

POLICE VEHICLE EVALUATION MODEL YEAR 2007



State of Michigan
Department of State Police
Department of Management and Budget



National Law Enforcement and
Corrections Technology Center
A Division of the National
Institute of Justice

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

**2007 Model Year
Police Vehicle
Evaluation Program**

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TABLE OF CONTENTS

SECTIONS	PAGE
Preface	1
Acknowledgements	2
Test Equipment	4
Test Vehicle Descriptions	
Test Vehicle Photographs and Descriptions	5
Test Vehicle Descriptions Summary	24
Competitive Evaluation	
Vehicle Dynamics Testing	
Test Objective and Methodology.....	27
Test Facility Diagram.....	28
Test Data.....	29
Comparison Chart.....	30
Acceleration, Top Speed and Brake Testing	
Test Objectives and Methodology	31
Test Facility Diagram.....	32
Acceleration and Top Speed Data	33
Summary of Acceleration and Top Speed	38
Acceleration and Top Speed Test Data Comparison Charts	40
Brake Test Objectives and Methodology	42
Brake Test Data.....	43
Brake Test Data Comparison Chart.....	53
Ergonomics and Communications Evaluation	
Test Objective and Methodology.....	54
Test Data.....	55
Test Data Comparison Chart.....	57
Fuel Economy	
Test Objective and Methodology.....	58
Test Data.....	58
Test Data Comparison Chart.....	59
Scoring and Bid Adjustment Methodology	60
Performance Comparison of 2006-2007-Test Vehicles	62
Performance of “Special Service Package” Vehicles	69
Performance of Motorcycles	97
About the National Institute of Justice, the Law Enforcement and Corrections Standards and Testing Program, the Law Enforcement and Corrections Technology Center System, and the Office of Law Enforcement Standards	116

PREFACE

The Michigan State Police Vehicle Test Team is pleased to announce the results of the 2007 model year Police Vehicle Evaluation. This year we tested nineteen vehicles in total, including one pickup truck and three motorcycles. We appreciate your continued support and encouragement. The vehicles evaluated this year included the following:

POLICE CATEGORY

Ford Police Interceptor (3.27:1)	4.6L
Ford Police Interceptor (3.55:1)	4.6L
Chevrolet Impala 9C1	3.9L
Chevrolet Tahoe PPV 2WD E85	5.3L
Chevrolet Tahoe PPV 2WD	5.3L
Dodge Charger	3.5L
Dodge Charger	5.7L
Dodge Magnum	3.5L
Dodge Magnum	5.7L

SPECIAL SERVICE CATEGORY

*Special Service Package vehicles are not suitable for high speed, pursuit or emergency driving.

Ford Escape (Hybrid)*	2.3L SMFE	(4 Wheel Drive)
Ford Explorer*	4.6L SFI	(2 Wheel Drive)
Ford Expedition*	5.4L 3V SMFI	(2 Wheel Drive)
Ford Expedition EL*	5.4L 3V SMFI	(2 Wheel Drive)
Chevrolet Tahoe*	5.3L SPFI	(4 Wheel Drive)
Dodge Magnum*	3.5L SPFI	(2 Wheel Drive)
Ford F250 Super Crew Pickup*	5.4L SMFI	(2 Wheel Drive)

MOTORCYCLES

Harley Davidson Electra Glide FLHTP
Harley Davidson Road King FLHP
BMW Motorrad USA R1200RT-P

GENERAL INFORMATION

All of the cars and trucks were tested with a clean roof (no overhead light or lightbar) 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 emergency lights, sirens, and other equipment installed as provided by their respective manufacturer. We will continue to refine the testing procedures with the motorcycle manufacturers and their participation.

DaimlerChrysler Proving Grounds - Acceleration, Top Speed, & Braking Tests

Saturday began with a two hour fog delay but we still managed to finish on time despite the delayed start. This is the first year that we have had a pickup truck in the mix and we are excited to capture information for law enforcement for this new vehicle. This is also the first year for motorcycle testing. We are very pleased with the support we received from Harley Davidson and BMW to add this important component to the testing lineup. We expect other manufacturers that produce law enforcement motorcycles to participate in the future.

Michigan State Police Precision Driving Unit- Motorcycle Dynamics

Sunday we completed the motorcycle dynamics testing with great weather. Considering it was the first year, we had a good turnout here at our home track.

Grattan Raceway - Vehicle Dynamics (High Speed Handling) Test

We had a substantial rain delay at Grattan Raceway Park but after consulting with the manufacturers, we elected to test with three or four vehicles on the track at once.

*The Chevrolet 4WD Tahoe, Ford Explorer, Ford Expedition, Ford Escape, Ford F250 and one of the Dodge Magnum's are "special service" vehicles and are not driven through the vehicle dynamics (high-speed handling) test. These vehicles are not engineered or recommended for high-speed emergency driving or pursuit applications.

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

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ACKNOWLEDGEMENTS

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

Colonel Peter C. Munoz, Director, Michigan Department of State Police
Lt. Colonel Thomas J. Miller, Deputy Director, Field Services Bureau
Lt. Colonel Kriste K. Etue, Deputy Director, Administrative Services Bureau
Personnel from the Michigan Department of Management & Budget, Vehicle and Travel Services

The National Institute of Justice, The National Law Enforcement and Corrections Technology Center, Mr. Lance Miller, Mr. Alex Sundstrom, Lockheed Martin Aspen Systems

Mr. Terry Packer, Craig Hageman and personnel from DaimlerChrysler Proving Grounds
Mr. Sam Faasen and personnel from Grattan Raceway Park

Michigan State Police Volunteers – Ernie and Hazel Schutter, Denny Steendam, Austin & Reathel Waldron, Al Burnett, and Roger Chittenden

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

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Canfield Equipment Service, Inc. for assisting us with communication evaluations for the vehicles and motorcycles.

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

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

Michigan State Police Vehicle Test Team:

BACK ROW (left to right):

Lt. David “Doc” Halliday
F/Lt. Mike Krumm
Sgt. Keith Wilson
Ret. Sgt. Bill McFall
Sgt. Rick Stevens
Tpr. Nate Johnson
Ret. Sgt. Dick Rothermel
Ret. Sgt. Bob Ring

FRONT ROW (left to right):

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Tpr. Matt Rogers
Mrs. Noelle Lewis
Sgt. Jim Flegel
Ms. Gina Rosendall
Sgt. Ron Gromak
Tpr. Marcus Trammel

NOT SHOWN:

Tpr. Dan Thayer
Tpr. Mike McCarthy
Ofc. Loren Lee
Mrs. Nicole Marsh
Capt. Gene Hoekwater



TEST EQUIPMENT

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

DATRON TECHNOLOGY, INC., 21654 Melrose Ave., Building 16, Southfield, Michigan 48075

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

MicroSat GPS Speed and Distance Sensor

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

Law Enforcement Helmet – Model RJ-Air LE

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

AMB TranX extended loop decoder

Mains adapter 230 V AC/12 V DC

AMB TranX260 transponders

AMMCO TOOLS, Inc., 2100 Commonwealth Ave., North Chicago, IL 60064

Decelerometer, Model 7350

TEST VEHICLE DESCRIPTIONS AND PHOTOGRAPHS

Ford Police Interceptor

3.27:1



TEST VEHICLE DESCRIPTION

MAKE Ford	MODEL Police Interceptor	SALES CODE NO. P71	
ENGINE DISPLACEMENT	CUBIC INCHES 281	LITERS	4.6
FUEL SYSTEM	Sequential Multiport Fuel Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	250 @ 5000 RPM	ALTERNATOR	200
TORQUE	297ft-lbs @ 4000 RPM	BATTERY	750 CCA
COMPRESSION RATIO	9.4:1		
TRANSMISSION	MODEL 4R70W	TYPE 4-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.27		
STEERING	Power Rack and Pinion, variable ratio		
TURNING CIRCLE (CURB TO CURB)	40.3 ft.		
TIRE SIZE, LOAD & SPEED RATING	Goodyear Eagle RS-A P235/55R17 98W		
SUSPENSION TYPE (FRONT)	Independent SLA with ball joint & coil spring		
SUSPENSION TYPE (REAR)	4 bar link with Watts Linkage		
GROUND CLEARANCE, MINIMUM	5.6 in.	LOCATION Exhaust joint	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	TYPE Vented disc	SWEPT AREA 273 sq. in.	
BRAKES, REAR	TYPE Vented disc	SWEPT AREA 176 sq. in.	
FUEL CAPACITY	GALLONS 19.0	LITERS	71.9
GENERAL MEASUREMENTS	WHEELBASE 114.6 in.	LENGTH	212.0 in.
	TEST WEIGHT 4157	HEIGHT	58.3 in.
HEADROOM	FRONT 39.5 in.	REAR	37.8 in.
LEGROOM	FRONT 41.6 in.	REAR	38.0 in.
SHOULDER ROOM	FRONT 60.6 in.	REAR	60.0 in.
HIPROOM	FRONT 57.4 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 57.6 cu. ft.	REAR	48.8 cu. ft.
	COMB 106.4 cu. ft.	TRUNK	20.6 cu. ft.
EPA MILEAGE EST. (MPG)	CITY 16 (15.6)	HIGHWAY 23	COMBINED 18

Ford Police Interceptor

3.55:1



TEST VEHICLE DESCRIPTION

MAKE Ford	MODEL Police Interceptor	SALES CODE NO. P71	
ENGINE DISPLACEMENT	CUBIC INCHES 281	LITERS	4.6
FUEL SYSTEM	Sequential Multiport Fuel Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	250 @ 5000 RPM	ALTERNATOR	200
TORQUE	297 ft-lbs @ 4000 RPM	BATTERY	750 CCA
COMPRESSION RATIO	9.4:1		
TRANSMISSION	MODEL 4R70W	TYPE 4-Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.55		
STEERING	Power Rack and Pinion, variable ratio		
TURNING CIRCLE (CURB TO CURB)	40.3 ft.		
TIRE SIZE, LOAD & SPEED RATING	Goodyear Eagle RS-A P235/55R17 98W		
SUSPENSION TYPE (FRONT)	Independent SLA with ball joint & coil spring		
SUSPENSION TYPE (REAR)	4 bar link with Watts Linkage		
GROUND CLEARANCE, MINIMUM	5.6 in.	LOCATION Exhaust joint	
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS		
BRAKES, FRONT	TYPE Vented disc	SWEPT AREA 273 sq. in.	
BRAKES, REAR	TYPE Vented disc	SWEPT AREA 176 sq. in.	
FUEL CAPACITY	GALLONS 19.0	LITERS	71.9
GENERAL MEASUREMENTS	WHEELBASE 114.6 in.	LENGTH	212.0 in.
	TEST WEIGHT 4142	HEIGHT	58.3 in.
HEADROOM	FRONT 39.5 in.	REAR	37.8 in.
LEGROOM	FRONT 41.6 in.	REAR	38.0 in.
SHOULDER ROOM	FRONT 60.6 in.	REAR	60.0 in.
HIPROOM	FRONT 57.4 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 57.6 cu. ft.	REAR	48.8 cu. ft.
	COMB 106.4 cu. ft.	TRUNK	20.6 cu. ft.
EPA MILEAGE EST. (MPG)	CITY 16 (15.6)	HIGHWAY 23	COMBINED 18

Chevrolet Impala 9C1



TEST VEHICLE DESCRIPTION

MAKE Chevrolet	MODEL Impala 9C1	SALES CODE NO. 1WS19	
ENGINE DISPLACEMENT	CUBIC INCHES 237	LITERS	3.9
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Single
HORSEPOWER (SAE NET)	233 @ 5200 RPM	ALTERNATOR	150 amp.
TORQUE	245 ft-lbs @ 4800 RPM	BATTERY	750 CCA
COMPRESSION RATIO	9.4:1		
TRANSMISSION	MODEL 4T65E	TYPE 4-Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.29:1		
STEERING	Power Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38.0 ft.		
TIRE SIZE, LOAD & SPEED RATING	Pirelli P6, P225/60R16 97V		
SUSPENSION TYPE (FRONT)	Independent McPherson strut, coil springs & stabilizer bar		
SUSPENSION TYPE (REAR)	Independent Tri-Link coil spring over strut & stabilizer bar		
GROUND CLEARANCE, MINIMUM	7.1 in.	LOCATION Engine cradle	
	BRAKE SYSTEM Power, dual hydraulic, anti-lock		
BRAKES, FRONT	TYPE Vented disc	SWEPT AREA 235.4 sq. in.	
BRAKES, REAR	TYPE Solid disc	SWEPT AREA 160.3 sq. in.	
FUEL CAPACITY	GALLONS 17.0	LITERS	64.3
GENERAL MEASUREMENTS	WHEELBASE 110.5 in.	LENGTH	200.4 in.
	TEST WEIGHT 3742	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 104.8 cu. ft.	TRUNK 18.6 cu. ft. w/ compact spare	
EPA MILEAGE EST. (MPG)	CITY 19 (19.2)	HIGHWAY 27	COMBINED 22

Chevrolet Tahoe PPV

2WD E85



VEHICLE TEST DESCRIPTION

MAKE Chevrolet	MODEL Tahoe PPV – 2WD	SALES CODE NO. CC15706	
ENGINE DISPLACEMENT	CUBIC INCHES 327	LITERS	5.3
FUEL SYSTEM	SPFI – E85 Ethanol	EXHAUST	Single
HORSEPOWER (SAE NET)	320 @ 5200 RPM	ALTERNATOR	160
TORQUE	340 ft-lbs @ 4000 RPM	BATTERY	730 CCA
COMPRESSION RATIO	9.5:1		
TRANSMISSION	MODEL 4L60E	TYPE 4 – Speed Automatic Overdrive	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.73		
STEERING	Power – Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	39.0 ft.		
TIRE SIZE, LOAD & SPEED RATING	Goodyear Eagle RSA P265/60R17 108H		
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	
	Vacuum-boost, power, anti-lock		
BRAKE SYSTEM	Vacuum-boost, power, anti-lock		
BRAKES, FRONT	TYPE Disc	SWEPT AREA 213 sq. in.	
BRAKES, REAR	TYPE Disc	SWEPT AREA 133 sq. in.	
FUEL CAPACITY	GALLONS 26.0	LITERS	98.4
GENERAL MEASUREMENTS	WHEELBASE 116 in.	LENGTH	202.0 in.
	TEST WEIGHT 5239	HEIGHT	73.9
HEADROOM	FRONT 40.3 in.	REAR	39.2 in.
LEGROOM	FRONT 41.3 in.	REAR	39.0 in.
SHOULDER ROOM	FRONT 65.3 in.	REAR	65.2 in.
HIPROOM	FRONT 64.4 in.	REAR	60.6 in.
INTERIOR VOLUME *MAX. CARGO IS W/REAR SEATS FOLDED DOWN	FRONT 62.9 cu. ft.	REAR	57.68 cu. ft.
	COMB 120.58 cu. ft.	*MAX. CARGO 108.9 cu. ft.	
EPA MILEAGE EST. (MPG)	CITY 16 (15.6)	HIGHWAY 20	COMBINED 17

Chevrolet Tahoe PPV 2WD



TEST VEHICLE DESCRIPTION

MAKE Chevrolet	MODEL Tahoe PPV – 2WD	SALES CODE NO. CC10706	
ENGINE DISPLACEMENT	CUBIC INCHES 327	LITERS	5.3
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Single
HORSEPOWER (SAE NET)	320 @ 5200 RPM	ALTERNATOR	160
TORQUE	340 ft-lbs @ 4000 RPM	BATTERY	730 CCA
COMPRESSION RATIO	9.5:1		
TRANSMISSION	MODEL 4L60E	TYPE 4 – Speed Automatic Overdrive	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.73		
STEERING	Power – Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	39.0 ft.		
TIRE SIZE, LOAD & SPEED RATING	Goodyear Eagle RSA P265/60R17 108H		
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 213 sq. in.	
BRAKES, REAR	TYPE Disc	SWEPT AREA 133 sq. in.	
FUEL CAPACITY	GALLONS 26.0	LITERS	98.4
GENERAL MEASUREMENTS	WHEELBASE 116 in.	LENGTH	202.0 in.
	TEST WEIGHT 5237	HEIGHT	73.9
HEADROOM	FRONT 40.3 in.	REAR	39.2 in.
LEGROOM	FRONT 41.3 in.	REAR	39.0 in.
SHOULDER ROOM	FRONT 65.3 in.	REAR	65.2 in.
HIPROOM	FRONT 64.4 in.	REAR	60.6 in.
INTERIOR VOLUME *MAX. CARGO IS W/REAR SEATS FOLDED DOWN	FRONT 62.9 cu. ft.	REAR	57.68 cu. ft.
	COMB 120.58 cu. ft.	*MAX. CARGO 108.9 cu. ft.	
EPA MILEAGE EST. (MPG)	CITY 16 (15.6)	HIGHWAY 20	COMBINED 17

Dodger Charger 3.5L



TEST VEHICLE DESCRIPTION

MAKE Dodge	MODEL Charger	SALES CODE NO. 27A	
ENGINE DISPLACEMENT	CUBIC INCHES 214	LITERS	3.5
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Single
HORSEPOWER (SAE NET)	250 @ 6400	ALTERNATOR	160 Amp
TORQUE	250 lbs-ft @ 3800	BATTERY	800 CCA
COMPRESSION RATIO	10.0:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.87:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.9		
TIRE SIZE, LOAD & SPEED RATING	Continental ProContact P225/60 R 18 99V		
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 3916	HEIGHT	58.2 in.
HEADROOM	FRONT 38.7 in.	REAR	36.2 in.
LEGROOM	FRONT 41.8 in.	REAR	40.2 in.
SHOULDER ROOM	FRONT 59.3 in.	REAR	57.6 in.
HIPROOM	FRONT 56.2 in.	REAR	55.5 in.
INTERIOR VOLUME	FRONT 55.5 cu. ft.	REAR	48.5 cu. ft.
	COMB 104 cu. ft.	TRUNK 16.2 cu. ft.	
EPA MILEAGE EST. (MPG)	CITY 19 (18.8)	HIGHWAY 27	COMBINED 22

Dodger Charger 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)	340 @ 5000		ALTERNATOR	160 Amp
TORQUE	390 lbs-ft @ 4000		BATTERY	800 CCA
COMPRESSION RATIO	9.7:1			
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic		
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	2.82:1			
STEERING	Power Rack & Pinion			
TURNING CIRCLE (CURB TO CURB)	38.9			
TIRE SIZE, LOAD & SPEED RATING	Continental ProContact P225/60 R 18 99V			
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	4127	HEIGHT	58.2 in.
HEADROOM	FRONT	38.7 in.	REAR	36.2 in.
LEGROOM	FRONT	41.8 in.	REAR	40.2 in.
SHOULDER ROOM	FRONT	59.3 in.	REAR	57.6 in.
HIPROOM	FRONT	56.2 in.	REAR	55.5 in.
INTERIOR VOLUME	FRONT	55.5 cu. ft.	REAR	48.5 cu. ft.
	COMB	104 cu. ft.	TRUNK	16.2 cu. ft.
EPA MILEAGE EST. (MPG)	CITY	17 (16.9)	HIGHWAY	25
			COMBINED	20

Dodge Magnum 3.5L



TEST VEHICLE DESCRIPTION

MAKE Dodge	MODEL Magnum		SALES CODE NO. 27A	
ENGINE DISPLACEMENT	CUBIC INCHES 214		LITERS	3.5
FUEL SYSTEM	Sequential Port Fuel Injection		EXHAUST	Single
HORSEPOWER (SAE NET)	250 @ 6400		ALTERNATOR	160 amp.
TORQUE	250 lbs-ft @ 3800		BATTERY	800 CCA
COMPRESSION RATIO	10.0:1			
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic		
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	2.87:1			
STEERING	Power Rack & Pinion			
TURNING CIRCLE (CURB TO CURB)	38.9			
TIRE SIZE, LOAD & SPEED RATING	Continental ProContact P225/60/R18 99V			
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	197.7 in.
	TEST WEIGHT	4019	HEIGHT	58.3 in.
HEADROOM	FRONT	38.7 in.	REAR	38.1 in.
LEGROOM	FRONT	41.8 in.	REAR	40.2 in.
SHOULDER ROOM	FRONT	58.7 in.	REAR	57.6 in.
HIPROOM	FRONT	56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT	55.0 cu. ft.	REAR	51.0 cu. ft.
	COMB	106.0 cu. ft.	TRUNK	27.3 cu. ft.
EPA MILEAGE EST. (MPG)	CITY	19 (18.8)	HIGHWAY	27
			COMBINED	22

Dodge Magnum 5.7L



TEST VEHICLE DESCRIPTION

MAKE Dodge	MODEL Magnum	SALES CODE NO. 29A	
ENGINE DISPLACEMENT	CUBIC INCHES 345	LITERS	5.7
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	340 @ 5000	ALTERNATOR	160 amp.
TORQUE	390 lbs-ft @ 4000	BATTERY	800 CCA
COMPRESSION RATIO	9.7:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.82:1		
STEERING	Power Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.9		
TIRE SIZE, LOAD & SPEED RATING	Continental ProContact P225/60/R18 99V		
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	197.7 in.
	TEST WEIGHT 4227	HEIGHT	58.3 in.
HEADROOM	FRONT 38.7 in.	REAR	38.1 in.
LEGROOM	FRONT 41.8 in.	REAR	40.2 in.
SHOULDER ROOM	FRONT 58.7 in.	REAR	57.6 in.
HIPROOM	FRONT 56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 55.0 cu. ft.	REAR	51.0 cu. ft.
	COMB 106.0 cu. ft.	TRUNK	27.3 cu. ft.
EPA MILEAGE EST. (MPG)	CITY 17 (16.9)	HIGHWAY 25	COMBINED 20

TEST VEHICLE DESCRIPTION SUMMARY

	Ford Police Interceptor 3.27	Chevrolet Impala 9C1	Dodge Charger 3.5L
ENGINE DISPLACEMENT – CU. IN.	281	237	214
ENGINE DISPLACEMENT – LITERS	4.6	3.9	3.5
ENGINE FUEL SYSTEM	SPFI	SPFI	SPFI
HORSEPOWER (SAE NET)	250	233	250
TORQUE (FT. LBS.)	297	245	250
COMPRESSION RATIO	9.4:1	9.4:1	10.0:1
AXLE RATIO	3.27	3.29:1	2.87:1
TURNING CIRCLE – FT. CURB TO CURB	40.3	38.0	38.9
TRANSMISSION	4 Speed elec. auto	4 Speed auto	5 Speed elec. auto
TRANSMISSION MODEL NUMBER	4R70W	4T65E	A580
LOCKUP TORQUE CONVERTER	Yes	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes	Yes
TIRE SIZE	P235/55R	P225/60R	P225/60R
WHEEL RIM SIZE – INCHES	17	16	18
GROUND CLEARANCE – INCHES	5.6	7.1	5.2
BRAKE SYSTEM	Power, ABS	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Vented Disc	Vented Disc	Vented Disc
BRAKES – REAR TYPE	Vented Disc	Solid Disc	Vented Disc
FUEL CAPACITY – GALLONS	19	17	19
FUEL CAPACITY – LITERS	71.9	64.3	72
OVERALL LENGTH – INCHES	212.0	200.4	200.1
OVERALL HEIGHT – INCHES	58.3	58.7	58.2
TEST WEIGHT – LBS.	4157	3742	3916
WHEELBASE – INCHES	114.6	110.5	120
HEADROOM FRONT – INCHES	39.5	39.4	38.7
HEADROOM REAR – INCHES	37.8	37.8	36.2
LEGROOM FRONT – INCHES	41.6	42.3	41.8
LEGROOM REAR – INCHES	38.0	37.6	40.2
SHOULDER ROOM FRONT – INCHES	60.6	58.7	59.3
SHOULDER ROOM REAR – INCHES	60.0	58.6	57.6
HIPROOM FRONT – INCHES	57.4	56.4	56.2
HIPROOM REAR – INCHES	56.1	57.2	55.5
INTERIOR VOLUME FRONT – CU. FT.	57.6	56.5	55.5
INTERIOR VOLUME REAR – CU. FT.	48.8	55.7	48.5
INTERIOR VOLUME COMB. – CU. FT.	106.4	104.8	104
TRUNK VOLUME – CU. FT.	20.6	18.6	16.2
EPA MILEAGE – CITY – MPG	16	19	19
EPA MILEAGE – HIGHWAY – MPG	23	27	27
EPA MILEAGE – COMBINED – MPG	18	22	22

TEST VEHICLE DESCRIPTION SUMMARY

	Dodge Charger 5.7L	Dodge Magnum 3.5L	Ford Police Interceptor 3.55
ENGINE DISPLACEMENT – CU. IN.	345	214	281
ENGINE DISPLACEMENT – LITERS	5.7	3.5	4.6
ENGINE FUEL SYSTEM	SPFI	SPFI	SPFI
HORSEPOWER (SAE NET)	340	250	250
TORQUE (FT. LBS.)	390	250	297
COMPRESSION RATIO	9.7:1	10.0:1	9.4:1
AXLE RATIO	2.82:1	2.87:1	3.55
TURNING CIRCLE – FT. CURB TO CURB	38.9	38.9	40.3
TRANSMISSION	5 Speed elec. auto	5 Speed elec. auto	4 Speed elec. auto
TRANSMISSION MODEL NUMBER	A580	A580	4R70W
LOCKUP TORQUE CONVERTER	Yes	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes	Yes
TIRE SIZE	P225/60R	P225/60R	P235/55R
WHEEL RIM SIZE – INCHES	18	18	17
GROUND CLEARANCE – INCHES	5.2	5.2	5.6
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	72	72	71.9
OVERALL LENGTH – INCHES	200.1	197.7	212.0
OVERALL HEIGHT – INCHES	58.2	58.3	58.3
TEST WEIGHT – LBS.	4127	4019	4142
WHEELBASE – INCHES	120	120	114.6
HEADROOM FRONT – INCHES	38.7	38.7	39.5
HEADROOM REAR – INCHES	36.2	38.1	37.8
LEGROOM FRONT – INCHES	41.8	41.8	41.6
LEGROOM REAR – INCHES	40.2	40.2	38.0
SHOULDER ROOM FRONT – INCHES	59.3	58.7	60.6
SHOULDER ROOM REAR – INCHES	57.6	57.6	60.0
HIPROOM FRONT – INCHES	56.2	56.2	57.4
HIPROOM REAR – INCHES	55.5	56.1	56.1
INTERIOR VOLUME FRONT – CU. FT.	55.5	55.0	57.6
INTERIOR VOLUME REAR – CU. FT.	48.5	51.0	48.8
INTERIOR VOLUME COMB. – CU. FT.	104	106.0	106.4
TRUNK VOLUME – CU. FT.	16.2	27.3	20.6
EPA MILEAGE – CITY – MPG	17	19	16
EPA MILEAGE – HIGHWAY – MPG	25	27	23
EPA MILEAGE – COMBINED – MPG	20	22	18

TEST VEHICLE DESCRIPTION SUMMARY

	Dodge Magnum 5.7L	Chevrolet Tahoe PPV E85	Chevrolet Tahoe PPV
ENGINE DISPLACEMENT – CU. IN.	345	327	327
ENGINE DISPLACEMENT – LITERS	5.7	5.3	5.3
ENGINE FUEL SYSTEM	SPFI	SPFI – E85 Ethanol	SPFI
HORSEPOWER (SAE NET)	340	320	320
TORQUE (FT. LBS.)	390	340	340
COMPRESSION RATIO	9.7:1	9.5:1	9.5:1
AXLE RATIO	2.82:1	3.73	3.73
TURNING CIRCLE – FT. CURB TO CURB	38.9	39.0	39.0
TRANSMISSION	5 Speed elec. auto	4-Speed Automatic Overdrive	4-Speed Automatic Overdrive
TRANSMISSION MODEL NUMBER	A580	4L60E	4L60E
LOCKUP TORQUE CONVERTER	Yes	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes	Yes
TIRE SIZE	P225/60	P265/60R	P265/60R
WHEEL RIM SIZE – INCHES	18	17	17
GROUND CLEARANCE – INCHES	5.2	8.00	8.00
BRAKE SYSTEM	Power, ABS	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Vented Disc	Disc	Disc
BRAKES – REAR TYPE	Vented Disc	Disc	Disc
FUEL CAPACITY – GALLONS	19	26	26
FUEL CAPACITY – LITERS	72	98.4	98.4
OVERALL LENGTH – INCHES	197.7	202.0	202.0
OVERALL HEIGHT – INCHES	58.3	73.9	73.9
TEST WEIGHT – LBS.	4227	5239	5237
WHEELBASE – INCHES	120	116	116
HEADROOM FRONT – INCHES	38.7	40.3	40.3
HEADROOM REAR – INCHES	38.1	39.2	39.2
LEGROOM FRONT – INCHES	41.8	41.3	41.3
LEGROOM REAR – INCHES	40.2	39.0	39.0
SHOULDER ROOM FRONT – INCHES	58.7	65.3	65.3
SHOULDER ROOM REAR – INCHES	57.6	65.2	65.2
HIPROOM FRONT – INCHES	56.2	64.4	64.4
HIPROOM REAR – INCHES	56.1	60.6	60.6
INTERIOR VOLUME FRONT – CU. FT.	55.0	62.9	62.9
INTERIOR VOLUME REAR – CU. FT.	51.0	57.68	57.68
INTERIOR VOLUME COMB. – CU. FT.	106.0	120.58	120.58
MAXIMUM CARGO	27.3	108.9	108.9
EPA MILEAGE – CITY – MPG	17	16	16
EPA MILEAGE – HIGHWAY – MPG	25	20	20
EPA MILEAGE – COMBINED – MPG	20	17	17

VEHICLE DYNAMICS TESTING

TEST OBJECTIVE

Determine each vehicle's high-speed pursuit or emergency 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

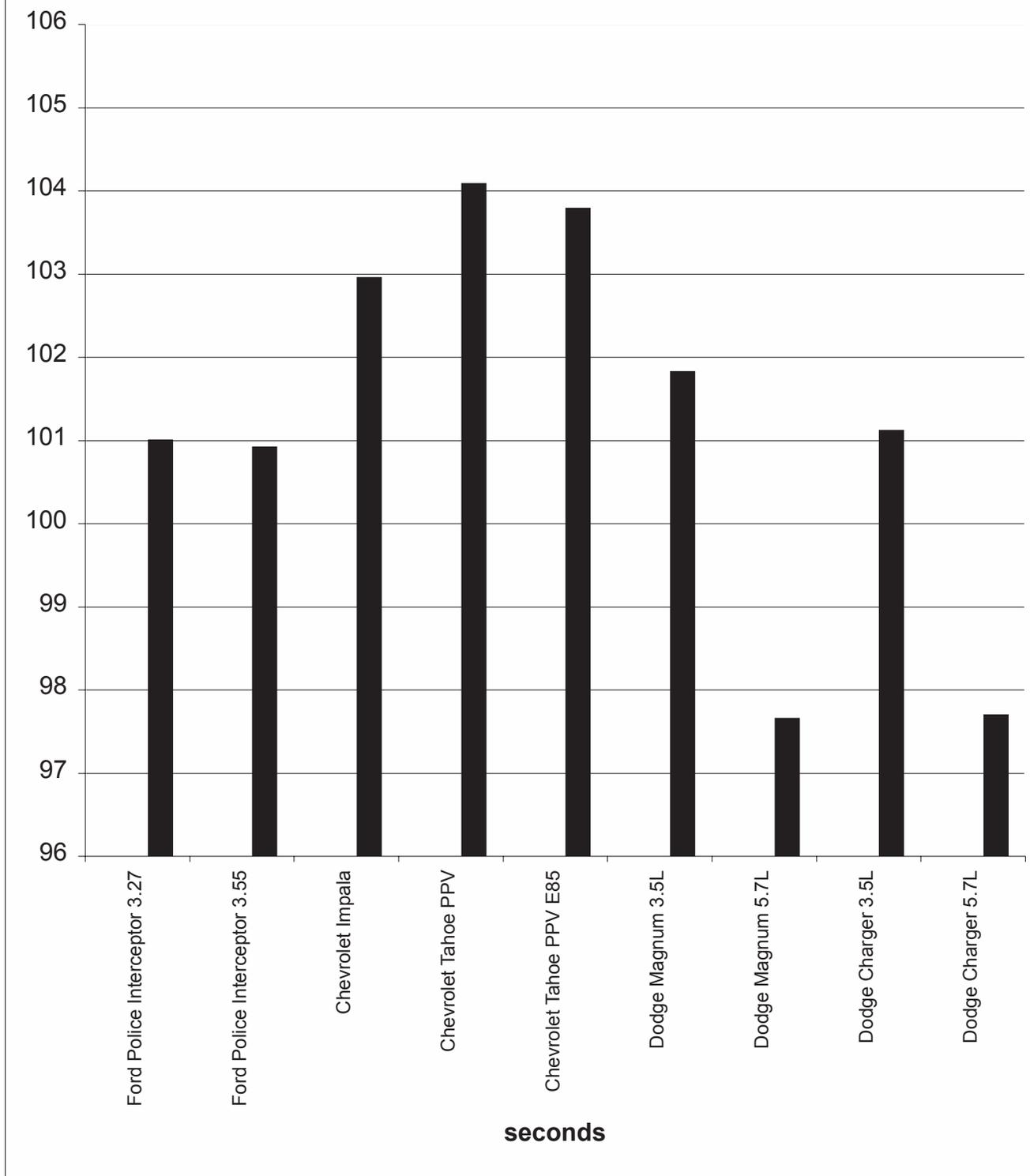


Arrows indicate
Michigan State Police
Road Test Course and
Direction of Travel.

VEHICLE DYNAMICS TESTING

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Ford Police Interceptor 3:27 SPFI	GROMAK	01:40.30	01:40.30	01:40.50	01:40.60	01:40.80	01:40.50
	ROGERS	01:41.30	01:41.40	01:41.50	01:41.70	01:41.70	01:41.52
	WILSON	01:40.90	01:41.10	01:41.40	01:41.40	01:41.50	01:41.26
	FLEGEL	01:40.50	01:40.60	01:40.80	01:40.80	01:40.90	01:40.72
Overall Average							01:41.00
Ford Police Interceptor 3:55 SPFI	GROMAK	01:40.20	01:40.40	01:40.40	01:40.60	01:40.70	01:40.46
	ROGERS	01:40.50	01:40.80	01:41.50	01:41.60	01:41.60	01:41.20
	WILSON	01:41.10	01:41.50	01:41.70	01:41.80	01:41.90	01:41.60
	FLEGEL	01:40.20	01:40.30	01:40.40	01:40.40	01:40.70	01:40.40
Overall Average							01:40.91
Chevrolet Impala 9C1 3.9L SPFI	GROMAK	01:41.50	01:41.80	01:42.20	01:42.20	01:42.20	01:41.98
	ROGERS	01:43.20	01:43.20	01:43.30	01:43.40	01:43.50	01:43.32
	WILSON	01:42.70	01:42.80	01:42.90	01:43.30	01:43.40	01:43.02
	FLEGEL	01:43.00	01:43.30	01:43.60	01:43.70	01:43.70	01:43.46
Overall Average							01:42.95
Chevrolet Tahoe PPV 2WD E85	GROMAK	01:43.30	01:43.50	01:43.60	01:43.70	01:43.80	01:43.58
	ROGERS	01:43.70	01:44.00	01:44.30	01:44.30	01:44.40	01:44.14
	WILSON	01:43.60	01:43.80	01:43.80	01:43.90	01:44.00	01:43.82
	FLEGEL	01:43.40	01:43.60	01:43.60	01:43.70	01:43.70	01:43.60
Overall Average							01:43.78
Chevrolet Tahoe PPV 2WD	GROMAK	01:43.90	01:44.20	01:44.30	01:44.30	01:44.50	01:44.24
	ROGERS	01:43.70	01:43.80	01:43.80	01:44.00	01:44.10	01:43.88
	WILSON	01:44.00	01:44.20	01:44.50	01:44.60	01:44.80	01:44.42
	FLEGEL	01:43.60	01:43.70	01:43.80	01:43.90	01:44.00	01:43.80
Overall Average							01:44.08
Dodge Magnum 3.5L SPFI	GROMAK	01:40.40	01:40.60	01:40.80	01:40.80	01:40.90	01:40.70
	ROGERS	01:42.30	01:42.30	01:42.30	01:42.40	01:42.70	01:42.40
	WILSON	01:41.80	01:42.40	01:42.60	01:42.70	01:42.70	01:42.44
	FLEGEL	01:41.40	01:41.70	01:41.80	01:41.80	01:41.90	01:41.72
Overall Average							01:41.82
Dodge Magnum 5.7L SPFI	GROMAK	01:36.60	01:36.60	01:36.60	01:36.60	01:36.70	01:36.62
	ROGERS	01:37.40	01:37.50	01:37.50	01:37.60	01:37.60	01:37.52
	WILSON	01:38.00	01:38.10	01:38.20	01:38.30	01:38.40	01:38.20
	FLEGEL	01:37.90	01:38.20	01:38.30	01:38.40	01:38.50	01:38.26
Overall Average							01:37.65
Dodge Charger 3.5L SPFI	GROMAK	01:40.30	01:40.40	01:40.40	01:40.40	01:40.80	01:40.46
	ROGERS	01:40.60	01:40.80	01:41.10	01:41.30	01:41.40	01:41.04
	WILSON	01:41.30	01:41.40	01:41.40	01:41.60	01:41.70	01:41.48
	FLEGEL	01:41.20	01:41.40	01:41.50	01:41.60	01:41.60	01:41.46
Overall Average							01:41.11
Dodge Charger 5.7L SPFI	GROMAK	01:36.80	01:36.90	01:37.10	01:37.50	01:37.60	01:37.18
	ROGERS	01:37.10	01:37.20	01:37.30	01:37.50	01:37.50	01:37.32
	WILSON	01:37.90	01:38.40	01:38.40	01:38.40	01:38.40	01:38.30
	FLEGEL	01:37.00	01:37.70	01:38.30	01:38.30	01:38.50	01:37.96
Overall Average							01:37.69

2007 Vehicle Dynamics



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

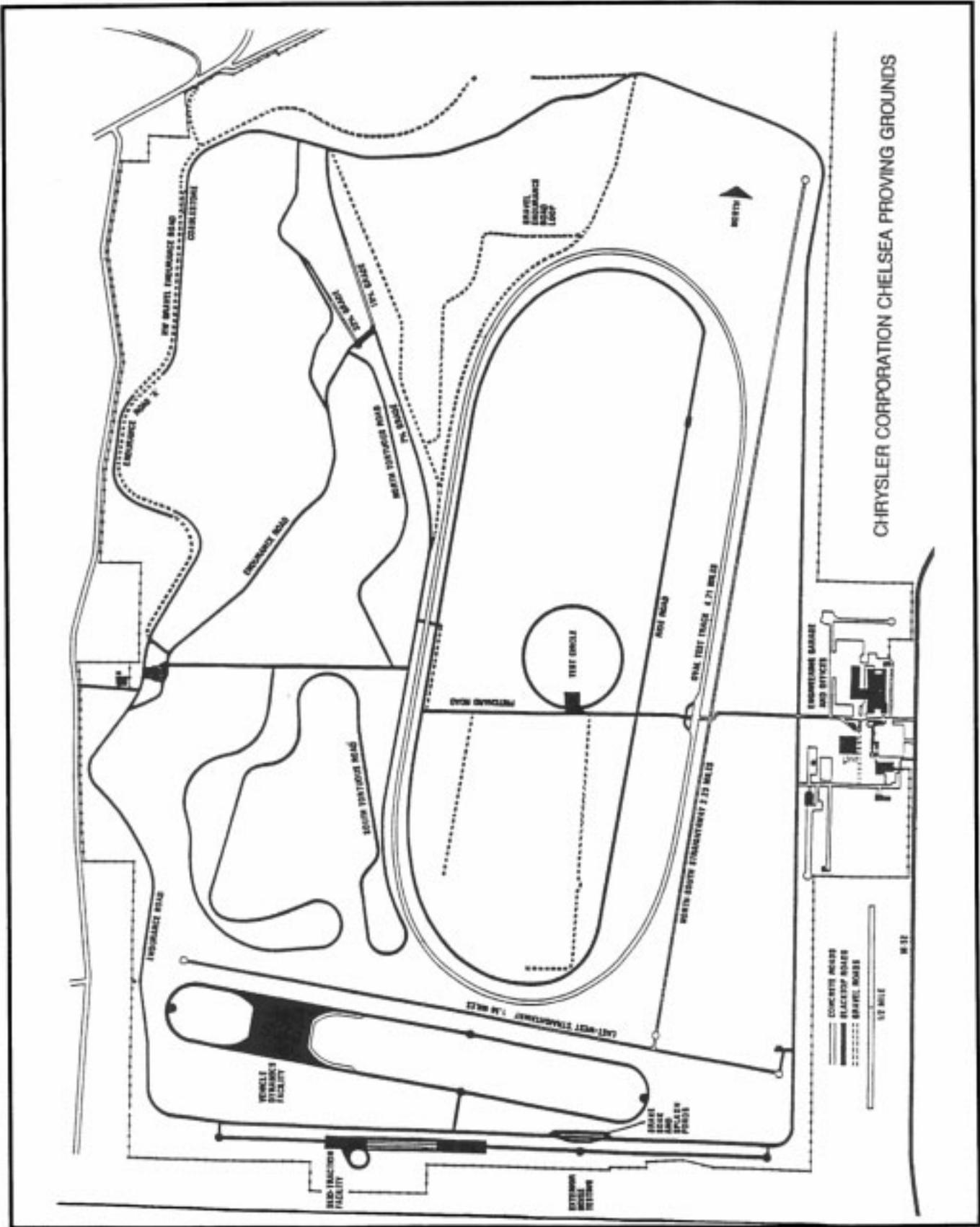
Using a DLS Smart Sensor – Optical non-contact Speed and Distance Sensor in conjunction with a lap top computer, each vehicle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and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

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

MAKE & MODEL: Ford Interceptor 4.6L 3.27

BEGINNING TIME: 11:39 a.m.

WIND VELOCITY: 7.2 mph

WIND DIRECTION: 169°

TEMPERATURE: 65.7°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	8.82	8.61	8.82	8.58	8.71
0 – 80	16.4 sec.	14.25	13.95	14.51	14.06	14.19
0 – 100	27.1 sec.	24.45	23.15	25.04	23.40	24.01

DISTANCE TO REACH: 110 MPH .63 mile

120 MPH 1.00 mile

TOP SPEED ATTAINED: 130 mph

MAKE & MODEL: Ford Police Interceptor 4.6L 3.55

BEGINNING TIME: 12:48 p.m.

WIND VELOCITY: 5.9 mph

WIND DIRECTION: 140°

TEMPERATURE: 69.3°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	8.98	8.61	8.68	8.60	8.72
0 – 80	16.4 sec.	14.82	14.22	14.55	14.09	14.42
0 – 100	27.1 sec.	24.8	23.39	24.73	23.10	24.01

DISTANCE TO REACH: 110 MPH .61 mile

120 MPH N/A

TOP SPEED ATTAINED: 119 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

MAKE & MODEL: Dodge Magnum 3.5L

BEGINNING TIME: 10:40 a.m.

WIND VELOCITY: 2.9 mph

WIND DIRECTION: 160°

TEMPERATURE: 62.8°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	9.11	8.92	8.97	8.95	8.99
0 – 80	16.4 sec.	14.98	14.71	14.82	14.70	14.80
0 – 100	27.1 sec.	25.59	24.51	25.13	24.55	24.95

DISTANCE TO REACH: 110 MPH .65 mile

120 MPH .95 mile

TOP SPEED ATTAINED: 131 mph

MAKE & MODEL: Dodge Magnum 5.7L

BEGINNING TIME: 2:42 p.m.

WIND VELOCITY: 8 mph

WIND DIRECTION: 161°

TEMPERATURE: 71.2°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	6.55	6.49	6.59	6.53	6.54
0 – 80	16.4 sec.	10.95	10.70	10.85	10.73	10.81
0 – 100	27.1 sec.	16.78	16.43	16.63	16.28	16.53

DISTANCE TO REACH: 110 MPH .39 mile

120 MPH .56 mile

TOP SPEED ATTAINED: 131 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

MAKE & MODEL: Dodge Charger 3.5L

BEGINNING TIME: 10:17 a.m.

WIND VELOCITY: 4.8 mph

WIND DIRECTION: 145°

TEMPERATURE: 60.6°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	8.94	8.82	8.83	8.72	8.83
0 – 80	16.4 sec.	14.84	14.53	14.44	14.27	14.52
0 – 100	27.1 sec.	25.25	23.72	24.10	23.45	24.13

DISTANCE TO REACH: 110 MPH .61 mile

120 MPH .87 mile

TOP SPEED ATTAINED: 132 mph

MAKE & MODEL: Dodge Charger 5.7L

BEGINNING TIME: 2:18 p.m.

WIND VELOCITY: 9.1 mph

WIND DIRECTION: 174°

TEMPERATURE: 72°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	6.59	6.56	6.50	6.48	6.53
0 – 80	16.4 sec.	10.95	10.65	10.66	10.51	10.69
0 – 100	27.1 sec.	16.80	16.15	16.28	16.06	16.32

DISTANCE TO REACH: 110 MPH .37 mile

120 MPH .52 mile

TOP SPEED ATTAINED: 148 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

MAKE & MODEL: Chevrolet Impala 9C1

BEGINNING TIME: 11:14 a.m.

WIND VELOCITY: 4.7 mph

WIND DIRECTION: 115°

TEMPERATURE: 66.1°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.6 sec	8.94	8.74	8.71	8.89	8.82
0 – 80	16.4 sec.	14.48	14.03	14.15	14.17	14.21
0 – 100	27.1 sec.	24.78	23.68	24.41	23.55	24.11

DISTANCE TO REACH: 110 MPH .61 mile

120 MPH .87 mile

TOP SPEED ATTAINED: 139 mph

MAKE & MODEL: Chevrolet Tahoe PPV

BEGINNING TIME: 12:13 p.m.

WIND VELOCITY: 8.9 mph

WIND DIRECTION: 195°

TEMPERATURE: 68.6°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	10.0 sec	8.82	8.64	8.64	8.55	8.66
0 – 80	16.0 sec.	14.64	14.10	14.40	13.97	14.28
0 – 100	27.0 sec.	25.64	23.86	25.28	23.69	24.52

DISTANCE TO REACH: 110 MPH .61 mile

120 MPH .88 mile

TOP SPEED ATTAINED: 136 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

MAKE & MODEL: Chevrolet Tahoe PPV E85

BEGINNING TIME: 1:34 p.m.

WIND VELOCITY: 7.8 mph

WIND DIRECTION: 174°

TEMPERATURE: 70.5°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	10.0 sec	8.64	8.41	8.54	8.38	8.49
0 – 80	16.0 sec.	14.22	13.71	13.97	13.51	13.85
0 – 100	27.0 sec.	24.17	22.74	24.37	22.52	23.45

DISTANCE TO REACH: 110 MPH .56 mile

120 MPH .79 mile

TOP SPEED ATTAINED: 137 mph

*Michigan State Police minimum requirement.



SUMMARY OF ACCELERATION AND TOP SPEED

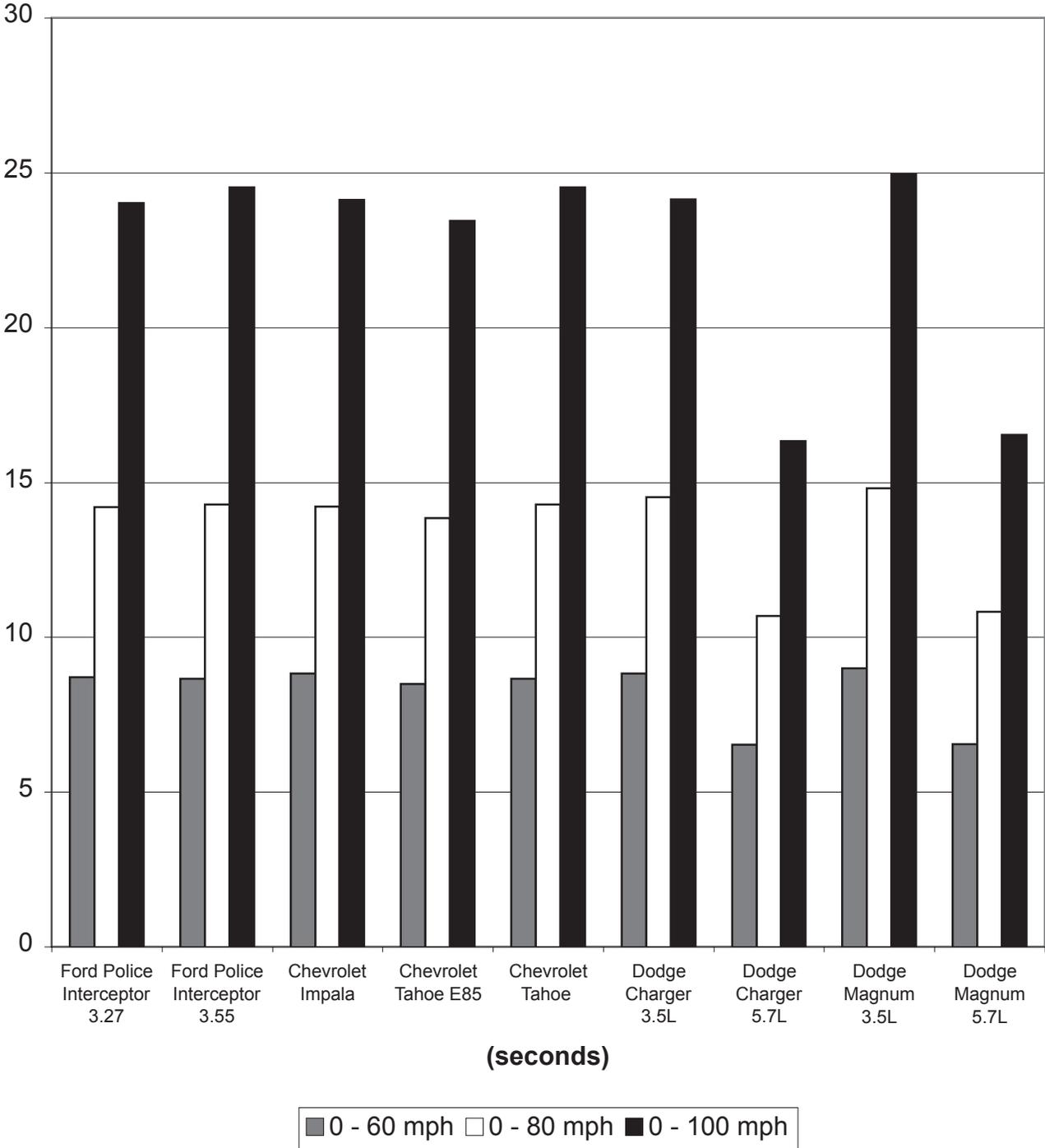
ACCELERATION*	Ford Police Interceptor 4.6 L 3.27	Dodge Charger 3.5 L	Chevrolet Impala 9C1 3.9 L	Dodge Magnum 3.5 L	Chevrolet Tahoe PPV
0 – 20 mph (sec.)	1.81	1.96	1.95	2.02	2.07
0 – 30 mph (sec.)	3.11	3.32	3.21	3.39	3.32
0 – 40 mph (sec.)	4.48	4.77	4.56	4.86	4.61
0 – 50 mph (sec.)	6.43	6.53	6.36	6.67	6.44
0 – 60 mph (sec.)	8.71	8.83	8.82	8.99	8.66
0 – 70 mph (sec.)	11.16	11.51	11.35	11.71	11.01
0 – 80 mph (sec.)	14.19	14.52	14.21	14.80	14.28
0 – 90 mph (sec.)	18.74	18.93	18.26	19.39	19.10
0 – 100 mph (sec.)	24.01	24.13	24.11	24.95	24.52
TOP SPEED (mph)	130	132	139	131	136
DISTANCE TO REACH					
110 mph (miles)	.63	.61	.61	.65	.61
120 mph (miles)	1.00	.87	.87	.95	.88
QUARTER MILE					
Time (sec.)	16.58	16.77	16.65	16.89	16.64
Speed (miles)	85.75	85.33	87.13	84.73	84.80

SUMMARY OF ACCELERATION AND TOP SPEED

ACCELERATION*	Ford Police Interceptor 4.6 L 3.55	Dodge Charger 5.7 L	Dodge Magnum 5.7 L	Chevrolet Tahoe PPV E85
0 – 20 mph (sec.)	1.84	1.57	1.55	2.04
0 – 30 mph (sec.)	3.10	2.57	2.56	3.26
0 – 40 mph (sec.)	4.52	3.57	3.57	4.52
0 – 50 mph (sec.)	6.55	4.97	5.01	6.34
0 – 60 mph (sec.)	8.72	6.53	6.54	8.49
0 – 70 mph (sec.)	11.14	8.24	8.30	10.74
0 – 80 mph (sec.)	14.42	10.69	10.81	13.85
0 – 90 mph (sec.)	18.83	13.36	13.48	18.40
0 – 100 mph (sec.)	24.01	16.32	16.53	23.45
TOP SPEED (mph)	119	148	131	137
DISTANCE TO REACH				
110 mph (miles)	.61	.37	.39	.56
120 mph (miles)	N/A	.52	.56	.79
QUARTER MILE				
Time (sec.)	16.63	14.99	15.03	16.50
Speed (miles)	85.10	95.68	95.23	85.80

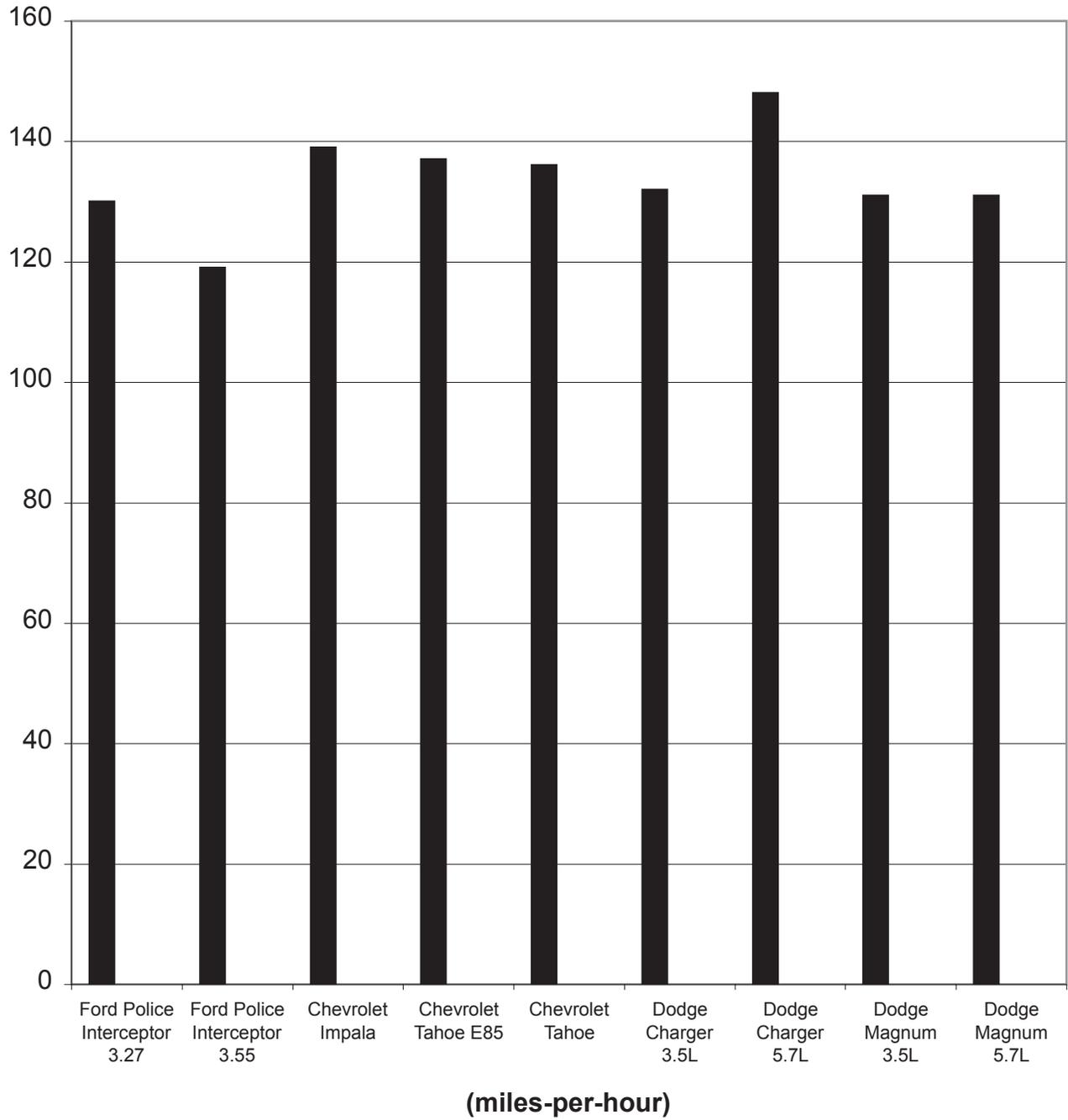
2007 ACCELERATION COMPARISON

ACCELERATION TIMES



2007 TOP SPEED COMPARISON

TOP SPEED ATTAINED



BRAKE TESTING

BRAKE TEST OBJECTIVE

Determine the deceleration rate attained by each test vehicle on twelve 60 – 0 mph impending skid (threshold) stops, with ABS in operation if the vehicle is so equipped. Each vehicle is scored on the average deceleration rate it attains.

BRAKE TEST METHODOLOGY

Each vehicle makes two decelerations at specific predetermined points on the test road from 90 – 0 mph at 22 ft/s², with the driver using a decelerometer to maintain the deceleration rate. Immediately after these “heat-up” stops are completed, the vehicle is turned around and makes six measured 60 – 0 mph impending skid (threshold) stops with ABS in operation, if so equipped, at specific predetermined points. Following a four (4) minute heat soak, 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 twelve total stops is used to calculate the average deceleration rate which is the vehicle’s score for this test.

DECELERATION RATE FORMULA

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

EXAMPLE:

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

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

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

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

EXAMPLE:

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

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

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 12:58 p.m.

TEMPERATURE: 69.0°F

MAKE & MODEL: Ford Police Interceptor 4.6L 3.27

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.9 mph	141.0 feet	27.41 ft/s ²
Stop #2	60.0 mph	144.8 feet	26.75 ft/s ²
Stop #3	60.3 mph	143.2 feet	27.33 ft/s ²
Stop #4	60.2 mph	144.5 feet	27.02 ft/s ²
Stop #5	60.2 mph	142.6 feet	27.35 ft/s ²
Stop #6	59.7 mph	143.1 feet	26.76 ft/s ²

AVERAGE DECELERATION RATE

27.10 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.5 mph	143.8 feet	27.36 ft/s ²
Stop #2	60.0 mph	140.2 feet	27.63 ft/s ²
Stop #3	59.8 mph	140.3 feet	27.40 ft/s ²
Stop #4	59.9 mph	144.3 feet	26.76 ft/s ²
Stop #5	60.2 mph	140.8 feet	27.65 ft/s ²
Stop #6	60.2 mph	144.4 feet	26.98 ft/s ²

AVERAGE DECELERATION RATE

27.30 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

27.20 ft/s²

Projected Stopping Distance from 60.0 mph

142.4

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 2:44 p.m.

TEMPERATURE: 71.2°F

MAKE & MODEL: Ford Police Interceptor 4.6L 3.55

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.6 mph	146.5 feet	26.99 ft/s ²
Stop #2	60.0 mph	147.1 feet	26.35 ft/s ²
Stop #3	59.4 mph	139.2 feet	27.29 ft/s ²
Stop #4	60.8 mph	148.7 feet	26.76 ft/s ²
Stop #5	60.5 mph	146.2 feet	26.92 ft/s ²
Stop #6	60.7 mph	150.6 feet	26.31 ft/s ²

AVERAGE DECELERATION RATE

26.77 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.3 mph	145.4 feet	26.91 ft/s ²
Stop #2	60.7 mph	147.9 feet	26.79 ft/s ²
Stop #3	60.2 mph	142.7 feet	27.29 ft/s ²
Stop #4	60.9 mph	146.7 feet	27.20 ft/s ²
Stop #5	60.8 mph	144.9 feet	27.39 ft/s ²
Stop #6	60.9 mph	142.7 feet	27.97 ft/s ²

AVERAGE DECELERATION RATE

27.26 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

27.02 ft/s²

Projected Stopping Distance from 60.0 mph

143.3

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 12:04 p.m.

TEMPERATURE: 67.8°F

MAKE & MODEL: Chevrolet Impala 9C1 3.9L

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.2 mph	140.6 feet	27.70 ft/s ²
Stop #2	60.5 mph	143.2 feet	27.48 ft/s ²
Stop #3	60.5 mph	142.1 feet	27.75 ft/s ²
Stop #4	60.3 mph	139.6 feet	28.01 ft/s ²
Stop #5	60.7 mph	141.0 feet	28.07 ft/s ²
Stop #6	60.7 mph	146.2 feet	27.12 ft/s ²

AVERAGE DECELERATION RATE

27.69 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.1 mph	141.0 feet	27.54 ft/s ²
Stop #2	60.4 mph	146.1 feet	26.83 ft/s ²
Stop #3	60.4 mph	139.8 feet	28.11 ft/s ²
Stop #4	60.5 mph	147.0 feet	26.81 ft/s ²
Stop #5	60.2 mph	140.0 feet	27.84 ft/s ²
Stop #6	60.5 mph	143.7 feet	27.38 ft/s ²

AVERAGE DECELERATION RATE

27.42 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

27.55 ft/s²

Projected Stopping Distance from 60.0 mph

140.5

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 11:09 a.m.

TEMPERATURE: 66.1°F

MAKE & MODEL: Dodge Charger 3.5L

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 –0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 – mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.4 mph	133.9 feet	29.33 ft/s ²
Stop #2	60.9 mph	140.7 feet	28.33 ft/s ²
Stop #3	60.0 mph	135.7 feet	28.55 ft/s ²
Stop #4	61.4 mph	139.2 feet	29.14 ft/s ²
Stop #5	61.3 mph	136.4 feet	29.58 ft/s ²
Stop #6	59.5 mph	132.2 feet	28.79 ft/s ²

AVERAGE DECELERATION RATE

28.95 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 –0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 – mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.6 mph	133.0 feet	29.68 ft/s ²
Stop #2	60.5 mph	132.6 feet	29.70 ft/s ²
Stop #3	60.9 mph	134.7 feet	29.66 ft/s ²
Stop #4	59.9 mph	127.2 feet	30.32 ft/s ²
Stop #5	61.3 mph	135.5 feet	29.83 ft/s ²
Stop #6	60.5 mph	134.0 feet	29.34 ft/s ²

AVERAGE DECELERATION RATE

29.75 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

29.35 ft/s²

Projected Stopping Distance from 60.0 mph 131.9

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 3:33 p.m.

TEMPERATURE: 72.7°F

MAKE & MODEL: Dodge Charger 5.7L

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.6 mph	135.5 feet	29.18 ft/s ²
Stop #2	60.0 mph	132.4 feet	29.25 ft/s ²
Stop #3	60.1 mph	131.4 feet	29.52 ft/s ²
Stop #4	61.0 mph	134.6 feet	29.73 ft/s ²
Stop #5	61.4 mph	138.8 feet	29.24 ft/s ²
Stop #6	61.1 mph	139.0 feet	28.90 ft/s ²

AVERAGE DECELERATION RATE

29.30 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.4 mph	135.5 feet	28.95 ft/s ²
Stop #2	60.3 mph	134.2 feet	29.17 ft/s ²
Stop #3	60.6 mph	138.9 feet	28.46 ft/s ²
Stop #4	60.9 mph	133.2 feet	29.92 ft/s ²
Stop #5	61.0 mph	140.6 feet	28.44 ft/s ²
Stop #6	60.5 mph	135.3 feet	29.05 ft/s ²

AVERAGE DECELERATION RATE

29.00 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

29.15 ft/s²

Projected Stopping Distance from 60.0 mph

132.8

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 11:36 a.m.

TEMPERATURE: 66.9°F

MAKE & MODEL: Dodge Magnum 3.5L

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.3 mph	130.2 feet	30.07 ft/s ²
Stop #2	60.5 mph	128.7 feet	30.57 ft/s ²
Stop #3	61.2 mph	133.3 feet	30.23 ft/s ²
Stop #4	61.1 mph	134.7 feet	29.77 ft/s ²
Stop #5	59.8 mph	130.2 feet	29.53 ft/s ²
Stop #6	60.9 mph	135.4 feet	29.46 ft/s ²

AVERAGE DECELERATION RATE

29.94 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.2 mph	132.8 feet	29.35 ft/s ²
Stop #2	60.7 mph	130.2 feet	30.46 ft/s ²
Stop #3	60.0 mph	130.3 feet	29.68 ft/s ²
Stop #4	60.9 mph	134.3 feet	29.73 ft/s ²
Stop #5	60.4 mph	133.7 feet	29.34 ft/s ²
Stop #6	60.5 mph	133.5 feet	29.53 ft/s ²

AVERAGE DECELERATION RATE

29.68 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

29.81 ft/s²

Projected Stopping Distance from 60.0 mph 129.9

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 4:15 p.m.

TEMPERATURE: 72.4°F

MAKE & MODEL: Dodge Magnum 5.7L

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.9 mph	136.3 feet	29.23 ft/s ²
Stop #2	61.1 mph	133.6 feet	30.09 ft/s ²
Stop #3	61.5 mph	136.9 feet	29.74 ft/s ²
Stop #4	60.5 mph	135.0 feet	29.18 ft/s ²
Stop #5	61.0 mph	136.0 feet	29.40 ft/s ²
Stop #6	60.8 mph	136.2 feet	29.23 ft/s ²

AVERAGE DECELERATION RATE

29.48 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	59.8 mph	133.3 feet	28.85 ft/s ²
Stop #2	60.4 mph	132.9 feet	29.51 ft/s ²
Stop #3	60.5 mph	137.6 feet	28.61 ft/s ²
Stop #4	60.4 mph	136.3 feet	28.80 ft/s ²
Stop #5	60.8 mph	137.0 feet	28.99 ft/s ²
Stop #6	60.4 mph	135.5 feet	28.96 ft/s ²

AVERAGE DECELERATION RATE

28.95 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

29.21 ft/s²

Projected Stopping Distance from 60.0 mph

132.5

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 1:37 p.m.

TEMPERATURE: 70.5°F

MAKE & MODEL: Chevrolet Tahoe 5.3L 2WD

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.8 mph	140.9 feet	28.17 ft/s ²
Stop #2	60.3 mph	140.6 feet	27.76 ft/s ²
Stop #3	60.3 mph	138.9 feet	28.13 ft/s ²
Stop #4	60.8 mph	143.1 feet	27.75 ft/s ²
Stop #5	60.5 mph	140.0 feet	28.12 ft/s ²
Stop #6	60.6 mph	141.6 feet	27.88 ft/s ²

AVERAGE DECELERATION RATE

27.97 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.4 mph	140.4 feet	27.96 ft/s ²
Stop #2	60.5 mph	139.3 feet	28.27 ft/s ²
Stop #3	60.4 mph	138.1 feet	28.44 ft/s ²
Stop #4	60.2 mph	141.6 feet	27.54 ft/s ²
Stop #5	60.0 mph	138.3 feet	27.95 ft/s ²
Stop #6	60.9 mph	140.6 feet	28.35 ft/s ²

AVERAGE DECELERATION RATE

28.08 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

28.03 ft/s²

Projected Stopping Distance from 60.0 mph

138.2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds

DATE: September 16, 2006

BEGINNING Time: 1:37 p.m.

TEMPERATURE: 70.5°F

MAKE & MODEL: Chevrolet Tahoe 5.3L 2WD E85

BRAKE SYSTEM: Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.8 mph	140.9 feet	28.17 ft/s ²
Stop #2	60.3 mph	140.6 feet	27.76 ft/s ²
Stop #3	60.3 mph	138.9 feet	28.13 ft/s ²
Stop #4	60.8 mph	143.1 feet	27.75 ft/s ²
Stop #5	60.5 mph	140.0 feet	28.12 ft/s ²
Stop #6	60.6 mph	141.6 feet	27.88 ft/s ²

AVERAGE DECELERATION RATE

27.97 ft/s²

HEAT SOAK (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 → 0 mph decelerations @ 22 ft.sec.²)

TEST: (Six 60 → mph impending skid (ABS) maximum deceleration rate stops)

	Initial Velocity	Stopping Distance	Deceleration Rate
Stop #1	60.4 mph	140.4 feet	27.96 ft/s ²
Stop #2	60.5 mph	139.3 feet	28.27 ft/s ²
Stop #3	60.4 mph	138.1 feet	28.44 ft/s ²
Stop #4	60.2 mph	141.6 feet	27.54 ft/s ²
Stop #5	60.0 mph	138.3 feet	27.95 ft/s ²
Stop #6	60.9 mph	140.6 feet	28.35 ft/s ²

AVERAGE DECELERATION RATE

28.08 ft/s²

Phase III

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

OVERALL AVERAGE DECEL. RATE:

28.03 ft/s²

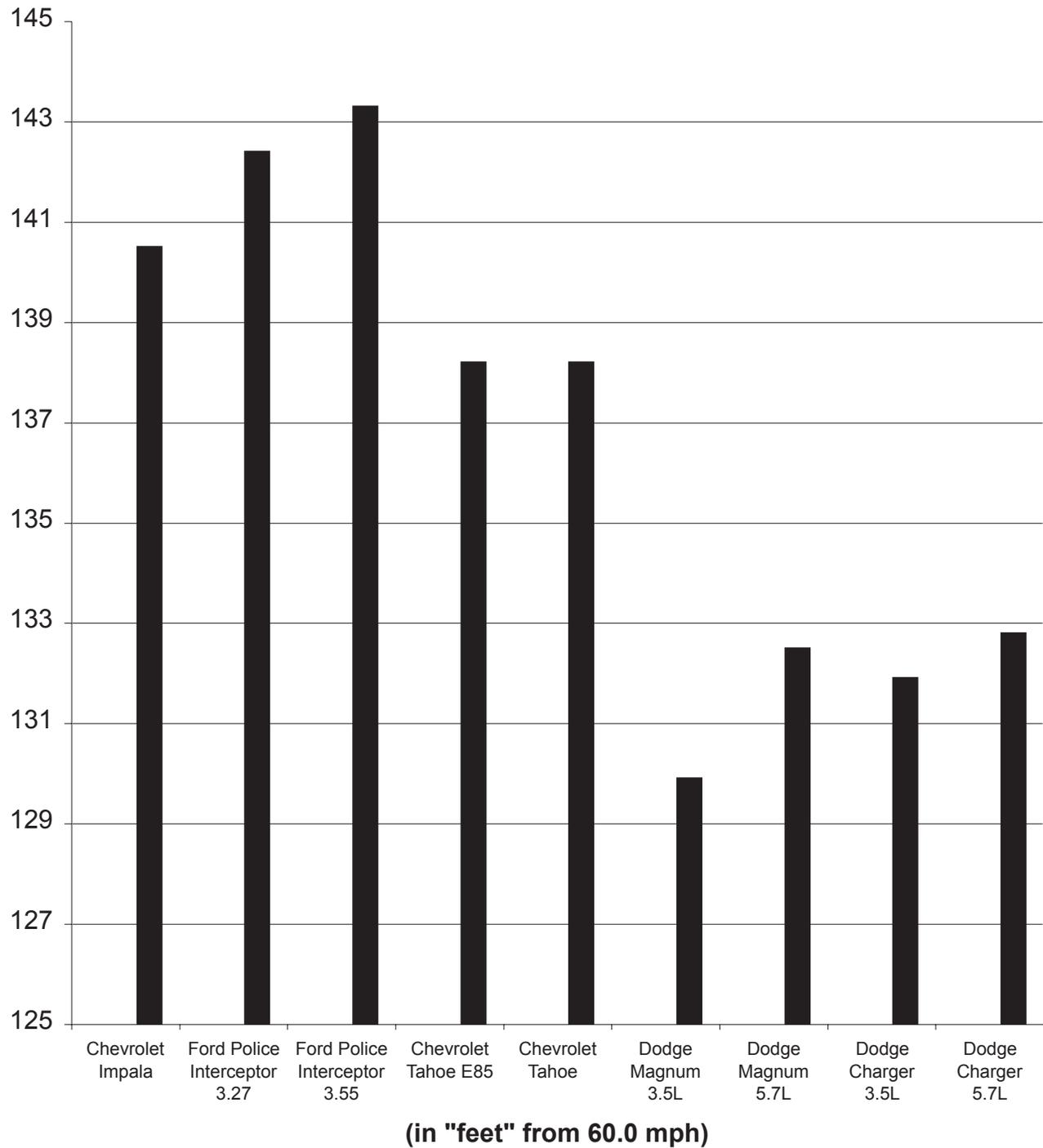
Projected Stopping Distance from 60.0 mph

138.2



2007 Brake Testing Comparison

STOPPING DISTANCE



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 the Canfield Equipment Service, Inc., 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

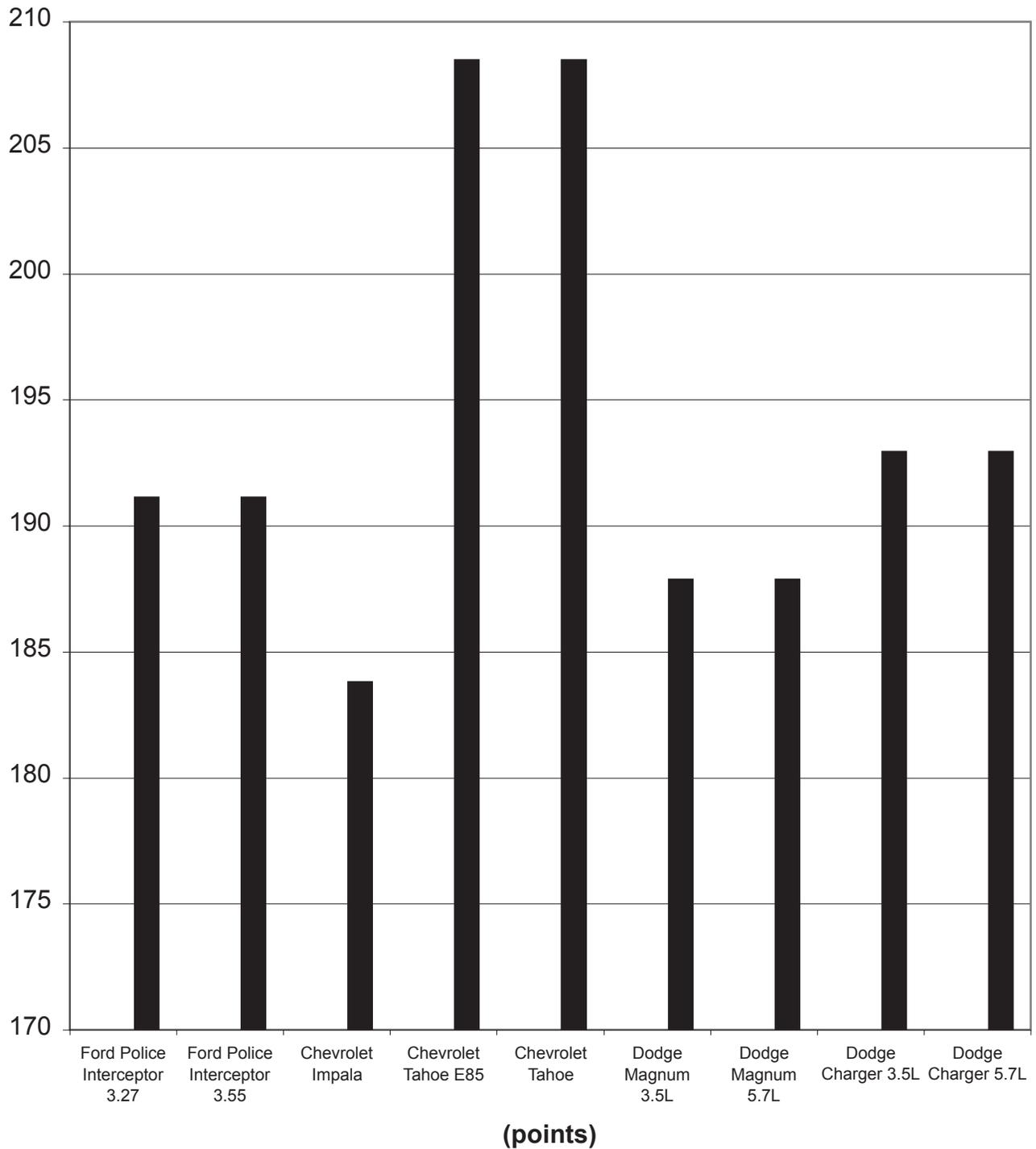
ERGONOMICS	Ford Police Interceptor 3.27	Dodge Charger 3.5 L	Chevrolet Impala 9C1	Dodge Magnum 3.5 L	Chevrolet Tahoe PPV
FRONT SEAT					
Padding	6.89	6.11	6.89	6.11	7.33
Depth of Bucket Seat	6.44	5.78	5.89	5.78	6.78
Adjustability – Front to Rear	7.11	6.89	6.89	6.78	6.67
Upholstery	6.33	6.44	6.44	6.56	7.44
Bucket Seat Design	5.89	6.11	6.11	6.22	6.67
Headroom	7.78	7.78	6.89	7.89	8.89
Seatbelts	6.11	6.78	7.11	6.78	6.89
Ease of Entry and Exit	6.56	7.22	6.33	7.11	8.22
Overall Comfort Rating	6.44	6.78	6.56	6.89	7.67
REAR SEAT					
Leg room – Front seat back	4.44	5.56	2.67	6.00	6.44
Ease of Entry and Exit	4.22	5.22	3.33	5.67	6.56
INSTRUMENTATION					
Clarity	6.22	6.56	6.78	6.22	7.44
Placement	6.56	6.67	8.00	6.33	7.44
VEHICLE CONTROLS					
Pedals, Size and Position	6.89	6.56	6.89	6.44	7.56
Power Window Switch	7.22	7.56	7.44	7.00	8.00
Inside Door Lock Switch	7.11	7.56	6.00	7.44	7.22
Automatic Door Lock Switch	6.78	6.00	5.67	6.00	7.00
Outside Mirror Controls	6.67	6.67	6.00	6.22	7.67
Steering Wheel, Size, Tilt Release, and Surface	7.00	6.00	7.22	6.33	7.67
Heat/AC Vent Placement and Adjustability	7.33	7.56	6.89	7.33	7.00
VISIBILITY					
Front (Windshield)	8.56	8.00	7.67	7.89	8.33
Rear (Back Window)	7.33	6.22	6.33	4.44	6.22
Left Rear Quarter	7.33	5.78	6.78	5.33	6.22
Right Rear Quarter	7.11	5.67	6.11	4.67	5.33
Outside Rear View Mirrors	6.78	6.89	5.33	6.44	8.44
COMMUNICATIONS					
Dashboard Accessibility	8.00	9.60	8.73	9.67	9.40
Trunk Accessibility	8.00	9.33	9.07	8.87	8.53
Engine Compartment	8.00	9.67	7.78	9.44	9.44
TOTAL SCORES	191.11	192.93	183.80	187.87	208.48

ERGONOMICS AND COMMUNICATIONS

ERGONOMICS	Ford Police Interceptor 3.55	Dodge Charger 5.7 L	Dodge Magnum 5.7 L	Chevrolet Tahoe PPV E85
FRONT SEAT				
Padding	6.89	6.11	6.11	7.33
Depth of Bucket Seat	6.44	5.78	5.78	6.78
Adjustability – Front to Rear	7.11	6.89	6.78	6.67
Upholstery	6.33	6.44	6.56	7.44
Bucket Seat Design	5.89	6.11	6.22	6.67
Headroom	7.78	7.78	7.89	8.89
Seatbelts	6.11	6.78	6.78	6.89
Ease of Entry and Exit	6.56	7.22	7.11	8.22
Overall Comfort Rating	6.44	6.78	6.89	7.67
REAR SEAT				
Leg room – Front seat back	4.44	5.56	6.00	6.44
Ease of Entry and Exit	4.22	5.22	5.67	6.56
INSTRUMENTATION				
Clarity	6.22	6.56	6.22	7.44
Placement	6.56	6.67	6.33	7.44
VEHICLE CONTROLS				
Pedals, Size and Position	6.89	6.56	6.44	7.56
Power Window Switch	7.22	7.56	7.00	8.00
Inside Door Lock Switch	7.11	7.56	7.44	7.22
Automatic Door Lock Switch	6.78	6.00	6.00	7.00
Outside Mirror Controls	6.67	6.67	6.22	7.67
Steering Wheel, Size, Tilt Release, and Surface	7.00	6.00	6.33	7.67
Heat/AC Vent Placement and Adjustability	7.33	7.56	7.33	7.00
VISIBILITY				
Front (Windshield)	8.56	8.00	7.89	8.33
Rear (Back Window)	7.33	6.22	4.44	6.22
Left Rear Quarter	7.33	5.78	5.33	6.22
Right Rear Quarter	7.11	5.67	4.67	5.33
Outside Rear View Mirrors	6.78	6.89	6.44	8.44
COMMUNICATIONS				
Dashboard Accessibility	8.00	9.60	9.67	9.40
Trunk Accessibility	8.00	9.33	8.87	8.53
Engine Compartment	8.00	9.67	9.44	9.44
TOTAL SCORES	191.11	192.93	187.87	208.48

2007 ERGONOMICS/COMMUNICATIONS

VEHICLE SCORES



FUEL ECONOMY

TEST OBJECTIVE

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

TEST METHODOLOGY

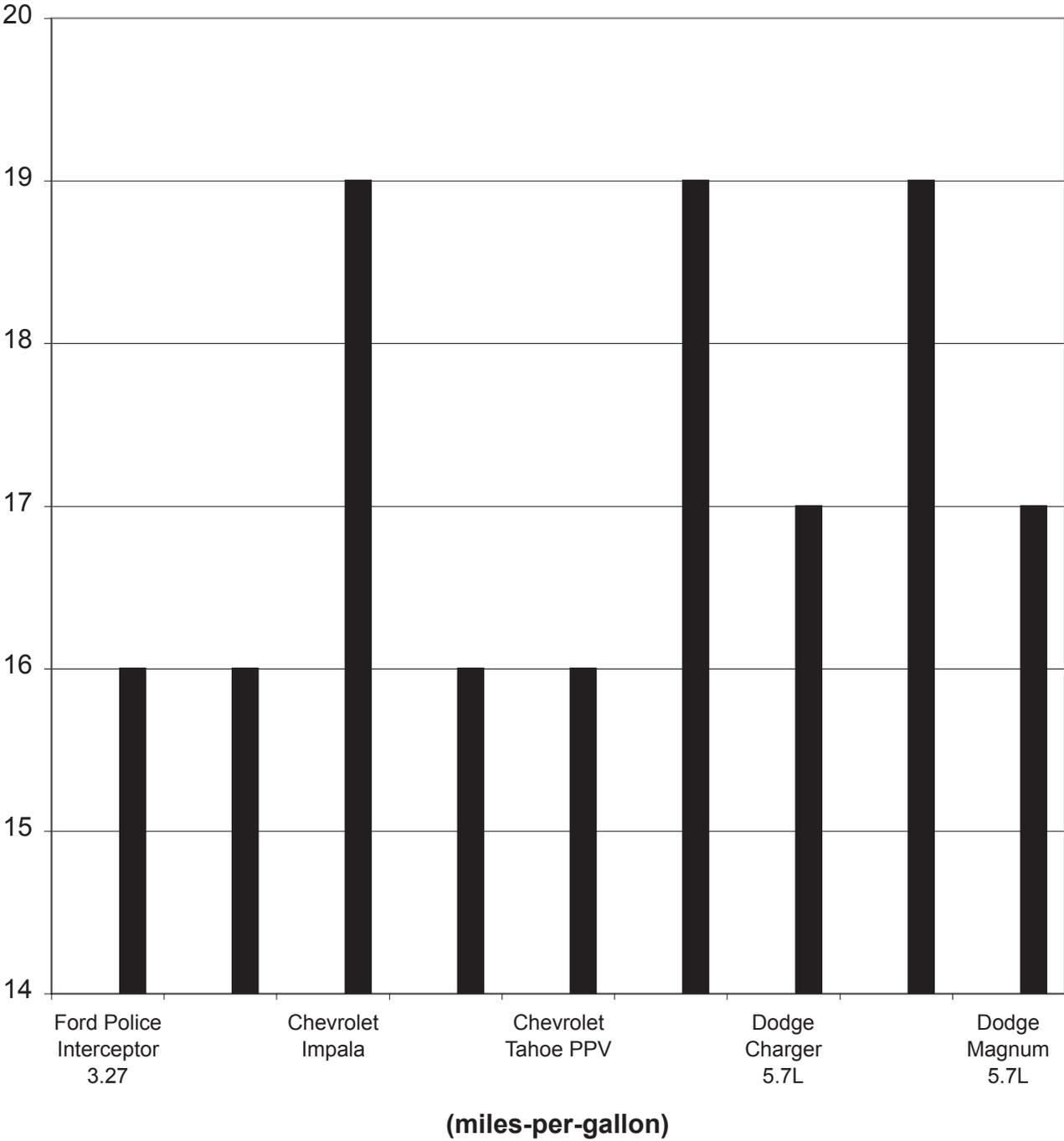
The vehicles will be scored based on estimates for city fuel economy to the nearest 1/10th mile per gallon (mpg) developed from data supplied by the vehicle manufacturer and certified by the Environmental Protection Agency.

Vehicles Make/Model/Engine	E.P.A. Miles Per Gallon		
	City*	Highway	Combined
Ford Police Interceptor 3.27 4.6L SPFI	16 (15.6)	23	18
Ford Police Interceptor 3.55 4.6L SPFI	16 (15.6)	23	18
Chevrolet Impala 3.9L SPFI	19 (19.2)	27	22
Dodge Charger 3.5L SPFI	19 (18.8)	27	22
Dodge Charger 5.7L SPFI	17 (16.9)	25	20
Dodge Magnum 3.5L SPFI	19 (18.8)	27	22
Dodge Magnum 5.7L SPFI	17 (16.9)	25	20
Chevrolet Tahoe PPV E85 5.3L SPFI	16 (15.6)	20	17
Chevrolet Tahoe PPV 5.3L SPFI	16 (15.6)	20	17

*Scored on city mileage only to the nearest 1/10 mpg.

2007 FUEL ECONOMY COMPARISON

"CITY" EPA ESTIMATES



MICHIGAN STATE POLICE SCORING AND BID ADJUSTMENT METHODOLOGY*

STEP I: RAW SCORES

Raw scores are developed, through testing, for each vehicle in each of six evaluation categories. The raw scores are expressed in terms of seconds, feet per second², miles-per-hour, points, and miles-per-gallon.

VEHICLE DYNAM. (seconds)	BRAKING RATE (ft/sec ²)	ACCEL. (seconds)	TOP SPEED (mph)	ERGONOMICS & COMMUN. (points)	FUEL ECONOMY (mpg)
92.210	26.380	45.790	115.000	173.900	14.300

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"	115.000 .042
CAR "B"	118.800 .010
CAR "C"	117.900 .018
CAR "D"	120.000 0

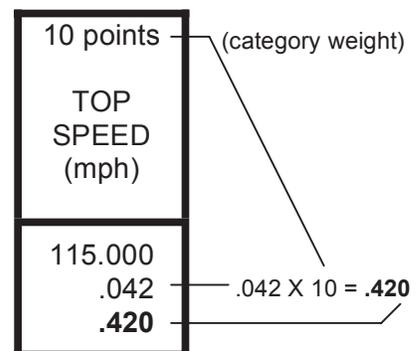
EXAMPLE:

$$\begin{array}{rclclcl} \text{Best Score} & & \text{Other Vehicle} & & \text{Absolute} & & \text{Best} & & \text{Deviation Factor} \\ \text{(Car "D")} & & \text{Score (Car "A")} & & \text{Difference} & & \text{Score} & & \text{(Car "A")} \\ 120.000 & - & 115.000 & = & 5 & / & 120.000 & = & \mathbf{.042} \end{array}$$

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.

$$\begin{array}{l} \text{RAW SCORE} \\ \text{DEVIATION FACTOR} \\ \text{WEIGHTED CATEGORY SCORE} \end{array}$$



*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"	92.210 .018 .540	45.790 .163 4.075	26.380 0 0	115.000 .042 .420	173.900 .184 1.840	14.300 0 0	6.875

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 \$15,238.00, which results in a bid adjustment figure of **\$152.38**.

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		=
6.875	\$152.38	\$1,047.61

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
+		=
\$955.42	\$15,473.00	\$16,520.61

PERFORMANCE COMPARISONS OF 2006 AND 2007 TEST VEHICLES

The following charts illustrate the scores achieved by each make and model of vehicle tested for model years 2006 and 2007. 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)

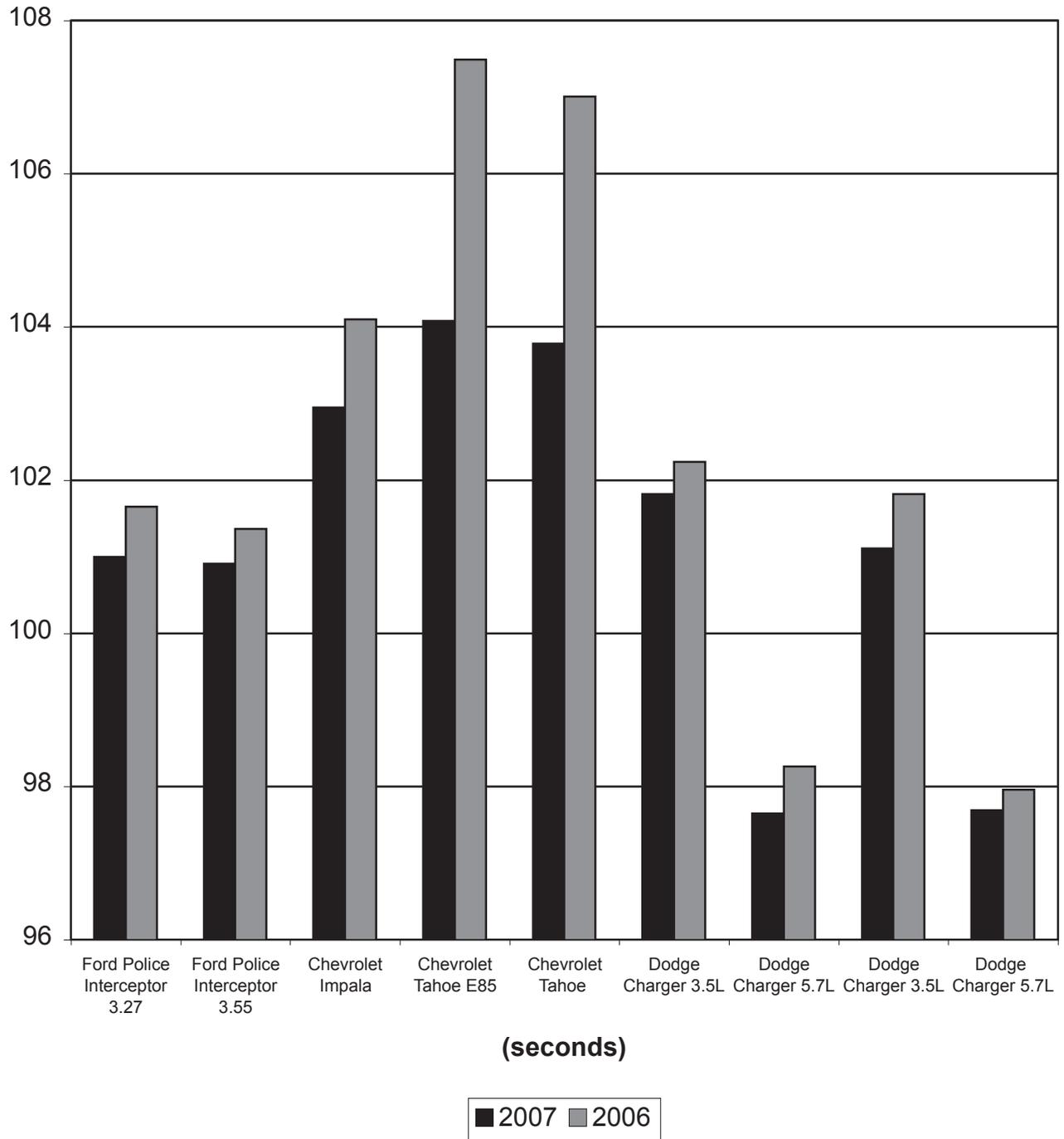
The reader should bear in mind the following information regarding variables when reviewing the 2006 – 2007 performance comparison charts. While as many variables as possible are eliminated from a given year's testing, those that occur over the span of a full year are sometimes impossible to eliminate.

The acceleration, top speed, and brake testing of both the 2006 and 2007 model year vehicles were conducted in the latter half of September. Temperatures on the test day in September of 2005 ranged between 59.0° F at the start of testing to a high of approximately 66.8° F during the afternoon. Temperatures during the testing this year varied, ranging between 56.0° F when testing started, to an afternoon high of 72.4° F. Such things as temperature, humidity, and barometric pressure affect the performance of internal combustion engines and brake components, and may cause minor differences from one year's evaluation to the next.

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

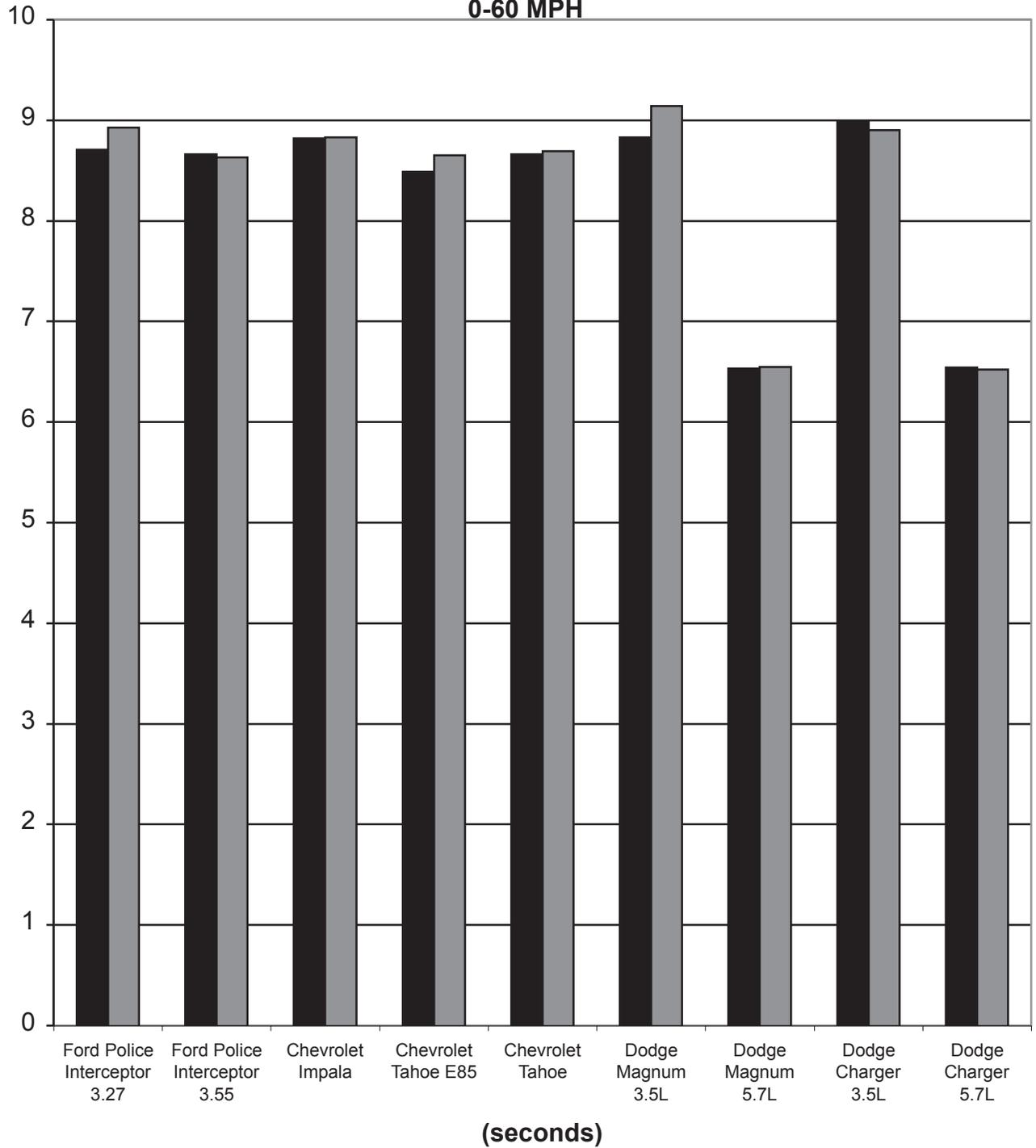
2006-07 Vehicle Dynamics Comparison

LAP TIMES



2006-07 ACCELERATION COMPARISON

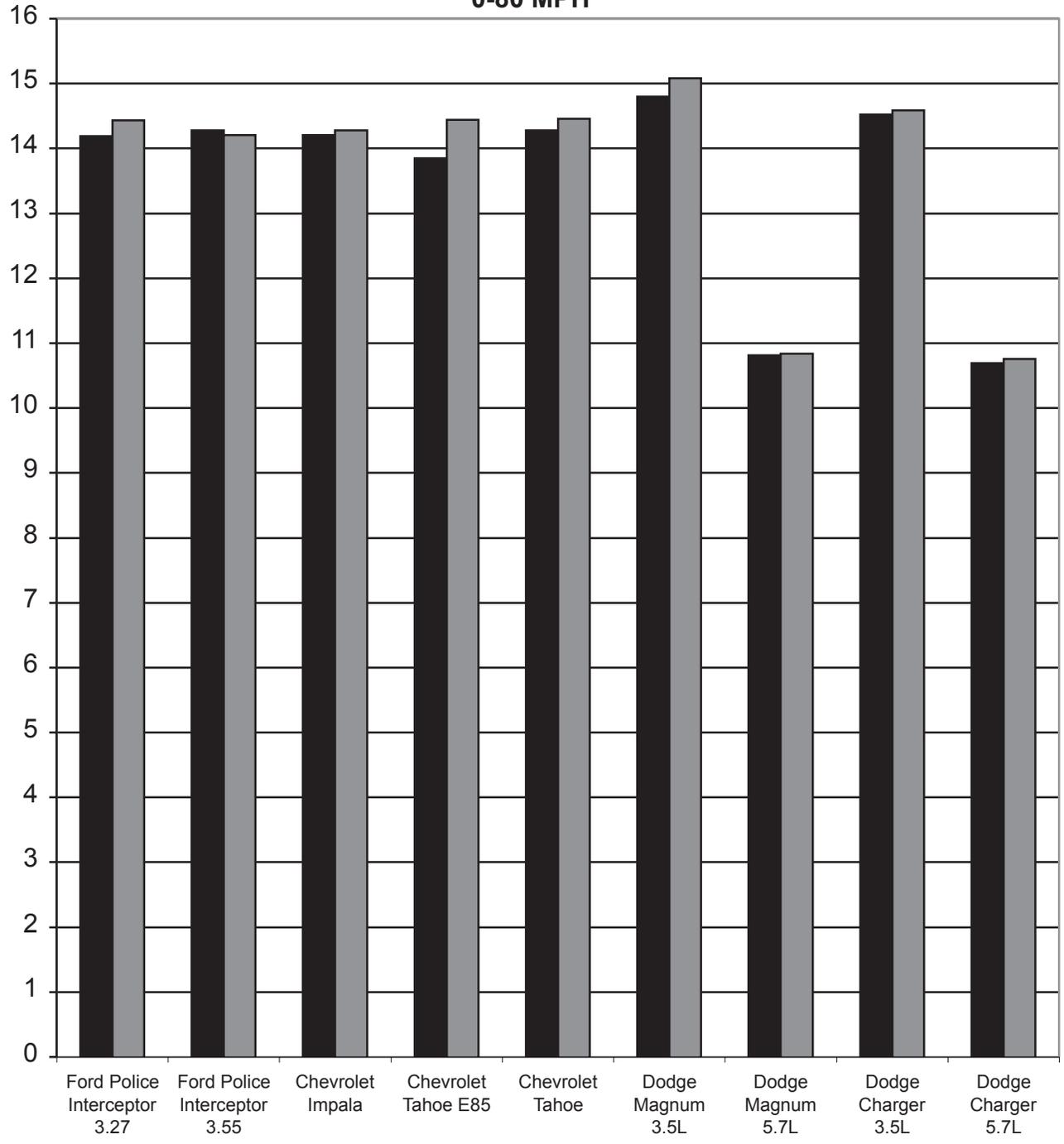
0-60 MPH



■ 2007 ■ 2006

2006-07 ACCELERATION COMPARISON

0-80 MPH

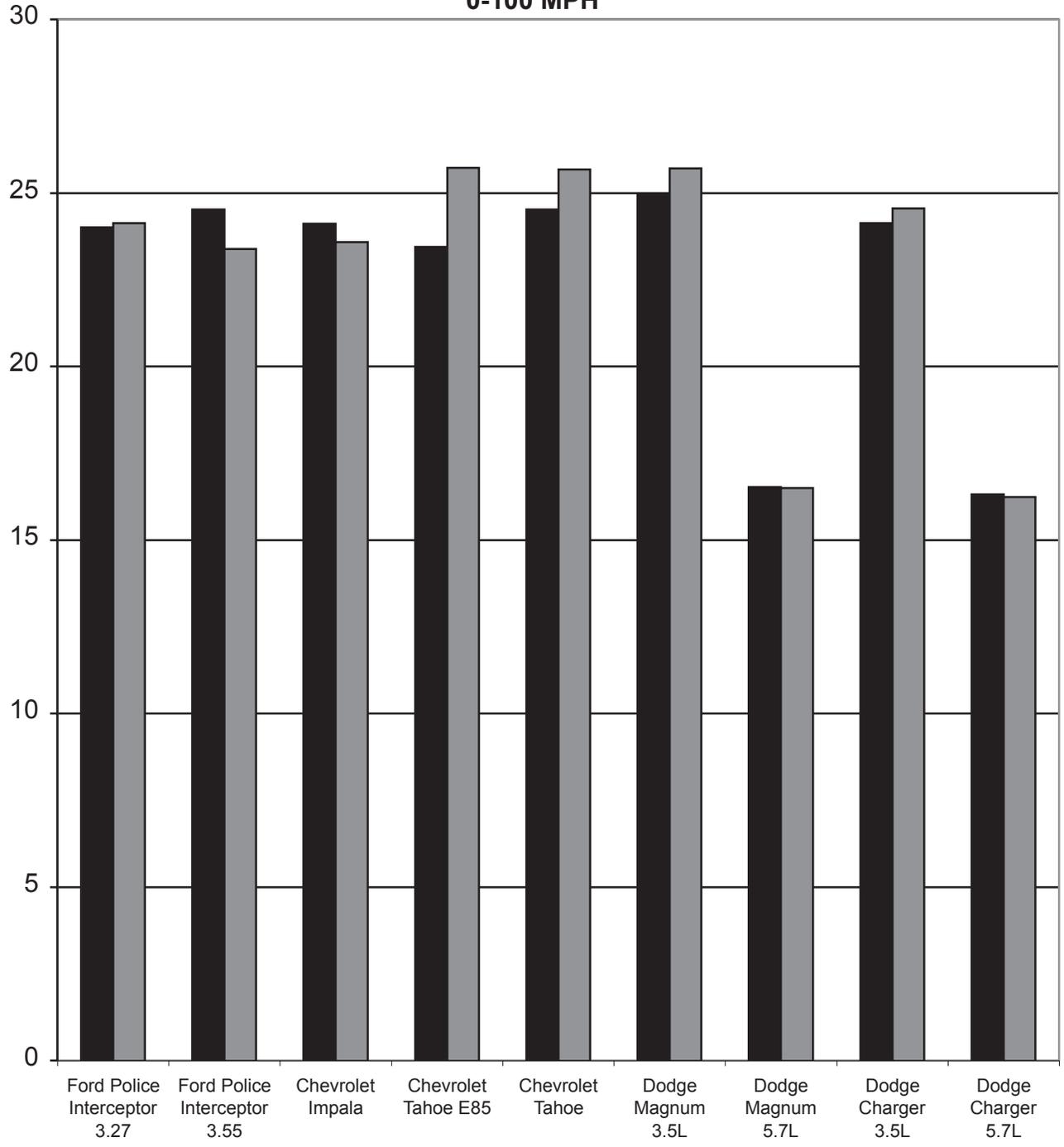


(seconds)

■ 2007 ■ 2006

2006-07 ACCELERATION COMPARISON

0-100 MPH

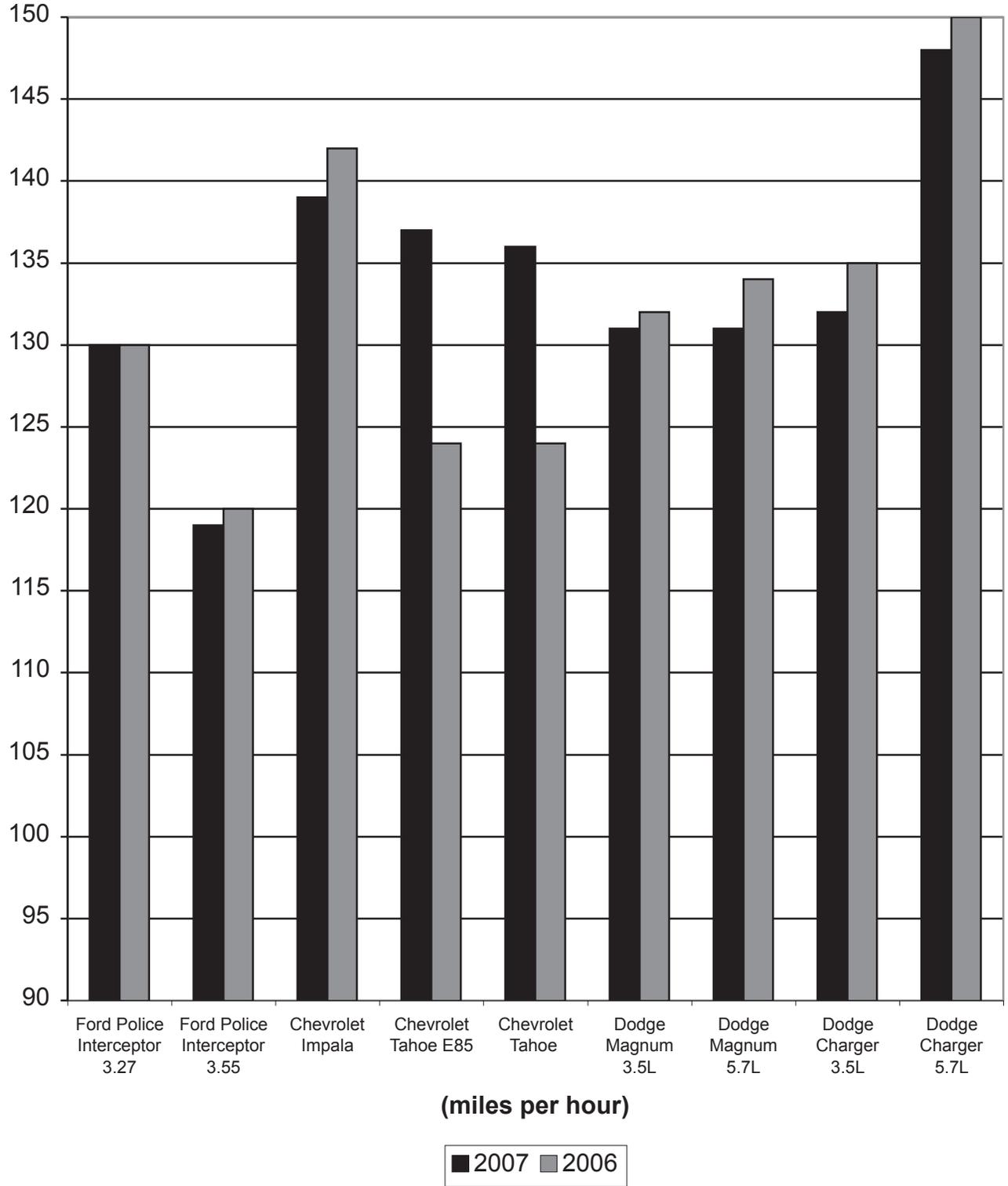


(seconds)

■ 2007 ■ 2006

2006-07 TOP SPEED COMPARISON

TOP SPEED ATTAINED



2006-07 BRAKE TESTING COMPARISON

STOPPING DISTANCES

