Police Vehicle Evaluation

Model Year 2013

MICHIGAN STATE POLICE

NLECTC
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Prepared by:
Ms. Debbie Schrauben and Lt. Jim Flegel
Michigan State Police

Photographs by:
Mr. Ray Holt, Michigan State Police

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PREFACE

The Michigan State Police Vehicle Test Team is pleased to announce the results of the 2013 model year Police Vehicle Evaluation. This year we tested thirteen vehicles in total, and four 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	6.0L
Chevrolet Impala 9C1	3.6L
Chevrolet Tahoe PPV 2WD	5.3L
Dodge Charger 2.65	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 EcoBoost	3.5L
Ford Police Interceptor AWD	3.7L
Ford Police Interceptor Utility AWD	3.7L

MOTORCYCLES

BMW R 1200 RTP

Harley-Davidson Electra Glide FLHTP

Harley-Davidson Road King FLHP

Victory Commander I

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, 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.

During the acceleration runs, the Ford Police Interceptor AWD 3.7L experienced an overspeed code. This code could have been caused by a number of reasons. With this code active, it could potentially retard spark to the engine causing performance degradation. Ford engineers cleared the overspeed code and this vehicle was allowed to re-run the acceleration and top speed portion. Results on the re-run were slightly different from the original acceleration runs. The re-run results are published in this evaluation. This vehicle finished the evaluation with no additional problems.

Also during the acceleration runs, the Victory Commander I police motorcycle experienced a high speed “wobble” on runs one and two. On both occasions, the rider of the motorcycle had to ease off the throttle to make the wobble subside. It is still unclear what caused the high speed wobbles. There were no wobbles or weaves noted or detected during the motorcycle dynamics portion at Grattan Raceway.

Grattan Raceway - Motorcycle Dynamics

Motorcycle Dynamics testing this year was again performed at Grattan Raceway. This 2 mile road course provides a realistic environment to test motorcycles in dynamics and continues to produce comprehensive results.

Grattan Raceway - Vehicle Dynamics (High Speed Handling) Test

During the Vehicle Dynamics Testing at Grattan Raceway, one of the test drivers noted a “clunking” noise coming from the front of the Dodge Charger 5.7L 2.65 rear gear. Chrysler mechanics looked at the vehicle and discovered the cradle bolt to the engine support was loose. The bolt was then torqued to the proper specifications. This vehicle finished the test with no additional issues or problems.

We appreciate the support we received from General Motors, Ford, Chrysler, Harley-Davidson, BMW, and Victory during testing. This also was the sixth 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.

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.

Lt. Jim Flegel, Phone: 517-322-1785, E-mail: flegelj@michigan.gov
Sgt. Ron Gromak, Phone: 517-322-5598, E-mail: gromakr@michigan.gov
Sgt. Mike McCarthy, Phone: 517-322-1787, E-mail: mccarthym4@michigan.gov
Sgt. Matt Rogers Phone: 517-322-1790, E-mail: rogersm11@michigan.gov
Michigan State Police, Precision Driving Unit 7426 North Canal Road, Lansing, Michigan 48913

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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, Denny Steendam, Al Burnett, and Dave Hartley.

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

Special thanks to Chrysler, Ford Motor Company, General Motors, BMW Motorrad USA, Harley-Davidson Motorcycles, 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/motorcycles 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): Retired Sgt. Bob Ring, Tpr. Mike Lee, Ms. Josephine Klotz, Ms. Bobbi Wells, Lt. Jim Flegel, Ms. Debbie Schrauben, Ms. Wendy Galbreath, Sgt. Ron Gromak, Tpr. Matt Waters.
Back Row (left to right):Sgt. Mike McCarthy, D/Tpr. Bryan DeWyse, Tpr. Nate Johnson, Tpr. Scott Hammond, Tpr. Marcus Trammel, Tpr. Jay Sweetland, Sgt. David “Doc” Halliday, Sgt. Matt Rogers, Sgt. Doug Schutter.

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. 237TH ST. TORRANCE, CA 90505-5270

Alpinestars Protective Riding Apparel

TEST VEHICLE DESCRIPTIONS AND PHOTOGRAPHS

Chevrolet Caprice 9C1 3.6L

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Caprice 9C1	**SALES CODE NO.** 1EW19	
ENGINE DISPLACEMENT	**CUBIC INCHES** 217	**LITERS** 3.6	
FUEL SYSTEM	SIDI	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	301 @ 6700 RPM	**ALTERNATOR** 170 AMP	
TORQUE	265 @ 4800 RPM	**BATTERY** 700 CCA	
COMPRESSION RATIO	11.3:1		
TRANSMISSION	**MODEL** 6L45	**TYPE** 6 Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.92:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38 ft.		
TIRE SIZE, LOAD & SPEED RATING	P235/50R18 W Rated Goodyear AL3		
SUSPENSION TYPE (FRONT)	Independent strut. coil springs, & stablizer bar		
SUSPENSION TYPE (REAR)	Independent strut. coil springs, & stablizer bar		
GROUND CLEARANCE, MINIMUM	5.6 in.	**LOCATION** Engine Cradle	
BRAKE SYSTEM	Power, dual hydraulic, anti-lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 310.6 sq. in.	
BRAKES, REAR	**TYPE** Vented Disc	**SWEPT AREA** 211.4 sq. in.	
FUEL CAPACITY	**GALLONS** 19.0	**LITERS** 72.0	
GENERAL MEASUREMENTS	**WHEELBASE** 118.5 in.	**LENGTH** 204.2 in.	
	TEST WEIGHT 4074 lbs.	**HEIGHT** 58.7 in.	
HEADROOM	**FRONT** 38.7 in.	**REAR** 37.6 in.	
LEGROOM	**FRONT** 42.2 in.	**REAR** 43.2 in.	
SHOULDER ROOM	**FRONT** 59.1 in.	**REAR** 59.0 in.	
HIPROOM	**FRONT** 56.7 in.	**REAR** 57.9 in.	
INTERIOR VOLUME	**FRONT** 56.0 cu. ft.	**REAR** 55.5 cu. ft.	
	COMB 112 cu. ft.	**TRUNK** 17.4 cu. ft. (includes full-size spare tire and auxiliary battery)	
EPA MILEAGE EST. (MPG)	**CITY** 18	**HIGHWAY** 26	**COMBINED** 21

Chevrolet Caprice 9C1 6.0L

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Caprice 9C1	**SALES CODE NO.** 1EW19	
ENGINE DISPLACEMENT	**CUBIC INCHES** 364	**LITERS** 6.0	
FUEL SYSTEM	SPFI	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	355 @ 5300 RPM	**ALTERNATOR** 170 AMP	
TORQUE	384 @ 4400 RPM	**BATTERY** 700 CCA	
COMPRESSION RATIO	10.4:1		
TRANSMISSION	**MODEL** 6L80E	**TYPE** 6 Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.92:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38 ft.		
TIRE SIZE, LOAD & SPEED RATING	P235/50R18 W Rated Goodyear AL3		
SUSPENSION TYPE (FRONT)	Independent strut. coil springs, & stablizer bar		
SUSPENSION TYPE (REAR)	Independent strut. coil springs, & stablizer bar		
GROUND CLEARANCE, MINIMUM	5.6 in.	**LOCATION** Engine Cradle	
BRAKE SYSTEM	Power, dual hydraulic, anti-lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 310.6 sq. in.	
BRAKES, REAR	**TYPE** Vented Disc	**SWEPT AREA** 211.4 sq. in.	
FUEL CAPACITY	**GALLONS** 19.0	**LITERS** 72.0	
GENERAL MEASUREMENTS	**WHEELBASE** 118.5 in.	**LENGTH** 204.2 in.	
	TEST WEIGHT 4206 lbs.	**HEIGHT** 58.7 in.	
HEADROOM	**FRONT** 38.7 in.	**REAR** 37.6 in.	
LEGROOM	**FRONT** 42.2 in.	**REAR** 43.2 in.	
SHOULDER ROOM	**FRONT** 59.1 in.	**REAR** 59.0 in.	
HIPROOM	**FRONT** 56.7 in.	**REAR** 57.9 in.	
INTERIOR VOLUME	**FRONT** 56.0 cu. ft.	**REAR** 55.5 cu. ft.	
	COMB 112 cu. ft.	**TRUNK** 17.4 cu. ft. (includes full-size spare tire and auxiliary battery)	
EPA MILEAGE EST. (MPG)	**CITY** 15	**HIGHWAY** 24	**COMBINED** 18

Chevrolet Impala 9C1 3.6L

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Impala 9C1	**SALES CODE NO.** 1WS19	
ENGINE DISPLACEMENT	**CUBIC INCHES** 217	**LITERS** 3.6	
FUEL SYSTEM	SIDI	**EXHAUST** Single	
HORSEPOWER (SAE NET)	302 @ 6800 RPM	**ALTERNATOR** 170 AMP	
TORQUE	262 @ 5300 RPM	**BATTERY** 720 CCA	
COMPRESSION RATIO	11.5:1		
TRANSMISSION	**MODEL** 6T70	**TYPE** 6 Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.44:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38 ft.		
TIRE SIZE, LOAD & SPEED RATING	P235/55R17 W-Rated Goodyear All Season		
SUSPENSION TYPE (FRONT)	Independent McPherson strut. coil springs, & stablizer bar		
SUSPENSION TYPE (REAR)	Independent Tri-Link coil spring over strut & stablizer bar		
GROUND CLEARANCE, MINIMUM	6.5 in.	**LOCATION** Engine Cradle	
BRAKE SYSTEM	Power, dual hydraulic, anti-lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 246.3 sq. in.	
BRAKES, REAR	**TYPE** Solid Disc	**SWEPT AREA** 175.8 sq. in.	
FUEL CAPACITY	**GALLONS** 17.0	**LITERS** 64.0	
GENERAL MEASUREMENTS	**WHEELBASE** 110.5 in.	**LENGTH** 200.4 in.	
	TEST WEIGHT 3754 lbs.	**HEIGHT** 58.7 in.	
HEADROOM	**FRONT** 39.4 in.	**REAR** 37.8 in.	
LEGROOM	**FRONT** 42.3 in.	**REAR** 37.6 in.	
SHOULDER ROOM	**FRONT** 58.7 in.	**REAR** 58.6 in.	
HIPROOM	**FRONT** 56.4 in.	**REAR** 57.2 in.	
INTERIOR VOLUME	**FRONT** 56.5 cu. ft.	**REAR** 55.7 cu. ft.	
	COMB 105 cu. ft.	**TRUNK** 18.6 cu. ft. with compact spare. 15.9 cu. ft. with full size spare	
EPA MILEAGE EST. (MPG)	**CITY** 17	**HIGHWAY** 28	**COMBINED** 21

Chevrolet Tahoe PPV 2WD 5.3L

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Tahoe PPV – 2WD	**SALES CODE NO.** CC10706	
ENGINE DISPLACEMENT	**CUBIC INCHES** 327	**LITERS** 5.3	
FUEL SYSTEM	SFI	**EXHAUST** Single	
HORSEPOWER (SAE NET)	320 @ 5400 RPM	**ALTERNATOR** 160 AMP	
TORQUE	335 ft. lbs. @ 4000 RPM	**BATTERY** 660 CCA	
COMPRESSION RATIO	9.9:1		
TRANSMISSION	**MODEL** 6L80E	**TYPE** 6 Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.08		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	39.0 ft.		
TIRE SIZE, LOAD & SPEED RATING	P265/60R17 Goodyear RSA Police Radial, 'V' Rated		
SUSPENSION TYPE (FRONT)	Independent, single coil over shock with stabilizer bar		
SUSPENSION TYPE (REAR)	Multi-link with coil springs		
GROUND CLEARANCE, MINIMUM	8.00 in.	**LOCATION** Rear Axle	
BRAKE SYSTEM	Vacuum boost, power, anti-lock		
BRAKES, FRONT	**TYPE** Disc	**SWEPT AREA** 256.6 sq. in.	
BRAKES, REAR	**TYPE** Disc	**SWEPT AREA** 248 sq. in.	
FUEL CAPACITY	**GALLONS** 26.0	**LITERS** 98.0	
GENERAL MEASUREMENTS	**WHEELBASE** 116 in.	**LENGTH** 202.0 in.	
	TEST WEIGHT 5310 lbs.	**HEIGHT** 73.9 in.	
HEADROOM	**FRONT** 41.1 in.	**REAR** 39.2 in.	
LEGROOM	**FRONT** 41.3 in.	**REAR** 39.0 in.	
SHOULDER ROOM	**FRONT** 65.2 in.	**REAR** 65.2 in.	
HIPROOM	**FRONT** 60.3 in.	**REAR** 60.6 in.	
INTERIOR VOLUME	**FRONT** 64.1 cu. ft.	**REAR** 57.7 cu. ft.	
	COMB 122 cu. ft.	***MAX. CARGO** 108.9 cu.ft.	
EPA MILEAGE EST. (MPG)	**CITY** 15	**HIGHWAY** 21	**COMBINED** 17

Dodge Charger 2.65 3.6L

TEST VEHICLE DESCRIPTION

MAKE Dodge	**MODEL** Charger	**SALES CODE NO.** 27A	
ENGINE DISPLACEMENT	**CUBIC INCHES** 220	**LITERS** 3.6	
FUEL SYSTEM	Sequential Port Fuel Injection	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	292 @ 6400 RPM	**ALTERNATOR** 220 AMP	
TORQUE	260 lb-ft @ 4400 RPM	**BATTERY** 800 CCA	
COMPRESSION RATIO	10.2:1		
TRANSMISSION	**MODEL** A580	**TYPE** 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.65:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.9 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60 R 18 99W Goodyear Eagle RSA (B)		
SUSPENSION TYPE (FRONT)	Independent High Arm SLA w/ Dual Ball Joint Lower, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.2 in.	**LOCATION** Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 282 sq. in.	
BRAKES, REAR	**TYPE** Vented Disc	**SWEPT AREA** 242 sq. in.	
FUEL CAPACITY	**GALLONS** 19	**LITERS** 72	
GENERAL MEASUREMENTS	**WHEELBASE** 120 in.	**LENGTH** 200.1 in.	
	TEST WEIGHT 4093	**HEIGHT** 58.2 in.	
HEADROOM	**FRONT** 38.6 in.	**REAR** 36.7 in.	
LEGROOM	**FRONT** 41.8 in.	**REAR** 40.1 in.	
SHOULDER ROOM	**FRONT** 59.5 in.	**REAR** 57.9 in.	
HIPROOM	**FRONT** 56.2 in.	**REAR** 56.1 in.	
INTERIOR VOLUME	**FRONT** 55.6 cu. ft.	**REAR** 49.3 cu. ft.	
	COMB 104.9 cu. ft.	**TRUNK** 16.5 cu. ft.	
EPA MILEAGE EST. (MPG) Label	**CITY** 18	**HIGHWAY** 27	**COMBINED** 21

Dodge Charger 3.07 3.6L

TEST VEHICLE DESCRIPTION

MAKE Dodge	**MODEL** Charger	**SALES CODE NO.** 27A	
ENGINE DISPLACEMENT	**CUBIC INCHES** 220	**LITERS** 3.6	
FUEL SYSTEM	Sequential Port Fuel Injection	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	292 @ 6400 RPM	**ALTERNATOR** 220 Amp	
TORQUE	260 ft-lbs @ 4400 RPM	**BATTERY** 800 CCA	
COMPRESSION RATIO	10.2:1		
TRANSMISSION	**MODEL** A580	**TYPE** 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.07 : 1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.9 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60 R 18 99W Goodyear Eagle RSA (B)		
SUSPENSION TYPE (FRONT)	Independent High Arm SLA with Dual Ball Joint Lower, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.2 in.	**LOCATION** Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 282 sq. in.	
BRAKES, REAR	**TYPE** Vented Disc	**SWEPT AREA** 242 sq. in.	
FUEL CAPACITY	**GALLONS** 19	**LITERS** 72	
GENERAL MEASUREMENTS	**WHEELBASE** 120 in.	**LENGTH** 200.1 in.	
	TEST WEIGHT 4096 lbs.	**HEIGHT** 58.2 in.	
HEADROOM	**FRONT** 38.6 in.	**REAR** 36.7 in.	
LEGROOM	**FRONT** 41.8 in.	**REAR** 40.1 in.	
SHOULDER ROOM	**FRONT** 59.5 in.	**REAR** 57.9 in.	
HIPROOM	**FRONT** 56.2 in.	**REAR** 56.1 in.	
INTERIOR VOLUME	**FRONT** 55.6 cu. ft.	**REAR** 49.31 cu. ft.	
	COMB 104.9 cu. ft.	**TRUNK** 16.5 cu. ft.	
EPA MILEAGE EST. (MPG) Label	**CITY** 18	**HIGHWAY** 27	**COMBINED** 21

Dodge Charger 2.65 5.7L

TEST VEHICLE DESCRIPTION

MAKE Dodge	**MODEL** Charger	**SALES CODE NO.** 29A	
ENGINE DISPLACEMENT	**CUBIC INCHES** 345	**LITERS** 5.7	
FUEL SYSTEM	Sequential Port Fuel Injection	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	370 @ 5150	**ALTERNATOR** 220 Amp	
TORQUE	397 ft-lbs @ 4250	**BATTERY** 800 CCA	
COMPRESSION RATIO	10.5:1		
TRANSMISSION	**MODEL** A580	**TYPE** 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.65:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.9 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60 R 18 99W Goodyear Eagle RSA (B)		
SUSPENSION TYPE (FRONT)	Independent High Arm SLA w/ Dual Ball Joint Lower, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.2 in.	**LOCATION** Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 282 sq. in.	
BRAKES, REAR	**TYPE** Vented Disc	**SWEPT AREA** 242 sq. in.	
FUEL CAPACITY	**GALLONS** 19	**LITERS** 72	
GENERAL MEASUREMENTS	**WHEELBASE** 120 in.	**LENGTH** 200.1 in.	
	TEST WEIGHT 4308	**HEIGHT** 58.2 in.	
HEADROOM	**FRONT** 38.6 in.	**REAR** 36.7 in.	
LEGROOM	**FRONT** 41.8 in.	**REAR** 40.1 in.	
SHOULDER ROOM	**FRONT** 59.5 in.	**REAR** 57.9 in.	
HIPROOM	**FRONT** 56.2 in.	**REAR** 56.1 in.	
INTERIOR VOLUME	**FRONT** 55.6 cu. ft.	**REAR** 49.3 cu. ft.	
	COMB 104.9 cu. ft.	**TRUNK** 16.5 cu. ft.	
EPA MILEAGE EST. (MPG) Label	**CITY** 16	**HIGHWAY** 25	**COMBINED** 19

Dodge Charger 3.06 5.7L

TEST VEHICLE DESCRIPTION

MAKE Dodge	**MODEL** Charger	**SALES CODE NO.** 29A	
ENGINE DISPLACEMENT	**CUBIC INCHES** 345	**LITERS** 5.7	
FUEL SYSTEM	Sequential Port Fuel Injection	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	370 @ 5150	**ALTERNATOR** 220 Amp	
TORQUE	397 ft-lbs @ 4250	**BATTERY** 800 CCA	
COMPRESSION RATIO	10.5:1		
TRANSMISSION	**MODEL** A580	**TYPE** 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.06:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.9 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60 R 18 99W Goodyear Eagle RSA (B)		
SUSPENSION TYPE (FRONT)	Independent High Arm SLA w/ Dual Ball Joint Lower, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.2 in.	**LOCATION** Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	**TYPE** Vented Disc	**SWEPT AREA** 282 sq. in.	
BRAKES, REAR	**TYPE** Vented Disc	**SWEPT AREA** 28 sq. in.	
FUEL CAPACITY	**GALLONS** 19	**LITERS** 72	
GENERAL MEASUREMENTS	**WHEELBASE** 120 in.	**LENGTH** 200.1 in.	
	TEST WEIGHT 4316	**HEIGHT** 58.2 in.	
HEADROOM	**FRONT** 38.6 in.	**REAR** 36.7 in.	
LEGROOM	**FRONT** 41.8 in.	**REAR** 40.1 in.	
SHOULDER ROOM	**FRONT** 59.5 in.	**REAR** 57.9 in.	
HIPROOM	**FRONT** 56.2 in.	**REAR** 56.1 in.	
INTERIOR VOLUME	**FRONT** 55.6 cu. ft.	**REAR** 49.3 cu. ft.	
	COMB 104.9 cu. ft.	**TRUNK** 16.5 cu. ft.	
EPA MILEAGE EST. (MPG) Label	**CITY** 16	**HIGHWAY** 25	**COMBINED** 19

Ford Police Interceptor FWD 3.5L

TEST VEHICLE DESCRIPTION

MAKE Ford FWD	**MODEL** Police Interceptor	**SALES CODE NO.** P2L	
ENGINE DISPLACEMENT	**CUBIC INCHES** 214	**LITERS**	3.5L
FUEL SYSTEM	Sequential Multiport Fuel Inj.	**EXHAUST**	Quasi-Dual
HORSEPOWER (SAE NET)	288 @ 6500 RPM	**ALTERNATOR**	220 A
TORQUE	254 ft lbs @ 4000 RPM	**BATTERY**	750 CCA
COMPRESSION RATIO	10.8:1		
TRANSMISSION	**MODEL** 6F50	**TYPE** 6-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.16:1		
STEERING	Electric Power Assist Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38.4 ft.		
TIRE SIZE, LOAD & SPEED RATING	245/55R18 103V M+S Goodyear Eagle RS-A		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut w/ Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	6.0 in.	**LOCATION** Front Exhaust	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	**TYPE**	Vented disc	**SWEPT AREA** 313 sq in.
BRAKES, REAR	**TYPE**	Vented disc	**SWEPT AREA** 265 sq in.
FUEL CAPACITY	**GALLONS**	19.0	**LITERS** 71.9
GENERAL MEASUREMENTS	**WHEELBASE**	112.9 in.	**LENGTH** 202.9 in.
	TEST WEIGH	4202 lbs.	**HEIGHT** 61.3 in
HEADROOM	**FRONT**	39.0 in.	**REAR** 36.7 in.
LEGROOM	**FRONT**	41.9 in.	**REAR** 39.9 in.
SHOULDER ROOM	**FRONT**	57.9 in.	**REAR** 56.9 in.
HIPROOM	**FRONT**	56.3 in.	**REAR** 55.9 in.
INTERIOR VOLUME	**FRONT**	54.8 cu. ft.	**REAR** 48.1 cu. ft.
	COMB	103.0 cu. ft.	**TRUNK** 16.6 cu. ft.
EPA MILEAGE EST. (MPG)	**CITY** 18	**HIGHWAY** 26	**COMBINED** 21

Ford Police Interceptor AWD 3.5L

TEST VEHICLE DESCRIPTION

MAKE Ford AWD	**MODEL** Police Interceptor	**SALES CODE NO.** P2M	
ENGINE DISPLACEMENT	**CUBIC INCHES** 214	**LITERS**	3.5L
FUEL SYSTEM	Sequential Multiport Fuel Inj.	**EXHAUST**	Quasi-Dual
HORSEPOWER (SAE NET)	288 @ 6500 RPM	**ALTERNATOR**	220A
TORQUE	254 ft lbs @ 4000 RPM	**BATTERY**	750 CCA
COMPRESSION RATIO	10.8:1		
TRANSMISSION	**MODEL** 6F50	**TYPE** 6-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.39:1 with All-Wheel Drive		
STEERING	Electric Power Assist Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38.4 ft.		
TIRE SIZE, LOAD & SPEED RATING	245/55R18 103V M+S Goodyear Eagle RS-A		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut w/ Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	6.0 in.	**LOCATION** Front Exhaust	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	**TYPE**	Vented disc	**SWEPT AREA** 313 sq. in.
BRAKES, REAR	**TYPE**	Vented disc	**SWEPT AREA** 265 sq. in.
FUEL CAPACITY	**GALLONS**	19.0	**LITERS** 71.9
GENERAL MEASUREMENTS	**WHEELBASE**	112.9 in.	**LENGTH** 202.9 in.
	TEST WEIGHT	4361 lbs.	**HEIGHT** 61.3 in.
HEADROOM	**FRONT**	39.0 in.	**REAR** 36.7 in
LEGROOM	**FRONT**	41.9 in.	**REAR** 39.9 in.
SHOULDER ROOM	**FRONT**	57.9 in.	**REAR** 56.9 in.
HIPROOM	**FRONT**	56.3 in.	**REAR** 55.9 in.
INTERIOR VOLUME	**FRONT**	54.8 cu. ft.	**REAR** 48.1 cu. ft.
	COMB	103.0 cu. ft.	**TRUNK** 16.6 cu. ft.
EPA MILEAGE EST. (MPG)	**CITY** 17	**HIGHWAY** 24	**COMBINED** 20

Ford Police Interceptor Ecoboost AWD 3.5L

TEST VEHICLE DESCRIPTION

MAKE Ford EcoBoost AWD	**MODEL** Police Interceptor	**SALES CODE NO.** P2M, 99T	
ENGINE DISPLACEMENT	**CUBIC INCHES** 214	**LITERS** 3.5L	
FUEL SYSTEM	Sequential Direct Injection	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	365 @ 5500 RPM	**ALTERNATOR** 220 A	
TORQUE	350 ft lbs @ 1500-5250 RPM	**BATTERY** 750 CCA	
COMPRESSION RATIO	10.0:1		
TRANSMISSION	**MODEL** 6F55	**TYPE** 6-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.16:1 with All-Wheel Drive		
STEERING	Electric Power Assist Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38.4 ft.		
TIRE SIZE, LOAD & SPEED RATING	245/55R18 103V M+S Goodyear Eagle RS-A		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut w/ Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	5.3 in.	**LOCATION** Front Exhaust	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	**TYPE** Vented disc	**SWEPT AREA** 313 sq. in.	
BRAKES, REAR	**TYPE** Vented disc	**SWEPT AREA** 265 sq. in.	
FUEL CAPACITY	**GALLONS** 19.0	**LITERS** 71.9	
GENERAL MEASUREMENTS	**WHEELBASE** 112.9 in.	**LENGTH** 202.9 in.	
	TEST WEIGH 4444 lbs	**HEIGHT** 61.3 in.	
HEADROOM	**FRONT** 39.0 in.	**REAR** 36.7 in.	
LEGROOM	**FRONT** 41.9 in.	**REAR** 39.9 in.	
SHOULDER ROOM	**FRONT** 57.9 in.	**REAR** 56.9 in.	
HIPROOM	**FRONT** 56.3 in.	**REAR** 55.9 in.	
INTERIOR VOLUME	**FRONT** 54.8 cu. ft.	**REAR** 48.1 cu. ft.	
	COMB 103.0 cu. ft.	**TRUNK** 16.6 cu. ft.	
EPA MILEAGE EST. (MPG)	**CITY** 16	**HIGHWAY** 23	**COMBINED** 18

Ford Police Interceptor AWD 3.7L

TEST VEHICLE DESCRIPTION

MAKE Ford AWD	**MODEL** Police Interceptor	**SALES CODE NO.** P2M, 99K	
ENGINE DISPLACEMENT	**CUBIC INCHES** 226	**LITERS** 3.7L	
FUEL SYSTEM	Sequential Multiport Fuel Inj.	**EXHAUST** Dual	
HORSEPOWER (SAE NET)	305 @ 6500 RPM	**ALTERNATOR** 220A	
TORQUE	279 @ 4000 RPM	**BATTERY** 750 CCA	
COMPRESSION RATIO	10.5:1		
TRANSMISSION	**MODEL** 6F50	**TYPE** 6-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.39:1with All Wheel Drive		
STEERING	Electric Power Assist Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38.4 ft.		
TIRE SIZE, LOAD & SPEED RATING	245/55R18 103V M+S Goodyear Eagle RS-A		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut w/ Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	6.0 in.	**LOCATION** Front Exhaust	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	**TYPE** Vented disc	**SWEPT AREA** 313 sq. in.	
BRAKES, REAR	**TYPE** Vented disc	**SWEPT AREA** 265 sq. in.	
FUEL CAPACITY	**GALLONS** 19.0	**LITERS** 71.9	
GENERAL MEASUREMENTS	**WHEELBASE** 112.9 in.	**LENGTH** 202.9 in	
	TEST WEIGHT 4354 lbs.	**HEIGHT** 61.3 in.	
HEADROOM	**FRONT** 39.0 in.	**REAR** 36.7 in.	
LEGROOM	**FRONT** 41.9 in.	**REAR** 39.9 in.	
SHOULDER ROOM	**FRONT** 57.9 in.	**REAR** 56.9 in.	
HIPROOM	**FRONT** 56.3 in.	**REAR** 55.9 in.	
INTERIOR VOLUME	**FRONT** 54.8 cu. ft.	**REAR** 48.1 cu. ft.	
	COMB 103.0 cu. ft.	**TRUNK** 16.6 cu. ft.	
EPA MILEAGE EST. (MPG)	**CITY** 18	**HIGHWAY** 25	**COMBINED** 21

Ford Police Interceptor Utility AWD 3.7L

VEHICLE TEST DESCRIPTION

MAKE Ford AWD Utility	**MODEL** Police Interceptor	**SALES CODE NO.** K8A	
ENGINE DISPLACEMENT	**CUBIC INCHES** 226	**LITERS**	3.7L
FUEL SYSTEM	Sequential Multiport Fuel Inj.	**EXHAUST**	Dual
HORSEPOWER (SAE NET)	304 @ 6250 RPM	**ALTERNATOR**	220A
TORQUE	279 @ 4000 RPM	**BATTERY**	750 CCA
COMPRESSION RATIO	10.5:1		
TRANSMISSION	**MODEL** 6F55	**TYPE** 6-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.65:1 with All Wheel Drive		
STEERING	Electric Power Assist Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38.8 ft.		
TIRE SIZE, LOAD & SPEED RATING	245/55R18 103V M+S Goodyear Eagle RS-A		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut w/ Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	6.5 in.	**LOCATION** Front Exhaust	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	**TYPE**	Vented disc	**SWEPT AREA** 313 sq in.
BRAKES, REAR	**TYPE**	Vented disc	**SWEPT AREA** 265 sq in.
FUEL CAPACITY	**GALLONS**	18.6	**LITERS** 70.4
GENERAL MEASUREMENTS	**WHEELBASE**	112.6 in.	**LENGTH** 197.1 in.
	TEST WEIGH	4684 lbs.	**HEIGHT** 69.2 in. without roof rack
HEADROOM	**FRONT**	41.4 in.	**REAR** 40.1 in.
LEGROOM	**FRONT**	40.6 in.	**REAR** 41.6 in.
SHOULDER ROOM	**FRONT**	61.3 in.	**REAR** 60.9 in.
HIPROOM	**FRONT**	57.3 in.	**REAR** 56.8 in.
INTERIOR VOLUME	**FRONT**	59.7 cu. ft.	**REAR** 58.7 cu. ft.
	COMB	118.4 cu. ft.	**MAX CARGO** 85.1 cu. ft. *Max Cargo behind front seats, with rear seats folded down.*
EPA MILEAGE EST. (MPG)	**CITY** 16	**HIGHWAY** 21	**COMBINED** 18

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)	301	355	302	320
TORQUE (FT. LBS.)	265	384	262	335
COMPRESSION RATIO	11.3:1	10.4:1	11.5:1	9.9:1
AXLE RATIO	2.92:1	2.92:1	2.44:1	3.08
TURNING CIRCLE – FT. CURB TO CURB	38	38	38	39
TRANSMISSION	6 Speed auto	6 Speed auto	6 Speed auto	6 Speed auto
TRANSMISSION MODEL NUMBER	6L45	6L80E	6T70	6L80E
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	6.5	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	Solid Disc	Disc
FUEL CAPACITY – GALLONS	19	19	17	26
FUEL CAPACITY – LITERS	72	72	64	98
OVERALL LENGTH – INCHES	204.2	204.2	200.4	202.0
OVERALL HEIGHT – INCHES	58.7	58.7	58.7	73.9
TEST WEIGHT – LBS.	4074	4206	3754	5310
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
	Gas	**Gas**	**Gas**	**Gas**
EPA MILEAGE – CITY – MPG Label	18	15	17	15
EPA MILEAGE – HIGHWAY – MPG Label	26	24	28	21
EPA MILEAGE – COMBINED – MPG Label	21	18	21	17

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	5 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.	4093	4096	4308	4316
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	49.31	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
	Gas	**Gas**	**Gas**	**Gas**
EPA MILEAGE – CITY – MPG Label	18	18	16	16
EPA MILEAGE – HIGHWAY – MPG Label	27	27	25	25
EPA MILEAGE – COMBINED – MPG Label	21	21	19	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)	288	288	365
TORQUE (FT. LBS.)	254	254	350
COMPRESSION RATIO	10.8:1	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	6F50	6F50	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.	4202	4361	4444
WHEELBASE – INCHES	112.9	112.9	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
	Gas	**Gas**	**Gas**
EPA MILEAGE – CITY – MPG Label	18	17	16
EPA MILEAGE – HIGHWAY – MPG Label	26	24	23
EPA MILEAGE – COMBINED – MPG Label	21	20	18

TEST VEHICLE DESCRIPTION SUMMARY

	Ford Police Interceptor AWD 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)	305	304
TORQUE (FT. LBS.)	279	279
COMPRESSION RATIO	10.5:1	10.5:1
AXLE RATIO	3.39:1	3.65:1 w/AWD
TURNING CIRCLE – FT. CURB TO CURB	38.4	38.8
TRANSMISSION	6 Speed elec. auto	6 Speed elec. Auto
TRANSMISSION MODEL NUMBER	6F50	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	6.0	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	18.6
FUEL CAPACITY – LITERS	71.9	70.4
OVERALL LENGTH – INCHES	202.9	197.1
OVERALL HEIGHT – INCHES	61.3	69.2
TEST WEIGHT – LBS.	4354	4684
WHEELBASE – INCHES	112.9	112.6
HEADROOM FRONT – INCHES	39.0	41.4
HEADROOM REAR – INCHES	36.7	40.1
LEGROOM FRONT – INCHES	41.9	40.6
LEGROOM REAR – INCHES	39.9	41.6
SHOULDER ROOM FRONT – INCHES	57.9	61.3
SHOULDER ROOM REAR – INCHES	56.9	60.9
HIPROOM FRONT – INCHES	56.3	57.3
HIPROOM REAR – INCHES	55.9	56.8
INTERIOR VOLUME FRONT – CU. FT.	54.8	59.7
INTERIOR VOLUME REAR – CU. FT.	48.1	58.7
INTERIOR VOLUME COMB. – CU. FT.	103.0	118.4
TRUNK VOLUME – CU. FT.	16.6	85.1
	Gas	**Gas**
EPA MILEAGE – CITY – MPG Label	18	16
EPA MILEAGE – HIGHWAY – MPG Label	25	21
EPA MILEAGE – COMBINED – MPG Label	21	18

VEHICLE DYNAMICS TESTING

TEST OBJECTIVE

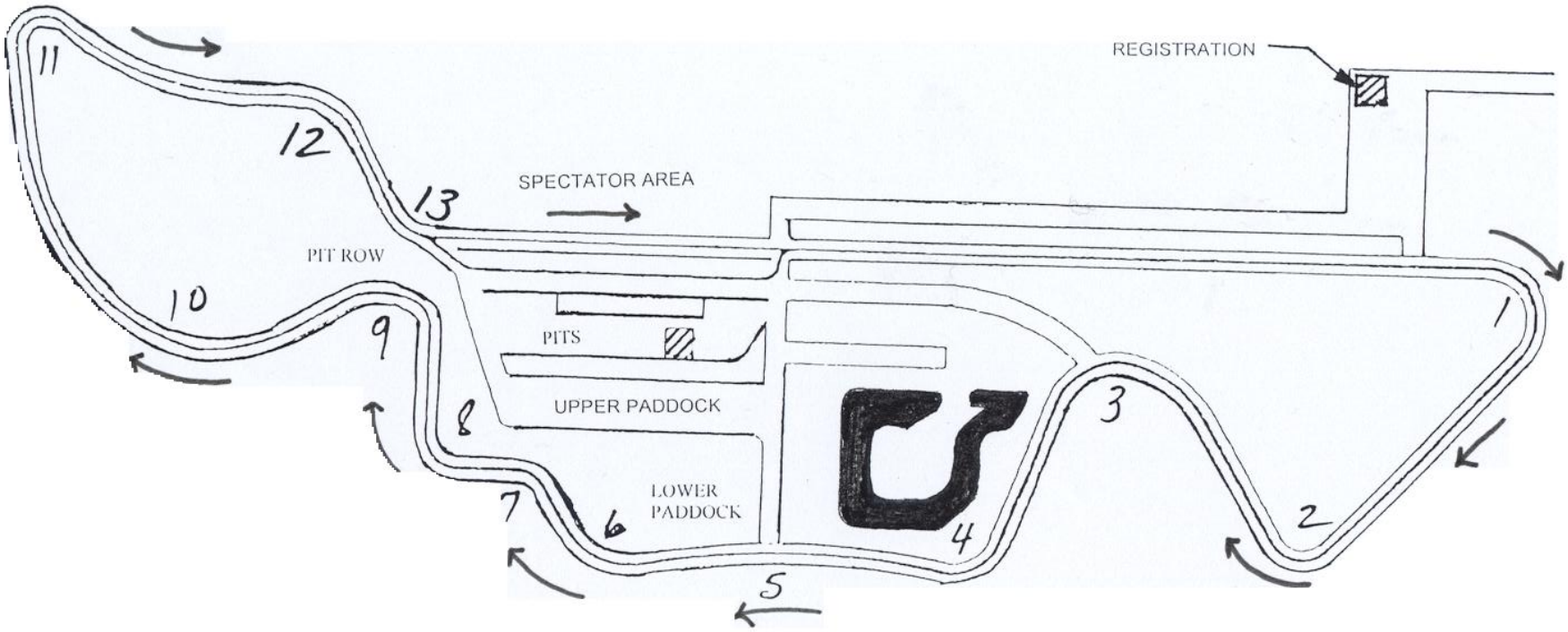
Determine each vehicle's high-speed pursuit or emergency response handling characteristics and performance in comparison to the other vehicles in the test group. The course used is a 2-mile road-racing type configuration, containing hills, curves, and corners. The course simulates actual conditions encountered 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

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



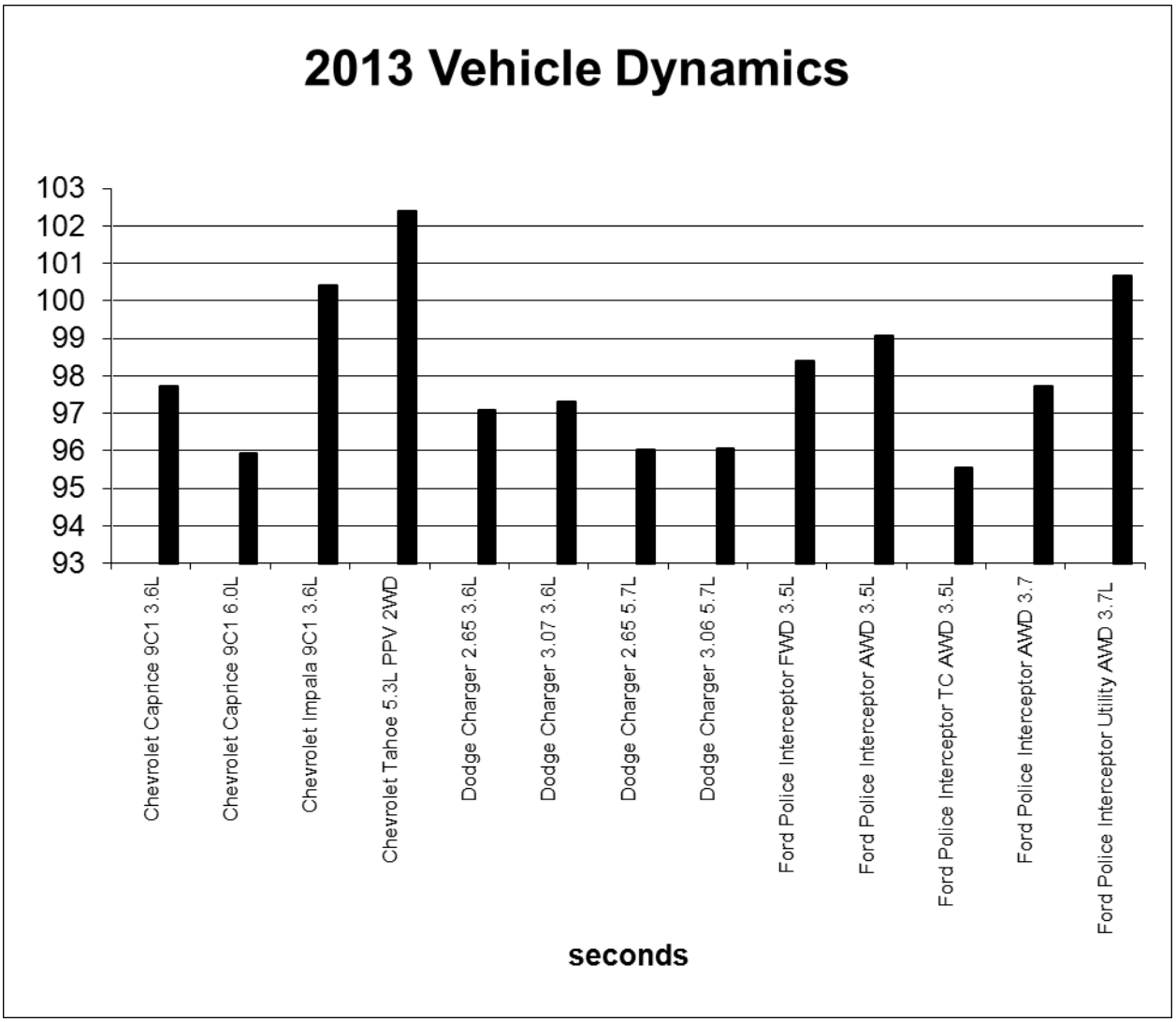
Arrows indicate Michigan State Police Road Test Course and Direction of Travel.

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	01:37.40	01:37.50	01:37.50	01:37.60	01:37.44
	ROGERS	01:37.30	01:37.40	01:37.60	01:37.60	01:37.70	01:37.52
	MCCARTHY	01:37.70	01:37.90	01:37.90	01:37.90	01:38.00	01:37.88
	SCHUTTER	01:37.90	01:38.10	01:38.10	01:38.20	01:38.20	01:38.10
Overall Average							**01:37.74**
Chevrolet Caprice 9C1 6.0L	GROMAK	01:34.90	01:35.30	01:35.40	01:35.60	01:35.60	01:35.36
	ROGERS	01:35.10	01:35.30	01:35.40	01:35.50	01:35.90	01:35.44
	MCCARTHY	01:35.50	01:35.80	01:36.30	01:36.40	01:36.40	01:36.08
	SCHUTTER	01:36.40	01:36.80	01:37.00	01:37.10	01:37.20	01:36.90
Overall Average							**01:35.94**
Chevrolet Impala 9C1 3.6L	GROMAK	01:40.20	01:40.20	01:40.50	01:40.50	01:40.60	01:40.40
	ROGERS	01:39.90	01:40.10	01:40.10	01:40.10	01:40.30	01:40.10
	MCCARTHY	01:40.10	01:40.10	01:40.30	01:40.30	01:40.40	01:40.24
	SCHUTTER	01:40.70	01:40.90	01:40.90	01:41.00	01:41.20	01:40.94
Overall Average							**01:40.42**
Chevrolet Tahoe PPV 5.3L	GROMAK	01:41.40	01:41.50	01:41.60	01:41.70	01:41.80	01:41.60
	ROGERS	01:41.70	01:42.00	01:42.10	01:42.20	01:42.30	01:42.06
	MCCARTHY	01:42.10	01:42.50	01:42.80	01:43.00	01:43.10	01:42.70
	SCHUTTER	01:42.90	01:43.10	01:43.20	01:43.50	01:43.50	01:43.24
Overall Average							**01:42.40**
Dodge Charger 2.65 3.6L	GROMAK	01:36.90	01:37.00	01:37.10	01:37.30	01:37.30	01:37.12
	ROGERS	01:36.10	01:36.20	01:36.30	01:36.30	01:36.80	01:36.34
	MCCARTHY	01:36.80	01:36.90	01:36.90	01:37.10	01:37.10	01:36.96
	SCHUTTER	01:37.70	01:37.80	01:37.80	01:38.00	01:38.30	01:37.92
Overall Average							**01:37.09**
Dodge Charger 3.07 3.6L	GROMAK	01:37.00	01:37.00	01:37.00	01:37.40	01:37.50	01:37.18
	ROGERS	01:37.00	01:37.00	01:37.10	01:37.20	01:37.30	01:37.12
	MCCARTHY	01:36.90	01:37.00	01:37.00	01:37.30	01:37.30	01:37.10
	SCHUTTER	01:37.50	01:37.90	01:37.90	01:37.90	01:37.90	01:37.82
Overall Average							**01:37.30**
Dodge Charger 2.65 5.7L	GROMAK	01:35.50	01:35.60	01:35.70	01:35.90	01:35.90	01:35.72
	ROGERS	01:35.20	01:35.40	01:35.70	01:35.80	01:35.90	01:35.60
	MCCARTHY	01:35.90	01:36.10	01:36.20	01:36.30	01:36.60	01:36.22
	SCHUTTER	01:36.10	01:36.40	01:36.70	01:36.70	01:36.70	01:36.52
Overall Average							**01:36.02**
Dodge Charger 3.06 5.7L	GROMAK	01:35.50	01:35.90	01:36.00	01:36.00	01:36.10	01:35.90
	ROGERS	01:35.30	01:35.40	01:35.40	01:35.60	01:35.70	01:35.48
	MCCARTHY	01:35.70	01:35.80	01:35.90	01:35.90	01:36.70	01:36.00
	SCHUTTER	01:36.50	01:36.60	01:36.60	01:37.10	01:37.20	01:36.80
Overall Average							**01:36.05**

VEHICLE DYNAMICS TESTING

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Ford PI FWD 3.5L	GROMAK	01:38.50	01:38.50	01:38.60	01:38.60	01:38.70	01:38.58
	ROGERS	01:37.60	01:37.70	01:37.90	01:38.00	01:38.00	01:37.84
	MCCARTHY	01:38.00	01:38.20	01:38.30	01:38.30	01:38.30	01:38.22
	SCHUTTER	01:38.70	01:38.90	01:39.00	01:39.00	01:39.00	01:38.92
Overall Average							**01:38.39**
Ford PI AWD 3.5L	GROMAK	01:39.10	01:39.10	01:39.30	01:39.30	01:39.40	01:39.24
	ROGERS	01:38.60	01:38.80	01:38.80	01:39.10	01:39.20	01:38.90
	MCCARTHY	01:38.50	01:38.50	01:38.60	01:38.60	01:39.00	01:38.64
	SCHUTTER	01:39.10	01:39.50	01:39.50	01:39.50	01:39.70	01:39.46
Overall Average							**01:39.06**
Ford PI AWD EcoBoost 3.5L	GROMAK	01:35.50	01:35.90	01:35.90	01:36.00	01:36.10	01:35.88
	ROGERS	01:34.60	01:34.70	01:35.10	01:35.20	01:35.30	01:34.98
	MCCARTHY	01:35.20	01:35.30	01:35.40	01:35.50	01:35.60	01:35.40
	SCHUTTER	01:35.60	01:35.80	01:39.90	01:36.00	01:36.40	01:35.94
Overall Average							**01:35.55**
Ford PI AWD 3.7L	GROMAK	01:37.60	01:37.70	01:38.00	01:38.00	01:38.10	01:37.88
	ROGERS	01:36.90	01:37.20	01:37.30	01:37.30	01:37.50	01:37.24
	MCCARTHY	01:37.50	01:37.60	01:37.90	01:38.30	01:38.30	01:37.92
	SCHUTTER	01:37.60	01:37.70	01:37.80	01:38.00	01:38.00	01:37.82
Overall Average							**01:37.71**
Ford PI Utility AWD 3.7L	GROMAK	01:40.10	01:40.20	01:40.30	01:40.40	01:40.60	01:40.32
	ROGERS	01:40.30	01:40.70	01:40.70	01:40.90	01:40.90	01:40.70
	MCCARTHY	01:40.40	01:40.50	01:40.80	01:40.90	01:41.00	01:40.72
	SCHUTTER	01:40.50	01:40.90	01:41.00	01:41.20	01:41.30	01:40.98
Overall Average							**01:40.68**


2013 Vehicle Dynamics
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Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe 5.3L PPV 2WD
Dodge Charger 2.65 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 TC AWD 3.5L
Ford Police Interceptor AWD 3.7
Ford Police Interceptor Utility AWD 3.7L
seconds

POLICE
ECOBOOST

ACCELERATION AND TOP SPEED TESTING

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.

ACCELERATION TEST METHODOLOGY

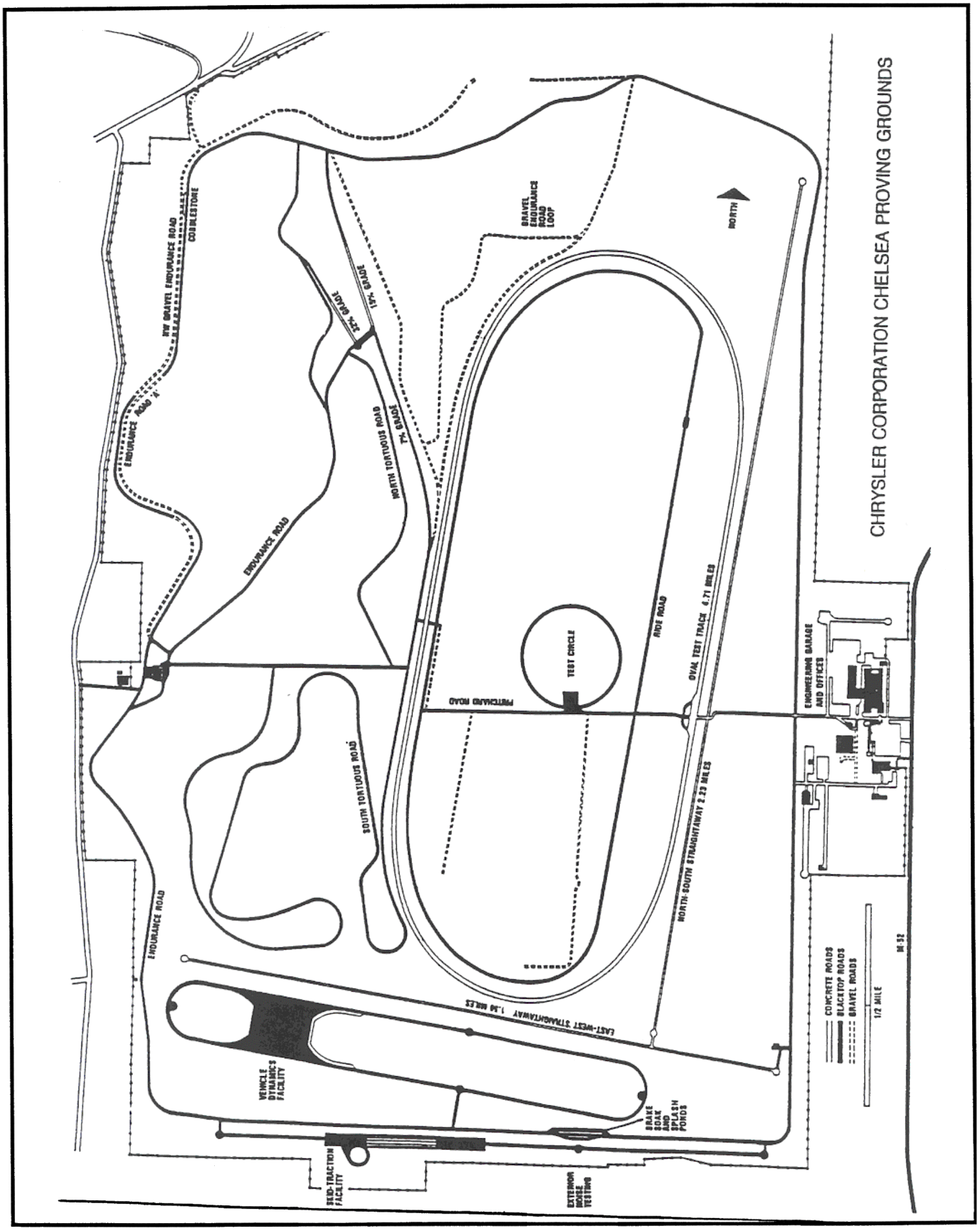
Using a DLS Smart Sensor – Optical non-contact Speed and Distance Sensor in conjunction with a lap top computer, each vehicle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and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

TOP SPEED TEST OBJECTIVE

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

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
NORTH
BRAVEL ENDURANCE ROAD LOOP
NW GRAVEL ENDURANCE ROAD
COBBLESTONE
ENDURANCE ROAD
15% GRADE
32% GRADE
NORTH TORTUOUS ROAD
74% GRADE
ENDURANCE ROAD
TEST CIRCLE
RIDE ROAD
OVAL TEST TRACK 4.71 MILES
PATCHING ROAD
ENGINEERING GARAGE AND OFFICES
SOUTH TORTUOUS ROAD
NORTH-SOUTH STRAIGHTAWAY 2.23 MILES
ENDURANCE ROAD
EAST-WEST STRAIGHTAWAY 1.34 MILES
VEHICLE DYNAMICS FACILITY
BRAKE SOAK AND SPLASH PONDS
RWD-TRACTION FACILITY
EXTERIOR NOISE TESTING
CONCRETE ROADS
BLACKTOP ROADS
GRAVEL ROADS
1/2 MILE
M-52

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Chevrolet Caprice 9C1 3.6L **BEGINNING TIME:** 3:21 p.m.

WIND VELOCITY: 4.1 mph **WIND DIRECTION:** 40° **TEMPERATURE:** 70.7°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	8.04	7.78	7.81	7.52	**7.79**
0 – 80	**14.9 sec.**	13.06	12.55	12.49	12.37	**12.62**
0 – 100	**24.6 sec.**	19.89	19.18	18.98	18.79	**19.21**

DISTANCE TO REACH: **110 MPH** .45 mile **120 MPH** .70 mile

TOP SPEED ATTAINED: 146 mph

MAKE & MODEL: Chevrolet Caprice 9C1 6.0L **BEGINNING TIME:** 1:01 p.m.

WIND VELOCITY: 8.3 mph **WIND DIRECTION:** 16° **TEMPERATURE:** 68.6°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	5.96	6.07	6.11	5.99	**6.03**
0 – 80	**14.9 sec.**	9.58	9.83	9.62	9.70	**9.68**
0 – 100	**24.6 sec.**	14.04	14.49	14.28	14.31	**14.28**

DISTANCE TO REACH: **110 MPH** .35 mile **120 MPH** .47 mile

TOP SPEED ATTAINED: 154 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Chevrolet Impala 9C1 3.6L **BEGINNING TIME:** 10:36 a.m.

WIND VELOCITY: 1.4 mph **WIND DIRECTION:** 26° **TEMPERATURE:** 64.2°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.24	7.25	7.25	7.15	**7.22**
0 – 80	**14.9 sec.**	11.84	11.81	11.78	11.61	**11.76**
0 – 100	**24.6 sec.**	18.27	18.29	18.24	18.36	**18.29**

DISTANCE TO REACH: **110 MPH** .44 mile **120 MPH** .68 mile

TOP SPEED ATTAINED: 149 mph

MAKE & MODEL: Chevrolet Tahoe PPV 2WD 5.3L **BEGINNING TIME:** 8:39 a.m.

WIND VELOCITY: 0.0 mph **WIND DIRECTION:** 00° **TEMPERATURE:** 48.7°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	8.21	8.07	8.00	7.87	**8.04**
0 – 80	**14.9 sec.**	13.67	13.52	13.54	13.15	**13.47**
0 – 100	**24.6 sec.**	21.83	21.16	20.88	20.43	**21.07**

DISTANCE TO REACH: **110 MPH** .54 mile **120 MPH** .81 mile

TOP SPEED ATTAINED: 137 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Dodge Charger 2.65 3.6L **BEGINNING TIME:** 9:04 a.m.

WIND VELOCITY: 1.6 mph **WIND DIRECTION:** 13° **TEMPERATURE:** 56.4°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.96	7.84	7.77	7.72	**7.82**
0 – 80	**14.9 sec.**	12.61	12.51	12.40	12.36	**12.47**
0 – 100	**24.6 sec.**	19.82	19.62	19.31	19.26	**19.50**

DISTANCE TO REACH: **110 MPH** .49 mile **120 MPH** .69 mile

TOP SPEED ATTAINED: 141 mph

MAKE & MODEL: Dodge Charger 3.07 3.6L **BEGINNING TIME:** 2:00 p.m.

WIND VELOCITY: 8.2 mph **WIND DIRECTION:** 9° **TEMPERATURE:** 68.8°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.55	7.91	7.78	7.57	**7.70**
0 – 80	**14.9 sec.**	11.94	12.83	12.25	12.66	**12.42**
0 – 100	**24.6 sec.**	19.22	20.87	19.93	20.17	**20.05**

DISTANCE TO REACH: **110 MPH** .49 mile **120 MPH** .66 mile

TOP SPEED ATTAINED: 141 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Dodge Charger 2.65 5.7L **BEGINNING TIME:** 10:58 a.m.

WIND VELOCITY: 2.8 mph **WIND DIRECTION:** 33° **TEMPERATURE:** 64.1°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	6.56	6.07	6.05	5.80	**6.12**
0 – 80	**14.9 sec.**	9.89	9.39	9.42	9.09	**9.45**
0 – 100	**24.6 sec.**	14.81	14.33	14.25	14.15	**14.39**

DISTANCE TO REACH: **110 MPH** .33 mile **120 MPH** .43 mile

TOP SPEED ATTAINED: 152 mph

MAKE & MODEL: Dodge Charger 3.06 5.7L **BEGINNING TIME:** 3:42 p.m.

WIND VELOCITY: 2.0 mph **WIND DIRECTION:** 349° **TEMPERATURE:** 71.4°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	6.19	6.09	5.99	6.06	**6.08**
0 – 80	**14.9 sec.**	10.06	9.97	9.90	9.89	**9.95**
0 – 100	**24.6 sec.**	14.75	14.54	14.63	14.50	**14.61**

DISTANCE TO REACH: **110 MPH** .35 mile **120 MPH** .47 mile

TOP SPEED ATTAINED: 149 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Ford Police Interceptor FWD 3.5L **BEGINNING TIME:** 2:24 p.m.

WIND VELOCITY: 4.0 mph **WIND DIRECTION:** 192° **TEMPERATURE:** 69.2°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.55	7.75	7.66	7.52	**7.62**
0 – 80	**14.9 sec.**	12.29	12.55	12.39	12.25	**12.37**
0 – 100	**24.6 sec.**	18.79	19.49	19.10	18.77	**19.04**

DISTANCE TO REACH: **110 MPH** .48 mile **120 MPH** .88 mile

TOP SPEED ATTAINED: 131 mph

MAKE & MODEL: Ford Police Interceptor AWD 3.5L **BEGINNING TIME:** 8:15 a.m.

WIND VELOCITY: 0.1 mph **WIND DIRECTION:** 281° **TEMPERATURE:** 43.7°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.89	7.89	7.85	7.81	**7.86**
0 – 80	**14.9 sec.**	12.83	12.71	12.57	12.55	**12.66**
0 – 100	**24.6 sec.**	19.89	19.60	19.60	19.47	**19.64**

DISTANCE TO REACH: **110 MPH** .55 mile **120 MPH** .92 mile

TOP SPEED ATTAINED: 131 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Ford Police Interceptor AWD EcoBoost 3.5L **BEGINNING TIME:** 4:04 p.m.

WIND VELOCITY: 2.7 mph **WIND DIRECTION:** 127° **TEMPERATURE:** 71.1°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	5.78	5.87	5.70	5.64	**5.75**
0 – 80	**14.9 sec.**	9.11	9.20	9.01	9.00	**9.08**
0 – 100	**24.6 sec.**	13.83	13.88	13.66	13.70	**13.77**

DISTANCE TO REACH: **110 MPH** .33 mile **120 MPH** .48 mile

TOP SPEED ATTAINED: 150 mph

MAKE & MODEL: Ford Police Interceptor AWD 3.7L **(RUN2)** **BEGINNING TIME:** 4:59 p.m.

WIND VELOCITY: 2.4 mph **WIND DIRECTION:** 310° **TEMPERATURE:** 71.7°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.68	7.57	7.52	7.35	**7.53**
0 – 80	**14.9 sec.**	12.28	12.11	12.05	11.91	**12.09**
0 – 100	**24.6 sec.**	19.07	18.49	18.73	18.20	**18.62**

DISTANCE TO REACH: **110 MPH** .49 mile **120 MPH** .78 mile

TOP SPEED ATTAINED: 132 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

MAKE & MODEL: Ford Police Interceptor Utility AWD 3.7L **BEGINNING TIME:** 10:14 a.m.

WIND VELOCITY: 1.4 mph **WIND DIRECTION:** 26° **TEMPERATURE:** 62.9°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.0 sec.**	7.97	8.10	7.99	7.78	**7.96**
0 – 80	**14.9 sec.**	12.91	12.87	12.67	12.52	**12.74**
0 – 100	**24.6 sec.**	20.97	21.63	20.96	20.98	**21.13**

DISTANCE TO REACH: **110 MPH** .62 mile **120 MPH** 1.03 mile

TOP SPEED ATTAINED: 132 mph

*Michigan State Police minimum requirement.

SUMMARY OF ACCELERATION AND TOP SPEED

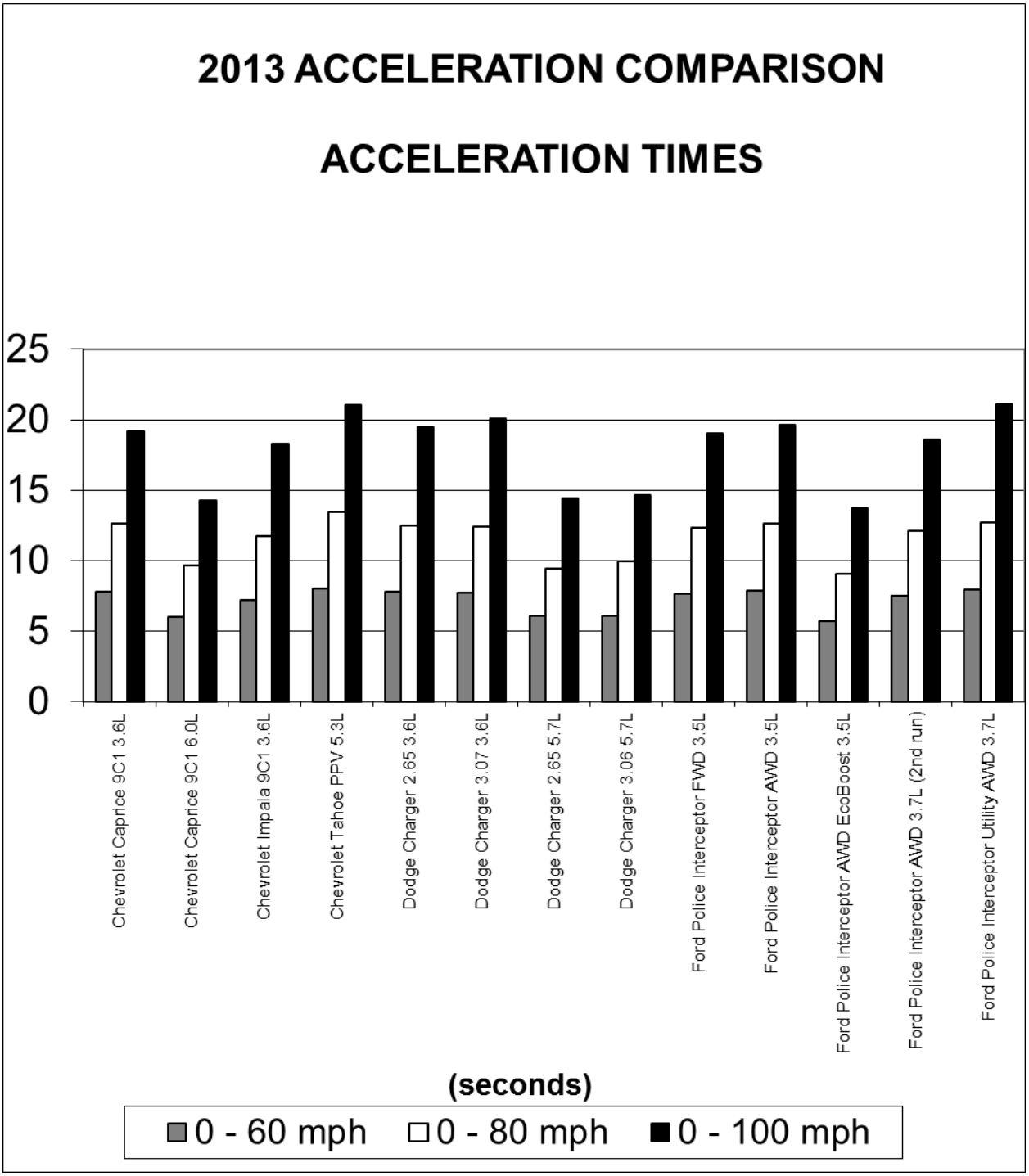
ACCELERATION*		Chevrolet Caprice 9C1 3.6L	Chevrolet Caprice 9C1 6.0L	Chevrolet Impala 9C1 3.6L	Chevrolet Tahoe PPV 2WD 5.3L
0 – 20 mph	(sec.)	1.89	1.63	1.91	1.96
0 – 30 mph	(sec.)	3.05	2.49	3.03	3.11
0 – 40 mph	(sec.)	4.24	3.47	4.12	4.47
0 – 50 mph	(sec.)	5.92	4.69	5.58	6.18
0 – 60 mph	(sec.)	7.79	6.03	7.22	8.04
0 – 70 mph	(sec.)	9.76	7.78	9.01	10.54
0 – 80 mph	(sec.)	12.62	9.68	11.76	13.47
0 – 90 mph	(sec.)	15.80	11.77	14.83	16.80
0 – 100 mph	(sec.)	19.21	14.28	18.29	21.07
TOP SPEED	(mph)	146	154	149	137
DISTANCE TO REACH					
110 mph	(miles)	.45	.35	.44	.54
120 mph	(miles)	.70	.47	.68	.81
QUARTER MILE					
Time	(sec.)	15.98	14.52	15.63	16.30
Speed	(mph)	90.52	100.93	92.53	88.58

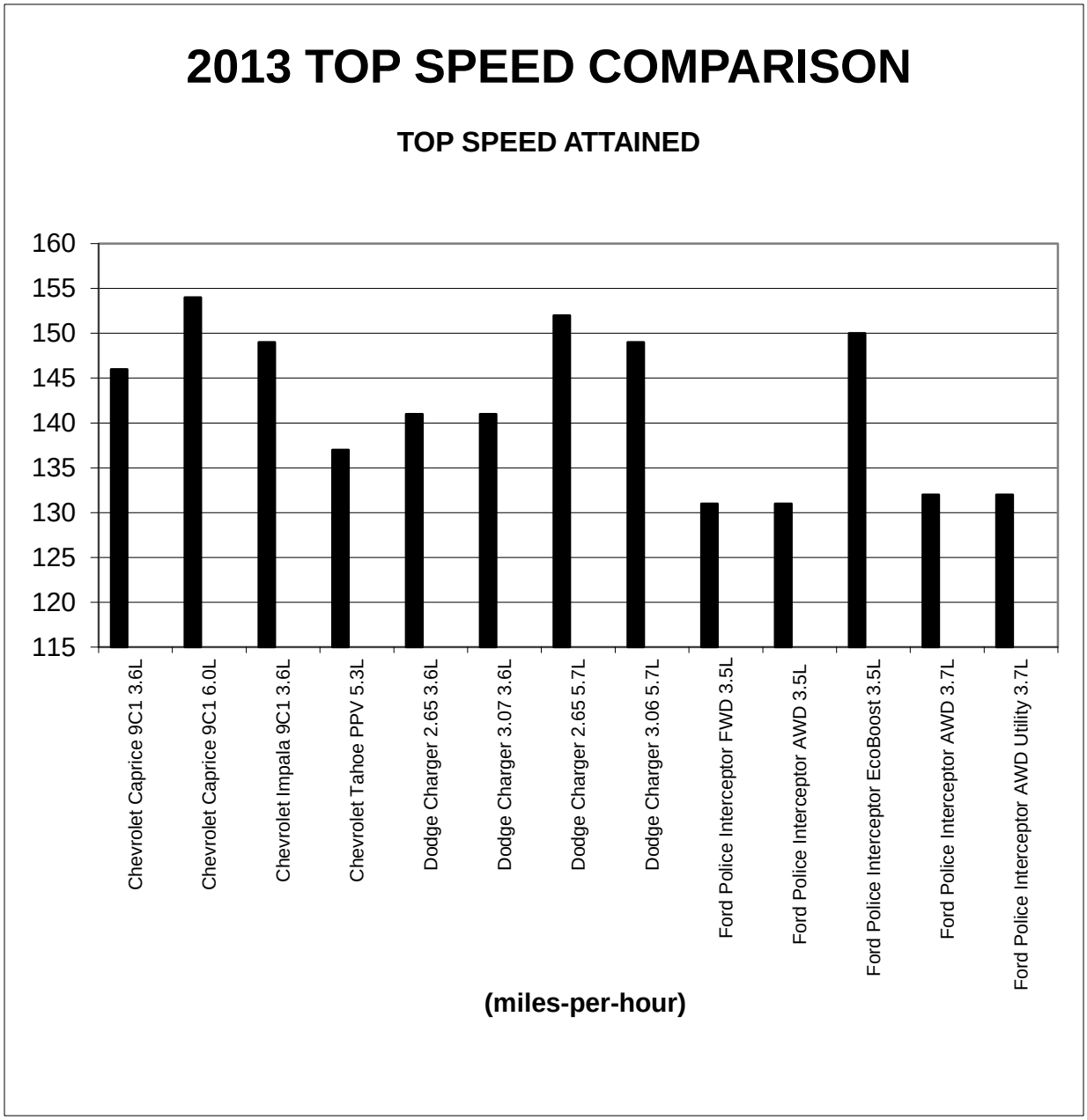
SUMMARY OF ACCELERATION AND TOP SPEED

ACCELERATION*	Dodge Charger 2.65 3.6L	Dodge Charger 3.07 3.6L	Dodge Charger 2.65 5.7L	Dodge Charger 3.06 5.7L
0 – 20 mph (sec.)	1.91	1.84	1.72	1.69
0 – 30 mph (sec.)	3.27	3.07	2.63	2.54
0 – 40 mph (sec.)	4.57	4.30	3.54	3.50
0 – 50 mph (sec.)	5.95	5.76	4.74	4.75
0 – 60 mph (sec.)	7.82	7.70	6.12	6.08
0 – 70 mph (sec.)	10.04	9.87	7.57	7.85
0 – 80 mph (sec.)	12.47	12.42	9.45	9.95
0 – 90 mph (sec.)	15.06	15.94	11.89	12.21
0 – 100 mph (sec.)	19.50	20.05	14.39	14.61
TOP SPEED (mph)	141	141	152	149
DISTANCE TO REACH				
110 mph (miles)	.49	.49	.33	.35
120 mph (miles)	.69	.66	.43	.47
QUARTER MILE				
Time (sec.)	16.02	15.95	14.56	14.65
Speed (mph)	92.49	90.06	100.76	100.21

SUMMARY OF ACCELERATION AND TOP SPEED

ACCELERATION*		Ford Police Interceptor FWD 3.5L	Ford Police Interceptor AWD 3.5L	Ford Police Interceptor AWD EcoBoost 3.5L	Ford Police Interceptor AWD 3.7L (run 2)	Ford Police Interceptor Utility AWD 3.7L
0 – 20 mph	(sec.)	2.00	1.96	1.48	1.86	1.95
0 – 30 mph	(sec.)	3.05	3.03	2.23	2.86	2.98
0 – 40 mph	(sec.)	4.33	4.41	3.14	4.19	4.34
0 – 50 mph	(sec.)	5.79	5.87	4.21	5.66	5.85
0 – 60 mph	(sec.)	7.62	7.86	5.75	7.53	7.96
0 – 70 mph	(sec.)	9.95	10.19	7.38	9.71	10.17
0 – 80 mph	(sec.)	12.37	12.66	9.08	12.09	12.74
0 – 90 mph	(sec.)	15.20	15.73	11.32	14.99	16.02
0 – 100 mph	(sec.)	19.04	19.64	13.77	18.62	21.13
TOP SPEED	(mph)	131	131	150	132	132
DISTANCE TO REACH						
110 mph	(miles)	.48	.55	.33	.49	.62
120 mph	(miles)	.88	.92	.48	.78	1.03
QUARTER MILE						
Time	(sec.)	15.94	16.05	14.21	15.77	16.09
Speed	(mph)	92.35	91.05	101.54	92.42	90.22


2013 ACCELERATION COMPARISON
ACCELERATION TIMES
25
20
15
10
5
0
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV 5.3L
Dodge Charger 2.65 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 EcoBoost 3.5L
Ford Police Interceptor AWD 3.7L (2nd run)
Ford Police Interceptor Utility AWD 3.7L
(seconds)
0 - 60 mph
0 - 80 mph
0 - 100 mph


2013 TOP SPEED COMPARISON
TOP SPEED ATTAINED
160
155
150
145
140
135
130
125
120
115
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV 5.3L
Dodge Charger 2.65 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 EcoBoost 3.5L
Ford Police Interceptor AWD 3.7L
Ford Police Interceptor AWD Utility 3.7L
(miles-per-hour)

BRAKE TESTING

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.

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.

DECELERATION RATE FORMULA

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

EXAMPLE:

Initial Velocity = 89.175 ft/s (60.8 mph x 1.4667*)
Stopping Distance = 171.4 ft.

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

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 mph = 88.002 ft/s x 88.002 = 7744.352 / 2 = 3872.176 / 23.198 ft/s^2 = 166.9 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.

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 10:30 a.m. **TEMPERATURE:** 64.2°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	131.07 feet	29.73 ft/s^2
Stop #2	59.68 mph	132.10 feet	29.00 ft/s^2
Stop #3	60.27 mph	134.61 feet	29.03 ft/s^2
Stop #4	59.88 mph	127.78 feet	30.18 ft/s^2
Stop #5	60.10 mph	131.70 feet	29.50 ft/s^2
Stop #6	60.06 mph	134.06 feet	28.95 ft/s^2
Stop #7	60.36 mph	136.01 feet	28.81 ft/s^2
Stop #8	60.06 mph	129.05 feet	30.07 ft/s^2
Stop #9	59.81 mph	134.74 feet	28.56 ft/s^2
Stop #10	60.56 mph	132.84 feet	29.69 ft/s^2

AVERAGE DECELERATION RATE 29.35 ft/s^2

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	131.70 feet	29.80 ft/s^2
Stop #2	60.59 mph	133.64 feet	29.55 ft/s^2
Stop #3	59.54 mph	127.33 feet	29.95 ft/s^2
Stop #4	60.13 mph	130.43 feet	29.82 ft/s^2
Stop #5	60.30 mph	133.07 feet	29.40 ft/s^2
Stop #6	59.70 mph	132.36 feet	28.96 ft/s^2
Stop #7	60.24 mph	134.81 feet	28.95 ft/s^2
Stop #8	60.20 mph	128.67 feet	30.30 ft/s^2
Stop #9	59.71 mph	130.21 feet	29.45 ft/s^2
Stop #10	60.07 mph	129.49 feet	29.97 ft/s^2

AVERAGE DECELERATION RATE 29.61 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.48 ft/s^2

Projected Stopping Distance from 60.0 mph 131.3 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 9:01 a.m. **TEMPERATURE:** 55.4°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	59.91 mph	130.68 feet	29.54 ft/s^2
Stop #2	60.72 mph	131.89 feet	30.07 ft/s^2
Stop #3	60.39 mph	128.94 feet	30.42 ft/s^2
Stop #4	59.52 mph	126.21 feet	30.20 ft/s^2
Stop #5	59.26 mph	127.23 feet	29.69 ft/s^2
Stop #6	60.97 mph	132.48 feet	30.18 ft/s^2
Stop #7	60.17 mph	129.37 feet	30.11 ft/s^2
Stop #8	60.42 mph	132.31 feet	29.68 ft/s^2
Stop #9	60.32 mph	128.61 feet	30.43 ft/s^2
Stop #10	60.04 mph	129.67 feet	29.90 ft/s^2

AVERAGE DECELERATION RATE 30.02 ft/s^2

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	60.27 mph	128.00 feet	30.52 ft/s^2
Stop #2	59.52 mph	124.64 feet	30.58 ft/s^2
Stop #3	60.02 mph	128.94 feet	30.05 ft/s^2
Stop #4	**Due to a computer error, run 4 on Phase II will be deleted. The average of 9 runs will then be utilized to calculate the average deceleration rate.		
Stop #5	60.30 mph	130.76 feet	29.91 ft/s^2
Stop #6	60.83 mph	132.20 feet	30.11 ft/s^2
Stop #7	60.04 mph	126.58 feet	30.63 ft/s^2
Stop #8	60.03 mph	127.18 feet	30.48 ft/s^2
Stop #9	60.92 mph	132.63 feet	30.10 ft/s^2
Stop #10	60.43 mph	128.28 feet	30.62 ft/s^2

AVERAGE DECELERATION RATE 30.33 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 30.17 ft/s^2

Projected Stopping Distance from 60.0 mph 128.3 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 3:29 p.m. **TEMPERATURE:** 70.4°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	59.94 mph	135.18 feet	28.59 ft/s^2
Stop #2	59.72 mph	129.80 feet	29.55 ft/s^2
Stop #3	60.10 mph	133.71 feet	29.05 ft/s^2
Stop #4	60.12 mph	135.63 feet	28.66 ft/s^2
Stop #5	59.74 mph	135.70 feet	28.28 ft/s^2
Stop #6	60.06 mph	135.15 feet	28.71 ft/s^2
Stop #7	60.17 mph	135.21 feet	28.80 ft/s^2
Stop #8	60.07 mph	135.89 feet	28.56 ft/s^2
Stop #9	59.91 mph	135.47 feet	28.50 ft/s^2
Stop #10	60.12 mph	137.01 feet	28.37 ft/s^2

AVERAGE DECELERATION RATE 28.71 ft/s^2

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	59.71 mph	131.18 feet	29.24 ft/s^2
Stop #2	60.04 mph	136.34 feet	28.44 ft/s^2
Stop #3	60.07 mph	138.51 feet	28.02 ft/s^2
Stop #4	59.90 mph	136.04 feet	28.37 ft/s^2
Stop #5	59.62 mph	137.41 feet	27.82 ft/s^2
Stop #6	59.74 mph	134.46 feet	28.55 ft/s^2
Stop #7	60.08 mph	134.73 feet	28.81 ft/s^2
Stop #8	60.32 mph	136.41 feet	28.69 ft/s^2
Stop #9	60.15 mph	136.25 feet	28.56 ft/s^2
Stop #10	59.73 mph	134.91 feet	28.44 ft/s^2

AVERAGE DECELERATION RATE 28.49 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 28.60 ft/s^2

Projected Stopping Distance from 60.0 mph 135.4 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 1:57 p.m. **TEMPERATURE:** 68.9°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	59.62 mph	128.39 feet	29.77 ft/s^2
Stop #2	60.01 mph	132.12 feet	29.32 ft/s^2
Stop #3	60.41 mph	130.36 feet	30.11 ft/s^2
Stop #4	59.72 mph	128.52 feet	29.85 ft/s^2
Stop #5	59.57 mph	128.19 feet	29.77 ft/s^2
Stop #6	60.52 mph	132.31 feet	29.77 ft/s^2
Stop #7	59.98 mph	127.03 feet	30.46 ft/s^2
Stop #8	60.18 mph	129.90 feet	29.99 ft/s^2
Stop #9	60.04 mph	129.44 feet	29.95ft/s^2
Stop #10	59.90 mph	128.69 feet	29.98 ft/s^2

AVERAGE DECELERATION RATE 29.90 ft/s^2

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	60.67 mph	133.90 feet	29.57 ft/s^2
Stop #2	60.17 mph	130.18 feet	29.91 ft/s^2
Stop #3	59.95 mph	129.73 feet	29.80 ft/s^2
Stop #4	60.49 mph	132.45 feet	29.72 ft/s^2
Stop #5	59.47 mph	130.40 feet	29.18 ft/s^2
Stop #6	60.07 mph	131.45 feet	29.53 ft/s^2
Stop #7	60.86 mph	135.48 feet	29.41 ft/s^2
Stop #8	59.28 mph	127.53 feet	29.64 ft/s^2
Stop #9	60.36 mph	134.73 feet	29.09 ft/s^2
Stop #10	59.58 mph	132.43 feet	28.84 ft/s^2

AVERAGE DECELERATION RATE 29.47 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.68 ft/s^2

Projected Stopping Distance from 60.0 mph 130.5 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 2:28 p.m. **TEMPERATURE:** 69.7°F

MAKE & MODEL: Dodge Charger 2.65 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	60.35 mph	132.91 feet	29.48 ft/s^2
Stop #2	60.22 mph	127.91 feet	30.49 ft/s^2
Stop #3	60.02 mph	126.79 feet	30.56 ft/s^2
Stop #4	59.91 mph	126.09 feet	30.62 ft/s^2
Stop #5	59.83 mph	128.10 feet	30.05 ft/s^2
Stop #6	59.99 mph	126.55 feet	30.59 ft/s^2
Stop #7	60.29 mph	130.97 feet	29.85 ft/s^2
Stop #8	60.30 mph	129.16 feet	30.27 ft/s^2
Stop #9	60.10 mph	130.73 feet	29.72 ft/s^2
Stop #10	60.12 mph	131.90 feet	29.48 ft/s^2

AVERAGE DECELERATION RATE 30.11 ft/s^2

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	132.65 feet	29.50 ft/s^2
Stop #2	60.14 mph	134.18 feet	29.00 ft/s^2
Stop #3	60.06 mph	127.82 feet	30.36 ft/s^2
Stop #4	59.85 mph	133.95 feet	28.76 ft/s^2
Stop #5	59.90 mph	131.50 feet	29.34 ft/s^2
Stop #6	59.95 mph	130.25 feet	29.68 ft/s^2
Stop #7	60.11 mph	128.53 feet	30.24 ft/s^2
Stop #8	59.78 mph	126.23 feet	30.46 ft/s^2
Stop #9	60.10 mph	130.41 feet	29.79 ft/s^2
Stop #10	60.54 mph	131.21 feet	30.04ft/s^2

AVERAGE DECELERATION RATE 29.72 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.91 ft/s^2

Projected Stopping Distance from 60.0 mph 129.4 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 9:29 a.m. **TEMPERATURE:** 58.3°F

MAKE & MODEL: Dodge Charger 3.07 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	59.89 mph	129.56 feet	29.78 ft/s^2
Stop #2	60.06 mph	129.60 feet	29.94 ft/s^2
Stop #3	60.33 mph	129.97 feet	30.12 ft/s^2
Stop #4	60.24 mph	128.61 feet	30.35 ft/s^2
Stop #5	60.20 mph	128.94 feet	30.23 ft/s^2
Stop #6	60.32 mph	130.02 feet	30.10 ft/s^2
Stop #7	60.04 mph	127.46 feet	30.42 ft/s^2
Stop #8	60.27 mph	128.00 feet	30.53 ft/s^2
Stop #9	60.35 mph	131.62 feet	29.76 ft/s^2
Stop #10	59.68 mph	125.79 feet	30.45 ft/s^2

AVERAGE DECELERATION RATE 30.17 ft/s^2

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	59.85 mph	126.68 feet	30.42 ft/s^2
Stop #2	60.14 mph	127.49 feet	30.51 ft/s^2
Stop #3	60.04 mph	130.01 feet	29.82 ft/s^2
Stop #4	59.55 mph	126.92 feet	30.05 ft/s^2
Stop #5	59.96 mph	133.08 feet	29.06 ft/s^2
Stop #6	60.26 mph	132.18 feet	29.55 ft/s^2
Stop #7	60.42 mph	132.55 feet	29.62 ft/s^2
Stop #8	59.93 mph	128.44 feet	30.08 ft/s^2
Stop #9	60.51 mph	133.59 feet	29.13 ft/s^2
Stop #10	60.42 mph	131.21 feet	29.92 ft/s^2

AVERAGE DECELERATION RATE 29.82 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.99 ft/s^2

Projected Stopping Distance from 60.0 mph 129.1 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 4:04 p.m. **TEMPERATURE:** 71.1°F

MAKE & MODEL: Dodge Charger 2.65 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	60.28 mph	127.23 feet	30.72 ft/s^2
Stop #2	59.92 mph	125.94 feet	30.67 ft/s^2
Stop #3	60.11 mph	127.83 feet	30.40 ft/s^2
Stop #4	60.42 mph	128.76 feet	30.49 ft/s^2
Stop #5	59.98 mph	128.59 feet	30.09 ft/s^2
Stop #6	60.11 mph	129.77 feet	29.95 ft/s^2
Stop #7	60.40 mph	129.02 feet	30.42 ft/s^2
Stop #8	60.36 mph	126.80 feet	30.91 ft/s^2
Stop #9	59.84 mph	129.98 feet	29.63 ft/s^2
Stop #10	59.94 mph	127.89 feet	30.22 ft/s^2

AVERAGE DECELERATION RATE 30.35 ft/s^2

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	60.55 mph	134.81 feet	29.25 ft/s^2
Stop #2	60.14 mph	130.41 feet	29.83 ft/s^2
Stop #3	60.24 mph	132.97 feet	29.36 ft/s^2
Stop #4	60.74 mph	135.39 feet	29.31 ft/s^2
Stop #5	59.78 mph	128.28 feet	29.97 ft/s^2
Stop #6	60.07 mph	131.74 feet	29.46 ft/s^2
Stop #7	60.72 mph	132.89 feet	29.84 ft/s^2
Stop #8	59.88 mph	128.67 feet	29.97 ft/s^2
Stop #9	60.32 mph	132.09 feet	29.63 ft/s^2
Stop #10	60.59 mph	131.94 feet	29.93 ft/s^2

AVERAGE DECELERATION RATE 29.65 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 30.00 ft/s^2

Projected Stopping Distance from 60.0 mph 129.1 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 10:56 a.m. **TEMPERATURE:** 64.0°F

MAKE & MODEL: Dodge Charger 3.06 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	60.18 mph	130.10 feet	29.95 ft/s^2
Stop #2	60.45 mph	127.71 feet	30.78 ft/s^2
Stop #3	60.51 mph	128.49 feet	30.65 ft/s^2
Stop #4	60.20 mph	128.17 feet	30.41 ft/s^2
Stop #5	59.99 mph	128.95 feet	30.01 ft/s^2
Stop #6	60.21 mph	132.95 feet	29.33 ft/s^2
Stop #7	60.41 mph	128.62 feet	30.52 ft/s^2
Stop #8	60.06 mph	127.38 feet	30.46 ft/s^2
Stop #9	60.43 mph	130.70 feet	30.05 ft/s^2
Stop #10	60.83 mph	132.75 feet	29.98 ft/s^2

AVERAGE DECELERATION RATE 30.21 ft/s^2

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	60.47 mph	135.64 feet	28.99 ft/s^2
Stop #2	60.24 mph	128.21 feet	30.44 ft/s^2
Stop #3	60.04 mph	128.55 feet	30.16 ft/s^2
Stop #4	60.20 mph	128.76 feet	30.27 ft/s^2
Stop #5	60.01 mph	130.06 feet	29.78 ft/s^2
Stop #6	60.18 mph	128.56 feet	30.29 ft/s^2
Stop #7	60.27 mph	128.88 feet	30.32 ft/s^2
Stop #8	60.82 mph	131.45 feet	30.27 ft/s^2
Stop #9	60.51 mph	131.60 feet	29.92 ft/s^2
Stop #10	59.89 mph	128.28 feet	30.08 ft/s^2

AVERAGE DECELERATION RATE 30.05 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 30.13 ft/s^2

Projected Stopping Distance from 60.0 mph 128.5 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 9:59 a.m. **TEMPERATURE:** 62.2°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	59.96 mph	132.69 feet	29.14 ft/s^2
Stop #2	59.82 mph	133.94 feet	28.74 ft/s^2
Stop #3	60.36 mph	133.43 feet	29.37 ft/s^2
Stop #4	60.02 mph	129.71 feet	29.87 ft/s^2
Stop #5	59.99 mph	134.24 feet	28.84 ft/s^2
Stop #6	60.31 mph	133.65 feet	29.27 ft/s^2
Stop #7	60.21 mph	132.88 feet	29.34 ft/s^2
Stop #8	59.79 mph	129.25 feet	29.75 ft/s^2
Stop #9	60.11 mph	132.98 feet	29.22 ft/s^2
Stop #10	59.83 mph	133.16 feet	28.92 ft/s^2

AVERAGE DECELERATION RATE 29.25 ft/s^2

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	59.73 mph	132.22 feet	29.03 ft/s^2
Stop #2	60.13 mph	133.41 feet	29.15 ft/s^2
Stop #3	60.12 mph	135.59 feet	28.67 ft/s^2
Stop #4	60.21 mph	129.61 feet	30.08 ft/s^2
Stop #5	60.31 mph	133.86 feet	29.23 ft/s^2
Stop #6	59.89 mph	132.52 feet	29.11 ft/s^2
Stop #7	59.78 mph	128.16 feet	29.99 ft/s^2
Stop #8	60.15 mph	131.59 feet	29.57 ft/s^2
Stop #9	59.81 mph	133.73 feet	28.78 ft/s^2
Stop #10	59.95 mph	131.42 feet	29.41 ft/s^2

AVERAGE DECELERATION RATE 29.30 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.27 ft/s^2

Projected Stopping Distance from 60.0 mph 132.3 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 1:29 p.m. **TEMPERATURE:** 68.1°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	60.42 mph	135.33 feet	29.01 ft/s^2
Stop #2	59.78 mph	133.06 feet	28.89 ft/s^2
Stop #3	60.25 mph	132.20 feet	29.54 ft/s^2
Stop #4	59.77 mph	129.58 feet	29.65 ft/s^2
Stop #5	60.08 mph	131.37 feet	29.55 ft/s^2
Stop #6	60.04 mph	129.73 feet	29.89 ft/s^2
Stop #7	60.27 mph	133.15 feet	29.34 ft/s^2
Stop #8	60.21 mph	128.17 feet	30.42 ft/s^2
Stop #9	60.32 mph	132.60 feet	29.51 ft/s^2
Stop #10	59.55 mph	127.89 feet	29.83 ft/s^2

AVERAGE DECELERATION RATE 29.56 ft/s^2

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	60.23 mph	133.06 feet	29.33 ft/s^2
Stop #2	60.01 mph	130.35 feet	29.71 ft/s^2
Stop #3	60.32 mph	131.71 feet	29.71 ft/s^2
Stop #4	60.21 mph	132.06 feet	29.52 ft/s^2
Stop #5	60.13 mph	132.63 feet	29.32 ft/s^2
Stop #6	60.46 mph	133.21 feet	29.52 ft/s^2
Stop #7	60.14 mph	130.18 feet	29.89 ft/s^2
Stop #8	60.29 mph	132.24 feet	29.56 ft/s^2
Stop #9	59.93 mph	130.33 feet	29.64 ft/s^2
Stop #10	59.84 mph	129.05 feet	29.85 ft/s^2

AVERAGE DECELERATION RATE 29.61 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.58 ft/s^2

Projected Stopping Distance from 60.0 mph 130.9 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 12:49 p.m. **TEMPERATURE:** 67.9°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	60.07 mph	130.76 feet	28.68 ft/s^2
Stop #2	59.39 mph	126.28 feet	30.05 ft/s^2
Stop #3	60.17 mph	131.71 feet	29.56 ft/s^2
Stop #4	60.37 mph	133.87 feet	29.28 ft/s^2
Stop #5	59.98 mph	130.53 feet	29.65 ft/s^2
Stop #6	59.81 mph	131.32 feet	29.30 ft/s^2
Stop #7	59.64 mph	125.68 feet	30.44 ft/s^2
Stop #8	60.18 mph	126.75 feet	30.74 ft/s^2
Stop #9	60.60 mph	136.07 mph	29.03 ft/s^2
Stop #10	59.45 mph	127.88 mph	29.73 ft/s^2

AVERAGE DECELERATION RATE 29.74 ft/s^2

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	60.30 mph	132.47 feet	29.52 ft/s^2
Stop #2	59.70 mph	128.73 feet	29.78 ft/s^2
Stop #3	60.59 mph	134.31 feet	29.40 ft/s^2
Stop #4	60.91 mph	135.57 feet	29.43 ft/s^2
Stop #5	60.22 mph	130.71 feet	29.84 ft/s^2
Stop #6	59.66 mph	120.77 feet	31.70 ft/s^2
Stop #7	60.07 mph	133.75 feet	29.01 ft/s^2
Stop #8	60.44 mph	133.33 feet	29.47 ft/s^2
Stop #9	59.76 mph	130.68 feet	29.39 ft/s^2
Stop #10	59.67 mph	127.56 feet	30.02 ft/s^2

AVERAGE DECELERATION RATE 29.76 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.75 ft/s^2

Projected Stopping Distance from 60.0 mph 130.2 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 7:51 a.m. **TEMPERATURE:** 42.1°F

MAKE & MODEL: Ford Police Interceptor 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	59.50 mph	125.85 feet	30.25 ft/s^2
Stop #2	60.30 mph	129.11 feet	30.29 ft/s^2
Stop #3	59.56 mph	125.77 feet	30.34 ft/s^2
Stop #4	60.27 mph	132.27 feet	29.53 ft/s^2
Stop #5	60.16 mph	132.76 feet	29.33 ft/s^2
Stop #6	60.43 mph	129.42 feet	30.35 ft/s^2
Stop #7	59.78 mph	127.38 feet	30.17 ft/s^2
Stop #8	59.99 mph	127.42 feet	30.38 ft/s^2
Stop #9	59.58 mph	127.88 mph	29.86 ft/s^2
Stop #10	59.99 mph	128.18 mph	30.19 ft/s^2

AVERAGE DECELERATION RATE 30.07 ft/s^2

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	59.65 mph	121.01 feet	31.63 ft/s^2
Stop #2	59.74 mph	127.08 feet	30.21 ft/s^2
Stop #3	60.33 mph	127.85 feet	30.62 ft/s^2
Stop #4	60.62 mph	128.70 feet	30.71 ft/s^2
Stop #5	60.04 mph	127.75 feet	30.35 ft/s^2
Stop #6	60.12 mph	131.63 feet	29.54 ft/s^2
Stop #7	60.24 mph	129.69 feet	30.10 ft/s^2
Stop #8	60.62 mph	132.00 feet	29.95 ft/s^2
Stop #9	60.03 mph	130.58 feet	29.69 ft/s^2
Stop #10	60.00 mph	127.21 feet	30.44 ft/s^2

AVERAGE DECELERATION RATE 30.32 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 30.20 ft/s^2

Projected Stopping Distance from 60.0 mph 128.2 feet

BRAKE TESTING

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 15, 2012

BEGINNING Time: 3:01 p.m. **TEMPERATURE:** 70.8°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	60.00 mph	133.28 feet	29.05 ft/s^2
Stop #2	60.25 mph	132.86 feet	29.39 ft/s^2
Stop #3	59.82 mph	127.09 feet	30.29 ft/s^2
Stop #4	60.48 mph	132.21 feet	29.76 ft/s^2
Stop #5	60.23 mph	136.69 feet	28.54 ft/s^2
Stop #6	59.95 mph	130.07 feet	29.71 ft/s^2
Stop #7	60.47 mph	133.55 feet	29.45 ft/s^2
Stop #8	59.78 mph	129.50 feet	29.68 ft/s^2
Stop #9	60.18 mph	135.82 mph	28.68 ft/s^2
Stop #10	60.40 mph	135.08 mph	29.05 ft/s^2

AVERAGE DECELERATION RATE 29.36 ft/s^2

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	60.11 mph	134.69 feet	28.85 ft/s^2
Stop #2	60.26 mph	134.41 feet	29.06 ft/s^2
Stop #3	60.29 mph	132.84 feet	29.43 ft/s^2
Stop #4	60.05 mph	136.43 feet	28.43 ft/s^2
Stop #5	59.71 mph	129.09 feet	29.71 ft/s^2
Stop #6	59.66 mph	132.71 feet	28.85 ft/s^2
Stop #7	60.57 mph	134.35 feet	29.37 ft/s^2
Stop #8	59.82 mph	130.74 feet	29.44 ft/s^2
Stop #9	60.12 mph	136.81 feet	28.42 ft/s^2
Stop #10	60.01 mph	133.31 feet	29.06 ft/s^2

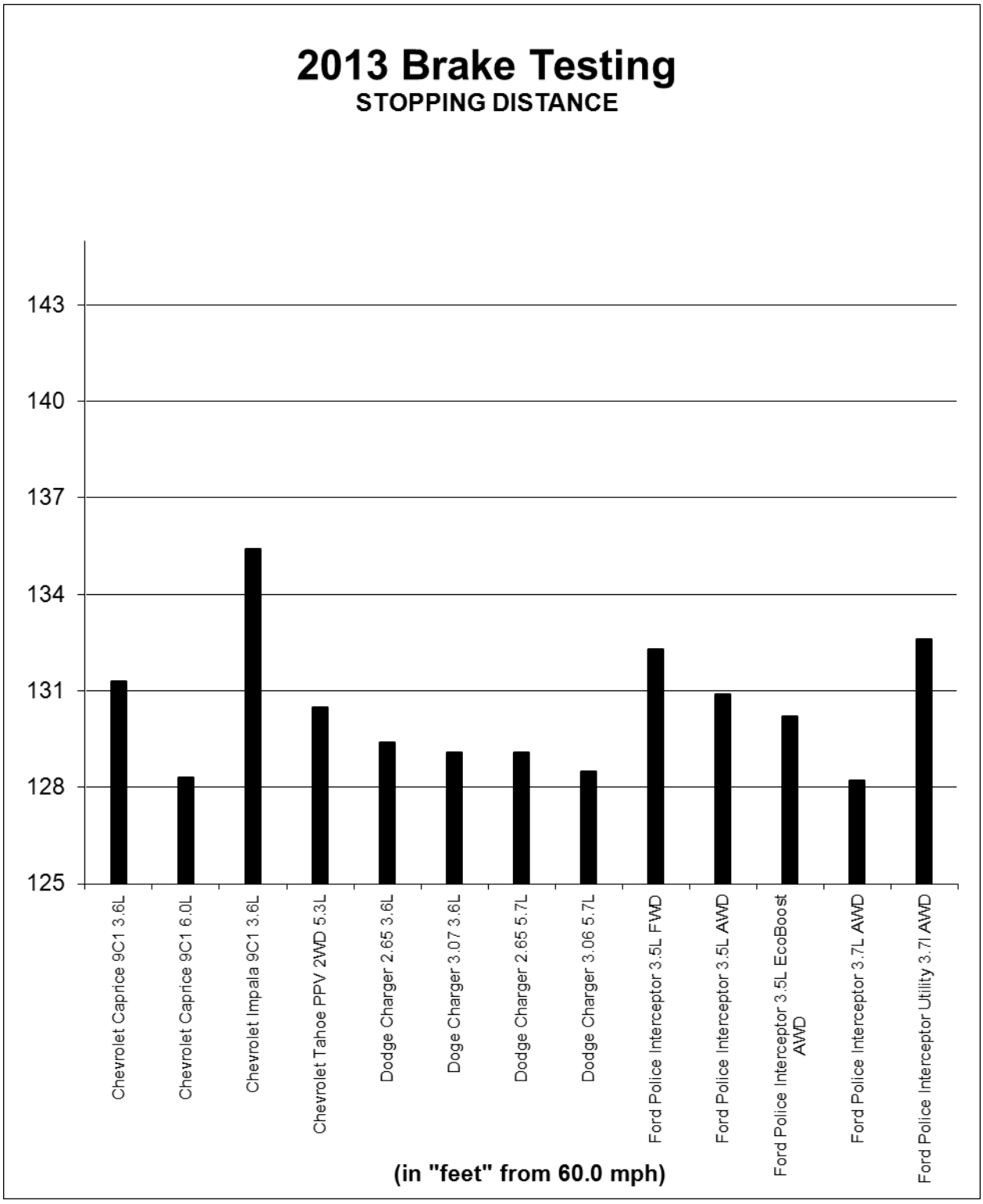
AVERAGE DECELERATION RATE 29.06 ft/s^2

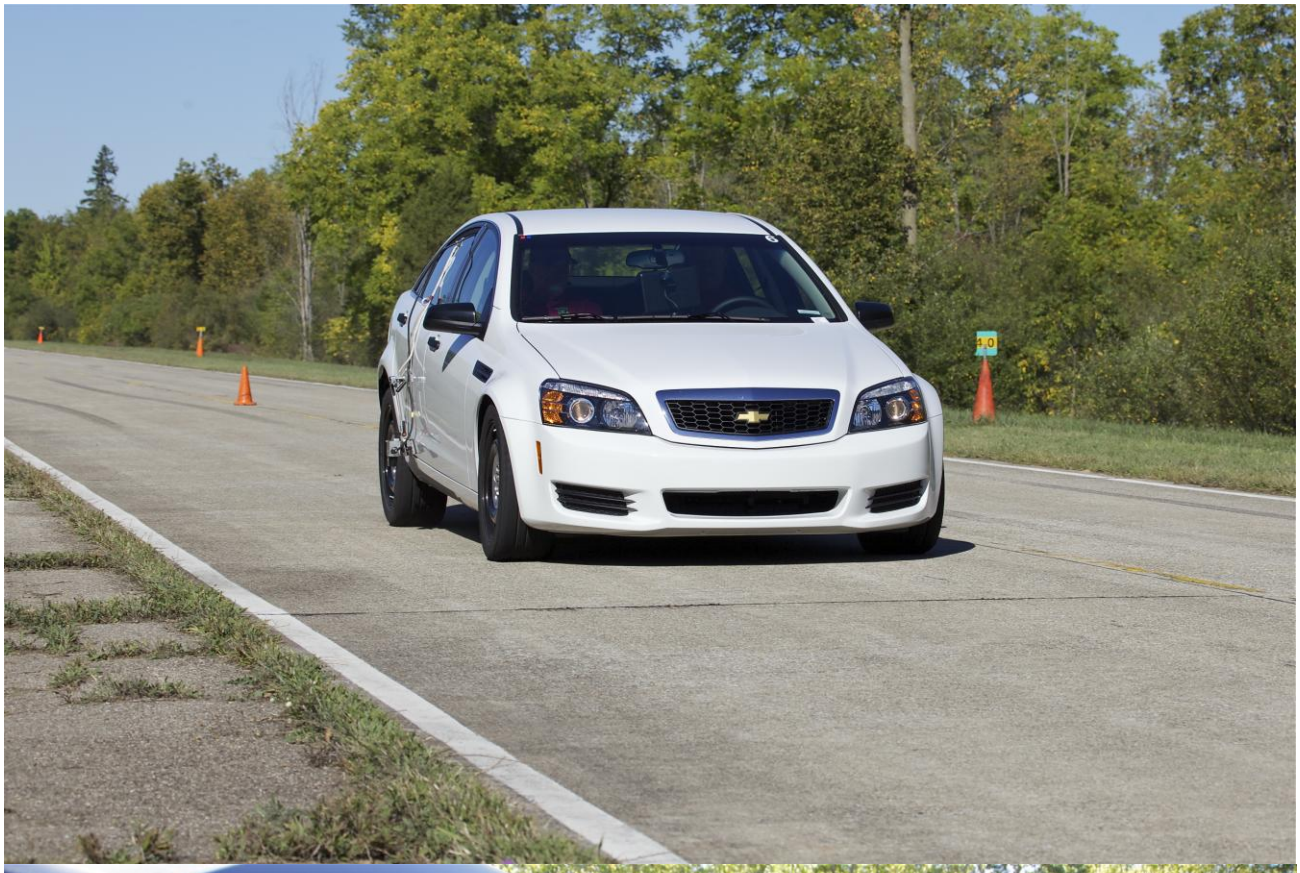
Phase III

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

OVERALL AVERAGE DECEL. RATE: 29.21 ft/s^2

Projected Stopping Distance from 60.0 mph 132.6 feet


2013 Brake Testing
STOPPING DISTANCE
143
140
137
134
131
128
125
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV 2WD 5.3L
Dodge Charger 2.65 3.6L
Doge Charger 3.07 3.6L
Dodge Charger 2.65 5.7L
Dodge Charger 3.06 5.7L
Ford Police Interceptor 3.5L FWD
Ford Police Interceptor 3.5L AWD
Ford Police Interceptor 3.5L EcoBoost AWD
Ford Police Interceptor 3.7L AWD
Ford Police Interceptor Utility 3.7l AWD
(in "feet" from 60.0 mph)



ERGONOMICS AND COMMUNICATIONS

TEST OBJECTIVE

Rate each test vehicle's ability to:

1. Provide a suitable environment for the patrol officer in the performance of his/her assigned tasks.

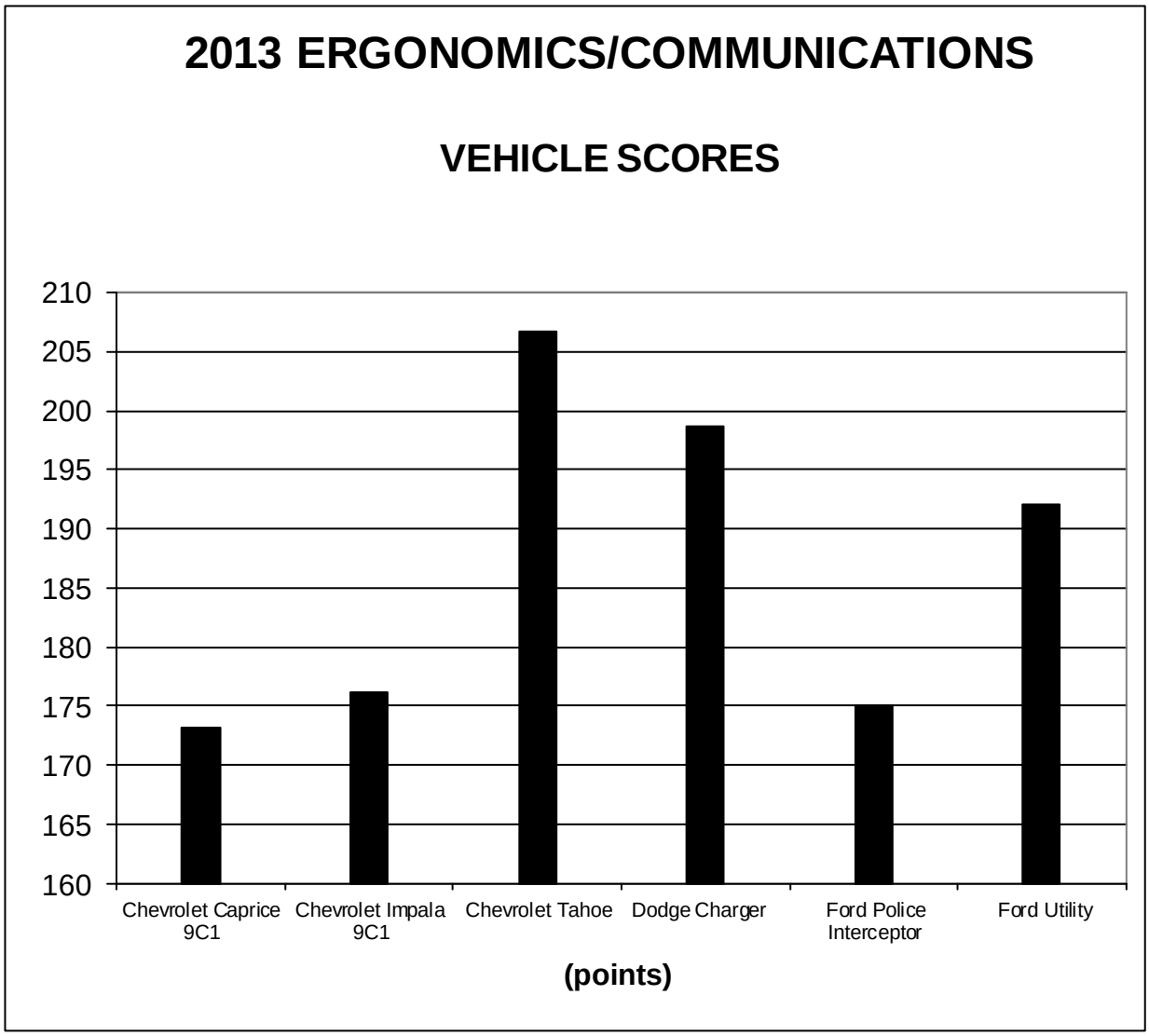
2. Accommodate the required communications and emergency warning equipment and assess the relative difficulty of such installations.

TEST METHODOLOGY

Utilizing the ergonomics portion of the form, a minimum of four officers (in this case 10) 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

ERGONOMICS	Chevrolet Caprice	Chevrolet Impala	Chevrolet Tahoe	Dodge Charger	Ford Police Interceptor	Ford Police Interceptor Utility
FRONT SEAT						
Padding	6.10	6.50	7.30	6.70	6.40	6.80
Depth of Bucket Seat	5.60	5.60	7.20	6.50	5.70	6.30
Adjustability – Front to Rear	5.00	6.70	7.20	7.90	6.60	6.80
Upholstery	6.80	6.30	7.30	6.80	7.00	7.00
Bucket Seat Design	6.70	6.60	7.40	6.90	6.50	7.00
Headroom	6.70	6.70	8.90	7.70	7.20	8.50
Seatbelts	4.80	6.00	7.00	7.10	7.40	7.60
Ease of Entry and Exit	6.50	6.30	8.30	7.30	5.90	8.40
Overall Comfort Rating	5.00	5.90	7.70	6.40	5.90	7.10
REAR SEAT						
Leg room – Front seat back	7.90	5.00	7.50	5.30	4.90	7.00
Ease of Entry and Exit	7.40	5.50	6.80	4.70	4.70	7.60
INSTRUMENTATION						
Clarity	6.10	7.00	7.60	8.00	5.80	6.10
Placement	6.40	7.10	7.40	7.70	5.80	6.30
VEHICLE CONTROLS						
Pedals, Size, and Position	6.70	6.30	7.20	7.20	6.90	6.80
Power Window Switch	5.80	7.00	7.80	7.70	7.40	7.30
Inside Door Lock Switch	5.20	6.30	8.30	7.90	7.20	7.20
Automatic Door Lock Switch	5.40	6.10	7.00	7.20	5.30	6.00
Outside Mirror Controls	5.90	5.90	7.20	7.10	7.10	7.20
Steering Wheel, Size, Tilt Release, and Surface	7.10	6.00	7.30	7.80	7.30	7.10
Heat/AC Vent Placement and Adjustability	6.30	6.80	7.50	7.70	7.20	7.30
VISIBILITY						
Front (Windshield)	7.50	7.40	8.50	8.20	7.10	7.70
Rear (Back Window)	6.20	5.90	6.20	6.50	4.40	5.20
Left Rear Quarter	5.80	5.70	5.50	5.40	5.30	6.60
Right Rear Quarter	6.00	6.00	5.50	5.50	5.30	6.50
Outside Rear View Mirrors	5.20	4.90	8.10	7.00	7.60	7.70
COMMUNICATIONS						
Dashboard Accessibility	5.20	7.10	7.55	8.20	6.45	6.30
Trunk Accessibility	6.73	6.95	8.05	8.33	5.75	5.55
Engine Compartment	7.11	6.67	7.42	7.94	4.92	5.17
TOTAL SCORES	**173.14**	**176.22**	**206.72**	**198.67**	**175.02**	**192.12**


2013 ERGONOMICS/COMMUNICATIONS
VEHICLE SCORES
210
205
200
195
190
185
180
175
170
165
160
Chevrolet Caprice 9C1
Chevrolet Impala 9C1
Chevrolet Tahoe
Dodge Charger
Ford Police Interceptor
Ford Utility
(points)

MICHIGAN
STATE POLICE
PILOT

FUEL ECONOMY

TEST OBJECTIVE

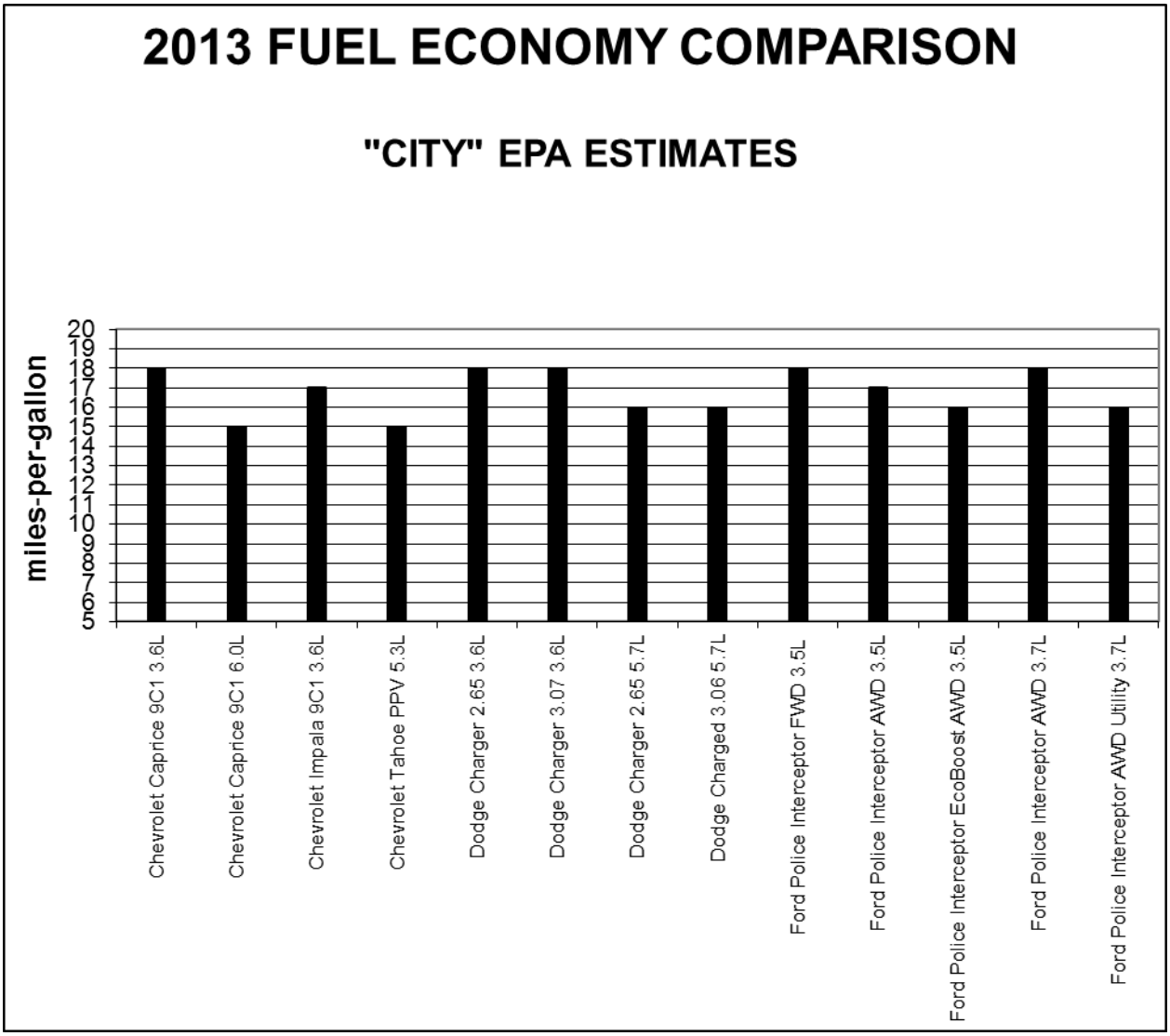
Determine the fuel economy potential of all vehicles being evaluated. The data used for scoring are both valid and reliable in a comparison sense, while not necessarily being an accurate predictor of actual fuel economy in police patrol service.

TEST METHODOLOGY

The vehicles will be scored based on estimates for city fuel economy to the nearest 1/10th 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	6.0L	15	24	18
Chevrolet Impala 9C1	3.6L	17	28	21
Chevrolet Tahoe PPV	5.3L	15	21	17
Dodge Charger 2.65	3.6L	18	27	21
Dodge Charger 3.07	3.6L	18	27	21
Dodge Charger 2.65	5.7L	16	25	19
Dodge Charger 3.06	5.7L	16	25	19
Ford Police Interceptor FWD	3.5L	18	26	21
Ford Police Interceptor AWD	3.5L	17	24	20
Ford Police Interceptor AWD EcoBoost	3.5L	16	23	18
Ford Police Interceptor AWD	3.7L	18	25	21
Ford Police Interceptor Utility AWD	3.7L	16	21	18

*Official fuel economy available at www.ford.com/fordpoliceinterceptor


2013 FUEL ECONOMY COMPARISON
"CITY" EPA ESTIMATES
miles-per-gallon
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV 5.3L
Dodge Charger 2.65 3.6L
Dodge Charger 3.07 3.6L
Dodge Charger 2.65 5.7L
Dodge Charged 3.06 5.7L
Ford Police Interceptor FWD 3.5L
Ford Police Interceptor AWD 3.5L
Ford Police Interceptor EcoBoost AWD 3.5L
Ford Police Interceptor AWD 3.7L
Ford Police Interceptor AWD Utility 3.7L

MICHIGAN STATE POLICE
SCORING AND BID ADJUSTMENT METHODOLOGY*

STEP I: RAW SORES

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^2, miles-per-hour, points, and miles-per-gallon.

VEHICLE DYNAM. (seconds)	BRAKING RATE (ft/sec^2)	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**

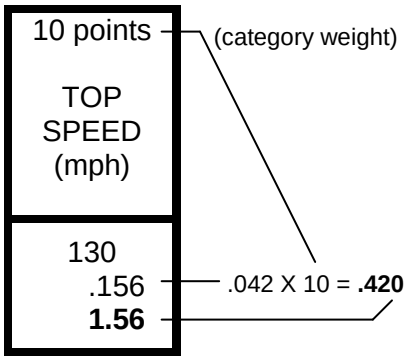
EXAMPLE:

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^2)	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	**10.515**

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	**$1,902.90**

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	**$25,316.90**

PERFORMANCE COMPARISONS OF 2012 AND 2013 TEST VEHICLES

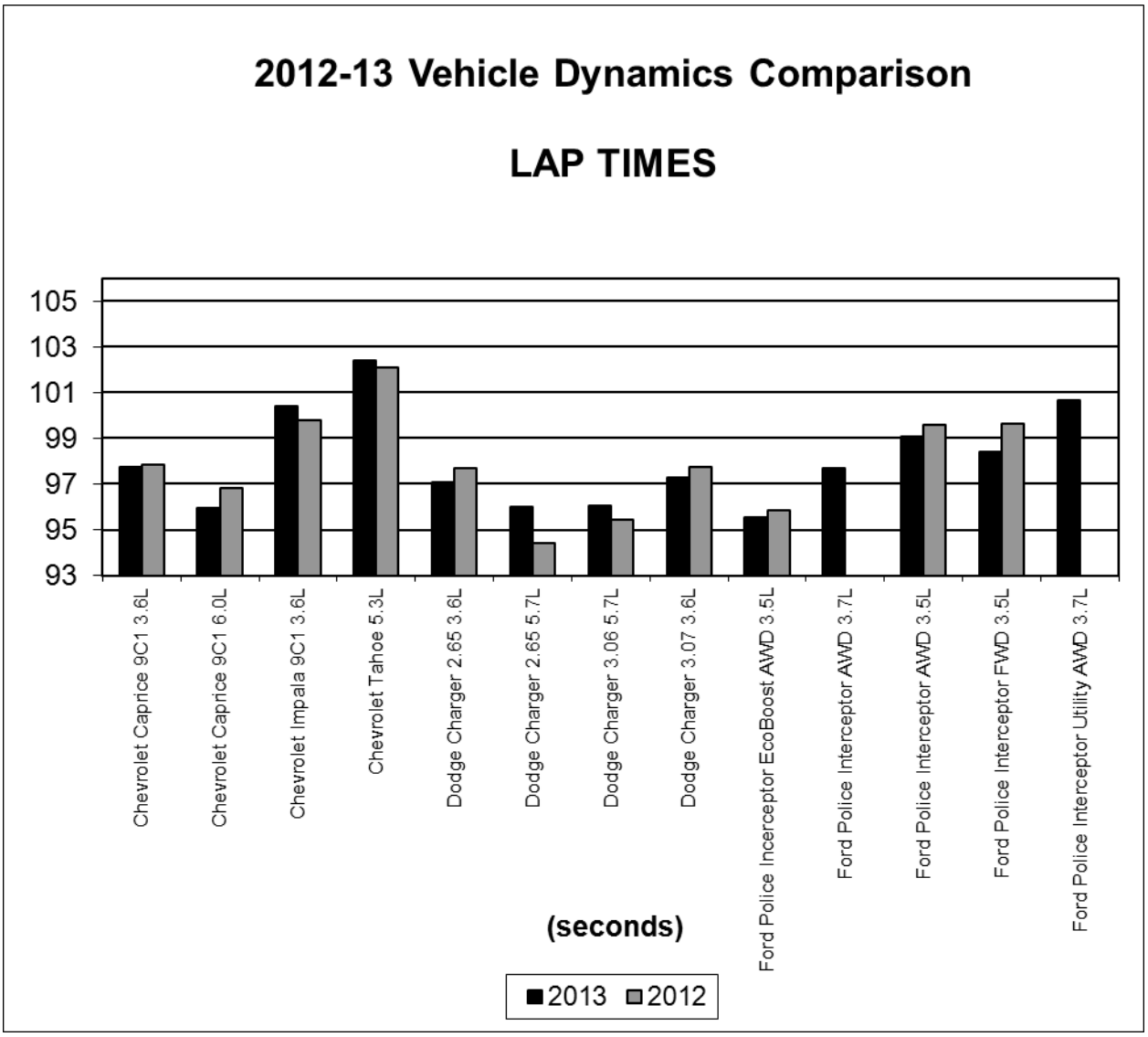
The following charts illustrate the scores achieved by each make and model of vehicle tested for model years 2012 and 2013. The charts presented are for the following performance categories:

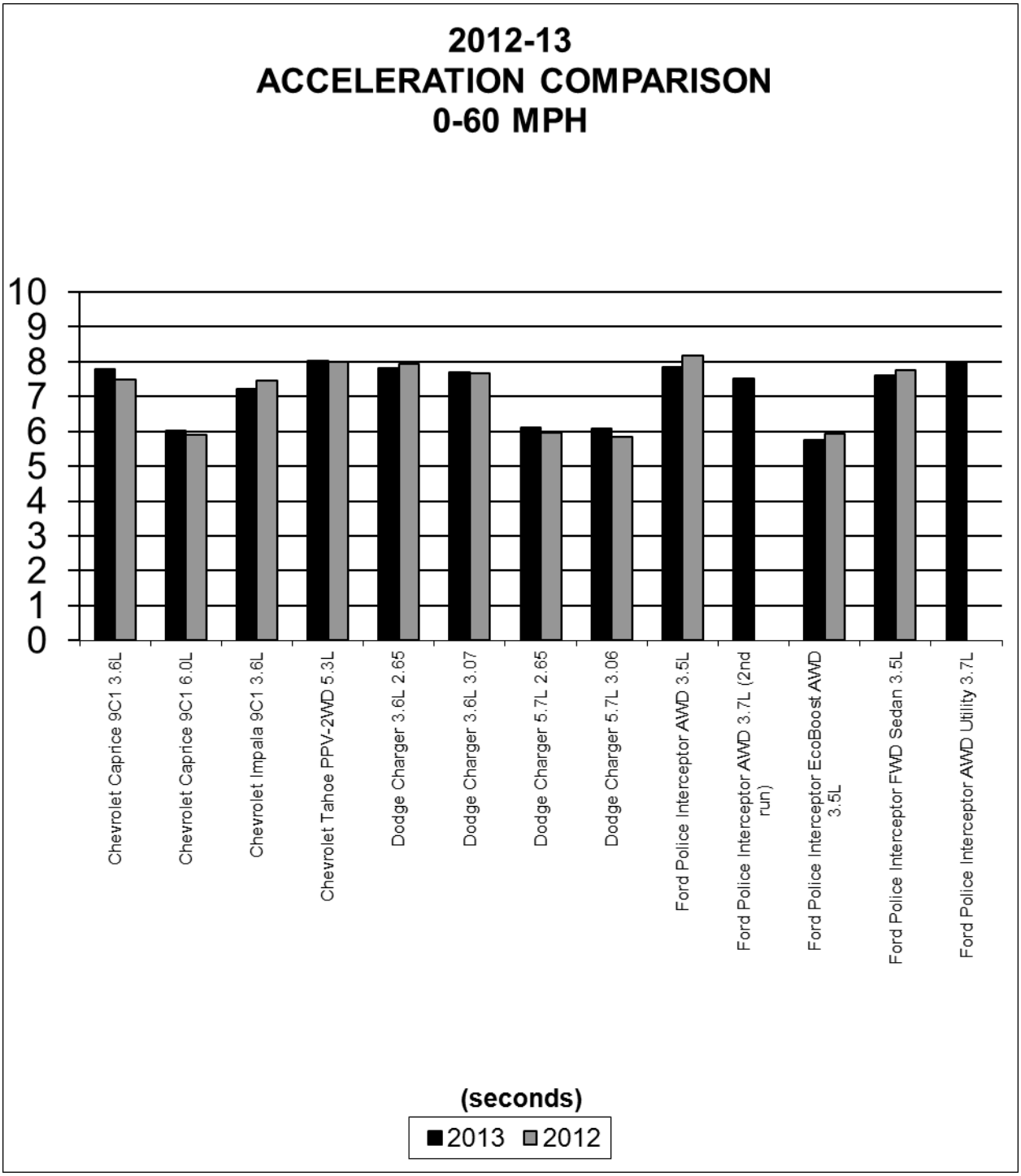
Vehicle Dynamics
Acceleration 0 – 60 mph
Acceleration 0 – 80 mph
Acceleration 0 – 100 mph
Top Speed
Braking (Calculated 60 – 0 mph Stopping Distance)

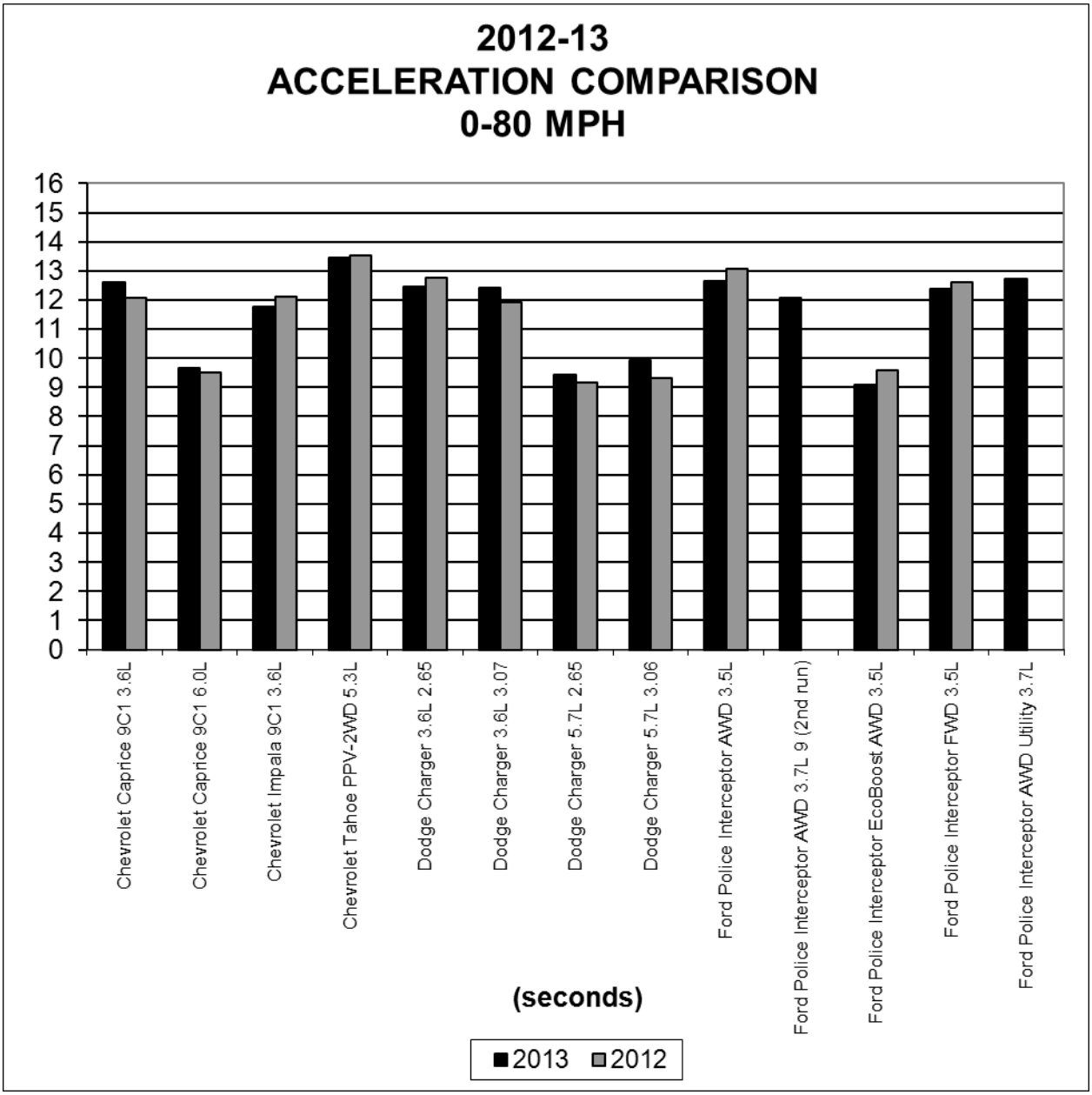
The reader should bear in mind the following information regarding variables when reviewing the 2012 – 2013 performance comparison charts. While as many variables as possible are eliminated from a given year's testing, those that occur over the span of a full year are sometimes impossible to eliminate.

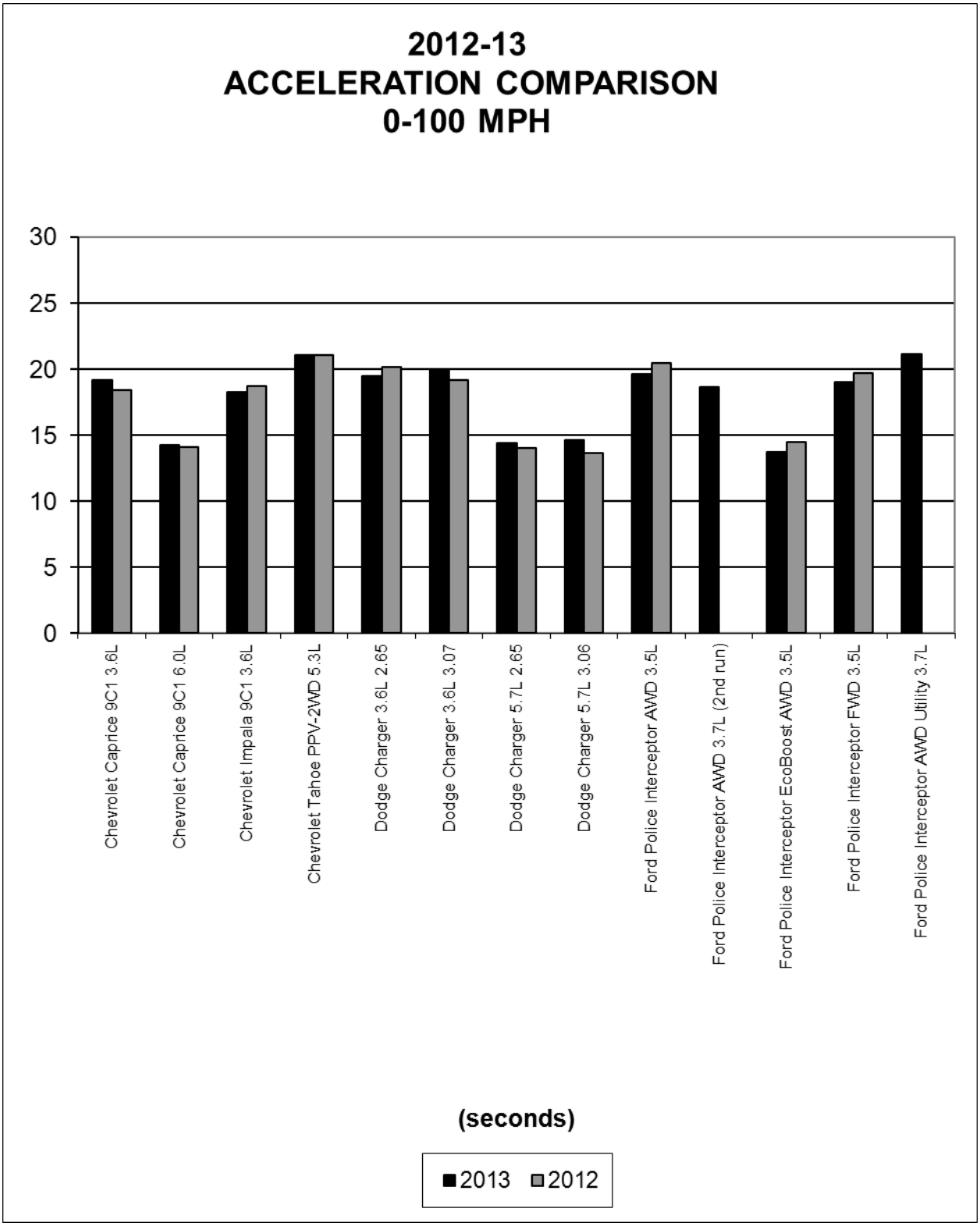
The acceleration, top speed, and brake testing of both the 2012 and 2013 model year vehicles were conducted in the latter half of September. Temperatures on the test day in September of 2012 ranged between 47° F at the start of testing to a high of approximately 65° F during the afternoon. Temperatures during the testing this year varied, ranging between 43° F when testing started, to an afternoon high of 72° 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.

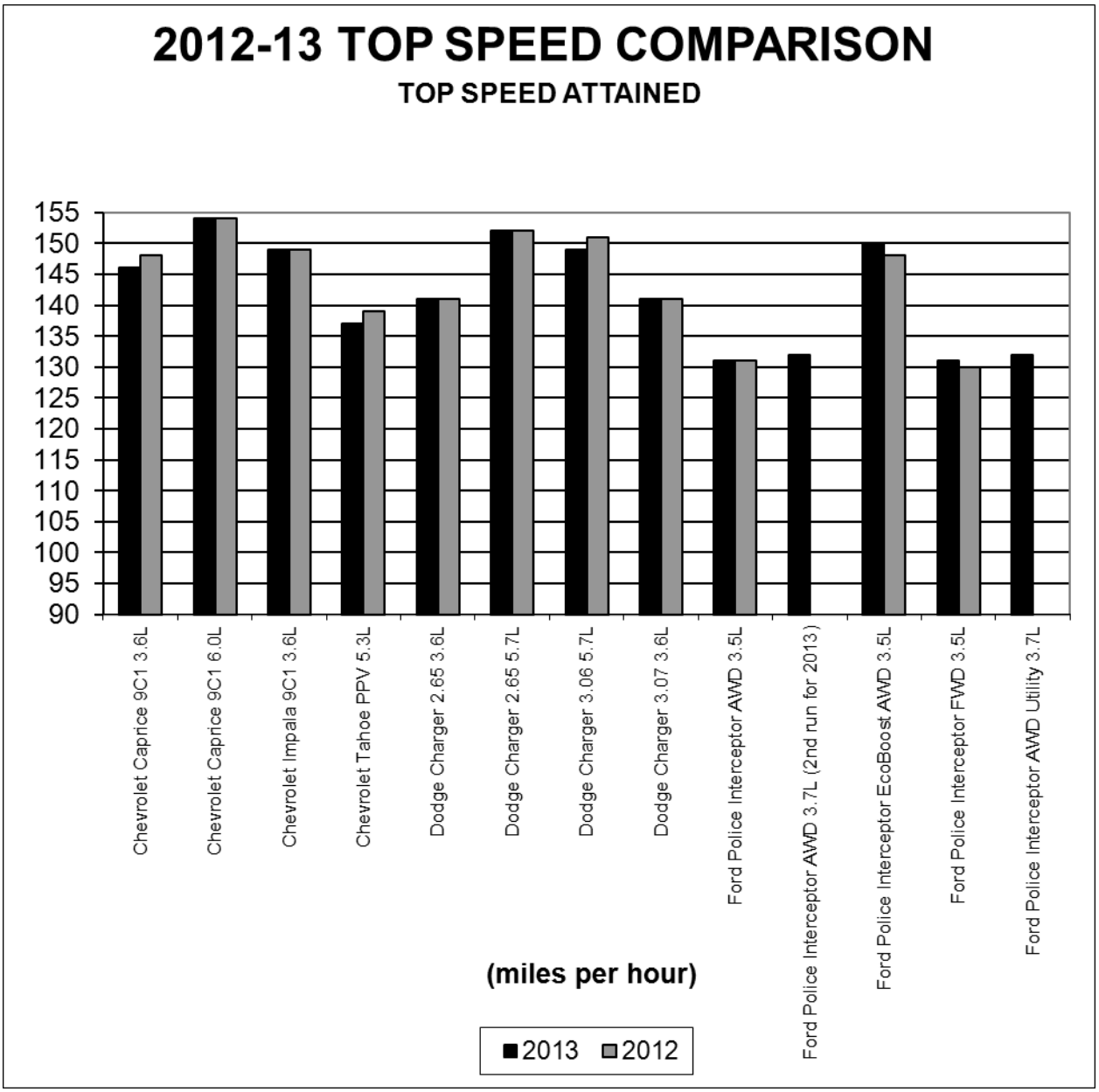
Another factor to be considered is the individual differences between two cars of the same make and model. The test cars that we evaluate are representative of their given make and model. Other cars of the same make and model will not, however, be exactly the same, particularly when it comes to performance. (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.

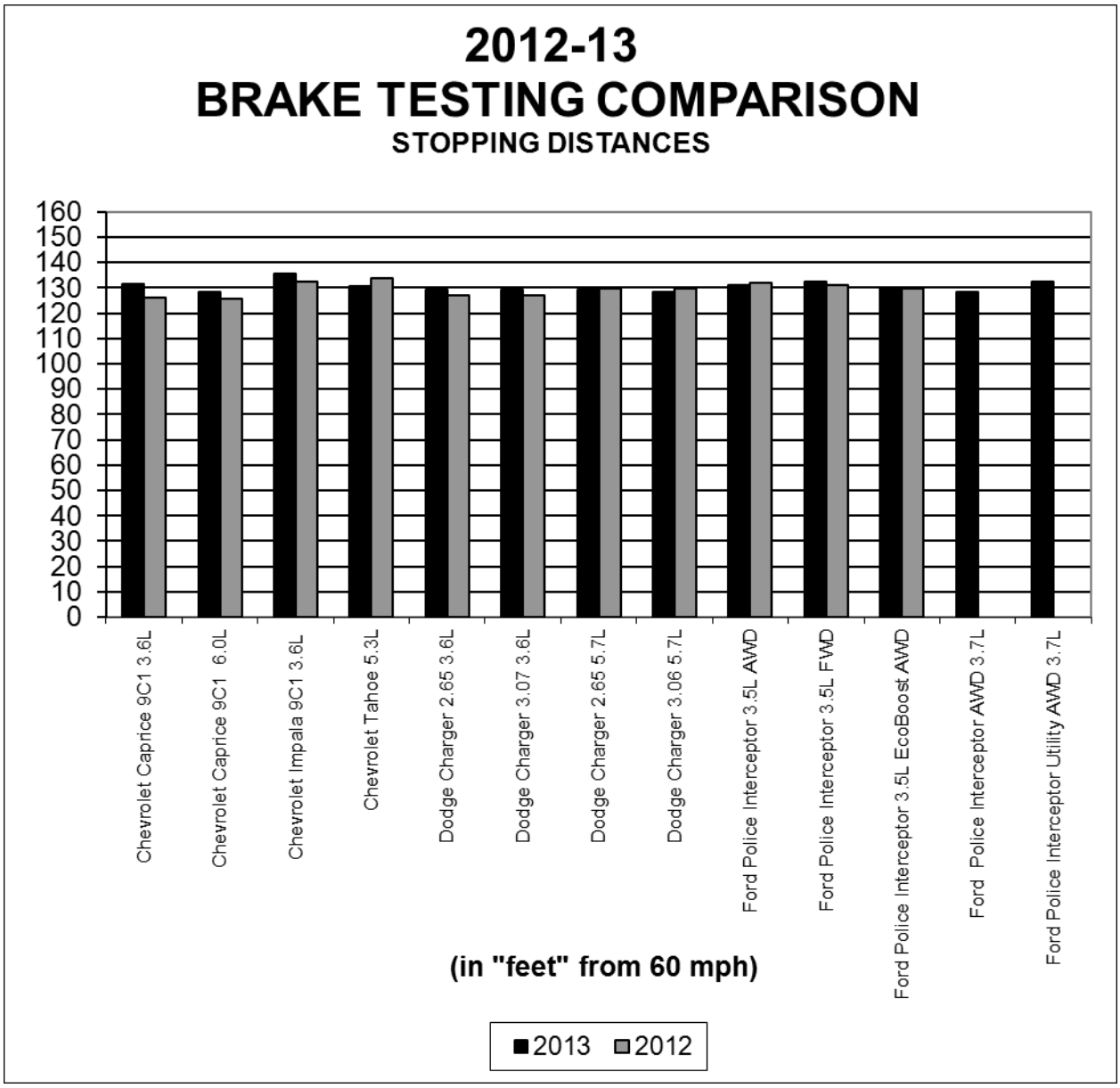

2012-13 Vehicle Dynamics Comparison
LAP TIMES
105
103
101
99
97
95
93
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe 5.3L
Dodge Charger 2.65 3.6L
Dodge Charger 2.65 5.7L
Dodge Charger 3.06 5.7L
Dodge Charger 3.07 3.6L
Ford Police Incerceptor EcoBoost AWD 3.5L
Ford Police Interceptor AWD 3.7L
Ford Police Interceptor AWD 3.5L
Ford Police Interceptor FWD 3.5L
Ford Police Interceptor Utility AWD 3.7L
(seconds)
2013
2012

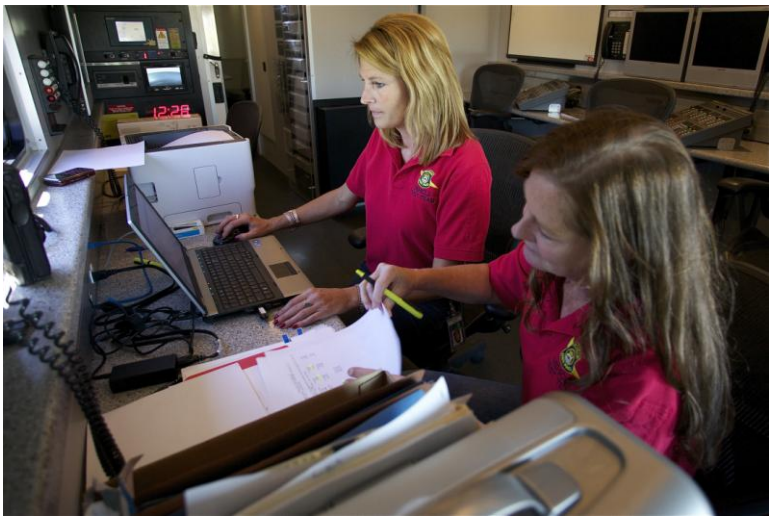

2012-13
ACCELERATION COMPARISON
0-60 MPH
10
9
8
7
6
5
4
3
2
1
0
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV-2WD 5.3L
Dodge Charger 3.6L 2.65
Dodge Charger 3.6L 3.07
Dodge Charger 5.7L 2.65
Dodge Charger 5.7L 3.06
Ford Police Interceptor AWD 3.5L
Ford Police Interceptor AWD 3.7L (2nd run)
Ford Police Interceptor EcoBoost AWD 3.5L
Ford Police Interceptor FWD Sedan 3.5L
Ford Police Interceptor AWD Utility 3.7L
(seconds)
2013
2012


2012-13
ACCELERATION COMPARISON
0-80 MPH
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV-2WD 5.3L
Dodge Charger 3.6L 2.65
Dodge Charger 3.6L 3.07
Dodge Charger 5.7L 2.65
Dodge Charger 5.7L 3.06
Ford Police Interceptor AWD 3.5L
Ford Police Interceptor AWD 3.7L 9 (2nd run)
Ford Police Interceptor EcoBoost AWD 3.5L
Ford Police Interceptor FWD 3.5L
Ford Police Interceptor AWD Utility 3.7L
(seconds)
2013
2012


2012-13
ACCELERATION COMPARISON
0-100 MPH
30
25
20
15
10
5
0
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV-2WD 5.3L
Dodge Charger 3.6L 2.65
Dodge Charger 3.6L 3.07
Dodge Charger 5.7L 2.65
Dodge Charger 5.7L 3.06
Ford Police Interceptor AWD 3.5L
Ford Police Interceptor AWD 3.7L (2nd run)
Ford Police Interceptor EcoBoost AWD 3.5L
Ford Police Interceptor FWD 3.5L
Ford Police Interceptor AWD Utility 3.7L
(seconds)
2013
2012


2012-13 TOP SPEED COMPARISON
TOP SPEED ATTAINED
155
150
145
140
135
130
125
120
115
110
105
100
95
90
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe PPV 5.3L
Dodge Charger 2.65 3.6L
Dodge Charger 2.65 5.7L
Dodge Charger 3.06 5.7L
Dodge Charger 3.07 3.6L
Ford Police Interceptor AWD 3.5L
Ford Police Interceptor AWD 3.7L (2nd run for 2013)
Ford Police Interceptor EcoBoost AWD 3.5L
Ford Police Interceptor FWD 3.5L
Ford Police Interceptor AWD Utility 3.7L
(miles per hour)
2013
2012


2012-13
BRAKE TESTING COMPARISON
STOPPING DISTANCES
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Chevrolet Caprice 9C1 3.6L
Chevrolet Caprice 9C1 6.0L
Chevrolet Impala 9C1 3.6L
Chevrolet Tahoe 5.3L
Dodge Charger 2.65 3.6L
Dodge Charger 3.07 3.6L
Dodge Charger 2.65 5.7L
Dodge Charger 3.06 5.7L
Ford Police Interceptor 3.5L AWD
Ford Police Interceptor 3.5L FWD
Ford Police Interceptor 3.5L EcoBoost AWD
Ford Police Interceptor AWD 3.7L
Ford Police Interceptor Utility AWD 3.7L
(in "feet" from 60 mph)
2013
2012



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, 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.

The motorcycle dynamics portion was again conducted 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.

POLICE

POLICE

Harley-Davidson Electra Glide FLHTP

TEST VEHICLE DESCRIPTION

MAKE Harley-Davidson	**MODEL** FLHTP		**SALES CODE NO.** N/A
ENGINE DISPLACEMENT	**CUBIC CENTIMETERS** 1690		**ENGINE** Twin Cam 103 Air cooled V-Twin 4-stroke w/oil cooler
FUEL SYSTEM	Electronic Sequential Port FI		**EXHAUST** Two into One into Two Crossover Dual
BORE & STROKE	3.875 X 4.375		**ALTERNATOR** 50 Amp
TORQUE	100 FT.LBS. @3250 RPM		**BATTERY** 12VDC 28 amp/hour, 270CCA
COMPRESSION RATIO	9.6:1		
TRANSMISSION	**PRIMARY DRIVE** 34/46		**FINAL DRIVE** 32/68
GEAR RATIO	1st/9.593 2nd/6.650 3rd/4.938 4th/4.0 5th/3.407 6th/2.875		
LEAN ANGLE	**LEFT** 31°		**RIGHT** 33°
CLUTCH	Wet Multi-Plate		
WHEELS/TIRES	Wheels / Slotted Disc Cast Aluminum front and rear / Front 17 X 3 / Rear 16 X 5 Tires / Front Dunlop D407F 130/80B17 Rear Dunlop D407 180/65B16		
FRONT SUSPENSION	**FORK ANGLE** 29.25°		**RAKE** 26°
REAR SUSPENSION	Swing arm w/ Air Adjustable Shocks		
SUSPENSION TRAVEL	**FRONT** 4.60 in.		**REAR** 3.0 in.
GROUND CLEARANCE, MINIMUM	5.10 in.		
BRAKE SYSTEM	Hydraulic Disc / Independent Front and Rear ABS		
BRAKES, FRONT	**TYPE** Dual Disc		**SWEPT AREA** 180 Sq.In.
BRAKES, REAR	**TYPE** Single Disc		**SWEPT AREA** 90 Sq.In.
FUEL CAPACITY	**GALLONS** 6.0		**LITERS** 22.71
OIL CAPACITY	4.0 Quarts		
GENERAL MEASUREMENTS	**WHEELBASE** 64.0 in.		**LENGTH** 96.5 in.
	TEST WEIGHT 852 lbs.		**OVERALL HEIGHT** 57.1 in.
	SEAT HEIGHT 30.6 in./ laden		
EPA MILEAGE EST. (MPG)	**CITY**	**HIGHWAY**	**COMBINED** 42

Harley-Davidson Road King FLHP

TEST VEHICLE DESCRIPTION

MAKE Harley-Davidson	**MODEL** FLHP		**SALES CODE NO.** N/A
ENGINE DISPLACEMENT	**CUBIC CENTIMETERS** 1690		**CUBIC INCHES** Twin Cam 103 Air cooled V-Twin 4-stroke w/oil cooler
FUEL SYSTEM	Electronic Sequential Port FI		**EXHAUST** Two into One into Two Crossover Dual
BORE & STROKE	3.875 x 4.375 in		**ALTERNATOR** 50 amp
TORQUE	100 ft-lbs @ 3250 RPM		**BATTERY** 12VDC 28 amp/hour, 270CCA
COMPRESSION RATIO	9.6:1		
TRANSMISSION	**PRIMARY DRIVE** 34/46		**FINAL DRIVE** 32/68
GEAR RATIO	1st/9.593 2nd/6.650 3rd/4.938 4th/4.0 5th/3.407 6th/2.875		
LEAN ANGLE	**LEFT** 31°		**RIGHT** 33°
CLUTCH	Wet multiple plate		
WHEELS/TIRES	Wheels/Slotted Disk Cast Aluminum front and rear / Front 17 x 3 / Rear 16 x 5 Tires / Front Dunlop D407F 130/80B17 Rear Dunlop D407 180/65B16		
FRONT SUSPENSION	**FORK ANGLE** 29.25°		**RAKE** 26°
REAR SUSPENSION	Swing Arm w/ Air Adjustable Shocks		
SUSPENSION TRAVEL	**FRONT** 4.6 in.		**REAR** 3.0 in.
GROUND CLEARANCE, MINIMUM	5.10 in.		
BRAKE SYSTEM	Hydraulic Disc / Independent Front & Rear ABS		
BRAKES, FRONT	**TYPE** Dual Disc		**SWEPT AREA** 180 sq. in.
BRAKES, REAR	**TYPE** Single Disc		**SWEPT AREA** 90 sq. in.
FUEL CAPACITY	**GALLONS** 6.0		**LITERS** 22.71
OIL CAPACITY	4.0 Quarts		
GENERAL MEASUREMENTS	**WHEELBASE** 64.0 in.		**LENGTH** 96.5 in.
	TEST WEIGHT 849 lbs.		**OVERALL HEIGHT** 56.31 in.
	SEAT HEIGHT 30.6 in. laden		
EPA MILEAGE EST. (MPG)	**CITY**	**HIGHWAY**	**COMBINED** 42

BMW R1200 RTP

TEST VEHICLE DESCRIPTION

MAKE BMW	**MODEL** R 1200 RT-P	**SALES CODE NO.** 12RB	
ENGINE DISPLACEMENT	**CUBIC CENTIMETERS** 1170	**ENGINE** 2-Cyl.	
FUEL SYSTEM	BMSK-P Injection	**EXHAUST** Stainless Steel w/catalytic converter	
BORE & STROKE	101 mm x 73 mm	**ALTERNATOR** 720 W	
TORQUE	88 lb/ft @ 6,000 rpm	**BATTERY** 2 x 19 Ah Gel Maintenance-Free	
COMPRESSION RATIO	12.0:1		
TRANSMISSION	**PRIMARY DRIVE** Gear 1:1.882	**FINAL DRIVE** Shaft w/ring & pinion gear	
GEAR RATIO	1 : 2.75 rear drive ratio / Special 9% lower first gear		
LEAN ANGLE	**LEFT** 46°	**RIGHT** 46°	
CLUTCH	Self-adjusting hydraulic actuating single plate dry clutch		
WHEELS/TIRES	Die-cast aluminum MTH2 rim profile fitted with run-flat tires (tires that pass the California Highway Patrol run flat protocol)		
FRONT SUSPENSION	**FORK ANGLE** 63.4 BMW Telelever	**RAKE** Castor in normal position - 4.3 inches.	
REAR SUSPENSION	BMW Evo Paralever		
SUSPENSION TRAVEL	**FRONT** 4.7 in.	**REAR** 5.3 in.	
GROUND CLEARANCE, MINIMUM	5.125 in.		
BRAKE SYSTEM	BMW IABS II partial-integral brake system		
BRAKES, FRONT	**TYPE** Dual 12.6” disc	**SWEPT AREA** 186 in/sq.	
BRAKES, REAR	**TYPE** Single 10.4” disc	**SWEPT AREA** 62 in/sq.	
FUEL CAPACITY	**GALLONS** 6.6 Gal.	**LITERS** 27 L.	
OIL CAPACITY	4 Quarts		
GENERAL MEASUREMENTS	**WHEELBASE** 58.4 in.	**LENGTH** 87.8 in.	
	TEST WEIGHT 679 lbs.	**OVERALL HEIGHT** 56.3”	
	SEAT HEIGHT 32.2” / 33.1” (30.7” / 31.5” optional low seat)		
EPA MILEAGE EST. (MPG) (Based on *FTP standard test)	**CITY** 43.3*	**HIGHWAY** 65.3*	**COMBINED**

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

Victory Commander I

TEST DESCRIPTION SHEET

MAKE Victory	**MODEL** Commander I	**SALES CODE NO.** N/A	
ENGINE DISPLACEMENT	**CUBIC CENTIMETERS** 1731	**ENGINE** Overhead Cam, 106 oil/air cooled V-Twin 4-stroke w/oil cooler	
FUEL SYSTEM	Electronic fuel injection with dual 45mm throttle body	**EXHAUST** Two into One into Two Crossover Dual	
BORE & STROKE	101 mm x 108 mm	**ALTERNATOR** 48 AMP	
TORQUE	113 ft/lbs @ 2700 rpm	**BATTERY** (2) 12v 18 amp/hour 240CCA	
COMPRESSION RATIO	9.4:1		
TRANSMISSION	**PRIMARY DRIVE** Wet, gear drive w/torque compensator 1.5:1	**FINAL DRIVE** Carbon fiber reinforced belt 2.12:1	
GEAR RATIO	1st/3.13:1 2nd/2.02:1 3rd/1.50:1 4th/1.20:1 5th/1:1 6th/.87.1		
LEAN ANGLE	**LEFT** 33°	**RIGHT** 33°	
CLUTCH	Wet, multi plate		
WHEELS/TIRES	Wheels/Cast Aluminum, Front 18 in x 3.0 in./Rear 16 in x 5.0 in Tires/Front Dunlop Elite 3 130/70R, Rear Dunlop Elite 3 180/60R16		
FRONT SUSPENSION	**TRAIL** 5.6 in.	**RAKE** 29.0°	
REAR SUSPENSION	Link mono air adjustable shock		
SUSPENSION TRAVEL	**FRONT** 5.1 in.	**REAR** 4.7 in.	
GROUND CLEARANCE, MINIMUM	5.8 in.		
BRAKE SYSTEM	Independent ABS		
BRAKES, FRONT	**TYPE** Dual 300 x 5 mm floating rotors w/4- piston calipers	**SWEPT AREA**	
BRAKES, REAR	**TYPE** Single 300 x 7mm floating rotor w/ 2-piston calipers	**SWEPT AREA**	
FUEL CAPACITY	**GALLONS** 5.8	**LITERS** .	
OIL CAPACITY	5.0 Quarts.		
GENERAL MEASUREMENTS	**WHEELBASE** 65.7 in.	**LENGTH** 104.4 in.	
	TEST WEIGHT 918 lbs.	**OVERALL HEIGHT** 53.1”	
	SEAT HEIGHT 26.25 in.		
EPA MILEAGE EST. (MPG)	**CITY** 42	**HIGHWAY** 47	**COMBINED** 44.5

TEST VEHICLE DESCRIPTION SUMMARY

	Harley-Davidson FLHTP	Harley-Davidson FLHP	BMW R-1200 RT-P	Victory Commander I
CUBIC CENTIMETERS	1690	1690	1170	1731
ENGINE DISPLACEMENT–CU. IN.	103	103		
ENGINE FUEL SYSTEM	ESPFI	ESPFI	Injection	EFI
EXHAUST	Crossover Dual	Crossover Dual	Stainless Steel	2 into 1
BORE & STROKE	3.875 x 4.375	3.875 x 4.375	101x73 (mm)	101 x 108 (mm)
ALTERNATOR	50 amp	50 amp	720 watts	48 amp
TORQUE - FT. LBS.	100	100	88	113
BATTERY	12v 28 amp/hour	12v 28 amp/hour	(2) 12v 19 amp/hour	(2) 12v 18 amp/hour
COMPRESSION RATIO	9.6.1	9.6:1	12.0:1	9.4:1
TRANSMISSION	6-Speed	6-Speed	6-Speed	6-Speed
PRIMARY DRIVE	34/46	34/46	1:1.882	1:5.1
FINAL DRIVE	32/68	32/68	Shaft w/ring & pinion	2.12:1
GEAR RATIO	2.875	2.875	1:2.75	.87:1
LEAN ANGLE - LEFT	31°	31°	46°	33°
LEAN ANGLE – RIGHT	33°	33°	46°	33°
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°	5.6 in.
RAKE	26°	26°	4.3 in.	29.0°
REAR SUSPENSION	Swing Arm	Swing Arm	EVO Paralever	Link Mono Air Adjustable shock
SUSPENSION TRAVEL – FRONT	4.6 in.	4.6 in.	4.7 in.	5.1 in.
SUSPENSION TRAVEL – BACK	3.0 in.	3.0 in.	5.3 in.	4.7 in.
GROUND CLEARANCE-MINIMUM	5.1 in.	5.1 in.	5.125 in.	5.8 in.
BRAKE SYSTEM	Disc	Disc.	IABS	IABS
FRONT SWEPT AREA (sq. in.)	180	180	186	
REAR SWEPT AREA (sq. in.)	90	90	62	
FUEL CAPACITY – GALLONS	6.0	6.0	6.6	5.8
FUEL CAPACITY – LITERS	22.71	22.71	27	
OIL CAPACITY – QUARTS	4	4	4	5
WHEELBASE	64.0	64.0	58.4	65.7
LENGTH	96.5	96.5	87.8	104.4
WEIGHT	852	849	679	918
OVERALL HEIGHT	57.1	56.31	56.3	53.1
SEAT HEIGHT	30.6	30.6	32.2	26.25
EPA MILEAGE – CITY			43.3*	42
EPA MILEAGE - HIGHWAY			65.3*	47

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

POLICE
STOP

MOTORCYCLE DYNAMICS TESTING

MOTORCYCLE DYNAMICS TEST OBJECTIVE

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

Each motorcycle is ridden over the course a total of 32 timed 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 13, 2012

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
HD FLHTP Electraglide	GROMAK	01:49.50	01:49.60	01:49.80	01:50.00	01:50.20	01:49.82
	JOHNSON	01:47.70	01:47.90	01:47.90	01:48.00	01:48.00	01:47.90
	ROGERS	01:49.40	01:49.40	01:49.80	01:49.80	01:49.80	01:49.64
	TRAMMEL	01:50.90	01:51.30	01:51.40	01:51.50	01:51.60	01:51.34
Overall Average							**01:49.67**
HD FLHP Road King	GROMAK	01:49.30	01:49.40	01:49.40	01:49.40	01:49.50	01:49.40
	JOHNSON	01:47.80	01:47.90	01:47.90	01:48.00	01:48.40	01:48.00
	ROGERS	01:48.70	01:49.70	01:49.70	01:49.80	01:49.80	01:49.54
	TRAMMEL	01:49.60	01:49.90	01:49.90	01:50.00	01:50.10	01:49.90
Overall Average							**01:49.21**
BMW R1200 RTP	GROMAK	01:39.60	01:39.80	01:39.90	01:40.00	01:40.70	01:40.00
	JOHNSON	01:39.90	01:40.70	01:40.70	01:41.10	01:41.10	01:40.70
	ROGERS	01:41.10	01:41.30	01:41.30	01:41.30	01:41.80	01:41.36
	TRAMMEL	01:41.90	01:42.10	01:42.50	01:42.60	01:42.80	01:42.38
Overall Average							**01:41.11**
Victory Commander I	GROMAK	01:51.20	01:51.40	01:51.90	01:51.90	01:52.30	01:51.74
	JOHNSON	01:48.50	01:48.60	01:48.60	01:49.00	01:49.00	01:48.74
	ROGERS	01:49.40	01:49.70	01:50.30	01:50.40	01:50.50	01:50.06
	TRAMMEL	01:51.70	01:51.90	01:52.20	01:52.40	01:52.60	01:52.16
Overall Average							**01:50.68**

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

ACCELERATION*		Harley-Davidson Electra Glide FLHTP	Harley-Davidson Road King FLHP	BMW R1200 RTP	Victory Commander I
0 – 20 mph	(sec.)	1.49	1.62	1.47	1.42
0 – 30 mph	(sec.)	2.33	2.42	2.06	2.09
0 – 40 mph	(sec.)	3.31	3.39	2.68	3.12
0 – 50 mph	(sec.)	4.54	4.54	3.56	4.13
0 – 60 mph	(sec.)	6.13	6.04	4.38	5.66
0 – 70 mph	(sec.)	8.08	7.95	5.52	7.23
0 – 80 mph	(sec.)	10.99	10.67	6.84	9.71
0 – 90 mph	(sec.)	15.26	14.47	8.63	12.99
0 – 100 mph	(sec.)	29.20	21.51	10.90	18.04
TOP SPEED	**(mph)**	103	108	128	115
QUARTER MILE					
Time	(sec.)	14.98	14.95	13.04	14.47
Speed	(mph)	89.59	90.78	107.02	93.49

BRAKE TESTING

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.

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.

DECELERATION RATE FORMULA

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

EXAMPLE:

Initial Velocity = 89.175 ft/s (60.8 mph x 1.4667*)
Stopping Distance = 171.4 ft.

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

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 mph = 88.002 ft/s x 88.002 = 7744.352 / 2 = 3872.176 / 23.198 ft/s^2 = 166.9 ft.

BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit **DATE:** September 12, 2012

BEGINNING Time: 10:19 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	60.32 mph	134.58 feet	29.08 ft/s^2
Stop #2	62.20 mph	155.51 feet	26.76 ft/s^2
Stop #3	60.21 mph	146.05 feet	26.69 ft/s^2
Stop #4	61.27 mph	145.76 feet	27.70 ft/s^2
Stop #5	60.57 mph	150.04 feet	26.30 ft/s^2
Stop #6	60.46 mph	146.90 feet	26.77 ft/s^2
Stop #7	60.35 mph	146.44 feet	26.75 ft/s^2
Stop #8	60.70 mph	146.74 feet	27.01 ft/s^2
Stop #9	60.93 mph	148.40 feet	26.91 ft/s^2
Stop #10	59.37 mph	143.07 feet	26.50 ft/s^2

AVERAGE DECELERATION RATE 27.05 ft/s^2

Phase II

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

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.75 mph	150.94 feet	26.30 ft/s^2
Stop #2	58.99 mph	140.46 feet	26.64 ft/s^2
Stop #3	59.23 mph	145.09 feet	26.00 ft/s^2
Stop #4	59.40 mph	135.07 feet	28.10 ft/s^2
Stop #5	60.12 mph	147.86 feet	26.29 ft/s^2
Stop #6	59.72 mph	141.39 feet	27.13 ft/s^2
Stop #7	60.96 mph	152.74 feet	26.17 ft/s^2
Stop #8	61.04 mph	145.98 feet	27.45 ft/s^2
Stop #9	61.76 mph	157.70 feet	26.01 ft/s^2
Stop #10	62.59 mph	160.01 feet	26.34 ft/s^2

AVERAGE DECELERATION RATE 26.64 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 26.85 ft/s^2

Projected Stopping Distance from 60.0 mph 144.2 feet

BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit **DATE:** September 12, 2012

BEGINNING Time: 11:45 a.m. **TEMPERATURE:** 75°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	59.83 mph	145.76 feet	26.41 ft/s^2
Stop #2	60.45 mph	139.89 feet	28.10 ft/s^2
Stop #3	60.23 mph	147.85 feet	26.39 ft/s^2
Stop #4	60.65 mph	155.62 feet	25.42 ft/s^2
Stop #5	59.81 mph	148.60 feet	25.90 ft/s^2
Stop #6	60.57 mph	156.13 feet	25.27 ft/s^2
Stop #7	60.26 mph	151.65 feet	25.76 ft/s^2
Stop #8	60.87 mph	155.49 feet	25.63 ft/s^2
Stop #9	61.22 mph	163.75 feet	24.62 ft/s^2
Stop #10	61.45 mph	157.93 feet	25.72 ft/s^2

AVERAGE DECELERATION RATE 25.92 ft/s^2

Phase II

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

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.75 mph	147.98 feet	26.83 ft/s^2
Stop #2	59.93 mph	149.30 feet	25.87 ft/s^2
Stop #3	61.75 mph	168.14 feet	24.39 ft/s^2
Stop #4	60.72 mph	149.01 feet	26.61 ft/s^2
Stop #5	59.96 mph	150.00 feet	25.78 ft/s^2
Stop #6	60.68 mph	158.42 feet	25.00 ft/s^2
Stop #7	61.43 mph	157.13 feet	25.83 ft/s^2
Stop #8	59.96 mph	144.48 feet	26.77 ft/s^2
Stop #9	60.24 mph	167.42 feet	23.31 ft/s^2
Stop #10	61.07 mph	164.16 feet	24.43 ft/s^2

AVERAGE DECELERATION RATE 25.48 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 25.70 ft/s^2

Projected Stopping Distance from 60.0 mph 150.7 feet

BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit **DATE:** September 12, 2012

BEGINNING Time: 11:10 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	60.24 mph	151.83 feet	25.71 ft/s^2
Stop #2	59.42 mph	136.39 feet	27.85 ft/s^2
Stop #3	60.27 mph	146.96 feet	26.58 ft/s^2
Stop #4	60.66 mph	147.21 feet	26.88 ft/s^2
Stop #5	61.06 mph	152.00 feet	26.39 ft/s^2
Stop #6	61.03 mph	145.45 feet	27.54 ft/s^2
Stop #7	59.61 mph	145.77 feet	26.22 ft/s^2
Stop #8	61.31 mph	152.63 feet	26.49 ft/s^2
Stop #9	60.33 mph	143.63 feet	27.25 ft/s^2
Stop #10	59.90 mph	136.64 feet	28.25 ft/s^2

AVERAGE DECELERATION RATE 26.92 ft/s^2

Phase II

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

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.14 mph	150.15 feet	27.91 ft/s^2
Stop #2	60.48 mph	150.33 feet	26.17 ft/s^2
Stop #3	59.48 mph	140.63 feet	27.06 ft/s^2
Stop #4	59.87 mph	139.48 feet	28.42 ft/s^2
Stop #5	59.74 mph	136.27 feet	27.64 ft/s^2
Stop #6	59.85 mph	144.92 feet	28.17 ft/s^2
Stop #7	59.89 mph	143.34 feet	26.58 ft/s^2
Stop #8	59.59 mph	139.97 feet	26.91 ft/s^2
Stop #9	60.95 mph	150.83 feet	26.49 ft/s^2
Stop #10	60.56 mph	147.86 feet	26.67 ft/s^2

AVERAGE DECELERATION RATE 26.89 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 26.90 ft/s^2

Projected Stopping Distance from 60.0 mph 143.9 feet

BRAKE TESTING

TEST LOCATION: MSP Precision Driving Unit **DATE:** September 12, 2012

BEGINNING Time: 12:08 p.m. **TEMPERATURE:** 76°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	59.97mph	157.67 feet	24.53 ft/s^2
Stop #2	60.39 mph	161.47 feet	24.29 ft/s^2
Stop #3	59.91 mph	154.60 feet	24.97 ft/s^2
Stop #4	59.51 mph	158.03 feet	24.11 ft/s^2
Stop #5	59.92 mph	158.11 feet	24.42 ft/s^2
Stop #6	60.60 mph	159.33 feet	24.79 ft/s^2
Stop #7	60.22 mph	162.41 feet	24.02 ft/s^2
Stop #8	60.44 mph	158.64 feet	24.77 ft/s^2
Stop #9	60.40 mph	165.03 feet	23.78 ft/s^2
Stop #10	60.05 mph	171.14 feet	22.66 ft/s^2

AVERAGE DECELERATION RATE 24.23 ft/s^2

Phase II

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

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.64 mph	160.31 feet	23.87 ft/s^2
Stop #2	60.44 mph	163.57 feet	24.02 ft/s^2
Stop #3	60.47 mph	162.93 feet	24.14 ft/s^2
Stop #4	60.39 mph	162.53 feet	24.14 ft/s^2
Stop #5	61.07 mph	169.95 feet	23.61 ft/s^2
Stop #6	60.19 mph	162.02 feet	24.05 ft/s^2
Stop #7	60.20 mph	164.55 feet	23.69 ft/s^2
Stop #8	60.24 mph	165.48 feet	23.59 ft/s^2
Stop #9	60.63 mph	157.91 feet	25.04 ft/s^2
Stop #10	59.36 mph	153.87 feet	24.63 ft/s^2

AVERAGE DECELERATION RATE 24.08 ft/s^2

Phase III

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

OVERALL AVERAGE DECEL. RATE: 24.16 ft/s^2

Projected Stopping Distance from 60.0 mph 160.3 feet

POLICE

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.

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
2277 Research Boulevard
Mail Stop 8J
Rockville, MD 20850
E-mail: asknlectc@nlectc.org
World Wide Web address: http://www.justnet.org

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 or visit http://www.justnet.org.

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.

MICHIGAN STATE POLICE
PRECISION DRIVING UNIT
7426 N. CANAL ROAD
LANSING, MI 48913