

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK**

SHARON CHENG, CRISTINA DIAS,
RHONDA SANFILIPO, BRUCE
PULEO, ZINA PRUITT, RON
ZIMMERMAN, CHERYL
SILVERSTEIN, TINA FENG, ROBERT
HAKIM, BERNADETTE GRIMES,
ELIZABETH GENDRON, ROGER
CARTER, MARLENE RUDOLPH,
PATRICIA BARLOW, TERESA
EDWARDS, ISAAC TORDJMAN,
JAMES HETTINGER, DIEU LE, CHRIS
BOHN, DANIEL DEWEERDT, CRAIG
BOXER, BETTY DENDE, ELIZABETH
PERSAK, KRISTI ROCK, JENNIFER
CHALEL, JOHN TORRANCE,
LENARD SHOEMAKER, MICHAEL
MITCHELL, ROBERT SKELTON,
JEFFREY JONES, ISABEL MARQUES,
PAYAM RASTEGAR, and SYED
ABDUL NAFAY, individually and on
behalf of all others similarly situated,

Plaintiffs,

v.

TOYOTA MOTOR CORPORATION,
TOYOTA MOTOR NORTH AMERICA,
INC., and DENSO INTERNATIONAL
AMERICA, INC.,

Defendants.

Case No. 1:20-cv-00629-WFK-JRC

DECLARATION OF
LEE M. BOWRON

I, Lee M. Bowron, ACAS, MAAA, hereby declare as follows:

1. I am a member of the American Academy of Actuaries (“MAAA”) and meet its qualification standards for statements of actuarial opinion regarding extended service contract liabilities. I am also an Associate of the Casualty Actuarial Society (“ACAS”). I have worked as a professional actuary for over thirty years.
2. I co-founded the Kerper and Bowron LLC actuarial consulting firm 19 years ago, and I am currently a member/manager of the firm. Kerper and Bowron specializes in evaluating property and casualty exposures, including extended warranty, vehicle service contracts, GAP insurance, personal and commercial lines, and environmental reserving. Additionally, Kerper and Bowron and our affiliates are industry experts in providing reinsurance accounting, advanced analytics for the finance and insurance industry and statements of actuarial opinion. Further details regarding my qualifications are set forth in my current curriculum vitae, which is attached hereto as Appendix 3.
3. Kerper and Bowron LLC is being compensated for time spent by me and my team at standard billing rates and for out-of-pocket expenses at cost. Kerper and Bowron currently bills for our time at \$450 per hour for a partner, \$375 for a credentialed actuary and \$275 for an analyst. Kerper and Bowron LLC’s fees are not in any way contingent upon the outcome of this matter.

Purpose of Report

4. Class Counsel engaged Kerper and Bowron LLC to calculate the estimated economic value of two components of the settlement relief in the Cheng et al v. Toyota Motor Corporation et al. litigation. The settlement resolves Plaintiffs' claims that Toyota marketed and sold Toyota and Lexus vehicles equipped with defective low pressure fuel pumps made by Denso, which can cause the affected vehicles to run rough, stall, fail to accelerate, lurch, and potentially lose engine power while in operation. Toyota initially recalled about 700,000 of these vehicles. The recall population grew to approximately 3,400,000 vehicles by the time the litigation was settled.
5. Specifically, we were engaged to calculate the estimated economic value of the Customer Support Program and the Extended New Parts Warranty provided in the Settlement Agreement, as described below. The Customer Support Program covers approximately 1.4 million Additional Vehicles (vehicles that were not recalled but are part of the Settlement), and the Extended New Parts Warranty covers approximately 3.4 million Subject Vehicles (the recalled vehicles) and 172,000 SSC Vehicles (hybrid versions of recalled vehicles that were also eligible for the recall remedy) as described in the Settlement Agreement.

6. Under the Customer Support Program, the owners, and lessees of the 1.4 million Additional Vehicles are entitled to prospective coverage for repairs (including parts and labor) on their original Denso low-pressure fuel pumps for 15 years from the in-service date of the vehicle. The benefit is the replacement of the defective fuel pump with a replacement fuel pump, a free rental car during the repair, and a free tow. The benefit travels with the vehicle.
7. The settlement also provides an Extended New Parts Warranty of 15 years, measured from July 15, 2021, or 150,000 miles, whichever comes first on the replacement fuel pumps for owners and lessees of the nearly 3.4 million Subject Vehicles and the 172,000 SSC Vehicles. (These vehicles are already entitled to the recall remedy, i.e., the replacement of the original fuel pumps with the replacement fuel pumps.) Owners and lessees of the Subject/SSC Vehicles are entitled to a free rental car during the repair, and a free tow. The benefit travels with the vehicle.

Executive Summary

8. The estimated economic benefit of the settlement is shown in the table below:

Figure 1

Estimated Benefits (Millions)			
	Additional	Subject/SSC	Total
Estimated "Out-of-Pocket" Cost	164.7	47.3	211.9
Estimated Cost to Insure Coverage (Cost-Plus Method)		131.4	131.4
Estimate Retail Survey (Retail Survey Method)		113.2	113.2
Selected	164.7	122.3	287.0
Class Benefit per Member			
Class Vehicles (Millions)	1.4	3.6	4.9
Benefit Per Vehicle	119.72	34.33	58.11

Data Analyzed

9. Please see Appendix 2 for the data analyzed.

Settlement Provisions

10. Toyota will offer the Customer Support Program (CSP) to consumers who own or lease Additional Vehicles, which are vehicles that were not previously recalled but are also equipped with Denso made low pressure Fuel Pumps.

There are approximately 1.4 million Additional Vehicles, as follows:

Figure 2

Make	Model Years	Model	Production Period
Toyota	2015-2018, 2019	4Runner	February 20, 2015 – May 31, 2018, April 5, 2019 – July 26, 2019
Toyota	2018	Avalon	October 24, 2017 – March 31, 2018
Toyota	2019-2020	Avalon Hybrid	June 11, 2019 – August 28, 2019
Toyota	2019-2020	Camry Hybrid	August 8, 2019 – August 28, 2019
Toyota	2019-2020	Camry	August 7, 2019 – January 23, 2020
Toyota	2019-2020	Corolla Hatchback	November 10, 2018 – August 30, 2019
Toyota	2019-2020	Corolla	May 9, 2018 – October 18, 2019
Toyota	2015-2020	Land Cruiser	March 12, 2015 – July 20, 2018, April 8, 2019 – August 2, 2019
Toyota	2019-2020	RAV4	November 7, 2018 – February 10, 2020
Toyota	2019-2020	RAV4 Hybrid	January 28, 2019 – February 13, 2020
Toyota	2018-2020	Sequoia	October 26, 2017 – November 19, 2019
Toyota	2019-2020	Tacoma	June 18, 2019 – September 11, 2019
Toyota	2018-2020	Tundra	October 25, 2017 – November 7, 2019
Lexus	2019-2020	ES 300h	February 21, 2019 – February 26, 2020
Lexus	2018	ES 350	October 24, 2017 – March 31, 2018
Lexus	2015-2017	GS 350	February 20, 2015 – July 5, 2017
Lexus	2015-2019	GX 460	February 20, 2015 – May 31, 2018 April 5, 2019 – July 26, 2019
Lexus	2015-2016	IS 350	February 23, 2015 – September 30, 2016
Lexus	2015-2020	LX570	March 12, 2015 – July 20, 2018 April 8, 2019 – August 2, 2019
Lexus	2015-2020	NX 200t / NX 300	June 3, 2015 – May 11, 2018, April 22, 2019 – January 10, 2020
Lexus	2015-2017	RC350	February 24, 2015 – November 28, 2017
Lexus	2019	UX 200	February 10, 2019 – September 2, 2019

11. Under the Customer Support Program, the owners and lessees of Additional Vehicles are entitled to prospective coverage for repairs (including parts and labor) on their original Denso low-pressure fuel pumps for 15 years from the in-service date of the vehicle. The benefit is the free replacement of the

defective fuel pump with the replacement fuel pump, which are the fuel pumps specifically reformulated and manufactured to address the defect in the recalled fuel pumps. The benefit travels with the vehicle.

12. Toyota will provide loaner or rental vehicles and/or towing options when fuel pumps for Additional Vehicles are being replaced.

13. Toyota will offer an Extended New Parts Warranty to consumers who own or lease Subject Vehicles or SSC Vehicles. The Subject Vehicles are the 3.4 million that were already recalled:

Figure 3

Make	Model Years	Model	Production Dates
Toyota	2014-2015, 2018-2019	4Runner	Early September 2013 – Mid-February 2015, Late May 2018 – Early April 2019
Toyota	2018-2020	Avalon	Early April 2018 – Early October 2019
Toyota	2018-2020	Camry	Mid-November 2017 – Mid-February 2019
Toyota	2018-2020	Corolla	Mid-October 2017 – Early July 2019
Toyota	2019	Corolla Hatchback	Mid-June 2018 – Early November 2018
Toyota	2014	FJ Cruiser	Early September 2013 – Early August 2014
Toyota	2017-2019	Highlander	Mid-July 2017 – Early December 2019
Toyota	2014-2015, 2018-2019	Land Cruiser	Early September 2013 – Mid-March 2015, Mid-July 2018 – Early April 2019
Toyota	2019-2020	RAV4	Early October 2018 – Early October 2019
Toyota	2018-2020	Sequoia	Early April 2018 – Late July 2019
Toyota	2017-2020	Sienna	Early September 2017 – Early September 2019
Toyota	2017-2020	Tacoma	Early September 2017 – Mid-September 2019
Toyota	2018-2020	Tundra	Early April 2018 – Mid-July 2019
Lexus	2018-2020	ES350	Mid-November 2017 – Early September 2019
Lexus	2017	GS200t	Late July 2017 – Early September 2017
Lexus	2018, 2019	GS300	Mid-October 2017 – Early June 2018, Mid-September 2018 – Mid-January 2019, Mid-May 2019 – Mid-May 2019
Lexus	2013-2014, 2015, 2017-2019	GS350	Early September 2013 – Late July 2014, Early September 2014 – Late February 2015, Early July 2017 – Late May 2019
Lexus	2014-2015, 2018-2019	GX460	Early September 2013 – Mid-February 2015, Late May 2018 – Early April 2019
Lexus	2014	IS-F	Mid-September 2013 – Late July 2014
Lexus	2017	IS200t	Early July 2017 – Early October 2017
Lexus	2018-2019	IS300	Early October 2017 – Mid-May 2019
Lexus	2014-2015, 2018-2019	IS350	Early September 2013 – Late February 2015, Early October 2017 – Mid-May 2019
Lexus	2018-2020	LC500	Mid-July 2017 – Mid-June 2019
Lexus	2018-2020	LC500h	Mid-July 2017 – Early June 2019
Lexus	2013-2015	LS460	Early September 2013 – Late February 2015
Lexus	2018-2020	LS500	Late July 2017 – Late May 2019
Lexus	2018-2019	LS500h	Early October 2017 – Late May 2019
Lexus	2014-2015, 2018-2019	LX570	Early September 2013 – Mid-March 2015, Mid-July 2018 – Early April 2019
Lexus	2015	NX200t	Mid-October 2014 – Early June 2015
Lexus	2018-2019	NX300	Mid-May 2018 – Mid-April 2019
Lexus	2017	RC200t	Mid-September 2017 – Late November 2017
Lexus	2018-2019	RC300	Late November 2017 – Mid-May 2019
Lexus	2015, 2018-2019	RC350	Mid-April 2014 – Late February 2015, Late November 2017 – Mid-May 2019
Lexus	2017-2020	RX350	Early July 2017 – Early December 2019
Lexus	2018-2020	RX350L	Early August 2017 – Early September 2019

Lexus	2019	UX200	Late June 2018 – Mid-February 2019
Toyota	2019-2020	Yaris Hatchback	Early October 2018 – Early February 2020
Toyota	2019-2020	Yaris Sedan	Early October 2018 – Early February 2020
Toyota	2019-2020	Yaris R	Early October 2018 – Early February 2020
Toyota	2018-2019	86	Early April 2018 – Early November 2018

The SSC Vehicles are:

Figure 4

Make	Model Years	Model	Production Period
Toyota	2017 – 2019	Highlander Hybrid	Mid-July 2017 – Early December 2019
Toyota	2018 – 2020	Camry Hybrid	Late October 2017 – Mid-September 2019
Toyota	2019	Avalon Hybrid	Mid-April 2018 – Early June 2019
Toyota	2019	RAV4 Hybrid	Early January 2019 – Late September 2019
Lexus	2013 – 2015	LS 600h	Mid-September 2013 – Late February 2015
Lexus	2014 – 2015	GS 450h	Mid-September 2013 – Late February 2015
Lexus	2017 – 2020	RX 450h	Early July 2017 – Early December 2019
Lexus	2018 – 2020	RX 450h L	Mid-October 2017 – Early September 2019
Lexus	2018	GS 450h	Mid-July 2018 – Late August 2018
Lexus	2019	ES 300h	Early July 2018 – Early June 2019

14. The Extended New Parts Warranty is 15 years, measured from July 15, 2021, or 150,000 miles, whichever comes first on the replacement fuel pumps for owners and lessees of the nearly 3.4 million Subject Vehicles and the 172,000 SSC Vehicles.

15. Toyota will provide loaner or rental vehicles and/or towing options when the replacement fuel pumps for Subject/SSC Vehicles are being repaired or replaced.

16. Class members may submit claims for out-of-pocket expenses, rental vehicles, or towing incurred to repair or replace a fuel pump that was not otherwise reimbursed.

Additional Relevant Information for Valuation

17. A complaint was filed by the plaintiffs on February 4, 2020 subsequent to the first recall issued by Toyota on January 13, 2020 for vehicles with a defective

fuel pump. This first recall applied to approximately 700,000 vehicles manufactured by Toyota.

18. On March 4, 2020, Toyota submitted an Amended Defect Information Report to NHTSA expanding the recall to an additional 1.1 million vehicles, bringing the total recall population to approximately 1.8 million.

19. The expansion involved a determination that the fuel pumps may include impellers with a lower density and either of a type with lower surface strength or exposed to production solvent drying for longer periods of time. These are the three major risk factors in determining whether a fuel pump is defective. An amended complaint was drafted and filed, including these additional recalled vehicles.

20. On October 28, 2020, Toyota announced another expansion to the recall, to include an additional 1.5 million vehicles. This was the result of a new evaluation of a) the potential levels of density in the impellers in the fuel pump and b) its measurements of the impellers' surface strength. The complaint was amended, and another version was drafted and filed, including these additional recalled vehicles.

21. Additional vehicles that were not recalled but have the potentially defective fuel pumps were also included in the complaint.

Calculation of Value of Recall Expansion

22. In addition, at the request of Class Counsel, we analyzed the cost of the second and third recalls, which were announced and effective after this litigation was filed. We estimate that at the time of those recalls, approximately 28% of the vehicles were not under the manufacturer's warranty. Therefore, the cost to replace a defective part would not have been covered absent this recall. Based on the estimated costs of parts and labor for these fuel pumps, we estimate that owners and lessees of the vehicles covered by the second and third recalls who no longer had an active manufacturer's warranty, received 185 million in benefits. For all owners and lessees of the recalled vehicles, the benefit of this recall was 671 million. These benefits are not included in our estimates.¹

Figure 5

Estimated Retail Costs of 2nd and 3rd Recall	
Estimated Out of Warranty	28%
Severity @5/1/2020	\$587
Amount Paid Outside of Warranty (Millions)	185.3
Total Estimated "Out-of-Pocket" Costs (Millions)	670.6

¹ See Exhibit IX

Methodology – Additional Vehicles

23. To provide an economic valuation of the settlement, we have estimated the estimated "out-of-pocket" cost for replacement of the original Denso fuel pump as noted above for the Additional Vehicles.

24. We estimated the expected "out-of-pocket" cost which would be incurred by class vehicles absent this Settlement. Since this is a one-time replacement of a potentially faulty part, the value to the consumer would be the cost of the replacement and the frequency of expected replacements.

25. The formula used to estimate "out-of-pocket" cost losses is Vehicles x Factor to Adjust for Scrapped Vehicles x Factor for Vehicles in Manufacturer's Warranty or older than 15 years x Monthly Frequency of Claims x Severity.

26. These terms are defined as:

- "Vehicles" are the "Units in Operation" provided by Toyota.
- "Factor to Adjust for Scrapped Vehicles" is a factor to adjust for scrappage at a judgmental rate consistent with the average age of vehicles in the USA².

² See Exhibit VIII.

“Factor for Vehicles in Manufacturer’s Warranty or older than 15 years” is an estimate for exposures. The timing for this extension is different than the Subject/SSC Vehicles. Instead of the 15 years being measured from July 15, 2021, it is measured from the in-service date. This provides less time as some Additional Vehicles are several years old. However, unlike the Subject/SSC Vehicles, there is no 150,000 mile limit on these repairs³.

- “Monthly Frequency” of claims is a judgmental assumption. As noted above, Toyota vehicles have historically exceptional reliability. However, these vehicles have the same fuel pumps as the Subject and SSC vehicles but were manufactured under conditions which Toyota has deemed to be more reliable based on engineering tests and other considerations. The settlement also reserves the right to recall these vehicles, and such a recall would effectively increase the frequency to 100%. I have selected an overall frequency of replacing the fuel pump at 15% over 10 years (a monthly rate of 0.1165%), which recognizes a reasonable probability that these vehicles will either be recalled or have

³ See Exhibit VII.

material defects in the future. The Settlement terms allow for any Additional Vehicle to be eligible for a replacement fuel pump at any time where eligible under the Settlement. We have assumed for our estimated benefit calculations, however, that only vehicles which demonstrated defects would be repaired and the replacement of a non-defective fuel pump would not have any economic value.

- The Average Cost of Repair or “Severity” was calculated using recent repair data. We have included an additional amount for the rental of a vehicle during the repair process. Severities were trended 5% each year.⁴

Figure 6

Estimated Average Cost of Repair	
Average Retail Severity	631
Estimated Rental Car Cost	81.00
Days Rented	1.5
Total Cost	752

- Therefore, the expected claim costs would be Vehicles x Factor to Adjust for Scrapped Vehicles x Factor for Vehicles in Manufacturer’s

⁴ See Exhibit VI.

Warranty or older than 15 years from the “in-service” date x Monthly Frequency of Claims x Severity⁵.

- The settlement offers one replacement for 15 years after the in-service date. Unlike the Subject/SSC vehicles, it is not equivalent to a service contract, which would be effective even after replacement and would require the replacement fuel pump to be necessary. Therefore, we have estimated the benefit to the class members who own Additional vehicles to be equal to the expected replacement costs.
- These calculations result in an expected benefit of 119.70 per class member with an Additional Vehicle or 164.7 million dollars for all Additional Vehicles.

Methodology – Subject and SSC Vehicles

27.To provide an economic valuation of the settlement, we have estimated the estimated retail cost for the Extended New Parts Warranty on the replacement fuel pumps as noted above for the Subject and SSC Vehicles. This would be the expected retail price of a service contract with the same coverage as the settlement.

⁵ See Exhibit II

28. We utilized two methods to estimate the cost. The first method forecasts the expected claims payments from the settlement terms, and then adds typical expenses for a similar service contract to form a suggested retail price for the service contract. We have called this the “Cost Plus” method. Second, we performed a “Retail Price Survey” and analyzed service contracts for similar parts and adjusted these prices for the term and benefits of the settlement. While there is some range in these estimates, both methods derive a similar economic benefit in aggregate.

29. The “Cost Plus” method was estimated from the estimated out-of-pocket costs of the Settlement and then adjusting these estimates to derive an expected retail amount for an extended warranty for each vehicle.

30. The formula used to estimate out-of-pocket costs is Vehicles x Factor to Adjust for Scrapped Vehicles x Factor for Vehicles in Manufacturer’s Warranty or above 150,000 miles x Monthly Frequency of Claims x Severity. This is similar to the formula used above for the Additional Vehicles, but the parameters are adjusted for the settlement benefits of the Subject and SSC Vehicles.

31. These terms are defined as follows:

- “Vehicles” are the “Units in Operation” provided by Toyota.

- “Factor to Adjust for Scrapped Vehicles” is a factor to adjust for scrappage at a judgmental rate consistent with the average age of vehicles in the USA⁶.
- “Factor for Vehicles in Manufacturer’s Warranty or above 150,000 miles” is an estimate that was made for vehicles in the manufacturers’ warranty, in addition to vehicles subject to the 150,000 mile limit for the warranty extension. This factor eliminates exposure for class vehicles that are ineligible for the settlement due to mileage or would have alternate relief from the manufacturers’ warranty. This part was assumed to be under either a 60-month 60,000 mile warranty or a 70-month 70,000 mile warranty depending on the state. We estimated the percentage of vehicles sold in each state using data provided by Toyota of vehicles sold by state⁷.
- “Monthly Frequency” of claims is a judgmental assumption. Toyota vehicles have historically exceptional reliability. A fuel pump is not expected to fail over the lifetime of the vehicle. Therefore, the reliability of the replacement fuel pump may be very high and the expected frequency low. However, it is possible that subsequent

⁶ See Exhibit VIII.

⁷ See Exhibit VII.

replacements may be necessary due to possible issues with the installation of the replacement fuel pumps. While the probability of such issues is likely somewhat low, any issues such as these would dramatically increase the frequency of fuel pump replacement over historical rates. I have selected an overall frequency of replacing the fuel pump at 4% over 15 years (which implies a “Monthly Frequency” of 0.0218%), which recognizes the historical reliability of fuel pumps, but has some margin for the potential issues noted above.⁸

- The Average Cost of Repair or “Severity” was calculated using recent repair data. We have included an additional amount for the rental of a vehicle during the repair process. Severities were trended 5% each year.⁹

Figure 7

Estimated Average Cost of Repair	
Average Retail Severity	631
Estimated Rental Car Cost	81.00
Days Rented	1.5
Total Cost	752

⁸ See Exhibit IV.

⁹ See Exhibit VI.

- Therefore, the expected “out-of-pocket” costs would be Vehicles x Factor to Adjust for Scrapped Vehicles x Factor for Vehicles in Manufacturer’s Warranty or above 150,000 miles x Monthly Frequency of Claims x Severity. This results in an estimated “out-of-pocket” cost of 47.3 million for the Subject and SSC Vehicles. This number is analogous to the “out-of-pocket” costs for the Additional Vehicles calculated above of 164.3 million. All claims are expected before July 15, 2036 which is final eligible date in the settlement, which is 15 years after the starting date of the benefit as defined in the Settlement.¹⁰

32. The formula for the retail cost is based on adding typical expenses for the administration, claims and marketing expense for a typical service contract. These expenses would be indicative of expense loads to form a suggested retail price for a service contract with these benefits. These costs would not be the same as the administration and settlement costs of this settlement.

Our estimate for the formula for the retail price is (Expected Claim Costs/[1 – Insurance Expenses] + Administrative Costs + Marketing Costs.

¹⁰ See Exhibits IV and V.

- Insurance Expenses

Insurance expenses are relatively small and reflect premium tax and a profit margin for the cost of capital. The amount selected was 2.5% for premium taxes and 4% for profit, for a 6.5% margin. This is a low expense ratio based on publicly available filings.¹¹

- Administrative Costs

We estimated administrative costs to be \$4.27 for claims settlement and other administrative expenses which is consistent with other types of programs for small service contracts. This cost was calculated by dividing the expected costs by the vehicles in the class and multiplying by 30%¹².

- Marketing Fee

Markups on these programs by auto dealers or service contract writers vary widely but are usually around 100%¹³ (with direct

¹¹ See SERFF Tracking #: VRGS-128990060 which is a Missouri filing for a service contract with a 75.4% permissible loss ratio and SERFF Tracking #: MACI-129040192 which is an Oklahoma filing for a service contract with an 81.0% permissible loss ratio.

¹² See Exhibit III.

¹³ See <https://www.edmunds.com/car-buying/secrets-of-an-ace-negotiator-part-ii.html> and <https://www.motor1.com/reviews/517673/how-much-money-do-dealerships-make-on-warranties/>

marketed programs having, in general, even higher markups).

Often the markups are flat and since the service contract cost is low, the percentage markup would likely be higher in the marketplace, but we have selected a 100% markup on loss cost and administrator cost¹⁴.

Figure 8

"Cost-Plus" Summary (000s)	
Subject/SSC Vehicles	3,563
Expected Claims	47,264
Additional Expenses	84,166
Total Benefit	131,431

33. The “Retail Survey” method is an alternate methodology where we queried retail price quotes on automobile parts service contracts and adjusted these for the settlement terms.

Extended parts warranties are not widely available on retail parts for longer terms but there are some examples of shorter warranties. We surveyed several of these warranties.

¹⁴ See Exhibit III

Figure 9

Retail Survey of Service Contracts	
Subject/SSC Vehicles	3,563,490
Average Estimated Lifetime Service Contract Cost	5.00
Average Retail Price	124.19
Selected Cost Percentage	0.0422
Total Benefit Retail Survey	113,216,913

We surveyed several examples and the results averaged to form a retail survey estimate. The cost of the one year warranty was reduced by 50% for each subsequent year for additional coverage. For a part costing \$124.19, the one-year warranty is \$2.50. The estimated 15 year warranty would be \$5.00. This represents 4% of the retail cost. Using the retail cost of the parts and labor of \$752, this would cost \$31.77. Multiplying this by the size of the class members who own or lease a Subject/SSC Vehicle would indicate an estimate of \$113.2 million dollars.¹⁵

¹⁵ See Exhibit V

34. Benefit per Subject/SSC Vehicle

We selected the average of these two methods (“Cost Plus” and “Retail Survey”) to form an estimate of the benefit at \$122.3 million. We estimate the benefit per owner/lessee of Subject/SSC vehicle is \$34.33.

Range of Results

35. As this is a point estimate and the actual results are subject to deviation, we formed a range of reasonable estimates. This does not mean that the actual results will be within this range, rather the expected value of the qualified repairs of the program can be reasonably ascertained within this range. For the estimated settlement benefits, we created a range of +/-20%.

Scope and Limitations

36. Data Reliance

In performing this analysis, we relied upon data and other information provided to us by Class Counsel and Toyota, as well as industry sources of data. We did not independently audit or verify this data and information as such a review was beyond the scope of our assignment. We have no reason to believe it is inaccurate or incomplete and did not find material defects in the data.

37. Significant Digits

Numbers in the exhibits are generally shown to more significant digits than their accuracy suggests. This has been done to simplify review of the calculations.

38. Interpretation of Conclusions

Some of the assumptions, methods, and conclusions in this report are of a significantly technical nature. The recipient should understand the assumptions, methodology, and possible variability in results that are inherent in our conclusions.

39. Uncertainty

Due to the uncertainties inherent in the estimation of future costs, it cannot be guaranteed that the estimates set forth in the report will not prove to be inadequate or excessive and actual costs may vary significantly from our estimates.

40. Unanticipated Changes

Unanticipated changes in factors such as judicial decisions, legislation actions, claim consciousness, claim management, claim settlement practices, and economic conditions may alter the conclusions.

41. Best Estimate

These caveats and limitations notwithstanding, the conclusions represent our best estimate of the benefits from the settlement and are made within a reasonable degree of actuarial probability or certainty.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: November 17, 2022

Respectfully submitted,

A handwritten signature in blue ink that reads "Lee M. Bowron". The signature is written in a cursive, flowing style.

Lee M. Bowron

Appendix 1 - Exhibits

**15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles
Development of Expected Liability**

	(1)	(2)	(3)	(4)
Model	Vehicles in Class	Expected Total Benefit (000s)	Class Benefit Low End of Range (000s)	Class Benefit High End of Range (000s)
Subject	3,391,461	116,279	93,023	139,534
SSC	172,029	6,045	4,836	7,254
Additional	1,375,363	164,656	131,725	197,587
Total	4,938,853	286,980	229,584	344,376
(2)	Col 2 Exhibit II and Col 9 Exhibit III			
(3)	80% of (2)			
(4)	120% of (2)			

15 Year Extension

Development of Expected Benefit on Additional Vehicles

	(1)	(2)
Model	Vehicles in Class	Expected Costs (000s)
Additional	1,375,363	164,656

(2) Total from Ex IV Page 3

15 Year/150K Extension
Development of Expected Extended Warranty on Subject and SSC Vehicles

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Model	Vehicles in Class	Expected Costs (000s)	Insurance Costs (000s)	Administrative Cost per Warranty	Administrative Costs (000s)	Retail Markup (000s)	Method 1 Retail Price Estimate (000s)	Method 2 Retail Price Estimate (000s)	Selected Retail Price Estimate (000s)	Retail Price Cost per Warranty
Subject Vehicles	3,391,461	44,882	3,120	4.25	14,401	62,403	124,806	107,751	116,279	34.30
SSC Vehicles	172,029	2,382	166	4.44	764	3,312	6,625	5,466	6,045	35.10
Total	3,563,490	47,264	3,286	4.26	15,165	65,715	131,431	113,217	122,324	34.30

- (2) Total from Ex IV Page 1 and 2
- (3) [(2) ÷ .935] - (2)
- (4) [(2) + (3)] x 1000 ÷ (1) x 0.3
- (5) (4) x (1) ÷ 1000
- (6) (2) + (3) + (5)
- (7) (2) + (3) + (5) + (6)
- (8) Average from Ex V
- (9) Selected
- (10) (9) x 1000 ÷ (1)

**15 Year/150K Extension
Development of Loss Estimate
Subject Vehicles**

	Beginning UIO	3,391,461			
	(1)	(2)	(3)	(4)	(5)
Year	Active Monthly Exposures (000s)	Settlement Monthly Exposures (000s)	Estimated Claims (000s)	Severity	Claims (000s)
2023	40,064	24,073	5	790	4,142
2024	39,276	29,207	6	829	5,277
2025	38,499	28,846	6	871	5,472
2026	37,729	25,357	6	914	5,051
2027	36,962	21,633	5	960	4,524
2028	36,190	18,180	4	1,008	3,992
2029	35,378	15,092	3	1,058	3,480
2030	34,483	12,390	3	1,111	3,000
2031	33,483	10,072	2	1,167	2,561
2032	32,370	8,117	2	1,225	2,167
2033	31,138	6,489	1	1,286	1,819
2034	29,781	5,148	1	1,350	1,515
2035	28,296	4,052	1	1,418	1,252
2036	26,683	1,942	0	1,489	630
Total	480,332	210,599	46		44,882

15 Year Frequency	4.0%
Monthly Frequency	0.0218%
Severity	\$752
Inflation	5.0%

- (1) Monthly Exposures x Scrappage Rate Capped at 15 Years
- (2) Active Monthly Exposures x Ex VI Col (5) using estimated vehicle age
- (3) (2) x Monthly Frequency
- (4) Severity x (1 + Inflation)
- (5) (3) x (4)

15 Year/150K Extension
Development of Loss Estimate
SSC Vehicles

	Beginning UIO				
		172,029			
Year	(1) Active Monthly Exposures (000s)	(2) Settlement Monthly Exposures (000s)	(3) Estimated Claims (000s)	(4) Severity	(5) Claims (000s)
2023	2,032	1,170	0.26	790	201
2024	1,992	1,508	0.33	829	272
2025	1,953	1,532	0.33	871	291
2026	1,915	1,355	0.30	914	270
2027	1,877	1,160	0.25	960	243
2028	1,840	978	0.21	1,008	215
2029	1,801	814	0.18	1,058	188
2030	1,759	670	0.15	1,111	162
2031	1,711	546	0.12	1,167	139
2032	1,658	441	0.10	1,225	118
2033	1,599	353	0.08	1,286	99
2034	1,534	280	0.06	1,350	83
2035	1,462	221	0.05	1,418	68
2036	1,383	106	0.02	1,489	34
Total	24,516	11,135	2.43		2,382

15 Year Frequency	4.0%
Monthly Frequency	0.0218%
Severity	\$752
Inflation	5.0%

- (1) Monthly Exposures x Scrappage Rate Capped at 15 Years
(2) Active Monthly Exposures x Ex VI Col (5) using estimated vehicle age
(3) (2) x Monthly Frequency
(4) Severity x (1 + Inflation)
(5) (3) x (4)

15 Year Extension from In-Service Date**Development of Loss Estimate****Additional Vehicles**

	Beginning UIO	1,375,363			
	(1)	(2)	(3)	(4)	(5)
Year	Active Monthly Exposures (000s)	Settlement Monthly Exposures (000s)	Estimated Claims (000s)	Severity	Claims (000s)
2023	16,247	12,003	14.0	790	11,045
2024	15,928	13,822	16.1	829	13,355
2025	15,615	15,017	17.5	871	15,235
2026	15,303	15,262	17.8	914	16,257
2027	14,986	14,986	17.5	960	16,762
2028	14,655	14,655	17.1	1,008	17,211
2029	14,301	14,260	16.6	1,058	17,584
2030	13,913	13,088	15.3	1,111	16,946
2031	13,483	10,529	12.3	1,167	14,314
2032	13,005	8,092	9.4	1,225	11,551
2033	12,478	5,538	6.5	1,286	8,301
2034	11,899	3,167	3.7	1,350	4,984
2035	11,269	672	0.8	1,418	1,111
2036	10,586	0	0.0	1,489	0
Total	193,670	141,093	164		164,656

10 Year Frequency	15.0%
Monthly Frequency	0.1165%
Severity	\$752
Inflation	5.0%

- (1) Monthly Exposures x Scrappage Rate Capped at 15 Years
- (2) Active Monthly Exposures x Ex VI Col (6) using estimated vehicle age
- (3) (2) x Monthly Frequency
- (4) Severity x (1 + Inflation)
- (5) (3) x (4)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Example	Subject Vehicles	SSC Vehicles	Product Price	1 Year Warranty Cost	Estimated Lifetime Warranty Cost	Ratio of Lifetime Warranty and Product Price	Expected Severity	Estimated Retail Price for Subject Vehicles (000s)	Estimated Retail Price for SSC Vehicles (000s)	Estimated Retail Price for Subject and SSC Vehicles (000s)
1	3,391,461	172,029	191.66	3.00	6.00	0.0313	\$752	\$79,838	\$4,050	\$83,888
2	3,391,461	172,029	43.79	1.00	2.00	0.0457	\$752	\$116,479	\$5,908	\$122,387
3	3,391,461	172,029	125.00	3.00	6.00	0.0480	\$752	\$122,414	\$6,209	\$128,624
4	3,391,461	172,029	136.29	3.00	6.00	0.0440	\$752	\$112,274	\$5,695	\$117,969
Average	3,391,461	172,029	124.19			0.0422	\$752	\$107,751	\$5,466	\$113,217
(4)	Estimated									
(5)	(4) x 2									
(6)	(5) ÷ (3)									
(7)	Selected									
(8)	[(1) x (6) x (7)] ÷ 1000									
(9)	[(2) x (6) x (7)] ÷ 1000									
(10)	(8) + (9)									

(3).1 <https://www.ebay.com/itm/293381811432?chn=ps&mkevt=1&mkcid=28>

(3).2 <https://www.ebay.com/itm/394135533890?fits=Make%3AToyota&hash=item5bc44ef942:g:3Q4AAOSwX11jGHP2&amdata=enc%3AAQAHA8I9q2Ct%2F51K4p9RWF0kcenAfuAiGfFNK0CmIk48hrAZMODDv%2FPaDrNvHD4NhbgPtDjKUEcC6Ut0QIt6fova0%2BxZeT1xafXvG8dWdgtAi4c37c%2BKSRiPCpOSckDF5vmSK11H1BH5YQne91QrrrdjNbzgLKTaz%2FyjuUOW1X%2FqN4Eh%2B7AjMxLkJXJ5NCDknBRGwPmIHnNonGSG%2F>

(3).3 <https://www.ebay.com/itm/121434125516?fits=Make%3AToyota&epid=1230580928&hash=item1c4609b4cc:g:afgAAOSwVFIUEfey&amdata=enc%3AAQAHA8AAsE%2FftGbX2cF0Mx9DLB6PMSj99YpidJR163rn2U2qKmd827drT6wNbuzvwMJmmDhfwdb6MHQBfUdmtOT7JNwqUpHCPS5yFqGM7VJoJdLG7GpbccRgoM%2BS2WzC5B98W67CGlajuZa8PB4FVwAWmHBN2HE6wRWYVTHnAM2ucAM1M4xqhVrSHAlrLLJzwn1xzTIpUWO%2B809e6iE1%2BwAB5%2BHIGX4MJB%2B6GKOLk6pliRqlzMib%2F7Ctkp%3ABk9SR8zv04uKYQ>

(3).4 <https://www.ebay.com/itm/295151178261?fits=Make%3AToyota&hash=item44b8619215:g:AKYAAOSwB~xi9GBj&amdata=enc%3AAQAHA8AAsEXmZQt0p2HAECsqXHfJidgCEi6ZswEAsQYSy8bADZEolypnOm%2B%2F2Fz5tFR2OQu8AUhQ7f%2FB552HK7SMqdD7041gK6kBXHcttNOQ8Z5fN75a5o%2FOElngvT4UYMFXXDMWA2axUPjTOvwzh7DpRC%2F8AU6QyfYOOt6ingtE56fn14heofTyuy7qKe8gFmXdgY%2BE8bh5dj22PDovyDeeoV7e5eNsKnsLynOopDFRPXnJ0EeWB5SVs4YXOAQ9Hwhah3%2Bx2xolrOnYa7yQhy5HAJXuX1%2FitZoA9jyvl%2FgYxxlF%2BObKxYUYVdCT5xZsEqpHUMBSiHBg%3D%3D%2F7Ctkp%3ABk9SR8zv04uKYQ>

15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles**Development of Severity Estimate****Fuel Pump Replacement Costs**

	Labor			Parts			TOTAL			
	Low	High	Average	Low	High	Average	Low	High	Average	
Kelley Blue Book - Overall		124	260	192	95	854	475	220	1062	641
Consumer Affairs - Avg of 3 Surveyed Vehicles		213	289	251	236	407	322	449	696	573
Autozone		400	600	500	75	250	163	475	850	663
YourMechanic.com (according to Autopom) - Average				214			479	532	1128	693
2006 Lexus RX400h				316			216			532
AutoServiceCosts.com - Average										
Toyota Camry		94	121	108	329	788	559	423	909	666
Toyota Corolla		79	100	90	335	909	622	414	1009	712
				\$243			Average	\$419	\$934	\$631
							Rental Car			\$81
							Days Rented			1.5
							Total Cost			\$752

Selection for Subject, SSC and Additional Vehicle	\$752
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Inflation Rate Assumption	5.0%
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Sources:

<https://www.torquenews.com/1083/toyota-updates-its-huge-fuel-pump-recall-heres-fix-your-vehicle>

<https://www.kbb.com/car-advice/does-my-car-need-a-new-fuel-pump/>

<https://www.consumeraffairs.com/automotive/how-much-does-it-cost-to-replace-a-fuel-pump.html>

<https://www.autozone.com/diy/fuel-systems/how-much-does-replacing-a-fuel-pump-cost>

<https://www.extended-vehicle-warranty.com/fuel-pump-replacement-cost/>

<https://autoservicecosts.com/fuel-pump-replacement-cost/>

15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles

Months	(1) 60 Month Exposure Curve	(2) 70 Month Exposure Curve	(3) Blended Curve	(4) 15 Year / 150K Curve	(5) Subject and SSC Vehicles Exposure Curve	(6) Additional Vehicles Exposure Curve
1	1.000	1.000	1.000	1.000	0.000	0.000
2	1.000	1.000	1.000	1.000	0.000	0.000
3	1.000	1.000	1.000	1.000	0.000	0.000
4	1.000	1.000	1.000	1.000	0.000	0.000
5	1.000	1.000	1.000	1.000	0.000	0.000
6	1.000	1.000	1.000	1.000	0.000	0.000
7	1.000	1.000	1.000	1.000	0.000	0.000
8	1.000	1.000	1.000	1.000	0.000	0.000
9	1.000	1.000	1.000	1.000	0.000	0.000
10	0.999	1.000	0.999	1.000	0.001	0.001
11	0.999	1.000	0.999	1.000	0.001	0.001
12	0.998	0.999	0.998	1.000	0.002	0.002
13	0.996	0.999	0.997	1.000	0.003	0.003
14	0.994	0.998	0.995	1.000	0.005	0.005
15	0.991	0.996	0.993	1.000	0.007	0.007
16	0.988	0.995	0.990	1.000	0.010	0.010
17	0.983	0.993	0.986	1.000	0.014	0.014
18	0.977	0.990	0.982	1.000	0.018	0.018
19	0.971	0.986	0.976	1.000	0.024	0.024
20	0.963	0.982	0.970	1.000	0.030	0.030
21	0.954	0.977	0.962	1.000	0.038	0.038
22	0.945	0.972	0.954	1.000	0.046	0.046
23	0.934	0.965	0.944	1.000	0.055	0.056
24	0.922	0.958	0.934	0.999	0.065	0.066
25	0.909	0.950	0.923	0.999	0.077	0.077
26	0.895	0.942	0.911	0.999	0.089	0.089
27	0.880	0.932	0.898	0.999	0.101	0.102
28	0.865	0.922	0.884	0.999	0.115	0.116
29	0.849	0.911	0.869	0.998	0.129	0.131
30	0.832	0.899	0.854	0.998	0.143	0.146
31	0.814	0.887	0.839	0.997	0.158	0.161
32	0.797	0.874	0.823	0.997	0.174	0.177
33	0.778	0.860	0.806	0.996	0.190	0.194
34	0.760	0.846	0.789	0.995	0.206	0.211
35	0.741	0.832	0.772	0.994	0.223	0.228
36	0.722	0.817	0.754	0.993	0.239	0.246
37	0.703	0.802	0.736	0.992	0.256	0.264
38	0.684	0.786	0.718	0.991	0.272	0.282
39	0.665	0.770	0.700	0.989	0.289	0.300

15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles

Months	(1) 60 Month Exposure Curve	(2) 70 Month Exposure Curve	(3) Blended Curve	(4) 15 Year / 150K Curve	(5) Subject and SSC Vehicles Exposure Curve	(6) Additional Vehicles Exposure Curve
40	0.646	0.754	0.682	0.988	0.305	0.318
41	0.627	0.738	0.664	0.986	0.321	0.336
42	0.608	0.722	0.646	0.984	0.338	0.354
43	0.590	0.706	0.629	0.982	0.353	0.371
44	0.571	0.689	0.611	0.980	0.369	0.389
45	0.553	0.673	0.593	0.977	0.384	0.407
46	0.535	0.657	0.576	0.975	0.399	0.424
47	0.518	0.640	0.559	0.972	0.413	0.441
48	0.501	0.624	0.542	0.969	0.427	0.458
49	0.484	0.608	0.526	0.966	0.441	0.474
50	0.468	0.592	0.509	0.963	0.454	0.491
51	0.451	0.576	0.494	0.960	0.466	0.506
52	0.436	0.561	0.478	0.956	0.478	0.522
53	0.421	0.545	0.463	0.952	0.490	0.537
54	0.406	0.530	0.448	0.949	0.501	0.552
55	0.391	0.515	0.433	0.945	0.511	0.567
56	0.377	0.501	0.419	0.940	0.521	0.581
57	0.364	0.486	0.405	0.936	0.531	0.595
58	0.350	0.472	0.391	0.931	0.540	0.609
59	0.338	0.458	0.378	0.927	0.548	0.622
60	0.000	0.445	0.150	0.922	0.772	0.850
61	0.000	0.431	0.145	0.917	0.771	0.855
62	0.000	0.418	0.141	0.911	0.771	0.859
63	0.000	0.406	0.137	0.906	0.769	0.863
64	0.000	0.393	0.132	0.901	0.768	0.868
65	0.000	0.381	0.128	0.895	0.767	0.872
66	0.000	0.369	0.124	0.889	0.765	0.876
67	0.000	0.358	0.121	0.883	0.763	0.879
68	0.000	0.347	0.117	0.877	0.760	0.883
69	0.000	0.336	0.113	0.871	0.758	0.887
70	0.000	0.000	0.000	0.865	0.865	1.000
71	0.000	0.000	0.000	0.858	0.858	1.000
72	0.000	0.000	0.000	0.852	0.852	1.000
73	0.000	0.000	0.000	0.845	0.845	1.000
74	0.000	0.000	0.000	0.839	0.839	1.000
75	0.000	0.000	0.000	0.832	0.832	1.000
76	0.000	0.000	0.000	0.825	0.825	1.000
77	0.000	0.000	0.000	0.818	0.818	1.000
78	0.000	0.000	0.000	0.811	0.811	1.000

15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles

Months	(1) 60 Month Exposure Curve	(2) 70 Month Exposure Curve	(3) Blended Curve	(4) 15 Year / 150K Curve	(5) Subject and SSC Vehicles Exposure Curve	(6) Additional Vehicles Exposure Curve
79	0.000	0.000	0.000	0.804	0.804	1.000
80	0.000	0.000	0.000	0.797	0.797	1.000
81	0.000	0.000	0.000	0.789	0.789	1.000
82	0.000	0.000	0.000	0.782	0.782	1.000
83	0.000	0.000	0.000	0.775	0.775	1.000
84	0.000	0.000	0.000	0.767	0.767	1.000
85	0.000	0.000	0.000	0.760	0.760	1.000
86	0.000	0.000	0.000	0.752	0.752	1.000
87	0.000	0.000	0.000	0.745	0.745	1.000
88	0.000	0.000	0.000	0.737	0.737	1.000
89	0.000	0.000	0.000	0.730	0.730	1.000
90	0.000	0.000	0.000	0.722	0.722	1.000
91	0.000	0.000	0.000	0.714	0.714	1.000
92	0.000	0.000	0.000	0.707	0.707	1.000
93	0.000	0.000	0.000	0.699	0.699	1.000
94	0.000	0.000	0.000	0.692	0.692	1.000
95	0.000	0.000	0.000	0.684	0.684	1.000
96	0.000	0.000	0.000	0.676	0.676	1.000
97	0.000	0.000	0.000	0.669	0.669	1.000
98	0.000	0.000	0.000	0.661	0.661	1.000
99	0.000	0.000	0.000	0.653	0.653	1.000
100	0.000	0.000	0.000	0.646	0.646	1.000
101	0.000	0.000	0.000	0.638	0.638	1.000
102	0.000	0.000	0.000	0.631	0.631	1.000
103	0.000	0.000	0.000	0.623	0.623	1.000
104	0.000	0.000	0.000	0.616	0.616	1.000
105	0.000	0.000	0.000	0.608	0.608	1.000
106	0.000	0.000	0.000	0.601	0.601	1.000
107	0.000	0.000	0.000	0.593	0.593	1.000
108	0.000	0.000	0.000	0.586	0.586	1.000
109	0.000	0.000	0.000	0.578	0.578	1.000
110	0.000	0.000	0.000	0.571	0.571	1.000
111	0.000	0.000	0.000	0.564	0.564	1.000
112	0.000	0.000	0.000	0.557	0.557	1.000
113	0.000	0.000	0.000	0.550	0.550	1.000
114	0.000	0.000	0.000	0.542	0.542	1.000
115	0.000	0.000	0.000	0.535	0.535	1.000
116	0.000	0.000	0.000	0.528	0.528	1.000
117	0.000	0.000	0.000	0.521	0.521	1.000

15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles

Months	(1) 60 Month Exposure Curve	(2) 70 Month Exposure Curve	(3) Blended Curve	(4) 15 Year / 150K Curve	(5) Subject and SSC Vehicles Exposure Curve	(6) Additional Vehicles Exposure Curve
118	0.000	0.000	0.000	0.514	0.514	1.000
119	0.000	0.000	0.000	0.508	0.508	1.000
120	0.000	0.000	0.000	0.501	0.501	1.000
121	0.000	0.000	0.000	0.494	0.494	1.000
122	0.000	0.000	0.000	0.487	0.487	1.000
123	0.000	0.000	0.000	0.481	0.481	1.000
124	0.000	0.000	0.000	0.474	0.474	1.000
125	0.000	0.000	0.000	0.468	0.468	1.000
126	0.000	0.000	0.000	0.461	0.461	1.000
127	0.000	0.000	0.000	0.455	0.455	1.000
128	0.000	0.000	0.000	0.448	0.448	1.000
129	0.000	0.000	0.000	0.442	0.442	1.000
130	0.000	0.000	0.000	0.436	0.436	1.000
131	0.000	0.000	0.000	0.430	0.430	1.000
132	0.000	0.000	0.000	0.424	0.424	1.000
133	0.000	0.000	0.000	0.418	0.418	1.000
134	0.000	0.000	0.000	0.412	0.412	1.000
135	0.000	0.000	0.000	0.406	0.406	1.000
136	0.000	0.000	0.000	0.400	0.400	1.000
137	0.000	0.000	0.000	0.394	0.394	1.000
138	0.000	0.000	0.000	0.388	0.388	1.000
139	0.000	0.000	0.000	0.383	0.383	1.000
140	0.000	0.000	0.000	0.377	0.377	1.000
141	0.000	0.000	0.000	0.372	0.372	1.000
142	0.000	0.000	0.000	0.366	0.366	1.000
143	0.000	0.000	0.000	0.361	0.361	1.000
144	0.000	0.000	0.000	0.356	0.356	1.000
145	0.000	0.000	0.000	0.350	0.350	1.000
146	0.000	0.000	0.000	0.345	0.345	1.000
147	0.000	0.000	0.000	0.340	0.340	1.000
148	0.000	0.000	0.000	0.335	0.335	1.000
149	0.000	0.000	0.000	0.330	0.330	1.000
150	0.000	0.000	0.000	0.325	0.325	1.000
151	0.000	0.000	0.000	0.320	0.320	1.000
152	0.000	0.000	0.000	0.315	0.315	1.000
153	0.000	0.000	0.000	0.311	0.311	1.000
154	0.000	0.000	0.000	0.306	0.306	1.000
155	0.000	0.000	0.000	0.301	0.301	1.000
156	0.000	0.000	0.000	0.297	0.297	1.000

15 Year/150K Extension on Subject and SSC Vehicles and 15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles

Months	(1) 60 Month Exposure Curve	(2) 70 Month Exposure Curve	(3) Blended Curve	(4) 15 Year / 150K Curve	(5) Subject and SSC Vehicles Exposure Curve	(6) Additional Vehicles Exposure Curve
157	0.000	0.000	0.000	0.292	0.292	1.000
158	0.000	0.000	0.000	0.288	0.288	1.000
159	0.000	0.000	0.000	0.283	0.283	1.000
160	0.000	0.000	0.000	0.279	0.279	1.000
161	0.000	0.000	0.000	0.275	0.275	1.000
162	0.000	0.000	0.000	0.271	0.271	1.000
163	0.000	0.000	0.000	0.267	0.267	1.000
164	0.000	0.000	0.000	0.262	0.262	1.000
165	0.000	0.000	0.000	0.258	0.258	1.000
166	0.000	0.000	0.000	0.254	0.254	1.000
167	0.000	0.000	0.000	0.251	0.251	1.000
168	0.000	0.000	0.000	0.247	0.247	1.000
169	0.000	0.000	0.000	0.243	0.243	1.000
170	0.000	0.000	0.000	0.239	0.239	1.000
171	0.000	0.000	0.000	0.235	0.235	1.000
172	0.000	0.000	0.000	0.232	0.232	1.000
173	0.000	0.000	0.000	0.228	0.228	1.000
174	0.000	0.000	0.000	0.225	0.225	1.000
175	0.000	0.000	0.000	0.221	0.221	1.000
176	0.000	0.000	0.000	0.218	0.218	1.000
177	0.000	0.000	0.000	0.214	0.214	1.000
178	0.000	0.000	0.000	0.211	0.211	1.000
179	0.000	0.000	0.000	0.208	0.208	1.000
180 - 323	0.000	0.000	0.000	0.000	0.000	1.000

- (1) Lognormal Distribution Based on 60 Months and 60,000 Miles
- (2) Lognormal Distribution Based on 70 Months and 70,000 Miles
- (3) $(1) \times .658 + (2) \times .342$ (Estimated blend between warranties)
- (4) Lognormal Distribution Based on 180 Months and 150,000 Miles
- (5) $(4) - (3)$
- (6) $1 - (3)$

**15 Year/150K Extension on Subject and SSC Vehicles and
15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles**

Month	(1) Scrap Rate	(2) Vehicles Remaining
1	0.165%	99.8%
2	0.165%	99.7%
3	0.165%	99.5%
4	0.165%	99.3%
5	0.165%	99.2%
6	0.165%	99.0%
7	0.165%	98.8%
8	0.165%	98.7%
9	0.165%	98.5%
10	0.165%	98.4%
11	0.165%	98.2%
12	0.165%	98.0%
13	0.165%	97.9%
14	0.165%	97.7%
15	0.165%	97.6%
16	0.165%	97.4%
17	0.165%	97.2%
18	0.165%	97.1%
19	0.165%	96.9%
20	0.165%	96.7%
21	0.165%	96.6%
22	0.165%	96.4%
23	0.165%	96.3%
24	0.165%	96.1%
25	0.165%	96.0%
26	0.165%	95.8%
27	0.165%	95.6%
28	0.165%	95.5%
29	0.165%	95.3%
30	0.165%	95.2%
31	0.165%	95.0%
32	0.165%	94.8%
33	0.165%	94.7%
34	0.165%	94.5%

**15 Year/150K Extension on Subject and SSC Vehicles and
15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles**

Month	(1) Scrap Rate	(2) Vehicles Remaining
35	0.165%	94.4%
36	0.165%	94.2%
37	0.165%	94.1%
38	0.165%	93.9%
39	0.165%	93.8%
40	0.165%	93.6%
41	0.165%	93.4%
42	0.165%	93.3%
43	0.165%	93.1%
44	0.165%	93.0%
45	0.165%	92.8%
46	0.165%	92.7%
47	0.165%	92.5%
48	0.165%	92.4%
49	0.165%	92.2%
50	0.165%	92.1%
51	0.165%	91.9%
52	0.165%	91.8%
53	0.165%	91.6%
54	0.165%	91.5%
55	0.165%	91.3%
56	0.165%	91.2%
57	0.165%	91.0%
58	0.165%	90.9%
59	0.165%	90.7%
60	0.165%	90.6%
61	0.165%	90.4%
62	0.165%	90.3%
63	0.165%	90.1%
64	0.165%	90.0%
65	0.165%	89.8%
66	0.165%	89.7%
67	0.165%	89.5%
68	0.165%	89.4%

**15 Year/150K Extension on Subject and SSC Vehicles and
15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles**

Month	(1) Scrap Rate	(2) Vehicles Remaining
69	0.165%	89.2%
70	0.165%	89.1%
71	0.165%	88.9%
72	0.165%	88.8%
73	0.165%	88.6%
74	0.165%	88.5%
75	0.165%	88.3%
76	0.165%	88.2%
77	0.165%	88.0%
78	0.165%	87.9%
79	0.165%	87.8%
80	0.165%	87.6%
81	0.165%	87.5%
82	0.165%	87.3%
83	0.165%	87.2%
84	0.165%	87.0%
85	0.165%	86.9%
86	0.165%	86.7%
87	0.165%	86.6%
88	0.165%	86.5%
89	0.165%	86.3%
90	0.165%	86.2%
91	0.165%	86.0%
92	0.165%	85.9%
93	0.165%	85.8%
94	0.165%	85.6%
95	0.165%	85.5%
96	0.165%	85.3%
97	0.165%	85.2%
98	0.165%	85.0%
99	0.165%	84.9%
100	0.165%	84.8%
101	0.165%	84.6%
102	0.165%	84.5%

**15 Year/150K Extension on Subject and SSC Vehicles and
15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles**

Month	(1) Scrap Rate	(2) Vehicles Remaining
103	0.165%	84.3%
104	0.165%	84.2%
105	0.165%	84.1%
106	0.165%	83.9%
107	0.165%	83.8%
108	0.165%	83.7%
109	0.165%	83.5%
110	0.165%	83.4%
111	0.165%	83.2%
112	0.165%	83.1%
113	0.165%	83.0%
114	0.165%	82.8%
115	0.165%	82.7%
116	0.165%	82.6%
117	0.165%	82.4%
118	0.165%	82.3%
119	0.165%	82.1%
120	0.167%	82.0%
121	0.169%	81.9%
122	0.171%	81.7%
123	0.173%	81.6%
124	0.175%	81.4%
125	0.177%	81.3%
126	0.179%	81.2%
127	0.181%	81.0%
128	0.183%	80.9%
129	0.186%	80.7%
130	0.188%	80.6%
131	0.190%	80.4%
132	0.192%	80.2%
133	0.194%	80.1%
134	0.197%	79.9%
135	0.199%	79.8%
136	0.201%	79.6%

**15 Year/150K Extension on Subject and SSC Vehicles and
15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles**

Month	(1) Scrap Rate	(2) Vehicles Remaining
137	0.204%	79.5%
138	0.206%	79.3%
139	0.208%	79.1%
140	0.211%	79.0%
141	0.213%	78.8%
142	0.216%	78.6%
143	0.218%	78.4%
144	0.221%	78.3%
145	0.224%	78.1%
146	0.226%	77.9%
147	0.229%	77.7%
148	0.232%	77.6%
149	0.234%	77.4%
150	0.237%	77.2%
151	0.240%	77.0%
152	0.243%	76.8%
153	0.245%	76.6%
154	0.248%	76.4%
155	0.251%	76.3%
156	0.254%	76.1%
157	0.257%	75.9%
158	0.260%	75.7%
159	0.263%	75.5%
160	0.266%	75.3%
161	0.269%	75.1%
162	0.273%	74.9%
163	0.276%	74.7%
164	0.279%	74.4%
165	0.282%	74.2%
166	0.286%	74.0%
167	0.289%	73.8%
168	0.292%	73.6%
169	0.296%	73.4%
170	0.299%	73.2%

**15 Year/150K Extension on Subject and SSC Vehicles and
15 Year Extension on Additional Vehicles
Development of Exposure Curve
Subject, SSC, and Additional Vehicles**

Month	(1) Scrap Rate	(2) Vehicles Remaining
171	0.303%	72.9%
172	0.306%	72.7%
173	0.310%	72.5%
174	0.313%	72.3%
175	0.317%	72.0%
176	0.321%	71.8%
177	0.325%	71.6%
178	0.328%	71.3%
179	0.332%	71.1%
180	0.336%	70.9%

(3)	Annual Scrap Rate	2.0%
(4)	Monthly Scrap Rate	0.165%
(5)	Annual Increase	15.0%
(6)	Monthly Increase	1.171%

- (1) Month 1 - 120: (4) | Months 121+: Prior Month Scrap Rate x [1+ (6)]
 (2) Month 1: 1-(1) | Months 2+: [1 - (1)] x Previous Month (2)
 (3) Selected
 (4) $[1 + (3)]^{1/12} - 1$
 (5) Selected
 (6) $[1 + (5)]^{1/12} - 1$

Estimate of Warranty Expense (000s)
For 2nd and 3rd Recall
Subject, SSC, and Additional Vehicles

(1)	Assumed Recall Date	5/1/2020	(7)	Severity Analysis	10/15/2022
(2)	Vehicles in 2nd and 3rd Recalls	1,143	(8)	Deflation Rate	3.0%
(3)	Estimated Out of Warranty	28%	(9)	Deflation Factor	0.930
(4)	Severity @5/1/2020	\$587	(10)	Severity @10/15/2022	\$631
(5)	Amount Paid Outside of Warranty	185,340			
(6)	Total Estimated "Out-of-Pocket" Costs	670,624			

(1)	2nd recall was announced March 4, 2020 and March 19, 2020 3rd recall was April 27, 2020 and June 11, 2020	(7)	Date of Survey
(2)	Per Settlement	(8)	Assumed inflation from 5/1/20 to 10/15/22
(3)	Estimated percentage at recall date which were out of warranty on May 1, 2020	(9)	$1/[(1+(8))^{((7)-(1))/365.25}]$
(4)	(9) x (10)	(10)	See Exhibit VI. Excludes Rental Expense.
(5)	(2) x (3) x (4)		
(6)	(2) x (4)		

Appendix 2

Documents Provided

Complaints

Doc 160 Plts Third Amended Consolidated Complaint:

The Class Action Complaint – Jury Trial Demanded. United states district court Eastern district of New York. This contains the Jurisdiction and Venue, The parties, Factual Allegations, Claims for relief, and request for claims.

Doc 160-1 Exb A:

This contains the safety recall reports

Doc 160-2 Exb B:

The defect information report

Doc 160-3 Exb C:

The amended defect information report

Doc 160-4 Exb D:

Part 573 safety recall report

Doc 160-5 Exb E:

Safety recall report

Doc 160-6 Exb F:

Safety recall report

Doc 160-7 Exb G:

Affidavit of venue (Tina Feng)

Doc 160-8 Exb H:

Affidavit of venue (Robert Hakim)

Doc 160-9 Exb I:

Affidavit of venue (Bernadette Grimes)

Doc 160-10 Exb J:

Voluntary Recalls report

Doc 160-11 Exb K:

Appendix 2

Documents Provided

Technical Instructions for safety recall 20LAA01

Doc 160-12 Exb L:

Amended Defect information report

Doc 160-13 Exb M:

Safety recall report

Doc 160-14 Exb N:

Re: Amendment to Toyota and Lexus Safety Recall 20V-012

Doc 160-15 Exb O:

Safety recall report

Doc 160-16 Exb P:

Declaration of plaintiffs Elizabeth Gendron and Roger Carter pursuant to Cal. Civ. Code § 1789(d)

Doc 160-17 Exb Q:

Defect information report

Doc 160-18 Exb R:

Safety Recall 21TA03 (Remedy Notice)

Doc 160-19 Exb S:

Safety Recall Report

Doc 160-20 Exb T:

Special service Campaign 21TC03 (Remedy Notice)

Doc 160-21 Exb U:

Special Service Campaign 21LC01 (Remedy Notice)

Appendix 2

Documents Provided

Settlement Agreement with Exhibits

Doc 162 Settlement Agreement:

UNITED STATES DISTRICT COURT EASTERN DISTRICT OF NEW YORK – Settlement Agreement
Contains: Procedural History, Definitions, Settlement Relief, Notice to the class, Requests for exclusion, Objections to settlement, Release and waiver, Qualified settlement fund, Attornys’ fees, PRELIMINARY APPROVAL ORDER, FINAL ORDER, FINAL JUDGMENT, AND RELATED ORDERS, Modification or termination of this settlement agreement, and General Matters and Reservations.

Doc 162-1 Exb 1A:

List of SSC Vehicles

Doc 162-2 Exb 1B:

List of additional vehicles

Doc 162-3 Exb 2:

List of subject vehicles

Doc 162-4 Exb 3:

United States district court eastern district of New York - [PROPOSED] ORDER
PRELIMINARILY APPROVING CLASS SETTLEMENT
DIRECTING NOTICE TO THE CLASS AND SCHEDULING FAIRNESS HEARING

Doc 162-5 Exb 4:

Cheng v. Toyota Fuel Pumps Liability Litigation Settlement Notice Program

Doc 162-6 Exb 5:

Notice of Class action lawsuit

Doc 162-7 Exb 6:

Direct mail notice to class members

Doc 162-8 Exb 7:

Appendix 2

Documents Provided

Publication Notice

Doc 162-9 Exb 8:

Out-of-pocket claims process – Claim Form. This includes instructions for completing and submitting this form and a claim for payment.

Doc 162-10 Exb 9:

Decalration of Jeanne C. Finegan, APR

Doc 162-11 Exb 10:

[PROPOSED] FINAL JUDGMENT

Doc 162-12 Exb 11:

[PROPOSED] FINAL ORDER APPROVING CLASS SETTLEMENT AND
CERTIFYING SETTLEMENT CLASS

Toy FP – TIS Warranty Sheets

4Runner_Warranty-REDACTED:

This contains 2010 – 2022 4Runner warranty Data. The claims are shown by production date and repair date.

Camry_Warranty-REDACTED:

This contains data for Camry low pressure fuel pump Warranty Claims data. The claims are presented by production date and repair date.

ES_Warranty-REDACTED:

This contains ES350 low pressure fuel pump Warranty Claims data. The claims are presented by production date and repair date.

GS_Warranty-REDACTED:

Appendix 2

Documents Provided

This contains GS low pressure fuel pump Warranty Claims data. The claims are presented by production date and repair date.

GX_WARRANTY-REDACTED:

Lexus GX low pressure fuel pump warranty claims data. The claims are presented by production date and repair date.

IS_Warranty-REDACTED:

Lexus IS low pressure fuel pump warranty claims data. The claims are presented by production date and repair date.

Land Cruiser_WARRANTY-REDACTED:

Landcruiser low pressure fuel pump warranty claims. The claims are presented by production date and repair date.

LX_WARRANTY-REDACTED:

Lexus LX low pressure fuel pump warranty claims. The claims are presented by production date and repair date.

RC_WARRANTY-REDACTED:

Lexus RC low pressure fuel pump warranty claims. The claims are presented by production date and repair date.

RX350_Warranty-REDACTED:

RX350 low pressure fuel pump warranty claims. The claims are presented by production date and repair date.

Tacoma_Warranty-REDACTED:

Tacoma low pressure fuel pump warranty claims. The claims are presented by production date and repair date.

Appendix 2

Documents Provided

Toy FP – Sales

Fuel Pumps - Recalled Vehicles Percentages (May 2022):

This contains recalled vehicle percentages by make, model, and model year. This also includes UIO.

TOY-DENSO-01381720_Confidential:

The UIO data by make, model, and model year

Toy FP – Warranty data

Fuel Pumps - Recalled Vehicles Percentages (May 2022):

This contains recalled vehicle percentages by make, model, and model year. This also includes UIO.

TOY-DENSO-01354638_Confidential:

TOY-DENSO-01354639_Confidential:

TOY-DENSO-01381721_Confidential:

TOY-DENSO-01381722_Confidential:

FUEL PUMPS - SALES OF VEHICLES BY MAKE, MODEL, YEAR, AND STATE

This data includes vehicle sales by state and model. This data was used to estimate the percentage of vehicles on different types of underlying warranties.

Appendix 3 - CV of Expert

400 Vestavia Pkwy Ste 131
205-870-0595

Birmingham, AL 35216
lee@kerper-bowron.com

Lee M. Bowron, ACAS, MAAA

Work

Kerper and Bowron LLC, Birmingham, AL

Principal

Experience

March 2001 - Present

- Representative Expert Work - CHRISTOPHER GANN, et al v. NISSAN NORTH AMERICA, INC
- Founded consulting firm in March 2001. Clients include insurance companies, state governments, reinsurance companies, managing general agencies and financial consulting firms.
- Practice focuses on extended service contract, GAP, and captive market. Extended service contract projects include:
 - Statutory Loss Reserve Opinion for regional service contract company
 - Product development for a major auto service contract company
 - Evaluation of liabilities for a major risk retention group for auto service contract
 - Auto service contract rate filings for a major auto service contract company
 - Sarbanes-Oxley compliance with actuarial function for a major service contract company
 - Development of pro-forma and reinsurance captive accounting for a regional service contract company
 - Acquisition due diligence for purchase of a service contract writers.

J. Huell Briscoe and Associates, Chicago

Vice President

2013 - Present

General management and strategic planning for Chicago based reinsurance accounting firm

The General Auto Insurance, Nashville, TN

February 1999 – February 2001

Vice President and Chief Actuary

September 1993 – February 1999

Actuary

Broad responsibility for reserving and pricing for a book of private passenger, reinsurance, and captive operations. Responsible for managing the staff of both the product management and the actuarial department.

- Responsible for developing data warehouse.
- Reported to the CEO and participated in strategic planning, reinsurance strategies and information system implementations.
- Supervised the pricing and product development of a new non-standard program in several states.
- Responsible for all actuarial activities of the company, including ratemaking, reserving and statistical reporting
- Assisted in acquisitions and negotiated loss portfolio transfer of reserve liabilities

Alfa Insurance Companies, Montgomery, AL

July 1990 – August 1993

Actuarial Analyst

- Ratemaking for second largest insurer in the state of Alabama

Education

1989

University of the South

Sewanee, TN

BS, Mathematics

Professional activities

Associate, Casualty Actuarial Society

Member, American Academy of Actuaries

Approved Actuary for Captive Feasibility Studies, Alabama, Oklahoma, Tennessee, South Carolina and the District of Columbia

Speaker, CAS Annual Meeting Fall 2007

Speaker, Casualty Actuaries of the Southeast, Fall 1998, March 2001, Fall 2007

Speaker, Midwest Actuarial Forum Fall 2007

Speaker, Southwest Actuarial Forum Spring 2008

Speaker, Quebec Actuarial, Spring 2008

Panelist, Ratemaking Seminar (2001, 2002)

Panelist, Dynamic Financial Analysis Seminar (2001)

Panelist, Predictive Modeling Seminar (2008)

Former Member, Casualty Actuarial Exam Committee

Former Member, Ratemaking Committee

Former Chair, Open Source Software CommitteeMember,

Webinar Committee

Publications

"An Exposure Based Approach to Automobile Service contract Ratemaking and Reserving", Casualty Actuarial Society in 2006.

"Ratemaking for Maximum Profitability", published in the 2001 Ratemaking Discussion Forum

"Zipf's Law", published in the January 2004 issue of *Contingencies*

"Staying in the Race", published in the December 2001 issue of *Best's Review*.

Last 10 Years - All from Providers and Administrators Magazine

Will ASC 606 Impact Me?

October 31, 2019

<https://www.providers-administrators.com/359310/will-asc-606-impact-me>

Considerations When Designing New Products: An Update

July 18, 2018

<https://www.providers-administrators.com/349331/considerations-when-designing-new-products-an-update>

What's Going on With GAP in 2017?

November 16, 2017

<https://www.providers-administrators.com/349127/whats-going-on-with-gap-in-2017> Does the IRS Notice 2016-66 Impact You?

April 12, 2017

<https://www.providers-administrators.com/348893/does-the-irs-notice-2016-66-impact-you>

What's Going On With GAP?

November 16, 2016

<https://www.providers-administrators.com/348751/whats-going-on-with-gap>

VSCs in 2016: New Terms, New Costs

July 13, 2016

<https://www.providers-administrators.com/348628/vscs-in-2016-new-terms-new-costs>

Month-to-Month Vehicle Service Contracts

October 26, 2011

<https://www.providers-administrators.com/345906/month-to-month-vehicle-service-contracts>