
*Rollover Stability Measurements For
2020 New Car Assessment Program
(NCAP)*

Final Report

Contract:
693JJ919D000013

For:
National Highway Traffic Safety Administration

October 2020



7001 Buffalo Parkway
Columbus, Ohio 43229

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16. Abstract This report contains results from NCAP Static Stability Factor (SSF) measurements (including track width, center-of-gravity height, and SSF) made on 53 light duty vehicles. The vehicles tested were specified in contract Delivery Order 693JJ919F000218. The tests were conducted by SEA, Ltd. in Columbus, Ohio between 10/30/2019 and 10/29/2020, and included measurements made on 1 Model Year (MY) 2019 vehicles, 50 MY 2020 vehicles, and 2 MY 2021 vehicles.			
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ROLLOVER STABILITY MEASUREMENTS FOR 2020 NEW CAR ASSESSMENT PROGRAM (NCAP)

Introduction

This report contains results from the measurements including track width and center-of-gravity (C.G.) height for 53 light duty vehicles under one loading condition: Driver Only. The relationship between the track width and C.G. height of a vehicle is a static metric that has been used for vehicle-to-vehicle comparison. The most common form, “ $T/2h$,” is computed as one-half the average track width ($T/2$) divided by the vehicle center-of-gravity height (h). In this report, the Static Stability Factor (SSF) is defined as $T/(2h)$ for the Driver Only loading condition. These measurements were performed for the National Highway Traffic Safety Administration's Office of Crashworthiness Standards under contract 693JJ919D000013. The particular make/models represent a subset of the vehicles in the 2020 National Highway Traffic Safety Administration (NHTSA) frontal and side impact New Car Assessment Program.

Discussion

Each of the vehicle models listed in Table I was secured in new or as-new condition. Prior to testing, each test vehicle's fuel tank was filled with gasoline, and its tires inflated to the vehicle manufacturer's recommended pressure. All tests are conducted with the Driver Only load: each test vehicle had an anthropomorphic test dummy placed in the driver seating position of the vehicle. In all tests, the driver was an un-instrumented "Hybrid II" anthropomorphic test dummy (weighing 163.0 lbs) which is representative in size, overall weight, and weight distribution of a 50th percentile human male. For Table I, all vehicles tested were MY2020, unless otherwise indicated. For example, the 2019 Audi A6 AWD was a MY2019 vehicle.

Table II lists the information recorded, measured, and computed for each vehicle. All of the information listed in Table II is provided in Appendix A. The information related to vehicle mass and center-of-gravity locations was obtained using SEA, Ltd.'s (S-E-A) Vehicle Inertia Measurement Facility (VIMF). The NHTSA document titled “Laboratory Test Procedure for Rollover Stability Measurement for New Car Assessment Program (NCAP) – Static Stability Factor (SSF) Measurement,” details the procedure for making the measurements [1]. Descriptions of the design and operation of the VIMF are provided in the papers listed in the references [2-3]. The VIMF method for measurement of C.G. height is consistent with ISO 10392 [4].

The track width measurements were made using the procedure detailed in the laboratory test procedure [1]. In summary, this is:

- Measure the track width with the vehicle in its driver only configuration.
- Make two Tire Edge Determination Tools as shown in Figure 1. These are modified 4-inch beams which, when placed on the floor and pushed against the tire, will define a longitudinal line on the inside or outside lower sidewall of the tire approximately 4 inches above the floor. Figure 2 shows the beams as used at S-E-A's VIMF.
- Place the beams on the right sides of both front tires and measure the separation of the beams below the front and rear edges of the tires. Repeat this with the beams on the left sides of the front tires for four measurements - the average of which is the front track width. An identical procedure is used for measuring the rear track width. Thus, a total of eight measurements are taken, the average of which is reported as the vehicle track width.

Figure 3 contains a sample results page from one of the vehicle tests, the 2019 Audi A6 AWD, in the "Driver Only" condition. The results pages contain all of the information in Table II, as well as additional information. The individual wheel weights, the four front track width measurements, the four rear track width measurements, and the left and right side wheelbase measurements are recorded on the test pages. Additionally, details specific to the VIMF measurements of C.G. Height are included. These are the Applied Weights (calibrated hanging weights used to tilt the VIMF platform in pitch during a VIMF C.G. Height test), the Platform Angle (resulting VIMF pitch angle), Relative Motion (relative longitudinal motion between the vehicle body and VIMF platform), and the resulting individual C.G. Height measurements.

The critical calculations listed on the pages are Average Track, Average C.G. Height, and T/2h. As mentioned, the Average Track is calculated from eight individual track width measurements, four for the front track and four for the rear track. Each of the eight measurements is made using a tape measure divided into tenths of an inch. The measurements are recorded to the nearest half division, which is 0.05 inches. The four front measurements are averaged using Microsoft Excel to compute the Front Track listed on the results sheets. Similarly, the four rear measurements are averaged to compute the Rear Track listed. The Average Track is the average of Front Track and Rear Track. Since no rounding takes place in the calculations of Front Track and Rear Track, the value computed for Average Track is the same as if all eight individual measurements were averaged. The individual measurements are listed on the results sheets using two decimal places. This is because the measurements are made to the nearest 0.05 inches. The Front Track, Rear Track, and Average Track calculations are listed using one decimal place. However, decimal places beyond the first are retained in Excel and used in the calculations for SSF. The Front Track, Rear Track, and Average Track width measurements are thought to be accurate to the nearest 0.1 inches. Based on a 60 inch Average Track and 0.1 inches measurement accuracy, the Average Track value listed is good to an accuracy of 0.17%. The resolution in the recorded value is 0.05 inches, which is one-half of the listed accuracy.

The Average C.G. Height listed is based on the average value calculation for the four individual C.G. Height tests (Runs #2-5 listed on the results pages). The VIMF software/database uses more than two decimal places in this calculation, and rounding to two decimal places is done for reporting purposes. The values listed on the sheets for Average C.G. Height are to the nearest 0.01 inches, with a resolution of 0.005 inches. Based on theoretical error analysis, on doing

numerous repeat testing of the same vehicles, and on numerous tests done using calibration fixtures; the accuracy of the VIMF is thought to be 0.5% or better. This means that for a 20 inch C.G. Height, the measured value is accurate to 0.1 inches, or better. Based on this fact and the significance of the VIMF measurement values that go into calculating C.G. Height, recording the Average C.G. Height using two decimal places is warranted.

As requested by NHTSA, the T/2h values are listed on the data sheets using four decimal places. The SSF, defined by NHTSA as the two decimal place value of the T/2h for the vehicle with a driver, is reported accordingly in the Summary Results Table, Appendix B.

Results

Results for all the values listed in Table II are summarized for all 53 vehicles tested in the spreadsheet contained in Appendix A.

Appendix B contains a one-page Summary Results Table containing all measured track widths, C.G. Heights, and SSF values using two decimal places.

Appendix C contains individual test results pages for all 53 tests.

Photos of the test vehicles (a side view and a $\frac{3}{4}$ front view) are provided in Appendix D.

Table I Test Vehicles			
Seq. No.	Vehicle Make/Model/Drive	Date Tested	VIMF Number
27	2019 Audi A6 AWD	1/29/2020	7455
31	Buick Encore GX AWD	2/17/2020	7464
32	Buick Encore GX FWD	2/18/2020	7466
28	Cadillac CT5 AWD	2/3/2020	7457
26	Cadillac XT6 AWD	1/28/2020	7451
23	Cadillac XT6 FWD	1/17/2020	7437
50	Chrysler Pacifica Hybrid FWD	8/7/2020	7626
34	Ford Escape AWD	2/28/2020	7480
35	Ford Escape FWD	3/2/2020	7482
2	Ford Explorer 4WD	10/24/2019	7361
1	Ford Explorer RWD	10/24/2019	7359
42	Ford Transit Wagon High Roof 12P RWD	4/23/2021	7851
22	Hyundai Accent FWD	1/10/2020	7430
4	Hyundai Palisade AWD	11/6/2019	7372
19	Hyundai Palisade FWD	12/17/2019	7420
33	Hyundai Sonata FWD	2/18/2020	7468
24	Hyundai Venue FWD	1/20/2020	7439
6	Jeep Gladiator 4X4	11/7/2019	7376
7	Jeep Wrangler 4X4	11/7/2019	7378
37	2021 Kia Seltos AWD	3/12/2020	7491
45	2021 Kia Seltos FWD	4/20/2020	7520
5	Kia Soul FWD	11/6/2019	7374
25	Kia Stinger AWD	1/24/2020	7444
8	Kia Telluride AWD	11/8/2019	7380
9	Kia Telluride FWD	11/8/2019	7382
20	Mazda 3 FWD	12/18/2019	7423
36	Mazda CX-30 AWD	3/5/2020	7486
21	Mazda CX-30 FWD	12/18/2019	7425
53	Mercedes Sprinter 2500 12P AWD	8/21/2020	7637
52	Mercedes Sprinter 2500 12P RWD	8/21/2020	7635
51	Mercedes Sprinter 2500 15P RWD	8/12/2020	7631
13	Mitsubishi Eclipse Cross AWD	11/19/2019	7399
14	Mitsubishi Eclipse Cross FWD	11/19/2019	7401
49	Nissan Leaf 40kWh FWD	6/2/2020	7564
39	Nissan Sentra FWD	3/13/2020	7495
38	Nissan Titan Crew Cab 4X4	3/12/2020	7493
46	Nissan Titan Crew Cab RWD	5/6/2020	7530
12	Nissan Versa FWD	11/18/2019	7397
48	Ram 2500 Crew Cab 4X4	5/27/2020	7560
47	Ram 2500 Crew Cab 4X2	5/6/2020	7532
17	Subaru Legacy AWD	11/26/2019	7408
18	Subaru Outback AWD	11/27/2019	7410
16	Subaru WRX AWD	11/25/2019	7406
29	Toyota Highlander AWD	2/10/2020	7459
30	Toyota Highlander FWD	2/10/2020	7461
40	Volkswagen Atlas Cross Sport AWD	3/16/2020	7497
41	Volkswagen Atlas Cross Sport FWD	3/16/2020	7499
3	Volvo S60 FWD	11/5/2019	7370
10	Volvo XC40 AWD	11/15/2019	7393
11	Volvo XC40 FWD	11/15/2019	7395
15	Volvo XC60 AWD	11/21/2019	7403
43	Volvo XC60 FWD	4/15/2020	7516
44	Volvo XC90 FWD	4/15/2020	7518

Table II
Vehicle Information Contained in Results Spreadsheets

Seq. No.

Testing sequence number for current MY 2020 Contract

MY

Model Year (all test vehicles are model year 2019, 2020 or 2021)

Make

Vehicle Manufacturer

Model

Vehicle Model

Drive

FWD – Front Wheel Drive

RWD – Rear Wheel Drive

AWD – All Wheel Drive

4WD or 4X4 – Four Wheel Drive

4X2 – Two Wheel Drive

Type

Vehicle body style

VIN

17 Digit Vehicle Identification Number

Engine Size/Type

Vehicle engine size and type

Transmission Type

Vehicle transmission type

Doors

Number of doors

Significant Options

Optional equipment that may significantly affect the C.G. Height.

Shorthand notes: RR = Roof Rack, RB = Running Boards, SR = Sun Roof, MR = Moon Roof, PSR = Panoramic Sunroof.

Table II (continued)
Vehicle Information Contained in Results Spreadsheets

Front Tire Make/Type – Front Tire Size – Front Press.

Rear Tire Make/Type – Rear Tire Size – Rear Press.

These six columns contain information on the tires on the test vehicles. The tire size and type are specified, and the tire pressures are the vehicle manufacturer's specified tire pressures that were used during the tests.

Front Track – Rear Track – Average Track (T)

Front, rear and average track widths measured on test vehicles

Wheelbase

Average of measured left side wheelbase and right side wheelbase

GVWR, GAWR Front, GAWR Rear

Gross vehicle and axle weight ratings for the test vehicle

Load

Driver Only - described in the Discussion section on Page 1 of the report.

Test Date

Test date for the VIMF test

VIMF Test No.

VIMF test number

Roof Height

Measured height of test vehicle after loading – does not include roof rack (if applicable)

Test Weight

Measured weight of test vehicles

C.G. Longitudinal

Longitudinal distance from front wheel axis (axis through the centers of the front wheels) to vehicle center of gravity location

C.G. Lateral

Lateral distance from vehicle centerline to vehicle center of gravity location (negative to driver's side of vehicle)

C.G. Height (h)

Measured height of vehicle center of gravity

T/2h

(Average Track Width) / (2 x C.G. Height)

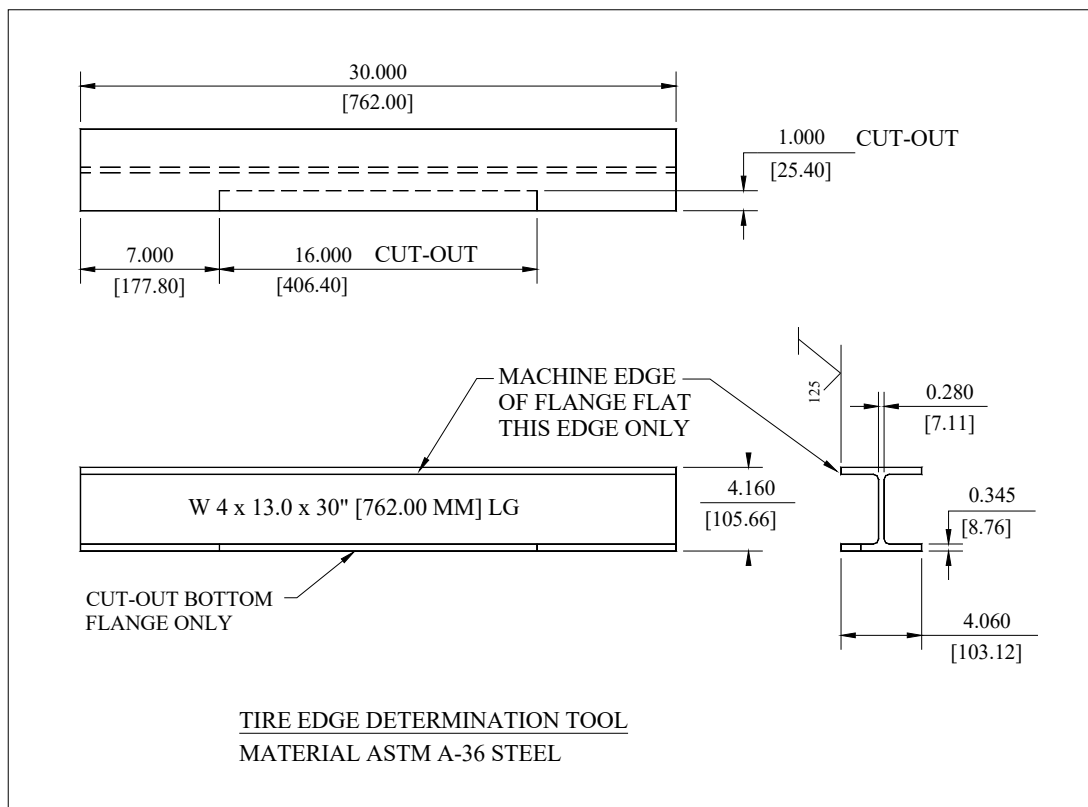


Figure 1: Tire Edge Determination Tool Used for Track Width Measurements



Figure 2: Measurements at S-E-A

2019 Audi A6 AWD

YEAR: 2019	DATE TESTED: 1/29/2020			
MAKE: Audi	VIMF TEST NO.: 7455			
MODEL: A6				
VIN: WAUL2BF23KN07####	Mfg Date: 01/19			
TYPE Sedan	Ride Height: N/A			
LOAD: Driver				
ENGINE SIZE AND TYPE: 3.0L V6 Turbo				
TRANSMISSION TYPE: 7AT				
DRIVE: AWD				
DOORS: 4				
FUEL: Full				
OPTIONAL EQUIPMENT:				
FRONT TIRE TYPE: Pirelli PZero All Season M+S				
FRONT TIRE SIZE: 255/40R20 101H				
FRONT TIRE PRESSURE: 36				
REAR TIRE TYPE: Pirelli PZero All Season M+S				
REAR TIRE SIZE: 255/40R20 101H				
REAR TIRE PRESSURE: 38				
FRONT TRACK: 63.6 inches	Track Width Measurements			
REAR TRACK: 63.1 inches	Front A 63.60 inches			
AVERAGE TRACK: 63.3 inches	B 63.55 inches			
WHEELBASE: 115.2 inches	C 63.55 inches			
ROOF HEIGHT: 56.5 inches	D 63.60 inches			
	Rear E 63.10 inches			
	F 63.10 inches			
	G 63.10 inches			
	H 63.10 inches			
GVWR 5556 lb				
FRONT GAWR 2800 lb				
REAR GAWR 2877 lb				
LEFT FRONT WEIGHT 1223.5 lb	Wheelbase Measurements			
RIGHT FRONT WEIGHT 1210.7 lb	Left Side 115.20 inches			
LEFT REAR WEIGHT 1009.9 lb	Right Side 115.20 inches			
RIGHT REAR WEIGHT 1034.1 lb				
TOTAL WEIGHT 4478.2 lb				
C.G. LONGITUDINAL 52.58 inches (From Front Axle)				
C.G. LATERAL 0.08 inches (Negative Towards Driver's Side)				
VIMF C.G. HEIGHT MEASUREMENT RESULTS				
	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	46.6	3.337	-0.042	20.75
Run #3	61.5	4.400	-0.058	20.79
Run #4	46.6	-3.299	0.027	20.84
Run #5	61.5	-4.360	0.044	20.84
AVERAGE C.G. HEIGHT				20.81
T/(2 x H) = AVERAGE TRACK/(2 x AVERAGE C.G. HEIGHT)				
T/2h				1.5222

SEA, Ltd. Vehicle Dynamics Division

Figure 3: Sample of Individual Test Results Page

References

- 1) *Laboratory Test Procedure for Rollover Stability Measurement for New Car Assessment Program (NCAP) – Static Stability Factor (SSF) Measurements*, U.S. Department of Transportation, National Highway Traffic Safety Administration, March 2013.
- 2) *The Design of a Vehicle Inertia Measurement Facility*, Heydinger, G.J., Durisek, N.J., Coover, D.A., Guenther, D.A., and Novak, S.J., SAE Paper No. 950309, February, 1995. Also presented and reprinted by invitation at the 1995 Society of Allied Weight Engineers (SAWE) International Conference, May, 1995.
- 3) *An Overview of a Vehicle Inertia Measurement Facility*, Heydinger, G.J., Durisek, N.J., Coover, D.A., Lawrence, R.D., Nowjack, J.A., and Guenther, D.A., 27th International Symposium on Automotive Technology and Automation, ISATA Paper 94SF034, October, 1994.
- 4) *Road Vehicles – Determination of Centre of Gravity*, ISO 10392, 2011.

Appendix A

Results Spreadsheets for all Tests

Seq No.	MY	Make	Model	Drive	Type	VIN	Engine Size/Type	Transmission Type	Doors	Significant Options
27	2019	Audi	A6	AWD	Sedan	WAUL2BF23KN07####	3.0L V6 Turbo	7AT	4	
31	2020	Buick	Encore GX	AWD	SUV	KL4MMGSL3LB06####	1.3L I3 Turbo	9AT	4	SR, RR
32	2020	Buick	Encore GX	FWD	SUV	KL4MMFSL7LB07####	1.3L I3 Turbo	CVT	4	SR, RR
28	2020	Cadillac	CT5	AWD	Sedan	1G6DU5RK2L011####	2.0L I4 Turbo	10AT	4	SR
26	2020	Cadillac	XT6	AWD	SUV	1GYKPGRS3LZ16####	3.0L V6	9AT	4	PSR
23	2020	Cadillac	XT6	FWD	SUV	1GYKPCRS8LZ13####	3.6L V6	9AT	4	PSR, RR
50	2020	Chrysler	Pacifica Hybrid	FWD	Van	2C4RC1N77LR24####	3.6L V6 Hybrid	E-CVT	4	PSR
34	2020	Ford	Escape	AWD	SUV	1FMCU9G66LUA0####	1.5L I4	8AT	4	
35	2020	Ford	Escape	FWD	SUV	1FMCU0G61LUA9####	1.5L I4	8AT	4	
2	2020	Ford	Explorer	4WD	SUV	1FM5K8GC2LGA3####	3.0L V6	10AT	4	RR, Hitch
1	2020	Ford	Explorer	RWD	SUV	1FMSK7DH9LGA6####	2.3L I4	10AT	4	RR
42	2020	Ford	Transit Wagon High Roof	RWD	Van-12 Passenger	1FBAX2X85LKB6####	3.5L V6	10AT	3	
22	2020	Hyundai	Accent	FWD	Sedan	3KPC24A63LE09####	1.6L I4	CVT	4	
4	2020	Hyundai	Palisade	AWD	SUV	KM8R4DHE0LU06####	3.8L V6	8AT	4	RR, Hitch
19	2020	Hyundai	Palisade	FWD	SUV	KM8R34HE8LU08####	3.8L V6	8AT	4	SR
33	2020	Hyundai	Sonata	FWD	Sedan	5NPEG4JAXLH011####	2.5L I4	8AT	4	
24	2020	Hyundai	Venue	FWD	Hatchback	KMHRB8A35LU02####	1.6L I4	Manual	4	
6	2020	Jeep	Gladiator	4X4	Pickup	1C6HJTFG2LL13####	3.6L V6	8AT	4	Hitch
7	2020	Jeep	Wrangler	4X4	SUV	1C4GJXAG0LW11####	3.6L V6	8AT	2	
37	2021	Kia	Seltos	AWD	SUV	KNDEPCA4M704####	2.0L I4	CVT	4	
45	2021	Kia	Seltos	FWD	SUV	KNDEU2AA8M705####	2.0L I4	CVT	4	RR
5	2020	Kia	Soul	FWD	SUV	KNDJ23AUXL770####	2.0L I4	CVT	4	
25	2020	Kia	Stinger	AWD	Sedan	KNAE45LC8L607####	3.3L V6 Twin Turbo	8AT	4	SR
8	2020	Kia	Telluride	AWD	SUV	5XYP2DHC2LG05####	3.8L V6	8AT	4	
9	2020	Kia	Telluride	FWD	SUV	5XYP24HCXLG05####	3.8L V6	8AT	4	
20	2020	Mazda	3	FWD	Sedan	3MZBPACL5LM12####	2.5L I4	6AT	4	
36	2020	Mazda	CX-30	AWD	SUV	3MVDMBCL9LM11####	2.5L I4	6AT	4	
21	2020	Mazda	CX-30	FWD	SUV	3MVDMADL2LM10####	2.5L I4	6AT	4	
53	2020	Mercedes Benz	Sprinter 2500	AWD	Van-12 Passenger	W1Z4EFVY0LP22####	3.0L V6 Turbo Diesel	7AT	4	
52	2020	Mercedes Benz	Sprinter 2500	RWD	Van-12 Passenger	W1Z4EFHY2LT02####	3.0L V6 Turbo Diesel	7AT	4	
51	2020	Mercedes Benz	Sprinter 2500	RWD	Van-15 Passenger	W1Z4EGHY4LT02####	3.0L V6	7AT	4	
13	2020	Mitsubishi	Eclipse Cross	AWD	SUV	JA4AT4AA4LZ01####	1.5L I4 Turbo	CVT	4	
14	2020	Mitsubishi	Eclipse Cross	FWD	SUV	JA4AS3AAXLZ01####	1.5L I4 Turbo	CVT	4	
49	2020	Nissan	Leaf 40kWh	FWD	Hatchback	1N4AZ1CP4LC30####	Electric	Auto	4	
39	2020	Nissan	Sentra	FWD	Sedan	3N1AB8CV2LY20####	2.0L I4	CVT	4	SR
38	2020	Nissan	Titan	4X4	Pickup Crew Cab	1N6AA1ED6LN50####	5.6L V8	9AT	4	Hitch, RB
46	2020	Nissan	Titan Crew Cab	RWD	Pickup Crew Cab	1N6AA1EF6LN50####	5.6L V8	9AT	4	Hitch
12	2020	Nissan	Versa	FWD	Sedan	3N1CN8EV0LL82####	1.6L I4	CVT	4	
48	2020	Ram	2500 Crew Cab	4X4	Pickup	3C6UR5HJ3LG12####	6.4L V8	8AT	4	
47	2020	Ram	2500 Crew Cab	4X2	Pickup Crew Cab	3C6UR4CJ3LG11####	6.4L V8	8AT	4	Hitch, RB
17	2020	Subaru	Legacy	AWD	Sedan	4S3BWAC67L301####	2.5L I4	CVT	4	
18	2020	Subaru	Outback	AWD	Wagon	4S4BTACC5L313####	2.5L I4	CVT	4	RR
16	2020	Subaru	WRX	AWD	Sedan	4F1VA1H63L980####	2.0L I4 Turbo	Manual	4	SR
29	2020	Toyota	Highlander	AWD	SUV	5TDGZRBH1LS50####	3.5L V6	8AT	4	SR

Seq No.	MY	Make	Model	Drive	Front Tire Make/Type	Front Tire Size	Front Press. (psi)
27	2019	Audi	A6	AWD	Pirelli PZero All Season M+S	255/40R20 101H	36
31	2020	Buick	Encore GX	AWD	Hankook Kinergy GT M+S	225/55R18 98H	35
32	2020	Buick	Encore GX	FWD	Hankook Kinergy GT M+S	225/55R18 98H	35
28	2020	Cadillac	CT5	AWD	Michelin Primacy M+S	245/40R19 94V	36
26	2020	Cadillac	XT6	AWD	Continental Cross Contact M+S	265/45R21 104V	36
23	2020	Cadillac	XT6	FWD	Michelin Premier LTX M+S	235/55R20 102H	36
50	2020	Chrysler	Pacifica Hybrid	FWD	Nexen NPPriz RH7A M+S	235/60R18 103H	36
34	2020	Ford	Escape	AWD	Continental Pro Contact TX M+S	225/65R17 102H	33
35	2020	Ford	Escape	FWD	Michelin Primacy A/S M+S	225/65R17 102H	33
2	2020	Ford	Explorer	4WD	Michelin Primacy A/S M+S	255/55R20 110V	33
1	2020	Ford	Explorer	RWD	Hankook Kinergy GT M+S	255/65R18 111H	33
42	2020	Ford	Transit Wagon High Roof	RWD	Continental Van Contact A/S M+S	235/65R16C 121/119R	52
22	2020	Hyundai	Accent	FWD	Continental Pro Contact TX M+S	185/65R15 88H	33
4	2020	Hyundai	Palisade	AWD	Bridgestone Dueler H/P Sport AS	245/50R20 102V	35
19	2020	Hyundai	Palisade	FWD	Hankook Ventus S1 Noble 2 M+S	245/50R20 102V	35
33	2020	Hyundai	Sonata	FWD	Goodyear Assurance Fuelmax M+S	205/65R16 95H	35
24	2020	Hyundai	Venue	FWD	Hankook Kinergy GT M+S	185/65R15 88H	36
6	2020	Jeep	Gladiator	4X4	Bridgestone Dueler H/T M+S	255/70R18 113T	38
7	2020	Jeep	Wrangler	4X4	Michelin LTX M/S2	245/75R17 112S	36
37	2021	Kia	Seltos	AWD	Kumho Solus TA31+ M+S	215/55R17 94V	35
45	2021	Kia	Seltos	FWD	Kumho Solus TA31+ M+S	215/55R17 94V	35
5	2020	Kia	Soul	FWD	Nexen NPPriz AH8 M+S	205/60R16 92H	33
25	2020	Kia	Stinger	AWD	Michelin Primacy Tour A/S M+S	255/35R19 96W	38
8	2020	Kia	Telluride	AWD	Michelin Primacy Tour A/S	245/60R18 105H	35
9	2020	Kia	Telluride	FWD	Pirelli Scorpion Zero M+S	245/60R18 105H	35
20	2020	Mazda	3	FWD	Toyo Proxes A40 M+S	215/45R18 89V	36
36	2020	Mazda	CX-30	AWD	Bridgestone Turanza EL440 M+S	215/55R18 95H	36
21	2020	Mazda	CX-30	FWD	Bridgestone Turanza EL440 M+S	215/55R18 95H	36
53	2020	Mercedes Benz	Sprinter 2500	AWD	Kumho Crugen HT51 M+S	LT245/75R16 120/116Q	46
52	2020	Mercedes Benz	Sprinter 2500	RWD	Kumho Crugen HT51 M+S	LT245/75R16 120/116Q	46
51	2020	Mercedes Benz	Sprinter 2500	RWD	Michelin Agilis LTX M+S	LT245/75R16 120/116Q	52
13	2020	Mitsubishi	Eclipse Cross	AWD	Bridgestone Ecopia H/L 422 Plus M+S	P255/55R18 97H	35
14	2020	Mitsubishi	Eclipse Cross	FWD	Falken Sincera M+S	P215/70R16 99H	35
49	2020	Nissan	Leaf 40kWh	FWD	Michelin Energy Saver A/S M+S	P215/50R17 90V	36
39	2020	Nissan	Sentra	FWD	Michelin Primacy A/S M+S	215/50R17 91V	33
38	2020	Nissan	Titan	4X4	General Grabber APT M+S	P275/70R18 116S	35
46	2020	Nissan	Titan Crew Cab	RWD	General Grabber HTS M+S	265/70R18 116S	39
12	2020	Nissan	Versa	FWD	Continental Pro Contact TX M+S	205/55R16 91V	33
48	2020	Ram	2500 Crew Cab	4X4	Firestone Transforce AT M+S	LT275/70R18 125/122S	60
47	2020	Ram	2500 Crew Cab	4X2	Firestone Transforce HT M+S	LT245/70R17 119/116R	75
17	2020	Subaru	Legacy	AWD	Yokohama Avid GT M+S	225/55R17 92V	33
18	2020	Subaru	Outback	AWD	Yokohama Avid GT M+S	225/65R17 102H S35	35
16	2020	Subaru	WRX	AWD	Dunlop Sport Max RT	245/40R18 97W	33
29	2020	Toyota	Highlander	AWD	Bridgestone Alenza Sport A/S M+S	235/65R18 106V	36

Seq No.	MY	Make	Model	Drive	Rear Tire Make/Type	Rear Tire Size	Rear Press. (psi)	Front Track (in)	Rear Track (in)	Avg. Track (in)	Wheel Base (in)
27	2019	Audi	A6	AWD	Pirelli PZero All Season M+S	255/40R20 101H	38	63.6	63.1	63.3	115.2
31	2020	Buick	Encore GX	AWD	Hankook Kinergy GT M+S	225/55R18 98H	35	61.0	61.7	61.4	102.1
32	2020	Buick	Encore GX	FWD	Hankook Kinergy GT M+S	225/55R18 98H	35	61.1	61.7	61.4	102.2
28	2020	Cadillac	CT5	AWD	Michelin Primacy M+S	245/40R19 94V	36	63.0	64.3	63.6	116.1
26	2020	Cadillac	XT6	AWD	Continental Cross Contact M+S	265/45R21 104V	36	66.1	65.8	66.0	112.8
23	2020	Cadillac	XT6	FWD	Michelin Premier LTX M+S	235/55R20 102H	36	66.5	66.4	66.4	113.0
50	2020	Chrysler	Pacifica Hybrid	FWD	Nexen NPriZ RH7A M+S	235/60R18 103H	36	68.5	68.8	68.6	121.6
34	2020	Ford	Escape	AWD	Continental Pro Contact TX M+S	225/65R17 102H	33	62.7	61.9	62.3	106.8
35	2020	Ford	Escape	FWD	Michelin Primacy A/S M+S	225/65R17 102H	33	62.7	62.2	62.5	106.7
2	2020	Ford	Explorer	4WD	Michelin Primacy A/S M+S	255/55R20 110V	33	66.8	66.8	66.8	119.0
1	2020	Ford	Explorer	RWD	Hankook Kinergy GT M+S	255/65R18 111H	33	67.0	67.1	67.1	119.1
42	2020	Ford	Transit Wagon High Roof	RWD	Continental Van Contact A/S M+S	235/65R16C 121/119R	75	68.4	68.8	68.6	147.9
22	2020	Hyundai	Accent	FWD	Continental Pro Contact TX M+S	185/65R15 88H	33	59.9	59.9	59.9	101.7
4	2020	Hyundai	Palisade	AWD	Bridgestone Dueler H/P Sport AS	245/50R20 102V	35	67.4	67.6	67.5	114.3
19	2020	Hyundai	Palisade	FWD	Hankook Ventus S1 Noble 2 M+S	245/50R20 102V	35	67.3	67.7	67.5	114.3
33	2020	Hyundai	Sonata	FWD	Goodyear Assurance Fuelmax M+S	205/65R16 95H	35	64.3	64.6	64.4	112.0
24	2020	Hyundai	Venue	FWD	Hankook Kinergy GT M+S	185/65R15 88H	36	61.2	61.5	61.3	99.3
6	2020	Jeep	Gladiator	4X4	Bridgestone Dueler H/T M+S	255/70R18 113T	38	63.0	63.0	63.0	137.3
7	2020	Jeep	Wrangler	4X4	Michelin LTX M/S2	245/75R17 112S	36	63.1	63.1	63.1	97.0
37	2021	Kia	Seltos	AWD	Kumho Solus TA31+ M+S	215/55R17 94V	33	61.5	62.0	61.7	103.6
45	2021	Kia	Seltos	FWD	Kumho Solus TA31+ M+S	215/55R17 94V	33	61.5	62.0	61.7	103.6
5	2020	Kia	Soul	FWD	Nexen NPriZ AH8 M+S	205/60R16 92H	33	62.1	62.3	62.2	102.5
25	2020	Kia	Stinger	AWD	Michelin Primacy Tour A/S M+S	255/35R19 96W	36	62.8	63.7	63.2	114.5
8	2020	Kia	Telluride	AWD	Michelin Primacy Tour A/S	245/60R18 105H	35	67.3	67.6	67.4	114.4
9	2020	Kia	Telluride	FWD	Pirelli Scorpion Zero M+S	245/60R18 105H	35	67.2	67.5	67.3	114.3
20	2020	Mazda	3	FWD	Toyo Proxes A40 M+S	215/45R18 89V	36	61.9	62.0	61.9	107.3
36	2020	Mazda	CX-30	AWD	Bridgestone Turanza EL440 M+S	215/55R18 95H	36	61.6	61.2	61.4	104.5
21	2020	Mazda	CX-30	FWD	Bridgestone Turanza EL440 M+S	215/55R18 95H	36	61.6	61.3	61.4	104.3
53	2020	Mercedes Benz	Sprinter 2500	AWD	Kumho Crugen HT51 M+S	LT245/75R16 120/116Q	70	67.7	68.2	68.0	145.3
52	2020	Mercedes Benz	Sprinter 2500	RWD	Kumho Crugen HT51 M+S	LT245/75R16 120/116Q	70	67.4	68.2	67.8	144.6
51	2020	Mercedes Benz	Sprinter 2500	RWD	Michelin Agilis LTX M+S	LT245/75R16 120/116Q	70	67.4	68.5	67.9	170.5
13	2020	Mitsubishi	Eclipse Cross	AWD	Bridgestone Ecopia H/L 422 Plus M+S	P255/55R18 97H	35	60.8	60.5	60.6	105.2
14	2020	Mitsubishi	Eclipse Cross	FWD	Falken Sincera M+S	P215/70R16 99H	35	60.9	60.8	60.8	105.1
49	2020	Nissan	Leaf 40kWh	FWD	Michelin Energy Saver A/S M+S	P215/50R17 90V	36	60.2	60.6	60.4	106.3
39	2020	Nissan	Sentra	FWD	Michelin Primacy A/S M+S	215/50R17 91V	33	61.9	61.6	61.7	106.7
38	2020	Nissan	Titan	4X4	General Grabber APT M+S	P275/70R18 116S	35	68.0	68.1	68.0	140.1
46	2020	Nissan	Titan Crew Cab	RWD	General Grabber HTS M+S	265/70R18 116S	39	68.1	68.0	68.0	140.0
12	2020	Nissan	Versa	FWD	Continental Pro Contact TX M+S	205/55R16 91V	33	59.4	59.7	59.5	103.1
48	2020	Ram	2500 Crew Cab	4X4	Firestone Transforce AT M+S	LT275/70R18 125/122S	65	67.6	67.2	67.4	169.3
47	2020	Ram	2500 Crew Cab	4X2	Firestone Transforce HT M+S	LT245/70R17 119/116R	80	68.5	68.1	68.3	149.3
17	2020	Subaru	Legacy	AWD	Yokohama Avid GT M+S	225/55R17 92V	32	62.2	63.3	62.7	108.4
18	2020	Subaru	Outback	AWD	Yokohama Avid GT M+S	225/65R17 102H S35	33	61.8	62.7	62.3	108.3
16	2020	Subaru	WRX	AWD	Dunlop Sport Max RT	245/40R18 97W	32	60.1	60.6	60.3	104.3
29	2020	Toyota	Highlander	AWD	Bridgestone Alenza Sport A/S M+S	235/65R18 106V	36	65.5	65.4	65.4	112.4

Seq No.	MY	Make	Model	Drive	GVWR (lb)	GAWR Front (lb)	GAWR Rear (lb)	Load	Test Date	VIMF Test No.	Roof Height (in)	Test Weight (lb)	C.G. Long. (in)	C.G. Lateral (in)	C.G. Height (in)	T/2h
27	2019	Audi	A6	AWD	5556	2800	2877	Driver	1/29/2020	7455	56.5	4478.2	52.6	0.1	20.81	1.5222
31	2020	Buick	Encore GX	AWD	4409	2336	2336	Driver	2/17/2020	7464	64.6	3535.1	41.2	-1.1	25.26	1.2144
32	2020	Buick	Encore GX	FWD	4233	2336	2336	Driver	2/18/2020	7466	64.2	3386.7	40.1	-0.9	25.51	1.2032
28	2020	Cadillac	CT5	AWD	4813	2254	2559	Driver	2/3/2020	7457	57.0	4075.3	55.4	-1.0	21.42	1.4847
26	2020	Cadillac	XT6	AWD	6001	2976	3406	Driver	1/28/2020	7451	69.3	4886.1	50.2	-0.9	26.25	1.2565
23	2020	Cadillac	XT6	FWD	6001	2976	3406	Driver	1/17/2020	7437	68.8	4604.1	49.1	-1.0	26.81	1.2389
50	2020	Chrysler	Pacifica Hybrid	FWD	6300	3200	3200	Driver	8/7/2020	7626	68.7	5351.3	54.7	-1.2	24.40	1.4062
34	2020	Ford	Escape	AWD	4500	2400	2220	Driver	2/28/2020	7480	65.6	3655.6	45.0	-1.3	25.52	1.2203
35	2020	Ford	Escape	FWD	4630	2340	2150	Driver	3/2/2020	7482	65.7	3486.7	44.2	-1.4	25.37	1.2310
2	2020	Ford	Explorer	4WD	6150	2790	3490	Driver	10/24/2019	7361	69.6	4904.1	57.7	-0.8	26.30	1.2897
1	2020	Ford	Explorer	RWD	5770	2505	3370	Driver	10/24/2019	7359	69.0	4483.5	58.8	-0.8	26.14	1.2830
42	2020	Ford	Transit Wagon High Roof	RWD	9250	4130	5780	Driver	4/23/2021	7851	106.1	6506.7	70.2	-0.4	34.91	0.9822
22	2020	Hyundai	Accent	FWD	3527	1940	1852	Driver	1/10/2020	7430	56.5	2790.8	40.5	-1.2	21.58	1.3870
4	2020	Hyundai	Palisade	AWD	5871	2954	3197	Driver	11/6/2019	7372	68.4	4573.1	50.2	-0.7	26.22	1.2870
19	2020	Hyundai	Palisade	FWD	5732	2954	3197	Driver	12/17/2019	7420	68.9	4417.0	49.0	-0.8	27.10	1.2450
33	2020	Hyundai	Sonata	FWD	4354	2513	2315	Driver	2/18/2020	7468	56.6	3303.2	43.5	-0.8	21.91	1.4700
24	2020	Hyundai	Venue	FWD	3638	2101	1889	Driver	1/20/2020	7439	61.0	2732.5	40.4	-1.0	23.82	1.2875
6	2020	Jeep	Gladiator	4X4	5800	3100	3750	Driver	11/7/2019	7376	73.1	4897.8	63.4	0.0	28.76	1.0953
7	2020	Jeep	Wrangler	4X4	4900	2700	3000	Driver	11/7/2019	7378	71.6	4158.9	48.5	0.1	28.89	1.0915
37	2021	Kia	Seltos	AWD	4167	2293	2117	Driver	3/12/2020	7491	63.4	3253.9	43.5	-1.1	24.36	1.2665
45	2021	Kia	Seltos	FWD	3881	2293	2062	Driver	4/20/2020	7520	63.8	3113.4	41.4	-1.2	25.05	1.2321
5	2020	Kia	Soul	FWD	4023	2315	2094	Driver	11/6/2019	7374	62.9	3045.6	40.3	-1.2	24.36	1.2759
25	2020	Kia	Stinger	AWD	5148	2548	2712	Driver	1/24/2020	7444	55.2	4336.5	53.8	-0.4	20.63	1.5320
8	2020	Kia	Telluride	AWD	5917	2954	3196	Driver	11/8/2019	7380	68.5	4434.7	49.8	-0.8	26.19	1.2867
9	2020	Kia	Telluride	FWD	5776	2954	3196	Driver	11/8/2019	7382	69.2	4281.2	48.9	-0.9	26.70	1.2612
20	2020	Mazda	3	FWD	4079	2240	1850	Driver	12/18/2019	7423	56.3	3227.6	41.8	-1.1	21.30	1.4541
36	2020	Mazda	CX-30	AWD	4345	2302	2050	Driver	3/5/2020	7486	61.4	3444.2	42.2	-1.0	23.89	1.2846
21	2020	Mazda	CX-30	FWD	4189	2249	1947	Driver	12/18/2019	7425	61.3	3325.5	41.0	-1.0	24.42	1.2582
53	2020	Mercedes Benz	Sprinter 2500	AWD	9050	4410	5360	Driver	8/21/2020	7637	104.7	6506.4	65.8	-0.6	39.02	0.8708
52	2020	Mercedes Benz	Sprinter 2500	RWD	9050	4100	5360	Driver	8/21/2020	7635	104.3	6147.8	67.0	-0.7	37.11	0.9136
51	2020	Mercedes Benz	Sprinter 2500	RWD	9480	4410	5360	Driver	8/12/2020	7631	104.4	6738.1	82.5	-0.6	38.08	0.8918
13	2020	Mitsubishi	Eclipse Cross	AWD	4630	2646	2557	Driver	11/19/2019	7399	64.7	3644.5	44.6	-1.0	25.21	1.2024
14	2020	Mitsubishi	Eclipse Cross	FWD	4630	2646	2557	Driver	11/19/2019	7401	64.2	3447.3	43.3	-1.2	25.37	1.1985
49	2020	Nissan	Leaf 40kWh	FWD	4486	2359	2172	Driver	6/2/2020	7564	60.3	3734.0	44.8	-0.8	21.24	1.4219
39	2020	Nissan	Sentra	FWD	4001	2161	1863	Driver	3/13/2020	7495	56.6	3265.7	42.2	-0.8	21.11	1.4622
38	2020	Nissan	Titan	4X4	7300	3800	4012	Driver	3/12/2020	7493	76.4	6177.8	59.8	-0.8	29.81	1.1406
46	2020	Nissan	Titan Crew Cab	RWD	7100	3800	4012	Driver	5/6/2020	7530	74.5	5812.3	61.1	-0.7	28.88	1.1781
12	2020	Nissan	Versa	FWD	3605	1907	1720	Driver	11/18/2019	7397	58.3	2852.9	41.5	-1.5	21.65	1.3744
48	2020	Ram	2500 Crew Cab	4X4	10000	5500	6390	Driver	5/27/2020	7560	79.4	7135.1	70.3	-0.9	31.31	1.0759
47	2020	Ram	2500 Crew Cab	4X2	10000	5500	6000	Driver	5/6/2020	7532	76.8	6575.0	65.6	-0.9	29.01	1.1774
17	2020	Subaru	Legacy	AWD	4630	2756	2690	Driver	11/26/2019	7408	58.7	3687.1	45.1	-1.2	21.65	1.4488
18	2020	Subaru	Outback	AWD	4850	2756	2690	Driver	11/27/2019	7410	63.0	3829.0	47.5	-1.3	25.89	1.2024
16	2020	Subaru	WRX	AWD	4409	2370	2293	Driver	11/25/2019	7406	57.4	3548.7	42.7	-1.2	20.83	1.4484
29	2020	Toyota	Highlander	AWD	5935	3605	3605	Driver	2/10/2020	7459	67.8	4557.8	49.9	-0.9	26.44	1.2372

Seq No.	MY	Make	Model	Drive	Type	VIN	Engine Size/Type	Transmission Type	Doors	Significant Options
30	2020	Toyota	Highlander	FWD	SUV	5TDCZRAHXL500####	3.5L V6	8AT	4	
40	2020	Volkswagen	Atlas Cross Sport	AWD	SUV	1V2MC2CAXLC20####	2.0L I4	8AT	4	PSR, RR
41	2020	Volkswagen	Atlas Cross Sport	FWD	SUV	1V25C2CAXLC20####	2.0L I4	8AT	4	PSR, RR
3	2020	Volvo	S60	FWD	Sedan	7JR102FK3LG03####	2.0L I4	8AT	4	PSR
10	2020	Volvo	XC40	AWD	SUV	YV4162UM3L219####	2.0L I4 Turbo	8AT	4	PSR
11	2020	Volvo	XC40	FWD	SUV	YV4AC2HK9L221####	2.0L I4 Turbo	8AT	4	
15	2020	Volvo	XC60	AWD	SUV	YV4102RL6L143####	2.0L I4 Turbo	8AT	4	PSR
43	2020	Volvo	XC60	FWD	SUV	YV4102DK5L156####	2.0L I4 Turbo	8AT	4	PSR, RR
44	2020	Volvo	XC90	FWD	SUV	YV4102CK4L157####	2.0L I4 Turbo	8AT	4	PSR, RR

Seq No.	MY	Make	Model	Drive	Front Tire Make/Type	Front Tire Size	Front Press. (psi)
30	2020	Toyota	Highlander	FWD	Michelin Premier LTX M+S	235/65R18 106V	36
40	2020	Volkswagen	Atlas Cross Sport	AWD	Pirelli Scorpion Zero M+S	255/50R20 105T	36
41	2020	Volkswagen	Atlas Cross Sport	FWD	Pirelli Scorpion Zero M+S	255/50R20 105T	36
3	2020	Volvo	S60	FWD	Continental Pro Contact TX M+S	235/45R18 98H	36
10	2020	Volvo	XC40	AWD	Pirelli Scorpion Zero All Season M+S	245/45R20 103H	33
11	2020	Volvo	XC40	FWD	Michelin Primacy MXM4 M+S	235/55R18 100H	33
15	2020	Volvo	XC60	AWD	Continental Cross Contact M+S	255/45R20 105H	35
43	2020	Volvo	XC60	FWD	Pirelli Scorpion Zero M+S	235/55R19 105V	35
44	2020	Volvo	XC90	FWD	Pirelli Scorpion Verde M+S	275/45R20 105V	38

Seq No.	MY	Make	Model	Drive	Rear Tire Make/Type	Rear Tire Size	Rear Press. (psi)	Front Track (in)	Rear Track (in)	Avg. Track (in)	Wheel Base (in)
30	2020	Toyota	Highlander	FWD	Michelin Premier LTX M+S	235/65R18 106V	36	65.4	65.4	65.4	112.4
40	2020	Volkswagen	Atlas Cross Sport	AWD	Pirelli Scorpion Zero M+S	255/50R20 105T	36	67.0	67.4	67.2	117.3
41	2020	Volkswagen	Atlas Cross Sport	FWD	Pirelli Scorpion Zero M+S	255/50R20 105T	36	66.9	67.5	67.2	117.3
3	2020	Volvo	S60	FWD	Continental Pro Contact TX M+S	235/45R18 98H	36	62.8	62.7	62.7	113.3
10	2020	Volvo	XC40	AWD	Pirelli Scorpion Zero All Season M+S	245/45R20 103H	33	62.9	63.9	63.4	106.4
11	2020	Volvo	XC40	FWD	Michelin Primacy MXM4 M+S	235/55R18 100H	33	62.9	63.7	63.3	106.4
15	2020	Volvo	XC60	AWD	Continental Cross Contact M+S	255/45R20 105H	35	64.7	64.9	64.8	112.9
43	2020	Volvo	XC60	FWD	Pirelli Scorpion Zero M+S	235/55R19 105V	35	64.9	65.1	65.0	112.8
44	2020	Volvo	XC90	FWD	Pirelli Scorpion Verde M+S	275/45R20 105V	38	65.7	65.9	65.8	117.7

Seq No.	MY	Make	Model	Drive	GVWR (lb)	GAWR Front (lb)	GAWR Rear (lb)	Load	Test Date	VIMF Test No.	Roof Height (in)	Test Weight (lb)	C.G. Long. (in)	C.G. Lateral (in)	C.G. Height (in)	T/2h
30	2020	Toyota	Highlander	FWD	5830	3605	3605	Driver	2/10/2020	7461	67.7	4313.2	48.6	-1.0	26.49	1.2342
40	2020	Volkswagen	Atlas Cross Sport	AWD	5666	2866	2910	Driver	3/16/2020	7497	67.5	4639.3	51.4	-0.5	26.50	1.2679
41	2020	Volkswagen	Atlas Cross Sport	FWD	5467	2800	2778	Driver	3/16/2020	7499	67.5	4419.5	50.4	-0.6	27.28	1.2310
3	2020	Volvo	S60	FWD	4825	2445	2445	Driver	11/5/2019	7370	55.9	3911.2	49.3	-1.1	21.44	1.4634
10	2020	Volvo	XC40	AWD	4895	2535	2445	Driver	11/15/2019	7393	64.5	4032.1	44.9	-0.7	25.47	1.2445
11	2020	Volvo	XC40	FWD	4760	2490	2360	Driver	11/15/2019	7395	64.3	3791.1	43.3	-0.8	25.12	1.2601
15	2020	Volvo	XC60	AWD	5360	2670	2780	Driver	11/21/2019	7403	64.5	4373.6	51.2	-0.8	25.36	1.2765
43	2020	Volvo	XC60	FWD	5225	2620	2690	Driver	4/15/2020	7516	64.5	4172.1	50.5	-0.7	25.82	1.2583
44	2020	Volvo	XC90	FWD	6005	2865	3280	Driver	4/15/2020	7518	68.9	4615.1	55.6	-0.8	27.59	1.1922

Appendix B

Summary Results Table with Track Width, CG Height, and SSF

Table I
Test Vehicles

Seq. No.	Vehicle Make/Model/Drive	Date Tested	VIMF Number	Track Width (inches)	DRIVER ONLY	
					C.G. Height (inches)	SSF
27	2019 Audi A6 AWD	1/29/2020	7455	63.3	20.81	1.52
31	Buick Encore GX AWD	2/17/2020	7464	61.4	25.26	1.21
32	Buick Encore GX FWD	2/18/2020	7466	61.4	25.51	1.20
28	Cadillac CT5 AWD	2/3/2020	7457	63.6	21.42	1.48
26	Cadillac XT6 AWD	1/28/2020	7451	66.0	26.25	1.26
23	Cadillac XT6 FWD	1/17/2020	7437	66.4	26.81	1.24
50	Chrysler Pacifica Hybrid FWD	8/7/2020	7626	68.6	24.40	1.41
34	Ford Escape AWD	2/28/2020	7480	62.3	25.52	1.22
35	Ford Escape FWD	3/2/2020	7482	62.5	25.37	1.23
2	Ford Explorer 4WD	10/24/2019	7361	66.8	26.30	1.27
1	Ford Explorer RWD	10/24/2019	7359	67.1	26.14	1.28
42	Ford Transit Wagon HR 12P RWD	4/23/2021	7851	68.6	34.91	0.98
22	Hyundai Accent FWD	1/10/2020	7430	59.9	21.58	1.39
4	Hyundai Palisade AWD	11/6/2019	7372	67.5	26.22	1.29
19	Hyundai Palisade FWD	12/17/2019	7420	67.5	27.10	1.25
33	Hyundai Sonata FWD	2/18/2020	7468	64.4	21.91	1.47
24	Hyundai Venue FWD	1/20/2020	7439	61.3	23.82	1.29
6	Jeep Gladiator 4X4	11/7/2019	7376	63.0	28.76	1.10
7	Jeep Wrangler 4X4	11/7/2019	7378	63.1	28.89	1.09
37	2021 Kia Seltos AWD	3/12/2020	7491	61.7	24.36	1.27
45	2021 Kia Seltos FWD	4/20/2020	7520	61.7	25.05	1.23
5	Kia Soul FWD	11/6/2019	7374	62.2	24.36	1.28
25	Kia Stinger AWD	1/24/2020	7444	63.2	20.63	1.53
8	Kia Telluride AWD	11/8/2019	7380	67.4	26.19	1.29
9	Kia Telluride FWD	11/8/2019	7382	67.3	26.70	1.26
20	Mazda 3 FWD	12/18/2019	7423	61.9	21.30	1.45
36	Mazda CX-30 AWD	3/5/2020	7486	61.4	23.89	1.28
21	Mazda CX-30 FWD	12/18/2019	7425	61.4	24.42	1.26
53	Mercedes Sprinter 2500 12P AWD	8/21/2020	7637	68.0	39.02	0.87
52	Mercedes Sprinter 2500 12P RWD	8/21/2020	7635	67.8	37.11	0.91
51	Mercedes Sprinter 2500 15P RWD	8/12/2020	7631	67.9	38.08	0.89
13	Mitsubishi Eclipse Cross AWD	11/19/2019	7399	60.6	25.21	1.20
14	Mitsubishi Eclipse Cross FWD	11/19/2019	7401	60.8	25.37	1.20
49	Nissan Leaf 40kWh FWD	6/2/2020	7564	60.4	21.24	1.42
39	Nissan Sentra FWD	3/13/2020	7495	61.7	21.11	1.46
38	Nissan Titan Crew Cab 4X4	3/12/2020	7493	68.0	29.81	1.14
46	Nissan Titan Crew Cab RWD	5/6/2020	7530	68.0	28.88	1.18
12	Nissan Versa FWD	11/18/2019	7397	59.5	21.65	1.37
48	Ram 2500 Crew Cab 4X4	5/27/2020	7560	67.4	31.31	1.08
47	Ram 2500 Crew Cab 4X2	5/6/2020	7532	68.3	29.01	1.18
17	Subaru Legacy AWD	11/26/2019	7408	62.7	21.65	1.45
18	Subaru Outback AWD	11/27/2019	7410	62.3	25.89	1.20
16	Subaru WRX AWD	11/25/2019	7406	60.3	20.83	1.45
29	Toyota Highlander AWD	2/10/2020	7459	65.4	26.44	1.24
30	Toyota Highlander FWD	2/10/2020	7461	65.4	26.49	1.23
40	Volkswagen Atlas Cross Sport AWD	3/16/2020	7497	67.2	26.50	1.27
41	Volkswagen Atlas Cross Sport FWD	3/16/2020	7499	67.2	27.28	1.23
3	Volvo S60 FWD	11/5/2019	7370	62.7	21.44	1.46
10	Volvo XC40 AWD	11/15/2019	7393	63.4	25.47	1.24
11	Volvo XC40 FWD	11/15/2019	7395	63.3	25.12	1.26
15	Volvo XC60 AWD	11/21/2019	7403	64.8	25.36	1.28
43	Volvo XC60 FWD	4/15/2020	7516	65.0	25.82	1.26
44	Volvo XC90 FWD	4/15/2020	7518	65.8	27.59	1.19

Appendix C

Individual Test Results Pages

2019 Audi A6 AWD

YEAR: 2019

DATE TESTED: 1/29/2020

MAKE: Audi

VIMF TEST NO.: 7455

MODEL: A6

VIN: WAUL2BF23KN07####

Mfg Date: 01/19

TYPE Sedan

Ride Height: N/A

LOAD: Driver

ENGINE SIZE AND TYPE: 3.0L V6 Turbo

TRANSMISSION TYPE: 7AT

DRIVE: AWD

DOORS: 4

FUEL: Full

OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Pirelli PZero All Season M+S

FRONT TIRE SIZE: 255/40R20 101H

FRONT TIRE PRESSURE: 36

REAR TIRE TYPE: Pirelli PZero All Season M+S

REAR TIRE SIZE: 255/40R20 101H

REAR TIRE PRESSURE: 38

FRONT TRACK: 63.6 inches

REAR TRACK: 63.1 inches

AVERAGE TRACK: 63.3 inches

WHEELBASE: 115.2 inches

ROOF HEIGHT: 56.5 inches

GVWR 5556 lb

FRONT GAWR 2800 lb

REAR GAWR 2877 lb

LEFT FRONT WEIGHT 1223.5 lb

RIGHT FRONT WEIGHT 1210.7 lb

LEFT REAR WEIGHT 1009.9 lb

RIGHT REAR WEIGHT 1034.1 lb

TOTAL WEIGHT 4478.2 lb

C.G. LONGITUDINAL 52.58 inches (From Front Axle)

C.G. LATERAL 0.08 inches (Negative Towards Driver's Side)

Track Width Measurements

Front A 63.60 inches

B 63.55 inches

C 63.55 inches

D 63.60 inches

Rear E 63.10 inches

F 63.10 inches

G 63.10 inches

H 63.10 inches

Wheelbase Measurements

Left Side 115.20 inches

Right Side 115.20 inches

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	46.6	3.337	-0.042	20.75
Run #3	61.5	4.400	-0.058	20.79
Run #4	46.6	-3.299	0.027	20.84
Run #5	61.5	-4.360	0.044	20.84

AVERAGE C.G. HEIGHT 20.81

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.5222

Buick Encore GX AWD

YEAR: 2020 **DATE TESTED:** 2/17/2020
MAKE: Buick **VIMF TEST NO.:** 7464
MODEL: Encore GX
VIN: KL4MMGSL3LB06#### **Mfg Date:** 11/19
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 1.3L I3 Turbo
TRANSMISSION TYPE: 9AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof, Roof Rails
FRONT TIRE TYPE: Hankook Kinergy GT M+S
FRONT TIRE SIZE: 225/55R18 98H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Hankook Kinergy GT M+S
REAR TIRE SIZE: 225/55R18 98H
REAR TIRE PRESSURE: 35

FRONT TRACK: 61.0 inches REAR TRACK: 61.7 inches AVERAGE TRACK: 61.4 inches WHEELBASE: 102.1 inches ROOF HEIGHT: 64.6 inches GVWR: 4409 lb FRONT GAWR: 2336 lb REAR GAWR: 2336 lb LEFT FRONT WEIGHT: 1091.4 lb RIGHT FRONT WEIGHT: 1018.0 lb LEFT REAR WEIGHT: 737.6 lb RIGHT REAR WEIGHT: 688.1 lb TOTAL WEIGHT: 3535.1 lb C.G. LONGITUDINAL: 41.18 inches (From Front Axle) C.G. LATERAL: -1.07 inches (Negative Towards Driver's Side)	Track Width Measurements <table border="0"> <tr><td>Front A</td><td>60.95</td><td>inches</td></tr> <tr><td>B</td><td>61.00</td><td>inches</td></tr> <tr><td>C</td><td>61.00</td><td>inches</td></tr> <tr><td>D</td><td>60.95</td><td>inches</td></tr> <tr><td>Rear E</td><td>61.60</td><td>inches</td></tr> <tr><td>F</td><td>61.85</td><td>inches</td></tr> <tr><td>G</td><td>61.65</td><td>inches</td></tr> <tr><td>H</td><td>61.85</td><td>inches</td></tr> </table> Wheelbase Measurements <table border="0"> <tr><td>Left Side</td><td>102.10</td><td>inches</td></tr> <tr><td>Right Side</td><td>102.10</td><td>inches</td></tr> </table>	Front A	60.95	inches	B	61.00	inches	C	61.00	inches	D	60.95	inches	Rear E	61.60	inches	F	61.85	inches	G	61.65	inches	H	61.85	inches	Left Side	102.10	inches	Right Side	102.10	inches
Front A	60.95	inches																													
B	61.00	inches																													
C	61.00	inches																													
D	60.95	inches																													
Rear E	61.60	inches																													
F	61.85	inches																													
G	61.65	inches																													
H	61.85	inches																													
Left Side	102.10	inches																													
Right Side	102.10	inches																													

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.1	3.008	-0.020	25.24
Run #3	47.8	4.452	-0.031	25.27
Run #4	32.1	-2.988	0.015	25.27
Run #5	47.8	-4.426	0.027	25.27
AVERAGE C.G. HEIGHT				25.26

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2144$$

Buick Encore GX FWD

YEAR: 2020 **DATE TESTED:** 2/18/2020
MAKE: Buick **VIMF TEST NO.:** 7466
MODEL: Encore GX
VIN: KL4MMFSL7LB07#### **Mfg Date:** 12/19
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 1.3L I3 Turbo
TRANSMISSION TYPE: CVT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof, Roof Rails
FRONT TIRE TYPE: Hankook Kinergy GT M+S
FRONT TIRE SIZE: 225/55R18 98H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Hankook Kinergy GT M+S
REAR TIRE SIZE: 225/55R18 98H
REAR TIRE PRESSURE: 35

FRONT TRACK:	61.1	inches	Track Width Measurements
REAR TRACK:	61.7	inches	Front A 61.10 inches
AVERAGE TRACK:	61.4	inches	B 61.10 inches
WHEELBASE:	102.2	inches	C 61.10 inches
ROOF HEIGHT:	64.2	inches	D 61.10 inches
			Rear E 61.65 inches
GVWR	4233	lb	F 61.70 inches
FRONT GAWR	2336	lb	G 61.65 inches
REAR GAWR	2336	lb	H 61.70 inches
LEFT FRONT WEIGHT	1059.4	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	998.5	lb	Left Side 102.20 inches
LEFT REAR WEIGHT	683.9	lb	Right Side 102.10 inches
RIGHT REAR WEIGHT	644.9	lb	
TOTAL WEIGHT	3386.7	lb	
C.G. LONGITUDINAL	40.08	inches (From Front Axle)	
C.G. LATERAL	-0.90	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.1	3.040	-0.016	25.49
Run #3	47.8	4.489	-0.026	25.47
Run #4	32.1	-3.033	0.015	25.54
Run #5	47.8	-4.484	0.024	25.53
AVERAGE C.G. HEIGHT				25.51

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2032$$

Cadillac CT5 AWD

YEAR: 2020	DATE TESTED: 2/3/2020
MAKE: Cadillac	VIMF TEST NO.: 7457
MODEL: CT5	
VIN: 1G6DU5RK2L011####	Mfg Date: 12/19
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 10AT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Sunroof	
FRONT TIRE TYPE: Michelin Primacy M+S	
FRONT TIRE SIZE: 245/40R19 94V	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Michelin Primacy M+S	
REAR TIRE SIZE: 245/40R19 94V	
REAR TIRE PRESSURE: 36	

FRONT TRACK: 63.0 inches	Track Width Measurements
REAR TRACK: 64.3 inches	Front A 62.90 inches
AVERAGE TRACK: 63.6 inches	B 62.90 inches
WHEELBASE: 116.1 inches	C 63.00 inches
ROOF HEIGHT: 57.0 inches	D 63.00 inches
	Rear E 64.20 inches
GVWR 4813 lb	F 64.30 inches
FRONT GAWR 2254 lb	G 64.20 inches
REAR GAWR 2559 lb	H 64.30 inches

LEFT FRONT WEIGHT 1110.8 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1020.6 lb	Left Side 116.10 inches
LEFT REAR WEIGHT 991.3 lb	Right Side 116.10 inches
RIGHT REAR WEIGHT 952.6 lb	
TOTAL WEIGHT 4075.3 lb	

C.G. LONGITUDINAL 55.38 inches (From Front Axle)
C.G. LATERAL -1.00 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.076	-0.018	21.34
Run #3	57.1	4.220	-0.026	21.35
Run #4	41.4	-3.067	0.009	21.50
Run #5	57.1	-4.206	0.016	21.48

AVERAGE C.G. HEIGHT 21.42

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4847

Cadillac XT6 AWD

YEAR: 2020 **DATE TESTED:** 1/28/2020
MAKE: Cadillac **VIMF TEST NO.:** 7451
MODEL: XT6
VIN: 1GYKPGRS3LZ16#### **Mfg Date:** 01/20
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 3.0L V6
TRANSMISSION TYPE: 9AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof
FRONT TIRE TYPE: Continental Cross Contact M+S
FRONT TIRE SIZE: 265/45R21 104V
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Continental Cross Contact M+S
REAR TIRE SIZE: 265/45R21 104V
REAR TIRE PRESSURE: 36

FRONT TRACK:	66.1	inches	Track Width Measurements
REAR TRACK:	65.8	inches	Front A 66.10 inches
AVERAGE TRACK:	66.0	inches	B 66.10 inches
WHEELBASE:	112.8	inches	C 66.10 inches
ROOF HEIGHT:	69.3	inches	D 66.10 inches
			Rear E 65.70 inches
GVWR	6001	lb	F 65.90 inches
FRONT GAWR	2976	lb	G 65.75 inches
REAR GAWR	3406	lb	H 65.90 inches

LEFT FRONT WEIGHT	1397.9	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1315.7	lb	Left Side 112.80 inches
LEFT REAR WEIGHT	1114.2	lb	Right Side 112.80 inches
RIGHT REAR WEIGHT	1058.3	lb	
TOTAL WEIGHT	4886.1	lb	

C.G. LONGITUDINAL 50.15 inches (From Front Axle)
C.G. LATERAL -0.93 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.214	-0.021	26.24
Run #3	42.1	4.211	-0.029	26.26
Run #4	32.0	-3.198	0.021	26.22
Run #5	42.1	-4.194	0.028	26.26
AVERAGE C.G. HEIGHT				26.25

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2565$$

Cadillac XT6 FWD

YEAR: 2020
MAKE: Cadillac
MODEL: XT6
VIN: 1GYKPCRS8LZ13####
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 3.6L V6
TRANSMISSION TYPE: 9AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails
DATE TESTED: 1/17/2020
VIMF TEST NO.: 7437
Mfg Date: 11/19
Ride Height: N/A
FRONT TIRE TYPE: Michelin Premier LTX M+S
FRONT TIRE SIZE: 235/55R20 102H
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Michelin Premier LTX M+S
REAR TIRE SIZE: 235/55R20 102H
REAR TIRE PRESSURE: 36

FRONT TRACK:	66.5	inches	Track Width Measurements	
REAR TRACK:	66.4	inches	Front A	66.50 inches
AVERAGE TRACK:	66.4	inches	B	66.50 inches
WHEELBASE:	113.0	inches	C	66.50 inches
ROOF HEIGHT:	68.8	inches	D	66.50 inches
			Rear E	66.30 inches
GVWR	6001	lb	F	66.40 inches
FRONT GAWR	2976	lb	G	66.30 inches
REAR GAWR	3406	lb	H	66.40 inches
LEFT FRONT WEIGHT	1350.1	lb	Wheelbase Measurements	
RIGHT FRONT WEIGHT	1252.5	lb	Left Side	112.95 inches
LEFT REAR WEIGHT	1020.2	lb	Right Side	112.95 inches
RIGHT REAR WEIGHT	981.3	lb		
TOTAL WEIGHT	4604.1	lb		
C.G. LONGITUDINAL	49.10	inches (From Front Axle)		
C.G. LATERAL	-0.99	inches (Negative Towards Driver's Side)		

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.3	3.403	-0.025	26.83
Run #3	42.4	4.452	-0.035	26.85
Run #4	32.3	-3.358	0.022	26.75
Run #5	42.4	-4.402	0.031	26.80
AVERAGE C.G. HEIGHT				26.81

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2389$$

Chrysler Pacifica Hybrid FWD

YEAR: 2020
MAKE: Chrysler
MODEL: Pacifica Hybrid
VIN: 2C4RC1N77LR24####
DATE TESTED: 8/7/2020
VIMF TEST NO.: 7626
Mfg Date: 7/20
TYPE: Van
LOAD: Driver
ENGINE SIZE AND TYPE: 3.6L V6 Hybrid
TRANSMISSION TYPE: E-CVT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof
FRONT TIRE TYPE: Nexen NPriz RH7A M+S
FRONT TIRE SIZE: 235/60R18 103H
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Nexen NPriz RH7A M+S
REAR TIRE SIZE: 235/60R18 103H
REAR TIRE PRESSURE: 36

FRONT TRACK:	68.5	inches	Track Width Measurements
REAR TRACK:	68.8	inches	Front A 68.50 inches
AVERAGE TRACK:	68.6	inches	B 68.50 inches
WHEELBASE:	121.6	inches	C 68.50 inches
ROOF HEIGHT:	68.7	inches	D 68.50 inches
			Rear E 68.75 inches
GVWR	6300	lb	F 68.80 inches
FRONT GAWR	3200	lb	G 68.75 inches
REAR GAWR	3200	lb	H 68.80 inches

LEFT FRONT WEIGHT	1520.3	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1424.5	lb	Left Side 121.60 inches
LEFT REAR WEIGHT	1245.6	lb	Right Side 121.60 inches
RIGHT REAR WEIGHT	1160.9	lb	
TOTAL WEIGHT	5351.3	lb	

C.G. LONGITUDINAL	54.68	inches (From Front Axle)
C.G. LATERAL	-1.16	inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.367	-0.054	24.33
Run #3	47.6	4.273	-0.074	24.32
Run #4	37.5	-3.277	0.026	24.48
Run #5	47.6	-4.176	0.041	24.49

AVERAGE C.G. HEIGHT 24.40

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4062

Ford Escape AWD

YEAR: 2020
MAKE: Ford
MODEL: Escape
VIN: 1FMCU9G66LUA0####
DATE TESTED: 2/28/2020
VIMF TEST NO.: 7480
Mfg Date: 09/19
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 1.5L I4
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Continental Pro Contact TX M+S
FRONT TIRE SIZE: 225/65R17 102H
FRONT TIRE PRESSURE: 33
REAR TIRE TYPE: Continental Pro Contact TX M+S
REAR TIRE SIZE: 225/65R17 102H
REAR TIRE PRESSURE: 33

FRONT TRACK: 62.7 inches
REAR TRACK: 61.9 inches
AVERAGE TRACK: 62.3 inches
WHEELBASE: 106.8 inches
ROOF HEIGHT: 65.6 inches

Track Width Measurements

Front	A	62.70 inches
	B	62.70 inches
	C	62.70 inches
	D	62.70 inches
Rear	E	61.70 inches
	F	62.00 inches
	G	61.70 inches
	H	62.00 inches

GVWR 4500 lb
FRONT GAWR 2400 lb
REAR GAWR 2220 lb

LEFT FRONT WEIGHT 1122.0 lb
RIGHT FRONT WEIGHT 992.3 lb
LEFT REAR WEIGHT 779.5 lb
RIGHT REAR WEIGHT 761.8 lb
TOTAL WEIGHT 3655.6 lb

Wheelbase Measurements

Left Side	106.75	inches
Right Side	106.75	inches

C.G. LONGITUDINAL 45.01 inches (From Front Axle)
C.G. LATERAL -1.26 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.3	3.045	-0.014	25.54
Run #3	47.5	4.445	-0.021	25.55
Run #4	32.3	-3.007	0.011	25.47
Run #5	47.5	-4.401	0.017	25.50

AVERAGE C.G. HEIGHT 25.52

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2203

Ford Escape FWD

YEAR: 2020	DATE TESTED: 3/2/2020
MAKE: Ford	VIMF TEST NO.: 7482
MODEL: Escape	
VIN: 1FMCU0G61LUA9####	Mfg Date: 01/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 1.5L I4	
TRANSMISSION TYPE: 8AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Michelin Primacy A/S M+S	
FRONT TIRE SIZE: 225/65R17 102H	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Michelin Primacy A/S M+S	
REAR TIRE SIZE: 225/65R17 102H	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 62.7 inches	Track Width Measurements
REAR TRACK: 62.2 inches	Front A 62.70 inches
AVERAGE TRACK: 62.5 inches	B 62.70 inches
WHEELBASE: 106.7 inches	C 62.70 inches
ROOF HEIGHT: 65.7 inches	D 62.70 inches
	Rear E 62.10 inches
GVWR 4630 lb	F 62.30 inches
FRONT GAWR 2340 lb	G 62.10 inches
REAR GAWR 2150 lb	H 62.30 inches
LEFT FRONT WEIGHT 1053.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 989.9 lb	Left Side 106.70 inches
LEFT REAR WEIGHT 768.7 lb	Right Side 106.70 inches
RIGHT REAR WEIGHT 674.8 lb	
TOTAL WEIGHT 3486.7 lb	
C.G. LONGITUDINAL 44.17 inches (From Front Axle)	
C.G. LATERAL -1.41 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.3	3.018	-0.016	25.34
Run #3	47.5	4.408	-0.023	25.36
Run #4	32.3	-2.987	0.009	25.36
Run #5	47.5	-4.380	0.017	25.41

AVERAGE C.G. HEIGHT 25.37

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2310

Ford Explorer 4WD

YEAR: 2020	DATE TESTED: 10/24/2019
MAKE: Ford	VIMF TEST NO.: 7361
MODEL: Explorer	
VIN: 1FM5K8GC2LGA3####	Mfg Date: 06/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 3.0L V6	
TRANSMISSION TYPE: 10AT	
DRIVE: 4WD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Roof Rails, Hitch	
FRONT TIRE TYPE: Michelin Primacy A/S M+S	
FRONT TIRE SIZE: 255/55R20 110V	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Michelin Primacy A/S M+S	
REAR TIRE SIZE: 255/55R20 110V	
REAR TIRE PRESSURE: 33	

FRONT TRACK: 66.8 inches	Track Width Measurements
REAR TRACK: 66.8 inches	Front A 66.80 inches
AVERAGE TRACK: 66.8 inches	B 66.75 inches
WHEELBASE: 119.0 inches	C 66.75 inches
ROOF HEIGHT: 69.6 inches	D 66.80 inches
	Rear E 66.75 inches
GVWR 6150 lb	F 66.85 inches
FRONT GAWR 2790 lb	G 66.75 inches
REAR GAWR 3490 lb	H 66.85 inches

LEFT FRONT WEIGHT 1302.2 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1223.6 lb	Left Side 119.00 inches
LEFT REAR WEIGHT 1209.3 lb	Right Side 119.00 inches
RIGHT REAR WEIGHT 1169.0 lb	
TOTAL WEIGHT 4904.1 lb	

C.G. LONGITUDINAL 57.71 inches (From Front Axle)
C.G. LATERAL -0.81 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.227	-0.022	26.29
Run #3	42.3	4.246	-0.030	26.29
Run #4	32.0	-3.198	0.017	26.29
Run #5	42.3	-4.232	0.027	26.32

AVERAGE C.G. HEIGHT 26.30

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2697

Ford Explorer RWD

YEAR: 2020	DATE TESTED: 10/24/2019
MAKE: Ford	VIMF TEST NO.: 7359
MODEL: Explorer	
VIN: 1FMSK7DH9LGA6####	Mfg Date: 09/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.3L I4	
TRANSMISSION TYPE: 10AT	
DRIVE: RWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Roof Rails	
FRONT TIRE TYPE: Hankook Kinergy GT M+S	
FRONT TIRE SIZE: 255/65R18 111H	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Hankook Kinergy GT M+S	
REAR TIRE SIZE: 255/65R18 111H	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 67.0 inches	Track Width Measurements
REAR TRACK: 67.1 inches	Front A 67.05 inches
AVERAGE TRACK: 67.1 inches	B 66.95 inches
WHEELBASE: 119.1 inches	C 66.95 inches
ROOF HEIGHT: 69.0 inches	D 67.10 inches
	Rear E 67.10 inches
GVWR 5770 lb	F 67.15 inches
FRONT GAWR 2505 lb	G 67.10 inches
REAR GAWR 3370 lb	H 67.15 inches
LEFT FRONT WEIGHT 1163.9 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1106.0 lb	Left Side 119.10 inches
LEFT REAR WEIGHT 1130.4 lb	Right Side 119.10 inches
RIGHT REAR WEIGHT 1083.2 lb	
TOTAL WEIGHT 4483.5 lb	
C.G. LONGITUDINAL 58.80 inches (From Front Axle)	
C.G. LATERAL -0.79 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.721	-0.028	26.13
Run #3	47.6	4.691	-0.037	26.12
Run #4	37.5	-3.688	0.023	26.15
Run #5	47.6	-4.671	0.034	26.15

AVERAGE C.G. HEIGHT 26.14

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2830

Ford Transit 350HR 12 Pass RWD

YEAR: 2020
MAKE: Ford
MODEL: Transit 350HR
VIN: 1FBAX2X85LKB6####

DATE TESTED: 4/23/2021
VIMF TEST NO.: 7851

Mfg Date: 12/20

BODY STYLE AND TRIM: Van
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 10AT
DRIVE: RWD
DOORS: 3
FUEL: Full

Ride Height: N/A

Measured Ride Heights

Left Front	inches
Right Front	inches
Left Rear	inches
Right Rear	inches

OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Continental VanContact A/S M+S
FRONT TIRE SIZE: 235/65R16C 121/119R
FRONT TIRE PRESSURE: 52
REAR TIRE TYPE: Continental VanContact A/S M+S
REAR TIRE SIZE: 235/65R16C 121/119R
REAR TIRE PRESSURE: 75

FRONT TRACK:	68.4	inches
REAR TRACK:	68.8	inches
AVERAGE TRACK:	68.6	inches
WHEELBASE:	147.8	inches
ROOF HEIGHT:	106.1	inches

Track Width Measurements

Front A	68.40	inches
B	68.30	inches
C	68.30	inches
D	68.40	inches
Rear E	68.80	inches
F	68.80	inches
G	68.80	inches
H	68.80	inches

GVWR	9250	lb
FRONT GAWR	4130	lb
REAR GAWR	5780	lb

LEFT FRONT WEIGHT	1771.8	lb
RIGHT FRONT WEIGHT	1643.5	lb
LEFT REAR WEIGHT	1520.8	lb
RIGHT REAR WEIGHT	1570.6	lb
TOTAL WEIGHT	6506.7	lb

Wheelbase Measurements

Left Side	147.80	inches
Right Side	147.80	inches

C.G. LONGITUDINAL	70.22	inches (From Front Axle)
C.G. LATERAL	-0.41	inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.7	3.216	-0.021	35.00
Run #3	58.1	4.343	-0.032	34.96
Run #4	42.7	-3.155	0.019	34.85
Run #5	58.1	-4.273	0.030	34.83

AVERAGE C.G. HEIGHT **34.91**

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h **0.9822**

Hyundai Accent FWD

YEAR: 2020
MAKE: Hyundai
MODEL: Accent
VIN: 3KPC24A63LE09####
TYPE: Sedan
LOAD: Driver
ENGINE SIZE AND TYPE: 1.6L I4
TRANSMISSION TYPE: CVT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 1/10/2020
VIMF TEST NO.: 7430

Mfg Date: 6/19

Ride Height: N/A

FRONT TIRE TYPE: Continental Pro Contact TX M+S
FRONT TIRE SIZE: 185/65R15 88H
FRONT TIRE PRESSURE: 33
REAR TIRE TYPE: Continental Pro Contact TX M+S
REAR TIRE SIZE: 185/65R15 88H
REAR TIRE PRESSURE: 33

FRONT TRACK: 59.9 inches
REAR TRACK: 59.9 inches
AVERAGE TRACK: 59.9 inches
WHEELBASE: 101.7 inches
ROOF HEIGHT: 56.5 inches

Track Width Measurements

Front	A	59.80 inches
	B	59.85 inches
	C	59.90 inches
	D	59.85 inches
Rear	E	59.80 inches
	F	60.00 inches
	G	59.80 inches
	H	60.00 inches

GVWR 3527 lb
FRONT GAWR 1940 lb
REAR GAWR 1852 lb

LEFT FRONT WEIGHT 879.4 lb
RIGHT FRONT WEIGHT 799.4 lb
LEFT REAR WEIGHT 571.5 lb
RIGHT REAR WEIGHT 540.5 lb
TOTAL WEIGHT 2790.8 lb

Wheelbase Measurements

Left Side	101.70	inches
Right Side	101.70	inches

C.G. LONGITUDINAL 40.52 inches (From Front Axle)
C.G. LATERAL -1.19 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.331	-0.016	21.57
Run #3	57.1	4.565	-0.023	21.57
Run #4	41.4	-3.314	0.012	21.59
Run #5	57.1	-4.547	0.019	21.61

AVERAGE C.G. HEIGHT 21.58

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.3870

Hyundai Palisade AWD

YEAR: 2020 **DATE TESTED:** 11/6/2019
MAKE: Hyundai **VIMF TEST NO.:** 7372
MODEL: Palisade
VIN: KM8R4DHE0LU06#### **Mfg Date:** 08/19
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 3.8L V6
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Roof Rails, Hitch
FRONT TIRE TYPE: Bridgestone Dueler H/P Sport AS
FRONT TIRE SIZE: 245/50R20 102V
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Bridgestone Dueler H/P Sport AS
REAR TIRE SIZE: 245/50R20 102V
REAR TIRE PRESSURE: 35

FRONT TRACK:	67.4	inches	Track Width Measurements
REAR TRACK:	67.6	inches	Front A 67.40 inches
AVERAGE TRACK:	67.5	inches	B 67.35 inches
WHEELBASE:	114.3	inches	C 67.40 inches
ROOF HEIGHT:	68.4	inches	D 67.40 inches
			Rear E 67.55 inches
GVWR	5871	lb	F 67.60 inches
FRONT GAWR	2954	lb	G 67.55 inches
REAR GAWR	3197	lb	H 67.60 inches
LEFT FRONT WEIGHT	1320.6	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1244.0	lb	Left Side 114.25 inches
LEFT REAR WEIGHT	1015.4	lb	Right Side 114.25 inches
RIGHT REAR WEIGHT	993.1	lb	
TOTAL WEIGHT	4573.1	lb	
C.G. LONGITUDINAL	50.18	inches (From Front Axle)	
C.G. LATERAL	-0.73	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.232	-0.025	26.29
Run #3	42.1	4.225	-0.034	26.28
Run #4	32.0	-3.153	0.019	26.12
Run #5	42.1	-4.151	0.028	26.17
AVERAGE C.G. HEIGHT				26.22

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2870$$

Hyundai Palisade FWD

YEAR: 2020	DATE TESTED: 12/17/2019
MAKE: Hyundai	VIMF TEST NO.: 7420
MODEL: Palisade	
VIN: KM8R34HE8LU08####	Mfg Date: 10/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 3.8L V6	
TRANSMISSION TYPE: 8AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Sunroof	
FRONT TIRE TYPE: Hankook Ventus S1 Noble 2 M+S	
FRONT TIRE SIZE: 245/50R20 102V	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Hankook Ventus S1 Noble 2 M+S	
REAR TIRE SIZE: 245/50R20 102V	
REAR TIRE PRESSURE: 35	

FRONT TRACK: 67.3 inches	Track Width Measurements
REAR TRACK: 67.7 inches	Front A 67.35 inches
AVERAGE TRACK: 67.5 inches	B 67.30 inches
WHEELBASE: 114.3 inches	C 67.30 inches
ROOF HEIGHT: 68.9 inches	D 67.35 inches
	Rear E 67.60 inches
GVWR 5732 lb	F 67.70 inches
FRONT GAWR 2954 lb	G 67.60 inches
REAR GAWR 3197 lb	H 67.70 inches
LEFT FRONT WEIGHT 1292.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1231.4 lb	Left Side 114.25 inches
LEFT REAR WEIGHT 967.7 lb	Right Side 114.25 inches
RIGHT REAR WEIGHT 925.6 lb	
TOTAL WEIGHT 4417.0 lb	
C.G. LONGITUDINAL 48.97 inches (From Front Axle)	
C.G. LATERAL -0.79 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.1	3.413	-0.021	27.08
Run #3	42.4	4.490	-0.028	27.10
Run #4	32.1	-3.397	0.019	27.11
Run #5	42.4	-4.481	0.027	27.13
AVERAGE C.G. HEIGHT				27.10

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2450$$

Hyundai Sonata FWD

YEAR: 2020 **DATE TESTED:** 2/18/2020
MAKE: Hyundai **VIMF TEST NO.:** 7468
MODEL: Sonata
VIN: 5NPEG4JAXLH01#### **Mfg Date:** 12/19
TYPE: Sedan **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Goodyear Assurance Fuelmax M+S
FRONT TIRE SIZE: 205/65R16 95H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Goodyear Assurance Fuelmax M+S
REAR TIRE SIZE: 205/65R16 95H
REAR TIRE PRESSURE: 35

FRONT TRACK: 64.3 inches
REAR TRACK: 64.6 inches
AVERAGE TRACK: 64.4 inches
WHEELBASE: 112.0 inches
ROOF HEIGHT: 56.6 inches

Track Width Measurements

Front	A	64.30 inches
	B	64.30 inches
	C	64.30 inches
	D	64.30 inches
Rear	E	64.60 inches
	F	64.50 inches
	G	64.50 inches
	H	64.60 inches

GVWR 4354 lb
FRONT GAWR 2513 lb
REAR GAWR 2315 lb

LEFT FRONT WEIGHT 1044.7 lb
RIGHT FRONT WEIGHT 974.1 lb
LEFT REAR WEIGHT 647.6 lb
RIGHT REAR WEIGHT 636.8 lb
TOTAL WEIGHT 3303.2 lb

Wheelbase Measurements

Left Side	111.95	inches
Right Side	112.00	inches

C.G. LONGITUDINAL 43.54 inches (From Front Axle)
C.G. LATERAL -0.79 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.9	3.418	-0.023	21.91
Run #3	57.9	4.582	-0.032	21.91
Run #4	42.9	-3.392	0.018	21.90
Run #5	57.9	-4.561	0.028	21.94

AVERAGE C.G. HEIGHT 21.91

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4700

Hyundai Venue FWD

YEAR: 2020
MAKE: Hyundai
MODEL: Venue
VIN: KMHRB8A35LU02####
TYPE: Hatchback
LOAD: Driver
ENGINE SIZE AND TYPE: 1.6L I4
TRANSMISSION TYPE: Manual
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 1/20/2020
VIMF TEST NO.: 7439

Mfg Date: 11/19

Ride Height: N/A

FRONT TIRE TYPE: Hankook Kinergy GT M+S
FRONT TIRE SIZE: 185/65R15 88H
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Hankook Kinergy GT M+S
REAR TIRE SIZE: 185/65R15 88H
REAR TIRE PRESSURE: 36

FRONT TRACK: 61.2 inches
REAR TRACK: 61.5 inches
AVERAGE TRACK: 61.3 inches
WHEELBASE: 99.3 inches
ROOF HEIGHT: 61.0 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	61.20	inches
	B	61.20	inches
	C	61.20	inches
	D	61.20	inches
Rear	E	61.40	inches
	F	61.50	inches
	G	61.40	inches
	H	61.50	inches

GVWR 3638 lb
FRONT GAWR 2101 lb
REAR GAWR 1889 lb

LEFT FRONT WEIGHT 837.4 lb
RIGHT FRONT WEIGHT 782.3 lb
LEFT REAR WEIGHT 573.0 lb
RIGHT REAR WEIGHT 539.8 lb
TOTAL WEIGHT 2732.5 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left Side		99.25	inches
		99.25	inches

C.G. LONGITUDINAL 40.42 inches (From Front Axle)
C.G. LATERAL -0.99 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	3.317	-0.011	23.78
Run #3	53.0	4.629	-0.016	23.80
Run #4	37.7	-3.304	0.010	23.83
Run #5	53.0	-4.611	0.015	23.85

AVERAGE C.G. HEIGHT 23.82

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2875

Jeep Gladiator 4X4

YEAR: 2020	DATE TESTED: 11/7/2019
MAKE: Jeep	VIMF TEST NO.: 7376
MODEL: Gladiator	
VIN: 1C6HJTFG2LL13####	Mfg Date: 08/19
TYPE: Pickup	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 3.6L V6	
TRANSMISSION TYPE: 8AT	
DRIVE: 4X4	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Hitch	
FRONT TIRE TYPE: Bridgestone Dueler H/T M+S	
FRONT TIRE SIZE: 255/70R18 113T	
FRONT TIRE PRESSURE: 38	
REAR TIRE TYPE: Bridgestone Dueler H/T M+S	
REAR TIRE SIZE: 255/70R18 113T	
REAR TIRE PRESSURE: 38	
FRONT TRACK: 63.0 inches	Track Width Measurements
REAR TRACK: 63.0 inches	Front A 63.00 inches
AVERAGE TRACK: 63.0 inches	B 63.00 inches
WHEELBASE: 137.3 inches	C 63.00 inches
ROOF HEIGHT: 73.1 inches	D 63.00 inches
	Rear E 62.90 inches
GVWR 5800 lb	F 63.10 inches
FRONT GAWR 3100 lb	G 62.90 inches
REAR GAWR 3750 lb	H 63.10 inches
LEFT FRONT WEIGHT 1336.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1298.8 lb	Left Side 137.30 inches
LEFT REAR WEIGHT 1108.9 lb	Right Side 137.30 inches
RIGHT REAR WEIGHT 1153.8 lb	
TOTAL WEIGHT 4897.8 lb	
C.G. LONGITUDINAL 63.43 inches (From Front Axle)	
C.G. LATERAL 0.05 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	56.6	3.025	-0.019	28.72
Run #3	77.1	4.095	-0.027	28.76
Run #4	56.6	-3.008	0.012	28.78
Run #5	77.1	-4.072	0.020	28.78
AVERAGE C.G. HEIGHT				28.76

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.0953$$

Jeep Wrangler 4X4

YEAR: 2020	DATE TESTED: 11/7/2019
MAKE: Jeep	VIMF TEST NO.: 7378
MODEL: Wrangler	
VIN: 1C4GJXAG0LW11####	Mfg Date: 9/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 3.6L V6	
TRANSMISSION TYPE: 8AT	
DRIVE: 4X4	
DOORS: 2	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Michelin LTX M/S2	
FRONT TIRE SIZE: 245/75R17 112S	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Michelin LTX M/S2	
REAR TIRE SIZE: 245/75R17 112S	
REAR TIRE PRESSURE: 36	
FRONT TRACK: 63.1 inches	Track Width Measurements
REAR TRACK: 63.1 inches	Front A 63.00 inches
AVERAGE TRACK: 63.1 inches	B 63.00 inches
WHEELBASE: 97.0 inches	C 63.10 inches
ROOF HEIGHT: 71.6 inches	D 63.10 inches
	Rear E 63.10 inches
GVWR 4900 lb	F 63.10 inches
FRONT GAWR 2700 lb	G 63.10 inches
REAR GAWR 3000 lb	H 63.10 inches
LEFT FRONT WEIGHT 1044.5 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1034.1 lb	Left Side 96.90 inches
LEFT REAR WEIGHT 1028.2 lb	Right Side 97.00 inches
RIGHT REAR WEIGHT 1052.1 lb	
TOTAL WEIGHT 4158.9 lb	
C.G. LONGITUDINAL 48.49 inches (From Front Axle)	
C.G. LATERAL 0.10 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	27.1	3.362	-0.029	28.85
Run #3	37.5	4.581	-0.038	28.80
Run #4	27.1	-3.288	0.010	28.97
Run #5	37.5	-4.522	0.018	28.95

AVERAGE C.G. HEIGHT 28.89

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.0915

2021 Kia Seltos AWD

YEAR: 2021
MAKE: Kia
MODEL: Seltos
VIN: KNDEPCAA4M704####
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4
TRANSMISSION TYPE: CVT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 3/12/2020
VIMF TEST NO.: 7491

Mfg Date: 12/19

Ride Height: N/A

FRONT TIRE TYPE: Kumho Solus TA31+ M+S
FRONT TIRE SIZE: 215/55R17 94V
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Kumho Solus TA31+ M+S
REAR TIRE SIZE: 215/55R17 94V
REAR TIRE PRESSURE: 33

FRONT TRACK: 61.5 inches
REAR TRACK: 62.0 inches
AVERAGE TRACK: 61.7 inches
WHEELBASE: 103.6 inches
ROOF HEIGHT: 63.4 inches

Track Width Measurements

Front A	61.40	inches
B	61.40	inches
C	61.50	inches
D	61.50	inches
Rear E	61.90	inches
F	62.00	inches
G	61.90	inches
H	62.00	inches

GVWR 4167 lb
FRONT GAWR 2293 lb
REAR GAWR 2117 lb

LEFT FRONT WEIGHT 967.2 lb
RIGHT FRONT WEIGHT 921.5 lb
LEFT REAR WEIGHT 719.0 lb
RIGHT REAR WEIGHT 646.2 lb
TOTAL WEIGHT 3253.9 lb

Wheelbase Measurements

Left Side	103.60	inches
Right Side	103.60	inches

C.G. LONGITUDINAL 43.47 inches (From Front Axle)
C.G. LATERAL -1.12 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	3.344	-0.018	24.35
Run #3	47.8	4.217	-0.024	24.34
Run #4	37.7	-3.322	0.012	24.35
Run #5	47.8	-4.206	0.019	24.39

AVERAGE C.G. HEIGHT 24.36

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2665

2021 Kia Seltos FWD

YEAR: 2021	DATE TESTED: 4/20/2020
MAKE: Kia	VIMF TEST NO.: 7520
MODEL: Seltos	
VIN: KNDEU2AA8M705####	Mfg Date: 01/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4	
TRANSMISSION TYPE: CVT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Roof Rails	
FRONT TIRE TYPE: Kumho Solus TA31+ M+S	
FRONT TIRE SIZE: 215/55R17 94V	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Kumho Solus TA31+ M+S	
REAR TIRE SIZE: 215/55R17 94V	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 61.5 inches	Track Width Measurements
REAR TRACK: 62.0 inches	Front A 61.50 inches
AVERAGE TRACK: 61.7 inches	B 61.50 inches
WHEELBASE: 103.6 inches	C 61.50 inches
ROOF HEIGHT: 63.8 inches	D 61.50 inches
	Rear E 61.90 inches
GVWR 3881 lb	F 62.00 inches
FRONT GAWR 2293 lb	G 61.90 inches
REAR GAWR 2062 lb	H 62.00 inches
LEFT FRONT WEIGHT 980.0 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 887.8 lb	Left Side 103.60 inches
LEFT REAR WEIGHT 635.4 lb	Right Side 103.60 inches
RIGHT REAR WEIGHT 610.2 lb	
TOTAL WEIGHT 3113.4 lb	
C.G. LONGITUDINAL 41.45 inches (From Front Axle)	
C.G. LATERAL -1.16 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.450	-0.014	25.02
Run #3	48.1	4.409	-0.020	25.05
Run #4	37.5	-3.431	0.010	25.05
Run #5	48.1	-4.384	0.015	25.08
AVERAGE C.G. HEIGHT				25.05

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2321$$

Kia Soul FWD

YEAR: 2020	DATE TESTED: 11/6/2019
MAKE: Kia	VIMF TEST NO.: 7374
MODEL: Soul	
VIN: KNDJ23AUXL770####	Mfg Date: 08/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4	
TRANSMISSION TYPE: CVT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Nexen NPriz AH8 M+S	
FRONT TIRE SIZE: 205/60R16 92H	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Nexen NPriz AH8 M+S	
REAR TIRE SIZE: 205/60R16 92H	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 62.1 inches	Track Width Measurements
REAR TRACK: 62.3 inches	Front A 62.00 inches
AVERAGE TRACK: 62.2 inches	B 62.00 inches
WHEELBASE: 102.5 inches	C 62.10 inches
ROOF HEIGHT: 62.9 inches	D 62.10 inches
	Rear E 62.30 inches
GVWR 4023 lb	F 62.25 inches
FRONT GAWR 2315 lb	G 62.30 inches
REAR GAWR 2094 lb	H 62.25 inches
LEFT FRONT WEIGHT 965.4 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 882.9 lb	Left Side 102.50 inches
LEFT REAR WEIGHT 616.9 lb	Right Side 102.50 inches
RIGHT REAR WEIGHT 580.4 lb	
TOTAL WEIGHT 3045.6 lb	
C.G. LONGITUDINAL 40.30 inches (From Front Axle)	
C.G. LATERAL -1.21 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.2	3.312	-0.015	24.35
Run #3	47.6	4.216	-0.020	24.36
Run #4	37.2	-3.294	0.014	24.34
Run #5	47.6	-4.201	0.018	24.39
AVERAGE C.G. HEIGHT				24.36

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2759$$

Kia Stinger AWD

YEAR: 2020 **DATE TESTED:** 1/24/2020
MAKE: Kia **VIMF TEST NO.:** 7444
MODEL: Stinger
VIN: KNAE45LC8L607#### **Mfg Date:** 8/19
TYPE: Sedan **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 3.3L V6 Twin Turbo
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof
FRONT TIRE TYPE: Michelin Primacy Tour A/S M+S
FRONT TIRE SIZE: 255/35R19 96W
FRONT TIRE PRESSURE: 38
REAR TIRE TYPE: Michelin Primacy Tour A/S M+S
REAR TIRE SIZE: 255/35R19 96W
REAR TIRE PRESSURE: 36

FRONT TRACK:	62.8	inches	Track Width Measurements
REAR TRACK:	63.7	inches	Front A 62.85 inches
AVERAGE TRACK:	63.2	inches	B 62.75 inches
WHEELBASE:	114.5	inches	C 62.75 inches
ROOF HEIGHT:	55.2	inches	D 62.85 inches
			Rear E 63.60 inches
GVWR	5148	lb	F 63.70 inches
FRONT GAWR	2548	lb	G 63.60 inches
REAR GAWR	2712	lb	H 63.70 inches

LEFT FRONT WEIGHT	1173.5	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1125.8	lb	Left Side 114.50 inches
LEFT REAR WEIGHT	1024.6	lb	Right Side 114.50 inches
RIGHT REAR WEIGHT	1012.6	lb	
TOTAL WEIGHT	4336.5	lb	

C.G. LONGITUDINAL	53.79	inches (From Front Axle)
C.G. LATERAL	-0.43	inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.6	3.009	-0.021	20.62
Run #3	58.1	4.089	-0.030	20.63
Run #4	42.6	-3.005	0.021	20.64
Run #5	58.1	-4.085	0.032	20.65
AVERAGE C.G. HEIGHT				20.63

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.5320$$

Kia Telluride AWD

YEAR: 2020	DATE TESTED: 11/8/2019
MAKE: Kia	VIMF TEST NO.: 7380
MODEL: Telluride	
VIN: 5XYP2DHC2LG05####	Mfg Date: 10/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 3.8L V6	
TRANSMISSION TYPE: 8AT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Michelin Primacy Tour A/S	
FRONT TIRE SIZE: 245/60R18 105H	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Michelin Primacy Tour A/S	
REAR TIRE SIZE: 245/60R18 105H	
REAR TIRE PRESSURE: 35	
FRONT TRACK: 67.3 inches	Track Width Measurements
REAR TRACK: 67.6 inches	Front A 67.20 inches
AVERAGE TRACK: 67.4 inches	B 67.20 inches
WHEELBASE: 114.4 inches	C 67.30 inches
ROOF HEIGHT: 68.5 inches	D 67.30 inches
	Rear E 67.50 inches
GVWR 5917 lb	F 67.60 inches
FRONT GAWR 2954 lb	G 67.50 inches
REAR GAWR 3196 lb	H 67.60 inches
LEFT FRONT WEIGHT 1277.7 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1226.1 lb	Left Side 114.40 inches
LEFT REAR WEIGHT 994.5 lb	Right Side 114.40 inches
RIGHT REAR WEIGHT 936.4 lb	
TOTAL WEIGHT 4434.7 lb	
C.G. LONGITUDINAL 49.81 inches (From Front Axle)	
C.G. LATERAL -0.83 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.198	-0.023	26.20
Run #3	42.4	4.211	-0.031	26.21
Run #4	32.0	-3.152	0.017	26.17
Run #5	42.4	-4.164	0.025	26.18

AVERAGE C.G. HEIGHT 26.19

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2867

Kia Telluride FWD

YEAR: 2020
MAKE: Kia
MODEL: Telluride
VIN: 5XYP24HCXLG05####
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 3.8L V6
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 11/8/2019
VIMF TEST NO.: 7382

Mfg Date: 10/19

Ride Height: N/A

FRONT TIRE TYPE: Pirelli Scorpion Zero M+S
FRONT TIRE SIZE: 245/60R18 105H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Pirelli Scorpion Zero M+S
REAR TIRE SIZE: 245/60R18 105H
REAR TIRE PRESSURE: 35

FRONT TRACK: 67.2 inches
REAR TRACK: 67.5 inches
AVERAGE TRACK: 67.3 inches
WHEELBASE: 114.3 inches
ROOF HEIGHT: 69.2 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	67.30	inches
	B	67.10	inches
	C	67.10	inches
	D	67.30	inches
Rear	E	67.40	inches
	F	67.55	inches
	G	67.40	inches
	H	67.55	inches

GVWR 5776 lb
FRONT GAWR 2954 lb
REAR GAWR 3196 lb

LEFT FRONT WEIGHT 1257.6 lb
RIGHT FRONT WEIGHT 1190.5 lb
LEFT REAR WEIGHT 942.0 lb
RIGHT REAR WEIGHT 891.1 lb
TOTAL WEIGHT 4281.2 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left Side	Wheelbase	114.30	inches
Right Side	Wheelbase	114.30	inches

C.G. LONGITUDINAL 48.94 inches (From Front Axle)
C.G. LATERAL -0.93 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.296	-0.022	26.66
Run #3	42.4	4.352	-0.030	26.70
Run #4	32.0	-3.289	0.021	26.71
Run #5	42.4	-4.339	0.029	26.72

AVERAGE C.G. HEIGHT 26.70

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2612

Mazda 3 FWD

YEAR: 2020	DATE TESTED: 12/18/2019
MAKE: Mazda	VIMF TEST NO.: 7423
MODEL: 3	
VIN: 3MZBPACL5LM12####	Mfg Date: 10/19
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.5L I4	
TRANSMISSION TYPE: 6AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Toyo Proxes A40 M+S	
FRONT TIRE SIZE: 215/45R18 89V	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Toyo Proxes A40 M+S	
REAR TIRE SIZE: 215/45R18 89V	
REAR TIRE PRESSURE: 36	
FRONT TRACK: 61.9 inches	Track Width Measurements
REAR TRACK: 62.0 inches	Front A 61.85 inches
AVERAGE TRACK: 61.9 inches	B 61.85 inches
WHEELBASE: 107.3 inches	C 61.85 inches
ROOF HEIGHT: 56.3 inches	D 61.90 inches
	Rear E 62.05 inches
GVWR 4079 lb	F 62.00 inches
FRONT GAWR 2240 lb	G 62.05 inches
REAR GAWR 1850 lb	H 62.00 inches
LEFT FRONT WEIGHT 1010.8 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 960.5 lb	Left Side 107.30 inches
LEFT REAR WEIGHT 657.9 lb	Right Side 107.30 inches
RIGHT REAR WEIGHT 598.4 lb	
TOTAL WEIGHT 3227.6 lb	
C.G. LONGITUDINAL 41.77 inches (From Front Axle)	
C.G. LATERAL -1.05 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.207	-0.015	21.25
Run #3	56.6	4.356	-0.021	21.25
Run #4	41.4	-3.196	0.011	21.34
Run #5	56.6	-4.347	0.016	21.36

AVERAGE C.G. HEIGHT 21.30

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4541

Mazda CX-30 AWD

YEAR: 2020
MAKE: Mazda
MODEL: CX-30
VIN: 3MVDMBCL9LM11####
DATE TESTED: 3/5/2020
VIMF TEST NO.: 7486
Mfg Date: 01/20
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: 6AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Bridgestone Turanza EL440 M+S
FRONT TIRE SIZE: 215/55R18 95H
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Bridgestone Turanza EL440 M+S
REAR TIRE SIZE: 215/55R18 95H
REAR TIRE PRESSURE: 36

FRONT TRACK: 61.6 inches
REAR TRACK: 61.2 inches
AVERAGE TRACK: 61.4 inches
WHEELBASE: 104.5 inches
ROOF HEIGHT: 61.4 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	61.55	inches
	B	61.60	inches
	C	61.60	inches
	D	61.55	inches
Rear	E	61.10	inches
	F	61.25	inches
	G	61.15	inches
	H	61.25	inches

GVWR 4345 lb
FRONT GAWR 2302 lb
REAR GAWR 2050 lb

LEFT FRONT WEIGHT 1063.2 lb
RIGHT FRONT WEIGHT 990.3 lb
LEFT REAR WEIGHT 715.5 lb
RIGHT REAR WEIGHT 675.2 lb
TOTAL WEIGHT 3444.2 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left	Side	104.50	inches
Right	Side	104.50	inches

C.G. LONGITUDINAL 42.20 inches (From Front Axle)
C.G. LATERAL -1.01 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.4	3.219	-0.013	23.88
Run #3	57.8	4.927	-0.021	23.89
Run #4	37.4	-3.199	0.010	23.87
Run #5	57.8	-4.914	0.019	23.93

AVERAGE C.G. HEIGHT 23.89

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2846

Mazda CX-30 FWD

YEAR: 2020 **DATE TESTED:** 12/18/2019
MAKE: Mazda **VIMF TEST NO.:** 7425
MODEL: CX-30
VIN: 3MVDMA DL2LM10#### **Mfg Date:** 10/19
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: 6AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Bridgestone Turanza EL440 M+S
FRONT TIRE SIZE: 215/55R18 95H
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Bridgestone Turanza EL440 M+S
REAR TIRE SIZE: 215/55R18 95H
REAR TIRE PRESSURE: 36

FRONT TRACK: 61.6 inches
REAR TRACK: 61.3 inches
AVERAGE TRACK: 61.4 inches
WHEELBASE: 104.3 inches
ROOF HEIGHT: 61.3 inches

Track Width Measurements

Front	A	61.55 inches
	B	61.65 inches
	C	61.60 inches
	D	61.55 inches
Rear	E	61.25 inches
	F	61.35 inches
	G	61.25 inches
	H	61.35 inches

GVWR 4189 lb
FRONT GAWR 2249 lb
REAR GAWR 1947 lb

LEFT FRONT WEIGHT 1042.3 lb
RIGHT FRONT WEIGHT 974.9 lb
LEFT REAR WEIGHT 676.1 lb
RIGHT REAR WEIGHT 632.2 lb
TOTAL WEIGHT 3325.5 lb

Wheelbase Measurements

Left Side	104.30	inches
Right Side	104.30	inches

C.G. LONGITUDINAL 41.03 inches (From Front Axle)
C.G. LATERAL -1.03 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.324	-0.014	24.40
Run #3	52.5	4.630	-0.023	24.43
Run #4	37.5	-3.316	0.013	24.44
Run #5	52.5	-4.603	0.020	24.41

AVERAGE C.G. HEIGHT 24.42

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2582

MB Sprinter 2500 12P AWD

YEAR: 2020 **DATE TESTED:** 8/21/2020
MAKE: Mercedes Benz **VIMF TEST NO.:** 7637
MODEL: Sprinter 2500
VIN: W1Z4EFVY0LP22#### **Mfg Date:** 2/20
TYPE: Van-12 Passenger **Ride Height:**
LOAD: Driver
ENGINE SIZE AND TYPE: 3.0L V6 Turbo Diesel
TRANSMISSION TYPE: 7AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Kumho Crugen HT51 M+S
FRONT TIRE SIZE: LT245/75R16 120/116Q
FRONT TIRE PRESSURE: 46
REAR TIRE TYPE: Kumho Crugen HT51 M+S
REAR TIRE SIZE: LT245/75R16 120/116Q
REAR TIRE PRESSURE: 70

FRONT TRACK: 67.7 inches
REAR TRACK: 68.2 inches
AVERAGE TRACK: 68.0 inches
WHEELBASE: 145.3 inches
ROOF HEIGHT: 104.7 inches

Track Width Measurements

Front	A	67.75	inches
	B	67.70	inches
	C	67.70	inches
	D	67.75	inches
Rear	E	68.20	inches
	F	68.20	inches
	G	68.20	inches
	H	68.20	inches

GVWR 9050 lb
FRONT GAWR 4410 lb
REAR GAWR 5360 lb

LEFT FRONT WEIGHT 1829.2 lb
RIGHT FRONT WEIGHT 1730.0 lb
LEFT REAR WEIGHT 1482.2 lb
RIGHT REAR WEIGHT 1465.0 lb
TOTAL WEIGHT 6506.4 lb

Wheelbase Measurements

Left Side	145.50	inches	
Right Side	145.00	inches	

C.G. LONGITUDINAL 65.79 inches (From Front Axle)
C.G. LATERAL -0.61 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	27.1	3.202	-0.031	39.13
Run #3	37.7	4.412	-0.048	39.07
Run #4	27.1	-3.002	0.016	38.93
Run #5	37.7	-4.212	0.031	38.96

AVERAGE C.G. HEIGHT 39.02

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 0.8708

MB Sprinter 2500 12P RWD

YEAR: 2020
MAKE: Mercedes Benz
MODEL: Sprinter 2500
VIN: W1Z4EFHY2LT02####
TYPE: Van-12 Passenger
LOAD: Driver
ENGINE SIZE AND TYPE: 3.0L V6 Turbo Diesel
TRANSMISSION TYPE: 7AT
DRIVE: RWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 8/21/2020
VIMF TEST NO.: 7635
Mfg Date: 01/20
Ride Height:

FRONT TIRE TYPE: Kumho Crugen HT51 M+S
FRONT TIRE SIZE: LT245/75R16 120/116Q
FRONT TIRE PRESSURE: 46
REAR TIRE TYPE: Kumho Crugen HT51 M+S
REAR TIRE SIZE: LT245/75R16 120/116Q
REAR TIRE PRESSURE: 70

FRONT TRACK: 67.4 inches
REAR TRACK: 68.2 inches
AVERAGE TRACK: 67.8 inches
WHEELBASE: 144.6 inches
ROOF HEIGHT: 104.3 inches

Track Width Measurements

Front A	67.30	inches
B	67.50	inches
C	67.50	inches
D	67.30	inches
Rear E	68.20	inches
F	68.20	inches
G	68.20	inches
H	68.20	inches

GVWR 9050 lb
FRONT GAWR 4100 lb
REAR GAWR 5360 lb

LEFT FRONT WEIGHT 1683.1 lb
RIGHT FRONT WEIGHT 1616.0 lb
LEFT REAR WEIGHT 1453.8 lb
RIGHT REAR WEIGHT 1394.9 lb
TOTAL WEIGHT 6147.8 lb

Wheelbase Measurements

Left Side	144.60	inches
Right Side	144.60	inches

C.G. LONGITUDINAL 67.00 inches (From Front Axle)
C.G. LATERAL -0.69 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.2	3.445	-0.027	37.25
Run #3	47.8	4.374	-0.035	37.21
Run #4	37.2	-3.303	0.020	36.99
Run #5	47.8	-4.224	0.028	36.98

AVERAGE C.G. HEIGHT 37.11

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 0.9136

MB Sprinter 2500 15P RWD

YEAR: 2020
MAKE: Mercedes Benz
MODEL: Sprinter 2500
VIN: W1Z4EGHY4LT02####
TYPE: Van-15 Passenger
LOAD: Driver
ENGINE SIZE AND TYPE: 3.0L V6
TRANSMISSION TYPE: 7AT
DRIVE: RWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 8/12/2020
VIMF TEST NO.: 7631

Mfg Date: 2/20

Ride Height: N/A

FRONT TIRE TYPE: Michelin Agilis LTX M+S
FRONT TIRE SIZE: LT245/75R16 120/116Q
FRONT TIRE PRESSURE: 52
REAR TIRE TYPE: Michelin Agilis LTX M+S
REAR TIRE SIZE: LT245/75R16 120/116Q
REAR TIRE PRESSURE: 70

FRONT TRACK: 67.4 inches
REAR TRACK: 68.5 inches
AVERAGE TRACK: 67.9 inches
WHEELBASE: 170.5 inches
ROOF HEIGHT: 104.4 inches

Track Width Measurements

Front	A	67.45 inches
	B	67.35 inches
	C	67.30 inches
	D	67.50 inches
Rear	E	68.40 inches
	F	68.50 inches
	G	68.40 inches
	H	68.50 inches

GVWR 9480 lb
FRONT GAWR 4410 lb
REAR GAWR 5360 lb

LEFT FRONT WEIGHT 1750.1 lb
RIGHT FRONT WEIGHT 1726.7 lb
LEFT REAR WEIGHT 1674.0 lb
RIGHT REAR WEIGHT 1587.3 lb
TOTAL WEIGHT 6738.1 lb

Wheelbase Measurements

Left Side	170.50	inches
Right Side	170.50	inches

C.G. LONGITUDINAL 82.52 inches (From Front Axle)
C.G. LATERAL -0.56 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.453	-0.035	38.24
Run #3	42.4	4.526	-0.049	38.19
Run #4	32.0	-3.288	0.031	37.92
Run #5	42.4	-4.407	0.049	37.98

AVERAGE C.G. HEIGHT 38.08

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 0.8918

Mitsubishi Eclipse Cross AWD

YEAR: 2020
MAKE: Mitsubishi
MODEL: Eclipse Cross
VIN: JA4AT4AA4LZ01####
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 1.5L I4 Turbo
TRANSMISSION TYPE: CVT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 11/19/2019
VIMF TEST NO.: 7399

Mfg Date: 9/19

Ride Height: N/A

FRONT TIRE TYPE: Bridgestone Ecopia H/L 422 Plus M+S
FRONT TIRE SIZE: P255/55R18 97H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Bridgestone Ecopia H/L 422 Plus M+S
REAR TIRE SIZE: P255/55R18 97H
REAR TIRE PRESSURE: 35

FRONT TRACK: 60.8 inches
REAR TRACK: 60.5 inches
AVERAGE TRACK: 60.6 inches
WHEELBASE: 105.2 inches
ROOF HEIGHT: 64.7 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	60.75	inches
	B	60.75	inches
	C	60.80	inches
	D	60.80	inches
Rear	E	60.40	inches
	F	60.50	inches
	G	60.40	inches
	H	60.50	inches

GVWR 4630 lb
FRONT GAWR 2646 lb
REAR GAWR 2557 lb

LEFT FRONT WEIGHT 1091.8 lb
RIGHT FRONT WEIGHT 1008.6 lb
LEFT REAR WEIGHT 789.3 lb
RIGHT REAR WEIGHT 754.8 lb
TOTAL WEIGHT 3644.5 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left Side	Wheelbase	105.20	inches
Right Side	Wheelbase	105.20	inches

C.G. LONGITUDINAL 44.57 inches (From Front Axle)
C.G. LATERAL -0.98 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	2.972	-0.018	25.18
Run #3	53.0	4.866	-0.030	25.19
Run #4	32.0	-2.939	0.009	25.22
Run #5	53.0	-4.826	0.021	25.23

AVERAGE C.G. HEIGHT 25.21

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2024

Mitsubishi Eclipse Cross FWD

YEAR: 2020
MAKE: Mitsubishi
MODEL: Eclipse Cross
VIN: JA4AS3AAXLZ01####
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 1.5L I4 Turbo
TRANSMISSION TYPE: CVT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 11/19/2019
VIMF TEST NO.: 7401

Mfg Date: 09/19

Ride Height: N/A

FRONT TIRE TYPE: Falken Sincera M+S
FRONT TIRE SIZE: P215/70R16 99H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Falken Sincera M+S
REAR TIRE SIZE: P215/70R16 99H
REAR TIRE PRESSURE: 35

FRONT TRACK: 60.9 inches
REAR TRACK: 60.8 inches
AVERAGE TRACK: 60.8 inches
WHEELBASE: 105.1 inches
ROOF HEIGHT: 64.2 inches

Track Width Measurements

Front	A	60.90	inches
	B	60.80	inches
	C	60.85	inches
	D	61.00	inches
Rear	E	60.70	inches
	F	60.80	inches
	G	60.70	inches
	H	60.80	inches

GVWR 4630 lb
FRONT GAWR 2646 lb
REAR GAWR 2557 lb

LEFT FRONT WEIGHT 1055.4 lb
RIGHT FRONT WEIGHT 970.8 lb
LEFT REAR WEIGHT 737.9 lb
RIGHT REAR WEIGHT 683.2 lb
TOTAL WEIGHT 3447.3 lb

Wheelbase Measurements

Left Side	105.10	inches	
Right Side	105.10	inches	

C.G. LONGITUDINAL 43.33 inches (From Front Axle)
C.G. LATERAL -1.23 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.007	-0.019	25.35
Run #3	42.6	3.975	-0.025	25.35
Run #4	32.0	-2.989	0.014	25.39
Run #5	42.6	-3.959	0.021	25.39

AVERAGE C.G. HEIGHT 25.37

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.1985

Nissan Leaf 40kWh FWD

YEAR: 2020
MAKE: Nissan
MODEL: Leaf 40kWh
VIN: 1N4AZ1CP4LC30####
DATE TESTED: 6/2/2020
VIMF TEST NO.: 7564
Mfg Date: 03/20
TYPE: Hatchback
LOAD: Driver
ENGINE SIZE AND TYPE: Electric
TRANSMISSION TYPE: Auto
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Michelin Energy Saver A/S M+S
FRONT TIRE SIZE: P215/50R17 90V
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Michelin Energy Saver A/S M+S
REAR TIRE SIZE: P215/50R17 90V
REAR TIRE PRESSURE: 36

FRONT TRACK: 60.2 inches
REAR TRACK: 60.6 inches
AVERAGE TRACK: 60.4 inches
WHEELBASE: 106.3 inches
ROOF HEIGHT: 60.3 inches

Track Width Measurements

Measurement	Value	Unit
Front A	60.20	inches
B	60.20	inches
C	60.20	inches
D	60.20	inches
Rear E	60.60	inches
F	60.70	inches
G	60.50	inches
H	60.70	inches

GVWR 4486 lb
FRONT GAWR 2359 lb
REAR GAWR 2172 lb

LEFT FRONT WEIGHT 1122.8 lb
RIGHT FRONT WEIGHT 1039.2 lb
LEFT REAR WEIGHT 795.0 lb
RIGHT REAR WEIGHT 777.0 lb
TOTAL WEIGHT 3734.0 lb

Wheelbase Measurements

Measurement	Value	Unit
Left Side	106.30	inches
Right Side	106.30	inches

C.G. LONGITUDINAL 44.75 inches (From Front Axle)
C.G. LATERAL -0.82 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.124	-0.020	21.23
Run #3	56.7	4.254	-0.029	21.22
Run #4	41.4	-3.108	0.018	21.25
Run #5	56.7	-4.240	0.027	21.27

AVERAGE C.G. HEIGHT 21.24

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4219

Nissan Sentra FWD

YEAR: 2020	DATE TESTED: 3/13/2020
MAKE: Nissan	VIMF TEST NO.: 7495
MODEL: Sentra	
VIN: 3N1AB8CV2LY20####	Mfg Date: 01/20
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4	
TRANSMISSION TYPE: CVT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Sunroof	
FRONT TIRE TYPE: Michelin Primacy A/S M+S	
FRONT TIRE SIZE: 215/50R17 91V	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Michelin Primacy A/S M+S	
REAR TIRE SIZE: 215/50R17 91V	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 61.9 inches	Track Width Measurements
REAR TRACK: 61.6 inches	Front A 61.85 inches
AVERAGE TRACK: 61.7 inches	B 61.85 inches
WHEELBASE: 106.7 inches	C 61.90 inches
ROOF HEIGHT: 56.6 inches	D 61.90 inches
	Rear E 61.60 inches
GVWR 4001 lb	F 61.60 inches
FRONT GAWR 2161 lb	G 61.60 inches
REAR GAWR 1863 lb	H 61.60 inches
LEFT FRONT WEIGHT 997.1 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 977.9 lb	Left Side 106.70 inches
LEFT REAR WEIGHT 677.6 lb	Right Side 106.70 inches
RIGHT REAR WEIGHT 613.1 lb	
TOTAL WEIGHT 3265.7 lb	
C.G. LONGITUDINAL 42.17 inches (From Front Axle)	
C.G. LATERAL -0.79 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.186	-0.019	21.09
Run #3	57.1	4.369	-0.028	21.09
Run #4	41.4	-3.169	0.014	21.13
Run #5	57.1	-4.348	0.021	21.14

AVERAGE C.G. HEIGHT 21.11

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4622

Nissan Titan Crew Cab 4X4

YEAR: 2020	DATE TESTED: 3/12/2020
MAKE: Nissan	VIMF TEST NO.: 7493
MODEL: Titan	
VIN: 1N6AA1ED6LN50####	Mfg Date: 01/20
TYPE: Pickup Crew Cab	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 5.6L V8	
TRANSMISSION TYPE: 9AT	
DRIVE: 4X4	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Hitch, Running Boards	
FRONT TIRE TYPE: General Grabber APT M+S	
FRONT TIRE SIZE: P275/70R18 116S	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: General Grabber APT M+S	
REAR TIRE SIZE: P275/70R18 116S	
REAR TIRE PRESSURE: 35	

FRONT TRACK: 68.0 inches	Track Width Measurements
REAR TRACK: 68.1 inches	Front A 67.80 inches
AVERAGE TRACK: 68.0 inches	B 68.10 inches
WHEELBASE: 140.1 inches	C 68.10 inches
ROOF HEIGHT: 76.4 inches	D 67.80 inches
	Rear E 68.00 inches
GVWR 7300 lb	F 68.10 inches
FRONT GAWR 3800 lb	G 68.00 inches
REAR GAWR 4012 lb	H 68.10 inches

LEFT FRONT WEIGHT 1821.1 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1718.4 lb	Left Side 140.00 inches
LEFT REAR WEIGHT 1337.8 lb	Right Side 140.10 inches
RIGHT REAR WEIGHT 1300.5 lb	
TOTAL WEIGHT 6177.8 lb	

C.G. LONGITUDINAL 59.81 inches (From Front Axle)
C.G. LATERAL -0.77 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	62.3	3.325	-0.031	29.79
Run #3	96.4	5.088	-0.052	29.77
Run #4	62.3	-3.313	0.029	29.84
Run #5	96.4	-5.085	0.053	29.84
AVERAGE C.G. HEIGHT				29.81

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = \mathbf{1.1406}$$

Nissan Titan Crew Cab RWD

YEAR: 2020	DATE TESTED: 5/6/2020
MAKE: Nissan	VIMF TEST NO.: 7530
MODEL: Titan Crew Cab	
VIN: 1N6AA1EF6LN50####	Mfg Date: 01/20
TYPE: Pickup Crew Cab	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 5.6L V8	
TRANSMISSION TYPE: 9AT	
DRIVE: RWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Hitch	
FRONT TIRE TYPE: General Grabber HTS M+S	
FRONT TIRE SIZE: 265/70R18 116S	
FRONT TIRE PRESSURE: 39	
REAR TIRE TYPE: General Grabber HTS M+S	
REAR TIRE SIZE: 265/70R18 116S	
REAR TIRE PRESSURE: 39	
FRONT TRACK: 68.1 inches	Track Width Measurements
REAR TRACK: 68.0 inches	Front A 68.10 inches
AVERAGE TRACK: 68.0 inches	B 68.10 inches
WHEELBASE: 140.0 inches	C 68.10 inches
ROOF HEIGHT: 74.5 inches	D 68.10 inches
	Rear E 67.95 inches
GVWR 7100 lb	F 68.00 inches
FRONT GAWR 3800 lb	G 67.95 inches
REAR GAWR 4012 lb	H 68.00 inches
LEFT FRONT WEIGHT 1687.0 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1589.9 lb	Left Side 140.00 inches
LEFT REAR WEIGHT 1278.7 lb	Right Side 140.00 inches
RIGHT REAR WEIGHT 1256.7 lb	
TOTAL WEIGHT 5812.3 lb	
C.G. LONGITUDINAL 61.07 inches (From Front Axle)	
C.G. LATERAL -0.70 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	61.8	3.174	-0.025	28.85
Run #3	82.2	4.202	-0.036	28.86
Run #4	61.8	-3.152	0.022	28.85
Run #5	82.2	-4.195	0.035	28.93

AVERAGE C.G. HEIGHT 28.88

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.1781

Nissan Versa FWD

YEAR: 2020	DATE TESTED: 11/18/2019
MAKE: Nissan	VIMF TEST NO.: 7397
MODEL: Versa	
VIN: 3N1CN8EV0LL82####	Mfg Date: 09/19
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 1.6L I4	
TRANSMISSION TYPE: CVT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Continental Pro Contact TX M+S	
FRONT TIRE SIZE: 205/55R16 91V	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Continental Pro Contact TX M+S	
REAR TIRE SIZE: 205/55R16 91V	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 59.4 inches	Track Width Measurements
REAR TRACK: 59.7 inches	Front A 59.40 inches
AVERAGE TRACK: 59.5 inches	B 59.35 inches
WHEELBASE: 103.1 inches	C 59.35 inches
ROOF HEIGHT: 58.3 inches	D 59.40 inches
	Rear E 59.60 inches
GVWR 3605 lb	F 59.70 inches
FRONT GAWR 1907 lb	G 59.60 inches
REAR GAWR 1720 lb	H 59.70 inches
LEFT FRONT WEIGHT 890.6 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 814.8 lb	Left Side 103.10 inches
LEFT REAR WEIGHT 605.7 lb	Right Side 103.10 inches
RIGHT REAR WEIGHT 541.8 lb	
TOTAL WEIGHT 2852.9 lb	
C.G. LONGITUDINAL 41.47 inches (From Front Axle)	
C.G. LATERAL -1.46 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.017	-0.014	21.63
Run #3	53.0	4.236	-0.022	21.64
Run #4	37.5	-3.009	0.013	21.65
Run #5	53.0	-4.231	0.021	21.68

AVERAGE C.G. HEIGHT 21.65

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.3744

Ram 2500 Crew Cab 4X4

YEAR: 2020	DATE TESTED: 5/27/2020
MAKE: Ram	VIMF TEST NO.: 7560
MODEL: 2500 Crew Cab	
VIN: 3C6UR5HJ3LG12####	Mfg Date: 2/20
TYPE: Pickup	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 6.4L V8	
TRANSMISSION TYPE: 8AT	
DRIVE: 4X4	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Firestone Transforce AT M+S	
FRONT TIRE SIZE: LT275/70R18 125/122S	
FRONT TIRE PRESSURE: 60	
REAR TIRE TYPE: Firestone Transforce AT M+S	
REAR TIRE SIZE: LT275/70R18 125/122S	
REAR TIRE PRESSURE: 65	
FRONT TRACK: 67.6 inches	Track Width Measurements
REAR TRACK: 67.2 inches	Front A 67.60 inches
AVERAGE TRACK: 67.4 inches	B 67.50 inches
WHEELBASE: 169.3 inches	C 67.50 inches
ROOF HEIGHT: 79.4 inches	D 67.60 inches
	Rear E 67.20 inches
GVWR 10000 lb	F 67.20 inches
FRONT GAWR 5500 lb	G 67.20 inches
REAR GAWR 6390 lb	H 67.25 inches
LEFT FRONT WEIGHT 2161.8 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 2008.7 lb	Left Side 169.30 inches
LEFT REAR WEIGHT 1500.3 lb	Right Side 169.20 inches
RIGHT REAR WEIGHT 1464.3 lb	
TOTAL WEIGHT 7135.1 lb	
C.G. LONGITUDINAL 70.32 inches (From Front Axle)	
C.G. LATERAL -0.89 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	56.6	3.211	-0.031	31.43
Run #3	72.2	4.073	-0.040	31.46
Run #4	56.6	-3.116	0.022	31.20
Run #5	72.2	-3.961	0.033	31.18
AVERAGE C.G. HEIGHT				31.31

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.0759$$

Ram 2500 Crew Cab 4X2

YEAR: 2020 **DATE TESTED:** 5/6/2020
MAKE: Ram **VIMF TEST NO.:** 7532
MODEL: 2500 Crew Cab
VIN: 3C6UR4CJ3LG11#### **Mfg Date:** 12/19
TYPE: Pickup Crew Cab **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 6.4L V8
TRANSMISSION TYPE: 8AT
DRIVE: 4X2
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Hitch, Running Boards
FRONT TIRE TYPE: Firestone Transforce HT M+S
FRONT TIRE SIZE: LT245/70R17 119/116R
FRONT TIRE PRESSURE: 75
REAR TIRE TYPE: Firestone Transforce HT M+S
REAR TIRE SIZE: LT245/70R17 119/116R
REAR TIRE PRESSURE: 80

FRONT TRACK:	68.5	inches	Track Width Measurements
REAR TRACK:	68.1	inches	Front A 68.55 inches
AVERAGE TRACK:	68.3	inches	B 68.50 inches
WHEELBASE:	149.3	inches	C 68.50 inches
ROOF HEIGHT:	76.8	inches	D 68.55 inches
			Rear E 68.10 inches
GVWR	10000	lb	F 68.10 inches
FRONT GAWR	5500	lb	G 68.10 inches
REAR GAWR	6000	lb	H 68.10 inches
LEFT FRONT WEIGHT	1872.8	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1814.8	lb	Left Side 149.30 inches
LEFT REAR WEIGHT	1501.0	lb	Right Side 149.30 inches
RIGHT REAR WEIGHT	1386.4	lb	
TOTAL WEIGHT	6575.0	lb	
C.G. LONGITUDINAL	65.56	inches (From Front Axle)	
C.G. LATERAL	-0.90	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	61.6	3.114	-0.036	29.04
Run #3	82.2	4.129	-0.052	29.00
Run #4	61.6	-3.068	0.028	28.99
Run #5	82.2	-4.083	0.043	29.01
AVERAGE C.G. HEIGHT				29.01

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.1774$$

Subaru Legacy AWD

YEAR: 2020	DATE TESTED: 11/26/2019
MAKE: Subaru	VIMF TEST NO.: 7408
MODEL: Legacy	
VIN: 4S3BWAC67L301####	Mfg Date: 11/19
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.5L I4	
TRANSMISSION TYPE: CVT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Yokohama Avid GT M+S	
FRONT TIRE SIZE: 225/55R17 92V	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Yokohama Avid GT M+S	
REAR TIRE SIZE: 225/55R17 92V	
REAR TIRE PRESSURE: 32	
FRONT TRACK: 62.2 inches	Track Width Measurements
REAR TRACK: 63.3 inches	Front A 62.20 inches
AVERAGE TRACK: 62.7 inches	B 62.20 inches
WHEELBASE: 108.4 inches	C 62.25 inches
ROOF HEIGHT: 58.7 inches	D 62.25 inches
	Rear E 63.20 inches
GVWR 4630 lb	F 63.30 inches
FRONT GAWR 2756 lb	G 63.20 inches
REAR GAWR 2690 lb	H 63.30 inches
LEFT FRONT WEIGHT 1120.0 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1032.8 lb	Left Side 108.45 inches
LEFT REAR WEIGHT 796.3 lb	Right Side 108.40 inches
RIGHT REAR WEIGHT 738.0 lb	
TOTAL WEIGHT 3687.1 lb	
C.G. LONGITUDINAL 45.12 inches (From Front Axle)	
C.G. LATERAL -1.24 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.179	-0.017	21.61
Run #3	62.1	4.734	-0.027	21.64
Run #4	41.4	-3.184	0.018	21.68
Run #5	62.1	-4.740	0.029	21.69

AVERAGE C.G. HEIGHT 21.65

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4488

Subaru Outback AWD

YEAR: 2020	DATE TESTED: 11/27/2019
MAKE: Subaru	VIMF TEST NO.: 7410
MODEL: Outback	
VIN: 4S4BTACC5L313####	Mfg Date: 10/19
TYPE: Wagon	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.5L I4	
TRANSMISSION TYPE: CVT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Roof Rails	
FRONT TIRE TYPE: Yokohama Avid GT M+S	
FRONT TIRE SIZE: 225/65R17 102H S35	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Yokohama Avid GT M+S	
REAR TIRE SIZE: 225/65R17 102H S35	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 61.8 inches	Track Width Measurements
REAR TRACK: 62.7 inches	Front A 61.75 inches
AVERAGE TRACK: 62.3 inches	B 61.75 inches
WHEELBASE: 108.3 inches	C 61.80 inches
ROOF HEIGHT: 63.0 inches	D 61.80 inches
	Rear E 62.70 inches
GVWR 4850 lb	F 62.75 inches
FRONT GAWR 2756 lb	G 62.70 inches
REAR GAWR 2690 lb	H 62.75 inches
LEFT FRONT WEIGHT 1137.0 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1010.3 lb	Left Side 108.25 inches
LEFT REAR WEIGHT 856.5 lb	Right Side 108.25 inches
RIGHT REAR WEIGHT 825.2 lb	
TOTAL WEIGHT 3829.0 lb	
C.G. LONGITUDINAL 47.54 inches (From Front Axle)	
C.G. LATERAL -1.28 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.109	-0.020	25.91
Run #3	47.6	4.567	-0.030	25.88
Run #4	32.0	-3.065	0.012	25.87
Run #5	47.6	-4.538	0.025	25.88

AVERAGE C.G. HEIGHT 25.89

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2024

Subaru WRX AWD

YEAR: 2020	DATE TESTED: 11/25/2019
MAKE: Subaru	VIMF TEST NO.: 7406
MODEL: WRX	
VIN: JF1VA1H63L980####	Mfg Date: 8/19
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: Manual	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Sunroof	
FRONT TIRE TYPE: Dunlop Sport Max RT	
FRONT TIRE SIZE: 245/40R18 97W	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Dunlop Sport Max RT	
REAR TIRE SIZE: 245/40R18 97W	
REAR TIRE PRESSURE: 32	

FRONT TRACK: 60.1 inches	Track Width Measurements
REAR TRACK: 60.6 inches	Front A 60.10 inches
AVERAGE TRACK: 60.3 inches	B 60.10 inches
WHEELBASE: 104.3 inches	C 60.10 inches
ROOF HEIGHT: 57.4 inches	D 60.10 inches
	Rear E 60.50 inches
GVWR 4409 lb	F 60.60 inches
FRONT GAWR 2370 lb	G 60.50 inches
REAR GAWR 2293 lb	H 60.60 inches

LEFT FRONT WEIGHT 1087.9 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1009.1 lb	Left Side 104.30 inches
LEFT REAR WEIGHT 759.5 lb	Right Side 104.30 inches
RIGHT REAR WEIGHT 692.2 lb	
TOTAL WEIGHT 3548.7 lb	

C.G. LONGITUDINAL 42.67 inches (From Front Axle)
C.G. LATERAL -1.24 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.092	-0.017	20.83
Run #3	62.1	4.600	-0.028	20.82
Run #4	41.4	-3.071	0.011	20.84
Run #5	62.1	-4.571	0.022	20.81

AVERAGE C.G. HEIGHT 20.83

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4484

Toyota Highlander AWD

YEAR: 2020
MAKE: Toyota
MODEL: Highlander
VIN: 5TDGZRBH1LS50####
DATE TESTED: 2/10/2020
VIMF TEST NO.: 7459
Mfg Date: 01/20
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof

FRONT TIRE TYPE: Bridgestone Alenza Sport A/S M+S
FRONT TIRE SIZE: 235/65R18 106V
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Bridgestone Alenza Sport A/S M+S
REAR TIRE SIZE: 235/65R18 106V
REAR TIRE PRESSURE: 36

FRONT TRACK: 65.5 inches
REAR TRACK: 65.4 inches
AVERAGE TRACK: 65.4 inches
WHEELBASE: 112.4 inches
ROOF HEIGHT: 67.8 inches

Track Width Measurements

Front	A	65.40 inches
	B	65.40 inches
	C	65.50 inches
	D	65.50 inches
Rear	E	65.35 inches
	F	65.45 inches
	G	65.35 inches
	H	65.45 inches

GVWR 5935 lb
FRONT GAWR 3605 lb
REAR GAWR 3605 lb

LEFT FRONT WEIGHT 1316.9 lb
RIGHT FRONT WEIGHT 1216.3 lb
LEFT REAR WEIGHT 1027.3 lb
RIGHT REAR WEIGHT 997.3 lb
TOTAL WEIGHT 4557.8 lb

Wheelbase Measurements

Left Side	112.35	inches
Right Side	112.35	inches

C.G. LONGITUDINAL 49.91 inches (From Front Axle)
C.G. LATERAL -0.94 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.5	3.295	-0.021	26.43
Run #3	42.9	4.338	-0.029	26.47
Run #4	32.5	-3.252	0.014	26.42
Run #5	42.9	-4.285	0.021	26.45

AVERAGE C.G. HEIGHT 26.44

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2372

Toyota Highlander FWD

YEAR: 2020
MAKE: Toyota
MODEL: Highlander
VIN: 5TDCZRAHXL00####
DATE TESTED: 2/10/2020
VIMF TEST NO.: 7461
Mfg Date: 12/19
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Michelin Premier LTX M+S
FRONT TIRE SIZE: 235/65R18 106V
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Michelin Premier LTX M+S
REAR TIRE SIZE: 235/65R18 106V
REAR TIRE PRESSURE: 36

FRONT TRACK: 65.4 inches
REAR TRACK: 65.4 inches
AVERAGE TRACK: 65.4 inches
WHEELBASE: 112.4 inches
ROOF HEIGHT: 67.7 inches

GVWR 5830 lb
FRONT GAWR 3605 lb
REAR GAWR 3605 lb

LEFT FRONT WEIGHT 1264.9 lb
RIGHT FRONT WEIGHT 1184.2 lb
LEFT REAR WEIGHT 959.1 lb
RIGHT REAR WEIGHT 905.0 lb
TOTAL WEIGHT 4313.2 lb

C.G. LONGITUDINAL 48.58 inches (From Front Axle)
C.G. LATERAL -1.02 inches (Negative Towards Driver's Side)

Track Width Measurements

Front	A	65.30 inches
	B	65.40 inches
	C	65.40 inches
	D	65.40 inches
Rear	E	65.40 inches
	F	65.40 inches
	G	65.40 inches
	H	65.40 inches

Wheelbase Measurements

Left Side	112.40	inches
Right Side	112.40	inches

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.5	3.302	-0.022	26.50
Run #3	42.9	4.340	-0.030	26.51
Run #4	32.5	-3.276	0.019	26.46
Run #5	42.9	-4.320	0.029	26.49

AVERAGE C.G. HEIGHT 26.49

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2342

Volkswagen AtlasCross Sport AWD

YEAR: 2020	DATE TESTED: 3/16/2020
MAKE: Volkswagen	VIMF TEST NO.: 7497
MODEL: Atlas Cross Sport	
VIN: 1V2MC2CAXLC20####	Mfg Date: 01/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4	
TRANSMISSION TYPE: 8AT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails	
FRONT TIRE TYPE: Pirelli Scorpion Zero M+S	
FRONT TIRE SIZE: 255/50R20 105T	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Pirelli Scorpion Zero M+S	
REAR TIRE SIZE: 255/50R20 105T	
REAR TIRE PRESSURE: 36	

FRONT TRACK: 67.0 inches	Track Width Measurements
REAR TRACK: 67.4 inches	Front A 67.00 inches
AVERAGE TRACK: 67.2 inches	B 67.00 inches
WHEELBASE: 117.3 inches	C 67.00 inches
ROOF HEIGHT: 67.5 inches	D 67.00 inches
	Rear E 67.40 inches
GVWR 5666 lb	F 67.40 inches
FRONT GAWR 2866 lb	G 67.40 inches
REAR GAWR 2910 lb	H 67.40 inches

LEFT FRONT WEIGHT 1313.4 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1294.9 lb	Left Side 117.30 inches
LEFT REAR WEIGHT 1038.4 lb	Right Side 117.30 inches
RIGHT REAR WEIGHT 992.6 lb	
TOTAL WEIGHT 4639.3 lb	

C.G. LONGITUDINAL 51.35 inches (From Front Axle)
C.G. LATERAL -0.47 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.5	3.315	-0.021	26.48
Run #3	42.8	4.359	-0.029	26.52
Run #4	32.5	-3.292	0.020	26.48
Run #5	42.8	-4.338	0.028	26.53
AVERAGE C.G. HEIGHT				26.50

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2679$$

Volkswagen AtlasCross Sport FWD

YEAR: 2020
MAKE: Volkswagen
MODEL: Atlas Cross Sport
VIN: 1V25C2CAXLC20####
DATE TESTED: 3/16/2020
VIMF TEST NO.: 7499
Mfg Date: 11/19
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails

FRONT TIRE TYPE: Pirelli Scorpion Zero M+S
FRONT TIRE SIZE: 255/50R20 105T
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Pirelli Scorpion Zero M+S
REAR TIRE SIZE: 255/50R20 105T
REAR TIRE PRESSURE: 36

FRONT TRACK: 66.9 inches
REAR TRACK: 67.5 inches
AVERAGE TRACK: 67.2 inches
WHEELBASE: 117.3 inches
ROOF HEIGHT: 67.5 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	66.90	inches
	B	66.90	inches
	C	66.90	inches
	D	66.90	inches
Rear	E	67.40	inches
	F	67.50	inches
	G	67.40	inches
	H	67.50	inches

GVWR 5467 lb
FRONT GAWR 2800 lb
REAR GAWR 2778 lb

LEFT FRONT WEIGHT 1285.5 lb
RIGHT FRONT WEIGHT 1233.7 lb
LEFT REAR WEIGHT 960.6 lb
RIGHT REAR WEIGHT 939.7 lb
TOTAL WEIGHT 4419.5 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left	Side	117.30	inches
Right	Side	117.30	inches

C.G. LONGITUDINAL 50.44 inches (From Front Axle)
C.G. LATERAL -0.55 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.5	3.511	-0.020	27.29
Run #3	42.8	4.594	-0.027	27.27
Run #4	32.5	-3.481	0.018	27.28
Run #5	42.8	-4.570	0.025	27.30

AVERAGE C.G. HEIGHT 27.28

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2310

Volvo S60 FWD

YEAR: 2020	DATE TESTED: 11/5/2019
MAKE: Volvo	VIMF TEST NO.: 7370
MODEL: S60	
VIN: 7JR102FK3LG03####	Mfg Date: 07/19
TYPE: Sedan	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4	
TRANSMISSION TYPE: 8AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Panoramic Sunroof	
FRONT TIRE TYPE: Continental Pro Contact TX M+S	
FRONT TIRE SIZE: 235/45R18 98H	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Continental Pro Contact TX M+S	
REAR TIRE SIZE: 235/45R18 98H	
REAR TIRE PRESSURE: 36	

FRONT TRACK: 62.8 inches	Track Width Measurements
REAR TRACK: 62.7 inches	Front A 62.80 inches
AVERAGE TRACK: 62.7 inches	B 62.75 inches
WHEELBASE: 113.3 inches	C 62.80 inches
ROOF HEIGHT: 55.9 inches	D 62.80 inches
	Rear E 62.60 inches
GVWR 4825 lb	F 62.80 inches
FRONT GAWR 2445 lb	G 62.60 inches
REAR GAWR 2445 lb	H 62.80 inches

LEFT FRONT WEIGHT 1144.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1065.5 lb	Left Side 113.30 inches
LEFT REAR WEIGHT 879.0 lb	Right Side 113.30 inches
RIGHT REAR WEIGHT 822.4 lb	
TOTAL WEIGHT 3911.2 lb	

C.G. LONGITUDINAL 49.29 inches (From Front Axle)
C.G. LATERAL -1.09 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	40.9	3.066	-0.013	21.42
Run #3	65.5	4.863	-0.023	21.41
Run #4	40.9	-3.050	0.011	21.46
Run #5	65.5	-4.850	0.022	21.46
AVERAGE C.G. HEIGHT				21.44

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.4634$$

Volvo XC40 AWD

YEAR: 2020	DATE TESTED: 11/15/2019
MAKE: Volvo	VIMF TEST NO.: 7393
MODEL: XC40	
VIN: YV4162UM3L219####	Mfg Date: 06/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 8AT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Panoramic Sunroof	
FRONT TIRE TYPE: Pirelli Scorpion Zero All Season M+S	
FRONT TIRE SIZE: 245/45R20 103H	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Pirelli Scorpion Zero All Season M+S	
REAR TIRE SIZE: 245/45R20 103H	
REAR TIRE PRESSURE: 33	

FRONT TRACK: 62.9 inches	Track Width Measurements
REAR TRACK: 63.9 inches	Front A 62.90 inches
AVERAGE TRACK: 63.4 inches	B 62.85 inches
WHEELBASE: 106.4 inches	C 62.85 inches
ROOF HEIGHT: 64.5 inches	D 62.90 inches
	Rear E 63.80 inches
GVWR 4895 lb	F 64.00 inches
FRONT GAWR 2535 lb	G 63.80 inches
REAR GAWR 2445 lb	H 64.00 inches

LEFT FRONT WEIGHT 1193.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1137.2 lb	Left Side 106.40 inches
LEFT REAR WEIGHT 869.3 lb	Right Side 106.40 inches
RIGHT REAR WEIGHT 832.3 lb	
TOTAL WEIGHT 4032.1 lb	

C.G. LONGITUDINAL 44.90 inches (From Front Axle)
C.G. LATERAL -0.73 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.3	3.027	-0.016	25.44
Run #3	47.6	4.434	-0.025	25.45
Run #4	32.3	-3.025	0.016	25.47
Run #5	47.6	-4.439	0.028	25.50
AVERAGE C.G. HEIGHT				25.47

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2445$$

Volvo XC40 FWD

YEAR: 2020	DATE TESTED: 11/15/2019
MAKE: Volvo	VIMF TEST NO.: 7395
MODEL: XC40	
VIN: YV4AC2HK9L221####	Mfg Date: 07/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 8AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Michelin Primacy MXM4 M+S	
FRONT TIRE SIZE: 235/55R18 100H	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Michelin Primacy MXM4 M+S	
REAR TIRE SIZE: 235/55R18 100H	
REAR TIRE PRESSURE: 33	
FRONT TRACK: 62.9 inches	Track Width Measurements
REAR TRACK: 63.7 inches	Front A 62.90 inches
AVERAGE TRACK: 63.3 inches	B 62.90 inches
WHEELBASE: 106.4 inches	C 62.90 inches
ROOF HEIGHT: 64.3 inches	D 62.90 inches
	Rear E 63.65 inches
GVWR 4760 lb	F 63.80 inches
FRONT GAWR 2490 lb	G 63.65 inches
REAR GAWR 2360 lb	H 63.80 inches
LEFT FRONT WEIGHT 1150.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1097.4 lb	Left Side 106.40 inches
LEFT REAR WEIGHT 792.8 lb	Right Side 106.40 inches
RIGHT REAR WEIGHT 750.6 lb	
TOTAL WEIGHT 3791.1 lb	
C.G. LONGITUDINAL 43.32 inches (From Front Axle)	
C.G. LATERAL -0.79 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.2	3.400	-0.015	25.09
Run #3	47.6	4.336	-0.021	25.11
Run #4	37.2	-3.411	0.019	25.15
Run #5	47.6	-4.350	0.027	25.15

AVERAGE C.G. HEIGHT 25.12

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h \quad 1.2601$$

Volvo XC60 AWD

YEAR: 2020	DATE TESTED: 11/21/2019
MAKE: Volvo	VIMF TEST NO.: 7403
MODEL: XC60	
VIN: YV4102RL6L143####	Mfg Date: 07/19
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 8AT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Panoramic Sunroof	
FRONT TIRE TYPE: Continental Cross Contact M+S	
FRONT TIRE SIZE: 255/45R20 105H	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Continental Cross Contact M+S	
REAR TIRE SIZE: 255/45R20 105H	
REAR TIRE PRESSURE: 35	

FRONT TRACK: 64.7 inches	Track Width Measurements
REAR TRACK: 64.9 inches	Front A 64.70 inches
AVERAGE TRACK: 64.8 inches	B 64.60 inches
WHEELBASE: 112.9 inches	C 64.60 inches
ROOF HEIGHT: 64.5 inches	D 64.70 inches
	Rear E 64.80 inches
GVWR 5360 lb	F 64.90 inches
FRONT GAWR 2670 lb	G 64.80 inches
REAR GAWR 2780 lb	H 64.90 inches

LEFT FRONT WEIGHT 1236.1 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1154.8 lb	Left Side 112.90 inches
LEFT REAR WEIGHT 1001.8 lb	Right Side 112.90 inches
RIGHT REAR WEIGHT 980.9 lb	
TOTAL WEIGHT 4373.6 lb	

C.G. LONGITUDINAL 51.18 inches (From Front Axle)
C.G. LATERAL -0.76 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	3.489	-0.016	25.35
Run #3	48.1	4.430	-0.022	25.35
Run #4	37.7	-3.469	0.012	25.38
Run #5	48.1	-4.407	0.019	25.36
AVERAGE C.G. HEIGHT				25.36

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2765$$

Volvo XC60 FWD

YEAR: 2020	DATE TESTED: 4/15/2020
MAKE: Volvo	VIMF TEST NO.: 7516
MODEL: XC60	
VIN: YV4102DK5L156####	Mfg Date: 2/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 8AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Roof Rails, Panoramic Sunroof	
FRONT TIRE TYPE: Pirelli Scorpion Zero M+S	
FRONT TIRE SIZE: 235/55R19 105V	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Pirelli Scorpion Zero M+S	
REAR TIRE SIZE: 235/55R19 105V	
REAR TIRE PRESSURE: 35	

FRONT TRACK: 64.9 inches	Track Width Measurements
REAR TRACK: 65.1 inches	Front A 64.80 inches
AVERAGE TRACK: 65.0 inches	B 64.80 inches
WHEELBASE: 112.8 inches	C 64.90 inches
ROOF HEIGHT: 64.5 inches	D 64.90 inches
	Rear E 65.05 inches
GVWR 5225 lb	F 65.15 inches
FRONT GAWR 2620 lb	G 65.05 inches
REAR GAWR 2690 lb	H 65.15 inches

LEFT FRONT WEIGHT 1198.4 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1105.9 lb	Left Side 112.80 inches
LEFT REAR WEIGHT 929.5 lb	Right Side 112.80 inches
RIGHT REAR WEIGHT 938.3 lb	
TOTAL WEIGHT 4172.1 lb	

C.G. LONGITUDINAL 50.50 inches (From Front Axle)
C.G. LATERAL -0.65 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.595	-0.021	25.79
Run #3	47.6	4.548	-0.028	25.82
Run #4	37.5	-3.586	0.019	25.83
Run #5	47.6	-4.535	0.026	25.84
AVERAGE C.G. HEIGHT				25.82

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = \mathbf{1.2583}$$

Volvo XC90 FWD

YEAR: 2020 **DATE TESTED:** 4/15/2020
MAKE: Volvo **VIMF TEST NO.:** 7518
MODEL: XC90
VIN: YV4102CK4L157#### **Mfg Date:** 11/19
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4 Turbo
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Roof Rails, Panoramic Sunroof
FRONT TIRE TYPE: Pirelli Scorpion Verde M+S
FRONT TIRE SIZE: 275/45R20 105V
FRONT TIRE PRESSURE: 38
REAR TIRE TYPE: Pirelli Scorpion Verde M+S
REAR TIRE SIZE: 275/45R20 105V
REAR TIRE PRESSURE: 38

FRONT TRACK:	65.7	inches	Track Width Measurements
REAR TRACK:	65.9	inches	Front A 65.70 inches
AVERAGE TRACK:	65.8	inches	B 65.60 inches
WHEELBASE:	117.7	inches	C 65.60 inches
ROOF HEIGHT:	68.9	inches	D 65.70 inches
			Rear E 65.85 inches
GVWR	6005	lb	F 65.95 inches
FRONT GAWR	2865	lb	G 65.85 inches
REAR GAWR	3280	lb	H 65.95 inches
LEFT FRONT WEIGHT	1272.6	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1162.9	lb	Left Side 117.70 inches
LEFT REAR WEIGHT	1094.6	lb	Right Side 117.70 inches
RIGHT REAR WEIGHT	1085.0	lb	
TOTAL WEIGHT	4615.1	lb	
C.G. LONGITUDINAL	55.59	inches (From Front Axle)	
C.G. LATERAL	-0.85	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	27.1	3.065	-0.025	27.59
Run #3	37.5	4.198	-0.033	27.56
Run #4	27.1	-2.987	0.011	27.58
Run #5	37.5	-4.137	0.020	27.62
AVERAGE C.G. HEIGHT				27.59

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.1922$$

Appendix D

Test Vehicle Photos



2019 Audi A6 AWD



2020 Buick Encore GX AWD



2020 Buick Encore GX FWD



2020 Cadillac CT5 AWD



2020 Cadillac XT6 AWD



2020 Cadillac XT6 FWD



2020 Chrysler Pacifica Hybrid FWD



2020 Ford Escape AWD



2020 Ford Escape FWD



2020 Ford Explorer 4WD



2020 Ford Explorer RWD



2020 Ford Transit Wagon High Roof 12 Passenger RWD



2020 Hyundai Accent FWD



2020 Hyundai Palisade AWD



2020 Hyundai Palisade FWD



2020 Hyundai Sonata FWD



2020 Hyundai Venue FWD



2020 Jeep Gladiator 4X4



2020 Jeep Wrangler 4X4



2021 Kia Seltos AWD



2021 Kia Seltos FWD



2020 Kia Soul FWD



2020 Kia Stinger AWD



2020 Kia Telluride AWD



2020 Kia Telluride FWD



2020 Mazda Mazda3 FWD



2020 Mazda CX-30 AWD



2020 Mazda CX-30 FWD



2020 Mercedes Sprinter 2500 12 Passenger AWD



2000 Mercedes Sprinter 2500 12 Passenger RWD



2020 Mercedes Sprinter 2500 15 Passenger RWD



2020 Mitsubishi Eclipse Cross AWD



2020 Mitsubishi Eclipse Cross FWD



2020 Nissan Leaf 40 kWh FWD



2020 Nissan Sentra FWD



2020 Nissan Titan Crew Cab 4X4



2020 Nissan Titan Crew Cab RWD



2020 Nissan Versa FWD



2020 Ram 2500 Crew Cab 4X4



2020 Ram 2500 Crew Cab 4X2



2020 Subaru Legacy AWD



2020 Subaru Outback AWD



2020 Subaru WRX AWD



2020 Toyota Highlander AWD



2020 Toyota Highlander FWD



2020 Volkswagen Atlas Cross Sport AWD



2020 Volkswagen Atlas Cross Sport FWD



2020 Volvo S60 FWD



2020 Volvo XC40 AWD



2020 Volvo XC40 FWD



2020 Volvo XC60 AWD



2020 Volvo XC60 FWD



2020 Volvo XC90 FWD