

VRSC MODELS

2017 HARLEY-DAVIDSON® OWNER'S MANUAL



Harley-Davidson Motor Company
Service Communications
Milwaukee WI 53208 USA

2025-03-28



99736-17A

English

Printed in the USA

2017 HARLEY-DAVIDSON® OWNER'S MANUAL
VRSC MODELS - 99736-17A



99736-17A



VRSC MODELS

2017 HARLEY-DAVIDSON® OWNER'S MANUAL



99736-17A

2017 HARLEY-DAVIDSON® OWNER'S MANUAL - VRSC MODELS

TABLE OF CONTENTS

INTRODUCTION

Safety Definitions.....	1
Your Owner's Manual.....	1
We Care About You.....	1
United States Owners.....	2
Customer Service Assistance.....	2
Owner Information.....	2

SAFETY FIRST

Safe Operating Rules.....	5
Anti-Lock Brake System (ABS).....	11
Rules of the Road.....	12
Accessories and Cargo.....	13
Accessories and Cargo Guidelines.....	13
Noise Control System.....	15
Tampering.....	15
Labels.....	15

IDENTIFICATION

Vehicle Identification Number (VIN).....	19
General.....	19
Location.....	19
Abbreviated VIN.....	19

SPECIFICATIONS

Specifications.....	23
Tire Data.....	25
Fuel.....	28
Gasoline Blends.....	29
Catalytic Converters.....	30

CONTROLS AND INDICATORS

General: Controls and Indicators.....	31
Turn Signal Switch Operation.....	31
Operating.....	31
Automatic Canceling.....	31
Manual Canceling.....	31
Ignition Switch.....	31
Fork Lock.....	34
Primary Controls.....	35
Hand Controls: Basic Operation.....	39
Electric Starter Switch.....	39
Engine OFF/RUN Switch.....	39
Throttle Control Grip.....	39
Clutch Hand Lever.....	40
Horn Switch.....	40
Headlamp Dimmer Switch.....	40
Turn Signal Switches.....	41
Hazard Warning Four-Way Flasher.....	42

TABLE OF CONTENTS

Activate.....	43	Brake System.....	52
Deactivate.....	43	Front Brake Lever.....	52
Instruments.....	43	Rear Brake Pedal.....	52
Speedometer.....	43	Non-ABS Brake System.....	52
Odometer.....	43	Anti-lock Brake System (ABS).....	52
Setting Clock.....	44	How ABS Works.....	52
Fuel Range Function.....	44	How To Use ABS.....	53
Tachometer.....	45	ABS: Tires and Wheels.....	53
Tip Indicator.....	45	Anti-Lock Brake System (ABS).....	55
INDICATOR LAMPS.....	47	Identification.....	55
Turn Indicator Lamps.....	47	Jiffy Stand.....	55
Headlamp High Beam Indicator Lamp.....	47	Jiffy Stand Interlock: International Models.....	56
Neutral Indicator Lamp.....	47	Fuel Filler Cap.....	56
Engine Coolant Temperature Indicator Lamp.....	47	Rear View Mirrors.....	57
Oil Pressure Indicator Lamp.....	47	Side-Mounted License Plate.....	57
Instrument Lamps.....	50	Mirrors: VRSCF Model.....	58
Check Engine Lamp.....	50	Shock Absorbers.....	59
Low Fuel Lamp.....	50	General.....	59
Battery Discharge Lamp.....	50	Adjustment.....	60
Security System Lamp.....	50	SECURITY SYSTEM	
ABS Lamp.....	50	Security System.....	63
Gear Shift Lever.....	51	Components.....	63
Location.....	51	Options.....	63
Shift Pattern.....	51	FCC Regulations.....	63
Neutral.....	51		

TABLE OF CONTENTS

Security System Fob.....	64	Replacing the Battery.....	73
Fob Assignment.....	64	Disconnecting Power.....	74
Riding with a Fob.....	64	All Models.....	74
Riding without a Fob.....	65	Troubleshooting.....	74
Personal Identification Number (PIN).....	65	Security System Indicator.....	74
Changing the PIN.....	66	Fob.....	74
Security Status Indicator.....	68	Siren.....	75
Arming and Disarming.....	68	OPERATION	
Arming.....	68	Operating Recommendations.....	77
Disarming.....	68	Break-in Riding Rules.....	78
Disarming with a PIN.....	69	The First 500 Miles (800 Kilometers).....	78
Alarm.....	70	Pre-Riding Checklist.....	79
Warnings.....	70	Starting the Engine.....	81
Alarm Activation.....	71	General.....	81
Alarm Deactivation.....	71	Starting.....	81
Siren Chirp Mode (Confirmation).....	71	Stopping the Engine.....	82
Chirp Mode.....	71	Shifting Gears.....	82
Chirpless Mode.....	71	Stopped, Engine Off.....	82
Switching Modes.....	72	Starting from a Stop.....	82
Transport Mode.....	72	Upshift (Acceleration).....	83
To Enter Transport Mode.....	72	Downshift (Deceleration).....	84
To Exit Transport Mode.....	72	MAINTENANCE AND LUBRICATION	
Storage and Service Departments.....	73	Safe Operating Maintenance.....	87
Long-Term Parking.....	73	Break-in Maintenance.....	87
Service Departments.....	73		
Fob Battery.....	73		

TABLE OF CONTENTS

Engine Lubrication.....	87	Installation.....	111
Checking Oil Level.....	88	Air Cleaner.....	112
Cold Engine Oil Level Check.....	89	Headlamp Bulb Replacement.....	116
Hot Engine Oil Level Check.....	89	Bulb Removal.....	116
Changing Oil and Oil Filter.....	92	Bulb Installation.....	116
Low Temperature Lubrication.....	94	Headlamp Alignment.....	117
Coolant Type.....	94	Headlamp Adjustment.....	118
Coolant Level.....	95	LED Lamps.....	119
Checking Coolant Level in Coolant Bottle.....	95	Turn Signal Bulb Replacement: Bullet Style.....	119
Check Drive Belt Deflection.....	97	Harley-Davidson Absorbed Glass Mat (AGM) Battery Charging Information.....	120
Chassis Lubrication.....	100	Battery Maintenance.....	120
Oil Applications.....	100	Type.....	120
Hydraulic Clutch.....	101	Voltmeter Test.....	124
STEERING HEAD BEARINGS.....	103	Cleaning and Inspection.....	124
BRAKES.....	103	Charging.....	124
Brake Fluid.....	103	Storage.....	126
Brake Pads.....	106	Battery.....	128
Spark Plugs/Coils.....	107	Disconnection and Removal.....	128
Tires.....	108	Installation and Connection.....	130
Tire Replacement.....	109	Alternator/Voltage Regulator.....	133
Inspection.....	109	Charging Rate.....	133
When To Replace Tires.....	110	Fuses and Relays.....	134
Shock Absorbers.....	111	Front Fuse Block.....	134
Front Side Covers: VRSCF Model.....	111	Rear Fuse Block.....	136
Removal.....	111		

TABLE OF CONTENTS

Main Fuse.....	137
SEAT.....	138
Motorcycle Storage.....	139
Placing Motorcycle in Storage.....	139
Removing Motorcycle From Storage.....	140

CARE AND CLEANING

Cleaning and General Care.....	143
Radiator.....	147
Washing the Motorcycle.....	148
Preparation.....	148
Cleaning Wheels and Tires.....	148
Washing the Motorcycle.....	148
Drying the Motorcycle.....	149
Polishing and Sealing.....	149
Denim Finish Care.....	149
How to Clean.....	150
Leather and Vinyl Care.....	150
Wheel Care.....	150
Tail Lamp: VRSCF.....	151
Exhaust Care.....	151

TROUBLESHOOTING

Troubleshooting: General.....	153
Engine.....	153

Starter Does Not Operate or Does Not Turn Engine Over.....	153
Engine Turns Over But Does Not Start.....	153
Starts Hard.....	153
Starts But Runs Irregularly or Misses.....	154
A Spark Plug Fouls Repeatedly.....	154
Pre-ignition or Detonation (Knocks or Pings).....	154
Overheats.....	154
Excessive Vibration.....	154
Engine Oil Not Circulating (Oil Pressure Lamp Lit).....	154
Cooling System.....	155
Overheats.....	155
Electrical System.....	155
Alternator Does Not Charge.....	155
Alternator Charge Rate is Below Normal.....	155
Transmission.....	155
Transmission Shifts Hard.....	155
Transmission Jumps Out of Gear.....	155
Clutch Slips.....	155
Clutch Drags or Does Not Release.....	155
Clutch Chatters.....	156
Brakes.....	156
ABS System Behavior.....	156
Brakes Do Not Hold Normally.....	156

TABLE OF CONTENTS

ACCESSORIES

Genuine Motor Parts and Accessories.....	157
Online Catalog.....	157
Shop for Your Bike.....	157
Customizer.....	157
Fit Shop.....	157
Custom Seats.....	157
Custom Coverage.....	158
Add Accessories to Your New Motorcycle.....	158

WARRANTIES AND RESPONSIBILITIES

Warranty and Maintenance.....	159
Keeping It All Harley-Davidson.....	159
California and Select International Markets Evaporative Emission Controls.....	160
EPA Noise Regulations in the United States.....	160
EPA Regulations.....	160
Warranty/Service Information.....	161
Reporting Safety Defects in the United States.....	161
NHTSA Statement.....	161
Required Documentation for Imported Motorcycles.....	162
Owner Contact Information.....	162
Questions and Concerns.....	162

LIMITED MOTORCYCLE WARRANTY

2017 Harley-Davidson Motorcycle Limited Warranty.....	165
24 Months/Unlimited Miles.....	165
Duration.....	166
Owner's Obligations.....	166
Exclusions.....	166
Other Limitations.....	167
Important: Read Carefully.....	168

LIMITED MOTORCYCLE WARRANTY (AUSTRALIA)

2017 Australia/New Zealand Harley-Davidson Motorcycle Manufacturer's Limited Warranty.....	169
24 Months/Unlimited Miles.....	169
Your Consumer Rights.....	169
Warranty.....	169
Warranty Period.....	170
Obtaining Warranty Service.....	170
Exclusions.....	171
Other Limitations.....	171
Important: Read Carefully.....	172

TABLE OF CONTENTS

LIMITED NOISE WARRANTY

2017 Harley-Davidson Motorcycle Noise Control System Limited Warranty.....	173
Other Rights.....	174
Recommendations for Required Maintenance.....	174

LIMITED EMISSION WARRANTY

2017 Harley-Davidson Emission Control System Limited Warranty.....	175
Items Covered by this Emission Warranty.....	176
Other Rights.....	177
Recommendations for Required Maintenance.....	177

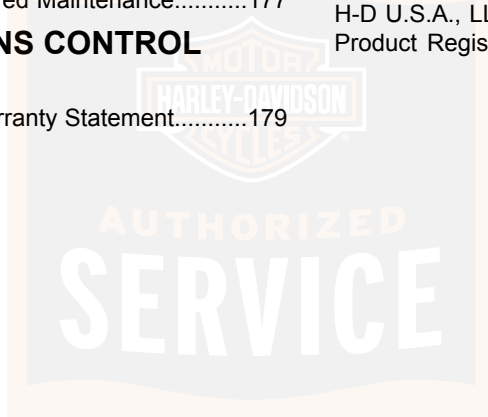
CALIFORNIA EMISSIONS CONTROL WARRANTY

California Emissions Control Warranty Statement.....	179
--	-----

Your Warranty Rights and Obligations.....	179
Manufacturer's Warranty Coverage.....	179
Owner's Warranty Responsibilities.....	179
Additional Warranty Terms.....	180
What Is Covered by this Emission Warranty.....	181
What Is Not Covered by this Emission Warranty.....	181

MAINTENANCE SCHEDULING

Service Records.....	183
Regular Service Intervals.....	183
Maintenance Records.....	187
Service Literature.....	188
H-D U.S.A., LLC Trademark Information.....	188
Product Registered Marks.....	189



NOTES



SAFETY DEFINITIONS

Statements in this manual preceded by the following words are of special significance:

▲ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. (00119a)

▲ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. (00139a)

NOTICE

NOTICE indicates a potentially hazardous situation which, if not avoided, may result in property damage. (00140b)

NOTE

A *NOTE* refers to important information and is placed in italic type. It is recommended that you take special notice of these items.

HARLEY-DAVIDSON MOTORCYCLES ARE FOR ON-ROAD USE ONLY

This motorcycle is not equipped with a spark arrester and is designed to be used only on the road. Operation of off-road usage in some areas may be illegal. Obey local laws and regulations. This manual should be considered a permanent part of the motorcycle and should remain with the motorcycle when resold.

VISIT THE HARLEY-DAVIDSON WEB SITE

<http://www.harley-davidson.com>

YOUR OWNER'S MANUAL

We Care About You

Welcome to the Harley-Davidson Motorcycling Family! When enjoying your Harley-Davidson motorcycle, be sure to ride safely, respectfully and within the limits of the law. Always wear a helmet, proper eyewear and protective clothing, and insist your passenger does too. Never ride while under the influence of alcohol or drugs. Know your Harley and read and understand your owner's manual from cover to cover.

This manual has been prepared to acquaint you with the operation, care and maintenance of your motorcycle and to provide you with important safety information. Follow these instructions carefully for maximum motorcycle performance and for your personal motorcycling safety and pleasure. Your Owner's Manual contains instructions for operation and minor maintenance. Major repairs are covered in the

Harley-Davidson Service Manual. Such major repairs require the attention of a skilled technician and the use of special tools and equipment. Your Harley-Davidson dealer has the facilities, experience and Genuine Harley-Davidson parts necessary to properly render this valuable service. We recommend that any emission system maintenance be performed by an authorized Harley-Davidson dealer.

Attend a rider safety course. To enroll in a Harley-Davidson Riding Academy course, call 1-414-343-4056 (U.S.) or visit www.harley-davidson.com/learnrider. In the United States, for information about Motorcycle Safety Foundation rider courses, call 1-800-446-9227 or visit www.msf-usa.org.

United States Owners

Your Harley-Davidson motorcycle conforms to all applicable U.S. Federal Motor Vehicle Safety Standards and U.S. Environmental Protection Agency regulations effective on the date of manufacture. Protect your privilege to ride by joining the American Motorcyclist Association. Visit www.ama-cycle.org for more information.

CUSTOMER SERVICE ASSISTANCE

Most sales or service issues will be resolved at the dealership. However if an issue arises that your dealer cannot resolve, please follow the procedure below.

1. Discuss your problem with the appropriate personnel at the dealership in the Sales, Service or Parts area. If that proves unsuccessful, speak to the owner of the dealership or the general manager.
2. If you cannot resolve the issue with the dealership, you can contact the Harley-Davidson Customer Service Department by calling (414) 343-4056 or write to:

Attention: Customer Service Department

Harley-Davidson Motor Company

P. O. Box 653

Milwaukee, WI 53201

To avoid delays, please have the following information available to give to the Customer Service Representative:

- Your name, address and phone number.
- Motorcycle V.I.N. (Vehicle Identification Number) found on the vehicle registration or stamped on the steering head and on a label located on the motorcycle itself.
- Name and location of the dealership.
- Current odometer reading.
- Clear description of the issue.

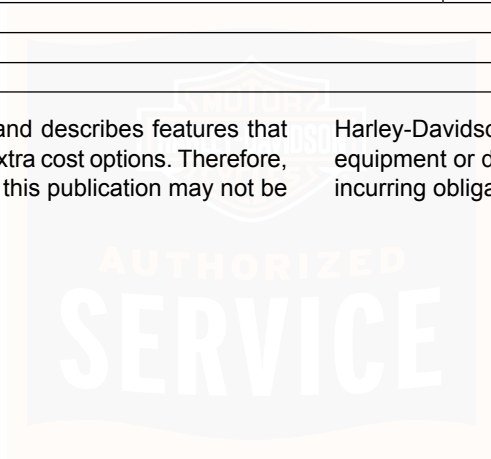
OWNER INFORMATION

Table 3. Owner Information

Item	Owner Information	Dealer Information
Name:		
Address:		
City:		
State/Province:		
Zip:		
Telephone:		
Ignition Key Number:		
Security System PIN: ____ - ____ - ____ - ____		
Sales Contact:		
Service Contact:		
Parts Contact:		

This owner's manual illustrates and describes features that are standard or are available as extra cost options. Therefore, some of the equipment shown in this publication may not be on your motorcycle.

Harley-Davidson reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.



NOTES



SAFE OPERATING RULES

⚠ WARNING

Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use could result in loss of control, death or serious injury.

- **Take a rider training course.**
- **Read owner's manual before riding, adding accessories or servicing.**
- **Wear a helmet, eye protection and protective clothing.**
- **Never tow a trailer.**

(00556d)

- Take a rider training course.
- Read owner's manual before riding, adding accessories or servicing.
- Wear a helmet, eye protection and protective clothing.
- Never tow a trailer.

Before operating your motorcycle, read and follow the operating and maintenance instructions in this manual. Follow these basic rules for your personal safety.

- Know and respect the rules of the road. Carefully read and familiarize yourself with the motorcycle safety information provided by your country or state. Read the RIDING TIPS booklet in your owner's kit (in the U.S.) and the MOTORCYCLE HANDBOOK from your state or regional traffic authority. The RIDING TIPS booklet is also available on www.msf-usa.org. See SAFETY FIRST > RULES OF THE ROAD (Page 12).
- Before starting engine, check for proper operation of brake, clutch, shifter, throttle controls, correct fuel and oil supply.

⚠ WARNING

Harley-Davidson parts and accessories are designed for Harley-Davidson motorcycles. Using non-Harley-Davidson parts or accessories can adversely affect performance, stability or handling, which could result in death or serious injury. (00001b)

⚠ WARNING

Stop the engine when refueling or servicing the fuel system. Do not smoke or allow open flame or sparks near gasoline. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00002a)

- Use only Harley-Davidson approved parts and accessories. Use of certain other manufacturer's performance parts may void your new motorcycle warranty, except where prohibited by law. See your Harley-Davidson dealer for details.

When refueling your motorcycle, observe the following rules.

- Refuel in a ventilated area with the engine turned off.
- Remove fuel filler cap slowly.
- Do not smoke or allow open flames or sparks when refueling or servicing the fuel system.
- Do not fill fuel tank above the bottom of the filler neck insert.
- Leave air space to allow for fuel expansion.

⚠ WARNING

Do not store motorcycle with gasoline in tank within the home or garage where open flames, pilot lights, sparks or electric motors are present. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00003a)

⚠ WARNING

Engine exhaust from this product contains chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. (00004f)

⚠ WARNING

Do not run motorcycle in a closed garage or confined area. Inhaling motorcycle exhaust, which contains poisonous carbon monoxide gas, could result in death or serious injury. (00005a)

⚠ WARNING

The jiffy stand locks when placed in the full forward (down) position with vehicle weight on it. If the jiffy stand is not in the full forward (down) position with vehicle weight on it, the vehicle can fall over which could result in death or serious injury. (00006a)

⚠ WARNING

Be sure jiffy stand is fully retracted before riding. If jiffy stand is not fully retracted, it can contact the road surface causing a loss of vehicle control, which could result in death or serious injury. (00007a)

- A new motorcycle must be operated according to the special break-in procedure. See OPERATION > BREAK-IN RIDING RULES (Page 78).
- Operate motorcycle at moderate speed and out of traffic until you become thoroughly familiar with its operation and handling characteristics under all conditions.

NOTE

Harley-Davidson recommends that you obtain information and formal training in the correct motorcycle riding technique. In the United States, both the Harley-Davidson Riding Academy (1-414-343-4056) and the Motorcycle Safety Foundation (1-800-446-9227) offer beginning and advanced rider safety courses.

⚠ WARNING

Travel at speeds appropriate for road and conditions and never travel faster than posted speed limit. Excessive speed can cause loss of vehicle control, which could result in death or serious injury. (00008a)

- Do not exceed the legal speed limit or drive too fast for existing conditions. Always reduce speed when poor driving conditions exist. High speed increases the influence of any other condition affecting stability and increases the possibility of loss of control.

- Pay strict attention to road surfaces and wind conditions. Keep both hands on the handlebar grips when riding the motorcycle. Any two-wheeled vehicle may be subject to upsetting forces such as wind blasts from passing trucks, holes in the pavement, rough road surfaces and rider control error. These forces may influence the handling characteristics of your motorcycle. If you experience these conditions, reduce speed and guide the motorcycle with a relaxed grip to a controlled condition. Do not brake abruptly or force the handlebar. This may aggravate an unstable condition.
- Keep cargo weight concentrated close to the motorcycle and as low as possible to minimize the change in the motorcycle's center of gravity. Distribute weight evenly on both sides of the vehicle. Do not load bulky items too far behind the rider or add weight to the handlebars or front forks. Do not exceed maximum specified load in each saddlebag.

NOTE

New riders should gain experience under various conditions while riding at moderate speeds.

- Operate your motorcycle defensively. Remember, a motorcycle does not afford the same protection as an automobile in an accident. One common risk for an accident occurs when another vehicle turns left in front of an on-coming motorcyclist. Operate only with headlamp on.

▲ WARNING

Avoid contact with exhaust system and wear protective clothing that completely covers legs while riding. Exhaust pipes and mufflers get very hot when engine is running and remain too hot to touch, even after engine is turned off. Failure to wear protective clothing could result in burns or other serious injury. (00009a)

- Wear an approved helmet, clothing and foot gear suited for motorcycle riding. Bright or light colors are best for greater visibility in traffic, especially at night. Avoid loose, flowing garments and scarves.
- When carrying passengers, it is your responsibility to instruct them on proper riding procedures. See the RIDING TIPS booklet included in your owner's kit (in the U.S.) or available on www.msf-usa.org.

- Do not allow other individuals, under any circumstances, to operate your motorcycle unless you know that they are experienced and licensed riders. Make sure they are thoroughly familiar with the operation of your particular motorcycle.
- Protect your motorcycle against theft. Using the fork lock immediately after parking your motorcycle will discourage unauthorized use or theft.
- Safe motorcycle operation requires alert mental judgment combined with a defensive driving attitude. Do not allow fatigue, alcohol or drugs to endanger your safety or that of others.
- For vehicles with a sound system, adjust the volume to a non-distracting level before operating vehicle.
- Proper care and maintenance are important to stability and safe operation. Check the tire pressure, tire condition, tread depth and proper adjustment to steering head bearings. Maintain your motorcycle in proper operating condition. Refer to MAINTENANCE SCHEDULING > SERVICE RECORDS (Page 183).

▲ WARNING

Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)

⚠ WARNING

Perform the service and maintenance operations as indicated in the regular service interval table. Lack of regular maintenance at the recommended intervals can affect the safe operation of your motorcycle, which could result in death or serious injury. (00010a)

⚠ WARNING

Do not operate motorcycle with loose, worn or damaged steering or suspension systems. Contact a Harley-Davidson dealer for repairs. Loose, worn or damaged steering or suspension components can adversely affect stability and handling, which could result in death or serious injury. (00011a)

⚠ WARNING

Regularly inspect shock absorbers and front forks. Replace leaking, damaged or worn parts that can adversely affect stability and handling, which could result in death or serious injury. (00012a)

⚠ WARNING

Use Harley-Davidson replacement fasteners. Aftermarket fasteners can adversely affect performance, which could result in death or serious injury. (00013a)

- See your Harley-Davidson service manual for proper torque values.
- Aftermarket fasteners may not have the specific property requirements to perform properly.

⚠ WARNING

Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)

⚠ WARNING

Replace punctured or damaged tires. In some cases, small punctures in the tread area may be repaired from within the removed tire by a Harley-Davidson dealer. Speed should NOT exceed 80 km/h (50 mph) for the first 24 hours after repair, and the repaired tire should NEVER be used over 129 km/h (80 mph). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

⚠ WARNING

Only install original equipment tire valves and valve caps. A valve, or valve and cap combination, that is too long or too heavy can strike adjacent components and damage the valve, causing rapid tire deflation. Rapid tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00281a)

⚠ WARNING

Do not exceed the motorcycle's Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Rating (GAWR). Exceeding these weight ratings can lead to component failure and adversely affect stability, handling and performance, which could result in death or serious injury. (00016f)

NOTICE

When lifting a motorcycle using a jack, be sure jack contacts both lower frame tubes where down tubes and lower frame tubes converge. Never lift by jacking on cross-members, oil pan, mounting brackets, components or housings. Failure to comply can cause serious damage resulting in the need to perform major repair work. (00586d)

- GVWR is the sum of the weight of the motorcycle, accessories and the maximum weight of the rider, passenger and cargo that can be safely carried.
- GAWR is the maximum amount of weight that can be safely carried on each axle.
- See information label on frame steering head or frame downtube for GVWR and GAWR. See OWNER MANUAL > SPECIFICATIONS (Page 23).

⚠ WARNING

Do not tow a disabled motorcycle. Towing can adversely affect stability and handling, which could result in death or serious injury. (00017a)

⚠ WARNING

Do not pull a trailer with a motorcycle. Pulling a trailer can cause tire overload, damage and failure, reduced braking performance, and adversely affect stability and handling, which could result in death or serious injury. (00018c)

⚠ WARNING

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (00019e)

⚠ WARNING

Do not open storage compartments while riding. Distractions while riding can lead to loss of control, which could result in death or serious injury. (00082a)

⚠ WARNING

Consult a Harley-Davidson dealer regarding any questions or problems that occur in the operation of your motorcycle. Failure to do so can aggravate an initial problem, cause costly repairs, cause an accident and could result in death or serious injury. (00020a)

⚠ WARNING

Contact with DOT 4 brake fluid can have serious health effects. Failure to wear proper skin and eye protection could result in death or serious injury.

- If inhaled: Keep calm, remove to fresh air, seek medical attention.

- If on skin: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation develops, seek medical attention.
- If in eyes: Wash affected eyes for at least 15 minutes under running water with eye lids held open. If irritation develops, seek medical attention.
- If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Contact Poison Control. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at sds.harley-davidson.com (00240e)

- Make sure all equipment required by federal, state and local law is installed and in good operating condition.

ANTI-LOCK BRAKE SYSTEM (ABS)

⚠ WARNING

If ABS lamp continues flashing at speeds greater than 5 km/h (3 mph) or remains on continuously, the ABS is not operating. The standard brake system is operational, but wheel lock up can occur. Contact a Harley-Davidson Dealer to have ABS repaired. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00361b)

▲ WARNING

ABS cannot prevent lockup of rear wheel due to engine braking. ABS will not aid in cornering or on loose/uneven surfaces. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00362a)

To operate motorcycles equipped with an anti-lock brake system, see CONTROLS AND INDICATORS > BRAKE SYSTEM (Page 52).

RULES OF THE ROAD

- Always use your turn signals and exercise caution when passing other vehicles going in the same direction. Never pass going in the same direction at street intersections, on curves or when going up or down a hill.
- At street intersections, give the right-of-way. Do not presume you have the right-of-way, as the other driver may not know that it is your turn.
- Always signal when preparing to stop, turn or pass.
- Promptly obey all traffic signs, including those signs used for the control of traffic at intersections. Always obey traffic signs near schools and at railroad crossings.

- When intending to turn, signal at least 30.5 m (100 ft) before reaching the turning point. If turning across an intersection, move over to the centerline of the street (unless local rules require otherwise). Slow down when entering the intersection and turn carefully.
- Never anticipate a traffic light. When a change is indicated from GO to STOP (or STOP to GO), slow down and wait for the light to change. Never run through a yellow or red traffic light.
- While turning, watch for pedestrians, animals, as well as vehicles.
- Do not leave the curb or parking area without signaling. Make sure that your way is clear to enter moving traffic. A moving line of traffic always has the right-of-way.
- Make sure that your license plate is installed in the position specified by law. Make sure that your license plate is always clearly visible. Keep the license plate clean.
- Ride at a safe speed that is consistent with the type of highway you are on. Pay strict attention to whether the road is dry, oily, icy or wet.
- Watch for debris such as leaves or loose gravel.
- Weather and traffic conditions on the highway dictate adjusting your speed and driving habits accordingly.

ACCESSORIES AND CARGO

Harley-Davidson Motor Company cannot test and make specific recommendations concerning every accessory or combination of accessories sold. Therefore, the rider must be responsible for safe operation when installing accessories or carrying extra weight.

⚠ WARNING

See **ACCESSORIES AND CARGO** section within the **SAFETY FIRST** section in your owner's manual. Improper cargo loading or accessory installation can cause component failure and adversely affect stability, handling and performance, which could result in death or serious injury. (00021c)

⚠ WARNING

Do not exceed the motorcycle's Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Rating (GAWR). Exceeding these weight ratings can lead to component failure and adversely affect stability, handling and performance, which could result in death or serious injury. (00016f)

- GVWR is the sum of the weight of the motorcycle, accessories and the maximum weight of the rider, passenger and cargo that can be safely carried.

- GAWR is the maximum amount of weight that can be safely carried on each axle.
- See information label on frame steering head or frame downtube for GVWR and GAWR. Refer to weight tables. See OWNER MANUAL > SPECIFICATIONS (Page 23).

⚠ WARNING

Do not pull a trailer with a motorcycle. Pulling a trailer can cause tire overload, damage and failure, reduced braking performance, and adversely affect stability and handling, which could result in death or serious injury. (00018c)

Accessories and Cargo Guidelines

Follow the following guidelines when equipping a motorcycle, carrying passengers and/or cargo.

⚠ WARNING

Travel at speeds appropriate for road and conditions and never travel faster than posted speed limit. Excessive speed can cause loss of vehicle control, which could result in death or serious injury. (00008a)

- Do not exceed the legal speed limit or drive too fast for existing conditions. Always reduce speed when poor driving conditions exist. High speed increases the influence of any other condition affecting stability and increases the possibility of loss of control.
- Pay strict attention to road surfaces and wind conditions, and always keep both hands on the handlebar grips when riding. Two-wheeled vehicles are subject to upsetting forces such as wind blasts from passing trucks, holes in the pavement, rough road surfaces, rider control error. These forces can influence the handling characteristics of your motorcycle. If you experience these conditions, reduce speed and guide the motorcycle with a relaxed grip to a controlled condition. Do not brake abruptly or force the handlebar. This action can aggravate an unstable condition.
- Keep cargo weight concentrated close to the motorcycle and as low as possible. This position minimizes the change in the motorcycle's center of gravity.
- Distribute weight evenly on both sides of the vehicle.
- Do not load bulky items too far behind the rider or add weight to the handlebars or front forks.
- If equipped with saddlebags, do not exceed maximum specified load in each saddlebag.
- If equipped with luggage racks, do not overload luggage racks. Luggage racks are designed for lightweight items.

- Make sure that cargo is secure and cannot shift while riding and recheck the cargo periodically. Accessories that change the operator's riding position can increase reaction time and affect handling.
- Extra electrical equipment can overload the motorcycle's electrical system. This overload can cause electrical system and/or component failure.

⚠ WARNING

If Equipped: Front and/or rear guards are not intended to provide protection from bodily injury in a collision with another vehicle or any other object. (00022d)

- Large surfaces such as fairings, windshields, backrests and luggage racks can have an adverse effect on stability and handling.
- Only install Genuine Harley-Davidson accessories designed specifically for your motorcycle.
- Pay particular attention to the weights of accessories, cargo, riding gear, passenger and rider. These weights affect the loading requirements of your motorcycle.

⚠ WARNING

Harley-Davidson parts and accessories are designed for Harley-Davidson motorcycles. Using non-Harley-Davidson parts or accessories can adversely affect performance, stability or handling, which could result in death or serious injury. (00001b)

⚠ WARNING

Do not add sidecar to this motorcycle. Operating motorcycle with sidecar can cause loss of vehicle control, which could result in death or serious injury. (00590d)

NOISE CONTROL SYSTEM

Tampering

Removal or replacement of any noise control system component may be prohibited by law. This prohibition includes

modifications made prior to vehicle sale or delivery to the ultimate purchaser. Use of a vehicle on which noise control system components have been removed or rendered inoperative may also be prohibited by law.

LABELS

See Figure 1. The safety and maintenance labels on your motorcycle indicate compliance to market regulations. Refer to Table 4.

NOTE

Some labels are available in different languages for destinations outside the United States.

If removed or damaged, replacement labels can be purchased. See a Harley-Davidson dealer for all available labels.

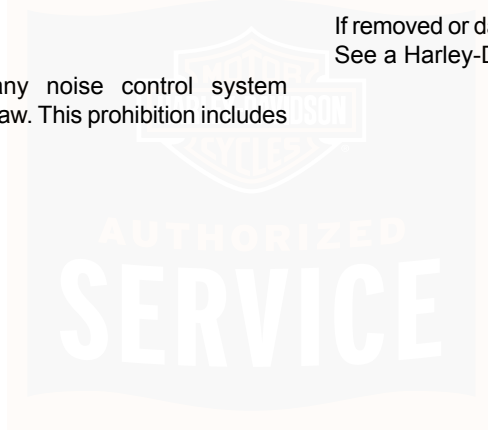
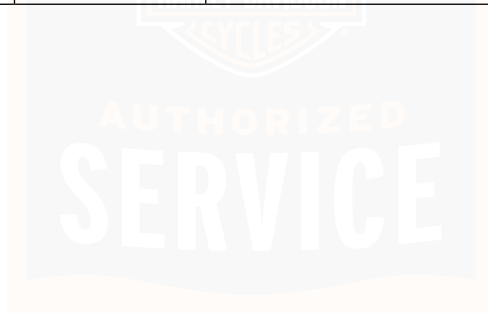




Figure 1. Labels

Table 4. Labels

ITEM	PART NO.	WARNING	LOCATION	TEXT
1	14000384	General	Rear of air box cover.	<p>WARNING: Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use could result in loss of control, death or serious injury.</p> <ul style="list-style-type: none">• Take a rider training course.• Read Owner's Manual before riding, adding accessories or servicing.• Wear a helmet, eye protection and protective clothing.• Never tow a trailer.
2	15368-01A	Battery	Under seat, rear of fuel tank.	<p>WARNING: A connected battery can cause a spark or motorcycle startup while servicing. Death or serious injury could occur.</p> <ul style="list-style-type: none">• Disconnect negative cable before servicing.• Keep cable away from terminal while servicing.



NOTES



VEHICLE IDENTIFICATION NUMBER (VIN)

General

See Figure 3. A unique 17-digit serial or Vehicle Identification Number (VIN) is assigned to each motorcycle. For a description of each item in the VIN, refer to Table 5.

Location

See Figure 2. The full 17-digit VIN is stamped on the right side of the frame on the steering head. In some destinations, a printed VIN label is also attached to the left frame tube above the front engine cylinder.

Abbreviated VIN

An abbreviated VIN showing the vehicle model, engine type, model year and sequential number is stamped on the left side of the crankcase below the rear cylinder head.

NOTE

Always give the full 17-digit Vehicle Identification Number when ordering parts or making any inquiry about your motorcycle.

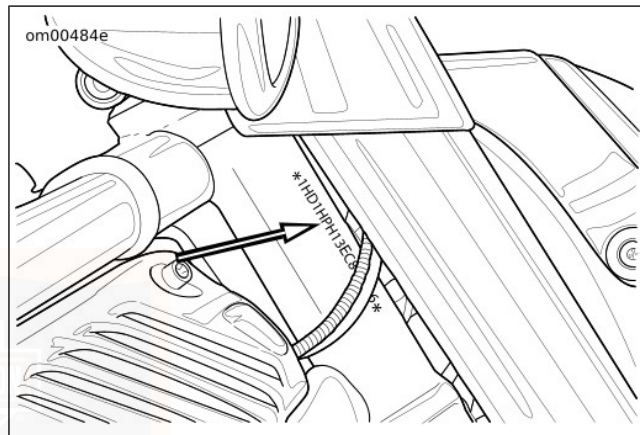


Figure 2. VIN Location

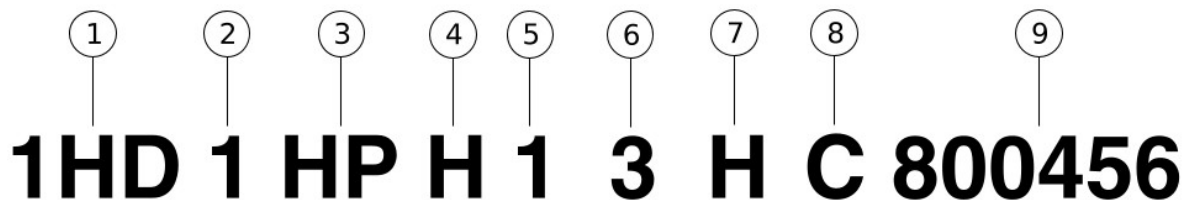


Figure 3. Typical Harley-Davidson VIN: 2017 V-Rod Models

Table 5. Harley-Davidson VIN Breakdown: 2017 V-Rod Models

POSITION	DESCRIPTION	POSSIBLE VALUES
1	World manufacturer identifier	1HD=Originally manufactured in the United States 5HD=Originally manufactured in the United States for sale outside of the United States 932=Originally manufactured in Brazil MEG=Originally manufactured in India
2	Motorcycle type	1=Heavyweight motorcycle (901 cm ³ or larger)
3	Model	See VIN model table
4	Engine type	H=Revolution [®] , 1247 cm ³ liquid-cooled, fuel injected

Table 5. Harley-Davidson VIN Breakdown: 2017 V-Rod Models

POSITION	DESCRIPTION	POSSIBLE VALUES	
5	Calibration/configuration, introduction	Normal Introduction 1=Domestic (DOM) 3=California (CAL) A=Canada (CAN) C=HDI E=Japan (JPN) G=Australia (AUS) J=Brazil (BRZ) L=Asia Pacific (APC) N=India (IND)	Mid-year or Special Introduction 2, 4=Domestic (DOM) 5, 6=California (CAL) B=Canada (CAN) D=HDI F=Japan (JPN) H=Australia (AUS) K=Brazil (BRZ) M=Asia Pacific (APC) P=India (IND)
6	VIN check digit	Can be 0-9 or X	
7	Model year	H=2017	
8	Assembly plant	C=Kansas City, MO USA D=H-D Brazil-Manaus, Brazil (CKD) N=Haryana India (Bawal District Rewari)	
9	Sequential number	Varies	

Table 6. VIN Model Codes: 2017 V-Rod Models

CODE	MODEL	CODE	MODEL
HH	VRSCDX Night Rod® Special	HP	VRSCF V-Rod Muscle®

NOTES



SPECIFICATIONS

Table 7. Engine

ITEM	SPECIFICATION	
Number of cylinders	2	
Type	4-cycle, DOHC, 60 degree V-twin, water cooled	
Compression ratio	11.5-1	
Bore	4.13 in	105.00 mm
Stroke	2.83 in	72.00 mm
Displacement	76.1 in ³	1247 cm ³

NOTE

Specifications in this publication may not match those of official certification in some markets due to timing of publication printing, variance in testing methods, and/or vehicle differences. Customers seeking officially recognized regulatory specifications for their vehicle should refer to certification documents, contact their respective dealer or distributor, or visit www.h-d.com.

Table 8. Electrical

ITEM	SPECIFICATION
Timing setting	Not adjustable
Battery	12 V, 315 CCA, 19 Ah,

Table 8. Electrical

ITEM	SPECIFICATION	
Charging system	Three-Phase, 38 A system (439 W @ 13 V, 2000 rpm, 489 W max power @ 13 V)	
Spark plug gap	0.035 in	0.89 mm
Spark plug torque	17 ft-lbs	23 Nm

Table 9. Capacities

ITEM	U.S.	METRIC
Fuel tank	5.0 gal	18.9 L
Low fuel warning lamp on	0.5 gal	1.9 L
Oil capacity with filter	5.0 qt	4.7 L
Coolant capacity	2.5 qt	2.4 L

Table 10. Transmission

ITEM	SPECIFICATION
Type	foot shift
Speeds	5 forward
Gears	1st, 5th spur gears 2nd, 3rd, 4th helical gears

Table 11. Drivetrain

COMPONENT	TYPE
Primary drive	gear
Final drive	belt

Table 11. Drivetrain

COMPONENT	TYPE
Rear sprocket	compensated
Clutch	hydraulic, slip and assist

Table 12. Sprocket Teeth

ITEM	DOMESTIC	INTERNATIONAL
Transmission	28	30
Rear wheel	72	72
Ratio	2.4	2.571

Table 13. Overall Gear Ratios

GEAR	DOMESTIC	INTERNATIONAL
First gear	11.752	10.696
Second gear	7.898	7.371
Third gear	6.322	5.900
Fourth gear	5.459	5.095
Fifth gear	4.899	4.563

⚠ WARNING

Do not exceed the motorcycle's Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Rating (GAWR). Exceeding these weight ratings can lead to component failure and adversely affect stability, handling and performance, which could result in death or serious injury. (00016f)

- GVWR is the sum of the weight of the motorcycle, accessories, and the maximum weight of the rider, passenger and cargo that can be safely carried.
- GAWR is the maximum amount of weight that can be safely carried on each axle.
- The GVWR and GAWR are shown on the information label, located on the frame downtube.

NOTE

The maximum additional weight allowed on the motorcycle equals the Gross Vehicle Weight Rating (GVWR) minus the running weight. For example, a motorcycle with GVWR of 544 kg (1,200 lb) having a running weight of 363 kg (800 lb), would allow a maximum of an additional 181 kg (400 lb) combined weight of the rider, passenger, riding gear, cargo and installed accessories.

Table 14. Weights

ITEM	VRSCDX		VRSCF	
	lb	kg	lb	kg
Running weight*	666	302	673	305
Maximum added weight allowed**	409	184	402	183
GVWR	1075	488	1075	488
GAWR Front	377	171	377	171

Table 14. Weights

ITEM	VRSCDX		VRSCF	
	lb	kg	lb	kg
GAWR Rear	698	317	698	317

*The total weight of the motorcycle as delivered with oil/fluids and approximately 90% of fuel.

**The total weight of accessories, cargo, riding gear, passenger and rider must not exceed this weight.

Table 15. Dimensions

ITEM	VRSCDX		VRSCF	
	in	mm	in	mm
Length	96.1	2440	94.9	2410
Overall width	35.0	890	37.4	950
Overall height	41.9	1065	41.9	1065
Wheelbase	67	1702	67	1702
Road clearance	4.5	115	4.1	105
Seat height*	25.6	650	25.6	650

*With 82 kg (180 lb) rider on seat.

Table 16. Specified Tires

MOUNT	SIZE	SPECIFIED TIRE	PRESSURE (COLD 20 °C (68 °F))*	
			psi	kPa
Front	19 in	Michelin Scorcher "11" 120/70ZR-19 60W	36	248
Rear	18 in	Michelin Scorcher "11" 240/40R-18 79V	42	290

* Tire pressure will vary with changes in ambient and tire temperature. Check pressure with tires cold (20 °C (68 °F)). Increase tire pressure by 6.9 kPa (1 psi) for every 5 °C (10 °F) in ambient air temperature above this point.

TIRE DATA

⚠ WARNING

Match tires, tubes, rim strips or seals, air valves and caps to the correct wheel. Contact a Harley-Davidson dealer. Mismatching can lead to tire damage, allow tire slippage on the wheel or cause tire failure, which could result in death or serious injury. (00023c)

⚠ WARNING

Only install original equipment tire valves and valve caps. A valve, or valve and cap combination, that is too long or too heavy can strike adjacent components and damage the valve, causing rapid tire deflation. Rapid tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00281a)

⚠ WARNING

Harley-Davidson recommends the use of its specified tires. Harley-Davidson vehicles are not designed for operation with non-specified tires, including snow, moped and other special-use tires. Use of non-specified tires can adversely affect stability, handling or braking and lead to loss of vehicle control, which could result in death or serious injury. (00024d)

Refer to Table 16 for specified tires and recommended pressures.

Tubeless tires are used on all Harley-Davidson cast and disc wheels.

⚠ WARNING

Harley-Davidson front and rear tires are not the same. Interchanging front and rear tires can cause tire failure, which could result in death or serious injury. (00026a)

⚠ WARNING

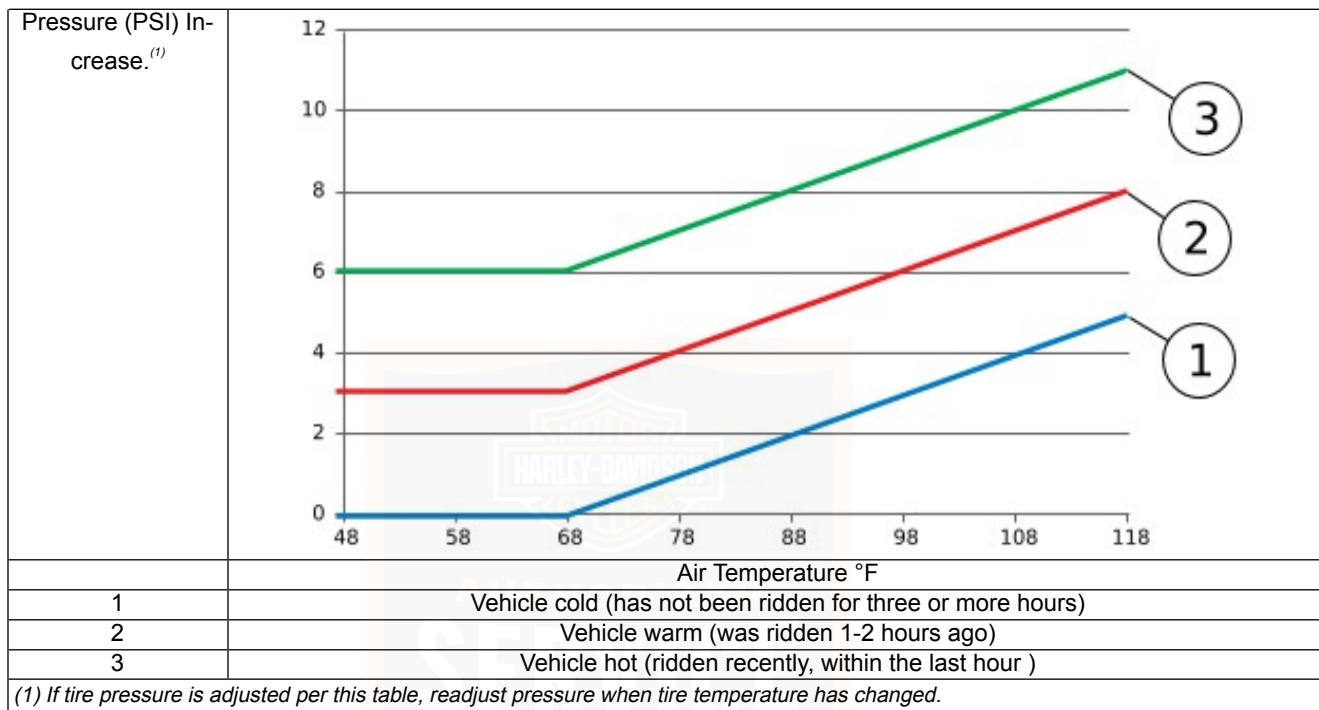
Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)

Always maintain proper tire pressure as specified in Table 16. Refer to Table 17 for temperature-related corrections. Do not load tires beyond the GAWR specified in Table 14. Under-inflated, over-inflated or overloaded tires can fail.

If tire pressure is to be checked when the vehicle has been recently ridden and the tires are warm, refer to Table 17 to determine corrected pressures. If warm tire pressure is adjusted per Table 17, readjust per cold tire recommendation at the earliest convenience.

AUTHORIZED
SERVICE

Table 17. Tire Pressure Adjustment



Harley-Davidson does not perform any testing with 100 percent nitrogen in tires. Harley-Davidson neither recommends nor discourages the use of pure nitrogen to inflate tires.

⚠ WARNING

Do not use liquid tire balancers or sealants in aluminum wheels. Using liquid tire balancers or sealants can cause rapid corrosion of the rim surface, which could cause tire deflation. Tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00631b)

⚠ WARNING

Replace tire immediately with a Harley-Davidson specified tire when wear bars become visible or only 1 mm (1/32 in) tread depth remains. Riding with a worn tire could result in death or serious injury. (00090c)

Harley-Davidson tires have wear bars that run horizontally across the tread. When a tire is worn to the point the tread wear indicator bars become visible on the tread surfaces, or 0.8 mm (1/32 in) tread depth remains, the tires can:

- Be more easily damaged leading to tire failure
- Provide reduced traction
- Adversely affect stability and handling

India Tire Compliance Statement: Harley-Davidson Motor Company declares that the tires listed in the specifications section (India Only) meet the Indian Standard 15627 requirement of the Bureau of Indian Standards (as amended from time to time) required for registration of vehicles assembled/manufactured in India. These tires also comply with the Central Motor Vehicle Rules requirements, 1989.

FUEL

Always use a good quality unleaded gasoline. Octane ratings are usually found on the pump. Refer to Table 18.

⚠ WARNING

Avoid spills. Slowly open fuel filler cap. Do not fill above bottom of filler neck insert, leaving air space for fuel expansion. Secure filler cap after refueling. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00028b)

⚠ WARNING

Use care when refueling. Pressurized air in fuel tank can force gasoline to escape through filler tube. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00029a)

Modern service station pumps dispense a high flow of gasoline into a motorcycle fuel tank. This can cause air entrapment and pressurization.

Table 18. Octane Rating

SPECIFICATION	RATING
Pump Octane (R+M)/2	91 (95 RON)

GASOLINE BLENDS

Your motorcycle was designed to get the best performance and efficiency using unleaded gasoline. Most gasoline is blended with alcohol and/or ether to create oxygenated blends. The type and amount of alcohol or ether added to the fuel is important.

NOTICE

Do not use gasoline that contains methanol. Doing so can result in fuel system component failure, engine damage and/or equipment malfunction. (00148a)

- Gasoline/METHYL TERTIARY BUTYL ETHER (MTBE) blends are a mixture of gasoline and as much as 15 percent MTBE. Gasoline/MTBE blends use in your motorcycle is approved.

- ETHANOL fuel is a mixture of ethanol (grain alcohol) and unleaded gasoline and can have an impact on fuel mileage. Fuels with an ethanol content of up to 10 percent may be used in your motorcycle without affecting vehicle performance. U.S. EPA regulations currently indicate that fuels with 15 percent ethanol (E15) are restricted from use in motorcycles at the time of this publication. Some motorcycles are calibrated to operate with higher ethanol concentrations to meet the fuel standards in certain countries.

- REFORMULATED OR OXYGENATED GASOLINES (RFG) describes gasoline blends that are specifically designed to burn cleaner than other types of gasoline. This results in fewer tailpipe emissions. They are also formulated to evaporate less when filling the tank. Reformulated gasolines use additives to oxygenate the gas. Your motorcycle will run normally using this type of fuel. Harley-Davidson recommends using it whenever possible as an aid to cleaner air in our environment.

- Do not use racing fuel or fuel containing methanol. Use of these fuels will damage the fuel system.
- Using fuel additives other than those approved for use by Harley-Davidson may damage the engine, fuel system and other components.

Some gasoline blends might adversely affect starting, driveability or fuel efficiency. If any of these problems are

experienced, try a different brand of gasoline or gasoline with a higher octane blend.

CATALYTIC CONVERTERS

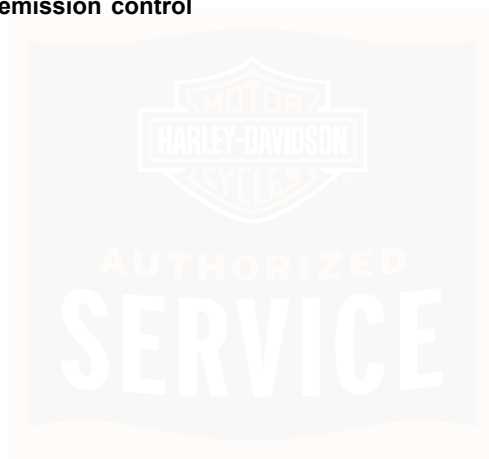
All international (HDI) and Japan motorcycles are equipped with catalytic converters. Domestic motorcycles are not equipped with catalytic converters.

NOTICE

Do not operate catalytic converter-equipped vehicle with engine misfire. If you operate the vehicle under this condition, the exhaust will become abnormally hot, which can cause vehicle damage, including emission control loss. (00149c)

NOTICE

Use only unleaded fuel in catalytic converter-equipped motorcycles. Using leaded fuel will damage the emission control system. (00150c)



GENERAL: CONTROLS AND INDICATORS

⚠ WARNING

Identify and understand the specific features of your vehicle. Failure to understand how these features affect the vehicle's operation can lead to an accident, which could result in death or serious injury. (00043b)

Some features explained are unique to certain models. These features may be available as accessories for your Harley-Davidson motorcycle. See a Harley-Davidson dealer for a complete list of accessories that will fit your specific motorcycle.

TURN SIGNAL SWITCH OPERATION

Operating

Press and release the left or right turn signal switch to activate the turn signal lamps. The lamps flash until they are automatically canceled or manually canceled by the rider.

NOTE

If a turn signal indicator flashes rapidly, a turn signal is not operating. Exercise caution. Use hand signals. Immediately replace defective components.

Automatic Canceling

The turn signal lamps automatically cancel when a full turn has been detected based on speed, acceleration and turn completion.

The lamps also cancel if the turn signal has been activated for a prolonged period (20 flashes) while the motorcycle speed is greater than 11 km/h (7 mph). If the motorcycle is stopped or moving slower than this speed, the turn signal continues flashing.

Manual Canceling

To cancel the turn signal, press and release the turn signal switch a second time.

To activate the opposite turn signal, press and release the turn signal switch for the new direction. The first turn signal cancels and the opposite turn signal lamps begin flashing.

IGNITION SWITCH

⚠ WARNING

The automatic-on headlamp feature provides increased visibility of the rider to other motorists. Be sure headlamp is on at all times. Poor visibility of rider to other motorists can result in death or serious injury. (00030b)

See the YOUR OWNER'S MANUAL section at the beginning of this manual. Be sure to record all your key numbers in the space provided at the front of this book.

The ignition switch controls electrical functions of the motorcycle.

NOTICE

Protect your vehicle against theft. After parking your motorcycle, lock the steering head and ignition switch. Failure to lock your motorcycle can result in theft and/or equipment damage. (00491c)

⚠ WARNING

Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)

NOTICE

Do not lubricate barrel locks with petroleum based lubricants or graphite. Inoperative locks may result. (00152a)

NOTICE

Turn the ignition switch to the OFF position before locking the motorcycle. Leaving the switch in the ACC position will keep the instrument lights on and result in a discharged battery. (00492b)

To review the functions of each switch position, refer to Table 19.

See Figure 4. Unlock the switch with the ignition key, and rotate the switch to the desired position.

Remove the key before operating the motorcycle, and after parking the motorcycle and locking the switch. The key may fall out if it is left in the switch.

NOTE

- *The lamps operate when the switch is in the IGN position, as required by law in some localities.*
- *The ignition key also fits the front fork lock.*

Table 19. Ignition Switch

SWITCH POSITION	REMOVE KEY	FUNCTIONS
OFF	Yes	Turns off ignition, lamps and accessories. Motorcycle is turned off and cannot be started.
ACC	Yes	Turns on accessories. Hazard warning flashers can be operated. Instrument lamps are on. Brake lamp and horn can be activated. Switch can be locked in the ACC position. NOTE: When switching to the ACC position, a startup diagnostic performs a systems check. The instrument background lighting illuminates, gauge needles sweep their full range of motion and the battery, security, coolant temperature and check engine indicator lamps illuminate.
IGN	Yes	Turns on ignition, lamps and accessories.



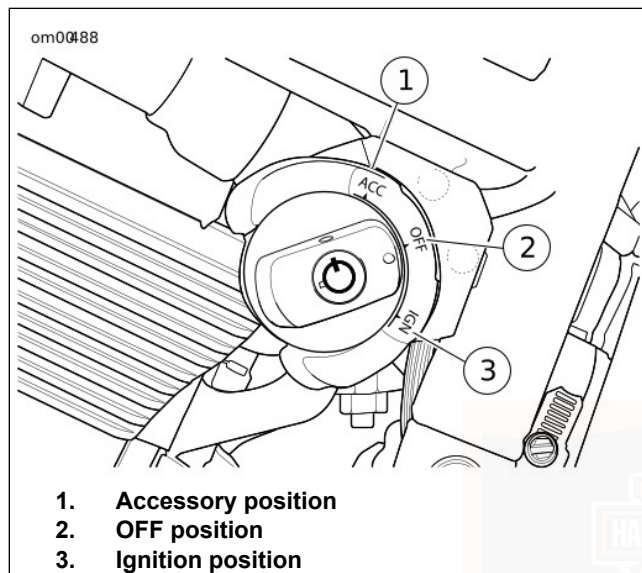


Figure 4. Ignition Switch

FORK LOCK

NOTICE

Protect your vehicle against theft. After parking your motorcycle, lock the steering head and ignition switch. Failure to lock your motorcycle can result in theft and/or equipment damage. (00491c)

See Figure 5. The fork lock is incorporated in the right side of the steering head.

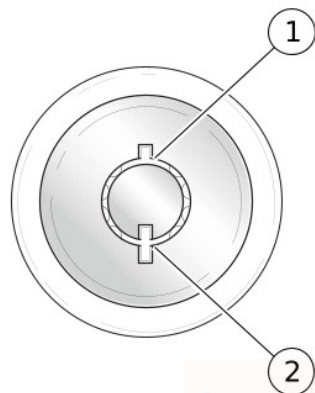
⚠ WARNING

Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)

Using the fork lock immediately after parking your motorcycle will discourage unauthorized use or theft when parking your motorcycle.

1. Turn the fork to the full left position.
2. Insert the key into the fork lock.
3. Push down on the fork lock switch and turn to the full clockwise position.
4. Remove the key.

om00482



- 1. Lock
- 2. Unlock

Figure 5. Fork Lock: V-Rod Models

PRIMARY CONTROLS

Familiarize yourself with the location of all the operational and maintenance controls on your motorcycle.

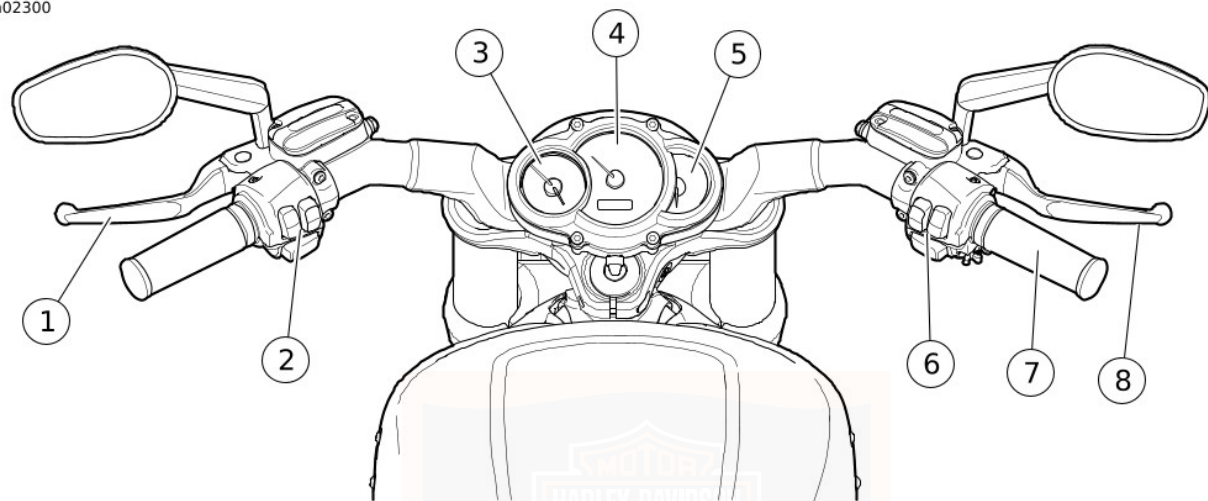
NOTE

Harley-Davidson reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.

See Figure 6 for rider controls and service components accessible when seated.

See Figure 7 for rider controls and service components accessible from the left.

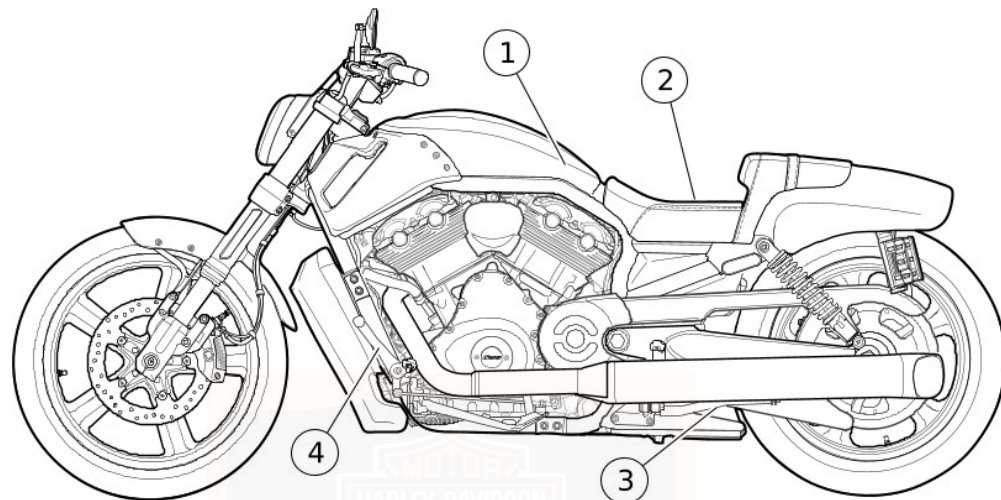
See Figure 8 for rider controls and service components accessible from the right.



- 1. Clutch hand lever
- 2. Left hand control module
- 3. Tachometer
- 4. Speedometer

- 5. Fuel gauge
- 6. Right hand control module
- 7. Throttle twist grip
- 8. Front brake lever

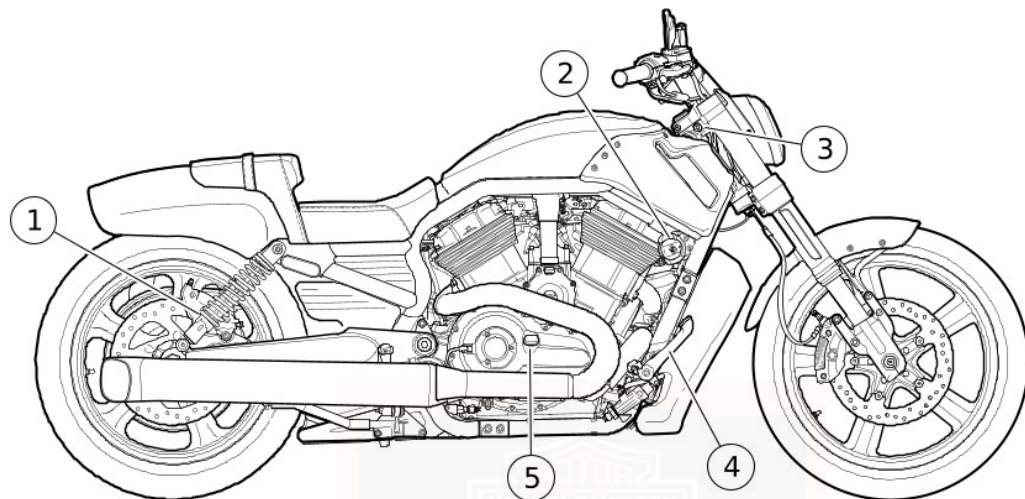
Figure 6. Controls and Service Components



- 1. Coolant bottle (under air box cover)
- 2. Fuel filler cap (under seat)

- 3. Belt deflection window
- 4. Gear shift lever

Figure 7. Controls and Service Components



- 1. Shock absorber adjustment
- 2. Ignition switch
- 3. Fork lock

- 4. Brake lever
- 5. Dipstick

Figure 8. Controls and Service Components

HAND CONTROLS: BASIC OPERATION

Electric Starter Switch

NOTE

The OFF/RUN switch MUST be in RUN position to operate engine.

See Figure 9. The electric starter switch is on the right handlebar control group. See OPERATION > STARTING THE ENGINE (Page 81) for detailed operation procedures.

1. Put the engine OFF/RUN switch in the RUN position. Shift the transmission to neutral. Neutral (green) indicator lamp should be illuminated.
2. See Figure 4. Turn ignition switch to IGNITION. Push the START switch to operate starter motor.

Engine OFF/RUN Switch

See Figure 9. The engine OFF/RUN switch (7) turns the ignition power ON or OFF. The engine OFF/RUN switch is on the right handlebar control. Push the top portion of the engine OFF/RUN switch to turn off ignition power and shut off the engine. Push the bottom portion of the engine OFF/RUN switch to turn on ignition power.

NOTE

- The engine OFF/RUN switch must be in the RUN position to start or operate the engine.
- The engine OFF/RUN switch should be used to shut off the engine.

1. Turn engine OFF/RUN switch to OFF.
2. See Figure 4. Turn the ignition key to OFF to turn the ignition power completely OFF.

Throttle Control Grip

See Figure 9. The throttle control grip (9) is on the right handlebar control. The throttle control grip is operated with the right hand.

To reduce rider fatigue on long trips, a spring-loaded throttle friction adjustment screw (10) is at the bottom of the throttle grip clamp on non-cruise equipped models.

1. Slowly turn throttle control grip clockwise (toward the front) to close the throttle (decelerate).
2. Slowly turn throttle control grip counterclockwise (toward rear of motorcycle) to open the throttle (accelerate).

▲ WARNING

Do not tighten throttle friction adjustment screw to the point where the engine will not return to idle automatically. Over-tightening can lead to loss of vehicle control, which could result in death or serious injury. (00031b)

3. Loosen the throttle friction adjustment screw so the throttle returns to the idle position when the hand is removed from the grip.
4. Screw the throttle adjustment screw in to increase friction on grip. This provides a damping effect on throttle motion.

NOTE

Do not use the throttle friction adjustment screw under normal stop and go operating conditions.

Clutch Hand Lever

▲ WARNING

Do not position fingers between hand control lever and handlebar grip. Improper hand positioning can impair control lever operation and cause loss of vehicle control, which could result in death or serious injury. (00032a)

See Figure 9. The clutch hand lever (1) is on the left handlebar. The clutch hand lever is operated with the fingers of the left hand.

1. Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch.
2. Shift to first gear using the gear shifter lever. See CONTROLS AND INDICATORS > HAND CONTROLS: BASIC OPERATION (Page 39).
3. Slowly release the clutch hand lever to engage clutch.

A clutch switch is incorporated into the left handlebar switch assembly. It enables the rider to start the vehicle in any gear (or in neutral) as long as the clutch lever is pulled in. If the clutch is not disengaged and the vehicle is in gear, the engine does not start.

Horn Switch

See Figure 9. The horn is operated by pushing the horn switch (2) on the left handlebar control.

Headlamp Dimmer Switch

See Figure 9. The headlamp dimmer switch (3) is on the left handlebar. The switch has two positions to activate the headlamps high or low beams.

- Press the top of the headlamp dimmer beam switch to activate the high beam.
- Press the bottom of the headlamp dimmer switch to return to the low beam.
- The right turn signal switch (11) operates the right front and right rear flashing lamps.
- The left turn signal switch (4) operates the left front and left rear flashing lamps.

See Figure 11. The (blue) high beam indicator lamp (2) illuminates when the high beam is on.

Turn Signal Switches

See Figure 9. Each handlebar control group contains a turn signal switch.

NOTE

Front turn signal lamps also function as running lamps. Due to local regulations, this feature may not be available in all locations.



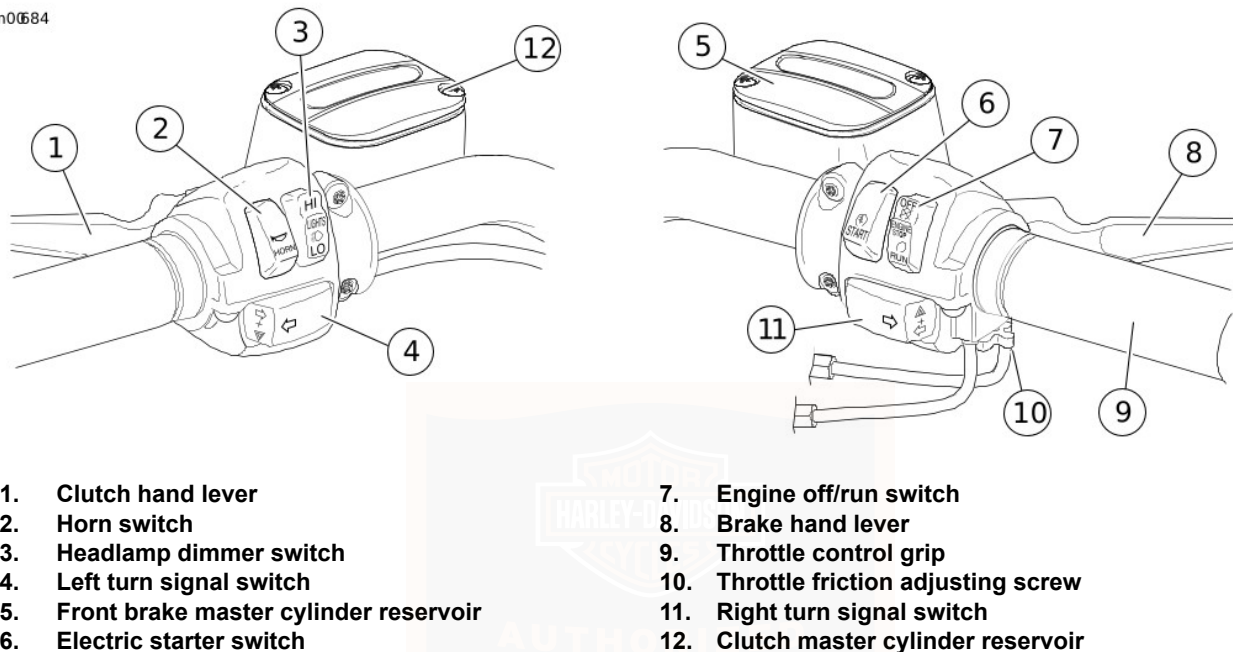


Figure 9. Handlebar Controls

HAZARD WARNING FOUR-WAY FLASHER

If the motorcycle must be parked alongside a roadway, the hazard warning four-way flashers can be turned on with the

security system armed. This allows a stranded motorcycle to be secured with the four-way flashers operating until help is found.

Activate

1. Turn the ignition switch to IGNITION with security system disarmed (fob present, if equipped).
2. Press the left and right turn signal switches at the same time.
3. Turn the ignition switch OFF and lock the switch. The four-way flashers will operate for two hours. The security system (if equipped) will automatically arm.

Deactivate

1. Have the fob present to disarm the security system (if equipped).
2. Unlock the ignition switch and turn the switch to IGNITION.
3. Press the left and right turn signal switches at the same time.

INSTRUMENTS

Speedometer

▲ WARNING

Travel at speeds appropriate for road and conditions and never travel faster than posted speed limit. Excessive speed can cause loss of vehicle control, which could result in death or serious injury. (00008a)

See Figure 10. The speedometer registers miles per hour (U.S. models) or kilometers per hour (international models) of forward speed. The speedometer also provides the following selectable functions:

- Odometer
- Trip odometers A and B
- 12 or 24-hour clock
- Fuel range

NOTICE

Never attempt to tamper with or alter the vehicle odometer. This is illegal. Tampering with or altering a vehicle odometer may cause equipment damage. (00160a)

Odometer

1. See Figure 10. Pressing the function switch with the ignition switch in any position activates the odometer reading and time. Time and mileage or kilometers can be checked without unlocking ignition switch. Press and release function switch once to view odometer. Press and release switch again to display time.

2. To check mileage on trip odometers, the ignition switch must be in the ACC or IGNITION position. Press and release the function switch until the desired trip odometer reading is displayed. An 'A' or 'B' in the upper left of the display window identifies trip odometers.
3. To reset or zero trip odometers, have desired odometer (A or B) in display window. Press function switch and hold switch for 2-3 seconds. The trip odometer resets to zero.
4. Repeat the previous step if you wish to zero both trip odometers.

Setting Clock

1. Turn ignition switch to ON or ACC.
2. See Figure 10. Press function switch until time (hour and minutes) is displayed. Press and hold the function switch for five seconds or until 12HR begins to blink in the speedometer display window. Release the button.
3. Press and release the function switch once to advance to a blinking 24HR military style time display. Each time you press and release the button, the display switches between 12HR and 24HR.
4. When the desired time style is displayed, press and hold the function switch for five seconds. The display switches to the time display with the hours blinking.

5. Press and release the function switch repeatedly to advance the hours. Each time you press and release the switch, the display advances one hour.

NOTE

No AM or PM time setting is required. When correct hour is reached, press and hold function switch to advance to minute setting.

6. When the correct hour is displayed, press and hold the function switch for five seconds. The minutes display starts blinking.
7. Press and release the function switch repeatedly to advance the minutes display. Each time you press and release the button, the display advances one minute.
8. When the correct minutes are displayed, press and hold the function switch for five seconds. The minutes display stops blinking, indicating that the clock has been set.
9. Turn ignition switch OFF.

Fuel Range Function

The fuel range function shows the approximate mileage available with the amount of fuel left in the fuel tank.

1. With the ignition switch in the ACC or IGNITION position, press function switch until fuel range function is displayed, as indicated by the letter 'r' in the left side of the odometer display. The calculated remaining distance (miles or kilometers) to empty is displayed, based on the amount of fuel in tank. Range can be accessed at any time using the function switch.
2. When the low fuel warning lamp illuminates, the range feature automatically is displayed in the odometer unless this automatic pop-up feature is disabled by a press and hold of the function switch while in range display mode. Automatic range pop-up feature shows that it is disabled by blinking twice. Likewise, automatic range popup is reactivated by a press and hold of the function switch. Range blinks once when the automatic pop-up feature is re-enabled.

NOTE

- Refer to Table 9. When the low fuel warning lamp turns on, refuel as soon as possible.
 - The range display is only updated when the vehicle is moving.
3. After the range calculation reaches 10 miles or 10 kilometers remaining, the range display will display "r Lo" to indicate that the vehicle will shortly run out of fuel.

4. The low fuel warning lamp does not turn off until there is sufficient fuel in the tank, the ignition switch has been turned off and back on, and the vehicle has begun forward speed.

Tachometer

See Figure 10. The tachometer registers the engine speed in revolutions per minute (rpm).

NOTICE

See OPERATING RECOMMENDATIONS section. Do not operate the engine above maximum safe RPM as shown under OPERATION (red zone on tachometer). Lower the RPM by upshifting to a higher gear or reducing the amount of throttle. Failure to lower RPM may cause equipment damage. (00159a)

Tip Indicator

⚠ WARNING

If tip occurs, check all controls for proper operation. Restricted control movement can adversely affect the performance of the brakes, clutch or ability to shift, which could result in loss of vehicle control and death or serious injury. (00350a)

Should motorcycle be tipped over, the word "tip" appears in the odometer window. Engine will not start until reset. To

reset, cycle ignition/headlamp key switch ON-OFF-ON.

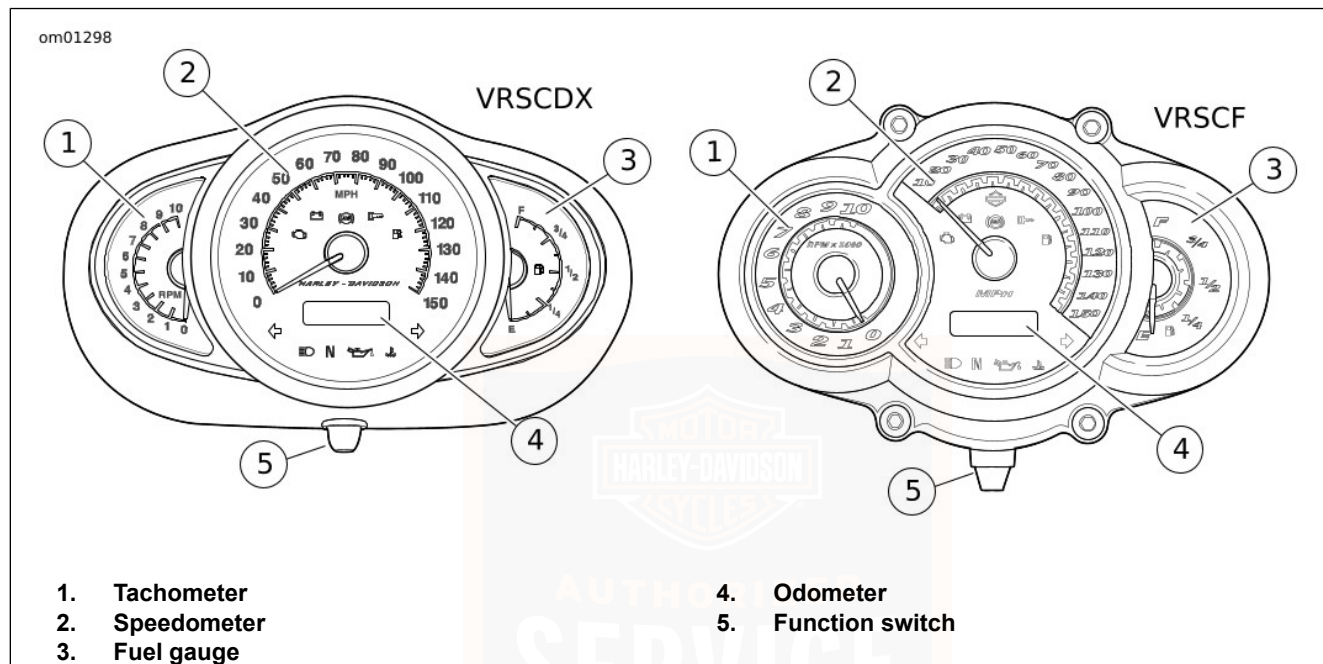


Figure 10. Instrument Cluster

INDICATOR LAMPS

See Figure 11. Indicator lamps are located along the bottom of the instrument cluster.

Turn Indicator Lamps

The turn indicator lamps flash when the turn signals or 4-way hazard flashers are activated.

Headlamp High Beam Indicator Lamp

The headlamp high beam indicator is lit when the high beam switch is activated.

Neutral Indicator Lamp

The neutral indicator lamp is lit when the transmission is in neutral.

Engine Coolant Temperature Indicator Lamp

NOTICE

If the engine coolant temperature indicator lamp remains lit, always check the coolant level. If the coolant level is normal and the lamp is still lit, stop the engine at once and do not ride further until the trouble is located and the necessary repairs are made. Failure to do so may result in engine damage. (00158a)

⚠ WARNING

Do not loosen or remove pressure cap when cooling system is hot. The cooling system is under pressure and hot coolant and steam can escape from pressure cap, which could cause severe burns. Allow motorcycle to cool before servicing the cooling system. (00091c)

The engine coolant temperature indicator lamp is lit when the coolant temperature has exceeded 117 °C (243 °F).

See MAINTENANCE AND LUBRICATION > COOLANT LEVEL (Page 95) to check and add coolant as necessary. See TROUBLESHOOTING > COOLING SYSTEM (Page 155) for other possible causes. If coolant level is sufficient and the lamp remains lit, stop the engine at once. See a dealer for service.

Oil Pressure Indicator Lamp

NOTICE

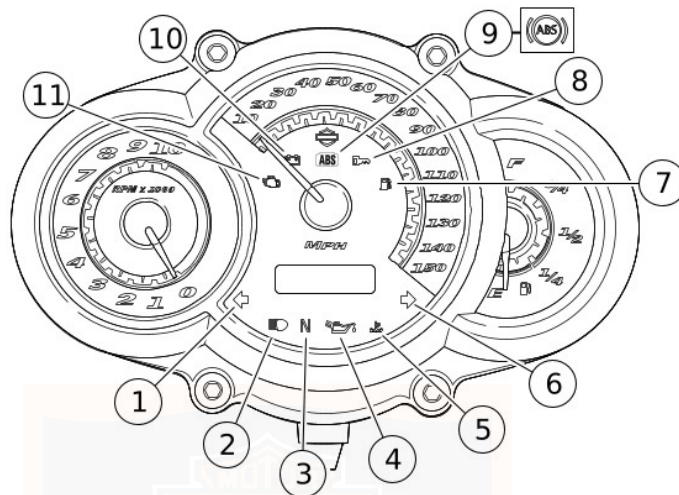
If the oil pressure indicator lamp remains lit, always check the oil supply first. If the oil supply is normal and the lamp is still lit, stop the engine at once and do not ride further until the trouble is located and the necessary repairs are made. Failure to do so may result in engine damage. (00157a)

The oil pressure indicator lamp is lit when sufficient oil is not circulating through the engine.

The lamp is lit when the ignition is turned on prior to starting the engine. With the engine running, the lamp will be off when engine speed is above idle.

See MAINTENANCE AND LUBRICATION > CHECKING OIL LEVEL (Page 88) to check and add engine oil as necessary. See TROUBLESHOOTING > ENGINE (Page 153) for other possible causes. If oil level is sufficient and the lamp remains lit, stop the engine at once and see a dealer for service.





- | | |
|-------------------------------|--|
| 1. Left turn | 7. Low fuel |
| 2. High beam | 8. Security system |
| 3. Neutral | 9. ABS (km/h ABS icon lamp also shown) |
| 4. Oil pressure | 10. Battery discharge |
| 5. Engine coolant temperature | 11. Check engine |
| 6. Right turn | |

Figure 11. Indicator Lamps

INSTRUMENT LAMPS

Check Engine Lamp

See Figure 11. The check engine lamp is located inside the instrument cluster. Its purpose is to indicate whether the engine/engine management system is operating normally. The engine lamp color is amber.

The engine lamp normally comes on when the ignition is first turned on and remains on for approximately 4 seconds, as the engine management system runs a series of self-diagnostics.

If the engine lamp comes on at any other time, see a Harley-Davidson dealer.

Low Fuel Lamp

See Figure 11. The low fuel lamp lights up to indicate that the fuel level is low. The low fuel lamp color is amber. Refer to Table 9.

The low fuel lamp turns off when there is sufficient fuel in the tank, the ignition switch has been turned off and back on, and the vehicle has begun forward speed.

Battery Discharge Lamp

See Figure 11. The battery lamp indicates either overcharging or undercharging of the battery. If lamp remains illuminated, see a Harley-Davidson dealer for service.

Security System Lamp

See Figure 11. The security system lamp illuminates when the security system is armed. See SECURITY SYSTEM > SECURITY SYSTEM (Page 63).

If the security system lamp remains lit after the security system is disarmed, see your Harley-Davidson dealer.

ABS Lamp

⚠ WARNING

If ABS lamp continues flashing at speeds greater than 5 km/h (3 mph) or remains on continuously, the ABS is not operating. The standard brake system is operational, but wheel lock up can occur. Contact a Harley-Davidson Dealer to have ABS repaired. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00361b)

See Figure 11. On vehicles with ABS, the ABS lamp begins flashing at key ON to indicate that the system is operational. The flashing lamp indicates that the system is in self-diagnosis

mode. It continues to flash until motorcycle speed exceeds 5 km/h (3 mph). ABS is not operational until the lamp turns off.

Continuous illumination of the lamp only occurs when ABS detects that the system is malfunctioning. See a Harley-Davidson dealer for service.

GEAR SHIFT LEVER

Location

See Figure 12. The gear shift lever is located on the left side of the motorcycle and is operated with the left foot. The shift lever changes gears in a sequential five-speed transmission.

Shift Pattern

NOTICE

The clutch must be fully disengaged before attempting a gear shift. Failure to fully disengage the clutch can result in equipment damage. (00182a)

See Figure 12. Each gear must be engaged in sequence. Lift the gear shift lever to upshift and press the lever to downshift. After each gear change, release the gear shift lever to allow it to return to its resting position. See OPERATION > SHIFTING GEARS (Page 82).

Neutral

Neutral is located between first and second gear. The transmission can be shifted to neutral from either first or second gear. Lift or press the gear shift lever one-half of its stroke. In neutral, the indicator lamp will light.

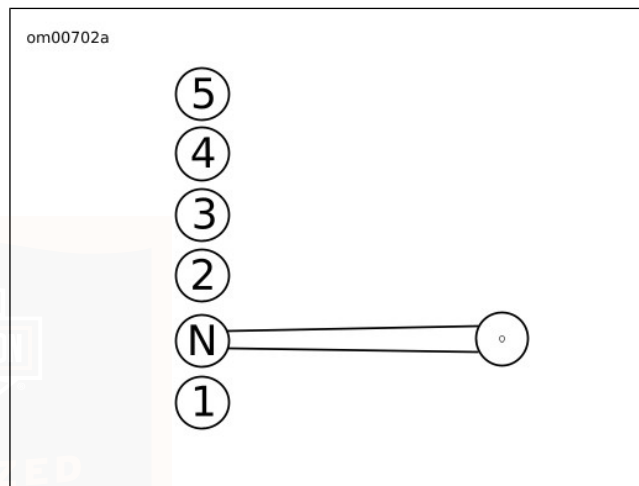


Figure 12. Shift Lever and Shift Pattern

BRAKE SYSTEM

Front Brake Lever

⚠ WARNING

Do not position fingers between hand control lever and handlebar grip. Improper hand positioning can impair control lever operation and cause loss of vehicle control, which could result in death or serious injury. (00032a)

The front brake hand lever controls the front wheel brake and is located on the right handlebar. Operate the hand lever with the fingers of the right hand.

Rear Brake Pedal

The rear brake pedal controls the rear wheel brake and is located on the right side. Operate the rear brake pedal with the right foot.

Non-ABS Brake System

Apply brakes uniformly and evenly to prevent wheels from locking. Use front and rear brakes equally for best results.

⚠ WARNING

Do not apply brake strongly enough to lock the wheel. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00053a)

Anti-lock Brake System (ABS)

The optional Harley-Davidson anti-lock brake system assists the rider in maintaining control when braking in a straight-line emergency situation. ABS operates independently on front and rear brakes to keep the wheels rolling and prevent uncontrolled wheel lock-ups either on dry pavement or on slick surfaces such as gravel, leaves or when riding in wet conditions.

How ABS Works

The ABS monitors sensors at the front and rear wheels to determine wheel speed. If the system detects one or both wheels are slowing down too quickly, which indicates they are close to locking, the ABS reacts. If the deceleration rate does not match a criteria stored in memory, the ABS also reacts. The system rapidly opens and closes valves to modulate the brake caliper pressure utilizing only the brake lever/pedal pressure being applied by the rider. During ABS activation, the system provides the electronic equivalent of

manually pumping the brakes. ABS is capable of cycling up to seven times per second.

The rider will recognize ABS activation by the slight pulsing sensation in the hand lever or the rear brake pedal. The pulsing sensation may also be accompanied by a clicking sound from the ABS module. Both are the result of normal operation. Refer to Table 20.

For more information visit www.harley-davidson.com/abs.

How To Use ABS

While an advantage in emergency braking, ABS is not a substitute for safe riding. The safest way to stop a motorcycle is upright with both wheels straight.

Harley-Davidson ABS is a manual assist system. When stopping in an emergency stopping situation, maintain pressure on the brakes through all ABS events. Do not modulate or "pump" the brake controls. The wheels will not lock until the end of the stop when motorcycle speed reaches approximately 6 km/h (4 mph) and ABS is no longer needed.

▲ WARNING

ABS cannot prevent lockup of rear wheel due to engine braking. ABS will not aid in cornering or on loose/uneven surfaces. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00362a)

ABS: Tires and Wheels

Motorcycles equipped with ABS must always use Harley-Davidson tires and wheels. The ABS monitors the rotational speed of the wheels through individual wheel speed sensors. Changing to different diameter wheels or different-sized tires can alter the rotational speed. This can upset the calibration of the ABS and have an adverse effect on its ability to detect and prevent uncontrolled wheel lockups. Operating at tire pressures other than those specified in SPECIFICATIONS > SPECIFICATIONS (Page 23) can reduce ABS braking performance.

SERVICE

Table 20. ABS Symptoms and Conditions

SYMPTOM	CONDITION
ABS lamp continuously lit	ABS malfunction detected. See a Harley-Davidson dealer for service.
ABS lamp flashing	This indicates a normal self-diagnostics process when the motorcycle is first turned on and the speed is under 5 km/h (3 mph). ABS is not operational until the lamp turns off. If the lamp continues flashing at speeds greater than 5 km/h (3 mph), see a Harley-Davidson dealer for service.
Pulsing brake lever or pedal during an ABS event	Normal condition.
Clicking sound during an ABS event	Normal condition.
"Surge" sensation while braking	Normal condition. This is most noticeable when braking with one brake (front only or rear only). Result of a reduction in deceleration which can be caused by cracks or bumps in road, engine braking (high engine RPMs causing the rear wheel to slow down), hard braking at slow speeds, and other conditions. This is due to ABS modulating caliper brake pressure to prevent uncontrolled wheel lock.
Temporarily stiff rear brake pedal	Normal condition. Engine braking (high engine RPMs causing the rear wheel to slow down) or down shifting can activate ABS. If applying the rear brake at the same time or immediately after, the ABS may be closing a valve to prevent pressure to the rear brake. This is due to ABS modulating caliper brake pressure to prevent uncontrolled wheel lock.
Tire chirp	Normal condition. Depending on surface, tire can chirp without locking the wheel.
Black mark on pavement	Normal condition. Depending on surface, tire can leave a black mark without locking the wheel.
Wheel lock at low speed	Normal condition. ABS does not activate on front wheel below 5 km/h (3 mph) or on rear wheel below 8 km/h (5 mph).

ANTI-LOCK BRAKE SYSTEM (ABS)

Identification

See Figure 13. Models with ABS have a hydraulic control unit.

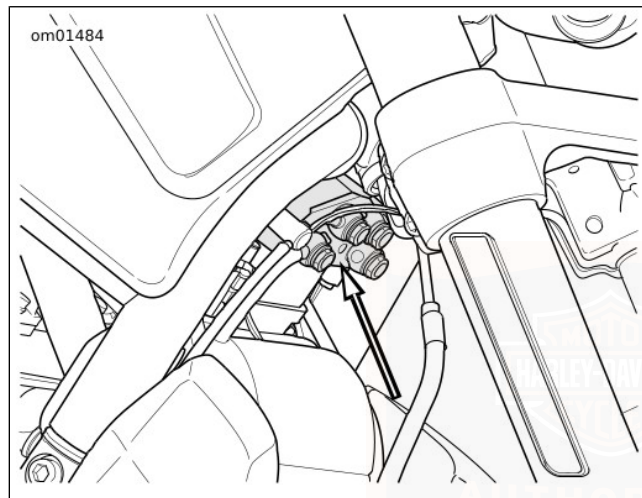


Figure 13. Hydraulic Control Unit

JIFFY STAND

⚠ WARNING

Always park motorcycle on a level, firm surface. An unbalanced motorcycle can fall over, which could result in death or serious injury. (00039a)

⚠ WARNING

The jiffy stand locks when placed in the full forward (down) position with vehicle weight on it. If the jiffy stand is not in the full forward (down) position with vehicle weight on it, the vehicle can fall over which could result in death or serious injury. (00006a)

⚠ WARNING

Be sure jiffy stand is fully retracted before riding. If jiffy stand is not fully retracted, it can contact the road surface causing a loss of vehicle control, which could result in death or serious injury. (00007a)

NOTE

When parking your motorcycle on a grade, place the transmission in gear after turning off the engine.

The jiffy stand is located on the left side of the motorcycle. The stand swings outward to support the motorcycle for parking.

JIFFY STAND INTERLOCK: INTERNATIONAL MODELS

Some international models have a jiffy stand interlock.

If the transmission is in neutral, the motorcycle will start and run. If the jiffy stand is down and the transmission in gear, engaging the clutch stalls the motorcycle. The message "SidEstAnd" scrolls across the odometer. Raising the jiffy stand or putting the transmission in neutral will permit the engine to run. The odometer will clear the message.

If the stand lowers at a speed greater than 15 km/h (10 mph), the engine will continue to run. The indicators will flash twice. The message "SidEstAnd" will scroll across the odometer. The message remains until the system detects the jiffy stand in the fully retracted position again. The rider can continue to ride while in this mode.

The rider can clear the text messages at any time by pressing the trip/trigger switch once while the vehicle is powered up.

FUEL FILLER CAP

See Figure 14. The fuel filler cap is located under the seat.

To open, turn the fuel filler cap counterclockwise and lift up. To close, turn the fuel filler cap clockwise until it clicks. The ratchet action of the cap prevents overtightening.

See SAFE OPERATING RULES section and review safety procedures.

NOTICE

Do not spill fuel onto the motorcycle while refueling. Immediately wipe up fuel spills on your motorcycle. Fuel can cause damage to cosmetic surfaces. (00147b)

NOTICE

Use only unleaded fuel in catalytic converter-equipped motorcycles. Using leaded fuel will damage the emission control system. (00150c)

⚠ WARNING

Do not store motorcycle with gasoline in tank within the home or garage where open flames, pilot lights, sparks or electric motors are present. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00003a)

⚠ WARNING

Avoid spills. Slowly open fuel filler cap. Do not fill above bottom of filler neck insert, leaving air space for fuel expansion. Secure filler cap after refueling. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00028b)

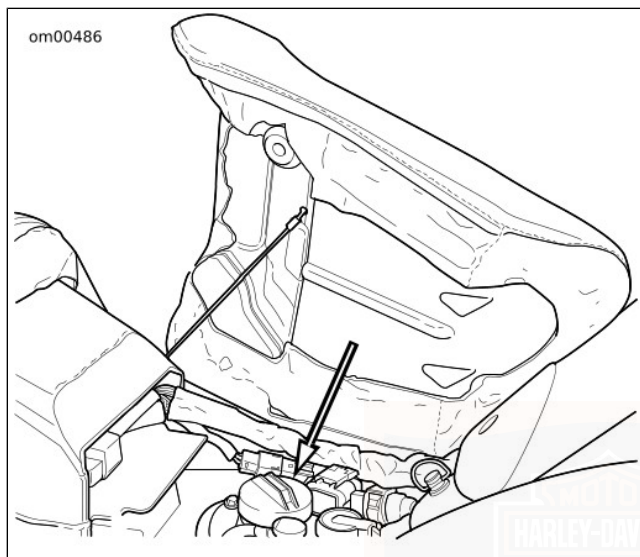


Figure 14. Fuel Filler Cap

REAR VIEW MIRRORS

⚠ WARNING

Objects in mirrors are closer than they appear. Use caution when judging distance of objects in mirrors. Failure to judge correct distances could result in death or serious injury. (00033a)

Your motorcycle has two convex rear view mirrors.

This type of mirror is designed to give a much wider view to the rear than a flat mirror. However, cars and other objects seen in this type of mirror look smaller and farther away than they actually are.

- Use caution when judging the size or relative distance of objects seen in rear view mirrors.
- Always adjust the rear view mirrors to reflect the area behind the motorcycle before riding.

NOTE

Adjust mirrors so you can see a small portion of your shoulders in each mirror. This will help you establish the relative distance of vehicles to the rear of your motorcycle.

SIDE-MOUNTED LICENSE PLATE

See Figure 15. Some models have a side-mounted license plate assembly. The license plate must be in the extended position during operation. This feature may not be available in all markets.

The side-mounted license plate assembly includes an LED lamp module. If the LED lamp fails, see a Harley-Davidson dealer for assembly replacement.

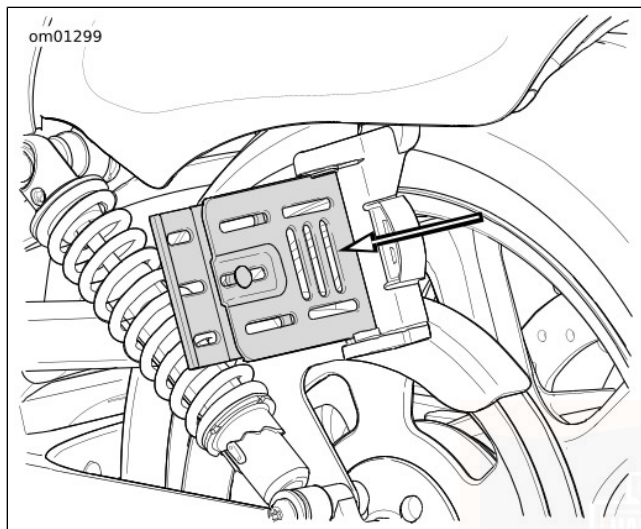


Figure 15. Side-Mounted License Plate Assembly
MIRRORS: VRSCF MODEL

See Figure 16. On the VRSCF model, the mirror stems operate as front turn signals. Use the following procedure to properly align the front turn signals and position the rear view mirrors.

NOTE

See Figure 17. Always loosen fasteners before changing the position of the turn signals or mirrors. Simply pushing the mirror face or stem may cause damage to the assembly.

1. See Figure 17. Loosen the nut on the mirror stem. Adjust the front turn signal so it is directed straight ahead, with the lighted surface facing the forward direction of the vehicle as shown in Figure 16.
2. Tighten nut to 7.4–8.5 N·m (65–75 **in-lbs**).
3. Loosen the screw on the rear of the mirror. Adjust the mirror to desired position (without changing the orientation of the front turn signal).
4. Tighten screw to 11–13 N·m (97–115 **in-lbs**).

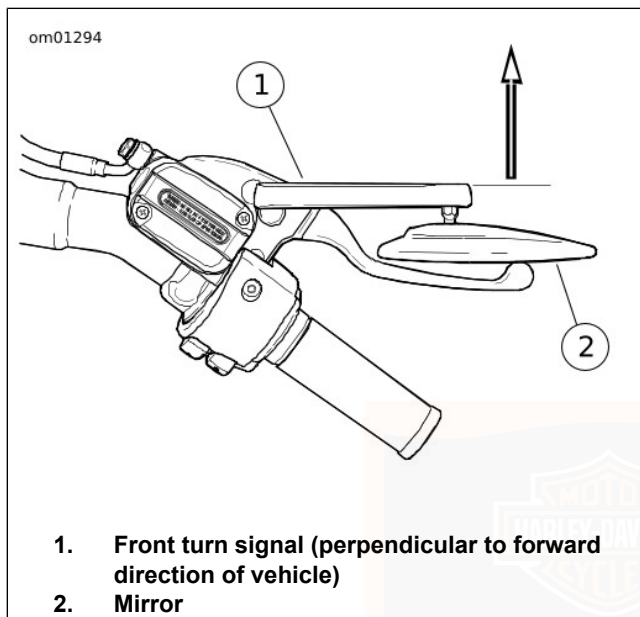


Figure 16. Mirror/Turn Signal Alignment: VRSCF Model

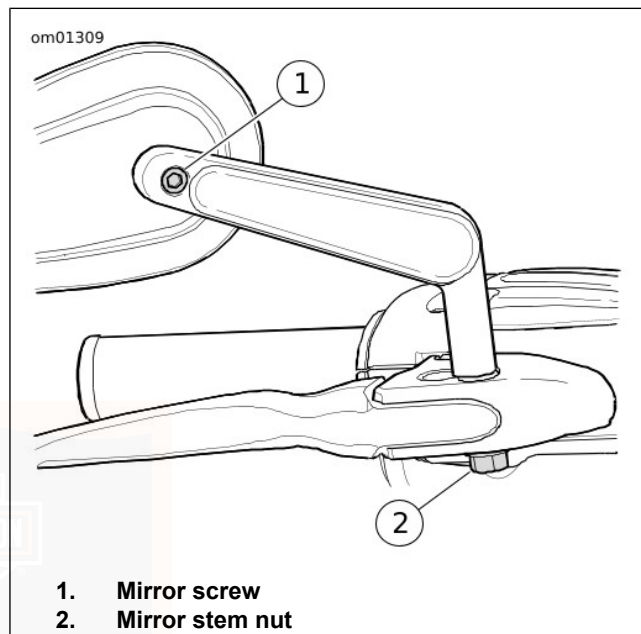


Figure 17. Mirror/Turn Signal Fasteners: VRSCF Model

SHOCK ABSORBERS

General

The rear shock absorber spring preload can be adjusted for the weight the motorcycle is to carry. The preload collar has

five preload graduations. Notice the adjustment settings as you turn the collar.

Always set left and right shocks to the same adjustment number.

Adjustment

⚠ WARNING

Adjust both shock absorbers equally. Improper adjustment can adversely affect stability and handling, which could result in death or serious injury. (00036b)

NOTICE

Do not turn the shock absorber adjustment collar clockwise beyond adjustment setting 5. Doing so may result in equipment damage. (00166b)

1. See Figure 18. Place a SHOCK ADJUSTMENT SPANNER (PART NUMBER: 94448-82B) around the lower collar of the shock absorber.

2. Refer to Table 21. To adjust the rear shock absorber spring preload, turn the spring adjusting cam to the desired position. When returning to off-cam position, back off the cams in the opposite direction.
 - a. Turn the collar clockwise (toward higher numbers) to increase the preload.
 - b. Turn the collar counterclockwise to decrease the preload.

Table 21. Recommended Preload

LOAD*	POSITION**
Less than 75 kg (165 lb)	1
75–89 kg (165–195 lb)	2
89–102 kg (195–225 lb)	3
102–116 kg (225–255 lb)	4
116 kg (255 lb) to maximum added weight allowed (refer to Table 14)	5
* Load includes total weight of rider, passenger, accessories and cargo.	
** See Figure 19 for preload positions.	

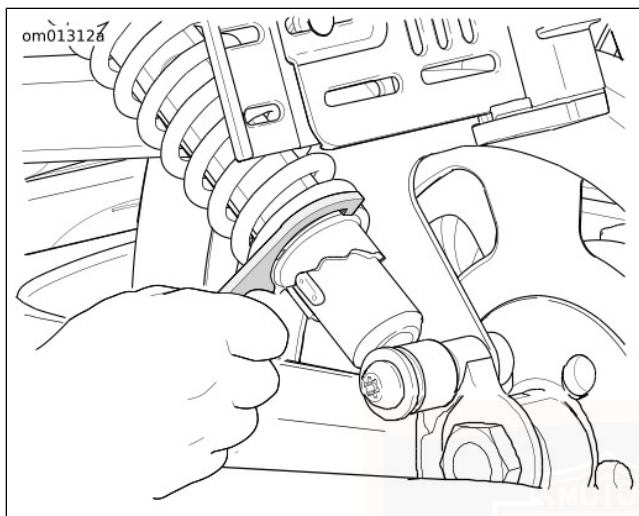


Figure 18. Rear Shock Absorber Adjustment: VRSCF

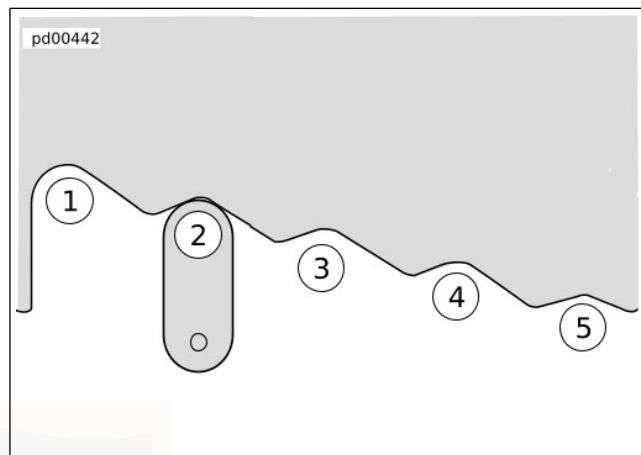


Figure 19. Shock Preload Cam Positions

NOTES



SECURITY SYSTEM

Components

The security system has three parts:

- A Hands-Free Security Module (HFSM).
- A hands-free antenna.
- A hands-free fob carried by the rider/passenger.

After parking the motorcycle, turn the ignition key to OFF or ACC and the security system will automatically **arm** within five seconds. While armed, the starter and ignition are disabled. The rider can leave the motorcycle. If someone tampers with the ignition, or attempts to move the motorcycle, the module will activate an alarm.

If the fob is present, the module will automatically **disarm** when the ignition key is turned to IGNITION or ACC.

NOTE

- *If disconnecting power from the motorcycle battery, see SECURITY SYSTEM > DISCONNECTING POWER (Page 74) to prevent the optional security system siren from sounding.*
- *Do not relocate the module or the antenna on the motorcycle.*

Options

Several options are available for the security system from the Harley-Davidson Genuine Motor Accessories and Motor Parts catalog. Options include:

- Smart Siren II.
- Security Pager Receiver II.
- Replacement Fobs.

See a Harley-Davidson dealer for details.

FCC REGULATIONS

FCC ID: L2C0027TR IC ID: 3432A-0027TR

FCC ID: L2C0028TR IC ID: 3432A-0028TR

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

SECURITY SYSTEM FOB

Fob Assignment

See Figure 20. Each key fob has a unique signal. Key fobs are programmed to the security system by a Harley-Davidson dealer so that the motorcycle can recognize a fob's unique signal. Only two fobs can be assigned at any one time.

Replacement fobs can be purchased from a dealership but can only be assigned to the motorcycle by a trained Harley-Davidson technician.

NOTE

- *The reusable label found on the fob packaging lists the serial number of the fob. For reference, affix the label to a blank "NOTES" page in this Owner's Manual.*
- *The serial number of the fob is also found on the inside of the fob. See SECURITY SYSTEM > FOB BATTERY (Page 73).*

- *The module arms only if the fob has been assigned by a Harley-Davidson dealer and a Personal Identification Number (PIN) has been entered in the system. The PIN should be recorded on the Personal Information page in the front of this Owner's Manual and on the removable wallet card.*
- *Should the rider misplace the fob or if the fob fails, the rider can refer to the wallet card. Use the PIN to manually disarm the system. See SECURITY SYSTEM > ARMING AND DISARMING (Page 68) and SECURITY SYSTEM > TROUBLESHOOTING (Page 74).*
- *The rider can change the PIN at any time. See SECURITY SYSTEM > PERSONAL IDENTIFICATION NUMBER (PIN) (Page 65).*

Riding with a Fob

- Always carry the fob when riding, loading, fueling, moving, parking or servicing the motorcycle. Carry the fob in a convenient pocket.
- Do not leave the fob attached to the handlebars or store the fob in a luggage compartment. Unintentionally leaving the fob with the motorcycle when it is parked prevents the system from activating the alarm.

- Do not ride with the fob stored in a metal case or with the fob closer than 76 mm (3.0 in) to a mobile phone, PDA, display or other electronic device. Any electromagnetic interference may prevent the fob from disarming the system.
- For added security, always lock the fork and remove the key when parked. If the fob is within range and the motorcycle is unlocked, tampering with the motorcycle will not activate the alarm.

Riding without a Fob

If the motorcycle is ridden off without the fob, the odometer window temporarily displays "NO FOB." To restart a motorcycle without a fob, disarm the security system with the PIN.

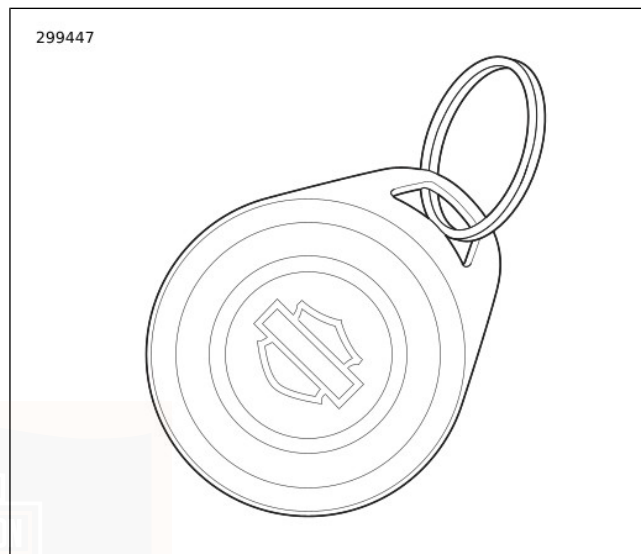


Figure 20. Fob: Security System

PERSONAL IDENTIFICATION NUMBER (PIN)

The Personal Identification Number (PIN) is a number that can be used to disarm the security system in case an assigned fob is misplaced, fails or if the fob cannot communicate with the motorcycle because of electromagnetic interference.

A PIN is a five-digit number (1-9, no zeros).

Changing the PIN

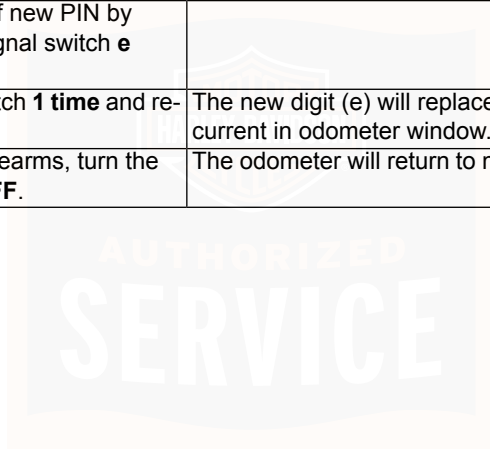
To maintain security, the rider can change the PIN at any time. Refer to Table 22.

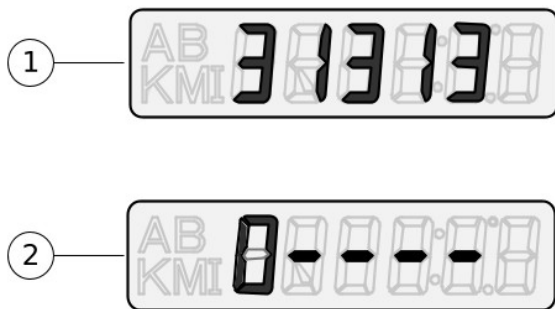
Table 22. Changing the PIN

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
1	Select a 5-digit (1 thru 9) PIN and record on the wallet card from Owner's Manual.		
2	With an assigned fob present, turn the ignition switch IGNITION-OFF-IGNITION-OFF-IGNITION .		
3	Press left turn signal switch 3 times .		
4	Press right turn signal switch 1 time and release.	Turn signals will flash 3 times. Current PIN will appear in odometer. The first digit will be flashing.	See Figure 21.
5	Enter first digit (a) of new PIN by pressing left turn signal switch a times.		
6	Press right turn signal switch 1 time and release.	The new digit (a) will replace the current in odometer window.	
7	Enter second digit (b) of new PIN by pressing left turn signal switch b times.		
8	Press right turn signal switch 1 time and release.	The new digit (b) will replace the current in odometer window.	

Table 22. Changing the PIN

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
9	Enter third digit (c) of new PIN by pressing left turn signal switch c times.		
10	Press right turn switch 1 time and release.	The new digit (c) will replace the current in odometer window.	
11	Enter fourth digit (d) of new PIN by pressing left turn signal switch d times.		
12	Press right turn switch 1 time and release.	The new digit (d) will replace the current in odometer window.	
13	Enter fifth digit (e) of new PIN by pressing left turn signal switch e times.		
14	Press right turn switch 1 time and release.	The new digit (e) will replace the current in odometer window.	
15	Before the module rearms, turn the ignition switch to OFF .	The odometer will return to mileage.	Turning the ignition switch to OFF stores the new PIN in the module.





1. Current PIN (example) on PIN Change
2. PIN Disarm

Figure 21. Odometer Windows - PIN

SECURITY STATUS INDICATOR

See Figure 11. The security lamp in the speedometer face indicates the status of the security system.

- **Armed:** A lamp that blinks approximately every 3 seconds indicates that the system is armed.
- **Disarmed:** After the system disarms and the ignition is on, the lamp will remain illuminated for approximately four seconds and then turn off.

- **Service:** If the lamp remains lit continuously, see a Harley-Davidson dealer.

ARMING AND DISARMING

Arming

When the motorcycle is parked and the ignition key is turned to OFF, the security system arms automatically within five seconds if no motion is detected. Even when the fob is present, the system will arm.

On arming, the turn signals will flash twice and the optional siren will chirp twice. While armed, the key icon in the speedometer face will flash every three seconds.

NOTE

International Models: The HFSM must be in the Chirp Mode for the siren to chirp on arming or on disarming. See SECURITY SYSTEM > SIREN CHIRP MODE (CONFIRMATION) (Page 71).

Disarming

Once disarmed, the rider may ride or move the motorcycle for parking, storage or service without setting off the alarm.

Fob: An armed security system is automatically disarmed when the ignition key is turned to IGNITION with the fob present.

When the module disarms, the optional siren will chirp once and the key icon will illuminate for a solid four seconds and then turn off.

Personal Identification Number (PIN): If the fob is misplaced or if the present fob fails to communicate with the module, the system can be disarmed with the Personal Identification Number (PIN).

Disarming with a PIN

Do not turn handlebars, straddle seat or lift motorcycle off the jiffy stand. During a PIN disarm, if the security system detects motorcycle motion the system will activate the alarm.

NOTE

- *At any time during a PIN disarm, if the fob is brought within range of the motorcycle, the security system will disarm when the module receives the coded signal from the fob.*
- *If a mistake is made while entering PIN, wait two minutes before another disarming attempt.*
- *The security system will remain disarmed until the ignition key is turned to OFF.*

Table 23. Entering a PIN to Disarm Security System

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
1	If necessary, verify the current 5-digit PIN.		Should be recorded on wallet card.
2	Turn ignition switch to IGNITION .		
3	Quickly (within 2 seconds of turning ignition switch) hold both turn signal switches in until confirmation.	Key icon flashes at fast rate. In the odometer window, a flashing dash will be followed by four more dashes.	See Figure 21. Five dashes will appear in the odometer window.
4	Enter first digit (a) in the PIN by pressing left turn switch a times .	The first digit (a) in the odometer will be the first digit in the PIN.	
5	Press right turn switch 1 time .	The first digit is stored and the dash will flash.	Serves as enter key.

Table 23. Entering a PIN to Disarm Security System

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
6	Enter second digit (b) in the PIN by pressing left turn switch b times .	The second digit (b) in the odometer will be the second digit in the PIN.	
7	Press right turn switch 1 time .	The second digit is stored and the next dash will flash.	Serves as enter key.
8	Enter third digit (c) in the PIN by pressing left turn switch c times .	The third digit (c) in the odometer will be the third digit in the PIN.	
9	Press right turn switch 1 time .	The third digit is stored and the next dash will flash.	Serves as enter key.
10	Enter fourth digit (d) in the PIN by pressing left turn switch d times .	The fourth digit (d) in the odometer will be the fourth digit in the PIN.	
11	Press right turn switch 1 time .	The fourth digit is stored and the next dash will flash.	Serves as enter key.
12	Enter fifth digit (e) in the PIN by pressing left turn switch e times .	The fifth digit (e) in the odometer will be the fifth digit in the PIN.	
13	Press right turn switch 1 time .	The fifth digit is stored. The key icon stops blinking.	Security System is disarmed.

ALARM

alternate flashes of the turn signals and a chirp of the optional siren.

Warnings

Once armed, if the motorcycle is moved or lifted off of its jiffy stand or if the ignition switch is turned to IGNITION and the fob is not present, the alarm will warn the operator with three

Within four seconds, if the motorcycle is back on its jiffy stand and no further motion is detected and/or the ignition switch is turned to OFF, the module will remain armed without activating the alarm.

If the motorcycle motion continues or the ignition switch is not turned back to OFF, the module will issue a second warning four seconds after the first.

NOTE

During warnings and alarms, the starter motor and the ignition circuits are disabled.

Alarm Activation

If the security system is still detecting motion and/or if the ignition switch has not been turned back to OFF after a second warning, the system will activate the alarm.

When activated, the security system will:

- Alternately flash the four turn signals.
- Sound the optional siren.

Duration: The alarm will stop within 30 seconds and if no motion is detected, the alarm will not restart.

However, if motorcycle motion continues the system will repeat the 30 second alarm and recheck for motion. The alarm will repeat this 30 second alarm cycle for five minutes (10 cycles) or until the alarm is deactivated.

NOTE

The alarm will also activate the LED, vibration or audible modes of a Harley-Davidson Security Pager. A pager can operate either in silent or in combination with an optional Smart Siren. The range of a pager can be up to 0.8 km (0.5 mi). See a Harley-Davidson dealer for details.

Alarm Deactivation

- **Key fob:** Bring the fob to the motorcycle. After the module identifies that the fob is present, the system will terminate the alarm.
- **PIN entry:** Enter the PIN to deactivate the alarm. If an error is made while entering the PIN, wait until the alarm is between cycles to enter the PIN.

SIREN CHIRP MODE (CONFIRMATION)

Chirp Mode

In chirp mode, the siren sounds two chirps when arming, and a single chirp when disarming.

Chirpless Mode

In chirpless mode, the siren does not chirp on arming or disarming.

The siren will still provide warning chirps and sound the alarm if the motorcycle is moved or the ignition switch is turned on without the fob present.

Switching Modes

Perform the following to switch between chirp and chirpless modes.

1. With the fob present, turn the ignition switch ON.
2. When the security lamp turns off, turn the ignition switch OFF.
3. When the security lamp turns off (but before the turn signals flash twice), immediately turn the ignition switch ON.
4. When the security lamp turns off, immediately turn the ignition switch OFF.
5. When the security lamp turns off (but before the turn signals flash twice), immediately turn the ignition switch ON.
6. When the security lamp turns off, immediately turn the ignition switch OFF.
7. When the security lamp turns off (but before the turn signals flash twice), immediately turn the ignition switch ON.

TRANSPORT MODE

It is possible to arm the security system without enabling the motion detector for one ignition cycle. This allows the vehicle to be picked up and moved in an armed state, however, any attempt to start the engine when the key fob is not within range will trigger the alarm.

To Enter Transport Mode

1. Turn the ignition switch to IGN.
2. Set the engine stop switch to OFF.
3. With an assigned fob within range, turn the ignition switch from IGN to ACC.
4. Simultaneously press both the left and the right turn signal switches. This must be done within five seconds of turning the ignition switch to ACC.
5. After the turn signals flash once, turn the ignition switch to OFF and the module is armed.
6. **Confirmation:** Turn signal blinks three times when armed for one ignition cycle.

To Exit Transport Mode

Return the system to normal operation:

With the fob present, turn the ignition switch to IGN to disarm the system. To cancel the transport mode, set the engine stop switch to RUN.

STORAGE AND SERVICE DEPARTMENTS

Long-Term Parking

To maintain arming, store the fob beyond the range of the antenna. The antenna range is approximately 1.5 m (5 ft). Have the fob present before moving parked motorcycle.

If the motorcycle will not be operated for several months, such as during the winter season, see MAINTENANCE AND LUBRICATION > MOTORCYCLE STORAGE (Page 139).

Service Departments

When the motorcycle is left at a Harley-Davidson dealer, there are two options:

1. Leave an assigned fob with the dealer.
2. To maintain possession of the fob, ask the dealer to disable the system for service (service mode) before leaving the dealership. Once service mode is active, the vehicle can be operated without an assigned fob present. To maintain the service mode, the assigned fobs must be kept out of range. If the fob appears in range, the service mode is cancelled.

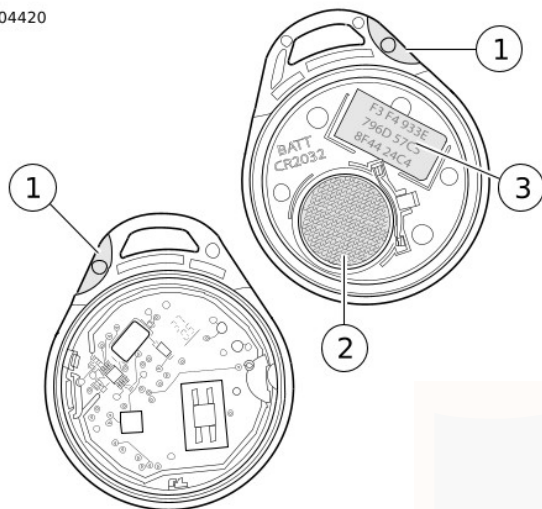
FOB BATTERY

Replacing the Battery

Replace the fob battery every year.

1. See Figure 22. Slowly turn a thin blade in the thumbnail slot (1) on the side of the fob to separate the two halves.
2. Remove the battery (2) and discard.
3. Install a **new** battery (Panasonic 2032 or equivalent) with the positive side down.
4. Align the two halves of the fob. Snap the halves together.

304420



1. Thumbnail slot
2. Battery
3. Fob serial number

Figure 22. Fob Battery

DISCONNECTING POWER

All Models

When disconnecting the battery or removing the main fuse, perform the following steps.

1. Verify that the fob is present.
2. Turn the ignition switch to IGNITION.
3. Pull the main fuse from its holder.
4. Disconnect the battery if needed.

NOTE

Place the ignition switch in the OFF position before installing the main fuse.

TROUBLESHOOTING

Security System Indicator

If the system indicator lamp stays illuminated while riding, see a Harley-Davidson dealer.

Fob

If the security system continues to actuate warnings and alarms with the fob present, check for:

1. **Electromagnetic interference:** Other electronic devices, power lines or other electromagnetic sources can cause the security system to operate inconsistently.
 - a. Verify that the fob is not in a metal enclosure or within 76 mm (3.0 in) of any other electronic devices.
 - b. Place the fob on the seat and turn the ignition to IGN. After the system disarms, return the fob to a convenient location.
 - c. Move motorcycle at least 5 m (15 ft) from the spot of interference.
 - d. Use the PIN to disarm the system.

NOTE

Leaving a fob next to a computer monitor can run down the battery.

2. **Discharged fob battery:** Use the PIN to disarm the system. Replace the battery. See SECURITY SYSTEM > FOB BATTERY (Page 73).
3. **A damaged fob:** Use the PIN to disarm the motorcycle. Replacement fobs are available for purchase from a Harley-Davidson dealer.

Siren

- If the siren does not chirp two or three times on a valid arming command from the security module, the siren is either in the chirpless mode, not connected, not working, or the siren wiring was opened or shorted while the siren was disarmed.
- If the siren is armed and the internal siren battery is dead, shorted, disconnected, or has been charging for a period longer than 24 hours, the siren will respond with three chirps on arming instead of two.
- The internal siren battery may not charge if the vehicle's battery is less than 12.5 volts.
- If the siren enters the self-driven mode where it is powered from the siren's internal 9 volt battery, the turn signal lamps may or may not alternately flash. If the security module activates the siren, the turn signal lamps will alternately flash. If the siren has been armed and a security event occurs, and the siren is in self-driven mode, the siren will alarm for 20-30 seconds and then turn off for 5-10 seconds. This alarm cycle will be repeated ten times if the siren is in the self-driven mode.

NOTES



OPERATING RECOMMENDATIONS

⚠ WARNING

Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use could result in loss of control, death or serious injury.

- Take a rider training course.
- Read owner's manual before riding, adding accessories or servicing.
- Wear a helmet, eye protection and protective clothing.
- Never tow a trailer.

(00556d)

- Take a rider training course.
- Read Owner's Manual before riding, adding accessories or servicing.
- Wear a helmet, eye protection and protective clothing.
- Never tow a trailer.

NOTICE

Do not run the engine at extremely high RPM with clutch disengaged or transmission in neutral. Running an engine at high RPM can result in engine damage. (00177a)

- The maximum recommended safe engine speed is 9000 rpm.
- Do not idle engine unnecessarily for more than a few minutes with motorcycle standing still.

NOTICE

Do not exceed the maximum safe RPM specified below under any conditions. Exceeding the maximum safe engine RPM can result in equipment damage. (00248a)

NOTE

The maximum recommended safe engine speed for V-Rod model motorcycles is 9000 rpm.

If motorcycle will not be ridden for a period of three weeks or more with security system armed, it is recommended to connect a Battery Tender to maintain battery charge. If security system will not be armed, it is recommended that the 40 A main fuse be removed. See MAINTENANCE AND LUBRICATION > FUSES AND RELAYS (Page 134).

NOTICE

Use only Genuine Harley-Davidson Extended Life Antifreeze and Coolant. Use of other coolants/mixtures may lead to motorcycle damage. (00179c)

Have the engine checked regularly and keep it well tuned. This applies particularly to a motorcycle equipped with windshield.

⚠ WARNING

When riding on wet roads, brake efficiency and traction are greatly reduced. Failure to use care when braking, accelerating or turning on wet roads can cause loss of control, which could result in death or serious injury. (00041a)

NOTE

- *While the motorcycle is operating, electronically controlled cooling fans will turn on periodically. This is normal operation.*
- *When descending upon a long, steep grade, downshift and use engine compression together with intermittent application of both brakes to slow the motorcycle.*

⚠ WARNING

Continuous use of brake causes overheating and reduced efficiency, which could result in death or serious injury. (00042a)

NOTICE

Do not coast for long distances with the engine off or idling. The transmission is properly lubricated only when the engine is running. Coasting long distances can result in transmission damage. (00180b)

⚠ WARNING

Do not tow a disabled motorcycle. Towing can adversely affect stability and handling, which could result in death or serious injury. (00017a)

NOTICE

Using the clutch to slow the motorcycle when it is turned off and rolling backwards can damage the power train. (00562b)

BREAK-IN RIDING RULES

The First 500 Miles (800 Kilometers)

The sound design, quality materials, and workmanship that are built into your new Harley-Davidson will give you optimum performance right from the start.

To allow your engine to wear in its critical parts, we recommend that you observe the riding rules provided below for the first 800 km (500 mi). Adhering to these rules will promote future durability and performance of the motorcycle.

1. During the first 80 km (50 mi) of riding, keep the engine speed below 5000 rpm in any gear. Do not lug the engine by running or accelerating at very low rpm, or by running at high RPM longer than needed for shifting or passing.
2. Up to 500 mi (km), vary the engine speed and avoid operating at any steady engine speed for long periods. Engine speed up to 7000 rpm in any gear is permissible.
3. Drive slowly and avoid fast starts at wide open throttle until the engine has warmed up.
4. Avoid lugging the engine by not running the engine at very low speeds in higher gears.
5. Avoid hard braking. New brakes need to be worn in by moderate use for the first 160 km (100 mi).

PRE-RIDING CHECKLIST

⚠ WARNING

Identify and understand the specific features of your vehicle. Failure to understand how these features affect the vehicle's operation can lead to an accident, which could result in death or serious injury. (00043b)

Before riding your motorcycle at any time, make a general inspection to verify that it is in safe riding condition.

⚠ WARNING

Avoid spills. Slowly open fuel filler cap. Do not fill above bottom of filler neck insert, leaving air space for fuel expansion. Secure filler cap after refueling. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00028b)

⚠ WARNING

Use care when refueling. Pressurized air in fuel tank can force gasoline to escape through filler tube. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00029a)

⚠ WARNING

Stop the engine when refueling or servicing the fuel system. Do not smoke or allow open flame or sparks near gasoline. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00002a)

NOTICE

Do not spill fuel onto the motorcycle while refueling. Immediately wipe up fuel spills on your motorcycle. Fuel can cause damage to cosmetic surfaces. (00147b)

1. Check the amount of fuel in the tank and add fuel if required.
2. Adjust mirrors to proper riding positions.
3. Check the oil level. See MAINTENANCE AND LUBRICATION > CHECKING OIL LEVEL (Page 88).
4. Check the coolant level. See MAINTENANCE AND LUBRICATION > COOLANT LEVEL (Page 95).
5. Check the controls to be sure they are operating properly. Operate the front and rear brakes, throttle, clutch and shifter.
6. Check steering for smoothness by turning the handlebars through the full operating range.

⚠ WARNING

Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)

7. Check tire condition, pressure, and motorcycle loading. Incorrect pressure and excessive loading can lead to tire or wheel failure and can adversely affect handling and stability. Refer to tire specifications on Table 16 for correct inflation pressure.

⚠ WARNING

Be sure headlamp, tail and stop lamp and turn signals are operating properly before riding. Poor visibility of rider to other motorists can result in death or serious injury. (00478b)

8. Check all electrical equipment and switches including the stop lamp, turn signals and horn, for proper operation.
9. Check for any fuel, oil or hydraulic fluid leaks.
10. Check rear belt adjustment.
11. Service your motorcycle as necessary.

STARTING THE ENGINE

General

NOTICE

The engine should be allowed to run slowly for 30-60 seconds. This will allow the engine to warm up and let oil reach all surfaces needing lubrication. Failure to comply can result in engine damage. (00181b)

Do not roll the throttle before starting. Rolling the throttle before starting the motorcycle is unnecessary.

Starting

⚠ WARNING

Shift transmission to neutral before starting engine to prevent accidental movement, which could result in death or serious injury. (00044a)

1. Turn ignition switch to IGNITION position. Do not roll the throttle.
2. See Figure 23. Turn the OFF/RUN switch to RUN position.

NOTE

The engine lamp will light for approximately 4 seconds and you will hear the fuel pump purr for approximately 2 seconds as it operates to fill the fuel lines with gasoline.

3. Squeeze the clutch lever in against the handgrip.

NOTE

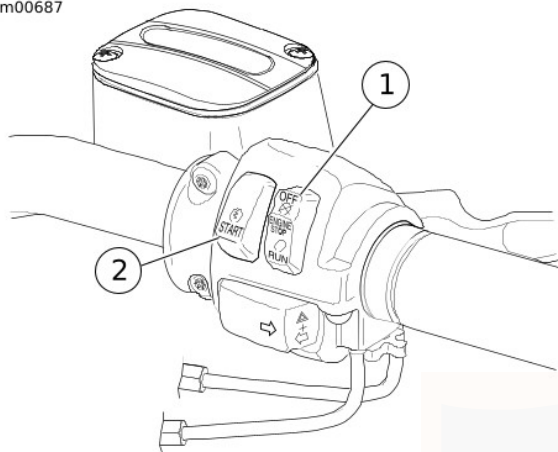
To activate the starting system, the clutch interlock circuitry requires the clutch be disengaged, clutch lever pulled in against left handgrip, and/or the transmission be shifted to the neutral position (green neutral lamp lit).

4. Press the starter button to start the motorcycle.
5. When the engine has started, you can operate your motorcycle as you normally would after raising the jiffy stand.

NOTE

The ABS indicator lamp will remain on until vehicle is moving approximately 5 km/h (3 mph).

om00687



1. Engine off/run switch
2. Engine start switch

Figure 23. Right Handlebar Controls: V-Rod Models

STOPPING THE ENGINE

1. Stop the engine by pressing the OFF/RUN switch on the right handlebar to OFF.
2. Turn OFF the ignition switch. If the engine should be stalled or stopped in any way, turn off the ignition switch at once to prevent battery discharge.

SHIFTING GEARS

NOTICE

The clutch must be fully disengaged before attempting a gear shift. Failure to fully disengage the clutch can result in equipment damage. (00182a)

Stopped, Engine Off

Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch. Gears do not engage because the transmission shafts are not turning and shifter components are not lined up. Rock the motorcycle backward and forward while lightly pressing the shift lever.

Starting from a Stop

NOTE

Always start the engine with the transmission in neutral. Always start forward motion in first gear.

1. With the engine running and the jiffy stand retracted, pull the clutch hand lever against the handlebar grip to disengage the clutch.
2. Press the gear shift lever down to the end of its travel and release. The transmission is now in first gear.

3. Ease out the clutch lever and at the same time, gradually open the throttle.

Upshift (Acceleration)

See Figure 24. Engage the next higher gear when the motorcycle reaches the shifting speed. Refer to Table 24.

Table 24. Upshift (Acceleration) Road Speeds*

GEAR CHANGE	mph	km/h
First to second	15	25
Second to third	25	40
Third to fourth	35	55
Fourth to fifth	45	70
* The listed speeds are recommendations. Individual riding styles can determine gear change road speeds.		

1. Close the throttle.
2. Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch.
3. Lift the gear shift lever up to the end of its travel and release.
4. Ease out the clutch lever and gradually open the throttle.
5. Repeat the previous steps to engage remaining gears.

NOTE

- Disengage the clutch completely before each gear change.

- Partially open the throttle so the engine does not drag when the clutch lever is released.

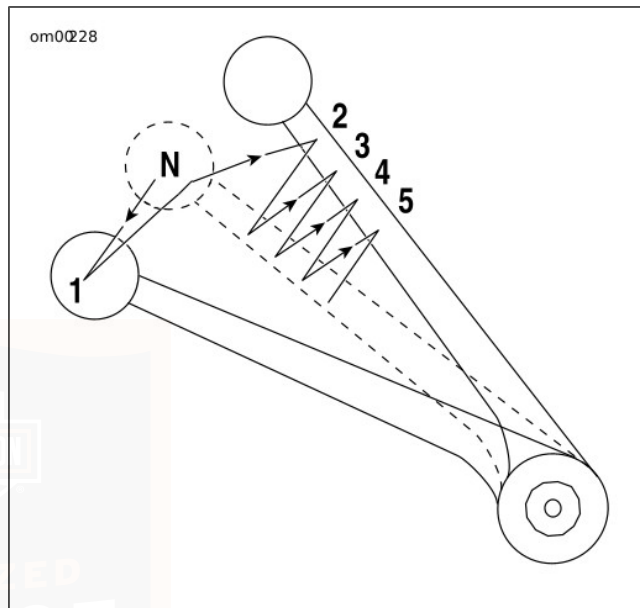


Figure 24. Gear Shift Lever (Upshift): V-Rod Models

Downshift (Deceleration)

⚠ WARNING

Do not downshift at speeds higher than those listed. Shifting to lower gears when speed is too high can cause the rear wheel to lose traction and lead to loss of vehicle control, which could result in death or serious injury. (00045b)

See Figure 25. When speed decreases, as when climbing a hill or slowing for a turn, shift to the next lower gear. Refer to Table 25.

Table 25. Downshift (Deceleration) Road Speeds*

GEAR CHANGE	mph	km/h
Fifth to fourth	40	65
Fourth to third	30	50
Third to second	20	30
Second to first	10	15
* The listed speeds are recommendations. Individual riding styles can determine gear change road speeds.		

NOTE

The shifting points shown in the table are recommendations. Individual shifting points can differ from the table.

1. Close the throttle.

2. Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch.
3. Press the gear shift lever down to the end of its travel and release.
4. Ease out the clutch lever and gradually open the throttle.
5. Repeat the previous steps to engage remaining gears.

NOTE

- *Disengage the clutch completely before each gear change.*
- *Partially open the throttle so the engine does not drag when clutch lever is released.*

NOTICE

Shift to neutral before stopping engine. Shifting mechanism can be damaged by shifting gears while engine is stopped. (00183a)

The gear shifter mechanism permits shifting the transmission to neutral from either first or second gear.

om0029

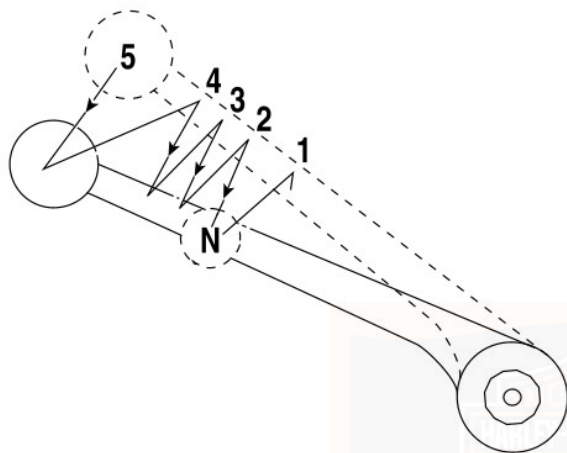


Figure 25. Gear Shift Lever (Downshift): V-Rod Models

NOTES



SAFE OPERATING MAINTENANCE

⚠ WARNING

Perform the service and maintenance operations as indicated in the regular service interval table. Lack of regular maintenance at the recommended intervals can affect the safe operation of your motorcycle, which could result in death or serious injury. (00010a)

Good maintenance leads to a safe operating machine. A careful check of certain equipment must be made after periods of storage and frequently between the regular service intervals to determine if additional maintenance is necessary.

Check the following items:

1. Tires for correct pressure, excessive wear or any signs of tire damage.
2. Drive belt for proper tension.
3. Brakes, steering and throttle for responsiveness.
4. Brake fluid level and condition. Hydraulic lines and fittings for leaks. Also, check brake pads and discs for wear.
5. Throttle cables for fraying or crimping and free operation.
6. Engine oil level.
7. Engine coolant level.

8. Clutch fluid level.
9. Headlamp, tail lamp, brake lamp and directional lamp operation.

BREAK-IN MAINTENANCE

NOTE

The performance of new motorcycle initial service is required to keep your new motorcycle warranty in force and for proper emissions system operation.

After a new motorcycle has been ridden 1,600 km (1000 mi), visit an authorized Harley-Davidson dealer for initial service. Refer to MAINTENANCE SCHEDULING > SERVICE RECORDS (Page 183).

ENGINE LUBRICATION

⚠ CAUTION

Prolonged or repeated contact with used motor oil may be harmful to skin and could cause skin cancer. Promptly wash affected areas with soap and water. (00358b)

⚠ CAUTION

If engine oil is swallowed, do not induce vomiting. Contact a physician immediately. In case of contact with eyes, immediately flush with water. Contact a physician if irritation persists. (00357d)

NOTICE

Do not switch lubricant brands indiscriminately because some lubricants interact chemically when mixed. Use of inferior lubricants can damage the engine. (00184a)

Engine oil is a major factor in the performance and service life of the engine. Use the proper grade of oil for the lowest temperature expected before the next oil change. Refer to Table 26.

This motorcycle was originally equipped with GENUINE HARLEY-DAVIDSON H-D 360 MOTORCYCLE OIL 20W50. If operation under extreme cold or heat are expected, refer to Table 26 for alternative choices.

If H-D 360 or SYN3 is not available, add oil certified for diesel engines. Acceptable designations include: CH-4, CI-4 and CJ-4. The preferred viscosities, in descending order are: 20W50, 15W40 and 10W40.

At the first opportunity, see an authorized dealer to change back to 100 percent Harley-Davidson oil.

Table 26. Recommended Engine Oils

TYPE	VISCOSITY	RATING	LOWEST AMBIENT TEMPERATURE	COLD WEATHER STARTS BELOW 10 °C (50 °F)
Screamin' Eagle SYN3 Full Synthetic Motorcycle Lubricant	SAE 20W50	HD 360	Above 30 °F (-1 °C)	Excellent
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 20W50	HD 360	Above 4 °C (40 °F)	Good

CHECKING OIL LEVEL

NOTE

This engine has a wet sump, an integral transmission, gear driven primary drive and wet clutch. This design allows engine oil in the sump to be used to lubricate the engine, transmission

and primary drive. The clutch and primary drive are housed on the right side of the engine.

NOTICE

Oil level cannot be accurately measured on a cold engine. For pre-ride inspection with the motorcycle upright (not leaning on jiffy stand) on level ground, the oil should register approximately at the midpoint of the cross-hatch area on the dipstick when the engine is cold. Do not add oil to bring the level to the full mark on a cold engine. (00186b)

Check engine oil level at each complete fuel refill.

VRSCF: See Figure 26. The dipstick is located on the right side in the clutch cover.

VRSCDX: See Figure 27. The dipstick is located on left side at front of engine.

Cold Engine Oil Level Check

Check the oil level with the engine **COLD** as follows:

1. Stand the motorcycle upright (not leaning on the jiffy stand) on a level surface.
2. See Figure 27. Unscrew the oil filler cap (with attached dipstick) by turning the filler cap counterclockwise. Remove the filler cap and dipstick and wipe the dipstick clean.

3. Screw the filler cap into the engine. Make sure the cap is fully seated on the crankcase.
4. See Figure 28. Remove the filler cap again and check the oil level on the dipstick.
5. If the oil level is below the midpoint of the cross-hatch area on the dipstick, add enough Harley-Davidson oil to bring the level up to the midpoint of the cross-hatch area shown.

NOTICE

Do NOT operate the engine when the oil level is below the add mark on the dipstick at operating temperature. Engine damage could result. (00493b)

NOTICE

To avoid over-filling the oil sump, wait approximately three minutes after adding oil before checking the oil level with the dipstick. An over-filled sump can cause engine damage. (00188a)

Hot Engine Oil Level Check

Check the oil level with the engine at normal operating temperature as follows:

1. Stop the engine and allow the oil to drain into the sump for about two minutes.

NOTE

The engine will require a longer warm-up period in colder weather.

2. Stand the motorcycle upright (not leaning on the jiffy stand) on a level surface.
3. See Figure 27. Unscrew the oil filler cap (with attached dipstick) by turning the filler cap counterclockwise. Remove the filler cap and dipstick and wipe the dipstick clean.
4. Screw the filler cap into the engine. Make sure the cap is fully seated on the crankcase.
5. See Figure 28. Remove the filler cap again and check the oil level on the dipstick.

NOTICE

Do not allow hot oil level to fall below Add/Fill mark on dipstick. Doing so can result in equipment damage and/or equipment malfunction. (00189a)

NOTICE

Do not overfill oil sump. Doing so can result in oil carryover to the air cleaner leading to equipment damage and/or equipment malfunction. (00191a)

6. If the oil level is below the FULL mark on the dipstick, add enough Harley-Davidson oil to bring the level up to the FULL mark.

NOTE

The oil ADD mark is 0.473 L (0.5 qt) to full.



Figure 26. Dipstick Location: VRSCF Model

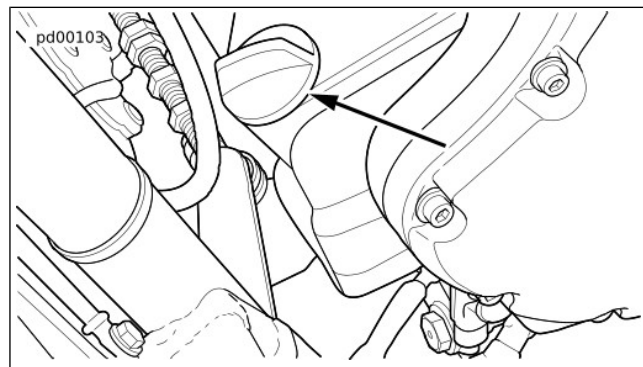
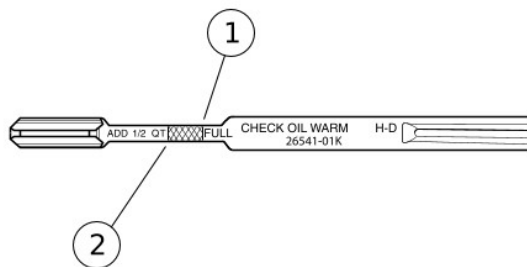


Figure 27. Dipstick Location: VRSCDX



1. **Full mark**
2. **Add mark. Do NOT operate the engine when the oil level is below the add mark at operating temperature.**

Figure 28. Engine Oil Level: V-Rod Models

CHANGING OIL AND OIL FILTER

Refer to Table 34. Change engine oil at regular service intervals in normal service at warm or moderate temperatures.

Oil change intervals should be shorter in cold weather. See MAINTENANCE AND LUBRICATION > LOW TEMPERATURE LUBRICATION (Page 94).

⚠ WARNING

Be sure that no lubricants or fluids get on tires, wheels or brakes when changing fluid. Traction can be adversely affected, which could result in loss of control of the motorcycle and death or serious injury. (00047d)

NOTICE

Do not switch lubricant brands indiscriminately because some lubricants interact chemically when mixed. Use of inferior lubricants can damage the engine. (00184a)

1. See Figure 30. Loosen the oil drain plug and completely drain the oil.
2. If necessary, remove the lower radiator support to access the oil filter.
3. Remove the oil filter using an OIL FILTER WRENCH (PART NUMBER: HD-42311). The oil filter is located on an oil filter mount in front of the engine.

NOTE

Dispose of oil and oil filter in accordance with local regulations.

4. Clean the filter gasket contact surface on the mounting plate (the surface should be smooth and free of any debris or old gasket material).
5. See Figure 29. Apply a thin film of oil to the gasket contact surface on the mounting plate and the gasket of the **new** oil filter (Part No. 63793-01K).
6. Screw the filter onto the adapter until the gasket contacts the plate surface, then apply another 2/3-1 full turn.
7. See Figure 30. Install the engine oil drain plug. Tighten the drain plug to 30–40 N·m (22–30 ft-lbs).
8. Install lower radiator support if removed. Tighten fasteners to 20–26 N·m (15–19 ft-lbs).
9. Refer to Table 9. Fill the engine with the recommended amount of oil.
10. Check engine oil. See MAINTENANCE AND LUBRICATION > CHECKING OIL LEVEL (Page 88).

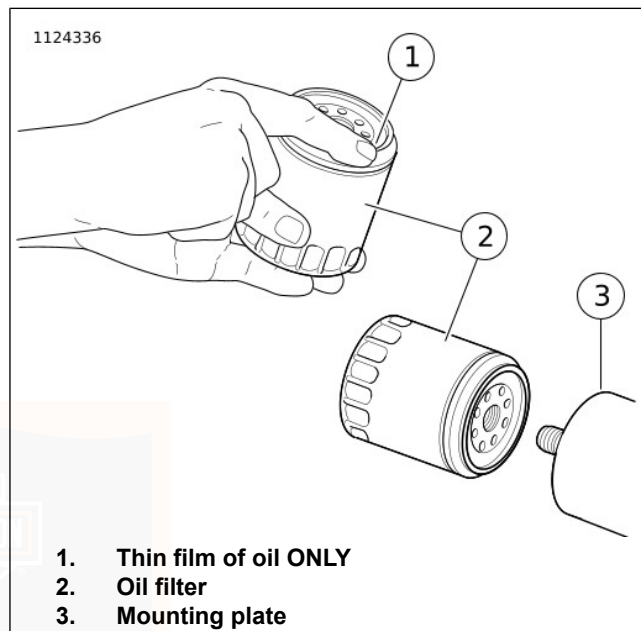


Figure 29. Applying Thin Oil Film

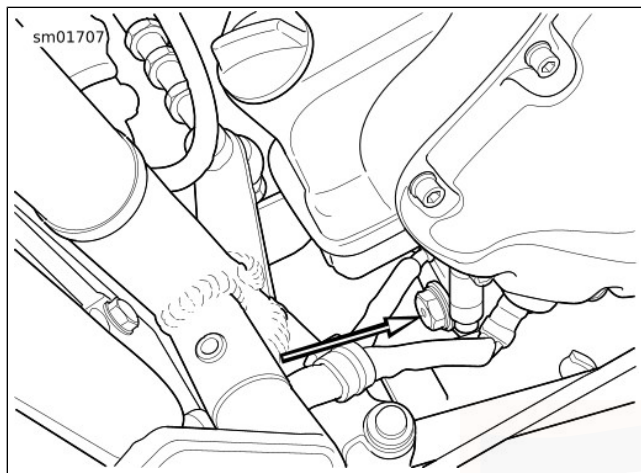


Figure 30. Oil Drain Plug: V-Rod Model

LOW TEMPERATURE LUBRICATION

Change engine oil often in colder climates. If motorcycle is frequently ridden less than 24 km (15 mi), in ambient temperatures below 16 °C (60 °F), reduce oil change intervals to 2,400 km (1500 mi).

NOTE

Lower ambient temperatures require more frequent oil changes.

Water vapor is a normal by-product of combustion . During cold-weather operation, some water vapor condenses to liquid form on the cool surfaces inside the engine. In freezing weather, this water becomes slush or ice. If the engine is not warmed to operating temperature, accumulated slush or ice blocks the oil lines and causes engine damage. Over time, water will accumulate, mix with the engine oil and form a sludge that is harmful to the engine.

If the engine is allowed to warm to normal operating temperature, most of the water evaporates and exits through the crankcase breather.

COOLANT TYPE

⚠ CAUTION

At operating temperature, radiators and oil coolers contain hot fluids. Contact with a radiator or oil cooler can result in minor or moderate burns. (00141b)

⚠ WARNING

Coolant mixture contains toxic chemicals, which may be fatal if swallowed. If swallowed, do not induce vomiting; call a physician immediately. Use in a well ventilated area. Irritation to skin or eyes can occur from vapors or direct contact. In case of skin or eye contact, flush thoroughly with water and go to hospital, if necessary. Dispose of used coolant according to federal, state and local regulations. (00092a)

NOTICE

Use only Genuine Harley-Davidson Extended Life Antifreeze and Coolant. Use of other coolants/mixtures may lead to motorcycle damage. (00179c)

GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT is pre-diluted and ready to use full strength. It provides temperature protection to -34 °F (-36.7 °C). DO NOT add water.

NOTICE

De-ionized water must be used with the antifreeze in the cooling system. Hard water can cause scale accumulation in water passages which reduces cooling system efficiency, leading to overheating and motorcycle damage. (00195b)

If GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT is unavailable, use a mixture of de-ionized water and ethylene glycol-based antifreeze. At the first opportunity, change back to GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT.

COOLANT LEVEL

Checking Coolant Level in Coolant Bottle

1. Open the seat.
2. **VRSCF:** Remove front side covers. See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).
3. See Figure 31. Remove the air box cover by turning the bailhead fastener 1/4 turn counterclockwise. Pull the air box cover away from the front locating holes.

⚠ WARNING

Do not loosen or remove pressure cap when cooling system is hot. The cooling system is under pressure and hot coolant and steam can escape from pressure cap, which could cause severe burns. Allow motorcycle to cool before servicing the cooling system. (00091c)

4. See Figure 32. Check coolant level in coolant bottle with coolant cold and motorcycle on jiffy stand.
5. If level is below "COLD FULL" line on tank, remove cap from coolant bottle by using pull tab and add GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT until fluid level reaches the "COLD FULL" line.

NOTE

GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT is pre-diluted and ready to use full-strength. Do NOT add water.

6. Replace the cap on the coolant bottle.
7. Install the air box cover. Secure the cover by turning the bailhead fastener 1/4 turn clockwise.
8. **VRSCF:** Install front side covers. See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).

NOTE

If the coolant bottle is empty when the engine is cold, it is possible that air has been drawn into the cooling system. Fill system with coolant and purge any trapped air. See an authorized Harley-Davidson dealer for service.

NOTICE

Clean the inlet surface of the radiator regularly. Leaves and other debris can collect on the radiator surface and degrade radiator performance which could lead to overheating and motorcycle damage. (00197d)

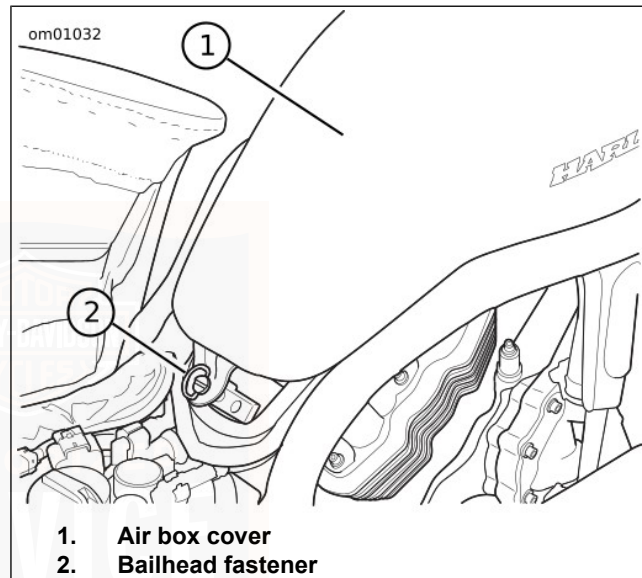


Figure 31. Air Box Cover

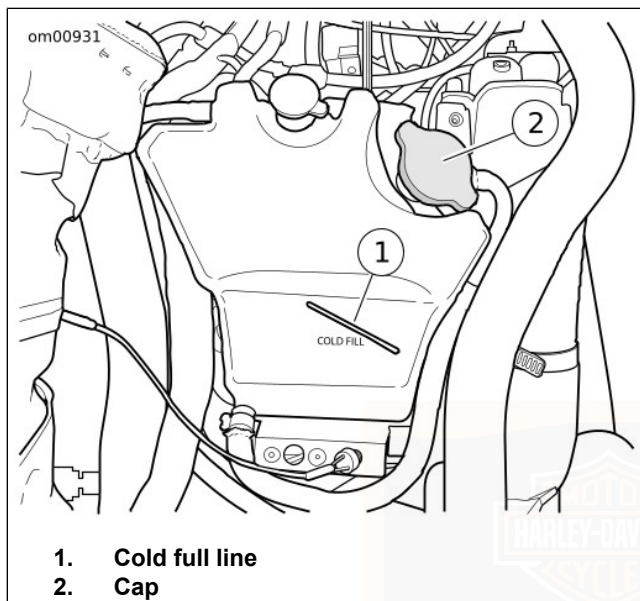


Figure 32. Coolant Bottle

CHECK DRIVE BELT DEFLECTION

NOTE

Always use BELT TENSION GAUGE (PART NUMBER: HD-35381-A) to measure belt deflection. Failure to use tension gauge may cause under-tensioned belts. Loose belts can fail

due to "ratcheting" (jumping a tooth) which causes tensile cord crimping and breakage.

Check deflection:

- As part of pre-ride inspection.
- At every scheduled service interval.
- With transmission in neutral.
- With motorcycle at ambient temperature.
- With motorcycle upright or on jiffy stand with rear wheel on the ground.
- With the vehicle unladen: no rider, no luggage and empty saddlebags.

⚠ WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, remove main fuse before proceeding. (00251b)

1. Disarm security system. Remove main fuse. See MAINTENANCE AND LUBRICATION > FUSES AND RELAYS (Page 134).
2. Shift transmission to neutral.

NOTE

When adjusting a **new** belt, rotate rear wheel a few revolutions prior to setting the tension.

3. See Figure 33. Measure belt deflection using BELT TENSION GAUGE (PART NUMBER: HD-35381-A):
 - a. Slide O-ring (4) to zero mark (3).
 - b. **Models equipped with belt deflection window:** Fit belt cradle (2) against bottom of drive belt in line with belt deflection window.
 - c. **All other models:** Fit belt cradle (2) against bottom of drive belt halfway between drive pulleys.
 - d. Press upward on knob (6) until O-ring slides down to 4.54 kg (10 lb) mark (5) and hold steady.
4. Measure belt deflection:
 - a. **Models equipped with belt deflection window:** See Figure 35. Measure belt deflection as viewed through belt deflection viewing window while holding gauge steady. Each deflection graduation is approximately 1.6 mm (1/16 in).
 - b. **All other models:** See Figure 34. Measure amount of deflection (4) while holding gauge steady.

NOTE

Set to the lower (tightest) specification if the belt has less than 1,600 km (1000 mi).

5. Compare with specifications. Refer to Table 27. If not within specifications, see a Harley-Davidson dealer.
6. Install main fuse.

Table 27. Belt Deflection

MODELS	in	mm
All models	15/64-13/32	6.0-10.0

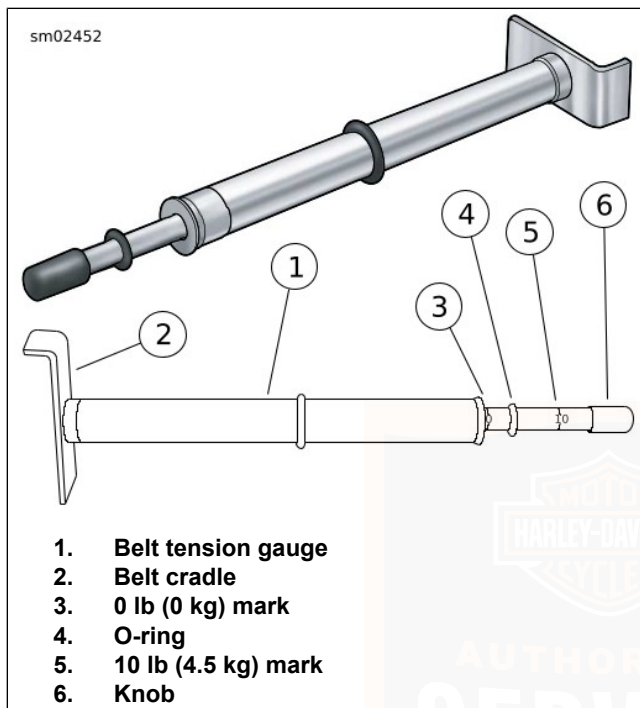


Figure 33. Belt Tension Gauge

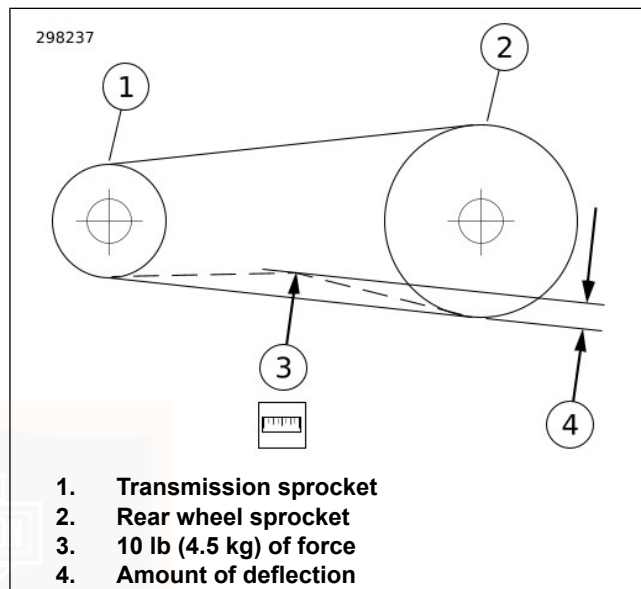


Figure 34. Checking Belt Deflection

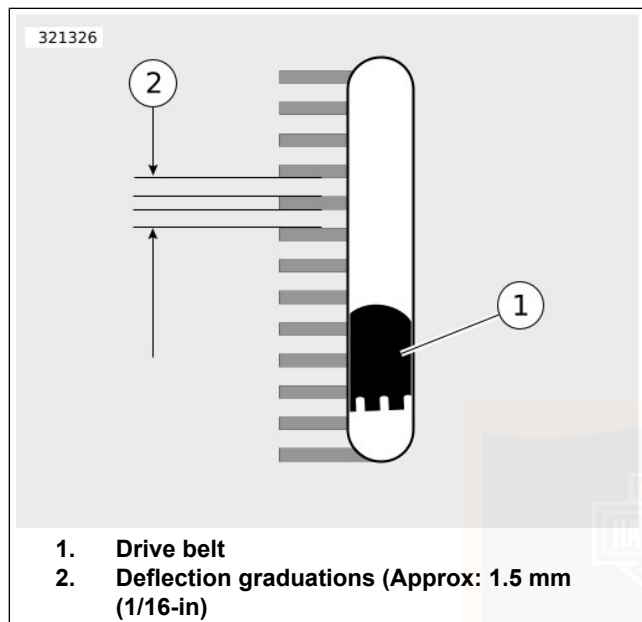


Figure 35. Belt Deflection Window

CHASSIS LUBRICATION

Refer to Table 34 for all maintenance schedules.

NOTE

Use recommended **SPECIAL PURPOSE GREASE** for steering head bearings. Use a multipurpose chassis grease for other applications.

1. Remove and lubricate handlebar throttle control grip sleeve with fresh graphite.
2. Lubricate throttle control cables and clutch control cable with HARLEY LUBE.
3. Lubricate front brake hand lever and clutch control hand lever only if necessary.
4. Inspect rear fork pivot shaft bearings.
5. Pack the steering head bearings with **SPECIAL PURPOSE GREASE** at recommended service intervals.
6. Lubricate the jiffy stand mechanism with **SILVER GRADE ANTI-SEIZE**.

NOTE

For model specific information regarding the chassis lubrication, see the service manual or a Harley-Davidson dealer.

OIL APPLICATIONS

Lubricate motorcycle at regular intervals, particularly after washing motorcycle or driving in wet weather. Refer to

HYDRAULIC CLUTCH

Squeezing the left hand lever causes the clutch master cylinder to actuate and apply pressure to the clutch actuation cylinder mounted in the engine right side cover. The actuation cylinder piston extends and contacts the clutch release bearing to release the clutch.

Check clutch fluid level periodically. Refer to Table 34.

NOTE

- *At every service, check moisture content of fluid using DOT 4 BRAKE FLUID MOISTURE TESTER (PART NUMBER: HD-48497-A). Follow the instructions included with tool.*
- *Flush clutch system and replace DOT 4 fluid every two years or sooner if brake fluid test shows moisture content is 3% or greater.*
- *Fluid should never need to be added or removed from the system during normal wear, except for fluid replacement as specified in the maintenance schedule.*
- *Fluid level in reservoir will rise with clutch wear. Reservoir volume is adequate to provide fluid to the wear limits of the clutch.*

1. Position motorcycle and handlebar so the master cylinder reservoir is level.
2. See Figure 36. View reservoir sight glass. Sight glass appears dark if fluid is present. If the entire sight glass is not dark, then proceed to the next step.

NOTICE

DOT 4 brake fluid will damage painted and body panel surfaces it comes in contact with. Always use caution and protect surfaces from spills whenever brake work is performed. Failure to comply can result in cosmetic damage. (00239c)

3. Clean all dirt and debris from the clutch master cylinder cover. Remove the two clutch master cylinder cover screws. Remove the cover.
4. Verify that the fluid in the clutch master cylinder reservoir is at the FILL level mark at the top of the ledge on the rear inside wall of the reservoir. If the fluid level is low, add DOT 4 BRAKE FLUID (Part No. 99953-99A) available from a Harley-Davidson dealer.

NOTE

Do not overfill the clutch master cylinder reservoir. As the clutch friction discs wear, the piston in the clutch cylinder

forces fluid back into the reservoir which could cause fluid overflow. If clutch fluid level is over full, the clutch can be damaged.

NOTICE

DOT 4 hydraulic brake fluid is used in the hydraulic clutch. Do not use other types of fluids as they are not compatible and could cause equipment damage. (00353b)

NOTICE

Do not allow dirt or debris to enter the master cylinder reservoir. Dirt or debris in the reservoir can cause improper operation and equipment damage. (00205c)

▲ WARNING

Contact with DOT 4 brake fluid can have serious health effects. Failure to wear proper skin and eye protection could result in death or serious injury.

- If inhaled: Keep calm, remove to fresh air, seek medical attention.
- If on skin: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation develops, seek medical attention.

- If in eyes: Wash affected eyes for at least 15 minutes under running water with eye lids held open. If irritation develops, seek medical attention.
- If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Contact Poison Control. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at sds.harley-davidson.com

(00240e)

5. Inspect the clutch master cylinder cover gasket for rips, cuts, cracks or other signs of damage. Replace the gasket if necessary. Carefully place the cover and cover gasket on the master cylinder reservoir. Secure with the two cover screws. Tighten the screws to:

Torque: 0.7–0.9 N·m (6–8 in-lbs) *Clutch master cylinder cover screws*

NOTE

If the fluid level in the clutch master cylinder reservoir is correct but the clutch does not operate properly, See the service manual or a Harley-Davidson dealer for service.

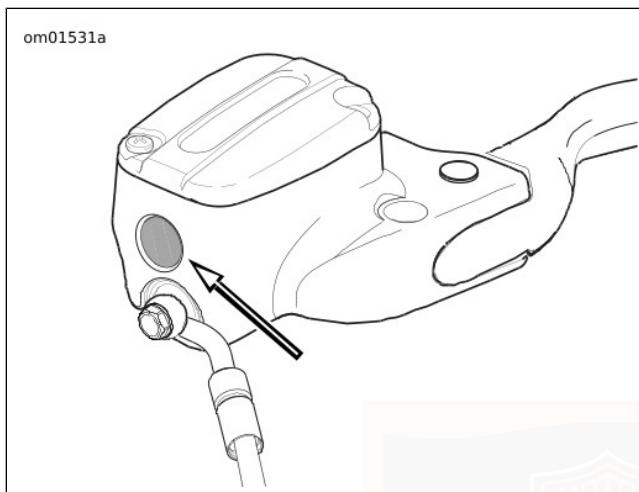


Figure 36. Clutch Reservoir Sight Glass

STEERING HEAD BEARINGS

⚠ WARNING

Adjustments to steering head bearings should be performed by a Harley-Davidson dealer. Improperly adjusted bearings can adversely affect handling and stability, which could result in death or serious injury. (00051b)

Check for proper steering head bearing adjustment and lubricate bearings using SPECIAL PURPOSE GREASE at proper intervals. Refer to MAINTENANCE SCHEDULING > SERVICE RECORDS (Page 183).

With motorcycle front end raised off the floor, be sure front fork turns freely without any binding or interference and that there is no appreciable front to rear fork movement indicating excessive bearing looseness. Steering head bearings should be adjusted according to service manual procedure, if necessary.

BRAKES

Brake Fluid

⚠ WARNING

Clean reservoir filler cap or cover before removing. Use only DOT 4 brake fluid from a sealed container. Contaminated fluid can adversely affect braking or clutch disengagement, which could result in death or serious injury. (00504d)

⚠ WARNING

Contact with DOT 4 brake fluid can have serious health effects. Failure to wear proper skin and eye protection could result in death or serious injury.

- **If inhaled:** Keep calm, remove to fresh air, seek medical attention.
- **If on skin:** Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation develops, seek medical attention.
- **If in eyes:** Wash affected eyes for at least 15 minutes under running water with eye lids held open. If irritation develops, seek medical attention.
- **If swallowed:** Rinse mouth and then drink plenty of water. Do not induce vomiting. Contact Poison Control. Immediate medical attention required.
- **See Safety Data Sheet (SDS) for more details available at sds.harley-davidson.com**

(00240e)

NOTICE

DOT 4 brake fluid will damage painted and body panel surfaces it comes in contact with. Always use caution and protect surfaces from spills whenever brake work is performed. Failure to comply can result in cosmetic damage. (00239c)

NOTICE

Do not allow dirt or debris to enter the master cylinder reservoir. Dirt or debris in the reservoir can cause improper operation and equipment damage. (00205c)

NOTE

- *At every service, check moisture content of fluid using DOT 4 BRAKE FLUID MOISTURE TESTER (PART NUMBER: HD-48497-A). Follow the instructions included with tool.*
- *Flush brake system and replace DOT 4 fluid every two years or sooner if brake fluid test shows moisture content is 3% or greater.*
- *Fluid should never need to be added or removed from the system during normal wear, except for fluid replacement as specified in the maintenance schedule.*
- *Fluid level in reservoir will decrease with brake wear. Reservoir volume is adequate to provide fluid to the wear limits of the pads and rotors.*

Front brakes: Position motorcycle and handlebar so the master cylinder reservoir is level.

See Figure 37. View sight glass (1) to verify that fluid level is at or above the center of sight glass.

Rear brakes: Position motorcycle so the master cylinder reservoir is level. Verify that fluid level is visible within the window (2).

If the fluid level is below the minimum mark or not present in either the front or rear brake reservoir, see a Harley-Davidson dealer.

Verify front brake hand lever and rear brake foot pedal have a firm feel when applied. If brakes are not firm, the brake system must be bled. See a Harley-Davidson dealer.

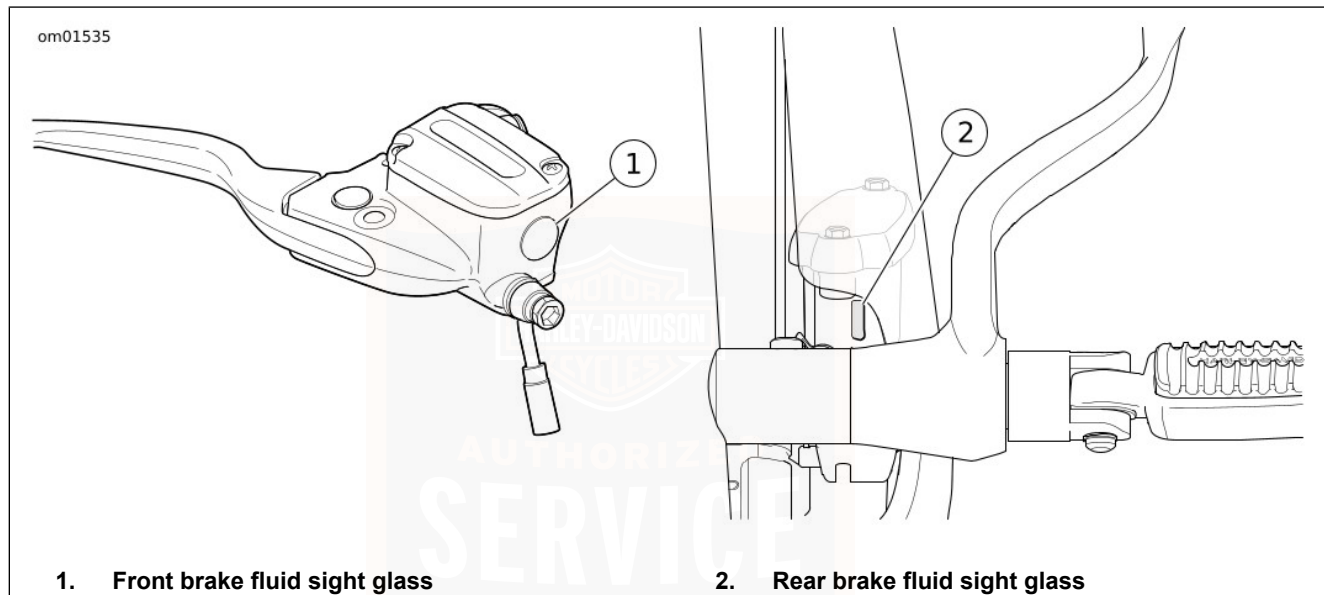


Figure 37. Brake Fluid Reservoirs

Brake Pads

⚠ WARNING

Inspect brake pads for wear at service maintenance intervals. If you ride under adverse conditions (steep hills, heavy traffic, etc.), inspect more frequently. Excessively worn brake pads can lead to brake failure, which could result in death or serious injury. (00052a)

⚠ WARNING

Always replace brake pads in complete sets for correct and safe brake operation. Improper brake operation could result in death or serious injury. (00111a)

⚠ WARNING

Brakes are a critical safety component. Contact a Harley-Davidson dealer for brake repair or replacement. Improperly serviced brakes can adversely affect brake performance, which could result in death or serious injury. (00054a)

⚠ WARNING

Perform routine scheduled brake maintenance. Lack of maintenance at recommended intervals can adversely affect brake performance, which could result in death or serious injury. (00055a)

Harley-Davidson has equipped your new motorcycle with the optimum brake pad friction material available. It is selected to give the best performance possible under dry or wet conditions and at high operating temperatures. It exceeds all regulatory requirements currently in effect. However, during some braking you can experience noise. This noise is normal for this friction material.

⚠ WARNING

Be sure wheel and brake caliper are aligned. Riding with a misaligned wheel or brake caliper can cause the brake disc to bind and lead to loss of control, which could result in death or serious injury. (00050a)

1. Check the rear brake disc as it spins. The disc should run true in the brake caliper.
2. See Figure 38. Measure the thickness of the brake pad friction material. For rear brakes, place the ruler against the brake disc through the space alongside the caliper.

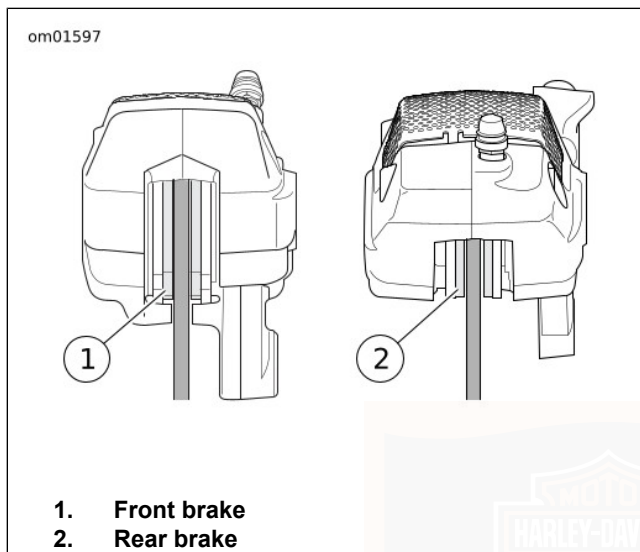


Figure 38. Brake Friction Material

NOTE

Always replace brake pads in pairs.

3. Replace brake pads before friction material reaches minimum thickness. See a Harley-Davidson dealer. Refer to Table 28.

Table 28. Minimum Brake Pad Friction Material Thickness

in	mm
0.040	1.020

SPARK PLUGS/COILS

Check the spark plugs at proper mileage intervals. Refer to Table 34.

⚠ CAUTION

Do NOT pull on any electrical wires. Pulling on electrical wires may damage the internal conductor causing high resistance, which may result in minor or moderate injury. (00168a)

Before installing spark plugs, check the spark plug gap. If necessary, adjust the gap to 0.89 mm (0.035 in).

Make sure your motorcycle has the correct spark plug. Use a **10R12A** spark plug.

Spark plugs must be tightened to the torque specified for proper heat transfer. Tighten spark plugs to 23 N·m (17 ft-lbs) per spark plug.

NOTE

- *If a torque wrench is not available, tighten the spark plugs finger-tight. Tighten an extra one quarter turn with a spark plug wrench.*

- *The V-Rod has plug-top coils. To inspect the spark plugs, the coils must be removed. Consult the V-Rod Service Manual for the proper service procedure.*

TIRES

Refer to Table 16 for tires and pressures.

- Keep tires properly inflated.
- Follow tire data for correct cold tire inflation pressure.
- Check tire pressures when tires are cold.

⚠ WARNING

Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)

⚠ WARNING

Match tires, tubes, rim strips or seals, air valves and caps to the correct wheel. Contact a Harley-Davidson dealer. Mismatching can lead to tire damage, allow tire slippage on the wheel or cause tire failure, which could result in death or serious injury. (00023c)

⚠ WARNING

Only install original equipment tire valves and valve caps. A valve, or valve and cap combination, that is too long or too heavy can strike adjacent components and damage the valve, causing rapid tire deflation. Rapid tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00281a)

Check tires for correct pressure, excessive wear or any signs of tire damage at least weekly if in daily use. Check before each ride if only ridden occasionally.

Use only Harley-Davidson specified tires. Other tires may not fit correctly and could adversely affect stability, handling and performance. Refer to Table 16.

⚠ WARNING

Tires are a critical safety component. Contact a Harley-Davidson dealer for tire repair or replacement. Improper tire service can adversely affect stability and handling, which could result in death or serious injury. (00057a)

⚠ WARNING

Replace punctured or damaged tires. In some cases, small punctures in the tread area may be repaired from within the removed tire by a Harley-Davidson dealer. Speed should NOT exceed 80 km/h (50 mph) for the first 24 hours after repair, and the repaired tire should NEVER be used over 129 km/h (80 mph). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

⚠ WARNING

Striking an object, such as a curb or pothole can cause internal tire damage. If an object is struck, have the tire inspected immediately inside and out by a Harley-Davidson dealer. A damaged tire can fail while riding and adversely affect stability and handling, which could result in death or serious injury. (00058b)

TIRE REPLACEMENT

Inspection

⚠ WARNING

Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)

⚠ WARNING

Replace tire immediately with a Harley-Davidson specified tire when wear bars become visible or only 1 mm (1/32 in) tread depth remains. Riding with a worn tire could result in death or serious injury. (00090c)

Harley-Davidson tires have wear bars that run horizontally across the tread. When a tire is worn to the point the tread wear indicator bars become visible on the tread surfaces, or 0.8 mm (1/32 in) tread depth remains, the tire can:

- Be more easily damaged leading to tire failure.
- Provide reduced traction.
- Adversely affect stability and handling.

See Figure 39. Arrows on tire sidewalls pinpoint location of tread wear indicator bars.

See Figure 40. Always replace tires before the tread wear indicator bars appear.

When To Replace Tires

▲ WARNING

Harley-Davidson recommends the use of its specified tires. Harley-Davidson vehicles are not designed for operation with non-specified tires, including snow, moped and other special-use tires. Use of non-specified tires can adversely affect stability, handling or braking and lead to loss of vehicle control, which could result in death or serious injury. (00024d)

NOTE

Always replace tires with the specified tires. Refer to Table 16.

New tires are needed if:

- Tread wear indicator bars become visible on the tread surfaces.
- Tire cords or fabric become visible through cracked sidewalls, snags or deep cuts.
- Bumps, bulges or slits in the tire.

- Punctures, cuts or other damage to the tire that cannot be repaired.

When installing tires on rims, do not rely on tread design to determine direction of rotation. Always make sure that the rotational arrows molded into the sidewalls point in the direction of rotation when the vehicle is moving forward.

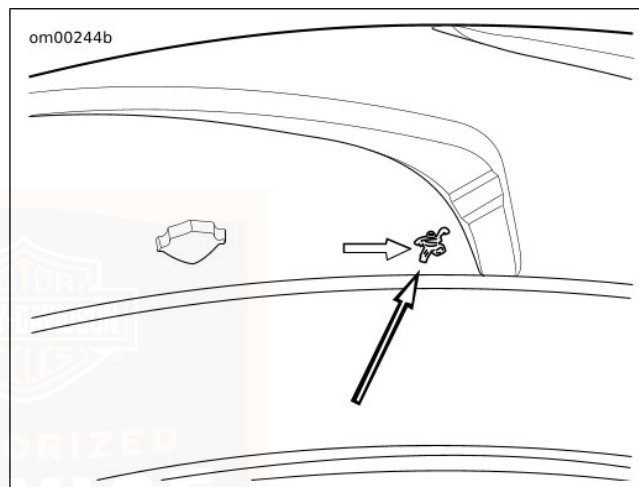


Figure 39. Wear Bar Indicator: V-Rod Models

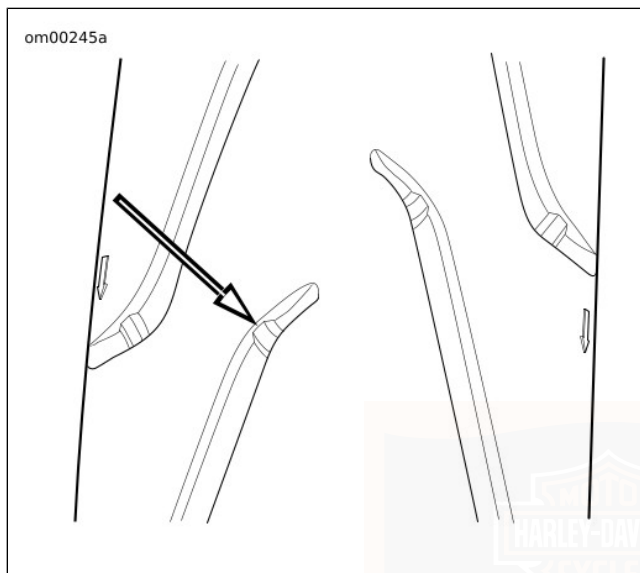


Figure 40. Tread Surface Wear Bar (Typical): V-Rod Models

SHOCK ABSORBERS

Inspect shock absorbers for leaks and rubber bushings for deterioration at proper intervals.

FRONT SIDE COVERS: VRSCF MODEL

Removal

1. See Figure 41. Remove five screws from front side cover.
2. Lift side cover slightly to disengage mounting pin from bottom of side cover. Pull side cover from frame.

Installation

1. See Figure 41. Orient the air inlet toward the front of the vehicle and align grommet in side cover with the mounting pin on frame. Press side cover to engage mounting pin.
2. Install five screws with washers. Tighten to 4.1–6.8 N·m (36.3–60.2 in-lbs).

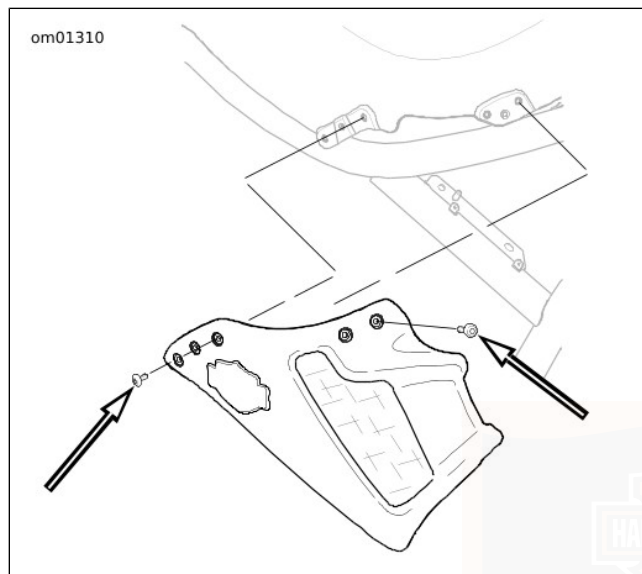


Figure 41. Front Side Cover Screws: VRSCF Model

AIR CLEANER

The engine air cleaner is a paper/wire mesh air filter element. Inspect the filter element. Inspect more often under dusty conditions. Refer to Table 34.

Remove the air cleaner:

1. Open seat.
2. **VRSCF:** Remove front side covers. See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).
3. See Figure 42. Remove the air box cover by turning the bailhead fastener 1/4 turn counterclockwise. Pull the air box cover away from the front locating holes.
4. See Figure 43. Remove electrical connector (3) by pushing down on bail wire to unlock. Eight clips, three per side, one at the rear and one in the front under the snorkel, secure the air box top. Release the clips. Remove the air box top.

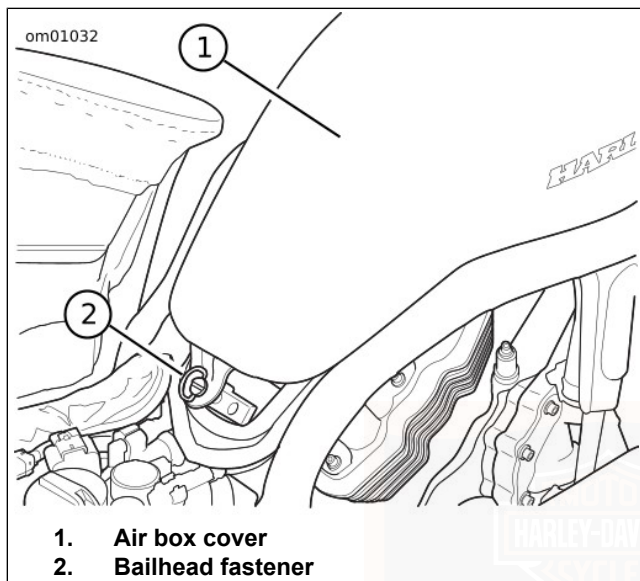


Figure 42. Air Box Cover

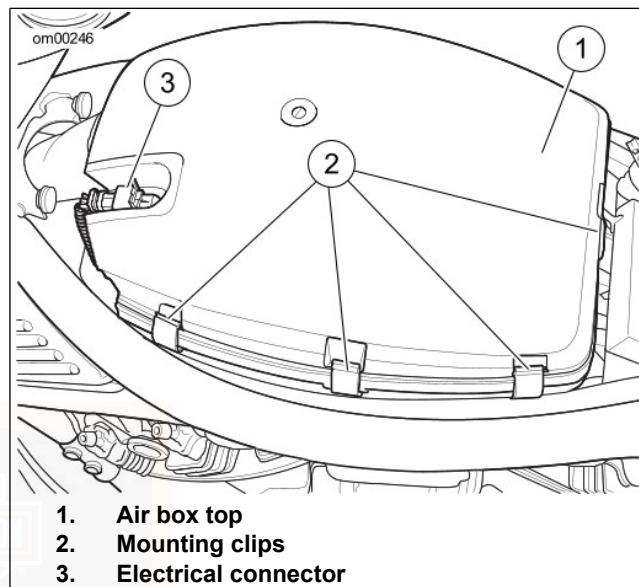


Figure 43. Air Box Top

5. See Figure 44. Unscrew the wing nut securing the air cleaner cap. Remove the air cleaner cap and paper/wire mesh air filter element.

NOTICE

To prevent objects from falling down the velocity stacks, temporarily reinstall the air cleaner cap. (00208a)

6. Temporarily install the air cleaner cap.
7. Wash the paper/wire mesh air filter element in warm water with a mild detergent. Rinse thoroughly.

⚠ WARNING

Compressed air can pierce the skin and flying debris from compressed air could cause serious eye injury. Wear safety glasses when working with compressed air. Never use your hand to check for air leaks or to determine air flow rates. (00061a)

8. Allow the filter element to either air dry or blow it dry from the inside with low-pressure air.
9. Hold the filter element up to a strong light source. If light is uniformly visible through the element, it is sufficiently clean. Replace the filter element if it is damaged or if the filter media cannot be adequately cleaned.

NOTE

Do not use air cleaner filter oil on Harley-Davidson paper/wire mesh air filter elements.

10. Remove the air cleaner cap. Place the air filter element in the bottom tray of the air box. Install the air cleaner cap over the air filter element. Secure with the wing nut.

NOTICE

Install air filter before running engine. Failure to do so can draw debris into the engine and could result in engine damage. (00207a)

11. Position the air box top over the air filter assembly and fasten the clips along each side and the clip at the rear.
12. See Figure 45. The front clip under the snorkel is attached to the air box top. Fasten the clip over the lip on the air box bottom.
13. See Figure 42. Position the air box cover with the locating pins in the holes on the frame tabs.
14. Turn the bailhead fastener 1/4 turn clockwise to secure the air box cover to the motorcycle.

15. **VRSCF:** Install front side covers. See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).

16. Close seat.

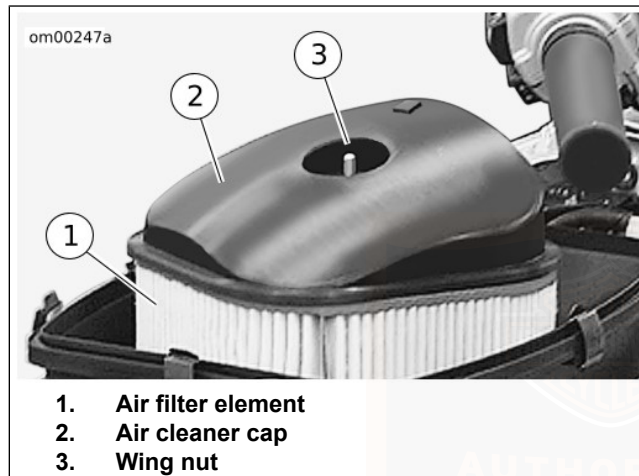


Figure 44. Air Cleaner Assembly

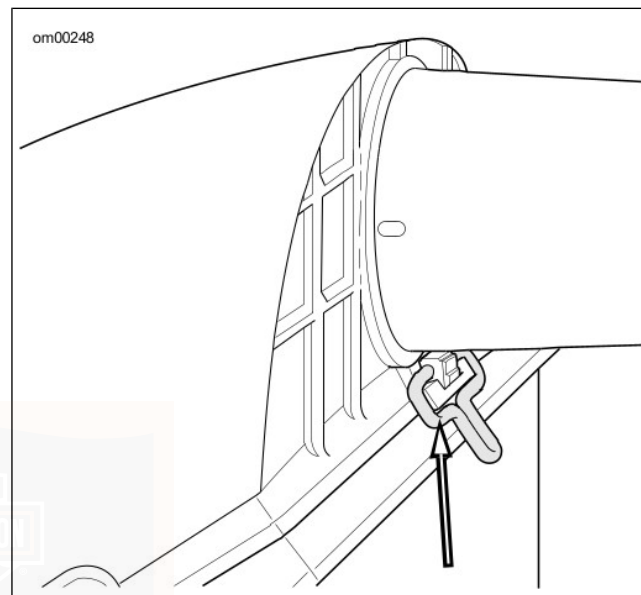


Figure 45. Front Air Box Clip

HEADLAMP BULB REPLACEMENT

Bulb Removal

NOTICE

When replacement is required, use only the specified sealed beam unit or bulb, available from a Harley-Davidson dealer. An improper wattage sealed beam or bulb, can cause charging system problems. (00209a)

1. Remove the main fuse. See MAINTENANCE AND LUBRICATION > FUSES AND RELAYS (Page 134).
2. See Figure 46. Reach behind the headlamp bucket and grasp the low beam (1) or high beam (2) bulb socket connector.
3. Squeeze the release latches to remove the connector from the headlamp bulb.

⚠ WARNING

Handle bulb carefully and wear eye protection. Bulb contains gas under pressure, which, if not handled carefully, could cause serious eye injury. (00062b)

4. Twist the bulb 45 degrees counterclockwise and carefully pull the bulb from the housing. Discard bulb.

Bulb Installation

NOTICE

Never touch the quartz bulb. Fingerprints will etch the glass and decrease bulb life. Handle the bulb with paper or a clean, dry cloth. Failure to do so could result in bulb damage. (00210b)

1. Insert **new** headlamp bulb into the housing and align tabs on the bulb with the slots in the housing.
2. Twist the bulb clockwise approximately 45 degrees until it stops.
3. Install the connector to the headlamp bulb.
4. Install the main fuse.

⚠ WARNING

Be sure that all lights and switches operate properly before operating motorcycle. Low visibility of rider can result in death or serious injury. (00316a)

5. Turn ignition on and check for proper operation.
6. Align the headlamp if necessary. See MAINTENANCE AND LUBRICATION > HEADLAMP ALIGNMENT (Page 117).

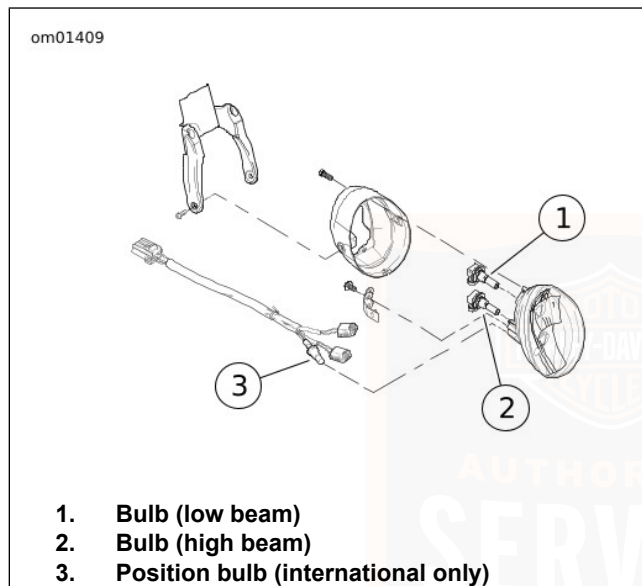


Figure 46. Headlamp Assembly (VRSCF shown)

HEADLAMP ALIGNMENT

1. Check tire pressure.
2. Fill fuel tank or add an equal amount of ballast.
3. Adjust rear shocks for the rider and intended load.

NOTE

Choose a wall in minimum light.

4. See Figure 47. Park the motorcycle on a perpendicular line (1) with the front axle 7.6 m (25 ft) (3) from a wall.
5. Draw a vertical line (2) on the wall.

NOTE

Adjust the headlamps of motorcycles with multiple beam headlamps to converge into one pattern.

6. With the motorcycle loaded, point the front wheel straight forward at wall. Measure the distance (4) from the floor to the center of the high beam bulb.
7. Draw a horizontal line (5) through the vertical line on the wall. Place line 53.3 mm (2.1 in) lower than the measured bulb centerline.

NOTE

The headlamp is aligned when the light beam hot spot is located over the intersection of the lines.

8. With the high beam activated, verify headlamp alignment. Adjust as necessary.

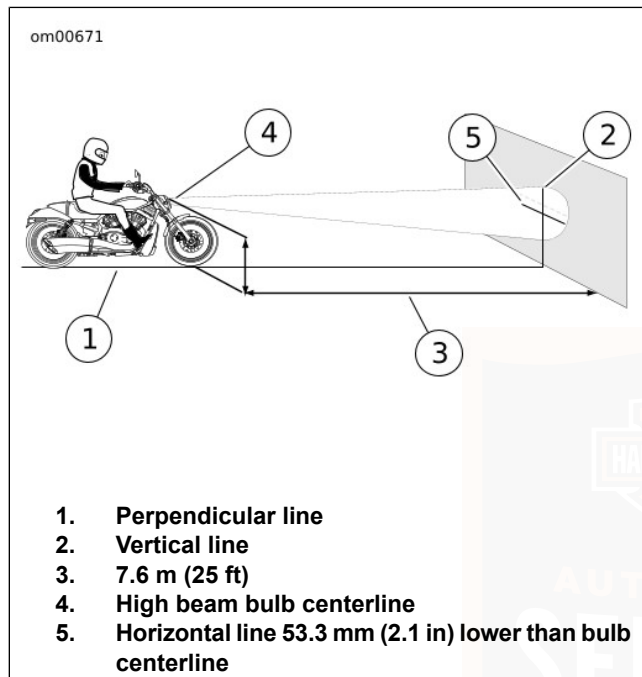


Figure 47. Headlamp Alignment

HEADLAMP ADJUSTMENT

1. See Figure 48. Loosen screws slightly so headlamp is still snug.
2. Move headlamp assembly to adjust vertical alignment.
3. Tighten to 4.5–7.5 N·m (40–66 in-lbs).

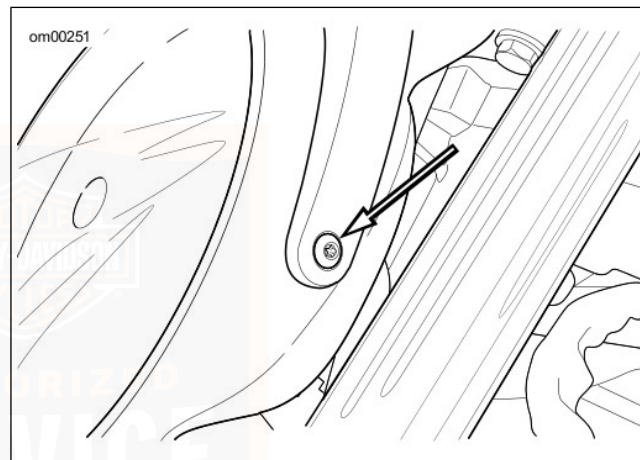


Figure 48. Headlamp Alignment Screw

LED LAMPS

The following lamps are LED assemblies with no replaceable bulbs. See an authorized Harley-Davidson dealer or service manual for assembly replacement.

- **VRSCDX:** Tail lamp
- **VRSCF:** Front turn signals, tail/rear turn signal assembly

TURN SIGNAL BULB REPLACEMENT: BULLET STYLE

NOTE

Models with LED lamps do not contain replacement bulbs. Replace the LED assembly.

1. See Figure 49. Insert a coin or the blade of a small screwdriver into the notch at the bottom of the lens cap. Carefully twist until the lens cap pops out of the lamp housing.
2. Push bulb in and rotate counterclockwise. Pull bulb from socket.
3. Inspect condition of electrical contacts in socket. If necessary, clean with a small wire brush and electrical contact cleaner.
4. Apply ELECTRICAL CONTACT LUBRICANT to contacts in socket and at bottom of **new** bulb.
5. Align pins on **new** bulb with pin guides in bulb socket. Push bulb in and turn clockwise to lock in place.
6. Snap lens cap onto the lamp housing with notch at bottom.
7. Check operation of all lamps.

⚠ WARNING

Be sure that all lights and switches operate properly before operating motorcycle. Low visibility of rider can result in death or serious injury. (00316a)

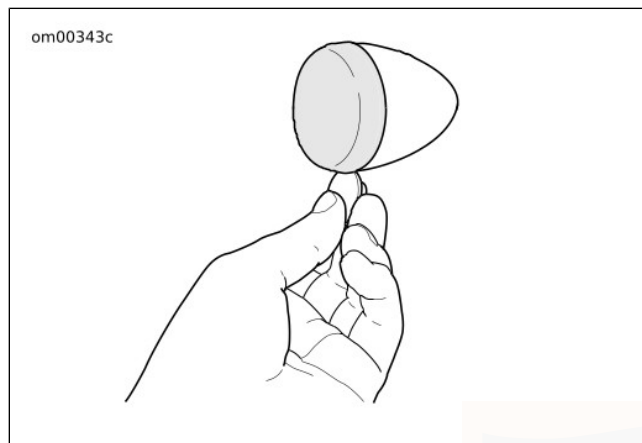


Figure 49. Remove Lens

HARLEY-DAVIDSON ABSORBED GLASS MAT (AGM) BATTERY CHARGING INFORMATION

Your motorcycle is equipped with a sealed AGM battery design that is superior to conventional flooded lead acid batteries. This battery design will provide many years of dependable service when the proper battery charging equipment and storage procedures are used. Because of the sealed, non-spillable battery design, an automatic, constant monitoring battery charger or tender that uses a charging rate of less than 14.6 volts is required to prevent overcharging conditions

that will dry out the cells of the battery. Constant current battery chargers (including trickle chargers) can damage AGM batteries.

To maintain a full charge between rides, Harley-Davidson recommends using an optional Harley-Davidson constant monitoring battery charger or tender when your motorcycle will not be ridden for more than two weeks, with the best practice of installing the charger or tender any time the motorcycle is not in use. See an authorized Harley-Davidson dealer for a selection of recommended constant monitoring battery chargers, tenders and charging accessories. Harley-Davidson battery tenders include a quick disconnect cable, allowing easy connection to charge the battery with minimal disassembly of the motorcycle. Some models are equipped with a battery tender connector as standard equipment.

Lack of regular battery charging or use of constant current battery chargers may void battery warranty. See the battery maintenance section of this manual for more information on battery charging and storage procedures.

BATTERY MAINTENANCE

Type

Your motorcycle uses an Absorbed Glass Mat (AGM) battery. The AGM battery is permanently sealed, valve regulated, maintenance-free, lead/calcium and sulfuric acid battery. All

batteries are shipped precharged and ready for service. Do not attempt to open the battery for any reason.

Table 29. Antidotes for Battery Acid

CONTACT	TREATMENT
External	Flush with water.
Internal	Drink large quantities of milk or water, followed by milk of magnesia, vegetable oil or beaten eggs. Get immediate medical attention.
Eyes	Flush with water. Get immediate medical attention.

⚠ WARNING

Batteries contain sulfuric acid, which could cause severe burns to eyes and skin. Wear a protective face shield, rubberized gloves and protective clothing when working with batteries. **KEEP BATTERIES AWAY FROM CHILDREN.** (00063a)

⚠ WARNING

Explosive hydrogen gas, which escapes during charging, could cause death or serious injury. Charge battery in a well-ventilated area. Keep open flames, electrical sparks and smoking materials away from battery at all times. **KEEP BATTERIES AWAY FROM CHILDREN.** (00065a)

⚠ WARNING

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (00019e)

⚠ WARNING

Never remove warning label from battery. Failure to read and understand all precautions contained in warning, could result in death or serious injury. (00064b)

om00853

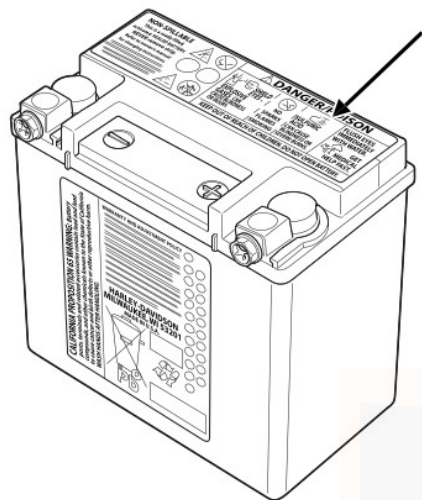


Figure 50. Battery Warning Label



1



2



3



4



5



6

<p>NON-SPILLABLE</p> <p>This is a ready filled, activated SEALED BATTERY. NEVER remove strip. Refer to owner's manual or instruction sheet for charging procedure.</p>	<p>⚠ DANGER/POISON 3-4580</p> <table border="1"> <tr> <td data-bbox="801 409 982 574"> SHIELD EYES. EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY. </td> <td data-bbox="982 409 1098 574"> NO SPARKS •FLAMES •SMOKING </td> <td data-bbox="1098 409 1263 574"> SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS. </td> <td data-bbox="1263 409 1428 574"> FLUSH EYES IMMEDIATELY WITH WATER. GET MEDICAL HELP FAST. </td> </tr> </table> <p>KEEP OUT OF REACH OF CHILDREN. DO NOT OPEN BATTERY.</p>	 SHIELD EYES. EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY.	 NO SPARKS •FLAMES •SMOKING	 SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS.	FLUSH EYES IMMEDIATELY WITH WATER. GET MEDICAL HELP FAST.
 SHIELD EYES. EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY.	 NO SPARKS •FLAMES •SMOKING	 SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS.	FLUSH EYES IMMEDIATELY WITH WATER. GET MEDICAL HELP FAST.		

1. Contents are corrosive
2. Wear safety glasses
3. Contents are explosive

4. Keep flames away
5. Read instructions
6. Keep away from children

Figure 51. Battery Warning Label

Voltmeter Test

The voltmeter test provides a general indicator of battery condition. Check the voltage of the battery to verify that it is in a 100 percent fully charged condition. If the open circuit (disconnected) voltage reading is below 12.7 V, charge the battery. Recheck the voltage after the battery has set for one to two hours. Refer to Table 30.

Table 30. Voltmeter Test

READING IN VOLTS	PERCENT OF CHARGE
12.7	100
12.6	75
12.3	50
12.0	25
11.8	0

Cleaning and Inspection

Battery top must be clean and dry. Dirt and electrolyte on top of the battery can cause battery to self-discharge.

1. Clean battery top.
2. Clean cable connectors and battery terminals using a wire brush or fine grit sandpaper to remove any oxidation.
3. Inspect and clean the battery screws, clamps and cables. Check for breakage, loose connections and corrosion.

4. Check the battery posts for melting or damage caused by over-tightening.
5. Inspect the battery for discoloration, a raised top or a warped or distorted case. These conditions might indicate that the battery has been frozen, overheated or overcharged.
6. Inspect the battery case for cracks or leaks.

Charging

An automatic, constant monitoring battery charger/tender with a charging rate of 5 amps or less at less than 14.6 volts is recommended. The use of constant current chargers (including trickle chargers) to charge sealed AGM batteries is not recommended. Any overcharge will cause dry-out and premature battery failure. Never charge a battery without first reviewing the instructions for the charger being used. In addition to the manufacturer's instructions, follow these general safety precautions.

Charge the battery if any of the following conditions exist:

- Vehicle lamps appear dim.
- Electric starter sounds weak.
- Battery has not been used for an extended time.

⚠ WARNING

Explosive hydrogen gas, which escapes during charging, could cause death or serious injury. Charge battery in a well-ventilated area. Keep open flames, electrical sparks and smoking materials away from battery at all times. KEEP BATTERIES AWAY FROM CHILDREN. (00065a)

⚠ WARNING

Batteries contain sulfuric acid, which could cause severe burns to eyes and skin. Wear a protective face shield, rubberized gloves and protective clothing when working with batteries. KEEP BATTERIES AWAY FROM CHILDREN. (00063a)

1. Perform a voltmeter test to determine the state of charge. If battery needs to be charged, proceed to the next step.
2. Place the battery on a level surface.

NOTE

- *Do not use chargers with excessively high voltage designed for flooded batteries or excessively high current designed for much larger batteries. Do not charge at more than 5 amps or more than 14.6 volts.*

- *Most automatic, constant monitoring battery chargers are completely automatic and can be left connected to both AC power and to the battery that is being charged. When leaving this type of charger connected for extended periods of time, periodically check the battery to see if it is unusually warm. This is an indication that the battery may have a weak cell or internal short. Read the manufacturer's instructions for the charger being used.*

⚠ WARNING

Unplug or turn OFF battery charger before connecting charger cables to battery. Connecting cables with charger ON can cause a spark and battery explosion, which could result in death or serious injury. (00066a)

⚠ WARNING

Connect positive (+) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00068a)

⚠ WARNING

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)

NOTICE

Do not reverse the charger connections described in the following steps or the charging system of the motorcycle could be damaged. (00214a)

3. Connect the red battery charger lead to positive terminal of the battery.
4. Connect the black battery charger lead to negative terminal of the battery.

NOTE

If the battery is still in the vehicle, connect the negative lead to the chassis ground. Make sure that the ignition and all electrical accessories are turned off.

5. Step away from the battery and turn on the charger.

⚠ WARNING

Unplug or turn OFF battery charger before disconnecting charger cables from battery. Disconnecting clamps with charger ON can cause a spark and battery explosion, which could result in death or serious injury. (00067a)

6. After the battery is fully charged, turn OFF the charger. Disconnect the black battery charger lead from the negative terminal of the battery.
7. Disconnect the red battery charger lead from the positive terminal of the battery.
8. Mark the charging date on the battery.

Storage

If the motorcycle will not be operated for several weeks, such as during the winter season, remove the battery from the motorcycle and fully charge.

If the motorcycle will be stored with the battery installed, connect an automatic, constant monitoring charger/tender to maintain charge. See an authorized Harley-Davidson dealer for more information.

A battery that is removed from the vehicle is affected by self-discharge. A battery that is stored in the vehicle is affected by both self-discharge and, more significantly, parasitic loads.

- Batteries self-discharge at a faster rate at higher ambient temperatures.
- To reduce the self-discharge rate, store battery in a cool, dry place.
- Charge the battery every two weeks if stored in the vehicle.
- Charge the battery once per month if stored out of the vehicle.

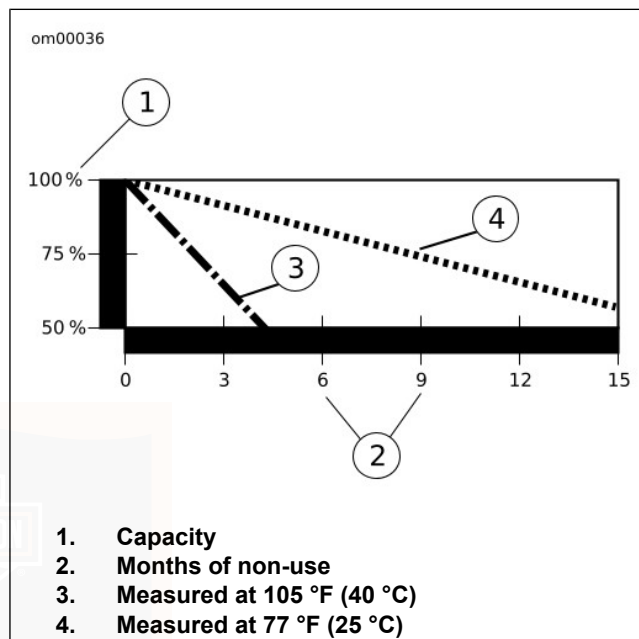


Figure 52. Effective Rate of Temperature on Battery Self-discharging Rate

BATTERY

Disconnection and Removal

Before you can inspect or disconnect the battery you must read the section containing information about air cleaner removal.

1. If equipped with security system siren, have the hands-free fob present. Turn the ignition switch to the ignition (IGN) position to disarm the security system.
2. Remove main fuse. See MAINTENANCE AND LUBRICATION > FUSES AND RELAYS (Page 134).
3. Remove the air cleaner. See MAINTENANCE AND LUBRICATION > AIR CLEANER (Page 112).
4. See Figure 53. Disconnect rear breather hose (2).
5. Slide the O-ring (4) up each velocity stack (1) body to reveal the three retaining fasteners (5). Unscrew the fasteners and lift off the velocity stacks.

6. Carefully lift up the air box bottom tray. The front has a grommet which is pressed on to a brass bullet. The rear has a breather hose which was disconnected in a previous step. Disengage the front grommet and slide the rear breather hose out through the hole in the rear of the air box tray.

NOTICE

Cover the throttle body bores with duct tape to prevent objects from falling down the injector bores. Do NOT use shop cloths or objects that could damage the throttle plates. (00212d)

7. See Figure 54. Cover injector intakes.

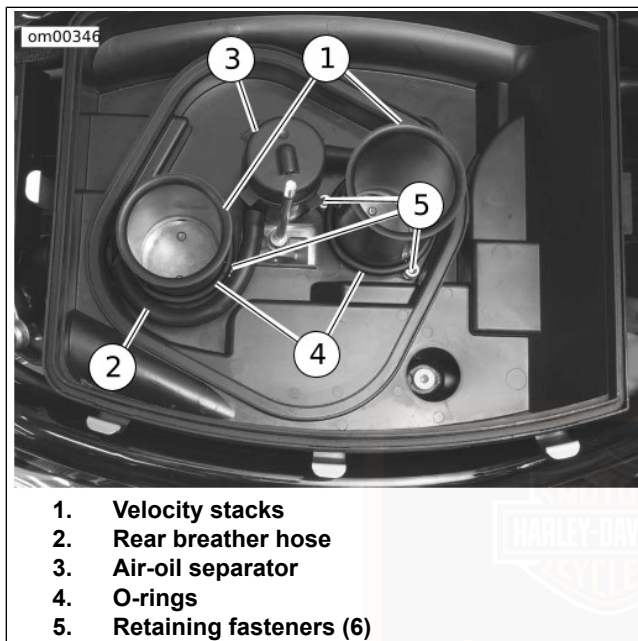


Figure 53. Velocity Stacks

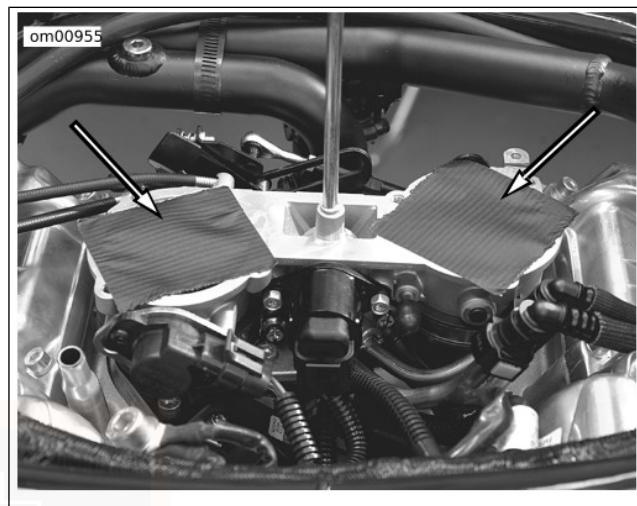


Figure 54. Covering Injector Intakes

⚠ WARNING

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)

8. See Figure 55. Remove the battery negative cable from the negative terminal of the battery.

9. Remove the battery positive cable from the positive terminal of the battery.
10. Stretch battery hold down strap and remove from tab to release tension on strap. Battery hold down strap will become free from lower tab and can be completely removed.
11. Firmly pull out battery and slightly upward to remove battery from battery caddy.

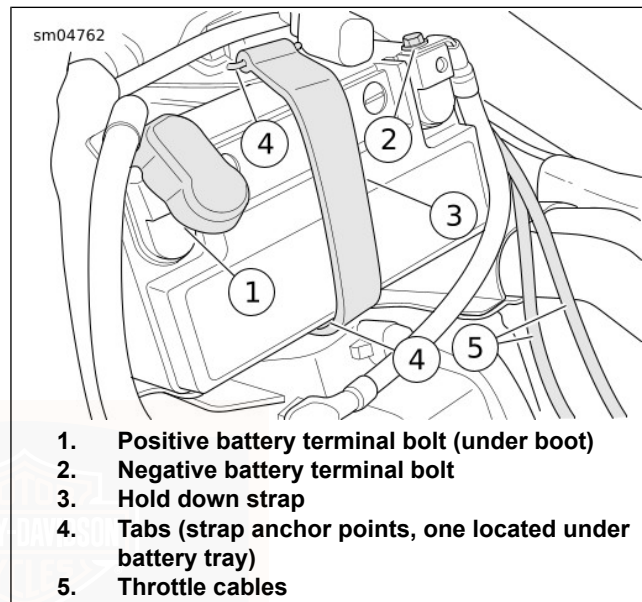


Figure 55. Battery

Installation and Connection

1. Turn ignition switch OFF.
2. Connect hold down strap to bottom of battery caddy.

3. See Figure 55. Slide the fully charged battery into battery caddy, terminal side up, negative battery terminal toward the right side.

NOTE

Battery must sit flat on bottom of tray pad. Verify that battery does not sit on front edge of pad.

4. See Figure 55. Verify proper routing of throttle cable.
5. Stretch hold down strap over top of battery. Latch hold down strap to tab on top of battery.

⚠ WARNING

Never route throttle cable over the battery. Fire due to short circuit could occur and cause death or serious injury. (00494c)

⚠ WARNING

Connect positive (+) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00068a)

NOTICE

Connect the cables to the correct battery terminals. Failure to do so could result in damage to the motorcycle electrical system. (00215a)

NOTICE

Do not over-tighten bolts on battery terminals. Use recommended torque values. Over-tightening battery terminal bolts could result in damage to battery terminals. (00216a)

6. Insert a battery terminal bolt through the battery positive cable (red), into the threaded hole of the battery positive terminal.
7. Tighten the bolt to 6.8–7.9 N·m (60–70 in-lbs).
8. Insert the other battery terminal bolt through the battery negative cable (black), into the threaded hole of the battery negative terminal.
9. Tighten the bolt to 6.8–7.9 N·m (60–70 in-lbs).

NOTICE

Keep battery clean and lightly coat terminals with petroleum jelly to prevent corrosion. Failure to do so could result in damage to battery terminals. (00217a)

10. Apply a light coat of petroleum jelly or corrosion retardant material to battery terminals.
11. Remove the covering from the injector intakes.
12. See Figure 56. Inspect the gasket on the bottom of the air box tray. The gasket is located by the three alignment pins on the mating surface.

NOTE

Replace damaged gaskets.

13. Place the air box tray over the injectors. Make sure the taller slanted lip of the tray faces the front of the motorcycle. Slide the rectangular hole in the tray down over the threaded mounting stud.
14. See Figure 53. Insert rear breather hose through hole in rear of tray. Pull until hose seals properly.

15. Align the front grommet on the air box tray with the brass bullet. Press the air box tray down firmly. Make sure that the tray sits flush on top of the injectors.

NOTE

In the next step, you will install the velocity stacks. Each velocity stack has an index mark. Align the index mark on the velocity stack with the corresponding index mark on the air box tray.

16. See Figure 56. Align the index marks. Install the velocity stacks, the longest stack toward the front. Start all fasteners by hand first, making sure that none are cross-threaded. Tighten the three fasteners on each velocity stack to 6 N·m (53 in-lbs).
17. Slide the O-ring down each velocity stack until it contacts the three fasteners. Slide the breather hose onto the rear breather hose fitting.
18. Install the air filter element, air cleaner cap, wing nut, air box top, electrical connector on air box, and air box cover. Lower the seat down.
19. Install the main fuse. See MAINTENANCE AND LUBRICATION > FUSES AND RELAYS (Page 134).

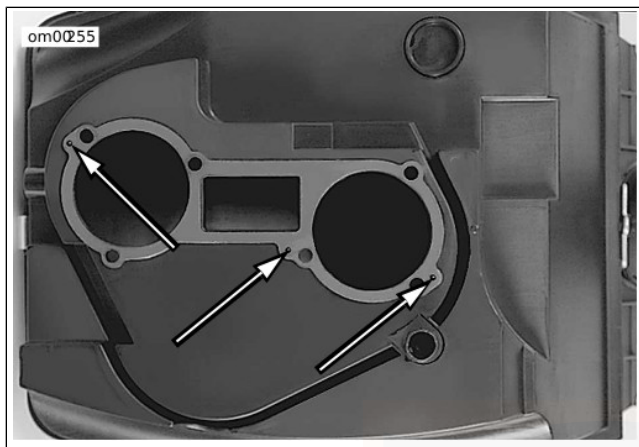


Figure 56. Air Cleaner Gasket and Alignment Pins



1. Velocity stack index mark
2. Air box tray index mark

Figure 57. Velocity Stack and Air Box Tray Index Marks
ALTERNATOR/VOLTAGE REGULATOR

Charging Rate

The alternator output is controlled and changed to direct current by the voltage regulator.

- The voltage regulator increases charging rate when battery is low or lamps are lit.
- The voltage regulator decreases charging rate when battery charge is up.

NOTICE

It is possible to overload the vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. (00211d)

NOTE

- *This unit requires no interval attention. For any electrical system symptom traceable to the alternator or voltage regulator, take the motorcycle to a Harley-Davidson dealer.*
- *For model specific information regarding the voltage regulator, refer to the service manual.*

FUSES AND RELAYS

V-Rod models have a rear fuse block under the seat and a front fuse block behind the steering head under the right side cover.

For electrical problems, see a Harley-Davidson dealer who has the necessary parts and equipment to perform electrical services.

Fuses do not reset. A blown fuse must be replaced with a fuse of the same rating.

NOTE

Use only automotive type ATO fuses as replacements.

Front Fuse Block

1. Turn ignition off.
2. Remove right side cover.
 - a. **VRSCF:** See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).
 - b. **VRSCDX:** Remove the fastener from the front right side cover. Carefully lift the side cover off the mounting tabs.
3. See Figure 58. The front fuse block is mounted on the top right side of the battery box. Pull the tabs out from the sides of the fuse block cover. Remove cover.

4. See Figure 59. Remove the suspect fuse and inspect the element. Replace the fuse if the element is burned or separated.
5. Install the fuse block cover. Carefully press the cover until tabs snap into place.
6. Install right side cover.
 - a. **VRSCF:** See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).
 - b. **VRSCDX:** Install front side cover on the mounting tabs. Line up the hole on the cover with the threaded hole in the frame tab. Install the fastener. Tighten the fastener to 4.1–6.8 N·m (36.3–60.2 in-lbs).

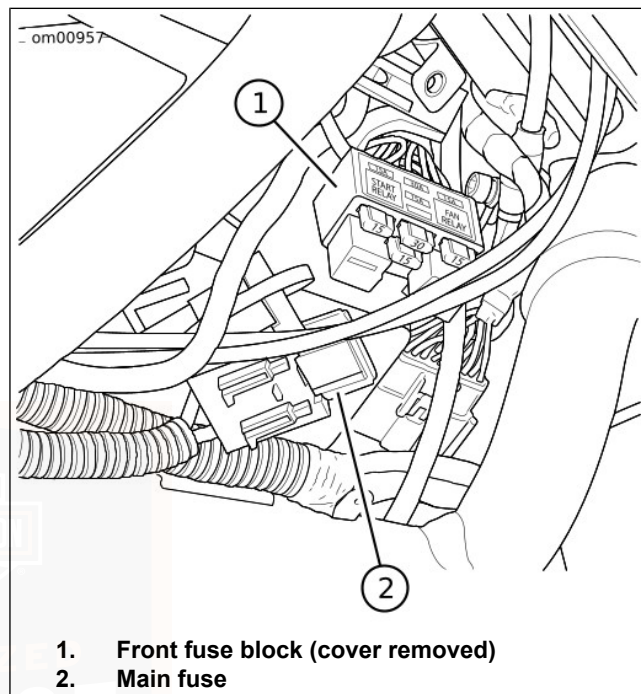
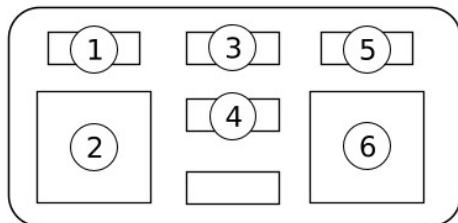


Figure 58. Front Fuse Block and Main Fuse

om00933



1. Spare (15 A)
2. Start relay
3. ABS fuse (ABS-equipped models only, 30 A)
4. Battery (15 A)
5. Ignition (15 A)
6. Fan relay

Figure 59. Front Fuse Block

Rear Fuse Block

1. Turn ignition off.
2. Open the seat.
3. See Figure 60. The rear fuse block is on the frame crossmember behind fuel filler cap. Slide the fuse block to the left side to remove from mount.

4. See Figure 61. Remove the suspect fuse and inspect the element. Replace the fuse if the element is burned or separated.
5. Slide fuse block onto the mount. Close the seat.

om00959

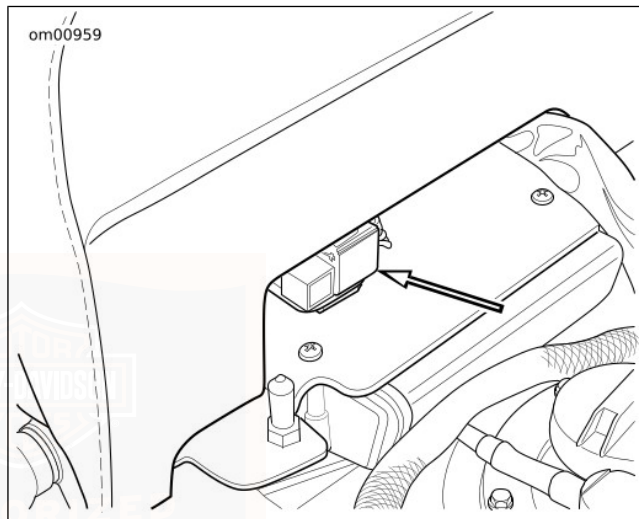


Figure 60. Rear Fuse Block Location

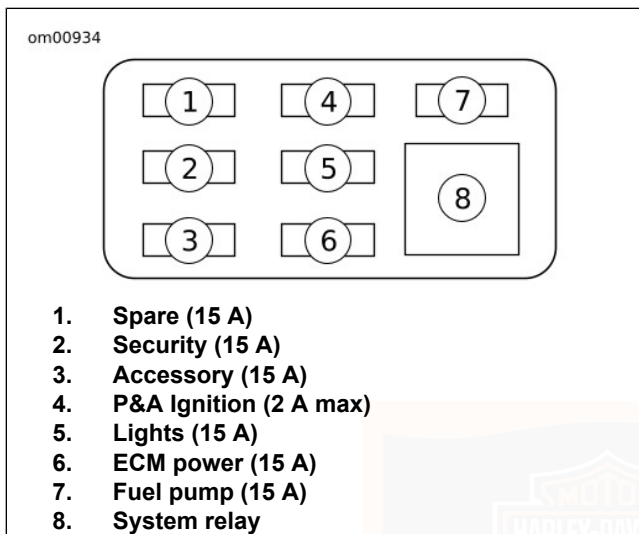


Figure 61. Rear Fuse Block

Main Fuse

All V-Rod models have a main fuse to protect the motorcycle wiring. This fuse is the 40 A main fuse that provides main battery power. It is located in a rubber-coated fuse holder behind the right side cover.

1. Remove right side cover.
 - a. **VRSCF:** See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).
 - b. **VRSCDX:** Remove the fastener from the front right side cover. Carefully lift the side cover off the mounting tabs.
2. If equipped with security system siren, turn the ignition switch to IGN with the hands-free fob present to disarm the security system.
3. Grasp the fuse holder in one hand and the plastic body of the main fuse in the other. Pull the main fuse straight out of the fuse holder.
4. Insert the prongs of the **new** main fuse in the fuse holder slots. Push the main fuse firmly down into the fuse holder.
5. Install right side cover.
 - a. **VRSCF:** See MAINTENANCE AND LUBRICATION > FRONT SIDE COVERS: VRSCF MODEL (Page 111).

- b. **VRSCDX:** Install front side cover on the mounting tabs. Line up the hole on the cover with the threaded hole in the frame tab. Install the fastener. Tighten the fastener to 4.1–6.8 N·m (36.3–60.2 in-lbs).

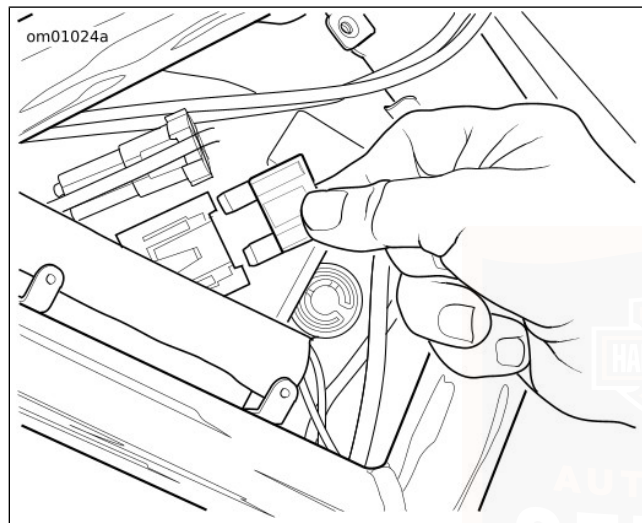


Figure 62. Inserting Main Fuse (typical)

SEAT

NOTE

See Figure 63. The rider's seat is hinged on the left side. The lanyard keeps the seat attached to the frame.

Lift to open the seat. Close the seat over the seat post.

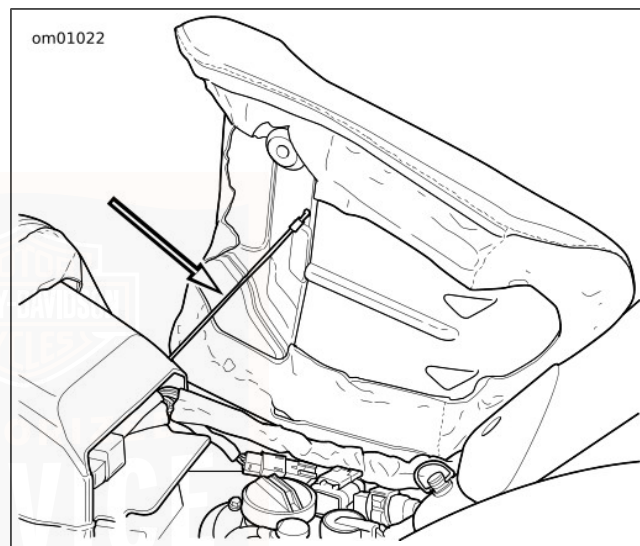


Figure 63. Seat Lanyard

MOTORCYCLE STORAGE

Placing Motorcycle in Storage

NOTICE

Proper storage is important for the trouble-free operation of your motorcycle. See your Owner's Manual for storage recommendations or see a Harley-Davidson dealer. Improper storage procedures can lead to equipment damage. (00046a)

If the motorcycle will not be operated for several months, such as during the winter season, there are several tasks which should be performed. These steps will protect parts against corrosion, preserve the battery and prevent the build-up of gum and varnish in the fuel system.

⚠ WARNING

Do not store motorcycle with gasoline in tank within the home or garage where open flames, pilot lights, sparks or electric motors are present. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00003a)

NOTE

Make a list of everything you do and fasten it to a hand grip. When you take the motorcycle out of storage, this list is your

reference/checklist to get your motorcycle in operating condition.

1. Fill fuel tank. Add fuel stabilizer following manufacturer's instructions. Use one of the commercially available gasoline stabilizers and follow the manufacturer's instructions.
2. Warm motorcycle to operating temperature. Change the oil and run the engine to circulate the **new** oil.
3. Adjust the belt.
4. Check tire pressure. Refer to Table 16 for tire pressures.
5. Prepare battery for winter storage. See MAINTENANCE AND LUBRICATION > BATTERY MAINTENANCE (Page 120).

⚠ WARNING

Explosive hydrogen gas, which escapes during charging, could cause death or serious injury. Charge battery in a well-ventilated area. Keep open flames, electrical sparks and smoking materials away from battery at all times. KEEP BATTERIES AWAY FROM CHILDREN. (00065a)

6. If the motorcycle is to be stored with security system armed, it will be necessary to connect a Battery Tender to maintain battery charge. If security system will not be armed and a Battery Tender is not available, remove the main fuse.

NOTICE

Use only Genuine Harley-Davidson Extended Life Antifreeze and Coolant. Use of other coolants/mixtures may lead to motorcycle damage. (00179c)

7. Check and fill the cooling system.
8. To protect the vehicle's body panels, engine, chassis and wheels from corrosion, follow the cosmetic care procedures described in the Accessory Maintenance section of this owner's manual before storage.
9. If motorcycle is to be covered, use a material such as light canvas that will breathe. Plastic materials that do not breathe promote the formation of condensation.

Removing Motorcycle From Storage

⚠ WARNING

The clutch failing to disengage can cause loss of control, which could result in death or serious injury. Prior to starting after extended periods of storage, place transmission in gear and push vehicle back and forth several times to assure proper clutch disengagement. (00075a)

1. See MAINTENANCE AND LUBRICATION > BATTERY MAINTENANCE (Page 120) for proper battery care. Charge and install the battery.
2. Run motorcycle until engine is at normal operating temperature. Turn off engine.
3. Check the oil.
4. Check the clutch fluid level.
5. Verify that the controls are operating properly. Operate the front and rear brakes, throttle, clutch and shifter.
6. Check steering for smoothness by turning the handlebars through the full operating range.

⚠ WARNING

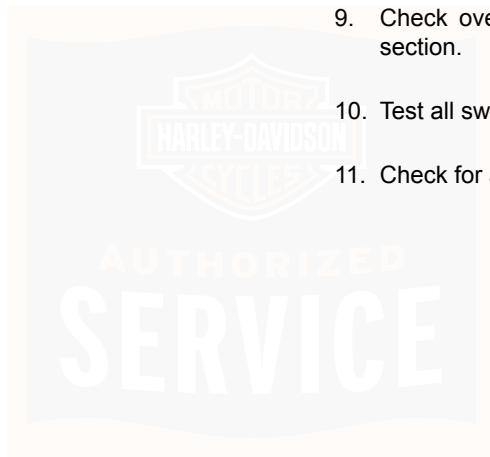
Coolant mixture contains toxic chemicals, which may be fatal if swallowed. If swallowed, do not induce vomiting; call a physician immediately. Use in a well ventilated area. Irritation to skin or eyes can occur from vapors or direct contact. In case of skin or eye contact, flush thoroughly with water and go to hospital, if necessary. Dispose of used coolant according to federal, state and local regulations. (00092a)

7. Check the radiator connections and coolant level.

⚠ WARNING

Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)

8. Check tire pressure, refer to Table 16 for specified pressure.
9. Check overall tire condition, see the tire replacement section.
10. Test all switches and lights for proper operation.
11. Check for any fuel, oil, coolant or brake fluid leaks.



NOTES



CLEANING AND GENERAL CARE

Clean and protect the cosmetic surfaces on your motorcycle as often as possible to inhibit rust and corrosion. After the motorcycle is cleaned, polish and seal the motorcycle to create a barrier of protection against the weather and harsh substances.

Harley-Davidson cleaning products are tested extensively for use on vehicle surfaces. These products are formulated to be compatible with one another. See a Harley-Davidson dealer to purchase recommended cleaning products. Refer to Table 31 and Table 32.

NOTE

- *Use recommended surface care products. Do not use paper towels, terry cloths, cloth diapers or other materials with nylon fibers which can create fine scratches to surfaces.*
- *Dirty cleaning materials can scratch finished surfaces. Use only clean sponges and detailing cloths to prevent damage to the motorcycle.*
- *For repair of scratched surfaces, see a Harley-Davidson dealer.*

⚠ WARNING

Observe warnings on labels of cleaning compounds. Failure to follow warnings could result in death or serious injury. (00076a)

⚠ WARNING

Do not wash brake discs with cleaners containing chlorine or silicone. Cleaners containing chlorine and silicone can impair brake function, which could result in death or serious injury. (00077a)

NOTICE

Do not use a pressure washer to clean motorcycle. Using a pressure washer can result in equipment damage. (00489c)

NOTICE

Use of abrasive products or powered buffing equipment will cause permanent cosmetic damage to body panels. Use only recommended products and techniques outlined in this manual to avoid damaging body panels. (00245b)

Table 31. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
BARE METAL POLISH 93600028 (U.S.) 93600083 (Non-U.S.)	Polishes non-clear coated polished aluminum or polished stainless steel surfaces. ⁽¹⁾	As applicable				
BLACK LEATHER REJUVENATOR 93600033 (U.S.) 93600081 (Non-U.S.)	Rejuvenates black leather products so they look brand new.	No	No	No	No	Black leather goods
BUG REMOVER 93600122 (U.S.) 93600140 (Non-U.S.)	Removes bugs from metal, plastic or painted surfaces.	Yes	Yes	Yes	Yes	
CHROME CLEAN & SHINE 93600031 (U.S.) 93600082 (Non-U.S.)	Shines chrome-plated surfaces and cleans brushed aluminum or stainless steel surfaces.	As applicable				
DENIM PAINT CLEANER 93600124 (U.S.) 93600127 (Non-U.S.)	Waterless quick cleaner and detailer.	Yes	Yes	Yes	Yes	
ENGINE BRIGHTENER 93600002 (U.S.) 93600068 (Non-U.S.)	Rejuvenates wrinkle black engine finish.	No	No	No	No	Wrinkle black engines
EVERYDAY DETAILER 93600157 (U.S.) 93600158 (Non-U.S.)	Cleans, shines, brightens and protects in a short amount of time.	Yes	Yes	Yes	No	

Table 31. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
GRAPHENE SPRAY COATING 93600166 (U.S.) 93600169 (Non-U.S.)	Provides a protective barrier for glossy paint surfaces and chrome. Repels water and dust.	Yes	Yes	As applicable	No	
GLOSS DETAILER 93600123 (U.S.) 93600125 (Non-U.S.)	Produces high gloss with UV protection. Allows chrome to breathe, unlike wax. Good for windshields.	Yes	Yes	Yes	No	
HARLEY TRAVEL CARE KIT 93600149 (U.S. only)	Travel size cleaning and care products. (Not for use on denim finishes.)	Yes	Yes	Yes	No	
LEATHER PROTECTANT 93600034 (U.S.) 93600080 (Non-U.S.)	Weatherproofs and preserves leather products.	No	No	No	No	Leather goods
QUICK WASH 93600162 (U.S.) 93600171 (Non-U.S.)	A quick wash for a lightly soiled motorcycle. Cleans all surfaces, sheeting action prevents spots.	Yes	Yes	Yes	Yes	
SCRATCH & SWIRL REPAIR 93600155 (U.S.) 93600156 (Non-U.S.)	Removes fine scratches and swirls.	Yes	Yes	No	No	
SEAT, SADDLEBAG & TRIM CLEANER 93600167 (U.S.) 93600170 (Non-U.S.)	Cleans and conditions vinyl, leather and plastic. Use on seats, saddlebags, inner fairings and any other trim.	No	No	No	No	Seats, saddlebags and trim

Table 31. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
SPRAY CLEANER & POL- ISH 93600029 (U.S.) 93600084 (Non-U.S.)	Aerosol quick cleaner and detailer. Reduces static attraction to dust. Works great for removing bugs. ⁽¹⁾	Yes	Yes	Yes	No	
SUNWASH BIKE SOAP 93600129 (U.S.) 93600141 (Non-U.S.)	Thorough washing of all surfaces with a wash mitt. Reduces hard water spots when washing a motorcycle in the sun.	Yes	Yes	Yes	Yes	
WHEEL & TIRE CLEANER 93600121 (U.S.) 93600126 (Non-U.S.)	Removes brake dust and road grime from wheels, tires and whitewalls. Do not use on frames or anodized parts.	No	No	Yes	No	Black- coated exhaust pipes and mufflers
<i>(1) DO NOT use BARE METAL POLISH or SPRAY CLEANER & POLISH on coated aluminum wheels, protective coating will be removed.</i>						

Table 32. Recommended Surface Care Products

PRODUCT PART NO.	PURPOSE
BUG EATER SPONGE 93600110	When paired with water and BUG REMOVER, the BUG EATER SPONGE breaks down and dissolves baked on bugs and road grime.
CLEANING BRUSH KIT 94844-10	Brush kit for detailing your motorcycle.
DETAILING SWABS 93600107	Large cotton swabs for cleaning crevices and detailed surfaces.

Table 32. Recommended Surface Care Products

PRODUCT PART NO.	PURPOSE
DISPOSABLE DETAILING SOFT CLOTH 93600114	Non-absorbent cloth for applying and buffing SWIRL & SCRATCH REPAIR and GLAZE POLY SEALANT to painted surfaces or chrome.
HARLEY WASH BUCKET 94811-10	Wash bucket with apron to hold your supplies. Includes GRIT GUARD insert.
HOG BLASTER MOTORCYCLE DRYER 94651-09 (120 V) 94865-09 (220 V)	Blows a stream of warm dry filtered air. Reduces streaks and water spots.
MICROFIBER DETAILING CLOTH 94663-02	Highly absorbent detailing cloth for polishing and sealing. Contains no nylon fibers.
SYNTHETIC DRYING CHAMOIS 94791-01	Extra-absorbent, non-streaking synthetic towel for drying. Dampen towel and wring out before using for greatest absorbency.
WASH MITT 94760-99	Absorbent wool-blended washing mitten.
WHEEL & SPOKE BRUSH 43078-99	Cone-shaped scrub brush for wheels.

RADIATOR

⚠ CAUTION

Cooling fans operate automatically, even when the ignition switch is off. Keep hands away from fan blades. Contact with a rotating fan blade can result in minor or moderate injury. (00093a)

NOTICE

Using a pressure washer to clean radiators or oil coolers can damage cooling fins and reduce airflow. Reduced airflow can lead to overheating, resulting in motorcycle damage. (00056c)

NOTICE

Clean the inlet surface of the radiator regularly. Leaves and other debris can collect on the radiator surface and degrade radiator performance which could lead to overheating and motorcycle damage. (00197d)

WASHING THE MOTORCYCLE

Use only recommended cleaning and care products. Refer to Table 31 and Table 32.

NOTE

During rinsing and washing, avoid direct spray on electrical components, air filter element and any luggage or saddlebag sealing areas (if equipped). Avoid spraying water under leather saddlebag covers (if equipped).

Preparation

1. Allow motorcycle to cool before rinsing or washing. Spraying water on hot surfaces can leave water spots and mineral deposits.
2. Rinse the motorcycle from the bottom up.
3. To loosen dried bugs or hardened dirt, allow surfaces to soak under a damp towel.

Cleaning Wheels and Tires

1. Rinse wheel and tire surfaces. Avoid splashing brake dust on chrome or painted parts.
2. Apply WHEEL & TIRE CLEANER. Allow cleaner to set for one minute.
3. Clean the wheel with a BUG EATER SPONGE or WHEEL & SPOKE BRUSH. Thoroughly scrub all brake dust and other sediments off the wheel. Accumulated brake dust can trap moisture and dirt, which leads to wheel corrosion.
4. Rinse well.

Washing the Motorcycle

NOTE

See the appropriate instructions in this section for cleaning leather, denim (flat) finishes, windshields or other special surfaces.

1. If necessary, use BUG REMOVER to remove bug splatters.
 - a. Rinse the affected surfaces during preparation.
 - b. Spray the area with BUG REMOVER.
 - c. Wait one minute while the BUG REMOVER penetrates the bug splatters.

- d. Use the BUG EATER SPONGE while washing to easily remove bugs.
2. Prepare the wash.
 - a. Fill a HARLEY WASH BUCKET with clean water.
 - b. Add SUNWASH BIKE SOAP, following the directions on the package.
 - c. Soak the WASH MITT and/or a BUG EATER SPONGE in the SUNWASH solution.
3. Wash all surfaces starting at the top working down toward the ground.
4. Rinse the motorcycle twice in both directions:
 - a. Rinse from the bottom up.
 - b. Rinse from the top down.

Drying the Motorcycle

1. Dry the surfaces from the top down using a SYNTHETIC DRYING CHAMOIS or a HOG BLASTER MOTORCYCLE DRYER. Avoid using any type of forced air on speakers or other sensitive components.
2. Dampen chamois in clean water and wring out the excess. The chamois is more absorbent when wet.
3. Wipe across the vehicle surface.

4. Repeat as necessary until surface is dry.

Polishing and Sealing

NOTE

If motorcycle has denim finish, skip the Polishing and Sealing procedure.

1. Apply GLAZE POLY SEALANT with a DISPOSABLE DETAILING SOFT CLOTH or MICROFIBER DETAILING CLOTH, following the instructions on the package.
2. Buff with a DISPOSABLE DETAILING SOFT CLOTH.
3. Polish and seal the wheels to prevent corrosion.

DENIM FINISH CARE

Some motorcycles have a denim (flat or matte) finish. The denim finish has qualities which differ from high gloss finishes on all other Harley-Davidson motorcycles. Like denim fabric, denim paint burnishes or mars with age and use that adds character and personality to the finish. Refer to Table 31 for recommended products.

- If scratched, the color coat of paint does nick/scuff and these marks cannot be rubbed out.
- If polished, the finish will become less matte and more glossy over time.

How to Clean

For light deposits: Use DENIM PAINT CLEANER and a MICROFIBER DETAILING CLOTH. This treatment helps remove finger prints and light soil.

For heavier deposits: Use either SUNWASH BIKE SOAP and a clean WASH MITT or QUICK WASH. Rinse thoroughly with clean water.

LEATHER AND VINYL CARE

NOTICE

Do not use bleach or detergents containing bleach on saddlebags, seats, tank panels or painted surfaces. Doing so can result in equipment damage. (00229a)

Do not use ordinary soap to clean leather or fur. It could dry or remove the oils from the leather.

Leather, vinyl and other synthetic surfaces must be periodically cleaned and treated to maintain its appearance and extend its life. Clean and treat these surfaces once a season or more frequently under adverse conditions.

These surfaces are not designed for long-term exposure to inclement weather. Protect these surfaces with an HARLEY-DAVIDSON SEAT RAIN COVER or MOTORCYCLE STORAGE COVER (sold separately).

1. Vacuum or blow dust off surface.
2. Thoroughly clean surfaces with SEAT, SADDLEBAG & TRIM CLEANER, following directions on the bottle.
3. Allow the material to dry naturally and completely at room temperature before applying other products to the material. Do not use artificial means to dry the material quickly.
4. For leather only, rejuvenate faded black surfaces with BLACK LEATHER REJUVENATOR. Apply LEATHER PROTECTANT to weatherproof and preserve the leather.

NOTE

Many Harley-Davidson accessories and seats are made of either treated or untreated leather or have leather inserts. Natural materials age differently and require different care than man-made materials. Seat covers and panels made of leather gain "character", such as wrinkles, with age. Leather is porous and organic and each leather product settles into its own distinct form with use. Your leather product matures into its own custom shape and style from the sun, rain and time. This maturing is natural and enhances the custom quality of your Harley-Davidson motorcycle.

WHEEL CARE

Wheels can corrode or be cosmetically damaged if they are not properly cleaned, polished and preserved. Cleaning and sealing wheels with the proper treatment guards against

pitting, corrosion, spots and stains. Harley-Davidson recommends that wheels be cared for weekly. Corrosion to wheels is not considered a defect in materials or workmanship.

NOTE

Bare aluminum wheels do not have a protective coating and corrode unless properly treated. Apply BARE ALUMINUM

WHEEL PROTECTANT when purchasing the motorcycle and at least twice per year to prevent cosmetic damage.

Keep wheels clean from harsh chemicals, acid-based wheel cleaners, salt and accumulated brake dust. After washing wheels with WHEEL & TIRE CLEANER, use the polish and sealing products according to the type of wheels. Refer to Table 33.

Table 33. Wheel Polish and Sealing Products

WHEELS	PRODUCT	DESCRIPTION
Anodized	GRAPHENE	Cleans surface, removes fine scratches. Provides a breathable sealant against acid, chemicals, salt and brake dust.
	GLOSS DETAILER	Seals and protects against harsh chemicals, salt and other sediments to prevent corrosion.
Chrome	CHROME CLEAN & SHINE	Non-abrasive cleaner to brighten chrome wheels.
	GLOSS DETAILER	Seals and protects against harsh chemicals, salt and other sediments to prevent oxidation.
Polished and bare aluminum or stainless steel	BARE METAL POLISH ⁽¹⁾	Microabrasive polish to refurbish polished wheels. Do not use on chrome.
<i>(1) DO NOT use BARE METAL POLISH on coated aluminum wheels, protective coating will be removed.</i>		

TAIL LAMP: VRSCF

Keep the tail lamp assembly clean and visible. To clean the tail lamp, use WINDSHIELD CLEANER - INDIVIDUAL WIPES.

EXHAUST CARE

Allow exhaust components to cool before cleaning.

For chrome exhaust surfaces, apply Boot Mark Remover to remove boot marks, melted plastic or asphalt resin. Allow the gel to set for a few minutes, scrape off the melted material, and rinse clean.

For black-coated exhaust surfaces, apply Wheel & Tire Cleaner while motorcycle is wet during washing. Wipe or scrub exhaust surfaces and rinse clean.

NOTE

There is no warranty on exhaust pipes and mufflers with regard to any discoloration. Blueing is caused by tuning characteristics, cam timing, over-heating, and so on. It is not caused by defective manufacturing.



TROUBLESHOOTING: GENERAL

⚠ WARNING

The troubleshooting section of the Owner's Manual is a guide to diagnose problems. Read the service manual before performing any work. Improper repair and/or maintenance could result in death or serious injury. (00080a)

Use the following checklists for troubleshooting. Carefully check each cause because more than one condition can cause trouble.

ENGINE

Starter Does Not Operate or Does Not Turn Engine Over

1. Engine run switch in OFF position.
2. Ignition switch not ON.
3. Discharged battery or loose or corroded connections (solenoid chatters).
4. Clutch lever not squeezed against handlebar or transmission not in neutral.
5. Blown fuse.

Engine Turns Over But Does Not Start

1. Fuel tank empty.
2. Fuel filter clogged.
3. Discharged battery or loose or damaged battery terminal connections.
4. Fouled spark plugs.
5. Spark plug coil connections loose or in bad condition and shorting.
6. Loose or corroded wire or cable connection(s) at coil or battery.
7. Fuel pump inoperative.
8. Blown fuse.

Starts Hard

1. Spark plugs in bad condition, have improper gap, or are partially fouled.
2. Battery nearly discharged.
3. Loose wire or cable connection(s) at one of the battery terminals or at coil.
4. Engine oil too heavy (winter operation).
5. Fuel tank vent plugged or fuel line closed off, restricting fuel flow.

6. Water or dirt in fuel system.
7. Fuel pump inoperative.

Starts But Runs Irregularly or Misses

1. Spark plugs in bad condition or partially fouled.
2. Spark plug gap too close or too wide.
3. Battery nearly discharged.
4. Damaged wire or loose connection at battery terminals or coils.
5. Intermittent short circuit due to damaged wire insulation.
6. Water or dirt in fuel system, filter or carburetor.
7. Fuel vent system plugged. See dealer.
8. One or more injectors fouled.

A Spark Plug Fouls Repeatedly

1. Incorrect spark plug.

Pre-ignition or Detonation (Knocks or Pings)

1. Incorrect fuel.
2. Incorrect spark plug for the kind of service.

Overheats

1. Insufficient oil supply or oil not circulating.
2. Heavy carbon deposit from lugging engine. See dealer.

Excessive Vibration

1. Rear fork pivot shaft nuts loose. See dealer.
2. Front engine mounting bolts loose. See dealer.
3. Damaged frame. See dealer.
4. Belt badly worn.
5. Wheels and/or tires damaged. See dealer.
6. Vehicle not properly aligned. See dealer.

Engine Oil Not Circulating (Oil Pressure Lamp Lit)

1. Insufficient or diluted oil supply.
2. Oil feed clogged with ice and sludge in freezing weather.
3. Grounded oil signal switch wire. See dealer.
4. Damaged or improperly installed check valve. See dealer.
5. Oil pump problem. See dealer.

COOLING SYSTEM

Overheats

1. Low coolant level or improper coolant.
2. Cooling fans not operating.
3. Air flow through the radiator is obstructed.
4. Blocked coolant passages.
5. Temperature gauge malfunction.
6. Radiator cap problem.
7. Thermostat malfunction.

ELECTRICAL SYSTEM

Alternator Does Not Charge

1. Regulator not grounded. See dealer.
2. Engine ground wire loose or damaged. See dealer.
3. Loose or damaged wires in charging circuit. See dealer.

Alternator Charge Rate is Below Normal

1. Weak battery.
2. Excessive use of add-on accessories.
3. Loose or corroded connections.

4. Extensive periods of idling or low speed riding.

TRANSMISSION

Transmission Shifts Hard

1. Bent shifter rod. See dealer.
2. Transmission shifting mechanism needs adjustment. See dealer.

Transmission Jumps Out of Gear

1. Shifter rod improperly adjusted. See dealer.
2. Shifter forks (inside transmission) improperly adjusted. See dealer.
3. Worn shifter dogs in transmission. See dealer.

Clutch Slips

1. Clutch controls improperly adjusted. See dealer.
2. Worn friction discs. See dealer.
3. Insufficient clutch spring tension. See dealer.

Clutch Drags or Does Not Release

1. Clutch controls improperly adjusted. See dealer.
2. Insufficient clutch spring tension. See dealer.

3. Clutch discs warped. See dealer.

Clutch Chatters

1. Friction discs or steel discs worn or warped. See dealer.

BRAKES

ABS System Behavior

1. Anti-lock Braking System (ABS) lamp does not shut off above 5 km/h (3 mph). See dealer.
2. Other ABS symptoms. Refer to Table 20.

Brakes Do Not Hold Normally

1. Master cylinder low on fluid. See dealer.
2. Brake line contains air bubbles. See dealer.
3. Master cylinder or caliper piston worn. See dealer.
4. Brake pads contaminated with grease or oil. See dealer.
5. Brake pads badly worn. See dealer.
6. Brake disc badly worn or warped. See dealer.
7. Brake fades because of heat build up. Excessive braking or brake pads dragging. See dealer.
8. Brake drags. Insufficient hand lever free play. See dealer.



GENUINE MOTOR PARTS AND ACCESSORIES

Stop at your Harley-Davidson dealer to pick up a copy of the Genuine Motor Parts and Accessories catalog or go to www.harley-davidson.com to view thousands of Genuine Motor Accessories that are available for Harley-Davidson motorcycles.

The website includes the following tools and resources for accessorizing and personalizing your motorcycle.

Online Catalog

The full Genuine Motor Parts and Accessories catalog is available online in PDF format. The catalog includes hundreds of pages of Harley-Davidson accessories and maintenance products. For performance parts, check out the Screamin' Eagle Pro Racing Parts catalog.

NOTE

Performance parts may not be available in some countries due to local restrictions. See your Harley-Davidson dealer for more information.

Shop for Your Bike

Browse through categories of accessories and options available specifically for your motorcycle. View product

descriptions, pricing, fitment and online instruction sheets for many of the available products.

Customizer

Virtually redesign your motorcycle with parts and accessories using the Customizer. This tool allows you to experiment with different accessory and color combinations and shows how your motorcycle would look with the accessories installed. You can easily create a custom list of accessories to print out for your dealer.

Fit Shop

Learn how to customize your motorcycle to fit you personally. See how making changes to the suspension, seat, handlebars or foot controls can enhance the ergonomics and comfort of your motorcycle.

Custom Seats

Create a custom seat using selected designs, colors and textured materials. Custom seat specifications can be easily printed out for your dealer.

CUSTOM COVERAGE

Add Accessories to Your New Motorcycle

NOTE

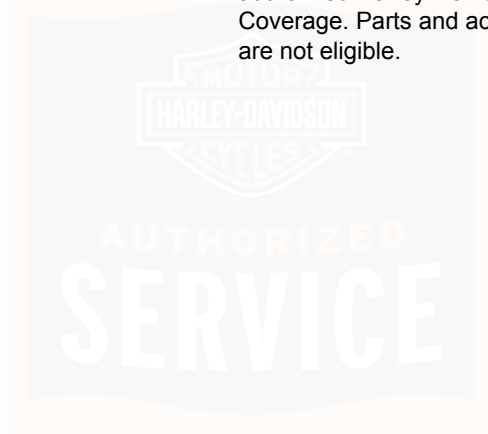
Custom Coverage is not offered in some regions. See an authorized Harley-Davidson dealer to determine the parts and accessories warranty policies, terms and conditions in your area.

Harley-Davidson offers the Custom Coverage extended limited warranty for parts and accessories that are purchased and installed at an authorized Harley-Davidson dealer within 60 days after retail purchase of the motorcycle.

This limited warranty provides coverage for eligible *street legal* Genuine Harley-Davidson Motor Parts and Genuine Harley-Davidson Motor Accessories. This extended coverage on parts and accessories remains in effect for the remainder of the Harley-Davidson Motorcycle Limited Warranty for the vehicle. See OWNER MANUAL > ACCESSORIES (Page 157).

Purchases qualifying for Custom Coverage must be made at an authorized Harley-Davidson dealership within 60 days after retail purchase. Additional parts and accessories may be purchased and installed as often as desired within 60 days after retail purchase of the motorcycle.

Parts and accessories must be purchased and installed at an authorized Harley-Davidson dealership to qualify for Custom Coverage. Parts and accessories purchased via the internet are not eligible.



WARRANTY AND MAINTENANCE

This owner's manual contains your new motorcycle limited warranty and your owner's maintenance record.

It is your responsibility as the owner to follow the maintenance schedule at the mileage intervals as specified in the owner's manual. All of the specified maintenance services must be performed on schedule to keep your limited warranty valid.

Some countries, states or other locations may require all regular maintenance and service work to be done by an authorized Harley-Davidson dealer for your limited warranty to remain in effect. Check with your authorized Harley-Davidson dealer for local requirements.

1. Make an appointment with a Harley-Davidson dealer for inspection and service prior to the first 1,600 km (1000 mi), and as soon as possible after any issue arises.
2. Bring this owner's manual with you when you visit your authorized Harley-Davidson dealer to have your motorcycle inspected and serviced.
3. Have the dealer technician sign the maintenance record in the owner's manual at the proper mileage interval. These records should be retained by the owner as proof of proper maintenance.
4. Keep receipts covering any parts, service or maintenance performed.

These records should be transferred to each subsequent owner.

Use only Harley-Davidson approved parts and accessories that have been designed, tested and approved for your model and model year motorcycle.

Use of aftermarket performance parts may void all or parts of your limited warranty. See an authorized Harley-Davidson dealer for details.

Harley-Davidson authorized dealerships are independently owned and operated and may sell and install parts and accessories that are not manufactured or approved by Harley-Davidson for use on your motorcycle. Therefore, you should understand that Harley-Davidson is not and cannot be responsible for the quality, suitability, or safety of any non-Harley-Davidson part, accessory or design modification, including labor, which may be sold and/or installed by authorized Harley-Davidson dealerships.

KEEPING IT ALL HARLEY-DAVIDSON

Genuine Harley-Davidson parts are engineered and tested specifically for use on your motorcycle. Insist that your authorized Harley-Davidson dealer uses only genuine Harley-Davidson replacement parts and accessories to keep your Harley-Davidson motorcycle and its limited warranty intact. Not all Harley-Davidson parts and accessories are appropriate for your model or model year motorcycle.

NOTICE

It is possible to overload the vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. (00211d)

NOTE

Installing off-road or competition parts to enhance performance may void all or parts of your limited warranty. See the Harley-Davidson Motorcycle Limited Warranty in this owner's manual or an authorized Harley-Davidson dealer for details.

CALIFORNIA AND SELECT INTERNATIONAL MARKETS EVAPORATIVE EMISSION CONTROLS

All new Harley-Davidson motorcycles sold in the State of California and select international markets have an evaporative emission control system. This system is designed to meet CARB and local regulations in effect at the time of manufacture.

The system requires a small amount of maintenance. Periodically inspect system to verify that hoses are properly routed, not kinked or blocked and that all fittings are secure. Periodically check mounting hardware for tightness.

160 Warranties and Responsibilities

EPA NOISE REGULATIONS IN THE UNITED STATES

EPA noise regulations require that the following statements be included in the Owner's Manual.

EPA Regulations

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE FOLLOWING:

1. Replacing the muffler(s) and/or the entire exhaust system with parts not certified to be noise legal for street use.
2. Removing or modifying the muffler internal baffles in any way.
3. Replacing the air intake/cleaner assembly with one not certified to be noise legal for street use.

4. Modifying the air intake/cleaner assembly in such a way as to make the vehicle no longer noise legal for street use.

Harley-Davidson recommends that any and all noise related maintenance be done by an authorized Harley-Davidson dealer using Genuine Harley-Davidson parts.

WARRANTY/SERVICE INFORMATION

Any authorized Harley-Davidson dealer may provide warranty repair work on your motorcycle. The fact that an authorized Harley-Davidson dealership performs warranty repairs does not create an agency relationship between Harley-Davidson and the authorized dealership. If you have any questions regarding warranty obligations contact your authorized Harley-Davidson dealer.

For normal service work or warranty work under the above conditions, you may obtain the name and location of your nearest U.S. authorized Harley-Davidson dealer by calling 1-800-258-2464 (U.S. only). To find dealers worldwide, see www.harley-davidson.com.

REPORTING SAFETY DEFECTS IN THE UNITED STATES

Safety defects must be reported to the National Highway Traffic Safety Administration (NHTSA) and Harley-Davidson.

NHTSA Statement

If you believe that your motorcycle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Harley-Davidson.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of motorcycles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your authorized Harley-Davidson dealer, or Harley-Davidson.

You can contact NHTSA through the following means. Additional information about motor vehicle safety is available through the website.

Telephone: Vehicle Safety Hotline (toll-free) at 1-888-327-4236 (TTY: 1-800-424-9153).

Website: www.safercar.gov

Address: Administrator, NHTSA, 400 Seventh Street SW, Washington, DC 20590

REQUIRED DOCUMENTATION FOR IMPORTED MOTORCYCLES

If a Harley-Davidson motorcycle is imported into the United States, additional documentation is required for that motorcycle to be eligible for the United States Harley-Davidson Motorcycle Limited Warranty. An authorized Harley-Davidson dealer can provide a form explaining the requirements.

OWNER CONTACT INFORMATION

If you move from your present address, sell your motorcycle, or purchase a pre-owned Harley-Davidson motorcycle, see an authorized Harley-Davidson dealer to update your owner contact information.

This will provide Harley-Davidson with an accurate registration (as required by law in some countries), and will allow Harley-Davidson to notify you in the event of a recall or product program.

The rights and benefits conferred upon you and the obligations of Harley-Davidson as set forth herein are separate and distinct from any rights and duties set forth in any service contract you may have purchased from a dealership and/or third-party insurance company. Harley-Davidson does not authorize any entity to expand Harley-Davidson's warranty obligations in connection with your motorcycle or this limited warranty.

When updating your contact information, your authorized Harley-Davidson dealer will need your Vehicle Identification Number (VIN), odometer mileage, and date of vehicle transfer (if applicable).

QUESTIONS AND CONCERNS

If you have questions or concerns regarding the performance of your motorcycle or the application of the limited warranty described here, or are not satisfied with the service you are receiving from an authorized Harley-Davidson dealership, do the following:

1. Contact the selling and/or servicing dealership and speak to the sales and/or service manager.
2. If your concern cannot be addressed to your satisfaction by the dealership, contact the Harley-Davidson Customer Support Center by mailing your concern to the following address or calling the phone number below.

In the U.S., state warranty laws, often referred to as lemon laws, may provide you with certain rights not specifically mentioned here. To the extent allowed by your state, Harley-Davidson requests that you first send written notification of any defect or warranty non-conformity that you have experienced with your motorcycle to Harley-Davidson. Harley-Davidson appreciates the opportunity to investigate your concerns and restore your satisfaction in your motorcycle by making the necessary repairs consistent with the terms of

Harley-Davidson's limited warranty. Harley-Davidson requests that you send your complaint to the Harley-Davidson Customer Support Center.

- Harley-Davidson Motor Company Attention:
Harley-Davidson Customer Support Center P.O. Box 653
Milwaukee, Wisconsin 53201 1-800-258-2464 (U.S. only)
1-414-343-4056

This warranty does not mean that each Harley-Davidson motorcycle is free from defects. Defects may be unintentionally introduced into motorcycles during the design and manufacturing processes and such defects could result in the

need for repairs. For this reason, Harley-Davidson provides the Limited Warranty in order to remedy any such defects that result in a component malfunction or failure during the warranty period. The remedy under this written warranty, and any implied warranty, is limited to repair, replacement or adjustment of the defective part. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Harley-Davidson, through its authorized dealers, is willing and able to repair, replace or adjust defective parts in the prescribed manner. Harley-Davidson's liability, if any, shall in no event exceed the cost of correcting any defect as herein provided and upon expiration of this warranty, any such liability shall terminate.



NOTES



2017 HARLEY-DAVIDSON MOTORCYCLE LIMITED WARRANTY

24 Months/Unlimited Miles

Harley-Davidson warrants for any new 2017 Harley-Davidson motorcycle that an authorized Harley-Davidson dealer will repair or replace without charge any parts found under normal use to be defective in factory materials or workmanship. Such repair or replacement of defective parts will be Harley-Davidson's sole obligation and your sole and exclusive remedy under this limited warranty. This limited warranty applies only for the duration identified below.

No person, including Harley-Davidson dealers, may modify, extend or waive any part of this warranty.

As a condition of this warranty, you are responsible for properly using, maintaining, and caring for your motorcycle as outlined in your Owner Manual. Harley-Davidson recommends that you maintain copies of all maintenance records and receipts.

THERE IS NO OTHER EXPRESS WARRANTY (OTHER THAN THE SEPARATE EMISSIONS, NOISE, AND RADIO LIMITED WARRANTIES) ON THE MOTORCYCLE. Any implied warranty of merchantability or fitness for particular purpose is limited to the duration of the express warranty, or to the duration set forth in your state's warranty statutes,

whichever is shorter. Any implied warranty is not transferred to subsequent purchasers/buyers of the motorcycle.

The implied warranty of fitness for a particular purpose does not apply if your motorcycle is used for racing, even if the motorcycle is equipped for racing.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Harley-Davidson and your dealer are not responsible for any time or income that you lose, any inconvenience, the loss of your transportation or use of your motorcycle, the cost of a rental motorcycle, fuel, travel, meals, or lodging, or for any other incidental or consequential damages you may have.

Punitive, exemplary, or multiple damages may not be recovered unless applicable law prohibits their disclaimer. You may not bring any warranty-related claim as a class representative, a private attorney general, a member of a class of claimants or in any other representative capacity. Harley-Davidson shall not be liable for any damages caused

by delay in delivery or furnishing of any products and/or services.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

The following terms and conditions apply to this limited warranty:

Duration

1. The duration of this limited warranty is twenty-four months, starting from the earlier of (a) the date of initial retail purchase and delivery of the motorcycle from an authorized Harley-Davidson dealer, or (b) the third anniversary of the last day of the model year of the motorcycle. Your authorized Harley-Davidson dealer will submit an electronic Sales and Warranty Registration form to initiate your limited warranty.
2. Any unexpired portion of this limited warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the limited warranty period.

Owner's Obligations

To obtain warranty service, return your motorcycle at your expense within the limited warranty period to an authorized Harley-Davidson dealer. The authorized Harley-Davidson dealer should be able to provide warranty service during normal business hours, depending upon the workload of the authorized dealer's service department and the availability of necessary parts.

Exclusions

This limited warranty will not apply to any motorcycle.

1. Which has not been operated or maintained as specified in the owner's manual.
2. Which has been abused, neglected, misused, improperly stored, used "off the highway," or used for racing or competition of any kind.
3. Which is not manufactured to comply with the laws of the market in which it is registered.

4. Which has off-road or competition parts installed to enhance performance, a trailer hitch, or has other unapproved modifications (even if these modifications include genuine Harley-Davidson parts and accessories that are not approved for use on your motorcycle). These modifications may void all or parts of your new motorcycle limited warranty. See an authorized Harley-Davidson dealer for details.
 5. Which has been subjected to an act of God, war, riot, insurrection, nuclear contamination, natural disasters, including, but not limited to, lightning, forest fires, dust storms, hail storms, ice storms, earthquakes, or floods, or other circumstances out of Harley-Davidson's control.
 6. Which has been in an accident or collision or has been dropped or struck.
2. Cosmetic concerns that arise as a result of owner abuse, lack of proper maintenance or environmental conditions (except concerns that result from defects in factory materials or workmanship, which are covered by this limited warranty for the duration of the limited warranty period).
 3. Any cosmetic condition existing at the time of retail delivery that has not been documented by the authorized Harley-Davidson selling dealer prior to retail delivery.
 4. Defects or damage to the motorcycle caused by alterations outside of Harley-Davidson's factory specifications or caused by alterations or use of parts or accessories not approved for the make and model year of your motorcycle.
 5. Damage caused by installation or use of non-Harley-Davidson components, even those installed by an authorized Harley-Davidson dealership, that cause a Harley-Davidson part to fail. Examples include, but are not limited to performance-enhancing powertrain components or software, exhaust systems, trailer hitches, non-approved tires, lowering kits, handlebars, and add-ons connected to the factory electrical system.
 6. **United States customers:** Defects or damage impacting the functionality of powertrain components in a motorcycle that has been tuned using a tuner or calibration that was not covered by a California ARB Executive Order or otherwise approved by EPA.

Other Limitations

This limited warranty does not cover:

1. Parts and labor for normal maintenance as recommended in the owner's manual, or the replacement of parts due to normal wear and tear including, but not limited to, the following: tires, lubrication, oil and filter change, fuel system cleaning, battery maintenance, engine tune-up, spark plugs, brake, clutch, chain/belt adjustment and chain replacement.

Important: Read Carefully

1. Authorized Harley-Davidson dealers are independently owned and operated and may sell non-Harley-Davidson products. Because of this, HARLEY-DAVIDSON IS NOT RESPONSIBLE FOR THE SAFETY, QUALITY, OR SUITABILITY OF ANY NON-HARLEY-DAVIDSON PART, ACCESSORY OR DESIGN MODIFICATION INCLUDING, BUT NOT LIMITED TO, LABOR WHICH MAY BE SOLD AND/OR INSTALLED BY AUTHORIZED HARLEY-DAVIDSON DEALERS.
2. This limited warranty is a contract between you and Harley-Davidson. It is separate and apart from any warranty you may receive or purchase from an authorized Harley-Davidson dealer. An authorized Harley-Davidson dealer is not authorized to alter, modify, expand, or in any way change the terms and conditions of this limited warranty.
3. Any warranty work or parts replacement authorized by Harley-Davidson will not preclude Harley-Davidson from later relying on any exclusion where applicable.
4. Harley-Davidson and its authorized dealers reserve the right to modify or service motorcycles designed and manufactured by Harley-Davidson at any time without incurring any additional obligation to make the same alteration or change to a motorcycle previously built and sold. Harley-Davidson reserves the right to provide post-warranty repairs, conduct repair campaigns, offer good-will or customer satisfaction repairs or extend the warranty coverage for certain motorcycles at its sole discretion. Said repairs or extensions of warranty coverage in no way obligates Harley-Davidson to provide similar accommodations to other owners of similar motorcycles. Sometimes Harley-Davidson may offer a special adjustment program to pay all or part of the cost of certain repairs beyond the terms of your limited warranty. Check with your authorized Harley-Davidson dealer to learn whether such programs are available to you. Your state may prohibit these types of offers, in which case, they may not be available to you.
5. The fact that a part is labeled or branded Harley-Davidson does not necessarily make it appropriate or warranted for the make and model of your motorcycle. The use of parts not designed and tested for your motorcycle may have negative consequences on the performance of your motorcycle and may create conditions not covered by this limited warranty.

2017 AUSTRALIA/NEW ZEALAND HARLEY-DAVIDSON MOTORCYCLE MANUFACTURER'S LIMITED WARRANTY

24 Months/Unlimited Miles

This motorcycle limited warranty, referred to below as the "H-D Motorcycle Warranty" applies to all persons who purchase a new 2017 or prior-model Harley-Davidson motorcycle in Australia and New Zealand only after 1st January 2017.

Your Consumer Rights

The benefits given to you under this H-D Motorcycle Warranty are additional to, and do not detract from, other rights and remedies that you may have in respect of the motorcycle under Australian and New Zealand laws, including consumer protection laws.

In Australia, our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

In New Zealand, our goods also come with guarantees that cannot be excluded under the New Zealand Consumer Guarantees Act.

Warranty

This H-D Motorcycle Warranty, is provided by **Harley-Davidson, Motor Company**, P.O. Box 653, Milwaukee, Wisconsin 53201, U.S.A, phone: +1 (414) 343-4056, ("Harley-Davidson").

Harley-Davidson warrants for any new 2017 Harley-Davidson motorcycle that an authorised Harley-Davidson dealer will repair or replace without charge any parts found to be defective in factory materials or workmanship under normal use during the warranty period set out below.

Such repair or replacement of parts will be Harley-Davidson's sole obligation and your sole remedy under this H-D Motorcycle Warranty, however you may have other rights under Australian and New Zealand laws, as described above.

Note: Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair goods.

The following terms and conditions apply to this H-D Motorcycle Warranty:

Warranty Period

The duration of this H-D Motorcycle Warranty is twenty-four months, starting from the earlier of:

- (a) the date of delivery by an authorised Harley-Davidson dealer to the first retail purchaser; or
- (b) the third anniversary of the last day of the model year of the motorcycle (if not sold to a retail purchaser before that date).

Your authorised Harley-Davidson dealer will submit an electronic Sales and Warranty Registration form to initiate your H-D Motorcycle Warranty.

Note: If the motorcycle was used as a demonstrator or company motorcycle, then the warranty period may have started and/or expired prior to the initial retail sale. See an authorised Harley-Davidson dealer for details.

Any unexpired portion of this H-D Motorcycle Warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the warranty period. See the OWNER CONTACT INFORMATION section of the Owner's Manual for information regarding notification of ownership changes.

Obtaining Warranty Service

To obtain warranty service, return your motorcycle at your expense within the warranty period to an authorised dealer.

Harley-Davidson's network of authorised dealers is large, and continues to expand. To find current contact information for your nearest authorised dealer, visit our website at www.h-d.com.au.

The authorised Harley-Davidson dealer should be able to provide warranty service during normal business hours and as soon as possible, depending upon the workload of the authorised dealer's service department and the availability of necessary parts

You are responsible for collecting the motorcycle from the authorized dealer once the warranty service has been completed, at your expense.

Exclusions

This H-D Motorcycle Warranty will not apply to any motorcycle (or part or accessory):

1. Which has not been operated or maintained as specified in the Owner's Manual.
2. Which has been abused, neglected, misused, improperly stored, used "off the highway," or used for racing or competition of any kind.
3. Which was not originally manufactured for use or sold in Australia and New Zealand and/or does not comply with Australian and New Zealand homologation requirements.

4. Which has off-road or competition parts installed to enhance performance, or has unapproved modifications. These modifications may void all or part of your new H-D Motorcycle Warranty. See an authorised Harley-Davidson dealer for details.
5. Where damage is caused by, or Harley-Davidson is unable to honour this H-D Motorcycle Warranty due to, acts of God, war, riot, insurrection, natural disasters, including, but not limited to, nuclear contamination, lightning, forest fires, dust storms, hail storms, ice storms, earthquakes, floods, or other circumstances out of Harley-Davidson's control.
6. Which has been in an accident, collision, dropped or struck.

Note: Even though this H-D Motorcycle Warranty does not apply in the circumstances set out above, you may still have rights under Australian and New Zealand laws, including the Australian Consumer Law in such circumstances.

Other Limitations

This H-D Motorcycle Warranty does not cover:

1. Parts and accessories not manufactured by Harley-Davidson, or any damage caused to the motorcycle by the installation of such parts and accessories, even if such parts and accessories are installed on the motorcycle at the date of initial retail purchase. A separate third party warranty may apply to such parts and accessories. See an authorised Harley-Davidson dealer for details.
2. Parts and labour for normal maintenance as recommended in the Owner's Manual, or the replacement of parts due to normal wear and tear including, but not limited to, the following: tyres, lubrication, oil and filter change, fuel system cleaning, battery maintenance, engine tune-up, spark plugs, brake, clutch, chain/belt adjustment and chain replacement.
3. Cosmetic or other concerns that arise as a result of owner abuse, lack of proper maintenance or environmental conditions (except concerns that result from defects in factory materials or workmanship, which are covered by this H-D Motorcycle Warranty for the duration of the warranty period).
4. Any cosmetic condition existing at the time of retail delivery that has not been documented by the authorised Harley-Davidson selling dealer prior to retail delivery.

5. Defects or damage to the motorcycle caused by alterations outside of Harley-Davidson's factory specifications, including the installation of competition or closed course parts and accessories and the addition of loads and stresses to the motorcycle above those recommended by Harley-Davidson.
6. Damage caused by installation or use of non-Harley-Davidson components, even those installed by an authorised dealership, that cause a Harley-Davidson part to fail. Examples include, but are not limited to performance-enhancing powertrain components or software, exhaust systems, non-approved tyres, lowering kits, handlebars, add-ons connected to the factory electrical system, tow bars, etc.

Note: Even though this H-D Motorcycle Warranty does not cover the circumstances set out above, you may still have rights under Australian and New Zealand laws, including the Australian Consumer Law.

Important: Read Carefully

1. Authorised Harley-Davidson dealers are independently owned and operated and may sell non-Harley-Davidson products. Because of this, HARLEY-DAVIDSON IS NOT RESPONSIBLE FOR THE SAFETY, QUALITY, OR SUITABILITY OF ANY NON-HARLEY-DAVIDSON PART, ACCESSORY OR DESIGN MODIFICATION WHICH MAY BE SOLD AND/OR INSTALLED BY AUTHORISED HARLEY-DAVIDSON DEALERS OR LABOUR CARRIED OUT BY DEALERS.
2. This H-D Motorcycle Warranty is a contract between you and Harley-Davidson. It is separate and apart from any warranty you may receive or purchase from an authorised Harley-Davidson dealer. An authorised Harley-Davidson dealer is not authorised to alter, modify, or in any way change the terms and conditions of this H-D Motorcycle Warranty.

Any warranty work or parts replacement authorised by Harley-Davidson will not preclude Harley-Davidson from later relying on any exclusion where Harley-Davidson later becomes aware that an exclusion applied or the warranty claim did not otherwise comply with the terms of this H-D Motorcycle Warranty.

2017 HARLEY-DAVIDSON MOTORCYCLE NOISE CONTROL SYSTEM LIMITED WARRANTY

The following limited warranty applies to the noise control system, is in addition to the MOTORCYCLE LIMITED WARRANTY and EMISSION CONTROL SYSTEM LIMITED WARRANTY, and applies only to Harley-Davidson motorcycles sold in the U.S.

Harley-Davidson warrants to the first owner and each subsequent owner that this motorcycle is designed and built so as to conform at the time of sale with applicable regulations of the U.S. Environmental Protection Agency (as tested following F-76 Drive-By test procedure) and that it is free from defects in factory materials and workmanship which can cause this motorcycle not to meet U.S. Environmental Protection Agency Standards within one (1) year from initial retail purchase and delivery from an authorized Harley-Davidson dealer or one (1) year from the [second] anniversary of the last day of the model year of the motorcycle, or 6,000 km (3730 mi) whichever occurs first. Any unexpired portion of this limited warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the limited warranty period. If the motorcycle was used as a demonstrator or company motorcycle, then the limited warranty period may have started and/or expired prior to the initial retail sale. See an authorized Harley-Davidson dealer for details.

THERE IS NO OTHER EXPRESS WARRANTY (OTHER THAN THE SEPARATE MOTORCYCLE AND EMISSIONS LIMITED WARRANTIES) ON THE MOTORCYCLE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THIS LIMITED WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

The limited warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, on the date it is first placed in service.

THE FOLLOWING ITEMS ARE NOT COVERED BY THE NOISE CONTROL SYSTEM LIMITED WARRANTY

1. Failures which arise as a result of misuse, alteration, or non-performance of maintenance as specified in the Owner's Manual.
2. Replacing, removing, or modifying any portion of the NOISE CONTROL SYSTEM (consisting of the exhaust system and air intake/cleaner assembly) with parts not certified to be noise legal for street use.
3. Any motorcycle on which the odometer mileage has been changed so that the mileage cannot be determined.

4. TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

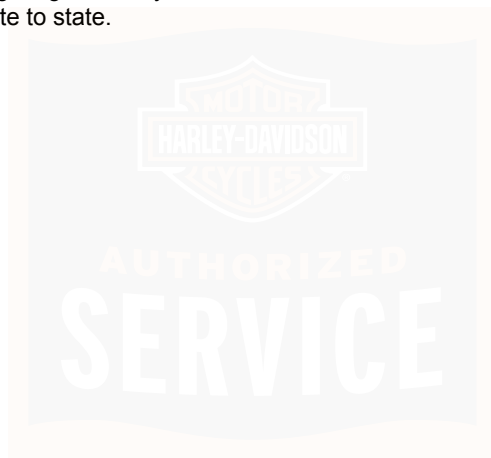
Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Other Rights

This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Recommendations for Required Maintenance

It is recommended that any noise system maintenance be performed by an authorized Harley-Davidson dealer using genuine Harley-Davidson replacement parts. The maintenance, replacement or repair of the noise control system may be performed by any other qualified service outlet or individual. Non-genuine Harley-Davidson parts may be used only if such parts are certified to comply with U.S. Environmental Protection Agency Standards.



2017 HARLEY-DAVIDSON EMISSION CONTROL SYSTEM LIMITED WARRANTY

The following limited warranty applies to the emission control system, is in addition to the MOTORCYCLE LIMITED WARRANTY and NOISE CONTROL SYSTEM LIMITED WARRANTY, and applies only to Harley-Davidson motorcycles certified for sale, registered, and normally operated in the U.S. Refer to the CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT for additional warranty provisions applicable to California motorcycles.

Harley-Davidson Motor Company warrants to the first owner and each subsequent owner that this vehicle is designed, built, and equipped so as to conform at the time of sale with applicable regulations under section 7521 of Title 42 of the United States Code, and that it is free from defects in materials and workmanship which would cause this motorcycle to fail to conform with applicable regulations for five (5) years from the initial retail purchase and delivery from an authorized Harley-Davidson dealer (or five (5) years from the date the motorcycle is first placed in service, if it is first placed in service as a "demonstrator" or "company" motorcycle prior to delivery), or 30,000 km (18641 mi), whichever occurs first. Any unexpired portion of this limited warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the warranty period.

THERE IS NO OTHER EXPRESS WARRANTY (OTHER THAN THE SEPARATE MOTORCYCLE AND NOISE LIMITED WARRANTIES) ON THE MOTORCYCLE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

The limited warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, on the date it is first placed in service.

THE FOLLOWING ITEMS ARE NOT COVERED BY THE EMISSION CONTROL SYSTEM LIMITED WARRANTY

1. Failures which arise as a result of misuse, tampering, alterations, accident, acts of nature, or improper or inadequate maintenance as specified in the Owner's Manual.
2. Required maintenance services (as specified in the Owner's Manual) and the replacement of parts (such as spark plugs, fuel and oil filters, etc.) used in required maintenance.
3. Any motorcycle on which the odometer mileage has been changed so that the mileage cannot be determined.

4. TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, TOWING OF THE VEHICLE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Items Covered by this Emission Warranty

The emission control system warranty may cover the following parts if the defect is deemed to be emissions-related:

- Air cleaner assembly
- Cam shaft
- Spark plug
- Ignition coil
- Ignition wires
- Vapor valve
- Catalytic converter
- Crankcase breather
- MAP sensor

- TMAP sensor
- Intake air temperature sensor
- Throttle position sensor
- Fuel injectors
- Induction module or throttle body
- Engine temperature sensor
- Electronic control unit
- Regulator/fuel pump (for leaks and/or high and low-pressure failures)
- Fuel filter
- Oxygen sensors

Fuel Tank (non-cosmetic failures only)

- Leaks
- Fuel vapor separator
- Fuel cap

If used on the above: hoses, clamps, fittings, tubing, sealing gaskets and mounting hardware.

Detailed instructions for proper maintenance and use of this motorcycle, including the time and/or mileage intervals at which such maintenance is to be performed, may be found

in this Owner's Manual under MAINTENANCE SCHEDULING > SERVICE RECORDS (Page 183).

Other Rights

This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Recommendations for Required Maintenance

It is recommended that any emission system maintenance be performed by an authorized Harley-Davidson dealer using genuine Harley-Davidson replacement parts. However the maintenance, replacement or repair of the emissions control system may be performed by any other qualified service outlet or individual. Non-genuine Harley-Davidson parts may be used only if such parts are certified to comply with U.S. Environmental Protection Agency Standards.



NOTES



CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT

Your Warranty Rights and Obligations

The California Air Resources Board and Harley-Davidson Motor Company are pleased to explain the emission control system warranty on your new motorcycle. In California, new motor vehicles must be designed, built and equipped to meet the State's stringent anti-smog standards. Harley-Davidson Motor Company must warrant the emission control system on your motorcycle for the periods of time listed below provided there has been no abuse, unapproved modification, neglect or improper maintenance of your motorcycle.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, catalytic converter, and engine computer. Also included may be hoses, connectors and other emission-related assemblies.

Where a warrantable condition exists, within the warranty period noted below, your authorized Harley-Davidson dealer will repair your motorcycle at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

For a period of use of five years or 30,000 km (18641 mi), whichever first occurs, beginning on the date the motorcycle is delivered to the ultimate purchaser or, if the motorcycle is

placed in service as a demonstrator or company motorcycle prior to sale at retail, the date it is first placed in service.

If any emission related part on your motorcycle is defective, the part will be repaired or replaced by Harley-Davidson Motor Company. This is your emission control system DEFECTS WARRANTY.

Owner's Warranty Responsibilities

As the motorcycle owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. Harley-Davidson recommends that you retain all receipts covering maintenance on your motorcycle, but Harley-Davidson cannot deny emissions warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

You are responsible for presenting your motorcycle to an authorized Harley-Davidson dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As the motorcycle owner, you should also be aware that Harley-Davidson may deny you warranty coverage if your motorcycle or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact Harley-Davidson Customer

Service Department at 1-800-258-2464 (U.S. only) or 1-414-343-4056, or the California Air Resources Board at 9528 Telstar Ave., El Monte, California 91731.

Additional Warranty Terms

The warranty period starts the date the motorcycle is delivered to the ultimate purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, the date it is first placed in service.

The emission control system of each new Harley-Davidson motorcycle was designed, built and tested using only Genuine Harley-Davidson parts and with these parts the motorcycle is certified as being in conformity with California emission control regulations.

We recommend that you take your motorcycle to an authorized Harley-Davidson dealer for repairs under this warranty. The dealer has factory-trained mechanics and genuine Harley-Davidson parts. However, in the case of an "emergency" (as defined below), you could have repairs performed at any available service establishment or by the owner, using any replacement part. An authorized Harley-Davidson dealer not being reasonably available, or a part not being available within a reasonable time period (not to exceed 30 days from the time the motorcycle is initially presented to a Harley-Davidson dealer for repair) constitutes an emergency. Harley-Davidson will reimburse the owner for such repairs, including diagnosis, only if it is established that

the repairs are covered under this emission warranty. Harley-Davidson's parts reimbursement, however, will not exceed our suggested retail price for all warranted parts replaced and our labor reimbursement will be limited to our recommended time allowances for emission system repairs at the geographically appropriate hourly labor rate.

To obtain reimbursement from Harley-Davidson for such emergency repairs, you must keep all failed parts and original receipts, so you can present them to an authorized Harley-Davidson dealer for inspection. Harley-Davidson recommends that you bring your motorcycle to an authorized dealer for inspection to ensure that the emergency repairs were done properly.

Remember: Use of non-Harley-Davidson replacement parts may impair the effectiveness of the emission control system or otherwise damage your motorcycle. If other than genuine Harley-Davidson parts are used for maintenance, replacement or repair of components affecting emission control, you should obtain written assurances that such non-Harley-Davidson parts are warranted by their manufacturer to be equal in quality to Genuine Harley-Davidson parts in both performance and durability. The use of non-Harley-Davidson replacement parts does not invalidate the existing warranty, if any, on other Harley-Davidson components unless the non-Harley-Davidson parts cause damage to warranted parts or result in the creation of an emissions non-compliant motorcycle. However, HARLEY-DAVIDSON ASSUMES NO LIABILITY UNDER

THIS WARRANTY WITH RESPECT TO ANY PARTS WHICH ARE NOT GENUINE HARLEY-DAVIDSON PARTS, unless Harley-Davidson parts cause damage to non-genuine Harley-Davidson parts.

What Is Covered by this Emission Warranty

The emission control system warranty covers the following "warranted parts" only:

- Air cleaner assembly
- Cam shaft
- Spark plug
- Ignition coil
- Ignition wires
- Vapor valve
- Catalytic converter
- Crankcase breather
- MAP sensor
- TMAP sensor
- Intake air temperature sensor
- Throttle position sensor
- Fuel injectors

- Induction module or throttle body
- Engine temperature sensor
- Electronic control unit
- Regulator/fuel pump (for leaks and/or high and low pressure failures)
- Fuel filter
- Oxygen sensors
- Carbon canister
- Purge control valve

Fuel Tank (non-cosmetic failures only)

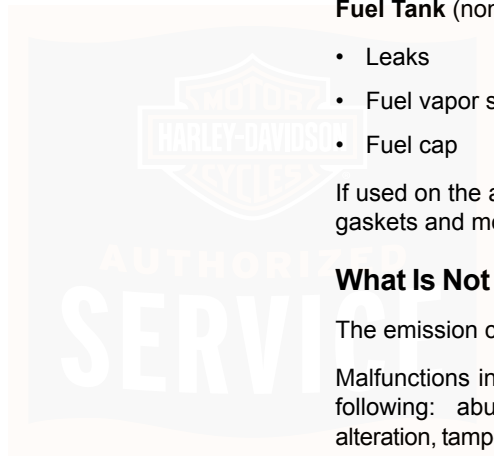
- Leaks
- Fuel vapor separator
- Fuel cap

If used on the above: hoses, clamps, fittings, tubing, sealing gaskets and mounting hardware.

What Is Not Covered by this Emission Warranty

The emission control system warranty does not cover:

Malfunctions in any "warranted parts" caused by any of the following: abuse, misuse, unapproved modification or alteration, tampering, disconnection, or improper or inadequate



maintenance. The warranty also does not cover replacement of listed parts in the event that the vehicle has been rendered emissions non-compliant in the state of California through actions noted above.

Damage resulting from accident, acts of nature or other events beyond the control of Harley-Davidson.

The repair or replacement of "warranted parts" which are scheduled for replacement prior to 30,000 km (18641 mi), once these parts have been replaced at the first replacement interval as part of required maintenance services.

Repairs and services performed by anyone other than an authorized Harley-Davidson Dealer (except in case of emergency as defined above).

Loss of time, inconvenience, loss of use of the motorcycle, towing of the vehicle, or commercial loss and/or consequential damages.

Repairs on any motorcycle of which odometer mileage has been changed so that mileage cannot be readily determined.



SERVICE RECORDS

APPLICABILITY	
<input type="checkbox"/>	• JPN

Regular Service Intervals

⚠ WARNING

Perform the service and maintenance operations as indicated in the regular service interval table. Lack of regular maintenance at the recommended intervals can affect the safe operation of your motorcycle, which could result in death or serious injury. (00010a)

⚠ WARNING

If you operate your motorcycle under adverse conditions (severe cold, extreme heat, very dusty environment, very bad roads, through standing water, etc.), you should perform the regular maintenance intervals more frequently to ensure the safe operation of your motorcycle. Failure to maintain your motorcycle could result in death or serious injury. (00094a)

Regular maintenance must be performed at specified intervals to help keep your new Harley-Davidson motorcycle operating at peak performance and keep your new motorcycle limited

warranty in force. Your authorized Harley-Davidson dealer knows best how to service your motorcycle with factory approved methods and equipment assuring you of thorough and competent workmanship.

Some maintenance items are scheduled at least once per year, even if the next mileage interval has not been reached. In severe riding conditions, some maintenance items need to be performed more frequently. Refer to Table 34.

NOTE

- *The use of parts and service procedures other than Harley-Davidson approved parts and service procedures may void the limited warranty. Any alterations to the emission system components, such as the intake and exhaust system, may be in violation of motor vehicle laws.*
- *Some countries, such as Brazil, may require all regular maintenance to be performed by an authorized Harley-Davidson dealer for your limited warranty to remain in effect. Check with your authorized Harley-Davidson dealer.*
- *Some countries, such as Brazil, require additional annual (or semi-annual) regular maintenance steps to keep your limited warranty in effect and/or comply with vehicle regulations. Check with your authorized Harley-Davidson dealer and the motorcycle regulations in your country for local requirements.*

- After completing the final service interval, repeat the service schedule starting at the 8,000 km (5,000 mi) interval. Refer to Table 34.
- Whenever a vehicle is in for maintenance, always check for and complete open recalls and product programs.
- Whenever a vehicle is in for maintenance, always verify that the latest calibration is installed.

Table 34. Regular Service Intervals: 2017 V-Rod Models

ITEM SERVICED	1000 mi 1600 km	5000 mi 8000 km	10000 mi 16000 km	15000 mi 24000 km	20000 mi 32000 km	25000 mi 40000 km	30000 mi 48000 km	35000 mi 56000 km	40000 mi 64000 km	45000 mi 72000 km	50000 mi 80000 km	NOTES
Check operation of electrical equipment and switches	X	X	X	X	X	X	X	X	X	X	X	
Check front tire pressure, inspect tread	X	X	X	X	X	X	X	X	X	X	X	1
Inspect front brake fluid level	X	X	X	X	X	X	X	X	X	X	X	
Inspect clutch fluid level	X	X	X	X	X	X	X	X	X	X	X	
Check front master cylinder banjo bolt torque	X		X		X		X		X		X	1, 2, 3
Check DOT4 clutch and front brake fluid for moisture	X	X	X	X	X	X	X	X	X	X	X	1, 2
Adjust steering head bearings	X				X				X			2
Lubricate steering head bearings							X					2, 4
Check lower fork bracket pinch bolt torque	X		X		X		X		X		X	1, 2, 3
Check upper fork bracket pinch bolt torque	X		X		X		X		X		X	1, 2, 3
Check, adjust and lubricate throttle controls	X	X	X	X	X	X	X	X	X	X	X	2
Check switch housing screws torque on upper and lower hand controls	X		X		X		X		X		X	1, 2, 3

Table 34. Regular Service Intervals: 2017 V-Rod Models

ITEM SERVICED	1000 mi 1600 km	5000 mi 8000 km	10000 mi 16000 km	15000 mi 24000 km	20000 mi 32000 km	25000 mi 40000 km	30000 mi 48000 km	35000 mi 56000 km	40000 mi 64000 km	45000 mi 72000 km	50000 mi 80000 km	NOTES
Check clutch lever handle-bar clamp screw torque	X		X		X		X		X		X	1, 2, 3
Check master cylinder handlebar clamp screw torque	X		X		X		X		X		X	1, 2, 3
Inspect air cleaner service as required		X	X	X	X	X	X	X	X	X	X	3
Inspect valve lash, adjust if necessary				X			X			X		2, 5, 6
Spark Plugs	Replace spark plugs every two years or every 48,000 km (30000 mi), whichever comes first.											
Inspect cooling system, check clamps for tightness, check coolant freeze point	X	X	X	X	X	X	X	X	X	X	X	
Coolant	Replace coolant every 48,000 km (30000 mi)											2
Clean radiator	X	X	X	X	X	X	X	X	X	X	X	
Replace engine oil and filter	X	X	X	X	X	X	X	X	X	X	X	1, 3
Inspect oil lines and brake system for leaks, contact or abrasion	X	X	X	X	X	X	X	X	X	X	X	1, 2
Inspect fuel lines and fittings for leaks, contact or abrasion	X	X	X	X	X	X	X	X	X	X	X	1, 2
Inspect rear brake fluid level	X	X	X	X	X	X	X	X	X	X	X	
Check DOT 4 rear brake fluid for moisture	X		X		X		X		X		X	1, 2
Inspect brake pads and discs for wear	X	X	X	X	X	X	X	X	X	X	X	
Check front axle nut torque	X		X		X		X		X		X	1, 2, 3
Check rear master cylinder banjo bolt torque	X		X		X		X		X		X	1, 2, 3

Table 34. Regular Service Intervals: 2017 V-Rod Models

ITEM SERVICED	1000 mi 1600 km	5000 mi 8000 km	10000 mi 16000 km	15000 mi 24000 km	20000 mi 32000 km	25000 mi 40000 km	30000 mi 48000 km	35000 mi 56000 km	40000 mi 64000 km	45000 mi 72000 km	50000 mi 80000 km	NOTES
Inspect and lubricate jiffy stand	X	X	X	X	X	X	X	X	X	X	X	2, 3
Check brake and clutch controls, adjust and lubricate	X	X	X	X	X	X	X	X	X	X	X	
Check rear tire pressure, inspect tread	X	X	X	X	X	X	X	X	X	X	X	1
Inspect drive belt and sprockets, adjust belt	X	X	X	X	X	X	X	X	X	X	X	2
Check rear axle nut torque	X		X		X		X		X		X	1, 2, 3
Check upper and lower shock absorber bolt torque	X		X		X		X		X		X	1, 2, 3
Check lower frame rail fastener torque	X		X		X		X		X		X	1, 2, 3
Check pivot shaft nut torque	X		X		X		X		X		X	1, 2, 3
Inspect exhaust system for leaks, cracks and loose or missing fasteners or exhaust shields	X	X	X	X	X	X	X	X	X	X	X	1, 3
Battery	Check battery, terminal torque and clean connections annually.											1
Rebuild front forks											X	2, 7
Fuel filter element	Replace fuel filter element every 161,000 km (100000 mi)											2, 5
Brake and clutch systems	Flush brake and clutch systems and replace DOT 4 hydraulic brake and clutch fluids every two years or sooner if moisture content is 3% or greater											2

Table 34. Regular Service Intervals: 2017 V-Rod Models

ITEM SERVICED	1000 mi 1600 km	5000 mi 8000 km	10000 mi 16000 km	15000 mi 24000 km	20000 mi 32000 km	25000 mi 40000 km	30000 mi 48000 km	35000 mi 56000 km	40000 mi 64000 km	45000 mi 72000 km	50000 mi 80000 km	NOTES
Road test to verify component and system functions	X	X	X	X	X	X	X	X	X	X	X	
NOTES:	1. Perform annually or at specified intervals, whichever comes first. 2. Should be performed by an authorized Harley-Davidson dealer, unless you have the proper tools, service data and are mechanically qualified. 3. For torque instructions, see Shop Practices in the service manual. 4. Disassemble, inspect and lubricate every 48,000 km (30,000 mi). 5. Perform maintenance more frequently in severe riding conditions (such as extreme temperatures, dusty environments, mountainous or rough roads, long storage conditions, short runs, heavy stop/go traffic or poor fuel quality). 6. Could vary with frequency of operation and riding style. 7. Disassemble, inspect, rebuild forks and replace fork oil every 80,000 km (50,000 mi).											

Maintenance Records

Maintain a record of all service. Refer to Table 35.

Table 35. Owner's Maintenance Records

SERVICE MILE INTERVAL	DATE	DEALER NUMBER	TECHNICIAN NAME	TECHNICIAN SIGNATURE
1,600 km (1,000 mi)				
8,000 km (5,000 mi)				
16,000 km (10,000 mi)				
24,000 km (15,000 mi)				
32,000 km (20,000 mi)				
40,000 km (25,000 mi)				
48,000 km (30,000 mi)				
56,000 km (35,000 mi)				

Table 35. Owner's Maintenance Records

SERVICE MILE INTERVAL	DATE	DEALER NUMBER	TECHNICIAN NAME	TECHNICIAN SIGNATURE
64,000 km (40,000 mi)				
72,000 km (45,000 mi)				
80,000 km (50,000 mi)				

SERVICE LITERATURE

Visit any Harley-Davidson dealer to purchase a service or parts manual for your motorcycle. Factory authorized manuals are the most complete and detailed source of information outside of your Harley-Davidson dealer. Refer to Table 36.

Table 36. Service Literature: 2017 V-Rod Models

DOCUMENT	PART NUMBER
V-Rod Models Service Manual	94000385
V-Rod Models Electrical Diagnostic Manual	94000397
V-Rod Models Parts Catalog	94000409
Publication numbers listed are English language manuals. Other languages are available from a Harley-Davidson dealer.	

H-D U.S.A., LLC TRADEMARK INFORMATION

Bar & Shield, Boom!, Cross Bones, Cruise Drive, CVO, Digital Tech, Digital Technician, Digital Technician II, Dyna, Electra Glide, Evolution, Fat Bob, Fat Boy, Forty-Eight, Glaze, Gloss, H-D, H-Dnet.com, Harley, Harley-Davidson, HD, Heritage Softail, Iron 883, Low Rider, Milwaukee-eight, Night Rod, Nightster, Night Train, Profile, Reflex, Revolution, Road Glide, Road King, Road Tech, Rocker, Screamin' Eagle, Seventy-Two, Softail, Sportster, Street Glide, Street Rod, Sun Ray, Sunwash, Super Glide, SuperLow, Supersmart, Switchback, SYN3, TechLink, TechLink II, Tour-Pak, Tri Glide, Twin Cam 88, Twin Cam 88B, Twin Cam 96, Twin Cam 96B, Twin Cam 103, Twin Cam 103B, Twin Cam 110, Twin Cam 110B, Twin-Cooled, Ultra Classic, V-Rod, VRSC, LiveWire, LiveWire One, and Harley-Davidson Genuine Motor Parts and Genuine Motor Accessories are among the trademarks of H-D U.S.A., LLC.

PRODUCT REGISTERED MARKS

Apple, Alcantara S.p.A., Allen, Amp Multilock, Android Auto, Bluetooth, Brembo, CarPlay, City Navigator, Delphi, Deutsch, Dual Lock, Dunlop, Dynojet, Fluke, G.E. Versilube, Garmin, Google LLC, Gunk, Heli-Coil, Hydroseal, Hylomar, iPhone, iPod, Kevlar, Lexan, Loctite, Lubriplate, Keps, K&N,

Magnaflux, Marson Thread-Setter Tool Kit, MAXI fuse, Molex, Michelin, MPZ, Multilock, nano, NGK, Novus, Packard, Pirelli, Permatex, Philips, PJ1, Pozidriv, Road Tech, Robinair, S100, Sems, Siri, SiriusXM, Snap-on, Teflon, Threadlocker, Torca, Torco, TORX, Tufoil, Tyco, Ultratorch, Velcro, X-Acto and XM Satellite Radio are among the trademarks of their respective owners.



NOTES



Index

A

Accessories.....	157,158
Accessories and Cargo Guidelines.....	5,13
Accessory and Cargo Guidelines.....	13
AGM Charging Information.....	120
Air Cleaner Filter.....	112
Alarm.....	70
Alternator/Voltage Regulator.....	133
Anti-Lock Brake System (ABS).....	11

B

Battery.....	50,74,120,128
Brakes.....	52,55,103,156
Break-in.....	87
Break-in Maintenance.....	87
Break-in Riding Rules.....	78
Bulb Replacement.....	116,119

C

California Evaporative Emission Controls.....	160
Catalytic Converters.....	30
Changing Engine Oil.....	92

Charging Battery.....	120
Charging the Battery.....	120
Chassis Lubrication.....	100
Checking Engine Oil.....	88
Clean.....	148
Cleaning.....	143,148,149,150,150
Clutch.....	35,39,101
Controls.....	35,39,52
Coolant.....	23,94,95,155
Coolant Level.....	95
Cooling System.....	155
Cruise Control.....	50
Custom Coverage.....	158
Customer service.....	2

D

Dealer Locator.....	161
Dealer Locator Phone Number.....	161
Denim Finish.....	149
Drive Belt.....	97
Drive Belt Deflection Specifications.....	97

Index

E

Electrical Protection.....	134
Electrical System.....	155
Emergency Flashers.....	42
Emission Control System Limited Warranty.....	175
Engine.....	50,82,153
Engine Oil.....	47,87,88,92,94
Engine Oil and Filter.....	92
EPA Noise Regulations.....	160

F

Factory Replacement Parts.....	159
Fob.....	64,73
Four-Way Flashers.....	42
Front Fork Bearings.....	103
Front Side Covers (VRSCF).....	111
Fuel.....	28,29,50,56
Fuel and Oil.....	29
Fuses.....	74,134
Fuses and Relays.....	74,134

G

Gasoline.....	28,29
Gasoline Blends.....	29
GAWR.....	13
GAWR/GVWR.....	13
Genuine Motor Parts and Accessories.....	157
GVWR.....	13

H

Hand Controls.....	39
Hazard Warning 4-Way Flasher.....	42
Hazard Warning 4-Way Flashers.....	68
Hazard Warning Four-Way Flasher.....	42
Headlamp.....	47,116,117,118
Headlamp Adjustment.....	117
Headlamp Alignment.....	117
Horn.....	39
Hydraulic Clutch.....	101

Index

I	Lubrication.....100
Importing a Motorcycle.....162	Luggage.....13
Indicator Lamps.....47,50	M
Instruments.....43,47,50,56	Maintenance.....87,87,87,88,92, 94, 95, 97, 100, 100, 103, 111, 112, 117, 119, 120, 133, 159, 183
J	Manual.....1
Jiffy Stand.....55,56	Mirror Adjustment.....57
K	Mirrors.....57,58
Key.....64	Mirrors (VRSCF).....58
Key Fob.....73	Motorcycle Cleaning Products.....143
L	Motorcycle Storage.....139
Labels.....15	N
Leather.....150	National Highway Traffic Safety Administration.....161
Leather and Vinyl Care.....150	National Highway Traffic Safety Administration (NHTSA).161
Leather Care.....150	Noise Control System.....15
License Plate Bracket.....57	Noise Control System Limited Warranty.....173
License Plate Bracket (VRSCF).....57	O
Limited Warranty.....165,173,175	Octane Rating.....28

Index

Oil.....	87
Oil Applications.....	100
Oil Level.....	88
Operation.....	52,79,82
Owner Contact Information.....	162
Owner Information.....	2

P

Polishing.....	148
Power Disconnect.....	74,134
Pre-Riding Checklist.....	79
Preload.....	59
Primary Chaincase.....	23

R

Radiator.....	147
Reverse.....	50
Rules of the Road.....	12

S

Safe Operating Rules.....	5
Safety.....	13,15,87
Safety Definitions.....	1
Seat.....	138
Security System.....	42,50,63,63,64, 65, 68, 68, 70, 71, 72, 73, 73, 74, 74
Service Intervals.....	183
Service Literature.....	188
Shifting Gears.....	82
Shock Absorber.....	59
Shock Absorbers.....	59,111
Sidestand.....	55
Sidestand Interlock.....	56
Smart Security System.....	63,73,73,74,74
Spark Plugs.....	107
Specifications.....	23,28,87,97
Starting the Engine.....	81
Stopping the Engine.....	82
Storage.....	139

Index

T

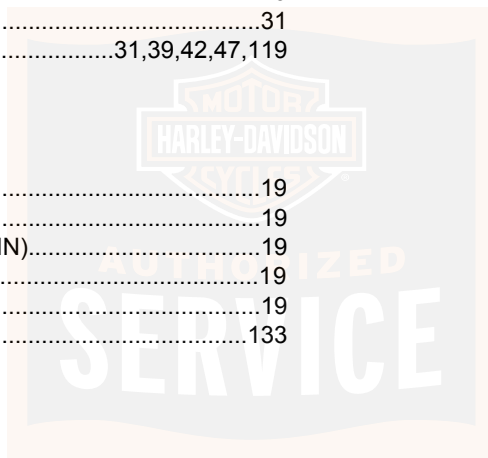
Tail Lamp.....	119, 151
Tire Replacement.....	109
Tires.....	25, 108, 109
Trademarks.....	188, 189
Transmission.....	23, 155
Transport Mode.....	72
Troubleshooting.....	47, 74, 153, 155, 155, 155, 156
Turn Signal Bulbs (Bullet Style).....	119
Turn Signal Switches.....	31
Turn Signals.....	31, 39, 42, 47, 119

V

V.I.N.....	19
Vehicle Identification Number.....	19
Vehicle Identification Number (VIN).....	19
VIN.....	19
VIN codes.....	19
Voltage Regulator/Alternator.....	133

W

Warranty.....	158, 159, 161, 162, 165, 173, 175
Warranty Repair Work.....	161
Washing.....	148
Wheel Care.....	150
Wheels.....	150
Winter Lubrication.....	94



NOTES

