Title: THE CHALLENGE OF PRICING EXTENDED WARRANTIES

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Abstract: The subject of this paper is an insurance product which is
               growing rapidly and about which very little has been written.
               This paper provides background information, discusses basic
               ratemaking and presents several factors which complicate
               ratemaking for this product. Numerical examples of some of
               the ratemaking complexities are provided. Also, for one of
               the major ratemaking complexities, an adjustment to basic
               ratemaking is presented.

Purchase almost any product with an expected useful lifetime of more than a few months and you probably will be asked to also purchase an extended warranty or service contract which will pay the cost to repair components of the product which fail to perform their intended function for a period of several months or years.

Extended warranties and service contracts are usually sold at retail outlets - automobile dealerships, appliance stores, department stores, etc. They are also sold through the mail, at financial institutions and perhaps at the office of your local electric or gas company.

The driving force behind extended warranties and service contracts is frequently an administrator. The administrator may be the "author" of the program and may operate much like an insurance company. It is common for a general agent to market the extended warranty or service contract to the retail outlets for the administrator. Insurance may be provided by an insurance company or by the retail outlet itself.

There are many other structures used to market, service and insure extended warranties and service contracts. In order to simplify the language, we will discuss the pricing of "extended warranties" by "insurers." The purchaser of the extended warranty will be referred to as the "insured." Also, the paper will concentrate on the pricing of extended warranties covering new automobiles.

Extended warranties for new automobiles typically cover the cost of repairs (parts and labor) necessitated by the failure of various components. An extended warranty may cover virtually every component of the automobile or may limit coverage to certain components. In addition to the cost of repairs, an extended warranty may provide reimbursement for towing and car rental. Some extended warranties also provide reimbursement for a deductible incurred by the insured resulting from a repair covered by a manufacturer warranty. A given insurer may offer several extended warranties differing in the amount of coverage.

Extended warranties may have standard as well as optional deductibles, applied on a per component, per major assembly or per repair visit basis. They also do not cover repairs which are covered by a manufacturer warranty; this is one of the most important considerations in the pricing of extended warranties.

Coverage expires when one of four events occur: (1) the time limitation is exceeded, (2) the mileage limitation is exceeded, (3) the automobile is sold or traded without transfer of the extended warranty, or (4) the extended warranty is canceled. Time limitations are typically five, six or seven years. Mileage limitations are typically in the 50,000 to 100,000 mile range. Some extended warranties have no mileage limitation ("unlimited miles"), but currently there are few insurers offering this feature. Generally, an extended warranty can be transferred only if the automobile is sold directly without being traded to a dealer, and if the necessary transfer form is sent to the insurer along with the required fee.

Premium determination for extended warranties is similar to that used in many other lines of insurance. A base rate, or set of base rates, is multiplied by various rating factors. An automobile is assigned to a class based upon expected loss experience. Credits and surcharges are determined in various ways, including a percentage of the product of the base rate and rating factors, a flat dollar amount and a change in class assignment.

Commonly used rating factors include the following: (1) make and model, (2) engine size, (3) special features (e.g., four-wheel drive), (4) extent of coverage, (5) deductible option, (6) time limitation, and (7) mileage limitation.

Claims are usually reported to the insurer by the automobile dealer before repairs are made or shortly thereafter, and payment is made by the insurer within a few weeks. Because of this quick reporting and payment of claims, many insurers do not establish case reserves. For those insurers that do use case reserves, the uncertainty in the reserve amount is small, perhaps close to that of automobile physical damage. Also, claims seldom result in litigation, therefore allocated loss adjustment expenses are minimal.

BASIC RATEMAKING

Ratemaking for extended warranties can incorporate much of the methodology used for other insurance products. However, two characteristics of extended warranties necessitate some modification to even the most basic methodology: (1) the multi-year term and (2) losses not occurring evenly during the term.

Either one of these characteristics by itself would cause only minor inconvenience to the ratemaker. The combination of the two characteristics results in either significant additional uncertainty in rates based upon recent data, or results in rates based upon less recent data.

Data

A policy year categorization of premium and loss data is a logical approach, because of the multi-year term and the fact that an automobile's exposure to loss can change significantly from year to year. Since the design and construction of automobiles change according to "model year", a categorization of data by model year is preferable; however, this categorization may present difficulties when balancing the ratemaking data to various sources of financial data. A reasonable alternative is to use a policy year starting October 1, since the majority of model year changes are made in September and October.

Basic ratemaking data should be segregated by type of extended warranty (amount of coverage) and term (time and mileage limits). A segregation by deductible may also be helpful, depending on the number of deductible options and the distribution of business by deductible.

Loss Ratio Method

The loss ratio method can be used to price extended warranties; however, a few cautions should be considered:

1. Paid or reported loss ratios will probably be understated if premium is earned pro rata. Losses do not occur evenly throughout the policy term on new automobile extended warranties; rather, they generally occur at a rate that is cumulatively slower than pro rata.

2. Because of (1) and the fact that return premium on cancellations can be significant, ultimate written (earned) premium should be projected for each policy year.

3. There is no source of information for "industry" loss trend. The selected trend may have to be based upon the trend indicated by the insured's historical loss data, various external indices (e.g., CPI components) and judgment.

4. The data required for an estimate of premium at current rate level may not be available. Because class assignment and class relativities have rate level effect, required data will include distributions by make and model of automobile for several policy years, along with class assignments and relativities. Data at this level of detail may not have been captured or, if captured, not saved.

Pure Premium

The pure premium method can also be used to price extended warranties. Following the discussion above concerning premium, exposures should also be projected to an ultimate written (earned) level, adjusting for cancellations. A separate projection of claim counts should be made, so that frequency and severity can be analyzed.

Regardless of which of the above pricing methods are used, some analysis of investment income should be made. With rates at a breakeven level (ultimate premium equals ultimate losses plus expenses), investment income may be as much as 25% of written premium on a present value basis. This substantial amount of investment income results from all of the premium being collected at the time of sale, but losses paid out over a five to seven year period.

RATEMAKING COMPLEXITIES

The application of basic ratemaking methodology to extended warranties, with the cautions noted above, relies upon two key assumptions:

1. There is no fundamental change in the insurer's exposure to loss for a given warranty type and term over a period of several policy years.

2. There are no significant changes in the coverage of the extended warranty over a period of several policy years.

Unfortunately for the ratemaker, significant exposure and coverage changes occur frequently. The challenge for the ratemaker is to adjust the basic ratemaking methodology for these changes. Some of these changes are discussed below.

"Extended" warranties are so named because these warranties extend the period of time that some coverage is provided to the automobile owner. The initial coverage is provided by a warranty from the manufacturer. Generally, when this warranty expires, the coverage of the extended warranty begins. (Some extended warranties provide some coverage which is excluded in the manufacturer warranty, e.g., towing, car rental; thus, extended warranty coverage can begin prior to expiration of the manufacturer warranty.)

From the mid-1970's through the mid-1980's, manufacturer warranties were generally 12 months/12,000 miles in duration. Since many automobiles exceeded 12,000 miles before the expiration of 12 months, extended warranty coverage began before the end of the policy year.

In the mid-1980's, most manufacturers lengthened the term of their warranties. Initially, the lengthening of the manufacturer warranty was limited to repairs for "powertrain" components of the automobile. A few years later, some manufacturers lengthened their warranty on non-powertrain components as well. By 1989, manufacturer warranties were limited to two types: (1) "bumper-to-bumper" coverage for the entire warranty period or (2) "bumper-to-bumper" coverage for a limited period and powertrain coverage for a longer period. The most common warranty periods for the first type are 36 months/36,000 miles and 36 months/50,000 miles. For the second type, 12 month/12 mile bumper-to-bumper coverage and 72 month/60,000 mile or 84 month/70,000 mile powertrain coverage is typical.

Extended warranty coverage and manufacturer warranty coverage usually start at the same time - the date the automobile is sold. However, since the extended warranty doesn't pay for repairs covered by the manufacturer warranty, the exposure of the extended warranty is significantly affected by the term length of the manufacturer warranty.

For example, consider a 60 month/50,000 mile extended warranty. If the manufacturer warranty is 12 months/12,000 miles (bumper-to-bumper), then the extended warranty has exposure to most types of claims for roughly 48 months/38,000 miles. (The insurer's exposure will depend on the number of miles driven and when those miles are driven.) If the manufacturer warranty is increased to 24 months/24,000 miles (bumper-to-bumper), then the extended warranty's exposure for most claims is reduced to 36 months/26,000 miles.

These changes in manufacturer warranty affect not only the total exposure of the extended warranty, but also the loss occurrence and payment patterns for a group of extended warranties. Loss payment patterns for extended warranties written from the mid-1970's to the mid-1980's will be significantly different than those for subsequently written extended warranties. Because of this, an adjustment to basic ratemaking methodology is required.

Exhibit I displays a hypothetical paid loss triangle for 60 month/50,000 mile extended warranties written on model year 1976-1982 automobiles having a 12 month/12,000 mile manufacturer warranty. Evaluation points are in months measured from the beginning of each policy. In this example, we assume that no losses are paid beyond 60 months. The analysis shown includes basic loss development analysis, resulting in a projected ultimate loss per warranty for each model year, which is then trended to the level of model year 1983.

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If we assume a stable mix of business and no unusual changes in any factor affecting losses, the 1983 model year ultimate loss per written extended warranty is estimated to be $239 - $245. However, if we knew that all manufacturer warranties were going to be lengthened from 12 months/12,000 miles (bumper-to-bumper) to 24 months/24,000 miles (bumper-to-bumper) starting with model year 1983, we would need to revise our projection of ultimate loss per written extended warranty for model year 1983. But, how do we adjust our ratemaking methodology?

The answer to this question would be much easier if we could ignore two facts: (1) the extended warranty covers some types of loss not covered by the manufacturer warranty (towing, car rental), and (2) many insureds drive more than 12,000 miles per year. If these two facts were not true, our paid loss triangle might look like the one shown in Exhibit II. We now estimate the model year 1983 ultimate loss per written extended warranty, with a 12 month/12,000 mile manufacturer warranty, to be $267 - $275.

Making the adjustment for the lengthening of the manufacturer warranty to 24 months/24,000 miles is now relatively easy. Given our assumptions, we can now say that the portion of the projected ultimate loss per written warranty which is paid in months 12 to 24 will be eliminated. Based upon the paid loss development pattern shown in Exhibit II, 21.6% (100/4.63) of the projected ultimate loss per written extended warranty is paid in months 12 to 24. Therefore, the projected ultimate loss per written extended warranty for model year 1983, with a 24 month/24,000 mile manufacturer warranty, is estimated to be $209 - $216 (78.4% of $267-$275).

<u>Recognition of towing and car rental claims and the fact that many insureds</u>
<u>drive more than 12,000 miles per year necessitates further adjustment to the</u>
<u>methodology</u>.   If the data has been sufficiently coded, we can adjust the
original paid loss triangle (Exhibit I) by removing all towing and car rental
claims. The adjusted triangle is shown in Exhibit III.

We now adjust for some insureds driving more than 12,000 miles per year.
Having eliminated towing and car rental claims from the paid loss triangle,
the paid losses shown in the 0-12 month column of the lower portion of Exhibit
III represent losses on automobiles with more than 12,000 odometer miles prior
to the end of the 12th month from the date the automobile was sold. If these
automobiles had less than 24,000 odometer miles by the end of the 12th month,
all of the losses shown in this column would have been covered by a 24
month/24,000 mile manufacturer warranty.   However, since it is likely that
some automobiles exceeded 24,000 odometer miles before the end of the 12th
month, some losses in the 0-12 month column would not have been covered by a
manufacturer 24 month/24,000 mile warranty.

As was true for the 0-12 month column, losses in the 12-24 month column would
have been covered by a 24 month/24,000 mile manufacturer warranty if the
automobiles had less than 24,000 odometer miles by the end of the 24th month.

Therefore, in order to use this data to estimate model year 1983 losses per
warranty, we need information on the distribution of odometer mileage on the
automobiles whose claims are shown in the 0-12 month column and those whose
claims are shown in the 12-24 month column.

If the loss data captured odometer mileage at time of repair, the loss triangle could be adjusted to segregate the 0-12 month and 12-24 month columns into odometer mileage groupings. The adjustment to these two columns is shown in Exhibit IV. If the manufacturer warranty had been 24 months/24,000 miles instead of 12 months/12,000 miles for model years 1976 through 1982, all losses shown in the 0-12 month, 0-24,000 miles column and the 12-24 month, 0-24,000 miles column would have been covered by the manufacturer warranty, not the extended warranty. We can now adjust our model year 1983 projected ultimate loss per extended warranty. The eliminated losses are summed by model year and then expressed as a ratio to the number of written extended warranties. This ratio is then subtracted from the projected ultimate loss per extended warranty (with a 12/12 manufacturer warranty) from Exhibit I, resulting in the projected ultimate loss per extended warranty with a 24/24 manufacturer warranty, for each model year. These model year projections are then trended to the model year 1983 level. The result is an estimated loss per extended warranty, for model year 1983 automobiles having 24 month/24,000 mile manufacturer warranties, of $193-$199.

The example presented above is a relatively simple example of an adjustment in methodology due to a change in the manufacturer warranty. The following factors complicate the analysis further:

1. The length of the manufacturer warranty varies significantly among manufacturers.

2. Most manufacturers have made several changes to the length of their warranty in recent years.

3. Some major manufacturers provide (have provided) warranty coverage for powertrain components for a longer period of time than for other components.

4. Some manufacturers have a deductible feature in their warranty.

5. Automobile design (electrical and mechanical components) changes frequently.

Covered Components

Extended warranties either cover all components of the automobile except those specifically excluded, or they cover only those components listed in the warranty. Regardless of which type of coverage is provided, insurers frequently make changes to the extended warranty coverage; these changes should be considered in the ratemaking process.

If the list of covered components is expanded to include components which have never been covered, the ratemaker is faced with a situation of having absolutely no historical loss data on which to base the additional charge. The manufacturers will probably not have any loss data on these components for repairs made after their warranty expired and will probably not be willing to disclose any loss information for repairs made during their warranty coverage period.

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Is the ratemaker then forced to make a "wild guess?" Perhaps, but hopefully the answer will be more of an "educated guess" or "rough estimate." If the insurer's loss data can be segregated by component, the ratemaker may be able to estimate ultimate losses per extended warranty by component. This may provide upper and lower bounds on the estimate to be made for the newly covered component. The ratemaker could then seek the advise of knowledgeable automotive repair professionals. The advise may be given only in a relative manner (e.g., "component A breaks down about twice as frequently as component B and costs about twice as much to repair"); however, this relative advise can be used along with the estimates of ultimate loss per extended warranty for historically covered components to arrive at an estimate for the newly covered component.

If the list of covered components is reduced, the ratemaker's task is greatly simplified. As mentioned above, the ratemaker should be able to use the historical losses to make at least a rough estimate of ultimate loss per extended warranty by component. This estimate for the eliminated component can then be subtracted from the projected ultimate loss per extended warranty for the prior level of coverage.

A word of caution - since automobiles undergo frequent design changes, a component for which coverage has been eliminated may be replaced by a different component whose function is similar, but whose name is different (e.g., fuel injectors replacing carburetors). So, while it may appear that coverage has been reduced (carburetors excluded), coverage may have actually been broadened (if fuel injectors result in a higher loss per warranty than carburetors).

Since few extended warranties are transferred when the automobile is sold or traded, most extended warranties expire at this time. The insurer's total exposure therefore depends on how long insureds own their automobiles. Any significant change in the distribution of length of ownership will have an impact on the ultimate loss per extended warranty.

Exhibit V displays an example of extended warranty exposure changes resulting from changes in the length of ownership distribution. In order to simplify the example, odometer mileage and warranty mileage limitations have been ignored. In this example, average length of ownership in case B is the same as in case A (43.9 months); however, in case B higher percentages of insureds own their automobile less than 27 months and more than 48 months. The shift in the ownership distribution from case A to case B results in a change in the total number of months of extended warranty exposure. The amount of the change depends upon the length of the manufacturer warranty and the length of the extended warranty. This example shows the changes in exposure for a 60 month extended warranty which provides coverage beyond manufacturer warranties of 12, 24 and 36 months. The change in the distribution of length of ownership results in exposure increases for the 60 month extended warranty of 5 insured-months, 41 insured-months and 80 insured-months with underlying 12, 24 and 36 month manufacturer warranties, respectively. If losses occurred evenly from the 12th through the 60th month, these exposure increases would result in average loss per extended warranty increases of 0.2%, 2.0% and 7.2%.

We can see from this example that a subtle change in the automobile buying habits of insureds may have a significant effect on extended warranty losses; whether or not the effect is significant may depend on the length of the manufacturer warranty. The example also demonstrates that it is not correct to assume that no change in average ownership length results in no change in extended warranty losses.

The measurement of the change in extended warranty exposure caused by changes in the distribution of length of ownership is much more difficult when you consider warranty (extended and manufacturer) mileage limitations, odometer mileage, and a varying rate of loss occurrence.

Odometer Mileage

As previously indicated, the number of miles driven by insureds influences the insurer's extended warranty losses, since both the extended warranty and the manufacturer warranty have mileage limitations. For example, suppose a person who drives 25,000 miles annually purchases an automobile covered by a 24 month/24,000 mile manufacturer warranty and also purchases a 60 month/100,000 mile extended warranty. The automobile will reach 24,000 miles in 11.5 months. At that time, the manufacturer warranty expires, and extended warranty coverage begins. The extended warranty expires when the automobile reaches 100,000 miles at the end of 48 months. For this automobile, the extended warranty provided coverage for 36.5 months and 76,000 miles.

If the insured drove 6,000 miles annually, the manufacturer warranty would cover the automobile for 24 months (12,000 miles), and the extended warranty would cover the automobile for 36 months and 18,000 miles.

Thus, in both cases the extended warranty would provide coverage for approximately 36 months; however, the extended warranty coverage in the first case is for 76,000 miles, whereas it is only for 18,000 miles in the second case. Since automobile repairs are related to odometer mileage as well as the age of the automobile, the extended warranty's expected loss payments are significantly higher for the 76,000 mile exposure than for the 18,000 mile exposure.

Exhibit VI displays a few examples which show the effect of a change in the insureds' annual mileage distribution on the exposure of the extended warranty. In each example, the average annual mileage in case B is 11.7% higher than case A (14,070 miles versus 12,600 miles). This increase in average annual mileage results from increases which are not uniform by annual mileage category.

The first example shows the effect on a 60 month/50,000 mile extended warranty with 24 month/24,000 mile manufacturer coverage. Here the increase in annual mileage results in an average of 2.0 months (7.5%) less exposure and 720 miles (3.0%) more exposure for the extended warranty. In the second example, the extended warranty is lengthened to 60 months/100,000 miles with the same manufacturer warranty; the effect of the increase in annual mileage is an average of 0.7 months (1.9%) more exposure and 5,370 miles (13.5%) more exposure for the extended warranty. The third example assumes the same extended warranty term (60/100), but lengthens the manufacturer warranty to 36 months/36,000 miles; the effect is an average of 1.1 months (4.1%) more exposure and 4,830 miles (16.3%) more exposure for the extended warranty.

We can see from these few examples that the same change in the distribution of miles driven will not produce the same increase in exposure for all extended warranties. The effect will depend on many factors, including the length of the terms of the extended warranty and the manufacturer warranty.

PRICING OTHER PRODUCTS

New automobiles are not the only product for which an extended warranty has been available. Many other products have been covered, including used automobiles, new and used motorcycles, snowmobiles, appliances, electronic goods, water heaters and furnaces. Ratemaking for these products is generally much easier than for new automobiles for one or more of the following reasons:

1. The extended warranty term is shorter (3-36 months versus 60-84 months).

2. The manufacturer warranty term is shorter and doesn't change as frequently.

3. Extended warranty coverage changes are made less frequently.

4. Except for used automobiles, term limitations and loss patterns are not complicated by usage measures such as odometer mileage.

5. Most of these products will not be sold or traded prior to expiration of the extended warranty.

Basic policy year ratemaking will be adequate for most of these products. A few precautions are noted below.

Used Automobiles

1. Extended warranties have been used to "recondition" automobiles (repairs needed prior to the sale of the car and prior to inception of the extended warranty are made and submitted as a claim to the insurer). The practice has been widespread, and the effect on losses has been substantial. Many insurers claim to have recognized and corrected this problem. The effect of this practice on the used automobile loss history should be considered.

2. Odometer mileage and age of automobile at time of sale are important factors in the extended warranty loss experience. Premium and loss data should be segregated into various categories of these two variables.

Appliances/Electronic Goods

1. Data should be segregated by type of appliance. It is unreasonable to expect the loss experience of refrigerators, televisions and cameras to be close enough for ratemaking purposes.

2. Changes in technology and design occur frequently for some products. This should be considered when using historical losses to predict future losses.

| Model | Cumulative Paid Losses (1) | | | | |
Year	12	24	36	48	60
1976	250,000	1,500,000	3,250,000	4,500,000	5,000,000
1977	302,500	1,705,000	3,410,000	4,950,000	5,500,000
1978	318,600	1,770,000	3,953,000	5,398,500	5,900,000
1979	331,500	1,982,500	4,290,000	5,980,000	
1980	366,600	2,262,000	5,304,000		
1981	484,500	2,533,000			
1982	500,500				

| Model | Paid Loss Development Factors | | | |
Year	12-24	24-36	36-48	48-60
1976	6.000	2.167	1.385	1.111
1977	5.636	2.000	1.452	1.111
1978	5.556	2.233	1.366	1.093
1979	5.980	2.164	1.394	
1980	6.170	2.345		
1981	5.228			

	Simple Average Loss Development Factors			
5 Years	5.714	2.182	-----	-----
4 Years	5.734	2.186	1.399	-----
3 Years	5.793	2.247	1.404	1.105
2 Years	5.699	2.254	1.380	1.102
Selected	5.750	2.220	1.400	1.100

Model Year	Paid Losses @ 9/30/83	Ultimate Loss Dev. Factor	Projected Ultimate Losses	Written Extended Warranties	Projected Ult. Loss/ Extended War'ty (2)	Trended Projected Ult. Loss/ Extended War'ty (4)
1976	5,000,000	1.000	5,000,000	30,000	166.67	247.314
1977	5,500,000	1.000	5,500,000	32,000	171.88	241.061
1978	5,900,000	1.000	5,900,000	34,000	173.53	230.039
1979	5,980,000	1.100	6,578,000	35,000	187.94	235.488
1980	5,304,000	1.540	8,168,160	39,000	209.44	248.037
1981	2,533,000	3.419	8,659,820	40,000	216.50	242.337
1982	500,500	19.658	N/A ***	42,000	N/A (3)	N/A

Simple Average	1976-1981	240.71
	1977-1981	239.39
	1978-1981	238.98
	1979-1981	241.95
	1980-1981	245.19

(1) 12 mo./12,000 mile manufacturer warranty is assumed.
(2) Indicated annual trend is 5.8%.
(3) Projection ignored due to immaturity of data.
(4) Trended to model year 1983 level.

| Model | | Cumulative Paid Losses (1) | | | |
Year	12	24	36	48	60
1976	0	1,210,000	3,410,000	5,280,000	5,500,000
1977	0	1,404,150	3,907,200	5,921,850	6,105,000
1978	0	1,350,510	3,922,910	6,302,380	6,431,000
1979	0	1,608,750	4,540,250	6,935,500	
1980	0	1,774,890	5,281,380		
1981	0	2,223,600			
1982	0				

| Model | Paid Loss Development Factors | | | |
Year	12-24	24-36	36-48	48-60
1976	N/A	2.818	1.548	1.042
1977	N/A	2.783	1.516	1.031
1978	N/A	2.905	1.607	1.020
1979	N/A	2.822	1.528	
1980	N/A	2.976		
1981	N/A			

	Simple Average Loss Development Factors			
5 Years	N/A	2.861	-----	-----
4 Years	N/A	2.871	1.550	-----
3 Years	N/A	2.901	1.550	1.031
2 Years	N/A	2.899	1.567	1.026
Selected	N/A	2.900	1.550	1.030

Model Year	Paid Losses @ 9/30/83	Ultimate Loss Dev. Factor	Projected Ultimate Losses	Written Extended Warranties	Projected Ult. Loss/ Extended War'ty (2)	Trended Projected Ult. Loss/ Extended War'ty (3)
1976	5,500,000	1.000	5,500,000	30,000	183.33	281.173
1977	6,105,000	1.000	6,105,000	32,000	190.78	275.255
1978	6,431,000	1.000	6,431,000	34,000	189.15	256.724
1979	6,935,500	1.030	7,143,565	35,000	204.10	260.603
1980	5,281,380	1.597	8,431,723	39,000	216.20	259.688
1981	2,223,600	4.630	10,294,934	40,000	257.37	290.824

				Simple Average	1976-1981	270.71
					1977-1981	268.62
					1978-1981	266.96
					1979-1981	270.37
					1980-1981	275.26

(1)   12 month/12,000 mile manufacturer warranty is assumed.
      Assumes extended warranty doesn't cover towing or car rental.
      Assumes annual mileage is not greater than 12,000 for any driver.
(2)   Indicated annual trend is 6.3%.
(3)   Trended to model year 1983 level.

Cumulative Paid Losses (1)

Model Year	12	24	36	48	60
1976	142,500	1,377,500	3,063,750	4,275,000	4,750,000
1977	180,950	1,551,000	3,179,550	4,653,000	5,170,000
1978	192,576	1,642,560	3,766,560	5,182,560	5,664,000
1979	192,433	1,831,213	4,065,913	5,710,900	
1980	199,017	2,063,880	4,975,425		
1981	295,630	2,301,120			
1982	302,575				

Incremental Paid Losses (1)

Model Year	0-12	12-24	24-36	36-48	48-60
1976	142,500	1,235,000	1,686,250	1,211,250	475,000
1977	180,950	1,370,050	1,628,550	1,473,450	517,000
1978	192,576	1,449,984	2,124,000	1,416,000	481,440
1979	192,433	1,638,780	2,234,700	1,644,988	
1980	199,017	1,864,863	2,911,545		
1981	295,630	2,005,490			
1982	302,575				

(1) Exhibit I data with towing and car rental claims removed.
     12 month/12,000 mile manufacturer warranty is assumed.

Incremental Paid Losses

	0-12 Months		12-24 Months	
Model	---- Odometer Miles ----		---- Odometer Miles ----	
Year	0-24,000	> 24,000	0-24,000	> 24,000
1976	135,375	7,125	926,250	308,750
1977	170,093	10,857	1,054,939	315,111
1978	179,096	13,480	1,138,237	311,747
1979	177,038	15,395	1,188,116	450,664
1980	193,046	5,971	1,379,999	484,864
1981	280,849	14,781	1,504,118	501,372

Losses Eliminated by Lengthening Manufacturer
Warranty from 12 months/12,000 miles to
24 months/24,000 miles

Model	----------- Months -------------------		
Year	0-12	12-24	0-24
1976	135,375	926,250	1,061,625
1977	170,093	1,054,939	1,225,032
1978	179,096	1,138,237	1,317,333
1979	177,038	1,188,116	1,365,154
1980	193,046	1,379,999	1,573,045
1981	280,849	1,504,118	1,784,967

Model Year	Written Extended Warranties	Losses Eliminated/ Extended Warranty	Projected Ultimate Loss/ Extended War'ty (1) (12/12 MW)	Projected Ultimate Loss/ Extended War'ty (2) (24/24 MW)	Trended Projected Ultimate Loss/ Extended War'ty (3) (24/24 MW)
1976	30,000	35.39	166.67	131.28	201.34
1977	32,000	38.28	171.88	133.60	192.75
1978	34,000	38.75	173.53	134.78	182.94
1979	35,000	39.00	187.94	148.94	190.17
1980	39,000	40.33	209.44	169.11	203.12
1981	40,000	44.62	216.50	171.88	194.21

			Simple Average	1976-1981	194.09
				1977-1981	192.64
				1978-1981	192.61
				1979-1981	195.83
				1980-1981	198.67

(1) From Exhibit I.
(2) Indicated annual trend is 6.3%.
(3) Trended to model year 1983 level.

Number of Insureds With Extended Warranty Exposure

Months Auto Owned	Number of Insureds A	B	Manufacturer Warranty * 12 Months A	B	24 Months A	B	36 Months A	B
<12	1.0	1.5						
12	1.0	2.0						
15	2.0	3.0	2.0	3.0				
18	3.0	4.0	3.0	4.0				
21	3.0	4.0	3.0	4.0				
24	4.0	5.0	4.0	5.0				
27	4.0	2.5	4.0	2.5	4.0	2.5		
30	5.0	3.5	5.0	3.5	5.0	3.5		
33	5.0	3.5	5.0	3.5	5.0	3.5		
36	5.0	3.5	5.0	3.5	5.0	3.5		
39	5.0	3.5	5.0	3.5	5.0	3.5	5.0	3.5
42	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
45	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
48	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
51	6.0	6.5	6.0	6.5	6.0	6.5	6.0	6.5
54	7.0	7.5	7.0	7.5	7.0	7.5	7.0	7.5
57	7.0	7.5	7.0	7.5	7.0	7.5	7.0	7.5
60	7.0	7.5	7.0	7.5	7.0	7.5	7.0	7.5
>60	17.0	20.0	17.0	20.0	17.0	20.0	17.0	20.0
	100.0	100.0	98.0	96.5	86.0	80.5	67.0	67.5

Average Months of Ownership A	B	Insured-Months of Extended Warranty Exposure (2) A	B	A	B	A	B
43.9	43.9	3,198	3,203	2,067	2,108	1,116	1,196

(1)   Mileage limitations ignored.

(2)   Summation down the column of the product of (1) number of insureds
      with extended warranty exposure and (2) months auto owned minus
      months of manufacturer warranty.

Exhibit VI

Annual Miles	Number of Insureds A	Number of Insureds B		Warranty Exposure - Examples 1 and 2 24/24 Manuf. Months	24/24 Manuf. Miles	(1) 60/50 Extended Months	(1) 60/50 Extended Miles	(2) 60/100 Extended Months	(2) 60/100 Extended Miles
3,000	6	3		24.0	6,000	36.0	9,000	36.0	9,000
6,000	13	10		24.0	12,000	36.0	18,000	36.0	18,000
9,000	20	17		24.0	18,000	36.0	27,000	36.0	27,000
12,000	25	22		24.0	24,000	26.0	26,000	36.0	36,000
15,000	17	20		19.2	24,000	20.8	26,000	40.8	51,000
18,000	7	10		16.0	24,000	17.3	26,000	44.0	66,000
21,000	5	8		13.7	24,000	14.9	26,000	43.4	76,000
24,000	3	5		12.0	24,000	13.0	26,000	38.0	76,000
27,000	1	2		10.7	24,000	11.6	26,000	33.8	76,000
30,000	1	1		9.6	24,000	10.4	26,000	30.4	76,000
33,000	1	1		8.7	24,000	9.5	26,000	27.6	76,000
36,000	1	1		8.0	24,000	8.7	26,000	25.3	76,000
	100	100	A	21.2	20,160	26.8	24,140	37.5	39,690
			B	20.1	21,240	24.8	24,860	38.2	45,060
Average Annual Miles 12,600		14,070			(B-A) =	-2.0	720	0.7	5,370

Annual Miles	Number of Insureds A	Number of Insureds B		Warranty Exposure - Example 3 36/36 Manuf. Months	36/36 Manuf. Miles	60/100 Extended Months	60/100 Extended Miles
3,000	6	3		36.0	9,000	24.0	6,000
6,000	13	10		36.0	18,000	24.0	12,000
9,000	20	17		36.0	27,000	24.0	18,000
12,000	25	22		36.0	36,000	24.0	24,000
15,000	17	20		28.8	36,000	31.2	39,000
18,000	7	10		24.0	36,000	36.0	54,000
21,000	5	8		20.6	36,000	36.6	64,000
24,000	3	5		18.0	36,000	32.0	64,000
27,000	1	2		16.0	36,000	28.4	64,000
30,000	1	1		14.4	36,000	25.6	64,000
33,000	1	1		13.1	36,000	23.3	64,000
36,000	1	1		12.0	36,000	21.3	64,000
	100	100	A	31.7	30,240	27.0	29,610
			B	30.1	31,860	28.1	34,440
Average Annual Miles 12,600		14,070			(B-A) =	1.1	4,830