

# POLICE VEHICLE EVALUATION MODEL YEAR 2012



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**STATE OF MICHIGAN**  
**Department of State Police**  
**and**  
**Department of Technology, Management and Budget**

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**2012 Model Year**  
**Police Vehicle**  
**Evaluation Program**

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## PREFACE

The Michigan State Police Vehicle Test Team is pleased to announce the results of the 2012 model year Police Vehicle Evaluation. This year we tested nineteen vehicles in total, and six motorcycles. We appreciate your continued support and encouragement. The vehicles evaluated this year included the following:

### POLICE CATEGORY

Chevrolet Caprice 9C1	3.6L
Chevrolet Caprice 9C1 E85	3.6L
Chevrolet Caprice 9C1	6.0L
Chevrolet Caprice 9C1 E85	6.0L
Chevrolet Impala 9C1	3.6L
Chevrolet Impala 9C1 E85	3.9L
Chevrolet Tahoe PPV 2WD	5.3L
Chevrolet Tahoe PPV 2WD E85	5.3L
Dodge Charger 2.65	3.6L
Dodge Charger 2.65 E85	3.6L
Dodge Charger 3.07	3.6L
Dodge Charger 2.65	5.7L
Dodge Charger 3.06	5.7L
Ford Police Interceptor FWD	3.5L
Ford Police Interceptor AWD	3.5L
Ford Police Interceptor AWD E85	3.5L
Ford Police Interceptor AWD Turbo	3.5L
Ford Police Interceptor Utility FWD	3.7L
Ford Police Interceptor Utility AWD E85	3.7L

### MOTORCYCLES

Harley-Davidson Electra Glide FLHTP  
Harley-Davidson Road King FLHP  
BMW R 1200 RTP  
Kawasaki Concours 14 ABS Police  
Victory Vision  
Victory Commander 1

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## GENERAL INFORMATION

All of the cars were tested with a clean roof (no overhead light or light bar) and without "A" pillar mount spotlights. We believe this is the best way to ensure all of the vehicles are tested on an equal basis. Remember that once overhead lights, spotlights, radio antennas, sirens, and other emergency equipment are installed, overall performance may be somewhat lower than we report.

Each vehicle was tested with the tires that are available as original equipment on the production model. Specific tire information for each vehicle is available in the Vehicle Description portion of this report. All vehicles listed in this report were equipped with electronic speed limiters.

Motorcycles were tested with equipment installed as provided by their respective manufacturer. Harley-Davidson chose to test their bikes with minimal equipment. BMW, Kawasaki and Victory chose to test their bikes with the majority of the equipment installed.

### Chrysler Proving Grounds - Acceleration, Top Speed, & Braking Tests

We had a full line up of test vehicles. We would like to thank Ms. Heather Gulley for the assistance we received from the staff at the Chrysler Proving Grounds.

Prior to test day and under the supervision of MSP personnel, Chrysler technicians replaced front brake calipers on all of their test vehicles to more accurately reflect 2012 components. It is believed a caliper slide bolt was not properly tightened as the Charger 3.6 L (3.07 rear gear) lost a slide bolt from the left front caliper at the conclusion of the brake test. The final brake test results were not affected by this incident. Vehicle and Travel Services personnel and Chrysler technicians replaced the bolt and inspected all of the Dodge test vehicles in the interest of safety. No other problems were found.

We appreciate the support we received from General Motors, Ford, Chrysler, Harley-Davidson, BMW, Victory and Kawasaki Motors Corp. during testing. This also was the fifth year of motorcycle testing and we continue to get great feedback on this important component to the testing lineup. We expect other manufacturers that produce law enforcement motorcycles to participate in the future.

### Grattan Raceway - Motorcycle Dynamics

This year motorcycle dynamics testing was moved to the Grattan Raceway. Performance on the 2 mile road course produced more comprehensive results and a greater separation between motorcycles.

### Grattan Raceway - Vehicle Dynamics (High Speed Handling) Test

The Ford Police Interceptor AWD Eco-Boost suffered two broken lug bolts on the front left hub during the third run. The cause was attributed to a quality concern on the pre-production wheels, which had been installed on the vehicle prior to being delivered for testing. The hub was replaced and the vehicle finished the test with no additional problems.

The Chevrolet Caprice 3.6L - V6 displayed a coolant over temp light on one run. MSP and GM personnel inspected the vehicle and found no problems. After the following run the vehicle's coolant temp increased as it idled in the staging lane. The vehicle was able to complete the test with other no issues. Air in the cooling system was the cause.

The Chevrolet Impala E85 RH half shaft axle bar pulled out from the OB CV Joint during the last run. Prior to the incident the vehicle logged 6 timed laps which was sufficient to establish a timed average to complete the test. An engineering change has been implemented to correct the issue.

The Chevrolet Caprice 6.0 L lost ABS and ESC on lap 3 of the last run. A blown fuse was replaced and the vehicle was run again. The same issue occurred on the last lap. The problem was attributed to a retaining clip falling from a locator allowing the wiring harness to contact the AC compressor pulley. Work had been performed at the assembly plant and the retainer had not been re-installed correctly. GM has resolved the issue with the assembly plant to ensure the correct process is followed in re-work situations.

We recommend you review the information contained in this report and then apply it to the needs of your agency. This report is not an endorsement of products, but a means of learning what's available for your officers so they can do their job effectively and safely. If anything in this report requires further explanation or clarification, please call or write.

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## ACKNOWLEDGEMENTS

We would like to thank the following contributors. We are grateful for their support and encouragement toward our ultimate goal: a safe, successful testing program that benefits the law enforcement community nationwide and beyond.

Colonel Kriste Kibbey Etue, Director, Michigan Department of State Police

Lt. Colonel Gary Gorski, Deputy Director, Field Services Bureau

Lt. Colonel Daniel Atkinson, Deputy Director, Science, Technology and Training Bureau

Personnel from the Michigan Department of Technology, Management and Budget, Vehicle and Travel Services

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Ms. Heather Gulley and personnel from Chrysler Proving Grounds

Mr. Sam Faasen and personnel from Grattan Raceway Park

Michigan State Police Volunteers – Ernie and Hazel Schutter, Austin & Reathel Waldron, Denny Steendam, Al & Betty Burnett, Jim Mayo, and Dave Hartley.

The Michigan State Police Rockford Post for their assistance at Grattan Raceway.

Special thanks to General Motors, Ford Motor Company, Chrysler Motors, Harley-Davidson Motorcycles, BMW Motorrad USA, Kawasaki Motors Corp., and Victory Motorcycles for their hard work in building and preparing the test cars and motorcycles. We are grateful for your dedication to law enforcement. Everyday law enforcement looks to these vehicles to do a list of duties varied and enduring.

Finally, thanks to all in the United States and Canada who represent law enforcement and purchasing agencies for your constant encouragement and support. We are proud to make a contribution to the law enforcement community.

Michigan State Police Vehicle Test Team:



Front Row (left to right): Sgt. Matt Rogers, Sgt. Ron Gromak, Tpr. Matt Waters, Sgt. Jim Flegel, Retired Lt. Keith Wilson, Tpr. Nate Johnson, Ms. Jackie Fitsimmons, Ms. Wendy Galbreath, Ms. Josephine Klotz, Ms. Debbie Schrauben

Back Row (left to right): Retired Sgt. Bob Ring, Sgt. Rick Stevens, Sgt. Doug Schutter, Tpr. Marcus Trammel, Retired Sgt. Leo Clark, Tpr. Mike McCarthy, Retired Sgt. Dick Rothermel, F/Lt. Thad Peterson

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## TEST EQUIPMENT

The following test equipment is utilized during the acceleration, top speed, braking, and vehicle dynamics portion of the evaluation program.

### **Corrsys Datron a Kistler Company**

**39205 Country Club Dr. Suite C20, Farmington Hills, MI 48331**

DLS Smart Sensor – Optical non-contact speed and distance sensor

Kistler L-350 1 Axis Optical Sensor

### **Shoei Helmets, 3002 Dow Ave., Suite 128, Tustin, CA 92780**

Law Enforcement Helmet – Model RJ-Air LE

Motorcycle Helmet – Multi Tech

### **AMB i.t. US INC., 1631 Phoenix Blvd., Suite 11, College Park, GA 30349**

AMB TranX extended loop decoder

AMB TranX260 transponders

### **ALPINESTARS USA, 2780 W. 237<sup>TH</sup> ST. TORRANCE, CA 90505-5270**

Alpinestars Protective Riding Apparel

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# **TEST VEHICLE DESCRIPTIONS AND PHOTOGRAPHS**

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# Chevrolet Caprice



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Chevrolet	<b>MODEL</b> Caprice 9C1		<b>SALES CODE NO.</b> 1EW19	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 217		<b>LITERS</b>	3.6
<b>FUEL SYSTEM</b>	SIDI (E85)		<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	282 @ 6400 RPM		<b>ALTERNATOR</b>	170 AMP
<b>TORQUE</b>	258 @ 2900 RPM		<b>BATTERY</b>	700 CCA
<b>COMPRESSION RATIO</b>	11.3:1			
<b>TRANSMISSION</b>	<b>MODEL</b> 6L45		<b>TYPE</b> 6 Speed Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	2.92:1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38 ft.			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P235/50R18 W Rated Goodyear AL3			
<b>SUSPENSION TYPE (FRONT)</b>	Independent strut. coil springs, & stablizer bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent strut. coil springs, & stablizer bar			
<b>GROUND CLEARANCE, MINIMUM</b>	5.6".		<b>LOCATION</b> Engine Cradle	
	<b>BRAKE SYSTEM</b> Power, dual hydraulic, anti-lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b> Vented Disc		<b>SWEPT AREA</b> 310.6 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Vented Disc		<b>SWEPT AREA</b> 211.4 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 19.0		<b>LITERS</b> 72.0	
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 118.5 in.		<b>LENGTH</b> 204.2 in.	
	<b>TEST WEIGHT</b> 4090 lbs.		<b>HEIGHT</b> 58.7 in.	
<b>HEADROOM</b>	<b>FRONT</b> 38.7 in.		<b>REAR</b> 37.6 in.	
<b>LEGROOM</b>	<b>FRONT</b> 42.2 in.		<b>REAR</b> 43.2 in.	
<b>SHOULDER ROOM</b>	<b>FRONT</b> 59.1 in.		<b>REAR</b> 59.0 in.	
<b>HIPROOM</b>	<b>FRONT</b> 56.7 in.		<b>REAR</b> 57.9 in.	
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 56.0 cu. ft.		<b>REAR</b> 55.5 cu. ft.	
	<b>COMB</b> 112 cu. ft.		<b>TRUNK</b> 17.4 cu. ft. (includes full-size spare tire and auxiliary battery)	
<b>EPA MILEAGE EST. (MPG) (E85)</b>	<b>CITY</b> 13		<b>HIGHWAY</b> 18	
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 18		<b>HIGHWAY</b> 26	
			<b>COMBINED</b> 15	
			<b>COMBINED</b> 21	

# Chevrolet Caprice



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Chevrolet	<b>MODEL</b> Caprice 9C1		<b>SALES CODE NO.</b> 1EW19	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 364		<b>LITERS</b>	6.0
<b>FUEL SYSTEM</b>	SPFI (E85)		<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	355 @ 5300 RPM		<b>ALTERNATOR</b>	170 AMP
<b>TORQUE</b>	384 @ 4000 RPM		<b>BATTERY</b>	700 CCA
<b>COMPRESSION RATIO</b>	10.4:1			
<b>TRANSMISSION</b>	<b>MODEL</b> 6L80E		<b>TYPE</b> 6 Speed Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	2.92:1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38 ft.			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P235/50R18 W Rated Goodyear AL3			
<b>SUSPENSION TYPE (FRONT)</b>	Independent strut. coil springs, & stablizer bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent strut. coil springs, & stablizer bar			
<b>GROUND CLEARANCE, MINIMUM</b>	5.6"		<b>LOCATION</b> Engine Cradle	
	<b>BRAKE SYSTEM</b> Power, dual hydraulic, anti-lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b> Vented Disc		<b>SWEPT AREA</b> 310.6 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Vented Disc		<b>SWEPT AREA</b> 211.4 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 19.0		<b>LITERS</b>	71.6
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 118.5 in.		<b>LENGTH</b> 204.2 in.	
	<b>TEST WEIGHT</b> 4201 lbs.		<b>HEIGHT</b> 58.7 in.	
<b>HEADROOM</b>	<b>FRONT</b>	38.7 in.	<b>REAR</b>	37.6 in.
<b>LEGROOM</b>	<b>FRONT</b>	42.2 in.	<b>REAR</b>	43.2 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	59.1 in.	<b>REAR</b>	59.0 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.7 in.	<b>REAR</b>	57.9 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 56.0 cu. ft.		<b>REAR</b> 55.5 cu. ft.	
	<b>COMB</b> 112 cu. ft.		<b>TRUNK</b> 17.4 cu. ft. (includes full-size spare tire and auxiliary battery)	
<b>EPA MILEAGE EST. (MPG) (E85)</b>	<b>CITY</b> 11	<b>HIGHWAY</b> 17	<b>COMBINED</b> 13	
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 15	<b>HIGHWAY</b> 24	<b>COMBINED</b> 18	

# Chevrolet Impala



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Chevrolet	<b>MODEL</b> Impala 9C1		<b>SALES CODE NO.</b> 1WS19	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 217		<b>LITERS</b> 3.6	
<b>FUEL SYSTEM</b>	SIDI (E85)		<b>EXHAUST</b> Single	
<b>HORSEPOWER (SAE NET)</b>	302 @ 6800 RPM		<b>ALTERNATOR</b> 170 AMP	
<b>TORQUE</b>	262 @ 5300 RPM		<b>BATTERY</b> 720 CCA	
<b>COMPRESSION RATIO</b>	11.5:1			
<b>TRANSMISSION</b>	<b>MODEL</b> 6T70		<b>TYPE</b> 6 Speed Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	2.44:1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38 ft.			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P235/55R17 W-Rated Goodyear All Season			
<b>SUSPENSION TYPE (FRONT)</b>	Independent McPherson strut. coil springs, & stablizer bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent Tri-Link coil spring over strut & stablizer bar			
<b>GROUND CLEARANCE, MINIMUM</b>	7.1".		<b>LOCATION</b> Engine Cradle	
	<b>BRAKE SYSTEM</b> Power, dual hydraulic, anti-lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b> Vented Disc		<b>SWEPT AREA</b> 246.3 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Solid Disc		<b>SWEPT AREA</b> 175.8 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 17.0		<b>LITERS</b> 64.0	
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 110.5 in.		<b>LENGTH</b> 200.4 in.	
	<b>TEST WEIGHT</b> 3745 lbs.		<b>HEIGHT</b> 58.7 in.	
<b>HEADROOM</b>	<b>FRONT</b> 39.4 in.		<b>REAR</b> 37.8 in.	
<b>LEGROOM</b>	<b>FRONT</b> 42.3 in.		<b>REAR</b> 37.6 in.	
<b>SHOULDER ROOM</b>	<b>FRONT</b> 58.7 in.		<b>REAR</b> 58.6 in.	
<b>HIPROOM</b>	<b>FRONT</b> 56.4 in.		<b>REAR</b> 57.2 in.	
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 56.5 cu. ft.		<b>REAR</b> 55.7 cu. ft.	
	<b>COMB</b> 105 cu. ft.		<b>TRUNK</b> 18.6 cu. ft. with compact spare	
<b>EPA MILEAGE EST. (MPG) (E85)</b>	<b>CITY</b> 13		<b>HIGHWAY</b> 21	
			<b>COMBINED</b> 16	
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 17		<b>HIGHWAY</b> 28	
			<b>COMBINED</b> 21	

# Chevrolet Tahoe



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Chevrolet	<b>MODEL</b> Tahoe PPV – 2WD		<b>SALES CODE NO.</b> CC10706		
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 327		<b>LITERS</b>	5.3	
<b>FUEL SYSTEM</b>	SFI (E85)		<b>EXHAUST</b>	Single	
<b>HORSEPOWER (SAE NET)</b>	302 @ 5200 RPM		<b>ALTERNATOR</b>	160 AMP	
<b>TORQUE</b>	340 ft. lbs. @ 4000 RPM		<b>BATTERY</b>	730 CCA	
<b>COMPRESSION RATIO</b>	9.5:1				
<b>TRANSMISSION</b>	<b>MODEL</b> 6I80E		<b>TYPE</b> 6 Speed Automatic		
	<b>LOCKUP TORQUE CONVERTER?</b> Yes				
	<b>OVERDRIVE?</b> Yes				
<b>AXLE RATIO</b>	3.08				
<b>STEERING</b>	Power Rack & Pinion				
<b>TURNING CIRCLE (CURB TO CURB)</b>	39.0 ft.				
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P265/60R17 Goodyear RSA Police Radial, 'V' Rated				
<b>SUSPENSION TYPE (FRONT)</b>	Independent, single coil over shock with stabilizer bar				
<b>SUSPENSION TYPE (REAR)</b>	Multi-link with coil springs				
<b>GROUND CLEARANCE, MINIMUM</b>	8.00 in..		<b>LOCATION</b> Rear Axle		
	<b>BRAKE SYSTEM</b> Vacuum boost, power, anti-lock				
<b>BRAKES, FRONT</b>	<b>TYPE</b> Disc		<b>SWEPT AREA</b> 256.6 sq. in.		
<b>BRAKES, REAR</b>	<b>TYPE</b> Disc		<b>SWEPT AREA</b> 248 sq. in.		
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 26.0		<b>LITERS</b> 98.4		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 116 in.		<b>LENGTH</b> 198.9 in.		
	<b>TEST WEIGHT</b> 5305 lbs.		<b>HEIGHT</b> 73.9 in.		
<b>HEADROOM</b>	<b>FRONT</b> 41.1 in.		<b>REAR</b> 39.2 in.		
<b>LEGROOM</b>	<b>FRONT</b> 41.3 in.		<b>REAR</b> 39.0 in.		
<b>SHOULDER ROOM</b>	<b>FRONT</b> 65.2 in.		<b>REAR</b> 65.2 in.		
<b>HIPROOM</b>	<b>FRONT</b> 60.3 in.		<b>REAR</b> 60.6 in.		
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 64.1 cu. ft.		<b>REAR</b> 57.7 cu. ft.		
	<b>COMB</b> 122 cu. ft.		<b>*MAX. CARGO</b> 108.9 cu.ft.		
<b>EPA MILEAGE EST. (MPG) (E85)</b>	<b>CITY</b> 11		<b>HIGHWAY</b> 16		<b>COMBINED</b> 13
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 15		<b>HIGHWAY</b> 21		<b>COMBINED</b> 17

# Dodge Charger



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Dodge	<b>MODEL</b> Charger		<b>SALES CODE NO.</b> 27A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 220		<b>LITERS</b>	3.6
<b>FUEL SYSTEM</b>	Sequential Port Fuel Injection		<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	292 @ 6400 RPM		<b>ALTERNATOR</b>	220 AMP
<b>TORQUE</b>	260 lb-ft @ 4400 RPM		<b>BATTERY</b>	800 CCA
<b>COMPRESSION RATIO</b>	10.2:1			
<b>TRANSMISSION</b>	<b>MODEL</b> A580		<b>TYPE</b> 5 Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	2.65:1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.9			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P225/60 R 18 99W Goodyear Eagle RSA (B) P225/60 R 18 99W Firestone Firehawk Pursuit GTV			
<b>SUSPENSION TYPE (FRONT)</b>	Independent High Arm SLA w/ Dual Ball Joint Lower, Coil Spring, Sway Bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent Multi-Link, Coil Spring, Sway Bar			
<b>GROUND CLEARANCE, MINIMUM</b>	5.2 in.		<b>LOCATION</b> Fascia Belly Pan	
	<b>BRAKE SYSTEM</b> Power, Dual Piston Front/Single Piston Rear, Anti-Lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 282 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 242 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b>	19	<b>LITERS</b>	72
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b>	120 in.	<b>LENGTH</b>	200.1 in.
	<b>TEST WEIGHT</b>	4086	<b>HEIGHT</b>	58.2 in.
<b>HEADROOM</b>	<b>FRONT</b>	38.6 in.	<b>REAR</b>	36.7 in.
<b>LEGROOM</b>	<b>FRONT</b>	41.8 in.	<b>REAR</b>	40.1 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	59.5 in.	<b>REAR</b>	57.9 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.2 in.	<b>REAR</b>	56.1 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b>	55.6 cu. ft.	<b>REAR</b>	49.3 cu. ft.
	<b>COMB</b>	104.9 cu. ft.	<b>TRUNK</b>	16.5 cu. ft.
<b>EPA MILEAGE EST. (MPG) Label</b>	<b>CITY</b> 18	<b>HIGHWAY</b> 27	<b>COMBINED</b> 21	

## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Dodge	<b>MODEL</b> Charger		<b>SALES CODE NO.</b> 27A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 220		<b>LITERS</b>	3.6
<b>FUEL SYSTEM</b>	Sequential Port Fuel Injection		<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	292 @ 6400 RPM		<b>ALTERNATOR</b>	220 Amp
<b>TORQUE</b>	260 ft-lbs @ 4400 RPM		<b>BATTERY</b>	800 CCA
<b>COMPRESSION RATIO</b>	10.2:1			
<b>TRANSMISSION</b>	<b>MODEL</b> A580		<b>TYPE</b> 5 Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	3.07 : 1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.9			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P225/60 R 18 99W Goodyear Eagle RSA (B) P225/60 R 18 99W Firestone Firehawk Pursuit GTV			
<b>SUSPENSION TYPE (FRONT)</b>	Independent High Arm SLA with Dual Ball Joint Lower, Coil Spring, Sway Bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent Multi-Link, Coil Spring, Sway Bar			
<b>GROUND CLEARANCE, MINIMUM</b>	5.2 in.		<b>LOCATION</b> Fascia Belly Pan	
	<b>BRAKE SYSTEM</b> Power, Dual Piston Front/Single Piston Rear, Anti-Lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 282 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 242 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b>	19	<b>LITERS</b>	72
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b>	120 in.	<b>LENGTH</b>	200.1 in.
	<b>TEST WEIGHT</b>	4072 lbs.	<b>HEIGHT</b>	58.2 in.
<b>HEADROOM</b>	<b>FRONT</b>	38.6 in.	<b>REAR</b>	36.7 in.
<b>LEGROOM</b>	<b>FRONT</b>	41.8 in.	<b>REAR</b>	40.1 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	59.5 in.	<b>REAR</b>	57.9 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.2 in.	<b>REAR</b>	56.1 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b>	55.6 cu. ft.	<b>REAR</b>	49.31 cu. ft.
	<b>COMB</b>	104.9 cu. ft.	<b>TRUNK</b>	16.5 cu. ft.
<b>EPA MILEAGE EST. (MPG) Label</b>	<b>CITY</b>	19	<b>HIGHWAY</b>	26
			<b>COMBINED</b>	21

## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Dodge	<b>MODEL</b> Charger		<b>SALES CODE NO.</b> 29A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 345		<b>LITERS</b>	5.7
<b>FUEL SYSTEM</b>	Sequential Port Fuel Injection		<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	370 @ 5150		<b>ALTERNATOR</b>	220 Amp
<b>TORQUE</b>	397 ft-lbs @ 4250		<b>BATTERY</b>	800 CCA
<b>COMPRESSION RATIO</b>	10.5:1			
<b>TRANSMISSION</b>	<b>MODEL</b> A580		<b>TYPE</b> 5 Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	2.65:1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.9			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P225/60 R 18 99W Goodyear Eagle RSA (B) P225/60 R 18 99W Firestone Firehawk Pursuit GTV			
<b>SUSPENSION TYPE (FRONT)</b>	Independent High Arm SLA w/ Dual Ball Joint Lower, Coil Spring, Sway Bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent Multi-Link, Coil Spring, Sway Bar			
<b>GROUND CLEARANCE, MINIMUM</b>	5.2 in.		<b>LOCATION</b> Fascia Belly Pan	
	<b>BRAKE SYSTEM</b> Power, Dual Piston Front/Single Piston Rear, Anti-Lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 282 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 242 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b>	19	<b>LITERS</b>	72
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b>	120 in.	<b>LENGTH</b>	200.1 in.
	<b>TEST WEIGHT</b>	4250	<b>HEIGHT</b>	58.2 in.
<b>HEADROOM</b>	<b>FRONT</b>	38.6 in.	<b>REAR</b>	36.7 in.
<b>LEGROOM</b>	<b>FRONT</b>	41.8 in.	<b>REAR</b>	40.1 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	59.5 in.	<b>REAR</b>	57.9 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.2 in.	<b>REAR</b>	56.1 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b>	55.6 cu. ft.	<b>REAR</b>	49.3 cu. ft.
	<b>COMB</b>	104.9 cu. ft.	<b>TRUNK</b>	16.5 cu. ft.
<b>EPA MILEAGE EST. (MPG) Label</b>	<b>CITY</b> 16	<b>HIGHWAY</b> 25	<b>COMBINED</b> 19	

# Dodge Charger



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Dodge	<b>MODEL</b> Charger		<b>SALES CODE NO.</b> 29A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 345		<b>LITERS</b>	5.7
<b>FUEL SYSTEM</b>	Sequential Port Fuel Injection		<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	370 @ 5150		<b>ALTERNATOR</b>	220 Amp
<b>TORQUE</b>	397 ft-lbs @ 4250		<b>BATTERY</b>	800 CCA
<b>COMPRESSION RATIO</b>	10.5:1			
<b>TRANSMISSION</b>	<b>MODEL</b> A580		<b>TYPE</b> 5 Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	3.06:1			
<b>STEERING</b>	Power Rack & Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.9			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	P225/60 R 18 99W Goodyear Eagle RSA (B) P225/60 R 18 99W Firestone Firehawk Pursuit GTV			
<b>SUSPENSION TYPE (FRONT)</b>	Independent High Arm SLA w/ Dual Ball Joint Lower, Coil Spring, Sway Bar			
<b>SUSPENSION TYPE (REAR)</b>	Independent Multi-Link, Coil Spring, Sway Bar			
<b>GROUND CLEARANCE, MINIMUM</b>	5.2 in.		<b>LOCATION</b> Fascia Belly Pan	
	<b>BRAKE SYSTEM</b> Power, Dual Piston Front/Single Piston Rear, Anti-Lock			
<b>BRAKES, FRONT</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 282 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b>	Vented Disc	<b>SWEPT AREA</b> 242 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b>	19	<b>LITERS</b>	72
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b>	120 in.	<b>LENGTH</b>	200.1 in.
	<b>TEST WEIGHT</b>	4275	<b>HEIGHT</b>	58.2 in.
<b>HEADROOM</b>	<b>FRONT</b>	38.6 in.	<b>REAR</b>	36.7 in.
<b>LEGROOM</b>	<b>FRONT</b>	41.8 in.	<b>REAR</b>	40.1 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	59.5 in.	<b>REAR</b>	57.9 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.2 in.	<b>REAR</b>	56.1 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b>	55.6 cu. ft.	<b>REAR</b>	49.3 cu. ft.
	<b>COMB</b>	104.9 cu. ft.	<b>TRUNK</b>	16.5 cu. ft.
<b>EPA MILEAGE EST. (MPG) Label</b>	<b>CITY</b> 16	<b>HIGHWAY</b> 25	<b>COMBINED</b> 19	

# Ford Police Interceptor



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Ford FWD	<b>MODEL</b> Police Interceptor		<b>SALES CODE NO.</b> P2I	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 214		<b>LITERS</b>	3.5L
<b>FUEL SYSTEM</b>	Sequential Multiport Fuel Inj.		<b>EXHAUST</b>	Quasi-Dual
<b>HORSEPOWER (SAE NET)</b>	280 @ 6500 RPM		<b>ALTERNATOR</b>	220 A
<b>TORQUE</b>	250 ft lbs @ 4000 RPM		<b>BATTERY</b>	750 CCA
<b>COMPRESSION RATIO</b>	10.0:1			
<b>TRANSMISSION</b>	<b>MODEL</b> 6F55	<b>TYPE</b> 6-Speed Electronic Automatic		
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	3.16:1			
<b>STEERING</b>	Electric Power Assist Rack and Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.4 ft.			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	245/55R18 103W M+S Goodyear Eagle RS-A			
<b>SUSPENSION TYPE (FRONT)</b>	Independent MacPherson Strut w/ Coil Over Shocks			
<b>SUSPENSION TYPE (REAR)</b>	Multi-Link Full Independent Suspension			
<b>GROUND CLEARANCE, MINIMUM</b>	6.0 in	<b>LOCATION</b> Front Exhaust		
	Power, dual front piston, single rear piston, 4 circuit and ABS			
<b>BRAKE SYSTEM</b>	Power, dual front piston, single rear piston, 4 circuit and ABS			
<b>BRAKES, FRONT</b>	<b>TYPE</b>	Vented disc	<b>SWEPT AREA</b> 313 sq in.	
<b>BRAKES, REAR</b>	<b>TYPE</b>	Vented disc	<b>SWEPT AREA</b> 265 sq in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b>	19.0	<b>LITERS</b>	71.9
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b>	112.9 in.	<b>LENGTH</b>	202.9 in.
	<b>TEST WEIGH</b>	4255 lbs.	<b>HEIGHT</b>	61.3 in
<b>HEADROOM</b>	<b>FRONT</b>	39.0 in.	<b>REAR</b>	36.7 in.
<b>LEGROOM</b>	<b>FRONT</b>	41.9 in.	<b>REAR</b>	39.9 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	57.9 in.	<b>REAR</b>	56.9 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.3 in.	<b>REAR</b>	55.9 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b>	54.8 cu. ft.	<b>REAR</b>	48.1 cu. ft.
	<b>COMB</b>	103.0 cu. ft.	<b>TRUNK</b>	16.6 cu. ft.
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b>	TBD	<b>HIGHWAY</b>	TBD
			<b>COMBINED</b>	TBD

## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Ford AWD	<b>MODEL</b> Police Interceptor		<b>SALES CODE NO.</b> P2M	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 214		<b>LITERS</b>	3.5L
<b>FUEL SYSTEM</b>	Sequential Multiport Fuel Inj.		<b>EXHAUST</b>	Quasi-Dual
<b>HORSEPOWER (SAE NET)</b>	280 @ 6500 RPM		<b>ALTERNATOR</b>	220A
<b>TORQUE</b>	250 ft lbs @ 4000 RPM		<b>BATTERY</b>	750 CCA
<b>COMPRESSION RATIO</b>	10.8:1			
<b>TRANSMISSION</b>	<b>MODEL</b> 6F50		<b>TYPE</b> 6-Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	3.39:1 with All-Wheel Drive			
<b>STEERING</b>	Electric Power Assist Rack and Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.4 ft.			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	245/55R18 103W M+S Goodyear Eagle RS-A			
<b>SUSPENSION TYPE (FRONT)</b>	Independent MacPherson Strut w/ Coil Over Shocks			
<b>SUSPENSION TYPE (REAR)</b>	Multi-Link Full Independent Suspension			
<b>GROUND CLEARANCE, MINIMUM</b>	6.0 in		<b>LOCATION</b> Front Exhaust	
	<b>BRAKE SYSTEM</b> Power, dual front piston, single rear piston, 4 circuit and ABS			
<b>BRAKES, FRONT</b>	<b>TYPE</b>	Vented disc	<b>SWEPT AREA</b>	313 sq. in.
<b>BRAKES, REAR</b>	<b>TYPE</b>	Vented disc	<b>SWEPT AREA</b>	265 sq. in.
<b>FUEL CAPACITY</b>	<b>GALLONS</b>	19.0	<b>LITERS</b>	71.9
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b>	112.6 in.	<b>LENGTH</b>	202.9 in.
	<b>TEST WEIGHT</b>	4384 lbs.	<b>HEIGHT</b>	61.3 in.
<b>HEADROOM</b>	<b>FRONT</b>	39.0 in.	<b>REAR</b>	36.7 in.
<b>LEGROOM</b>	<b>FRONT</b>	41.9 in.	<b>REAR</b>	39.9 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b>	57.9 in.	<b>REAR</b>	56.9 in.
<b>HIPROOM</b>	<b>FRONT</b>	56.3 in.	<b>REAR</b>	55.9 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b>	54.8 cu. ft.	<b>REAR</b>	48.1 cu. ft.
	<b>COMB</b>	103.3 cu. ft.	<b>TRUNK</b>	16.6 cu. ft.
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b>	TBD	<b>HIGHWAY</b>	TBD
			<b>COMBINED</b>	TBD

## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Ford EcoBoost AWD	<b>MODEL</b> Police Interceptor		<b>SALES CODE NO.</b> P2M, 99T	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 214		<b>LITERS</b> 3.5L	
<b>FUEL SYSTEM</b>	Sequential Direct Injection		<b>EXHAUST</b> Dual	
<b>HORSEPOWER (SAE NET)</b>	365 @ 5500 RPM		<b>ALTERNATOR</b> 220 A	
<b>TORQUE</b>	350 ft lbs @ 1500-5250 RPM		<b>BATTERY</b> 750 CCA	
<b>COMPRESSION RATIO</b>	10.0:1			
<b>TRANSMISSION</b>	<b>MODEL</b> 6F55		<b>TYPE</b> 6-Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes			
	<b>OVERDRIVE?</b> Yes			
<b>AXLE RATIO</b>	3.16:1 with All-Wheel Drive			
<b>STEERING</b>	Electric Power Assist Rack and Pinion			
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.4 ft.			
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	245/55R18 103W M+S Goodyear Eagle RS-A			
<b>SUSPENSION TYPE (FRONT)</b>	Independent MacPherson Strut w/ Coil Over Shocks			
<b>SUSPENSION TYPE (REAR)</b>	Multi-Link Full Independent Suspension			
<b>GROUND CLEARANCE, MINIMUM</b>	5.3 in		<b>LOCATION</b> Front Exhaust	
	Power, dual front piston, single rear piston, 4 circuit and ABS			
<b>BRAKE SYSTEM</b>	Power, dual front piston, single rear piston, 4 circuit and ABS			
<b>BRAKES, FRONT</b>	<b>TYPE</b> Vented disc		<b>SWEPT AREA</b> 313 sq in	
<b>BRAKES, REAR</b>	<b>TYPE</b> Vented disc		<b>SWEPT AREA</b> 265 sq in	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 19.0		<b>LITERS</b> 71.9	
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 112.9 in		<b>LENGTH</b> 202.9 in	
	<b>TEST WEIGH</b> 4472 lbs		<b>HEIGHT</b> 61.3 in	
<b>HEADROOM</b>	<b>FRONT</b> 39.0 in.		<b>REAR</b> 36.7 in.	
<b>LEGROOM</b>	<b>FRONT</b> 41.9 in.		<b>REAR</b> 39.9 in.	
<b>SHOULDER ROOM</b>	<b>FRONT</b> 57.9 in.		<b>REAR</b> 56.9 in.	
<b>HIPROOM</b>	<b>FRONT</b> 56.3 in.		<b>REAR</b> 55.9 in.	
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 54.8 cu. ft.		<b>REAR</b> 48.1 cu. ft.	
	<b>COMB</b> 103.0 cu. ft.		<b>TRUNK</b> 16.6 cu. ft.	
<b>EPA MILEAGE EST. (MPG) (E85)</b>	<b>CITY</b> TBD		<b>HIGHWAY</b> TBD	
	<b>COMBINED</b> TBD			
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> TBD		<b>HIGHWAY</b> TBD	
	<b>COMBINED</b> TBD			

# Ford Police Interceptor Utility



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Ford FWD Utility	<b>MODEL</b> Police Interceptor	<b>SALES CODE NO.</b> K7A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 226	<b>LITERS</b>	3.7L
<b>FUEL SYSTEM</b>	Sequential Multiport Fuel Inj.	<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	300 @ 6500 RPM	<b>ALTERNATOR</b>	220A
<b>TORQUE</b>	280 @ 4000 RPM	<b>BATTERY</b>	750 CCA
<b>COMPRESSION RATIO</b>	10.5:1		
<b>TRANSMISSION</b>	<b>MODEL</b> 6F55	<b>TYPE</b> 6-Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes		
	<b>OVERDRIVE?</b> Yes		
<b>AXLE RATIO</b>	3.39:1		
<b>STEERING</b>	Electric Power Assist Rack and Pinion		
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.8 ft.		
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	245/55R18 103W M+S Goodyear Eagle RS-A		
<b>SUSPENSION TYPE (FRONT)</b>	Independent MacPherson Strut w/ Coil Over Shocks		
<b>SUSPENSION TYPE (REAR)</b>	Multi-Link Full Independent Suspension		
<b>GROUND CLEARANCE, MINIMUM</b>	6.5 in.	<b>LOCATION</b> Front Exhaust	
	<b>BRAKE SYSTEM</b> Power, dual front piston, single rear piston, 4 circuit and ABS		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Vented disc	<b>SWEPT AREA</b> 313 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Vented disc	<b>SWEPT AREA</b> 265 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 19.0	<b>LITERS</b>	71.9
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 112.6 in.	<b>LENGTH</b>	197.1 in
	<b>TEST WEIGHT</b> 4517 lbs.	<b>HEIGHT</b>	69.2 in. without roof rack
<b>HEADROOM</b>	<b>FRONT</b> 41.4 in.	<b>REAR</b>	40.1 in.
<b>LEGROOM</b>	<b>FRONT</b> 40.6 in.	<b>REAR</b>	41.6 in
<b>SHOULDER ROOM</b>	<b>FRONT</b> 61.3 in.	<b>REAR</b>	60.9 in.
<b>HIPROOM</b>	<b>FRONT</b> 57.3 in.	<b>REAR</b>	56.8 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 59.7 cu. ft.	<b>REAR</b>	58.7 cu. ft.
	<b>COMB</b> 118.4 cu. ft.	<b>MAX CARGO</b> 85.1 cu. ft. <i>Max Cargo behind front seats, with rear seats folded down.</i>	
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> TBD	<b>HIGHWAY</b>	TBD
			<b>COMBINED</b> TBD

# Ford Police Interceptor Utility



## VEHICLE TEST DESCRIPTION

<b>MAKE</b> Ford AWD Utility	<b>MODEL</b> Police Interceptor	<b>SALES CODE NO.</b> K8A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC INCHES</b> 226	<b>LITERS</b>	3.7L
<b>FUEL SYSTEM</b>	Sequential Multiport Fuel Inj.	<b>EXHAUST</b>	Dual
<b>HORSEPOWER (SAE NET)</b>	300 @ 6500 RPM	<b>ALTERNATOR</b>	220A
<b>TORQUE</b>	280 @ 4000 RPM	<b>BATTERY</b>	750 CCA
<b>COMPRESSION RATIO</b>	10.5:1		
<b>TRANSMISSION</b>	<b>MODEL</b> 6F55	<b>TYPE</b> 6-Speed Electronic Automatic	
	<b>LOCKUP TORQUE CONVERTER?</b> Yes		
	<b>OVERDRIVE?</b> Yes		
<b>AXLE RATIO</b>	3.65:1 with Four Wheel Drive		
<b>STEERING</b>	Electric Power Assist Rack and Pinion		
<b>TURNING CIRCLE (CURB TO CURB)</b>	38.8 ft		
<b>TIRE SIZE, LOAD &amp; SPEED RATING</b>	245/55R18 103W M+S Goodyear Eagle RS-A		
<b>SUSPENSION TYPE (FRONT)</b>	Independent MacPherson Strut w/ Coil Over Shocks		
<b>SUSPENSION TYPE (REAR)</b>	Multi-Link Full Independent Suspension		
<b>GROUND CLEARANCE, MINIMUM</b>	6.5 in	<b>LOCATION</b> Front Exhaust	
	<b>BRAKE SYSTEM</b> Power, dual front piston, single rear piston, 4 circuit and ABS		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Vented disc	<b>SWEPT AREA</b> 313 sq in.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Vented disc	<b>SWEPT AREA</b> 265 sq in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 19.0	<b>LITERS</b>	71.9
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 112.6 in.	<b>LENGTH</b>	197.1 in.
	<b>TEST WEIGH</b> 4733 lbs.	<b>HEIGHT</b>	69.2 in. without roof rack
<b>HEADROOM</b>	<b>FRONT</b> 41.4 in.	<b>REAR</b>	40.1 in.
<b>LEGROOM</b>	<b>FRONT</b> 40.6 in.	<b>REAR</b>	41.6 in.
<b>SHOULDER ROOM</b>	<b>FRONT</b> 61.3 in.	<b>REAR</b>	60.9 in.
<b>HIPROOM</b>	<b>FRONT</b> 57.3 in.	<b>REAR</b>	56.8 in.
<b>INTERIOR VOLUME</b>	<b>FRONT</b> 59.7 cu. ft.	<b>REAR</b>	58.7 cu. ft.
	<b>COMB</b> 118.4 cu. ft.	<b>MAX CARGO</b> 85.1 cu. ft. <i>Max Cargo behind front seats, with rear seats folded down.</i>	
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> TBD	<b>HIGHWAY</b> TBD	<b>COMBINED</b> TBD

# TEST VEHICLE DESCRIPTION SUMMARY

	Chevrolet Caprice 9C1 3.6L		Chevrolet Caprice 9C1 6.0L		Chevrolet Impala 9C1 3.6L		Chevrolet Tahoe PPV-2WD	
ENGINE DISPLACEMENT – CU. IN.	217		364		217		327	
ENGINE DISPLACEMENT – LITERS	3.6		6.0		3.6		5.3	
ENGINE FUEL SYSTEM	SIDI		SPFI		SIDI		SFI	
HORSEPOWER (SAE NET)	282		355		302		302	
TORQUE (FT. LBS.)	258		384		262		340	
COMPRESSION RATIO	11.3:1		10.4:1		11.5:1		9.5:1	
AXLE RATIO	2.29:1		2.92:1		2.44:1		3.08	
TURNING CIRCLE – FT. CURB TO CURB	38		38		38		39.0	
TRANSMISSION	6 Speed auto		6 Speed auto		6 Speed auto		6 Speed auto	
TRANSMISSION MODEL NUMBER	6L45		6L80E		6T70		6180E	
LOCKUP TORQUE CONVERTER	Yes		Yes		Yes		Yes	
TRANSMISSION OVERDRIVE	Yes		Yes		Yes		Yes	
TIRE SIZE	P235/50R		P235/50R		P235/55R		P265/60R	
WHEEL RIM SIZE – INCHES	18		18		17		17	
GROUND CLEARANCE – INCHES	5.6		5.6		7.1		8.0	
BRAKE SYSTEM	Power, Anti-lock		Power, Anti-Lock		Power, Anti-Lock		Vacuum boost, Anti-Lock	
BRAKES – FRONT TYPE	Vented Disc		Vented Disc		Vented Disc		Disc	
BRAKES – REAR TYPE	Vented Disc		Vented Disc		Vented Disc		Disc	
FUEL CAPACITY – GALLONS	19		19		17		26	
FUEL CAPACITY – LITERS	72		71.6		64		98.4	
OVERALL LENGTH – INCHES	204.2		204.2		200.4		198.9	
OVERALL HEIGHT – INCHES	58.7		58.7		58.7		73.9	
TEST WEIGHT – LBS.	4090		4204		3756		5305	
WHEELBASE – INCHES	118.5		118.5		110.5		116	
HEADROOM FRONT – INCHES	38.7		38.7		39.4		41.1	
HEADROOM REAR – INCHES	37.6		37.6		37.8		39.2	
LEGROOM FRONT – INCHES	42.2		42.2		42.3		41.3	
LEGROOM REAR – INCHES	43.2		43.2		37.6		39.0	
SHOULDER ROOM FRONT – INCHES	59.1		59.1		58.7		65.2	
SHOULDER ROOM REAR – INCHES	59.0		59.0		58.6		65.2	
HIPROOM FRONT – INCHES	56.7		56.7		56.4		60.3	
HIPROOM REAR – INCHES	57.9		57.9		57.2		60.6	
INTERIOR VOLUME FRONT – CU. FT.	56.0		56.0		56.5		64.1	
INTERIOR VOLUME REAR – CU. FT.	55.5		55.5		55.7		57.7	
INTERIOR VOLUME COMB. – CU. FT.	112		112		105		122	
TRUNK VOLUME – CU. FT.	17.4		17.4		18.6		108.9	
	<b>Gas</b>	<b>E85</b>	<b>Gas</b>	<b>E85</b>	<b>Gas</b>	<b>E85</b>	<b>Gas</b>	<b>E85</b>
EPA MILEAGE – CITY – MPG Label	18	13	15	11	17	13	15	11
EPA MILEAGE – HIGHWAY – MPG Label	26	18	24	17	28	21	21	16
EPA MILEAGE – COMBINED – MPG Label	21	15	18	13	21	16	17	13

# TEST VEHICLE DESCRIPTION SUMMARY

	Dodge Charger 3.6L 2.65:1	Dodge Charger 3.6L 3.07:1	Dodge Charger 5.7L 2.65:1	Dodge Charger 5.7L 3.06:1
ENGINE DISPLACEMENT – CU. IN.	220	220	345	345
ENGINE DISPLACEMENT – LITERS	3.6	3.6	5.7	5.7
ENGINE FUEL SYSTEM	SPFI	SPFI	SPFI	SPFI
HORSEPOWER (SAE NET)	292	292	370	370
TORQUE (FT. LBS.)	260	260	397	397
COMPRESSION RATIO	10.2:1	10.2:1	10.5:1	10.5:1
AXLE RATIO	2.65:1	3.07:1	2.65:1	3.06:1
TURNING CIRCLE – FT. CURB TO CURB	38.9	38.9	38.9	38.9
TRANSMISSION	5 Speed elec. auto	5 Speed elec. auto	3 Speed elec. Auto	5 Speed elec. Auto
TRANSMISSION MODEL NUMBER	A580	A580	A580	A580
LOCKUP TORQUE CONVERTER	Yes	Yes	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes	Yes	Yes
TIRE SIZE	P225/60R	P225/60R	P225/60R	P225/60R
WHEEL RIM SIZE – INCHES	18	18	18	18
GROUND CLEARANCE – INCHES	5.2	5.2	5.2	5.2
BRAKE SYSTEM	Power, Anti-Lock	Power, Anti-Lock	Power, Anti-Lock	Power, Anti-Lock
BRAKES – FRONT TYPE	Vented Disc	Vented Disc	Vented Disc	Vented Disc
BRAKES – REAR TYPE	Vented Disc	Vented Disc	Vented Disc	Vented Disc
FUEL CAPACITY – GALLONS	19	19	19	19
FUEL CAPACITY – LITERS	72	72	72	72
OVERALL LENGTH – INCHES	200.1	200.1	200.1	200.1
OVERALL HEIGHT – INCHES	58.2	58.2	58.2	58.2
TEST WEIGHT – LBS.	4086	4076	4250	4275
WHEELBASE – INCHES	120	120	120	120
HEADROOM FRONT – INCHES	38.6	38.6	38.6	38.6
HEADROOM REAR – INCHES	36.7	36.7	36.7	36.7
LEGROOM FRONT – INCHES	41.8	41.8	41.8	41.8
LEGROOM REAR – INCHES	40.1	40.1	40.1	40.1
SHOULDER ROOM FRONT – INCHES	59.5	59.5	59.5	59.5
SHOULDER ROOM REAR – INCHES	57.9	57.9	57.9	57.9
HIPROOM FRONT – INCHES	56.2	56.2	56.2	56.2
HIPROOM REAR – INCHES	56.1	56.1	56.1	56.1
INTERIOR VOLUME FRONT – CU. FT.	55.6	55.6	55.6	55.6
INTERIOR VOLUME REAR – CU. FT.	49.3	49.3	49.3	49.3
INTERIOR VOLUME COMB. – CU. FT.	104.9	104.9	104.9	104.9
TRUNK VOLUME – CU. FT.	16.5	16.5	16.5	16.5
	<b>Gas</b>	<b>E85</b>	<b>Gas</b>	<b>Gas</b>
EPA MILEAGE – CITY – MPG Label	18	13	18	16
EPA MILEAGE – HIGHWAY – MPG Label	27	19	27	25
EPA MILEAGE – COMBINED – MPG Label	21	15	21	19

# TEST VEHICLE DESCRIPTION SUMMARY

	Ford Police Interceptor FWD 3.5L	Ford Police Interceptor AWD 3.5L	Ford Police Interceptor EcoBoost AWD 3.5L
ENGINE DISPLACEMENT – CU. IN.	214	214	214
ENGINE DISPLACEMENT – LITERS	3.5	3.5	3.5
ENGINE FUEL SYSTEM	SMFI	SMFI	SDJ
HORSEPOWER (SAE NET)	280	280	365
TORQUE (FT. LBS.)	250	250	350
COMPRESSION RATIO	10.0:1	10.8:1	10.0:1
AXLE RATIO	3.16:1	3.39:1	3.16:1
TURNING CIRCLE – FT. CURB TO CURB	38.4	38.4	38.4
TRANSMISSION	6 Speed elec. Auto	6 Speed elec. Auto	6 Speed elec. auto
TRANSMISSION MODEL NUMBER	6F55	6F55	6F55
LOCKUP TORQUE CONVERTER	Yes	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes	Yes
TIRE SIZE	245/55R	245/55R	245/55R
WHEEL RIM SIZE – INCHES	18	18	18
GROUND CLEARANCE – INCHES	6.0	6.0	5.3
BRAKE SYSTEM	Power, ABS	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Vented Disc	Vented Disc	Vented Disc
BRAKES – REAR TYPE	Vented Disc	Vented Disc	Vented Disc
FUEL CAPACITY – GALLONS	19	19	19
FUEL CAPACITY – LITERS	71.9	71.9	71.9
OVERALL LENGTH – INCHES	202.9	202.9	202.9
OVERALL HEIGHT – INCHES	61.3	61.3	61.3
TEST WEIGHT – LBS.	4255	4384	4472
WHEELBASE – INCHES	112.9	112.6	112.9
HEADROOM FRONT – INCHES	39.0	39.0	39.0
HEADROOM REAR – INCHES	36.7	36.7	36.7
LEGROOM FRONT – INCHES	41.9	41.9	41.9
LEGROOM REAR – INCHES	39.9	39.9	39.9
SHOULDER ROOM FRONT – INCHES	57.9	57.9	57.9
SHOULDER ROOM REAR – INCHES	56.9	56.9	56.9
HIPROOM FRONT – INCHES	56.3	56.3	56.3
HIPROOM REAR – INCHES	55.9	55.9	55.9
INTERIOR VOLUME FRONT – CU. FT.	54.8	54.8	54.8
INTERIOR VOLUME REAR – CU. FT.	48.1	48.1	48.1
INTERIOR VOLUME COMB. – CU. FT.	103.0	103.0	103.0
TRUNK VOLUME – CU. FT.	16.6	16.6	16.6
	<b>Gas</b>	<b>Gas</b>   <b>E-85</b>	<b>Gas</b>
EPA MILEAGE – CITY – MPG Label	TBD	TBD	TBD
EPA MILEAGE – HIGHWAY – MPG Label	TBD	TBD	TBD
EPA MILEAGE – COMBINED – MPG Label	TBD	TBD	TBD

# TEST VEHICLE DESCRIPTION SUMMARY

	Ford Police Interceptor FWD Utility 3.7L	Ford Police Interceptor AWD Utility 3.7L	
ENGINE DISPLACEMENT – CU. IN.	226	226	
ENGINE DISPLACEMENT – LITERS	3.7	3.7	
ENGINE FUEL SYSTEM	SMFI	SMFI	
HORSEPOWER (SAE NET)	300	300	
TORQUE (FT. LBS.)	280	280	
COMPRESSION RATIO	10.5:1	10.5:1	
AXLE RATIO	3.39:1	3.65:1 w/FWD	
TURNING CIRCLE – FT. CURB TO CURB	38.8	38.8	
TRANSMISSION	6 Speed elec. auto	6 Speed elec. Auto	
TRANSMISSION MODEL NUMBER	6F55	6F55	
LOCKUP TORQUE CONVERTER	Yes	Yes	
TRANSMISSION OVERDRIVE	Yes	Yes	
TIRE SIZE	245/55R	245/55R	
WHEEL RIM SIZE – INCHES	18	18	
GROUND CLEARANCE – INCHES	6.5	6.5	
BRAKE SYSTEM	Power, ABS	Power. ABS	
BRAKES – FRONT TYPE	Vented Disc	Vented Disc	
BRAKES – REAR TYPE	Vented Disc	Vented Disc	
FUEL CAPACITY – GALLONS	19	19	
FUEL CAPACITY – LITERS	71.9	71.9	
OVERALL LENGTH – INCHES	197.1	197.1	
OVERALL HEIGHT – INCHES	69.2	69.2	
TEST WEIGHT – LBS.	4517	4733	
WHEELBASE – INCHES	112.6	112.6	
HEADROOM FRONT – INCHES	41.4	41.4	
HEADROOM REAR – INCHES	40.1	40.1	
LEGROOM FRONT – INCHES	40.6	40.6	
LEGROOM REAR – INCHES	41.6	41.6	
SHOULDER ROOM FRONT – INCHES	61.3	61.3	
SHOULDER ROOM REAR – INCHES	60.9	60.9	
HIPROOM FRONT – INCHES	57.3	57.3	
HIPROOM REAR – INCHES	56.8	56.8	
INTERIOR VOLUME FRONT – CU. FT.	59.7	59.7	
INTERIOR VOLUME REAR – CU. FT.	58.7	58.7	
INTERIOR VOLUME COMB. – CU. FT.	118.4	118.4	
TRUNK VOLUME – CU. FT.	85.1	85.1	
	<b>Gas</b>	<b>Gas</b>	<b>E-85</b>
EPA MILEAGE – CITY – MPG Label	TBD	TBD	TBD
EPA MILEAGE – HIGHWAY – MPG Label	TBD	TBD	TBD
EPA MILEAGE – COMBINED – MPG Label	TBD	TBD	TBD

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# VEHICLE DYNAMICS TESTING

## TEST OBJECTIVE

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Determine each vehicle's high-speed pursuit or emergency response handling characteristics and performance in comparison to the other vehicles in the test group. The course used is a 2-mile road-racing type configuration, containing hills, curves, and corners. The course simulates actual conditions encountered in pursuit or emergency driving situations in the field, with the exception of other traffic. The evaluation is a true test of the success or failure of the vehicle manufacturers to offer vehicles that provide the optimum balance between handling (suspension components), acceleration (usable horsepower), and braking characteristics.

## TEST METHODOLOGY

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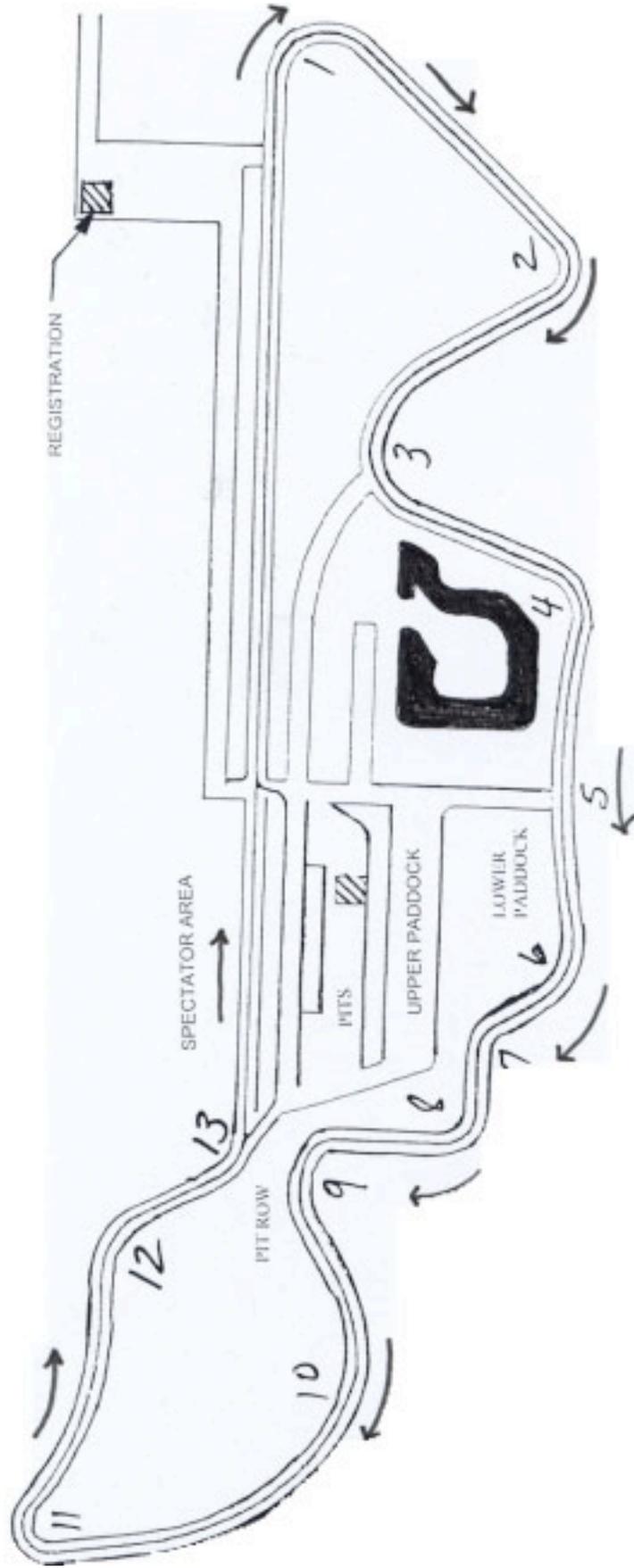
Each vehicle is driven over the course a total of 32 timed laps, using four separate drivers, each driving an 8 lap series. The final score for the vehicle is the combined average (from the 4 drivers) of the 5 fastest laps for each driver during the 8 lap series.



# Grattan Raceway Park



7201 Lessiter  
Belding, Michigan 48809



Arrows indicate  
Michigan State Police  
Road Test Course and  
Direction of Travel.

# VEHICLE DYNAMICS TESTING

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Chevrolet Caprice 9C1 3.6L	GROMAK	01:37.20	01:37.30	01:37.50	01:37.70	01:37.90	01:37.52
	ROGERS	01:37.70	01:38.00	01:38.00	01:38.00	01:38.00	01:37.94
	MCCARTHY	01:38.00	01:38.20	01:38.20	01:38.50	01:38.50	01:38.28
	FLEGEL	01:37.60	01:37.60	01:37.80	01:37.80	01:37.90	01:37.74
<b>Overall Average</b>							<b>01:37.87</b>
Chevrolet Caprice 9C1 3.6L E85	GROMAK	01:37.40	01:37.50	01:37.60	01:37.70	01:37.80	01:37.60
	ROGERS	01:37.10	01:37.30	01:37.40	01:37.40	01:37.50	01:37.34
	MCCARTHY	01:37.50	01:38.10	01:38.40	01:38.50	01:38.50	01:38.20
	FLEGEL	01:37.30	01:37.30	01:37.50	01:37.60	01:37.70	01:37.48
<b>Overall Average</b>							<b>01:37.65</b>
Chevrolet Caprice 9C1 6.0L	GROMAK	01:35.90	01:36.00	01:36.20	01:36.20	01:36.90	01:36.10
	ROGERS	01:35.50	01:35.50	01:35.70	01:35.80	01:35.80	01:35.66
	MCCARTHY	01:38.60	01:38.90	01:39.30	01:39.60	01:40.00	01:39.28
	FLEGEL	01:36.00	01:36.30	01:36.40	01:36.40	01:36.60	01:36.34
<b>Overall Average</b>							<b>01:36.84</b>
Chevrolet Caprice 9C1 6.0L E85	GROMAK	01:34.80	01:35.30	01:35.40	01:35.80	01:36.20	01:35.50
	ROGERS	01:35.20	01:35.20	01:35.20	01:35.30	01:35.50	01:35.28
	MCCARTHY	01:35.70	01:35.80	01:36.20	01:36.40	01:36.50	01:36.12
	FLEGEL	01:35.20	01:35.50	01:35.50	01:35.70	01:35.80	01:35.54
<b>Overall Average</b>							<b>01:35.61</b>
Chevrolet Impala 9C1 3.6L	GROMAK	01:39.40	01:39.70	01:39.70	01:40.00	01:40.10	01:39.78
	ROGERS	01:39.70	01:40.00	01:40.00	01:40.10	01:40.30	01:40.02
	MCCARTHY	01:39.70	01:39.80	01:40.00	01:40.10	01:40.40	01:40.00
	FLEGEL	01:38.80	01:39.30	01:39.30	01:39.50	01:39.60	01:39.30
<b>Overall Average</b>							<b>01:39.78</b>
Chevrolet Impala 9C1 3.6L E85	GROMAK	01:40.20	01:40.20	01:40.20	01:40.40	01:40.50	01:40.30
	ROGERS	01:39.70	01:40.30	01:40.30	01:40.30	01:40.70	01:40.26
	MCCARTHY	01:40.20	01:40.50	01:40.60	01:40.70	01:40.80	01:40.56
	FLEGEL	01:39.30	01:40.00	01:40.20	01:40.20	01:40.30	01:40.00
<b>Overall Average</b>							<b>01:40.28</b>
Chevrolet Tahoe PPV 5.3L	GROMAK	01:41.50	01:41.80	01:41.90	01:42.00	01:42.40	01:41.92
	ROGERS	01:42.10	01:42.20	01:42.30	01:42.40	01:42.40	01:42.28
	MCCARTHY	01:41.70	01:41.80	01:41.80	01:42.00	01:42.50	01:41.96
	FLEGEL	01:41.40	01:42.00	01:42.20	01:42.60	01:43.10	01:42.26
<b>Overall Average</b>							<b>01:42.10</b>
Chevrolet Tahoe PPV 5.3L E85	GROMAK	01:41.70	01:42.20	01:42.30	01:42.30	01:42.50	01:42.20
	ROGERS	01:41.60	01:41.80	01:42.00	01:42.10	01:42.30	01:41.96
	MCCARTHY	01:41.80	01:42.10	01:42.10	01:42.60	01:42.90	01:42.30
	FLEGEL	01:41.40	01:41.60	01:42.00	01:42.00	01:42.00	01:41.80
<b>Overall Average</b>							<b>01:42.06</b>

# VEHICLE DYNAMICS TESTING

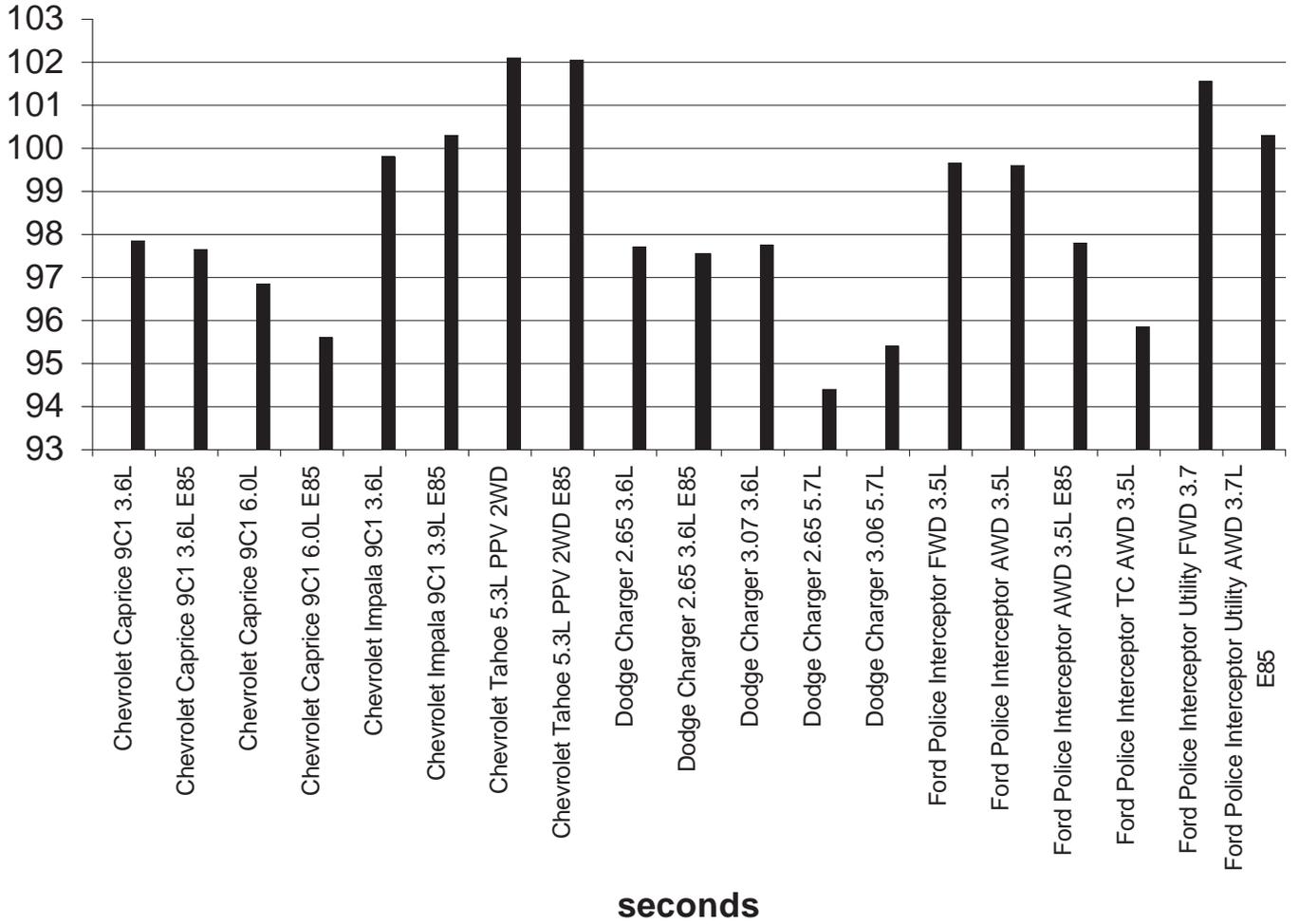
Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Dodge Charger 2.65 3.6L	GROMAK	01:37.10	01:37.20	01:37.30	01:37.70	01:38.00	01:37.46
	ROGERS	01:36.90	01:37.10	01:37.40	01:37.50	01:37.70	01:37.32
	MCCARTHY	01:37.10	01:37.80	01:38.00	01:38.00	01:38.30	01:37.84
	FLEGEL	01:37.70	01:38.10	01:38.20	01:38.20	01:38.80	01:38.20
<b>Overall Average</b>							<b>01:37.71</b>
Dodge Charger 2.65 3.6L E85	GROMAK	01:37.20	01:37.40	01:37.70	01:37.80	01:38.10	01:37.64
	ROGERS	01:37.00	01:37.10	01:37.30	01:37.40	01:37.40	01:37.24
	MCCARTHY	01:37.70	01:37.90	01:38.00	01:38.00	01:38.10	01:37.94
	FLEGEL	01:37.00	01:37.20	01:37.50	01:37.70	01:37.80	01:37.44
<b>Overall Average</b>							<b>01:37.57</b>
Dodge Charger 3.07 3.6L	GROMAK	01:37.00	01:37.50	01:37.60	01:37.80	01:37.80	01:37.54
	ROGERS	01:37.40	01:37.60	01:37.70	01:37.80	01:37.80	01:37.66
	MCCARTHY	01:37.70	01:37.70	01:37.80	01:37.90	01:38.00	01:37.82
	FLEGEL	01:37.70	01:37.80	01:38.00	01:38.00	01:38.00	01:37.90
<b>Overall Average</b>							<b>01:37.73</b>
Dodge Charger 2.65 5.7L	GROMAK	01:33.70	01:33.90	01:34.20	01:34.20	01:34.30	01:34.06
	ROGERS	01:34.30	01:34.30	01:34.40	01:34.50	01:34.50	01:34.40
	MCCARTHY	01:34.30	01:34.60	01:35.00	01:35.10	01:35.60	01:34.92
	FLEGEL	01:33.90	01:34.00	01:34.20	01:34.40	01:34.40	01:34.18
<b>Overall Average</b>							<b>01:34.39</b>
Dodge Charger 3.06 5.7L	GROMAK	01:35.10	01:35.30	01:35.50	01:36.10	01:36.40	01:35.68
	ROGERS	01:35.10	01:35.20	01:35.20	01:35.30	01:35.30	01:35.22
	MCCARTHY	01:35.30	01:35.50	01:35.50	01:35.60	01:36.00	01:35.58
	FLEGEL	01:35.00	01:35.00	01:35.10	01:35.20	01:35.60	01:35.18
<b>Overall Average</b>							<b>01:35.42</b>
Ford PI FWD 3.5L	GROMAK	01:39.70	01:39.90	01:40.00	01:40.00	01:40.30	01:39.98
	ROGERS	01:38.90	01:39.00	01:39.20	01:39.30	01:39.30	01:39.14
	MCCARTHY	01:38.90	01:39.60	01:40.40	01:40.50	01:40.60	01:40.00
	FLEGEL	01:39.10	01:39.40	01:39.50	01:39.50	01:39.50	01:39.40
<b>Overall Average</b>							<b>01:39.63</b>
Ford PI AWD 3.5L	GROMAK	01:39.60	01:39.70	01:39.90	01:39.90	01:40.00	01:39.82
	ROGERS	01:39.10	01:39.30	01:39.40	01:39.50	01:39.60	01:39.38
	MCCARTHY	01:39.80	01:39.80	01:39.90	01:39.90	01:40.00	01:39.88
	FLEGEL	01:38.90	01:39.30	01:39.50	01:39.50	01:39.60	01:39.36
<b>Overall Average</b>							<b>01:39.61</b>
Ford PI AWD 3.5L E85	GROMAK	01:37.90	01:38.10	01:38.20	01:38.30	01:38.40	01:38.18
	ROGERS	01:37.40	01:37.50	01:37.50	01:37.60	01:37.70	01:37.54
	MCCARTHY	01:37.60	01:37.70	01:37.80	01:38.10	01:38.40	01:37.92
	FLEGEL	01:37.30	01:37.30	01:37.40	01:37.70	01:38.10	01:37.56
<b>Overall Average</b>							<b>01:37.80</b>

# VEHICLE DYNAMICS TESTING

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Ford PI TC AWD 3.5L	GROMAK	01:35.60	01:35.60	01:35.80	01:36.20	01:36.30	01:35.90
	ROGERS	01:35.20	01:35.50	01:35.50	01:35.50	01:35.60	01:35.46
	MCCARTHY	01:36.30	01:36.40	01:36.40	01:36.50	01:36.50	01:36.42
	FLEGEL	01:35.10	01:35.40	01:35.50	01:35.70	01:36.40	01:35.62
<b>Overall Average</b>							<b>01:35.85</b>
Ford PI Utility FWD 3.7L	GROMAK	01:40.90	01:41.30	01:41.40	01:41.50	01:41.50	01:41.32
	ROGERS	01:41.30	01:42.00	01:42.00	01:42.10	01:42.50	01:41.98
	MCCARTHY	01:41.90	01:42.00	01:42.20	01:42.30	01:42.60	01:42.20
	FLEGEL	01:40.60	01:40.60	01:40.60	01:40.60	01:40.70	01:40.62
<b>Overall Average</b>							<b>01:41.53</b>
Ford PI Utility AWD 3.7L E85	GROMAK	01:40.00	01:40.20	01:40.40	01:40.40	01:40.60	01:40.32
	ROGERS	01:39.90	01:40.30	01:40.70	01:40.80	01:41.00	01:40.54
	MCCARTHY	01:40.20	01:40.30	01:40.40	01:40.50	01:40.80	01:40.44
	FLEGEL	01:39.70	01:39.70	01:39.80	01:40.00	01:40.30	01:39.90
<b>Overall Average</b>							<b>01:40.30</b>



# 2012 Vehicle Dynamics



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# ACCELERATION AND TOP SPEED TESTING

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## ACCELERATION TEST OBJECTIVE

Determine the ability of each test vehicle to accelerate from a standing start to 60 mph, 80 mph, and 100 mph, and determine the distance to reach 110 mph and 120 mph.

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## ACCELERATION TEST METHODOLOGY

Using a DLS Smart Sensor – Optical non-contact Speed and Distance Sensor in conjunction with a lap top computer, each vehicle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and the average times used to derive scores on the competitive test for acceleration.

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## TOP SPEED TEST OBJECTIVE

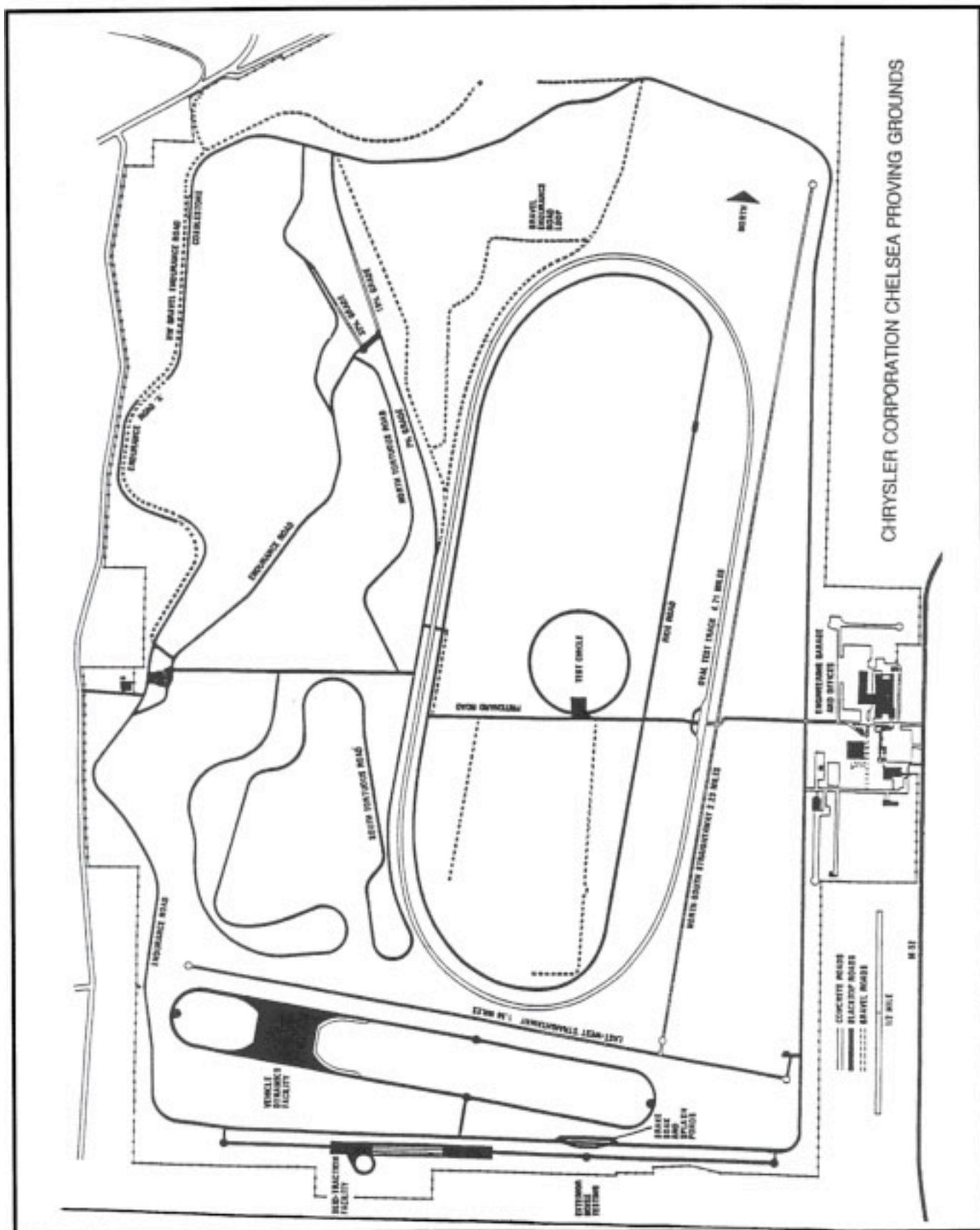
Determine the actual top speed attainable by each test vehicle within a distance of 14 miles from a standing start.

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## TOP SPEED TEST METHODOLOGY

Following the fourth acceleration run, each test vehicle continues to accelerate to the top speed attainable within 14 miles from the start of the run. The highest speed attained within the 14 mile distance is the vehicle's score on the competitive test for top speed.





CHRYSLER CORPORATION CHELSEA PROVING GROUNDS

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Chevrolet Caprice 9C1 3.6L

BEGINNING TIME: 12:49 p.m.

WIND VELOCITY: 4.3 mph

WIND DIRECTION: 31°

TEMPERATURE: 60.5°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.56	7.58	7.29	7.56	7.50
0 – 80	14.9 sec.	12.09	12.16	11.83	12.14	12.06
0 – 100	24.6 sec.	18.45	18.66	17.98	18.63	18.43

DISTANCE TO REACH: 110 MPH .45 mile

120 MPH .70 mile

TOP SPEED ATTAINED: 148 mph

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MAKE & MODEL: Chevrolet Caprice 9C1 3.6L E85

BEGINNING TIME: 10:07 a.m.

WIND VELOCITY: 1.9 mph

WIND DIRECTION: 76°

TEMPERATURE: 52.6°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.67	7.86	7.63	7.42	7.65
0 – 80	14.9 sec.	12.35	12.33	11.97	11.82	12.12
0 – 100	24.6 sec.	18.67	18.57	17.99	17.97	18.30

DISTANCE TO REACH: 110 MPH .43 mile

120 MPH .64 mile

TOP SPEED ATTAINED: 147 mph

\*Michigan State Police minimum requirement.

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Chevrolet Caprice 9C1 6.0L

BEGINNING TIME: 12:10 p.m.

WIND VELOCITY: 0.2 mph

WIND DIRECTION: 42°

TEMPERATURE: 59.7°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	5.89	5.97	5.83	5.98	5.91
0 – 80	14.9 sec.	9.50	9.59	9.36	9.65	9.53
0 – 100	24.6 sec.	14.04	14.27	13.90	14.32	14.13

DISTANCE TO REACH: 110 MPH .35 mile

120 MPH .47 mile

TOP SPEED ATTAINED: 154 mph

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MAKE & MODEL: Chevrolet Caprice 9C1 6.0L E85

BEGINNING TIME: 5:14 p.m.

WIND VELOCITY: 1.8 mph

WIND DIRECTION: 117°

TEMPERATURE: 64°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	5.96	5.92	5.99	5.92	5.95
0 – 80	14.9 sec.	9.46	9.53	9.55	9.50	9.51
0 – 100	24.6 sec.	13.88	14.00	14.07	13.99	13.99

DISTANCE TO REACH: 110 MPH .34 mile

120 MPH .45 mile

TOP SPEED ATTAINED: 153 mph

\*Michigan State Police minimum requirement.

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## ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Chevrolet Impala 9C1 3.6L

BEGINNING TIME: 8:02 a.m.

WIND VELOCITY: 1.2 mph

WIND DIRECTION: 119°

TEMPERATURE: 47.9°

### ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.60	7.56	7.38	7.31	7.46
0 – 80	14.9 sec.	12.32	12.24	12.00	11.84	12.10
0 – 100	24.6 sec.	18.97	18.92	18.45	18.52	18.72

DISTANCE TO REACH: 110 MPH .46 mile

120 MPH .69 mile

TOP SPEED ATTAINED: 149 mph

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MAKE & MODEL: Chevrolet Impala 9C1 3.6L E85

BEGINNING TIME: 1:39 p.m.

WIND VELOCITY: 5.1 mph

WIND DIRECTION: 135°

TEMPERATURE: 62.2°

### ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.02	7.12	7.06	7.21	7.10
0 – 80	14.9 sec.	11.56	11.64	11.57	11.71	11.62
0 – 100	24.6 sec.	17.48	17.64	17.64	17.64	17.60

DISTANCE TO REACH: 110 MPH .42 mile

120 MPH .63 mile

TOP SPEED ATTAINED: 150 mph

\*Michigan State Police minimum requirement.

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Chevrolet Tahoe PPV-2WD 5.3L

BEGINNING TIME: 12:28 p.m.

WIND VELOCITY: 0.7 mph

WIND DIRECTION: 232°

TEMPERATURE: 60.1°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.91	8.04	7.95	8.16	8.01
0 – 80	14.9 sec.	13.32	13.64	13.37	13.71	13.51
0 – 100	24.6 sec.	20.77	21.37	20.71	21.49	21.08

DISTANCE TO REACH: 110 MPH .56 mile

120 MPH .84 mile

TOP SPEED ATTAINED: 139 mph

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MAKE & MODEL: Chevrolet Tahoe PPV-2WD 5.3L E85

BEGINNING TIME: 11:11 a.m.

WIND VELOCITY: 2.6 mph

WIND DIRECTION: 8°

TEMPERATURE: 56.3°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	8.16	8.11	8.10	8.25	8.15
0 – 80	14.9 sec.	13.70	13.78	13.53	13.81	13.71
0 – 100	24.6 sec.	21.37	21.66	20.90	21.54	21.37

DISTANCE TO REACH: 110 MPH .57 mile

120 MPH .86 mile

TOP SPEED ATTAINED: 139 mph

\*Michigan State Police minimum requirement.

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## ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Dodge Charger 3.6L 2.65

BEGINNING TIME: 8:32 a.m.

WIND VELOCITY: 0.6 mph

WIND DIRECTION: 77°

TEMPERATURE: 49.3°

### ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	8.20	7.93	7.80	7.79	7.93
0 – 80	14.9 sec.	13.02	12.71	12.53	12.72	12.75
0 – 100	24.6 sec.	20.46	20.20	19.84	20.24	20.18

DISTANCE TO REACH: 110 MPH .52 mile

120 MPH .72 mile

TOP SPEED ATTAINED: 141 mph

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MAKE & MODEL: Dodge Charger 3.6L 2.65 E85

BEGINNING TIME: 4:52 p.m.

WIND VELOCITY: 2.9 mph

WIND DIRECTION: 107°

TEMPERATURE: 63.8°

### ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.87	7.88	7.82	7.68	7.81
0 – 80	14.9 sec.	12.53	12.57	12.36	12.35	12.45
0 – 100	24.6 sec.	19.54	19.74	19.28	19.36	19.48

DISTANCE TO REACH: 110 MPH .49 mile

120 MPH .67 mile

TOP SPEED ATTAINED: 142 mph

\*Michigan State Police minimum requirement.

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Dodge Charger 3.6L 3.07

BEGINNING TIME: 10:47 a.m.

WIND VELOCITY: 0.8 mph

WIND DIRECTION: 90°

TEMPERATURE: 54.5°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.62	7.68	7.64	7.69	7.66
0 – 80	14.9 sec.	11.87	12.02	11.87	11.95	11.93
0 – 100	24.6 sec.	19.22	19.20	18.98	19.34	19.18

DISTANCE TO REACH: 110 MPH .47 mile

120 MPH .62 mile

TOP SPEED ATTAINED: 141 mph

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MAKE & MODEL: Dodge Charger 5.7L 2.65

BEGINNING TIME: 3:30 p.m.

WIND VELOCITY: 2.8 mph

WIND DIRECTION: 125°

TEMPERATURE: 64°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	5.91	6.10	5.78	6.02	5.95
0 – 80	14.9 sec.	9.22	9.38	8.95	9.15	9.18
0 – 100	24.6 sec.	14.04	14.15	13.74	14.10	14.01

DISTANCE TO REACH: 110 MPH .32 mile

120 MPH .42 mile

TOP SPEED ATTAINED: 152 mph

\*Michigan State Police minimum requirement.

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## ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Dodge Charger 5.7L 3.06

BEGINNING TIME: 9:16 a.m.

WIND VELOCITY: 0.4 mph

WIND DIRECTION: 341°

TEMPERATURE: 50.7°

### ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	5.89	5.90	5.80	5.74	5.83
0 – 80	14.9 sec.	9.38	9.38	9.27	9.21	9.31
0 – 100	24.6 sec.	13.88	13.67	13.55	13.52	13.65

DISTANCE TO REACH: 110 MPH .31 mile

120 MPH .44 mile

TOP SPEED ATTAINED: 151 mph

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MAKE & MODEL: Ford Police Interceptor FWD 3.5L

BEGINNING TIME: 9:45 a.m.

WIND VELOCITY: 0.9 mph

WIND DIRECTION: 64°

TEMPERATURE: 51.7°

### ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.77	7.83	7.73	7.78	7.77
0 – 80	14.9 sec.	12.57	12.68	12.58	12.58	12.60
0 – 100	24.6 sec.	19.74	19.79	19.54	19.66	19.68

DISTANCE TO REACH: 110 MPH .51 mile

120 MPH .75 mile

TOP SPEED ATTAINED: 130 mph

\*Michigan State Police minimum requirement.

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Ford Police Interceptor AWD 3.5L

BEGINNING TIME: 1:17 p.m.

WIND VELOCITY: 1.7 mph

WIND DIRECTION: 36°

TEMPERATURE: 61.7°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	8.31	8.34	8.06	8.07	8.19
0 – 80	14.9 sec.	13.06	13.28	12.91	13.06	13.08
0 – 100	24.6 sec.	20.51	21.01	19.96	20.44	20.48`

DISTANCE TO REACH: 110 MPH .52 mile

120 MPH .87mile

TOP SPEED ATTAINED: 131 mph

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MAKE & MODEL: Ford Police Interceptor AWD 3.5L E85

BEGINNING TIME: 4:21 .m.

WIND VELOCITY: 2.5 mph

WIND DIRECTION: 94°

TEMPERATURE: 63.6°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.78	7.84	7.68	7.74	7.76
0 – 80	14.9 sec.	12.51	12.41	12.33	12.32	12.39
0 – 100	24.6 sec.	19.32	19.14	18.96	18.91	19.08

DISTANCE TO REACH: 110 MPH .46 mile

120 MPH .72 mile

TOP SPEED ATTAINED: 130 mph

\*Michigan State Police minimum requirement.

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Ford Police Interceptor EcoBoost AWD 3.5L

BEGINNING TIME: 2:43 p.m.

WIND VELOCITY: 5.2 mph

WIND DIRECTION: 126°

TEMPERATURE: 64.5°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	5.89	5.90	5.93	5.98	5.92
0 – 80	14.9 sec.	9.44	9.61	9.57	9.66	9.57
0 – 100	24.6 sec.	14.26	14.75	14.40	14.60	14.50

DISTANCE TO REACH: 110 MPH .37 mile

120 MPH .52 mile

TOP SPEED ATTAINED: 148 mph

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MAKE & MODEL: Ford Police Interceptor FWD Utility 3.7L

BEGINNING TIME: 6:01 p.m.

WIND VELOCITY: 3.3 mph

WIND DIRECTION: 135°

TEMPERATURE: 65.2°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.98	8.13	7.99	7.94	8.01
0 – 80	14.9 sec.	12.65	12.93	12.66	12.75	12.75
0 – 100	24.6 sec.	20.03	20.56	19.80	19.89	20.07

DISTANCE TO REACH: 110 MPH .52 mile

120 MPH .91 mile

TOP SPEED ATTAINED: 131 mph

\*Michigan State Police minimum requirement.

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# ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

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MAKE & MODEL: Ford Police Interceptor Utility AWD 3.7L E-85

BEGINNING TIME: 1:58 p.m.

WIND VELOCITY: 1.4 mph

WIND DIRECTION: 67°

TEMPERATURE: 63.7°

## ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec	7.66	7.80	7.76	7.78	7.75
0 – 80	14.9 sec.	12.29	12.53	12.68	12.57	12.52
0 – 100	24.6 sec.	19.57	20.23	19.94	20.02	19.94

DISTANCE TO REACH: 110 MPH .54 mile

120 MPH .85 mile

TOP SPEED ATTAINED: 131 mph

\*Michigan State Police minimum requirement.



## SUMMARY OF ACCELERATION AND TOP SPEED

		<b>Chevrolet Caprice 9C1 3.6L</b>	<b>Chevrolet Caprice 9C1 3.6L E85</b>	<b>Chevrolet Caprice 9C1 6.0L</b>	<b>Chevrolet Caprice 9C1 6.0L E85</b>
<b>ACCELERATION*</b>					
0 – 20 mph	(sec.)	1.87	2.04	1.59	1.64
0 – 30 mph	(sec.)	2.99	3.14	2.45	2.51
0 – 40 mph	(sec.)	4.12	4.28	3.43	3.48
0 – 50 mph	(sec.)	5.77	5.94	4.63	4.64
0 – 60 mph	(sec.)	7.50	7.65	5.91	5.95
0 – 70 mph	(sec.)	9.37	9.48	7.64	7.61
0 – 80 mph	(sec.)	12.06	12.12	9.53	9.51
0 – 90 mph	(sec.)	15.19	15.07	11.64	11.56
0 – 100 mph	(sec.)	18.43	18.30	14.13	13.99
<b>TOP SPEED</b>	(mph)	148	147	154	153
<b>DISTANCE TO REACH</b>					
110 mph	(miles)	.45	.43	.35	.34
120 mph	(miles)	.70	.64	.47	.45
<b>QUARTER MILE</b>					
Time	(sec.)	15.78	15.90	14.45	14.45
Speed	(miles)	92.02	92.55	101.16	101.50

## SUMMARY OF ACCELERATION AND TOP SPEED

	<b>Chevrolet Impala 9C1 3.6L</b>	<b>Chevrolet Impala 9C1 3.6L E85</b>	<b>Chevrolet Tahoe PPV- 2WD 5.3L</b>	<b>Chevrolet Tahoe PPV- 2WD 5.3L E85</b>
<b>ACCELERATION*</b>				
0 – 20 mph (sec.)	1.94	1.88	1.98	2.05
0 – 30 mph (sec.)	3.11	2.96	3.12	3.20
0 – 40 mph (sec.)	4.25	4.07	4.47	4.59
0 – 50 mph (sec.)	5.75	5.52	6.20	6.30
0 – 60 mph (sec.)	7.46	7.10	8.01	8.15
0 – 70 mph (sec.)	9.27	8.80	10.58	10.75
0 – 80 mph (sec.)	12.10	11.62	13.51	13.71
0 – 90 mph (sec.)	15.32	14.44	16.74	17.05
0 – 100 mph (sec.)	18.72	17.60	21.08	21.37
<b>TOP SPEED (mph)</b>	149	150	139	139
<b>DISTANCE TO REACH</b>				
110 mph (miles)	.46	.42	.56	.57
120 mph (miles)	.69	.63	.84	.86
<b>QUARTER MILE</b>				
Time (sec.)	15.81	15.53	16.32	16.44
Speed (miles)	91.50	93.45	88.69	88.37

## SUMMARY OF ACCELERATION AND TOP SPEED

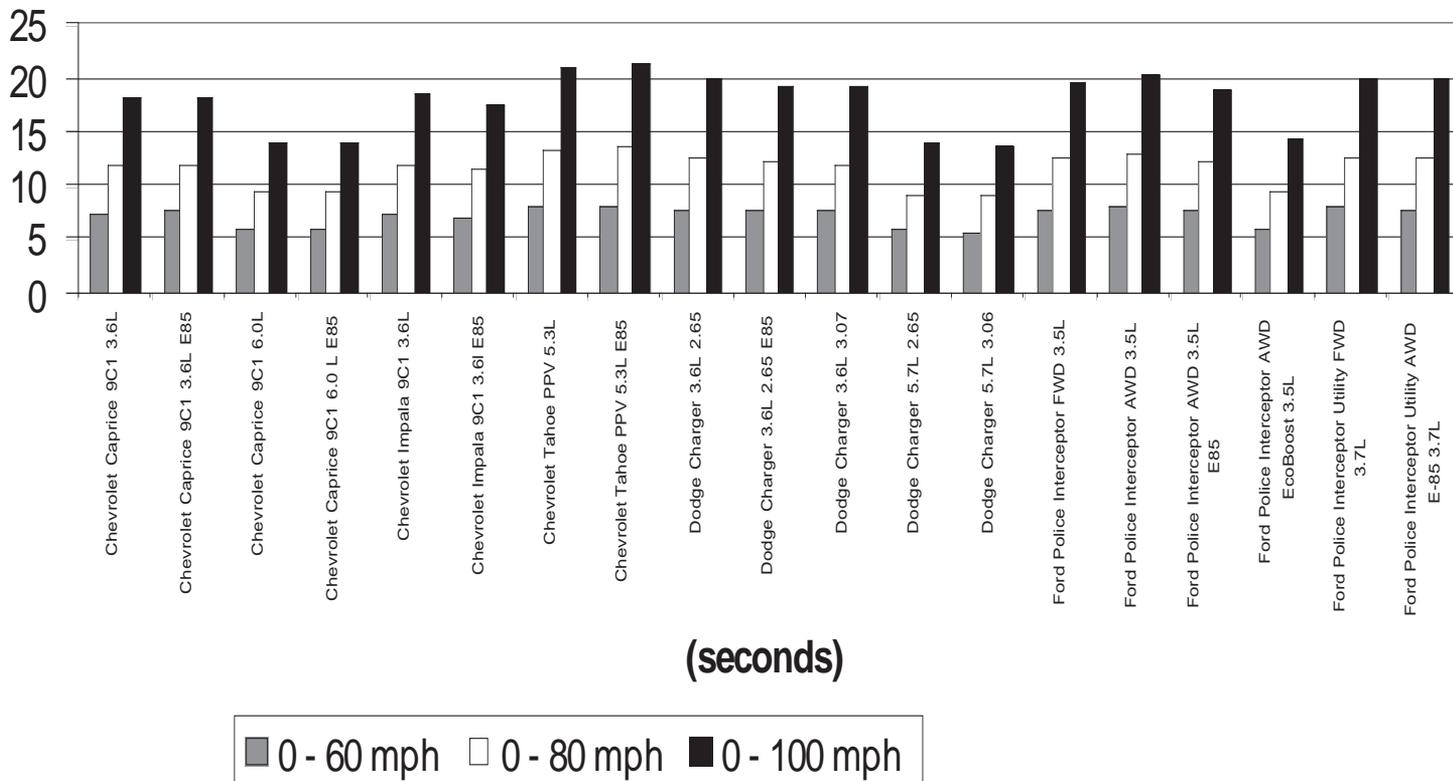
ACCELERATION*	Dodge Charger 3.6L 2.65	Dodge Charger 3.6L 2.65 E85	Dodge Charger 3.6L 3.07	Dodge Charger 5.7L 2.65	Dodge Charger 5.7L 3.06
0 – 20 mph (sec.)	1.86	1.95	1.92	1.61	1.68
0 – 30 mph (sec.)	3.26	3.30	3.13	2.52	2.47
0 – 40 mph (sec.)	4.63	4.58	4.34	3.43	3.35
0 – 50 mph (sec.)	6.07	6.00	5.80	4.57	4.56
0 – 60 mph (sec.)	7.93	7.81	7.66	5.95	5.83
0 – 70 mph (sec.)	10.26	10.01	9.65	7.40	7.38
0 – 80 mph (sec.)	12.75	12.45	11.93	9.18	9.31
0 – 90 mph (sec.)	15.51	15.15	15.47	11.53	11.43
0 – 100 mph (sec.)	20.18	19.48	19.18	14.01	13.65
TOP SPEED (mph)	141	142	141	152	151
DISTANCE TO REACH					
110 mph (miles)	.52	.49	.47	.32	.31
120 mph (miles)	.72	.67	.62	.42	.44
QUARTER MILE					
Time (sec.)	16.12	16.04	15.88	14.38	14.35
Speed (miles)	91.46	92.58	91.18	101.50	102.74

## SUMMARY OF ACCELERATION AND TOP SPEED

ACCELERATION*	Ford Police Interceptor FWD 3.5L	Ford Police Interceptor AWD 3.5L	Ford Police Interceptor AWD 3.5L E85	Ford Police Interceptor EcoBoost AWD 3.5L	Ford Police Interceptor Utility FWD 3.7L	Ford Police Interceptor UtilityAWD 3.7L
0 – 20 mph (sec.)	2.09	2.16	2.08	1.58	2.20	1.96
0 – 30 mph (sec.)	3.13	3.25	3.08	2.32	3.23	2.95
0 – 40 mph (sec.)	4.44	4.62	4.39	3.23	4.54	4.26
0 – 50 mph (sec.)	5.94	6.13	5.80	4.41	6.00	5.78
0 – 60 mph (sec.)	7.77	8.19	7.76	5.92	8.01	7.75
0 – 70 mph (sec.)	10.15	10.50	10.00	7.53	10.25	9.88
0 – 80 mph (sec.)	12.60	13.08	12.39	9.57	12.75	12.52
0 – 90 mph (sec.)	15.59	16.17	15.33	11.91	15.92	15.75
0 – 100 mph (sec.)	19.68	20.48	19.08	14.50	20.07	19.94
TOP SPEED (mph)	130	131	130	148	131	131
DISTANCE TO REACH						
110 mph (miles)	.51	.52	.46	.37	.52	.54
120 mph (miles)	.75	.87	.72	.52	.91	.85
QUARTER MILE						
Time (sec.)	16.09	16.33	15.99	14.45	16.21	15.97
Speed (miles)	91.68	90.44	91.93	99.86	90.90	90.72

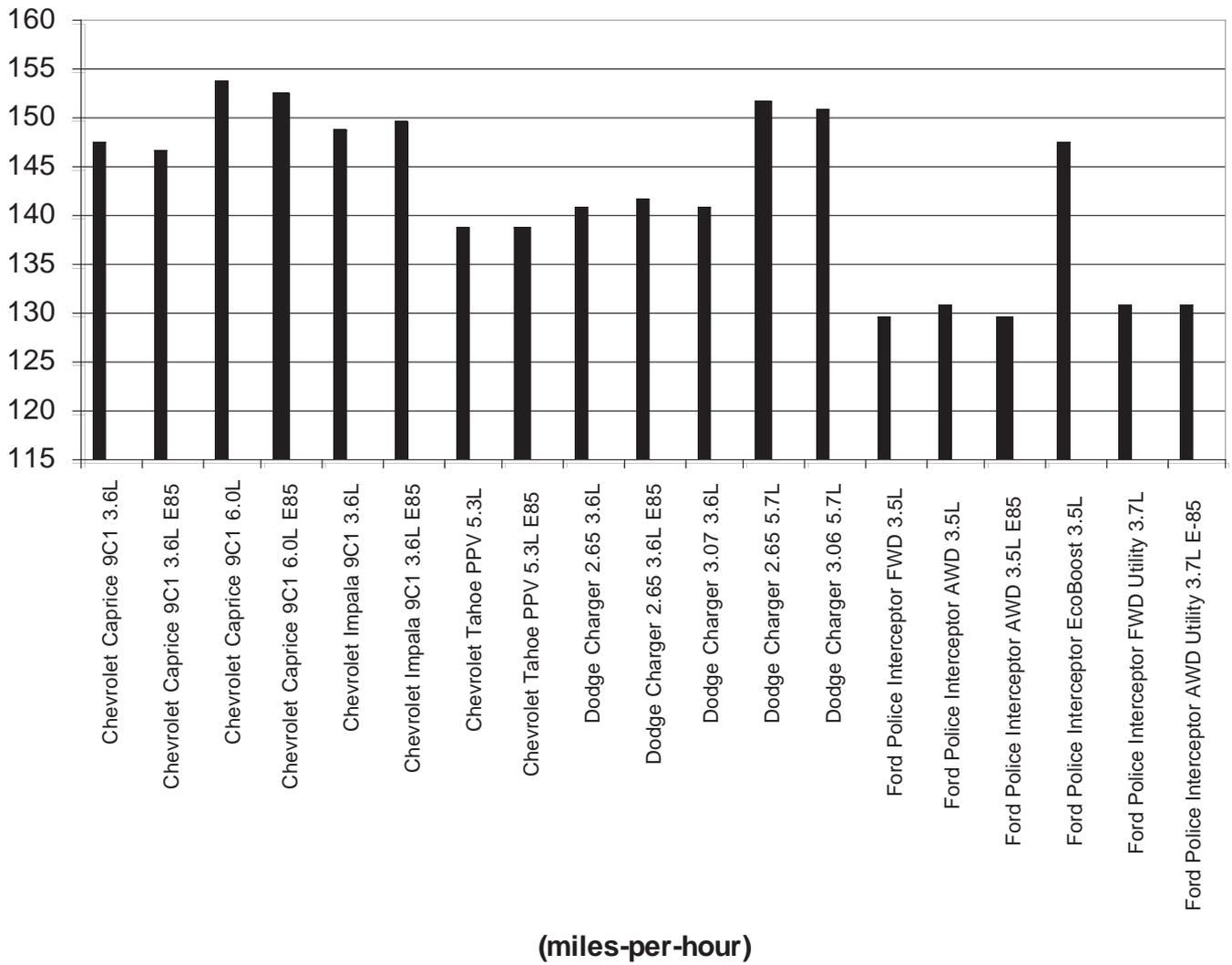
# 2012 ACCELERATION COMPARISON

## ACCELERATION TIMES



# 2012 TOP SPEED COMPARISON

## TOP SPEED ATTAINED



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# BRAKE TESTING

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## BRAKE TEST OBJECTIVE

Determine the deceleration rate attained by each test vehicle on twenty 60 – 0 mph full ABS stops. Each vehicle is scored on the average deceleration rate it achieves.

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## BRAKE TEST METHODOLOGY

Each vehicle is taken to the 1.6 mile east/west straightaway and started from the beginning of the straightaway with “cold” brakes. The vehicle then begins its sequence of stops heading in a westerly direction. Within the 1.6 miles, the vehicle is stopped 5 times at pre-determined points on the roadway (.3 miles apart). The vehicle is then turned around and stops an additional 5 times again at pre-determined points on the roadway in an easterly direction. After the 10 stops, the vehicle drives the length of the straightaway (down and back) at 45 mph. This is done in an effort to cool the brakes before the second sequence. After the down and back lap, the 10 stops are repeated.

The data resulting from the twenty stops is used to calculate the average deceleration rate which is the vehicle’s score for the test.

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## DECELERATION RATE FORMULA

$$\text{Deceleration Rate (DR)} = \frac{\text{Initial Velocity}^*(\text{IV}) \text{ squared}}{2 \text{ times Stopping Distance (SD)}} = \frac{(\text{IV})^2}{2 (\text{SD})}$$

### EXAMPLE:

$$\begin{aligned} \text{Initial Velocity} &= 89.175 \text{ ft/s (60.8 mph x 1.4667*)} \\ \text{Stopping Distance} &= 171.4 \text{ ft.} \end{aligned}$$

$$\text{DR} = \frac{(\text{IV})^2}{2(\text{SD})} = \frac{(89.175)^2}{2(171.4)} = \frac{7952.24}{342.8} = 23.198 \text{ ft/s}^2$$

Once a vehicle’s average deceleration rate has been determined, it is possible to calculate the stopping distance from any given speed by utilizing the following formula:

Select a speed; translate that speed into feet per second; square the feet per second figure by multiplying it by itself; divide the resultant figure by 2; divide the remaining figure by the average deceleration rate of the vehicle in question.

### EXAMPLE:

$$60 \text{ mph} = 88.002 \text{ ft/s} \times 88.002 = 7744.352 / 2 = 3872.176 / 23.198 \text{ ft/s}^2 = 166.9 \text{ ft.}$$

\*Initial velocity must be expressed in terms of feet per second, with 1 mile per hour being equal to 1.4667 feet per second.

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## BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 10:44 a.m.

TEMPERATURE: 54.2°F

MAKE & MODEL: Chevrolet Caprice 9C1 3.6L

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.19 mph	127.67 feet	30.52 ft/s <sup>2</sup>
Stop #2	59.87 mph	124.54 feet	30.96 ft/s <sup>2</sup>
Stop #3	60.05 mph	127.42 feet	30.44 ft/s <sup>2</sup>
Stop #4	60.15 mph	128.06 feet	30.38 ft/s <sup>2</sup>
Stop #5	59.69 mph	125.78 feet	30.47 ft/s <sup>2</sup>
Stop #6	59.88 mph	126.05 feet	30.60 ft/s <sup>2</sup>
Stop #7	60.18 mph	129.28 feet	30.13 ft/s <sup>2</sup>
Stop #8	60.28 mph	125.14 feet	31.23 ft/s <sup>2</sup>
Stop #9	59.79 mph	122.75 feet	31.32 ft/s <sup>2</sup>
Stop #10	60.40 mph	128.06 feet	30.64 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.67 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

### Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.02 mph	129.15 feet	30.01 ft/s <sup>2</sup>
Stop #2	60.21 mph	124.85 feet	31.24 ft/s <sup>2</sup>
Stop #3	60.27 mph	125.82 feet	31.05 ft/s <sup>2</sup>
Stop #4	60.65 mph	126.35 feet	31.31 ft/s <sup>2</sup>
Stop #5	60.56 mph	129.89 feet	30.36 ft/s <sup>2</sup>
Stop #6	60.04 mph	127.97 feet	30.30 ft/s <sup>2</sup>
Stop #7	60.26 mph	128.85 feet	30.31 ft/s <sup>2</sup>
Stop #8	60.38 mph	126.19 feet	31.08 ft/s <sup>2</sup>
Stop #9	60.19 mph	126.40 feet	30.83 ft/s <sup>2</sup>
Stop #10	60.20 mph	128.70 feet	30.29 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.68 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**30.67 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 126.2 feet

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## BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 7:56 a.m.

TEMPERATURE: 47.9°F

MAKE & MODEL: Chevrolet Caprice 9C1 6.0L

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.33 mph	124.90 feet	31.35 ft/s <sup>2</sup>
Stop #2	59.99 mph	126.51 feet	30.59 ft/s <sup>2</sup>
Stop #3	60.05 mph	125.43 feet	30.93 ft/s <sup>2</sup>
Stop #4	60.31 mph	126.31 feet	30.97 ft/s <sup>2</sup>
Stop #5	60.08 mph	126.37 feet	30.73 ft/s <sup>2</sup>
Stop #6	60.21 mph	130.15 feet	29.96 ft/s <sup>2</sup>
Stop #7	59.96 mph	127.50 feet	30.33 ft/s <sup>2</sup>
Stop #8	60.27 mph	127.96 feet	30.54 ft/s <sup>2</sup>
Stop #9	60.57 mph	129.31 feet	30.51 ft/s <sup>2</sup>
Stop #10	59.92 mph	126.87 feet	30.44 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.63 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

### Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.83 mph	124.28 feet	32.02 ft/s <sup>2</sup>
Stop #2	59.60 mph	121.17 feet	31.53 ft/s <sup>2</sup>
Stop #3	60.03 mph	125.43 feet	30.90 ft/s <sup>2</sup>
Stop #4	60.36 mph	127.70 feet	30.68 ft/s <sup>2</sup>
Stop #5	59.23 mph	122.07 feet	30.91 ft/s <sup>2</sup>
Stop #6	59.95 mph	126.16 feet	30.64 ft/s <sup>2</sup>
Stop #7	60.63 mph	130.09 feet	30.40 ft/s <sup>2</sup>
Stop #8	60.18 mph	124.71 feet	31.24 ft/s <sup>2</sup>
Stop #9	60.38 mph	127.36 feet	30.79 ft/s <sup>2</sup>
Stop #10	59.99 mph	129.07 feet	29.99 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.91 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**30.77 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 125.8 feet

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## BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 9:28 a.m.

TEMPERATURE: 51.1°F

MAKE & MODEL: Chevrolet Impala 9C1 3.6L

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.79 mph	139.56 feet	28.48 ft/s <sup>2</sup>
Stop #2	60.71 mph	132.46 feet	29.93 ft/s <sup>2</sup>
Stop #3	60.55 mph	135.99 feet	29.00 ft/s <sup>2</sup>
Stop #4	60.54 mph	134.33 feet	29.34 ft/s <sup>2</sup>
Stop #5	60.45 mph	134.48 feet	29.23 ft/s <sup>2</sup>
Stop #6	60.74 mph	136.44 feet	29.08 ft/s <sup>2</sup>
Stop #7	60.12 mph	133.17 feet	29.19 ft/s <sup>2</sup>
Stop #8	60.12 mph	132.57 feet	29.33 ft/s <sup>2</sup>
Stop #9	60.03 mph	131.87 feet	29.40 ft/s <sup>2</sup>
Stop #10	60.33 mph	136.54 feet	28.67 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.17 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

### Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.20 mph	135.24 feet	28.82 ft/s <sup>2</sup>
Stop #2	60.25 mph	132.31 feet	29.51 ft/s <sup>2</sup>
Stop #3	60.73 mph	134.31 feet	29.53 ft/s <sup>2</sup>
Stop #4	59.88 mph	134.44 feet	28.69 ft/s <sup>2</sup>
Stop #5	60.67 mph	133.47 feet	29.66 ft/s <sup>2</sup>
Stop #6	60.15 mph	134.92 feet	28.85 ft/s <sup>2</sup>
Stop #7	59.77 mph	131.89 feet	29.14 ft/s <sup>2</sup>
Stop #8	59.91 mph	131.39 feet	29.38 ft/s <sup>2</sup>
Stop #9	60.49 mph	133.30 feet	29.53 ft/s <sup>2</sup>
Stop #10	60.12 mph	132.59 feet	29.32 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.24 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**29.20 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 132.6 feet

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## BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 10:19 a.m.

TEMPERATURE: 52.7°F

MAKE & MODEL: Chevrolet Tahoe 2WD PPV

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.28 mph	136.17 feet	28.70 ft/s <sup>2</sup>
Stop #2	60.03 mph	130.39 feet	29.72 ft/s <sup>2</sup>
Stop #3	60.87 mph	133.81 feet	29.79 ft/s <sup>2</sup>
Stop #4	60.14 mph	131.55 feet	29.57 ft/s <sup>2</sup>
Stop #5	60.58 mph	134.79 feet	29.29 ft/s <sup>2</sup>
Stop #6	60.08 mph	131.15 feet	29.60 ft/s <sup>2</sup>
Stop #7	60.54 mph	137.33 feet	28.71 ft/s <sup>2</sup>
Stop #8	59.91 mph	130.73 feet	29.53 ft/s <sup>2</sup>
Stop #9	60.50 mph	134.08 feet	29.36ft/s <sup>2</sup>
Stop #10	60.11 mph	134.02 feet	28.99 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.33 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

### Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.32 mph	138.61 feet	28.24 ft/s <sup>2</sup>
Stop #2	60.10 mph	132.14 feet	29.40 ft/s <sup>2</sup>
Stop #3	60.34 mph	134.03 feet	29.22 ft/s <sup>2</sup>
Stop #4	60.01 mph	133.75 feet	28.96 ft/s <sup>2</sup>
Stop #5	59.88 mph	133.77 feet	28.83 ft/s <sup>2</sup>
Stop #6	60.18 mph	138.14 feet	28.20 ft/s <sup>2</sup>
Stop #7	60.33 mph	139.17 feet	28.13 ft/s <sup>2</sup>
Stop #8	60.40 mph	137.98 feet	28.44 ft/s <sup>2</sup>
Stop #9	60.11 mph	137.81 feet	28.20 ft/s <sup>2</sup>
Stop #10	59.79 mph	138.55 feet	27.75 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**28.54 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**28.93 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 133.8 feet

# BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 1:18 p.m.

TEMPERATURE: 62.0°F

MAKE & MODEL: Dodge Charger 3.6L

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.57 mph	128.03 feet	29.81 ft/s <sup>2</sup>
Stop #2	60.14 mph	128.23 feet	30.34 ft/s <sup>2</sup>
Stop #3	60.01 mph	126.33 feet	30.66 ft/s <sup>2</sup>
Stop #4	60.39 mph	128.43 feet	30.54 ft/s <sup>2</sup>
Stop #5	60.54 mph	130.23 feet	30.27 ft/s <sup>2</sup>
Stop #6	60.20 mph	127.45 feet	30.59 ft/s <sup>2</sup>
Stop #7	60.17 mph	130.57 feet	29.82 ft/s <sup>2</sup>
Stop #8	60.40 mph	132.49 feet	29.61 ft/s <sup>2</sup>
Stop #9	60.20 mph	122.56 feet	31.80 ft/s <sup>2</sup>
Stop #10	60.15 mph	129.57 feet	30.04 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.35 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

## Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.93 mph	131.63 feet	29.35 ft/s <sup>2</sup>
Stop #2	60.42 mph	131.04 feet	29.96 ft/s <sup>2</sup>
Stop #3	60.35 mph	129.48 feet	30.26 ft/s <sup>2</sup>
Stop #4	60.17 mph	127.06 feet	30.65 ft/s <sup>2</sup>
Stop #5	60.63 mph	124.71 feet	31.70 ft/s <sup>2</sup>
Stop #6	60.15 mph	121.77 feet	31.96 ft/s <sup>2</sup>
Stop #7	60.59 mph	131.00 feet	30.14 ft/s <sup>2</sup>
Stop #8	60.34 mph	126.30 feet	31.00 ft/s <sup>2</sup>
Stop #9	60.41 mph	126.55 feet	31.02 ft/s <sup>2</sup>
Stop #10	60.06 mph	128.26 feet	30.25ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.63 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**30.49 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 127.0 feet

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## BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 12:56 p.m.

TEMPERATURE: 61.9°F

MAKE & MODEL: Dodge Charger 5.7L

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.14 mph	132.11 feet	29.45 ft/s <sup>2</sup>
Stop #2	60.33 mph	128.45 feet	30.48 ft/s <sup>2</sup>
Stop #3	59.94 mph	126.38 feet	30.58 ft/s <sup>2</sup>
Stop #4	60.06 mph	128.06 feet	30.30 ft/s <sup>2</sup>
Stop #5	60.18 mph	130.71 feet	29.80 ft/s <sup>2</sup>
Stop #6	60.19 mph	129.58 feet	30.07 ft/s <sup>2</sup>
Stop #7	60.13 mph	132.56 feet	29.33 ft/s <sup>2</sup>
Stop #8	60.31 mph	130.28 feet	30.03 ft/s <sup>2</sup>
Stop #9	60.03 mph	130.81 feet	29.63 ft/s <sup>2</sup>
Stop #10	59.98 mph	129.80 feet	29.81 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.95 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

### Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.24 mph	132.70 feet	29.41 ft/s <sup>2</sup>
Stop #2	60.41 mph	131.39 feet	29.87 ft/s <sup>2</sup>
Stop #3	60.40 mph	128.99 feet	30.42 ft/s <sup>2</sup>
Stop #4	60.14 mph	130.32 feet	29.85 ft/s <sup>2</sup>
Stop #5	59.88 mph	131.10 feet	29.42 ft/s <sup>2</sup>
Stop #6	60.23 mph	130.57 feet	29.88 ft/s <sup>2</sup>
Stop #7	60.36 mph	135.08 feet	29.01 ft/s <sup>2</sup>
Stop #8	59.98 mph	130.60 feet	29.63 ft/s <sup>2</sup>
Stop #9	60.31 mph	130.90 feet	29.88 ft/s <sup>2</sup>
Stop #10	60.20 mph	132.40 feet	29.44 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.68 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**29.82 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 129.9 feet

# BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 11:14 a.m.

TEMPERATURE: 56.2°F

MAKE & MODEL: Ford Police Interceptor FWD 3.5L

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.04 mph	132.32 feet	29.30 ft/s <sup>2</sup>
Stop #2	60.68 mph	133.56 feet	29.65 ft/s <sup>2</sup>
Stop #3	60.21 mph	130.70 feet	29.84 ft/s <sup>2</sup>
Stop #4	60.54 mph	134.46 feet	29.32 ft/s <sup>2</sup>
Stop #5	61.39 mph	133.99 feet	30.25 ft/s <sup>2</sup>
Stop #6	60.00 mph	131.30 feet	29.49 ft/s <sup>2</sup>
Stop #7	59.98 mph	134.85 feet	28.70 ft/s <sup>2</sup>
Stop #8	60.80 mph	135.00 feet	29.45 ft/s <sup>2</sup>
Stop #9	60.31 mph	129.58 feet	30.19 ft/s <sup>2</sup>
Stop #10	60.11 mph	134.36 feet	28.92 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.51 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

## Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.31 mph	134.20 feet	29.15 ft/s <sup>2</sup>
Stop #2	60.22 mph	130.54 feet	29.88 ft/s <sup>2</sup>
Stop #3	60.02 mph	128.66 feet	30.11 ft/s <sup>2</sup>
Stop #4	60.40 mph	132.45 feet	29.63 ft/s <sup>2</sup>
Stop #5	59.57 mph	128.66 feet	29.67 ft/s <sup>2</sup>
Stop #6	60.08 mph	127.32 feet	30.50 ft/s <sup>2</sup>
Stop #7	59.55 mph	132.46 feet	28.79 ft/s <sup>2</sup>
Stop #8	59.88 mph	131.04 feet	29.53 ft/s <sup>2</sup>
Stop #9	60.10 mph	130.77 feet	29.71 ft/s <sup>2</sup>
Stop #10	59.86 mph	132.59 feet	29.07 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.59 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?	<u>No</u>
Vehicle stopped in straight line?	<u>Yes</u>
Vehicle stopped within correct lane?	<u>Yes</u>

**OVERALL AVERAGE DECEL. RATE:**

**29.55 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 131.0 feet

# BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 9:51 a.m.

TEMPERATURE: 52.0°F

MAKE & MODEL: Ford Police Interceptor AWD 3.5L

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.51 mph	130.88 feet	30.09 ft/s <sup>2</sup>
Stop #2	60.25 mph	131.47 feet	29.70 ft/s <sup>2</sup>
Stop #3	60.20 mph	132.17 feet	29.50 ft/s <sup>2</sup>
Stop #4	59.67 mph	131.27 feet	29.17 ft/s <sup>2</sup>
Stop #5	60.67 mph	133.51 feet	29.66 ft/s <sup>2</sup>
Stop #6	60.30 mph	132.11 feet	29.61 ft/s <sup>2</sup>
Stop #7	60.43 mph	134.12 feet	29.29 ft/s <sup>2</sup>
Stop #8	60.60 mph	136.62 feet	28.92 ft/s <sup>2</sup>
Stop #9	60.32 mph	129.30 feet	30.27 ft/s <sup>2</sup>
Stop #10	60.23 mph	137.10 feet	28.46 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.46 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

## Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.50 mph	138.10 feet	28.51 ft/s <sup>2</sup>
Stop #2	60.38 mph	133.33 feet	29.41 ft/s <sup>2</sup>
Stop #3	60.18 mph	129.62 feet	30.05 ft/s <sup>2</sup>
Stop #4	60.31 mph	134.38 feet	29.12 ft/s <sup>2</sup>
Stop #5	60.09 mph	133.62 feet	29.07 ft/s <sup>2</sup>
Stop #6	60.50 mph	133.87 feet	29.41 ft/s <sup>2</sup>
Stop #7	60.44 mph	136.18 feet	28.86 ft/s <sup>2</sup>
Stop #8	60.10 mph	131.42 feet	29.56 ft/s <sup>2</sup>
Stop #9	60.38 mph	132.65 feet	29.56 ft/s <sup>2</sup>
Stop #10	60.13 mph	131.84 feet	29.49 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.30 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?	<u>No</u>
Vehicle stopped in straight line?	<u>Yes</u>
Vehicle stopped within correct lane?	<u>Yes</u>

**OVERALL AVERAGE DECEL. RATE:**

**29.38 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 131.8 feet

# BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 9:04 a.m.

TEMPERATURE: 50.4°F

MAKE & MODEL: Ford Police Interceptor EcoBoost AWD 3.5L

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.14 mph	131.41 feet	29.60 ft/s <sup>2</sup>
Stop #2	60.59 mph	131.85 feet	29.95 ft/s <sup>2</sup>
Stop #3	59.62 mph	126.28 feet	30.27 ft/s <sup>2</sup>
Stop #4	60.45 mph	132.03 feet	29.77 ft/s <sup>2</sup>
Stop #5	60.41 mph	132.34 feet	29.66 ft/s <sup>2</sup>
Stop #6	60.31 mph	129.20 feet	30.28 ft/s <sup>2</sup>
Stop #7	60.52 mph	138.36 feet	28.48 ft/s <sup>2</sup>
Stop #8	59.96 mph	128.66 feet	30.06 ft/s <sup>2</sup>
Stop #9	60.54 mph	129.90 feet	30.35 ft/s <sup>2</sup>
Stop #10	60.13 mph	130.59 feet	29.78 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.82 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

## Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.02 mph	131.29 feet	29.51 ft/s <sup>2</sup>
Stop #2	60.67 mph	132.15 feet	29.96 ft/s <sup>2</sup>
Stop #3	60.49 mph	131.93 feet	29.84 ft/s <sup>2</sup>
Stop #4	60.20 mph	128.27 feet	30.39 ft/s <sup>2</sup>
Stop #5	60.24 mph	130.15 feet	29.99 ft/s <sup>2</sup>
Stop #6	60.21 mph	130.58 feet	29.86 ft/s <sup>2</sup>
Stop #7	60.05 mph	133.01 feet	29.16 ft/s <sup>2</sup>
Stop #8	60.07 mph	131.81 feet	29.45 ft/s <sup>2</sup>
Stop #9	60.33 mph	129.18 feet	30.31 ft/s <sup>2</sup>
Stop #10	59.86 mph	128.88 feet	29.90 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.84 ft/s<sup>2</sup>**

## Phase III

	Yes/No
Evidence of severe fading?	<u>No</u>
Vehicle stopped in straight line?	<u>Yes</u>
Vehicle stopped within correct lane?	<u>Yes</u>

**OVERALL AVERAGE DECEL. RATE:**

**29.83 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 129.8 feet

# BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 8:39 a.m.

TEMPERATURE: 49.6°F

MAKE & MODEL: Ford Police Interceptor Utility FWD 3.7L

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.03 mph	131.37 feet	29.51 ft/s <sup>2</sup>
Stop #2	60.12 mph	127.81 feet	30.42 ft/s <sup>2</sup>
Stop #3	60.53 mph	128.42 feet	30.69 ft/s <sup>2</sup>
Stop #4	60.22 mph	126.57 feet	30.82 ft/s <sup>2</sup>
Stop #5	60.21 mph	127.19 feet	30.66 ft/s <sup>2</sup>
Stop #6	60.49 mph	131.62 feet	29.90 ft/s <sup>2</sup>
Stop #7	60.75 mph	135.47 feet	29.30 ft/s <sup>2</sup>
Stop #8	59.94 mph	130.02 feet	29.72 ft/s <sup>2</sup>
Stop #9	60.38 mph	130.96 feet	29.94 ft/s <sup>2</sup>
Stop #10	59.42 mph	125.61 feet	30.23 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.12 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

## Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.17 mph	130.32 feet	29.88 ft/s <sup>2</sup>
Stop #2	59.88 mph	127.83 feet	30.17 ft/s <sup>2</sup>
Stop #3	59.96 mph	127.57 feet	30.31 ft/s <sup>2</sup>
Stop #4	60.16 mph	128.09 feet	30.39 ft/s <sup>2</sup>
Stop #5	60.15 mph	128.50 feet	30.28 ft/s <sup>2</sup>
Stop #6	59.89 mph	121.60 feet	31.73 ft/s <sup>2</sup>
Stop #7	60.29 mph	133.87 feet	29.20 ft/s <sup>2</sup>
Stop #8	60.66 mph	133.72 feet	29.60 ft/s <sup>2</sup>
Stop #9	60.24 mph	128.67 feet	30.34 ft/s <sup>2</sup>
Stop #10	60.12 mph	130.39 feet	29.82 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**30.17 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**30.15 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph

128.4 feet

# BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds

DATE: September 17, 2011

BEGINNING Time: 12:28 p.m.

TEMPERATURE: 60.1°F

MAKE & MODEL: Ford Police Interceptor Utility AWD 3.7L

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.85 mph	132.94 feet	28.98 ft/s <sup>2</sup>
Stop #2	60.43 mph	130.82 feet	30.03 ft/s <sup>2</sup>
Stop #3	59.98 mph	128.69 feet	30.07 ft/s <sup>2</sup>
Stop #4	60.42 mph	132.09 feet	29.73 ft/s <sup>2</sup>
Stop #5	60.13 mph	130.58 feet	29.79 ft/s <sup>2</sup>
Stop #6	59.97 mph	129.15 feet	29.95 ft/s <sup>2</sup>
Stop #7	60.27 mph	135.43 feet	28.84 ft/s <sup>2</sup>
Stop #8	60.09 mph	131.53 feet	29.52 ft/s <sup>2</sup>
Stop #9	60.06 mph	130.79 feet	29.66 ft/s <sup>2</sup>
Stop #10	60.22 mph	134.85 feet	28.93 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.55 ft/s<sup>2</sup>**

One cool down lap at 45 mph.

## Phase II

TEST: (Ten 60 –0 mph full ABS maximum deceleration stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.41 mph	135.40 feet	28.99 ft/s <sup>2</sup>
Stop #2	60.52 mph	133.82 feet	29.44 ft/s <sup>2</sup>
Stop #3	60.30 mph	131.80 feet	29.67 ft/s <sup>2</sup>
Stop #4	60.36 mph	135.40 feet	28.94 ft/s <sup>2</sup>
Stop #5	59.95 mph	131.55 feet	29.39 ft/s <sup>2</sup>
Stop #6	60.41 mph	135.22 feet	29.03 ft/s <sup>2</sup>
Stop #7	60.20 mph	134.49 feet	28.99 ft/s <sup>2</sup>
Stop #8	60.13 mph	131.55 feet	29.57 ft/s <sup>2</sup>
Stop #9	59.94 mph	129.76 feet	29.78 ft/s <sup>2</sup>
Stop #10	59.86 mph	133.86 feet	28.79 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**29.26 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?	Yes/No
Vehicle stopped in straight line?	<u>No</u>
Vehicle stopped within correct lane?	<u>Yes</u>

**OVERALL AVERAGE DECEL. RATE:**

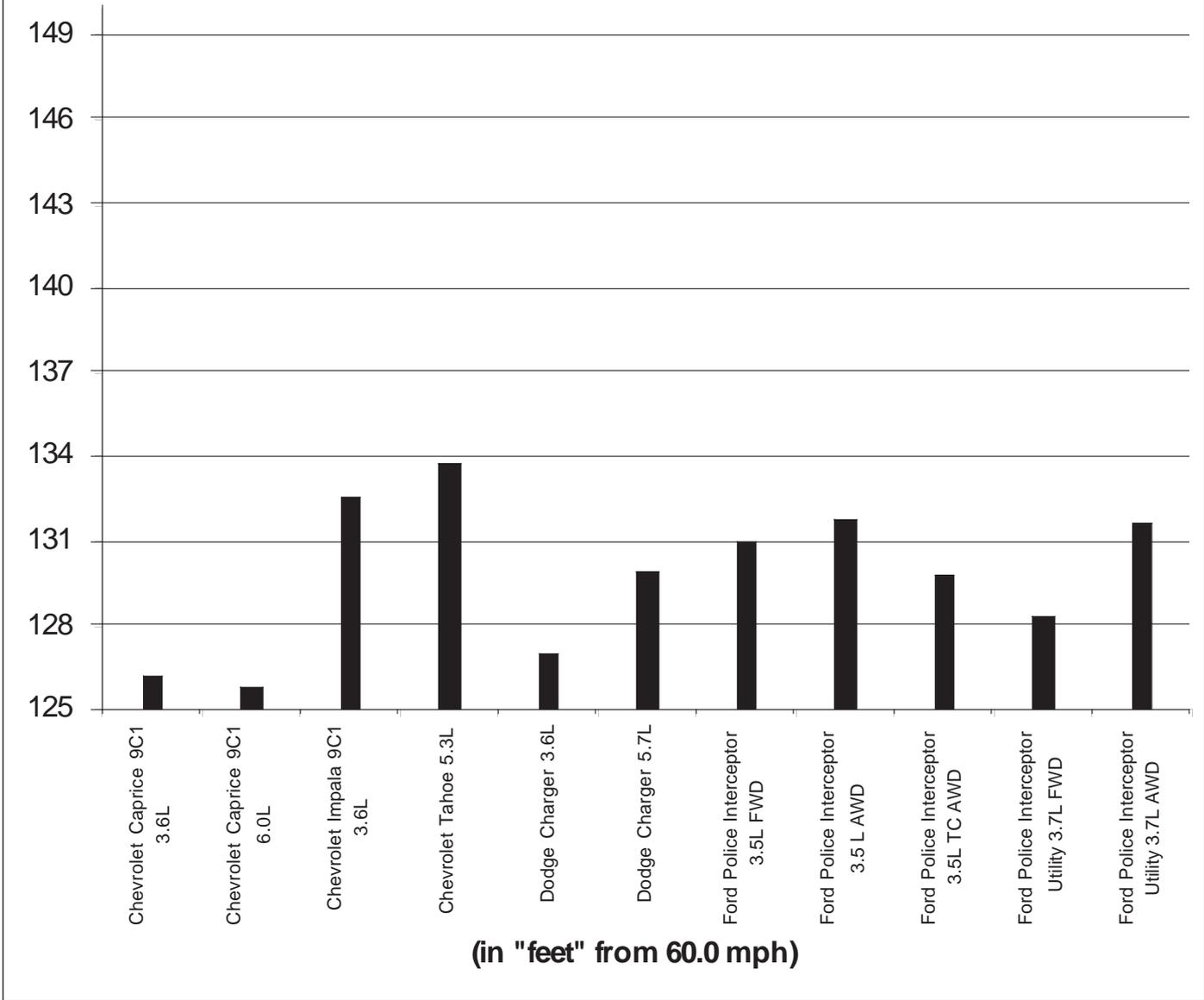
**29.40 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph

131.7 feet

# 2012 Brake Testing

## STOPPING DISTANCE





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# ERGONOMICS AND COMMUNICATIONS

## TEST OBJECTIVE

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Rate each test vehicle's ability to:

1. Provide a suitable environment for the patrol officer in the performance of his/her assigned tasks.
2. Accommodate the required communications and emergency warning equipment and assess the relative difficulty of such installations.

## TEST METHODOLOGY

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Utilizing the ergonomics portion of the form, a minimum of four officers (in this case 6) individually and independently compare and score each test vehicle on the various comfort, instrumentation, and visibility items. The installation and communications portion of the evaluation is conducted by personnel from DIT Communications, based upon the relative difficulty of the necessary installations. Each factor is graded on a 1 to 10 scale, with 1 representing "totally unacceptable," 5 representing "average," and 10 representing "superior." The scores are averaged to minimize personal prejudice for or against any given vehicle.

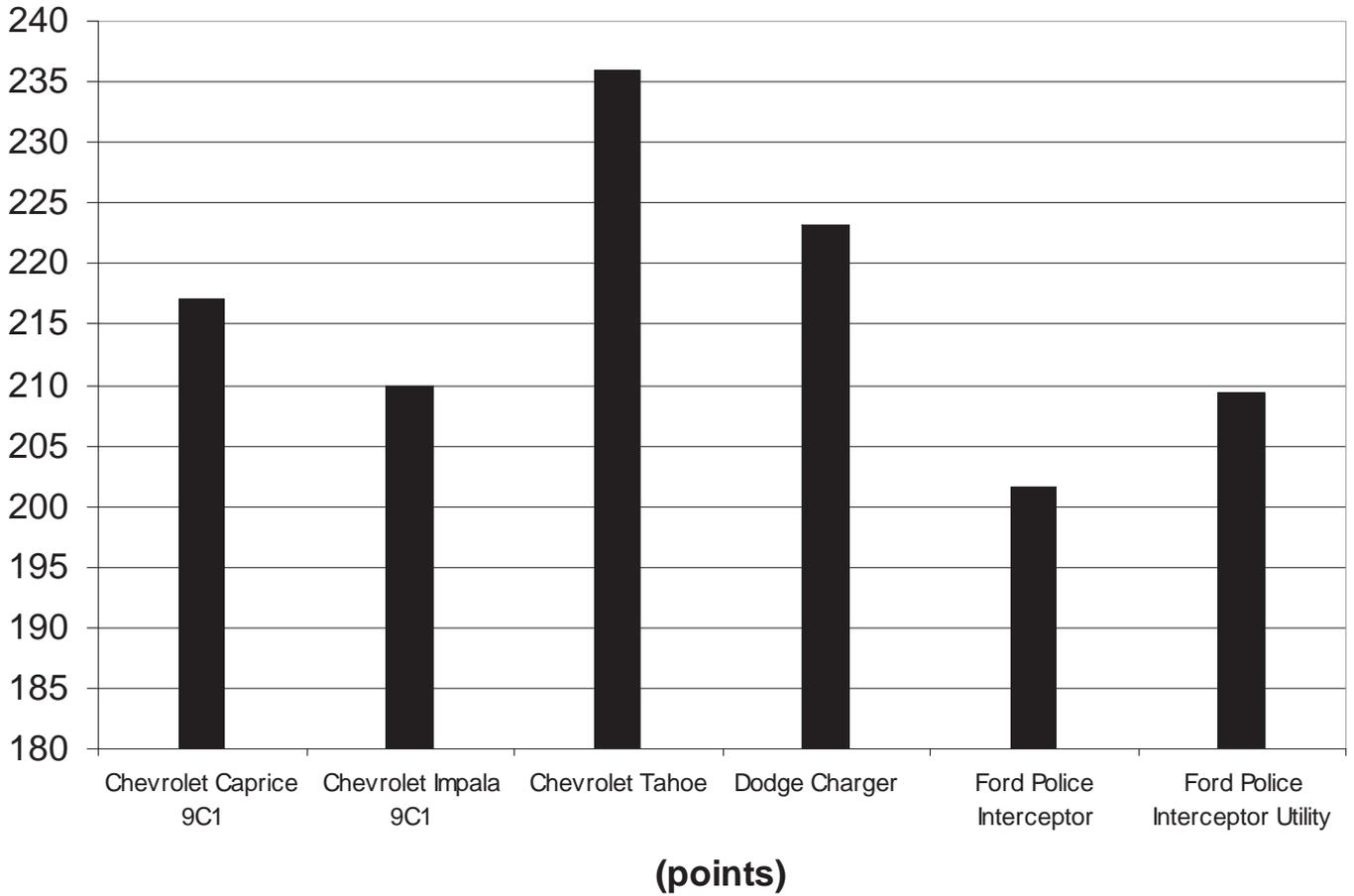


## ERGONOMICS AND COMMUNICATIONS

<b>ERGONOMICS</b>	<b>Chevrolet Caprice</b>	<b>Chevrolet Impala</b>	<b>Chevrolet Tahoe</b>	<b>Dodge Charger</b>	<b>Ford Police Interceptor</b>	<b>Ford Police Interceptor Utility</b>
<b>FRONT SEAT</b>						
Padding	8.67	7.67	8.33	8.33	7.50	7.50
Depth of Bucket Seat	8.67	7.67	8.33	8.17	6.50	6.50
Adjustability – Front to Rear	6.83	8.33	9.33	8.83	8.17	8.50
Upholstery	8.83	7.50	8.50	8.00	8.00	8.17
Bucket Seat Design	9.00	7.67	8.50	8.00	5.83	6.17
Headroom	8.33	7.50	9.50	8.67	7.67	9.00
Seatbelts	8.33	8.00	9.00	8.33	8.67	8.33
Ease of Entry and Exit	8.17	7.67	9.17	8.33	7.50	8.33
Overall Comfort Rating	8.50	7.67	8.83	8.50	7.67	8.00
<b>REAR SEAT</b>						
Leg room – Front seat back	9.17	5.83	9.00	7.33	6.67	7.50
Ease of Entry and Exit	8.83	5.83	8.83	7.67	6.17	8.67
<b>INSTRUMENTATION</b>						
Clarity	9.00	8.83	9.00	9.17	8.50	8.50
Placement	8.83	8.67	9.00	8.83	8.33	8.50
<b>VEHICLE CONTROLS</b>						
Pedals, Size, and Position	8.83	8.33	8.67	8.67	8.50	8.33
Power Window Switch	8.00	8.50	8.83	8.83	8.67	8.50
Inside Door Lock Switch	7.67	7.83	8.67	8.67	7.33	7.33
Automatic Door Lock Switch	8.00	7.00	8.67	8.33	7.33	7.50
Outside Mirror Controls	7.83	7.67	9.17	8.67	8.33	8.17
Steering Wheel, Size, Tilt Release, and Surface	8.67	8.50	9.17	8.50	8.00	7.50
Heat/AC Vent Placement and Adjustability	7.67	8.67	9.17	8.50	8.17	8.17
<b>VISIBILITY</b>						
Front (Windshield)	8.67	8.67	9.17	8.67	8.50	8.67
Rear (Back Window)	7.83	7.17	8.00	7.50	6.00	7.00
Left Rear Quarter	7.67	7.67	7.50	7.00	6.67	7.50
Right Rear Quarter	7.50	7.50	6.83	6.67	6.17	6.83
Outside Rear View Mirrors	7.83	6.83	9.17	8.17	7.83	7.83
<b>COMMUNICATIONS</b>						
Dashboard Accessibility	4.76	6.28	5.40	6.24	5.25	4.77
Trunk Accessibility	4.99	4.87	5.27	5.28	3.28	3.27
Engine Compartment	5.33	5.67	5.80	5.33	4.42	4.40
<b>TOTAL SCORES</b>	<b>217.14</b>	<b>209.99</b>	<b>235.88</b>	<b>223.18</b>	<b>201.62</b>	<b>209.44</b>

# 2012 ERGONOMICS/COMMUNICATIONS

## VEHICLE SCORES





# FUEL ECONOMY

## TEST OBJECTIVE

Determine the fuel economy potential of all vehicles being evaluated. The data used for scoring are both valid and reliable in a comparison sense, while not necessarily being an accurate predictor of actual fuel economy in police patrol service.

## TEST METHODOLOGY

The vehicles will be scored based on estimates for city fuel economy to the nearest 1/10<sup>th</sup> mile per gallon (mpg) developed from data supplied by the vehicle manufacturer and certified by the Environmental Protection Agency.

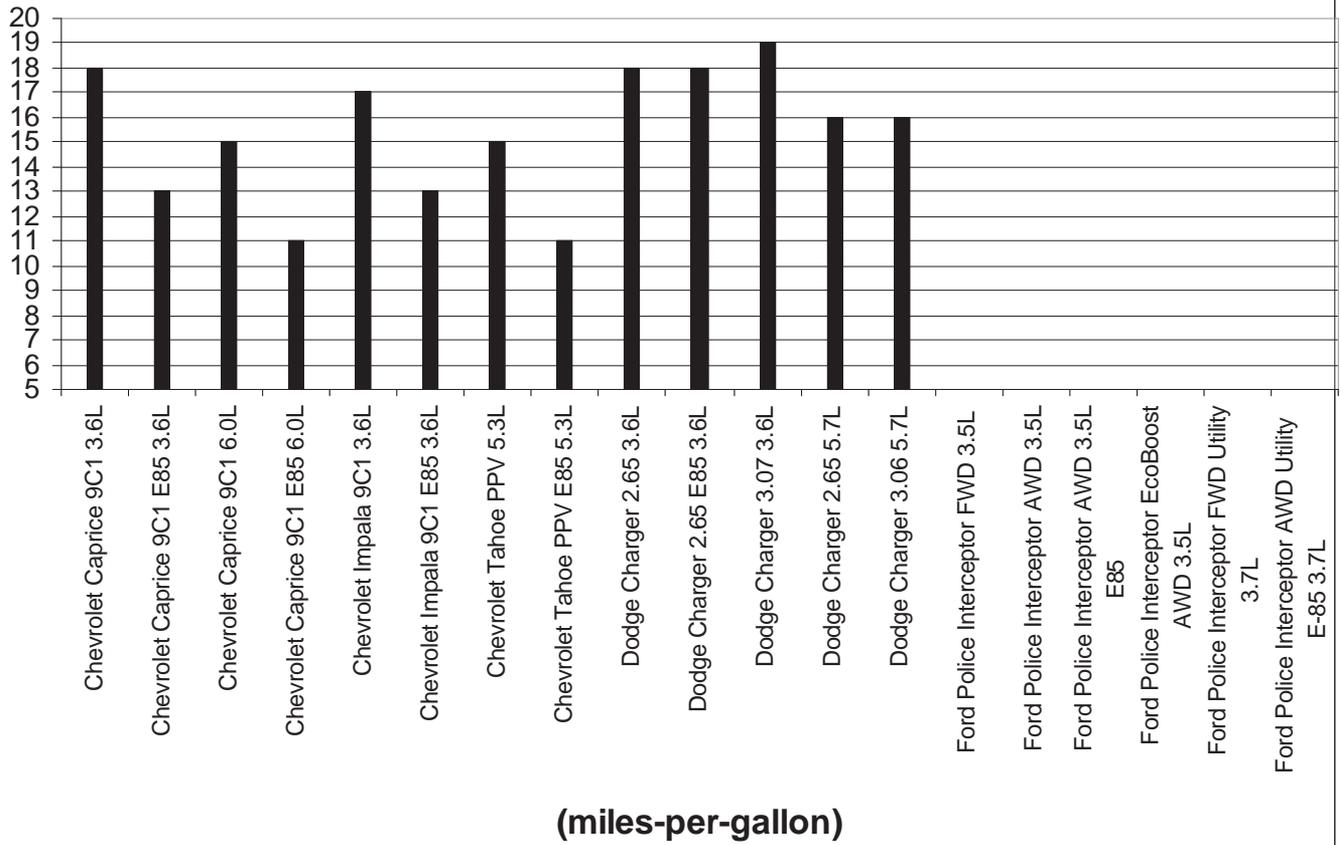
Vehicles Make/Model/Engine	E.P.A. Miles Per Gallon		
	City Label	Highway Label	Combined Label
Chevrolet Caprice 9C1 3.6L	18	26	21
Chevrolet Caprice 9C1 E-85 3.6L	13	18	15
Chevrolet Caprice 9C1 6.0L	15	24	18
Chevrolet Caprice 9C1 E85 6.0L	11	17	13
Chevrolet Impala 9C1 3.6L	17	28	21
Chevrolet Impala 9C1 E85 3.6L	13	21	16
Chevrolet Tahoe PPV 5.3L	15	21	17
Chevrolet Tahoe PPV E85 5.3L	11	16	13
Dodge Charger 2.65 3.6L	18	27	21
Dodge Charger 2.65 E85 3.6L	18	27	21
Dodge Charger 3.07 3.6L	19	26	21
Dodge Charger 2.65 5.7L	16	25	19
Dodge Charger 3.06 5.7L	16	25	19

Vehicles Make/Model/Engine	E.P.A. Miles Per Gallon		
	City Label	Highway Label	Combined Label
Ford Police Interceptor FWD 3.5L	*N/A	*N/A	*N/A
Ford Police Interceptor AWD 3.5L	*N/A	*N/A	*N/A
Ford Police Interceptor AWD E-85 3.5L	*N/A	*N/A	*N/A
Ford Police Interceptor AWD Turbo 3.5L	*N/A	*N/A	*N/A
Ford Police Interceptor Utility FWD 3.7L	*N/A	*N/A	*N/A
Ford Police Interceptor Utility AWD E-85 3.7L	*N/A	*N/A	*N/A

\*Official fuel economy available at [www.ford.com/fordpoliceinterceptor](http://www.ford.com/fordpoliceinterceptor)

# 2012 FUEL ECONOMY COMPARISON

## "CITY" EPA ESTIMATES





# MICHIGAN STATE POLICE SCORING AND BID ADJUSTMENT METHODOLOGY\*

## STEP I: RAW SCORES

Raw scores are developed, through testing, for each vehicle in each of six evaluation categories. The raw scores are expressed in terms of seconds, feet per second<sup>2</sup>, miles-per-hour, points, and miles-per-gallon.

VEHICLE DYNAM. (seconds)	BRAKING RATE (ft/sec <sup>2</sup> )	ACCEL. TO 100MPH (seconds)	TOP SPEED (mph)	ERGONOMICS & COMMUN. (points)	FUEL ECONOMY (mpg)
94.39	30.77	13.65	154	235.88	21.00

## STEP II: DEVIATION FACTOR

In each evaluation category, the best scoring vehicle's score is used as the benchmark against which each of the other vehicles' scores are compared. (In the Vehicle Dynamics and Acceleration categories the lowest score is best, while in the remainder of the categories the highest score is best.) The best scoring vehicle in a given category received a deviation factor of "0." The "deviation factor" is then calculated by determining the absolute difference between each vehicle's raw score and the best score in that category. The absolute difference is then divided by the best score, with the result being the "deviation factor."

CAR MAKE MODEL	TOP SPEED
CAR "A"	130 .156
CAR "B"	139 .097
CAR "C"	148 .039
CAR "D"	154 0

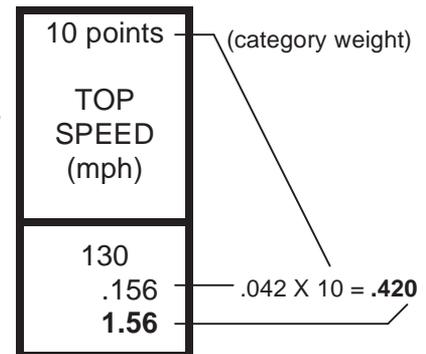
### EXAMPLE:

Best Score (Car "D")	Other Vehicle Score (Car "A")	Absolute Difference	Best Score	Deviation Factor (Car "A")
154	130	24	154	.156
-	=	/	=	

## STEP III: WEIGHTED CATEGORY SCORE

Each vehicle's weighted category score is determined by multiplying the deviation factor (as determined in Step II) by the category weight.

RAW SCORE  
DEVIATION FACTOR  
WEIGHTED CATEGORY SCORE



\*All mathematical computations are to be rounded to the third decimal place.

## STEP IV: TOTAL WEIGHTED SCORE

Adding together the six (6) weighted category scores for that vehicle derives the total weighted score for each vehicle.

### EXAMPLE:

CAR	30 pts. VEH. DYN. (seconds)	25 pts. BRAKE DECEL. (ft/sec <sup>2</sup> )	20 pts. ACCEL. (seconds)	10 pts. TOP SPEED (mph)	10 pts. ERGO/ COMM. (points)	5 pts. FULE ECON. (mpg)	TOTAL WEIGHTED SCORE
Car "A"	97.71 .035 1.055	29.82 .031 .772	18.43 .350 7.004	139 .097 .970	235.88 .000 .000	18 .143 .714	<b>10.515</b>

## STEP V: BID ADJUSTMENT FIGURE

The bid adjustment figure that we have chosen to use is one percent (1%) of the lowest bid price received. As an example, in this and the following two steps, the lowest bid price received was \$18,097.00, which results in a bid adjustment figure of **\$180.97**.

## STEP VI: ACTUAL DOLLAR ADJUSTMENT

The actual dollar adjustment for a vehicle is determined by multiplying that vehicle's total weighted score by the bid adjustment figure as shown at right.

TOTAL WTD. SCORE	BID ADJ. FIGURE	ACTUAL DOLLAR ADJ.
X		=
10.515	\$180.97	<b>\$1,902.90</b>

## STEP VII: ADJUSTED BID PRICE

The actual dollar adjustment amount arrived at for each vehicle is added to that vehicle's bid price. Provided other necessary approvals are received, the vehicle with the lowest adjusted bid price will be the vehicle purchased. (The amount paid for the purchased vehicles will be the actual bid price.)

ACTUAL DOLLAR ADJ.	ACTUAL BID PRICE	ADJ. BID PRICE
+		=
\$1902.90	\$23,414.00	<b>\$25,316.90</b>

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## PERFORMANCE COMPARISONS OF 2011 AND 2012 TEST VEHICLES

The following charts illustrate the scores achieved by each make and model of vehicle tested for model years 2011 and 2012. The charts presented are for the following performance categories:

- Vehicle Dynamics
- Acceleration 0 – 60 mph
- Acceleration 0 – 80 mph
- Acceleration 0 – 100 mph
- Top Speed
- Braking (Calculated 60 – 0 mph Stopping Distance)

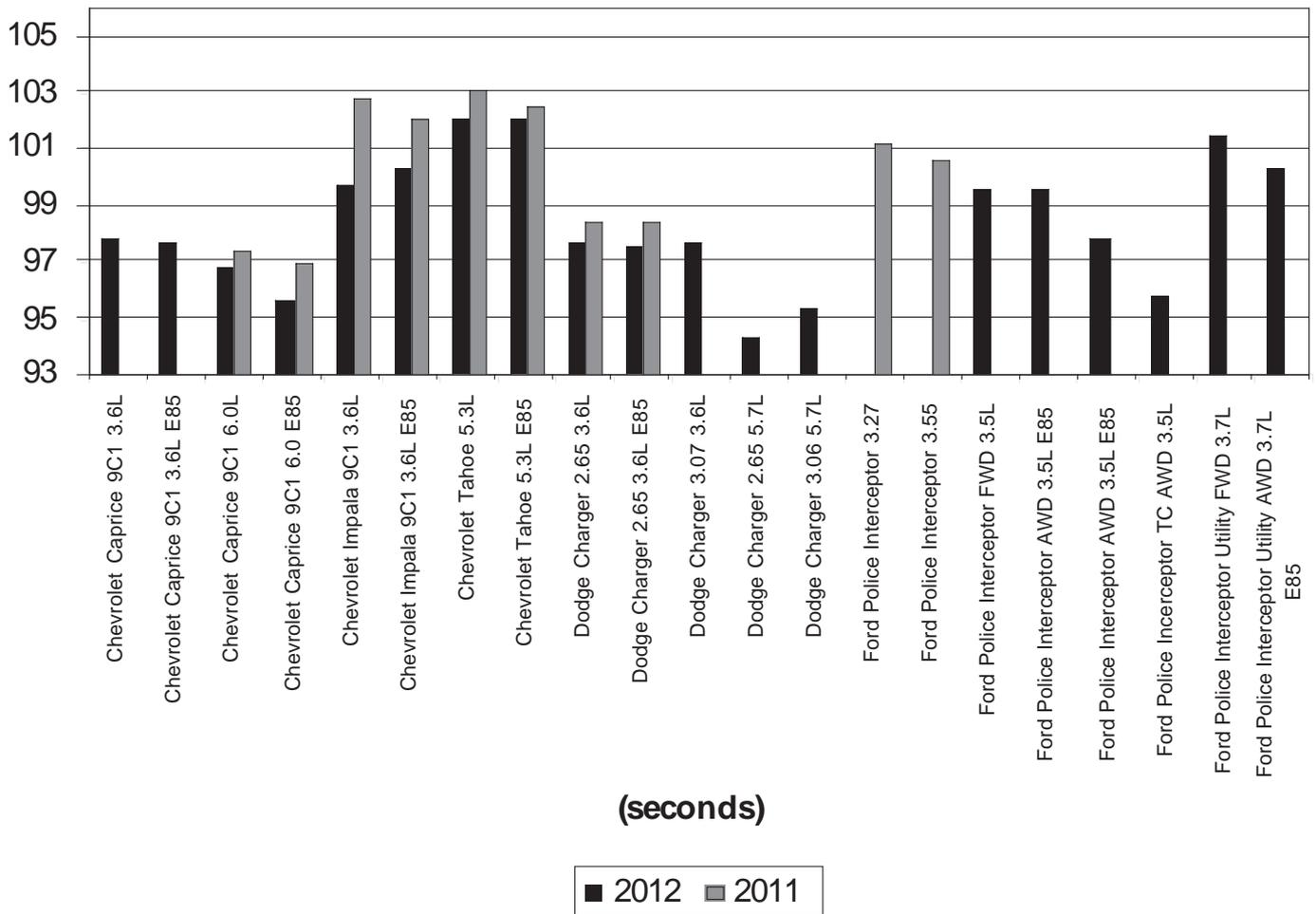
The reader should bear in mind the following information regarding variables when reviewing the 2011 – 2012 performance comparison charts. While as many variables as possible are eliminated from a given year's testing, those that occur over the span of a full year are sometimes impossible to eliminate.

The acceleration, top speed, and brake testing of both the 2011 and 2012 model year vehicles were conducted in the latter half of September. Temperatures on the test day in September of 2011 ranged between 61° F at the start of testing to a high of approximately 75° F during the afternoon. Temperatures during the testing this year varied, ranging between 47.9° F when testing started, to an afternoon high of 65.4° F. Such things as temperature, humidity, and barometric pressure affect the performance of internal combustion engines and brake components, and may cause minor differences from one year's evaluation to the next.

Another factor to be considered is the individual differences between two cars of the same make and model. The test cars that we evaluate are representative of their given make and model. Other cars of the same make and model will not, however, be exactly the same, particularly when it comes to performance. (It is well known that two consecutive cars off the same assembly line will perform slightly differently from each other.) Minor differences in performance from year to year within the same make and model are not only possible, but are to be expected.

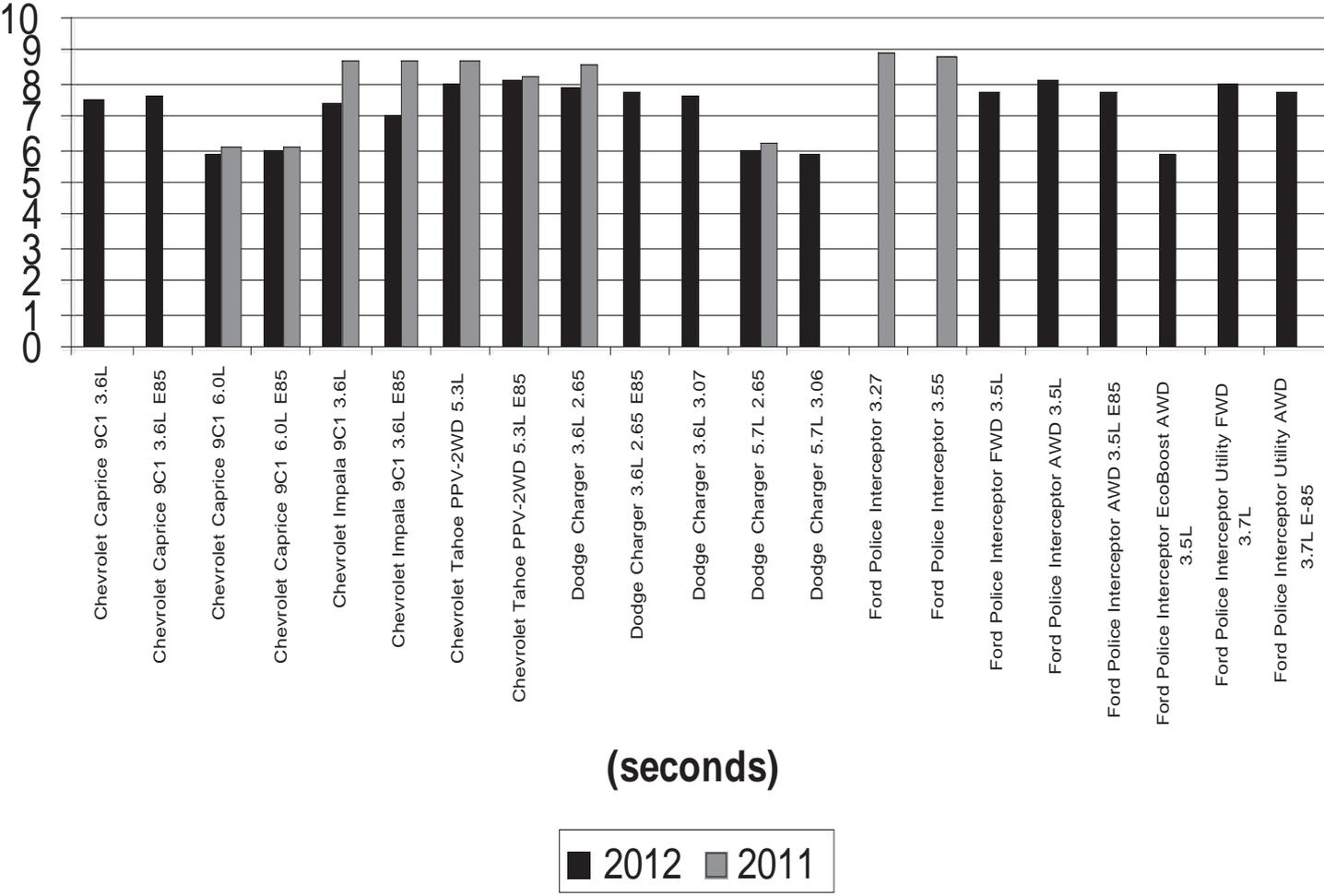
# 2011-12 Vehicle Dynamics Comparison

## LAP TIMES



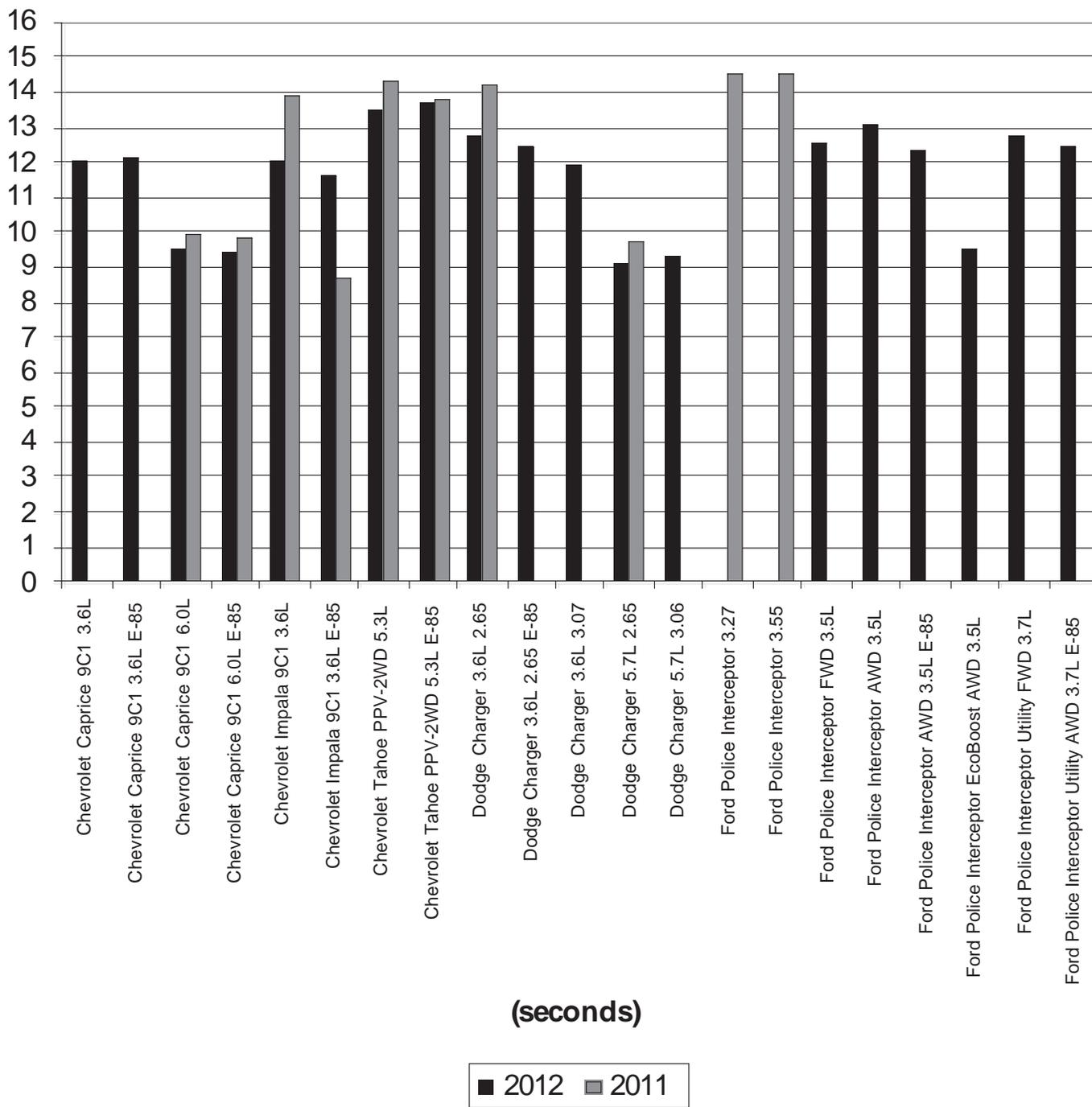
# 2011-12 ACCELERATION COMPARISON

0-60 MPH



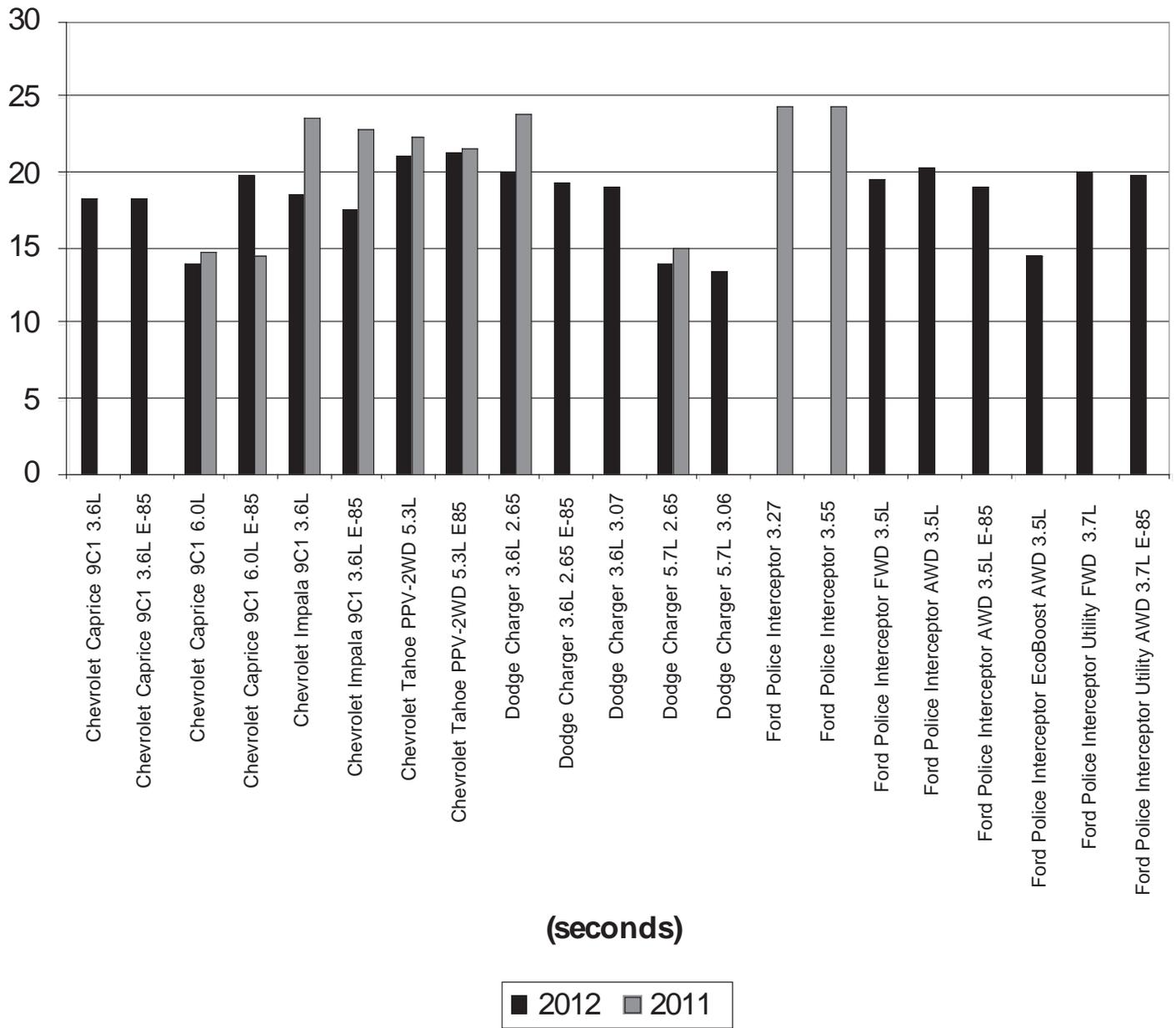
# 2011-12 ACCELERATION COMPARISON

0-80 MPH



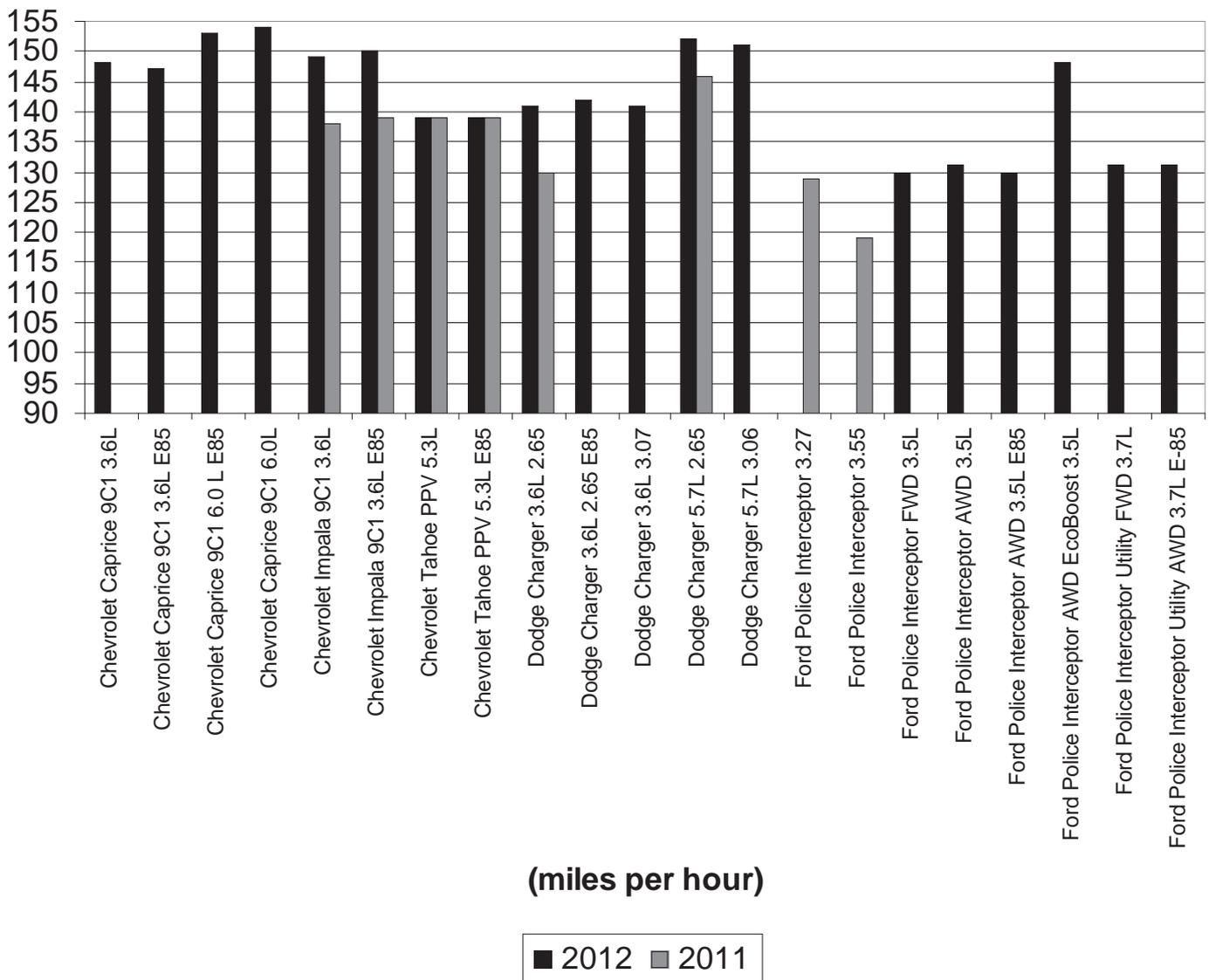
# 2011-12 ACCELERATION COMPARISON

## 0-100 MPH



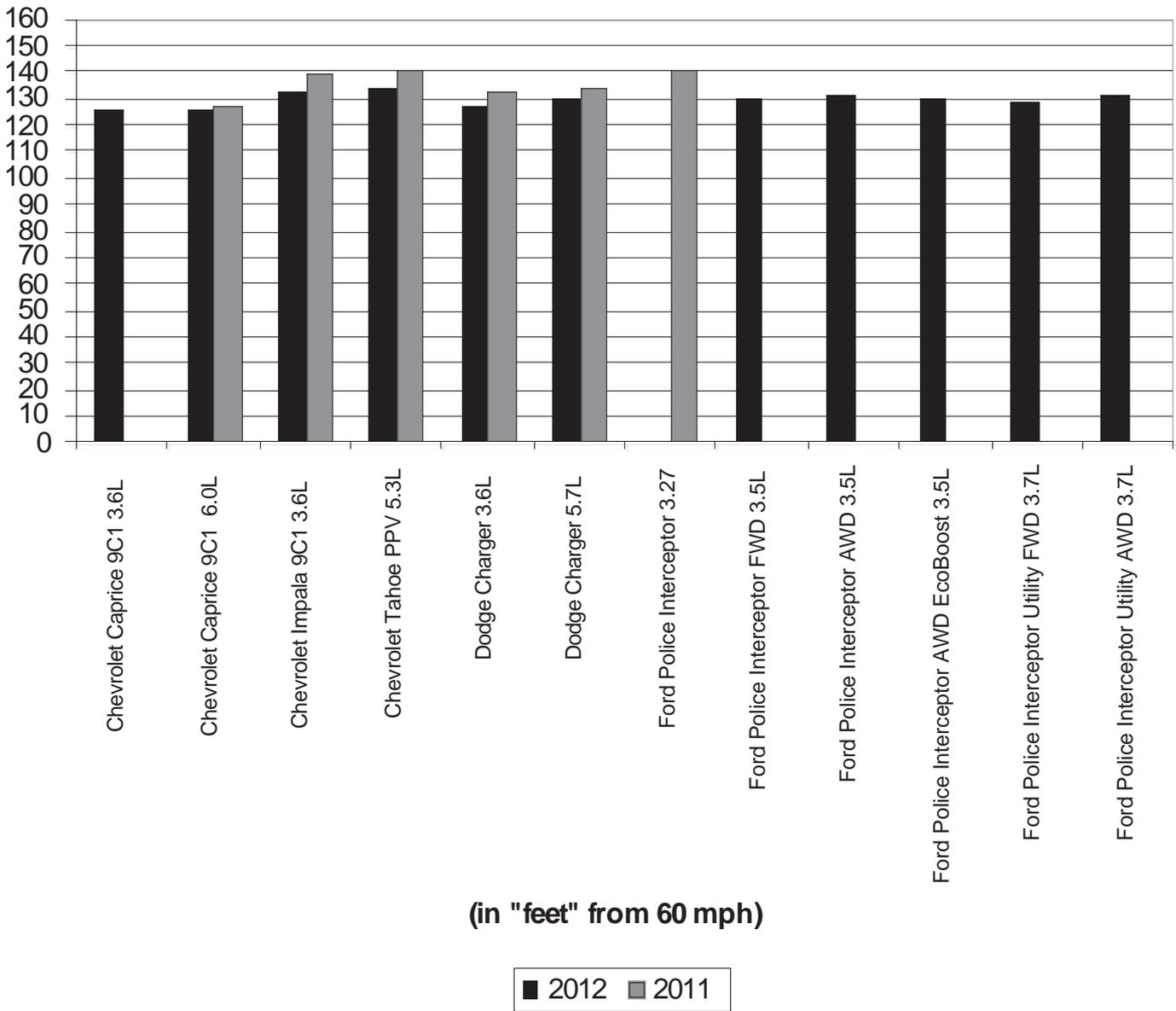
# 2011-12 TOP SPEED COMPARISON

## TOP SPEED ATTAINED



# 2011-12 BRAKE TESTING COMPARISON

## STOPPING DISTANCES





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# MOTORCYCLES

Like many law enforcement agencies, the Michigan State Police used motorcycles until late 1941 and then switched to automobiles. The Michigan State Police rekindled interest in motorcycles for day to day patrol operations in 1993. In 2004, Michigan State Police headquarters asked if we had additional information as a resource for our purchasing decisions regarding motorcycles. During that time, we were given direction to expand vehicle testing to include motorcycle testing. We would like to thank Harley-Davidson, BMW, Kawasaki and Victory for participating and providing their assistance in preparation for this year's successful testing program.

We are constantly evaluating our various tests with the manufacturers and the law enforcement industry to provide you with the most objective test data available. While there are many similarities to automobiles, there are also quite a few differences.

This year we conducted motorcycle brake testing on our track at the Precision Driving Unit in Lansing. Our facility provides a very flat and consistent surface for this type of testing. Thus, better information is provided to the reader as to the braking capabilities of each motorcycle.

During the 2012 Model Year motorcycle testing, we encountered the below listed issues:

- Brake Testing: The BMW R1200 RTP displayed rear wheel lift, although, it was not nearly as severe or occur as frequently this year as it did during last years test. The BMW R 1200 RTP completed the brake test with no other issues. It should be noted the rear wheel lift displayed during brake testing, was not an issue during the dynamics portion of the testing.
- During the motorcycle dynamics portion, we discovered the Victory Vision came equipped with an aftermarket exhaust. After further discussion with the manufacturer, they explained that a stage 1 accessory kit comes standard on the Victory Vision police model which includes an aftermarket exhaust system.

For the last several years, the motorcycle dynamics portion took place at the Michigan State Police Precision Driving unit. This year, we conducted the motorcycle dynamics at Grattan Raceway. Grattan Raceway provides a two mile road course that has several different curves and elevation changes that tests the motorcycles high speed handling characteristics during pursuit and emergency response riding. See the motorcycle dynamics test objectives for further information.

When looking at the data, it is very important for the reader to apply your mission requirements to the motorcycle you are considering so you may make an appropriate decision. This report is not an endorsement of products, but a means of learning what's available for your officers so they can do their job more effectively and safely. If anything in this report requires further explanation or clarification, please call or write the Michigan State Police Precision Driving Unit.



# Harley Davidson Electra Glide



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Harley-Davidson	<b>MODEL</b> FLHTP	<b>SALES CODE NO.</b> N/A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC CENTIMETERS</b> 1690	<b>ENGINE</b> Twin Cam 103 Air cooled V-Twin 4-stroke w/oil cooler	
<b>FUEL SYSTEM</b>	Electronic Sequential Port FI	<b>EXHAUST</b> Two into One into Two Crossover Dual	
<b>BORE &amp; STROKE</b>	3.875 X 4.375	<b>ALTERNATOR</b> 50 Amp	
<b>TORQUE</b>	102 FT.LBS. @3500 RPM	<b>BATTERY</b> 12V 28 amp/hour, 270CCA	
<b>COMPRESSION RATIO</b>	9.6:1		
<b>TRANSMISSION</b>	<b>PRIMARY DRIVE</b> 34/46	<b>FINAL DRIVE</b> 32/68	
<b>GEAR RATIO</b>	1st/9.593 2 <sup>nd</sup> /6.650 3rd/4.938 4th/4.0 5th/3.378 6th/2.875		
<b>LEAN ANGLE</b>	<b>LEFT</b> 31°	<b>RIGHT</b> 33°	
<b>CLUTCH</b>	Wet Multi-Plate		
<b>WHEELS/TIRES</b>	Wheels / Slotted Disc Cast Aluminum front and rear / Front 17 X 3 / Rear 16 X 5 Tires / Front Dunlop D408F 130/80B17 Rear Dunlop D407 180/65B16		
<b>FRONT SUSPENSION</b>	<b>FORK ANGLE</b> 29.25°	<b>RAKE</b> 26°	
<b>REAR SUSPENSION</b>	Swing arm w/ Air Adjustable Shocks		
<b>SUSPENSION TRAVEL</b>	<b>FRONT</b> 4.60 inches	<b>REAR</b> 3.0 inches	
<b>GROUND CLEARANCE, MINIMUM</b>	5.10 inches		
<b>BRAKE SYSTEM</b>	Hydraulic Disc / Independent Front and Rear ABS		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Dual Disc	<b>SWEPT AREA</b> 180 Sq.In.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Single Disc	<b>SWEPT AREA</b> 90 Sq.In.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 6.0	<b>LITERS</b> 22.71	
<b>OIL CAPACITY</b>	4.0 Quarts		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 63.54 in.	<b>LENGTH</b> 95.14 in.	
	<b>TEST WEIGHT</b> 850 lbs.	<b>OVERALL HEIGHT</b> 61.0 in.	
	<b>SEAT HEIGHT</b> 27.30 inches / laden		
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 35	<b>HIGHWAY</b> 54	<b>COMBINED</b> 44.5

# Harley Davidson Road King



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> Harley-Davidson	<b>MODEL</b> FLHP	<b>SALES CODE NO.</b> N/A	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC CENTIMETERS</b> 1690	<b>CUBIC INCHES</b> Twin Cam 103 Air cooled V-Twin 4-stroke w/oil cooler	
<b>FUEL SYSTEM</b>	Electronic Sequential Port FI	<b>EXHAUST</b> Two into One into Two Crossover Dual	
<b>BORE &amp; STROKE</b>	3.875 x 4.375 in	<b>ALTERNATOR</b> 50 amp	
<b>TORQUE</b>	102 ft-lbs @ 3500 RPM	<b>BATTERY</b> 12V 28 amp/hour, 270CCA	
<b>COMPRESSION RATIO</b>	9.6:1		
<b>TRANSMISSION</b>	<b>PRIMARY DRIVE</b> 34/46	<b>FINAL DRIVE</b> 32/68	
<b>GEAR RATIO</b>	1st/9.593 2 <sup>nd</sup> /6.650 3rd/4.938 4th/4.0 5th/3.378 6th/2.875		
<b>LEAN ANGLE</b>	<b>LEFT</b> 31 Deg	<b>RIGHT</b> 33 Deg	
<b>CLUTCH</b>	Wet multiple plate		
<b>WHEELS/TIRES</b>	Wheels/Slotted Disk Cast Aluminum front and rear / Front 17 x 3 / Rear 16 x 5 Tires / Front Dunlop D408F 130/80B17 Rear Dunlop D407 180/65B16		
<b>FRONT SUSPENSION</b>	<b>FORK ANGLE</b> 29.25°	<b>RAKE</b> 26°	
<b>REAR SUSPENSION</b>	Swing Arm w/ Air Adjustable Shocks		
<b>SUSPENSION TRAVEL</b>	<b>FRONT</b> 4.6 in.	<b>REAR</b> 3.0 in.	
<b>GROUND CLEARANCE, MINIMUM</b>	5.10 in.		
<b>BRAKE SYSTEM</b>	Hydraulic Disc / Independent Front & Rear ABS		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Dual Disc	<b>SWEPT AREA</b> 180 sq. in.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Single Disc	<b>SWEPT AREA</b> 90 sq. in.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 6.0	<b>LITERS</b> 22.71	
<b>OIL CAPACITY</b>	4.0 Quarts		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 63.54 in.	<b>LENGTH</b> 95.14 in.	
	<b>TEST WEIGHT</b> 852 lbs.	<b>OVERALL HEIGHT</b> 55.10 in.	
	<b>SEAT HEIGHT</b> 27.30 in. laden		
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 35	<b>HIGHWAY</b> 54	<b>COMBINED</b> 44.5

# BMW R1200 RTP



## TEST VEHICLE DESCRIPTION

<b>MAKE</b> BMW	<b>MODEL</b> R 1200 RT-P	<b>SALES CODE NO.</b> 11RB	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC CENTIMETERS</b> 1170	<b>ENGINE</b>	2-Cyl.
<b>FUEL SYSTEM</b>	BMSK-P Injection	<b>EXHAUST</b>	Stainless Steel w/catalytic converter
<b>BORE &amp; STROKE</b>	101 mm x 73 mm	<b>ALTERNATOR</b>	720 W
<b>TORQUE</b>	88 lb/ft @ 6,000 rpm	<b>BATTERY</b>	2 x 19 Ah Gel Maintenance-Free
<b>COMPRESSION RATIO</b>	12.0:1		
<b>TRANSMISSION</b>	<b>PRIMARY DRIVE</b> Gear 1:1.882	<b>FINAL DRIVE</b>	Shaft w/ring & pinion gear
<b>GEAR RATIO</b>	1 : 2.75 rear drive ratio / Special 9% lower first gear		
<b>LEAN ANGLE</b>	<b>LEFT</b> 46 degrees	<b>RIGHT</b>	46 degrees
<b>CLUTCH</b>	Self-adjusting hydraulic actuating single plate dry clutch		
<b>WHEELS/TIRES</b>	Die-cast aluminum MTH2 rim profile fitted with run-flat tires (tires that pass the California Highway Patrol run flat protocol)		
<b>FRONT SUSPENSION</b>	<b>FORK ANGLE</b> 63.4 BMW Telelever	<b>RAKE</b>	Castor in normal position - 4.3 inches.
<b>REAR SUSPENSION</b>	BMW Evo Paralever		
<b>SUSPENSION TRAVEL</b>	<b>FRONT</b> 4.7 inches	<b>REAR</b>	5.3 inches
<b>GROUND CLEARANCE, MINIMUM</b>	5.125 inches		
<b>BRAKE SYSTEM</b>	BMW IABS II partial-integral brake system		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Dual 12.6" disc	<b>SWEPT AREA</b>	186 in/sq.
<b>BRAKES, REAR</b>	<b>TYPE</b> Single 10.4" disc	<b>SWEPT AREA</b>	62 in/sq.
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 7.1 Gal.	<b>LITERS</b>	27 L.
<b>OIL CAPACITY</b>	4 Quarts		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 58.4 inches	<b>LENGTH</b>	87.8 inches
	<b>TEST WEIGHT</b> 695 lbs.	<b>OVERALL HEIGHT</b>	56.3"
	<b>SEAT HEIGHT</b> 32.2"		
<b>EPA MILEAGE EST. (MPG)</b> (Based on *FTP standard test)	<b>CITY</b> 43.3*	<b>HIGHWAY</b> 65.3*	<b>COMBINED</b>

\* FTP (Federal Test Procedure) mileage figures during exhaust emission test.

# Kawasaki Concours 14 ABS P



## TEST DESCRIPTION SHEET

<b>MAKE</b> Kawasaki	<b>MODEL</b> Concours 14 ABS Police	<b>SALES CODE NO.</b>	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC CENTIMETERS</b> 1352	<b>ENGINE</b> Inline 4-Cyl.	
<b>FUEL SYSTEM</b>	FI, Mikuni 40EIDW x 4	<b>EXHAUST</b> 4 into 1	
<b>BORE &amp; STROKE</b>	84.0 mm x 61.0 mm	<b>ALTERNATOR</b> 581 watts	
<b>TORQUE</b>	102 lb/ft @ 6,200 rpm	<b>BATTERY</b> 2 x 14 Amp Ah Maintenance-Free	
<b>COMPRESSION RATIO</b>	10.7:1		
<b>TRANSMISSION</b>	<b>PRIMARY DRIVE</b> Gear 1:1.556	<b>FINAL DRIVE</b> Shaft	
<b>GEAR RATIO</b>	1 : 2.036 rear drive ratio		
<b>LEAN ANGLE</b>	<b>LEFT</b> 47 degrees	<b>RIGHT</b> 48 degrees	
<b>CLUTCH</b>	Wet, multi disc		
<b>WHEELS/TIRES</b>	Cast aluminum rims, Bridgestone BT021 120/70ZR17, 190/50ZR17 (passed California Highway Patrol run flat protocol)		
<b>FRONT SUSPENSION</b>	<b>FORK ANGLE</b>	<b>RAKE</b> 26.1°	
<b>REAR SUSPENSION</b>	Tetra lever and Uni Trak®		
<b>SUSPENSION TRAVEL</b>	<b>FRONT</b> 4.4 in.	<b>REAR</b> 5.3 in.	
<b>GROUND CLEARANCE, MINIMUM</b>	4.92 inches		
<b>BRAKE SYSTEM</b>	K-ACT ABS – 2 link settings, non-linked below 13 mph		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Dual floating 310mm petal discs, 4 piston, radial mount calipers	<b>SWEPT AREA</b> 164 in/sq.	
<b>BRAKES, REAR</b>	<b>TYPE</b> Single 250mm petal disc	<b>SWEPT AREA</b> 65 in/sq.	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 5.8	<b>LITERS</b> 22	
<b>OIL CAPACITY</b>	5 Quarts.		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 59.8 in.	<b>LENGTH</b> 87.8 in.	
	<b>TEST WEIGHT</b> 773 lbs.	<b>OVERALL HEIGHT</b> 52.9"	
	<b>SEAT HEIGHT</b> 31.0 in.		
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b>	<b>HIGHWAY</b>	<b>COMBINED</b> 36*

Note: \* FTP (Federal Test Procedure) mileage figures indicate 36 mpg during exhaust emission test.

# Victory Vision



## TEST DESCRIPTION SHEET

<b>MAKE</b> Victory	<b>MODEL</b> Vision	<b>SALES CODE NO.</b>	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC CENTIMETERS</b> 1731	<b>ENGINE</b> Overhead Cam, 106 oil/air cooled V-Twin 4-stroke w/oil cooler	
<b>FUEL SYSTEM</b>	Electronic fuel injection with dual 45mm throttle body	<b>EXHAUST</b> Two into One into Two Crossover Dual	
<b>BORE &amp; STROKE</b>	101mm x 108mm	<b>ALTERNATOR</b> 50 AMP	
<b>TORQUE</b>	113 ft./lbs. @ 2700 rpm	<b>BATTERY</b> (1) 12v 18 amp/hour 240CCA	
<b>COMPRESSION RATIO</b>	9.4:1		
<b>TRANSMISSION</b>	<b>PRIMARY DRIVE</b> Wet, gear drive w/torque compensator 1.5:1	<b>FINAL DRIVE</b> Carbon fiber reinforced belt 2.12:1	
<b>GEAR RATIO</b>	1 <sup>st</sup> /3.13:1 2 <sup>nd</sup> /2.02:1 3 <sup>rd</sup> /1.50:1 4 <sup>th</sup> /1.20:1 5 <sup>th</sup> /1:1 6 <sup>th</sup> /.87:1		
<b>LEAN ANGLE</b>	<b>LEFT</b> 35 degrees	<b>RIGHT</b> 35 degrees	
<b>CLUTCH</b>	Wet, multi plate		
<b>WHEELS/TIRES</b>	Wheels/Cast Aluminum, Front 18 in x 3.0 in./Rear 16 in x 5.0 in Tires/Front Dunlop Elite 3 130/70R18 Rear Dunlop Elite 3 180/60R16		
<b>FRONT SUSPENSION</b>	<b>TRAIL</b> 5.4 in.	<b>RAKE</b> 29.0°	
<b>REAR SUSPENSION</b>	Link mono air adjustable shock		
<b>SUSPENSION TRAVEL</b>	<b>FRONT</b> 5.1 in.	<b>REAR</b> 4.7 in.	
<b>GROUND CLEARANCE, MINIMUM</b>	5.8 inches		
<b>BRAKE SYSTEM</b>	Hydraulic linked ABS		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Dual 300 x 5 mm floating rotors w/4- piston calipers	<b>SWEPT AREA</b>	
<b>BRAKES, REAR</b>	<b>TYPE</b> Single 300 x 7mm floating rotor w/ 2-piston calipers	<b>SWEPT AREA</b>	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 6.0	<b>LITERS</b> 22.7	
<b>OIL CAPACITY</b>	5.0 Quarts.		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 65.7 in.	<b>LENGTH</b> 104.9	
	<b>TEST WEIGHT</b> 956 lbs.	<b>OVERALL HEIGHT</b> 51.5"	
	<b>SEAT HEIGHT</b> 26.25		
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 42	<b>HIGHWAY</b> 47	<b>COMBINED</b> 44.5

# Victory Commander 1



## TEST DESCRIPTION SHEET

<b>MAKE</b> Victory	<b>MODEL</b> Commander	<b>SALES CODE NO.</b>	
<b>ENGINE DISPLACEMENT</b>	<b>CUBIC CENTIMETERS</b> 1731	<b>ENGINE</b> Overhead Cam, 106 oil/air cooled V-Twin 4-stroke w/oil cooler	
<b>FUEL SYSTEM</b>	Electronic fuel injection with dual 45mm throttle body	<b>EXHAUST</b> Two into One into Two Crossover Dual	
<b>BORE &amp; STROKE</b>	101 mm x 108 mm	<b>ALTERNATOR</b> 50 AMP	
<b>TORQUE</b>	113 ft/lbs @ 2700 rpm	<b>BATTERY</b> (2) 12v 18 amp/hour 240CCA	
<b>COMPRESSION RATIO</b>	9.4:1		
<b>TRANSMISSION</b>	<b>PRIMARY DRIVE</b> Wet, gear drive w/torque compensator 1.5:1	<b>FINAL DRIVE</b> Carbon fiber reinforced belt 2.12:1	
<b>GEAR RATIO</b>	1 <sup>st</sup> /3.13:1 2 <sup>nd</sup> /2.02:1 3 <sup>rd</sup> /1.50:1 4 <sup>th</sup> /1.20:1 5 <sup>th</sup> /1:1 6 <sup>th</sup> /0.87:1		
<b>LEAN ANGLE</b>	<b>LEFT</b> 33 degrees	<b>RIGHT</b> 33 degrees	
<b>CLUTCH</b>	Wet, multi plate		
<b>WHEELS/TIRES</b>	Wheels/Cast Aluminum, Front 18 in x 3.0 in./Rear 16 in x 5.0 in Tires/Front Dunlop Elite 3 130/70R18 Rear Dunlop Elite 3 180/60R16		
<b>FRONT SUSPENSION</b>	<b>TRAIL</b> 5.6 in.	<b>RAKE</b> 29.0°	
<b>REAR SUSPENSION</b>	Link mono air adjustable shock		
<b>SUSPENSION TRAVEL</b>	<b>FRONT</b> 5.1 in.	<b>REAR</b> 4.7 in.	
<b>GROUND CLEARANCE, MINIMUM</b>	5.8 in.		
<b>BRAKE SYSTEM</b>	Independent ABS		
<b>BRAKES, FRONT</b>	<b>TYPE</b> Dual 300 x 5 mm floating rotors w/4- piston calipers	<b>SWEPT AREA</b>	
<b>BRAKES, REAR</b>	<b>TYPE</b> Single 300 x 7mm floating rotor w/ 2-piston calipers	<b>SWEPT AREA</b>	
<b>FUEL CAPACITY</b>	<b>GALLONS</b> 5.8	<b>LITERS</b> 22.	
<b>OIL CAPACITY</b>	5.0 Quarts.		
<b>GENERAL MEASUREMENTS</b>	<b>WHEELBASE</b> 65.7 in.	<b>LENGTH</b> 104.4 in.	
	<b>TEST WEIGHT</b> 924 lbs.	<b>OVERALL HEIGHT</b> 53.1"	
	<b>SEAT HEIGHT</b> 26.25 in.		
<b>EPA MILEAGE EST. (MPG)</b>	<b>CITY</b> 42	<b>HIGHWAY</b> 47	<b>COMBINED</b> 44.5

## TEST VEHICLE DESCRIPTION SUMMARY

	Harley-Davidson FLHP	Harley-Davidson FLHTP	BMW R-1200 RT-P	Kawasaki Concours
CUBIC CENTIMETERS	1690	1690	1170	1352
ENGINE DISPLACEMENT—CU. IN.	103	103		83
ENGINE FUEL SYSTEM	ESPFI	ESPFI	Injection	EFI
EXHAUST	Crossover Dual	Crossover Dual	Stainless Steel	4 into 1
BORE & STROKE	3.875 x 4.375	3.875 x 4.375	101x73 (mm)	84.0 x 61.0 (mm)
ALTERNATOR	50 amp	50 amp	720 watts	581 watts
TORQUE - FT. LBS.	102	102	88	102
BATTERY	12v 28 amp/hour	12v 28 amp/hour	(2) 12v 19 amp/hour	(2) 12v 14 amp/hour
COMPRESSION RATIO	9.6:1	9.6:1	12.0:1	10.7:1
TRANSMISSION	6-Speed	6-Speed	6-Speed	6-Speed
PRIMARY DRIVE	34/46	34/46	1:1.882	1:1.556
FINAL DRIVE	32/68	32/68	Shaft w/ring & pinion	Shaft
GEAR RATIO	2.875	2.875	1:2.75	1:2.036
LEAN ANGLE - LEFT	31°	31°	46°	47°
LEAN ANGLE – RIGHT	33°	33°	46°	48°
CLUTCH	Wet, multi plate	Wet multi plate	Dry single plate	Wet, multi disc
WHEELS	Cast Alum	Cast Alum	Alum. MTH2	Cast Alum
FORK ANGLE	29.25°	29.25°	63.4°	
RAKE	26°	26°	4.3 in.	26.1°
REAR SUSPENSION	Swing Arm	Swing Arm	EVO Paralever	Tetra Lever
SUSPENSION TRAVEL – FRONT	4.6 in.	4.6 in.	4.7 in.	4.4 in.
SUSPENSION TRAVEL – BACK	3.0 in.	3.0 in.	5.3 in.	5.3 in.
GROUND CLEARANCE-MINIMUM	5.1 in.	5.1 in.	5.125 in.	4.92 in.
BRAKE SYSTEM	Disc	Disc.	IABS	K-ACT ABS
FRONT SWEPT AREA (sq. in.)	180	180	186	164
REAR SWEPT AREA (sq. in.)	90	90	62	65
FUEL CAPACITY – GALLONS	6.0	6.0	7.1	5.8
FUEL CAPACITY – LITERS	22.71	22.71	27	22
OIL CAPACITY – QUARTS	4	4	4	5
WHEELBASE	63.54	63.54	58.4	59.8
LENGTH	95.14	95.14	87.8	87.8
WEIGHT	851	850	696	773
OVERALL HEIGHT	55.1	61.0	56.3	52.9
SEAT HEIGHT	27.3	27.3	32.2	31
EPA MILEAGE – CITY	35	35	43.3	N/A
EPA MILEAGE - HIGHWAY	54	54	65.3	Combined 36

## TEST VEHICLE DESCRIPTION SUMMARY

	Victory Vision	Victory Commander
CUBIC CENTIMETERS	1731	1731
ENGINE DISPLACEMENT—CU. IN.		
ENGINE FUEL SYSTEM	EFI	EFI
EXHAUST	Crossover Dual	Crossover Dual
BORE & STROKE	101 x 108 (mm)	101 x 108 (mm)
ALTERNATOR	50 amp	50 amp
TORQUE - FT. LBS.	113	113
BATTERY	(1) 12v 18 amp/hour	(1) 12v 18 amp/hour
COMPRESSION RATIO	9.4:1	9.4:1
TRANSMISSION	6 Speed	6 Speed
PRIMARY DRIVE	1.5:1	1.5:1
FINAL DRIVE	2.12:1	2.12:1
GEAR RATIO	87.1	87.1
LEAN ANGLE - LEFT	35°	35°
LEAN ANGLE – RIGHT	35°	35°
CLUTCH	Wet, multi plate	Wet, multi plate
WHEELS	Cast Alum	Cast Alum
FORK ANGLE	Trail 5.4 in.	Trail 5.4 in.
RAKE	29°	29°
REAR SUSPENSION	Adjustable shock	Adjustable shock
SUSPENSION TRAVEL – FRONT	5.1 in.	5.1 in.
SUSPENSION TRAVEL – BACK	4.7 in.	4.7 in.
GROUND CLEARANCE-MINIMUM	5.8 in.	5.8 in.
BRAKE SYSTEM	Hydraulic ABS	Hydraulic ABS
FRONT SWEPT AREA (sq. in.)	Not Provided	Not Provided
REAR SWEPT AREA (sq. in.)	Not Provided	Not Provided
FUEL CAPACITY – GALLONS	6.0	6.0
FUEL CAPACITY – LITERS	22.7	22.7
OIL CAPACITY – QUARTS	5	5
WHEELBASE	65.7	65.7
LENGTH	104.9	104.9
WEIGHT	956	956
OVERALL HEIGHT	51.5	51.5
SEAT HEIGHT	26.25	26.25
EPA MILEAGE – CITY	42	42
EPA MILEAGE - HIGHWAY	47	47

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# MOTORCYCLE DYNAMICS TESTING

## MOTORCYCLE DYNAMICS TEST OBJECTIVE

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Determine each motorcycle's high speed handling characteristics and performance in comparison to other motorcycles. The course used is a two mile road racing type configuration containing hills, curves, and corners. The course simulates actual conditions encountered in pursuit or emergency driving situations in the field, with the exception of other traffic. The evaluation is a true test of the vehicle manufacturers in offering balanced packages of acceleration capabilities, suspension components, and braking characteristics.

## MOTORCYCLE DYNAMICS TEST METHODOLOGY

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Each motorcycle is ridden over the course a total of 32 times laps using four separate riders, each riding an 8 lap series. The final score for the motorcycle is the combined average (from the four riders) of the 5 fastest laps for each rider during the 8 lap series.



## MOTORCYCLE DYNAMICS TESTING ON SEPTEMBER 15, 2011

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
HD FLHTP Electraglide	GROMAK	01:50.40	01:50.60	01:50.80	01:50.90	01:51.20	01:50.78
	JOHNSON	01:47.50	01:48.30	01:48.40	01:48.70	01:48.80	01:48.34
	ROGERS	01:49.80	01:50.30	01:50.50	01:50.70	01:51.00	01:50.46
	FLEGEL	01:48.40	01:48.70	01:49.30	01:49.40	01:49.60	01:49.08
<b>Overall Average</b>							<b>01:49.66</b>
HD FLHP Road King	GROMAK	01:50.90	01:51.20	01:51.30	01:51.70	01:51.80	01:51.38
	JOHNSON	01:47.30	01:47.60	01:47.70	01:47.80	01:48.20	01:47.72
	ROGERS	01:50.00	01:50.00	01:50.10	01:50.40	01:50.50	01:50.20
	FLEGEL	01:48.40	01:48.60	01:49.40	01:49.70	01:50.10	01:49.24
<b>Overall Average</b>							<b>01:49.63</b>
BMW R1200 RTP	GROMAK	01:40.40	01:41.20	01:41.40	01:41.90	01:42.00	01:41.38
	JOHNSON	01:39.30	01:39.80	01:40.20	01:40.20	01:40.30	01:39.96
	ROGERS	01:39.70	01:39.80	01:40.00	01:40.50	01:40.80	01:40.16
	FLEGEL	01:39.00	01:39.10	01:39.30	01:39.50	01:39.50	01:39.28
<b>Overall Average</b>							<b>01:40.19</b>
Kawaski Concours 14 ABS	GROMAK	01:44.30	01:44.80	01:45.90	01:46.30	01:46.40	01:45.54
	JOHNSON	01:41.30	01:41.90	01:42.30	01:42.80	01:42.90	01:42.24
	ROGERS	01:43.00	01:43.00	01:43.30	01:43.40	01:43.60	01:43.26
	FLEGEL	01:41.20	01:41.90	01:42.10	01:42.30	01:42.50	01:42.00
<b>Overall Average</b>							<b>01:43.26</b>
Victory Commander I	GROMAK	01:53.70	01:53.90	01:54.10	01:54.20	01:54.40	01:54.06
	JOHNSON	01:51.40	01:51.40	01:51.50	01:52.20	01:52.60	01:51.82
	ROGERS	01:51.80	01:52.00	01:52.80	01:52.80	01:52.90	01:52.46
	FLEGEL	01:50.40	01:51.00	01:51.20	01:51.20	01:51.30	01:51.02
<b>Overall Average</b>							<b>01:52.34</b>
Victory Vision	GROMAK	01:52.50	01:52.90	01:53.80	01:53.90	01:54.00	01:53.42
	JOHNSON	01:49.40	01:50.20	01:50.20	01:50.60	01:50.90	01:50.26
	ROGERS	01:52.20	01:52.30	01:52.40	01:52.90	01:53.00	01:52.56
	FLEGEL	01:49.50	01:50.00	01:50.00	01:50.10	01:50.10	01:49.94
<b>Overall Average</b>							<b>01:51.54</b>

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# MOTORCYCLE ACCELERATION AND TOP SPEED TESTING

## ACCELERATION TEST OBJECTIVE

Determine the ability of each test motorcycle to accelerate from a standing start to 60 mph, 80 mph, and 100 mph.

## ACCELERATION TEST METHODOLOGY

Using a Kistler L-350 1 Axis Optical Sensor, each motorcycle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and the average times used to derive scores on the competitive test for acceleration.

## TOP SPEED TEST OBJECTIVE

Determine the actual top speed attainable by each test motorcycle within a distance of 14 miles from a standing start.

## TOP SPEED TEST METHODOLOGY

Following the fourth acceleration run, each test motorcycle will continue to accelerate to the top speed attainable within 14 miles from the start of the run. The highest speed attained within the 14-mile distance will be the vehicle's score on the competitive test for top speed.



## SUMMARY OF ACCELERATION & TOP SPEED

	Harley-Davidson Electra Glide FLHP	Harley-Davidson Road King FLHP	BMW R1200RTP	Kawasaki Concours	Victory Vision	Victory Commander I
<b>ACCELERATION*</b>						
0 – 20 mph (sec.)	1.45	1.34	1.40	1.61	1.48	1.44
0 – 30 mph (sec.)	2.24	2.10	1.97	2.28	2.14	2.15
0 – 40 mph (sec.)	3.26	2.99	2.65	2.88	3.23	3.20
0 – 50 mph (sec.)	4.46	4.20	3.56	3.41	4.29	4.24
0 – 60 mph (sec.)	6.10	5.66	4.41	4.02	5.93	5.86
0 – 70 mph (sec.)	8.06	7.45	5.56	4.94	7.70	7.53
0 – 80 mph (sec.)	11.05	9.96	6.82	5.79	10.49	10.04
0 – 90 mph (sec.)	15.61	13.56	8.67	6.96	14.32	13.70
0 – 100 mph (sec.)	31.60	21.28	10.75	8.29	20.02	18.74
<b>TOP SPEED (mph)</b>	104	109	131	126	120	117
<b>QUARTER MILE</b>						
Time (sec.)	14.97	14.53	See test sheet	See test sheet	14.78	14.65
Speed (mph)	88.89	91.95			91.03	92.03



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# BRAKE TESTING

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## BRAKE TEST OBJECTIVE

Determine the deceleration rate attained by each test motorcycle on twenty 60 – 0 mph full ABS maximum deceleration panic stops. Each bike will be scored on the average deceleration rate it attains.

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## BRAKE TEST METHODOLOGY

Each motorcycle makes ten measured 60 – 0 mph full ABS maximum deceleration panic stops, at specific predetermined points. After a one-mile lap to cool the brakes, the entire sequence is repeated. The exact initial velocity at the beginning of each of the 60 – 0 mph decelerations, and the exact distance required to make each stop, is recorded by means of a non contact optical sensor in conjunction with electronic speed and distance meters. The data resulting from the twenty total stops is used to calculate the average deceleration rate which is the motorcycle's score for this test.

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## DECELERATION RATE FORMULA

$$\text{Deceleration Rate (DR)} = \frac{\text{Initial Velocity}^*(\text{IV}) \text{ squared}}{2 \text{ times Stopping Distance (SD)}} = \frac{(\text{IV})^2}{2 (\text{SD})}$$

### EXAMPLE:

$$\begin{aligned} \text{Initial Velocity} &= 89.175 \text{ ft/s (60.8 mph x 1.4667*)} \\ \text{Stopping Distance} &= 171.4 \text{ ft.} \end{aligned}$$

$$\text{DR} = \frac{(\text{IV})^2}{2(\text{SD})} = \frac{(89.175)^2}{2(171.4)} = \frac{7952.24}{342.8} = 23.198 \text{ ft/s}^2$$

Once a motorcycle's average deceleration rate has been determined, it is possible to calculate the stopping distance from any given speed by utilizing the following formula:

Select a speed; translate that speed into feet per second; square the feet per second figure by multiplying it by itself; divide the resultant figure by 2; divide the remaining figure by the average deceleration rate of the motorcycle in question.

### EXAMPLE:

$$60 \text{ mph} = 88.002 \text{ ft/s} \times 88.002 = 7744.352 / 2 = 3872.176 / 23.198 \text{ ft/s}^2 = 166.9 \text{ ft.}$$

# BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit

DATE: September 13, 2011

BEGINNING Time: 10:44 a.m.

TEMPERATURE: 72°F

MAKE & MODEL: Harley-Davidson Electra Glide FLHTP

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	61.87 mph	149.49 feet	27.54 ft/s <sup>2</sup>
Stop #2	61.47 mph	143.38 feet	28.35 ft/s <sup>2</sup>
Stop #3	60.72 mph	138.67 feet	28.60 ft/s <sup>2</sup>
Stop #4	60.26 mph	139.87 feet	27.93 ft/s <sup>2</sup>
Stop #5	60.77 mph	146.46 feet	27.12 ft/s <sup>2</sup>
Stop #6	61.87 mph	150.14 feet	27.42 ft/s <sup>2</sup>
Stop #7	59.68 mph	142.01 feet	26.97 ft/s <sup>2</sup>
Stop #8	61.82 mph	148.19 feet	27.74 ft/s <sup>2</sup>
Stop #9	60.95 mph	139.05 feet	28.74 ft/s <sup>2</sup>
Stop #10	60.72 mph	137.07 feet	28.93 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**27.93 ft/s<sup>2</sup>**

## Phase II

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.63 mph	141.73 feet	27.90 ft/s <sup>2</sup>
Stop #2	61.95 mph	152.52 feet	27.06 ft/s <sup>2</sup>
Stop #3	61.20 mph	141.96 feet	28.38 ft/s <sup>2</sup>
Stop #4	61.24 mph	147.62 feet	27.33 ft/s <sup>2</sup>
Stop #5	60.41 mph	144.21 feet	27.22 ft/s <sup>2</sup>
Stop #6	60.86 mph	145.96 feet	27.30 ft/s <sup>2</sup>
Stop #7	59.24 mph	132.28 feet	28.54 ft/s <sup>2</sup>
Stop #8	61.27 mph	140.84 feet	28.67 ft/s <sup>2</sup>
Stop #9	60.39 mph	140.11 feet	27.99 ft/s <sup>2</sup>
Stop #10	61.15 mph	146.98 feet	27.36 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**27.77 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**27.85 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 139.0 feet

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## BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit

DATE: September 13, 2011

BEGINNING Time: 2:13 p.m.

TEMPERATURE: 74°F

MAKE & MODEL: Harley-Davidson Road King FLHP

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.48 mph	135.51 feet	29.04 ft/s <sup>2</sup>
Stop #2	60.07 mph	149.34 feet	25.99 ft/s <sup>2</sup>
Stop #3	60.03 mph	141.22 feet	27.45 ft/s <sup>2</sup>
Stop #4	61.12 mph	154.46 feet	26.01 ft/s <sup>2</sup>
Stop #5	59.85 mph	152.63 feet	25.25 ft/s <sup>2</sup>
Stop #6	60.60 mph	151.00 feet	26.16 ft/s <sup>2</sup>
Stop #7	60.59 mph	154.70 feet	25.53 ft/s <sup>2</sup>
Stop #8	60.73 mph	151.87 feet	26.12 ft/s <sup>2</sup>
Stop #9	60.44 mph	155.47 feet	25.28 ft/s <sup>2</sup>
Stop #10	60.42 mph	153.44 feet	25.59 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**26.41 ft/s<sup>2</sup>**

### Phase II

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.83 mph	146.87 feet	26.21 ft/s <sup>2</sup>
Stop #2	58.76 mph	138.73 feet	26.77 ft/s <sup>2</sup>
Stop #3	59.77 mph	146.98 feet	26.14 ft/s <sup>2</sup>
Stop #4	60.03 mph	149.12 feet	26.00 ft/s <sup>2</sup>
Stop #5	60.38 mph	151.70 feet	25.85 ft/s <sup>2</sup>
Stop #6	mph	feet	ft/s <sup>2</sup>
Stop #7	60.02 mph	145.24 feet	26.68 ft/s <sup>2</sup>
Stop #8	60.06 mph	146.94 feet	26.41 ft/s <sup>2</sup>
Stop #9	60.75 mph	144.39 feet	27.49 ft/s <sup>2</sup>
Stop #10	60.37 mph	150.07 feet	26.12 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**26.41 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**26.32 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 147.1 feet

## BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit

DATE: September 13, 2011

BEGINNING Time: 11:29 a.m.

TEMPERATURE: 73°F

MAKE & MODEL: BMW R 1200 RTP

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.34 mph	138.80 feet	28.21 ft/s <sup>2</sup>
Stop #2	60.16 mph	150.21 feet	25.91 ft/s <sup>2</sup>
Stop #3	59.25 mph	131.53 feet	28.71 ft/s <sup>2</sup>
Stop #4	59.51 mph	145.30 feet	26.21 ft/s <sup>2</sup>
Stop #5	60.12 mph	149.64 feet	25.98 ft/s <sup>2</sup>
Stop #6	60.54 mph	147.65 feet	26.70 ft/s <sup>2</sup>
Stop #7	59.05 mph	125.02 feet	30.00 ft/s <sup>2</sup>
Stop #8	60.84 mph	144.69 feet	27.52 ft/s <sup>2</sup>
Stop #9	61.11 mph	143.03 feet	28.08 ft/s <sup>2</sup>
Stop #10	60.02 mph	141.35 feet	27.41 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**27.47 ft/s<sup>2</sup>**

### Phase II

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	61.02 mph	145.50 feet	27.52 ft/s <sup>2</sup>
Stop #2	60.48 mph	139.76 feet	28.15 ft/s <sup>2</sup>
Stop #3	60.49 mph	139.13 feet	28.29ft/s <sup>2</sup>
Stop #4	61.75 mph	144.34 feet	28.42 ft/s <sup>2</sup>
Stop #5	59.68 mph	141.37 feet	27.10 ft/s <sup>2</sup>
Stop #6	61.02 mph	147.07 feet	27.23 ft/s <sup>2</sup>
Stop #7	60.74 mph	145.26 feet	27.32 ft/s <sup>2</sup>
Stop #8	60.20 mph	138.80 feet	28.08 ft/s <sup>2</sup>
Stop #9	61.24 mph	147.29 feet	27.39 ft/s <sup>2</sup>
Stop #10	60.36 mph	136.35 feet	28.74 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**27.82 ft/s<sup>2</sup>**

### Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**27.65 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 140.0 feet

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## BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit

DATE: September 13, 2011

BEGINNING Time: 11:19 a.m.

TEMPERATURE: 72°F

MAKE & MODEL: Kawasaki Concours

BRAKE SYSTEM: Anti-lock

### Phase I

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.91 mph	152.80 feet	26.12 ft/s <sup>2</sup>
Stop #2	59.56 mph	148.44 feet	25.70 ft/s <sup>2</sup>
Stop #3	61.01 mph	147.29 feet	27.18 ft/s <sup>2</sup>
Stop #4	60.22 mph	148.64 feet	26.24 ft/s <sup>2</sup>
Stop #5	59.64 mph	141.10 feet	27.11 ft/s <sup>2</sup>
Stop #6	61.30 mph	151.65 feet	26.65 ft/s <sup>2</sup>
Stop #7	58.75 mph	135.91 feet	27.32 ft/s <sup>2</sup>
Stop #8	59.99 mph	150.34 feet	25.75 ft/s <sup>2</sup>
Stop #9	59.68 mph	139.14 feet	27.53 ft/s <sup>2</sup>
Stop #10	60.54 mph	147.15 feet	26.79 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**26.64 ft/s<sup>2</sup>**

### Phase II

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	58.95 mph	133.82 feet	27.93 ft/s <sup>2</sup>
Stop #2	60.92 mph	149.47 feet	26.70 ft/s <sup>2</sup>
Stop #3	60.38 mph	145.90 feet	26.87 ft/s <sup>2</sup>
Stop #4	60.33 mph	140.87 feet	27.79 ft/s <sup>2</sup>
Stop #5	59.72 mph	141.07 feet	27.19 ft/s <sup>2</sup>
Stop #6	59.83 mph	142.49 feet	27.02 ft/s <sup>2</sup>
Stop #7	60.71 mph	146.13 feet	27.13 ft/s <sup>2</sup>
Stop #8	60.89 mph	146.37 feet	27.24 ft/s <sup>2</sup>
Stop #9	61.40 mph	147.95 feet	27.41 ft/s <sup>2</sup>
Stop #10	60.61 mph	145.91 feet	27.08 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**27.24 ft/s<sup>2</sup>**

### Phase III

	Yes/No
Evidence of severe fading?	<u>No</u>
Vehicle stopped in straight line?	<u>Yes</u>
Vehicle stopped within correct lane?	<u>Yes</u>

**OVERALL AVERAGE DECEL. RATE:**

**26.94 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 143.7 feet

# BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit

DATE: September 13, 2011

BEGINNING Time: 1:32 p.m.

TEMPERATURE: 73°F

MAKE & MODEL: Victory Vision

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	58.17 mph	145.10 feet	25.08 ft/s <sup>2</sup>
Stop #2	58.79 mph	137.88 feet	26.96 ft/s <sup>2</sup>
Stop #3	59.02 mph	141.36 feet	26.51 ft/s <sup>2</sup>
Stop #4	59.79 mph	157.76 feet	24.83 ft/s <sup>2</sup>
Stop #5	58.97 mph	147.81 feet	25.30 ft/s <sup>2</sup>
Stop #6	59.52 mph	147.05 feet	25.92 ft/s <sup>2</sup>
Stop #7	60.33 mph	153.07 feet	25.57 ft/s <sup>2</sup>
Stop #8	60.51 mph	161.02 feet	24.46 ft/s <sup>2</sup>
Stop #9	59.95 mph	139.40 feet	27.73 ft/s <sup>2</sup>
Stop #10	60.59 mph	161.84 feet	24.40 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**25.63 ft/s<sup>2</sup>**

## Phase II

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.75 mph	148.01 feet	26.82 ft/s <sup>2</sup>
Stop #2	59.21 mph	146.10 feet	25.81 ft/s <sup>2</sup>
Stop #3	60.67 mph	149.88 feet	26.42 ft/s <sup>2</sup>
Stop #4	59.01 mph	144.16 feet	25.98 ft/s <sup>2</sup>
Stop #5	60.57 mph	145.58 feet	27.10 ft/s <sup>2</sup>
Stop #6	60.77 mph	154.51 feet	25.71 ft/s <sup>2</sup>
Stop #7	61.30 mph	150.48 feet	26.86 ft/s <sup>2</sup>
Stop #8	60.28 mph	159.82 feet	24.45 ft/s <sup>2</sup>
Stop #9	60.82 mph	141.16 feet	28.18 ft/s <sup>2</sup>
Stop #10	60.00 mph	151.77 feet	25.51 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**26.28 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**25.96 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 149.2 feet

# BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit

DATE: September 13, 2011

BEGINNING Time: 11:01 a.m.

TEMPERATURE: 71°F

MAKE & MODEL: Victory Commander I

BRAKE SYSTEM: Anti-lock

## Phase I

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.79 mph	145.74 feet	26.38 ft/s <sup>2</sup>
Stop #2	61.55 mph	163.96 feet	24.85 ft/s <sup>2</sup>
Stop #3	59.12 mph	149.37 feet	25.17 ft/s <sup>2</sup>
Stop #4	60.62 mph	153.24 feet	25.79 ft/s <sup>2</sup>
Stop #5	60.45 mph	159.08 feet	24.71 ft/s <sup>2</sup>
Stop #6	60.96 mph	166.26 feet	24.04 ft/s <sup>2</sup>
Stop #7	59.72 mph	160.29 feet	23.93 ft/s <sup>2</sup>
Stop #8	60.80 mph	166.90 feet	23.82 ft/s <sup>2</sup>
Stop #9	59.92 mph	156.63 feet	24.65 ft/s <sup>2</sup>
Stop #10	60.89 mph	167.97 feet	23.74 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**24.71 ft/s<sup>2</sup>**

## Phase II

TEST: Ten 60 –0 mph full ABS maximum deceleration rate stops

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	61.07 mph	165.69 feet	24.21 ft/s <sup>2</sup>
Stop #2	59.83 mph	157.84 feet	24.39 ft/s <sup>2</sup>
Stop #3	60.82 mph	163.60 feet	24.32 ft/s <sup>2</sup>
Stop #4	59.44 mph	157.37 feet	24.15 ft/s <sup>2</sup>
Stop #5	61.13 mph	159.75 feet	25.16 ft/s <sup>2</sup>
Stop #6	60.61 mph	163.36 feet	24.19 ft/s <sup>2</sup>
Stop #7	60.82 mph	151.11 feet	26.33 ft/s <sup>2</sup>
Stop #8	60.46 mph	164.03 feet	23.97 ft/s <sup>2</sup>
Stop #9	61.61 mph	167.47 feet	24.38 ft/s <sup>2</sup>
Stop #10	60.92 mph	157.42 feet	25.36 ft/s <sup>2</sup>

**AVERAGE DECELERATION RATE**

**24.65 ft/s<sup>2</sup>**

## Phase III

Evidence of severe fading?

Yes/No

No

Vehicle stopped in straight line?

Yes

Vehicle stopped within correct lane?

Yes

**OVERALL AVERAGE DECEL. RATE:**

**24.68 ft/s<sup>2</sup>**

Projected Stopping Distance from 60.0 mph 156.9 feet



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## For Your Information

### About the National Institute of Justice

A component of the Office of Justice Programs, NIJ is the research, development and evaluation agency of the U.S. Department of Justice. NIJ's mission is to advance scientific research, development and evaluation to enhance the administration of justice and public safety. NIJ's principal authorities are derived from the Omnibus Crime Control and Safe Streets Act of 1968, as amended (see 42 USC §§ 3721–3723).

The NIJ Director is appointed by the President and confirmed by the Senate. The Director establishes the Institute's objectives, guided by the priorities of the Office of Justice Programs, the U.S. Department of Justice, and the needs of the field. The Institute actively solicits the views of criminal justice and other professionals and researchers to inform its search for the knowledge and tools to guide policy and practice.

#### Strategic Goals

NIJ has seven strategic goals grouped into three categories:

##### Creating relevant knowledge and tools

1. Partner with state and local practitioners and policymakers to identify social science research and technology needs.
2. Create scientific, relevant and reliable knowledge — with a particular emphasis on terrorism, violent crime, drugs and crime, cost-effectiveness and community-based efforts — to enhance the administration of justice and public safety.
3. Develop affordable and effective tools and technologies to enhance the administration of justice and public safety.

##### Dissemination

4. Disseminate relevant knowledge and information to practitioners and policymakers in an understandable, timely and concise manner.
5. Act as an honest broker to identify the information, tools and technologies that respond to the needs of stakeholders.

##### Agency management

6. Practice fairness and openness in the research and development process.
7. Ensure professionalism, excellence, accountability, cost-effectiveness and integrity in the management and conduct of NIJ activities and programs.

##### Program Areas

In addressing these strategic challenges, the Institute is involved in the following program areas: crime control and prevention, including policing; drugs and crime; justice systems and offender behavior, including corrections; violence and victimization; communications and information technologies; critical incident response; investigative and forensic sciences, including DNA; less lethal technologies; officer protection; education and training technologies; testing and standards; technology assistance to law enforcement and corrections agencies; field testing of promising programs; and international crime control.

In addition to sponsoring research and development and technology assistance, NIJ evaluates programs, policies and technologies. NIJ communicates its research and evaluation findings through conferences and print and electronic media.

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## About the Law Enforcement and Corrections Standards and Testing Program

The Law Enforcement and Corrections Standards and Testing Program is sponsored by the Office of Science and Technology of the National Institute of Justice (NIJ), Office of Justice Programs, U.S. Department of Justice. The program responds to the mandate of the Justice System Improvement Act of 1979, which directed NIJ to encourage research and development to improve the criminal justice system and to disseminate the results to federal, state and local agencies.

The Law Enforcement and Corrections Standards and Testing Program is an applied research effort that determines the technological needs of justice system agencies, sets minimum performance standards for specific devices, tests commercially available equipment against those standards, and disseminates the standards and the test results to criminal justice agencies nationwide and internationally.

The program operates through the following:

- The **Law Enforcement and Corrections Technology Advisory Council (LECTAC)**, consisting of nationally recognized criminal justice practitioners from federal, state and local agencies, assesses technological needs and sets priorities for research programs and items to be evaluated and tested.
- The **Office of Law Enforcement Standards (OLES)** at the National Institute of Standards and Technology develops voluntary national performance standards for compliance testing to ensure that individual items of equipment are suitable for use by criminal justice agencies. The equipment standards developed by OLES are based on laboratory evaluation of commercially available products in order to devise precise test methods that can be universally applied by any qualified testing laboratory and to establish minimum performance requirements for each attribute of a piece of equipment that is essential to how it functions. OLES-developed standards can serve as design criteria for manufacturers or as the basis for equipment evaluation. The application of the standards, which are highly technical in nature, is augmented through the publication of equipment performance reports and user guides. Individual jurisdictions may use the standards in their own laboratories to test equipment, have equipment tested on their behalf using the standards, or cite the standards in procurement specifications.
- The **National Law Enforcement and Corrections Technology Center (NLECTC)**-National, operated by a grantee, supervises a national compliance testing program conducted by independent laboratories. The standards developed by OLES serve as performance benchmarks against which commercial equipment is measured. In addition, NIJ has begun a new process for developing some standards using Special Technical Committees (STCs), which include practitioners, scientists and subject matter experts. OLES participates in the STC process. The facilities, personnel and testing capabilities of the independent laboratories are evaluated by OLES prior to testing each item of equipment. In addition, OLES helps NLECTC staff review and analyze data. Test results are published in consumer product reports designed to help justice system procurement officials make informed purchasing decisions.

Publications are available at no charge through NLECTC. Some documents are also available online through the Justice Technology Information Network (JUSTNET), the center's World Wide Web site. To request a document or additional information, call (800) 248-2742 or (301) 519-5069 or write:

### **National Law Enforcement and Corrections Technology Center-National**

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## About the National Law Enforcement and Corrections Technology Center System

The National Law Enforcement and Corrections Technology Center (NLECTC) system recently completed a reorganization that will better enable the system to carry out its critical mission to assist state, major city and county, rural, tribal and border, as well as federal law enforcement, corrections and other criminal justice agencies in addressing their technology needs and challenges. Originally created in 1994 as a program of the National Institute of Justice's (NIJ's) Office of Science and Technology, the NLECTC system has realigned its outreach efforts into three new centers: the States, Major Cities and Counties Regional Center; the Small, Rural, Tribal and Border Regional Center; and the Alaska Regional Center.

The States, Major Cities and Counties Regional Center offers a resource and outreach mechanism for state, major city and county criminal justice system partners, with a mission of ensuring that larger criminal justice agencies (those having 50 or more sworn personnel) have unbiased access to a full range of relevant scientific and technology-related information. The Small, Rural, Tribal and Border Regional Center publicizes its programs and services to small, rural, tribal and border agencies across the country. The Alaska Regional Center serves as a conduit for agencies in Alaska.

The efforts of these centers complement those of NLECTC-National, which coordinates NIJ's Compliance Testing program and standards development efforts for a variety of equipment used in the public safety arena, and the Centers of Excellence (CoEs), which support NIJ's research, development, testing and evaluation (RDT&E) efforts in specific portfolio areas. The CoEs focus on the following topic areas: Communications Technologies; Electronic Crime Technology; Forensics Technology; Information and Sensor Systems; and Weapons and Protective Systems. The National Institute of Standards and Technology's Office of Law Enforcement Standards provides scientific and research support to these efforts.

As a whole, the NLECTC system provides:

- Scientific and technical support to NIJ's RDT&E projects.
- Support for the transfer and adoption of technology into practice by law enforcement and corrections agencies, courts and crime laboratories.
- Assistance in developing and disseminating equipment performance standards and technology guides.
- Assistance in the demonstration, testing and evaluation of criminal justice tools and technologies.
- Technology information and general and specialized technology assistance.
- Assistance in setting NIJ's research agenda by convening practitioner-based advisory groups to help identify criminal justice technology needs and gaps.

The NLECTC system supports NIJ's RDT&E process and goal of setting research priorities based on practitioner needs by sponsoring a series of Technology Working Groups and Constituent Advisory Groups, who provide input to the Law Enforcement and Corrections Technology Advisory Council. Together, these groups form a bridge between the criminal justice community and the NIJ Office of Science and Technology.

For more information, call (800) 248-2742, e-mail [asknlectc@nlectc.org](mailto:asknlectc@nlectc.org) or visit <http://www.justnet.org>.

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## About the Office of Law Enforcement Standards

The Office of Law Enforcement Standards (OLES) was established as a matrix management organization in 1971 through a Memorandum of Understanding between the U.S. Departments of Justice and Commerce based on the recommendations of the President's Commission on Crime. OLES' mission is to apply science and technology to the needs of the criminal justice community, including law enforcement, corrections, forensic science and the fire service. While its major objective is to develop minimum performance standards, which are promulgated as voluntary national standards, OLES also undertakes studies leading to the publication of technical reports and user guides.

The areas of research investigated by OLES include clothing, communication systems, emergency equipment, investigative aids, protective equipment, security systems, vehicles, weapons, and analytical techniques and standard reference materials used by the forensic science community. The composition of OLES' projects varies depending on priorities of the criminal justice community at any given time and, as necessary, draws on the resources of the National Institute of Standards and Technology.

OLES assists law enforcement and criminal justice agencies in acquiring, on a cost-effective basis, the high-quality resources they need to do their jobs. To accomplish this, OLES:

- Develops methods for testing equipment performance and examining evidentiary materials.
- Develops standards for equipment and operating procedures.
- Develops standard reference materials.
- Performs other scientific and engineering research as required.

Since the program began in 1971, OLES has coordinated the development of standards, user guides and advisory reports on topics that range from performance parameters of police patrol vehicles, to performance reports on various speed-measuring devices, to soft body armor testing, to analytical procedures for developing DNA profiles.

The application of technology to enhance the efficiency and effectiveness of the criminal justice community continues to increase. The proper adoption of the products resulting from emerging technologies and the assessment of equipment performance, systems, methodologies, etc., used by criminal justice practitioners constitute critical issues having safety and legal ramifications. The consequences of inadequate equipment performance or inadequate test methods can range from inconvenient to catastrophic. In addition, these deficiencies can adversely affect the general population when they increase public safety costs, preclude arrest or result in evidence found to be inadmissible in court.







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