UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF MICHIGAN

BRIAN MARKUS, individually and on behalf of all others similarly situated,

Plaintiff,

v.

GENERAL MOTORS, LLC,

Defendant.

Case No.:

CLASS ACTION COMPLAINT

DEMAND FOR JURY TRIAL

Plaintiff Brian Markus ("Plaintiff"), individually and on behalf of all those similarly situated, complains of Defendant General Motors, LLC ("GM" or "Defendant"), based upon his personal knowledge as to facts specific to him and based upon the investigation of counsel in all other respects, as follows:

I. INTRODUCTION

1. An automobile purchase is one of the most expensive and important decisions consumers make. Consumers rely upon automakers' superior knowledge to manufacture and sell cars that are safe and free from defects. That is why, GM claims to be "committed to safety in everything we do" when it markets its vehicles.[1] Yet, GM knowingly sold hundreds of thousands of Class Vehicles[2] containing a potentially deadly defect lurking in their vehicles' engines—putting countless lives at risk to this day.

2. The L87 Engine's performance depends on the integrity of its internal components, particularly the crankshaft, connecting rods, and engine bearings. However, GM has concealed for years that the bearings in their L87 Engines are

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[1]Exhibit 1, https://www.gm.com/content/dam/company/docs/us/en/gmcom/gmsafetyreport.pdf (last visited June 12, 2025).

[2] The Class Vehicles are GM vehicles installed with the L87 6.2L V8 engine ("L87 Engine"). On information and belief, the L87 Engine is found in the following GM vehicles: 2019-2024 Chevrolet Silverado 1500; 2021-2024 Chevrolet Tahoe; 2021-2024 Chevrolet Suburban; 2019-2024 GMC Sierra 1500; 2021-2024 GMC Yukon; 2021-2024 GMC Yukon XL; 2021-2024 Cadillac Escalade; and 2021-2024 Cadillac Escalade ESV.

known to be prone to, and have experienced failure, resulting in breaching of the engine block by the connecting rod and/or engine seizure (the "Engine Defect").

3. The Engine Defect renders the Class Vehicles unsafe and unreliable. Drivers are left with Class Vehicles that can experience catastrophic engine failure at any moment. This is all the more dangerous because it can cause the loss of motive power while driving at high speeds, increasing the risk of a crash.

4. After years of customer complaints, individual lawsuits and claims for arbitration arising from the Engine Defect, in April 2025, GM issued a safety recall in which it admitted the existence of the defect and that it can result in crashes and injuries (the "2025 Recall"). But the purported "remedy" offered in the Recall is woefully inadequate because it does nothing to address the root causes of the Engine Defect, and leaves Plaintiff and Class Members in the lurch as they wait for a catastrophic engine failure.

5. Not only does the unremedied safety risk of the Engine Defect impact Plaintiff and Class Members, the significant loss in value as a result of GM's failure to disclose the Engine Defect is no less of a concern for Plaintiff and Class Members that spent tens of thousands of dollars for their trucks. Had GM fulfilled its duty to disclose the Defect, Plaintiff and other Class Members would not have purchased their Class Vehicles or would have paid less for them.

6. GM's utter disregard for the safety of its consumers came at a total surprise to Plaintiff and other Class Members who were repeatedly told by GM that their vehicles undergo many hours of detailed pre-sale durability testing and that the manufacturer places an emphasis on quality and durability.

7. Had Plaintiff and other Class Members known of the Defect at the time of purchase or lease, they would not have bought or leased the Class Vehicles or would have paid substantially less for them.

8. As a result of Defendant's unfair, deceptive, and/or fraudulent business practices, owners and/or lessees of the Class Vehicles, including Plaintiff and Class Members, have suffered an ascertainable loss of money and/or property in the form of, for example, loss of value, loss of use of the vehicles, and repair costs.

9. Accordingly, Plaintiff brings this action to redress Defendant's misconduct. Plaintiff seeks equitable relief in the form of a remedy for the Defect, an appropriate curative notice regarding the existence of the Defect, recovery of damages, a repair under state consumer-protection statutes and implied warranties, and reimbursement of all expenses associated with the repair or replacement of the Class Vehicle and damage caused by the Defect.

II. JURISDICTION

10. This Court has subject matter jurisdiction under the Class Action Fairness Act of 2005, 28 U.S.C. §§1332(d)(2) and (6) because: (i) there are 100 or

more class members, (ii) there is an aggregate amount in controversy exceeding $5,000,000.00 exclusive of interest and costs, and (iii) there is minimal diversity because plaintiff and defendant are citizens of different states. This Court also has supplemental jurisdiction over the state law claims under 28 U.S.C. § 1367.

11. Venue is proper in this judicial district under 28 U.S.C. § 1391 because GM transacts substantial business and because GM is headquartered in this district. GM advertised in this district and received substantial revenue and profits from sales and/or leases of the Class Vehicles in this district. Therefore, a substantial part of the events and/or omissions giving rise to the claims occurred, in part, within this district.

12. This Court has personal jurisdiction over GM by virtue of its transactions and business conducted in this judicial district, and because GM is headquartered in this state.

III. PARTIES

A. Plaintiff

13. Plaintiff Brian Markus is a resident of Chesterfield, Missouri. Markus purchased a new 2024 GMC Sierra 1500 AT4X 6.2L from Laura Buick-GMC located at 903 N. Bluff Rd., Collinsville, Illinois 62234, in or around March 2024.

14. Laura Buick-GMC is part of GM's network of authorized dealers across the United States, and is promoted on GM's website for its GMC brand, which includes an updated list of the dealership's inventory.[3]

15. Markus purchased his Class Vehicle because he believed that the vehicle was safe, reliable, and of the highest quality. When shopping for his Class Vehicle, Markus researched and considered the reliability and quality of the make and manufacturer. Prior to purchasing his Class Vehicle, Markus heard, viewed, and/or read GM marketing materials and advertisements including brochures, commercials, and internet advertisements that touted the quality, reliability and safety of GM vehicles.

16. At no point before Markus purchased his vehicle did GM disclose that his vehicle suffered from the Defect, which results in catastrophic engine failure and places drivers and passengers at risk of physical injury.

17. Markus did not receive the benefit of his bargain. Markus purchased a vehicle that is of a lesser standard, grade, and quality than represented, and he did not receive a vehicle that met ordinary and reasonable consumer expectations regarding quality design, and safe and reliable operation. The Defect has significantly diminished the value of Markus's Class Vehicle.

[3] Exhibit 2, https://www.gmc.com/locate-gmc-dealer (last visited June 12, 2025).

18. Had Defendant disclosed the Defect, Markus would not have purchased his Class Vehicle, or would have paid less to do so.

19. Markus purchased his Class Vehicle and it included GM's manufacturer warranty. At all times, Markus maintained his vehicle in accordance with GM's guidance.

20. Markus would purchase a GM vehicle in the future if GM's representations about the vehicle, including its quality, safety, and durability, were accurate.

21. In November 2024, while Markus was driving his Class Vehicle, a warning light illuminated on the dashboard indicating that the engine oil was low.

22. Markus was very confused and surprised to see this warning as he was always diligent in checking his oil level and otherwise maintaining his vehicle in accordance with GM's guidance. Markus then drove to the nearest gas station to inspect the vehicle. Markus inspected the oil dipstick and was shocked to find there was no oil left in the tank. Markus then added a quart of oil and waited to check again.

23. The next day, brought his car for inspection to O'Fallon GMC, an authorized GM dealer located at 2150 Technology Drive, O'Fallon, Missouri 63368. The dealership provided him with an oil consumption plan and informed him that oil had been getting into the combustion chamber.

24. On or about December 29, 2024, Markus experienced catastrophic engine failure. While Markus was driving his Class Vehicle (which had approximately 14,000 miles on the odometer at the time) at 60 miles per hour, multiple warning indicators lit up, dangerously distracting Markus before the engine stopped running. Markus immediately pulled over and turned the vehicle off. When Markus tried restarting the engine approximately 20 minutes after pulling off the road, the vehicle would not start. Markus was stranded on the highway for 2 hours before a tow truck came, which took his vehicle to Laura Buick-GMC for further evaluation. Laura Buick-GMC determined that his Class Vehicle had spun rod bearings, a severely damaged crankshaft, and that his L87 Engine had to be replaced.

25. Markus was diligent in maintaining his vehicle but is now concerned about driving it due to the dangers resulting from the Engine Defect. Markus would not have purchased the vehicle, or would have paid less for it, had Markus known about the Engine Defect.

B. Defendant

26. Defendant GM is a Delaware corporation with its headquarters and principal place of business located in Detroit, Michigan. The sole member and owner of General Motors LLC is General Motors Holdings LLC. General Motors Holdings LLC is a Delaware limited liability company with its principal place of business in the State of Michigan.

27. Defendant GM, through its various entities and brands, including Chevrolet (also referred to as Chevy), Cadillac, Buick, and GMC, is in the business of designing, manufacturing, distributing, and selling GM-brand automobiles in this District, in the jurisdictions of Plaintiff's Class Vehicle purchase, and in the jurisdictions of all U.S. states whose Class claims are iterated herein. GM and/or its agents designed, manufactured, and installed the L87 Engines in the Class Vehicles. GM also developed and disseminated the materially misrepresentative owner's manuals and warranty booklets, advertisements, and other intentionally unreasonable and deceptive promotional materials relating to the Class Vehicles. GM also designed advertising material that it sent to GM dealerships for the purpose of having dealers distribute these materials to consumers, GM authorized dealers to communicate with consumers about the performance of the vehicles, and GM ensured that the dealership was a place where GM could disclose material facts to prospective buyers.

28. On its own website, GM owns and controls the Chevrolet, Cadillac, Buick, and GMC brand websites.

IV. SUBSTANTIVE ALLEGATIONS[4]

A. GM is one of the most popular automakers in the United States by promoting the safety and reliability of their vehicles.

29. GM, founded in 1908 in Flint, Michigan, is one of the largest and most iconic automobile manufacturers in the United States. GM played a central role in shaping the American auto industry throughout the 20th century, selling its vehicles under various brands such as Chevrolet, GMC, Cadillac, and Buick.

30. Since its bankruptcy in 2009, GM has rebounded by focusing on its rich legacy of reliable vehicles. As of 2024, GM holds approximately 16.5% of the U.S. auto market, making it one of the top automakers in the country by market share.[5]

31. GM sells and services its vehicles through its network of more than 4,000 dealerships nationwide.

32. GM marketed and sold hundreds of thousands of Class Vehicles nationwide, including through their nationwide network of authorized GM dealers and service providers. GM sells its vehicles through its authorized dealerships. After these dealerships sell cars to consumers, including Plaintiff and Class Members, they acquire additional inventory from GM to replace the vehicle sold, increasing GM's revenues. GM also sells replacement parts to their dealerships for use to service,

[4] Emphasis added throughout unless stated otherwise.
[5] Exhibit 3, https://news.gm.com/home.detail.html/Pages/news/us/en/2025/jan/0103-gmsales.html (last visited June 12, 2025).

maintain, and repair vehicles, including the Class Vehicles. Thus, Plaintiff's and Class Members' purchase of Class Vehicles and their replacement parts accrue to the benefit of GM by increasing their revenues.

33. Throughout GM's marketing and promotion of the Class Vehicles are promises touting the safety, reliability, quality, and performance of the vehicles, including their L87 Engines.

34. For example, GM marketed the 2022 Chevrolet Silverado 1500 as "a versatile and powerful full-size pickup truck that combines rugged capability with modern technology and style."[6]

35. When promoting the 2024 Sierra 1550, GM states that the truck "is built to help you master untamed backcountry" and is "[t]he new peak of premium off-roading."[7] As part of the marketing depicting the truck as reliable and durable, GM states that the L87 Engine "has the serious power you need for big jobs or big fun." As for "Safety," GM tells driver to "[g]o forth with added confidence."[8]

[6] Exhibit 4, https://kunesgm.com/blog/2022-chevrolet-silverado-1500-ltd-rugged-reliable-and-feature-packed-pickup (last visited June 12, 2025).
[7] Exhibit 5, https://www.gmc.com/trucks/previous-year/sierra/1500/at4 (last visited June 12, 2025).
[8] *Id*.

36. The "performance" of its L87 Engine was prominently featured in GM's marketing of the Class Vehicles, including the 2024 Escalade:[9]

37. Likewise, in its marketing for the 2024 Suburban's "performance," GM calls the vehicle a "Power player[:] When it's time to perform, Suburban is ready for the spotlight. That's the kind of confidence you can count on, since the capable and efficient Suburban can tow heavy loads and accelerate from a stop to highway speeds with ease."[10] Moreover, GM claims "We care about your safety — big time."

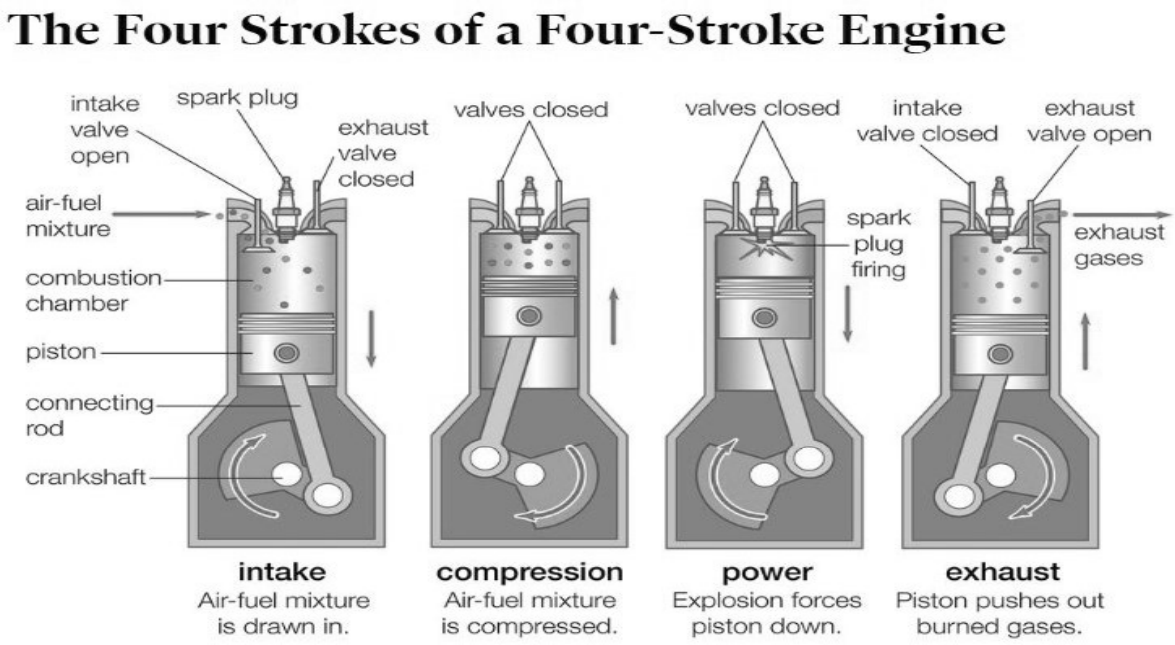
[9] Exhibit 6, https://brochures.cadillac.com/2024/escalade/performance/ (last visited June 12, 2025).
[10] Exhibit 7, https://www.chevrolet.com/suvs/previous-year/suburban (last visited June 12, 2025).

38. Despite these promises relating to the performance and safety of the Class Vehicles, at no point did GM warn consumers of the Engine Defect, which renders all other statements false and/or misleading.

B. Internal combustion engines require durable components, including engine bearings, for the safe and dependable operation of the vehicles.

39. Internal combustion engines work by sucking a mixture of gasoline and air into a cylinder, compressing it with a piston, and igniting it with a spark. This is known as the combustion cycle. The resulting explosion rotates the crankshaft, the mechanical component that converts reciprocating (up and down) motion of pistons into rotational motion, ultimately driving the vehicle's wheels.

40. Below is a diagram of a traditional four-stroke combustion cycle:



41. As shown above, the combustion cycle turns the explosion in the cylinder into movement of the wheels using two crucial components: connecting

rods and bearings. A connecting rod is the connection between the engine's piston and a crankshaft. Its purpose is to convert the linear, up-and-down motion of the piston into the rotary motion of the crankshaft, which is accomplished as the crankshaft rotates many thousands of times per minute within each connecting rod.

42. Engine bearings are crucial components for the proper functioning of an internal combustion engine. Engine bearings are metal sleeves encircling the rotating components of the engine, including the connection rods. The bearings reduce metal-on-metal friction by holding the rotating connecting rods in place on top of a thin layer of oil, which creates a protective buffer between the crankshaft and the connecting rod.

43. Engine bearings are primarily located between the crankshaft and the engine block (main bearings), and between the connecting rods and the crankshaft (rod bearings). They allow these heavy, high-speed parts to move smoothly while maintaining alignment and minimizing metal-to-metal contact. Without engine bearings, the internal parts of an engine would wear down quickly due to heat and friction, leading to catastrophic engine failure.

44. There are generally three types of engine bearings.

45. The main (crankshaft) bearings support the crankshaft and allow it to rotate within the engine block. The main bearings absorb loads from combustion and transfer them to the engine block. Main bearings are mounted in the crankcase. A

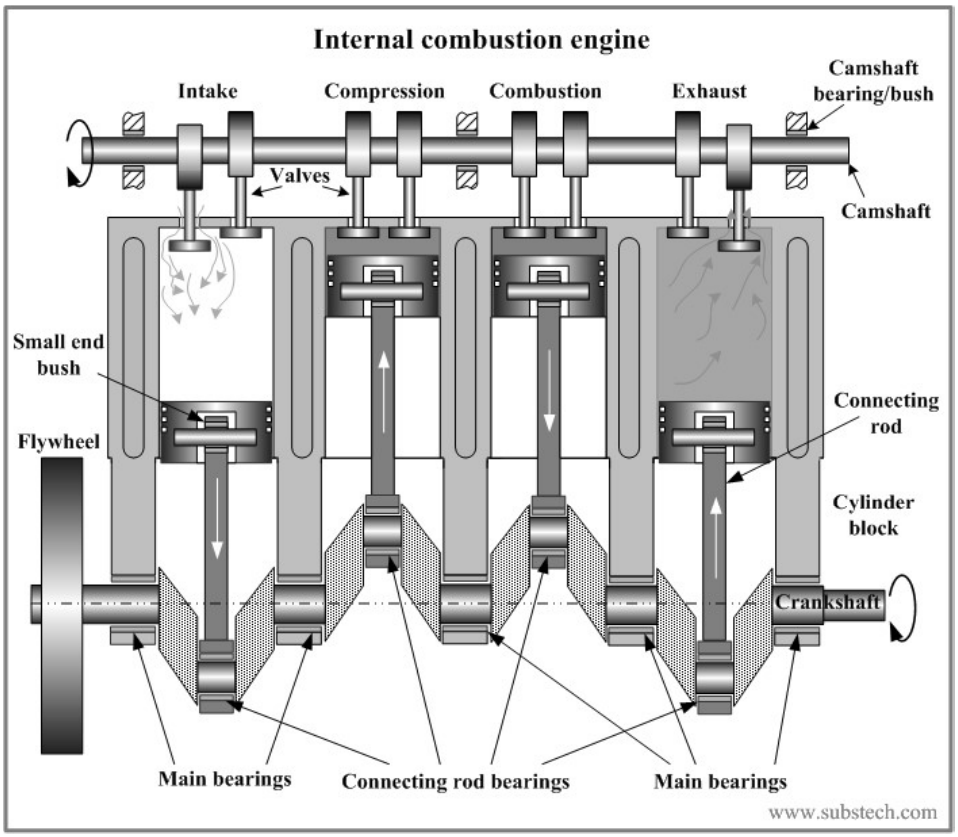
main bearing consists of two parts: upper and lower. The upper part of a main bearing commonly has an oil groove on the inner surface that allows it to spin freely inside the bearing without generating excessive friction and heat. A main bearing has a hole for passing oil to the feed holes in the crankshaft.[11]

46. The connecting rod bearings sit between the connecting rods and the crankshaft journals, and allow the rods to pivot as the crankshaft rotates, converting reciprocating motion to rotary motion.[12]

47. The camshaft Bearings support the camshaft, enabling it to spin and control the opening and closing of the valves.[13]

48. Below is a diagram of a four-cylinder engine (which functions in the same manner as an eight cylinder engine such as the L87 Engine.[14]

[11] Exhibit 8, https://www.substech.com/dokuwiki/doku.php?id=bearings_in_internal_combustion_engines (last visited June 12, 2025).
[12] *Id.*
[13] *Id.*
[14] *Id.*



49. Engine bearings are necessary to maintain proper oil film clearance for lubrication, absorb and distribute mechanical loads, and prevent metal-to-metal contact under high-speed, high-load conditions. If engine bearings fail (due to oil starvation, debris, or wear), the engine can seize or suffer major internal damage.

50. Damaged or faulty connecting rod bearings may result in excessive rod knock, which is a rapping noise produced by the engine. This means that the clearance between the connecting rod and crankshaft has changed, causing the knocking sound.

C. GM sold hundreds of thousands of dangerous Class Vehicles with defective L87 Engines.

51. Despite GM's consistent marketing and repeated promises of safety, quality, and durability of the Class Vehicles, the L87 Engine installed in each Class Vehicle contains a defect that poses a dangerous risk to the safety of drivers, passengers, and bystanders. Specifically, L87 Engines suffer from bearing failure that results in either engine seizure or breaching of the engine block by the connecting rod. What makes this Defect all the more dangerous is that there is no detectability of the Defect prior to the failure.

52. The L87 is a 6.2-liter, eight-cylinder engine introduced in 2018 by GM that is found in a range of GM pickup trucks and SUVs.[15] The L87 is part of the second-generation EcoTec3 engine family, and is the direct successor to the GM L86 engine. It was first launched in the all-new 2019 Silverado 1500 (fourth generation) and 2019 Sierra 1500 (fourth generation).[16]

53. GM promoted the L87 as an advancement in engine technology, stating: "The L87 builds upon the previous 6.2L L86 with integral components for Automatic Start/Stop capability and available Dynamic Fuel Management (DFM) for even greater efficiency. Efficient, robust technologies including Direction

[15] Exhibit 9, https://gmauthority.com/blog/gm/gm-engines/l87/ (last visited June 12, 2025).
[16] *Id.*

Injection, Variable Valve Timing, oil-jet piston cooling, and a two-stage oil pump continue to be standard on L87."[17]

54. According to Jordan Lee, Chevy's chief engineer for small block engines, "[t]he increased variability of dynamic fuel management means the engine will operate more often with a reduced number of cylinders, which saves fuel across the board," Lee said in a statement.[18] "Better yet, the transitions are transparent, and because the system is torque-based, you've always got that satisfying feeling of power on demand that comes from Chevy's Gen V small block V-8 engines." [19]

55. The L87 Engine was introduced by Chevrolet, but it is found in many GM's full-size trucks and SUVs, including the Chevrolet Silverado, GMC Sierra, Chevrolet Tahoe, Chevrolet Suburban, and GMC Yukon.

56. The L87 Engine installed across GM Class Vehicles shares the same designs, parts, and manufacturing process.

57. As detailed below, the Class Vehicles have a common defect that endangers driver, passengers, and bystanders, as the L87 engine bearings are prone to failure, resulting in sudden seizure of the engine. Such engine seizure, often

[17] Exhibit 10, https://poweredsolutions.gm.com/products/engines/l87-engine#:~:text=The%20L87%20builds%20upon%20the,DFM)%20for%20even%20greater%20efficiency (last visited June 12, 2025).
[18] Exhibit 11, https://www.detroitnews.com/story/business/autos/general-motors/2018/05/18/new-chevy-silverado-engines/35046583/ (last visited June 12, 2025).
[19] *Id*.

occurring while the Class Vehicle is being driven at full speeds on the road, makes it extremely risky for Class Members to continue to drive their Class Vehicles.

58. In April 2025, GM finally revealed that the L87 Engines installed in the Class Vehicles suffer from the Engine Defect. In connection with the 2025 Recall, GM revealed that "[t]he connecting rod and/or crankshaft engine components in these vehicles may have manufacturing defects that can lead to engine damage and engine failure."[20]

59. According to GM there are "two primary root causes, both of which are attributable to supplier manufacturing and quality issues: (1) rod-bearing damage from sediment on connecting rods and crankshaft-oil galleries; and (2) out of specification crankshaft dimensions and surface finish."[21] Consequently, GM warned drivers that "[i]f the engine fails during vehicle operation, the vehicle will lose propulsion, increasing the risk of a crash."[22]

60. Common customer complaints relating to the Engine Defect are reports of engine seizures and connecting rods breaching engine blocks.

[20] Exhibit 12, https://static.nhtsa.gov/odi/rcl/2025/RCLRPT-25V274-1598.PDF (last visited June 12, 2025).
[21] *Id*.
[22] *Id*.

D. GM had pre-sale knowledge that the L87 Engines are dangerous and defective.

61. As noted above, the L87 Engines installed in the Class Vehicles contain a safety defect that results in vehicle stalls and the sudden loss of motive power, thereby increasing the risk of crashing and suffering injuries.

62. GM had or should have had knowledge of the Defect, and the safety risk it poses to Class Vehicle drivers, passengers, and even bystanders, through several sources, including, but not limited to: (1) Defendant's pre-sale testing; (2) Defendant's own records of customer complaints; (3) repair records; (4) warranty and post-warranty claims and part sales; (5) GM's 2023 TechLink article concerning the L87 Engine; and (6) GM's history of defective engine components, including rod bearings, causing engine failures.

1. Defendant's Pre-Sale Testing and Quality Control Measures

63. GM is experienced in the design and manufacture of consumer vehicles. As an experienced manufacturer, Defendant conducts rigorous pre-sale tests to verify the parts are free from defects and align with their specifications.

64. As part of the design and manufacturing process for the L87 Engine, GM performed a series of pre-production testing during "months of abuse"[23] and

[23] Exhibit 13, https://www.caranddriver.com/news/a15370188/how-the-24-hours-of-gm-chases-the-bugs-out-of-gms-performance-cars/ (last visited June 12, 2025).

"rigorous testing" to ensure that its vehicles meet its "renowned durability" standards.[24]

65. GM has a "top secret automotive torcher chamber" in its "proving ground" which it "smash[es] or bash[es]" vehicles to ensure durability and safety prior to sale.[25] Among other things, GM puts its vehicles through extreme weather conditions, rough driving terrain, and speeds up to 150 mile per hour.[26]

66. The design process for the L87 Engine in particular was so comprehensive that, according to Jordan Lee, Chevy's chief engineer for small block engines, it was equivalent to building an all-new engine.[27]

67. GM states that its engine "undergoes a vigorous validation process that includes thousands of hours of real-world testing in some of the harshest environments."[28] GM claims that "[t]his 'tested-tough' process, coupled with our

[24] Exhibit 14, https://www.gm.com/company/gm-quality-standards (last visited June 12, 2025).
[25] https://www.youtube.com/watch?v=odeQa3hRvRk (last visited June 12, 2025).
[26] Exhibit 15, https://www.freep.com/story/money/cars/general-motors/2023/03/06/gm-milford-proving-ground-holds-many-secrets-here-are-some-fast-facts/69885649007/ (last visited June 12, 2025).
[27] Exhibit 11, https://www.detroitnews.com/story/business/autos/general-motors/2018/05/18/new-chevy-silverado-engines/35046583/ (last visited June 12, 2025).
[28] Exhibit 10, https://poweredsolutions.gm.com/products (last visited June 12, 2025).

use of the latest technology and state-of-the-art powertrain testing facilities, results in an exceptional product you can rely on."[29]

68. On information and belief, GM performs quality control specifically relating to its bearings. For example, Chevrolet states that "GM Genuine Parts Engine Connecting Rod Bearing Pairs are ***designed, engineered, and tested*** to rigorous standards, and are backed by General Motors. GM Genuine Parts are the true OE parts installed during the production of or validated by General Motors for GM vehicles."[30]

69. As a final set of testing before vehicles are sold to customers, GM puts "thousands of miles of wear and tear on every product."[31]

70. Accordingly, based on its pre-sale testing of the relevant engine parts, GM was, and/or should have been aware of, the Defect.

2. GM's March 2023 TechLink article

71. On March 24, 2023, GM published an article on its TechLink website entitled "V8 Engine Crankshaft Bearing Conditions" for 2019-2023 Silverado, Sierra; 2021-2023 Tahoe, Suburban, Yukon and Escalade models equipped with L87 Engines.[32] Notably, the article was not distributed to Class Vehicle drivers.

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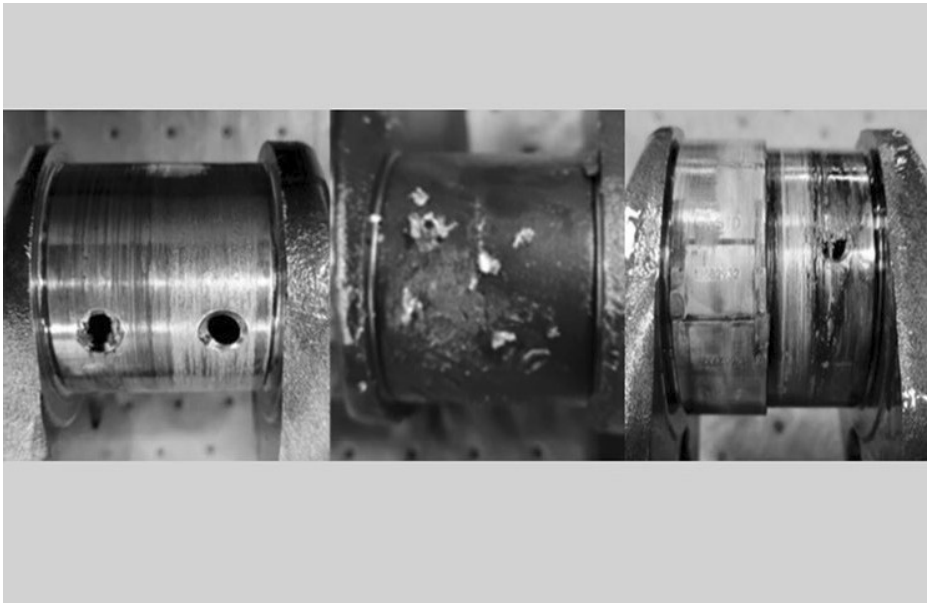
[29] *Id*.
[30] Exhibit 16, https://parts.chevrolet.com/product/gm-genuine-parts-engine-connecting-rod-bearing-set-19317286 (last visited June 12, 2025).
[31] Exhibit 14, https://www.gm.com/company/gm-quality-standards (last visited June 12, 2025).
[32] Exhibit 17, https://gm-techlink.com/?p=17349 (last visited June 12, 2025).

72. In the article, GM warned that "[a] no crank condition may be found" in those vehicles.[33] GM revealed that "[t]he no crank condition may be due to a seized engine with an open starter fuse" which "may be the result of crankshaft bearing failure." Below is a picture provided in the article depicting the defective crankshaft bearing.



73. The article further warns drivers that in cases involving suspected bearing failure, drivers should "check the engine oil and filter for excessive metal debris and bearing material." "If bearing material is identified, remove the engine oil pan and inspect the crankshaft rod and main bearings for any damage. Component replacement or, depending on the extent of damage, engine replacement may be necessary."

[33] *Id.*

74. GM further warned that "[i]f the main bearing debris is sent through the oil galleries and other components that are in the lubrication circuit, which are very difficult to completely clean, it could lead to additional damage when installed on a new engine. When there is extensive damage, oil cooler, oil cooler line and oil tank replacement ensures all debris is completely removed and that any bearing failure debris is not transferred into the new service engine."

75. Accordingly, by GM's own admission, it had knowledge of the Engine Defect, affecting L87 Engines prior to March 24, 2023.

3. Defendant's monitoring of customer complaints, warranty claims, and lawsuits relating to the L87 Engine

76. On information and belief, GM's customer relations divisions regularly receive and respond directly to customer calls concerning, *inter alia*, product defects and safety issues. Through these sources, Defendant was made aware of the Defect and had knowledge of its potential danger.

77. On information and belief, GM's customer relations departments, which interact with authorized service technicians in order to identify potentially widespread vehicle problems and assist in the diagnosis of vehicle issues, have received scores of reports of the Defect in Class Vehicles. Customer relations also collects and analyzes field data including, but not limited to, repair requests made at dealerships and service centers, technical reports prepared by engineers that have

reviewed vehicles for which warranty coverage is requested, parts sales reports, and warranty claims data.

78. GM's warranty departments similarly review and analyze warranty data submitted by their dealerships and authorized technicians in order to identify defect trends in their vehicles. Defendant dictates that when a repair is made under warranty (or warranty coverage is requested), service centers must provide GM with detailed documentation of the problem and the fix that describes the complaint, cause, and correction, and also save the broken part in case GM later determines to audit the dealership or otherwise verify the warranty repair. For their part, service centers are meticulous about providing this detailed information about in-warranty repairs to Defendant because Defendant will not pay the service centers for the repair if the complaint, cause, and correction are not sufficiently described.

79. Upon information and belief, GM knew or should have known about the Defect because of the high number of complaints concerning the L87 Engine, stalling issues, and replacement L87 Engines ordered from Defendant. All GM service centers are required to order replacement parts, including L87 Engines directly from GM. Other independent vehicle repair shops that service Class Vehicles also order replacement parts directly from Defendant. GM routinely monitors part sales reports and is responsible for shipping parts requested by dealerships and technicians. Thus, GM has detailed, accurate, and real-time data

regarding the number and frequency of replacement part orders. The increase in orders of auto parts necessary to fix damage caused by the Defect in Class Vehicles was known to GM, and should have alerted it to the scope and severity of the Defect.

80. On information and belief, the customer relations and warranty divisions of GM's brands interact with one another and discuss potential issues in all GM-branded vehicles which share components and designs.

81. On information and belief, the engineering offices, safety offices, and safety investigators of GM's brands interact with one another and discuss potential issues in their vehicles which share components and designs.

82. Defendant also regularly monitors the NHTSA databases as part of its ongoing obligation under the TREAD Act, Pub. L. No. 106-414, 114 Stat. 1800 (2000), to identify potential defects in its vehicles. Among other employees, GM customer service departments are responsible for monitoring customer complaints posted to NHTSA's public database, as well as their respective websites or third-party websites.

83. Scores of complaints submitted to NHTSA reveal the prevalence of the Engine Defect in vehicles equipped with L87 Engines and the magnitude of the Defect's impact on consumers.

84. Below are just a few representative complaints filed with NHTSA detailing the Engine Defect found in Class Vehicles:

February 25, 2023 NHTSA ID NUMBER: 11509063

Components: ENGINE

NHTSA ID Number: 11509063

Incident Date December 2, 2022

Consumer Location Unknown

Vehicle Identification Number 1GYS4EKL1MR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

As far as the findings from the diagnosis, the dealer advised that inspection found crank bearing failure. The engine has been ordered but does not have an ETA at this time.

2 Affected Products

Vehicles

MAKE	MODEL	YEAR
CADILLAC	ESCALADE	2021

August 1, 2022 NHTSA ID NUMBER: 11477035

Components: POWER TRAIN, ENGINE

NHTSA ID Number: 11477035

Incident Date June 10, 2022

Consumer Location CORPUS CHRISTI, TX

Vehicle Identification Number 1GKS2JKL5MR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

While traveling at highway speeds, the vehicle suddenly and without warning lost power. All gauges remained in the normal range. After pulling on to the shoulder of a highway and turning the vehicle off, the vehicle would not start. After being towed the dealership, the vehicle would not power up. Dealership checked DTCS and found code P0016 Crankshaft Position Sensor and Intake/Single Camshaft Position Sensor Correlation. Dealership inspected wiring for chaffing and tested camshaft position sensor circuitry and all found in normal condition. Dealership followed document ID: 5646662 diagnostic procedure inspecting camshaft position sensor and camshaft actuator solenoid valve for incorrect installation or damage. While inspecting, dealership found internal engine bearing material in oil indicating internal mechanical failure. Dealership removed engine oil pan and #1 and #2 connecting rods and found bearings spun causing catastrophic engine failure. Crankshaft main bearing cap #3 also found discolored from extreme heat. Dealership then followed bulletin #22-NA-074 for replacement of engine oil, cooler lines and engine oil cooler after connecting rod and main bearing damage The vehicle only had 17,067 miles.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
GMC	YUKON XL	2021

April 11, 2023 NHTSA ID NUMBER: 11516616

October 3, 2023 NHTSA ID NUMBER: 11547936

Components: POWER TRAIN

NHTSA ID Number: 11547936

Incident Date September 24, 2023

Consumer Location CARBONDALE, CO

Vehicle Identification Number 1GNSKSKL3PR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

We have a chevy with the 6.2 V8 engine. First we were at a stop light on the highway and the car shifted into Neutral and would not come out for two light cycles. My wife and children were stuck at the light with car's swerving around them at 65+. Finally it shifted into Drive. We called the Chevy dealership and they said it would be a month before they could look at the car and there were no check engine warnings. Two days later my wife and family were driving down the highway and suddenly it started making a flapping sound from the engine bay and was losing power. She pulled over and turned off the vehicle to see if that changed anything. The car would not restart and the check engine light was on (solid not flashing) it would just try to turn over with no success. We had it flat bed towed to the chevy dealership where they told us the engine was blown and that it had thrown a rod. We have 3900 miles on the vehicle and I would say this is a significant safety issue given that it can disable the vehicle on a busy highway.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
CHEVROLET	TAHOE	2023

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February 20, 2024 NHTSA ID NUMBER: 11573012

Components: ENGINE

NHTSA ID Number: 11573012

Incident Date January 9, 2024

Consumer Location CITY OF INDUSTRY, CA

Vehicle Identification Number 1GYS4RKLXPR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

1. 01/09/2024 engine failure on freeway No warning, no noise, just all of sudden 2. Pull back to Dealership One day later, they said engine would need to REPLACE, and saying they have engine in stock and can replace IMMD. *** Crestview Cadillac 3. Bodyshop mentioned 4 same type of vehicle has the same issue 4. I talked to CS with Cadillac, but they turned down the buy back 5. Then I submitted the complaint to BBB Autoline, they JUST called me today saying they won't able to buy back Instead of offer some Cadillac point. *** I refused, I told her this is beyond normal, and Cadillac is aware safety issue on this engine. The rep said they did the recall last year, but I explained to her that even worse, after fixing the safety issue still existed I am lucky the engine failure was on sunny day, imagine it was in raining day I already dead.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
CADILLAC	ESCALADE ESV	2023

December 27, 2023 NHTSA ID NUMBER: 11562182

Components: ENGINE

NHTSA ID Number: 11562182

Incident Date December 27, 2023

Consumer Location PELHAM, NH

Vehicle Identification Number 1GNSKRKL8PR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

Car completely died. Engine spun a bearing at 10, 000 miles.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
CHEVROLET	TAHOE	2023

August 17, 2023 NHTSA ID NUMBER: 11539181

Components: ENGINE

NHTSA ID Number: 11539181

Incident Date August 4, 2023

Consumer Location JARRETTSVILLE, MD

Vehicle Identification Number 1GKS2HKL9NR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

Vehicle stopped dead in road while driving on highway. Vehicle unable to shift into park, neautral or drive once engine ceased. 19,000 miles and 1 year of ownership, oil change and service at GM dealer less than 1 month prior to engine failure.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
GMC	YUKON XL	2022

August 28, 2023 NHTSA ID NUMBER: 11541111

Components: ENGINE

NHTSA ID Number: 11541111

Incident Date July 24, 2023

Consumer Location ANDOVER, MA

Vehicle Identification Number 1GYS4KKL9PR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

The contact owns a 2023 Cadillac Escalade ESV. The contact stated that while driving approximately 55 MPH, the vehicle stalled. There were no warning lights illuminated. The vehicle was towed to the local dealer, where it was diagnosed that a software update was needed. The vehicle was repaired, but the failure recurred. The vehicle was taken back to the local dealer, where it was diagnosed, and it was determined that the engine needed to be replaced. The vehicle was not repaired. The manufacturer was contacted but provided no assistance. The failure mileage was approximately 700.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
CADILLAC	ESCALADE ESV	2023

March 7, 2024 NHTSA ID NUMBER: 11576083

Components: ENGINE

NHTSA ID Number: 11576083

Incident Date March 5, 2024

Consumer Location BOURBONNAIS, IL

Vehicle Identification Number 1GNSKTKL7PR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

2023 Tahoe High Country was being operated at Interstate speeds when the vehicle shifted to neutral, engine died and the vehicle experienced a rapid decrease in speed. Check engine light activated as well as dashboard lights. Was able to guide vehicle to side of road. Unable to start vehicle and was towed to local dealership. Learned the engine was blown as well as a large 20amp fuse. I am an expert in traffic crash reconstruction and this type of incident could lead to serious injury or death.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
CHEVROLET	TAHOE	2023

March 30, 2024 NHTSA ID NUMBER: 11580224

Components: ENGINE

NHTSA ID Number: 11580224

Incident Date March 29, 2024

Consumer Location Unknown

Vehicle Identification Number 1GKS2DKL0MR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

Total engine failure due to bearing issues in the bottom half of the engine.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
GMC	YUKON	2021

July 23, 2023 NHTSA ID NUMBER: 11533961

Components: POWER TRAIN, ENGINE, FUEL/PROPULSION SYSTEM

NHTSA ID Number: 11533961

Incident Date April 29, 2023

Consumer Location MONTICELLO, WI

Vehicle Identification Number 1GYS4DKL8PR****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

INCIDENT: I was driving on the highway when I heard a strange "whistling noise." Thinking the noise originated from an old van in front of me, I passed it. The noise grew louder; the vehicle slowed very suddenly and, I pulled to the side of the road. The "low oil pressure" light came on just as the engine entirely blew. There were NO OTHER WARNING LAMPS, MESSAGES or OTHER SYMPTOMS. On-Star did not send roadside assistance for six hours and the battery died from extended use of the emergency lights. DANGERS: Experiencing catastrophic engine failure while driving on a highway presents obvious dangers as does sitting roadside for six hours (with a dead battery and no emergency flashers). INSPECTION: The G.M. Dealer (manufacturer representative) inspected the engine and confirmed that it was a catastrophic engine failure, requiring a new engine. The issue was also reported directly to G.M. The engine core, if need of further inspection, is likely either at the dealer, G.M., or a GM remanufacturing facility.

1 Affected Product -

Vehicle

MAKE	MODEL	YEAR
CADILLAC	ESCALADE	2023

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June 3, 2024 NHTSA ID NUMBER: 11592274

Components: ENGINE

NHTSA ID Number: 11592274

Incident Date May 24, 2024

Consumer Location SCHERTZ, TX

Vehicle Identification Number 3GTP9EED2MG****

Summary of Complaint

CRASH	No
FIRE	No
INJURIES	0
DEATHS	0

The contact owns a 2021 GMC Sierra 1500. The contact stated that while driving at an undisclosed speed, the vehicle failed to accelerate as needed and made an abnormal sound. The contact assumed that the sound was coming from the transmission and the vehicle was taken to a dealer. The dealer diagnosed the vehicle and suggested that the failure might be a pulley or a rod bearing failure. The contact took the vehicle to another dealer who confirmed a rod bearing failure. The manufacturer was not made aware of the failure. The vehicle was not repaired. The failure mileage was approximately 46,000.

1 Affected Product

Vehicle

MAKE	MODEL	YEAR
GMC	SIERRA 1500	2021

85. Upon information and belief, consumers who submitted a complaint to NHTSA also took their Class Vehicles to GM dealers prior to submitting their complaints to NHTSA, and the dealers reported the issues to GM.

86. Likewise, complaints of the Engine Defect are found on third-party websites dedicated to Class Vehicles.

87. For example, in April 2023, on *silveradosierra.com*, an online message board "dedicated to Chevrolet Silverado and GMC Sierra pickup owners and enthusiasts," Class Members were publicly complaining under a post titled: "6.2

Main Bearing Fail."[34] Therein, the owner of a 2022 Sierra 1500 Denali Crew Cab with the L87 Engine complained that their vehicle with 8,200 miles "Started with a slight engine rattle/knock one evening. Did some research and thought it was lifters. Took it into dealership the very next morning, driving there it was starting to squeal and knock pretty loud. Dealership called me a few hours later. As they drove it into the bay, engine locked up. Dropped the oil pan and the main bearing cover had 'Grenade-ed'. Totally replacement of engine, oil pump and radiator. bad thing is they are searching for a engine. Said the last engine they had to replace was a 5.3 and it took them 4 months to get it in." Another person responded: "I am going through the same problem with my 6.2 trail boss. Very frustrating to say the least."

88. Most surprising of all, one person commented that they had "just settled a lawsuit against GM for three 6.2 in less than two years and 25k miles. Same thing happened to them. Good luck I feel your pain."[35] Another customer complained that after the GM dealership diagnosed an engine failure in their 2023 GMC Sierra AT4: "GM is denying the warranty without even tearing the motor apart. GM offered me $2000 to help with the repairs as a customer loyalty incentive. Going after them through lemon law with BBBautoline." Thus, GM not only had knowledge of the

[34] Exhibit 18, https://www.silveradosierra.com/threads/6-2-main-bearing-fail.752695/?post_id=7382030&nested_view=1&sortby=oldest#post-7382030 (last visited June 12, 2025).
[35] *Id*.

Defect through customer complaints, GM was put on notice through lawsuits and claims for arbitration brought against it for the same issue.

89. In September 2024, Class Members posted in the "gmcsierra" reddit message board complaining about the Engine Defect.[36] Specifically, the owner of a 2024 GMC Sierra Denali complained about his L87 Engine stalling while driving:

> I have a 2024 Sierra Denali truck with a 6.2L EcoTec3 engine. Twice while driving it, the engine stopped and the dash display said to the push start button to restart it, once while at a stop light and the other while in motion. Luckily, after the second failure, I was able to coast into a shopping center parking lot before stopping. It never restarted. I had a tow truck take it to the nearest GMC service center. After two days, a service rep called and said they have to replace the engine. He said the "bearings seized up". I am wondering if this problem is a prevalent issue for the L87 engines. The service rep said he has had several engines with this problem and their dealership/service center is located in a small East Texas town. Has anyone else had this problem? The truck only has 4,400 miles on it.

90. In response to this owner's complaint, an employee at GM dealership commented that this is a known issue:[37]

> Yes this is a very common issue with the '23/24 model year 6.2s. It's a quality control issue that unfortunately is persisting.
>
> ***I'm the PM of a smaller GMC store*** and I'm stocking these engines at this point to get customers back into their

[36] Exhibit 19, https://www.reddit.com/r/gmcsierra/comments/1fm1ypy/l87_62l_engine_bearing_failure/ (last visited June 12, 2025).
[37] *Id*.

> trucks faster instead of diag/approval/order/week+ to receive because GM keeps them all in Michigan.

The same employee responded later in the message board that "I'd avoid 6.2s right now."

91. Another Class Vehicle owner complained that they "had 2 failures now in my 2021 Sierra Denali 6.2L. The first failure came at 19,000 miles and the second 2 weeks ago with only 61k on that motor. Both engines seized while driving. Its a serious problem."

92. On information and belief, GM reviews third-party websites, including those dedicated to their vehicles, in order to monitor potential defects in their vehicles and to provide feedback to consumer complaints.

4. GM has a history of engine bearing defects affecting its vehicles

93. Rod bearing failures, resulting in catastrophic engine failures, is a well-known safety risk in the automotive industry—and one that GM has extensive knowledge of.

94. In 2013, GM disclosed that its 2013-2014 Chevrolet Malibu, 2014 Chevrolet Impala, 2014 Buick Regal, 2013-2014 Cadillac ATS, and 2014 Cadillac CTS vehicles were installed with faulty connecting rod bearings that can cause

engine failures after just a few thousand miles.[38] GM warned that "the flawed bearings can disrupt the oil film between the bearing and the crankshaft, leading to catastrophic metal-on-metal contact."[39] In this same *Car and Driver* article discussing GM's revealed defect, the automotive publication warned that the consequence of the defect "is a spun rod bearing that scores the crankshaft and introduces metal shavings into the oil supply. While it's possible to salvage an engine with a spun rod bearing, the difficulty of matching the original tolerances means it's far more common to replace the engine."[40]

95. Given its experience with faulty engine bearings, GM did, or should have, performed diligent presale testing and post-sale monitoring for similar defects within the Class Vehicles.

E. Despite admitting the existence of the Defect, GM refuses to offer an adequate remedy

96. On April 24, 2025, GM announced that it was issuing a safety recall campaign for all Class Vehicles due to the Defect. Specifically, GM announced that it was recalling certain 2021-2024 Cadillac Escalade and Escalade ESV, Chevrolet Silverado 1500, Suburban, and Tahoe, GMC Sierra 1500, Yukon, and Yukon XL

[38] Exhibit 20, https://www.caranddriver.com/news/a15368085/maliboom-faulty-connecting-rod-bearing-causing-engine-failures-in-gm-four-cylinders/ (last visited June 12, 2025).
[39] *Id*.
[40] *Id*.

vehicles equipped with a 6.2L V8 gas engine due to a defect that causes Engine damage and engine failure.

97. In its Recall Report, GM described the "Defect," "Safety Risk," and "Cause":[41]

> Description of the Defect: General Motors has decided that a defect which relates to motor vehicle safety may exist in certain 2021 – 2024 model year Cadillac Escalade and Escalade ESV, Chevrolet Silverado 1500, Suburban, and Tahoe, and GMC Sierra 1500, Yukon, and Yukon XL vehicles equipped with the 6.2L V8 gas engine (RPO L87). The connecting rod and/or crankshaft engine components in these vehicles may have manufacturing defects that can lead to engine damage and engine failure.
>
> Description of the Safety Risk: If the engine fails during vehicle operation, the vehicle will lose propulsion, increasing the risk of a crash.
>
> Description of the Cause: Engine teardown analysis identified two primary root causes, both of which are attributable to supplier manufacturing and quality issues: (1) rod-bearing damage from sediment on connecting rods and crankshaft-oil galleries; and (2) out of specification crankshaft dimensions and surface finish.

98. According to a filing submitted by KA to NHTSA in connection with the Recall, "GM's investigation identified 28,102 field complaints or incidents in the US potentially related to failure of the L87 engine due to crankshaft, connecting rod, or engine bearing failure, of which 14,332 involved allegations of loss of

[41] Exhibit 12, https://static.nhtsa.gov/odi/rcl/2025/RCLRPT-25V274-1598.PDF (last visited June 12, 2025).

propulsion. These field complaints were received between April 29, 2021, and February 3, 2025." GM further revealed that it "identified 12 potentially related alleged crashes and 12 potentially related alleged injuries in the U.S." and "42 potentially related fire allegations in the U.S."

99. Despite acknowledging the seriousness of the Defect affecting Class vehicles, the company's "remedy" fails to be what it purports to be—an actual "remedy." Rather, GM will instruct dealers to "inspect and, as necessary, repair or replace the engine. Vehicles that pass inspection will be provided a higher viscosity oil, which will also require a new oil fill cap, an oil filter replacement, and an owner's manual insert."

100. This remedy is ineffective and deficient for several reasons.

101. In its April 2025 Technical Service Bulletin ("TSB") to its authorized dealerships, GM instructed its dealers to inspect the vehicles for diagnostic trouble code ("DTC") P0016, which indicates misalignment between the camshaft and crankshaft.[42]

102. If the Class Vehicle does not show this DTC, GM instructed dealers to replace the factory fill oil (0W-20) for a higher viscosity oil (0W-40), replace the oil cap with one that is marked to indicate the higher viscosity oil is now required, and

[42] Exhibit 21, https://static.nhtsa.gov/odi/rcl/2025/RCRIT-25V274-8641.pdf (last visited June 12, 2025).

replace the oil filters on those vehicles passing this inspection. But inserting a higher viscosity oil does nothing to remedy the out of specification crankshaft dimensions and surface finish.

103. For the Class Vehicles inspected and presenting the DTC P0016, the April 2025 TSB fails to offer even a putative "remedy" and merely tells dealers to await further instructions—leaving Class Vehicle drivers in the lurch, waiting for a catastrophic incident.

104. GM's May 1, 2025 TSB addressing replacement engines fares no better.[43] First, it only applies to a limited subset of Class Vehicles, and not even all vehicles that suffered an engine failure. Second, even the limited subset of Class Vehicles subject to the TSB are not offered an actual remedy because simply replacing the defective L87 Engine with the same type of engine does not address the Engine Defect. All this does is leave consumers with the same defective engine and at risk of the same safety risk of crashing. Indeed, consumers have reported that the replaced L87 Engines have experienced the same catastrophic failures as the ones initially installed in their Class Vehicles.

[43] Exhibit 22, https://static.nhtsa.gov/odi/rcl/2025/RCRIT-25V274-5347.pdf (last visited June 12, 2025).

F. Fraudulent Omission/Concealment Allegations

105. Absent discovery, Plaintiff is unaware of, and unable through reasonable investigation to obtain, the true names and identities of those individuals, employed by Defendant, responsible for making false and misleading statements regarding the Class Vehicles. Defendant necessarily is in possession of all of this information. Plaintiff's claims arise out of Defendant's fraudulent omission/concealment of the Defect, despite its representations about the quality, reliability, and safety of the Class Vehicles.

106. Plaintiff alleges that at all relevant times, including specifically at the time he and Class Members purchased their Class Vehicles, Defendant knew, or were reckless in not knowing, of the Defect; Defendant had a duty to disclose the Defect based upon its exclusive knowledge; and Defendant never disclosed the Defect to Plaintiff or the public at any time or place in any manner prior to the 2025 Recall.

107. Plaintiff makes the following specific concealment/omission-based allegations with as much specificity as possible absent access to the information necessarily available only to Defendant:

108. ***Who***: GM actively concealed and omitted the Defect from Plaintiff and Class Members while simultaneously touting the quality, safety, and dependability of the Class Vehicles, as alleged herein. Plaintiff is unaware of, and therefore unable

to identify, the true names and identities of those specific individuals responsible for such decisions.

109. ***What***: that the Class Vehicles contain the Defect, as alleged herein. Defendant concealed and omitted the Defect while making representations about the safety, dependability, and other attributes of the Class Vehicles, as alleged herein.

110. ***When***: Defendant concealed and omitted material information regarding the Defect at all times while making representations about the quality, safety, and dependability of the Class Vehicles on an ongoing basis, and continuing to this day. And when consumers brought their vehicles to GM dealerships or called Defendant's respective customer service and warranty departments complaining of the Defect, Defendant denied an adequate repair for the Defect and warranty coverage.

111. ***Where***: Defendant concealed and omitted material information regarding the true nature of the Defect in every communication they had with Plaintiff and Class Members, and made representations about the quality, reliability, and safety of the Class Vehicles. Plaintiff is aware of no document, communication, or other place or thing, in which Defendant disclosed the truth about the full scope of the Defect in the Class Vehicles prior to the 2025 Recall. Such information is not adequately disclosed in any sales documents, displays, advertisements, warranties, owner's manuals, or on Defendant's websites. There are channels through which

Defendant could have disclosed the Defect, including, but not limited to: (1) point of sale communications; (2) the owner's manual; and/or (3) direct communication to Class Members through means such as state vehicle registry lists and e-mail notifications.

112. ***How***: Defendant concealed and omitted the Defect from Plaintiff and Class Members and made representations about the quality, safety, and dependability of the Class Vehicles. Defendant actively concealed and omitted the truth about the existence, scope, and nature of the Defect from Plaintiff and Class Members at all times, even though it knew about the Defect and knew that information about the Defect would be important to a reasonable consumer, and Defendant promised in its marketing materials that Class Vehicles have qualities that they do not have.

113. ***Why***: Defendant actively concealed and omitted material information about the Defect in the Class Vehicles for the purpose of inducing Plaintiff and Class Members to purchase and/or lease Class Vehicles, rather than purchasing or leasing competitors' vehicles, and made representations about the quality, safety, and durability of the Class Vehicles. Had Defendant disclosed the truth, for example, in its advertisements or other materials or communications, Plaintiff and Class Members (all reasonable consumers) would have been aware of it, and would not have bought or leased the Class Vehicles or would not have paid as much for them.

V. TOLLING OF STATUTES OF LIMITATIONS

114. Any applicable statute(s) of limitations have been tolled by GM's knowing and active concealment and denial of the facts alleged herein. Plaintiff and the members of the Class could not have reasonably discovered the true nature of the Defect because Defendant concealed it. Plaintiff's claims were thus tolled pursuant to the discovery rule, for fraudulent concealment, and for estoppel.

A. Discovery Rule

115. The causes of action alleged herein did not accrue until Plaintiff and Class Members discovered that their Class Vehicles contained the Defect.

116. As alleged above, Class Members had no way of knowing about the Defect in their Class Vehicles. GM concealed its knowledge of the Defect while GM continued to market and sell the Class Vehicles as safe, secure, high-quality, and reliable vehicles.

117. Within any applicable statutes of limitation, Class Members could not have discovered through the exercise of reasonable diligence that GM was concealing the conduct complained of herein and misrepresenting the true qualities of the Class Vehicles.

118. Class Members did not know facts that would have caused a reasonable person to suspect that there was a Defect affecting their vehicle and an ordinary person would be unable to appreciate that the vehicle was defective. Indeed, even

after Class Members contacted GM and its authorized dealers for vehicle repairs concerning the Defect, they were routinely told by Defendant and/or through its dealers that the Class Vehicles were not defective and/or they were offered a "remedy" that fails to address the Engine Defect. As described above, the true cause of the engine failures in the Class Vehicles is a defect caused by the defective design and/or manufacturing of L87 Engines and the purported remedies do not address the actual causes of the Defect.

119. For ordinary consumers, the existence and partial extent of the Defect only came to light after GM issued the 2025 Recall.

120. For these reasons, all applicable statutes of limitation have been tolled by operation of the discovery rule with respect to the claims in this litigation.

B. Fraudulent Concealment

121. As the manufacturer, distributor, seller, and/or warrantor of the Class Vehicles, GM was under a continuous duty to disclose to Class Members the existence of the Defect found in the Class Vehicles.

122. Defendant was and remains under a continuing duty to disclose to Plaintiff and the Members of the Class the true character, quality, and nature of the Class Vehicles, that the Defect found in the Class Vehicles will result in catastrophic engine failure, among other safety risks, that they will require costly repairs, pose

safety concerns, cause damage to their personal property, and diminish the resale value of the Class Vehicles.

123. GM recklessly disregarded the true nature, quality, and character of the Class Vehicles, by failing to disclose the existence of the Defect.

124. Due to Defendant's concealment throughout the time period relevant to this action, all applicable statutes of limitation have been tolled.

125. Instead of publicly disclosing the Defect in the Class Vehicles, Defendant kept owners and lessees in the dark about the Defect present in their vehicles.

126. Class Members were not at fault for failing to discover the existence of the Defect present in their Class Vehicles.

127. Until he experienced catastrophic engine failure while on the road and the 2025 Recall was issued, Plaintiff had no actual or presumptive knowledge of facts sufficient to put him on inquiry notice of such a connection. In particular, Class Members did not possess the aggregate data concerning L87 Engine failures or the technical data related to the design and manufacturing of the Class Vehicles.

128. This ignorance of the existence of the Defect present in the Class Vehicles is common across each Plaintiff and Class Member.

C. Estoppel

129. GM was, and is, under a continuous duty to disclose to Plaintiff and Class Members the true character, quality, and nature of the Class Vehicles. GM failed to disclose the existence of the Defect and actively concealed the true character, quality, and nature of the Class Vehicles while knowingly making representations about the quality and reliability of the Vehicles. Plaintiff and Class Members reasonably relied upon GM's knowing and affirmative representations and/or active concealment of these facts. Based on the foregoing, GM is estopped from relying on any statutes of limitation in defense of this action.

VI. CLASS ALLEGATIONS

130. Plaintiff brings this action pursuant to Rules 23(a), 23(b)(2), and 23(b)(3) of the Federal Rules of Civil Procedure on behalf of himself and all others similarly situated.

131. Plaintiff seeks to represent a class ("Nationwide Class") defined as:

> All persons or entities that purchased or leased a Class Vehicle in the United States.

132. In addition, and in the alternative to the Nationwide Class, Plaintiff seeks to represent the following State Class:

> Illinois Class:
>
> All persons or entities that purchased or leased a Class Vehicle in the State of Illinois.

133. The Nationwide Class and the State Class are collectively referred to herein as the Classes.

134. Excluded from the Classes are Defendant, its affiliates, employees, officers and directors, persons or entities that purchased the Class Vehicles for resale, and the Judge(s) assigned to this case. Plaintiff reserves the right to modify, change, or expand the Classes' definitions based on discovery and further investigation.

135. Numerosity: Upon information and belief, the Classes are so numerous that joinder of all members is impracticable. While the exact number and identities of individual members of the Classes are unknown at this time, such information being in the sole possession of Defendant and obtainable by Plaintiff only through the discovery process, Plaintiff believes, and on that basis alleges, that at least eight hundred thousand Class Vehicles have been sold and leased in the United States.

136. Existence and Predominance of Common Questions of Fact and Law: Common questions of law and fact exist as to all members of the Classes. These questions predominate over the questions affecting individual Class Members. These common legal and factual questions include, but are not limited to:

a. Whether Defendant engaged in the conduct alleged herein;

b. Whether Defendant designed, advertised, marketed, distributed, leased, sold, or otherwise placed the Class Vehicles into the stream of commerce in the United States;

c. Whether the Class Vehicles were sold with a safety defect;

d. Whether Defendant knew of the Defect but failed to disclose the problem and its consequences to its customers;

e. Whether a reasonable consumer would consider the Defect or its consequences to be material;

f. Whether Defendant breached implied warranties with respect to the Defect;

g. When Defendant discovered the Defect in the Class Vehicles, and what, if anything, it did in response;

h. Whether Defendant should be required to disclose the existence of the Defect;

i. Whether Defendant's conduct violates the consumer protection statutes asserted herein;

j. Whether Plaintiff and Class Members overpaid for their Class Vehicles; and

k. Whether Plaintiff and Class Members experienced out-of-pocket losses as a result of the Defect, and if so, how much.

137. Typicality: Plaintiff's claims are typical of the claims of the Classes because Plaintiff purchased a Class Vehicle with the same Defect as did each member of the Classes. Furthermore, Plaintiff and all Members of the Classes sustained monetary and economic injuries including, but not limited to, ascertainable losses arising out of Defendant's wrongful conduct. Plaintiff is advancing the same claims and legal theories on behalf of himself and all absent Class Members.

138. Adequacy: Plaintiff is an adequate representative because his interests do not conflict with the interests of the Classes that he seeks to represent, he has

retained counsel competent and highly experienced in complex class action litigation, and he intends to prosecute this action vigorously. The interests of the Classes will be fairly and adequately protected by Plaintiff and his counsel.

139. Superiority: A class action is superior to all other available means of fair and efficient adjudication of the claims of Plaintiff and Members of the Classes. The injury suffered by each individual Class Member is relatively small in comparison to the burden and expense of individual prosecution of the complex and extensive litigation necessitated by Defendant's conduct. It would be virtually impossible for Members of the Classes individually to redress effectively the wrongs done to them. Even if the Members of the Classes could afford such individual litigation, the court system could not. Individualized litigation presents a potential for inconsistent or contradictory judgments. Individualized litigation increases the delay and expense to all parties, and to the court system, presented by the complex legal and factual issues of the case. By contrast, the class action device presents far fewer management difficulties, and provides the benefits of single adjudication, an economy of scale, and comprehensive supervision by a single court. Upon information and belief, members of the Class can be readily identified and notified based on, *inter alia*, Defendant's vehicle identification numbers, warranty claims, registration records, and database of complaints.

140. Defendant has acted, and refused to act, on grounds generally applicable to the Classes, thereby making appropriate final equitable relief with respect to the Classes as a whole.

VII. CAUSES OF ACTION

COUNT I: VIOLATION OF THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C. § 2301, *et seq.*) (On Behalf of the Nationwide Class)

141. Plaintiff incorporates by reference every allegation set forth in preceding paragraphs as if fully stated herein.

142. Plaintiff brings this claim on behalf of himself and the Nationwide Class.

143. This Court has jurisdiction to decide claims brought under 15 U.S.C. § 2301 by virtue of 28 U.S.C. § 1332(a)-(d).

144. The Class Vehicles are "consumer products" within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(3). Plaintiff and Nationwide Class members are consumers because they are persons entitled under applicable state law to enforce against the warrantor the obligations of its implied warranties.

145. GM is a "supplier" and "warrantor" within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(4)-(5).

146. 15 U.S.C. § 2310(d)(1) provides a cause of action for any consumer who is damaged by the failure of a warrantor to comply with an implied warranty.

147. GM provided Plaintiff and Nationwide Class members with an implied warranty of merchantability in connection with the purchase or lease of its vehicles that is an "implied warranty" within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(7). As a part of the implied warranty of merchantability, GM warranted that the Class Vehicles were fit for their ordinary purpose and would pass without objection in the trade as designed, manufactured, and marketed, and were adequately contained, packaged, and labeled.

148. GM breached its implied warranties, as described herein, and is therefore liable to Plaintiff under 15 U.S.C. § 2310(d)(1). Without limitation, the Class Vehicles all suffer from the common Engine Defect, which creates an unreasonable risk of death, serious bodily harm, and property damage to owners and lessees of the Class Vehicles. The Engine Defect rendered the Class Vehicles unmerchantable and unfit for their ordinary use of driving when they were sold or leased, and at all times thereafter.

149. As discussed herein, on information and belief, GM knew or should have known about the Engine Defect prior to sale based upon, among other facts: (1) Defendant's pre-sale testing; (2) Defendant's own records of customer complaints; (3) dealership repair records; (4) warranty and post-warranty claims and part sales; (5) GM's 2023 TechLink article concerning the L87 Engine; and (6)

GM's history of defective engine components, including rod bearings, causing engine failures.

150. GM omitted information about the Engine Defect and its consequences from Plaintiff and Class members, misrepresented the qualities of the Class Vehicles, and has failed to provide a fix for the Defect.

151. Any effort by GM to limit the implied warranties in a manner that would exclude coverage of the Class Vehicles is unconscionable, and any such effort to disclaim or otherwise limit such liability is null and void.

152. Any limitations GM might seek to impose on its warranties are procedurally unconscionable. There was unequal bargaining power between GM and Plaintiff, because, at the time of purchase and lease, Plaintiff had no other options for purchasing warranty coverage other than directly from GM.

153. Any limitations GM might seek to impose on its warranties are substantively unconscionable. GM knew or should have known that the Class Vehicles were defective and that the Class Vehicles suffered from a safety defect and placed drivers at risk when used as intended long before Plaintiff and Class members knew or should have known. GM failed to disclose this defect to Plaintiff and Class members. Thus, enforcement of the durational limitations on the warranties is harsh and would shock the conscience.

154. Plaintiff and other Class members have had sufficient direct dealings with Defendant to establish privity of contract between Defendant on one hand, and Plaintiff and each of the other Class members on the other hand. Nonetheless, privity is not required here because Plaintiff and each of the other Class members are intended third-party beneficiaries of contracts between Defendant and their dealers, and specifically, of Defendant's implied warranties. The dealers were not intended to be the ultimate consumers of the Class Vehicles and have no rights under the warranty agreements provided with the Class Vehicles; the warranty agreements were designed for and intended to benefit the consumers only. Defendant was also aware that the ultimate consumers of the Class Vehicles (*i.e.*, the Class) required vehicles that would function safely, could be relied upon, and otherwise meet minimum industry standards. Additionally, privity is excused here because Plaintiff and each of the other Class members relied on statements made by Defendant itself in choosing to purchase or lease a Class Vehicle. As alleged herein, the marketing of the Class Vehicles was uniform, and was controlled and disseminated directly by Defendant.

155. Under 15 U.S.C. § 2310(e), Plaintiff is entitled to bring this class action and is not required to give GM notice and an opportunity to cure until such time as the Court determines the representative capacity of Plaintiff under Rule 23 of the Federal Rules of Civil Procedure.

156. Plaintiff would suffer economic hardship if he returned his Class Vehicle but did not receive the return of all payments made by him. Because GM will not acknowledge any revocation of acceptance and immediately return any payments made, Plaintiff has not re-accepted his Class Vehicle by retaining it.

157. The amount in controversy of Plaintiff's individual claims meets or exceeds the sum of $25. The amount in controversy of this action exceeds the sum of $50,000, exclusive of interest and costs, computed based on all claims to be determined in this lawsuit. Plaintiff, individually and on behalf of all other Nationwide Class members, seeks all damages permitted by law, including diminution in value of the Class Vehicles, in an amount to be proven at trial. In addition, under 15 U.S.C. § 2310(d)(2), Plaintiff is entitled to recover a sum equal to the aggregate amount of costs and expenses (including attorneys' fees based on actual time expended) determined by the Court to have reasonably been incurred by Plaintiff and Nationwide Class members in connection with the commencement and prosecution of this action.

158. Plaintiff also seeks the establishment of a GM-funded program for Plaintiff and Nationwide Class members to recover out-of-pocket costs incurred in attempting to rectify and mitigate the effects of the Engine Defect in their Class Vehicles.

COUNT II: UNJUST ENRICHMENT
(On Behalf of the Nationwide Class or, Alternatively, on Behalf of the Illinois Class)

159. Plaintiff incorporates by reference the Substantive Allegations set forth in § IV above as if fully stated herein.

160. Plaintiff pleads this claim separately as well as in the alternative to his claims for damages under Fed. R. Civ. P. 8(a)(3).

161. Plaintiff brings this claim on behalf of himself and the Nationwide Class under the common law of unjust enrichment, which is materially uniform in all states. In the alternative, Plaintiff brings this claim on behalf of each of the Illinois Classes under the laws of Illinois.

162. Defendant designed, manufactured, produced, distributed, marketed, and/or sold the Class Vehicles during the relevant period herein.

163. Plaintiff and members of the Classes conferred non-gratuitous benefits upon Defendant, without knowledge that the Class Vehicles contained the Engine Defect.

164. Defendant appreciated, or had knowledge of, the non-gratuitous benefits conferred upon them by Plaintiff and members of the Classes.

165. Defendant accepted or retained the non-gratuitous benefits conferred by Plaintiff and members of the Classes, with full knowledge and awareness that, as a result of Defendant's unconscionable wrongdoing, Plaintiff and members of the

Classes were not receiving products of high quality, nature, fitness, or value that had been represented by Defendant and reasonable consumers would have expected.

166. Retaining the non-gratuitous benefits conferred upon Defendant by Plaintiff and members of the Classes under these circumstances made Defendant's retention of the non-gratuitous benefits unjust and inequitable.

167. Because Defendant's retention of the non-gratuitous benefits conferred by Plaintiff and members of the Classes is unjust and inequitable, Plaintiff and members of the Classes are entitled to, and hereby seek, disgorgement and restitution of Defendant's wrongful profits, revenue, and benefits in a manner established by the Court.

COUNT III: FRAUDULENT CONCEALMENT
(On Behalf of the Nationwide Class or,
Alternatively, on Behalf of the Illinois Class)

168. Plaintiff incorporates by reference every allegation set forth in preceding paragraphs as if fully stated herein.

169. Plaintiff brings this claim on behalf of himself and the Nationwide Class under the common law of fraudulent concealment, which is materially uniform in all states. In the alternative, Plaintiff brings this claim on behalf of the Illinois Classes under the laws of Illinois.

170. GM fraudulently concealed and suppressed material facts concerning the quality of the Class Vehicles and the existence of the Defect.

171. Despite advertising the Class Vehicles as safe, reliable, and being of high quality, GM knew when it manufactured, marketed, and sold or leased the Class Vehicles that the Class Vehicles suffered from a design and/or manufacturing defect that reduced the Class Vehicles' value and subjected the Class Vehicles to the risk of stalling while driving and that rendered the Class Vehicles unreliable and posed significant safety hazards to drivers.

172. GM failed to disclose these facts to consumers at the time it manufactured, marketed, and sold or leased the Class Vehicles, and GM knowingly and intentionally engaged in this concealment in order to boost sales and revenue, maintain its competitive edge in the automobile market, and obtain windfall profits. Through its active concealment and/or suppression of these material facts, GM sought to increase consumer confidence in the Class Vehicles, and to falsely assure purchasers and lessors of the same that the Vehicles were of sound quality and that GM was a reputable manufacturer that stands behind the automobiles it manufactures. GM engaged in this behavior to protect its profits, avoid warranty replacements, avoid recalls that would impair the brand's image, cost it money, and undermine its competitiveness in the automobile industry.

173. Plaintiff and Class members were unaware, and could not reasonably discover on their own, that GM's representations were false and misleading, or that it had omitted material facts relating to the Class Vehicles.

174. GM had a duty to disclose, rather than conceal and suppress, the full scope and extent of the Defect because:

(a) GM had exclusive or far superior knowledge of the Defect and concealment thereof;

(b) the facts regarding the Defect and concealment thereof were known and/or accessible only to GM;

(c) GM knew that Plaintiff and Class members did not know about, or could not reasonably discover, the Defect and concealment thereof; and

(d) GM made representations and assurances about the qualities of the Class Vehicles, and about the existence of a repair for the Defect that were misleading, deceptive, and incomplete without the disclosure of the fact that the Class Vehicles suffered from a latent and inherent design and/or manufacturing defect.

175. These omitted and concealed facts were material because a reasonable consumer would rely on them in deciding to purchase or lease the Class Vehicles, and because they substantially reduced the value of the Class Vehicles purchased or leased by Plaintiff and Class members. Whether the Class Vehicles were defective, of sound quality, safe, reliable, and whether GM stood behind such Vehicles would have been an important factor in Plaintiff's and the Class members' decisions to purchase or lease the Vehicles. Plaintiff and Class members trusted GM not to sell them vehicles that were defective and significantly overpriced.

176. GM intentionally and actively concealed and suppressed these material facts to falsely assure consumers that their Class Vehicles were free from known defects, as represented by GM and reasonably expected by consumers.

177. Plaintiff and Class members were unaware of these omitted material facts and would have paid less for the Class Vehicles, or would not have purchased/leased them at all, if they had known of the concealed and suppressed facts. Plaintiff and Class members did not receive the benefit of their bargain due to GM's fraudulent concealment. Plaintiff's and Class members' actions in purchasing the Class Vehicles were justified. GM was in exclusive control of the material facts, and such facts were not known or reasonably knowable to the public, Plaintiff, or Class members.

178. Plaintiff and Class members relied to their detriment upon GM's reputation, fraudulent misrepresentations, and material omissions regarding the quality, safety, and reliability of the Class Vehicles.

179. As a direct and proximate result of GM's deceit and fraudulent concealment, including its intentional suppression of true facts, Plaintiff and Class members suffered injury. They purchased and leased Class Vehicles that had a diminished value by reason of GM's concealment of, and failure to disclose, the Defect.

180. Accordingly, GM is liable to the Nationwide Class and/or Illinois Class for their damages in an amount to be proven at trial.

181. On information and belief, GM has still not made full and adequate disclosure and continues to defraud Plaintiff and Class members. GM also continues to conceal material information regarding the Defect.

182. GM's acts were done deliberately, with intent to defraud, and in reckless disregard of Plaintiff's and the Class members' rights. GM's conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT IV: STRICT PRODUCT LIABILITY
(On Behalf of the Nationwide Class or,
Alternatively, on Behalf of the Illinois Class)

183. Plaintiff incorporates by reference every allegation set forth in preceding paragraphs as if fully stated herein.

184. Plaintiff brings this claim on behalf of himself and the Nationwide Class under the common law of fraudulent concealment, which is materially uniform in all states. In the alternative, Plaintiff brings this claim on behalf of the Illinois Class under the laws of Illinois.

185. By placing an unreasonably dangerous product in the stream of commerce, Defendant is strictly liable.

186. Defendant is strictly liable for designing, engineering, testing, validating, manufacturing, marketing, and placing in the stream of commerce the

Class Vehicles which are unreasonably dangerous and defective due to the Engine Defect.

187. Defendant designed, engineered, tested, validated, manufactured, marketed, and placed in the stream of commerce the Class Vehicles which are unreasonably dangerous and defective due to the Engine Defect.

188. The Class Vehicles and L87 Engines installed therein are being used in an intended and/or foreseeable manner. Plaintiff and Class Members have not misused or materially altered the Class Vehicles or the L87 Engines. The Class Vehicles and L87 Engines are in the same or substantially similar condition as they were at the time of purchase or lease.

189. The Class Vehicles and L87 Engines are unreasonably dangerous and defective because they were designed, engineered, tested, validated, manufactured, and placed in the stream of commerce with the Defect that can cause Class Vehicles to suddenly and unexpectedly experience catastrophic engine failure.

190. The Defect causes an unreasonably dangerous condition when Class Vehicles are used for their intended and foreseeable purpose of providing safe and reliable transportation and places Plaintiff, Class Members, and others on the road at an unreasonable and substantial risk for injury or death.

191. Defendant was aware of feasible alternative designs which would minimize or eliminate the Defect and the risk it poses. Such alternative designs were

known and available when the Class Vehicles and L87 Engines were designed, engineered, tested, validated, manufactured, and placed in the stream of commerce.

192. Defendant failed to design, test, validate, manufacture, and place in the stream of commerce a Class Vehicle and L87 Engines that are free from the Defect and the unreasonable safety risks it poses.

193. The Defect causes damage to property other than the L87 Engine itself, including damage to other components of the Class Vehicles as a result of engine failures and other property located within the vehicles.

194. As a direct and proximate result of Defendant's actions as described herein, Plaintiff and the other Class Members have been damaged in an amount to be determined at trial.

COUNT V: BREACH OF IMPLIED WARRANTY OF MERCHANTABILITY
(On Behalf of the Nationwide Class)

195. Plaintiff incorporates by reference every allegation set forth in preceding paragraphs as if fully stated herein.

196. Plaintiff brings this claim on behalf of himself and the Nationwide Class for breach of implied warranty pursuant to U.C.C. § 2-314.

197. Defendant is a "merchant," a "seller," and "lessor" of motor vehicles under the U.C.C.

198. Defendant was, at all relevant times, the manufacturer, distributor, warrantor, seller and/or lessor of the Class Vehicles. Defendant knew or had reason to know of the specific use for which the Class Vehicles were purchased or leased.

199. GM impliedly warranted that the Class Vehicles and any parts thereof are of merchantable quality and fit for the ordinary purposes for which they were sold. This implied warranty included, among other things, a warranty that the Class Vehicles are safe and reliable for providing transportation and would not result in the premature wear and eventual failure of its engine. However, the Class Vehicles are not fit for their ordinary purpose of providing reasonably reliable and safe transportation at the time of sale or thereafter because, *inter alia*, the Class Vehicles suffered from the Engine Defect at the time of sale that creates the undue risk of engine failure and stalling while driving. Therefore, the Class Vehicles are not fit for their particular purpose of providing safe and reliable transportation.

200. Contrary to the applicable implied warranties, the Class Vehicles at the time of sale and thereafter were not fit for their ordinary and intended purpose of providing Plaintiff and other Class members with reliable, durable, and safe transportation. Instead, the Class Vehicles suffer from a defective design(s) and/or manufacturing defect(s).

201. Defendant had actual knowledge of the Engine Defect, and wrongfully and fraudulently concealed these material facts from Plaintiff and the Class.

Defendant was provided notice of these issues through, *inter alia*, warranty claims, its defect investigations, complaints posted on the internet, customer lawsuits, and complaints lodged by consumers with NHTSA – which Defendant routinely monitors – before or within a reasonable amount of time after the allegations of the Defect became public. Plaintiff, individually and on behalf of the Classes, also notified GM of the Engine Defect and the breach of warranty alleged herein through a notice letter, dated June 17, 2025.

202. GM's actions, as complained of herein, breached the implied warranty that the Class Vehicles were of merchantable quality and fit for such use.

203. Plaintiff and other Class members have had sufficient direct dealings with Defendant to establish privity of contract between Defendant on one hand, and Plaintiff and each of the other Class members on the other hand. Nonetheless, privity is not required here because Plaintiff and each of the other Class members are intended third-party beneficiaries of contracts between Defendant and their dealers, and specifically, of Defendant's implied warranties. The dealers were not intended to be the ultimate consumers of the Class Vehicles and have no rights under the warranty agreements provided with the Class Vehicles; the warranty agreements were designed for and intended to benefit the consumers only. Additionally, privity is excused here because Plaintiff and each of the other Class members relied on statements made by Defendant itself in choosing to purchase or lease a Class

Vehicle. As alleged herein, the marketing of the Class Vehicles was uniform, and was controlled and disseminated directly by Defendant.

204. Plaintiff, on behalf of himself and the Class, seeks monetary damages, treble damages, costs, attorneys' fees, and such other and further relief provided by law and equity.

COUNT VI:
VIOLATION OF THE ILLINOIS CONSUMER FRAUD AND DECEPTIVE BUSINESS PRACTICES ACT
(815 ILL. COMP. STAT. 505/1 *et seq.*)
(On Behalf of the Illinois Class)

205. Plaintiff incorporates by reference every allegation set forth in preceding paragraphs as if fully stated herein.

206. Plaintiff brings this claim individually and on behalf of the other members of the Illinois Class.

207. The Illinois Consumer Fraud and Deceptive Business Practices Act ("Illinois CFA") prohibits unfair or deceptive acts or practices in connection with any trade or commerce, "including but not limited to the use or employment of any deception fraud, false pretense, false promise, misrepresentation or the concealment, suppression or omission of any material fact, with intent that others rely upon the concealment, suppression or omission of such material fact . . . whether any person has in fact been misled, deceived or damaged thereby." 815 ILL. COMP. STAT. 505/2.

The Illinois CFA also prohibits suppliers from representing that their goods are of a particular quality or grade they are not.

208. GM is a "person" as that term is defined in 815 ILL. COMP. STAT. 505/1(c).

209. Plaintiff and the Illinois Class are "consumers" as that term is defined in 815 ILL. COMP. STAT. 505/1(e).

210. As alleged more fully herein, GM has violated Illinois' prohibition on unfair conduct because its acts, omissions, policies, and course of conduct: (a) offend public policy; (b) are immoral, unethical, oppressive, and unscrupulous; and (c) cause substantial injury to consumers in violation of the Illinois CFA. *Robinson v. Toyota Motor Credit Corp.*, 201 Ill. 2d 403, 417 (2002). Its unfair business practices include failing to disclose, at the point of sale or otherwise, that the Class Vehicles contain the Engine Defect and pose a safety hazard.

211. GM has also violated the Illinois CFA's prohibition on deceptive conduct in that it used unconscionable business practices by failing to disclose to Plaintiff and other members of the Illinois Class, in its public statements touting the safety of the Class Vehicles including at the point of sale, that the Class Vehicles contain the Engine Defect.

212. As a direct and proximate result of GM's failure to disclose the Defect, Plaintiff and other members of the Illinois Class have been harmed in that they

purchased Class Vehicles they otherwise would not have; paid more for Class Vehicles than they otherwise would have; and are left with Class Vehicles of diminished value and utility because of the Defect. Meanwhile, GM has sold more Class Vehicles than it otherwise could have and charged inflated prices for Class Vehicles, unjustly enriching itself thereby.

213. Plaintiff seeks damages and appropriate equitable relief, including an Order requiring GM to adequately disclose and repair the Defect, and an Order enjoining GM from incorporating the Defect into its vehicles in the future.

214. Based on the foregoing, Plaintiff and the Illinois Class are entitled to all remedies available pursuant to the Illinois CFA, including refunds, actual damages, liquidated damages, punitive damages, attorneys' fees, and other reasonable costs. Plaintiff and the Illinois Class also request that the Court award equitable relief, including an Order requiring GM to adequately disclose and repair the Defect and an Order enjoining GM from incorporating the Defect into its vehicles in the future.

COUNT VII: BREACH OF IMPLIED WARRANTY OF MERCHANTABILITY
(810 ILL. COMP. STAT. 5/2-314, 810 ILL. COMP. STAT. 5/2A-212)
(On Behalf of the Illinois Class)

215. Plaintiff incorporates by reference every allegation set forth in preceding paragraphs as if fully stated herein.

216. Plaintiff brings this claim individually and on behalf of the other members of the Illinois Class.

217. GM is a "merchant" (as defined by 810 Ill. Comp. Stat. 5/2-104(1)), a "seller" (as defined by 810 Ill. Comp. Stat. 5/2-103(1)(d)), and a "lessor" (as defined by 810 Ill. Comp. Stat. 5/2A-103(1)(p)) of Class Vehicles.

218. The Class Vehicles are "goods" (as defined by 810 Ill. Comp. Stat. 5/2-105(1) and 810 Ill. Comp. Stat. 5/2A-103(h)).

219. Pursuant to 810 Ill. Comp. Stat. 5/2-314(1), "a warranty that the goods shall be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind."

220. Pursuant to 810 Ill. Comp. Stat. 5/2A-212(1), "a warranty that the goods will be merchantable is implied in a lease contract if the lessor is a merchant with respect to goods of that kind."

221. Goods are merchantable if they are "fit for the ordinary purposes for which such goods are used" and "conform to the promises or affirmations of fact made on the container or label if any." 810 Ill. Comp. Stat. 5/2-314(2)(c), (f); 810 Ill. Comp. Stat. 5/2A-212(2)(c), (f).

222. Defendant was, at all relevant times, the manufacturer, distributor, warrantor, and/or seller of the Class Vehicles. Defendant knew or had reason to know of the specific use for which the Class Vehicles were purchased.

223. Defendant provided Plaintiff and the Illinois Class members with an implied warranty that the Class Vehicles and any parts thereof are merchantable and fit for the ordinary purposes for which they were sold. However, the Class Vehicles are not fit for their ordinary purpose of providing reasonably reliable and safe transportation at the time of sale or thereafter because, *inter alia*, the Class Vehicles suffered from the Engine Defect at the time of sale that creates the undue risk of the engine stalling while driving. Therefore, the Class Vehicles are not fit for their particular purpose of providing safe and reliable transportation.

224. Defendant impliedly warranted that the Class Vehicles were of merchantable quality and fit for such use. This implied warranty included, among other things, a warranty that the Class Vehicles were manufactured, supplied, distributed, and/or sold by Defendant, were safe and reliable for providing transportation, and would not result in the vehicles stalling in the middle of traffic.

225. Contrary to the applicable implied warranties, the Class Vehicles at the time of sale and thereafter were not fit for their ordinary and intended purpose of providing Plaintiff and other Class members with reliable, durable, and safe transportation. Instead, the Class Vehicles suffer from a defective design(s) and/or manufacturing defect(s).

226. Defendant had actual knowledge of the Engine Defect, and wrongfully and fraudulently concealed these material facts from Plaintiff and the Class.

Defendant was provided notice of these issues through, *inter alia*, warranty claims, its defect investigations, complaints posted on the internet, customer lawsuits, and complaints lodged by consumers with NHTSA – which Defendant routinely monitors – before or within a reasonable amount of time after the allegations of the Defect became public. Plaintiff, individually and on behalf of the Classes, also notified GM of the Engine Defect and the breach of warranty alleged herein through a notice letter, dated June 17, 2025.

227. Defendant's actions, as complained of herein, breached the implied warranty that the Class Vehicles were of merchantable quality and fit for such use.

228. Plaintiff and the Illinois Class members have had sufficient direct dealings with either Defendant or its agents (*e.g.*, dealerships, consumer affairs departments, and technical support) to establish privity of contract between Defendant on one hand, and Plaintiff and each of the other Class members on the other hand. Nonetheless, privity is not required here because Plaintiff and each of the other Class members are intended third-party beneficiaries of contracts between Defendant and their dealers, and specifically, of Defendant's implied warranties. The dealers were not intended to be the ultimate consumers of the Class Vehicles and have no rights under the warranty agreements provided with the Class Vehicles; the warranty agreements were designed for and intended to benefit the consumers only. Defendant was also aware that the ultimate consumers of the Class Vehicles

(*i.e.*, the Class) required vehicles that would function safely, could be relied upon, and otherwise meet minimum industry standards. Additionally, privity is excused here because Plaintiff and each of the other Class members relied on statements made by Defendant itself in choosing to purchase or lease a Class Vehicle. As alleged herein, the marketing of the Class Vehicles was uniform, and was controlled and disseminated directly by Defendant.

229. Plaintiff, on behalf of himself and the Illinois Class, seeks monetary damages, treble damages, costs, attorneys' fees, and such other and further relief provided by law and equity.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff, individually and on behalf of members of the Class, respectfully requests that this Court:

a. Certify this action as a class action, proper and maintainable pursuant to Rule 23 of the Federal Rules of Civil Procedure; declare that Plaintiff is a proper class representative; and appoint Plaintiff's counsel as Class Counsel;

b. Declare that any applicable statutes of limitations are tolled due to Defendant's fraudulent concealment and that Defendant is estopped from relying on any statutes of limitations in defense;

c. Grant appropriate injunctive and/or declaratory relief, including, without limitation, an order that requires Defendant to repair and/or recall the Class

Vehicles and to extend the applicable warranties to a reasonable period of time, or, at a minimum, to provide Plaintiff and Class Members with appropriate curative notice regarding the existence and cause of the Defect;

d. Award Plaintiff and Class Members actual, compensatory, general, special, incidental, statutory, punitive, and consequential damages, costs, and disgorgement in an amount to be determined at trial;

e. Award to Plaintiff the costs and disbursements of the action, along with reasonable attorneys' fees, costs, and expenses;

f. Award pre- and post-judgment interest at the maximum legal rate;

g. Grant leave to amend this Complaint to conform to the evidence produced in discovery and at trial; and

h. Grant all such other relief as is just and proper.

VIII. DEMAND FOR JURY TRIAL

Plaintiff demands a jury trial on all claims so triable.

Dated: June 18, 2025

/s/ Dennis A. Lienhardt
E. Powell Miller (P39487)
Dennis A. Lienhardt (P81118)
Dana E. Fraser (P82873)
THE MILLER LAW FIRM PC
950 W. University Drive, Suite 300
Rochester, MI 48307
Telephone: (248) 841-2200
epm@millerlawpc.com
dal@millerlawpc.com
def@millerlawpc.com

Elizabeth A. Fegan
FEGAN SCOTT LLC
150 S. Wacker Dr., 24th Floor
Chicago, IL 60606
Phone: 312.741.1019
Fax: 312.264.0100
beth@feganscott.com

Jonathan D. Lindenfeld
FEGAN SCOTT LLC
305 Broadway, 7th Floor
New York, NY 10007
Phone: 332.216.2101
Fax: 312.264.0100
jonathan@feganscott.com

Attorneys for Plaintiff

UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF MICHIGAN

BRIAN MARKUS, individually and on behalf of all others similarly situated, Plaintiff, v. GENERAL MOTORS, LLC, Defendant.	Case No.:

INDEX OF EXHIBITS TO CLASS ACTION COMPLAINT

EXHIBIT NUMBER	DESCRIPTION
1	GM 2018 Self-Driving Safety Report
2	GMC website “Locate a GMC Dealer Near You”
3	GM Press Release (January 3, 2025)
4	2022 Chevrolet Silverado 1500 LTD: Rugged, Reliable, and Feature-Packed Pickup

5	GMC marketing website, 2024 GMC Sierra 1500 AT4 & AT4X AEV
6	2024 Cadillac Escalade marketing website
7	2024 Chevy Suburban marketing website
8	SubTech, “Bearings in internal combustion engines”
9	GM Authority, “GM 6.2 Liter V8 EcoTec3 L87 Engine”
10	GM Powered Solutions, “6.2L L87 V-8 Small-Block Engine”
11	Detroit News, “New Chevy Silverado gets 2.7-liter turbo four, updated V-8s” (May, 18, 2018)
12	Part 573 Safety Recall Report 25V-274 (April 24, 2025)
13	Car and Driver, “How the 24 Hours of GM Chases the Bugs Out of Their Performance Cars” (August 23, 2013)
14	GM website, “GM Quality, Durable, and Reliable Vehicles”
15	Detroit Free Press, “Rigorous testing. Renowned durability” (March 6, 2023)
16	Chevrolet GM Genuine Parts Engine Connecting Rod Bearing Set
17	GM TechLink, “V8 Engine Crankshaft Bearing Conditions”
18	Chevy Silverado and GMC Sierra Forum, “6.2 Main Bearing Fail”

19	Reddit r/gmcsierra, “L87 6.2L engine bearing failure”
20	Car and Driver, “Faulty Connecting-Rod Bearing Causing Engine Failures in GM Four-Cylinders” (December 9, 2013)
21	GM, Safety Recall N252494001 L87 Engine Loss of Propulsion (April 2025)
22	GM, Safety Recall N252494002 L87 Engine Loss of Propulsion (May 2025)

EXHIBIT 1

2018 SELF-DRIVING SAFETY REPORT

GENERAL MOTORS

CREATING NEW TECHNOLOGY TO BRING NEW BENEFITS

Imagine a world with no car crashes. Our self-driving vehicles aim to eliminate human driver error — the primary cause of 94 percent of crashes — leading to fewer injuries and fatalities.

Imagine widespread use of electric-only vehicles, reducing vehicle emissions. Our self-driving vehicles will all be electric, contributing to a better environment.

Imagine not sitting in traffic for what feels like half your life. And imagine a crowded city not filled with congested roads and parking lots and structures but with efficiently moving traffic and more space. Nearly one of three cars on city streets at any given time is simply looking for parking. Our technology will create better use of time and space. For everyone.

Imagine the peace of mind knowing that whatever our age, our stage of life or our physical capabilities we have the freedom to go wherever we want to go. Our self-driving vehicles will improve access to mobility for those who currently cannot drive due to age, disability, or otherwise.

The pathway to get all of us to this world requires integrating the software expertise of Silicon Valley with the systems safety and manufacturing expertise of Detroit and our teams around the world. With safety at the core, we are ready to take the next step.

OUR VISION

At General Motors, we envision a future with zero crashes, zero emissions and zero congestion:

Zero crashes to save lives

Each year close to 1.25 million people die in car crashes around the world, 40,000 in the United States alone. More than 2 million people are injured. Human error is a major contributing factor in 94 percent of these crashes.

Zero emissions to leave our children a healthier planet

Vehicles release almost 2 billion tons of carbon dioxide into the atmosphere every year.

Zero congestion to give our customers back their precious time

In the United States, commuters spend about a week of their lives in traffic each and every year. That's a week not spent with those we love, doing what we want to do and being where we want to be.

OUR MISSION

General Motors' mission is to bring our vision of a world of zero crashes, zero emissions and zero congestion to life. Safely developing and deploying electric self-driving vehicles at scale will dramatically change our world.

MEET THE CRUISE AV: OUR ZERO EMISSION SELF-DRIVING VEHICLE

You might think it looks like any other vehicle, but the Cruise AV was built from the start to operate safely on its own, with no driver. We engineered safety into the vehicle in every single step of design, development, manufacturing, testing and validation.

Our self-driving vehicle is the result of intensely focused development, and countless hours of real-world testing and validation. It doesn't drink and drive, doesn't text and drive, doesn't get upset, doesn't get tired, never gets distracted and doesn't produce any emissions.

With its advanced sensor systems, the Cruise AV has the capability to see the environment around it, in 360 degrees, day and night. It is designed to identify pedestrians in a crosswalk, or an object darting suddenly into its path, and to respond accordingly. It can maneuver through construction cones, yield to emergency vehicles and react to avoid collisions.

By integrating our self-driving system into the vehicle from the beginning, and through close coordination between the hardware and software teams, we have evaluated potential failure modes for all systems, and addressed them throughout development to ensure a safe and reliable product. This comprehensive, integrated approach to safety, combined with testing in one of the most complex environments in the world, allows us to safely take the next step — elimination of the steering wheel, pedals and other manual controls — from the vehicle.

Our Cruise AV has the potential to provide a level of safety far beyond the capabilities of humans. As our experience and iterative improvements continue, we will advance closer to our zero crashes vision.

HOW WE DESIGN A SAFE VEHICLE

General Motors is committed to safety in everything we do.

With safety top of mind, our self-driving vehicle development process started by analyzing the act of driving itself. We broke down every action necessary to safely navigate from point A to point B and determined how to execute each action in different locations and conditions. We then challenged prototype after prototype through simulation and real-world testing to develop and refine how each of the vehicle's systems work together to result in predictable, safe driving.

We have designed and built a self-driving car to safely operate among aggressive drivers, jaywalkers, bicyclists, delivery trucks, construction, unprotected left turns, 4-way stop signs and countless other factors that arise when driving in the city.

To define and handle all these real-world interactions safely, we combined the best of Detroit, Silicon Valley and our teams around the world to continuously improve performance and safety throughout design, development and deployment.

We combined the best of Detroit, Silicon Valley and our teams around the world.

We developed our vehicle in one of the most complex environments possible — San Francisco — to ensure that our vehicle can drive safely even in the most unpredictable circumstances and conditions. This challenge helped us put our safety systems through rigorous tests.

Our fleet is growing by the day, and each vehicle contributes to a shared knowledge base so that each vehicle can learn from the collective experiences of the entire fleet. If one car sees that a road is closed, the others automatically avoid it. Or if there's a dangerous road hazard, a single car can notify thousands of others to avoid a potentially unsafe situation. This fleet learning capability is just one of many advantages our vehicles have over human drivers. This combined data is used to improve each individual car's performance and safety.

Our iterative design process doesn't stop with initial launch; we will deploy our self-driving vehicles in GM-operated fleets, enabling continuous improvement into the future.

We're not only learning from what our test fleet does on the road, we're also learning from what doesn't happen. We combine data gathered from our extensive testing with comprehensive safety analyses to identify additional potential challenges we may not have experienced on the road. Then we determine how best to respond to those unseen challenges as well. It's all in the name of our zero crashes vision.

We believe that a safe self-driving car must be built from the ground up, seamlessly integrating the self-driving system into the vehicle. That's exactly what we did, starting with our all-electric Chevrolet Bolt EV, a vehicle platform designed as a gateway to the future of transportation.

A COMPUTER "BRAIN" BUILT FROM TECHNOLOGIES AND SYSTEMS

At the center of our vehicle's self-driving capabilities are computers that perform the functions necessary to understand the world around the vehicle and make the driving decisions that safely transport passengers. No one technology makes this "brain" work. Instead, the computers use a combination of systems that work safely together, including:

HOW THE CRUISE AV OPERATES

Let's look at three of these elements — **Perception**, **Planning** and **Controls** — to showcase how the Cruise AV senses its environment and makes driving decisions.

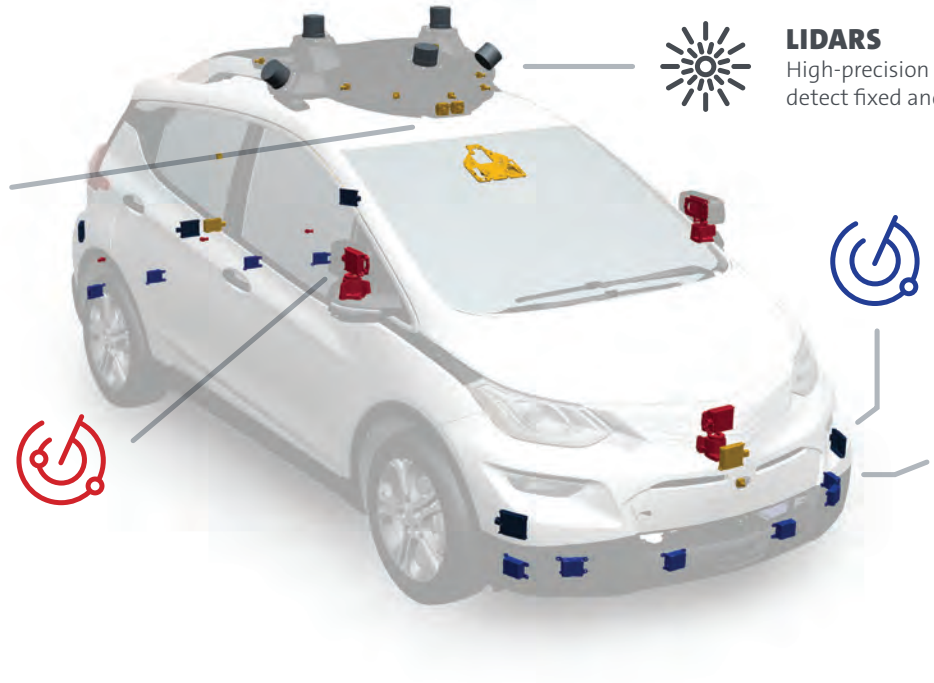
Allows safe operation based upon both what the sensors "see," as well as what may be hidden from view.

In our self-driving vehicle, **Perception** "sees" by using sensors to monitor its environment. The sensors feed information to the computer that combines the sensor data with high-definition map data to localize the vehicle. Perception detects and classifies objects, determines their location and provides their speed and direction. It builds a three-dimensional model of the world that keeps track of important objects. Perception also predicts the objects' future motion — pedestrians and trucks have different predicted movements. Using the three-dimensional model and map data, Perception determines free, drivable space around the vehicle.

Perception identifies other environmental uncertainties. For example, with knowledge of its location, Perception knows where it must look for moving objects. If its view is blocked, Perception will flag that area as unknown. If an object is hard to see because of rain or fog, or because it is hidden behind a truck, the computer brain knows that and adjusts its decision-making and performance accordingly.

This allows prudent decision-making and operation based upon both what the sensors "see," as well as what may be hidden from view.

To perform Perception functions, the vehicle has five LiDARs, 16 cameras and 21 radars. Their combined data provides sensor diversity allowing Perception to see complex environments. Our LiDARs, radars



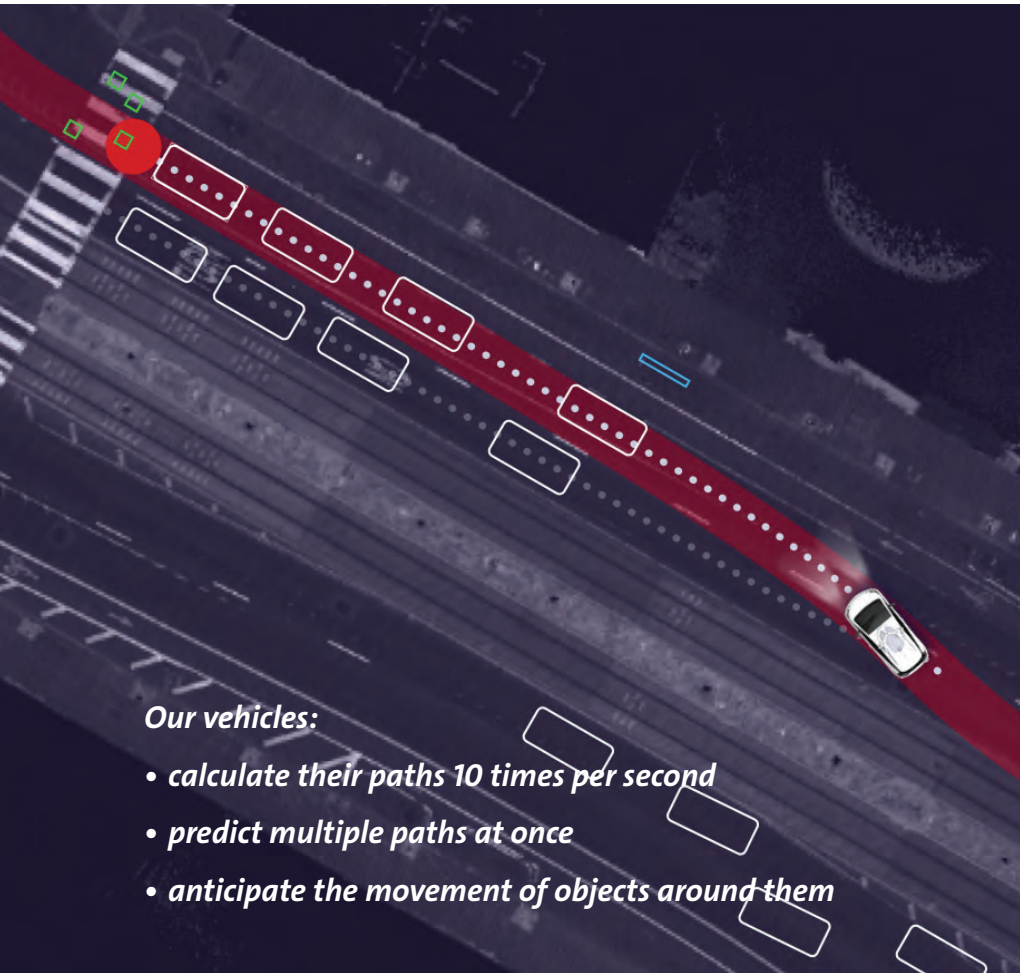
LIDARS
High-precision laser sensors that detect fixed and moving objects

CAMERAS
Detect and track pedestrians / cyclists, traffic lights, free space and other features

LONG-RANGE RADARS
Detect vehicles and measure velocity

ARTICULATING RADARS
Detect moving vehicles at long range over a wide field of view

SHORT-RANGE RADARS
Detect objects around the vehicle



and cameras all scan both long and short range with views 360 degrees around the vehicle. We start with LiDAR, which provides highly precise feedback using laser measurements for both fixed and moving objects. Radar is complementary to LiDAR because it uses electromagnetic pulse measurements and can see solid objects that have low light reflectivity. We use both LiDAR and radar inputs for measuring the speed of moving objects, allowing quick, confident determinations of speed. Cameras are also complementary to LiDAR because they measure the light intensity reflected off or emitted from objects, providing rich detail of the object. We combine LiDAR and camera data for classifying and tracking objects, making high-confidence determinations more quickly. This helps, for example, identify pedestrians, vehicle types and road details such as lane lines, construction zones and signage. Our complementary set of long-range sensors track high-speed objects, such as oncoming vehicles, and the short-range sensors provide detail about moving objects near the vehicle such as pedestrians and bicycles.

With an understanding of space and time, the car plans its path

Within the computers' operations, **Planning** determines the desired vehicle behavior. It accounts for road rules and plans routes for the car to travel from trip origin to destination. It chooses routes to optimize efficiency and safety and to route the car only on streets within its capabilities.

Planning operations are based upon vehicle location, other road users' predicted actions, traffic controls, road markings, rules of the road and other external factors. Planning identifies multiple paths per second, and constantly chooses the best one to meet changing road conditions and events.

If something unexpected happens, Planning has multiple backup plans. For example, while preparing to change lanes to turn right at an intersection, another vehicle may aggressively cut into the destination lane, making the lane change unsafe. Planning would already have an alternative route planned; for example, the vehicle could go around the block instead of blocking its current lane while waiting for an opening to change lanes.

The **Controls** function implements the final path from Planning, converting its commands for the actuators that control the steering, throttle, brake and drive unit. We've designed the Controls function to give the self-driving system full vehicle maneuverability complete with stability, traction and anti-lock brake systems fully active.

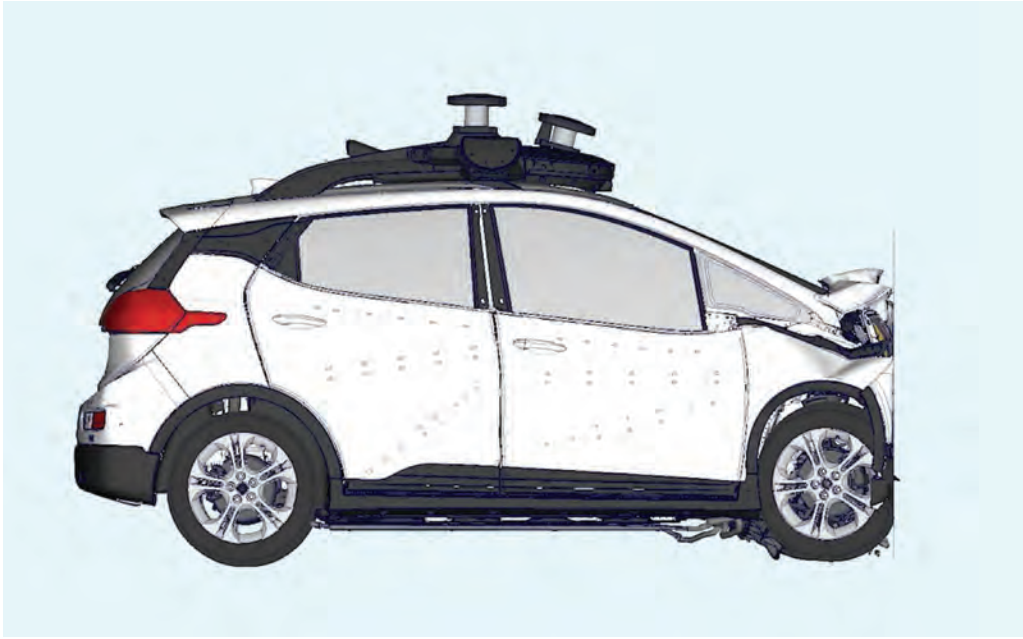
SAFETY AT EVERY STEP

As we create and refine the technology that drives the car, we apply our comprehensive System Safety program throughout the design, development and validation of all the vehicle's systems — mechanical, electrical and compute — and we prioritize safety every step of the way.

Our System Safety program incorporates proven processes from engineering standards organizations, 100-plus years of our own experience, from other industries such as aerospace, pharmaceutical and medical, and from the military and defense industries. Self-driving vehicles require system diversity, robustness and redundancies similar to strategies used for the most advanced fighter planes and deep-space satellites.

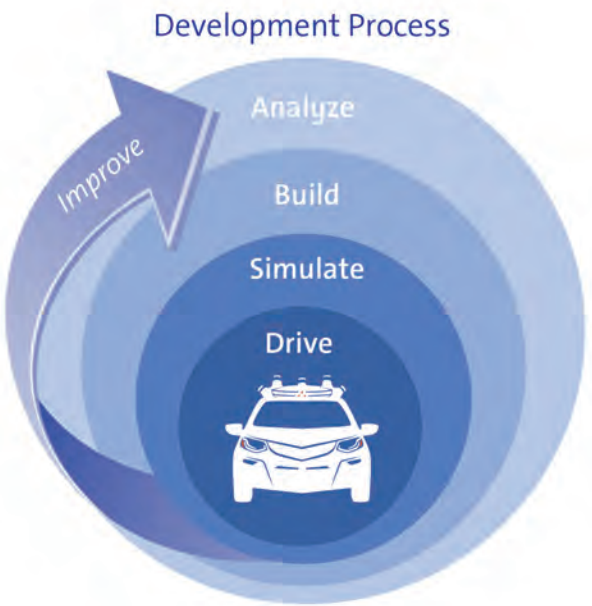
We focus on the capabilities of each system to give the vehicle's computers full control of acceleration, braking and steering, and the ability to make the right decisions to drive safely on the road. This also requires thoroughly analyzing each system to identify the safety risks and challenges, and to eliminate or safely manage each one.

Our System Safety process has two key components that work together to allow us to create a safe vehicle design: Safety through Iterative Design, and Safety through Comprehensive Risk Management and Deep Integration.



Safety through Iterative Design

Our design continuously improves with each iteration of the vehicle and its systems. For example, the Cruise AV is the fourth generation of our self-driving vehicle. Our teams design and create technologies and systems, test them in the field and in simulations, and then feed the results back into the design process. This way we incorporate learnings, especially safety data, into future generations so they will be even safer. We do this over and over again, leading to new technologies and systems at the heart of our self-driving vehicle. This iterative design process is strengthened by our Deep Integration, which makes the self-driving system an integral part of the vehicle from the outset. This integrated approach enabled us to build our vehicle with diverse technology and redundant vehicle functionality.



Safety through Comprehensive Risk Management and Deep Integration

We believe that a truly safe self-driving car cannot be built by simply adding a self-driving system onto an existing vehicle in a plug-and-play fashion. It must be built from the ground up, seamlessly integrating the self-driving system into the vehicle. The benefits of iterative design and comprehensive risk management are grounded in the vehicle's deep integration.

Comprehensive Risk Management is a key component of our System Safety process. Throughout the design, development and testing processes, our Comprehensive Risk Management approach thoroughly identifies and addresses risks, and validates solutions to address them. This is a constant element of our Systems Safety process, which prioritizes elimination, not just mitigation, of safety risks wherever possible.

Our self-driving vehicles, including all the hardware and systems necessary for self-driving operation, meet all our standards for performance, crash protection, reliability, serviceability, security and safety. That rigorous process means we manufacture our self-driving vehicles with the same high-quality standards as the millions of vehicles we build for our customers around the world each year.

SYSTEMS DIVERSITY AND REDUNDANCY

An important result of our Comprehensive Risk Management and Deep Integration process is systems diversity and redundancy, which are key drivers of the safety of the Cruise AV.

Self-Driving Computer

The Cruise AV has two main computer systems operating simultaneously, so if the primary computer has a problem, the secondary system is there to take over.

Vehicle Localization

The vehicle's location is estimated by many different methods, which means that even if the localization information from one system becomes unavailable, the vehicle can use localization information generated by other sources, such as from LiDAR data or from our inertial tracking system.

Electrical Power

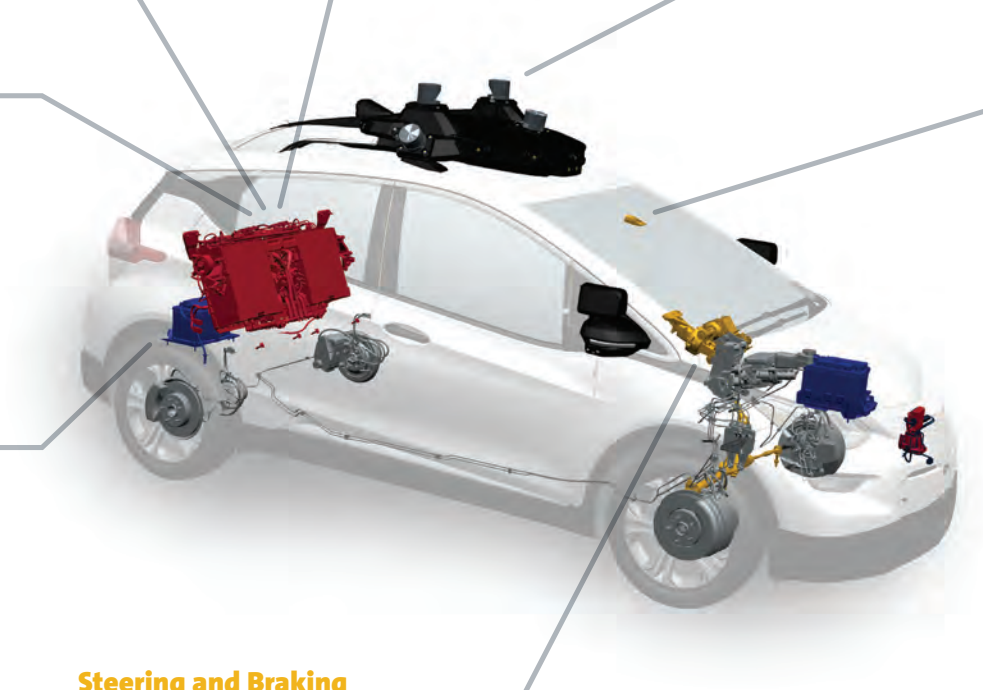
We have included redundant electrical power sources and power distribution for all important systems. Main power is provided through the high voltage electric vehicle battery. Should power from that battery fail, backup batteries will power all critical sensors, computers and actuators.

Signal Communications

Communications between computers, sensors and actuators have an alternate path if the primary fails.

Perception Sensors

Sensor diversity provides confidence that the self-driving system can detect, track and classify objects around it. Field of view overlaps enable 360-degree vision even if a sensor fails.



Redundant Collision Detection

Our vehicle includes a crash-imminent braking system calibrated to work as a backup to the self-driving system that can apply the brakes to stop the car if necessary.

Steering and Braking

On our self-driving vehicles, the steering and braking systems have redundant motor actuators, electrical power and computer electronics so the vehicle can respond safely and keep performing during a failure.

Integrated Vehicle Health Monitor

Keeps track of diagnostics for all self-driving systems in the vehicle and determines operating state of the vehicle.

System Robustness

All critical systems have been designed, tested and validated through intrusive testing, test track durability testing and extensive on-road mileage accumulation.

OUR PRODUCTION PROCESS SUPPORTS SAFETY

Our self-driving vehicles are built at our assembly plant in Orion Township, Michigan, which builds thousands of vehicles every year. Our employees there build our vehicles to established quality standards — we know that even the best self-driving vehicle will not gain customer trust or satisfaction if it is not built with quality. And our suppliers who manufacture other components make sure their quality meets our high standards.

Our assembly plants are state-of-the-art facilities. The Orion plant where we build our self-driving cars is a large facility, requiring the cooperation of more than 1,000 people and spanning the area of 75 football fields. There are hundreds of assembly vehicles on tracks that weave, rotate and climb through the facility, with equipment and processes that have been honed over decades.

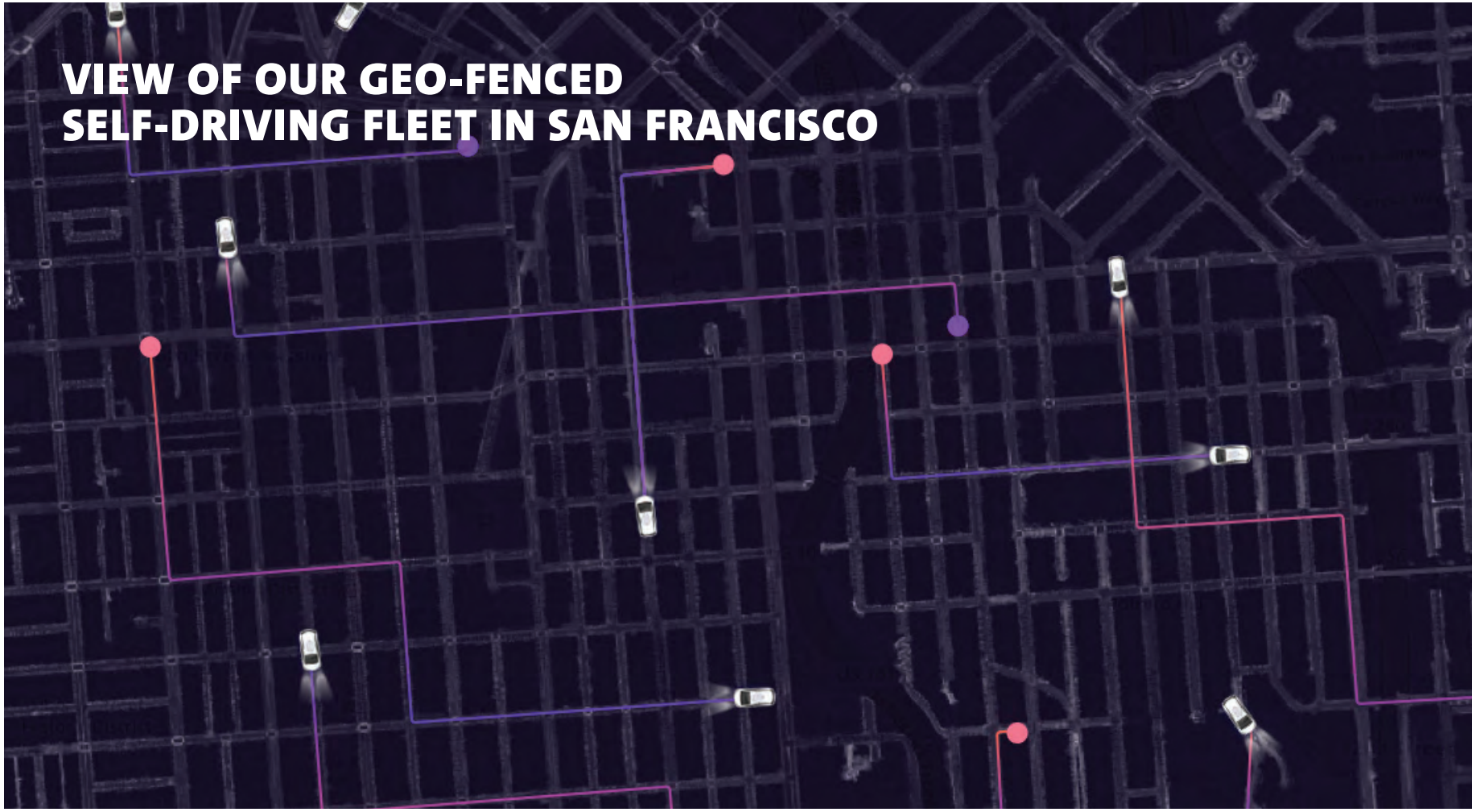
This fully integrated AV manufacturing process is the best way to build safe and reliably performing self-driving vehicles.

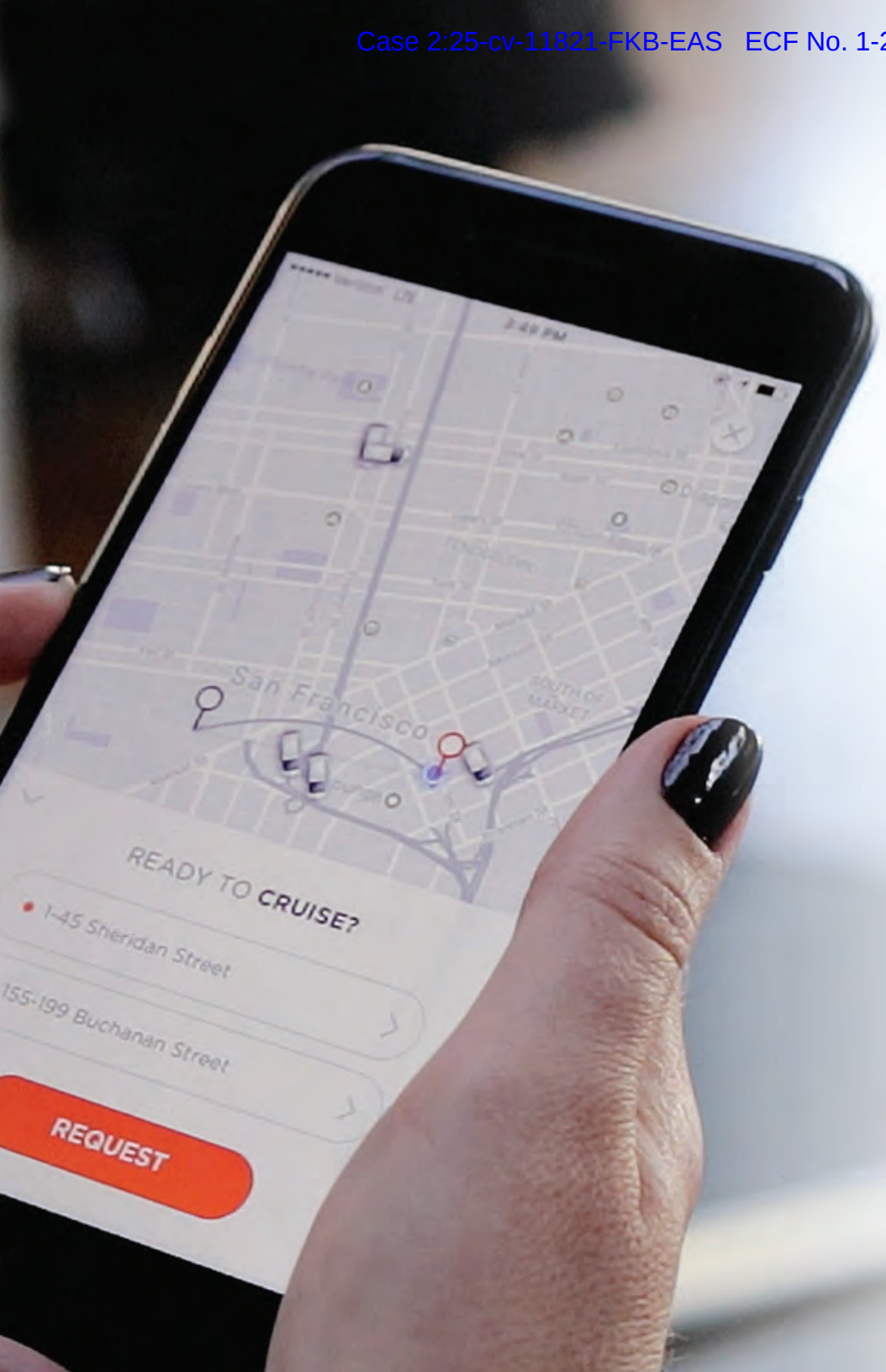
OUR DEPLOYMENT WILL SUPPORT SAFETY AND CONTINUE RAPID IMPROVEMENT

We believe that our self-driving vehicle represents a giant leap forward for advanced auto safety, toward our vision of a world of zero crashes. The first step toward achieving that goal is deploying these vehicles in a ride-share service to help the public become more familiar with this technology. This will allow any consumer — from the early adopter to the skeptic — to experience our self-driving vehicle technology firsthand. Many will also experience their first ride in an all-electric vehicle as well, and they'll see how well-suited electric vehicles are for self-driving ride-share.

In our controlled deployment, our self-driving vehicles will drive only in known geo-fenced boundaries, and only on roads for which we have developed high-definition map data. They will also drive only under known operational conditions and constraints that apply to the entire fleet. We will make sure they are serviced and maintained so that the vehicles' critical systems remain operational and support safe driving.

We will monitor the vehicles and collect data on their performance. As this data is used to identify opportunities for improvements in self-driving operation, we will update the software in all the vehicles — so the entire fleet will continue to get better, and so will future generations of our self-driving vehicles. When one car experiences something new, that data is sent back to the operations center and every other vehicle in our fleet learns from it.





THE RIDE

When we deploy our self-driving vehicles, customers will use a mobile app to request a ride, just like they use ride-sharing today. The only difference is that customers will control the experience — their customized climate control and radio station settings will be sent to the vehicle ahead of when they access their ride. Our fleet operations will send a vehicle to a customer's location for pickup and transport to the desired destination. Inside the vehicle, passengers will find touch screen tablets to access real-time status information about the ride. The tablets will also remind passengers to close all doors and fasten their seat belts.

Passengers will be able to communicate with remote support personnel with the press of a button. There's another button for passengers to press if they want to end a ride because of an emergency. Support personnel may also initiate contact with vehicle passengers in certain circumstances where assistance may be needed, or if a passenger forgets an item in the vehicle after the end of a ride. Once the ride is over, if passengers forget to close the doors, the vehicle can close them itself and move on to the next customer.

ELEMENTS OF SAFETY

As discussed below, our development of our self-driving vehicle, together with our intended deployment of these vehicles in GM-controlled ride-share fleets, fully addresses all 12 safety elements in NHTSA's voluntary guidance, Automated Driving Systems 2.0 – A Vision for Safety.

SYSTEM SAFETY

Robust design and validation processes based on a systems-engineering approach support the goal of designing self-driving operation free of unreasonable safety risks.

We engineer safety into the design, development and validation of our self-driving vehicle through rigorous application of System Safety processes.

Here is a summary of how the System Safety process works:

Designing a capable system and thoroughly analyzing safety performance

To build our self-driving vehicle, we design, develop and validate the comprehensive capabilities described previously in this report. During these processes, our System Safety process asks two questions that help develop safety performance. How does the vehicle maintain safe operation if a component or system breaks or malfunctions? And, even if nothing breaks or malfunctions, how does the vehicle establish safe-driving capabilities on the roads, and with the traffic and weather, that it will face? From the very beginning, we applied rigorous risk analyses to these questions, studying them from multiple angles and using a variety of tools to resolve them. We applied both top-down hazard assessment such as HAZOP and fault tree analysis, and bottom-up assessment such as design failure mode analysis. With this approach, we identified the risks of self-driving operation and developed requirements to address them.

Using the right engineering tools

As we implement requirements to address identified risks, we use a variety of System Safety engineering tools to track performance against those requirements. This process applies to all parts of the vehicle's self-driving system. Different types of mechanical and electrical components and systems require different kinds of analytical tools. And analyzing and tracking performance of the complex operations of self-driving software require tools different from those used to analyze mechanical and electrical components and systems.

Below we highlight some of those tools and how we use them:

- *Deductive analysis* includes a fault tree analysis (FTA), which connects potential hazards to their direct causes.
- *Inductive analysis* includes design and process failure mode and effects analysis (DFMEA/PFMEA), which is a step-by-step approach to identifying all possible hazards in a design.
- *Exploratory analysis* includes hazard and operability study (HAZOP), which identifies potential risks by analyzing the functions of a complex system.

- *Implementation into the product development process* includes using process hazard analysis at the concept stage to assess potential hazards, software HAZOP, system FTA and DFMEA during design, system functional interface analysis (SFIA) and DFMEA during requirements definition, and DFMEA during implementation phases.

- *Requirements Traceability Analysis* manages the relationships between engineered systems and the safety goals and attendant requirements.

Using these tools, we maintain a consistent approach of identifying risks, implementing solutions and verifying their effectiveness.

Applying the development processes to the self-driving vehicle

Following our proven engineering and development standards, along with applicable military standards for system safety, we focus on eliminating risks where possible. If we cannot eliminate them, we minimize them to maintain a safe state. And we include in our design requirements these two key safety performance thresholds: First, our vehicle will operate safely even if there is a single-point-, plausible dual-point-, or common-cause-malfunction; and second, our vehicle will demonstrate safe driving behavior in the defined driving environment through a statistically meaningful experience.

The first key safety performance threshold:
Our vehicle can keep operating properly even if there is a failure in a critical system (fail-operational functionality). Fail-operational functionality is enabled by the vehicle's backup systems for all critical operations (system redundancy). We built redundancy into the self-driving vehicle's computers, critical networks, critical actuators and critical actuator controllers. For example, if the vehicle's main steering actuator fails, there is another steering actuator in a redundant system to take over, reducing the likelihood the vehicle will need to initiate a fallback safe-stop maneuver. And in the unlikely event that both primary and backup systems fail, the vehicle can bring itself to a safe stop (fail-safe functionality).

The second key safety performance threshold:
We evaluate the operations of all critical self-driving functions. This analysis includes both qualitative and quantitative evaluation of those functions. This approach is called "safety of the intended function," or SOTIF. Through this process, we establish that the computer's brain will safely handle the unpredictable circumstances that it will face on public roads. For example, before we put the vehicle into driverless operation in a city that has six-way stops, our vehicle will have demonstrated its ability to navigate the six-way stops many times, in all expected traffic, lighting and weather conditions. This training, as well as closed course and simulation activities, addresses safety challenges associated with navigating six-way stops.

Manufacturing supports system safety

We use our "built-in quality" method to identify defects that may arise during manufacturing, just as we do with each of our other production vehicles. We have assembly line quality checks for the components we build, for the subsystems we build, and when assembling the vehicles. These checks help us find components not built to our specifications and eliminate possible defects.

System safety through city testing and proving safe driving through experience

In our on-road testing, we currently use a fleet of self-driving vehicles that each have a steering wheel, brake pedal and accelerator pedal. These vehicles are monitored by trained human drivers (Autonomous

Vehicle Trainer, or AVT). During on-road testing, the AVT can take over control from the self-driving system when necessary or appropriate

to be safe. Our vehicle's data logger records the driver takeover events. We analyze data from the logger to assess the vehicle's self-driving performance and to decide whether to update the software. When we update the software, we test it in simulations to confirm that it accounts for the conditions and circumstances leading to the takeover event and that it drives better than the previous software. We then test the updated software in our on-road testing program.

Testing in San Francisco allows us to develop the vehicle's self-driving skills more comprehensively than testing in a suburban location alone. Cities like San Francisco contain more people, cars and cyclists that our self-driving vehicles must be aware of at any given time. This rich environment tests our object detection, prediction and response functions. Stacked predictions — such as predicting that the car in front of our vehicle will brake because it is about to get cut off by a cyclist, or that a car making a left turn in front of us will yield to a pedestrian in a crosswalk — are not unusual. Similarly, stacked maneuvers — managing multiple road challenges together or in quick succession — are often necessary.

While we also test vehicles in Phoenix, our San Francisco vehicles predict an average of 32 times as many possible interactions as those in Phoenix. Thus, San Francisco challenges our self-driving system more because, as the number of objects increase, there are exponentially more possible interactions with objects that the self-driving system must consider.

Maneuver / Scenario	San Francisco	Phoenix Suburbs	Ratio
Left turn	1462	919	1.6:1
Lane change	772	143	5.4:1
Construction blocking lane	184	10	19.1:1
Pass using opposing lane	422	17	24.3:1
Construction navigation	152	4	39.4:1
Emergency vehicle	270	6	46.6:1

Per 1,000 miles of autonomous driving

OPERATIONAL DESIGN DOMAIN

The operational design domain (ODD) refers to the environment, including location, weather and speeds, in which the self-driving vehicle is designed to operate.

We will only deploy self-driving vehicles in environments where the vehicle can meet our performance thresholds. We determine the appropriate environments and conditions using our System Safety engineering process.

We rigorously test and validate our self-driving vehicles so that they have the skills and experience to navigate the environment safely. Through our test drives, we identify potential challenges in our proposed ODD. We then identify, track and implement solutions to those challenges. This process continuously improves the self-driving system's capabilities. We test and validate our self-driving vehicles in the wide variety of environmental conditions that the vehicle might face in its operational design domain — from driving scenarios the vehicle would face daily to the rare edge cases.

Our vehicle's ODD will include the streets in the cities where the vehicle will operate, and operation at all times of day and night, and in light-to-moderate inclement weather (e.g., fog or rain). The vehicles will remain within designated, premapped areas. The vehicle's computers treat these mapped areas as a strict boundary, or geo-fence, for the vehicle. As a result, the vehicle will choose only routes that fall entirely within the mapped area — every turn, every trip. Within the mapped areas, the vehicles will be capable of complying with all applicable traffic laws.

When the vehicle detects rapid or abnormal changes in weather conditions, it will adjust how it operates to accommodate the weather and how other road users are behaving, such as when traffic slows during heavy rain. At all times, our fleet will communicate with a centralized fleet operations center. This helps our vehicles avoid locations and conditions outside of their ODD.

As our development and validation continues and proves safe performance, we will expand the ODD to new cities and a wider variety of weather and speed conditions.

OBJECT AND EVENT DETECTION AND RESPONSE

Object and Event Detection and Response (OEDR) refers to the self-driving system's detection of, and appropriate response to, conditions and circumstances relevant to the immediate driving task.

Through our System Safety and extensive validation processes, our vehicle has robust capabilities to detect and respond to the range of conditions and circumstances it may encounter.

When our vehicle sees and understands the space around the vehicle, it exercises object and event detection capabilities. And when our vehicle plans its path, it exercises object and event response capabilities. There is more to the story.

Our vehicle's OEDR capabilities include detecting the environment around the vehicle, understanding the surrounding space, tracking objects in that space, safely planning its driving path through that space, and executing crash-avoidance maneuvers.

Our rigorous on-road testing in dynamic, real-world environments allows the vehicle to gain experience detecting and responding to circumstances that even human drivers find challenging — such as adjusting to jaywalking pedestrians and turning cyclists. To validate the vehicle's operational and crash avoidance capabilities, we analyze how the vehicle detects and responds in normal on-road test drives as well as in staged and edge case scenarios. Because our self-driving vehicle was designed to be automated from day one, we could build the vehicle to optimize how it detects and responds to conditions that arise. For example, we were able to optimize the number, type and location of sensors to enable the vehicle to perceive the environment with maximum clarity and precision. Our integrated design process also enables the vehicle to fully utilize its control system to respond to an event. For example, if another vehicle or person suddenly enters the lane in front of our vehicle, the vehicle can apply the full braking capability of the vehicle brake system to quickly stop the vehicle.

As discussed above, our self-driving vehicles use redundant systems to provide backup functionality. In a human-driven vehicle, if a system fails, we rely on an attentive human driver to serve as the backup. For example, if the power brakes fail in a conventional hydraulic brake system, the human can stop the vehicle by pressing the brake with more force than would normally be needed. In our self-driving vehicle, redundant systems provide the backup. For example, if the vehicle detects a potential crash and the primary brake actuator were to malfunction, the computers still have the ability to execute a crash avoidance maneuver by activating the backup brake actuator.

FALLBACK (MINIMAL RISK CONDITION)

Fallback is transition to a minimal risk condition (safe state) in the event of a problem with the self-driving system that prevents continued safe operation without the transition.

Our self-driving vehicles have features enabling transitions to safe states when necessary, including fail-operational functionality, system redundancy, fail-safe functionality and integrated diagnostics. The Cruise AV has diagnostics that continuously monitor the state of all critical self-driving systems as well as other vehicle systems necessary for safe operation.

The vehicle has two main sets of computers, one primary and one backup. They operate independently and simultaneously for self-driving decision-making. The vehicle includes separate and redundant networks to connect the computers, and a comprehensive set of diagnostic monitoring capabilities. Each set of computers has its own diagnostics, providing the ability for each computer to diagnose other computers and other parts of the self-driving system. In addition, critical functions such as steering and braking have separate and redundant controllers and actuators.

Should a malfunction occur, the diagnostics system determines whether the appropriate response is a fail-operational state or a fail-safe state, and transitions the vehicle to the corresponding safe state. When required, the self-driving system will operate the vehicle at a reduced speed or pull to the side of the road and execute a safe stop, as appropriate. In all events, the vehicle's state is continuously transmitted to the computers within the self-driving system, and Planning uses that information to plan an appropriate path and action.

Consistent with our System Safety approach, our fallback measures account for residual risks that we identified through risk analyses. Following the principles of military systems safety standards to eliminate risks wherever possible, we designed our systems to withstand many conditions that would otherwise require fallback measures that would reduce performance.

A primary reason we applied robust redundancy is so that our vehicle's fallback state allows safe continued operation as often as possible. This is the best approach for our customers.

VALIDATION METHODS

Validation methods verify that the self-driving system appropriately minimizes risks during operation.

Our System Safety process supports robust validation of our vehicle's structural systems, functional systems, self-driving skills and self-driving performance through experience.

As we design and develop our vehicle, our System Safety process provides a comprehensive approach to identifying safety risks and their potential root causes. With that information, we identify the design requirements for our vehicle to meet our safety performance thresholds. During development, we track how those requirements addressed risks. And we validate the end result so that the self-driving system performs its defined functions and does so reliably.

Validation includes track testing, staged encounters, test cases and simulations to test our self-driving vehicle itself against a variety of objective tests and performance requirements. We also validate with on-road performance testing, where we are collecting millions of miles of test data to show on a statistically significant basis that our vehicle is a safe driver.

In addition to these efforts, we are performing extensive research regarding human driving behavior. Our research includes analysis of existing driver behavior studies and conducting new driver behavior studies to expand the existing data set. These studies help us define and analyze self-driving system performance requirements.

We are presently collecting self-driving vehicle on-road performance data, including miles driven, crashes and take-over events, to build a statistically significant analysis of the vehicle's performance for comparison to human drivers in the same relevant driving environment. Over the course of millions of miles of testing in the relevant operating domain, these comparisons will allow us to demonstrate the safety of the self-driving vehicle within the ODD.

Our combination of conventional system validation with SOTIF validation of self-driving capabilities thoroughly verifies system safety. Here are examples of how we implement both approaches.

Examples of our conventional validation processes include:

- Vehicle-, system-, subsystem- and component-level performance tests
- Requirements-based validation of system, subsystem and components
- Fault injection testing of safety-critical control input, outputs, computation and communication

- Validation of fail-over (transitioning to a secondary control path when the primary path malfunctions) and safe state transitions within the fault tolerant time interval

- Intrusive testing, such as electromagnetic interference and electromagnetic compatibility testing, as well as other environmental element exposure tests (includes temperature, humidity, RF, light energy)

- Durability tests

- Regression and simulation-based software validation

Examples of our SOTIF validation processes include:

- Systematic exposure of the self-driving system to performance requirements of the Operating Design Domain

- Identifying and iteratively testing driving scenarios and edge cases that challenge the self-driving system

- Exercising the Object and Event Detection and Response capabilities of the vehicle and its ability to identify environmental objects and situations that require a safe behavior response

- Evaluation of self-driving behavior against safe driving standards with both qualitative and quantitative criteria

HUMAN MACHINE INTERFACE

The human machine interface (HMI) is the interaction between the vehicle and persons inside and outside the vehicle.

We designed our HMI to be intuitive and helpful to customers riding in our vehicles. This is true whether or not customers are technology savvy or they need hearing or visual accommodations. As part of our approach, we identify and address challenges that could arise from the interaction of the vehicle with passengers, or with road users external to the vehicle.

Interfacing with vehicle occupants

Customers will begin their interaction with our self-driving vehicle before they get in the vehicle by using a mobile application to request a ride. Once inside the vehicle, the customers will use touch-screen tablets with an intuitive interface allowing riders to control the HVAC and radio, access general information about the vehicle, and receive real-time status information pertinent to the current ride. Before the ride begins, the tablets will provide helpful safety reminders, such as to close all doors and fasten seat belts.

With the press of a button, passengers can ask any questions they may have. The vehicles will also have OnStar Automatic Crash Response. With more than 20 years of connected vehicle experience, OnStar can respond effectively in the event of a crash. Built-in sensors can automatically alert an OnStar Advisor and predict the severity of injuries. An Advisor is immediately connected into the vehicle to see if passengers need help, even if they can't ask for it. In addition, a push of the red OnStar emergency button gives passengers a priority connection to an OnStar Advisor who can direct emergency services to the vehicle's exact location and stay in communication with passengers until help arrives.

After customers enter the vehicle and meet all preconditions, such as closing the doors and pressing the begin ride button, the vehicle will start to move. At any point, a customer having an emergency may end the ride by making a stop request, and the vehicle will pull to the side of the road at the next available safe place. If the vehicle has a malfunction, it will provide explanatory information to the passengers, as well as offer communications with a remote operator.

> *Accessibility*: The vehicles will accommodate hearing and visually impaired individuals so they can experience our self-driving vehicle services. These accommodations will be available in the mobile app and for the in-vehicle experience, including the in-vehicle tablets and communications with our remote operators. With these accommodations, our self-driving vehicles will provide mobility for many people who cannot drive themselves.

Interfacing with other road users

Our self-driving vehicle is designed to interact with other road users in a manner expected of typical human drivers engaged in safe driving practices. Our System Safety approach requires the Cruise AV to understand the behavior of other road users, including pedestrians, bicyclists and motorcyclists, and to account for those behaviors so it can operate safely. Our approach also drives requirements to understand and follow laws associated with other road users.

Interfacing with first responders

We have a long history of working with public safety and first responders when introducing new technology. Our OnStar business has for years worked with law enforcement and other first responders to educate them and obtain their input on the OnStar experience. When we introduced our revolutionary Chevrolet Volt, we conducted nationwide safety tours. We talked to the NationalFire Protection Agency, the International Association of Fire Fighters, the International Association of Fire Chiefs, the Association of Public-Safety Communications Officials, fire chiefs, police chiefs and 911 call centers. We trained over 15,000 people across the nation on safety protocols related to the Volt. Our established relationships, commitment to safety and experience in training on new technologies prepare us well for introducing self-driving vehicles. As we advance this new safety technology, we will inform, seek feedback from, and otherwise assist public safety officials and first responders so they are prepared when these vehicles are deployed.

In addition, our self-driving vehicles will have two-way communications capabilities allowing first responders to communicate with our remote advisors if needed.

VEHICLE CYBERSECURITY

Cybersecurity protects the vehicle control systems and customer information from unauthorized access.

Cybersecurity protects the operation of the self-driving system and other critical vehicle systems from malicious interference and supports high customer confidence in our vehicle's operation and use.

Our dedicated cybersecurity specialists are integrated with the rest of the self-driving vehicle development team to build cybersecurity into our Systems Safety engineering process. This team analyzes and addresses cybersecurity for all in-vehicle control systems, as well as any self-driving vehicle connected services (such as OnStar), mobile apps and in-vehicle apps created for the self-driving experience. The development team uses integrated systems security engineering practices, and a "security-by-design" strategy, to address security requirements for the entire self-driving vehicle ecosystem.

As with other areas of the vehicle, thorough use of analysis and evaluation tools, such as software scans and threat models, drive design features that respond to the risks of cybersecurity. These features, based on a "defense-in-depth" approach, include a variety of mitigating controls, such as device registration, message authentication, secure programming and diagnostics, and intrusion detection and prevention systems. During implementation and validation, we use additional tools, such as penetration testing, to verify that implementation meets our goals of eliminating and minimizing risks. In addition, our active fleet management process will allow service technicians to regularly monitor vehicles for security-related abnormalities. If needed during deployment, we have robust incident response capabilities to monitor and address potential new cyber risks.

We work with many third parties to maintain and advance our cybersecurity capabilities, implement and advance cybersecurity guidelines and standards, and support the growth of industry cybersecurity practices. These activities include working with our suppliers, joint ventures, various automotive and security consortia, government agencies, the security research community and the Auto-ISAC. In addition, we regularly assess our security practices against guidance from NHTSA, NIST, Auto-ISAC and other industry experts.

CRASHWORTHINESS

Protecting occupants in the event of a crash (e.g., when another vehicle crashes into the self-driving vehicle).

The best protection against crashes is to avoid them. Our Object and Event Detection and Response system is designed to do just that.

For crashes that do occur, our engineering and validation of the vehicle's occupant protection system performance accounts for the self-driving system integrated into the vehicle. Our performance testing (including crash testing) encompasses the performance of the entire vehicle with the self-driving system included.

Our self-driving vehicle structure is based on the Chevrolet Bolt EV. We analyzed structural integrity to account for the addition of several new key systems (for example, the sensor roof module, sensor cleaning and drying system, power backup system and data management system) to the vehicle. This work supported our integrated structure crashworthiness strategy starting in the early stages of the program to include:

- Engineered load paths to manage crash forces to protect occupant space during frontal, side, rear and rollover crashes;
- A battery housing structure that protects the internal battery space in a crash; and
- Vehicle floor reinforcements to distribute loads and maintain occupant space in a crash.

We have completed sufficient simulations and crash testing of our self-driving vehicle prototypes to show the effectiveness of the above requirements.

When we took out the items that the vehicle doesn't need — the steering wheel, brake pedal, accelerator pedal and other human driver controls — the left front seat became another forward-facing front passenger seat. Other than that, the self-driving vehicle seating arrangement is the same as the current NCAP five star Chevrolet Bolt EV. We designed the air bags and seat belts for the left front passenger seat to meet the same injury protection criteria, including those specified in Federal Motor Vehicle Safety Standards (FMVSS), as the right front passenger seat. And for systems beyond the left front passenger seat, the vehicle meets all federal crashworthiness standards.

The self-driving vehicle will accommodate customers installing FMVSS certified child seats for children in the rear.

Our all-electric self-driving vehicle also incorporates battery safety measures. It includes a reinforced structure for the battery compartment and is equipped with a crash-safety system that cuts power in the event of a collision, making it safer for first responders.

POST-CRASH BEHAVIOR

After a crash, the vehicle should return to a safe state.

Our requirements for post-crash behavior account for both physical safety and standard practices in the event of a crash.

In general, after a crash the vehicle will enter a safe state. Typically, the vehicle will automatically apply brakes to bring the vehicle to stop in a controlled manner after the initial impact. Built-in sensors will automatically alert an OnStar Advisor, who will be connected promptly to see if a passenger needs help and to communicate with first responders on the scene. If passengers don't respond, an OnStar Advisor uses GPS technology to pinpoint the exact location of the vehicle and request that emergency help be sent immediately. The self-driving vehicle crash response system will also unlock the doors and turn on the hazard lights (flashers) following the crash.

Our physical safety systems incorporate safety measures discussed above. In addition to the battery disconnect that cuts power in the event of a crash, the vehicle has a second battery disconnect. That disconnect is located underneath the rear seat and is intended for use by first responders or service technicians.

DATA RECORDING

Learning from crash data is a central component to the safety potential of self-driving vehicles.

Our self-driving vehicle has two data recording features — a conventional Event Data Recorder (EDR) and a second robust data logging system. The data logging system is highly reliable, has self-diagnostics, and stores data securely, protecting it against loss. The data logging system is designed to be fail-operational and to keep data intact even in the event of a crash. If a crash occurs, the data logging system stores predefined data from the vehicle. The collected data includes information on sensors, vehicle actions, any degraded behavior, malfunctions and other information useful for event reconstruction.

In addition to crashes, our vehicle's robust data recording capability provides information on vehicle performance during normal driving and avoided crash situations. We have IT teams in multiple states building computer systems to store and process data that we retrieve from our vehicles. With this retrieved data, we can evaluate design and driving performance during vehicle development and deployment, and for continuous improvement for future generations of self-driving vehicles.

CONSUMER EDUCATION AND TRAINING

Education and training are imperative for increased safety during the deployment of self-driving vehicles.

During development, we considered what consumers need to know to interact with our self-driving vehicle. The vehicle is designed for an intuitive and familiar user experience in a ride-sharing service. The mobile application, in-vehicle touch screens and other user interfaces will provide helpful information and safety reminders. Because we will deploy our vehicles in a self-driving ride-sharing service, consumers will not have a role in operating the vehicle itself. The intuitive interface, coupled with the ability to talk to remote support personnel, will provide all the information that customers need.

When the ride-share service is launched, we plan to publish material informing consumers about what to expect when using the service to obtain rides. This information will explain how to request rides, how to identify the self-driving vehicle that is assigned for the requested ride, what to expect during the ride, and what to expect when the ride ends.

FEDERAL, STATE AND LOCAL LAWS

Under our System Safety process, we develop requirements for compliance with federal, state and local laws and analyze the impact of those requirements within our safety development program.

Federal laws

Our self-driving vehicle will comply with federal laws. The vehicle will meet all applicable federal motor vehicle safety standards (FMVSS). Where FMVSS cannot be met because they are human-driver-based requirements, the vehicle will meet the safety purposes of those standards and we will petition for exemption (permission to meet the safety purpose of a standard through alternative means). We have filed such a petition for the Cruise AV.

We are also working with industry groups and NHTSA to advance the development of new FMVSS that will (a) remove unnecessary roadblocks to new safety technology, such as self-driving vehicles, and (b) advance the safety of self-driving vehicle technology.

The self-driving vehicle will also comply with federal laws and regulations relating to fuel economy, emissions, noise, hazardous materials and labelling requirements.

State and local laws

We designed our Cruise AV to be capable of complying with state and local laws applicable in its operational design domain.

In addition, we will comply with non-traffic-related state and local laws, such as insurance requirements, reporting requirements related to field incidents and interventions, and others. We will communicate with and educate first responders on how our self-driving vehicles implement local law requirements (like where to find the registration and insurance) and what first responders can expect when encountering our self-driving vehicles.

CONTINUING TO CREATE AND IMPROVE NEW TECHNOLOGY

And we're not stopping. We're adding to our roster of talent in California, Michigan and elsewhere, and we're expanding our capabilities with new components and systems technologies — all of which will advance safety and performance. We are developing new computer systems and sensor technologies, such as LiDAR, to make the technology more affordable and available for customers, and to continue to advance the safety performance abilities of our self-driving cars to levels far beyond human drivers. Our self-driving vehicles have the potential to reduce vehicle crashes and save lives, to reduce vehicle emissions, to reduce congestion and save people time, and to make transportation more accessible to more people — bringing our vision of a world of zero crashes, zero emissions and zero congestion closer to realization.

GENERAL MOTORS

EXHIBIT 2

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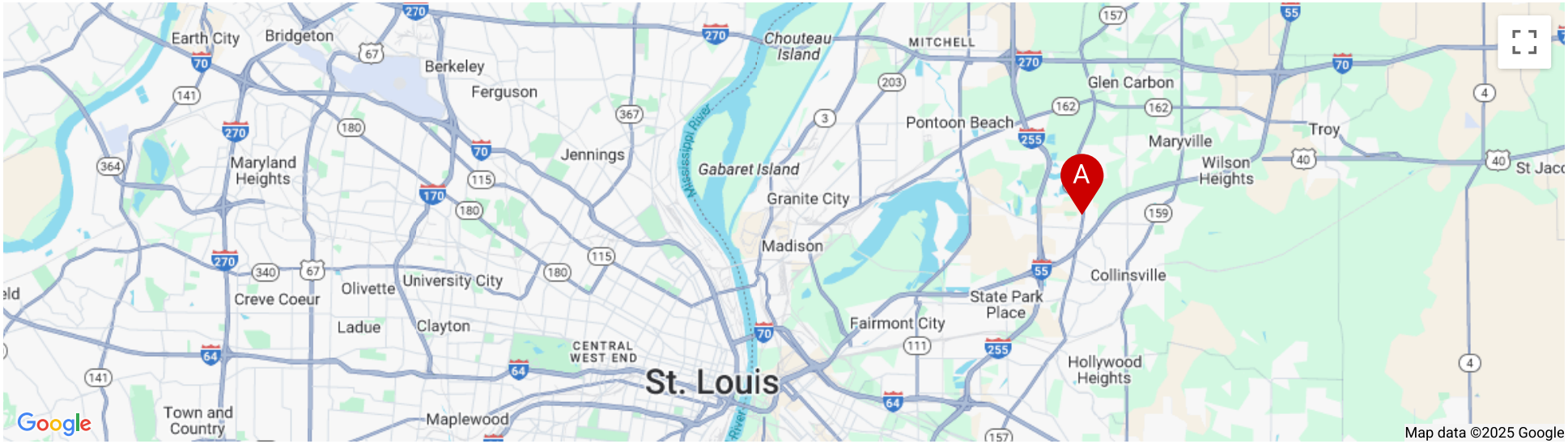

A

LAURA BUICK-GMC, INC.

2 miles

903 N. Bluff Rd.
Collinsville, IL 62234

Sales
618-312-1487
Open until 6pm

SERVICES
618-312-1513
Open until 6pm

Dealer Website

SCHEDULE SERVICE

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B

CARDINAL BUICK GMC INC.

11.8 miles

3800 West State IL 15 3800 West State IL 15
Belleville, IL 62226

Sales	SERVICES
618-233-0303	618-233-0303
Open until 8pm	Open until 8pm

Dealer Website

SCHEDULE SERVICE

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C

STEVE SCHMITT, INC.

16.3 miles

12631 STATE ROUTE 143
HIGHLAND, IL 62249

Sales	SERVICES
618-309-4866	618-654-2181
Open until 6pm	Open until 6pm

Dealer Website

SCHEDULE SERVICE

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D

QUALITY BUICK GMC

19.4 miles

1620 homer adams pkwy
Alton, IL 62002

Sales
877-875-0572
Ext. 9721511
Open until 6pm

SERVICES
877-561-7727
Open until 4:30pm

Dealer Website

SCHEDULE SERVICE

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E

BOB BROCKLAND BUICK GMC, INC.

19.7 miles

580 Old State Route 3
Columbia, IL 62236

Sales
877-466-9206
Open until 6pm

SERVICES
877-328-9313
Open until 5pm

Dealer Website

SCHEDULE SERVICE

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VIEW MORE

EXHIBIT 3

General Motors had a strong 2024, growing U.S. sales and market share with a redesigned portfolio of both electric and gas-powered vehicles.

For the year, GM expanded overall sales by 4%, to 2.7 million vehicles, our highest total since 2019. GM estimates its 2024 market share at 16.5. We finished the year with inventory of about 54 days, meeting our target. All of our brands – Chevrolet, GMC, Buick and Cadillac – posted strong sales gains.

For the fourth quarter, sales were up 21% from the year-earlier period. Electric vehicle sales jumped 50% for the year and 125% for the quarter, roughly doubling our market share over the course of the year. GM was the #2 seller of EVs in the U.S. across the second half of 2024. We were the leading seller of full-sized pickups for the fifth straight year – with the highest annual sales since 2007. And we were the top seller of full-size sport utility vehicles for an astonishing 50th straight year.

“It was a great year for us across our product lines,” said **Rory Harvey (https://www.linkedin.com/in/rory-harvey-600189108/)**, GM executive VP and president of global markets. “How did we do it? By investing to have the best portfolio in the industry. We have something for everyone, no matter what they like to drive."

In EVs, sales accelerated throughout the year, with Q4 sales of 42,000 units, up 10,000 from the third quarter level, and nearly twice the second quarter total.

Overall, our average Q4 transaction price reached nearly $53,000, well above the industry average, while incentive spending per vehicle continues to decline.

All four of our major brands grew in 2024. At Chevrolet, sales were up 1.5%, to the highest level since 2019. Equinox EV was a major driver, with Q4 unit sales up 85% from Q3. For the full year, Trax sales were up 84%, to lead the small SUV segment. Fourth quarter sales at Chevrolet increased 17%.

2024: Growth Across the Board

#1 in Total Sales
2.7M deliveries, up 4%, best since 2019
Market share expected to be ~16.5%[1]
Year end inventory of 54-days supply

#1 in Retail Sales[1]
Up 8% and best since 2019

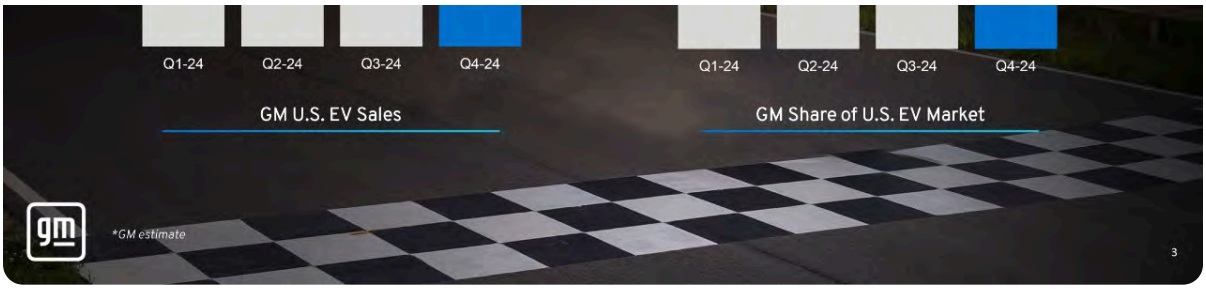
#1 in Fleet Sales for Q4[1]
GM Envolve sales up 22% in Q4

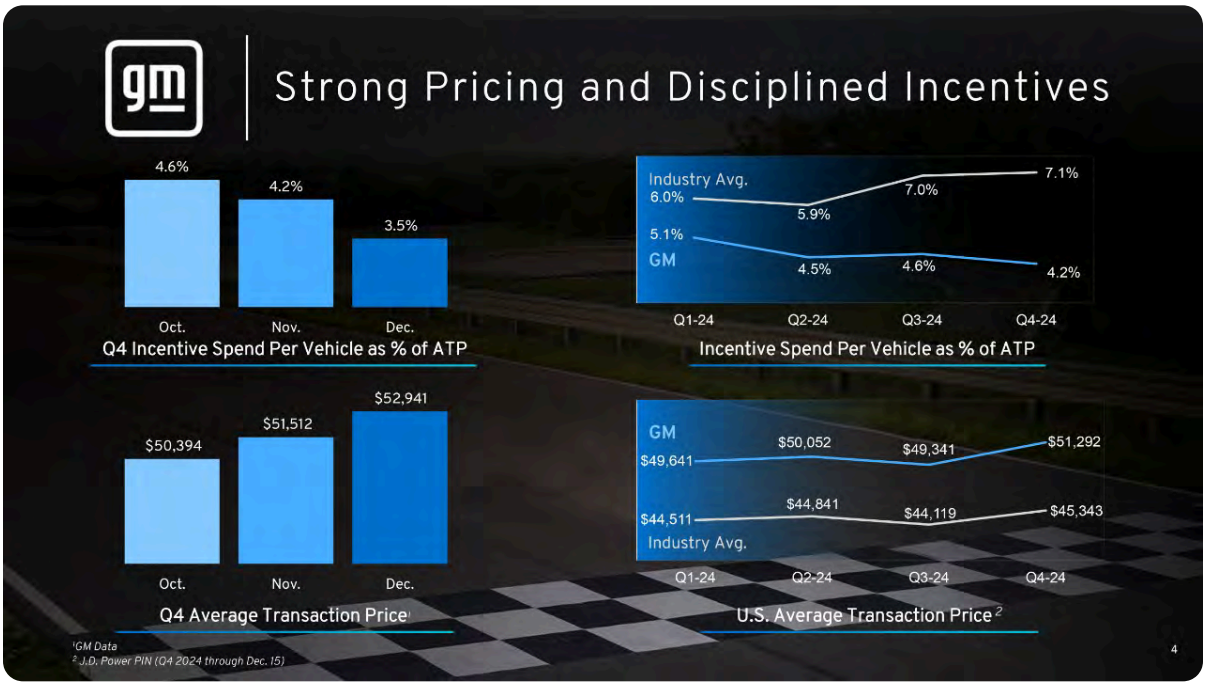
#1 in Full-Size Pickups
5th straight year
Best annual sales since 2007

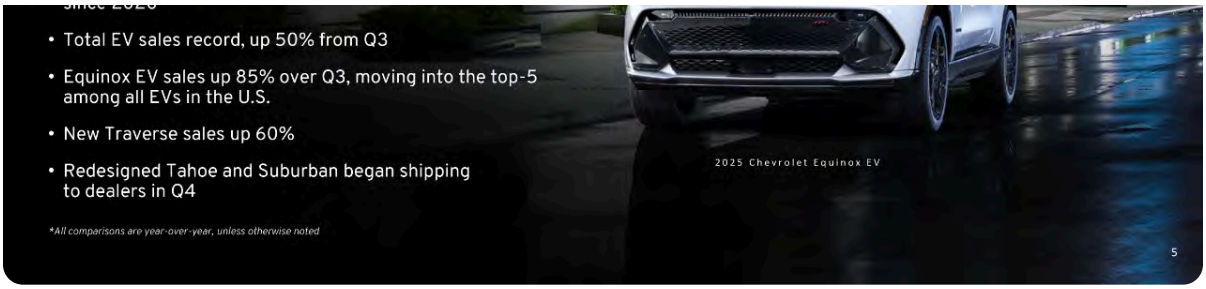
#1 in Full-Size SUVs
50th straight year

Best-Ever EV Sales
Q4: Total U.S. EV sales of 43,982, up 125%
2024: Total U.S. EV sales of 114,432, up 50%
Second automaker to sell more than 15K EVs in a month (Nov. and Dec.)

*All comparisons are year-over-year, unless otherwise noted
[1]GM Estimate


Q1-24
Q2-24
Q3-24
Q4-24
GM U.S. EV Sales
Q1-24
Q2-24
Q3-24
Q4-24
GM Share of U.S. EV Market
*GM estimate
3


Strong Pricing and Disciplined Incentives
4.6%
4.2%
3.5%
Oct.
Nov.
Dec.
Q4 Incentive Spend Per Vehicle as % of ATP
Industry Avg.
6.0%
5.9%
7.0%
7.1%
5.1%
GM
4.5%
4.6%
4.2%
Q1-24
Q2-24
Q3-24
Q4-24
Incentive Spend Per Vehicle as % of ATP
$50,394
$51,512
$52,941
Oct.
Nov.
Dec.
Q4 Average Transaction Price¹
GM
$49,641
$50,052
$49,341
$51,292
$44,511
$44,841
$44,119
$45,343
Industry Avg.
Q1-24
Q2-24
Q3-24
Q4-24
U.S. Average Transaction Price²
¹GM Data
² J.D. Power PIN (Q4 2024 through Dec. 15)
4

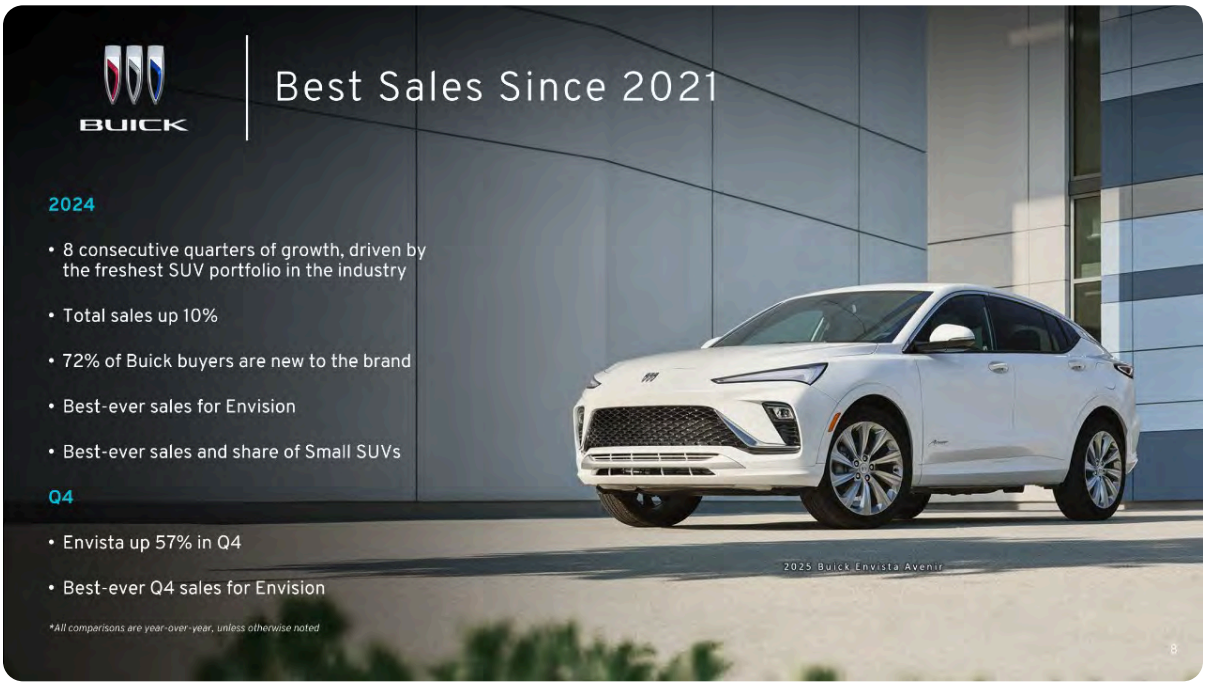

• Total EV sales record, up 50% from Q3
• Equinox EV sales up 85% over Q3, moving into the top-5 among all EVs in the U.S.
• New Traverse sales up 60%
• Redesigned Tahoe and Suburban began shipping to dealers in Q4
*All comparisons are year-over-year, unless otherwise noted
2025 Chevrolet Equinox EV
5

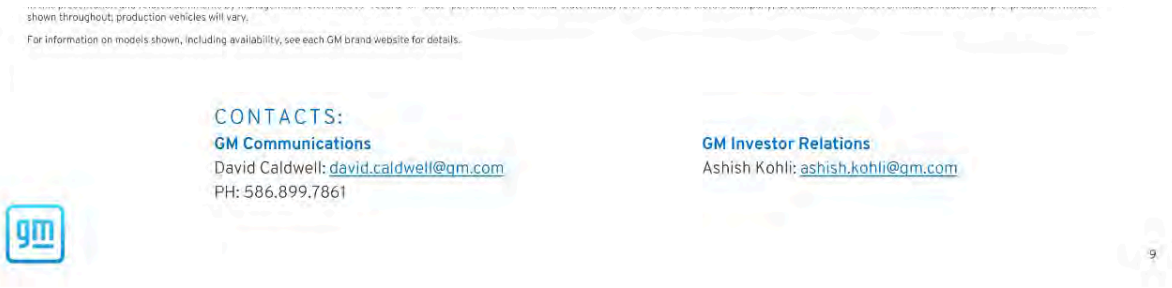

CADILLAC
Best Quarter and Year Since 2016
2024
• Total sales up 9% and best retail sales since 2015
• LYRIQ is the best-selling electric midsize luxury SUV[1]
• Escalade is the best-selling large luxury SUV for the 11th straight year
• Cadillac retail sales in California up 23%
• Launches of OPTIQ and VISTIQ in Q1 give Cadillac an EV in every major luxury SUV segment
Q4
• Q4 sales up 35%
• Best-ever quarterly EV sales
• First customer deliveries of the redesigned 2025 Escalade and ESCALADE IQ EV
*All comparisons are year-over-year, unless otherwise noted
[1]S&P Global Mobility, through Oct. 2024
2025 Cadillac ESCALADE IQ
6

- Total sales up 9%; retail sales up 14%
- Best-ever sales for the Denali sub-brand
- Best-ever sales for Sierra, up 9%; 7 consecutive years of retail share growth
- Best-ever sales for Canyon, up 70%, and the fastest-growing truck in its segment[1]
- Best sales since 2007 for Yukon/Yukon XL
- Best quarter ever for HUMMER EV
- Best quarter ever for Sierra; Best Q4 ever for Canyon
- New Acadia sales up 58%
- Began deliveries of the redesigned Terrain midsize SUV, and Yukon/Yukon XL full-size SUVs

*All comparisons are year-over-year, unless otherwise noted
[1]GM Estimate

7




shown throughout; production vehicles will vary.

For information on models shown, including availability, see each GM brand website for details.

CONTACTS:

GM Communications
David Caldwell: david.caldwell@gm.com
PH: 586.899.7861

GM Investor Relations
Ashish Kohli: ashish.kohli@gm.com

9

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EXHIBIT 4

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2022 Chevrolet Silverado 1500 LTD: Rugged, Reliable, and Feature-Packed Pickup

Published on Dec 24, 2024 by Cassie Gould

The 2022 Chevrolet Silverado 1500 LTD is a versatile and powerful full-size pickup truck that combines rugged capability with modern technology and style. Designed for those who need a reliable workhorse for towing and hauling, as well as a comfortable vehicle for daily driving, the Silverado 1500 LTD stands out in the competitive truck market. Known for its impressive range of engines, robust towing capacity, and spacious interior, the 2022 Silverado 1500 LTD offers something for everyone—from hardworking professionals to adventure seekers.

In this comprehensive guide, we'll cover all the essential aspects of the 2022 Chevrolet Silverado 1500 LTD, from its performance and towing capabilities to interior features, technology options, safety features, and how it compares to competitors. Whether you're considering the Silverado for its strength, versatility, or style, this guide provides everything you need to know about Chevrolet's popular pickup.

Overview of the 2022 Chevrolet Silverado 1500 LTD

The 2022 Chevrolet Silverado 1500 LTD is a limited-run model that bridges the gap between the 2021 and 2022 redesigned Silverado. The LTD model brings all the benefits of the Silverado 1500 platform with minor tweaks and is available in several trims to cater to various needs and budgets. With its rugged design, strong towing capabilities, and advanced technology, the Silverado 1500 LTD is built to handle a variety of tasks, from off-road adventures to daily commutes.
The Silverado 1500 LTD is available in multiple trims: Work Truck (WT), Custom, LT, RST, LTZ, and High Country. With a range of engine options, cab styles, and bed lengths, the Silverado 1500 LTD can be customized to suit individual preferences, making it a versatile choice for those in need of a reliable, adaptable truck.

Trim Levels and Configurations

The 2022 Chevrolet Silverado 1500 LTD is offered in six trims, each tailored to meet different needs and preferences:

- Work Truck (WT): The base model, designed for those who need a no-frills, durable truck for work purposes. The WT is equipped with essential features for reliable performance.
- Custom: Adds more style and convenience features, making

it a great choice for those who want a practical yet comfortable truck.

- LT: Offers a more refined interior and additional technology, making it ideal for those who want a balance of functionality and comfort.
- RST: Focuses on sportier styling with unique exterior accents, including body-color trim and special wheels.
- LTZ: Adds luxury features, such as leather seating, advanced safety options, and more technology for enhanced comfort.
- High Country: The top-tier trim, featuring premium amenities, advanced safety features, and unique styling elements, making it the ultimate choice for luxury and performance.

Each trim is available with different configurations, including Regular Cab, Double Cab, and Crew Cab, as well as various bed lengths to suit different hauling needs.

Engine Options and Performance

The 2022 Chevrolet Silverado 1500 LTD offers four powerful engine options, catering to a range of performance needs. Each engine

provides a unique balance of power, fuel efficiency, and towing capability.

2.7L Turbocharged Inline-4 Engine	***5.3L EcoTec3 V8 Engine***	***6.2L EcoTec3 V8 Engine***	***3.0L Duramax® Turbo-Diesel I6 Engine***
The 2.7-liter turbocharged inline-4 engine is standard on the WT, Custom, and LT trims, delivering 310 horsepower and 420 lb-ft of torque. Paired with an 8-speed automatic transmission, this engine provides strong torque and efficient performance, making it well-suited for daily driving and light towing tasks.	The 5.3-liter EcoTec3 V8 engine produces 355 horsepower and 383 lb-ft of torque. Paired with either a 6-speed or 8-speed automatic transmission, this V8 engine offers a blend of power and efficiency, making it a popular choice for towing and hauling.	For those who need maximum power, the 6.2-liter EcoTec3 V8 engine delivers 420 horsepower and 460 lb-ft of torque. This engine is mated to a 10-speed automatic transmission and provides impressive towing capabilities and acceleration, making it ideal for those with demanding performance needs.	The 3.0-liter Duramax® turbo-diesel inline-6 engine offers 277 horsepower and 460 lb-ft of torque. Known for its fuel efficiency and torque, this diesel engine is paired with a 10-speed automatic transmission and provides excellent towing capabilities with better fuel economy, making it a great choice for long-distance hauling.
Tows up to 9,500 pounds, suitable for light trailers and recreational equipment.	Offers a towing capacity of up to 11,500 pounds, making it ideal for medium-duty towing tasks.	Provides a maximum towing capacity of 13,300 pounds, making it one of the most capable options in the Silverado lineup.	Tows up to 9,500 pounds with an impressive fuel economy, making it a great option for those who prioritize efficiency.
Delivers 20 mpg city / 23 mpg	Offers 16 mpg city / 21 mpg	Provides 15 mpg city / 20 mpg	Achieves 23 mpg city / 33 mpg

highway with rear-wheel drive.	highway with rear-wheel drive.	highway, focusing more on power than efficiency.	highway with rear-wheel drive, making it the most fuel-efficient option for long-distance travel.

Interior Comfort and Space

Interior Comfort and Space

The interior of the 2022 Chevrolet Silverado 1500 LTD is designed with comfort and functionality in mind, offering a range of configurations and premium materials in higher trims.

The Silverado 1500 LTD offers seating for up to six passengers in the Regular Cab, Double Cab, and Crew Cab configurations. Higher trims offer leather upholstery, heated and ventilated front seats, and power-adjustable seating options for added comfort on long drives. The Crew Cab provides the most spacious interior, making it ideal for families and those who frequently carry passengers.

With multiple bed lengths—5.8 feet, 6.5 feet, and 8 feet—the Silverado offers flexible cargo space to suit various hauling needs. The Multi-Flex tailgate is available on select trims, providing six different configurations for easier loading and unloading, enhancing the truck's practicality for work or recreation.

- Dual-Zone Automatic Climate Control: Available on higher trims, allowing driver and front passenger to set individual temperature preferences.
- Rear Seat Storage: Provides additional storage under the rear seats, making it easy to store tools and other items securely.
- Premium Sound System: The LTZ and High Country trims come with an available Bose® premium audio system for a superior listening experience.

The interior of the Silverado 1500 LTD combines comfort and practicality, making it a versatile choice for both work and leisure.

Safety Features and Driver Assistance

The 2022 Chevrolet Silverado 1500 LTD includes a comprehensive range of safety and driver-assistance features, providing added confidence on the road.

Standard Safety Features

The base model includes essential safety features, such as:

- Rear Vision Camera: Provides a clear view when reversing.
- StabiliTrak® with Traction Control: Helps maintain control during slippery conditions.
- Teen Driver Technology: Allows parents to set speed limits and monitor driving habits for young drivers.

Available Driver Assistance Features

Higher trims offer additional driver-assistance features, including:

- Forward Collision Alert: Warns the driver of a potential front-end collision, allowing them to take preventive action.
- Automatic Emergency Braking: Can apply the brakes

automatically to avoid or reduce the severity of a collision.
- Lane Keep Assist with Lane Departure Warning: Helps keep the truck centered within its lane.
  Rear Cross Traffic Alert: Alerts the driver to traffic approaching from the side when reversing.

With these comprehensive safety features, the Silverado 1500 LTD is a secure choice for both work and family use.

Technology and Infotainment

The 2022 Chevrolet Silverado 1500 LTD is packed with technology and infotainment features to keep drivers and passengers connected and entertained.

Chevrolet Infotainment System

The Chevrolet Infotainment 3 system is standard on all trims, featuring a 7-inch or 8-inch touchscreen depending on the trim level. The system includes Apple CarPlay and Android Auto, allowing for seamless smartphone integration for navigation, music, and hands-free calls.

Connectivity Features

- Bluetooth® Connectivity: Standard across all trims, enabling hands-free calls and audio streaming.
- USB Ports: Multiple USB ports throughout the cabin ensure that all passengers can keep their devices charged.
- Wi-Fi Hotspot: Available on higher trims, providing internet connectivity for up to seven devices.
- Navigation System: Available on higher trims, offering easy access to real-time directions and traffic information.

The Silverado's infotainment system is designed with user-friendliness in mind, making it easy for drivers to access essential functions without distraction.

Competitors in the Full-Size Truck Market

The 2022 Chevrolet Silverado 1500 LTD faces competition from several popular full-size trucks, including the Ford F-150, Ram 1500, and Toyota Tundra.

Ford F-150	***RAM 1500***	***Toyota Tundra***
The Ford F-150 is known for its range of engine options, including a hybrid model, and advanced technology features. The Silverado 1500 LTD offers comparable power and performance, making it a strong contender in terms of versatility and towing capabilities.	The Ram 1500 offers a luxurious interior and a smooth ride, appealing to those who prioritize comfort. However, the Silverado's range of engine options and towing capacity make it more suitable for those needing robust performance.	The Toyota Tundra is known for its reliability and durable design. While the Tundra has a simpler engine lineup, the Silverado's extensive configurations and tech features provide more flexibility for different needs.

Each competitor has unique strengths, but the Silverado 1500 LTD's combination of power, technology, and versatility makes it a compelling choice in the full-size truck market.

Is the 2022 Chevrolet Silverado 1500 LTD Right for You?

The 2022 Chevrolet Silverado 1500 LTD is an excellent choice for drivers who need a capable, powerful, and versatile full-size truck. It's well-suited for both work and personal use, offering a range of trims and configurations to fit different needs. With its smooth ride, powerful engine options, and user-friendly technology, the Silverado 1500 LTD is a reliable choice in the competitive full-size truck market.

Whether you need a truck for heavy-duty tasks, long-distance travel, or daily driving, the Silverado 1500 LTD provides a well-rounded package with something for everyone.

Pros and Cons of the 2022 Chevrolet Silverado 1500 LTD

Pros	***Cons***
• Variety of Engine Options: Offers multiple engines to suit different performance and efficiency needs. • High Towing Capacity: Capable of towing up to 13,300 pounds with the right configuration. • User-Friendly Technology: The Chevrolet Infotainment 3 system is intuitive and easy to use. • Multi-Flex Tailgate: Adds convenience and versatility for loading and unloading. • Comprehensive Safety Features: Available driver-assistance features provide added confidence on the road.	• Fuel Efficiency on V8 Models: The V8 engines offer lower fuel economy, especially in AWD configurations. • Premium Features Limited to Higher Trims: Desirable features like leather seats and advanced safety options are only available on higher trims. • Limited Interior Luxury in Base Models: The WT trim is focused on utility, with fewer comfort features.

Conclusion

The 2022 Chevrolet Silverado 1500 LTD is a rugged, versatile, and feature-packed pickup that excels in multiple areas, from towing and hauling to comfort and technology. With its range of engine options, trim levels, and configurations, it's designed to meet the diverse needs of truck buyers. If you're in the market for a full-size truck that offers a balance of performance, comfort, and capability, the 2022 Chevrolet Silverado 1500 LTD is a compelling option that continues to stand the test of time.

Shop at Kunes Chevrolet GMC at Elkhorn

Kunes Chevrolet GMC of Elkhorn is the go-to destination for top-notch automotive sales and service in the region, conveniently located to serve drivers from East Troy, Mukwonago, and Waukesha, WI. Situated in Elkhorn, WI, the dealership is ideally positioned to meet the needs of these nearby communities, offering a vast selection of Chevrolet and GMC vehicles, expert maintenance, and unparalleled customer care. Whether you're looking for a new truck, SUV, or a pre-owned vehicle, or you need reliable automotive services, Kunes Chevrolet GMC of Elkhorn has everything you need—all just a short drive from East Troy, Mukwonago, or Waukesha.

EXHIBIT 5

2024 SIERRA 1500
AT4 & AT4X

BUILD & BUY

INVENTORY

KEY FEATURES

EXCLUSIVE ON AT4X

FRONT AND REAR ELECTRONIC LOCKING DIFFERENTIALS – NOT OFFERED BY ANY COMPETITOR IN ITS CLASS*

FACTORY-INSTALLED

2" SUSPENSION LIFT

ON AT4X

MULTIMATIC™ DSSV DAMPERS

13.4" DIAGONAL

GMC INFOTAINMENT SYSTEM* WITH

12.3" DIAGONAL DIGITAL

MULTICOLOR DRIVER INFORMATION

EXPLORE SIERRA 1500 AT4 & AT4X

As Shown $68,170*[1]

As Shown $79,845*[1]

AT4

STARTING AT $66,100*
AVAILABLE CITY/HWY UP TO: 21/23 MPG*

Key Features:

- 3.0L Duramax® Turbo-Diesel Engine with 10-Speed Automatic Transmission
- 13.4" Diagonal Center Touchscreen and 12.3" Diagonal Driver Information Center
- 2" Factory Lift with Off-Road Suspension and Rancho® Monotube Shocks
- Unique Jet Black Interior with Kalahari Accents and Heated and Ventilated Perforated Front Leather Seating Surfaces
- Two-speed Autotrac® Transfer Case, Automatic Locking Rear Differential and Underbody Skid Plates
- Available CarbonPro™ Composite Bed

INVENTORY

AT4X

STARTING AT $79,200*(1)
AVAILABLE CITY/HWY UP TO: 19/20 MPG*

Key Features:

- 3.0L Duramax Turbo-Diesel Engine with 10-Speed Automatic Transmission
- Multimatic DSSV Dampers
- Front and Rear Electronic Locking – a Combination Not Offered on Any Competitor in its Class*
- 12-Speaker Bose* Premium Series with Centerpoint* Surround Sound
- AEV Stamped-Steel Front Bumper with Front Winch Capability
- AEV Stamped Boron Steel Front Approach Skid Plate

INVENTORY

Due to current supply chain shortages, certain features shown have limited or late availability, or are no longer available. See the window label or a dealer regarding the features on an individual vehicle.

FEATURED EDITION

The Sierra 1500 AT4X AEV is built to help you master untamed backcountry. This full-size truck is equipped by off-road recreational driving and overland adventure travel experts American Expedition Vehicles (AEV) features:

- AEV stamped-steel front and rear bumpers with front winch capability
- Five AEV hot-stamped boron steel skid plates
- Exclusive AEV badging on bumpers, embroidered head restraints and all-weather floor liners
- AEV racing-inspired Salta wheels with 12-spoke design and recessed valve stems
- Off-road rocker panel protectors* to help shield the sills and frame rails, and an optional bolt-on step assist when not off-roading

INVENTORY

CAPABILITY

The new peak of premium off-roading.

4 of 6

AT4X OFF-ROAD SUSPENSION

AT4X takes off-road capability to the next level with serious suspension equipment that's engineered for adventure.

VIEW DETAILS

5 of 6

SELECTABLE TRACTION MODES

Switch between available Sport mode, available Off-Road mode and Tow/Haul mode on the fly to take on changing terrain and driving conditions.

VIEW DETAILS

6 of 6

HILL DESCENT CONTROL

Both Sierra AT4 and AT4X come with Hill Descent Control, an antilock braking feature engineered to help provide a smooth, controlled descent on steep declines.

EXTERIOR

An off-road truck equipped to explore beyond the boundaries.

Rocker protector shown is limited or not available on all models.

2 of 7

EXCLUSIVE AT4X WHEELS

Rugged 33" Goodyear® Wrangler Territory mud terrain tires and 18" painted aluminum wheels with dark painted pockets.

3 of 7

AEV SKID PLATE

The AEV stamped boron steel front approach skid plate offers the AT4X enhanced protection for off-roading.

4 of 7

33" MT TIRES

Available off-road MT tires help you confidently conquer the backcountry in your AT4 – even in harsh conditions.

5 of 7

AT4 FRONT BUMPER AND GRILLE

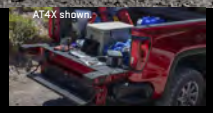
Grille with black chrome header and insert bars with gloss-black accents and red recovery hooks.*

Denali shown.

6 of 7

SPRAY-ON BEDLINER

High-strength steel cargo bed featuring spray-on bedliner with GMC logo.



AT4X shown.

7 of 7

MULTIPRO TAILGATE

Make light work of almost any job with the world's first available six-function GMC MultiPro Tailgate.

+ VIEW DETAILS

INTERIOR

An uncompromisingly premium interior.

TECHNOLOGY

Unrivaled tech for a smart driving experience.

INFORMATION CENTER

Reconfigure your display by choosing from Classic, Progressive, Digital or Clean configurations.

SAFETY

Go forth with added confidence.

Rocker protector shown is limited or not available on all models.

1 of 2

FRONT & REAR PARK ASSIST

2 of 2

GMC PRO SAFETY

The Front and Rear Park Assist* feature helps you park with confidence and enhanced visibility.

A suite of collision-avoidance and driver assistance tech

VIEW DETAILS

VIEW DETAILS

Safety or driver assistance features are no substitute for the driver's responsibility to operate the vehicle in a safe manner. The driver should remain attentive to traffic, surroundings and road conditions at all times. Visibility, weather and road conditions may affect feature performance. Read the vehicle Owner's Manual for more important feature limitations and information.

SPEC HIGHLIGHTS

SIERRA 1500 AT4	SIERRA 1500 AT4X

The 2024 Sierra 1500 AT4 Crew Cab is offered in a 4WD configuration and can be equipped with a short or standard bed.

MAX AVAILABLE HORSEPOWER
420 hp*
PASSENGER CAPACITY
Up to 5
MAX AVAILABLE TORQUE
495 lb.-ft.*

FRONT HEADROOM
43.0"
GROUND CLEARANCE
11.1"
CARGO BED VOLUME

SHORT BOX:
62.9 cu. ft*
STANDARD BOX:
71.7 cu. ft*

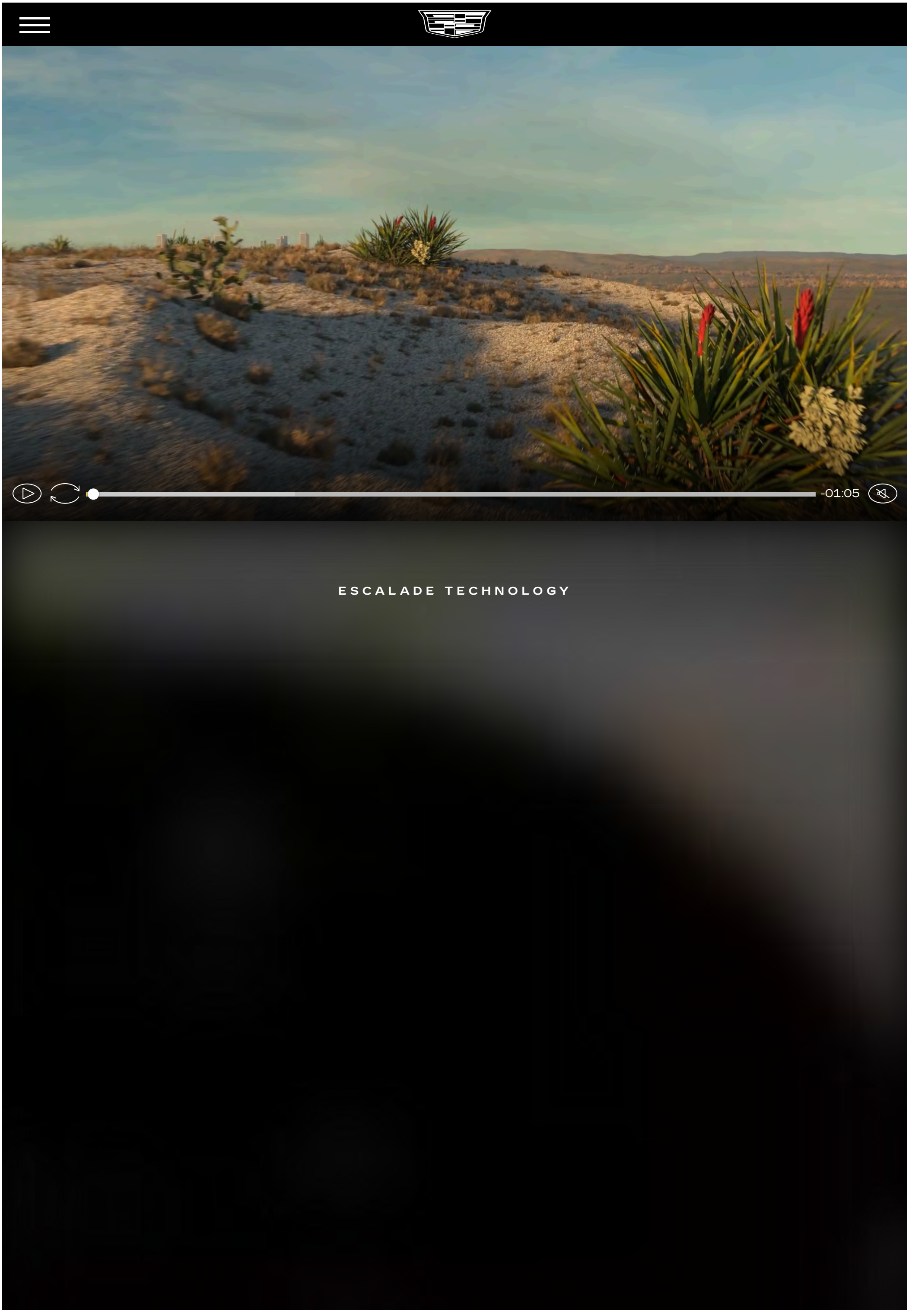
COMPARE TRIMS

YOU MIGHT ALSO LIKE

TAKE THE NEXT STEP

1. The Manufacturer's Suggested Retail Price excludes destination freight charge, tax, title, license, dealer fees, and optional equipment. Dealer sets final price. Click here to see all GMC vehicles' destination freight charges.

EXHIBIT 6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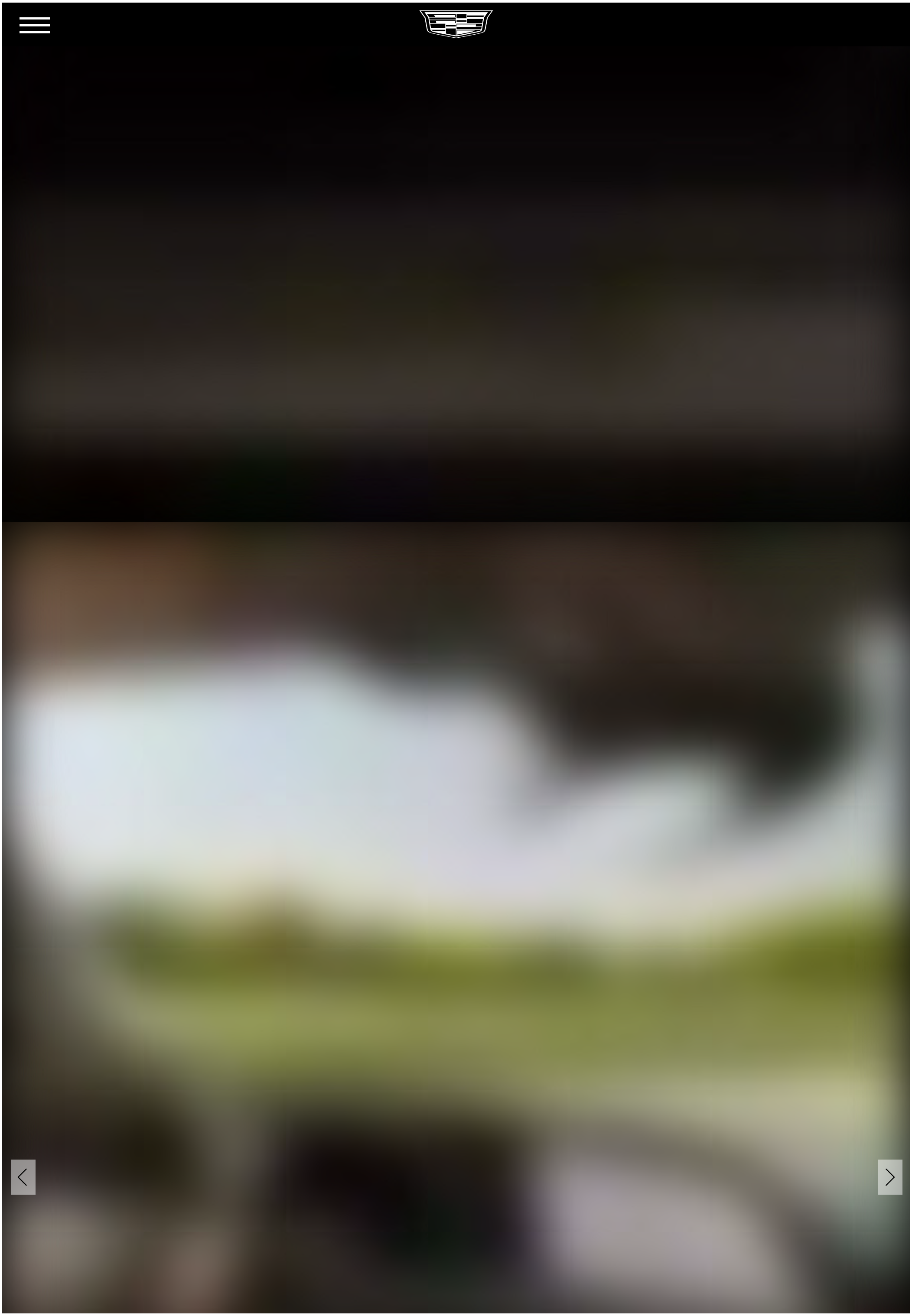
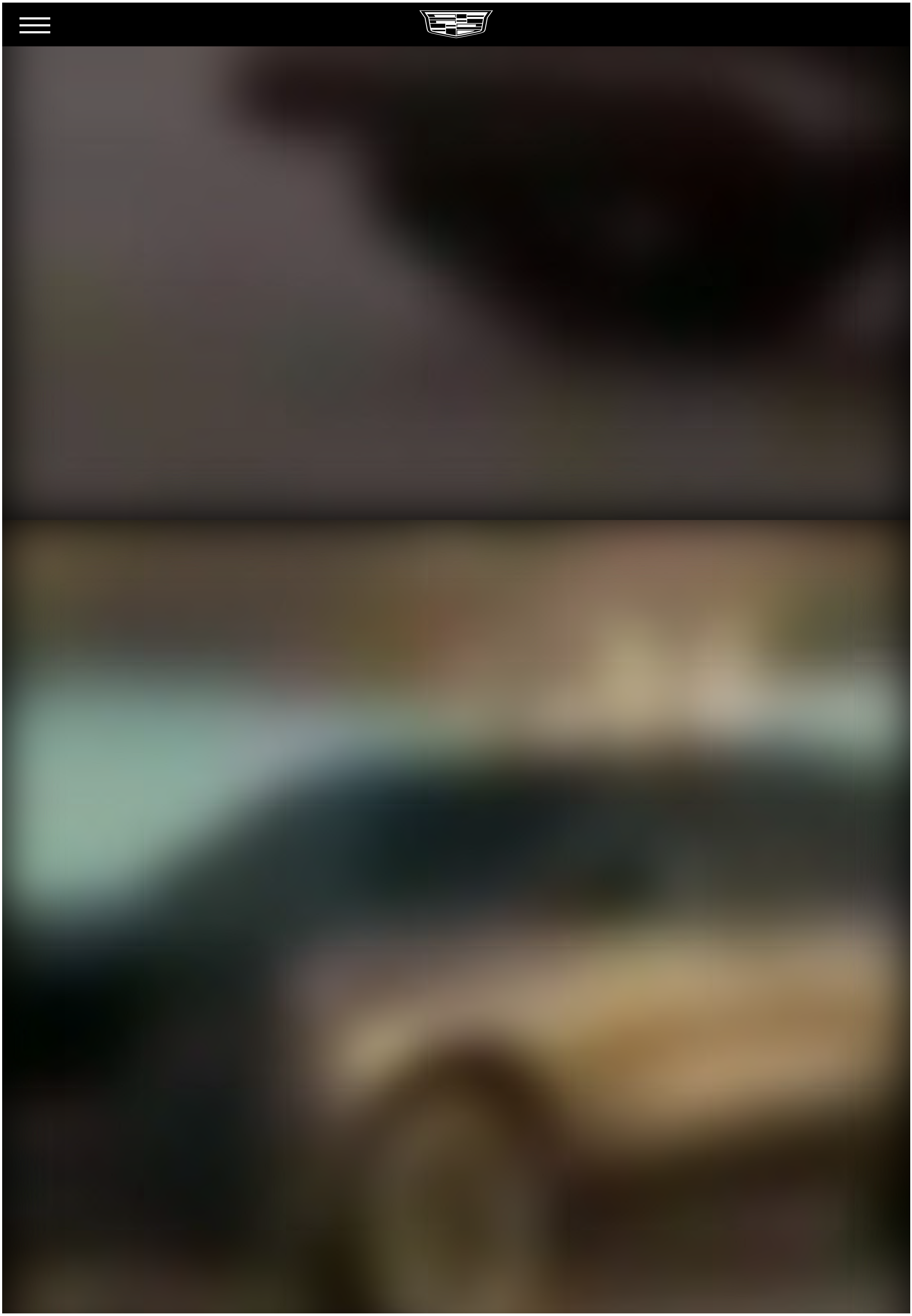
ESCALADE TECHNOLOGY



SIT BACK AND ENJOY THE RIDE

LEARN MORE

ESCALADE EXTERIOR



VIEW ESCALADE MODELS

LUXURY PREMIUM LUXURY SPORT PREMIUM LUXURY PLATINUM

SPORT PLATINUM ESCALADE-V

The Sport Platinum model combines a powerful performance with exceptional presence. An exquisitely crafted interior with Semi-Aniline leather seats joins a commanding exterior presence and leading-edge advancements like available Super Cruise† hands-free driver-assistance technology and the standard AKG 36-speaker Studio Reference audio system to create an experience that's undeniably Escalade.

VIEW ESCALADE COLORS

LUXURY PREMIUM LUXURY SPORT PREMIUM LUXURY PLATINUM

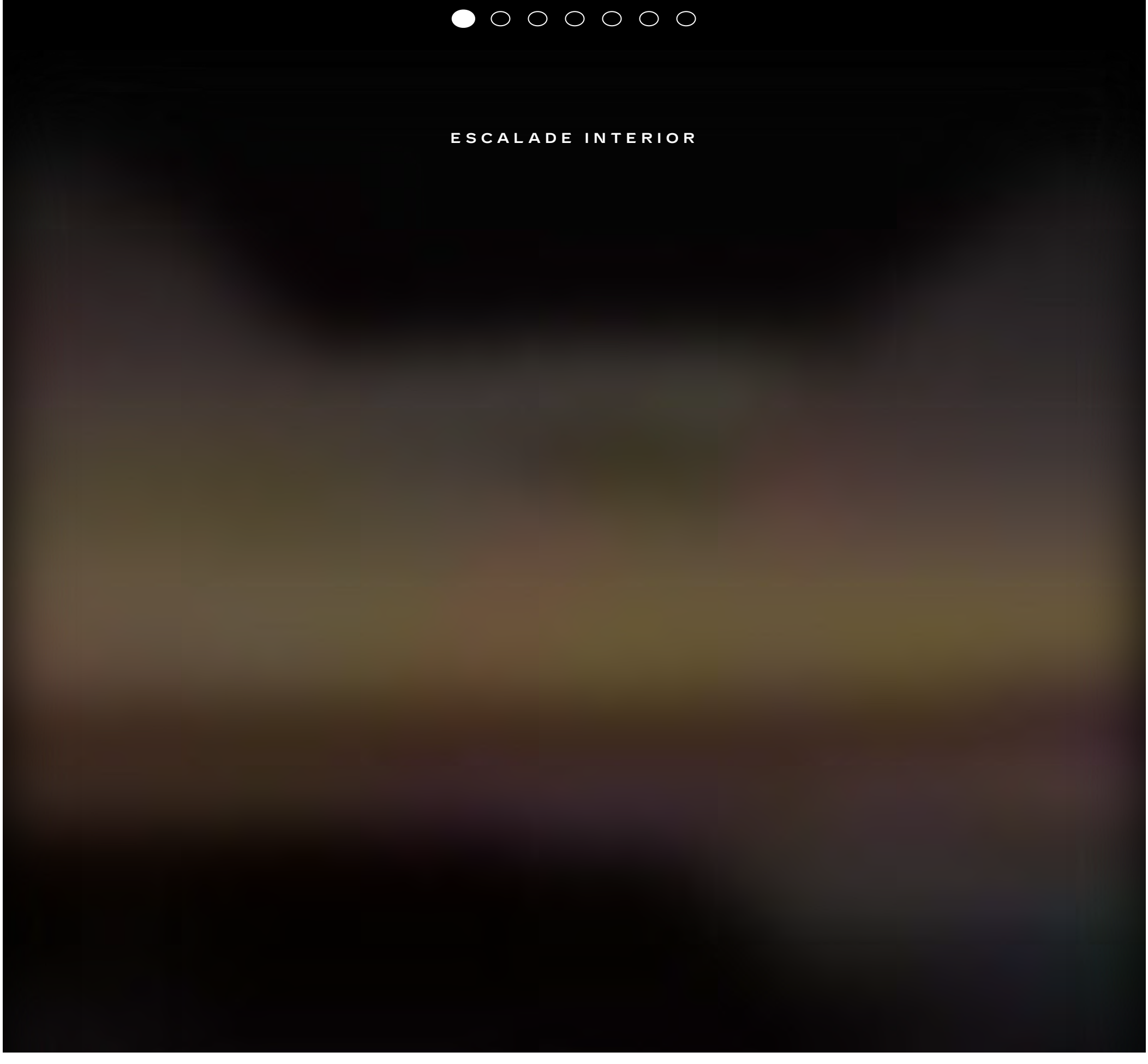
SPORT PLATINUM ESCALADE-V

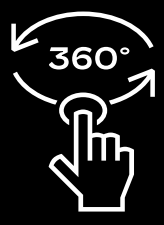
VIEW ESCALADE WHEELS

LUXURY PREMIUM LUXURY SPORT PREMIUM LUXURY PLATINUM

SPORT PLATINUM ESCALADE-V

ESCALADE INTERIOR

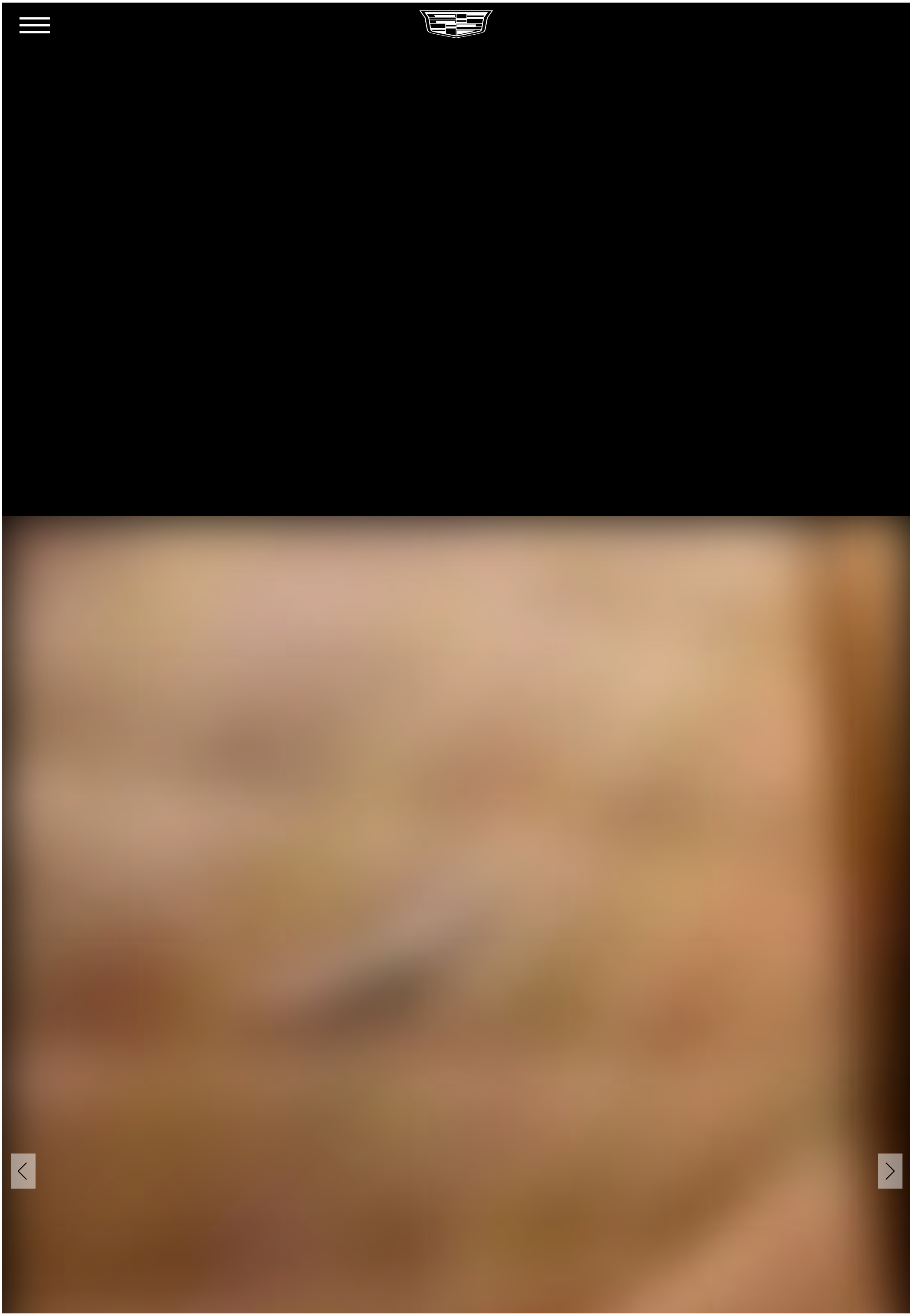




Select "START" to Begin

Press + Hold, Then Move to
Explore 360° Environment

START



METICULOUS LEATHER DETAILING

Choose from models and available leather accessories that are crafted with care and precision, meeting with flawless seams and impeccable stitching.

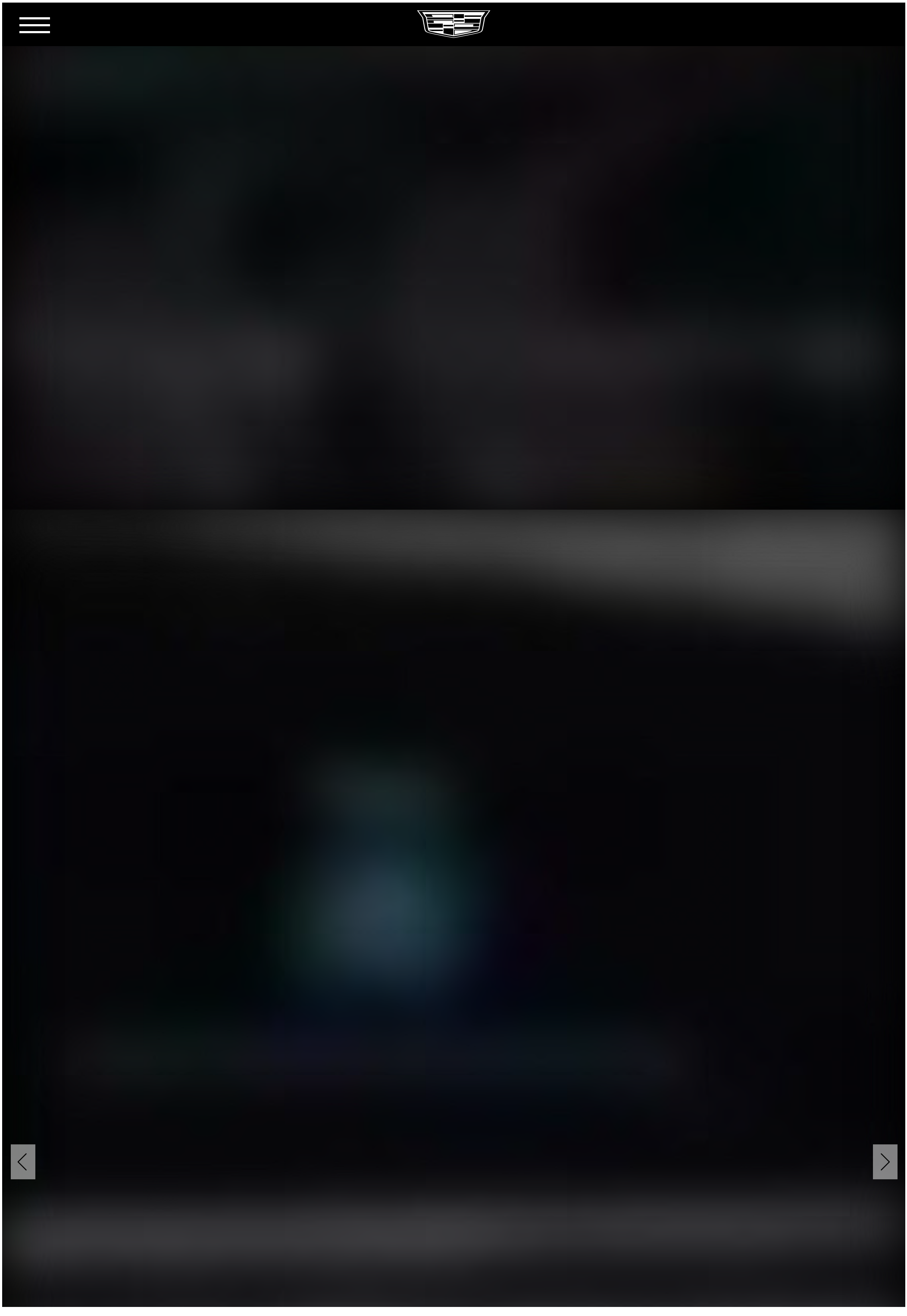
ESCALADE PERFORMANCE

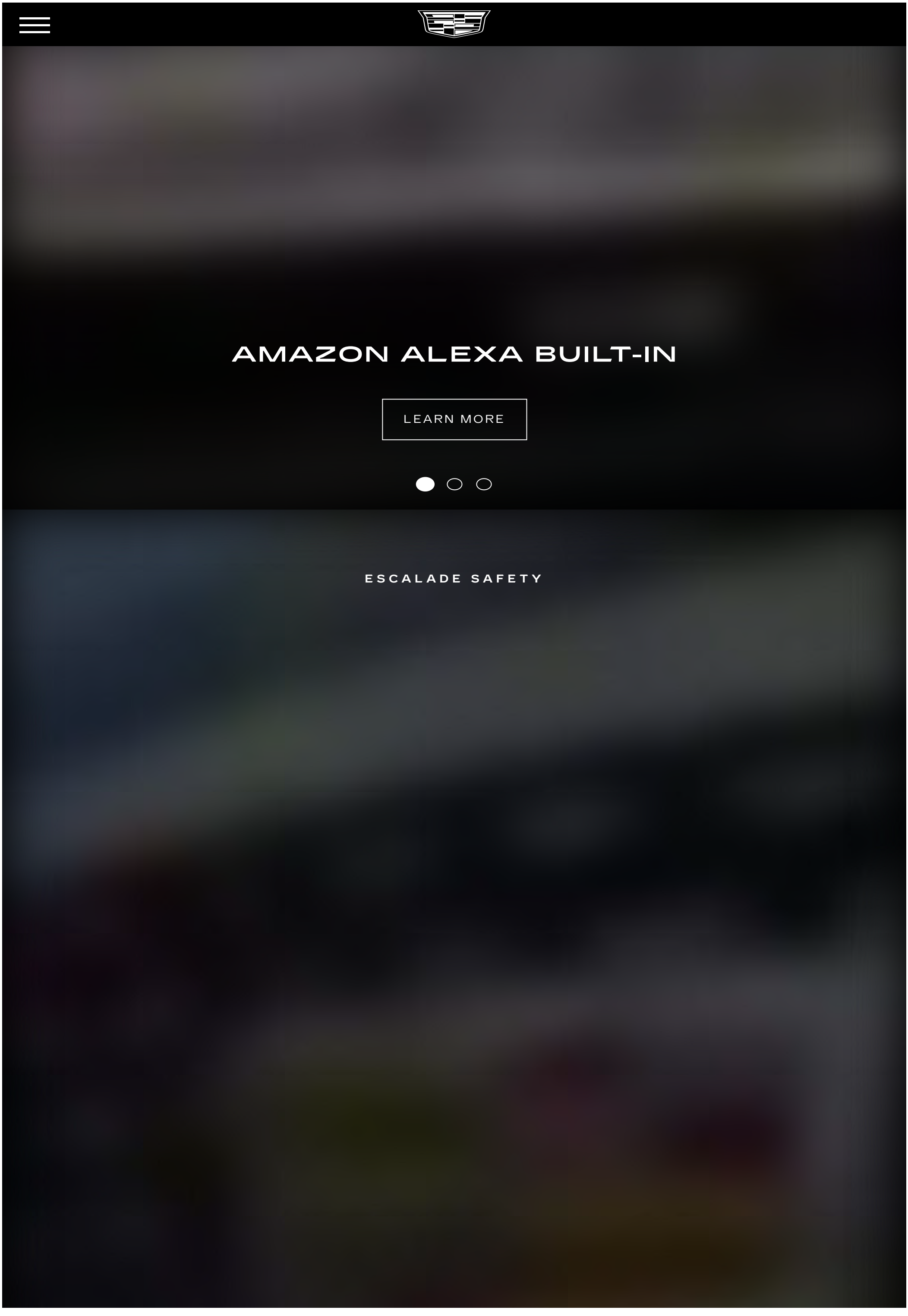
CONFIDENCE IS AN EXPRESSION OF POWER

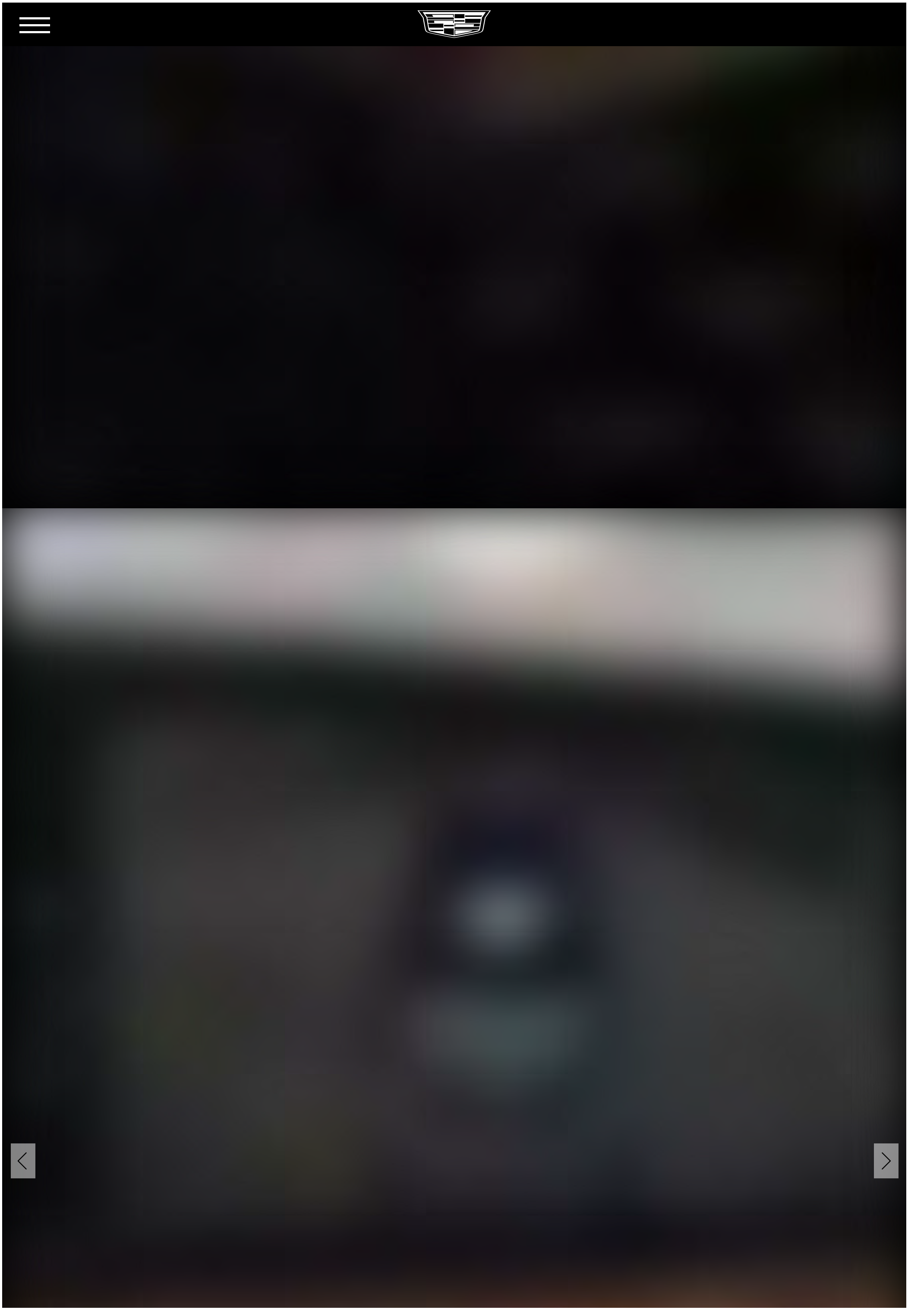
6.2L V8 ENGINE

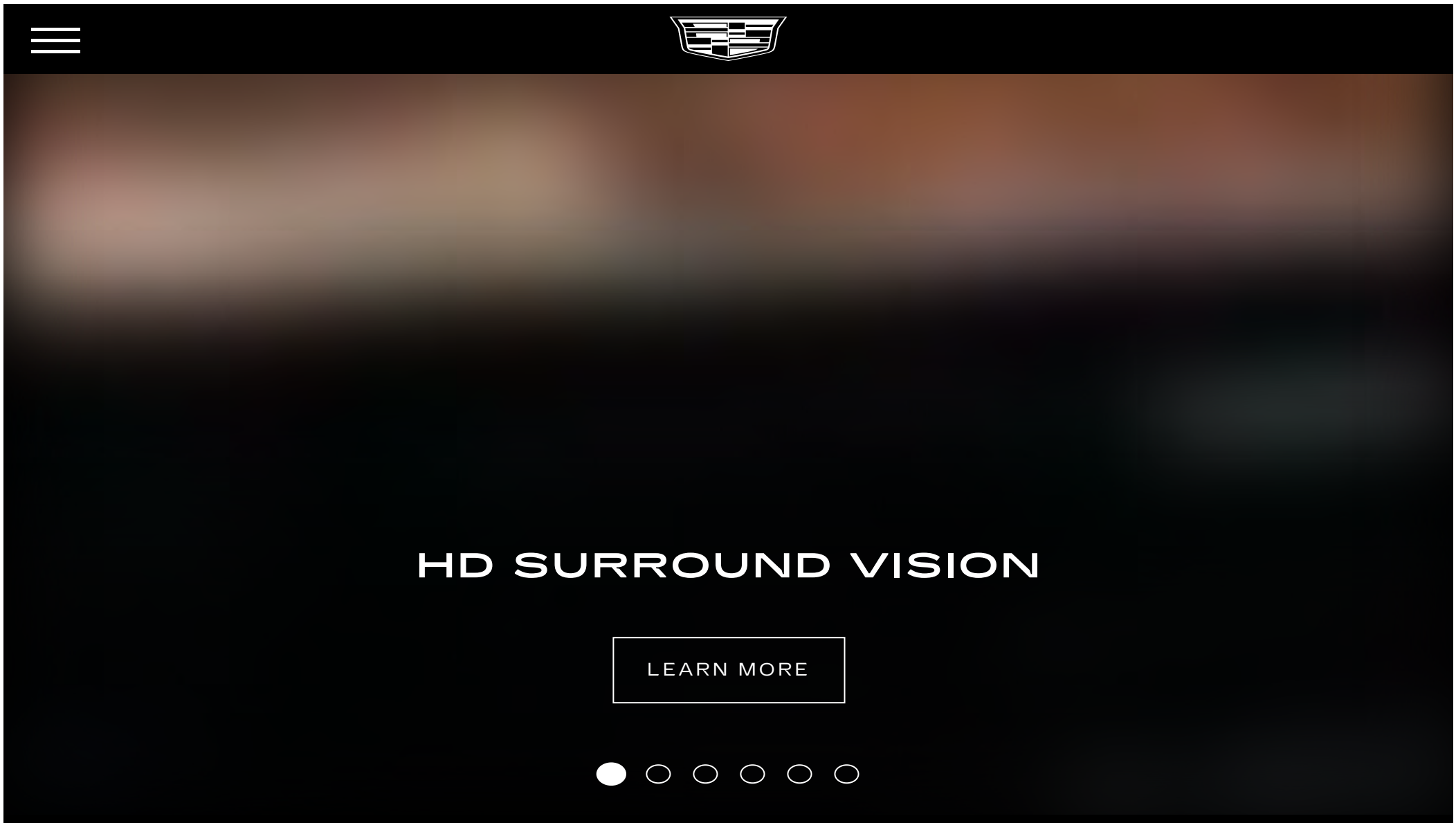
The standard 6.2L 420-hp† V8 is paired with an intelligent 10-speed automatic transmission that moves among gears in a smooth, efficient fashion. Engine technologies such as Continuously Variable Valve Timing, Direct Injection and Dynamic Fuel Management also help ensure this power plant's 460 lb-ft of torque† (623 Nm) is harnessed efficiently.

ESCALADE CONNECTED SERVICES




AMAZON ALEXA BUILT-IN
LEARN MORE
ESCALADE SAFETY





GO CONFIDENTLY WITH THE CADILLAC SMART SYSTEM

With advanced safety capabilities, the Cadillac Smart System™ can reduce error and enhance peace of mind. This comprehensive suite of standard driver-assistance features helps inspire confidence on your journey—whether you're backing out of your driveway or boldly taking on the road ahead.

CADILLAC SMART SYSTEM STANDARD FEATURES

AUTOMATIC EMERGENCY BRAKING

FORWARD COLLISION ALERT

FRONT PEDESTRIAN BRAKING

HD REAR VISION CAMERA

REAR PARK ASSIST

REAR SEAT REMINDER†

SAFETY ALERT SEAT

TEEN DRIVER

VEHICLE DIAGNOSTICS†

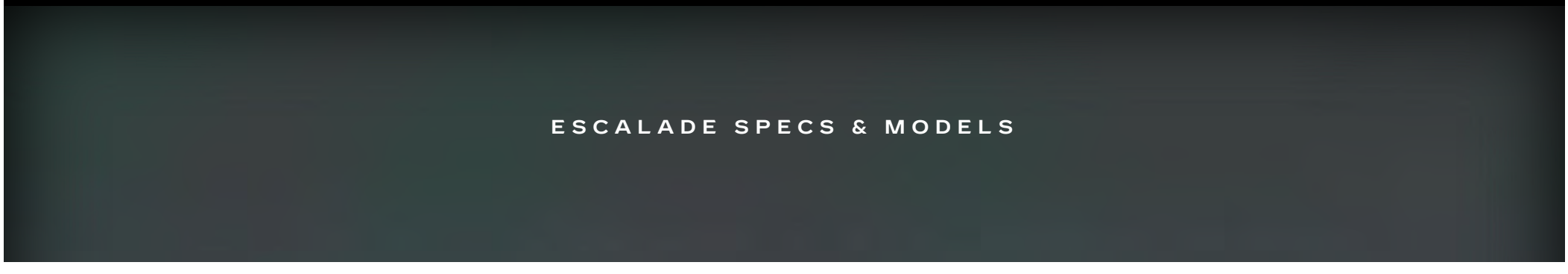
ADDITIONAL STANDARD FEATURES

- FRONT OUTBOARD PASSENGER SENSING SYSTEM
- FRONT PARK ASSIST
- HD SURROUND VISION
- INTELLIBEAM, AUTO HIGH-BEAM ASSIST
- LANE KEEP ASSIST WITH LANE DEPARTURE WARNING
- 3 YEARS OF ONSTAR® CONNECTED SERVICES PREMIUM PLAN†
- RAINSENSE WIPERS
- REAR PEDESTRIAN ALERT
- SEVEN STANDARD AIRBAGS†

SELECT AVAILABLE FEATURES

- ADAPTIVE CRUISE CONTROL
- AUTOMATIC SEAT BELT TIGHTENING
- ENHANCED AUTOMATIC EMERGENCY BRAKING (REPLACES CADILLAC SMART SYSTEMS AUTOMATIC EMERGENCY BRAKING.)
- ENHANCED AUTOMATIC PARKING ASSIST
- HEAD-UP DISPLAY
- LANE CHANGE ALERT WITH SIDE BLIND ZONE ALERT
- NIGHT VISION
- REAR CROSS TRAFFIC ALERT
- REVERSE AUTOMATIC BRAKING

Safety or driver assistance features are no substitute for the driver's responsibility to operate the vehicle in a safe manner. Read the vehicle owner's manual for important feature limitations and information.



SPECS

ESCALADE

- Up to 121.0 cu. ft. of max cargo space†
- 8,200-lb max towing capacity† on 2WD models
- Fuel tank capacity 24.0 gallons (approx.)
- 25.5 cu. ft. cargo capacity† behind 3rd row
- 34.9 inches of third-row leg room

ESCALADE ESV

- Up to 142.8 cu. ft. of max cargo space†
- 8,000-lb max towing capacity† on 2WD models
- Fuel tank capacity 28.3 gallons (approx.)
- 41.5 cu. ft. cargo capacity† behind 3rd row
- 36.6 inches of third-row leg room

MODELS

LUXURY

- 22" 14-Spoke alloy wheels with Bright Silver finish
- Bright-finish: chevron pattern grille, front fascia trim, roof rack, window trim, bodyside molding, running boards, liftgate trim and exhaust bezel
- 12-way power driver and front-passenger heated seats with driver and front-passenger power lumbar control
- Memory settings, includes two presets for driver seat adjuster, outside mirrors and power tilt/telescoping steering column
- Curved OLED with 38" of total diagonal display
- AKG† Studio 19-speaker audio system
- Wireless Apple CarPlay®† capability for compatible phones
- Wireless Android Auto™† capability for compatible phones
- Amazon Alexa Built-In† capability
- 6.2L V8 engine with Dynamic Fuel Management
- 10-speed automatic transmission
- Cadillac Smart System† suite of safety and driver assistance features

EXTERIOR COLORS

INTERIOR COLORS

WHEELS

PREMIUM LUXURY +

SPORT +

PREMIUM LUXURY PLATINUM +

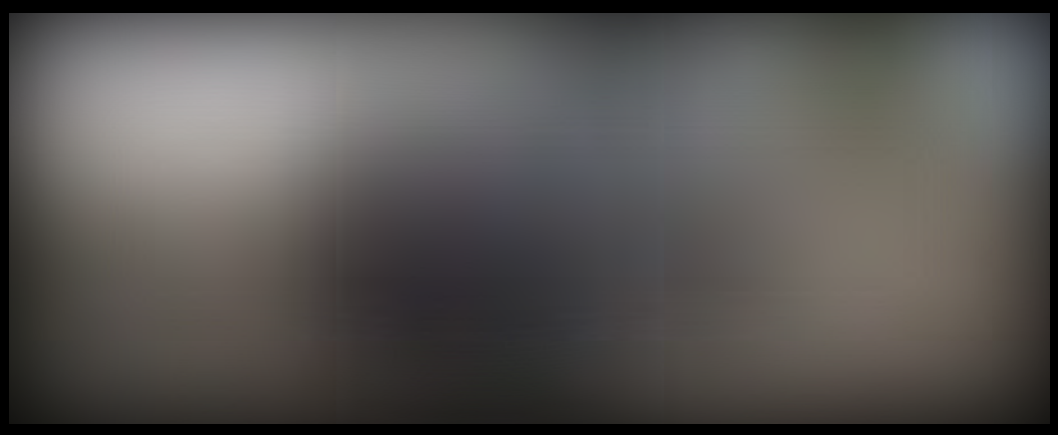
SPORT PLATINUM +

ESCALADE-V +

DOWNLOAD VEHICLE DETAILS

SHARE ESCALADE

GET THE LATEST ON ESCALADE

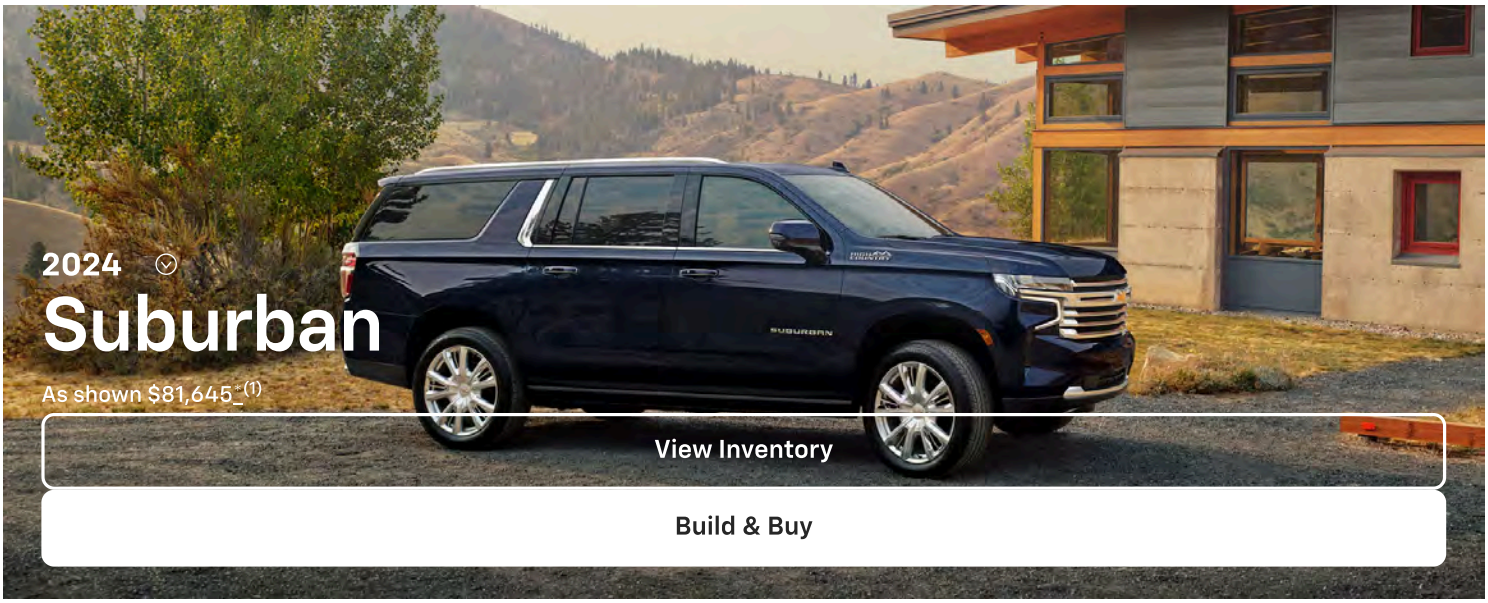


Your Cadillac dealership is the best source of the most up to date information on Escalade. Select "Locate a dealer" to locate the closest dealership near you.

LOCATE A DEALER | BUILD AND BUY

Cadillac

EXHIBIT 7



$59,200*(1)
Starting at

21/27*
Available MPG city/hwy

460*
Max available torque

144.7 cu. ft.*
Best-in-class
max cargo volume

Highlights

Ready for the big time

Best Large SUV for Families

Suburban wins four years in a row*

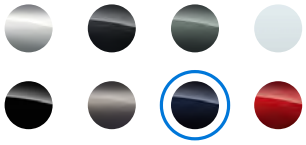
People mover

Room for up to 9 passengers*

Intelligent tech

Available Super Cruise®* driver assistance technology

EXTERIOR



INTERIOR

Midnight Blue Metallic

Build & Buy

Find your trade-in value

Use our convenient appraisal tool to quickly check your current vehicle's worth.

Value Your Trade

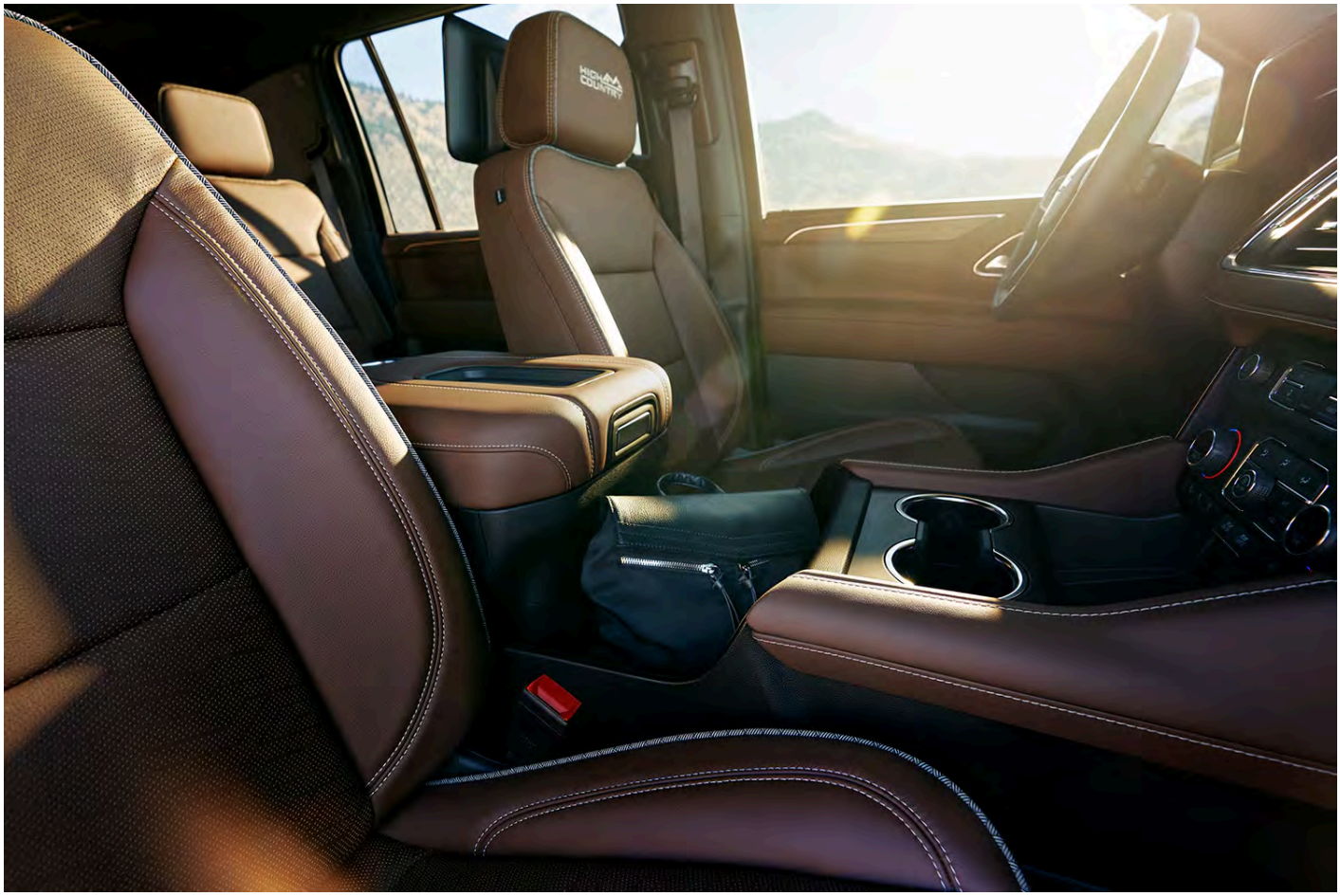
Interior

Room to roam

Space and versatility are yours in the 2024 Suburban. The premium cabin features comfortable seating for up to nine* and still allows plenty of rear storage for your gear. Get ready to enjoy your room with a view.

Best-in-Class Max Cargo Volume*

Generous second- and third-row leg room



Available power sliding center console

“

The 2024 Chevrolet Suburban is a cargo and family-hauling champion.

-U.S. NEWS & WORLD REPORT

Exterior

The center of attention

Big on style, Suburban is impossible to ignore, whether you're driving around town or sharing a night on the town. Best of all: it comes in six models that are perfectly appointed to fit your unique personality.

Suburban

Power-retractable assist steps
Available

LED headlamps and taillamps

Hands-free power liftgate
Standard on LT and above

Compare 6 Suburban models

LS
Starting at $59,200*(1)
As shown $62,200*(1)

- 10-speed automatic transmission
- Premium Smooth Ride suspension
- 18-inch wheels and all-season tires
- Chrome roof rack side rails

LT
Starting at $6
As shown $67,

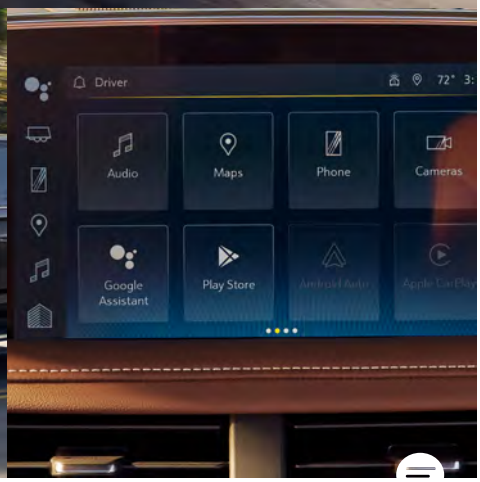
- Inside rearvi
- Wireless cha
- Bose 9-spea
- Hands-free

View Inventory

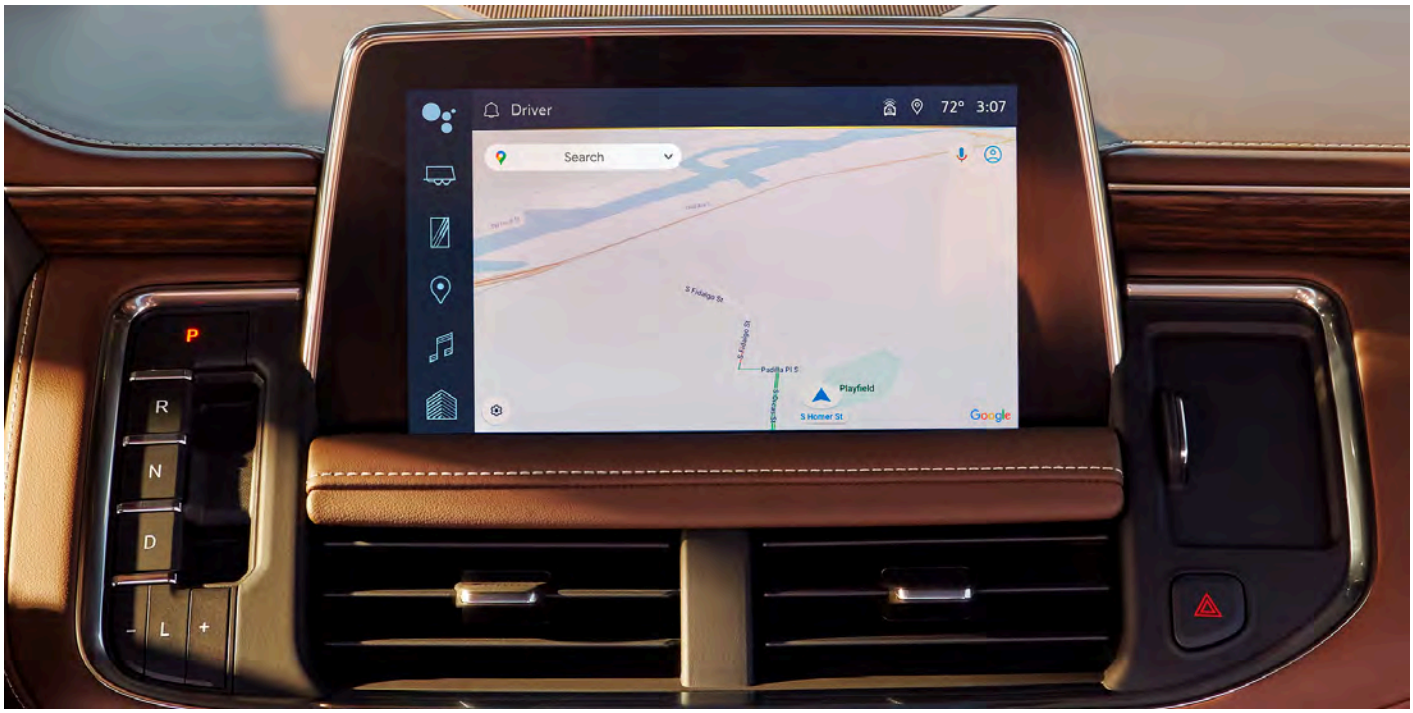
Build & Buy

Gallery


SUBURBAN


Driver
Audio
Maps
Phone
Cameras
Google Assistant
Play Store

More Photos



Technology

Stay smartly connected

An available 10.2-inch diagonal center touch-screen display paired with available Google built-in* allows you to get things done hands-free with voice commands. The available Wi-Fi®* connection helps give passengers access and entertainment during every ride.

Advanced Trailering System
Available

Rear-Seat Media System
Available

12-inch diagonal Driver Information Center
Standard on LT and above

Show More

Available Super Cruise®* driver assistance technology

The freedom of driving hands-free

The future of driving is here today. On average, Super Cruise* users drive more than 10 million hands-free miles per month total. Just as impressive: Super Cruise driver assistance technology won MotorTrend Best Hands-Free Driving Tech. Available on Premier and High Country.

MOTORTREND
BEST TECH 2025

Super Cruise

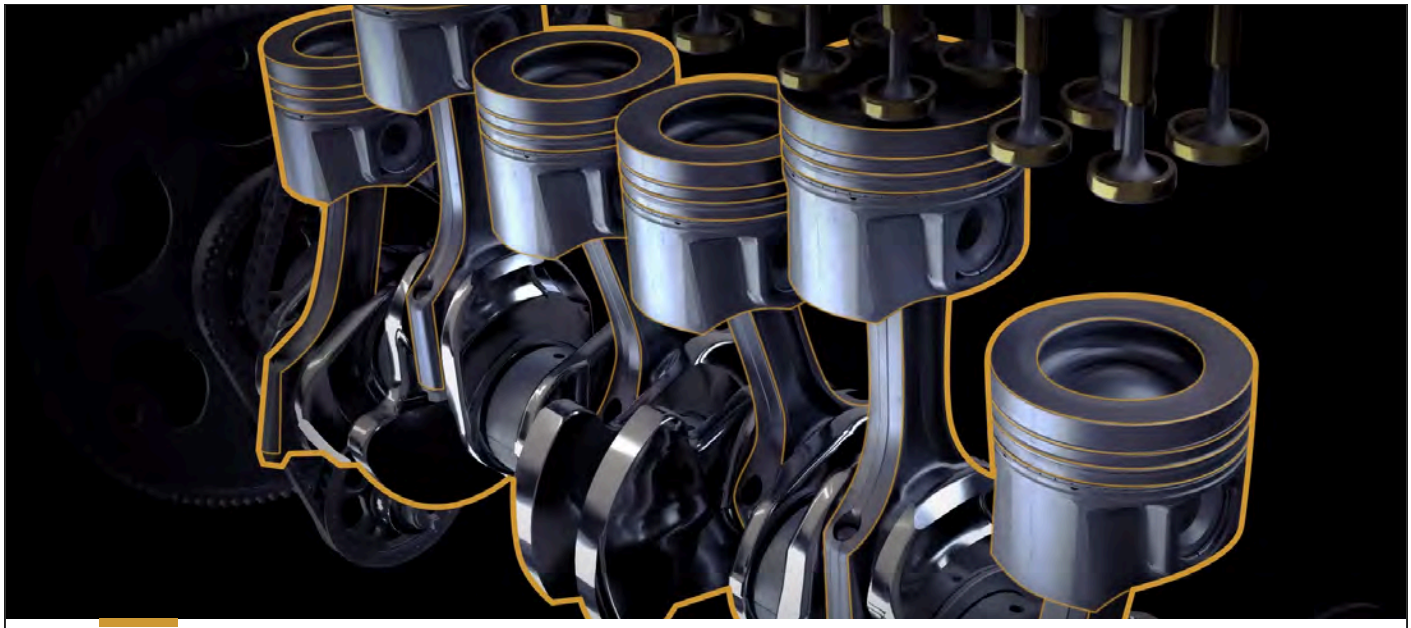
myChevrolet Mobile App*(3)

Access remote functions and diagnostic resources*(3) through your myChevrolet Mobile App*(4) for three years through the Remote Access Plan*(5) which now comes standard on Select Chevy vehicles*(6).

More Benefits

Capability

Duramax® 3.0L Turbo-Diesel



Design | Performance | Efficiency | Range | Tuning

It's balanced.

Engineered with large SUVs in mind, the available Duramax 3.0L Turbo-Diesel is smart, smooth and balanced. Paired with a 10-speed automatic transmission, it helps give Tahoe and Suburban a responsive driving feel.

Designed to dominate

Three Powerful Engine Choices — More Options Than Any Competitor

Show More

Performance

Power player

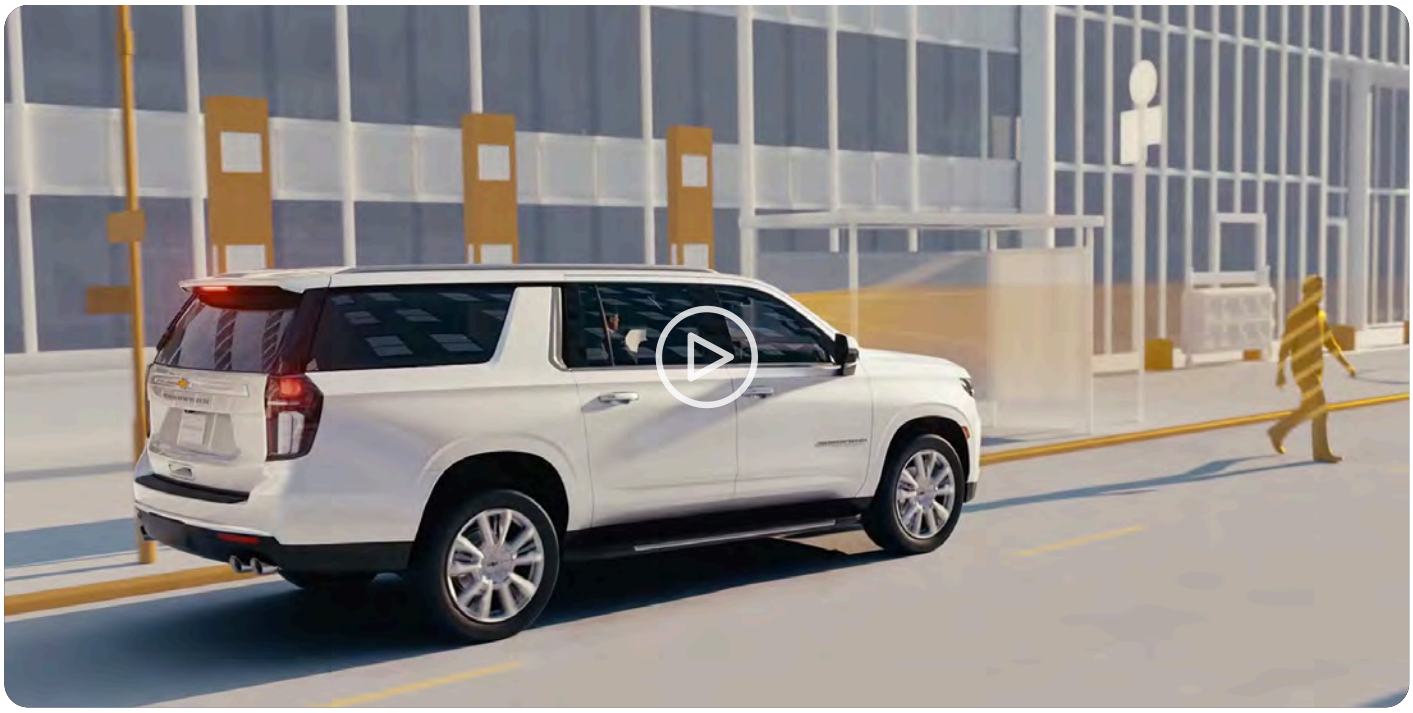
When it's time to perform, Suburban is ready for the spotlight. That's the kind of confidence you can count on, since the capable and efficient Suburban can tow heavy loads and accelerate from a stop to highway speeds with ease.

Magnetic Ride Control
Available

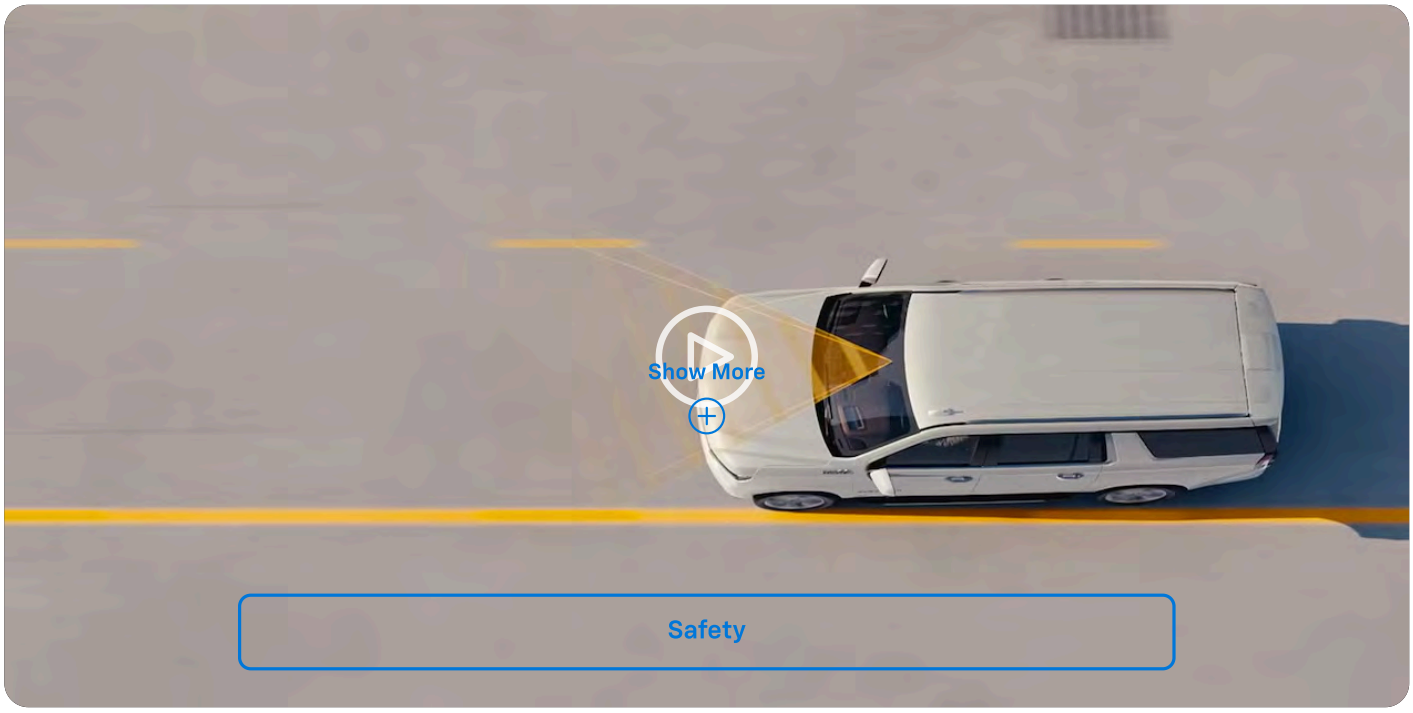
8,300 lbs.*
Max available trailering

Dynamic Fuel Management
For enhanced efficiency

Forward Collision Alert and Automatic Emergency Braking



Front Pedestrian Braking



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1. The Manufacturer's Suggested Retail Price excludes destination freight charge, tax, title, license, dealer fees and optional equipment. Click here to see all Chevrolet vehicles' destination freight charges. Dealer sets final price.
2. 0% APR for 60 months. Monthly payment is $16.67 for every $1,000 you finance. Example down payment: 9.5%. Must finance with GM Financial. Some customers may not qualify. Not available with lease and some other offers. Tak… …ew retail delivery 6/2/2025.

3. Available on select Apple and Android devices. Service availability, features and functionality vary by vehicle, device and the plan you are enrolled in. Terms apply. Device data connection required. Actual images and features may vary and are subject to change.
4. The 3-year Remote Access plan is not available on Blazer EV, Silverado EV RST, Equinox EV, and Express Van.
5. On-Demand Diagnostics capabilities vary by model and plan. See onstar.com for details and limitations.
6. Remote Access Plan does not include emergency or security services. See onstar.com for details and limitations.

EXHIBIT 8

---

to Metals
to Engine bearings

Bearings in internal combustion engines

Dr. Dmitri Kopeliovich

Internal combustion engine

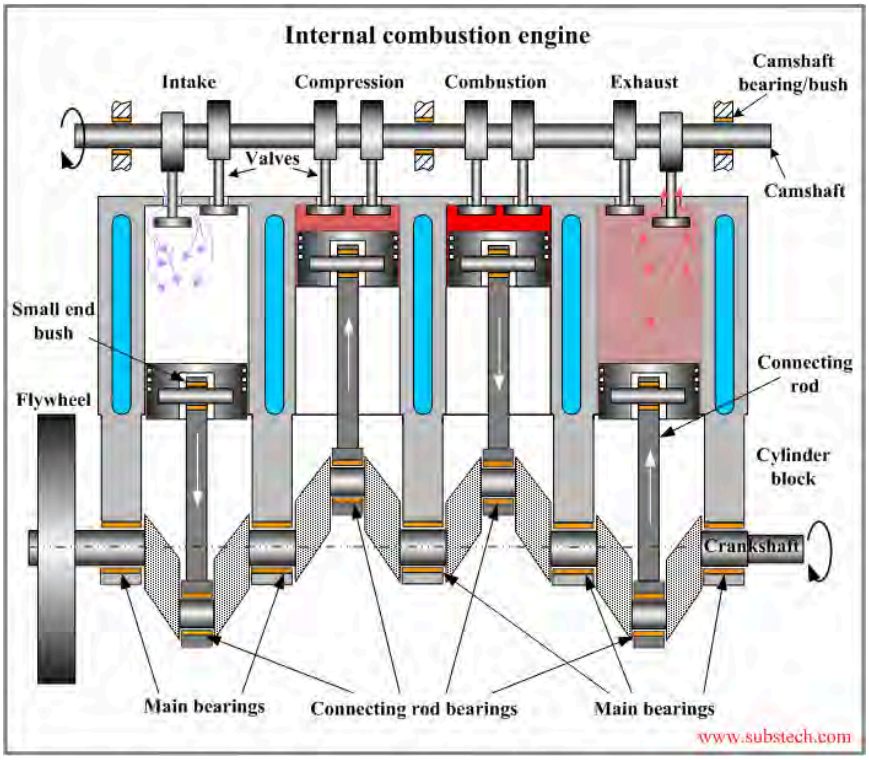
Internal combustion engine is a device converting the energy of a fuel-air mixture burning within a combustion chamber into mechanical energy.

Reciprocating internal combustion engine is an engine, in which burning process occurs within a cylinder equipped with a piston driven by the pressure of the combustion gases. The gas pressure force is transmitted to the crankshaft linked to the piston by means of a connecting rod. Such mechanical device called crank mechanism transforms the alternating linear motion of the piston into the rotation of the shaft.

Reciprocating engines are the most common type of internal combustion engines.

The figure below presents a scheme of a typical four-stroke reciprocating combustion engine.

The engine consists of four cylinders in different phases of the engine cycle (intake, compression, expansion and exhaust). Each cylinder has an inlet and exhaust valves, opening and closing of which is controlled by the cam mechanism.
Each piston is joined to the crank pin of the crankshaft though the connecting rod.



The four-stroke cycle:

- **Intake**: The intake valve is open. The piston moves downwards from the Top Dead Center (TDC) to the Bottom Dead Center (BDC) sucking the fuel-air mixture into the cylinder.
- **Compression**: Both valves are closed. The piston moves from BDC towards TDC compressing the gaseous fuel-air mixture. The compression causes pressure and temperature increase of the gas in the cylinder. When the crankshaft reaches some angle before TDC the fuel-air mixture is ignited and fuel combustion starts. Combustion further increases the gas pressure and temperature. In the gasoline (petrol) engines ignition is as a result of a spark produced by the spark plug. The engines of such type are called **Spark Ignition (SI) engines**. In the diesel engines the fuel-air mixture is ignited by the heat of the compressed gages. The engines of such type are called **Compression Ignition (CI) engines**.
- **Power (expansion)**: Both valves are closed. The piston travels from TDC to BDC under the high pressure of hot burning gases. The power of the the gases is transmitted to the crankshaft through the connecting rod. Just before the piston reaches the Bottom Dead Center the exhaust valve opens.
- **Exhaust**: The exhaust valve is open. The piston moves towards TDC forcing the combustion gases out of the cylinder. When it reaches TDC the exhaust valve closes and the intake valve opens - the cycle returns to the initial state.

to top

Functions of bearings in internal combustion engines

Bearing is a device supporting a mechanical element and providing its movement relatively to another element with minimum power loss.

The rotating components of internal combustion engines are equipped with sleeve type sliding bearings.
The reciprocating engines are characterized by cycling loading of their parts including bearings. Such character of the loads is a result of alternating pressure of combustion gases in the cylinders.
Rolling bearings, in which a load is transmitted by rolls (balls) to a relatively small area of the ring surface, can not withstand under the loading conditions of internal combustion engines.
Only sliding bearings providing a distribution of the applied load over a relatively wide area may work in internal combustion engines.

The sliding bearings used in internal combustion engines:

- **Main crankshaft bearings** support crankshaft providing its rotation under inertia forces generated by the parts of the shaft and oscillating forces transmitted by the connecting rods. Main bearings are mounted in the crankcase. A main bearing consists of two parts: upper and lower. The upper part of a main bearing commonly has an oil groove on the inner surface. A main bearing has a hole for passing oil to the feed holes in the crankshaft. Some of main bearings may have thrust bearing elements supporting axial loads and preventing movements along the crankshaft axis. Main bearings of such type are called **flange main bearings**.
- **Connecting rod bearings** provide rotating motion of the crank pin within the connecting rod, which transmits cycling loads applied to the piston. Connecting rod bearings are mounted in the Big end of the connecting rod. A bearing consists of two parts (commonly interchangeable).
- **Small end bushes** provide relative motion of the piston relatively to the connecting rod joined to the piston by the piston pin (gudgeon pin). End bushes are mounted in the Small end of the connecting rod. Small end bushes are cycling loaded by the piston pushed by the alternating pressure of the combustion gases.
- **Camshaft Bearings** support camshaft and provide its rotation.

to top

Lubrication of the bearings in internal combustion engine

Purposes of lubrication of engine bearings are as follows:

- significant decrease of the coefficient of friction;
- extraction of the heat generated by the friction;
- removal of foreign particles from the rubbing surfaces.

Engine bearings generally work in hydrodynamic regimes of friction.
Hydrodynamic friction implies the presence of a continuous lubricant film between the bearing and journal surfaces (Hydrodynamic journal bearing).

Constant supply of a lubricant (oil) in sufficient amounts is necessary for normal work of engine bearings.
Bearings lubrication is provided by the lubrication system.

to top

Related internal links

- Engine parameters determining bearing loading
- Lubrication regimes
- Hydrodynamic journal bearing
- Hydrodynamic lubrication theory
- Geometrical parameters of engine bearings
- Mechanisms of wear
- Requirements to engine bearing materials
- Engine bearing fatigue test
- Engine bearing materials
- Copper based bearing materials
- Manufacturing bi-metal strips for copper bearings
- Aluminum based bearing materials
- Continuous casting of aluminum based bearing alloys
- Manufacturing bi-metal strips for aluminum bearings
- Lead based engine bearing overlays
- Tin based engine bearing overlays
- Sputter bearing overlays
- Polymer based engine bearing overlays
- Engine bearing failure
- Selection of engine bearing materials
- Effect of low viscosity oils on engine bearings
- pMax Black™ - Strengthened Tri-metal Bearing Materials for High Performance Bearings
- U-Groove™ Modified Design of Oil Groove for High Performance Bearings
- ElliptiX™ Oil Hole of New Design for High Performance Bearings
- EccentriX™ Optimal Eccentricity for High Performance Bearings
- RadiaLock™ - Design of Crush Height for Reliable Press Fit of High Performance Bearings
- Modern Trends In Materials For High Performance Engine Bearings
- Optimization of Clearance Design for High Performance Engine Bearings
- Camshaft Bearings
- Ecological Aspects Of Engine Bearings
- Consistency in Bearing Wall Thickness
- Soft Strength of Racing Bearings
- Effect of oil viscosity on hydrodynamic friction of engine bearings
- Bearing Materials For Race Engines
- Oil Clearance and Engine Bearings
- Polymer Coated Bearings
- Development of Performance Bearings for Race Engines of Modern Design
- Failures of Engine Bearings and their Prevention
- Engine Bearing Housing and How it Affects Engine Bearings
- Polymer Coatings for Race Engine Bearings
- Heavy Duty Engine Bearings - Materials, Geometry, Failures
- Hydrodynamic Bearing – Calculations and Design
- Geometry of Engine Bearings
- Crush Height of Engine Bearings
- Materials for Engine Bearings
- Engine oils

to Metals
to Engine bearings

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EXHIBIT 9

GM 6.2 Liter V8 EcoTec3 L87 Engine

The L87 is a 6.2-liter, eight-cylinder engine from General Motors that's used in a range of pickup trucks and SUVs. Featuring an OverHead Valve (OHV), or "push-rod" design in a "V" configuration, the L87 is part of GM's Gen V Small Block engine architecture that's known in trucks and SUVs as EcoTec3.

The L87 is part of the second-generation EcoTec3 engine family, and is the direct successor to the GM L86 engine. It was first launched in the all-new 2019 Silverado 1500 (fourth generation) and 2019 Sierra 1500 (fourth generation).

Displacement:	6.2L / 376 cu. in.
Aspiration:	Natural
Vehicles:	Chevy Silverado 1500, Suburban, Tahoe, GMC Sierra 1500, Yukon, Yukon XL, Cadillac Escalade
Introduced:	2019 model year
Discontinued:	–
Predecessor:	L86/ Gen 3 Small Block
Successor:	–
Assembly:	Tonawanda, NY

6.2L L87 Engine Vitals

Overview

GM Authority discovered references to the motor in the 2019 Silverado order guide and 2019 Sierra order guide on April 21st, 2018.

The 6.2L with DFM — the largest and most powerful gas V-8 in the segment — is SAE-certified at 420 horsepower (313 kW) and 460 lb-ft of torque (623 Nm) and is paired with a Hydra-Matic 10-speed automatic transmission.

"The increased variability of Dynamic Fuel Management means the engine will operate more often with a reduced number of cylinders, which saves fuel across the board," said Lee. "Better yet, the transitions are transparent, and because the system is torque-based, you've always got that satisfying feeling of power on demand that comes from Chevy's Gen V Small Block V-8 engines."

The engines also feature driver-selectable stop/start technology that helps save fuel in stop-and-go traffic. The 6.2-liter L87 was initially offered in LTZ and High Country models.

Notably, the 6.2-liter L87 earned recognition as one of Wards 10 Best Engines in 2018. For the competition, WardsAuto editors evaluated every all-new or significantly improved engine or electric propulsion system available in production vehicles in the U.S. Vehicles must have had a starting MSRP less than $64,000, with the editors scoring eligible vehicles on horsepower, torque, technology, observed fuel economy, relative competitiveness and noise characteristics.

Specifications

Engine family:	EcoTec3
GM RPO code:	L87
Displacement:	6.2-liters
Configuration & Cylinders:	V8
Vehicle Engine Orientation:	Longitudinal
Aspiration:	atmospheric (naturally aspirated)
Compression ratio:	11.5:1
Valve configuration:	Overhead Valve (OHV)
Valves per cylinder:	2
Assembly site:	GM Tonawanda plant, New York, USA
Valve lifters:	2
Firing order:	1 – 8 – 7 – 2 – 6 – 5 – 4 – 3
Bore x stroke:	4.065 x 3.622-inches (103.25 x 92 mm)
Fuel system:	SIDI (Spark Ignited Direct Injection)
Fuel Type:	Regular gasoline; premium recommended
Maximum Engine Speed:	6,000 RPM
Materials	
Block:	Cast Aluminum
Cylinder head:	Cast Aluminum
Main bearing caps:	Cast Nodular Iron
Crankshaft:	Forged Steel
Camshaft:	Billet Steel
Connecting rods:	Forged Powder Metal
Emissions Controls	
Auto Engine Stop/Start	
Catalytic Converter	
Three-Way Catalyst	
Positive Crankcase Ventilation	
Dynamic Fuel Management / Dynamic Skip Fire	

GM 6.2L V8 L87 Engine Specs

Vehicle Applications

Model Year	Make	Model	Transmission	Power (hp / kW @ RPM)	Torque (lb-ft / Nm @ RPM)
2021 and newer	Cadillac	Escalade	GM 10-Speed Automatic (MQC)	420 / 313 @ 5600	460 / 624 @ 4100
2021 and newer	Chevrolet	Suburban	GM 10-Speed Automatic (MQC)	420 / 313 @ 5600	460 / 624 @ 4100
2021 and newer	Chevrolet	Tahoe	GM 10-Speed Automatic (MQC)	420 / 313 @ 5600	460 / 624 @ 4100
2019 and newer	Chevrolet	Silverado 1500	GM 10-Speed Automatic (MQB)	420 / 313 @ 5600	460 / 624 @ 4100
2019 and newer	GMC	Sierra 1500	GM 10-Speed Automatic (MQB)	420 / 313 @ 5600	460 / 624 @ 4100
2021 and newer	GMC	Yukon	GM 10-Speed Automatic (MQC)	420 / 313 @ 5600	460 / 624 @ 4100
2021 and newer	GMC	Yukon XL	GM 10-Speed Automatic (MQC)	420 / 313 @ 5600	460 / 624 @ 4100

GM 6.2L V8 L87 Engine Vehicle Applications

Related Engines

The 6.2L L87 is part of the GM EcoTec3 Engine Family, and is a bigger and more powerful version of the 5.3L L84.

To elaborate, the L87 is an upgraded version of the 6.2L V8 L86 that it succeeds, while the L84 is an upgrade of the 5.3L V8 L83 that it succeeds. Both the L86 and L83 were used in the GM K2 platform trucks and SUVs, while the L87 and L84 are used in the GM T1 platform trucks and SUVs that succeed vehicles on the K2 platform.

The L87, L84, L86 and L83 engines are all part of the GM EcoTec3 engine family.

6.2L L87 V8 GALLERY

CLICK TO EXPAND

6.2L V8 EcoTec3 L87 News

New GM 6.2L L87 Engine Lawsuit Claims Repairs Are Inadequate

Replacement engines allegedly have the same defects.

Read More »

GM L87 Engine Recall: Everything You Need To Know About The Oil

The thicker oil is supposed to optimize lubrication.

Read More »

ALL 6.2L V8 ECOTEC3 L87 NEWS

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Buick Envision Sales Up, Second Only To Lexus NX During Q1 2025

GM Announces $4 Billion Investment In U.S. Assembly Plants

EXHIBIT 10

6.2L V-8 L87

STRONG HERITAGE MEETS EFFICIENCY

HORSEPOWER: 420 HP @ 5600 RPM

TORQUE: 460 LB-FT @ 4100 RPM*

CYLINDERS: 8

FUEL TYPE: GASOLINE (87 OCTANE)

6.2L V-8 L87 Features & Specifications

The L87 builds upon the previous 6.2L L86 with integral components for Automatic Start/Stop capability and available Dynamic Fuel Management (DFM) for even greater efficiency. Efficient, robust technologies including Direction Injection, Variable Valve Timing, oil-jet piston cooling, and a two-stage oil pump continue to be standard on L87.

Type:	6.2L
Displacement:	6162 cc
Engine Orientation:	Longitudinal
Compression Ratio:	11.5:1
Valve Configuration:	Overhead Valves
Valves per Cylinder:	Two
Assembly Sites:	Tonawanda, NY and St. Catharines, Ontario; Spring Hill, TN
Valve Lifters:	Hydraulic roller
Firing Order:	1–8–7–2–6–5–4–3
Bore x Stroke:	103.25 x 92 mm
Fuel Type:	Regular Gasoline (87 Octane)
Maximum Engine Speed:	6000 rpm

Emissions Controls:	Catalytic Converter, Three-Way Catalyst, Positive Crankcase Ventilation
Horsepower:	420 hp (313 kW) @ 5600 rpm*
Torque:	460 lb-ft (624 Nm) @ 4100 rpm*
Block:	Cast Aluminum
Cylinder Head:	Cast Aluminum
Intake Manifold:	Composite
Exhaust Manifold:	Cast Nodular Iron
Main Bearing Caps:	Cast Nodular Iron
Crankshaft:	Forged Steel
Camshaft:	Billet Steel
Connecting Rods:	Forged Powder Metal

***As tested in Chevrolet Silverado 1500 (Dbl., Crew)**

EXHIBIT 11

The Detroit News
SERVING MICHIGAN SINCE 1873

GM

New Silverado gets 2.7-liter turbo four, updated V-8s

Nora Naughton The Detroit News
May 18, 2018, 8:00 a.m. ET

Milford — Chevrolet's 2019 Silverado will offer six different engine and transmission combinations, including an all-new 2.7-liter four-cylinder turbo and two V-8 engines equipped with the bow-tie brand's newest fuel-management technology that can deactivate all cylinders as needed.

Chevrolet debuted its dynamic fuel management system at General Motors Co.'s Milford Proving Ground on Thursday. The new system for the Silverado's 5.3-liter and 6.2-liter V-8 engines builds upon Chevy's active fuel management system, which takes the V-8 to a V-4 depending on how much torque is needed, with the overall goal to improve fuel economy.

Dynamic fuel management takes that to a new level with the ability to deactivate all eight cylinders in 17 different firing fractions. It's designed to further optimize fuel efficiency. The Silverado's EPA mileage ratings are not yet available, so it's not clear what the difference will be in fuel economy from active fuel management to dynamic fuel management.

The high-end LTZ trim comes standard with a dynamic fuel management-equipped 5.3-liter V-8, which produces 355 horsepower and 383 pound-feet of torque. That engine is an option on the LT and RST trims. The LTZ can also be optioned with a dynamic fuel management-equipped 6.2-liter V-8 producing 420 horsepower and 460 pound-feet of torque.

The work to refine to dynamic fuel management required what Jordan Lee, Chevy's chief engineer for small block engines, said was equivalent to building an all-new engine.

"The increased variability of dynamic fuel management means the engine will operate more often with a reduced number of cylinders, which saves fuel across the board," Lee said in a statement. "Better yet, the transitions are transparent, and because the system is torque-based, you've always got that satisfying feeling of power on demand that comes from Chevy's Gen V small block V-8 engines."

Also new to the Silverado engine lineup is the 2.7-liter turbo four, which replaces the 4.3-liter V-6 as the standard engine on high-volume Silverado trims, which includes the LT, RST and LT Trail Boss.

The new turbo four puts out 310 horsepower and 348 pound-feet of torque. It's also lighter, saving 380 pounds compared to the 2018 Silverado's standard V-6.

Designed as a truck engine, the 2.7-liter four-banger is equipped with active fuel management.

The 2019 Silverado debuted at the Detroit auto show earlier this year. Weighing 450 pounds lighter than its predecessor thanks to a mixed-material approach, it features the biggest box in the segment, which is equipped with a segment-first power tailgate. It arrives on dealers' lots this fall.

NNaughton@detroitnews.com

EXHIBIT 12

Part 573 Safety Recall Report 25V-274

Manufacturer Name : General Motors, LLC
Submission Date : APR 24, 2025
NHTSA Recall No. : 25V-274
Manufacturer Recall No. : N252494000

Manufacturer Information :

Manufacturer Name : General Motors, LLC
Address : 29427 Louis Chevrolet Road
480-210-2V Warren MI 48093
Company phone : 586-596-1733

Population :

Number of potentially involved : 597,630
Estimated percentage with defect : 3 %

Vehicle Information :

Vehicle 1 : 2021-2024 Cadillac Escalade
Vehicle Type :
Body Style :
Power Train : NR
Descriptive Information : Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall.

There are 79,747 Cadillac Escalade vehicles affected by this recall.

Production Dates : MAR 01, 2021 - MAY 31, 2024
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Vehicle 2 : 2021-2024 Cadillac Escalade ESV
Vehicle Type :
Body Style :
Power Train : NR
Descriptive Information : Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall.

There are 46,280 Cadillac Escalade ESV vehicles affected by this recall.

Production Dates : MAR 01, 2021 - MAY 31, 2024
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Part 573 Safety Recall Report 25V-274

Vehicle 3 :	2021-2024 Chevrolet Silverado 1500
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall. There are 107,244 Chevrolet Silverado 1500 vehicles affected by this recall.
Production Dates :	MAR 01, 2021 - MAY 31, 2024
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Vehicle 4 :	2021-2024 Chevrolet Suburban
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall. There are 22,162 Chevrolet Suburban vehicles affected by this recall.
Production Dates :	MAR 01, 2021 - MAY 31, 2024
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Vehicle 5 :	2021-2024 Chevrolet Tahoe
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall. There are 44,802 Chevrolet Tahoe vehicles affected by this recall.
Production Dates :	MAR 01, 2021 - MAY 31, 2024
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Part 573 Safety Recall Report 25V-274

Vehicle 6 :	2021-2024 GMC Sierra 1500
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall. There are 153,630 GMC Sierra 1500 vehicles affected by this recall.
Production Dates :	MAR 01, 2021 - MAY 31, 2024
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Vehicle 7 :	2021-2024 GMC Yukon
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall. There are 82,832 GMC Yukon vehicles affected by this recall.
Production Dates :	MAR 01, 2021 - MAY 31, 2024
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Vehicle 8 :	2021-2024 GMC Yukon XL
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	Manufacturing records were used to determine vehicles equipped with the 6.2L V8 gas engine (RPO L87) built within the suspect manufacturing window. Vehicles outside of this window and vehicles equipped with other engines are not included in this recall. There are 60,933 GMC Yukon XL vehicles affected by this recall.
Production Dates :	MAR 01, 2021 - MAY 31, 2024
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Part 573 Safety Recall Report 25V-274

Description of Defect :

Description of the Defect :	General Motors has decided that a defect which relates to motor vehicle safety may exist in certain 2021 – 2024 model year Cadillac Escalade and Escalade ESV, Chevrolet Silverado 1500, Suburban, and Tahoe, and GMC Sierra 1500, Yukon, and Yukon XL vehicles equipped with the 6.2L V8 gas engine (RPO L87). The connecting rod and/or crankshaft engine components in these vehicles may have manufacturing defects that can lead to engine damage and engine failure.
FMVSS 1 :	NR
FMVSS 2 :	NR
Description of the Safety Risk :	If the engine fails during vehicle operation, the vehicle will lose propulsion, increasing the risk of a crash.
Description of the Cause :	Engine teardown analysis identified two primary root causes, both of which are attributable to supplier manufacturing and quality issues: (1) rod-bearing damage from sediment on connecting rods and crankshaft-oil galleries; and (2) out of specification crankshaft dimensions and surface finish.
Identification of Any Warning that can Occur :	Drivers may be alerted to the condition prior to failure from: (a) knocking, banging, or other unusual engine noises; (b) illumination of the check engine light; and/or (c) engine-performance issues, including hesitation, high RPMs, abnormal shifting, reduced propulsion, or a no-start condition.

Involved Components :

Component Name 1 :	CRANKSHAFT ASM
Component Description :	L87 Crankshaft
Component Part Number :	12732518

Component Name 2 :	ROD ASM-CONN
Component Description :	L87 Connecting Rod
Component Part Number :	12714549

Supplier Identification :

Component Manufacturer

Name :	see attached
Address :	NR

Part 573 Safety Recall Report 25V-274

	NR
Country :	NR

Chronology :

On January 16, 2025, GM opened a product investigation following notification from NHTSA of its investigation into alleged engine failures in GM vehicles equipped with the L87 V8 engine. GM closed three prior investigations into this condition in February 2022, June 2023, and July 2024 based on the available safety field information.

GM's updated field data analysis identified a build period from March 1, 2021, to May 31, 2024, with an increased rate of potentially related engine failure claims. GM's investigator reviewed findings from teardowns of field engines and data from a study of new, unused crankshafts. Supplier manufacturing and quality issues were identified at intermittent periods within the suspect build period, including (1) rod-bearing damage from sediment on connecting rods and crankshaft-oil galleries; and (2) out of specification crankshaft dimensions and surface finish. These issues can cause or contribute to bearing damage that can lead to loss of propulsion and engine failure.

GM's investigation identified 28,102 field complaints or incidents in the US potentially related to failure of the L87 engine due to crankshaft, connecting rod, or engine bearing failure, of which 14,332 involved allegations of loss of propulsion. These field complaints were received between April 29, 2021, and February 3, 2025. GM identified 12 potentially related alleged crashes and 12 potentially related alleged injuries in the U.S.; all specifically alleged injuries were minor or non-physical, and most were not crash related. GM also identified 42 potentially related fire allegations in the U.S., but in the majority of these cases (a) the causation of these incidents is unclear and (b) the alleged fire damage is contained to the engine compartment and consistent with damage that can occur, in rare instances, during engine failure. On April 17, 2025, GM's Safety Field Action Decision Authority (SFADA) decided to conduct a safety recall.

Description of Remedy :

Description of Remedy Program :	Dealers will inspect and, as necessary, repair or replace the engine. Vehicles that pass inspection will be provided a higher viscosity oil, which will also require a new oil fill cap, an oil filter replacement, and an owner's manual insert. Pursuant to 577.11, GM will provide reimbursement to owners for repairs according to the plan submitted under USG 5916 on May 12, 2023.
How Remedy Component Differs from Recalled Component :	Connecting rods and crankshafts in repaired or replaced engines were produced after the suppliers' suspect manufacturing window.
Identify How/When Recall Condition was Corrected in Production :	A series of crankshaft and connecting rod manufacturing improvements implemented on or before June 1, 2024, addressed contamination and quality issues.

Part 573 Safety Recall Report 25V-274

Recall Schedule :

Description of Recall Schedule :	Dealers will be notified on April 24, 2025. Owner notification is estimated to begin on June 9, 2025. This recall will be executed under three bulletins: N252494000, N252494001, and N252494002.
Planned Dealer Notification Date :	APR 24, 2025 - APR 24, 2025
Planned Owner Notification Date :	JUN 09, 2025 - JUN 09, 2025

* NR - Not Reported

EXHIBIT 13

How the "24 Hours of GM" Chases the Bugs Out of GM's Performance Cars

By James Tate Published: Aug 23, 2013

From the **September 2013 issue** of *Car and Driver*

When **Chevrolet unveiled the Z/28 last spring**, Mark Stielow, its program engineering manager, assured us that the car could burn through a full tank of fuel on a track without overheating any critical fluids. He knew this because his team had done it, repeatedly. But the Z/28's true test is yet to come: While all cars undergo countless months of abuse and a mind-bending battery of tests over millions of miles of development before hitting showrooms, GM treats its high-performance models to something extra. If it's a car that owners might take to the track, engineers subject it to what they call the "24-hour test."

ROBERT KERIAN, TOM DREW, PATRICK M. HOEY, AND THE MANUFACTURER

Sibling Rivalry

The Corvette, CTS-V, new Chevy SS, and even the HHR SS have all endured GM's rigorous 24-hour test at its Milford, Michigan, proving grounds. When the Z/28 enters the crucible later this year, engineers will be comparing it with the ZL1's results, shown here:

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2023 Chevro Camaro
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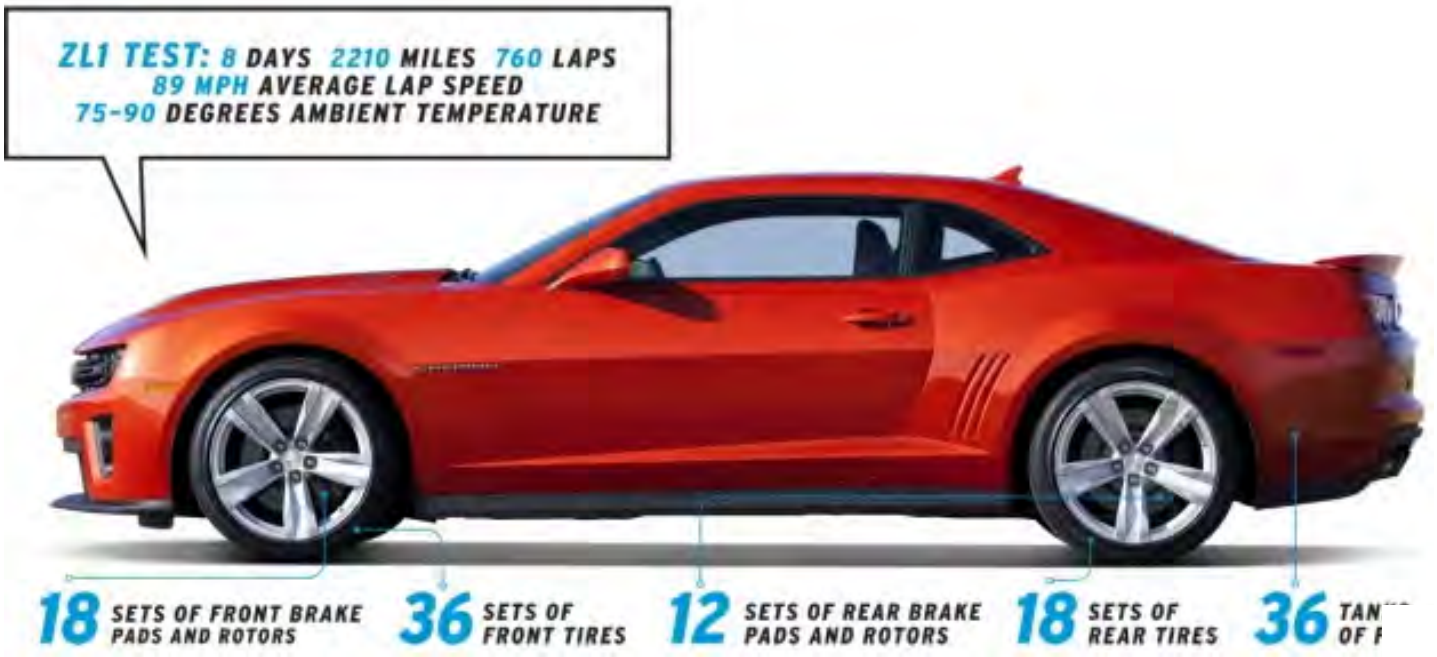

ROBERT KERIAN, TOM DREW, PATRICK M. HOEY, AND THE MANUFACTURER

That's something of a misnomer, as the 24 hours aren't contiguous. According to Aaron Link, the Camaro's lead development engineer, the testing typically happens in sessions lasting up to four hours per day. A team of about 10 drivers, including Corvette Racing Team veterans Ron Fellows and Johnny O'Connell, as well as Link—who has the fastest lap time for the Camaro around both **Virginia International Raceway** and the **Nürburgring's Nordschleife**—aggressively exercise the test mule. Once a driver sets a target hot lap, the goal is for all of them to stay within 2 percent of that time, to keep the car pushing as hard as possible.

The drivers take stints of one fuel tank each (30 to 45 minutes, depending on the car). In the parking lot, the team checks fluids, brakes, and tires before a new driver takes over. Nothing but brakes and tires gets changed. That allows any extreme-performance issues to be exposed.

"Things don't really have the chance to cool off," says Link. "You find things that you may not have beforehand." If the car does need tires or brakes, the team hoists it on a lift and also conducts a quick visual inspection and a check of the critical fasteners, mainly on suspension components.

- **Comparo: 2013 Chevrolet Camaro ZL1 Convertible vs. 2012 BMW M6 Convertible**
- **Instrumented Test: 2014 Chevrolet Corvette Stingray Z51**
- **Dissected: 2014 Chevrolet Camaro Z/28**

GM has used **Road America**, VIR, and the Nürburgring for its 24-hour testing. These days, provided the local weather is hot enough to suitably stress the cars, the tests usually are conducted in-house. GM's

track in Milford, Michigan, was designed to ape some of the most challenging corners that exist on race courses around the world.

Testing procedures have come a long way since **the C4 Corvette** underwent GM's first such endurance test in the early 1990s, when engineers measured just 15 data points collected during pit stops. Today's testing monitors 130 channels via telemetry. The one aspect that hasn't changed, though, is that the 24-hour test is grueling. And, from the looks of it, a ton of fun.

ROBERT KERIAN, TOM DREW, PATRICK M. HOEY, AND THE MANUFACTURER

Behind the Blue Oval: Ford's Endurance Course

Chevy's crosstown rival has a similar curriculum for its high-performance models. Past Shelby and SVT models ran 12-hour tests designed to mimic the abilities of the average customer, rather than those of professional drivers. So far, the **Ford GT** and **2013 Shelby GT500** are the only Blue Oval products to endure a full 24-hour battery. Ford's European RS Team tests its models for 3100 miles on the Nürburgring and for 1550 miles around Italy's high-speed Nardo Ring

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James Tate

Contributing Editor

James Tate has been writing about cars professionally since 2004, but the obsession took hold before he could stand. He's a Luddite at heart, so it's the tactility and driving experience of yesterday's cars that really grab him, but an appreciation for engineering sustains his interest in the modern stuff. Tate's writing has appeared in *Road & Track, Popular Mechanics, Automobile, Autoweek,* and others.

WATCH NEXT

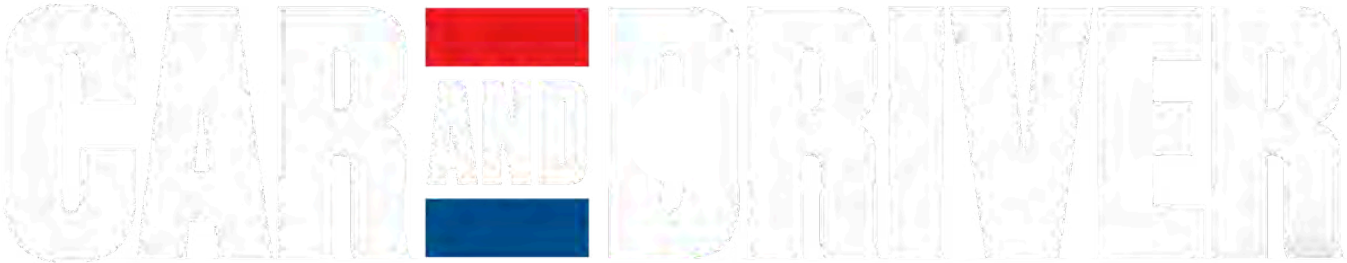

EXHIBIT 14

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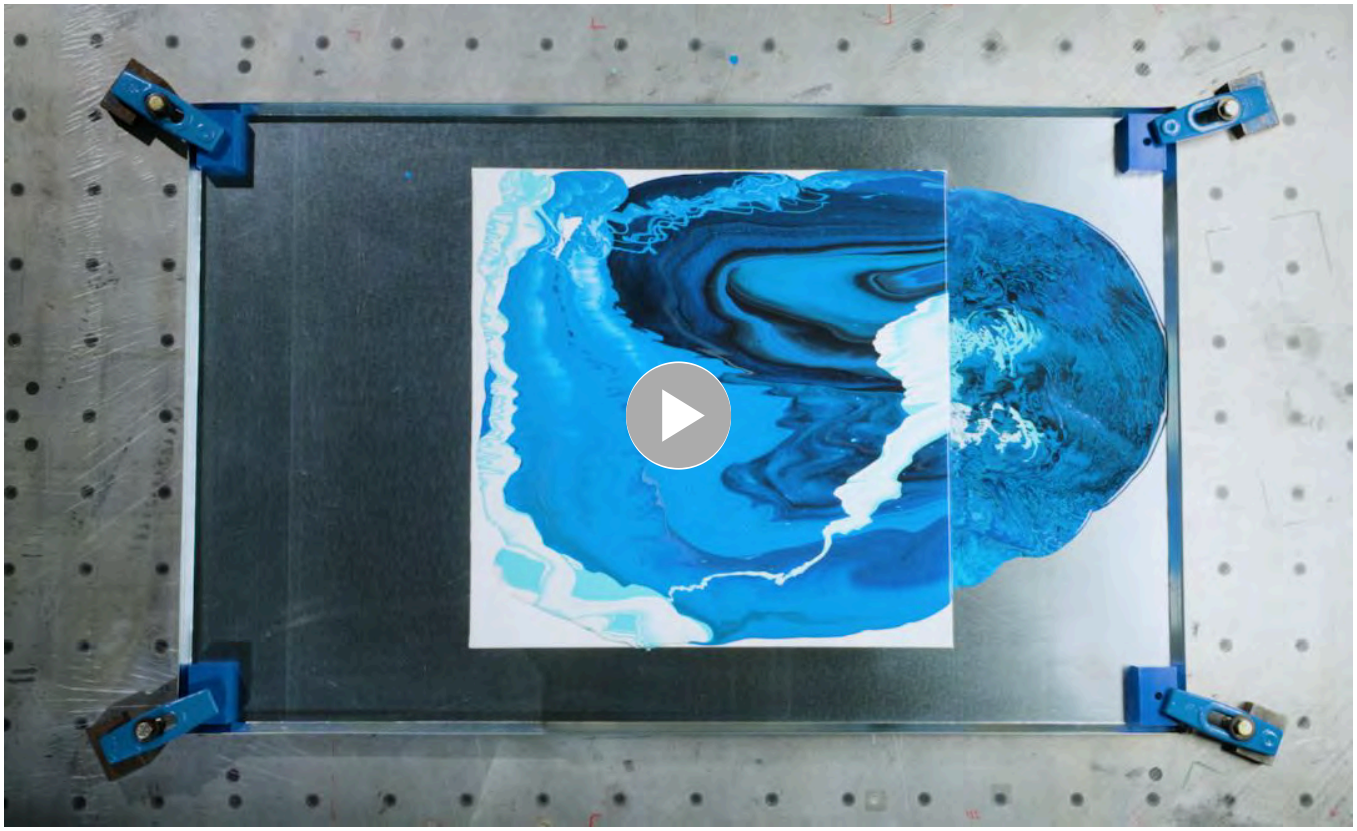

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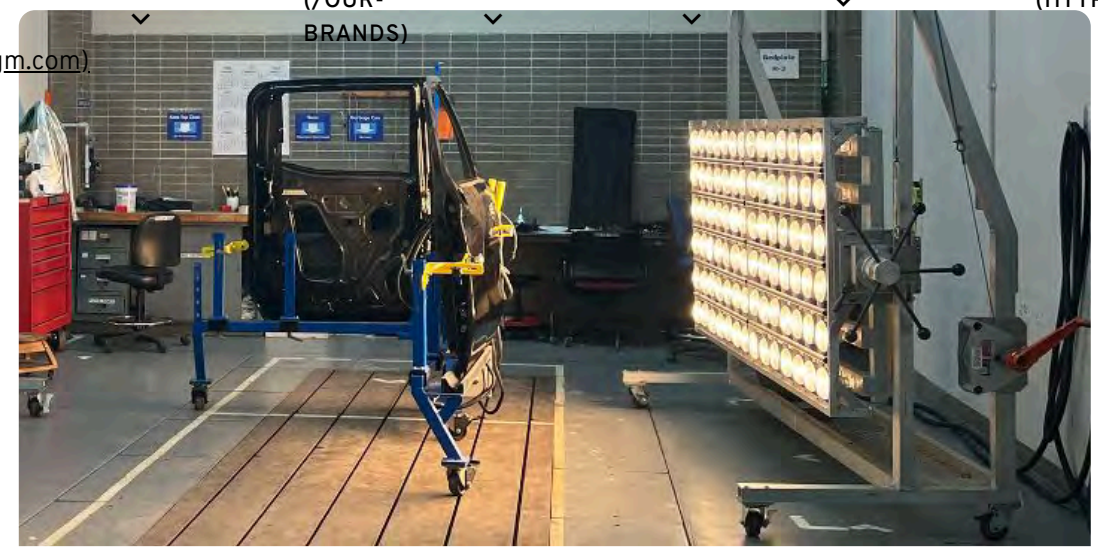

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Learn More (https://www.gm.com/company/facilities/milford-proving-ground)

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Learn More (https://www.gm.com/company/facilities/yuma-proving-ground)

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EXHIBIT 15

Detroit Free Press

GENERAL MOTORS

Fast facts about GM Milford Proving Ground, from top secrets to 150 mph test drives

Jamie L. LaReau
Detroit Free Press

Updated March 6, 2023, 4:33 p.m. ET

Many Michiganders have heard of it, but few have seen it and even fewer ever will.

I'm talking about General Motors Milford Proving Ground. The site straddles Oakland and Livingston counties and sits tucked away about 4 miles from the tiny village of Milford and a good 45-minute drive west from the big city of Detroit.

The proving ground is a historic place, about to turn 100 years old next year. It is home to deer, foxes, eagles and pretty much all of GM's top-secret future products. The vehicles GM sells throughout the world are partly developed and thoroughly tested at the proving ground by some of the best drivers and engineers in the world. These folks are the Top Guns of driving, capable of evaluating every performance aspect of the car while taking laps around a racetrack at speeds that can top 150 mph.

The site is also a staple of economic stability for the surrounding communities that rely on the 4,900 workers there for revenue.

More: GM Proving Ground in Milford is full of secrets — and few employees get to see it

Need a break? Play the USA TODAY Daily Crossword Puzzle.

Here are some of the more interesting facts about GM's top secret development site:

> **What it cost:** GM paid about $100,000 for the property in 1923. It has grown to occupy about 4,000 acres of land and has lakes, where employees can fish. It's teaming with wildlife and contains the highest point in Oakland County.

No "S" on the end: The full name of the site is the General Motors Milford Proving Ground. But like Meijer, Kroger or Ford Motor Co., Milford Proving Ground also falls victim to many Michiganders putting an “S” on the end of it that does not belong there, calling it the “proving grounds.” It is not plural.

Top secrets: There are secret labs with state-of-the-art virtual technology where engineers can drive on the moon and do the GMC Hummer EV's famous CrabWalk long before the vehicle ever did it on the road.

Like a city with services: The site, which operates 24/7 365 days a year, is self-contained, using its own wells for water; it has a wastewater treatment facility and it employs certified firefighters, licensed EMTs, hazardous materials response, confined space rescue team and road patrol officers. It has a fully staffed medical department.

Why you won't get in: The site is heavily guarded because all of GM's prototypes of future cars are there, hidden from spy photographers either behind closed doors, under camouflage tape or — for super top-secret projects — tested only in the dark of night to shield it from drone photos.

Special driver licenses needed: The engineers who work at the grounds are trained to drive like professional race car drivers so that they can test vehicles to the limits. The level of license is based on the speed a driver is allowed to go. GM has about 81,000 salaried employees globally, but fewer than 100 have passed the driving tests to do the top-speed test driving at the proving ground.

How many miles of tracks: There are 147 miles of test courses, including the Milford Road Course, a racetrack that mimics parts of the famous Nurburgring in Germany.

Every kind of roadway: The road surfaces of GM's tracks vary from dirt roads, to hills, to bumpy concrete with purpose-made potholes, to six lanes of banked concrete on a 5-mile Circle Track, to a straightaway with no speed limit, to the speedway-ready 3-mile Milford Road Course.

What that asphalt is: The ground's "Black Lake" is a slab of black asphalt that in the sunlight gives the illusion that it is water. It is the size of 59 football fields and is one of the largest vehicle dynamics pads in the world, used for a variety of tests on various aspects of cars, such as vehicle handling.

Replica of Belgian road: One of the smaller test tracks that is no less intriguing is GM's Belgian Block. It is a 2-mile-long replica of the real brick road that ran from Antwerp to Brussels, which was discovered during World War I by U.S. soldiers.

Hollywood knows about it: Portions of the "Transformers 4" movie were filmed at the proving ground. The filming locations included the Oval Track and the North/South Straightaway course. The Oval Track was painted with road markings to transport it fictionally to Asia.

Where guardrails were born: The 130 miles of guardrails that line nearly every road on the proving ground reflect what you see along any major interstate. The rails were first developed at Milford Proving Ground, designed to absorb an impact and pull a car along the rail.

Developing virtual technology: GM is investing millions in virtual technology to test the entire car's performance virtually before ever making a physical prototype and putting it on the road. Virtual technology can get new vehicles to market faster, saving millions of dollars in costs to build physical prototypes. One prototype of a car can cost $100,000.

More: GM salaried workers should expect smaller bonuses: How formula works

More: GM looks to hire tech talent from massive job cuts in Silicon Valley

Contact Jamie L. LaReau: jlareau@freepress.com. Follow her on Twitter @jlareauan.

EXHIBIT 16

OE

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GM Part # 19317286

ACDelco Part # 19317286

QUANTITY

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Product Information

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GM Part # 19209593

Needs vehicle details

$10.04

Available from Multiple Sellers

OE

GM Genuine Parts Engine Connecting Rod Bearing Set

GM Part # 19300927

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EXHIBIT 17

V8 Engine Crankshaft Bearing Conditions

March 24, 2023

A no crank condition may be found on some 2019-2023 Silverado, Sierra; 2021-2023 Tahoe, Suburban, Yukon and Escalade models equipped with the 6.2L V8 engine (RPO L87). The no crank condition may be due to a seized engine with an open starter fuse. Various engine sounds, such as a thumping, knocking or rattling, may be present. These conditions may be the result of crankshaft bearing failure. (Fig. 5)

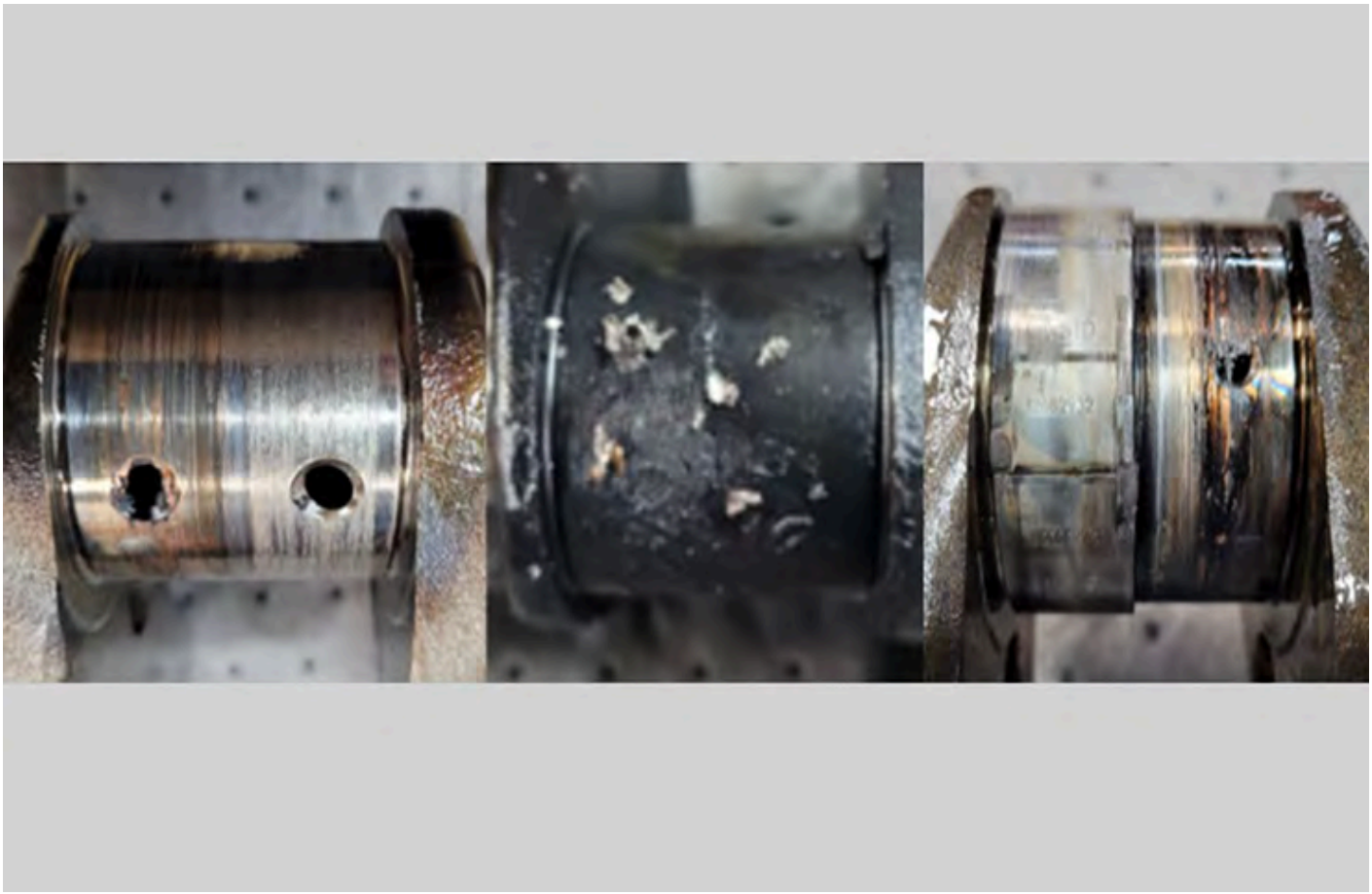

Fig. 5

In cases involving suspected bearing failure, first check the engine oil and filter for excessive metal debris and bearing material. (Fig. 6) Inspecting the oil filter for excessive debris and damaged pleats can be a helpful indicator of the amount of material that has been displaced through the engine and lubrication circuits.

Fig. 6

If bearing material is identified, remove the engine oil pan and inspect the crankshaft rod and main bearings for any damage. Component replacement or, depending on the extent of damage, engine replacement may be necessary.

Engine Component Replacement Guidelines

The amount of bearing damage determines if the engine should be replaced. Bulletin #18-NA-073: Repair Guidelines for Engine Component Wear provides details about wear characteristics of engine components and replacing worn components, including the crankshaft main bearings and journals. Engine assembly replacement should be based on the extent of the damage to individual components. (Fig. 7)

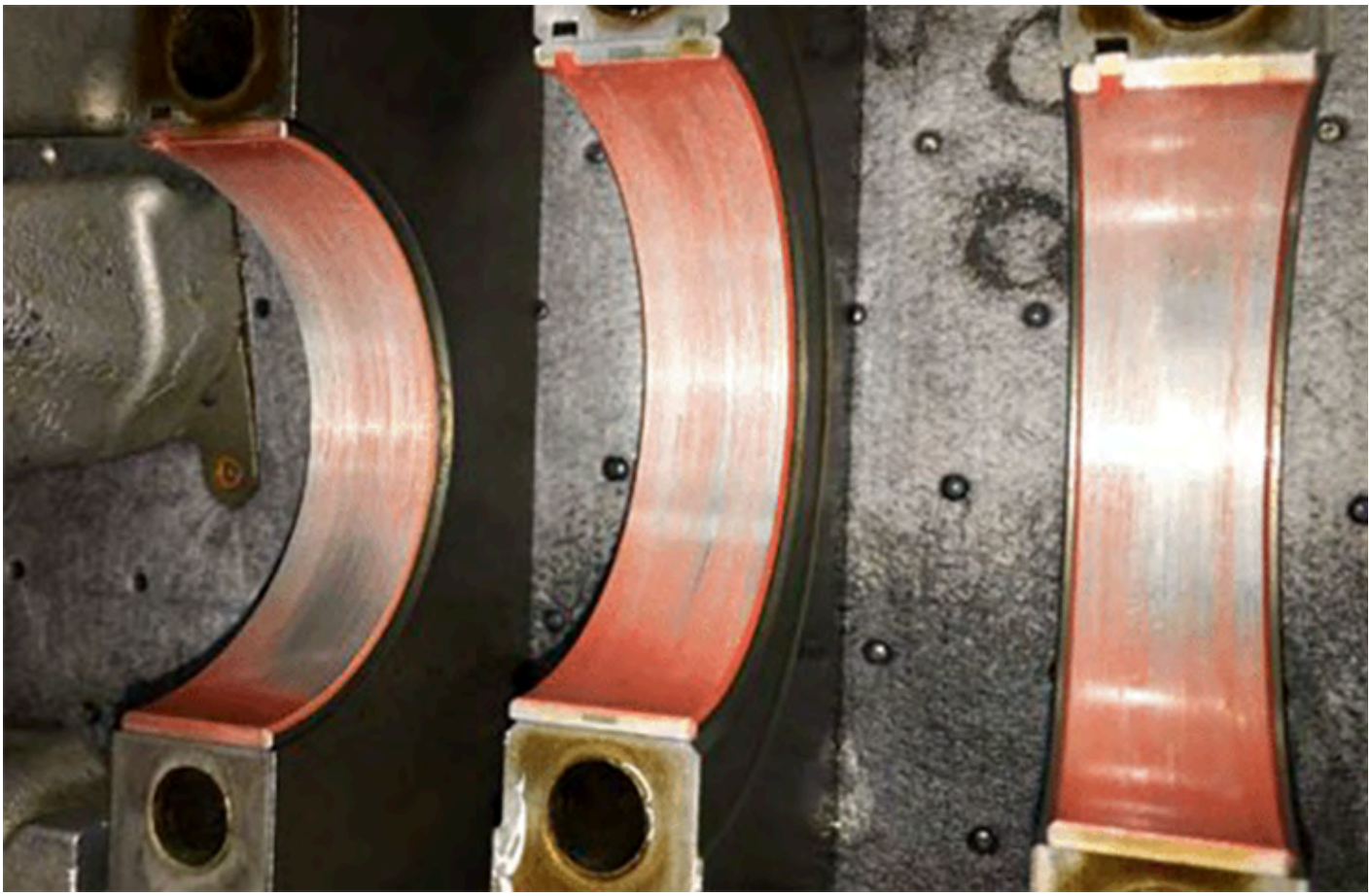

Fig. 7

Oil Cooler Components

If there is crankshaft main bearing failure, it may be necessary to also replace the oil cooler, oil cooler lines and oil tank, if equipped, along with the damaged engine components. Refer to Bulletin #22-NA-074 for more information about engine repairs after crankshaft main bearing damage.

If the main bearing debris is sent through the oil galleries and other components that are in the lubrication circuit, which are very difficult to completely clean, it could lead to additional damage when installed on a new engine. When there is extensive damage, oil cooler, oil cooler line and oil tank replacement ensures all debris is completely removed and that any bearing failure debris is not transferred into the new service engine.

For additional information, refer to #PIP5900.

– *Thanks to Bryan Salisbury*

« MDP 2 Manager Software Update

Charge Air Cooler Icing »

2 Comments

Editor

April 14, 2023 at 9:58 am

If it has been found there is damage to the crankshaft bearings, please follow the latest versions of Technical Service Bulletins 22-NA-074 and 18-NA-073 for further repair direction.

Luis

April 12, 2023 at 12:59 pm

Show pictures showing examples of damage requiring replacement. Large amount of bearing debris through all of the block oil galleries and passages including overheated and blued main caps should be cause for replacement especially at the labour times GM expects the remaining techs that haven't left to go to truck and coach, transit, etc to repair them at.

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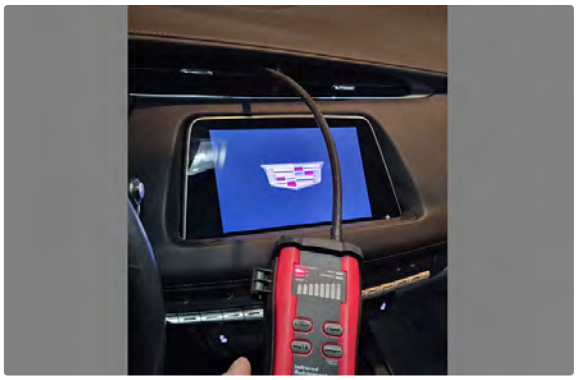


Keep Your Cool — Air Conditioning Refrigerant Leak Diagnostic Tips

April 30, 2025 — 5 comments

All current GM vehicles are manufactured with fluorescent dye installed in the air conditioning refrigerant system. The dye mixes and flows with the A/C compressor oil to help in locating […]

MDI 2 Order Lead Times Update

March 12, 2025 — 7 comments

The EL-52100 MDI 2 is required for control module programming, configuration and setup on GM vehicles equipped with the Vehicle Intelligence Platform (VIP) electrical architecture. (Fig. 2) Fig. 2 […]

EXHIBIT 18

6.2 Main Bearing Fail

→ Jump to Latest

19K views 55 replies

M **Msteve25** Discussion starter
5 posts · Joined 2023

#1 · Apr 1, 2023

Hi everyone,
Have a 2022 Sierra 1500 Denali Crew Cab with the 6.2 in it. Had it since August of 22, has 8200 miles in it. Started with a slight engine rattle/knock one evening. Did some research and thought it was lifters. Took it into dealership the very next morning, driving there it was starting to squeal and knock pretty loud. Dealership called me a few hours later. As they drove it into the bay, engine locked up. Dropped the oil pan and the main bearing cover had “Grenade-ed”. Totally replacement of engine, oil pump and radiator.
bad thing is they are searching for a engine. Said the last engine they had to replace was a 5.3 and it took them 4 months to get it in.
1st GM truck I’ve had in 20 years. I know it a one in a million (allegedly) but damn, I least I bought new with a warranty.

NOTE: We have other threads on the same subject...

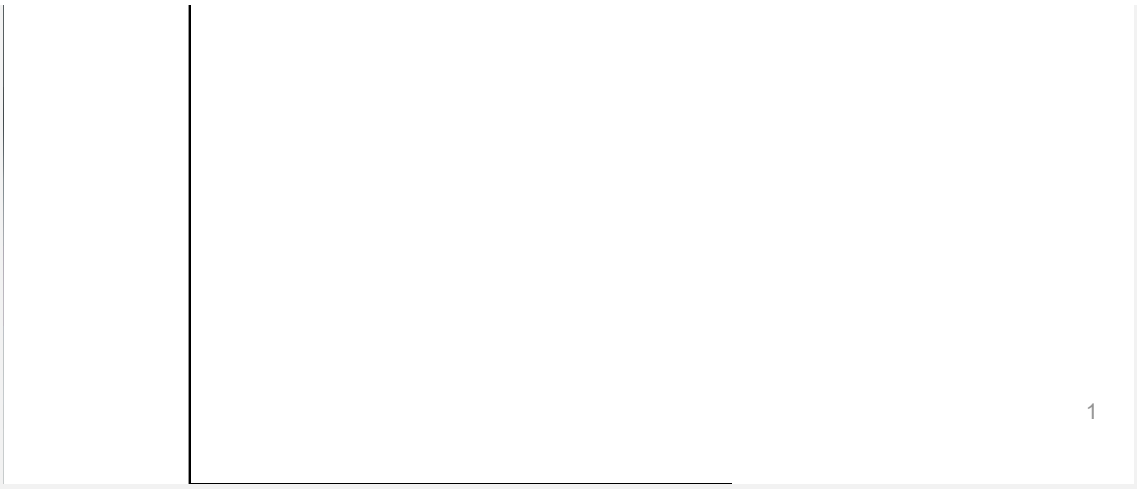
https://www.silveradosierra.com/threads/the-massive-6-2l-recall-and-sale-stoppage.772719

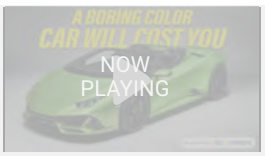
https://www.silveradosierra.com/threads/class-action-lawsuit-filed-for-2019-2024-6-2-failures-recall.772145

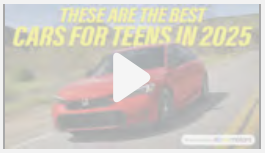
See less

Hi-Country, Spectreniner and swathdiver

Reply Like







Sort by Oldest first

shakenfake
8,108 posts · Joined 2019

#2 · Apr 1, 2023

Yeah these 6.2s have had a couple of issues. This is not the first one I have heard of doing this but it still is far and few between.
My uncle has a 2019 6.2 with probably 40k miles no issues.

swathdiver

Reply Like

BigRich209
1 post · Joined 2025

#56 · Jan 30, 2025

I Bought my 2020 silverado 1500 6.2 two years ago. It Only has 69,000 miles on the engine. The number 7 crankshaft bearing went out 3 weeks ago and killed the engine. I later learned GM has a pending class action lawsuit against them. For the same issues happening to others. Now gm is making me jump through hoops go get the engine replaced. The new engine is back ordered with no E.T.A on delivery and install.

Reply Like

Msteve25 Discussion starter
5 posts · Joined 2023

#3 · Apr 1, 2023

Yea, my brother who knows a lot more about engines than me, blames the fact that GM struggles with inadequate oil pressure. Mentioned some engines have two oil pumps to compensate and it still doesn't help. Maybe just a lemon

Reply Like

swathdiver
4,421 posts · Joined 2021

#4 · Apr 1, 2023

Yours has a variable displacement oil pump. I often wonder if GM is sourcing some parts from China, like the main bearings and lifters.

2009 GMC Yukon XL SLT 5.3 K5L - 2012 GMC Sierra SLT 6.2 NHT - 2013 GMC Sierra SLT 6.2 GAT
"Woe unto them that call evil good, and good evil; that put darkness for light, and light for darkness; that put bitter for sweet, and sweet for bitter!"

Msteve25

Reply Like

A

Azcheby
170 posts · Joined 2020

#7 · Apr 1, 2023

Im old enough to remember when stuff from Japan and Mexico was considered junk. Id be thrilled to have made in either compared to China's garbage. Yes, Chevy is probably sourcing from China. Everything Mopar parts wise is anymore.

swathdiver and Msteve25

Like

Hi-Country
633 posts · Joined 2022

#5 · Apr 1, 2023

I remember yrs. ago when GM has a rash of the truck 454's breaking crankshafts.

2017 Silverado 6.2L High Country 4 X 4 - Color: **PepperDust Metallic** - Stock except... for a 2" Leveling Kit Front...33's on Factory Rims...**Flowmaster** Force II Single Exh. Sys., **Range Technology** AFM/DFM disabler - Blue, **Peragon** Hard Bed Cover, **WeatherTech** Floor Mats Front and Rear, **UPR** Oil Catch Can, **AVS** Hood Bug/Rock

Msteve25 and swathdiver

Reply Like

Dragon178
237 posts · Joined 2023

#15 · Mar 2, 2024

The severity is not too different from the 5.7 IFORCE V8s breaking valve springs and grenading the engine in the Tundras. It seems Toyota has main bearing problems in the LC300 and Tundras as well.

2013 Chevrolet Silverado 1500 LT

Reply Like

Z15
5,909 posts · Joined 2010

#6 · Apr 1, 2023

> V8 Engine Crankshaft Bearing Conditions – TechLink
> gm-techlink.com

Mike
Synthoil Supply
2024 GMC Sierra Denali Reserve 3.0L 4WD

Msteve25

Reply Like

tboytheriot
1 post · Joined 2023

#8 · May 1, 2023

> Msteve25 said:
> Hi everyone, Have a 2022 Sierra 1500 Denali Crew Cab with the 6.2 in it. Had it since August of 22, has 8200 miles in it. Started with a slight engine rattle/knock one evening. Did some research and thought it was lifters. Took it into dealership the very next morning, driving there it was starting to squeal and knock pretty loud. Dealership called me a few hours later. As they drove it into the bay, engine locked up. Dropped the oil pan and the main bearing cover had “Grenade-ed”. Totally replacement of engine, oil pump and radiator. bad thing is they are searching for a engine. Said the last engine they had to replace was a 5.3 and it took them 4 months to get it in. 1st GM truck I’ve had in 20 years. I know it a one in a million (allegedly) but damn, I least I bought new with a warranty.

I am going through the same problem with my 6.2 trail boss. Very frustrating to say the least

Msteve25

Reply Like

Msteve25 Discussion starter
5 posts · Joined 2023

#14 · May 4, 2023

Sorry to hear. I have 800 miles on the new engine and everything is good so far.

Reply Like

Barnes53
30 posts · Joined 2023

#9 · May 2, 2023

I just settled a lawsuit against GM for three 6.2 in less than two years and 25k miles. Same thing happened to them. Good luck I feel your pain.

Reply Like

Hi-Country
633 posts · Joined 2022

#10 · May 3, 2023

Settled in what way...new truck...rebate...etc.?

2017 Silverado 6.2L High Country 4 X 4 - Color: **PepperDust Metallic** - Stock except... for a 2" Leveling Kit Front...33's on Factory Rims...**Flowmaster** Force II Single Exh. Sys., **Range Technology** AFM/DFM disabler - Blue, **Peragon** Hard Bed Cover, **WeatherTech** Floor Mats Front and Rear, **UPR** Oil Catch Can, **AVS** Hood

Reply Like

Show more replies

USMC(ret)
20 posts · Joined 2024

#16 · Apr 27, 2024

Resurrecting this thread...

Hello all. Just purchased a 2022 GMC Sierra AT4 w/L87 & my engine seized this past Monday. Today marks a month since the purchase & it has 58k mi.

just marking a tally for the GM kill count unless anyone has anything else to share.

Reply Like

Hi-Country
633 posts · Joined 2022

#17 · Apr 28, 2024

That totally sucks!

Warranty time.

That event has to be that one in a million you hear about though unfortunately it happened to you.

Trust the dealership has your best interest in making this right.

Btw...thank you for your service.

2017 Silverado 6.2L High Country 4 X 4 - Color: **PepperDust Metallic** - Stock except... for a 2" Leveling Kit Front...33's on Factory Rims...**Flowmaster** Force II Single Exh. Sys., **Range Technology** AFM/DFM disabler - Blue, **Peragon** Hard Bed Cover, **WeatherTech** Floor Mats Front and Rear, **UPR** Oil Catch Can, **AVS** Hood Bug/Rock

USMC(ret)

Reply Like

USMC(ret)
20 posts · Joined 2024

#18 · Apr 28, 2024

> Hi-Country said:
> That totally sucks!
>
> Warranty time.
>
> That event has to be that one in a million you hear about though unfortunately it happened to you.
>
> Trust the dealership has your best interest in making this right.
>
> Click to expand...

Thank you - I enjoyed every bit of my service (even though they only sent me to sand box sh1t holes).

My confidence is shaken, but gonna see how this shakes out. I may not have much choice in the matter, anyway since I'll surely not get anywhere near what I normally would for this one in trade now that this has happened.

*ETA: I almost had a High Country, but went with GMC (the Chebby was moving at the speed of Carmax & I needed a truck)

Hi-Country

Reply Like

USMC(ret)
20 posts · Joined 2024

#19 · Apr 28, 2024

BTW: posted details on the issues in my intro thread here if anyone is curious.

Reply Like

Mark Murphy
1 post · Joined 2024

#20 · Jul 22, 2024

I have a 2023 GMC Seirra AT4 with the 6.2. 38000 miles and the dealer says the motor is locked up. GM is denying the warranty without even tearing the motor apart. GM offered me $2000 to help with the repairs as a customer loyalty incentive. Going after them through lemon law with BBBautoline.

USMC(ret) and Hi-Country

Reply Like

DenaliDood
488 posts · Joined 2022

#21 · Jul 22, 2024

What reason did GM give you for denying your warranty?

Purchased new: 2018 GMC Sierra, Denali Ultimate, 6.2L, Crew Cab, 4x4, Short Bed 57K miles.

Reply Like

Hi-Country
633 posts · Joined 2022

#22 · Jul 23, 2024

Please keep us posted.

2017 Silverado 6.2L High Country 4 X 4 - Color: **PepperDust Metallic** - Stock except... for a 2" Leveling Kit Front...33's on Factory Rims...**Flowmaster** Force II Single Exh. Sys., **Range Technology** AFM/DFM disabler - Blue, **Peragon** Hard Bed Cover, **WeatherTech** Floor Mats Front and Rear, **UPR** Oil Catch Can, **AVS** Hood

Like

Show more replies

DenaliDood
488 posts · Joined 2022

#26 · Jul 25, 2024

It is really aggravating to get hit by these posters that have some issue with their truck. They articulate an incomplete account of what the issue is, then *POOF* they disappear.

Purchased new: 2018 GMC Sierra, Denali Ultimate, 6.2L, Crew Cab, 4x4, Short Bed 57K miles.

Hi-Country

Reply Like

joelster
9 posts · Joined 2010

#28 · Jul 27, 2024

What's incomplete? My 6.2 started ticking and then squeaking a few seconds later. I got the "low oil pressure shut off engine" warning. I made a thread about it. I didn't do any diagnostics, I knew it was terminal. Whether it was a rod bearing, cam bearing or main bearing I didn't know. The dealer said it was terminal after 15 minutes of investigating. They don't dive into the engine much. Top end stuff can be fixed, but bottom end stuff, they just plug and replace. There's a lot of issues with the 6.2 engines. I live 10 minutes from the tonawanda engine plant and have friends that work there. The stories I hear lol.

USMC(ret)

Reply Like

Dragon178
237 posts · Joined 2023

#29 · Jul 28, 2024

If yours is MY23...it should be eligible for replacement.

2013 Chevrolet Silverado 1500 LT

Like

tsuintx
6,699 posts · Joined 2017

#30 · Jul 28, 2024

> Dragon178 said:
> If yours is MY23...it should be eligible for replacement.

IF it belongs to the group of “certain” 2023 trucks that could have lifter bore issues.

2016 Silverado LT 4x4 Crew Cab / 2017 Suburban LT / 2008 BMW 328i Coupe / 2018 BMW K1600GTL

Like

Dragon178
237 posts · Joined 2023
#31 · Jul 28, 2024

> tsuintx said:
> IF it belongs to the group of "certain" 2023 trucks that could have lifter bore issues.

Most trucks that are failing (NOT EVERY SINGLE ONE FAILS....) are failing under warranty....
I can see this issue becoming less in MY25 and MY26....

2013 Chevrolet Silverado 1500 LT

Like

Dragon178
237 posts · Joined 2023
#32 · Jul 28, 2024

> tsuintx said:
> IF it belongs to the group of "certain" 2023 trucks that could have lifter bore issues.

Most that are failing (not each and every one fails at all by the way), are failing under warranty.
I suspect the issue would be worked out by MY25 or MY26...

2013 Chevrolet Silverado 1500 LT

Like

RedSLEd
17,255 posts · Joined 2015
#27 · Jul 25, 2024

It's the nature of the beast.

'13 SLE Ext cab. 4x4 5.3 6sp 3.42 G80 Z82 Z60.

Hi-Country

Reply Like

DenaliDood
488 posts · Joined 2022

#33 · Jul 31, 2024

> Mark Murphy said:
> I have a 2023 GMC Seirra AT4 with the 6.2. 38000 miles and the dealer says the motor is locked up. GM is denying the warranty without even tearing the motor apart. GM offered me $2000 to help with the repairs as a customer loyalty incentive. Going after them through lemon law with BBBautoline.

> joelster said:
> What's incomplete?...

He did not include the reason the dealership refused to honor the warranty.

Purchased new: 2018 GMC Sierra, Denali Ultimate, 6.2L, Crew Cab, 4x4, Short Bed 57K miles.

Reply Like

Dragon178
237 posts · Joined 2023

#34 · Aug 1, 2024

Exactly. That is why people who complain online about issues leave something suspiciously missing. Example for someone who has has their 6.2 lock up or shut down without warning:

How did they treat it in break in...did they IMMEDIATELY start to tow with it or floor the throttle off the lot?
Did they examine the engine oil correctly for debris at the first oil change? Did they try and change the oil or add additives/take action in a way that would help REDUCE the engine debris instead of simple driving it with the particles? Did they USE the RIGHT oil, the RIGHT filter that is approved by GMC/Chevrolet, and do it every 3K-5K miles?
Did they use PREMIUM FUEL for the 6.2?

People who have had issues likely will omit these details.....or their 6.2 is DUE for engine replacement as per the new CSP.

2013 Chevrolet Silverado 1500 LT

Reply Like

N

narofs
4 posts · Joined 2024

#41 · Aug 4, 2024 (Edited)

Have a 2024 Silverado 6.2L 6 weeks old, 2600kms (canada) my engine just went on Thursday, cruise control at 115 kms no warning (check engine light) smoke come from under the hood truck shut down got out and engine oil was on the ground, side of truck and tailgate. i break mine in properly for the first 500kms. previously had a 2017 GMC Sierra 6.3L 14300kms no issues at all with it. Hoping they just replace the vehicle.

USMC(ret)

Reply Like

Show more replies

shakenfake
8,108 posts · Joined 2019

#35 · Aug 1, 2024

There is no break in period on the consumer side.

Reply Like

Dragon178
237 posts · Joined 2023

#36 · Aug 2, 2024

It is as stated in the manual I believe.

2013 Chevrolet Silverado 1500 LT

Reply Like

shakenfake
8,108 posts · Joined 2019

#37 · Aug 2, 2024

Ah I did forget that it was as 500 mile no towing, no rapid acceleration and no sticking at one speed for long periods of time.

Reply Like

Dragon178
237 posts · Joined 2023

#38 · Aug 2, 2024

Yes. Those who DID NOT follow it....well you could expect what would happen.

2013 Chevrolet Silverado 1500 LT

Reply Like

Show more replies

RedSLEd
17,255 posts · Joined 2015

#42 · Aug 4, 2024

Sorry to hear about that. Good thing it's under warranty. GM will take care of you.

'13 SLE Ext cab. 4x4 5.3 6sp 3.42 G80 Z82 Z60.

tsuintx

Reply Like

Dragon178
237 posts · Joined 2023

#44 · Aug 5, 2024

Yes they likely will replace the engine. The issue is whether premium fuel was used, or if the oil filter was examined for debris....those two CAN cause the motor to seize up over time....

2013 Chevrolet Silverado 1500 LT

Reply Like

Show more replies

narofs
4 posts · Joined 2024

#45 · Aug 6, 2024

Vehicle was new only 2600 kms, use premium fuel (94 octain) was going to do 1st service at 5000kms

Reply Like

Dragon178
237 posts · Joined 2023

#47 · Aug 7, 2024

Well. Might be a lemon.....

2013 Chevrolet Silverado 1500 LT

Reply Like

USMC(ret)
20 posts · Joined 2024

#46 · Aug 7, 2024 (Edited by Moderator)

Oh FFS - it's a friggin' TRUCK, not a GD science experiment!!!

Yeah, I now send an oil sample with every change for analysis - but I SHOULDN'T HAVE TO!! I/we should expect a modern vehicle to last well over 100k miles as long as it's serviced regularly. How long has the internal combustion engine been manufactured? Yeah - we should have that sh1t down tight. Oh, you need to help the environment? Seasons change, it's GD hot in the summer & cold in winter. Inserting bureaucratic BS into my "suck-squeeze-bang-blow" ain't gonna amount to three sprinkles of monkey sh1t as far as the ice caps are concerned.

And a fix for a future model doesn't help fix squat for us peasants.

Sorry to hear, @narofs

SFLTruck and narofs

Reply Like

Dragon178
237 posts · Joined 2023

#48 · Aug 7, 2024

I guess you can blame the EPA. The issue is that more trucks in general are without problems than those with....but there are always lemons....
If you WANT your truck to last long...YOU NEED TO STAY ON TOP OF MAINTENANCE. And that DOES include FROM the beginning. There is no other choice with all of these EPA requirements.

The new Tundra for example has the fix ONLY covering under warranty and MY22-23 dates WITH CERTAIN DATES only....not early MY24s.....

2013 Chevrolet Silverado 1500 LT

Reply Like

Show more replies

tsuintx
6,699 posts · Joined 2017

#49 · Aug 7, 2024

Tundra this, Tundra that... Jeez... 🤦‍♂️

SFLTruck

Reply Like

Dragon178
237 posts · Joined 2023

#52 · Aug 7, 2024

Was using it as an example. I can stop at it here and I will not repeat it, but I brought it again because of a couple of things.
Why if you may be asking? This is quite a long story.

I was in the Tundra forums for a while, and the terrible arrogance shown there was frankly disappointing. All of their members except ONE thought that domestic trucks such as GMC/Chevrolet are trash....and called me names , childish, and when I tried putting data that said otherwise they started making fun of me.....

Point is, MOST owners refer to Toyota Tundra as being very "reliable". If you are referring to the 2.5 gen, they dropped the transmission cooler on the last three model years, and do suffer expensive issues if not well maintained like any truck will. Also, they are NOT officially sold in the Middle East either, and are expensive even on the used market here in Qatar.

I DO NOT wish to trash the truck completely, but I strongly believe that it is NOT anymore reliable than other brands (taking the newest versions out of the mix, which are MUCH more complicated). Again, if someone wants a "lifestyle" truck...they can go ahead and buy one.....

2013 Chevrolet Silverado 1500 LT

Reply Like

narofs
4 posts · Joined 2024

#50 · Aug 7, 2024

Exactly what I'm thinking

SFLTruck

Reply Like

Dragon178
237 posts · Joined 2023

#51 · Aug 7, 2024 (Edited)

You wish to switch to a Tundra?

The new generation has a massive repair cost...for the engine, and if it happens out of warranty, it will NOT be as cheap to repair as the 6.2 (granted, the 6.2 isn't exactly cheap to repair either..likely 8k-10k grand, but there are options to repair for EVEN less). If it is under warranty, it will be fixed by the manufacturer.

My advice is that if you wish to switch, you can maybe consider a HD truck or maybe go to a 6.2 before MY20...as the bugs are still present on MY24 trucks....by MY26 it will be sorted out.

If you REALLY want a Tundra, go ahead. But you sure will be spending a ton of unwanted money...

2013 Chevrolet Silverado 1500 LT

Reply Like

Write your reply...

Post Reply

Related Threads

2 Ecotec 6.2L V8
2011chevy · Mar 25, 2023

6.2 Crankcase bearing from TeckLink

V8 Engine Crankshaft Bearing Conditions March 24, 2023 A no crank condition may be found on some 2019-2023 Silverado, Sierra; 2021-2023 Tahoe, Suburban, Yukon and Escalade models equipped with the 6.2L V...

0 2.4K

2011chevy replied Mar 25, 2023

C Ecotec 6.2L V8
cruch9 · Dec 11, 2023

6.2 Rod Bearing failure and Vehicle Hard Jolt Forward While Driving

I have a 2022 1500 Silverado Trailboss with a 6.2. 12,040 miles. About 3 months ago I pulled up to a stop sign in the county, stopped and the engine just died. Restarted but turned over slow like dead battery. Made it th...

7 6.6K

Dragon178 replied Aug 29, 2024

Engine Flutter

anyone for a round of “what’s that sound?” Take a listen to video clip and tell me what you think that flutter noise is. 6.2 Engine Flutter CLIP story: sound is heard outside of cab when vehicle is de-accelerating from a...

0 2.1K

Msteve25 replied May 30, 2023

C Ecotec 6.2L V8
ccmartin2 · Jun 22, 2022

Failed DOD lifter- Engine is History - Nothing but problems with Chevrolet

I'm pretty frustrated. 2015 Silverado LTZ 4x4 6.2L. Purchased several years ago with 40k miles. It has been nothing but problems, and not typical used car problems. AC Condensor design has it flopping around, so...

8 9.3K

Stelcom66 replied Jan 6, 2024

T Transmission - Transfer Case - Driveline
TLEG44 · Jun 30, 2023

bearing like noise in front end

Been running into an issue on my 2017 gmc sierra duramax, almost like a bearing noise in the front end. Had both bearings replaced as well as axles and still no luck. Only happens in low RPMs 1250 and after shifting...

1 1.1K

660catman replied Jul 3, 2023

D Ecotec 6.2L V8
Dodenhoff74 · Nov 3, 2020

6.2 Spun Bearing Rebuild or Replace?

I was cruising about 45mph when my truck cut off completely. All lights off, engine off, had to coast about half a mile into a CVS. Truck wouldn't crank and had a burnt electric smell u der the hood so I thought mayb...

18 11K

LeeB54 replied Feb 22, 2024

Vortec 6200 6.2L V8
Msteve25 · May 11, 2023

2022 6.2 GMC Sierra 1500 engine tick/flutter

Hi everyone. My previous post from last month detailed that I had a main bearing failure at 8900 miles. Complete engine/oil line replacement in accordance with appropriate service guidelines. Surprisingly was j...

1 2.2K

RedSLEd replied May 11, 2023

Vortec 5300 5.3L V8
das86turbo · Sep 27, 2023

5.3L - Removing Main Bearings with Crank in Engine

I've watched several YouTube videos describing how to remove the main bearings with the crank in the engine. Here is one such recording for reference: This works great, the mains came out and new ones back...

16 12K

das86turbo replied Jan 5, 2024

Towing - Trailers - Hitches - Plows
560Dennis · May 27, 2023

Trailer bearing issue

I bought some 3500 lbs. trailer bearing kits from the local hardware store. Struggling along , i was going to packing some grease into the 1 1/6 outer where I thought had some rust contamination from on my nitrile...

1 833

swathdiver replied May 27, 2023

Transmission - Transfer Case - Driveline
niki831 · Apr 14, 2022

Carrier Bearing Play

2000 GMC Sierra 1500 2WD, Ext Cab, 6.5ft bed. truck has had a vibration for about a year now. I completely rebuilt the front suspension and it is still there. I just looked at the carrier bearing and it has about 1-2 inche...

21 5.2K

Leveled17yeti replied May 10, 2024

Ecotec 6.2L V8
tsuintx · Apr 16, 2025

Class action lawsuit filed for 2019-2024 6.2 failures & Recall

Here goes. 877K impacted. Let's see how that goes. 2019 through 2024 Chevy Silverado 1500 2021 through 2024 Chevy Tahoe and Suburban 2019 through 2024 GMC Sierra 1500 2021 through 2024 GMC Yukon and...

53 7.8K

Dragon178 replied May 20, 2025

Vortec 5300 5.3L V8
plant.one · Dec 29, 2022

back into the shop for my 5.3 in the 2008 :(

couple weeks back developed a nasty tick at the #3 somewhere in the valve train. i was heading out to have dinner and idling in the parking lot when it showed up and i initiall...

9 1.9K

plant.one replied Jan 6, 2023

Under ConsTRUCKtion 🧰 🛠️
58nate · Nov 4, 2021

58Nate's 2011 GMC Sierra Z71 4x4 5.3l 6L80 Re- Build

Hi guys! New member here and to the GM platform since the 90's haha :) I have been searching for a truck to pull my mowing trailer all summer. I didn't want to spend a...

157 27K

58nate replied Oct 16, 2024

1 Transmission - Transfer Case - Driveline ⚙️
14 blkdenali · Jan 7, 2023

14 sierra inner axle bearing/ transfer case bearing help?

Ive got a 4wd ,2014 sierra. The front axle coming out of driver side of front diff has a lot of play, especially compared to the right side which is nice and tight. So im assuming its the bearing holding output axle leavin...

4 2K

14 blkdenali replied Jan 10, 2023

B Transmission - Transfer Case - Driveline ⚙️
Bman125 · Nov 14, 2023

Failed u joint now severe vibration

My rear u joint caps fell off on the highway, I drove it for less than a quarter mile before pulling into a parking area. I got it towed home and replaced the u joint, being sure to orient the yoke properly, and there's no...

18 5K

Bman125 replied Nov 17, 2023

A Ecotec 6.2L V8
alexmontoya32 · Mar 27, 2024

2021 6.2 trailboss

Engine failed at 40,000 miles. Was asked if I had it tuned or if I had done any mods? No Was asked for Oil change history? Provided (every 7000 miles) Still under power train warranty. MY question for anyone out...

7 2.8K tsuintx replied Mar 28, 2024

W Transmission - Transfer Case - Driveline
Wirezipp08 · Oct 16, 2022

Carrier bearing crossmember

First time post here. Just picked up a 2001 Silverado 2500, 6.0 2wd regular cab long bed. I noticed the crossmember for the carrier bearing looks like Swiss cheese. Any of you ran into this issue? I've searched b...

9 6.6K Scott05 tahoe replied Apr 25, 2024

0 Manual Transmission
00483500 · May 18, 2024

'failed' NV3500, looking for advice

2000 Silverado 4.8 2wd, NV3500. 168k miles TL;DR I bought a truck that a shop installed a worn out NV3500 into, and I want to swap in a more reliable trans setup. Hey guys, I recently picked up this truck from a...

3 1.4K Los_Control replied May 18, 2024

H Vortec 6200 6.2L V8
honda65 · Mar 9, 2024

6.2 oil consumption?

Hi, this is the first of many questions on this truck. I recently bought a 2011 Silverado with the 6.2. It has approx 165,000 miles on it. I heard that the 5.3 had oil consumption issues but does the 6.2 suffer from this ...

Bearing noise

Question..... 06 silverado 1500 4wd. 250000 mi Had leak in pinion seal after 1000 mi. Trip ran low for bout another 1000. Fluid old bit over 100000 mi. Can that cause bearings to fail?

EXHIBIT 19

r/gmcsierra • 9 mo. ago
BrentGPTX

L87 6.2L engine bearing failure

✨ New Truck! ✨

I have a 2024 Sierra Denali truck with a 6.2L EcoTec3 engine. Twice while driving it, the engine stopped and the dash display said to the push start button to restart it, once while at a stop light and the other while in motion. Luckily, after the second failure, I was able to coast into a shopping center parking lot before stopping. It never restarted. I had a tow truck take it to the nearest GMC service center. After two days, a service rep called and said they have to replace the engine. He said the "bearings seized up". I am wondering if this problem is a prevalent issue for the L87 engines. The service rep said he has had several engines with this problem and their dealership/service center is located in a small East Texas town. Has anyone else had this problem? The truck only has 4,400 miles on it.

14 29 Share

Join the conversation

Sort by: Best Search Comments

Boldfist53 • 9mo ago

Yes this is a very common issue with the ‘23/24 model year 6.2s. It’s a quality control issue that unfortunately is persisting.

I’m the PM of a smaller GMC store and I’m stocking these engines at this point to get customers back into their trucks faster instead of diag/approval/order/week+ to receive because GM keeps them all in Michigan.

10 Reply

AllThemNinjas • 9mo ago

3 Reply ···

3 more replies

BrentGPTX OP • 9mo ago

Yikes! Is it time to switch to something else?

1 Reply ···

SierraTRK • 9mo ago

They are all having issues. Google Tundra engine problems.

3 Reply ···

Boldfist53 • 9mo ago

I'd avoid 6.2s right now. I have a 3.0 and love it but I don't need fast and love the economy

2 Reply ···

IntentionValuable113 • 8mo ago

A used 6.0L L96.

1 Reply ···

matty-george • 5mo ago

Does it make sense to proactively replace the failing part?

1 Reply ···

Boldfist53 • 5mo ago

Not really as the issue is in the lower end (crank, bearings, etc)

1 Reply ···

matty-george • 5mo ago

Time to trade it in? Its out of warranty

1 Reply ···

Boldfist53 • 5mo ago

If you're not having any issues with it I'd wait and see where the NHTSA investigation into the 6.2s goes. Might end up getting some kind of Warranty extension for the issue out of it.

1 Reply ···

matty-george • 5mo ago

My wife has a 2021 Escalade with the 6.2 - is this 2022-2024 only or are you seeing it in the 2021s as well?

NHTSA opened the investigation into 2019-2024 so id assume that falls in the range as well.

2 Reply

Rightwinger1776 • 9mo ago

I've replaced 5, 6.2L L87 engines in the last year. All front main bearing failure.

5 Reply

Laz3r_C • 9mo ago

Top 1% Commenter

It seems that the 6.2's switched issues. From lifters to bearings now. Odly...

3 Reply

Sensitive-Housing889 • 5mo ago

I've had 2 failures now in my 2021 Sierra Denali 6.2L. The first failure came at 19,000 miles and the second 2 weeks ago with only 61k on that motor. Both engines seized while driving. Its a serious problem.

2 Reply

BrentGPTX OP • 5mo ago

859Anthony22 • 3mo ago

I just read this and feel like I'm about to yack 🤢😭 I have the same truck. Took me forever to find out it's an L87 motor. I'm currently at 67k miles. Any symptoms before the motor went? or was it random?

1 Reply

mototeleski • 5mo ago

Has anyone experienced l78 6.2 engine failures with motors over 75000 miles? I have a 2019 silverado

2 Reply

Willing-Advantage395 • 3mo ago

Yes my just failed with 90,000 miles

1 Reply

hizza • 2mo ago

2022 Yukon Denali and having the engine replaced for the second time. Only has 21k miles.

2 Reply

1 more reply

WeirdPossibility5000 • 6mo ago

Did you get your truck back? How long did the dealership have it for? Mines been at the dealership for three weeks with only one update from the service advisor

1 Reply

2 more replies

Machine154 • 5mo ago

I'm bringing mine back to the dealer Monday because they can't give me a loaner at this point. So far just advised that my oil is 'sparkly'. Tearing open the filter Monday it sounds like.

1 Reply

r/gmcsierra • 24 days ago

L87 - 6.2L engine recall lawsuit

11 upvotes · 47 comments

r/gmcsierra • 5 mo. ago

L87 - 6.2L V8 - should we be concerned?

4 upvotes · 58 comments

r/gmcsierra • 4 mo. ago

2025 6.2L Failures?

4 upvotes · 66 comments

r/gmcsierra • 1 mo. ago

6.2L's Repair

2.3K upvotes · 248 comments

r/gmcsierra • 1 mo. ago

Selling 6.2L with new engine

3 upvotes · 49 comments

r/gmcsierra • 5 mo. ago

GM's Broken 6.2L V8s Are Stranding Owners for Weeks as Replacement Engine Pipeline Dries Up

6.2L Engine Recall Updates of 05/16/2025

112 upvotes · 159 comments

r/gmcsierra • 22 days ago

6.2L Dead at 43K Miles

122 upvotes · 75 comments

r/gmcsierra • 5 mo. ago

From a knock sensor to a new 6.2 engine

32 upvotes · 24 comments

r/gmcsierra • 7 days ago

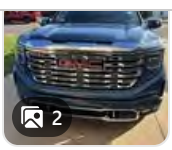
Waiting for this engine to blow😎

34 upvotes · 10 comments

r/gmcsierra • 3 mo. ago

Terrible start to my day

New to me 24 3.0L with 10k miles.



78 upvotes · 12 comments

r/Hyundai • 10 mo. ago

2016 Sonata 2.4L: Hole in Engine Block at 115K miles. Passed bearing clearance test.

2 upvotes · 4 comments

r/gmcsierra • 1 yr. ago

2024 3.0 diesel - full engine failure @7k miles. Waiting on warranty replacement

11 upvotes · 38 comments

r/MotorcycleMechanics • 9 mo. ago

2022 Kawasaki ZX-6R engine failure?

1 upvote

r/Ford • 1 yr. ago

2012 6.2 transmission issues

1 upvote · 3 comments

r/MechanicAdvice • 9 mo. ago

2000 F-150 4.2L Standard transmission. Clutch replacement problem.

1 upvote · 2 comments

r/mazda • 1 yr. ago

2016 cx5 2.2 diesel - low oil pressure and engine malfunction warning lights

1 upvote

r/mazda3 • 9 mo. ago

2021 Mazda3 Select 2.5L emissions systems failure

2 upvotes · 2 comments

r/gmcsierra • 10 mo. ago

23 Sierra 5.3l transmission issues.

2025 transmission leak?

14 upvotes · 32 comments

r/gmcsierra • 2 mo. ago

New recall 6.2L advice

153 upvotes · 161 comments

r/F250 • 1 yr. ago

2012 6.2 transmission issues

2 upvotes · 1 comment

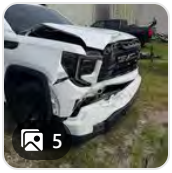
r/gmcsierra • 2 mo. ago

6.2L Recall

43 comments

r/gmcsierra • 4 mo. ago

Is it totaled ?



20 upvotes · 66 comments

TOP POSTS

Reddit

reReddit: Top posts of September 21, 2024

Reddit

reReddit: Top posts of September 2024

Reddit

reReddit: Top posts of 2024

EXHIBIT 20

Faulty Connecting-Rod Bearing Causing Engine Failures in GM Four-Cylinders

By Eric Tingwall Published: Dec 9, 2013

A manufacturing error has left a handful of General Motors cars needing new engines with just a few thousand miles on the odometer. The problem came to *Car and Driver*'s attention when three cars—two **2014 Chevrolet Malibus** and a **2014 Buick Regal GS**—driven by three different editors developed the telltale clatter of a failed connecting-rod bearing during our performance testing.

The experience isn't limited to our drivers, either. Todd Pawlik, chief engineer for GM's mid- and full-size cars, told *C/D* that about 30 customers also have experienced engine failures. Those owners all received new engines under GM's five-year, 100,000-mile powertrain warranty. The affected engines—GM's naturally

aspirated 2.5-liter four-cylinder and 2.0-liter turbo four—are used in in the 2013 and 2014 Chevrolet Malibu, the **2014 Chevrolet Impala**, the 2014 Buick Regal, the 2013 and 2014 **Cadillac ATS**, and the **2014 Cadillac CTS**. Those models sell at a rate of roughly 35,000 cars per month, including variants with unaffected powertrains.

For Sale Near You

USED

2025 Chevrolet Malibu

9,350 mi

CONTACT DEALER FOR BEST PRICE

NEW

2025 Chevrolet Malibu

0 mi

$27,170

NEW

2025 chevrolet malibu

23 mi

$28,24

GM's 2.5-liter four-cylinder as found in the 2014 Impala

The failures, according to GM, are caused by bad connecting-rod bearings that slipped past quality control at an unidentified supplier in June 2013. The flawed bearings can disrupt the oil film between the bearing and the crankshaft, leading to catastrophic metal-on-metal contact. "All engines now are designed to microns [0.00004 inch]," said Pawlik. "If the oil film isn't consistent, bad things can happen."

In this case, the consequence is a spun rod bearing that scores the crankshaft and introduces metal shavings into the oil supply. While it's possible to salvage an engine with a spun rod bearing, the difficulty of matching the original tolerances means it's far more common to replace the engine.

General Motors has no intention of issuing a recall. For one, the company has no way of knowing which cars carry the faulty bearings. While the assembly plant

records which engine is installed in each car, there is no provision for tracking which bearings are installed in each engine. Pawlik also describes the issue as a "self-declaring" problem, because all failures are expected to occur within the first few thousand miles of driving. A spun rod bearing is unlikely to go unnoticed by drivers as it produces a prominent, knocking clatter, particularly under acceleration.

GM also examined cars that were still on dealership lots, awaiting shipment at the assembly plant, or in transit, by putting them through a stress test that involves hard acceleration and revving the engine to high rpm. While Pawlik wouldn't reveal how many failures were provoked with that testing, he quantified the total number of engine replacements as "one or two per 1000 cars."

In the wake of the engine failures, engineers have also revised the rev limiter on Malibus with the naturally aspirated 2.5-liter engine due to what Pawlik describes as a "hypersensitivity to oil-film thickness." In manual mode, the rev limiter has been reduced from 7000 to 6700 rpm. "We are fully validated to 7000 rpm, we just saw this as an opportunity to improve our robustness," he said. There is no plan to flash customer cars with the lower rev limit as the change has no effect on fuel economy or performance. *Car and Driver*'s testing has shown that the 2.5-liter four-cylinder is quickest in automatic mode, where the transmission shifts at approximately 6200 rpm.

Eric Tingwall

Print Director

Eric Tingwall holds degrees in mechanical engineering and journalism, a combination he pursued with the dream of working at *Car and Driver*. While living his dream, he has cut car parts in half, driven into a stationary dummy car at 50 mph, lapped Virginia International Raceway in the hottest performance cars, and explained the physics behind the wacky, waving, inflatable, flailing-arm tube man.

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For Sale Near You

USED

2025 Chevrolet Malibu

9,350 mi

CONTACT DEALER FOR BEST PRICE

NEW

2025 Chevrolet Malibu

0 mi

$27,170

NEW

2025 chevrolet malibu

23 mi

$28,24

WATCH NEXT


CAR AND DRIVER

EXHIBIT 21

Safety Recall

N252494001 L87 Engine Loss of Propulsion

Release Date: April 2025 **Revision:** 00

Attention:	This bulletin contains an inspection procedure. Vehicles that pass the inspection procedure contained in this bulletin can be sold and delivered to the customer. **Vehicles that DO NOT PASS the inspection procedure contained in this bulletin cannot be sold or delivered to the customer.** It is a violation of Federal law for a dealer to deliver a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by this notification under a sale or lease until the defect or noncompliance is remedied. **All involved vehicles that are in dealer inventory must be held and not delivered to customers, dealer traded or used for demonstration purposes until the repair contained in this bulletin has been performed on the vehicle.**

Make	Model	Model Year	
		From	To
Cadillac	Escalade	2021	2024
Cadillac	Escalade ESV	2021	2024
Chevrolet	Silverado 1500	2021	2024
Chevrolet	Suburban	2021	2024
Chevrolet	Tahoe	2021	2024
GMC	Sierra 1500	2021	2024
GMC	Yukon	2021	2024
GMC	Yukon XL	2021	2024

This recall should be performed on vehicles in dealer inventory only. Investigate Vehicle History (IVH) in the GM Global Warranty Management system should always be checked to confirm vehicle involvement prior to beginning any required inspections and/or repairs.

Condition	General Motors has decided that a defect which relates to motor vehicle safety may exist in certain 2021 – 2024 model year Cadillac Escalade and Escalade ESV, Chevrolet Silverado 1500, Suburban, and Tahoe, and GMC Sierra 1500, Yukon, and Yukon XL vehicles equipped with the 6.2L V8 gas engine (RPO L87). The connecting rod and/or crankshaft engine components in these vehicles may have manufacturing defects that can lead to engine damage and engine failure. If the engine fails during vehicle operation, the vehicle will lose propulsion, increasing the risk of a crash.
Correction	Dealers will inspect and vehicles that pass inspection will be provided a higher viscosity oil, which will also require a new oil fill cap, an oil filter replacement, and an owner's manual insert.

This recall should be performed on vehicles in dealer inventory only. Investigate Vehicle History (IVH) in the GM Global Warranty Management system should always be checked to confirm vehicle involvement prior to beginning any required inspections and/or repairs.

Parts

Quantity	Part Name	Part No.
8	Engine Oil (dexosR 0W-40)	19432866 (US) 19433272 (Canada)
1	Oil Filter	12735811
1	Oil Fill Cap	12713787

Reminder: Parts may be removed from SPRINT and Retail Inventory Management (RIM) and be non-returnable. Dealers should review the affected parts to confirm RIM managed status. Parts may have quantity limiters in effect. There are a small number of vehicles anticipated that will need this fix. **Due to the limited initial parts availability, dealers are encouraged not to order these parts for use as shelf stock.**

Note: Choose the applicable one of the oil parts numbers above, Oil/Fluid will be supplied by your Oil Distributor.

Safety Recall
N252494001 L87 Engine Loss of Propulsion

Warranty Information

Labor Operation	Description	Labor Time	Trans. Type	Net Item
9107913	Inspect and Update Engine Oil Type, Oil Fill Cap, OM Page	0.5	ZFAT	N/A
9107915	Inspect Only – Vehicle Did Not Pass Inspection and Will Require Repair – claim submission will not close field action	0.2	ZFAT	N/A

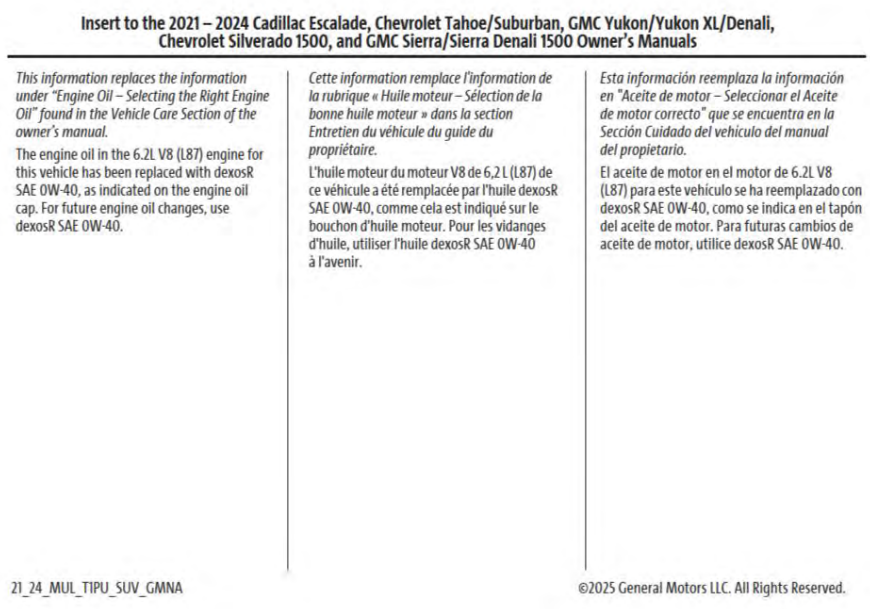
Service Procedure

1. Inspect/Check for DTC P0016.

   1.1. If DTC P0016 is NOT SET, continue to step 2.

   1.2. If DTC P0016 is set, **DO NOT proceed with the rest of the service procedure, quarantine vehicle and submit labor op 9107915. Vehicles that DO NOT PASS the inspection procedure contained in this bulletin cannot be sold or delivered to the customer.** Additional information will be provided by General Motors in the near future.

2. Drain engine oil and install new filter. Refer to *Engine Oil and Oil Filter Replacement* in SI.
3. Fill engine with **NEW 0W-40 Oil** listed in the parts table.
4. Replace the oil fill cap with the **NEW 0W-40 oil fill cap** listed in the parts table.
5. **Print the appropriate language Owner's Manual Insert(s)** for your service area.
6. Locate the Owner's Manual or Essential Operating & Safety Information (EOSI) Manual.
7. **Install the Owner's Manual Insert(s) into the Owner's Manual or EOSI Manual.**



Insert to the 2021 – 2024 Cadillac Escalade, Chevrolet Tahoe/Suburban, GMC Yukon/Yukon XL/Denali, Chevrolet Silverado 1500, and GMC Sierra/Sierra Denali 1500 Owner's Manuals

This information replaces the information under "Engine Oil – Selecting the Right Engine Oil" found in the Vehicle Care Section of the owner's manual.

The engine oil in the 6.2L V8 (L87) engine for this vehicle has been replaced with dexosR SAE 0W-40, as indicated on the engine oil cap. For future engine oil changes, use dexosR SAE 0W-40.

Cette information remplace l'information de la rubrique « Huile moteur – Sélection de la bonne huile moteur » dans la section Entretien du véhicule du guide du propriétaire.

L'huile moteur du moteur V8 de 6,2 L (L87) de ce véhicule a été remplacée par l'huile dexosR SAE 0W-40, comme cela est indiqué sur le bouchon d'huile moteur. Pour les vidanges d'huile, utiliser l'huile dexosR SAE 0W-40 à l'avenir.

Esta información reemplaza la información en "Aceite de motor – Seleccionar el Aceite de motor correcto" que se encuentra en la Sección Cuidado del vehículo del manual del propietario.

El aceite de motor en el motor de 6.2L V8 (L87) para este vehículo se ha reemplazado con dexosR SAE 0W-40, como se indica en el tapón del aceite de motor. Para futuras cambios de aceite de motor, utilice dexosR SAE 0W-40.

21_24_MUL_TIPU_SUV_GMNA

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Dealer Responsibility – For USA & Export (USA States, Territories, and Possessions)

It is a violation of Federal law for a dealer to deliver a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by this notification under a sale or lease until the defect or noncompliance is remedied.

The US National Traffic and Motor Vehicle Safety Act provides that each vehicle that is subject to a recall of this type must be adequately repaired within a reasonable time after the customer has tendered it for repair. A failure to repair within sixty days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within a reasonable time, the customer may be entitled to an identical or reasonably equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation. To avoid having to provide these burdensome remedies, every effort must be made to promptly schedule an appointment with each customer and to repair their vehicle as soon as possible. In the recall notification letters, customers are told

how to contact the US National Highway Traffic Safety Administration if the recall is not completed within a reasonable time.

Dealer Responsibility – All

All new, used, GM Certified Pre-Owned (CPO), courtesy transportation vehicles, dealer shuttle vehicles, CarBravo, etc. in dealers' possession and subject to this recall must be held and inspected/repaired per the service procedure of this bulletin before customers take possession of these vehicles. Involved vehicles must be held and not delivered to customers, dealer-traded, released to auction, used for demonstration, or any other purpose.

All GM Certified Pre-Owned (CPO) vehicles currently in the dealers' inventory within the SHIFT Digital system will be de-certified and must be held and remedied per the service procedure in this bulletin. Upon submitting an accepted/paid warranty transaction in the Global Warranty Management (GWM) system, the vehicle can be re-certified for sale within the SHIFT Digital system, or once again be used in the Courtesy Transportation Program.

Dealers are to service all vehicles subject to this recall at no charge to customers, regardless of mileage, age of vehicle, or ownership, from this time forward.

Customers who have recently purchased vehicles sold from your vehicle inventory, and for which there is no customer information indicated on the dealer listing, are to be contacted by the dealer. Arrangements are to be made to make the required correction according to the instructions contained in this bulletin. Recall follow-up cards should not be used for this purpose, since the customer may not as yet have received the notification letter.

In summary, whenever a vehicle subject to this recall enters your vehicle inventory you must take the steps necessary to ensure the program correction has been made before selling the vehicle. In addition, for vehicles entering your facility for service, you are required to ensure the customer is aware of the open recall and make every reasonable effort to implement the program correction as set forth in this bulletin prior to releasing the vehicle.

Dealer Reports – For USA & Export

For dealers with involved vehicles, a listing has been prepared and will be available through GM Global Connect Maxis Field Action Reports or sent directly to export dealers. The Inventory tab of the dealer reports will contain VINs that apply to this recall. This information is intended to assist dealers with the **PROMPT COMPLETION** of these vehicles. The Customer In-Service tab will contain customer names and addresses from Motor Vehicle Registration Records. The use of such motor vehicle registration data for any purpose other than follow-up necessary to complete this recall may be a violation of law in several states.

Courtesy Transportation – For USA & Canada

Courtesy transportation is available for customers whose vehicles are involved in a product program and still within the warranty coverage period. See General Motors Service Policies and Procedures Manual for courtesy transportation program details.

Customer Notification

USA & Canada - General Motors will notify customers of this recall on their vehicle.

Export - Letters will be sent to known owners of record located within areas covered by the US National Traffic and Motor Vehicle Safety Act.

Customer Reimbursement

Customer requests for reimbursement of previously paid repairs to correct the condition described in the bulletin can be submitted at anytime to the dealer. See General Motors Service Policies and Procedures Manual (USA & Canada) or local Policies and Procedures, for details.

EXHIBIT 22

Safety Recall

N252494002 L87 Engine Loss of Propulsion

Release Date: May 2025 **Revision:** 00

Attention:	It is a violation of Federal law for a dealer to deliver a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by this notification under a sale or lease until the defect or noncompliance is remedied. Vehicles involved in this recall were placed on a Stop Delivery Order on April 24, 2025, under N252494000. Certain VIN's have been moved to "Open" status in this bulletin after being identified as requiring an engine replacement. Additional VIN's may be opened as they are identified. **IMPORTANT: Remedy solutions for this recall are VIN-specific. VINs are assigned to one of three bulletins. Investigate Vehicle History (IVH) in the GM Global Warranty Management system MUST always be checked to confirm vehicle involvement and MUST be in OPEN status prior to beginning any required inspections and/or repairs. DO NOT use Service Information with VIN search, as it will not verify the VIN eligibility for field actions.** All involved vehicles that are in dealer inventory must be held and not delivered to customers, dealer traded, or used for demonstration purposes until the repair contained in this bulletin has been performed on the vehicle.

Make	Model	Model Year	
		From	To
Cadillac	Escalade	2021	2024
Cadillac	Escalade ESV	2021	2024
Chevrolet	Silverado 1500	2021	2024
Chevrolet	Suburban	2021	2024
Chevrolet	Tahoe	2021	2024
GMC	Sierra 1500	2021	2024
GMC	Yukon	2021	2024
GMC	Yukon XL	2021	2024

Investigate Vehicle History (IVH) in the GM Global Warranty Management system MUST always be checked to confirm vehicle involvement and MUST be in OPEN status prior to beginning any required inspections and/or repairs. DO NOT use Service Information with VIN search, as it will not verify the VIN eligibility for field actions.

Condition	General Motors has decided that a defect which relates to motor vehicle safety may exist in certain 2021 – 2024 model year Cadillac Escalade and Escalade ESV, Chevrolet Silverado 1500, Suburban, and Tahoe, and GMC Sierra 1500, Yukon, and Yukon XL vehicles equipped with the 6.2L V8 gas engine (RPO L87). The connecting rod and/or crankshaft engine components in these vehicles may have manufacturing defects that can lead to engine damage and engine failure. If the engine fails during vehicle operation, the vehicle will lose propulsion, increasing the risk of a crash.
Correction	Dealers will replace the engine, as necessary.

Parts

Quantity	Part Name	Part No.
1	BELT, ACSRY DRV PRIM	12669858
1	BELT, ACSRY DRV AUX	12658178
1	SEAL, A/C CMPR & CNDSR HOSE	13579648
1	SEAL, A/C CMPR & CNDSR HOSE	13579649
6	BOLT,ENG MT FRM SI	11549180
1	GASKET, ENG OIL CLR	23129010
2	RETAINER,TRANS FLUID CLR PIPE CONN	22988272
1	SEAL,EXH SYS	15035747
1	SEAL,EXH SYS	15077362
8	GASKET,INT MANIF	12626354
2	GASKET,W/PMP	12682391
2	SEAL,TRANS FLUID CLR PIPE FTG	85639955
8	BOLT,ENG MT ENG SI	11548998
10	BOLT,EXH MANIF	11546600
2	GASKET,EXH MANIF	12657093

Safety Recall
N252494002 L87 Engine Loss of Propulsion

1	PIPE,FUEL FEED INTER	12679463
1	PIPE,FUEL FEED INTER	12703668
2	SEAL KIT,F/INJR O-RING	12726902
2	SEAL KIT,F/INJR O-RING	19432442
1	GASKET,F/PMP BRKT	12679867
1	SEAL,OIL LVL IND	24504031
8	OIL,ENG 0W20 Dexos	19432331(US) 19432456(CA)
4	COOLANT,ENG (1 GALLON) Dexcool	12346290 (US) 10953464 (CA)
1	HOSE ENGINE OIL COOLER	85724972
1	RADIATOR	85575817
1	RADIATOR	85575818
1	RADIATOR	85575815
1	RADIATOR	85575814

Reminder: Parts may be removed from SPRINT and Retail Inventory Management (RIM) and be non-returnable. Dealers should review the affected parts to confirm RIM managed status. Parts may have quantity limiters in effect. There are a small number of vehicles anticipated that will need this fix. **Due to the limited initial parts availability, dealers are encouraged not to order these parts for use as shelf stock.**

Note: Use the VIN and the GM Electronic Parts Catalog (EPC) to determine which part to order if two or more part numbers are listed for the same part, as it may vary by vehicle options.

Warranty Information

Labor Operation	Description	Labor Time	Trans. Type	Net Item
9107916	Engine Replacement Escalade/Tahoe/Suburban/Yukon/Yukon XL 2WD w/ F47 2WD w/o F47 4WD w/ F47 4WD w/o F47 Silverado/Sierra 2WD 4WD ADD TIMES (applies to all vehicles/option combinations): Recover/Recharge R1234YF AC system Recover/Recharge R134A AC system Inspection	 18.3 18.2 18.4 18.3 18.5 18.6 1.2 0.3 0.2	ZFAT	N/A
9107922	Inspect Only – No Further Action Required	0.3	ZFAT	N/A
9107917	Customer Reimbursement Approved - For USA and Canada dealers only - For Export dealers only	 N/A 0.2	ZFAT	*
9107918	Customer Reimbursement Denied – For USA dealers only	N/A	ZFAT	**

Note: To avoid having to "H" route the customer reimbursement transaction for approval, it must be submitted prior to the repair transaction.

* For USA & Canada: Submit the dollar amount reimbursed to the Customer in Net/Reimbursement. Submit $20.00 USD ($25.00 CAD) administrative allowance in Net/Admin Allowance.

For Export: Submit the dollar amount reimbursed to the Customer in Net/Reimbursement.

** Submit $10.00 USD administrative allowance in Net/Admin Allowance.

Please Note: The above labor time(s) are published direct from the Labor Time Guide.

Safety Recall
N252494002 L87 Engine Loss of Propulsion

Service Procedure

1. Using Investigate Vehicle History (IVH), check to ensure that the vehicle you are working on has not already had an engine replacement. If the vehicle is out of warranty and does not show an engine replacement in IVH, verify with customer that the engine has already not been replaced.
    - If the vehicle HAS NOT had an engine replacement, proceed to step 2.
    - If the vehicle HAS already had an engine replacement, lift the vehicle. Refer to *Lifting and Jacking the Vehicle* in SI.

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    - Looking upwards from under the vehicle towards the rear of the Left Hand cylinder head, inspect the digits indicated on the sticker above to determine the build date of the engine. The first two digits circled are the build year ('24 in this example), and the next three digits are the build day (day 114 in this example). If the engine was built BEFORE 24183, proceed to step 2.
    - If the engine was built on or AFTER 24183 no further action is required. Submit labor operation 9107922.

IMPORTANT: Ensure that you refer to the *Engine Prelubing* and *Cooling System Draining and Filling (GE 47716) (L84/L87)* procedures in SI prior to starting the engine.

2. These vehicles have been identified as requiring an engine replacement. Proceed to *Engine Replacement* in SI.
3. Transfer the original 0W-20 Oil Cap to the NEW engine and fill the NEW engine with dexos 0W-20 oil.

Dealer Responsibility – For USA & Export (USA States, Territories, and Possessions)

It is a violation of Federal law for a dealer to deliver a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by this notification under a sale or lease until the defect or noncompliance is remedied.

The US National Traffic and Motor Vehicle Safety Act provides that each vehicle that is subject to a recall of this type must be adequately repaired within a reasonable time after the customer has tendered it for repair. A failure to repair within sixty days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within a reasonable time, the customer may be entitled to an identical or reasonably equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation. To avoid having to provide these burdensome remedies, every effort must be made to promptly schedule an appointment with each customer and to repair their vehicle as soon as possible. In the recall notification letters, customers are told

how to contact the US National Highway Traffic Safety Administration if the recall is not completed within a reasonable time.

Dealer Responsibility – All

All new, used, GM Certified Pre-Owned (CPO), courtesy transportation vehicles, dealer shuttle vehicles, CarBravo, etc. in dealers' possession and subject to this recall must be held and inspected/repaired per the service procedure of this bulletin before customers take possession of these vehicles. Involved vehicles must be held and not delivered to customers, dealer-traded, released to auction, used for demonstration, or any other purpose.

All GM Certified Pre-Owned (CPO) vehicles currently in the dealers' inventory within the SHIFT Digital system will be de-certified and must be held and remedied per the service procedure in this bulletin. Upon submitting an accepted/paid warranty transaction in the Global Warranty Management (GWM) system, the vehicle can be re-certified for sale within the SHIFT Digital system, or once again be used in the Courtesy Transportation Program.

Dealers are to service all vehicles subject to this recall at no charge to customers, regardless of mileage, age of vehicle, or ownership, from this time forward.

Customers who have recently purchased vehicles sold from your vehicle inventory, and for which there is no customer information indicated on the dealer listing, are to be contacted by the dealer. Arrangements are to be made to make the required correction according to the instructions contained in this bulletin. Recall follow-up cards should not be used for this purpose, since the customer may not as yet have received the notification letter.

In summary, whenever a vehicle subject to this recall enters your vehicle inventory you must take the steps necessary to ensure the program correction has been made before selling the vehicle. In addition, for vehicles entering your facility for service, you are required to ensure the customer is aware of the open recall and make every reasonable effort to implement the program correction as set forth in this bulletin prior to releasing the vehicle.

Dealer Reports – For USA & Export

For dealers with involved vehicles, a listing has been prepared and will be available through GM Global Connect Maxis Field Action Reports or sent directly to export dealers. The Inventory tab of the dealer reports will contain VINs that apply to this recall. This information is intended to assist dealers with the **PROMPT COMPLETION** of these vehicles. The Customer In-Service tab will contain customer names and addresses from Motor Vehicle Registration Records. The use of such motor vehicle registration data for any purpose other than follow-up necessary to complete this recall may be a violation of law in several states.

Courtesy Transportation – For USA & Canada

Courtesy transportation is available for customers whose vehicles are involved in a product program and still within the warranty coverage period. See General Motors Service Policies and Procedures Manual for courtesy transportation program details.

Customer Notification

USA & Canada - General Motors will notify customers of this recall on their vehicle.

Export - Letters will be sent to known owners of record located within areas covered by the US National Traffic and Motor Vehicle Safety Act.

Customer Reimbursement

Customer requests for reimbursement of previously paid repairs to correct the condition described in the bulletin can be submitted at anytime to the dealer. See General Motors Service Policies and Procedures Manual (USA & Canada) or local Policies and Procedures, for details.