



OBSERVATIONS

Dennis DesRosiers

Twenty-Five Years of Vehicle Longevity

The issue of vehicle longevity has long been a regular *Observations* feature, and for good reason. While the most visible aspects of the automotive industry - television ads, splashy press features, legislation and regulations - are part of the 'new vehicle' discussion, existing vehicle ownership plays a much larger role in the lives of most Canadians.

For the first time since we began analysing this metric, our calculations are now based on a full twenty-five years of vehicle survival data. Aside from the rhetorical leverage offered by a such a round, accessible number, this long backlog makes possible a comprehensive understanding of vehicle life

(continued on next page)

Passenger Cars - Percent of Vehicles Still Remaining on the Road Today Full-Line Brands

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Yrs Old	TOTAL
Toyota	10.6%	35.8%	83.5%	95.4%	98.8%	72.0%
Mazda	6.6%	28.1%	63.8%	95.4%	98.4%	69.5%
Honda	7.0%	40.3%	82.2%	96.3%	98.9%	69.3%
Subaru	3.5%	26.7%	81.3%	98.5%	99.9%	66.9%
Volkswagen	8.9%	26.8%	67.6%	96.3%	98.8%	62.3%
Nissan	5.5%	23.1%	66.5%	95.1%	98.8%	60.5%
Chrysler	6.8%	25.1%	59.5%	89.2%	99.0%	56.5%
Industry Average	6.1%	23.2%	63.6%	93.5%	98.6%	54.2%
Suzuki	2.6%	7.6%	43.2%	87.3%	98.8%	53.2%
Hyundai	0.7%	4.9%	41.2%	88.8%	97.0%	51.9%
Pontiac	4.7%	13.1%	54.3%	91.6%	98.1%	47.6%
Chevrolet	5.5%	13.6%	56.3%	92.4%	98.1%	47.5%
Buick	5.9%	30.2%	69.2%	96.3%	99.5%	45.6%
Ford	4.7%	17.1%	56.7%	92.9%	98.9%	43.4%
Oldsmobile	6.8%	26.7%	61.9%	93.6%	100.0%	31.8%
Dodge	2.7%	12.6%	46.4%	90.5%	98.3%	31.6%

Light Truck - Percent of Vehicles Still Remaining on the Road Today Full-Line Brands

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Year Old	TOTAL
Toyota	21.5%	56.7%	84.1%	97.1%	100.0%	82.4%
Jeep	18.2%	44.1%	71.1%	90.4%	99.9%	73.0%
Chevrolet	21.7%	45.6%	73.0%	92.6%	99.8%	71.7%
Dodge	15.9%	34.8%	65.2%	90.8%	99.3%	71.7%
Industry Average	17.9%	39.2%	67.0%	91.0%	99.4%	71.2%
Nissan	12.0%	43.3%	75.1%	94.8%	99.7%	69.7%
GMC	20.4%	44.5%	74.7%	91.0%	99.6%	66.9%
Ford	16.7%	36.5%	60.3%	86.8%	98.7%	64.0%
Mazda	10.5%	32.3%	77.8%	94.8%	98.5%	63.4%
Suzuki	21.4%	28.9%	67.1%	89.9%	99.1%	61.7%

Source: DesRosiers Automotive Consultants Inc. and Registration Data © R.L. Polk Canada, Inc. 2009 counts, released May 2010.

(continued from previous page)

cycles; from new to used to valueless - and, if the model in question is sufficiently special, back up the value ladder.

Using "vehicles on the road" data from Polk Canada, we compare the number of vehicles originally registered in any

We have long observed, for example, that vehicles produced by European luxury brands have survival rates far outpacing those of virtually any other group of manufacturers.

particular year with the number of same-year vehicles still on the road today. For instance, if we wanted to find out the survival rate of 1995 Hondas, we would look up how many of those cars were registered in 1995 and contrast it with the number of 1995 Hondas on the road today. In this way, we arrive at survival rates for every model year of every make of vehicle in Canada since 1984.

This method is comprehensive and objective, and it allows for the evaluation of vehicle lifecycles in the most unbiased possible manner. It presents a living amalgam of two competing forces: how well vehicles age and how strongly the market values particular vehicles or vehicle types. We have long observed, for example, that vehicles produced

by European luxury brands have survival rates far outpacing those of virtually any other group of manufacturers. The used vehicle market appreciates older Mercedes-Benz models to such a degree that a full 76.6 percent of 16 - 20 year old MB cars are still registered for use in Canada. Contrast this figure with that of a traditionally "reliable" brand (e.g. Toyota - 35.8 percent) and one begins to understand that forces beyond simple durability are at work.

An important note on statistical outliers: We are unable to track the effects imports and exports have on survival rates. We know, for instance, that exchange rate fluctuations created a grey market for large/luxury SUVs in the early years of the past decade, prompting some American dealers to snap up well-priced Canadian vehicles. The way the math works, this type of situation lowers survival rates. On the other end of the spectrum, survival rates for ten to twenty-five year-old Porsche models are sky high because some buyers choose to import from the U.S. (pricing and selection) rather than search the small, Canadian market.

Many factors affect survival; some basic, others less-so. A core element of longevity is baked into each vehicle before it's even sold: quality of

engineering. Few Ladas and older Hyundais have survived the trip from 1985 to present due to an almost comical array of quality issues. Conversely, a surprising number of full-size pickups sold in the 1980s and early-1990s remain on the road thanks to stout full-frame bones and hardy powertrains. When dealing with mass-market vehicles, survival rates function as excellent indicators of design priorities and long-term durability.

Continuing with the full-size pickup example, certain types of vehicles maintain their utility longer than others. Thanks to the crude-but-effective nature of body-on-frame platform architecture, full-size pickups and vans are easier to fix and more resistant to the sorts of game-

When dealing with mass-market vehicles, survival rates function as excellent indicators of design priorities and long-term durability.

ending rust issues that might fell an otherwise serviceable unit-body passenger car. In addition, many (if not most) full-size pickups and vans are commercially owned and thus replaced on a schedule determined more by need than want (the latter a not-insignificant driver of new vehicle sales in some segments).

(continued on next page)

Passenger Cars - Percent of Vehicles Still Remaining on the Road Today - Luxury/Premium Brands

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Yrs Old	TOTAL
Porsche	85.1%	98.9%	100.0%	100.0%	100.0%	96.8%
Lexus	n.a.	72.0%	92.4%	99.5%	99.9%	94.8%
Infiniti	n.a.	37.0%	82.3%	97.8%	99.8%	91.9%
Mercedes Benz	59.8%	76.6%	82.4%	94.3%	99.2%	88.3%
BMW	34.4%	66.8%	90.0%	99.7%	100.0%	87.8%
Acura	11.2%	45.7%	79.9%	95.3%	99.1%	79.6%
Volvo	22.9%	58.8%	86.0%	98.3%	98.3%	74.9%
Jaguar	34.7%	63.1%	78.7%	95.9%	100.0%	74.2%
Audi	6.5%	39.9%	87.4%	98.3%	99.3%	72.4%
Saab	14.6%	36.4%	71.8%	97.1%	97.9%	70.2%
Cadillac	19.4%	45.1%	59.7%	87.9%	99.5%	58.2%
Lincoln	16.0%	35.6%	74.0%	92.6%	100.0%	55.0%
Industry Average	6.1%	23.2%	63.6%	93.5%	98.6%	54.2%
Oldsmobile	6.8%	26.7%	61.9%	93.6%	100.0%	31.8%

Light Truck - Percent of Vehicles Still Remaining on the Road Today - Luxury/Premium Brands

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Year Old	TOTAL
Audi	n.a.	n.a.	n.a.	n.a.	100.0%	100.0%
Hummer	n.a.	n.a.	n.a.	100.0%	100.0%	100.0%
Porsche	n.a.	n.a.	n.a.	100.0%	100.0%	100.0%
Acura	n.a.	n.a.	n.a.	98.9%	100.0%	99.7%
Saab	n.a.	n.a.	n.a.	n.a.	98.9%	98.9%
Cadillac	n.a.	n.a.	n.a.	93.9%	100.0%	98.9%
BMW	n.a.	n.a.	n.a.	91.7%	99.8%	97.8%
Lexus	n.a.	n.a.	91.3%	91.0%	99.9%	97.3%
Volvo	n.a.	n.a.	n.a.	100.0%	96.7%	96.8%
Volkswagen	97.6%	88.9%	92.2%	100.0%	99.9%	95.3%
Mercedes Benz	n.a.	n.a.	72.3%	89.8%	99.9%	93.8%
Infiniti	n.a.	n.a.	80.6%	91.2%	100.0%	93.5%
Land Rover	43.8%	48.1%	75.5%	96.2%	100.0%	93.2%
Lincoln	n.a.	n.a.	36.7%	80.1%	100.0%	89.8%
Oldsmobile	n.a.	38.2%	67.7%	88.9%	99.1%	85.9%
Industry Average	17.9%	39.2%	67.0%	91.0%	99.4%	71.2%

Source: DesRosiers Automotive Consultants Inc. and Registration Data © R.L. Polk Canada, Inc. 2009 counts, released May 2010.

(continued from previous page)

A general rule gleaned from our longevity data is that large vehicles last longer than small ones. It's difficult to tease out a single reason for this phenomenon, but we know that poor survival rates for small vehicles involve a combination of low initial purchase price (and the resulting quicker-

than-average plummet to the lower end of the used vehicle market), owner demographics (i.e., ability to afford maintenance and lifetime maintenance spend over several owners) and basic engineering priorities (cost and weight over durability). The poor longevity

of small vehicles is of especial importance given the present political thrust to increase sales and ownership of fuel efficient entry level vehicles. A case can be made that consumers are better off over a lifetime of use owning a larger vehicle

(continued on next page)

(continued from previous page)

versus a smaller vehicle - But I digress.

The market segment within which a vehicle competes has a quantifiable effect on its eventual longevity. Small luxury cars, for example, show excellent survival rates compared to the Intermediate Sedans to which they are most similar. These sorts of cars are often purchased by older, wealthier consumers who maintain them more diligently and drive them less frequently. High original asking prices and relative rarity in the marketplace ensure that - as luxury vehicles transition through the ownership cycle - the second and third owners are similarly aware of their vehicle's value above and beyond that of simple transportation. At the forefront of the segment issue is cost: a new vehicle costing less than \$20,000 will reach the low end of the used

The ease and expense with which a vehicle can be made right is becoming a differentiating factor in longevity calculations and will play an even larger role in the coming years.

vehicle market more quickly than an expensive product. Once the asset value falls below a thousand dollars, a vehicle is usually scrapped.

Another driver of vehicle longevity is the state of the general economy. It stands to reason that consumers treat themselves to new vehicles more frequently during boom times and keep vehicles longer during difficult times. The present economic downturn has proven no different, with the used vehicle market accounting for a slightly higher proportion of total annual vehicle sales.

Accident rates - determined largely by a specific model's consumer constituency - also affect longevity. Vehicles popular among accident-prone groups such as young drivers may show a statistical tendency to disappear from the road earlier due to the increased frequency of catastrophic collisions or the high cost of repair associated with moderate collisions exceeding whatever market value a vehicle retains.

Indeed, given the rapidly increasing complexity of some vehicle systems, the tight tolerances necessary to meet OEM standards and the move towards component modularity, repair costs have risen. Collisions that may have resulted in 'repairable' vehicles in the mid-1990s might now produce 'totaled' cars. The ease and expense with which a vehicle can be made right is becoming a differentiating factor in longevity calculations and will play an

even larger role in the coming years.

In past longevity studies, we have noted that vehicles produced by GM, Ford and Chrysler have fared poorly relative to Japanese and

While Detroit Three vehicles compare favourably with import-nameplate brands in the 1-5 year-old and 21-25 year-old age brackets, they lag by considerably margins in the middle-aged brackets (especially 11-15 years-old and 16-20 years).

European competitors. With twenty-five years of data available, however, we now see an interesting trend developing: survival parity among young and old vehicles, with wide gaps in the longevity of middle-aged products from Detroit-based manufacturers.

While Detroit Three vehicles compare favourably with import-nameplate brands in the 1-5 year-old and 21-25 year-old age brackets, they lag by considerable margins in the middle-aged brackets (especially 11-15 years-old and 16-20 years old). This speaks to a variety of the longevity factors noted above, most notably that of design intent and engineering quality. Given a level playing field, it appears that the domestic cars of the 1990s were simply not designed or built as

Survival Rates

Total Light Vehicle Market - Originally Sold

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Yrs Old	TOTAL
Import Nameplates	1,694,408	1,794,961	1,485,652	2,802,639	3,699,198	11,476,858
Domestic Nameplates	5,052,125	4,266,758	4,156,389	4,211,298	4,029,490	21,716,060
Japanese Nameplates	1,164,524	1,462,627	1,162,023	2,013,578	2,673,157	8,475,909
Korean Nameplates	230,603	111,998	91,523	353,256	513,228	1,300,608
European Nameplates	299,281	220,336	232,106	435,805	512,813	1,700,341
GM Nameplates	2,449,767	2,006,302	1,859,019	2,140,662	2,050,572	10,506,322
Ford Nameplates	1,380,731	1,247,540	1,177,339	1,040,084	962,789	5,808,483
Chrysler Nameplates	1,221,627	1,012,916	1,120,031	1,030,552	1,016,129	5,401,255
Total All Vehicles	6,746,533	6,061,719	5,642,041	7,013,937	7,728,688	33,192,918

Total Light Vehicle Market - Still on the Road Today (2009)

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Yrs Old	TOTAL
Import Nameplates	165,652	611,294	1,124,317	2,660,689	3,659,917	8,221,869
Domestic Nameplates	443,774	1,098,886	2,545,115	3,823,096	3,987,241	11,898,112
Japanese Nameplates	107,133	516,521	912,086	1,926,500	2,649,892	6,112,132
Korean Nameplates	1,743	5,576	37,839	313,301	501,861	860,320
European Nameplates	56,776	89,197	174,392	420,888	508,164	1,249,417
GM Nameplates	237,349	536,516	1,193,713	1,973,114	2,026,833	5,967,525
Ford Nameplates	121,629	315,777	698,468	924,039	951,506	3,011,419
Chrysler Nameplates	84,796	246,593	652,934	925,943	1,008,902	2,919,168
Total All Vehicles	609,426	1,710,180	3,669,432	6,483,785	7,647,158	20,119,981

Total Light Vehicle Market - Survival Rates

	21 to 25 Yrs Old	16 to 20 Yrs Old	11 to 15 Yrs Old	6 to 10 Yrs Old	1 to 5 Yrs Old	TOTAL
Import Nameplates	9.8%	34.1%	75.7%	94.9%	98.9%	71.6%
Domestic Nameplates	8.8%	25.8%	61.2%	90.8%	99.0%	54.8%
Japanese Nameplates	9.2%	35.3%	78.5%	95.7%	99.1%	72.1%
Korean Nameplates	0.8%	5.0%	41.3%	88.7%	97.8%	66.1%
European Nameplates	19.0%	40.5%	75.1%	96.6%	99.1%	73.5%
GM Nameplates	9.7%	26.7%	64.2%	92.2%	98.8%	56.8%
Ford Nameplates	8.8%	25.3%	59.3%	88.8%	98.8%	51.8%
Chrysler Nameplates	6.9%	24.3%	58.3%	89.8%	99.3%	54.0%
Total All Vehicles	9.0%	28.2%	65.0%	92.4%	98.9%	60.6%

Source: DesRosiers Automotive Consultants Inc. and Registration Data © R.L. Polk Canada, Inc. 2009 counts, released May 2010.

(continued from previous page)

well as those that followed - or those against which they originally competed.

Major advances in vehicle quality come into stark relief when we compare the results of this year's longevity study

to those of past years. Witness the steep survival rate increases among 15 year-old vehicles measured in 2000, 2005 and 2009. Fifteen year-old Detroit-branded vehicles jumped from 35.2 percent to 47.3 percent, while their import-nameplate

counterparts leapfrogged from 30.5 percent to 57.0 percent.

The lion's share of those gains were made on the passenger car side of the industry, with 15 year-old cars rising from 28.1 percent to 43.2 percent between 2000 and

(continued on next page)

Observations - "Twenty-Five Years of Vehicle Longevity"

(continued from previous page)

2009. Survival gains among light trucks were slimmer (from 53.9% to 60.1%), corroborating model-specific evidence for long-lived light truck platforms.

This is not to say that that we are living at the end of history. Despite the fact that 60.1

By building better vehicles, automakers have unwittingly (or wittingly) laid the seeds for a paradigm shift that will continue to ripple through the industry for the next two decades, if not longer.

percent of light trucks purchased 15 years ago remain registered today - a remarkable statistic! - we are merely at the beginning of a focus period where true long term ownership is becoming a reality for mainstream vehicle buyers. It's the odd family that presently keeps a car past the fifteen year mark, but such behaviour is increasingly common for owners of some light trucks and European luxury and sports vehicles.

Vehicles - and vehicle markets - exist within a vibrant and responsive economy, so it would be foolish to assume that the threads discussed above won't eventually knot themselves in the real world. The long term implications of

increased vehicle longevity are staggering.

As the earliest beams of light dawn on a tentatively post-Kyoto legislative atmosphere, we wonder if 'green' policy will consume so much bureaucratic thought as it does today. Regardless, our present regulators should take note that a vehicle fleet of rising average age bodes poorly for the effectiveness of future fuel efficiency and emissions rules. If change is to be achieved on a wholesale basis, laws must apply to the entire vehicle parc, not just new vehicles. Targeting green policy items through new vehicle sales means results won't take years; they'll take decades.

The used vehicle market is growing in size and importance. Vehicle ownership has soared from roughly two-thirds of the driving age population to approximately 78 percent last year. While this is as multi-layered an issue as any, the expansion of the used vehicle market - specifically, the multiplicity of choices now extant at the very bottom of that market - has without a doubt put non-drivers into cars that were previously unattainable or at the very edges of affordability. Put very simply: There are more

good cars available to lower income buyers than ever before. The number of times a vehicle trades hands over its lifetime is rising commensurately with longevity.

With the burgeoning importance of used vehicle market matters, sales of new vehicles may be dampened. Replacement demand is falling as consumers experience reduced need to change vehicles. Long gone are the days when vehicles may have lasted but a few years, leaving the road after 175,000 kilometres. By building better vehicles, automakers have unwittingly (or wittingly) laid the seeds for a paradigm shift that will continue to ripple through the

Despite the fact that 60.1 percent of light trucks purchased 15 years ago remain registered today - a remarkable statistic! - we are merely at the beginning of a focus period where true long term ownership is becoming a reality for mainstream vehicle buyers.

industry for the next two decades, if not longer.

While vehicle company executives may have reason to wring their hands, those on the aftermarket side of this

Survival Rates by Vehicle Type (Percent of Original Vehicles Sold still on the Road today)

Passenger Car				Light Trucks			
	As of 2000	As of 2005	As of 2009		As of 2000	As of 2005	As of 2009
1 Year	99.9%	100.0%	100.0%	1 Year	99.9%	100.0%	100.0%
2 Year	97.6%	99.6%	99.7%	2 Year	87.5%	98.9%	100.0%
3 Year	96.3%	97.2%	98.0%	3 Year	85.7%	94.8%	98.8%
4 Year	99.0%	95.2%	96.5%	4 Year	90.8%	92.6%	98.3%
5 Year	97.4%	96.3%	98.5%	5 Year	94.5%	88.5%	99.6%
6 Year	95.5%	94.7%	98.0%	6 Year	94.5%	83.5%	99.1%
7 Year	93.6%	93.7%	96.4%	7 Year	94.0%	78.0%	96.0%
8 Year	92.2%	92.1%	94.3%	8 Year	92.6%	80.1%	92.9%
9 Year	88.9%	90.8%	91.0%	9 Year	89.8%	84.3%	85.6%
10 Year	84.3%	84.2%	86.3%	10 Year	88.4%	85.2%	78.6%
11 Year	74.1%	79.2%	81.7%	11 Year	82.9%	83.3%	70.4%
12 Year	62.3%	70.9%	74.2%	12 Year	75.7%	77.9%	70.3%
13 Year	49.0%	63.5%	66.2%	13 Year	68.2%	72.2%	68.0%
14 Year	37.5%	52.6%	52.1%	14 Year	60.1%	64.0%	63.6%
15 Year	28.1%	42.6%	43.2%	15 Year	53.9%	57.2%	60.1%
16 Year	21.0%	28.9%	35.0%	16 Year	45.8%	46.9%	50.1%
17 Year	N.A.	20.6%	29.9%	17 Year	N.A.	39.5%	45.6%
18 Year	N.A.	15.0%	23.4%	18 Year	N.A.	31.0%	39.3%
19 Year	N.A.	11.2%	19.0%	19 Year	N.A.	27.1%	34.6%
20 Year	N.A.	8.3%	12.1%	20 Year	N.A.	23.3%	27.6%
21 Year	N.A.	6.6%	9.0%	21 Year	N.A.	20.8%	22.6%
22 Year	N.A.	N.A.	7.3%	22 Year	N.A.	N.A.	18.3%
23 year	N.A.	N.A.	5.8%	23 year	N.A.	N.A.	17.0%
24 Year	N.A.	N.A.	4.4%	24 year	N.A.	N.A.	14.8%
25 year	N.A.	N.A.	3.6%	25 year	N.A.	N.A.	13.8%

Source: DesRosiers Automotive Consultants Inc. and Registration Data © R.L. Polk Canada, Inc. 2009 counts, released May 2010.

industry can't be faulted for throwing their hats in the air. Increasing average ages in an increasingly large national fleet foretell a great deal more service work. Although today's and tomorrow's vehicles are considerably more durable than their forebears, no

machine is perfect and all will require repairs of one sort or another. With greater structural demand for service, the outlook for Canada's automotive aftermarket is bullish. **DAR**



Season's Greetings
from all of us at
DesRosiers Automotive Consultants Inc.

Dear Valued Reader,

We trust that your subscription to **DesRosiers Automotive Reports** and the **DesRosiers Automotive Yearbook** has provided you with relevant, reliable information this year. Each year, it is our goal to improve the way we bring you current data on North American light vehicle sales & production, and expert industry analysis.

If you need information on our other DesRosiers publications, market research, or custom consulting projects please feel free to contact us, anytime. Thank you for choosing DesRosiers to be your advantage in business decisions. We look forward to having you as a reader in the coming years.

We wish you and yours a healthy and prosperous 2011.

With warmest regards,
DesRosiers Automotive Consultants Inc.

