of safety improvement, but simply on economic (fuel cost) considerations. Periodic maintenance was shown to be of potential economic value to the car owner, given certain assumptions about fuel cost, miles per gallon improvement with tuneups, etc.

Bentley and Heldt, of AVCO,[10] proposed a model for comparison of the effectiveness of motor vehicle inspection systems in various jurisdictions by determining the change in outage rate (by component) as a function of time since inspection. This work, performed for NHTSA, represents a change in philosophy by the federal agency in the sense that vehicle condition, rather than accident reduction, was proposed as a measure of inspection effectiveness.

The most recent large effort in the vehicle inspection field has been the NHTSA demonstration program in response to the Cost Savings Act. The design will be discussed in more detail in the next section, but the general purpose has been to gain further understanding of the effects and effectiveness of inspection. The NHTSA experiment should properly be viewed as the latest in a long series of studies of inspection, all of which are intended to improve our understanding of the process.

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[10] Bentley, G. K., and Heldt, R. W., Procedures to Evaluate the Effectiveness of PMVI, SAE Paper No. 770814, September, 1977.

III. NHTSA MOTOR VEHICLE DIAGNOSTIC INSPECTION DEMONSTRATION PROGRAM

This demonstration program was conducted under the provision of Title III of the Motor Vehicle Information and Cost Savings Act PL-92-513. Diagnostic inspection lanes were created in five locations to inspect for safety and emissions vehicle components and were operated for a 15-month period beginning early in 1975. The total cost to the federal government for the five sites was $11.9 million with an additional $1.9 million in matching funds from the state governments.

An NHTSA report[11] combines the findings of the five teams with those of other contractors assigned to perform various analyses on the data. The general conclusion presented in the NHTSA report is that, "Diagnostic Motor Vehicle Inspection will benefit consumers by providing them information on the condition of vehicles, which if used properly, can result in greater safety, lower pollution, improved gas mileage, and in the case of complex vehicle systems, generally lower overall repair and maintenance costs."

Program Goals

Seven objectives for each inspection team within the entire project were stated as follows:

(1) To evaluate the costs and benefits of the projects,

(2) To evaluate the capability of the motor vehicle repair industry to correct diagnosed deficiencies or malfunctions and the cost of such repairs,

(3) To evaluate vehicle-in-use standards as feasible reject levels,

(4) To evaluate efficiency of facility designs employed,

(5) To evaluate the standardization of diagnostic and test equipment,

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[11] Innes, J. and Eder, L. Motor Vehicle Diagnostic Inspection Demonstration Program - Summary Report, October 1977, DOT-HS-802-760.

(6) To evaluate the development of diagnostic equipment designed to maximize the interchangeability and interface capabilities of test equipment, and

(7) To evaluate vehicle designs which facilitate or hinder inspection and repair.

The NHTSA report concludes that each of these goals was met. Costs of the inspections were tabulated, and 63% of the consumers indicated that they would be willing to spend $10.00 for such an inspection, a figure somewhat lower than the actual cost of the inspections conducted, and most indicated a belief in the value of the inspection process.

Using judgmental scales, NHTSA concluded that the appropriateness and adequacy of the repairs performed subsequent to inspection varied widely among the five sites. Some of the results suggested that the repair work reflected a lack of knowledge, skill, proper equipment, and conscientiousness. In particular, a special study in Alabama reported that approximately 24% of all repairs performed were unnecessary, and that 32 cents of every dollar spent on repairs was unnecessary.

NHTSA concluded that the reject levels resulting from the vehicle-in-use standard are feasible, and that they can be retained with minor changes and additions.

The efficiency of the various diagnostic lane configurations was evaluated, and it was reported that the most efficient operation was that using a dual parallel lift configuration (the one used in the Alabama project). Per vehicle inspection cost for that operation, based on 950 cars per month, was estimated at $13.57. Costs for other sites ranged from about $10.00 (Puerto Rico) to $30.00 (Washington, D. C.).

The report offers the subjective conclusion that standardization of the diagnostic systems and test equipment would be "beneficial to the states, the consumer, the repair industry, and the manufacturers of cars and test equipment."

Few instances of interchangeability problems were noted during the program. Specific items were difficulty of some test equipment access to rotors, and a problem with exhaust probes fitting a small number of vehicles.

The report notes that vehicles with many accessories in the engine compartment limit accessibility for some tests, but the more frequent problem is the accessibility of the brake system for inspection.

A Sub-Experiment

Concurrent with the seven goals listed above, a particular objective of the program was framed in terms of an experiment. Two groups of vehicle owners were identified: a "treatment" group was provided with a complete diagnostic report as the end product of the inspection; the "control" group was given only a listing of the components which had failed the test. The purpose of the experiment was to determine whether the depth of information received by the owner had a positive influence on the subsequent repair process.

Analyses of the repair costs and the appropriateness of the repairs indicate that the owners provided with more information got more effective maintenance. Costs incurred by the "treatment" group were, in fact, slightly higher; but this resulted mainly from a different inspection process (wheels were pulled for the "treatment" group, but not for the others), and it was judged that those who paid higher costs got safer vehicles.

IV. ANALYSIS AND DISCUSSION

Each of the inspection sites compiled data regarding the inspections and repair costs. Detailed inspection records were ultimately forwarded to NHTSA in hard copy form for subsequent analysis. As a part of a study to understand the procedures employed in the various sites, HSRI has obtained a group of these reports for processing.

A convenience sample of these forms from four of the five sites was acquired from NHTSA. This included inspection reports from Alabama, Arizona, Tennessee, and Puerto Rico for the month of November 1975.[12] No effort was made to draw a statistically representative sample, and any conclusions are tenuous. The intent was to do a pilot survey to determine whether a more complete analysis would be worthwhile.

The record of inspection (examples of which are shown in Appendix A) were transferred to IBM card images, using numeric values where available and a "pass-fail" indication where that was all that was reported. The data from the four sites were put into the same format shown in Appendix B, and values were recorded for the following variables:

(1) Vehicle Identification Number
(2) Make
(3) Model
(4) Odometer Reading (miles)
(5) Site (Alabama, Arizona, Puerto Rico, Tennessee)
(6) Tire Tread (pass/fail - four wheels)
(7) Tire Pressure (pass/fail or PSI - four wheels)
(8) Tire Valves (pass/fail)
(9) Tire Sidewall Condition (pass/fail)
(10) Rear Lights (pass/fail)
(11) Headlights (pass/fail)
(12) Headlight Aim (pass/fail)
(13) Turn Signals (pass/fail)
(14) License Plates Light (pass/fail)
(15) Other Lights (pass/fail)
(16) Steering Wheel Play (pass/fail)
(17) Steering Binding (pass/fail)
(18) Steering Linkage (pass/fail)
(19) Brakes (pass/fail)

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[12] Data from the District of Columbia was physically unavailable at the time of this study.

(20) Glazing Windshield (pass/fail)
(21) Glazing Other (pass/fail)
(22) Windshield Wipers (pass/fail)
(23) Windshield Washers (pass/fail)
(24) Fuel/Exhaust System (pass/fail)
(25) Seat Belts (pass/fail)
(26) Horn (pass/fail)

Approximately 800 vehicles are represented in this sample. The information for all of the above items was coded into a computer file, and a variety of analyses conducted to determine the general nature of the data. Table 1 shows outage rates as observed in the four different inspection sites. Wide variation between sites can be observed in tire pressure (for the two jurisdictions which made actual measurements), in several of the light categories, and in steering linkage (note particularly Puerto Rico).

For the differences between teams, there are three possible explanations for the variation in outage rates: (1) Real differences in the vehicle condition among the four locations, (2) Differences in the rejection criteria for components from site to site, and/or (3) Variation among sites in the test equipment specifications, calibration techniques, and measurement procedures. Before one could establish the first of these as a reasonable explanation, possibilities (2) and (3) must be examined. This has been done and is presented later in this report.

The analysis of the inspection data from the four sites that has been presented here is intended to exemplify the types of presentation of representatively-collected inspection data. If the entire data base of the five-team program were to be used there would be information on more than 66,000 vehicles, and for 24,000 of these vehicles there would be data from a subsequent or re-inspection. We initially considered acquiring and processing more of the data, but decided not to do so on the basis that the sampling procedures used in the program would not really justify this. The sites were not chosen in such a way as to represent the nation, and, within each site, vehicles were acquired mainly by a sort of chosen-volunteer manner. Finally, the dropout rate in the program (from the initial to the last inspection) was quite large, making inferences of time trends difficult.

Table 1

Inspection Failure Rates by Site
Diagnostic Inspection Program

Item	Percentage deemed unacceptable (Except PSI for Tire Pressure)				
	Alabama	Arizona	Puerto Rico	Tennessee	Average
LF Tread .	3.1	4.2	9.2	3.8	4.8
RF Tread .	4.0	8.4	9.2	5.7	6.6
LR Tread .	4.0	4.7	6.7	5.0	5.0
RR Tread .	2.2	5.8	7.3	5.7	5.0
LF Pressure	24.2	—	—	28.2	25.8
RF Pressure	24.5	—	—	27.8	25.8
LR Pressure	24.3	—	—	27.1	25.5
RR Pressure	24.2	—	—	26.7	25.3
Sidewall .	2.6	0.0	0.0	5.0	1.9
Valves . .	0.9	0.0	0.0	2.5	0.9
Rear Lights	21.9	14.1	23.8	6.9	17.1
Head Lights	4.4	2.6	3.0	3.1	4.0
HL Aim . .	63.6	28.8	40.8	20.8	40.4
Turn Lights	5.7	2.1	6.7	4.4	4.7
Lic.Plt.Lt.	11.0	12.6	3.7	0.0	7.4
Other Lts.	32.9	18.3	23.2	6.3	21.3
Strg. Play	2.2	1.6	1.2	1.9	1.8
St. Binding	0.4	0.5	0.0	0.0	0.3
St. Link. .	0.9	1.6	17.7	2.5	5.1
Brakes . .	34.6	33.5	21.3	30.8	30.6
Windshield	1.3	4.7	2.4	0.6	2.3
Oth.Glazing	3.5	4.2	6.7	1.3	3.9
Wiper . . .	2.2	19.9	1.8	0.0	6.2
Washer . .	26.8	32.5	0.0	0.0	16.6
Fuel/Exhst	24.6	25.1	11.0	15.7	19.8
Seat Belts	0.5	0.4	1.0	0.6	0.5
Horn . . .	3.1	1.6	3.0	1.3	2.3

There have been a number of previous experiments sponsored by NHTSA in which selected vehicles have been examined--both in diagnostic lanes, and in accident investigation programs. These programs, too, had the problem of volunteer bias. This is not said so much as a criticism of the experiments, but simply to point out that it is very difficult to obtain a pure sample for a study of this sort. However, the lack of a defensible sampling procedure makes many of the conclusions hard to defend.

Site Comparisons

In order to identify possible variation in inspection procedures, equipment, and criteria among sites, the reports of the programs at each of the five sites have been reviewed. While inspections were conducted on essentially the same items in each location, the equipment, and to some extent the procedures and criteria, did vary.

The four appendices to this report contain the details of the data organization and analyses. The first of these presents examples of the inspection forms for each of the four sites studied. They are different from one another since each site was given rather complete discretion on the design of its inspection system and procedures, but a considerable degree of commonality appears across the four forms.

The second appendix shows the form used by HSRI in structuring the inspection data into a file for computer analysis. Most of the elements in the file are those that were found to be common among all four sites. Some of the elements, however, are included because they are considered to be important to the analysis even though differences in inspection procedures and reporting exist. Tire pressure, for example, is measured in p.s.i. in Alabama and Tennessee, but are given only pass/fail ratings at the other two sites.

The items inspection at each site are listed in Appendix C. The list was extracted from the inspection forms, and the tables show the differences among the five sites in the vehicle components considered in the diagnostic inspection process.

The last, and longest, appendix (D) gives the criteria used in each of the five sites for rejection of the various components inspected. This listing was compiled from a detailed examination of the manuals created by each inspection team for use by the personnel at the stations. The tabulation presents for each team by system and subsystem the details of the engineering or judgmental criteria applied for the pass/fail assessment.

It is clear that the list of items inspected varied from site to site, but also that the criteria for rejection depend in part on the training and judgment of the inspectors. To some extent such variation was inevitable (or even intentional) since the NHTSA demonstration was intended to try out a number of approaches in the several sites. While conceptually the diagnostic lane approach should result in consistent application of inspection procedures and pass/fail criteria, the state of the art at present still depends to some degree on subjective opinion.

V. Conclusions

This study has been primarily concerned with a review of the 1975-76 demonstration program conducted by NHTSA under the Cost-Savings Act.

The data that resulted from the five-site demonstration program are currently under examination elsewhere to determine the effectiveness of the inspection in influencing the quality of repair. The Center for Environment and Man (in Hartford, Connecticut) is under contract to NHTSA to compare inspection records and repair costs and the appropriateness of the repair actions taken on the basis of the diagnostics. This work is evidently aimed at the consumer protection aspects of the program.

Other than the final reports of the five contractors that operated the diagnostic sites, and the NHTSA final report which followed these, no formal analyses are being undertaken on the other aspects of the program: safety, emissions, and fuel economy. The design of the demonstration programs was not such that conclusive evidence on these aspects could be gathered, and none of the individual contractors were expected to demonstrate a favorable cost-benefit relationship. It was intended that final cost-benefit analyses be made from the composite data (from the five sites) by NHTSA, and some tentative conclusions are presented in the NHTSA report.

That report concludes that the technology employed by the five separate demonstration programs was "viable and useful." They further speculate that a positive benefit to cost relationship would accrue to both the consumer and to the repair industry, and that society would benefit by having safer vehicles, lower pollution, and improved fuel economy.

While there are data presented in the NHTSA report which tend to support these conclusions, the primary emphasis on the demonstration aspects of the program weaken the ability to draw any strong inferences from the data. In particular, the reported inspection failure rates from one phase of the project to another are different (i.e., improving), but by the third phase fewer than 10 percent of the initial

vehicles were in the sample. The statistical claims of the NHTSA report (e.g., "It is interesting to note that the decrease in failure rate from period one to period three is statistically significant to a high level of confidence") are quite improper because of the inability to demonstrate a random selection process for the compared groups.

It was noted in section III that the Alabama diagnostic project reported that 32 cents of every repair dollar was spent unnecessarily. The average cost of repairs to vehicles participating in this diagnostic program is quoted as $57.25, and 32% of this is $18.32. If the major purpose of the inspection is to protect the consumer against unscrupulous repair practices, the inspection would have to cost less than $18.32...assuming that the inspection is completely effective and can prevent the repair facility from overcharging. While the concept of effective diagnostic inspection detailing repair requirements is intuitively attractive, its success must depend on three things: (1) The active and intelligent participation of the consumer, (2) The absolute integrity of the inspection process, and (3) The competence and honesty of the repair industry in carrying out the diagnostic instructions. While the precision of the 32% finding can be questioned on the basis of its provinciality and sampling limitations, it is a reasonable indication that a problem of unnecessary repair costs exists. Whether a state-operated diagnostic system is a better way to solve this problem than other measures such as licensing of mechanics, prosecution of flagrant violators of good repair practice, etc., cannot be answered by the diagnostic lane study alone. Salter[13] seems to suggest that as the vehicles acquire more sophisticated on-board equipment the diagnostic inspection process may be made more effective and less expensive. Certainly the designers of both the vehicles and the diagnostic lanes of the future should be thinking of the consumer's need to identify maintenance needs.

HSRI has looked at a sample of the data collected from four of the five sites to compare failure rates of various components. There is a substantial inter-site variation in such rates, and this could be

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[13] Salter, R. G., Op. Cit.

explained either by actual differences in the vehicle population, differences in the volunteers, or differences in the pass-fail criteria. When the inspection results are presented on consistent measurement scales (such as tire pressure in PSI, or tread depth in 32nds of an inch), it is possible to limit the choices to real or sample differences. One of the difficulties in the comparison is that only a few measurements were recorded in quantitative form--most were reported only as pass-fail.

One notable exception to the judgment method is the pollution-inspection process, addressed in part in the NHTSA study, but also of concern to the EPA. In this area the measurement scales for CO and for NOX are well defined and accepted. With such criteria it should be much easier to make comparisons across jurisdictions, car makes, or other factors.

In summary:

(1) The NHTSA demonstration program has shown the feasibility of setting up comprehensive diagnostic check lanes, and has estimated the costs and defined procedures required to operate them.

(2) The program was, as stated, a "demonstration," and was not an "experiment." As such there were no rigorous controls exerted over the sampling employed either between or within the inspection sites. Thus one should not expect the sort of conclusions possible from a scientific experiment.

(3) It seems improper and probably unwise to use the results of this program to support the cost/benefit arguments regarding diagnostic lanes (in either direction). If that subject needs support, a more highly controlled experiment would be in order.

(4) In such an experiment, were it to be conducted, it would be essential to define the measurement techniques and pass-fail thresholds in such a way that they could be applied consistently by different people at different sites.

The determination of the effectiveness of safety inspection is not an easy process. There are too many components, few consistent scales of measurement, and both the public and the automotive professionals are willing to accept judgment as an operational inspection technique.

In the introduction several potential applications of diagnostic inspection procedures were listed, including (1) pollution control, (2) tuning for fuel economy, (3) providing information to consumers, (4) detection of defects in vehicles, (5) feedback for the design and management of PMVI system, and (6) feedback to the vehicle designers. The emission-requirements of the modern automobile engine suggest that sophisticated equipment such as can be available in diagnostic lanes will be necessary to maintain pollution control and optimum fuel economy. If diagnostic lanes were operated in a consistent manner, the observed outage rates might furnish useful information to consumers, making them better-informed purchasers of repairs and new vehicles. The diagnostic lanes themselves are unlikely to provide much vehicle defect information (in the sense of defects which lead to recalls); this sort of finding is much more likely to come from individual owner complaints, or from accident data. Data from diagnostic lanes should be useful both to the lane operators and designers and to manufacturers--the latter because information about wearout rates should be more consistently available than at present.

A comparison can be made between the inspection area and the computer field. The technology of mini- and micro-computers has advanced rapidly, and there is a need for both very large computer facilities (analogous to a state-operated diagnostic facility) and small stand-alone microprocessors (analogous to the equipment in a small garage combined with on-board vehicle sensors). The optimum mix of large and small inspection facilities remains to be determined.

APPENDICES

APPENDIX A

Samples of Forms From Each of the Four Teams Whose Data Were Analyzed

120 368

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COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF MOTOR VEHICLES INSPECTION FORM
CONTROL GROUP
11 13 95
BAYAMON

LANE NO.	1	2	10	20	30	40	50	60	70	80	90
CAR NUMBER		1	2	3	4	5	6	7	8	9	
VISIT	PE	RE	PA	TT	CO	1	2	3	4	5	6
NO. OF CYL.	4	6	8	WEIGHT	1	2	3	4	5	6	
% CITY DRIVING	25	50	75	100							

F F02 73

TIME IN 0830 DATE 11/10/95

MILEAGE 057677

STATION I

C P C02 000 -025
F
4/B P C01 050 -050
1 PC02 012

REGISTRATION		HIGH BEAM OUT		HIGH BEAM AIM		
LOW BEAM OUT		LOW BEAM AIM		PARKING LIGHTS		
MARKER LIGHTS		REFLEX REFLECTORS		BRAKE LIGHTS		
TURN SIGNALS		HAZARD FLASHERS		BACK UP LIGHTS		
LICENSE PLATE		LIC. PLATE LIGHT		BRK. WARN LIGHTS		
HIGH BEAM IND.		FLASHER INDICATOR		TURN SIG. IND.		
HORN		IN R'VIEW MIRROR		OUT R'VIEW MIRROR		
WIPER FUNCTION		WIPER BLADES		STR. WHEEL LASH		
STRG FREE TURNING		FLOORS		VISORS		
SEATS		SEAT BELTS		HEAD REST		
NEUT. SAFETY SW.		FRONT WINDSHIELD		WINDOWS		
WINDOW REGULATORS		DOOR LOCKS		DOOR LATCH/HINGES		
FENDERS		HOOD LATCH		FRONT BUMPER		
				REAR BUMPER		

CAMBER LF			0	0-½	½-1	1-1½	1½-2	2-3	3+	
RF										
CASTER LF			0	0-1	1-2	2-3	3-5	5-7	7+	
RF										
TOE	IN	OUT	0	⅛	¼	½	¾	1	1+	

SCUFF		BRAKE FLUID		PWR STRG SYSTEM	
MOTOR MOUNTS		PWR BRK SYSTEM		MSTR CYL PED TEST	

STATION II

F A01 00 02 08 08

FE03

JAC
AM

SHOCKS		BALL JOINTS		WHEEL INTEGRITY	
				STDS/LUGS BRK/MSG	

TIRE TREAD WEAR	LF	0-2	2-4	4-6	6-8	8-10	10+	
	RF							
	LR							
	RR							

TIRE UNBALANCED		TIRE MATCH FRONT		TIRE MATCH REAR	
TIRE MATCH F/R		TIRE SIDEWALLS		VALVE STEMS BAD	
BRAKE LINES		BRAKE ASSEMBLY			

BRAKE FRICTION	MATERIAL LF	0-1	1-2	2-3	3-4	4+	
	RF						
	LR						
	RR						

BRAKE DRUM/ROTOR		PARKING BRAKE		STEERING LINKAGE	
WHEEL BEARINGS		EXHAUST SYSTEM		DRIVE LINE	
SPRING/TOR BAR		SUSPENSION		FUEL SYSTEM	

COMPLETED

STATION III

FN01 0400 70

PN02 0100 10

DYNAMIC BRAKE TEST

HI LVL EQUAL %	F	L	R	0-1	1-2	2-3	3-5	5-7½	7½+	
	R	L	R							
HI LVL BAL %	F/R			5-6	6-7	7-8	8-9	9+		
BRAKE PED. RESERVE	%			0-1	1-2	2-3	3-5	5+		
LOW IDLE HC PPM	HI	0-1	1-2½	2½-4	4-6	6-9	9-12	12-18	18+	
CO %	HI	0-1	1-2	2-3	3-5	5-7	7-9	9-12	12+	
HIGH IDLE HC PPM	HI	0-1	1-2½	2½-4	4-6	6-9	9-12	12-18	18+	
CO %	HI	0-1	1-2	2-3	3-6	5-7	7-9	9-12	12+	

SMOKING EXHAUST

①

STATE OF ARIZONA
VEHICLE INSPECTION PROJECT
VIP INSPECTION REPORT

110633 F

DATE 1/5/73
TIME IN 10:35 TIME OUT :
MILEAGE 91,863
INSPECTION ☑ REINSPECTION ☐

INSPECTOR CODES 1
LANE 2 | E 6 | I 1 | H 5 | P 6 | F 37 | R 1 | U

ADDITIONAL IDENT. DATA
NO. OF CYLS. 8 | ENGINE SIZE 350 | POW BRK ☐ | AIR STRG ☑ | AUTO TRANS ☐ | AIR COND ☑ | MODIFICATIONS NVAY2A

VEHICLE USAGE
STOP & GO DRIVING % LESS THAN 25 ☐ 25 ☐ 50 ☐ 75 ☐ 100 ☒

		P	F
100	BODY EXTERIOR & GLAZING		
101	WINDSHIELD	X	
102	LEFT SIDE WINDOWS	X	
103	RIGHT SIDE WINDOWS	X	
104	REAR WINDOW	X	
105	SIDE MIRROR	X	
110	GEN. BODY CONDITION	X	
111	BUMPERS F__R__	X	
112	DOORS L__R__	X	
113	HOOD LATCH	X	
114	WINDSHIELD WIPERS	X	
115	WINDSHIELD WASHERS	X	
200	VEHICLE INTERIOR		
201	SEATS L__R__	X	
202	SEAT BELTS L__R__	X	
203	HEAD RESTRAINTS L__R__		
204	SUN VISORS L__R__	X	
205	REAR VIEW MIRROR	X	
206	DEFROSTERS	X	
207	STEERING WHEEL/COLUMN	X	
208	DASH PADDING	X	
300	LIGHTS & ELECTRICAL		
301	LOW BEAMS L__R__	X	
302	HIGH BEAMS L__R__	X	
303	TURN SIGNALS F__R__	X	
304	BACKUP LIGHTS L__R__	X	
305	STOP LIGHTS L__R__	X	
306	TAIL LIGHTS L__R__	X	
307	PARKING LIGHTS L__R__	X	
308	EMERGENCY FLASHERS F__R__	X	
309	LIC. PLATE LIGHT	X	
311	REFLECTORS RR__L__R__	X	
320	DASH LIGHTING	X	
321	BRAKE WARNING INDICATOR	X	
322	HIGH BEAM INDICATOR	X	
323	TURN SIGNAL INDICATOR	X	

		P	F
300	LIGHTS & ELECTRICAL (CONT.)		
324	EMERGENCY FLASHER IND.	X	
325	SEAT BELT INDICATOR	X	
326	OTHER INDICATORS	X	
	HEADLIGHT AIM		
330	LOW BEAMS L__R__	--	
331	HIGH BEAMS L__R__	X	
	ELECTRICAL		
340	SEAT BELT/DOOR BUZZER		X
341	HORN	X	
342	NEUTRAL SAFETY SWITCH	X	
350	WIRING	X	
	LOCATION:		
360	CONNECTORS	X	
	LOCATION:		
400	BRAKES		
401	PEDAL FADE (SYSTEM INTEGRITY)	X	
402	PEDAL RESERVE	X	
410	SERVICE BRAKE PERF. F__R__	X	
420	MASTER CYLINDER	X	
	(LF) RF LR RR		
430	DISC/DRUM CONDITION — — — —	X	
431	LININGS — — — —	X	
432	STRUC. & MECH. PARTS — — — —	X	
433	WHEEL CYLS. — — — —	X	
434	WHEEL BRG. SEALS — — — —	X	
440	HOSES	X	
441	MASTER CYL. LINES	X	
442	CHASSIS LINES	X	
450	POWER BRAKE VAC. BOOSTER	X	
460	PARKING BRAKE PERFORMANCE	X	

		P	F
500	EMISSIONS		
501	HIGH CRUISE, HC 300 PPM	X	
502	HIGH CRUISE, CO 1.5 %	X	
503	HIGH CRUISE, O_2 — %		
504	LOW CRUISE, HC 415 PPM	X	
505	LOW CRUISE, CO 1.4 %	X	
506	LOW CRUISE, O_2 — %		
507	LOADED IDLE, HC 0 PPM	X	
508	LOADED IDLE, CO 0 %	X	
509	LOADED IDLE, O_2 — %		
510	IDLE SPEED	X	
520	PCV VALVE	X	
600	TIRES & WHEELS		
	TIRES LF RF LR RR		
601	TREAD DEPTH — — — —	X	
602	CONDITION — — — —	X	
603	TYPE — — — —	X	
	WHEELS		
620	CONDITION 7 — 9 —	X	
621	MOUNTING — — — —	X	
622	RUNOUT — — — —	X	
700	STEERING, ALIGN. & SUSP.		
701	STEERING WHEEL PLAY	X	
702	STEERING SYSTEM BINDING	X	
703	POWER STEERING 61		X
704	STEERING LINKAGE PLAY	X	
710	ALIGNMENT	X	
720	STABILIZER BAR F__R07		X
721	BALL JOINT SEALS L__R__	X	
722	BALL JOINT MOTION L__R__	X	
724	RADIUS RODS	X	
	LF RF LR RR		
725	SPRING/TORSION BAR — — — —	X	
726	RUBBER BUSHINGS — — — —	X	
727	SHOCK ABS. — — — —	X	
728	SUSP. MEMBER CONDITION	X	
729	SHOCK ABS. MOTION F__R__	X	

		P	F
800	FUEL & EXHAUST SYSTEM		
801	MUFFLER/RESONATOR 04	X	
802	EXHAUST PIPING	X	
803	FUEL SYSTEM LINES TANK	X	
804	FILLER CAP	X	
900	MISCELLANEOUS		
901	ENGINE OIL LEVEL		X
902	VISIBLE OIL LEAKS	X	
903	RADIATOR	X	
904	HOSES/LINES	X	
	LOCATION:		
905	BELTS 64		X
	LOCATION: A/C		
906	BATTERY WATER LEVEL	X	
907	U JOINTS	X	

☐ VEHICLE PASSED ☐ PASSED ALL MANDATORY REQUIREMENTS

REINSPECTION REQUIRED:
- APPOINTMENT NECESSARY ☒
- AT YOUR CONVENIENCE DURING INSPECTION HOURS ☐

COMMENTS: ENGINE / / CC

ADDITIONAL DIAGNOSTIC DATA

		IN SPEC	OUT SPEC
001	DWELL 29 DEGR.	X	P
002	IDLE RPM 0	X	P
003	REG. VOLTS 1	X	P
	SPARK PLUG FIRING VOLTAGE		
004	IDLE	X	P
005	LOADED VARIATION	X	A
	CYL. POWER BALANCE		
008	WEAK CYLINDERS	ALL OKAY	
	1 2 3 4 5 6 7 8	X	P

(Numbered by Position in Firing Order NOT by Position in Engine.)

BRAKING FORCE, POUNDS

	L	R
FRONT BRAKES	0	0
REAR BRAKES	0	0
PARKING	0	0

TIRE WEAR PATTERN

	LF	RF	LR	RR
NORMAL	X	X	X	X
MARG. TREAD	—	—	—	—
OVER INFL.	—	—	—	—
UNDER INFL.	—	—	—	—
WHEEL BAL.	—	—	—	—
TOE	—	—	—	—
CAMBER	—	—	—	—

TEST CODE	DIAG CODE	DIAGNOSTICS
500		
403	1	EL1
905	1	/ / F
240	1	/ / P
/ /	4	/ /
410	2	C /

NOV 13 1975

NOTE: UNSHADED AREAS: DENOTES ITEMS WHICH MUST BE REPAIRED.
SHADED AREAS: DENOTES ITEMS FOR WHICH REPAIR IS RECOMMENDED, BUT NOT REQUIRED BY THIS PROGRAM.

FEDERAL COPY

HAMILTON TEST SYSTEMS
HSF 2174 18 6/75

(1)

AutoCheck AUTOMOBILE DIAGNOSTIC INSPECTION

60 MILEAGE	66 TIME IN	70 TIME OUT	74&N	75 FILE	80	REPAIR
41481	1000	1037	B	08065	N	

ITEM	FAIL	CONDITION		MARGINAL/ADVISE PASS	NOT INSP.
TIRES		LF RF LR RR			
1 TREAD DEPTH		8/32[1] 8/32[2] 8/32[3] 8/32[4]	1	✓	
2 PRESSURE		25 PSI[1] 25 PSI[2] 28 PSI[3] 3_ PSI[4]	2	✓	
3 SIZE		225-15 OVERLOADED[A] INTERFERE[B]	3	✓	
4 MISMATCH		SIZE DIFF.[A] CONSTR DIFF.[B] RADIAL BIAS MIX[C] F[1] R[2] F-R[3]	4	✓	
5 DAMAGE		CUTS[A] BULGES[B] EXP CORDS[C] LF[1] RF[2] LR[3] RR[4]	5	✓	
6 VALVE STEMS		CRACKED[A] SKEWED[B] LF[1] RF[2] LR[3] RR[4]	6	✓	
7 TIRE WEAR PATTERN		FRONT CAMBER[A] TOE[B] LOOSENESS[C] BAL[D] U&O[F] INFLAT. LF[1] RF[2] LR[3] RR[4]	7	✓	
GLASS AND BODY					
8 FRONT/REAR GLASS		MISSING[A] CRACKED[B] DISCOLORED[C] F[1] R[2]	8	✓	
9 SIDE GLASS		MISSING[A] CRACKED[B] DISCOLORED[C] INOPERATIVE[D] LF[1] RF[2] LR[3] RR[4]	9	✓	
10 OUTSIDE MIRRORS		MISSING[A] CRACKED[B] DISCOLORED[C] L[1] R[2]	10	✓	
11 W/S WASHER OPER		INOPERATIVE[A] L[1] R[2]	11	✓	
12 W/S WIPER OPER		SWEEP RESTRICTED[A] INOPERATIVE[B] L[1] R[2]	12	✓	
13 W/S WIPER BLADES		POOR CONTACT[A] HARD RUBBER[B] L[1] R[2]	13	✓	
14 FENDERS		LOOSE[A] PROTRUSIONS[B] MISSING[C]	14	✓	
15 BUMPERS		DAMAGED[A] LOOSE[B] MISSING[C]	15	✓	
16 DOORS		HINGES[A] LATCH[B] LOCK[C] MISSING[D] PANEL DAMAGE[E]	16	✓	
17 HOOD LATCHES		INOPERATIVE[A] PRIMARY[1] SAFETY[2]	17	✓	
STEERING HANDLING					
18 STEERING FREE TURN		BINDING[A]	18	✓	
19 STEERING WHEEL PLAY		STEERING WHEEL PLAY EXCEEDS 2-1/4 IN.[A]	19	✓	
INTERIOR					
20 SEAT MOUNTING		LOOSE[A]	20	✓	
21 SEAT BACK		LOOSE[A] LOCK[B]	21	✓	
22 SEAT ADJUSTER		JAMMED[A] SLIPS[B]	22	✓	
23 SEAT BELT FRONT		FRAYED[A] ANCHOR LOOSE[B] MISSING[C] BUCKLE[D] COMPLETED	23	✓	
24 INSIDE MIRROR		BROKEN[A] LOOSE[B] MISSING[C]	24	✓	
25 HD RESTRAINT & PADDING		DAMAGED[A] LOOSE[B] MISSING[C] PADDING[1] HEAD RESTRAINT[2]	25	✓	
26 SUN VISORS		DAMAGED[A] LOOSE[B] MISSING[C] L[1] R[2]	26	✓	
27 DEFROSTER OPER		AIR RESTRICTION[A] INOPERATIVE[B]	27	✓	
28 STR WHEEL & COLUMN		WHEEL DAMAGED[A] COLUMN COLLAPSED[B] CAPSULE SHEARED[C] LOOSE[D]	28	✓	
29 HORN		INOPERATIVE[A] WEAK[B]	29	✓	
STATION 0, INSPECTOR NO.		81			
UNDER HOOD					
30 ENGINE OIL		LEVEL ADVISE IF SIGNIFICANTLY BELOW ADD LINE	30	✓	
31 FUEL LEAKS		CARB[A] LINES[B] PUMP[C] FILTER[D]	31	✓	
32 MASTER CYLINDER		FAIL 50% EMPTY[A] LEAKS[B]	32	✓	
33 POWER STEERING		NO FLUID VISIBLE[A] BELTS OR HOSES DAMAGED[B] LEAKS[C] N/A[D]	33	✓	
34 FAN BELT		TENSION[A] CRACKS[B] MISSING[C]	34	✓	
35 LEAKS (COOLANT)		HOSES[A] RADIATOR[B] WATER PUMP[C] NOT APPLICABLE[D]	35	✓	
36 BATTERY CONNECTORS		BURNED[A] VERY SEVERE CORROSION[B]	36	✓	
37 PWR BR VACUUM HOSE		ADVISE-CRACKED[A] BRITTLE[B] FAIL-LOOSE[C] COLLAPSED[D] WORN[E] N/A[F]	37	✓	
38 BATTERY TEST		WEAK OR UNDERCHARGED[A]	38		✓
EMISSIONS		HC PPM CO%			
39 HIGH CRUISE 3		0250 .8 FAIL HC 450 OR ABOVE[A] CO 3.8 OR ABOVE[B]	39	✓	
40 LOW CRUISE		0175 .2 FAIL HC 450 OR ABOVE[A] CO 4.3 OR ABOVE[B]	40	✓	
41 IDLE		0250 6.5 FAIL HC 600 OR ABOVE[A] CO 7.0 OR ABOVE[B]	41	✓	
STATION 1, INSPECTOR NO.		91			
ALIGNMENT		MVMA MAX REC TOLERANCE — MEASURED			
42 CAMBER		LF[1] (−) 1/8 TO (+) 1 1/8 — (+) 2/8 025	42	✓	
		RF[2] — TO — — (+) 2/8 025		✓	
43 CASTER		LF[1] (−) 1 TO (+) 3 — ( ) 0/ 000	43	✓	
		RF[2] — TO — — (+) 2/4 050		✓	
44 TOE		1/16 (IN) TO 1/16 (IN) — 5/32 (IN) 018	44	✓	
STATION 2, INSPECTOR NO.		91 165			
HEADLIGHT ALIGNMENT					
45 LOW BEAM	✓	L/LAMP[A] LOW[1] HIGH[2] R/LAMP[B] LOW[1] HIGH[2] MISSING[C] L[1] R[2]	45		
		LEFT[3] RIGHT[4] LEFT[3] RIGHT[4] OUT[D] L[1] R[2]	50		
46 HIGH BEAM	✓	L/LAMP[A] LOW[1] HIGH[2] R/LAMP[B] LOW[1] HIGH[2] MISSING[C] L[1] R[2]	46		
		LEFT[3] RIGHT[4] LEFT[3] RIGHT[4] OUT[D] L[1] R[2]			
STATION 3, INSPECTOR NO.		65 191			
ILLUMINATION & SIGNAL					
47 TAIL LAMPS		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] L[1] R[2]	47	✓	
48 STOP LAMPS		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] L[1] R[2]	48	✓	
49 BACK UP LAMPS		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] L[1] R[2]	49	✓	
50 PARKING LAMPS FRONT		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] L[1] R[2] 725	50	✓	
51 LICENSE PLATE LAMP	✓	MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] L[1] R[2]	51		
52 SIGNAL LAMPS		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] LF[1] RF[2] LR[3] RR[4]	52	✓	
53 SIDE MARKER LAMPS		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] LF[1] RF[2] LR[3] RR[4]	53	✓	
54 TURN INDICATOR		MISS[A] OUT[B] BKN LENS[E] L[1] R[2]	54	✓	
55 HAZARD WARN		MISS[A] OUT[B] WRONG LOC[C] / COLOR[D] BKN LENS[E] LF[1] RF[2] LR[3] RR[4]	55	✓	
56 INST LAMPS		MISS[A] OUT[B] BKN LENS[E]	56		

FORM 100 REV. D 6-75

ITEM	FAIL			PASS	MARGINAL	ADVISE	NOT INSP
BRAKE PERF. ANALYSIS							
57 WARNING INDICATOR		IMPROPER OPERATION[A]	57	✓			
58 SYSTEM INTEGRITY		PEDAL HEIGHT DECREASE UNDER LOAD[A]	58	✓			
59 PEDAL RESERVE		LESS THAN 20% (FAIL)[A] 40% (MARGINAL)[B]	59	✓			
60 P/B SYSTEM TEST		MALFUNCTION IN POWER ASSIST SYSTEM[A] NOT APPLICABLE[B]	60	✓			
61 WHEEL DRAG, F		L= 45 LBS., R= 40 LBS., FAIL=50 LBS. DIFF.	61	✓			
62 MECH. RESPONSE, F		29 5R	62	✓			
63 HYD. RESPONSE, F		33 0	63	✓			
64 COMP. EQUALIZATION, F		37 10R	64	✓			
65 HI LEVEL EQUALIZ. F		41 5R	65	✓			
66 WHEEL DRAG, R		L= 45 LBS., R= 45 LBS., FAIL = 50 LBS. DIFF.	66	✓			
67 MECH. RESPONSE, R		45 0	67	✓			
68 HYD. RESPONSE, R		49 10R	68	✓			
69 COMP. EQUALIZATION, R		53 8L	69	✓			
70 HI LEVEL EQUALIZ., R		57 8L	70	✓			
71 FADE/EXCURSION		FADE[A] EXCURSION[B] LF[1] RF[2] LR[3] RR[4] 40 LB. DROP	71	✓			
STATION 4, INSPECTOR NO.		6591					
BRAKE COMPONENTS							
72 BRAKE LINES		DAMAGED[A] LEAKS[B] LF[1] RF[2] LR[3] RR[4]	72	✓			
73 WHEEL PULLED		LF[1] (RF[2]) LR[3] (RR[4])	73				
74 DISC/DRUM COND, F		THIN DISCS[A] THIN DRUMS[B] CRACKS[C] SCORING[D] (1.215) L[1] R[2]	74	✓			
75 LINING CONDITION, F		THIN[A] CONTAMINATION[B] GLAZED[C] CRACKED[D] LOOSE[E] L[1] R[2]	75	✓			
76 STRUCTURAL PARTS, F		BINDING[A] DAMAGED[B] MISSING[C] L[1] R[2]	76	✓			
77 RETURN SPRINGS, F		DAMAGED[A] INOPERATIVE[B] (NOT APPLICABLE[C]) L[1] R[2]	77				✓
78 AUTOMATIC ADJUSTERS, F		INOPERATIVE[A] (NOT APPLICABLE[B]) L[1] R[2]	78				✓
79 CYLINDER CONDITION, F		STICKING[A] INOPERATIVE[B] LEAKS[C] L[1] R[2]	79	✓			
80 DISC/DRUM COND., R		THIN DISCS[A] THIN DRUMS[B] CRACKS[C] SCORING[D] (1.0[illegible]) L[1] R[2]	80	✓			
81 LINING CONDITION, R		THIN[A] CONTAMINATION[B] GLAZED[C] CRACKED[D] LOOSE[E] L[1] R[2]	81	✓			
82 STRUCTURAL PARTS, R		BINDING[A] DAMAGED[B] MISSING[C] L[1] R[2]	82	✓			
83 RETURN SPRINGS, R		DAMAGED[A] INOPERATIVE[B] NOT APPLICABLE[C] L[1] R[2]	83	✓			
84 AUTOMATIC ADJUSTERS, R		INOPERATIVE[A] NOT APPLICABLE[B] L[1] R[2]	84	✓			
85 CYLINDER CONDITION, R		STICKING[A] INOPERATIVE[B] LEAKS[C] L[1] R[2]	85	✓			
86 WHEEL SEALS		LEAKING[A] LF[1] RF[2] LR[3] RR[4]	86	✓			
WHEEL CONDITION							
87 RUN-OUT		GREATER THAN 3/32 INCH[A] LF[1] RF[2] LR[3] RR[4]	87				✓
88 INTEGRITY		CRACKS[A] ELONGATED HOLES[B] WELDS[C] LF[1] RF[2] LR[3] RR[4]	88	✓			
89 MOUNTING		MISSING[A] LOOSE NUTS[B] OR BOLTS[C] LF[1] RF[2] LR[3] RR[4]	89	✓			
FUEL SYSTEM							
90 FUEL LEAKS		LINES[A] TANK[B]	90	✓			
91 FUEL TANK CONDITION		EXCESS DAMAGE[A] LOOSE[B] CAP MISSING[C]	91	✓			
EXHAUST SYSTEM							
92 LEAKS Kis	✓	MANIFOLD[A] EXHAUST PIPE[B] MUFFLER[C] RESONATOR[D] (TAILPIPE[E])	92	20			
93 DAMAGE		FLOOR HOLES[A] PIPES[B] HANGERS[C]	93	✓			
STEERING		VISUAL SEE ALSO STEERING HANDLING					
94 STEERING SYSTEM		OVERALL LOOSENESS NOT TO EXCEED 1/4 INCH[A]	94	✓			
95 IDLER/PITMAN ARM		EXCESS PLAY[A]	95	✓			
96 CONTROL ARM PIVOTS		LOOSE[A] WORN[B] BUSHING[C]	96	✓			
97 TIE ROD ENDS		EXCESS PLAY[A]	97	✓			
98 STEERING GEAR BOX		LEAKS[A] MOUNTING[B] PLAY[C]	98	✓			
SUSPENSION							
99 FRONT SPRINGS/T BARS		MODIFIED[A] BROKEN[B] UNATTCHD[C] WORN SHACKLES[D] L[1] R[2]	99	✓			
100 STABILIZER BAR		BROKEN[A] LOOSE[B] MISSING[C] BOLTS[D] BUSHINGS[E] N/A[F]	100	✓			
101 BALL JOINTS UPPER		EXCESS WEAR[A] L[1] R[2] NOT APPLICABLE[B]	101	✓			
102 BALL JOINTS LOWER		EXCESS WEAR[A] L[1] R[2] NOT APPLICABLE[B]	102	✓			
103 BALL JOINT SEALS		TORN[A] CRACKED[B] RUPTURED[C] LU[1] LL[2] RU[3] RL[4] N/A[D]	103	✓			
104 SHOCK ABSORBERS		WEAK[A] LEAK[B] MISSING[C] LOOSE[D] LF[1] RF[2] LR[3] RR[4]	104	✓			
105 REAR SPRINGS		MODIFIED[A] CRACKED[B] UNATTCHD[C] WORN SHACKLES[D] U-BOLT[E] L[1] R[2]	105	✓			
106 CONTROL ARMS, REAR		BROKEN[A] UNATTACHED[B] NOT APPLICABLE[C]	106	✓			
STATION 5, INSPECTOR NO.		6400					
ENGINE ANALYSIS							
107 AIR FILTERS		CLOGGED	107				
108 IDLE SPEED, RPM		SPEC TEST VALUE	108				
109 PLUG FIRING KV		SPEC TEST VALUES, EACH CYL.	109				
110 AVAIL. COIL VOLTS		TEST VALUE	110				
111 COIL/COND. OSC		SATISFACTORY UNSATISFACTORY	111				
112 POINT OPERATION		BOUNCE ARCING	112				
113 IDLE DWELL, DEG.		SPEC TEST VALUE	113				
114 DWELL VAR., DEG.		TEST VALUE	114				
115 IDLE TIMING		SPEC RANGE TEST VALUE	115				
116 TOTAL ADVANCE		SPEC RANGE TEST VALUE	116				
117 MECH. ADVANCE		SPEC TEST VALUE	117				
118 CYL. BAL., RPM DROP		IN FIRING ORDER	118				
119 MANIFOLD VACUUM			119				
120 PCV OPERATION			120				
121 CHARGING AMPS		SPEC TEST VALUE	121				
STATION 6, INSPECTOR NO.		CONSULTANT NO.	SPECIFICATION SHEET NO. 137				

COMMENTS left rear hubcap missing 1005/E

1032.5

MAKE Chev MODEL Caprice YEAR 72

ENGINE DISPLACEMENT 400 # OF CYLINDERS ?

TRANSMISSION TYPE 3 AUTO A

AIR CONDITIONING YES POWER BRAKES YES POWER STEERING YES

IGNITION SYSTEM (Conventional, CDI, Transistor) select one

DISTRIBUTOR TYPE (Points, Induction, Photocell)

BRAKES (Disc, Drum) - (Disc, Drum)
Front Rear

SIGNIFICANT MODIFICATIONS TO AUTO

none

HAS AUTO BEEN INVOLVED IN AN ACCIDENT? (yes, no) NO

IF YES, WHEN AND TO WHAT EXTENT

WHO SERVICES AUTO? EASTDALE AMOCO

OIL: BRAND QS 10W30 CHANGE INTERVAL 4000 - 6000

GASOLINE: BRAND DIFFERENT TYPE Reg

HOW LONG HAVE YOU HAD THE CAR? 3 YRS

WHEN WAS YOUR CAR LAST INSPECTED? OCT

WHEN WAS THIS VEHICLE LAST REPAIRED? MAY 75

WHAT WAS THE REPAIR? BRAKES

WAS THIS REPAIR PERFORMED IN ORDER TO PASS INSPECTION? (yes, no) YES

WHAT WAS THE COST OF THE REPAIR?

WHY ARE YOU PARTICIPATING IN THE AUTO/SEE PROGRAM?

DO YOU NORMALLY KEEP OPERATING EXPENSE RECORDS ON THIS VEHICLE? (yes, no) NO

IF YES, WOULD YOU BE WILLING TO PROVIDE COPIES OF THESE RECORDS TO AUTO/SEE IF REQUESTED? (yes, no)

T
F

(1)

TIRES

	LF	RF	LR	RR	P	F	A
SIZE	[illegible]	[illegible]	[illegible]	[illegible]	/		
TYPE	BR	BR	BR	[illegible]	/		
TREAD	[illegible]	[illegible]	3	3	/		
PRESS TEST/ADJ.	[illegible]	[illegible]	[illegible]	[illegible]	/		
CONDT					/		
VALVS					/		

STEERING

	P	F	A
FREE TURNING	/		
SYSTEM PLAY	/		
LINKAGE PLAY	/		

BRAKES-STATIC TESTS

	P	F	A
EMERGENCY	/		
WARNING INDICATOR	/		
POWER BOOSTER & HOSE	/		
DUAL SYSTEM FUNCTION	/		
LEAKDOWN TEST	/		
PEDAL RESERVE	/		
PLATFORM LF 90 RF 75 LR 75 RR 75	/		

SUSPENSION

	LU	LL	RU	RL	P	F	A
BALL JOINT SEALS					/		
BALL JOINT MOTION					/		
SPRINGS/TORSION BARS					/		
STABILIZER BARS					/		
CONTROL ARMS					/		
RADIUS RODS					/		
BUSHINGS					/		
SHOCK ABSORBERS					/		

ALIGNMENT

	SPEC	TEST		P	F	A
CAMBER	0 to +1	.0	.0			/
CASTER	+1/2 to +1 1/2	+010	+120	/		
TOE IN	1/16 to 5/16	-006		/		
SCUFF (30 feet/mile max)		000		/		

APPROVED FOR DYNO TESTING BY: ______

BODY & INTERIOR

	P	F	A
BODY CONDITION (fail on exterior only)	/		
HOOD LATCH/SECONDARY LATCH	/		
SEATS & BELTS	/		

COOLING SYSTEM

	P	F	A
RADIATOR	/		
RADIATOR CAP	/		
HOSES	/		
BELTS	/		
WATER PUMP	/		
FAN CLUTCH	/		

BRAKES-DYNAMOMETER TEST

	F		R		P	F	A
MAX TEST FORCE							
ROLLING RESISTANCE							
ROLLING UNBALANCE							
LOW BRAKE UNBALANCE							
FULL STOP TEST							
AVERAGE	LF	RF	LR	RR			
~~PEAK~~							

FLUID LEVELS & CONDITION

	P	F	A
ENGINE OIL 28			/ ①
TRANSMISSION OIL	/		
REAR AXLE LUBE	/		
BRAKE FLUID LEVEL	/		
POWER STEERING FLUID	/		
PS BELTS AND HOSES (fail on belt only)	/		
BATTERY ELECTROLYTE	/		
LEAKS (oil, coolant, ps & br fluid) 20			/
FUEL LEAKS	/		

REMOVE ______ FRONT AND ______ REAR WHEELS

REMARKS

① Engine oil 2½ qts. low [illegible]
(added 2 qts)

② Trans. Pan gasket [illegible]

DRIVER VISION

	P	F	A
WINDSHIELD	/		
SIDE WINDOWS	/		
REAR WINDOWS	/		
DEFROSTER	/		
WINDSHIELD WIPERS	/		
INTERIOR MIRROR (MUST HAVE ONE)	/		
EXTERIOR MIRROR			

VIN

TAG

BRAKE TYPE: drum/drum, disc/drum. WEIGHT ______

YR 72 MAKE Chev MOD Caprice

MILEAGE 29813 INSPECTION CLASS D

OWNERS NAME ______

ILLUMINATION & SIGNALING

	LL	LR	RL	RR	P	F	A
HEADLIGHT V	[illegible]	[illegible]	[illegible]	[illegible]			
AIM H	[illegible]	[illegible]	[illegible]	[illegible]	/		
HEADLIGHT INTENSITY	[illegible]	[illegible]	[illegible]	[illegible]	/		
HIGH BEAM INDICATOR					/		
OTHER LIGHTS: TAIL, BRAKE PARK, EMERGENCY, SIGNAL, ETC.					/		
HORN					/		
SPEEDOMETER ACCURACY (SHOULD READ 77) ______							

TIME: ARRIVE 06:45 CLEAR 07:30 REVIEW 07:35 ADVISE 08:20

DATE 11-14-75

Station 1 Inspector [illegible]

Station 2 Mechanic [illegible]

Station 3 Diagnostician ______

250CT75 [illegible]

EMISSION TESTS

	HC	CO	P	F	A
HI-CRUISE: ____ HP ____ MPH	0090	0,7	/		
LO-CRUISE: ____ HP ____ MPH	0060	0,2	/		
2250 IDLE:	0040	0,2	/		
CURB IDLE: 576	0110	1.0	/		
(SPEC: 600 RPM IN D GEAR)					

REMARKS

ACCELERATOR RETURN SPRING IS WEAK + LINKAGE IS STICKING.

ENGINE TESTS

CRANKING VOLTAGE AT BATTERY	(9.6 MIN) 9.20	/		
POINT RESISTANCE	(0.2 MAX):	/		
DWELL	(SPEC: 30° 0033°	/		
DWELL VARIATION	(4° MAX 0002°	/		
BASIC TIMING	(SPEC: 0° 0006°	/		
SPARK ADVANCE				
SPARK RETARD				
PCV VALVE		/		
SECONDARY IGNITION				/

PLUGS 14 TO 20 KV

FUEL SYSTEM

FUEL LINE	/		
CHOKE	/		
AIR FILTER	/		

WHEEL FULL

	R FRONT	REAR			
DISC/DRUM	1.290	11.050	/		
FRICTION MATERIAL	7/16	3/32+	/		
STRUCTURAL/MECHANICAL			/		
WHEEL CYLINDER			/		
HOSES & LINES			/		
MASTER CYLINDER			/		

FAIL

EXHAUST SYSTEM

NOISE	/		
COMPONENT PARTS	/		

DRIVE LINE

U JOINTS			
CARRIER BEARING/SUPPORT			
DIFFERENTIAL	/		
REAR AXLE BEARINGS	/		
MOTOR MOUNTS			
CLUTCH	/		

① Lug nut missing on R.R. Stud threads are damaged

WHEELS

	LF	RF	LR	RR			
INTEGRITY					/		
DEFORMATION					/		
MOUNTING				X60		X	
BEARINGS					/		

VIN

TAG

OWNERS NAME

BRAKES-FOLLOW UP STATIC TESTS

EMERGENCY	/		
WARNING INDICATOR	/		
POWER BOOSTER & HOSE	/		
DUAL SYSTEM FUNCTION	/		
LEAKDOWN TEST	/		
PEDAL RESERVE	/		

Station 4
Mechanic D.G.C.
Station 5
Inspector
Reviewer
Advisor

BRAKES-HOFFMAN ROLLER TEST

BALANCE (20% UNBALANCE MAX-SEE TEST RECORD)	/		

Auto/SEE
SAFETY/ECONOMY/ECOLOGY

GENERAL CONDITION OF VEHICLE

Good

CUSTOMER COMMENTS

VEHICLE DESIGN CHARACTERISTICS WHICH HINDER DIAGNOSTIC TESTS

MODIFICATIONS TO ENGINE/DRIVE TRAIN/BRAKES/SUSPENSION/EXHAUST

DEGREE OF PERSONAL OWNER MAINTENANCE

NONE | AVERAGE | HIGH

FAIL

APPENDIX B

Form for File Construction

	Vin	Make	Model	Year	Site	Date	Odometer	Tread Depth LF	Tread Depth RF	Tread Depth LR	Tread Depth RR	Pressure LF	Pressure RF	Pressure LR	Pressure RR	Sidewalls	Valves	Lights Rear	Lights Head	Lights Aim	Lights Turn	Lights Lic Plate	Lights Other	Steer Play	Steer Bind	Steer Link	Brakes	Glaz Wind	Glaz Other	Glaz Wipe	Glaz Wash	Fuel / Exh	Seat Belt	Horn
1	16[illegible]7S F17[illegible]36	Chev	Impala	68	AR	110575	11863	99	99	99	99	95	95	[illegible]	[illegible]			[illegible]	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0
2	38[illegible]579 M[illegible]16[illegible]	Olds	98	69	AR	110575	64571	99	99	99	99	95	95					0	1		0	0	1	0	0	0	0	0	0	0	1	1	0	0
3	[illegible]L[illegible]763 G[illegible]76	Plymo	Duster	73	AR	110475	82227	99	99	99	99	95	95	[illegible]	[illegible]			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	[illegible]	Chrys	Newport	69	AR	110475	84048	99	99	99	99	95	95	90	90			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1L47[illegible] [illegible]15316C	Chev	Impala	73	AR	110475	41023	99	99	99	99	95	95	95	95			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6	PH23G3 D212137	Plymo	Fury	68	AR	110475	83277	99	99	99	99	95	95	95	95			0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
7	3R11W[illegible] [illegible]218	Ford	Pinto	73	AR	110475	43[illegible]1	99	99	99	99	95	97	9[illegible]	9[illegible]			0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0
8	9R01L1 48[illegible]51	Ford	Mustang	69	AR	110475	[illegible]	99	99	99	99	95	95	95	95			0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0
9	DM43K[illegible] [illegible]282[illegible]15	Dodge	Polara	72	AR	110375	18909	99	99	99	99	95	95	95	95			0	0	0	0	0		0	0	0	0	0	0	[illegible]	[illegible]	0	0	0
10	112225 5[illegible]05	VW		72	AR	110375	464[illegible]2	99	99	90	90	95	95	95	95			0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0
11	CL23L1 [illegible]228454	Chrys	Newport	71	AR	110375	41074	99	99	99	99	91	95	95	95			0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
12	1L69H3 1168237	Chev	Impala	73	AR	110675	22597	99	99	99	99	91	90	95	90			0	0	0	0	0	0	0	0	0	0	0	0	[illegible]	[illegible]	1	0	0
13																																		
14																																		
15																																		
16																																		
17																																		
18																																		
19																																		
20																																		
21																																		
22																																		
23																																		

99 - pass
95 - normal
97 - over
94 = marg. tread
97 = toe

APPENDIX C

Items Inspected by Site

TABLE 1-A

ITEMS INSPECTED BY SITE
(NHTSA DIAGNOSTIC DEMONSTRATION PROJECT)

EXPERIMENT SITE	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
	TREAD DEPTH			TREAD DEPTH	TIRE PRESSURE
	PRESSURE		TIRE SIZE	TIRE PRESSURE	VALVE STEM
	SIZE		TIRE TYPE	TIRE TYPE	TREAD & SIDEWALL
	MISMATCH		TIRE PRESSURE	TIRE MISMATCH	WEAR PATTERN
	DAMAGE	TREAD DEPTH	TIRE TREAD DEPTH	TIRE DAMAGE	TIRE CONSTRUCTION
	VALVE STEMS	TIRE CONDITION	TIRE CONDITION	VALVE STEMS	TIRE SIZE
TIRES . .	TIRE WEAR PATTERN	TIRE TYPE	VALVES	WEAR PATTERN	F-R TIRES
				WIPER OPERATION	REAR/SIDE MIRROR
	FRONT/REAR GLASS			WASHER OPERATION	W/S
	SIDE GLASS			SIDE WINDOWS	WIPERS/WASHERS
	R/OUTSIDE MIRRORS	W/S & OTHER WINDOWS		REAR/SIDE MIRROR	DOOR GLASS
	W/S WASHER OPERATION	WINDSHIELD WIPERS	HOOD LATCH	W/S	FENDERS
	W/S WIPER OPERATION	REARVIEW/SIDE MIRRORS	WINDOWS	FENDERS	DOORS, HINGES
	W/S WIPER BLADES	GEN. BODY CONDITION	W/S WIPERS	DOORS	LATCHES & LOCKS
	FENDERS	BUMPERS	REARVIEW MIRROR	WIPER BLADES	BUMPERS
	BUMPERS	DOORS	EXTERIOR HAZARDS	GENERAL CONDITION	HOOD LATCH/RELEASE
GLASS	DOORS	HOODLATCH	BODY CONDITION	BUMPERS	FRAME
BODY . . .	HOODLATCHES	W/S WASHERS	W/S	HOOD LATCH	ENERGY ABS. BUMPERS
STEERING &					
HANDLING					
INSPECTION	ST. FREE TURN	WHEEL PLAY	FREE TURNING	FREE TURNING	STEERING LASH
ITEMS . .	ST. WHEEL PLAY	SYSTEM BINDING	SYSTEM PLAY	SYSTEM PLAY	JAMMING
					TRANSMISSION
					SHIFT INDICATOR
					IGN.SWITCH
	SEAT MOUNTING				WINDOW REGULATOR
	SEAT BACK				FLOORING
	SEAT ADJUSTER	SEATS			SEATS
	FRONT SEAT BELTS	SEAT BELTS			SEATBELTS
	HEAD RESTRAINT	HEAD RESTRAINTS		HORN	PADDING
	&PADDING	SUN VISORS		SEATS	HEAD RESTRAINTS
	SUN VISORS	DEFROSTERS		SEAT BELTS	SUN VISOR
	DEFROSTER CPN.	STEERING WHEEL	HORN	PADDING	HORN
INTERIOR	ST. WHEEL	& COLUMN	SEATS & BELTS	& RESTRAINTS	DEFROSTING &
COMPONENTS	& COLUMN	DASH PADDING	SPEEDOMETER	WINDOW REGULATOR	DEFOG SYSTEM
INSPECTED	HORN	HORN	DEFROSTER	SUN VISOR	SPEEDOMETER

TABLE 1-B

ITEMS INSPECTED BY SITE
(NHTSA DIAGNOSTIC DEMONSTRATION PROJECT)

EXPERIMENT SITE	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
					WATER LINES
					& CONNECTORS
			LEAKS, HOSES, BELTS		MOTOR MOUNTS
			REAR AXLE LUBE		OIL FILLER CAP
			U-JOINTS		FLUID LINES
			CARRIER BEARING		& CONNECTORS
			DIFFERENTIAL		OIL FILLER CAP
			REAR AXLE BRGS.		FAN & AIR
		ENGINE OIL LEVEL	MOTOR MOUNTS		CONDITIONING BELTS
		VISIBLE OIL LEAKS	CLUTCH		RADIATOR, BATTERY
	ENGINE OIL	RADIATOR	RADIATOR	WIRING & CONNECTORS	POWER BOOSTER HOSE
	FAN BELT	HOSE/LINES	RADIATOR CAP	BATTERY, RADIATOR	WIRING
	LEAKS (COOLANT)	BELTS, WIRING	WATER PUMP	ENGINE OIL LEVEL	& CONNECTORS
	BATTERY CONNECTORS	BATTERY WATER LEVEL	FAN CLUTCH	OIL LEAK	W/S FLUID
	POWER BRAKE	NEUTRAL SAFETY SWT	ENGIN/TRANS/BRAKE/	DRIVE BELTS	ENGINE LUB. OIL
UNDERHOOD	VACUUM HOSE	CONNECTORS	POW ST. FLUID LEVEL	HOSES, WATER PUMP	VISIBLE LEAKS
& DRIVE	BATTERY TEST	U-JOINTS	BATTERY ELECTROLYTE	TRANSMISSION OIL LEVEL	DRIVE SHAFT
					PCV VALVE
					AIR PUMP/PLASTIC
		PCV VALVE	CURB IDLE		RESTRICTOR/EGR/
	HIGH CRUISE	HIGH CRUISE	2250 IDLE		EVAP/CONTROL
	LOW CRUISE	LOW CRUISE	HI CRUISE	NO LOAD IDLE	HYDROCARBONS
EMISSIONS	IDLE	LOADED IDLE C	LO CRUISE	NO LOAD 2250 RPM	CO
			CAMBER		
	CAMBER		CASTER	CASTER	WHEEL ALIGNMENT
	CASTER		TOE IN	TOE	(CASTER, CAMB., TOE)
ALIGNMENT	TOE	ALIGNMENT	SCUFF	SCUFF	SCUFF

TABLE 1-C

ITEMS INSPECTED BY SITE
(NHTSA DIAGNOSTIC DEMONSTRATION PROJECT)

EXPERIMENT SITE	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
HEADLIGHT OPERATION & ALIGNMENT	LOW BEAM HIGH BEAM	LOW BEAM HIGH BEAM AIM	HEAD LIGHT AIM INTENSITY HI BEAM INDICATOR	HEAD LAMP AIM	HEAD LAMPS, FOG LAMPS & DRIVING LAMPS HIGH BEAM INDICATOR
ILLUMINATION & SIGNAL . .	TAIL LAMPS STOP LAMPS BACKUP LAMPS PARKING LAMPS FRONT LICENSE PLATE LAMP SIGNAL LAMPS SIDE MARKER LAMPS TURN INDICATOR HAZARD WARN. INST. LAMPS	BACKUP LIGHTS PARKING LIGHTS EMERGENCY LIGHTS DASH LIGHTS TURN SIGNAL INDICATORS EMERGENCY FLASHER SEAT BELT INDICATOR OTHER INDICATORS SEAT BELT /DOOR BUZZER STOP LIGHTS LICENSE PLATE LIGHTS REFLECTORS	TAIL LAMPS STOP LAMPS SIGNAL LAMPS EMERGENCY LAMPS	REAR 6 SIGNAL LAMPS INDICATOR LIGHT	REFLEX REFLECTORS TURN SIGNAL LAMPS STOP LAMPS LICENSE PLATE LAMP BACKUP LAMPS TWIN SIGNAL LAMPS HAZARD WARNING LAMPS PARKIN LAMPS SIDE MARKER LAMPS TURN INDICATOR
BRAKE PERF. ANALYSIS . .	WARNING INDICATOR SYSTEM INTEGRITY PEDAL RESERVE P/B SYSTEM TEST WHEEL DRAG F MECH RESPONSE F HYD RESPONSE F COMF EQUALIZATION F HI LEVEL EQUALIZ F WHEEL DRAG R MECH RESPONSE R HYD RESPONSE R COMF EQUALIZATION R HI LEVEL EQUALIZ R FADE/EXCURSION	WARNING INDICATOR PEDAL FADE PEDAL RESERVE SERVICE BRAKE PERFORMANCE POWER BRAKE VACUUM BOOSTER PARKING BRAKE PERFORMANCE	WARNING INDICATOR BULB POWER BRAKE BOOSTER & HOSE DUAL SYSTEM FUNCTION PEDAL LEAKDOWN PEDAL RESERVE POWER BRAKE PLATFORM BRAKE TEST BRAKES- -DYNAMOMETER TEST -HOFFMAN ROLLER TEST -FOLLOW-UP STATIC TEST	BRAKE PERF. TEST PEDAL RESERVE SYSTEM INTEGRITY FAILURE INDICATOR LIGHT PARKING BRAKE POWER BOOSTER	ROLLING RESISTANCE (R/W) PARKING BRAKE PLATFORM BRAKE TEST BRAKE WARNING LIGHT SYSTEM INTEGRITY MECHANICAL LAG(F/R) BRAKE SYSTEM RESPONSE (F/R) HYD. SYSTEM RESPONSE(F/R) COMFORT LEVEL IMBALANCE(F/R) HI LEVEL IMBALANCE (F/R) EXCURSION (F/R) EXCURSION REVERSAL (F/R) OSCILLATION (F/R) FADE (F/R) ANTI-SKID (FRONT-REAR IMBALANCE

TABLE 1-D

ITEMS INSPECTED BY SITE
(NHTSA DIAGNOSTIC DEMONSTRATION PROJECT)

EXPERIMENT SITE	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
	BRAKE LINES				
	WHEEL PULLED				
	DISC/DRUM COND F				
	LINING COND F				
	STRUCTURAL PARTS F				
	RETURN SPRINGS F				
	AUTOMATIC				MASTER CYLINDER
	ADJUSTERS F		BRAKE DRUM		FLUID
	CYLINDER COND F		DIAMETER		BRAKE PEDAL
	DISC/DRUM COND R		BRAKE ROTOR		BRAKE ASSEMBLY(F/R)
	LINING COND R		THICKNESS	BRAKE HOSES	DRUM DIA/ROTOR
	STRUCTURAL PARTS R		FRICTION MATERIAL	DISC & DRUMS	THICKNESS (F/R)
	RETURN SPRINGS R	DISC/DRUM COND	STRUCTURAL	FRICTION MATERIAL	DRUM/ROTOR
	AUTOMATIC	BRAKE LININGS	& MECH PARTS	MECH LINKAGES	CONDITION (F/R)
	ADJUSTERS R	STRUCTURAL	DISC/DRUM	WHEEL CYLINDERS	AUTO ADJUSTERS(F/R)
	CYLINDER COND R	& MECH PARTS	WHEEL CYLINDER	WHEEL BEARING	RETURN SPRINGS (F/R)
	WHEEL SEALS	BRAKE HOSE	HOSES & LINES	SIGNALS	BRAKE LININGS/
BRAKE COMPONENTS	MASTER CYLINDER	& LINES	MASTER CYLINDER	MASTER CYLINDER	PADS (F/R)
			WHEEL SIZE		
			INTEGRITY	WHEEL INTEGRITY	
	RUN-OUT	W CONDITION	DEFORMATION	WHEEL DEFORMATION	
	INTEGRITY	W MOUNTING	MOUNTING	WHEEL MOUNTING	RIM/DISC/FLANGE
WHEEL CONDITION	MOUNTING	W RUNOUT	BEARINGS	WHEEL BEARINGS	WHEEL NUT/BOLT
	FUEL LEAKS			FUEL LINES	
	FUEL TANK	FUEL SYSTEM		GAS TANK	
FUEL SYSTEM	CONDITION	FILLER CAP	FUEL LINE	FUEL PUMP	GAS FILLER CAP

TABLE 1-E

ITEMS INSPECTED BY SITE
(NHTSA DIAGNOSTIC DEMONSTRATION PROJECT)

EXPERIMENT SITE	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
					EX. SYSTEM NOISE
				MUFFLER	MUFFLER, EX-PIPE
			EXHAUST SYSTEM	EXHAUST PIPE	TAIL PIPE
	LEAKS	MUFFLER/RESONATOR	NOISE	MANIFOLD	MANIFOLD, HEAT
EXHAUST SYSTEM	DAMAGE	EXHAUST PIPING	COMPONENT PARTS	TAIL PIPE	RISER & ATTCHMENTS
					ENERGY ABSORBING
					STRG. COLUMN
					POWER STEERING BELT
					POWER STEERING
	STEERING SYSTEM				FLUID
	IDLER/PITMAN ARM				STEERING LINKAGE
	CONTROL ARM PIVOTS		POWER STEERING		TIE RODS
	TIE ROD ENDS		FLUID LEVELS (P/S)		& DRAG LINK
	STEERING GEAR BOX		LINKAGE PLAY	LINKAGE PLAY	KING PINS
STEERING . . .	POWER STEERING	POWER STEERING	PS BELTS & HOSES	POWER STEERING	IDLER & PITMAN ARMS
	FRONT SPRING				SHOCK MOTION
	S/T BARS	STABILIZER BAR	BALL JOINT SEALS	BALL JOINT SEALS	LOADED BALL JOINT
	STABILIZER BAR	RADIUS RODS	BALL JOINT MOTION	BALL JOINT MOTION	BALL JOINT SEAL
	BALL JOINTS UPPER	S/T BAR	S/T BARS	SPRINGS	SPRINGS/SHOCKS
	BALL BALL JOINTS LOWER	RUBBER BUSHING	STABILIZER BARS	& TORSION BARS	/SHACKLES
	BALL JOINT SEALS	SHOCK ABSORBER	CONTROL ARMS	STABILIZER BARS	SHACKLE/U-BOLT
	SHOCK ABSORBERS	SUSPENSION MEMBER	RADIUS RODS	RUBBER BUSHINGS	STRUT & SWAY
	REAR SPRINGS	CONDN	BUSHINGS	RADIUS RODS	BAR BUSHINGS
SUSPENSION . .	CONTROL ARMS REAR	BALL JOINT MOTION	SHOCK ABSORBERS	SHOCK ABSORBERS	SWAY BAR LINKAGE

TABLE 1-F

ITEMS INSPECTED BY SITE
(NHTSA DIAGNOSTIC DEMONSTRATION PROJECT)

EXPERIMENT SITE	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
	AIR FILTERS				
	IDLE SPEED RPM				
	PLUG FIRING, KV				
	AVAIL COIL VOLTS		CRANKING VOLTAGE		
	COIL/COND OSC		AT BATTERY		
	POINT OPERATION		POINT RESISTANCE		
	IDLE DWELL DEG		DWELL		
	DWELL VAR DEG		DWELL VARIATION		
	IDLE TIMING		BASIC TIMING		RPM AT IDLE
	TOTAL ADVANCE		SPARK ADVANCE		POINT DWELL
	MECH ADVANCE		SPARK RETARD	PLUG VOLTAGE	CYLINDER BALANCE
	CYL BAL RPM DROP		PCV VALVE	COIL VOLTAGE	TIMING
	MANIFOLD VACUUM		SECONDARY IGNITION	DWELL	IGNITION PRIMARY
	PCV OPERATION		AIR FILTER	CYLINDER BALANCE	IGNITION SECONDARY
ENGINE ANALYSIS	CHARGING AMPS	?	CHOKE	STATIN VOLTAGE	CHARGING SYSTEM

APPENDIX D

Criteria for Component Rejection by Site

BRAKE PERFORMANCE ANALYSIS

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
PEDAL					
	REJECT If pedal travel of foot pedal of hydraulic/mech/power hydraulic system more than 80% manuf. spec. available pedal travel. REJECT If reserve height is 20% of free height. REJECT If reserve height is 40% of free height.	REJECT If pedal travel when fully depressed >80% of total distance from free position to floor board or whatever object that obstructs pedal travel.	REJECT If pedal falls perceptably during dual system Function test (pedal leakdown). REJECT If pedal travels more than 80% of available travel during dual system Function test.	Same as Arizona.	ADVISE If pedal force ≥ 100 lbs. or ≥ 30 lbs. (for power brake) REJECT If pedal reserve below 60% of full travel. ADVISE If pedal reserve between 60-80%.
BRAKE PERFORMANCE					
	REJECT Power brake booster if pedal does not move slightly as engine is started while pressure is maintained on the pedal.	REJECT (Serv. Brake) If difference between left & right wheel >20% (Braking force) Roller type test. REJECT (Serv. Brake) If at 20 mph. vehicle cannot be stopped in ≤25 feet without leaving 12 foot lane. REJECT (Pow. Brake) If vacuum hoses collapsed/abraded/broken/ improperly (road test) mounted/audibly leaking or (for vehicles not equipped with full PB system) if pedal does not fall slightly on starting engine with residual vacuum exhausted & a constant 25 lb. force on pedal. Parking Brake--refer Arizona revised statute 28-952(A.6)	REJECT (Pow. Brake Booster) If the pedal does not fall slightly when engine started with brake applied. REJECT (PB System) If vacuum lines collapsed/abraded/broken/ improperly mounted/audibly leaking.	Power Brake (Same as Arizona) (Service Brake) (Same as Arizona) Parking Brake.	
WARNING					
	REJECT If indicator fails to operate when tested as spec/light comes on when brakes applied/light is on continuously. REJECT (System Integrity) If pedal continues to drop under pressure/warning light comes on.	REJECT If indicator lamp not operable (vehicles after Jan 1, 1968). REJECT (Integrity) If perceptible decrease in pedal height under a 125 lb. force applied to brake pedal or if warning indicator lights up or if brake system cannot withstand force applied to brake pedal without failure of any line/part.	REJECT If Brake warning indicator does not light when tested. REJECT (Dual System Function Test) If indicator lights when pedal pushed (125 lbs. on pedal) for 10 secs. with engine running & emergency brake off.	Same as Arizona.	REJECT If light missing/inoperative (if required). REJECT (System Integrity) If pedal height will not remain constant while in applied position.
BRAKE TESTS					
	REJECT If brake force for Passenger vehicles (seating capacity of 10 incl. driver.) < 52.8 (Brake force as a % of gross vehicle or combination weight.) deceleration of 17 ft/sec/sec. REJECT (Rolling Resistance) If differential between left & right wheel ≥ 50 lbs.		REJECT (Platf. Brake Test) If a 20% difference in braking force exists between wheels on same axle.		ADVISE If (Rolling Resistance) Level is high (15 lbs.) ADVISE If (Rolling Resistance) Level is high.

(CONT.)

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
BRAKE PERFORMANCE ANALYSIS				
MECH & HYD				
ADVISE For mech. lag if diff. between left & right wheel is ≥ 20 lbs (=20 for rear axle).				ADVISE If Mech Lab. engage (≥15 lbs.)
ADVISE (Hyd. Response) if imbalance is ≥ 70 lbs.				ADVISE If Mech Lab. release (≥10 lbs.)
				ADVISE If Brake System Response slower than 0.2 sec. (computer application only)
				ADVISE If Hyd. System response ≥30 lbs.
WHEEL DRAG				
REJECT If differential between left & right wheel if ≥ 50 lbs.				
COMFORT				
ADVISE (Comfort Level Imbalance) if imbalance ≥ advise level on spec. sheet.				REJECT If comfort level imbalance ≥20%.
REJECT (Hi Level) if imbalance ≥ fail level on spec. sheet				REJECT If hi-level imbalance ≥ 20%.
ADVISE If ≥ advise level on spec. sheet.				
FADE				
REJECT Any unbalance in excess of 30%.				ADVISE If excursion ≥ 20% or any excursion exists.
ADVISE If fade/excursion ≥ 40 lbs.				ADVISE If oscillation is ≥10 lbs.
				ADVISE If Fade ≥20%.
				ADVISE If anti-skid inoperable.
				ADVISE If (imbalance) above 70%, Front; 30%, Rear.

ILLUMINATION & SIGNAL

ALABAMA

FOR ALL GROUPS-

REJECT if: 1. Any lamp or safety device which does hot meet applicable SAE (Society of Automotive Engineers) Standards or that is not on the state approved list. 2. Any sealed-beam unit or bulb in any lamp that fails to function properly. 3. Any circuit that does not light the proper filament when the appropriate switch position is applied, or operation of any circuit interferes with the operation of any other circuit. 4. A cracked, broken, discolored, or missing lens or reflex reflector. (Do not reject for small hairline marks in plastic lens due to weathering and aging.) 5. A lamp lens that does not fit properly or is improperly installed. 6. A separable type lens, the name of which does not correspond with the name stamped on the lamp body, unless it is specifically approved for use with that lamp body. 7. A lamp with excessive dirt or moisture inside or any obvious discoloration, contamination, or reflector deterioration. 8. A lamp or reflective device that is insecurely fastened, improperly installed, or improperly located on the vehicle. 9. A lamp or reflective device showing a beam of color contrary to law or regulation. 10. Any defects in wiring or lighting equipment that would adversely influence the effectiveness of the lamp. 11. Auxiliary devices: (a) any auxiliary device/material not a part of the original approved device placed on, in, or in front of any lamp; (b) any extra lighting equipment that interferes with proper functioning of the required equipment. (c) Any device which causes the lamp to operate other than in the normal manner. 12. Any indicator lamp or warning signal that does not properly perform the function for which it is designed. 13. Any required reflective device, lamp, or lens that is turned or inclined so that its light is not proprerly directed. 14. Any backup lamp circuit that does not provide means for turning the lamp off automatically when the vehicle is in forward motion, or does not provide indication to the driver that the lamp circuit is in operation when the vehicle is placed in forward motion. 15. Wiring, connections, and switches: (a) switches and flashers not in good condition and not functioning properly. (If the turn signal switch is designed for automatic canceling, check for proper operation.) (b) Wiring in poor condition, improperly installed, or so located as to incur damage. (c) Any connection that is not secure or shows signs of excessive corrosion. (d) Wiring connections to trailers, semitrailers, and mobile homes not made through matched connectors, indexed and oriented so as to prevent incorrect connections.

ARIZONA

REAR LAMPS

Refer to Arizona Revised Statutes 28-940; 28-327; 28-931; 28-939; 28-925.

PARKING LAMPS

SIGNAL

Refer to Arizona Revised Statute 28-939.

DASH

Refer to Arizona Revised Statute 28-926; 28-939.

TENNESSEE

REAR LAMP

REJECT If there is not at least one tail light operational on both sides of vehicle.

REJECT If there is not at least one stop light operational on both sides of vehicle.

PUERTO RICO

FOR ALL LAMPS

rejection conditions hold for all groups - REJECT if: (1) Any bulb in any lamp fails to function properly. (2) Any circuit doesn't light its proper filament for its response switch position (3) Any lens/lamp cracked. (4) Any lamp not properly installed (5) Any lamp has excessive dirt/moisture inside/rust such that adequate lighting not reflected. (6) A lamp/light shows a beam of color contrary to law/regulation. (7) Any defects in system that / would adversely influence effectiveness of lighting performance. (8) Any additional equipment placed or not a part of approved manu. spec. (9) Lamp output less than 50% of its original intensity.

WASHINGTON

FOR ALL LAMPS

REJECT if: Missing/Inoperative/Improper Function/Improper Color/Improper Type/Obscured/Mislocated/Improper Fastening/Broken/Cracked Lens.

REJECT if reflectors: Missing/Improper type/Improper Color/Improper Function/Obscured/Mislocated/Broken/Cracked.

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
BRAKE COMPONENTS				
BRAKE LINING				
REJECT if lining pad thickness < 1/32"/is contaminated/glazed/cracked /loose or over 10% missing	REJECT if each lining/pad thickness < 1/32" over rivet heads or the brake shoe on bonded linings/pads.	REJECT if the friction material is less than 1/32" above rivet head or brake shoe	Same as Arizona	REJECT if brake linings/pads < 1/32" thickness/contaminated/ unattached reversed position.
	REJECT if brake linings/pads have cracks/breaks that extent to rivet holes (except minor ones that do not impair attachment).			
	REJECT if drum brake linings not securely attached to brake shoes.			
ADVISE if thickness over 1/32" but < 1/16"				ADVISE if thickness between 1/32 and 3/32"/wear pattern indicated inadequate contact/linings cracked/broken loose/glazed frictional surfaces.
MECH & STRUC				
REJECT if there is binding, or parts damaged/missing	REJECT if braking plates & caliper assemblies deformed/cracked.	REJECT if braking plates and caliper assemblies deformed/cracked		REJECT if return springs missing/ inoperative
REJECT if return springs damaged/ inoperative	REJECT if system parts broken/ misaligned/missing/binding or show evidence of severe wear.	REJECT if system parts broken/ misaligned/missing/binding or show evidence of severe wear.		
BRAKE HOSE				
REJECT if damaged/leaks exist	REJECT if brake hoses mounted so as to contact vehicle body or chassis.	REJECT if brake hoses contact body/ chassis when front wheels turned from full left to full right positions.	REJECT if brake hoses contact body/ chassis when front wheels turned from full left to full right positions	
	REJECT if hose cracked/chafed/ flattened.	REJECT if brake hoses are cracked/ chafed/flattened.	REJECT if brake hoses are cracked/ chafed/flattened	
DISC/DRUM				
REJECT if thin discs/drum exist and if substantial scoring/ cracks exist	REJECT if embossed drum/rotor not within appropriate specs.	REJECT if drum/rotor not within manuf. specs.	Same as Arizona	REJECT if drum diameter > 0.06" over original diameter.
	REJECT if drum/rotor (not embossed) not within manuf. specs.			REJECT if rotor thickness < manuf. specs.
				REJECT if drum/rotor cracked
				REJECT if drum/rotor damaged.
MASTER CYLINDER				
REJECT if master cylinder reservoir < 50% full				REJECT if master cylinder has visible leaks
REJECT if master cylinder leaks				REJECT if wheel cylinder leaking/ inoperatie
REJECT if cylinder sticking/ inoperative/leaks				
				ADVISE if low.
WHEEL SEALS				ADVISE if sticking/corroded
ADVISE if leakage exists				
AUTO ADJUSTER				
REJECT if auto adjusters inoperative	REJECT if auto adjusters not assembled/installed correctly.			ADVISE if auto adjuster missing/ inoperative

STEERING HANDLING

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
IDLER	REJECT if play exceeds 1/8"				REJECT if looseness exceeds 1/4"
CONTROL ARM					REJECT if looseness in kingpins exceeds 1/4"
	ADVISE if control arm pivots are loose or worn				
TIE RODS					REJECT if play exceeds 1/8"
	ADVISE if play in tie rod ends exceeds 1/8"				
STEERING					
	ADVISE if leaks/play/improper mounting exist in steering gear box.				
LINKAGE			REJECT if free movement at front/rear tread ≥ 1/4" (ball joints loaded, service brake applied, play measured in horiz. plane).	REJECT if free play in linkage exceeds: Rim size≤16, 16.01 to 18.00, ≥18.01; Play 0.25 (1/4), 3/8, 1/2.	REJECT if more than 1/4" play in linkage
POWER					
	REJECT if power steering reservoir level low or belts loose/cracked frayed.	REJECT if power steering system has cracked/slipped belts or insufficient fluid in reservoir.	REJECT if power steering belt is cracked/slipping	REJECT if power steering system has cracked/slipped belts or insufficient fluid in reservoir.	REJECT if major leak
					ADVISE if power steering belt worn/frayed
					ADVISE if leaking (seeping)
					ADVISE if power steering reservoir low on fluid.

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON

ENGINE ANALYSIS

REJECT CRITERIA

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
The Engine Diagnostic Bay Does Not Perform Any Diagnosis With Associated Reject Criteria.	Rejection Criteria Not Spec. for Recco Items.	Rejection Criteria Not Specified.	Criteria for Rejection Not Specified.	ADVISE if idle RPM not within 50 RPM of Manuf. Specs. TIMING ADVISE if timing is not within 12 degrees of manuf. specs. CHARGING ADVISE if no charging output is shown on scope pattern ADVISE if problem is shown on scope for ignition primary/ secondary o charging system. ADVANCE ADVISE if one/more/all cylinders read high or low. DWELL ADVISE if point dwell is not within 13 degrees manuf. specs.

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
WHEEL CONDITION					
WHEEL MOUNTING	REJECT if any wheel shows loose/missing/damaged wheel stubs/bolts nuts or lugs. REJECT if any wheel nuts/clamps/studs are loose/broken/missing/mismatched (adequate thread engagement imperative).	REJECT if any wheel nuts/bolts not in place or loose	REJECT if any wheel nut/bolt missing.	Not Specified.	REJECT if wheel nuts/bolts missing/loose
WHEEL INTEGRITY	REJECT Disc wheels with elongated bolt holes/cracks between handholes or stud holes or both. REJECT Cast wheels with cracks/evidence of wear in clamp area or both. REJECT If any part of wheel bent/cracked/rewelded/damaged so as to affect safe operation of vehicle. REJECT if rims/rings mismatched/bent/sprung or otherwise damaged (check for evidence of rim slippage. This implies wear or loose nuts). Criteria Not Specified for Recco Items	REJECT if a tire rim/wheel/disc/spider has visible cracks elongated bolt holes or indication of repair by welding.	REJECT if a tire rim/wheel disk/spider has visible cracks/elongated bolt hols or has been repaired by welding.	REJECT if a tire rim/wheel disk/spider has visible cracks/elongated bolt holes or indication of repair by welding.	REJECT if rim/disc/flange broken/cracked/damaged
WHEEL BEARINGS	Not Specified				
WHEEL RUNOUT		REJECT if lateral and radial runout of any rim bid area exceeds 1/8" of total indicated runout.	REJECT if lateral/radial runout of each rim bend area exceeds 1/8" total indicator reading.	REJECT if lateral/radial runout of each rim bead area exceeds 1/8" total indicator reading.	REJECT if total runout exceeds 1/4"

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
INTERIOR				
SEATS				
REJECT if seats not securely anchored to floor	Criteria Not Specified for Recommended Items.	Not Available in the Report and Not Specified in VIU Stds. for Items of Inspection for Rejection.		REJECT if seats missing/not firmly attached to floor.
REJECT if seat back is not held securely in place/seat adjustments is jammed or will not hold.				REJECT if folding seat back lock inoperative
REJECT if seat belt safety harness anchorages are not secure/ damaged				REJECT if seatbelts missing/not approved type.
REJECT if webbing frayed/split/torn				REJECT if seat belt anchorages inadequate
REJECT if buckles inoperative				ADVISE if seat belts worn/frayed
REJECT if hardware damaged				
REJECT if installation/equipment is non-approved				
REJECT if label illegible/missing				
PADDING				
If provided: REJECT if Hd. restraint is missing/damaged so as to negate its effectiveness. REJECT if padding is damaged so that it does not afford protection to passenger/ driver.				ADVISE if padding missing/damaged
				REJECT if head restraint missing (cars after 1/1/69).
				ADVISE on poor operation/condition of extendable head restraint devices.
SUN VISOR				
REJECT if missing/poor condition/ loose				REJECT if sun visor missing/loose so it cannot be fixed in position (cars after 1/1/70).
				ADVISE if sun visor has exposed metal (after 1/1/70).

(CONT.)

INTERIOR

ALABAMA

HORN

REJECT if horn/horn switch not securely fastened/not readily accessible /missing/ inoperative.

REJECT if operation of horn interferes with other circuit operation.

REJECT if horn not audible enough to warn pedestrians/other vehicles of danger.

REJECT if steering wheel broken/ loose

REJECT if steering column has been collapsed/loose.

SPEEDOMETER

REJECT if defroster unit inoperative/passage blocked/ loose on either side.

ARIZONA

REJECT if horn does not operate.

Puerto Rico Seats

REJECT if seat belt assembly loose/ inadequate in operation

REJECT if webbing frayed/split/poor

REJECT if belt . missing parts/ accessories

REJECT if seat belt alarm (>72 models) missing/inoperative/ inadequate

TENNESSEE

REJECT if horn missing/inadequate to serve as warning.

PUERTO RICO

REJECT if horn missing/mislocated/ loosely attached/inoperative

REJECT if horn unreasonably loud or harsh/does not meet audible/ tone (>2 tones) requirements.

REJECT if device other than horn (bell/whistle) used instead of horn.

REJECT if steering column has previously been collapsed; if mounting would prohibit energy absorbing capability (for energy absorbing steering column); if mounting is loose.

REJECT if defrosting system missing.

REJECT if system installed so as to interfere with vehicle control.

ADVISE if forced air system inadequate/heat cannot be induced into forced air system (only when vehicle temp. has reached oper. mode).

REJECT if speedometer not visible/ not lighted

REJECT if speedometer indicator missing/broken/bent/ inoperative

REJECT if ignition switch missing/ inoperative.

WINDOW

REJECT if missing/broken/sticking/ inoperative

ADVISE if missing/broken/sticking/ inoperative (other than left front)

TRANS.

REJECT if missing/mislocated/ inoperative/obstructed or obscured.

WASHINGTON

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
DRIVING LAMPS				
LO-BEAM REJECT if missing/inoperative REJECT if L/R lamps too low/too high/left/right as indicated by head light tester. HI-BEAM REJECT if missing/inoperative REJECT if L/R lamps too low/high, left/right, as indicated by head light tester.				Chart provided for Aim and Focus requirements.
INDICATOR		REJECT if any headlight fails to illuminate.	REJECT any lamp for improper/ inoperation/improper installation/excessive dirt, moisture. REJECT if any circuit does not light the proper filament for its proper switch position. REJECT if any lens/lamp cracked/ shows color contrary to law/ regulations REJECT any defects in system likely to adversely influence lighting performance. REJECT if any equipment added on that is not part of approved manuf. specs. REJECT if lamp light output less than 50% of installed capacity.	REJECT if missing/broken or cracked lens/inoperative/improper fastening/function/ mislocation/not appropriate type/misadjustment/improper color. REJECT if indicator missing/ inoperative.

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
UNDERHOOD & DRIVE				
FUEL LINE				
REJECT if fuel leakage exists at any point in fuel system.		REJECT if fuel lines are leaking.	REJECT if fuel leakage occurs at any point in system.	
REJECT if any part of fuel system passes through passenger compartment				
REJECT if any fuel system component not securely fastened including consideration of missing/broken hangers or fasteners.				
FUEL TANK				
REJECT if fuel tank filler cap missing/poorly fitting or with defective gasket.				REJECT if gas filler cap missing.
OIL				
REJECT if fuel leak sufficient to cause fire hazard (not stains on carburetor, fuel lines, etc.).		REJECT if fuel leaks are detected		ADVISE if oil filler cap is missing
		REJECT if power steering fluid level is insufficient (pump sucks air).		ADVISE if fluid level low/empty/ frozen/contaminated.
				REJECT if engine lube oil has major leak
				REJECT active leaks in transmission/crankcase/ differential/gas tank fuel pump/oil filter
				REJECT if gas filler cap missing
BATTERY				
REJECT if battery connector/ insulation burned sufficient to cause a short circuit.				ADVISE if battery mounting structure loose/missing
REJECT if corrosion is sufficient to reduce power over 50%.				ADVISE if corrosion present
ADVISE if battery is weak or undercharged (using battery tester).				ADVISE electrolyze fluid is low
				ADVISE wiring conectors loose/ missing/broken/bare/worn/ frayed/insulation deteriorated/corroded.
				ADVISE if wiring repairs made by use of diff. Guage wire within same circuit.
				ADVISE if improper hiring routing

(CONT.)

ALABAMA	ARIZONA	TENNESSEE	PURETO RICO	WASHINGTON
UNDERHOOD & DRIVE				
RADIATOR				
ADVISE if radiator has visible leak.				ADVISE if radiato loose/leaking
ADVISE if water pump has visible leak.				ADVISE if water pump leaking
				ADVISE if drive shaft if loose
				REJECT if motor mounts broken
BELTS				
ADVISE if fan belt is loose/cracked/missing.				ADVISE if fan and AC belts worn/frayed/slipping
HOSES				
ADVISE if water cooling system hoses are loose/cracked/damaged.				ADVISE if water hoses and connections are broken/cracked or if leaking
REJECT if power brake vacuum hose is loose/collapsed/damaged.				ADVISE if power booster hose broken/cracked
ADVISE if power brake hose brittle/cracked.				REJECT if fluid lines/connectors broken/cracked/worn/frayed/leaking improper fastening
				REJECT if hydraulic lines/connectors broken/cracked/worn/frayed leaking/improper length, fastening. end of underhood table begin tires table

TIRES

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
WEAR PATTERN	REJECT any tire with a localised worn spot that exposes the ply cord. REJECT if visible bump, bulge, or knot appar. related to tread, sidewall separation, partial failure of tire structure including bead area exists. REJECT if tire is regrooved or recut below original groove depth (except tires identified as having extra undertread rubber).	REJECT if tires not free from caunking/bumps/bulges evidencing cord, ply, tread separation.	REJECT if there is evidence of chunking/bumps/knots or bulges evidencing cord/ply or tread separation. REJECT if tire cords or belting are directly visible or when cracks or cuts are probed.	REJECT if any part of ply or cord is exposed. REJECT any tire temporarily repaired by use of blowout patches or boots.	REJECT if separation evidenced by bulges or if cord ply is exposed. ADVISE on wear pattern as being evidence of (1) under inflation; (2) over inflation; (3) toe wear; (4) Camber wear; (5) unbalance wear.
TIRE PRESSURE	Tire Pressure must be within ± 3 psi. of manufacturers specifications.				ADVISE if ± 5 lbs. above manufacturers specifications.
TIRE SIZE	REJECT if tires on same axle are diff. sizes or one snow and one regular tire.		REJECT if tires on same axle differ two or more letter designations.	REJECT if tires on same axle differ two or more letter designations.	REJECT if diff. sizes on same axle. Washington Tire Mismatch
TIRE MISMATCH	REJECT if radial-ply tire is on same axle with conv. type (bias or belted bias). REJECT if radial-ply tires on front axle are used with conv. snow tires on rear axle.	REJECT if tires on same axle are not matched by tire size designation/construction/ profile	REJECT if radial tires are mixed with non-radials on same axle.	REJECT if radial tires are mixed with non-radials on same axle.	REJECT if front-rear tires are more than two sizes different.
TIRE DAMAGE	REJECT any tire with tread or sidewall cracks, cuts, or snags in excess of 1" and deep enough to expose body cords.	REJECT if cords/belting exposed to naked eye or on probing cuts/abrasions.			REJECT if tire has cuts over 1" in length
TIRE DEPTH	REJECT if ≤ 2/32" tread remains or indicators contact the road, in any two major adjacent grooves measured at 3 equal spaced intervals around circumference. REJECT if vehicle gross weight ≥ 10,000 ls. REJECT if ≤ 4/32" tread remains on front wheels.		REJECT if ≤ 2/32" in two adj. grooves measures at 3 equally spaced points around circumference.	REJECT if ≤ 2/32".	REJECT if ≤ 2/32" in two adj. grooves at 3 equally spaced points around circumference.
TREAD WIDTH		REJECT if tread on each tire ≥ 2/32" deep.			
TIRE TYPE					REJECT if diff. construction on same axle.
VALVE STEMS					ADVISE if broken or cracked.

ALIGNMENT

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
CASTER	REJECT if outside MVMA Spec.	Criteria Not Spec. for Recommended Items		REJECT if Caster so excessively out of adjustment as to be apparent visually.	ADVISE if Left/Right caster outside new MVMA limits
CAMBER	REJECT if outside MVMA Spec.	Criteria Not Spec. for Recommended Items		REJECT if Camber so excessively out of adjustment as to be apparent visually.	ADVISE if Left/Right camber outside new MVMA limits
TOE	REJECT if outside MVMA Spec.	Criteria Not Spec. for Recommended Items	REJECT if Toe in/out >1.5(Manuf. Specs.)	REJECT if Toe-in so excesively out of adjustment as to be apparent visually	ADVISE if computed Toe outside new MVMA limits
SCUFF		Criteria Not Spec. for Recommended Items	Max Allow Scuff is 30'/Mile.	REJECT if Scuff in excess of 30'/Mile (where a drive-on sideslip type indicator used.)	REJECT when > 30'/mile in or out ADVISE when 20'-30'/mile in/out
FREE TURN (TRAVEL) (BINDING)	REJECT if front wheels inclapable of being turned to full left & right without interference.	REJECT Steering wheel does not turn freely through the limit of travel in both directions.	REJECT if Binding/Jamming occurs when strg. wheel moved fully left to right.	REJECT if wheel incapable of turning fully left to right without jamming.	REJECT if binding exists
WHEEL PLAY (LASH)	REJECT if Lash in excess of values as given. Wheel Dia (") Max Lash (") 16 2 18 2.25 20 2.5 22 2.75	REJECT if Lash Free Play Strg.Wheel Dia (") Lash (") ≤ 16 2 18 2.25 20 2.5 22 2.75	REJECT if strg. wheel moves >2" before motion of a front wheel noticed (with wheels in a straight ahead position and engine running)	REJECT if Lash >2"	REJECT if lash exceeds values as given Wheel Dia (") Lash (") ≤ 16" 2 ≤ 18 2.25 ≤ 20 2.5 ≤ 22 2.75

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
EXHAUST SYSTEM				
DAMAGE REJECT if system has loose/perceptibly leaking joints/holes leaking seals. REJECT if system causes excessive fumes/noise.			REJECT if system has loose/leaking joints/holes/leaking seams. REJECT if system allows excessive fumes/smoke.	
MUFFLER/SYSTEM NOISE REJECT if muffler patched. REJECT if any form of muffler bypass (causing excessive/unusual noise) exists.	ARS 28-955 (A)	REJECT if excessively noisy.	REJECT if muffler has loose interior rattles. REJECT if muffler has patches in severe/excessive condition. REJECT if any muffler bypass (allowing excessive/unusual noise) exists.	REJECT if noise level in excess of -86dba. REJECT if muffler missing/broken/loose/leaking/unstable/improperly routed
COMPONENTS PARTS (piping, manifold, heat raser, etc.) REJECT if tail pipe end pinched/rusted/broken off. REJECT if components not securely fastened REJECT if exhaust stacks located so as to burn any individual entering or leaving vehicle. REJECT if any part of system passes through / passenger compartment.	(piping, manifold, heat raser, etc.) Refer Arizona revised statute 28-955 (A)	(piping, manifold, heat raser, etc.)	(piping, manifold, heat raser, etc.) REJECT if any system elements not securely fastened	(piping, manifold, heat raser, etc.) REJECT if exhaust pipe/tail pipe/manifold/heat raser & attachments missing/broken/cracked/improperly routed/leaking/loose/unstable/ support bracket broken/missing. ADVISE if any of above corroded/deteriorated/damaged.

STEERING

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
S/T BARS REJECT if modified, broken, unattached, (NIA).				REJECT if S/T bar broken, sagging or weak.
STABILIZER BARS REJECT if broken/loose/missing.	REJECT if stabilizer bar not connected	REJECT if stabilizer bars disconnected	REJECT if cross stabilizer link disconnected, broken or loose	
BALL JOINTS REJECT for perceptible movement of non-load-carrying ball joints. REJECT for excessive near of load-carrying ball joint (indicated by horizontal motion of tire or by axial motion of the ball stud in excess of manuf. specs.) ADVISE if seals turn/cracked/ ruptured.			REJECT if there is perceptible movement of the ball joint.	REJECT if vertical/horizontal looseness in loaded ball joint beyond manuf. specs. REJECT if ball joint seal out, torn or damaged.
CONTROL ARMS & RADIUS RODS REJECT if radius rods missing or damaged such as to effect function. REJECT if control arms broken/ unattached.	REJECT if radius rods missing/ damaged Arizona Suspension Member & Sway Bar Linkage condition	REJECT if radius rods missing/ damaged		

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGYON
SUSPENSION					
MEMBER & SWAY BAR LINKAGE CONDN.			REJECT if suspension struct parts bent/damaged.		REJECT if sway bar linkage broken/ missing.
SPRINGS, SHOCKS, SHACKLES, BUSHINGS, & (OTHERS) SUSPENSION	REJECT if suspension shows mech. failure during functional test. REJECT if suspension spring broken/ not in proper repair. REJECT if rubber bushings cracked/ missing/extruded out. REJECT if suspension springs sagging causing vehicle to tilt to one side. REJECT if shackles/spring bolts/u-bolts/center bolts/other spring attaching parts worn/ loose/broken. REJECT if shocks weak/leak/missing/ loose.	REJECT if springs extended by spaces or broken REJECT if rubber bushings cracked/ extruded out/missing REJECT if shock absorber mountings/ shackles/u-bolts not securely attached REJECT if oil in shock housing attributable to leakage by seal and if vehicle remains in free rocking motion for more than 2 cycles.	REJECT if springs are broken REJECT if rubber bushings cracked/ missing/extruded out. REJECT if oil on shock housing attributable to leak from seal.	REJECT if shock absorber disconnected, broken, or perceptibly loose. REJECT if rear axle not in proper alignment with longitudinal axis of vehicle by visual inspection. REJECT if suspension fails due to mech. failure during test conducted simult. with brake deceleration test.	REJECT if shackle/u-bolt worn/ broken/loose. REJECT if strut/sway bar leaking, broken, loose or damaged such that internal movement restricted. REJECT if motion of shocks excessive.

BODY & GLASS

ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
WINDSHIELD & OTHER WINDOWS				
REJECT if unmarked/improper type glazing materials used. REJECT if window/section at driver's side cannot be opened (except for buses & truck comb. 80" window) REJECT if illegal stickers present. REJECT if any cracks or discoloration exist that interfere with driver's vision. REJECT windows that have sharp edges or are broken. REJECT if nontransparent material is used to replace glass. REJECT if cracks or discoloration found in rear windows of passenger convertibles.	Refer Arizona revised statutes 28-957(A), 25-959	REJECT if driver vision is obscured by cracks or discoloration REJECT if cracks extend completely through glass REJECT if broken edges are exposed.	REJECT w/s if cracks/scratches in severe/dangerous condition and impede driver's vision. REJECT windows if cracked/scratched (taking into consideration severity of damage.) REJECT if not according to manufacturer's specs. REJECT if replaced by nontransparent material (e.g. cardboard, wood) REJECT if window at driver's left functions improperly	REJECT if missing/broken/loose/discolored/obstructed/obscured/not approved type.
REARVIEW & SIDEMIRRORS				
REJECT if mounting loose REJECT if mirror offers unsafe interference with driver's forward vision. REJECT if mirror does not provide clear view to at least 200' to the rear of vehicle. REJECT if reflective surface is cracked, peeled, tarnished, broken or has sharp edges.	Refer Arizona revised statute 28-956	REJECT if there is no functional rearview mirror	REJECT if mounting loose/improper location of mirror/broken or spotted mirror. REJECT if mirror does not provide clear view 200ft. to the rear.	REJECT if rearview mirror is missing, broken, cracked or discolored. REJECT if mounting loose REJECT if mirror does not provide min. 200ft. view to the rear REJECT if mirror obstructs forward vision of operator. REJECT if outside mirror missing/mislocated/broken/cracked/loose/unstable/discolored.
W/S WIPERS & WASHERS				
REJECT if wiper/washer controls not easily accessible, are defective. REJECT if wiper system not capable of operating at reasonable speed. REJECT if wipers cannot operate at two or more speeds. (vehicles made after 1,1,68(?)) REJECT if blades or arms missing, show signs of damage, or rubber element shows signs of physical breakdown. REJECT if arm does not return to original position after being lifted off glass. REJECT if blade is not retained vertically in relation to plane of windshield. REJECT if blade smears glass after 5 cycles of operation (glass is cleaned prior to test.)	Revised Arizona statutes 28-957 (B) & (C)	REJECT if either wiper does not operate	REJECT if wiper missing/functioning improperly/damaged. REJECT if driver cannot control wiper beyond driver's seat.	REJECT if blades worn hard or insufficient tension REJECT for improper wiper operation REJECT if <2 wipers REJECT if washer system missing (1,1,69 or later) or inoperative (other than low or frozen fluid.)

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	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
BODY & GLASS					
W/S WIPERS & WASHERS	REJECT if vehicles made after 1967(?) do not have washer system.				
FENDERS & BUMPERS	Bumpers misplaced or not firmly attached. Bumpers/Fenders deteriorated, torn, badly bent, or out of shape so as to create a pedestrian, passenger or cyclist hazard.	Recco-Item No criteria spec		REJECT if not equipped with bumpers/ fenders/mudguards (heavy vehicles.)	REJEGT if bumpers missing/broken/ loose/deformed beyond original lihe REJECT if fenders missing/cut/torn/ deformed beyond original line
DOORS, HINGES, LATCHES, & LOCKS	REJECT door if latching device inoperative REJECT if door latches broken or improperly adjusted REJECT if door hinges broken,bent, sprung or function improperly	Recco Item No Crit Spec		INSPECT for proper functioning of locks REJECT if door missing/useless	REJECT if missing/broken/inoperative
HOOD LATCH & RELEASE	REJECT if latch does not securely hold hood in its proper position REJECT if latch release broken/ improperly adjusted.	Recommended Item No criteria specified.	REJECT if hood does not latch	REJECT if hood/trunk cover missing or locks do not operate adequately	REJECT if hood latch or release is missing/broken/inoperative. REJECT if secondary latch is missing/inoperative.
GENERAL BODY/FRAME CONDITION	Defective or dislocated parts projecting from the vehicle. Body parts deteriorated, torn, badly bent or out of shape so as to create a hazard to pedestrians, passengers or cyclists.		REJECT if body parts bent/damaged or present hazard to vehicle (rubbing against tires) or pedestrian (sharp sheet metal or protruding bumpers.)		REJECT if frame is broken/cracked ADVISE if energy absorbing bumper is leaking

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
EMISSIONS					
HIGH CRUISE	REJECT if HC is ≥450ppm REJECT if CO is ≥3.8%	REJECT if HC & CO > Specs.		HC (ppm) CO% tested but criteria not in report	ADVISE if HC ≥ 450ppm ADVISE if CO ≥ 3.75%
LOW CRUISE	REJECT if HC ≥450ppm REJECT if CO ≥4.3%	REJECT if HC & CO > Specs.		HC (ppm) CO % tested but criteria not in report	ADVISE if HC ≥ 450ppm ADVISE if CO ≥ 4.25%
IDLE	REJECT if HC ≥600ppm REJECT if CO ≥7.0%	REJECT if HC & CO > Specs.	REJECT if in curb idle or 2250 idle tests CO ≥ 7.0% & HC ≥ 600ppm.	HC (ppm) CO % tested but criteria not in report	ADVISE if HC ≥ 600ppm ADVISE if CO ≥ 7.0%
EMISSION CONTROL DEVICES					REJECT if PCV valve missing/ inoperative. REJECT if air pump/plactic restrictor/egr./ evap. control missing (when original equpped/ inoperative.

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
EQUIPMENT					
EQPT: VISUAL/NO EQPT.	Vehicle glazing (safety glass), driver's side window, windshields (inspected to given specs.) W/S wipers, washers, defroster & defogger, rearview mirror, projecting parts, doors, hinges, latches, locks, seat adjusting mechanism & anchorage, floor pans, sun visors, hood latch & control, seat belt anchorage, tire wear, mismatching tires, safety belts, alternator belts, battery, automatic transmission level, power steering level, brake master cylinder, electrical wiring, illumination & signal devices, belts, hoses, shock absorbers, flexible couplings in steering shaft, ball joint seals, rubber bushings, radius rods, king pins, brake linings & pads (to specs), brake drums, discs (to specs.), brake internal components, full & exhaust system.	Visual insp. items probably listed in tables given in report - Too blurred to read.	Old & New Lanes; Fluid levels, belts, hoses underhood, wheel bearings, (looseness noise), undercarriage, brake lines & components, exhaust system, drive line, transmission oil leaks, general undervehicle inspection, interior, illumination & signal.	[Lash, Jamming] (to specs.), tires, wheels, rims, exhaust, fuel systems, parking & emergency brake, parking brake actuating mechanism, [brake linings/pads, drums/discs] (all to specs.), hydraulic system, illumination & signal, rearview mirrors, windshield and windows, wipers, door locks, latches & hinges, horn, body, seat belts.	Frame, bumpers, fuel lines, hydraulic lines, vacuum lines, doors, hinges, latches & locks, left front window regulator, other window regulators, gas filler cap, fenders, glazing, outside mirror, transmission, differential (both tested for leaks), drive shaft (looseness), muffler, exhaust pipe tail pipe, manifold, heat riser & attachments, shock absorbers, energy absorbing steering column, [lash, linkage, tie rods, drag link, idler arm, pitman arm, ball joint.] (These inspected according to given specs.) , ball joint seals, springs/torsion bars, shackle/u bolt, strut/springs, hoses,(drum/rotor, linings/pads). (These inspected to given spec.), side marker lamps, reflectors, turn indicators, hi beam indicator, signal & illum. lamps, brake system integrity (inspected to given spec.), parking brake, hood latch,[water pump, eng.freeze plugs, fuel pump, oil filter, crankcase] (all for leaks), motor mounts, oil filer cap, water hoses, other hoses, power steering belts, other belts, radiator, battery, wiring & connections, fluid reservoirs valve stem, wheel nut/bolt, [tread, tire casing, wear pattern, tire construction, size, wheel rim disc or flange] (all inspected to given specs.), w/s washer, wipers, ignition switch, transmission shift lever position indicator, flooring, seats, seat belts, padding, head restraints, sun visor, rearview mirror, horn, defrost/defor. All except as indicated inspected for presence, condition, mounting or whether unit is operational. Belts also checked for tension.
TIRES	Bosch tire inflactor used for pressure testing.	Air hose, reel & nozzle -Alemite S176 used for tire inflation		Bosch tire inflator EFAW 224: tire pressure.	Tire pressure is checked by the Bosch Tire Inflator which adds or releases air to bring the tire to the level necessary to ensure proper readings on subsequent tests.
BRAKE SYSTEM	Clayton DB-8-cp dynamic brake analyzer used for the dynamic brake test, mech lag, hydraulic lag, imbalance, (on front/rear axles).	Dynamic brake test is performed using the Hoffman Brekon 1 Brake Tester, Clayton, Dynamometer.	Bear platform model 47-105 Sun Road-A-Matic, 937, Hoffman, Brekon 1.	Clayton Brake Analyser DB-8-CP: Dynamic Brake & Pedal Reserve Tests.	Pedal reserve & front & rear brake effort are tested on the Clayton Brake Anaylzer/Dynamometer. Results are displayed on Clayton computerized brake analyzer console. A Quality Control test is performed by The Weaver Platform Brake Tester

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EQUIPMENT

	ALABAMA	ARIZONA	TENNESSEE	PUERTO RICO	WASHINGTON
EMISSIONS	Checked with Chrysler Exhaust Gas Analyzers. (I,III,IV). & Clayton Chassis Dynamometer exhaust leaks are checked by partially obstructing exhaust pipe & listening for leaks.	The Clayton Dynamometer, Beckman HC/CO Analyzer are used to make the emissions test.	Beckman, 590 Horiba, GSM 300A Marquette, 42-159 Sun, EPA-75 (Part of Model 2001) Sun U-912-I (Part of Model EET-945)	Allen Infra red exhaust analyser 18-200	Sample exhaust gas is taken from the tail pipe for testing of HC & CO levels on the Stewart-Warner Gas Analyzer. Tests are made under approved NHTSA/EPA loaded mode criteria using The Clayton Dynamometer
ENGINE ANALYSIS	Clayton CSS 7100 Engine Analyzer. used to perform various engine analysis tests, in conjunction with the dynamometer to provide load.	The Autosense System Tester from Hamilton Test Systems, is used for engine analysis. TheLenroc AAS-138 PCV Tester is used to test PCV operation. Regulator Alternator Tester Sun VAT 28 used to obtain electrical diagnostics.	Marquette 40-226 Sun EET 945 Hamilton Standard, Autosense Sun 2001	Allen Engine Analyzer	The Clayton Engine Analyzer is used for this test. Tests are made of idle RPM, point dwell, cylinder balance, timing, ignition primary & charging system, starter current voltage drop, & PCV operation.
HEADLIGHTS	Hunter-HD Rayoscope Headlight Tester for right & left hi & low beam testing.	The Bear 561 Headlamp Aimer is used to test aim	Hunter Headlight Tester 25-36-2	Bear Headlight Tester 561	The Bear Headlight Tester is centered on the car, and the aim, focus and intensity of the right and left high and low beam are observed and recorded.
WHEEL ALIGNMENT	Hunter F-60 Dynamic Wheel Aligner Used to deetermine caster, camber, running, toe and computerized toe.	The Hunter F-60 Alignment Machine is used to perform the front end alignment test	Dunlop Toe-In Guage AGO/35 Bear Magnetic caster-camber guage Bear Turning Radius Plates Weaver Scuff Guage, WJ-132A Stewart Warner Scuff Guage Line-O-Tronics Scuff Guage 471 Hunter Dynamic Alignment Tester F-60-22-1	Front end alignment test: Hunter Compute-A-Line Dynamic Wheel Aligner.	Alignment is tested on the Weaver Scuff Guage by driving the car over two floor mounted plates. Results are on a dial in scuff/mile of travel. Detailed wheel alignment data is taken on the Hunter Compute-A-Line Front End System. Readings of left and right at camber, caster and toe in/out are taken.