Police Vehicle Evaluation

Model Year 2015

MICHIGAN STATE POLICE

NLECTC
National Law Enforcement and Corrections Technology Center

STATE OF MICHIGAN

Department of State Police

and

Department of Technology, Management and Budget

2015 Model Year

Police Vehicle Evaluation Program

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TABLE OF CONTENTS

PREFACE

The Michigan State Police Vehicle Test Team is pleased to announce the results of the 2015 Model Year Police Vehicle Evaluation. This year we tested fourteen vehicles and seven motorcycles. We appreciate your continued support and encouragement. The vehicles evaluated this year included the following:

POLICE CATEGORY

Chevrolet Caprice 3.6L
Chevrolet Caprice 6.0L
Chevrolet Impala 3.6L
Chevrolet Tahoe 5.3L
Chevrolet Tahoe 5.3L 4WD
Dodge Charger 3.6L 2.62
Dodge Charger 3.6L 3.08
Dodge Charger 5.7L 2.62
Dodge Charger 5.7L 3.08 AWD
Ford PI Sedan 3.5L FWD
Ford PI Sedan 3.7L AWD
Ford PI Sedan 3.5L Ecoboost AWD
Ford PI Utility 3.7L AWD
Ford PI Utility 3.5L Ecoboost AWD

MOTORCYCLES

BMW R1200RTP
Harley Davidson FLHTP (Electra Glide)
Harley Davidson FLHP (Road King)
Harley Davidson FLHTP (Electra Glide) Special
Moto Guzzi California 1400
Moto Guzzi Norge 1200
Can-AM Spyder RTP

GENERAL INFORMATION

All 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 unless otherwise noted, or with the exception of certain motorcycles.

Motorcycles were tested with equipment installed as provided by their respective manufacturer. Harley-Davidson, and Moto Guzzi chose to test their bikes with minimal equipment. BMW chose to test their bikes with the majority of the equipment installed. The Can AM Spyder made its first appearance to testing this year.

This year we allowed the manufacturer to submit a one-half page highlight of their vehicle. This will be included with the vehicle description and photograph. This information is direct from the manufacturer and is not an opinion or endorsement from the Michigan State Police. It is only an attempt to get you the most information about the vehicle.

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

Acceleration and Top Speed tests were performed at the Chrysler Proving Grounds. This 4.7 mile neutral banked 140 mph oval provides ample space to obtain accurate test results in these areas.

The Braking test is also performed at the Chrysler Proving Grounds. This 1.56 mile concrete straightaway is completely flat, taking into consideration the curvature of the earth.

We would like to thank Mr. James Rollison and Mr. Bill Castle for the assistance we received from the staff at the Chrysler Proving Grounds.

Grattan Raceway - Motorcycle Dynamics Test

Motorcycle Dynamics testing was performed at Grattan Raceway. This 2 mile road course provides a taxing environment to test motorcycles in dynamics and continues to produce comprehensive results regarding durability and performance.

We appreciate the support we received from Harley-Davidson, BMW, Can AM/BRP, and Moto Guzzi during testing. This was the eighth year of motorcycle testing and we continue to get great feedback on this important component to the testing lineup.

Grattan Raceway - Vehicle Dynamics Test

Vehicle Dynamics testing was performed at Grattan Raceway. This 2 mile road course provides a realistic environment to test vehicles in dynamics and continues to produce comprehensive results regarding durability and performance.

We appreciate the support we received from General Motors, Ford Motor Company, and Chrysler Corporation during testing.

EVALUATION INFORMATION

MOTORCYCLES:

Grattan Raceway – Motorcycle Dynamics Test – Moto Guzzi California 1400

The Moto Guzzi California 1400 developed an issue due to lean angle contact with the rear brake pedal mount (right side). This caused the rear brake to stick. Moto Guzzi engineers adjusted the mount. After the second test rider, engineers also adjusted the riding "mode" from Turismo (touring) to Veloce (sport). The motorcycle completed the dynamics test without further incident.

VEHICLES:

Grattan Raceway – Vehicle Dynamics (High Speed Handling) RETEST – Chevrolet Tahoe

During the Michigan State Police Dynamics testing at Grattan Raceway, a 2015 Chevrolet Tahoe 4WD PPV was involved in an incident which caused the vehicle to leave the track. There were no injuries reported.

In conjunction with the Michigan State Police, General Motors has completed a thorough internal investigation which concluded that the unique nature of the testing on the track resulted in a temporary brake torque output difference. General Motors does not believe these conditions will occur in actual field use.

General Motor Company Proving Grounds – Top Speed RETEST – Chevrolet Caprice 6.0L

The Chevrolet Caprice 6.0L was retested for top speed. The test car submitted had the incorrect speed-limiting calibration and tested at 147 mph. When retested with the proper calibration, the vehicle reached 156 mph. Both results are shown in this book.

Ford Motor Company Proving Grounds – Acceleration RETEST – Ford PI Utility 3.7L AWD

The Ford PI Utility 3.7L AWD had poor acceleration numbers during test. The Ford engineers inspected the vehicle and found loose hose clamps which may have affected performance. This vehicle was retested and performance improved. Both results are shown in this book.

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

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ACKNOWLEDGEMENTS

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

Colonel Kriste Kibbey Etue, Director, Michigan Department of State Police
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Lt. Colonel Richard T. Arnold, Deputy Director, State Services Bureau
Lt. Colonel Gary M. Gorski, Deputy Director, Specialized Services Bureau
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Mr. James Rollison, Mr. Bill Castle and personnel from Chrysler Proving Grounds
Mr. Sam Faasen and personnel from Grattan Raceway Park

A very special “thank you” to Chrysler, Ford Motor Company, General Motors, BMW Motorrad USA, BRP, Harley-Davidson Motorcycles, and Moto Guzzi 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 varied duties.

Finally, thank you 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: Sgt. Mike McCarthy. Ret. Sgt. David “Doc” Halliday, Sgt. Marcus Trammel, Sgt. Rob Schwalm, Tpr. Russ Lady, Tpr. Jeff Mercer, Sgt. Brian DeWyse, Sgt. Matt Rogers, Sgt. Matt Waters

Front Row: Sgt. Doug Schutter, Mrs. Debbie Schrauben. Mrs. Wendy Galbreath, Mrs. Tricia Steel, Tpr. Andy Douville, Ret. Sgt. Bob Ring, Lt. Ron Gromak, F/Lt. Jim Flegel, Tpr. Jay Sweetland

TEST EQUIPMENT

The following test equipment is utilized during the Acceleration, Top Speed, Braking, and Vehicle Dynamics portions of the evaluation program.

Kistler Company 39205 Country Club Drive Suite C20 Farmington Hills, MI 48331	• DLS Smart Sensor – Optical Non-Contact Speed & Distance Sensor • Kistler L-350 1 Axis Optical Sensor • Kistler CDS-GPS CGPSLA 100 hz Logger
Shoei Helmets 3002 Dow Avenue Suite 128 Tustin, CA 92780	• 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 Street Torrance, CA 90505-5270	• Alpinestars Protective Riding Apparel
Stilo Helmets USA 9A Electronics Ave. Danvers, MA 01923	• Test Driver Helmet – WRC DES Composite
Motorola Solutions 1303 East Algonquin Road Schaumburg, IL 60196	• Mag One BPR 40 Two-Way Radios

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 BMW, Harley-Davidson, Moto Guzzi, and Can AM/BRP 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.

Harley Davidson introduced an additional entry this year. This was a FLHTP model with a factory supported performance modification. In this report, it will be referred to as "Harley Davidson FLHTP Special".

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.

BMW R1200RTP

MAKE & MODEL	BMW R 1200 RTP
SALES CODE	15RP
POWERTRAIN INFORMATION	
CUBIC INCHES	71.4
LITERS	1.170
HORSEPOWER SAENET	125 bhp @ 7,750 RPM
ALTERNATOR	540W
TORQUE	92 @ 6,500 RPM
BATTERY	2 x 16 Ah (AGM no-maintenance batteries)
TRANSMISSION	Constant Mesh 6-Speed with Helical Cut Gears
SUSPENSION TYPE (FRONT)	BMW Telelever, 37 mm stanchions, central spring strut
SUSPENSION TYPE (REAR)	BMW Paralever; travel related damping single strut
TURNING CIRCLE (CURB TO CURB)	16 ft.
TIRE SIZE, LOAD & SPEED RATING	120-70 ZR 17 (Front) / 180-55 ZR 17 (Rear)
GROUND CLEARANCE, MINIMUM	5.2 inches
BRAKE SYSTEM	BMW partial-integral ABS with traction control
FUEL CAPACITY	6.6 Gallons/25 Liters
GENERAL MEASUREMENTS	
WHEELBASE	58.5 inches
LENGTH	87.5 inches
TEST WEIGHT	650 lbs.
HEIGHT	55.7 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1,091 lbs.
EPA MILEAGE EST. (MPG)	
CITY	60 MPG (@ 44 mph)
HIGHWAY	44 MPG (@ 75 mph)
COMBINED	Not Provided by Manufacturer

MANUFACTURER HIGHLIGHTS

The R 1200 RTP is the new generation police motor derived from the K52 platform, inheriting all of the platform improvements of the civilian model.

The new generation contains a multi-plate self-adjusting wet clutch, completely new lighting system, handlebar switch system, power management system for all authority accessories, plus a host of special conveniences including electronic radio box latch release, electronic cruise control, saddlebag lights, alternating headlight system, selectable emergency light start sequence, narrower/lower seat with heat-reflective material (18” cooler in sun), adjustable dashboard angle, integrated PTT/PTPA switches, etc.

The test motorcycle is equipped with Dynamic ESA and Ride Modes Pro, so you should select Dynamic driving mode for performance testing. The test motorcycle is also equipped with Gear Shift Assist Pro, which allows you to shift up or down once the motorcycle is in motion (clearly to be used when appropriate) by just relaxing the throttle. Test motorcycle is also equipped with Hill Start Control, which allows the braking system to hold the rear brakes on a hill (up or down) and then release the brake as you release the clutch.

Harley-Davidson Electra Glide FLHTP

MAKE & MODEL	Harley-Davidson FLHTP (Electra Glide)
SALES CODE	Not Provided by Manufacturer
POWERTRAIN INFORMATION	
CUBIC INCHES	103 CID
LITERS	1690 CC
HORSEPOWER SAENET	Not Provided by Manufacturer
ALTERNATOR	50 Amp
TORQUE	104.7 @ 3250 RPM
BATTERY	12VDC, 28 Amp/Hour, 270 CCA
TRANSMISSION	6 Speed Manual / Wet 9 Plate Clutch
SUSPENSION TYPE (FRONT)	Hydraulic 49 mm Telescopic Forks
SUSPENSION TYPE (REAR)	Swing Arm with Air Adjustable Shocks
TURNING CIRCLE (CURB TO CURB)	<17'
TIRE SIZE, LOAD & SPEED RATING	Dunlop D408F 130/80B17 (65H) (Front) Dunlop D407T 180/65B16 (81H) (Rear)
GROUND CLEARANCE, MINIMUM	5.3 inches
BRAKE SYSTEM	Hydraulic Disc/Reflex™ Electronically Linked with ABS (Dual Front Floating Rotors – Single Fixed Rear)
FUEL CAPACITY	6.0 Gallons/22.71 Liters
GENERAL MEASUREMENTS	
WHEELBASE	64 inches
LENGTH	96.5 inches
TEST WEIGHT	826 lbs.
HEIGHT	56.3 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	GVWR – 1,360 lbs. / Payload – 534 lbs.
EPA MILEAGE EST. (MPG)	
CITY	Not provided by manufacturer
HIGHWAY	Not provided by manufacturer
COMBINED	42 MPG

MANUFACTURER HIGHLIGHTS

The Harley-Davidson Police Motorcycle FLHTP features:

- 1690cc High Output Twin Cam 103 model (6% more horsepower & 4% increase in torque).
- Reflex Linked Brake System with ABS that coordinates the front and rear brakes above 25 mph.
- Daymaker ™ LED headlight providing 916 lumens of daylight-quality light for the FLHTP.
- A batwing fairing on the Police Electra Glide incorporates the Splitstream™ vent. More storage with larger saddlebags & One-Touch latches for quick access.
- Engine Oil Cooler
- Polycarbonate Windshield designed to breakaway with minimal impact force
- Dunlop Multi-Tread Bead Retention Tires
- Long Stem True Vision Mirrors
- A redesigned hand control system to include speed capture, cruise control, push-to-talk, and more are all controlled with one-touch buttons. The Digital Speed Readout displays speed capture and gear position. Emergency lighting can be controlled independently and an Accessory mode allows you to run emergency lights and equipment power for 30 minutes, even with the ignition off or locked. A "Stealth Mode" switch allows you to instantly turn off all exterior lighting (except instruments and brakes) allowing the element of surprise.

Value:

- The largest dealer network for support and the highest residual value in the industry
- University accredited operator and instructor motorcycle rider training programs available and Police motorcycle technical training programs available.
- 2 Year Unlimited Mileage OE Warranty

Harley-Davidson Road King FLHP

MAKE & MODEL	Harley-Davidson FLHP (Road King)
SALES CODE	Not Provided by Manufacturer
POWERTRAIN INFORMATION	
CUBIC INCHES	103 CID
LITERS	1690 CC
HORSEPOWER SAENET	Not Provided by Manufacturer
ALTERNATOR	50 Amp
TORQUE	104.7 @ 3250 RPM
BATTERY	12VDC, 28 Amp/Hour, 270 CCA
TRANSMISSION	6 Speed Manual / Wet 9 Plate Clutch
SUSPENSION TYPE (FRONT)	Hydraulic 49 mm Telescopic Forks
SUSPENSION TYPE (REAR)	Swing Arm with Air Adjustable Shocks
TURNING CIRCLE (CURB TO CURB)	<17'
TIRE SIZE, LOAD & SPEED RATING	Dunlop D408F 130/80B17 (65H) (Front) Dunlop D407T 180/65B16 (81H) (Rear)
GROUND CLEARANCE, MINIMUM	5.3 inches
BRAKE SYSTEM	Hydraulic Disc/Reflex™ Electronically Linked with ABS (Dual Front Floating Rotors – Single Fixed Rear)
FUEL CAPACITY	6.0 Gallons/22.71 Liters
GENERAL MEASUREMENTS	
WHEELBASE	64 inches
LENGTH	96.5 inches
TEST WEIGHT	821 lbs.
HEIGHT	56.3 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	GVWR – 1,360 lbs. / Payload – 539 lbs.
EPA MILEAGE EST. (MPG)	
CITY	Not provided by manufacturer
HIGHWAY	Not provided by manufacturer
COMBINED	42 MPG

MANUFACTURER HIGHLIGHTS

The Harley-Davidson Police Motorcycle Road King features:

- 1690cc High Output Twin Cam 103 model (6% more horsepower & 4% increase in torque).
- Reflex Linked Brake System with ABS that coordinates the front and rear brakes above 25 mph.
- A dual-halogen setup which offers a 546 lumen low beam and a whopping 1,460 lumen high beam to project visibility far down the road.
- A redesigned hand control system to include speed capture, cruise control, push-to-talk, and more are all controlled with one-touch buttons. The Digital Speed Readout displays speed capture and gear position. Emergency lighting can be controlled independently and an Accessory mode allows you to run emergency lights and equipment power for 30 minutes, even with the ignition off or locked. A "Stealth Mode" switch allows you to instantly turn off all exterior lighting (except instruments and brakes) allowing the element of surprise.

Value:

- One of the lowest in initial purchase cost
- The lowest in ongoing maintenance costs
- The highest residual value in the industry
- The largest dealer network for support and the highest residual value in the industry
- University accredited operator and instructor motorcycle rider training programs available and Police motorcycle technical training programs available.
- 2 Year Unlimited Mileage OE Warranty

Harley-Davidson Electra Glide FLHTP Special

MAKE & MODEL	Harley-Davidson FLHTP (Electra Glide) Street Performance Stage 4
SALES CODE	Not Provided by Manufacturer
POWERTRAIN INFORMATION	
CUBIC INCHES	103 CID Stage 4
LITERS	1690 CC Stage 4
HORSEPOWER SAENET	103 (approximate)
ALTERNATOR	50 Amp
TORQUE	110 (approximate)
BATTERY	12VDC, 28 Amp/Hour, 270 CCA
TRANSMISSION	6 Speed Manual / Wet 9 Plate Clutch
SUSPENSION TYPE (FRONT)	Hydraulic 49 mm Telescopic Forks
SUSPENSION TYPE (REAR)	Swing Arm with Air Adjustable Shocks
TURNING CIRCLE (CURB TO CURB)	<17'
TIRE SIZE, LOAD & SPEED RATING	Dunlop D408F 130/80B17 (65H) (Front) Dunlop D407T 180/65B16 (81H) (Rear)
GROUND CLEARANCE, MINIMUM	5.3 inches
BRAKE SYSTEM	Hydraulic Disc/Reflex™ Electronically Linked with ABS (Dual Front Floating Rotors – Single Fixed Rear)
FUEL CAPACITY	6.0 Gallons/22.71 Liters
GENERAL MEASUREMENTS	
WHEELBASE	64 inches
LENGTH	96.5 inches
TEST WEIGHT	826 lbs.
HEIGHT	56.3 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	GVWR – 1,360 lbs. / Payload – 534 lbs.
EPA MILEAGE EST. (MPG)	
CITY	Not provided by manufacturer
HIGHWAY	Not provided by manufacturer
COMBINED	Not provided by manufacturer

MANUFACTURER HIGHLIGHTS

The Harley-Davidson Police Motorcycle FLHTP/FLHP Option features:

- Harley-Davidson offers a Stage 4 Authorized H-D Dealer Installed Engine Performance Upgrade Kit with Part # 92500011. The kit contains 10.5-1 Compression Ratio Pistons, SE-259E Cams, Perfect Fit Pushrods, and CNC Ported Cylinder Heads; 58mm Throttle Body and all required Engine Gaskets.
- The H-D High Flow Air Cleaner for 58mm Throttle Body (Part # 29400039) and H-D Digital Technician Stage 4 Street Performance Download-50 State Legal (Speed Limited-115 mph).
- **When Installed by an authorized H-D Dealer at the time of new vehicle delivery, these kits do not impact the vehicle's limited warranty.**

Value:

- The highest residual value in the industry
- The largest dealer network for support and the highest residual value in the industry
- University accredited operator and instructor motorcycle rider training programs available and Police motorcycle technical training programs available.
- 2 Year Unlimited Mileage OE Warranty

Moto Guzzi California 1400

MAKE & MODEL	Moto Guzzi California 1400
SALES CODE	Not Provided by Manufacturer
POWERTRAIN INFORMATION	
CUBIC CENTIMETERS	1,380 CC
HORSEPOWER SAENET	Not Provided by Manufacturer
ALTERNATOR	12V – 550W
TORQUE	87 lb/ft.
BATTERY	12V – 18Ah
TRANSMISSION	6 Speed
SUSPENSION TYPE (FRONT)	Not Provided by Manufacturer
SUSPENSION TYPE (REAR)	Swing Arm with Double Shock Absorber with Adjustable Spring Preload and Rebound Damping
TURNING CIRCLE (CURB TO CURB)	Not Provided by Manufacturer
TIRE SIZE, LOAD & SPEED RATING	130/70/R18 (Front) 200/60/R16 (Rear)
GROUND CLEARANCE, MINIMUM	6.4 inches
BRAKE SYSTEM	Dual 320 mm Stainless Steel Floating Discs, Brembo Radial Calipers with four horizontally opposed pistons (Front) 282 mm Stainless Steel Fixed Disc, Brembo Floating Caliper with two parallel pistons (Rear)
FUEL CAPACITY	5.4 Gallons/20.5 Liters
GENERAL MEASUREMENTS	
WHEELBASE	66.3 inches
LENGTH	96.2 inches
TEST WEIGHT	799 lbs.
HEIGHT	57.4 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	Not Provided by Manufacturer
EPA MILEAGE EST. (MPG)	
CITY	32.1 MPG
HIGHWAY	38.3 MPG
COMBINED	37.6 MPG

MANUFACTURER HIGHLIGHTS
Not Provided by Manufacturer

Moto Guzzi Norge 1200

MAKE & MODEL	Moto Guzzi California 1400
SALES CODE	Not Provided by Manufacturer
POWERTRAIN INFORMATION	
CUBIC CENTIMETERS	1,151 CC
HORSEPOWER SAENET	Not Provided by Manufacturer
ALTERNATOR	12V – 540W
TORQUE	90 CV @ 7500 RPM
BATTERY	12V – 18Ah
TRANSMISSION	6 Speed
SUSPENSION TYPE (FRONT)	Not Provided by Manufacturer
SUSPENSION TYPE (REAR)	Single Sided with Progressive Linkage, Single Shock Absorber with Adjustable Rebound and Adjustable Preload Settings
TURNING CIRCLE (CURB TO CURB)	Not Provided by Manufacturer
TIRE SIZE, LOAD & SPEED RATING	120/70/ZR17 (Front) 180/55/ZR17 (Rear)
GROUND CLEARANCE, MINIMUM	Not Provided by Manufacturer
BRAKE SYSTEM	Dual 320 mm Stainless Steel Floating Disc Brakes, Four Paired Differentiated Calipers (Front) 282 mm Stainless Steel Brake, Parallel Dual Calipers (Rear)
FUEL CAPACITY	6.0 Gallons/23 Liters
GENERAL MEASUREMENTS	
WHEELBASE	58.9 inches
LENGTH	86.4 inches
TEST WEIGHT	673 lbs.
HEIGHT	55.3 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	Not Provided by Manufacturer
EPA MILEAGE EST. (MPG)	
CITY	28.1 MPG
HIGHWAY	39.3 MPG
COMBINED	37.6 MPG

MANUFACTURER HIGHLIGHTS
Not Provided by Manufacturer

Spyder RTP


POLICE
EMERGENCY
9-1-1
POLICE
EMERGENCY
9-1-1


POLICE


POLICE
39161E

MAKE & MODEL	Can-AM Spyder RTP
SALES CODE	B2EE
POWERTRAIN INFORMATION	
CUBIC CENTIMETERS	1,330 CC
HORSEPOWER SAENET	Not Provided by Manufacturer
ALTERNATOR	100 Amps
TORQUE	96 ft/lbs. @ 5,000 RPM
BATTERY	12V – 21 Ah
TRANSMISSION	6 Speed
SUSPENSION TYPE (FRONT)	Fixed Shocks
SUSPENSION TYPE (REAR)	Adjustable Air Shock
TURNING CIRCLE (CURB TO CURB)	Not Provided by Manufacturer
TIRE SIZE, LOAD & SPEED RATING	165/55/R15 (Front) 225/50/R15 (Rear)
GROUND CLEARANCE, MINIMUM	4.5 inches
BRAKE SYSTEM	Dual 270 mm Discs with Brembo Four Piston Fixed Calipers (Front) Single 270 mm Disc with Brembo Single Piston Floating Caliper (Rear)
FUEL CAPACITY	10.7 Gallons/40.5 Liters
GENERAL MEASUREMENTS	
WHEELBASE	67.5 inches
LENGTH	105 inches
TEST WEIGHT	1,020 lbs.
HEIGHT	59.4 inches
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	Not Provided by Manufacturer
EPA MILEAGE EST. (MPG)	
CITY	Not Provided by Manufacturer
HIGHWAY	23.3 MPG
COMBINED	Not Provided by Manufacturer

MANUFACTURER HIGHLIGHTS
Not Provided by Manufacturer

MOTORCYCLE DYNAMICS TESTING

MOTORCYCLE DYNAMICS TEST OBJECTIVE

To 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 motorcycle manufacturers in offering balanced packages of acceleration capabilities, suspension components, and braking characteristics.

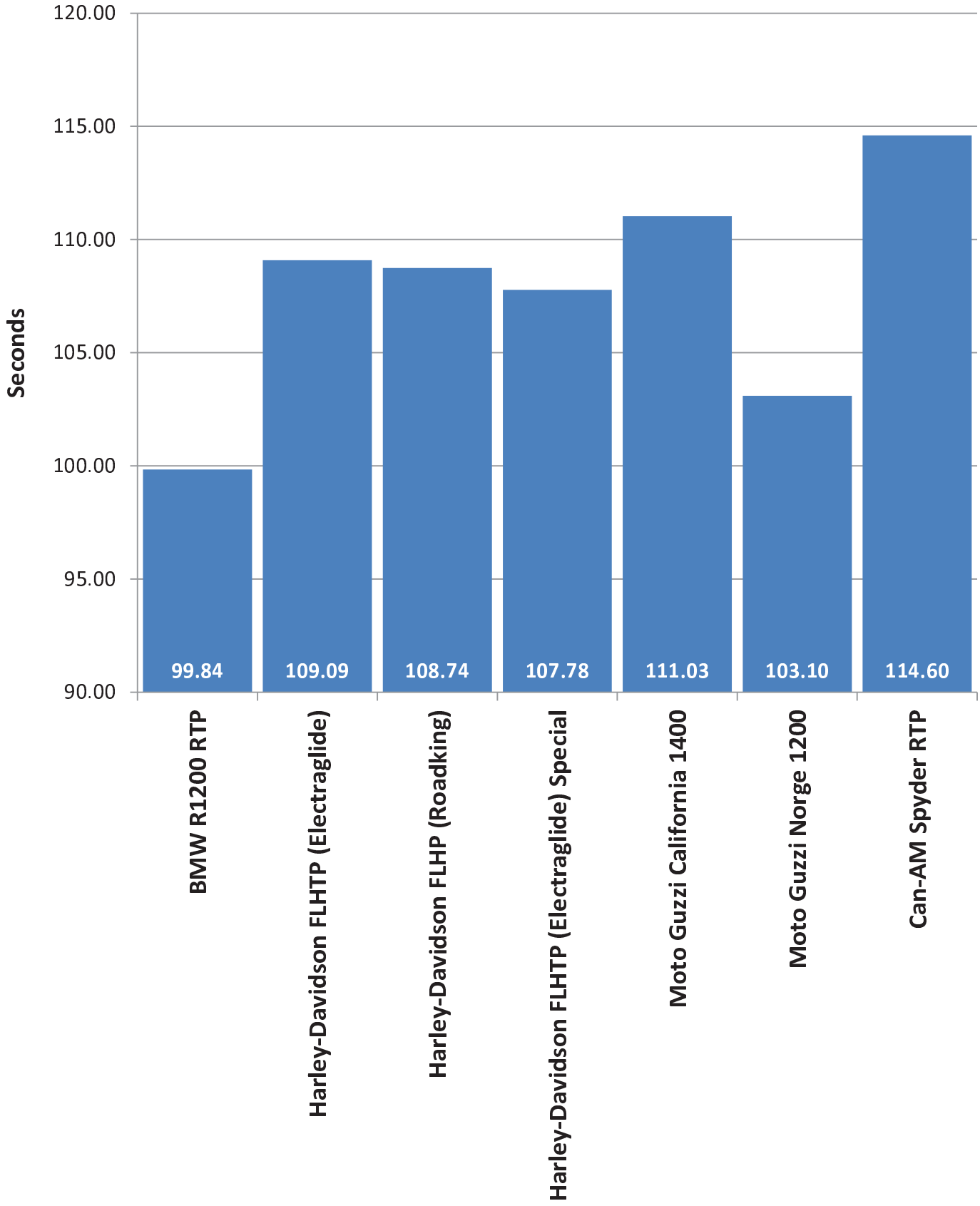
MOTORCYCLE DYNAMICS TEST METHODOLOGY

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 17, 2014

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
BMW R1200 RTP	SCHWALM	01:41.51	01:42.06	01:42.46	01:43.00	01:43.11	01:42.43
	ROGERS	01:36.42	01:36.79	01:36.89	01:37.28	01:37.98	01:37.07
	TRAMMEL	01:41.02	01:41.10	01:41.20	01:41.31	01:41.58	01:41.24
	JOHNSON	01:38.26	01:38.35	01:38.56	01:38.77	01:39.20	01:38.63
Overall Average							**01:39.84**
Harley Davidson FLHTP (Electraglide)	SCHWALM	01:52.04	01:52.20	01:52.21	01:52.24	01:52.61	01:52.26
	ROGERS	01:47.77	01:47.90	01:47.90	01:47.98	01:48.03	01:47.92
	TRAMMEL	01:49.46	01:49.70	01:49.88	01:49.93	01:49.99	01:49.79
	JOHNSON	01:45.88	01:46.25	01:46.55	01:46.63	01:46.67	01:46.40
Overall Average							**01:49.09**
Harley Davidson FLHP (Roadking)	SCHWALM	01:50.83	01:51.13	01:51.19	01:51.61	01:51.91	01:51.33
	ROGERS	01:47.35	01:47.75	01:47.79	01:47.82	01:47.96	01:47.73
	TRAMMEL	01:48.75	01:49.00	01:49.00	01:49.21	01:49.25	01:49.04
	JOHNSON	01:46.37	01:46.40	01:47.17	01:47.19	01:47.19	01:46.86
Overall Average							**01:48.74**
Harley Davidson FLHTP (Electraglide) Special	SCHWALM	01:49.53	01:49.67	01:49.79	01:49.82	01:50.33	01:49.83
	ROGERS	01:46.48	01:46.68	01:46.74	01:46.75	01:46.92	01:46.71
	TRAMMEL	01:49.05	01:49.29	01:49.41	01:49.57	01:49.57	01:49.38
	JOHNSON	01:44.99	01:45.04	01:45.13	01:45.18	01:45.69	01:45.21
Overall Average							**01:47.78**
Moto Guzzi California 1400	SCHWALM	01:53.06	01:53.51	01:53.58	01:53.95	01:54.14	01:53.65
	ROGERS	01:49.44	01:49.80	01:50.24	01:50.32	01:50.34	01:50.03
	TRAMMEL	01:51.41	01:51.48	01:51.58	01:51.84	01:51.85	01:51.63
	JOHNSON	01:48.27	01:48.63	01:48.82	01:49.10	01:49.20	01:48.80
Overall Average							**01:51.03**
Moto Guzzi Norge 1200	SCHWALM	01:45.65	01:45.66	01:45.70	01:45.94	01:46.80	01:45.95
	ROGERS	01:41.51	01:41.61	01:41.70	01:41.96	01:42.78	01:41.91
	TRAMMEL	01:43.92	01:44.00	01:44.28	01:44.30	01:44.47	01:44.19
	JOHNSON	01:39.91	01:40.09	01:40.39	01:40.46	01:40.96	01:40.36
Overall Average							**01:43.10**
Can-AM Spyder RTP	SCHWALM	01:56.04	01:56.81	01:56.83	01:57.43	01:57.44	01:56.91
	ROGERS	01:53.02	01:53.39	01:53.51	01:53.79	01:53.80	01:53.50
	TRAMMEL	01:52.95	01:53.07	01:53.16	01:53.39	01:53.64	01:53.24
	JOHNSON	01:54.07	01:54.51	01:54.79	01:54.92	01:55.49	01:54.76
Overall Average							**01:54.60**

2015 Motorcycle Dynamics



MOTORCYCLE ACCELERATION
&
TOP SPEED TESTING

ACCELERATION TEST OBJECTIVE

To 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 CDS-GPS-CGPLSA 100 hz Logger, 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 are used to derive scores for acceleration.

TOP SPEED TEST OBJECTIVE

To 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.

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 20, 2014

BMW R1200 RTP

BEGINNING TIME: 11:09 a.m. **TEMPERATURE:** 68.2° F
WIND VELOCITY: 10.1 mph **WIND DIRECTION:** 190°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	4.17	3.90	3.89	3.98	**3.99**
0 – 80	**14.9 sec.**	6.50	5.82	5.88	5.98	**6.05**
0 – 100	**24.6 sec.**	10.09	8.74	8.85	8.89	**9.14**

DISTANCE TO REACH 100 MPH: .15 mile

TOP SPEED ATTAINED: 141 mph

Harley Davidson FLHTP (Electra Glide)

BEGINNING TIME: 9:31 a.m. **TEMPERATURE:** 61.3° F
WIND VELOCITY: 5.5 mph **WIND DIRECTION:** 183°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	5.70	5.47	5.64	5.65	**5.62**
0 – 80	**14.9 sec.**	10.04	9.24	9.96	9.41	**9.66**
0 – 100	**24.6 sec.**	22.54	16.78	21.89	16.14	**19.34**

DISTANCE TO REACH 100 MPH: .38 miles

TOP SPEED ATTAINED: 113 mph

Harley Davidson FLHP (Roadking)

BEGINNING TIME: 8:01 a.m. **TEMPERATURE:** 58.1° F
WIND VELOCITY: 6.9 mph **WIND DIRECTION:** 180°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	5.12	5.59	5.87	5.37	**5.49**
0 – 80	**14.9 sec.**	9.37	9.95	10.01	9.01	**9.59**
0 – 100	**24.6 sec.**	23.02	22.83	18.59	15.98	**20.11**

DISTANCE TO REACH 100 MPH: .40 miles

TOP SPEED ATTAINED: 113 mph

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 20, 2014

Harley-Davidson FLHTP (Electra Glide) Special

BEGINNING TIME: 1:15 p.m. **TEMPERATURE:** 73.9° F
WIND VELOCITY: 9 mph **WIND DIRECTION:** 174°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	5.14	5.28	5.17	5.47	**5.27**
0 – 80	**14.9 sec.**	8.77	8.66	8.93	8.88	**8.81**
0 – 100	**24.6 sec.**	15.64	14.76	16.46	15.07	**15.48**

DISTANCE TO REACH 100 MPH: .29 miles

TOP SPEED ATTAINED: 110 mph

Moto Guzzi California 1400

BEGINNING TIME: 2:50 p.m. **TEMPERATURE:** 73.5° F
WIND VELOCITY: 5.2 mph **WIND DIRECTION:** 181°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	4.97	4.90	4.91	4.97	**4.94**
0 – 80	**14.9 sec.**	8.47	8.12	8.49	8.33	**8.35**
0 – 100	**24.6 sec.**	15.45	14.05	15.74	14.80	**15.01**

DISTANCE TO REACH 100 MPH: .28 miles

TOP SPEED ATTAINED: 117 mph

TEST LOCATION: Chrysler Proving Grounds **DATE:** September 20, 2014

Moto Guzzi Norge 1200

BEGINNING TIME: 10:40 a.m. **TEMPERATURE:** 66.3° F
WIND VELOCITY: 8.8 mph **WIND DIRECTION:** 164°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	4.72	4.58	4.85	4.62	**4.69**
0 – 80	**14.9 sec.**	7.81	7.75	7.54	7.40	**7.63**
0 – 100	**24.6 sec.**	13.42	13.11	11.68	11.83	**12.51**

DISTANCE TO REACH 100 MPH: .22 mile

TOP SPEED ATTAINED: 127 mph

Can-AM Spyder RTP

BEGINNING TIME: 1:52 p.m. **TEMPERATURE:** 75.1° F
WIND VELOCITY: 4 mph **WIND DIRECTION:** 206°

SPEEDS	TIME REQUIREMENTS	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	**9.0 sec.**	6.55	6.45	6.57	6.63	**6.55**
0 – 80	**14.9 sec.**	10.60	10.25	10.91	10.53	**10.57**
0 – 100	**24.6 sec.**	22.71	18.56	22.67	18.30	**20.56**

DISTANCE TO REACH 100 MPH: .39 miles

TOP SPEED ATTAINED: 114 mph

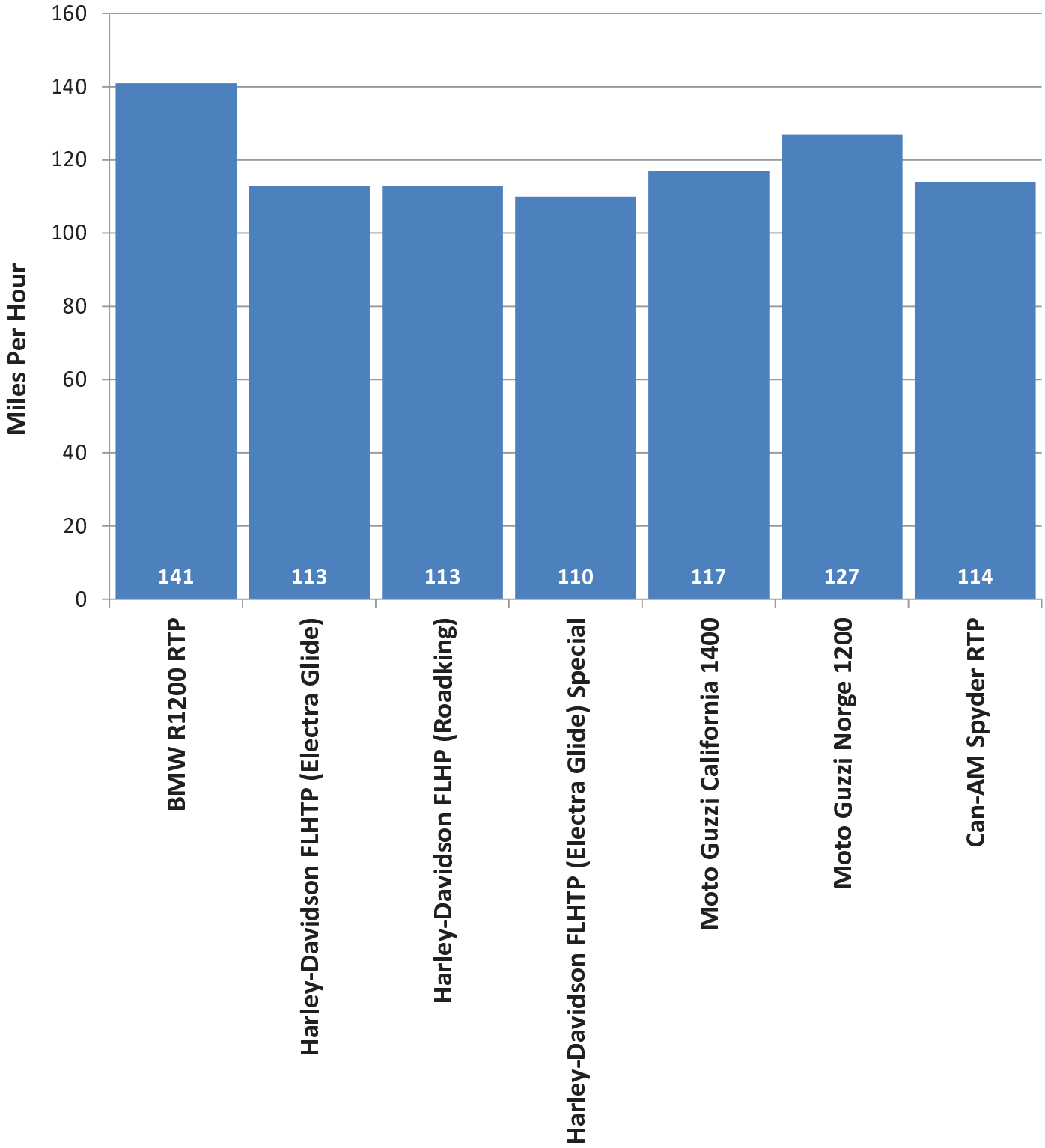
SUMMARY OF MOTORCYCLE ACCELERATION & TOP SPEED

	BMW R1200 RTP	Harley Davidson FLHTP (Electra Glide)	Harley Davidson FLHP (Roadking)	Harley Davidson FLHTP (Electraglide) Special
0-20 mph (sec)	1.37	1.45	1.38	1.39
0-30 mph (sec)	1.96	2.19	2.14	2.20
0-40 mph (sec)	2.50	3.06	3.07	3.03
0-50 mph (sec)	3.23	4.17	4.10	4.13
0-60 mph (sec)	3.99	5.62	5.49	5.27
0-70 mph (sec)	4.96	7.24	7.21	6.94
0-80 mph (sec)	6.05	9.66	9.59	8.81
0-90 mph (sec)	7.48	12.73	12.73	11.63
0-100 mph (sec)	9.14	19.34	20.11	15.48
TOP SPEED (mph)	141 mph	113 mph	113 mph	110 mph
QUARTER MILE (sec)	12.51 seconds	14.44 seconds	14.15 seconds	14.39 seconds
SPEED (mph)	116.08 mph	94.70 mph	98.00 mph	89.32 mph

	Moto Guzzi California 1400	Moto Guzzi Norge 1200	Can-AM Spyder RTP
0-20 mph (sec)	1.47	1.38	1.95
0-30 mph (sec)	2.19	2.14	2.97
0-40 mph (sec)	2.91	2.82	3.94
0-50 mph (sec)	3.88	3.72	4.97
0-60 mph (sec)	4.94	4.69	6.55
0-70 mph (sec)	6.40	5.96	8.34
0-80 mph (sec)	8.35	7.63	10.57
0-90 mph (sec)	11.08	9.75	14.11
0-100 mph (sec)	15.01	12.51	20.56
TOP SPEED (mph)	117 mph	127 mph	114 mph
QUARTER MILE (sec)	13.84 seconds	13.29 seconds	15.11 seconds
SPEED (mph)	99.33 mph	107.07 mph	96.00 mph

2015 Motorcycle Top Speed Comparison

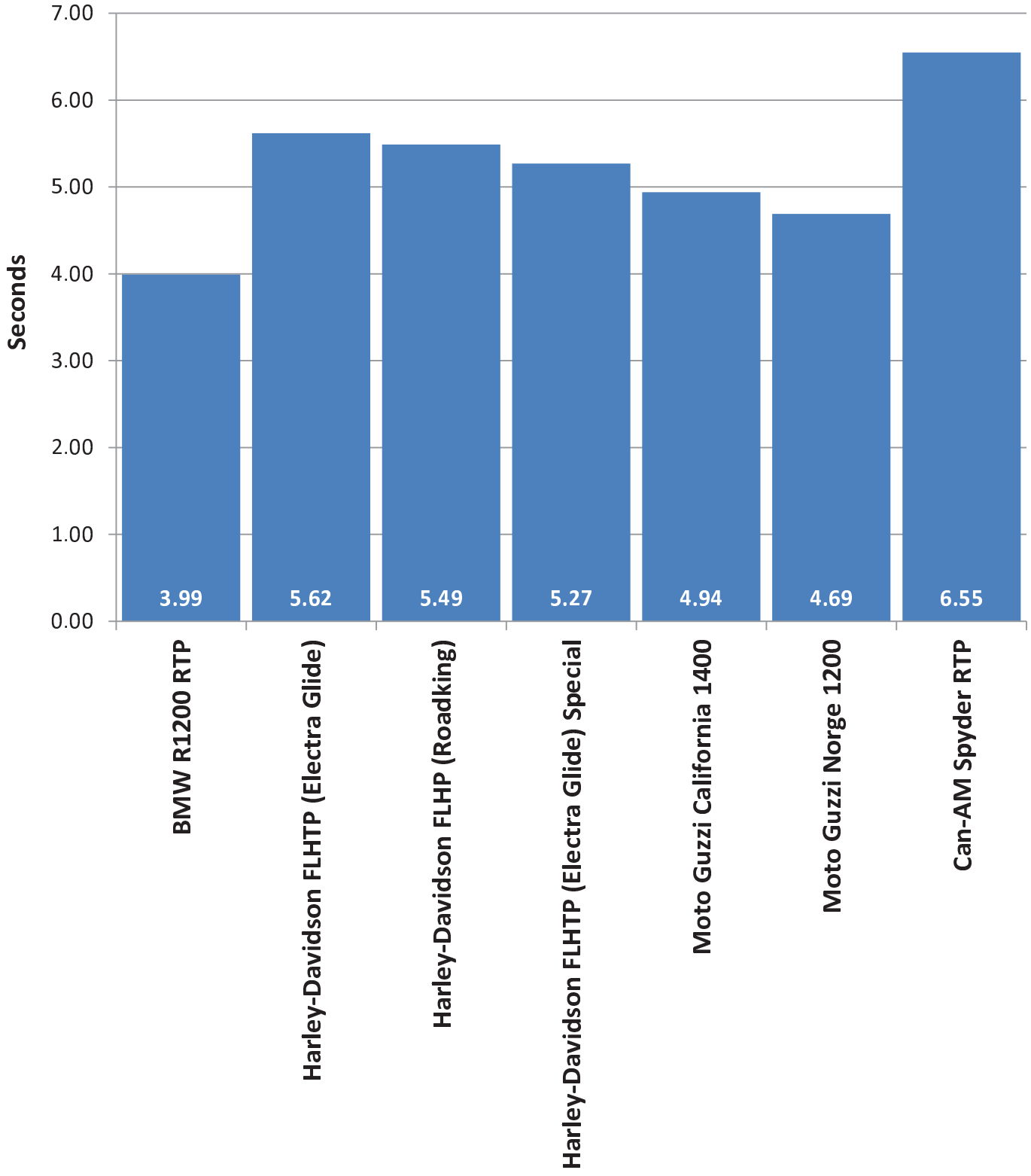
Top Speed Attained



2015 Motorcycle Acceleration Comparison

Acceleration Times

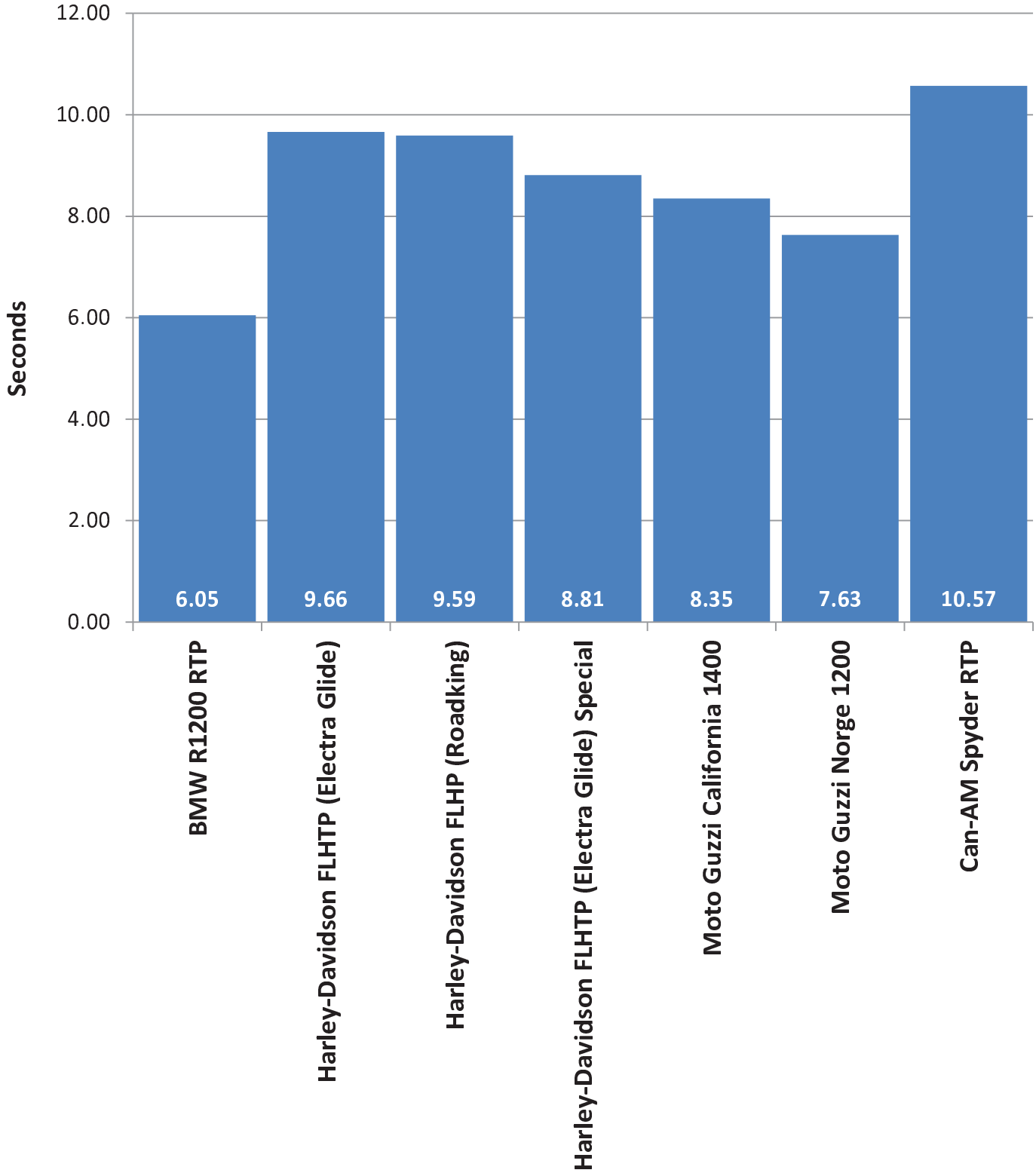
0-60 mph



2015 Motorcycle Acceleration Comparison

Acceleration Times

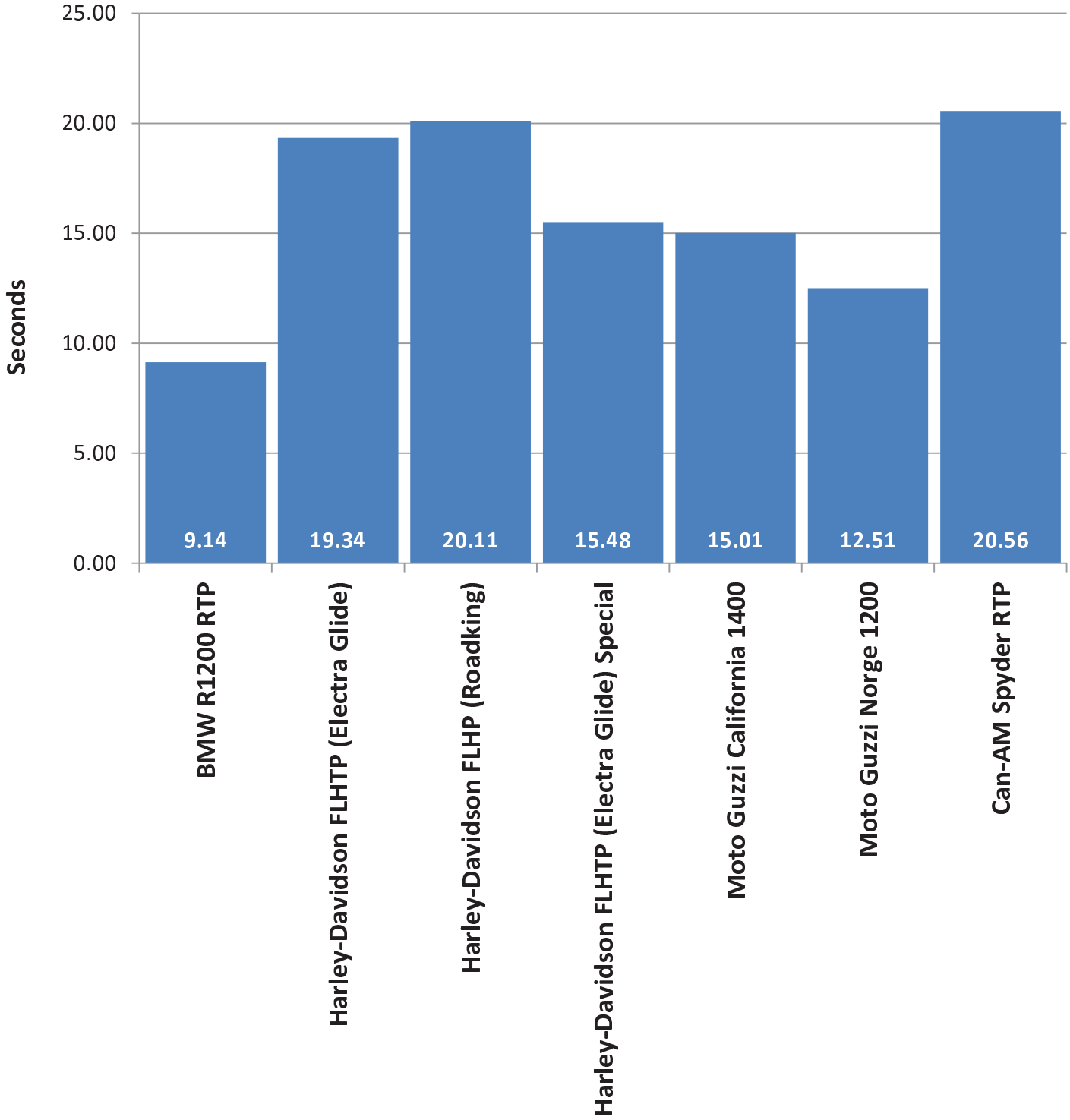
0-80 mph



2015 Motorcycle Acceleration Comparison

Acceleration Times

0-100 mph



MOTORCYCLE BRAKE TESTING

BRAKE TEST OBJECTIVE

To determine the deceleration rate attained by each test motorcycle on twenty 60 – 0 mph full ABS maximum deceleration panic stops. Each motorcycle 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 Kistler CDS-GPS CGPSLA 100 hz SP3 puck & logging unit. 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.

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

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

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

EXAMPLE: 60 mph = 88.002 ft/s x 88.002 = 7744.352 / 2 = 3872.176 / 23.198 ft/s^2 = 166.9 ft.

BRAKE TESTING

BMW R1200 RTP

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 11:28 a.m.

AIR TEMPERATURE: 54° F	**TRACK SURFACE TEMPERATURE:** 74.4° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	60.30	141.55	27.63
2	61.59	145.90	27.96
3	62.03	143.13	28.92
4	62.11	145.20	28.57
5	60.09	136.14	28.52
6	60.17	136.22	28.59
7	59.34	128.20	29.54
8	61.91	144.55	28.52
9	60.70	136.76	28.97
10	61.03	134.61	29.76
AVERAGE DECELERATION RATE:			**28.70 ft/s²**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	61.33	141.77	28.54
2	60.62	135.32	29.21
3	60.46	137.59	28.57
4	61.35	137.03	29.54
5	60.79	129.87	30.61
6	60.90	136.69	29.19
7	61.38	135.04	30.00
8	60.08	129.04	30.09
9	61.14	140.10	28.70
10	59.27	128.75	29.34
AVERAGE DECELERATION RATE:			**29.38 ft/s²**

Phase III

OVERALL AVERAGE DECELERATION RATE:	**29.04 ft/s²**

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**133.3 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

BRAKE TESTING

Harley Davidson FLHTP (Electra Glide)

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 10:22 a.m.

AIR TEMPERATURE: 50° F	**TRACK SURFACE TEMPERATURE:** 68.6° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s^2)*
1	59.93	146.58	26.35
2	60.13	149.08	26.09
3	60.34	147.72	26.51
4	59.76	146.60	26.20
5	60.59	149.48	26.41
6	60.59	146.55	26.94
7	61.05	150.50	26.64
8	61.17	153.22	26.27
9	59.96	149.99	25.78
10	61.18	145.91	27.59
AVERAGE DECELERATION RATE:			**26.48 ft/s^2**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s^2)*
1	59.30	130.53	28.97
2	60.60	151.13	26.14
3	59.52	143.83	26.49
4	61.04	150.00	26.72
5	59.72	144.13	26.62
6	58.98	138.20	27.08
7	59.37	139.68	27.14
8	60.78	142.31	27.92
9	59.46	142.34	26.71
10	59.40	138.82	27.34
AVERAGE DECELERATION RATE:			**27.11 ft/s^2**

Phase II

OVERALL AVERAGE DECELERATION RATE:	**26.80 ft/s^2**

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**144.5 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

BRAKE TESTING

Harley Davidson FLHP (Roadking)

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 9:51 a.m.

AIR TEMPERATURE: 48° F	**TRACK SURFACE TEMPERATURE:** 62° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	59.92	143.36	26.94
2	61.18	147.87	27.22
3	59.91	149.13	25.89
4	61.40	146.26	27.72
5	60.88	149.91	26.59
6	60.19	143.11	27.23
7	59.25	144.85	26.07
8	59.86	140.86	27.36
9	59.59	147.14	25.95
10	61.04	145.41	27.56
AVERAGE DECELERATION RATE:			**26.85 ft/s²**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	59.96	145.29	26.61
2	60.30	139.92	27.95
3	59.80	143.68	26.77
4	60.97	152.32	26.25
5	59.14	136.29	27.60
6	60.42	144.43	27.18
7	58.50	132.31	27.82
8	60.50	142.50	27.63
9	60.04	146.74	26.42
10	59.72	138.35	27.73
AVERAGE DECELERATION RATE:			**27.20 ft/s²**

Phase III

OVERALL AVERAGE DECELERATION RATE:	**27.03 ft/s²**
PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**143.3 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

BRAKE TESTING

Harley Davidson FLHTP (Electra Glide) Special

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 1:13 p.m.

AIR TEMPERATURE: 59° F	**TRACK SURFACE TEMPERATURE:** 80° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	60.24	139.15	28.05
2	60.73	148.42	26.73
3	60.84	145.43	27.38
4	59.21	141.30	26.69
5	60.22	151.35	25.77
6	60.06	151.20	25.66
7	60.45	151.52	25.94
8	60.23	146.10	26.71
9	59.50	144.91	26.28
10	61.31	150.80	26.81
AVERAGE DECELERATION RATE:			**26.60 ft/s²**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	60.05	146.34	26.50
2	60.28	149.89	26.07
3	60.13	150.88	25.78
4	61.38	152.02	26.65
5	59.59	141.65	26.96
6	60.93	155.03	25.76
7	60.21	144.13	27.06
8	59.78	147.59	26.05
9	59.76	146.91	26.15
10	59.90	148.40	26.01
AVERAGE DECELERATION RATE:			**26.30 ft/s²**

Phase III

OVERALL AVERAGE DECELERATION RATE:	**26.45 ft/s²**

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**146.4 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

BRAKE TESTING

Moto Guzzi California 1400

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 2:29 p.m.

AIR TEMPERATURE: 61° F	**TRACK SURFACE TEMPERATURE:** 83° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s^2)*
1	61.02	138.89	28.83
2	59.61	132.81	28.77
3	59.18	133.07	28.31
4	58.83	129.28	28.80
5	60.20	134.04	29.08
6	60.57	133.08	29.65
7	60.81	132.36	30.05
8	59.51	128.07	29.75
9	61.24	144.44	27.93
10	59.17	135.95	27.69
AVERAGE DECELERATION RATE:			**28.89 ft/s^2**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s^2)*
1	59.25	130.30	28.98
2	60.23	131.92	29.58
3	59.50	129.94	29.30
4	59.90	135.74	28.43
5	60.17	139.60	27.89
6	60.86	138.57	28.75
7	60.92	139.69	28.58
8	60.22	131.84	29.59
9	60.04	135.43	28.63
10	59.94	133.85	28.87
AVERAGE DECELERATION RATE:			**28.86 ft/s^2**

Phase III

OVERALL AVERAGE DECELERATION RATE:	**28.88 ft/s^2**
PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**134.1 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

BRAKE TESTING

Moto Guzzi Norge 1200

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 10:55 a.m.

AIR TEMPERATURE: 52° F	**TRACK SURFACE TEMPERATURE:** 69.4° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	60.67	128.93	30.70
2	61.26	134.34	30.05
3	60.25	133.68	29.21
4	61.68	134.69	30.38
5	60.92	132.23	30.18
6	60.04	131.74	29.43
7	60.41	136.82	28.69
8	60.62	132.27	29.88
9	59.55	128.55	29.67
10	60.48	135.72	28.99
AVERAGE DECELERATION RATE:			**29.72 ft/s²**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	59.90	128.83	29.96
2	60.54	132.24	29.81
3	60.24	128.68	30.33
4	60.89	126.99	31.40
5	60.49	139.43	28.23
6	60.65	132.75	29.80
7	59.60	129.03	29.61
8	59.66	130.49	29.34
9	59.76	133.07	28.86
10	60.29	132.33	29.54
AVERAGE DECELERATION RATE:			**29.69 ft/s²**

Phase III

OVERALL AVERAGE DECELERATION RATE:	**29.71 ft/s²**

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**130.3 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

BRAKE TESTING

Can-AM Spyder RTP

TEST LOCATION: MSP Precision Drive Track	**DATE:** September 16, 2014	**BEGINNING TIME:** 1:49 p.m.

AIR TEMPERATURE: 62° F	**TRACK SURFACE TEMPERATURE:** 94° F

Phase I

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	59.68	123.03	31.14
2	60.60	128.44	30.75
3	60.00	125.19	30.93
4	61.15	128.22	31.37
5	59.79	121.81	31.56
6	60.96	127.25	31.41
7	60.07	124.45	31.18
8	59.86	128.65	29.96
9	60.91	128.83	30.97
10	61.12	131.68	30.51
AVERAGE DECELERATION RATE:			**30.98 ft/s²**

(One cool down lap at 45 mph)

Phase II

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

Stop #	Initial Velocity *(mph)*	Stopping Distance *(feet)*	Deceleration Rate *(ft/s²)*
1	59.36	121.62	31.16
2	60.59	129.11	30.59
3	59.59	124.75	30.62
4	60.37	130.03	30.15
5	61.12	132.31	30.37
6	60.07	123.44	31.44
7	61.24	129.62	31.12
8	60.19	126.53	30.79
9	61.31	145.49	27.78
10	60.69	130.92	30.26
AVERAGE DECELERATION RATE:			**30.43 ft/s²**

Phase III

OVERALL AVERAGE DECELERATION RATE:	**30.71 ft/s²**

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	**126.1 feet**

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

All Motorcycles Tested are Equipped with Anti-Lock Brakes*

2015 Motorcycle Brake Testing

Projected Stopping Distance