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DOT HS-805 637

NATIONAL PARTS RETURN PROGRAM Volume I

M. Lowery
C. Roberts



Kappa Systems, Inc.
1501 Wilson Boulevard
Arlington, Virginia 22209

Contract No. DOT HS-9-02236
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OCTOBER 1980
FINAL REPORT

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National Highway Traffic Safety Administration
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16. Abstract <p>The National Parts Return Program involves the voluntary submittal by independent automotive repair facilities of failed automotive components and information. The purpose of the program is to gather information on these components and failure reports to assist the NHTSA in identifying the existence of safety-related manufacturing defects in design, materials, construction or performance of motor vehicles and motor vehicle equipment. Under authority of the National Traffic and Motor Vehicle Safety Act of 1966, as amended, the NHTSA can require manufacturers to conduct safety defect recall campaigns when it has been determined that a defect relating to motor vehicle safety exists.</p> <p>In addition, the information obtained from these parts and reports is valuable in preparing Federal Motor Vehicle Safety Standards.</p>					
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Approximate Conversions to Metric Measures

When You Know Multiply by To Find

Symbol Symbol

LENGTH

inches	2.5	centimeters
feet	30	centimeters
yards	0.9	meters
miles	1.6	kilometers

AREA

square inches	6.5	square centimeters
square feet	0.09	square meters
square yards	0.8	square meters
square miles	2.6	square kilometers
acres	0.4	hectares

MASS (weight)

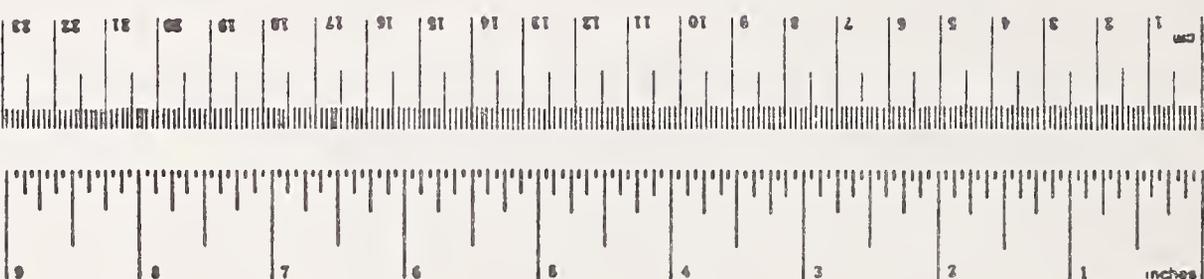
ounces	28	grams
pounds	0.45	kilograms
short tons (2000 lb)	0.9	tonnes

VOLUME

teaspoons	5	milliliters
tablespoons	15	milliliters
fluid ounces	30	milliliters
cup	0.24	liters
pint	0.47	liters
quart	0.95	liters
gallon	3.8	liters
cubic feet	0.03	cubic meters
cubic yards	0.76	cubic meters

TEMPERATURE (exact)

Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature
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Approximate Conversions from Metric Measures

When You Know Multiply by To Find

Symbol Symbol

LENGTH

millimeters	0.04	inches
centimeters	0.4	inches
meters	3.3	feet
meters	1.1	yards
kilometers	0.6	miles

AREA

square centimeters	0.16	square inches
square meters	1.2	square yards
square kilometers	0.4	square miles
hectares (10,000 m ²)	2.5	acres

MASS (weight)

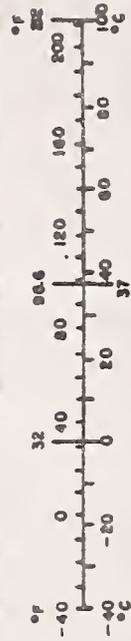
grams	0.035	ounces
kilograms	2.2	pounds
tonnes (1000 kg)	1.1	short tons

VOLUME

milliliters	0.03	fluid ounces
liters	2.1	pints
liters	1.06	quarts
liters	0.26	gallons
cubic meters	35	cubic feet
cubic meters	1.3	cubic yards

TEMPERATURE (exact)

Celsius temperature	9/5 (then add 32)	Fahrenheit temperature
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* 1 in = 2.54 exactly. For other exact conversions and more detailed tables, see NBS Mon., Publ. 286, Units of Length and Masses, Price \$2.25, SO Catalog No. C13.10.286.

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TERMINOLOGY

PARTICIPANT: Any person or establishment that has contributed to the PRP.

PROGRAM MEMBER or ENROLLEE: An establishment which satisfies the requirements for membership and agrees to participate in the Parts Return Program (PRP) on a voluntary basis.

REPAIR SHOP: An establishment enrolled in the PRP which operates mainly as an independent repair facility.

INPUT or CONTRIBUTION: A returned part or information report concerning a safety related automotive defect.

PART or ACTUAL PART: A component or sub-assembly found in automobiles.

ASSEMBLY: A system of related parts. For example, a brake drum and a brake shoe are considered two parts, but one assembly.

RESPONSE: A contact from a PRP member with at least one input involved. Could be a mailbag (regardless of the number of parts), letter or telephone call.

INFORMATION or INFORMATION-ONLY input: A PRP input record for which no part was submitted.

ACTIVE PARTICIPANT or ACTIVE ESTABLISHMENT: A PRP member who has contributed a part or reported information about a defective part during a contract year.

ACTIVITY LEVEL: The percentage of members within a group that were active.

ACTIVITY RATE: The average number of inputs (or responses) per active establishment within a membership group.

ODI DATA INFORMATION SYSTEM (DIS): A computerized data retrieval system operated for the Office of Defects Investigation. System includes failure data from vehicle owners, Manufacturer Technical Service Bulletins, engineering analysis and survey data, and data collected through the PRP.

PART NUMBER: A unique ODI/DIS number assigned to a part or information report. In some cases, the part number is assigned to related parts, i. e. , those that are a part of a larger assembly that failed or where the primary failure in one part caused a secondary failure in another.

RECORD: ODI/DIS file description of parts received through the PRP. Usually stated in group of five to six punched cards (out of a possible eight).

SHOP IDENTIFICATION NUMBER: An eight-digit number representing a PRP participant. The first five digits are the PRP member's ZIP code and the last three represent a unique sequential number within the member's state. Shop ID numbers for Expansion Study members are preceded by an F for a fleet, a D for a dealership, and a P for an automotive parts supplier.

Section 1

PROGRAM OVERVIEW

1.1 INTRODUCTION

Under the authority of the National Traffic and Motor Vehicle Safety Act of 1966, as amended, the National Highway Traffic Safety Administration (NHTSA) is delegated the responsibility of identifying and investigating safety related defects on the design, materials, construction, and performance of motor vehicles and motor vehicle equipment, and monitoring manufacturer's recall campaigns. In order to meet this responsibility, the NHTSA requires a continual supply of new and reliable information on alleged safety related problems and failure trends.

One program instrumental in supplying this information is the Parts Return Program (PRP). The PRP was initiated in 1971 and relies heavily upon concern of individuals within the automotive service industry for highway and vehicle safety. The program is based on the principle of soliciting the voluntary nationwide support of independent automotive repair facilities, dealers, parts suppliers, and high mileage fleets who, in the course of their daily activities have the unique potential to uncover and identify possible safety related defects in automotive components. Program members submit actual failed parts or information reports on the failures to the NHTSA via Kappa Systems, Inc. (KSI).

This final report consists of two volumes. Volume I primarily

discusses the membership, operations and results of the program during the period 1 September 1979 through 30 September 1980, referred to as CY 1980 (contract year 1980) throughout this report. Volume II contains newsletter documentation, copies of Volume 5 PRP newsletters, and a summary of inputs received during CY 1980.

1.2 PROGRAM METHODS

Various groups within the automotive industry are represented in the total enrollment of the PRP. The membership includes general repair garages, specialty shops (e.g., brakes, front end, tires, etc.), service stations, new car dealers, fleets, and automotive parts suppliers. When a member remains inactive for a period of over 2 years, they are deleted from the program; new facilities are enrolled to take their place. Membership is nationally distributed and divided into ten separate geographic regions according to ZIP codes. New members are selected randomly within regions and initially contacted by KSI through direct mailings, telephone calls, or, in some cases, personal visits. Also, a recently initiated commercial advertising campaign has successfully directed over 100 independent shops to the PRP, requesting membership.

Program members are supplied with pre-addressed and postage-paid canvas mailbags, as well as failed part identification tags with protective covers in order to provide an efficient means of allowing the failed part to be returned to the NHTSA. Members are also supplied with information report forms to provide information on safety related defects in components which, for various reasons, cannot be returned.

KSI puts the actual failed part into storage after transcribing relevant data onto a failed part data sheet and computer input record format. Monthly reports are submitted to the NHTSA and parts of interest are forwarded for analysis. The NHTSA then decides which parts are to be retained based upon active investigations being carried out by the Office of Defects Investigation.

1.3 CONTRACT YEAR HIGHLIGHTS

During contract year 1980, emphasis was placed on two main areas of program administration: (1) development of an effective enrollment procedure and (2) the design, development, and implementation of automated reporting capabilities. Also, some attention was directed to improving and refining the operational functions of the Parts Return Program.

For approximately the first eight months of CY 1980, potential PRP members were identified from telephone listings. Contact was then made by telephone or in person by a field representative in the area, soliciting the shop's participation in the program. Using this approach, thirty shops were enrolled as members each month to replace 30 inactive members. Unfortunately only a handful of these new members subsequently became active.

Therefore, in April and May 1980, a commercial advertising campaign designed to solicit potential members and direct them to the program was designed and proposed to the NHTSA. At the same time an enrollment campaign aimed at high mileage, captive fleets was also proposed on the premise that this section of program membership maintains consistently higher activity levels than any other section. This enrollment approach used a direct mail approach in conjunction with a separate coordinated advertising campaign. Since implemented in July 1980, the commercial advertising approach has been responsible for 108 enrollments alone while the fleet enrollment approach has netted some 49 members.

A third facet of this year's enrollment process has been the cooperation of the ten NHTSA regional offices. Beginning in December 1979, these offices were contacted by the PRP staff and requested to promote the PRP in the course of performing their field visitations within the region. The response to this request has been favorable and at least three new members were initially directed to the program this year by the NHTSA offices.

An automated reporting system was developed during CY 1980, capable of analyzing the volume of periodic contributions by PRP region, component classification, and model year as well as regional activity. Of special interest is the development of a Monthly Summary of Inputs Report that has been favorably accepted by the ODI engineers and is therefore distributed as a separate report to the personnel in this office.

Revision of selected PRP forms has streamlined the operational aspects of the PRP during CY 1980. Of particular interest is the redesigned log-in sheet capable of monitoring shop supply levels and bag inventory as well as improving the identification and tracking of parts and information inputs to the PRP. The acknowledgement card also has aided in providing incentives for future participation by a member by providing a concise, easy to read and understand acknowledgement of contributions that is easily packaged and sent to the member with his supplies.

Section 2

PROGRAM MEMBERSHIP

2.1 OVERVIEW

This section will focus on recruitment requirements, enrollment techniques and membership characteristics pertaining to program participants. The PRP membership is comprised of 2400 independent repair facilities, automobile dealers, parts suppliers and high mileage fleets. Membership is distributed nationally over 10 designated regions in proportion to the number of existing repair facilities within each region.

2.2 RECRUITMENT

2.2.1 Sampling Requirements

There are several sampling criteria which are considered in the recruitment process of independent repair facilities. These requirements enable us to obtain the maximum amount of representative information from around the nation.

The sampling requirements are as follows:

- Shops must be independent of any motor vehicle or motor vehicle equipment manufacturer.
- Shops must be engaged primarily in the repair of cars and light trucks.
- One of four shops must have a towing service.

- Shops must have a minimum of two service bays.
- 10% of all shops must be engaged primarily in the repair of imported vehicles.

Automobile dealerships, parts suppliers, and high mileage fleets were randomly selected for program membership during the Expansion Study conducted in CY 1978. Specific enrollment campaigns directed at dealers and parts suppliers were not required or conducted during CY 1980. However, participation of these shops was encouraged and volunteers accepted. The requirement for dealer and part supplier participation is ownership and operation of the business, independent of any affiliation with a motor vehicle or motor vehicle equipment manufacturer. Additionally, parts suppliers must deal primarily in the wholesale and retail selling of new and rebuilt parts and components for passenger cars and must represent a cross section of different components representing various manufacturers.

2.2.2 Incentives for Program Participation

Since the PRP relies on its membership to contribute on a voluntary basis, it is important to address the various existing incentives that relate to an establishment's willingness to be enrolled and to participate actively. That is, why do shops bother to contribute? How do they benefit?

A major incentive for voluntary participation is probably the member's interest in being helpful and, hence, we assume the establishment's manager experiences a feeling of self-fulfillment following a contributive gesture. Therefore, KSI is careful to acknowledge each set of contributions with an acknowledgement card and further encouragement. When members contribute information over the telephone, we are often able to establish some degree of rapport which also helps to influence their altruistic natures. In addition, if the contribution is particularly worthwhile, it is mentioned in

the monthly PRP News (see Section 3.4) which is distributed nationwide.

National recognition may also affect related motives such as pride and professional achievement. Under the realization that official acknowledgements of members' active participation could directly influence their pride and indirectly affect their customer relations and financial concerns, the PRP makes appropriate use of two material rewards: a Certificate of Participation (see Section 3.2.2) and an Administrator's Award (see Section 3.5). Both are enclosed in an attractive frame. The Certificate of Participation is awarded following the receipt of a member's first contribution of the contract year and the Administrator's Award (the actual award being a "Certificate of Appreciation" signed by the NHTSA Administrator) is given to a select group of shops that were most valuable to the PRP during the contract year.

Another reason shops may be willing to participate in the PRP is to gain knowledge about safety related automotive parts. The PRP News serves as an important vehicle in satisfying these educational motives. The use of the newsletter as a motivational tool is discussed in detail in Section 3.4.1.

2.3 ENROLLMENT PROCEDURE

2.3.1 General

In an effort to increase program activity in CY 1980 a program objective of enrolling 30 new members each month to replace 30 inactive members was adopted. Throughout the first 8 months of the year, independent repair facilities which were identified as prospective members were contacted and solicited by telephone, using field personnel within the region of the specific enrollment effort.

After the field representative explained the function of the program and participation requirements, the shop which then agreed to participate was

sent an enrollment "kit" consisting of a canvas mailbag, five component tags and five information report forms (see Section 3.2.2 for description of these materials). Also included in the enrollment kit are a current PRP newsletter, an introductory cover letter and a program brochure. Regardless of their activity, the shops are sent the monthly newsletter regularly and are occasionally sent flyers, brochures or posters as reminders of our interest in their active participation.

This enrollment approach was designed to replace older, inactive members with new shops in the hope that these new members would become active immediately and thus stimulate overall program activity. By mid-February 1980, it was apparent that the net effect of this enrollment effort was considerably less than expected. KSI therefore proposed to the NHTSA a new enrollment procedure designed to identify "motivated" shops and individuals prior to directly contacting these potential members by telephone.

2.3.2 Commercial Advertising

The new enrollment approach, initiated in July, 1980 reaches the population of potential PRP members through a commercial advertising campaign utilizing select trade publications such as Motor magazine. Such an approach is capable of reaching a large number of potential members at a cost effective level and provides the added advantage that a respondent to an advertisement has already expressed an interest in learning about the program and its function and is therefore more likely to become active. Readership of many of the trade publications exceeds 100,000 per issue including dealers, parts suppliers, and high mileage fleets.

With the NHTSA's approval, KSI ran a 1/4 page black and white ad in the July 1980 issue of Motor magazine (see Figure 1). Since the ad appeared in mid-July, over 100 responses have been received by KSI's project staff from

**DON'T
PITCH IT!**

**WE WANT TO SEE
THAT FAILED PART !!**

Join the National Parts Return Program. Volunteers in the service industry dedicated to highway safety. The only cost is your time.

 Sponsored by the
U.S. Department of Transportation
c/o Kappa Systems, Inc.
1501 Wilson Blvd. Arlington, Va., 22209
(703) 527-4500 (collect)

Figure 1: Motor Magazine Advertisement

general repair shops, service stations, fleets, parts suppliers, vocational schools, and body shops. As these responses are received weekly, the respondents are sent enrollment packages and enrolled as program members. Follow-up contact is made within two weeks by telephone from the Washington Operations Office to answer any questions the shop has regarding participation requirements or functions.

2.3.3 Direct Mailing

At the same time as the commercial advertising campaign was proposed, a second approach to enrollments, utilizing a direct mailing effort, was also proposed. The target audience selected for this direct mail campaign was the high mileage "captive" fleets, identified by the National Association of Fleet Administrators (NAFA), because of the inherent advantages to the PRP along with the built-in motivational factors as follows:

- Fleets historically operate late model vehicles (3 model years old).
- High mileage fleet vehicles accumulate above-average annual mileage.
- The individual fleet is typically composed of like or similar vehicles so that failure trends are potentially more apparent.
- The fleet administrator holds a financial stake in vehicle safety, both in terms of liability and reduced operating costs, and is, therefore, potentially motivated to contribute.

2.4 SHOP DISCONTINUANCE

In accordance with the program objective of maintaining the current membership level, KSI deletes inactive shops on a one-to-one basis with current enrollments. Oldest inactive members are deleted first, as identified in the Shop ID Directory by the enrollment date and status (last year active) fields. That is, a member in a given region, inactive since 1975, is deleted prior to a member inactive since 1976, etc.

Because of the difficulty in controlling the regional distribution of enrollments, desired regional membership levels are maintained by the deletion process. A regional membership analysis is completed on a monthly basis and an enrollment/deletion plan developed and implemented to meet the desired membership distribution.

As the shops to be deleted that month are identified, each is sent a membership deletion card notifying them of the action and requesting return of government property (i.e., mailbags). Our experience has shown that this notification oftentimes serves to motivate the shop in becoming active once again.

2.5 MEMBERSHIP CHARACTERISTICS

At the end of CY 1980 PRP membership consisted of 2368 members. Of this total 49.2% are general repair facilities (foreign and domestic), 13.4% are service stations, 11.7% are specialty repair facilities (brakes, alignment, tires, etc.), and 2.0% are trade or vocational schools. Of the members enrolled during the expansion study in CY 1978, 10.3% are parts suppliers, 9.4% are dealers, and 4.1% are fleets.

Currently, the distribution of enrolled shops across the ten regions varies from a low of 7.6% regional share of total PRP membership to a high of 16.7% (see Table 1.1). Figure 2 illustrates the breakdown of the ten PRP regions within the continental United States. Ideally, each region should have a total membership which is proportional to its share of service facilities nationwide, and determined by the U.S. Bureau of the Census. The PRP policy is to replace inactive (i.e., non-contributing) members with new establishments which are selectively enrolled in order to keep the total membership fairly representative.

Regardless of whether or not a shop contributes anything at all during the year, it continues to receive the monthly PRP News. For those

<u>Region</u>	Regional Share of Existing Repair Facilities* <u>%</u>	<u>Total PRP Members</u>	Regional Share of Membership <u>%</u>
0	4.7	202	8.5
1	16.3	395	16.7
2	7.6	223	9.4
3	11.3	217	9.2
4	12.5	215	9.1
5	6.5	205	8.7
6	9.5	242	10.2
7	11.9	211	8.9
8	6.5	181	7.6
9	13.2	<u>277</u>	11.7
		2368	

* Based on U.S. Census Estimates - 1975

Table 1.1: PRP Membership Summary, 30 September 1980

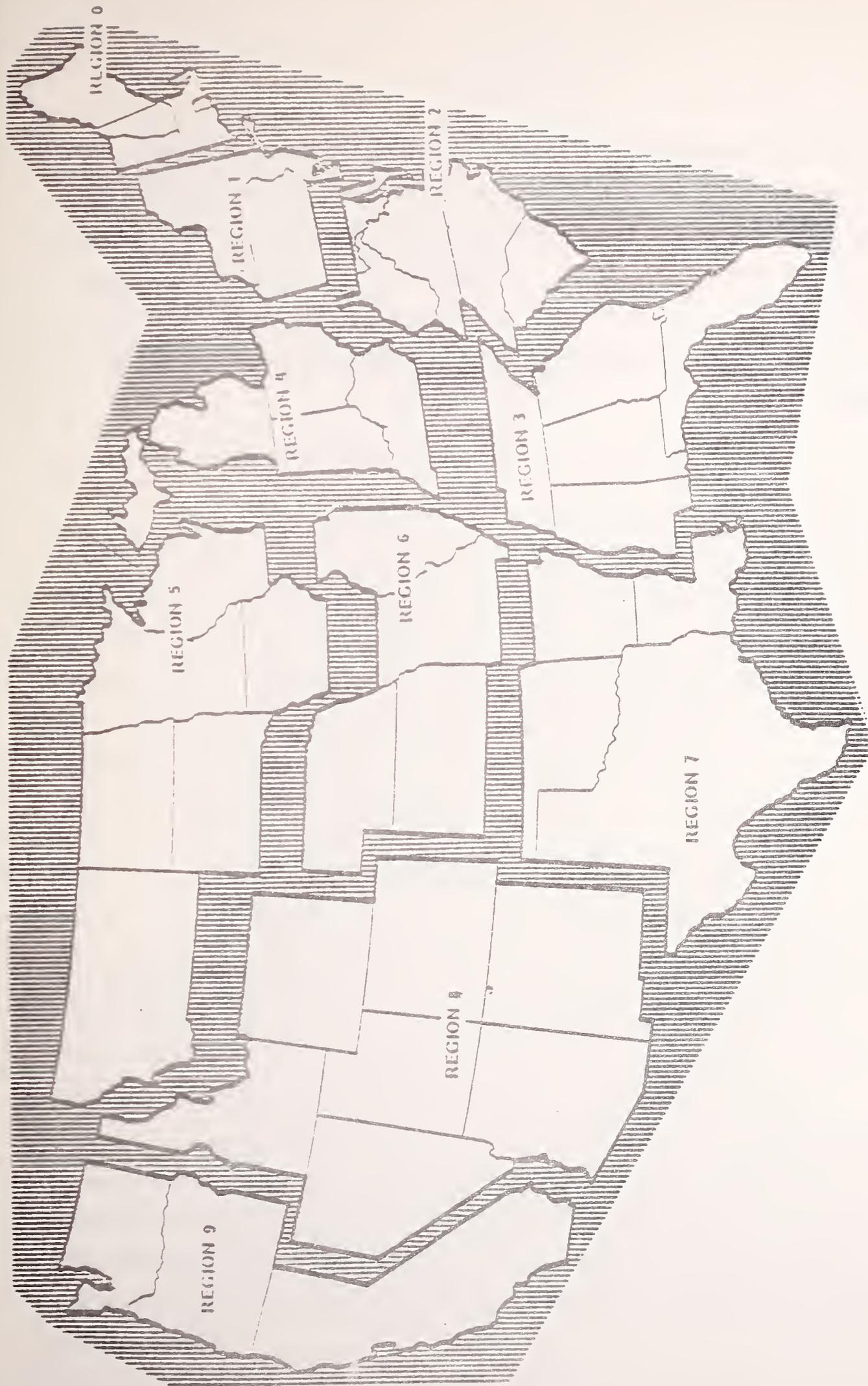


Figure 2: PRP Regional Zones

members who do not actively participate, the newsletter serves to at least remind them of their membership in the program and we feel may motivate them to respond with a contribution. To further motivate the enrolled establishments, KSI also sends them other reminders. Telephone surveys conducted this past year in Regions 0, 1, 2, 7 and 8 have resulted in temporary but noticeable increases in activity from these regions for the month in which the survey was conducted.

Section 3

PROGRAM OPERATIONS

3.1 OVERVIEW OF OPERATIONAL PROCEDURES

Once an establishment has been enrolled into the PRP, KSI is concerned with three major operational functions: 1) data collection, 2) data management, and 3) the production of the PRP Newsletter. Data management operations include parts and information processing, failure analysis, updating manual and automated files, and producing monthly reports. An in-house activity flow diagram reflecting the above basic functions is illustrated in Figure 3. These operations are described in the following sub-sections.

3.2 DATA COLLECTION AND MATERIALS

3.2.1 The Data Collection Process

Upon receipt of the enrollment package, new PRP members are able to begin contributing either defective automotive parts or information about them. They will have in their possession a mailbag within which they can send one or more parts, five tags to identify the failed parts components, and five information report forms if they are unable to send off the actual parts.

When an establishment makes a contribution, KSI responds with an acknowledgement card thanking them for their input and resupplies their material inventory to a total of three mailbags and a minimum of five components identification tags and five information report forms. If the contribution was the first one of the contract year, KSI also sends the member a Certificate of Participation.

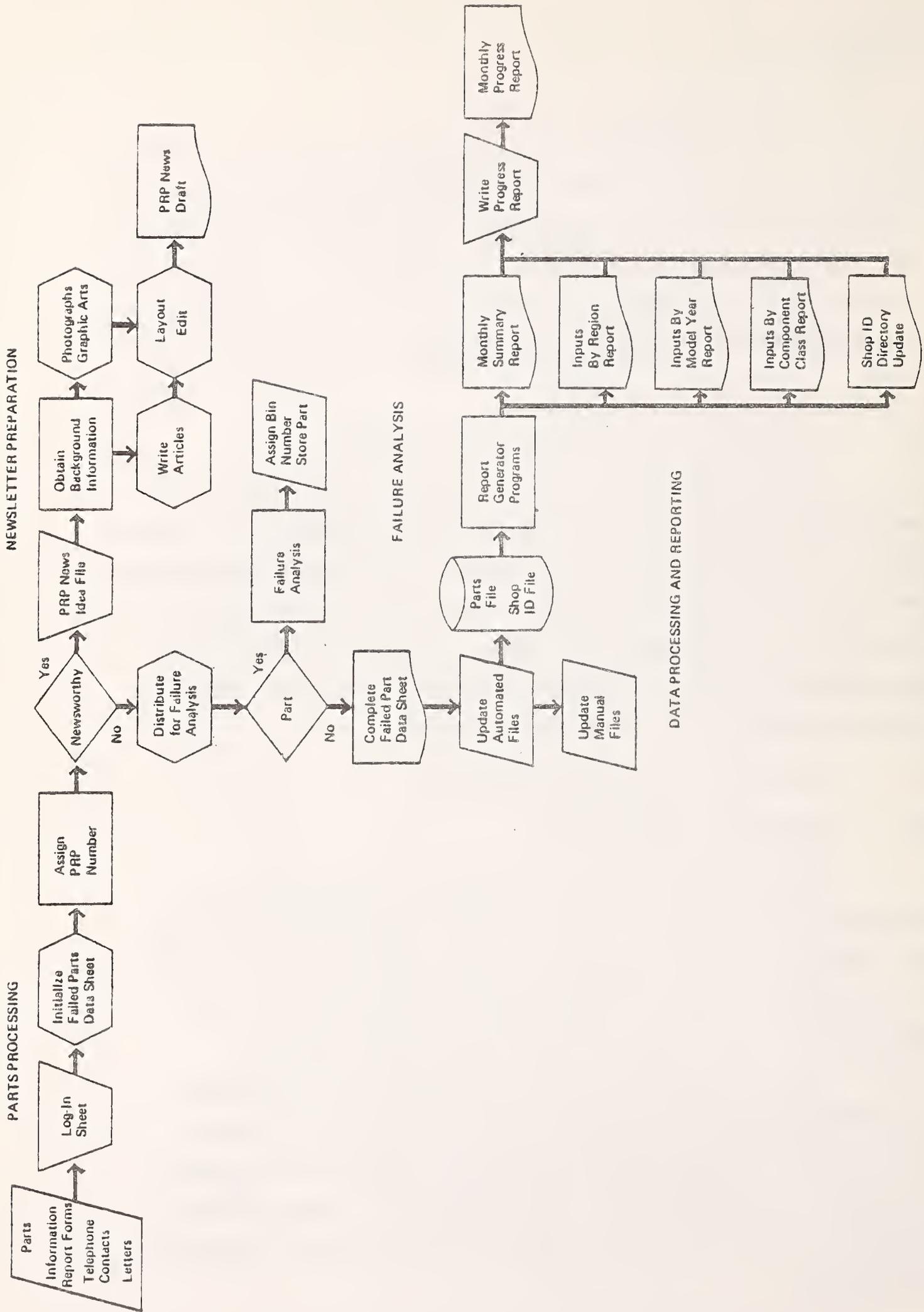


Figure 3: PRP Operations Flow Chart

3.2.2 The Data Collection and Processing Materials

The various items used by KSI and member shops in the collection of parts and information relating to potential safety defects are described below:

- Mailbags. Mailbags are used by the shops to forward failed automotive components to the NHTSA via KSI. These postage-paid canvas mailbags are pre-addressed to KSI. They are approximately 13 1/2" x 20", which is a sufficient size in which to place a majority of defective vehicle components. After a mailbag is received by the PRP, it is laundered and reissued, though not necessarily to the same shop. When a shop becomes active in the PRP, its mailbag inventory is increased and maintained at three bags. Each bag has a unique bag number for the purpose of inventory control.
- Component Identification Tags. The Failed Part Component Identification Tags (HS Form 396) are used by the shops to identify the returned components (see Figure 4). The shop completes the tag before the component is actually submitted to the PRP. It is secured to the component. Each tag provides the following information: component description; failure description; component removed by (initials); date component removed; vehicle model and model year; vehicle mileage; component mileage; and vehicle owner's name and address. Each tag has a plastic transparent protective cover to prevent it from being obliterated by liquids or dirt from the failed part. Each tag is marked with the shop's identification number to identify the contributor of each part received by KSI.

**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
FAILED PART TAG**

Form Approved
O.M.B. No. 04R-5651

This program is authorized by PL 89-564.
Participation is voluntary.



TYPE VEHICLE		MANUFACTURER:			
<input type="checkbox"/> Car <input type="checkbox"/> Truck		<input type="checkbox"/> FORD <input type="checkbox"/> GM		<input type="checkbox"/> CHRYSLER	<input type="checkbox"/> AMERICAN MOTORS
<input type="checkbox"/> OTHER _____		YEAR MADE		MILEAGE	
DATE REMOVED	BY (Initial)	PART DESCRIPTION			
FAILURE DESCRIPTION _____					

HS Form 396
(7/77)

Print Vehicle Owner's Name & Address on Back

Figure 4: Component Identification Tag

- Information Report Forms. The Information Report Forms (HS Form 394) are used by the shop to record information on a safety related defective component when the actual part cannot be submitted to the PRP (see Figure 5). These postage-paid forms are postcard-sized and pre-addressed to KSI. Each form provides the following information: submittor; date failure noted; failure description and result; vehicle model and model year; vehicle mileage; component description; component mileage; vehicle owner's name and address; and whether component is original equipment manufacturer or replacement. The shop identification number is recorded on each form to identify the contributor of the information. The use of these forms was first initiated during CY 1978.
- Telephone Contact Report. Telephone Contact Report sheets are used by the PRP to record data reported by telephone by participating shops or other interested parties (see Figure 6). The report enables the PRP to obtain pertinent data on the participating shop, the vehicle, the component, the failure and the vehicle owner. It is used for both initial contacts and follow-up contacts. After the form is completed, it is attached to the Failed Part Data Sheet (discussed below) for review. The Telephone Contact Report was first devised in CY 1977 and modified in both CY 1978 and CY 1979.
- Log-In Sheet. The log-in sheets are used daily by the PRP to log in parts and information inputs as they are received from participating members (see Figure 7). The sheet allows the PRP to record data such as the date the part or information report is received; the shop's unique identification number; the shop name and address; the activity status of the shop; the type of input received (part, information card, telephone contact, letter); and vehicle and component information. The log-in sheet is also used for noting which shops need mailbags or certificates (discussed below). This log-in sheet was re-designed in CY 1980.
- Failed Part Data Sheets. The Failed Part Data Sheets are used by KSI analysts to record and expand pertinent information on the failed part (see Figure 8). Information report forms, telephone report forms, photographs and other related correspondence are attached to these documents. A Failed Part Data Sheet is filled out for each part or information input received. Modifications were made to the form during CY 1977.

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
PARTS RETURN PROGRAM—INFORMATION REPORT

O.M.B. No. 004-R5651
Approval Expires
August 1982

(To be completed when parts are not available)

This program is authorized by PL 89-564. Participation is voluntary

SUBMITTED BY _____

DATE _____

P

VEHICLE

OWNER'S NAME & ADDRESS (if applicable)

MAKE _____

MODEL _____

YEAR _____

MILEAGE _____

COMPONENT

MANUFACTURER _____

MILEAGE _____

DESCRIPTION _____

PART NUMBER _____

NEW

REBUILT

Fold

FAILURE DESCRIPTION & RESULT

HS Form 394 (7/77)

Figure 5: Information Report Form

PARTS RETURN PROGRAM
Telephone Contact Report

PRP= P _____ Shop ID Number _____ Initial Contact _____
Date _____ Follow-up Contact _____
Shop Name _____ Contact Name _____
Shop Location _____ Phone No. () _____
City State

VEHICLE DATA

Manufacturer _____ Model Year _____
Model _____ Mileage _____ VIN # _____

COMPONENT DATA

Component _____ Original or Replacement _____
Part ID No. _____ Component Mileage _____

FAILURE DATA

Cause of Failure _____

Vehicle in Motion? _____ Fire? _____ Loss of Control? _____
Accident _____ How Occurred _____
Injuries _____ # Fatalities _____ Property Damage \$ _____
How was failure diagnosed? Symptoms? _____

Has shop seen similar failures on other vehicles? _____

VEHICLE OWNER DATA

Name _____ Phone No. () _____
Street Address _____
City _____ State _____ Zip _____

Figure 6: Telephone Contact Report

MONTH _____

Response #	Date Received Shop ID #	Shop Name/Address	Status Last Active	Input Type Bag # Returned	Vehicle Information	Component	PAP #	QUT Shop has: Sent	Bags	Tags INF	Cert #all		
1	2	3	4	5	6	7	8	Shop has: Sent	9	10	11	12	13
								Shop has: Sent					
								Shop has: Sent					
								Shop has: Sent					
								Shop has: Sent					
								Shop has: Sent					

Figure 7: PRP Log-in Sheet

MONTH _____

Response #	Date Received Shop ID #	Shop Name/Address	Status Last Active	Input Type Bag # Returned	Vehicle Information	Component	PRP #	OUT	Bags	Tags INF	Cert:all
				#				Shop has: # Sent	#		
				#				Shop has: # Sent	#		
				#				Shop has: # Sent	#		
				#				Shop has: # Sent	#		

34 A

PARTS RETURN PROGRAM FAILED PART DATA SHEET

SIN NO. _____

PRP NO. P _____

SHOP ID NO.

DATE RECEIVED / /

OWNER IDENTIFICATION

Vehicle Owner: _____ Telephone: () _____

Street Address: _____

City: _____ State: _____ Zip: _____

VEHICLE DATA

Manufacturers: American Motors _____ Chrysler Motors _____ Ford Motors _____ General Motors _____

Other: _____

Additional Model Information (If Any) _____

Make: _____ Model: _____

Year: 19 _____ Mileage: _____ VEHICLE CODE:

COMPONENT DATA

Component Classification: _____

Component Description: _____

CLASS

S E

Component Mileage: _____ Date Removed: _____

I.D. Mark: _____

O/R

- NO PART RECEIVED
- INFORMATION FROM SHOP
- INFORMATION FROM OWNER

FAILURE DESCRIPTION

FAULT CODES

CAUSE
RESULT

Figure 8: Failed Part Data Sheet

PRP NO. P _____

SHOP DATA

Parts Returned By:

SHOP CODE NO.

CITY

STATE

ZIP

COMMENTS FROM SHOP

(ATTACH LETTERS)

PHOTOGRAPHS

Figure 8 (cont'd)

PARTS RETURN PROGRAM FAILED PART DATA SHEET

BIN NO. _____

PRP NO. P _____

SHOP ID NO.

DATE RECEIVED ____/____/____

OWNER IDENTIFICATION

Vehicle Owner: _____ Telephone: () _____

Street Address: _____

City: _____ State: _____ Zip: _____

VEHICLE DATA

Manufacturer: American Motors _____ Chrysler Motors _____ Ford Motors _____ General Motors _____

Other: _____

Additional Model Information (If Any) _____

Make: _____ Model: _____

Year: 19 _____ Mileage: _____ VEHICLE CODE:

COMPONENT DATA

Component Classification: _____

Component Description: _____

CLASS

S E

Component Mileage: _____ Date Removed _____

I.D. Marks: _____

O/R

- NO PART RECEIVED
- INFORMATION FROM SHOP
- INFORMATION FROM OWNER

FAILURE DESCRIPTION

FAULT CODES

CAUSE

RESULT

SHOP DATA

Part(s) Returned By:

SHOP CODE NO.

CITY

STATE

ZIP

COMMENTS FROM SHOP

(ATTACH LETTERS)

PHOTOGRAPHS

- Coding Sheets. The Vehicle Owner's Analysis Coding Sheet (HS 10) is used to transcribe data from the Failed Part Data Sheets (see Figure 9). The data gathered through the PRP is entered and stored in the ODI Data Information System (DIS) Vehicle Owner Letter File. An HS-10 form is completed for every failed part data sheet. The HS-10 form was revised in CY 1977.
- Certificate of Participation. Shops that submit their first failed part or item of information for the fiscal year receive two framed Certificates of Participation (see Figure 10). These graphically produced documents are both eye-catching and appealing. The certificate used during CY 1980 is printed in black and red with the shop name handlettered. The design of the certificate for each year is significantly different from the previous year.
- Acknowledgement Card. Each time a shop contributes a part or information report, a card acknowledging the contribution is returned with the supplies (mailbags, information report forms, tags) necessary for further participation. The pre-printed card, shown in Figure 11, is filled out with the date the contribution is received, a brief description of the contribution received, and is personally signed by the program manager. Whenever possible a short note reflecting interest in the member's business operation or support is included as postscript.

Certificate of Participation

This is to certify that

*is actively participating to improve motor
vehicle safety through cooperation in the
National Parts Return Program*



U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration

ISSUED BY: _____

PROGRAM MANAGER

CONTRACT NO. DOT-HS-9-02236

Figure 10: Certificate of Participation

U.S. Department of Transportation
PARTS RETURN PROGRAM
c/o Kappa Systems, Inc.

Thank you for your recent contribution to the national Parts Return Program. We've received from you _____:

We are grateful for your establishment's active support of the national effort to improve motor vehicle safety and we look forward to your continued participation. If the need arises, please don't hesitate to call us collect at (703) 527-4500.

Sincerely,

Martin J. Lowery
Program Manager

Figure 11: Acknowledgement Card

3.3 DATA MANAGEMENT

3.3.1 Parts and Information Processing

Several changes in processing forms and procedures were implemented in CY 80 and subsequently have proven valuable in monitoring the parts processing functions of the PRP and enable the project staff to identify the membership supply requirements and inventories. The key instrument in this process is the Log Sheet. Its use is crucial to the log-in process, supplies inventory and membership recognition and motivation.

All parts and "information only" inputs to the PRP follow a specific procedure from the time they are received until the time they are put into permanent storage. This is a continuous process initiated upon receipt of an input from a member and continuing until the input is reported to the NHTSA and cataloged for future reference and retrieval. The day the input is received, it is "logged in" on the log sheet as follows:

1. The response number is assigned. This is a sequential number beginning with '1' each month. The response number is unique to the member's contribution. For example, if a shop submits three parts in one mailbag, this comprises one "response".
2. In the second column, the date received is entered and the shop ID number is transcribed from the Failed Part Tag or the Information Report Form (source documents).
3. If supplied on the source document, the shop name and address are then transcribed in the next column. If not supplied on the source document, the shop ID number will be used later to locate this information in the Shop ID Directory.
4. The input type and the number of inputs are entered in the fifth column. The three input types are 'PART' if an actual part or assembly is submitted, 'INFO' if an Information Report is submitted, or 'TELEPHONE' if the information is reported via telephone. A typical entry in this column, for

example, might be PART-3 indicating three parts were submitted with this response. If the input is an actual part the bag number is also transcribed below the input type entry.

5. Vehicle information is then transcribed from the source document into column six. An effort is made to positively identify the year, make, and model of the vehicle. If unreadable on the source document a note is made (via a check mark in the last column) to call the shop.
6. Component identification is placed in column seven. This data is also obtained from the source document.
7. From a separate number log, a unique alpha-numeric PRP number is then assigned to the input. The PRP number is a five-digit number preceded by the letter 'P'. The first digit identifies the input type and will be a '0' if the input is an actual part, an '8' if the input is a written information report or letter, or a '9' if the input is a telephone information report. The last four digits are a sequential number and therefore represent to a certain extent a chronological order. An example of the PRP number is 'P07745'. This unique number is then entered on the log sheet in column eight and on the back of the source document.

Parts that relate to the same failure are assigned the same PRP record number since they constitute an "assembly". Parts removed from the same vehicle at the same time that are not related to a single failure occurrence are assigned different record numbers. For example, if a frozen front disc brake caliper and a corresponding worn brake pad set were removed from a vehicle at the same time a leaking rear brake line was removed, they would be coded as follows:

- The frozen front disc brake caliper would be assigned a PRP record number.
- The corresponding pad set would be coded as a subsequent part using the same PRP record number.
- The leaking rear brake line, which does not have any obvious correlation to the frozen front caliper, would be assigned a different PRP number.

8. The Shop ID Directory is used to complete the remaining shop and input data on the log sheet. Utilizing the directory, the shop name and address are verified (or entered, if missing) in column three. Again, if a discrepancy exists, a note is made in the column and a check mark placed in the column 'CALL', indicating the need to call the shop. At the same time, the two digit numeric code indicating shop type (general repair, service station, dealer, fleet, etc.) is transcribed from the directory and entered below the name and address.

Shop status (activity) is verified and updated on log sheet column four and the Shop ID Directory. When a shop contributes for the first time ever, its status becomes '1AEVER' and is entered as such on the log sheet. The current year (8Ø) is then pencilled in the shop directory 'Status' field for future reference and status updates. If a year other than the current year (8Ø) is present in the directory 'Status' field the shop status becomes first active for CY8Ø (1A8Ø). This code is then entered on the log sheet and the directory updated similarly. If the current year is present in the directory 'Status' field, the shop is active already (AA) and this code is then entered on the log sheet.

At this time, if it is determined that a shop is 1AEVER or 1A8Ø, a check mark is placed in column twelve indicating a Certificate of Participation needs to be completed and mailed to the shop. Next, the parts and information are readied for analysis. The sections of the Failed Part Data Sheet (Figure 8) pertaining to shop identification, component identification and vehicle description are completed utilizing the data contained on the log sheet. Additionally, owner identification (if provided) and comments from the shop are entered on the Failed Part Data Sheet from the source document. The data sheet and associated parts are turned over to the parts analyst for failure analysis, assignment of component class, vehicle, and failure codes (from the ODI/DIS Coding Manual), and completion. Failure Analysis is likewise performed on a daily basis and is described in detail in Section 3.3.2.

One advantage to the redesigned log sheet is in its function of monitoring member shop supply levels. After an input has been logged in and readied for failure analysis, the data clerk reviews each entry on the log sheet for that day and notes the requirements to replenish that shop's supplies of mailbags, information report forms, and failed part tags. Shop supplies are gathered together and processed in the following manner:

- Mailbag inventory control numbers are entered on the log sheet in column nine.
- The number of Failed Part Tags and Information Report Forms (usually 5 each) are recorded on the log sheet in columns ten and eleven respectively.
- A mailing label is typed.
- An Acknowledgement Card for the previous response is completed and signed by the project manager.
- Supplies are packaged and mailed.

After a shop contributes for the first time, its mailbag inventory is increased and maintained at three bags. Each time a shop is sent a mailbag, five information report forms and five failed part tags are also sent. The shop's unique identification number is imprinted on the back of each card and tag to aid in identifying the source when the shop contributes again. Additional supplies are sent to members upon request.

Each time a shop contributes a part or information, a card acknowledging KSI's receipt of the input is returned with the shop's supplies. The Acknowledgement Card includes the date received, a brief description of the inputs received, and, wherever possible, a special note reflecting interest in the shop's operation or support (e. g. , "Thanks for your help in enrolling Joe's Service Station in the program"). In each case, the card is signed individually by the project manager.

Weekly, or more often as space requirements dictate, parts that have completed the failure analysis process are transported to a 400 square foot storage room located in an adjacent office building in Arlington, Virginia. At this time, the parts are assigned storage bin locations (bins are numerically cataloged) randomly according to space availability. The storage bin number is recorded in the PRP number log and on the back of the failed part tag. This allows quick location of the component for retrieval, as required by the ODI, utilizing the PRP number. The bin number is also later transcribed to the Failed Part Data Sheet and the HS-10 form for inclusion in the ODI/DIS.

At the end of each month the log sheet is reviewed and those shops that have become active for the first time in the contract year (1AEVER or 1A80) are identified. A Certificate of Participation is prepared by KSI's Graphics Department, signed by the project manager, inserted in an attractive frame and mailed to each shop with a personalized thank-you letter. Each certificate is neatly lettered with the shop name and the current contract year (1979-1980). The Certificate of Participation serves the program as a motivational tool by giving the member a sense of pride. The shop also is able to display the certificate as a promotional tool.

3.3.2 Failure Analysis

One major change in operations implemented in CY 80 was the component failure analysis procedure. Failure analysis is currently performed on a daily basis by the operations coordinator, who also is certified by NIASE as a General Automobile Mechanic. This procedure ensures uninterrupted data flow in the parts processing cycle.

After a part is logged in and a Failed Part Data Sheet initiated, the part undergoes a careful review by our certified mechanic to determine, when possible, the failure mode and to verify (or refute) the failure description supplied by the member.

The parts analyst assigns the Vehicle, Component Classification, Fault and Hazard codes at this time, using the ODI/DIS Coding Manual. The appropriate codes are assigned based on both information supplied by the member and results of the analyst's examination. If a discrepancy exists, the parts analyst will call the shop to reconcile the difference or clarify the data supplied.

The parts analyst also completes the Failed Part Data Sheet and assigns ODI/DIS codes for information only inputs. This procedure increases data reliability and aids in monitoring shop activity overall by ensuring technical accuracy and consistency of input information. The completed Failed Part Data Sheet will be used by the data transcriber to complete the applicable sections of the HS-10 form, including relevant comments. Both forms are then forwarded to the NHTSA with the monthly letter-type progress report.

The failed data sheets are then reviewed prior to transcription to determine if a follow-up contact is necessary or desirable. Parts that meet one or more of the following requirements are subject to a follow-up call to the contributing shop to obtain missing or additional information:

- Part was removed from a new or one-year-old model vehicle (in this case, 1979 or 1980).
- Part may be related to a collision occurrence, or an accident or fire is indicated.
- Personal injury is indicated.
- Part is of particular interest for a newsletter article.
- The part is of particular interest to the ODI.
- Significant information is missing and there is an indication that the data may still be available.

Once this supplementary data has been obtained and recorded on a telephone contact sheet, this information and information from the failed data sheet is transcribed to a Vehicle Owner Letter Coding Sheet (HS-10 form). A coding manual and the PRP coding instructions are utilized here. The HS-10 forms are submitted to NHTSA by KSI on a monthly basis.

3.3.3 Manual Files

To ensure a feasible data audit trail if the necessity should arise, the following documents are maintained in filing cabinets located in the Washington Operations Office:

- Completed copies of monthly logs
- A copy of all delivered Failed Part Data Sheets and HS-10 forms
- A copy of all positive and negative shop questionnaires
- A master list of assigned shop identification numbers along with address, principal point of contact and telephone number
- A copy of all previously released newsletters
- A master list of accountability for all mailbags and their distribution
- Tabulations of monthly and cumulative parts lists
- All progress reports delivered to the ODI and all Final Reports.

3.3.4 The PRP Automated Reporting System

There are a number of requirements for effective program management of the PRP which lend themselves to automated data processing solutions. These include the ability to produce mailing labels for mass mailing to all or to a subset of the membership, the maintenance of a system of parts

inventory control, the monthly tracking of shop activity by region and by shop type, the need for a monthly summary of parts and information received for review by ODI engineers, and the need for a variety of summary reports on a periodic as well as annual basis.

During CY 1980, KSI has developed and implemented an automated reporting system capable of meeting a wide range of information needs on a quick turnaround basis. The Automated Reporting System (ARS) utilizes two data files--the Shop ID File and the Parts File--stored on disk of KSI's in-house PDP 11/34 mini-computer. The ARS has proven to be an extremely valuable management tool in monitoring shop activity, inventory control, and meeting communications requirements.

The Shop ID File contains information on program members including shop name and address, a unique identification number, the date of enrollment, date last active, a code for shop type and the name of the contact person at the shop. The Shop ID File allows the printing of mailing labels for all members or a subset of members called by a key field (e.g., shop type code for all foreign repair facilities). A sample output format from the Shop ID File is shown as Figure 12. This format currently serves as the Shop Directory for in-house use.

The reports produced from the Shop ID File are used to monitor and document certain items such as shop participation and certificate recipients, and to maintain a current mailing list at the NHTSA for distribution of the monthly newsletter. Output reports (shop list by state and totals by region) are produced monthly; mailing labels are produced as required for distribution of the Defects Investigatory Cases Reports, etc.

The individual shop number is associated with the specific PRP region where the shop is located. These ten PRP regions correspond to the ten ZIP code regions and are identified by the first character of the ZIP code. The

75 CHESTER'S GARAGE 750721 Rt. 2 BOX 205 770903 MR. CHESTER QUANDT	01 PINE BLUFF	71601002 AR71601 77	1M 2M GR 3M
1405 CITY OF LITTLE ROCK 780208 209 CITY HALL 780208 MELVIA WHITE	06 LITTLE ROCK	F72201030 AR72201	1A 2A 3A
1397 TRINITY AUTO PARTS 780208 4912 HAVANAUBA 780208 WILLIAM R COOK	05 LITTLE ROCK	P72201026 AR72201	1A 2A 3A
1398 BLACK & WHITE TAXI INC 780208 1010 WEST HARRHAM 780208 JOHN W HALL	06 LITTLE ROCK	F72201028 AR72201	1A 2A 3A
1422 DDS INC AUTO PARTS 780208 711 WEST AIR ST 780208 THOMAS JOHNSON	05 LITTLE ROCK	P72201025 AR72201	1A 2A 3A
828 DIALA CAB CO/YELLOW CAB CO 780208 823 W HARRHAM PO BOX 2898 780208 MELBA HUNT	06 LITTLE ROCK	F72201029 AR72201	1A 2A 3A
1396 CITY OF LITTLE ROCK POLICE 780208 209 CITY HALL 780208 MARCO HUGHES	06 LITTLE ROCK	F72201031 AR72201	1A 2A 3A
3131 LITTLE ROCK AUTO PARTS 780208 5TH AND 12TH STREETS 780208 MR. W. L. MARBLE	05 LITTLE ROCK	P72201035 AR72201	1A 2A 3A
3134 PALE CHEVROLET 780208 124 BROADWAY STREET 780208 MR. JOHN PALE JR.	04 LITTLE ROCK	072203032 AR72203	1A 2A 3A
1421 COLEMAN AUTO PARTS 780208 1423 WEST ROOSEVELT RD 780208 CHARLES COLEMAN	05 LITTLE ROCK	P72204024 AR72204	1A 2A 3A

Figure 12: Shop ID File Output Format

sole exception is in the State of New Jersey, which is part of PRP Region 1 although its ZIP code region is Ø. In addition, the state and local geographic areas of the shops are identified through a unique shop ID number. This number consists of eight characters, the first five being the ZIP code, and the last three, a numeric sequence number for the particular state. The three sequential numbers identify the unique record of a shop within its state and distinguish it from other shops located in the same city. A log is maintained identifying the highest sequential number that has been assigned for each state.

Each new shop enrolled since the beginning of CY 1979 was assigned an identification number in the same manner as previously described, but with the addition of one character to precede the ID number. This character is either a Ø (zero), D, P, or F to identify the shop as an independent repair shop, new car dealership, parts supplier, or high mileage fleet, respectively. The system of nine characters not only identifies the types of shops enrolled but also distinguishes previously enrolled independent repair shops from those enrolled since CY 1979.

The Parts File contains fields identifying submission date, a unique PRP identification number, component classification code, component nomenclature, vehicle year, make and model, shop identification number and a narrative description of component failure. Presently, report programs generate the Monthly Summary of Inputs, provided as Figure 13, and the Regional Component Classification and Model Year analyses shown in Figure 14. The Monthly Summary is distributed to ODI engineers to keep them abreast of PRP activities related to their respective investigations and engineering analyses.

As parts and information are received, and as the enrollment/deletion program progresses, modifications to these two files become necessary. Each of these update requirements is accomplished quite easily on our

MONTHLY SUMMARY

JULY, 1980

REP NUM	CUMP CLASS	CUMP NAME	YEAR	MAKE	MODEL	MILE FAILURE	SHIP NO
P07928	05270000	FREEZE PLUG PLUG MUSTED THROUGH. WATER LEAKS.	76	AMC	MATADOR 37M	UNKNOWN	01230005
P07930	08340000	CONTROL MODULE INTERNAL MALFUNCTION. VEHICLE STALLS, WILL NOT RESTART.	75	BUICK	ELECTRA	UNKNOWN	01230005
P07934	08240000	STARTER BRUSHER STARTER INOPERATIVE, BRUSHES WORN OUT.	75	BUICK	ELECTRA	UNKNOWN	01230005
P07917	01530000	IDLER ARM FEMALE THREADS ON IDLER ARM BRACKET CAP STRIPPED.	70	BUICK	LE SABRE	46193	50021001
P07941	03230000	MASTER CYLINDER BRAKE PEDAL STIKKS SLOWLY TO FLOOR.	77	BUICK	RIVIERA	48794	90027012
P07940	06132000	FUEL PUMP HOSE FUEL HOSE ROTTED, CHAKED, LEAKING.	78	CHEVROLET	CHEVETTE	9912	90027012
P07946	11106000	HEATER OUTLETS AIR DISTRIBUTION BOX WARRU.	78	CHEVROLET	CHEVETTE	9122	63140132
P07959	02152000	LOWER CONTROL ARM PRESSED IN BALL JOINT SEPERATED FROM LOWER CONTROL ARM.	78	CHEVROLET	CHEVETTE	28664	68776029
P07970	02740000	TIRES TREAD SEPERATION CAUSED DAMAGE TO FIBREGLASS BODY.	77	CHEVROLET	CORVETTE	27000	11541164
P07962	15902000	TRAILER HITCH HITCH DRAW BAR BROKE, CAUSE UNKNOWN.	74	CHEVROLET	EL CAMINO	UNKNOWN	20850043
P47956	09005000	TAIL LIGHT LENS REFLECTIONS FROM THE SUN CAN CAUSE BRAKE LIGHTS TO APPEAR TO BE ON.	80	CHEVROLET	LUV (PICKUP)	UNKNOWN	67501001
P07931	07150000	CLUTCH BEARING BEARING WORN. TRANSMISSION HARD TO SHIFT.	76	CHEVROLET	MUNZA	UNKNOWN	01230005
P07964	01150000	STEERING SHAFT STEERING SHAFT HALL AND SOCKET JOINT AT LOWER END APPEARS EXCESSIVELY WORN.	77	CHEVROLET	NOVA	34350	10801145
P47981	02615000	CHROME LUG NUTS LUG NUTS CHACKED, SPILL DURING INSTALLATION.	71	CHEVROLET	NOVA	UNKNOWN	20850043
P47962	05150030	CARSHAKI CRUISE CARSHAKI LUMP KICK DOWN COMPLETE.	77	CHEVROLET	PICKUP(C-10)	38000	44722006

Figure 13: Monthly Summary Report Format

INPUTS BY REGION

REGION	PARTS	INFO	TOTAL
0	12	1	13
1	2	6	8
2	2	12	14
3	0	1	1
4	0	3	3
5	2	1	3
6	8	6	14
7	0	0	0
8	0	0	0
9	8	3	11
UNKNOWN	1	0	1
TOTAL	55	33	68

INPUTS BY COMPONENT CLASS

COMP CLASS	PART	INFO	TOTAL
STEERING	5	0	5
SUSPENSION	2	5	7
BRAKE	7	15	22
ENGINE	2	5	7
FUEL	3	1	4
ELECTRICAL	6	5	11
POWER	2	1	3
LIGHTING	4	1	5
VISUAL	0	0	0
HEATING	3	0	3
INTERIOR	0	0	0
STRUCTURAL	0	0	0
EQUIPMENT	1	0	1
TOTAL	35	33	68

INPUTS BY MODEL YEAR

MODEL YEAR	PART	INFO	TOTAL
1980	1	1	2
1979	1	6	7
1978	5	7	12
1977	5	8	13
1976	2	2	4
1975	7	1	8
1974	5	1	6
1973	0	0	0
1972	3	2	5
1971	2	1	3
1970	1	2	3
OTHER	1	1	2
UNKNOWN	2	1	3
TOTAL	35	33	68

Figure 14: Automated PRP Input Analysis Reports

mini-computer utilizing the DATATRIEVE update/retrieval software package and CRT. This eliminates the need for time-consuming coding/keypunching activities and provides a greater degree of management control and flexibility since file updating is done by a PRP staff member on an as needed/continuous basis.

A second data processing tool utilized in the PRP data management operations is the ODI Data Information Systems (DIS) Vehicle Owner Letter File. All PRP inputs are entered into this file through the utilization of the Vehicle Owner Analysis Coding Sheet (HS-10 Form). KSI has read-only access to the ODI-DIS Letter File.

3.3.5 Monthly Reports

Current project status is recorded in a letter-type monthly Progress Report. The report is deliverable by the tenth of the month following the reporting period and is retained by the Office of Defects Investigation and the Office of Contracts and Procurement within the NHTSA. This progress report includes the following topics: Accomplishments made during the reporting period; what is planned for accomplishment during the next reporting period; items of information that are of timely interest to the NHTSA; problems or delays in the operations of the PRP; and specific action that the NHTSA is requested to undertake in order to alleviate a problem.

The original Vehicle Owner's Analysis Coding Sheets (HS-10 Forms) and the Failed Part Data Sheets are concurrently submitted to the NHTSA with the progress report. These forms reflect the data on the parts and information received during the month.

An automated report summarizing the PRP inputs for the month is produced and submitted along with the progress report. The tabular report includes the PRP number; component classification and name; failure description;

corresponding vehicle make, model, model year, and mileage at failure; and the contributing shop's ID number. This Monthly Summary of Inputs information has been received in the format shown in Figure 12 throughout contract year 1980.

A newsletter draft is designed, prepared in draft form and delivered to the NHTSA in the beginning of the month following the reporting period. Updates to the newsletter mailing list including new additions, deletions, and changes to name or address are also delivered to the NHTSA at this time. These updates are delivered from the monthly transaction sheets produced when the automated PRP Shop ID File is updated.

3.4 THE PRP NEWS

The PRP News continues to be the single most important motivational tool of the program as evidenced empirically by significant increases in shop contributions the week following newsletter distribution. Because of this important status, the KSI project team feels an equally important responsibility in preparing a quality product for membership distribution.

The PRP News is distributed on a monthly basis to members of the PRP. The main objective of the PRP News is to maximize both the quantity and quality of safety related defective parts submitted by program members. This end is achieved through efficient newsletter production, successful motivational techniques, effective educational methods, and focusing on newer model year vehicles. This publication is the PRP's principal means of communication with PRP shops and is designed to stimulate their participation as well as to keep them informed. KSI has been successful in maintaining an "Information feed-back loop" using the newsletter by publishing information, comments, and so forth, passed on by participants.

3.4.1 Purpose and Scope

KSI has always believed that the program's single most important motivational tool is the PRP News. The PRP News is used to inspire members to contribute to the PRP as many failed parts as possible. It is evident that when a PRP News article is inserted in an attempt to solicit information on a specific automotive component, the input count for that component system shows a significant increase.

Articles on failed parts are intended to bring more parts into the program, but the articles must also stress that these parts are needed by the NHTSA and that the shop is making a valuable contribution. Attribution to the contributing shop is critical, since non-contributing members can see that other shops are providing valuable information. This reinforces positive participatory attitudes on the part of the shops, while showing that submitting parts does not require much additional work.

The actual receipt of the newsletter by PRP members is a stimulus for sending in parts and information to the PRP. The greatest number of monthly telephone calls received from program members occur on the day the PRP News is received.

The PRP News is also useful as an educational tool by improving the knowledge of members in the areas of PRP objectives and operations, what the PRP accomplished for the NHTSA and for highway safety. By knowing what the program objectives are and what a safety related defect is, a shop is more likely to make a valuable contribution to the PRP. By knowing what role they play in highway safety, members are apt to take a more active interest in the program. The newsletter is developed with these themes in mind.

A series of articles identifying and describing the present Federal Motor Vehicle Safety Standards was introduced this past year in the PRP

News. These articles serve as a form of knowledge transfer between the NHTSA and PRP members. Since one objective of the PRP is to promote highway safety, members should be aware of the safety standards that exist.

Program members are also kept up-to-date on current NHTSA and DOT activities through the PRP News. Publishing information on investigations and research results is necessary so that the reader can gain better knowledge of how NHTSA carries out its responsibilities as mandated by Congress.

The PRP News has also been an effective tool in obtaining more parts and information on newer model year vehicles. By featuring articles on new model vehicles and emphasizing the need for more information on such vehicles, the newsletter is used to obtain failure information for vehicles one to two years old and also current model year vehicles.

3.4.2 Newsletter Production

To a certain extent, the newsletter production effort is a continuous monthly process. As parts and information are analyzed as described in Section 3.3.1, items of particular interest or newsworthiness are noted and comments placed in a "Newsletter Ideas" file. Specific information on vehicle and component identification, shop name, and comments are examples of the type of information retained in this effort. Also retained in the "Newsletter Idea" file are notes of telephone conversations between members and the PRP staff or the staff and ODI engineers, etc., on potential newsletter topics or articles. Copies of all DOT press releases for the month are filed here also for reference in newsletter preparation.

Near the twentieth of the month, the ideas file is reviewed by the PRP project staff and preliminary article selection is made, potential photo subjects identified, and special graphics requirements outlined.

Following this review process the preliminary content and layout are discussed with the ODI CTM and changes or modifications coordinated, if necessary.

Desirable newsletter content is a coordinated mix of articles in the following general subject areas:

- Membership activity
- NHTSA activities, report results, and general interest items
- ODI engineering analysis/defect investigation support.

After a preliminary newsletter content is developed, the production process is implemented. Around the 25th of the month, photo subjects are gathered and newsletter pictures are shot. We are currently using 35mm color prints for newsletter pictures. This policy allows photo processing time and also allows the majority of monthly inputs to be received prior to newsletter production. Photos are taken in sufficient numbers to provide at least one photo per newsletter page except in cases where graphic art is substituted.

The proposed articles are discussed, via telephone, with the contributing shops. Details of the information reports are verified, and additional comments from the shops are noted for possible inclusion in the articles. Staff members are assigned specific responsibilities by the newsletter editor and the writing begins.

Prior to typing, the articles are reviewed by the newsletter editor and revisions, modifications, or deletions made. The rough copy articles are delivered to typing and produced in final copy form on specially designed type conversion sheets coordinated to the newsletter format. Utilizing this approach, article length can accurately be determined, ensuring a full, complete, and attractive newsletter.

All articles that appear in the PRP News are documented with source material. In the case of articles involving parts or information

received, all contributors receive a telephone call to confirm the details of their submittal. At that time, they are informed that an article will appear in the newsletter using their name as a source.

From the final copy, the layout editor/project manager develops the newsletter format on block diagrams of the newsletter pages. Final copy is edited to fit as required until the layout is finalized. The finalized layout diagram, copy, source material, and mailing list additions and deletions, are gathered together and presented as a package to the newsletter editor. Final typesetting instructions and headline development are entered on the final copy and the package is delivered to the NHTSA on the first of the month preceding publication.

3.5 ADMINISTRATOR'S AWARD

Annually, those shops that significantly contributed to the success of the PRP either in a quantitative or qualitative fashion are singled out for special recognition. In return for their support and assistance in furthering highway safety, these shops receive a framed Certificate of Appreciation. The award is personally signed by the NHTSA Administrator.

During the past contract year, the following shops received the Administrator's Award for their contributions to the PRP during CY 1979:

Ise Automotive Service, Hollywood, California
Auto Brake Corporation, Norfolk, Virginia
Wales Garage, Fort Lauderdale, Florida
L.A.D. Auto Electric, Spokane, Washington
Sheffield Auto Electric, Sheffield, Massachusetts
Day Nite Auto Station, Kenkauna, Wisconsin
Bothel's Garage, Cape Elizabeth, Maine
Tim's Import Sales & Service, Hutchinson, Kansas
Kolesnik's Service Station, Rochester, New York
Automotive City Service Center, San Francisco, California
Wisconsin D.O.T., Madison, Wisconsin
Gotham Auto Lease, New Rochelle, New York
Lancaster Bureau of Motor Vehicles, Lancaster, Pennsylvania
Scientific Products, McGaw Park, Illinois
V & H Ford, Inc., Marshfield, Wisconsin

Section 4

PROGRAM RESULTS

4.1 OVERVIEW

This section presents and analyzes data submitted by the PRP membership during contract year 1980. Results are discussed and analyzed in terms of three objective measurements of program effectiveness:

- Quantity of parts or information inputs
- Percentage of enrollees that are 'active'; or 'activity level'¹
- Number of inputs per active shop, or 'activity rate'.

At the end of this section, PRP inputs supportive of NHTSA investigations during the past year will be presented.

4.2 PROGRAM CONTRIBUTIONS

During the contract year 1980 the PRP received a total of 763 contributions.² Of these, 573 were actual parts and 190 were information reports. A summary of PRP inputs for the year is presented in Volume II. This total includes anonymous parts and information inputs as well as inputs from non-members (e. g. , vehicle owners).

¹ A member is considered 'active' if it contributes at least one program input (actual part, or information report) during the contract year.

² The PRP contract was extended for a period of 30 days through September, 1980. Parts received during the extension period are included in Volume II. They are not, however, included in the CY 1980 tabulations. CY 1980 refers to the period from 1 September 1979 through 15 September 1980.

4.2.1 Regional Differences

Altogether, members contributed 564 parts inputs during CY 1980. Additionally, 180 information inputs were received from members in CY 1980. This figure compares favorably with information inputs for CY 1978 (91), but is low compared to the information inputs received in CY 1979 (271). Table 4.1 presents a regional breakdown of parts and information inputs.

Overall, there is a general decline in the quantity of program inputs since CY 1978. However, it is difficult to speculate on even the annual fluctuations of regional inputs due to a lack of detailed information on program membership. For example, in some regions, such as Region 0, Region 9, and Region 3, the activity rate of one shop can drastically affect the number of program inputs. In Region 9 for instance, Ise Automotive contributed 60 inputs compared to the regional total of 119 inputs; almost 50 percent of the regional contributions. A hierarchical ordering of inputs by region for CY 1980 is presented below:

	<u>CY 1980 *</u>	
R1	=	13.9
R9	=	9.9
R0	=	10.5
R3	=	8.4
R6	=	6.7
R2	=	5.8
R5	=	2.5
R8	=	2.0
R4	=	1.7
<u>R7</u>	=	<u>0.7</u>
RT	=	62.0

*Figures presented are mean monthly number of inputs by region.

REGION

	0	1	2	3	4	5	6	7	8	9	Unk	Yearly Total
Parts	117	116	42	68	10	23	58	4	20	106	9	573
Monthly Avg.	9.8	9.7	3.5	5.7	0.8	1.9	4.8	0.3	1.7	8.8	0.8	47.8
Yearly Pct.	20.4	20.2	7.3	11.9	1.7	4.0	10.1	7.0	3.5	1.8	1.6	100%
Information	9	51	27	33	10	7	22	4	4	13	10	190
Monthly Avg.	.8	4.3	2.3	2.8	0.8	0.6	1.8	0.3	0.3	1.1	0.8	15.8
Yearly Pct.	4.7	26.8	14.2	17.4	5.3	3.7	11.6	2.1	2.1	6.8	5.3	100%
Total Inputs	126	167	69	101	20	30	80	8	24	119	19	763
Monthly Avg.	10.5	13.9	5.8	8.4	1.7	2.5	6.7	0.7	2.0	9.9	1.6	63.6
Yearly Pct.	16.5	21.9	9.0	13.2	2.6	3.9	10.5	1.0	3.1	1.6		

PRP Inputs by Region

Table 4.1

It is interesting to note that 3 regions (0, 1, and 9) have consistently remained in the top five with respect to contributing, while regions 4, 7 and 8 have likewise remained consistently low. Figures presented here are mean monthly numbers of inputs contributed by region.

4.2.2 Component Classifications

With respect to component classifications, within the past three contract years overall, brakes had the highest percentage of program inputs (25.5%), followed by fuel systems components (15.7%) and engine components (12.1%). Significant percentages of inputs also were received from the suspension classification (10.7%) and the steering classification (9.9%). It is speculated that these component classifications are more easily perceived as relating to vehicle safety by program members than some of the other classifications such as electrical systems, heating/cooling, and interior systems, for instance.

Table 4.2 presents the breakdown of parts and information reports received for CY 1980 by component classification. During the past year the greatest percentage of parts inputs were taken from the brake system (27.1%), the electrical system (18.2%), the fuel system (11.5%), the engine (11.0%), and the steering system (10.1%). With the notable exception of the electrical system, these results follow the overall trend discussed above for component classifications. With respect to information inputs, again high percentages of information inputs dealt with the suspension (24.2%), brakes (24.2%), engine (14.2%), and fuel system (10.5%) component classifications. Again, while it is speculated that these component classifications are perceived as being safety related in nature, failed parts identified in these categories are generally large, heavy, and/or cumbersome to contribute by mail, hence, the increase in corresponding information reports.

	Parts	Pct.	Infor- mation	Pct.	Total	Pct.
Steering	58	10.1	8	4.2	66	8.7
Suspension	40	7.0	46	24.2	86	11.3
Brakes	155	27.1	46	24.2	201	26.3
Engine	63	11.0	27	14.2	90	11.8
Fuel System	66	11.5	20	10.5	86	11.3
Power Train	26	4.5	10	5.3	36	4.7
Electrical System	104	18.2	17	8.9	121	15.9
Lights & Horn	33	5.8	2	1.1	35	4.6
Visual Systems	3	0.5	2	1.1	5	0.7
Heater/Defroster/AC	18	3.1	2	1.1	20	2.6
Interior Systems	2	0.3	1	0.5	3	0.4
Structure	4	0.7	6	3.2	10	1.3
Other	1	0.2	3	1.6	4	0.5
TOTAL*	573	100%	190	100%	763	100%

* This table does not include inputs which could not be classified into the above categories.

PRP Inputs By Component Classification

Table 4.2

4.2.3 Model Years

The NHTSA has considered it important to obtain more inputs on defective components from new vehicles. In the past year, much of the data received by the program (46.0%) has been gathered from vehicles less than 4 model years old.

Table 4.3 presents parts and information inputs broken down by model year. During CY 1980 parts received were most representative of vehicles that were 2, 3, and 4 years old, keeping in line with stated program objectives. Information inputs are likewise most representative of vehicles 4 model years old or less. Another significant factor in this analysis is that for current model year vehicles, more information reports were received than parts inputs and, for one year old model vehicles, just slightly less information reports (26) were received than parts inputs (29). The Information Report Form is apparently accomplishing one of its assigned functions (i. e. , providing data on newer model vehicles).

4.3 REPAIR SHOP PARTICIPATION

This section focuses on two objective measures of membership participation: activity level and activity rate. It should be noted that for CY 1980 the "core membership" includes dealers, parts suppliers, and high mileage fleets, considered separately in previous contract years. The effect of including these sections in the program membership, obviously, is an increase in total membership numbers which in turn reduces the corresponding proportions (percentages) of each membership segment (independent garages, service stations, etc.)

4.3.1 Membership Activity Levels

The percentage of enrollees that contribute an actual part or

Vehicle Age	Year	Parts	Pct.	Infor- mation	Pct.	Total	Pct.
Current-New	80	4	0.7	6	3.2	10	1.3
1 Year Old	79	29	5.1	26	13.7	55	7.2
2 Years Old	78	113	19.7	36	19.0	149	19.5
3 Years Old	77	86	15.0	37	19.5	126	16.5
4 Years Old	76	68	11.9	24	12.6	92	12.1
5 Years Old	75	55	9.6	12	6.3	67	8.9
6 Years Old	74	67	11.7	11	5.9	78	10.2
7 Years Old	73	34	5.9	7	3.7	41	5.4
8 Years Old	72	33	5.8	2	1.1	35	4.6
9 Years Old	71	22	3.8	4	2.1	26	3.4
10 Years Old	70	14	2.4	5	2.6	19	2.5
11 Years Old- or More		31	5.4	7	3.7	38	5.0
Unknown		17	3.0	13	6.8	30	3.9
TOTAL		573	100%	190	100%	763	100%

PRP Inputs By Model Year

Table 4.3

information report during a contract year is labeled an "activity level". It is disappointing that most shops voluntarily enrolled in the program do not submit even one part or piece of information during any given year (see Table 4.4). On the other hand, we can always depend on a few shops to contribute several dozen inputs every year. Figure 15 lists the repair shop members that have contributed during CY 1980. It is interesting to note that the top 11 shops accounted for 51.7% of the total shop inputs and the top 3 shops produced a quarter of all the contributions by themselves. Since it takes only a handful of individuals to make a significant difference, we would like to express our formal appreciation to the five most productive PRP members over the past four contract years (yearly average number of inputs contributed is in parentheses to the right):

Sheffield Auto Electric (formerly Harry's Auto Service) Sheffield, MA	(67.0)
Ise Automotive Services Hollywood, CA	(56.7)
Auto Brake Corporation Norfolk, VA	(43.0)
L. A. D. Auto Electric Spokane, WA	(30.7)
Kolesnik's Service Station Rochester, NY	(27.9)

Table 4.4 lists for each region the number of shops enrolled, the number of active repair shops, and the percentage of shop members that were active (activity level) for each year. Again, the apparent decline in activity levels is in part due to re-definition of the "core-membership" criteria to include dealers, parts suppliers, and high mileage. The overall effect of these segments of the membership can be seen if they are removed from the

Figure 15

PARTS OR INFORMATION RECEIVED
FROM ACTIVE SHOPS - CY 1979

Number of Inputs	Shop Name	City and State
73	Sheffield Auto Electric	Sheffield, MA
60	Ise Automotive	Hollywood, CA
59	Wale's Garage	Ft. Lauderdale, FL
37	Eddies Mobil Service	University City, MO*
32	Gil's Safety Service	Ridgewood, NJ
26	Woody's Garage	Montoursville, PA
24	State of Georgia, Dept. of Administrative Services	Atlanta, GA*
23	LAD Auto Electric	Spokane, WA
21	Vin's Motor Service Corporation	Brooklyn, NY
21	Kolesnik's Service Station	Rochester, NY
19	Auto Brake Corporation	Norfolk, VA
13	Tim's Imports Sales & Service	Hutchinson, KS
11	Brake-O-Mat	Evanston, IL
10	Malcolm's Automotive	Arlington, VA *
10	Protano's Service Station	Worcester, MA
9	Duane's Tune-Up Clinic	Manteca, CA
9	Noch's Auto Repair	Glastonbury, CT
8	Feld Garage, Inc.	Kenosha, WI
7	Abbot's Garage	S. Nowalk, CT
7	Lexington Brake	Lexington, KY
7	Mayer's Auto Service	Marysville, WA
7	Wisconsin Division of Motor Vehicles	Madison, WI*
6	Bob's Exxon Service	Somers Point, NJ
5	Bothel's Garage	Cape Elizabeth, ME
5	Curley's Auto Repairs	Warwick, RI
5	Damascus Shell	Damascus, MD*
5	Glidden Auto Service	Nashua, NH
5	Gotham Auto Lease	New Rochelle, NY
5	John's Body Shop	Birninghampton, NY
5	Mandt Brake Service	Rockford, IL
5	M & B Automobile Repair	Bethlehem, PA
5	Roberson's Automotive	Fountain Hills, AZ
4	Brown Road Exxon Service	Meza, AZ
4	Cambridge Brake Service	Cambridge, MA
4	Del Hatt Alignment	Poughkeepsie, NY
4	Ike's Service Center	Ft. Lauderdale, FL *

Number of Inputs	Shop Name	City and State
4	Maine Friendly Service	Bergenfield, NJ *
4	Maurice's Automotive	Hollywood, CA
4	Mr. Brake #4	Orem, UT *
4	Performance Car Centers of America	Rockville, MD
4	Robbins Exxon Service	Norristown, PA*
3	Basile's Exxon	Fairview Village, PA
3	Bureau of Motor Vehicles	Lancaster, PA
3	D & Z Atlantic	Cornwall Hgts., PA
3	Ed's Automotive Center	Miami, FL
3	Joe's Auto Service	Albuquerque, NM
3	Jones' Auto Service	Richmond, VA
3	Midas Muffler	Bakersfield, CA
3	Minnesota Gas Company	Minneapolis, MN
3	Phil's Shell Service	Avon Lake, OH
3	Raymond's Auto Repair	Chicago, IL
3	Wade's Garage	Hallendale, FL
3	Westholme Auto Service	Long Beach, NY
3	W & S Service, Inc.	Wilmington, DE
2	AA Auto & Truck Service	Chicago, IL
2	Arnold's Auto Repair	Trenton, NJ
2	Art's Auto Repair	Arnold, MO
2	Big Brake and Alignment	Stockton, CA
2	Big Brake Safety Center	Gulfport, MS
2	Bob's Auto Service	Rapid City, SD
2	Call Carl, Inc.	Fairfax, VA *
2	Cherrydale Motors	Arlington, VA*
2	C & S Brake Service	Ft. Worth, TX
2	Dale's Alignment Service	Brookings, SD
2	Dcs Moine Area Community College	Ankeny, IA
2	Eddie's Garage	Nashville, TN
2	Foster's Service Corporation	Seattle, WA
2	Frederick Road Exxon	Rockville, MD *
2	Green Valley Service Station	Monrovia, MD *
2	Henniker Automotive	Henniker, NH
2	Hurley's Super Service	Pueblo, CO
2	Hutt & Stiles	Skokie, IL
2	Jack Stoltz's Garage	Winston-Salem, NC
2	Lambert's Mobil Service	Downingtown, PA
2	Larry Gaido's Service Station	Duluth, MN
2	Lieber's Garage	South Sioux City, NB
2	Neisler's Auto Service	Virginia Beach, VA
2	Rice State University	Dayton, OH*
2	Rite-Way Garage	Harrisburg, PA
2	Rod's Service Center	Ann Arbor, MI*
2	Sassaman & Burden	Temple, PA

Number of Inputs	Shop Name	City and State
2	Salt Lake City Corporation	Salt Lake, UT*
2	S & J Lee Tire, Inc.	Lexington, KY*
2	Stewart's Garage	San Angelo, TX *
2	Wayne's Garage	Eugene, OR
2	Wheelworks, Inc.	Rockville, MD*
1	A & C Auto Service	Ft. Lauderdale, FL
1	Accessioics Unlimited	Fresno, CA
1	Accurate Auto Attention	Yuma, AZ
1	Art Dell's Garage	Rensselear, NY
1	A & T Automotive	Santa Clara, CA
1	ATS	San Diego, CA
1	Auto House of Tallahassee	Tallahassee, FL *
1	Auto Safety Service, Inc.	Oakland Park, FL
1	Baughman & Turner	Fullerton, CA
1	Bill's Texaco Service	Norfolk, VA
1	B & N Axle Service	Austin, TX
1	Bridgeport Standard Service	Bridgeport, MI
1	Brown's Auto Repair	Boise, ID
1	Call Carl, Inc.	Silver Spring, MD*
1	Capital Automotive	Lincoln, NB
1	Central City Garage	Harrisburg, PA
1	Chaney's Garage	Union, SC
1	Chet's Sunoco	Avon Lake, OH *
1	City of Springfield, Dept. of Public Works	Springfield, OH
1	Cottman Transmission Center	Bridgeport, PA
1	Dodd's Auto Service	Portsmouth, VA
1	East Side Auto Service	Columbus, OH*
1	European Car Service	Arlington, VA
1	Fairlington Sunoco	Alexandria, VA
1	Frank's Front End Service	Manchester, NH
1	Frenz's Brake Service, Inc.	Minneapolis, MN
1	Garlick's Garage	Roanoke, VA
1	Gordie's Auto Service	West Chester, PA
1	Hansen Automotive	Minneapolis, MN*
1	Hennepin County, MN	Hopkins, MN
1	J.A. Payne Alignment and Tires	West Point, VA
1	Joyce Motors	Arlington, VA
1	K & B Brake & Wheel Service, Inc.	Omaha, NB
1	King County Brake Service	Seattle, WA
1	Lee Myle's Transmissions	Freeport, NY*
1	Ieonard's Service	Los Angeles, CA
1	Lippy's Auto Service	Richmond, VA
1	Meade & Greenlee Garage	Salem, OR

Number of Inputs	Shop Name	City and State
1	Merchant's Inc.	Bethesda, MD *
1	Merchant's Inc.	Marlow Hgts, MD *
1	Motorsmith's	Dennysville, ME *
1	Mr. Brake #1	Salt Lake City, UT
1	New York; Division of Vehicle Safety	New York, NY *
1	Red's Automotive	Abilene, TX
1	Richfield Wheel Alignment	Minneapolis, MN
1	Robern Exxon Service	Takoma Park, MD
1	Scientific Products	McGaw Park, IL
1	Southland Oil	Yazoo, MS *
1	State of Connecticut; Dept. of Transportation	Hartford, CT
1	Tom Carr Garage	Las Cruces, NM
1	Total Auto of Kissimmee	Kissimmee, FL *
1	Upper Merion Township	King of Prussia, PA *
1	Uptown Motors	New York, NY
1	Winslow's Mobil Service	Gorham, ME
1	Worcester Vocational High School	Worcester, MA
1	Yon Brother's Garage	Charleston, SC *

*Indicates first active in CY 1980

Region	No. of Shops Enrolled	No. of Active Repair Shops	Pct. of Shop Members Active
0	202	15	7.4
1	395	28	7.1
2	223	26	11.7
3	217	12	5.5
4	215	8	3.7
5	205	11	5.4
6	242	12	5.0
7	211	4	1.9
8	181	10	5.5
9	277	16	5.8
TOTAL	2368	142	6.0

Regional Activity Levels--CY 1980

Table 4.4

enrollment count. When this is done, the overall (national) activity level jumps 1.1 percentage points to 7.1%.

As in the input data, regions also differ in their activity levels. A hierarchical ordering of regional activity levels (i. e., percentage of repair shops active for each region) is presented below:

	<u>CY 1980</u>	
R2	=	11.7
R0	=	7.4
R1	=	7.1
R9	=	5.8
R8	=	5.5
R3	=	5.5
R5	=	5.4
R6	=	5.0
R4	=	3.7
R7	=	1.9

During the past year, activity levels were as low as 1.9% (Region 7) and as high as 11.7% (Region 2). It is interesting to note the dramatic increase in activity level of Region 2 during the past year. We believe the main reason for this 4.5% increase is the large amount of direct, personal contact between members in this region and the PRP staff. The activity level figure becomes even more interesting when coupled with the relatively mediocre performance of Region 2 with respect to quantity of program inputs (see Table 4.3).

4.3.2 Activity Rates

An "activity rate" is the ratio between the number of inputs and the number of active establishments in a given region. For purposes of program

evaluation, the activity level and activity rate are two very useful independent determinants of program effectiveness since each is conceptually related to input quantity.

Table 4.5 presents data on the number of active repair shops, part inputs, and activity rates for each region in CY 1980. Regions are ordered hierarchically for each variable. Obviously, regions with the most inputs and fewest active shops contain the highest number of productive shops. Region 9 has historically had the highest or second highest activity rate in the PRP. A major explanation lies in the fact that Region 9 contains two of the most productive members: Ise Automotive and L.A.D. Auto Electric. It is interesting to note that there is an overall increase in activity rate for CY 1980 in light of the lower activity levels for the year. Although fewer shops were active in CY 1980, those shops who were active contributed more parts than in previous years.

Thus, an effective strategy for improving the Parts Return Program should focus on manipulating activity levels and activity rates. By stimulating non-active program enrollees to action and motivating the already active members to continue contributing, we will be assured of gaining better results.

4.3.3 Shop Types

Breaking down the annual data into regions is one way of determining where the contributions to the Parts Return Program are coming from. Another way of analyzing the repair shop membership is to divide it into various "shop type" categories and see what the performance differences are. For this purpose, we classified the shops initially into eight categories: (1) general repair shops (other than service stations), (2) special repair garages (i.e., brake, tire, electrical, transmission, alignment, or other specialized services), (3) service stations, (4) foreign repair garages, (5) automobile repair schools, (6) dealers, (7) parts suppliers, and (8) high mileage fleets. Since there were

<u>No. of Active Shops</u>	<u>Parts Inputs</u>	<u>Parts Inputs Per Active Shop Ratio</u>
R1 = 28	R0 = 117	R0 = 7.8
R2 = 28	R1 = 116	R9 = 6.6
R9 = 16	R9 = 106	R3 = 5.7
R0 = 15	R3 = 68	R6 = 4.8
R6 = 12	R6 = 58	R1 = 4.1
R3 = 12	R1 = 42	R5 = 2.1
R5 = 11	R5 = 23	R8 = 2.0
R8 = 10	R8 = 20	R2 = 1.6
R4 = 8	R4 = 10	R4 = 1.3
R7 = 4	R7 = 4	R7 = 1.0
RT = 143	RT = 739	RT = 5.2

Hierarchical Ordering of Regional Ratios of Parts

Inputs Per Active Repair Shop

CY 1980

Table 4.5

relatively few foreign car garages and repair schools, they were lumped into one category for data tabulations. Dealers and parts suppliers were not included in the tabulations because none were active during CY 1980. The resulting five categories selected for comparison are presented in Table 4.6. Annual data on the five shop-type categories are presented for the following parameters: number of inputs, number of active shops, number of shops enrolled, percentage of shop members active (activity level), and inputs per active shop ratio (activity rate).

The data presented points up some interesting areas for consideration. First, and not unexpectedly, the high mileage fleet category has the highest activity level (11.0%) of all membership segments. This result supports earlier recommendations to cultivate interest on the part of this section of the automotive repair industry and becomes even more significant when the 38 new fleet members, enrolled in late August and early September, 1980, and who have not been able to contribute due to time constraints, are removed from the count, the fleet activity increases to an impressive 14.3% for the contract year.

The specialty shop category also presents an impressive activity level of 10.1%. Close analysis indicates that over half of the specialty repair shops active are either brake repairs or steering/suspension/alignment repair facilities encountering a higher proportion of problems in the brakes, suspension and steering component categories. The previous analysis of inputs in these categories indicates that members perceive these categories as being clearly safety related and this realization, at least in part, accounts for the high activity level and activity rates in the Specialty Repair shop category.

With respect to activity rates, it is not surprising that the General Repair segment of program membership has the highest ratio of responses per active shop, primarily because of the sheer quantity of members in this category. It is of interest, however, to note the high activity rate of both Service Stations and Specialty Shops, indicating that members from these categories either submit several inputs each time they contribute and/or contribute on a more regular basis.

Shop Type	No. of Inputs	No. of Active Shops	No. of Shops Enrolled	Pct. of Shop Active	Inputs Per Active Shop
General Repair	429	70	1123	6.2	6.1
Specialty Repair	112	28	276	10.1	4.0
Service Station	126	24	318	7.5	5.3
Foreign Repair & School	19	6	91	6.6	3.2
Fleet	53	15	136	11.0	3.5
TOTAL	739	143	1944	7.4	5.2

Participating Differences Between five Categories of Repair Shops

Table 4.6

4.4

PROGRAM DATA SUPPORTING NHTSA INVESTIGATIONS

Analyzing the quantity of data produced in the PRP is one method of viewing program performance. The other way is to review the inputs in terms of their contributions to NHTSA investigations. The cases listed below have received support from the PRP during CY 1980:

<u>Case Number</u>	<u>Vehicle</u>	<u>Subject</u>
C7-24	1970-77 Ford cars & light trucks	Cooling fan
C8-04	1968-74 Ford cars	Idler arm & mounting bracket
C8-06	AMC vehicles	Power steering hose
C8-27	1975-77 Ford intermediate vehicles	Fuel line hose
C8-29	1977 Porsche 911	Engine compartment fire
C9-01	1974-77 Ford van & truck	Steering gear bolt
C9-10	1974-76 VW	Master cylinder
C9-19	1975-76 Uniroyal	Tires
C80-03	1976-80 Chevrolet Chevette	Gear shift lever

Section 5

CONCLUSIONS

Several conclusions regarding program operations and activity are derived from a detailed analysis of this year's results. Two facets of the PRP are particularly noteworthy--membership enrollments and activity levels.

During CY 1980, new enrollments were conducted to replace 30 inactive shops with new members on a monthly basis. The premise of this approach is that a new member will be likely to become active due to the fact that his/her interest or curiosity in the program is initially stimulated. A two-stage telephone and mailing approach to the potential member was utilized during the first portion of the year to accomplish this goal. Unfortunately, while this approach accomplished the desired objectives of enrolling a quantity of new members without affecting total membership level, only a handful of newly enrolled members became active within the first three months following enrollment.

To meet the previously stated objectives while attempting to increase membership activity, the commercial advertising approach to enrollments, outlined in Section 2, was developed and implemented in July 1980. To date, over 100 responses to the advertisement have netted as many new program members. Adequate information is not yet available with which to fully assess the effectiveness of the enrollment campaign, however, because individuals approaching the program regarding membership have historically been more active, contributing more often than those members solicited from telephone listings, we

therefore remain confident that this enrollment approach, or a similar one, is more likely to yield the desired result of stimulating membership activity.

A similar conclusion can also be reached with respect to the participation of fleets as program members. Current enrollment practices over the last three months of CY 1980 (including the extension period of 1-30 September 1980) have yielded 60 high mileage fleets enrolled as new program members. This segment of the automotive service industry appears to be more interested overall in highway safety and promises to continue to be an extremely active segment of the program membership as well. We believe that this interest should continue to be developed and improved to enhance the overall quality and results of the PRP.

There appears to be a definite mathematical relationship between activity levels and program inputs as well as between activity rates and program inputs. Because of this relationship, it follows that a procedure by which activity levels and/or activity rates can be manipulated will result in corresponding increases or decreases in the quantity of program inputs. It therefore logically follows program results can be accurately forecast to some extent assuming a fixed membership activity level and activity rate.

KSI implemented a similar program of direct contact in selected regions in order to make meaningful comparisons with other regions and thus assess the effectiveness of such an approach. Personal contacts were established in Regions 0, 1, 2, 7 and 8 during July and August 1980. With the exception of Region 7, a measurable increase in activity for that region was noted within the month that direct contact with the member occurred.

KSI recommends the development of an activity monitoring program designed so as to objectively measure program results by utilizing activity level/activity rate "goals". This approach will undoubtedly require a higher

degree of personal contact with the membership in order to establish the initial rapport and confidence within the member, necessary to then effectively stimulate activity.

In designing a monitoring program utilizing a "quota" system, it is important to remain sensitive to the voluntary nature of the PRP and never "demand" active participation. Rather, the objectives of a monitoring program should be structured around continuous direct contact and encouragement to meet the overall program objectives.

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