

SOFTAIL® MODELS

2020 HARLEY-DAVIDSON® OWNER'S MANUAL



Harley-Davidson Motor Company
Service Communications
Milwaukee WI 53208 USA

2020 HARLEY-DAVIDSON® OWNER'S MANUAL
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HARLEY-DAVIDSON

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TABLE OF CONTENTS

INTRODUCTION

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

SAFETY FIRST

Safety Definitions.....	3
Safe Operating Rules.....	3
Harley-Davidson Motorcycles Are for On-Road Use Only.....	3
General.....	4
Operation.....	4
Steering and Handling.....	5
Accessories and Cargo.....	6
Tires.....	7
Towing and Trailering.....	7
Fuel and Exhaust.....	8
Brakes.....	9
Battery.....	10
Hazardous Materials.....	11
Maintenance.....	11
Parts and Accessories.....	11
Anti-Lock Brake System (ABS).....	12
Rules of the Road.....	12

Noise Control System.....	13
Tampering.....	13
Labels.....	13

YOUR MOTORCYCLE

Vehicle Identification Number (VIN).....	17
General.....	17
Location.....	17
Abbreviated VIN.....	17
Models and Features.....	20
Primary Controls and Service Components.....	20

SPECIFICATIONS

Specifications.....	25
Tires.....	25
Weights and Dimensions.....	27
Capacities.....	31
Engine and Transmission.....	32
Electrical.....	32

BEFORE RIDING

Removing Motorcycle from Storage.....	33
Pre-Ride Checklist.....	33
Break-in Riding Rules.....	34
The First 500 Miles (800 Kilometers).....	34
Filling the Fuel Tank.....	34

TABLE OF CONTENTS

FUEL FILLER CAP.....	35	Assigning Fob.....	59
LOCKING FUEL FILLER CAP.....	37	Fob Battery.....	60
Fuel System Information.....	38	Riding with a Fob.....	60
Gasoline.....	38	Riding without a Fob.....	61
Catalytic Converter.....	40	Personal Identification Number (PIN).....	61
ABS Brake System Identification.....	40	Changing the PIN.....	61
Identification.....	40	Security Status Indicator.....	63
Checking Tire Pressure and Inspecting Tires.....	41	Arming and Disarming.....	63
General Information.....	41	Arming.....	63
Tire Pressure.....	42	Disarming.....	64
Inspecting Tires.....	44	Disarming with a PIN.....	64
Replacing Tires.....	46	Alarm.....	66
Adjusting Mirrors.....	47	Warnings.....	66
Operating Jiffy Stand.....	47	Alarm Activation.....	66
Location.....	47	Alarm Deactivation.....	67
Jiffy Stand Switch: International Models.....	48	Siren Chirp Mode (Confirmation).....	67
Adjusting Shock Absorbers.....	48	Chirp Mode.....	67
Calculate Preload Setting.....	48	Chirpless Mode.....	67
Adjustment.....	55	Switching Modes.....	67
SECURITY SYSTEM		Transport Mode.....	68
Security System.....	59	To Enter Transport Mode.....	68
Components.....	59	To Exit Transport Mode.....	68
Options.....	59	Storage and Service Departments.....	68
Security System Fob.....	59	Long-Term Parking.....	68
		Service Departments.....	68

TABLE OF CONTENTS

Disconnecting Power.....	68	Tachometer/Gear Selection: Except Low Rider (FXLR).....	76
All Models.....	68	Left Hand Control Switches.....	79
Troubleshooting.....	69	Trip.....	79
Security Lamp.....	69	High Beam.....	79
Fob.....	69	Low Beam/Flash to Pass.....	79
Siren.....	69	Auxiliary/Fog Lamps.....	80
OPERATION		Left Turn Signal.....	80
Keyless Ignition.....	71	Horn.....	80
Ignition Mode.....	71	Right Hand Control Switches.....	81
Accessory Mode.....	71	Hazard Warning 4-Way Flasher.....	81
Controls, Instruments and Switches.....	72	Start.....	82
Clutch Hand Lever.....	72	OFF.....	82
Gear Shift Lever.....	72	RUN.....	82
Left-Hand Control Module.....	73	Right Turn Signal.....	82
Speedometer/Odometer.....	73	Odometer Window Displays.....	84
Right-Hand Control Module.....	73	Time.....	84
Brakes.....	73	Fuel Range.....	85
Throttle Twist Grip.....	74	Low Fuel Warning.....	85
OFF/RUN Switch.....	74	Tip Indicator.....	86
Fork Lock.....	74	No Fob Message.....	86
Instruments.....	75	Sidestand Message.....	86
Fuel.....	75	Electronic Throttle Control (ETC).....	87
Speedometer.....	75	ETC Limited Performance Mode.....	87
Odometer.....	75	ETC Power Management Mode.....	87
Trip Odometers A and B.....	76	ETC Forced Idle Mode.....	88

TABLE OF CONTENTS

ETC Forced Shut Down Mode.....	88	How ABS Works.....	98
Starting the Engine.....	88	How To Use ABS.....	98
Starting after Tipover.....	89	ABS: Tires and Wheels.....	98
Engine Idle Temperature Management System (EITMS)...	90	Shifting Gears.....	100
Operation.....	90	Stopped, Engine Off.....	100
Enabling/Disabling EITMS.....	90	Starting from a Stop.....	100
Stopping the Engine.....	91	Upshift (Acceleration).....	100
Indicators.....	91	Downshift (Deceleration).....	101
Check Engine Lamp.....	91	Cruise Control.....	102
Low Fuel Lamp.....	91	Turn Cruise On.....	103
Battery Discharge Lamp.....	91	Set Cruise Speed.....	103
Security Lamp.....	92	Increase/Decrease Cruise.....	103
Turn Signal Indicator Lamps.....	92	Disengage Cruise.....	103
Headlamp High Beam Lamp.....	92	Resume Cruise.....	104
Neutral Lamp.....	92	Turn Cruise Off.....	104
Cruise Control Lamp (If Equipped).....	92	USB Port.....	106
Auxiliary/Fog Lamp Indicator Lamp.....	92	WINDSHIELD.....	106
ABS Lamp.....	92	Fairing.....	108
Oil Pressure Lamp.....	93	SADDLEBAGS.....	112
Side-Mounted License Plate.....	96	AFTER RIDING	
Brake System.....	96	Genuine Motor Parts and Accessories.....	119
Front Brake Lever.....	96	Online Catalog.....	119
Rear Brake Pedal.....	96	Shop for Your Bike.....	119
Non-ABS Brake System.....	97	Cleaning and General Care.....	119
Anti-lock Brake System (ABS).....	97		

TABLE OF CONTENTS

Cleaning Wheels and Tires.....	120	Oil Level Cold Check.....	134
Recommended Cleaning Products.....	120	Oil Level Hot Check.....	134
Washing the Motorcycle.....	125	Change Oil and Oil Filter.....	136
Preparation.....	125	OIL COOLER.....	138
Cleaning Wheels and Tires.....	126	Check Transmission Lubricant.....	139
Washing the Motorcycle.....	126	Change Transmission Lubricant.....	141
Drying the Motorcycle.....	126	Change Primary Chaincase Lubricant.....	142
Polishing and Sealing.....	127	Inspecting Brake Pads and Discs.....	145
Windshield Care.....	127	Brake Pads.....	145
Leather and Vinyl Care.....	128	Checking Systems for Leaks or Abrasions.....	146
Denim Finish.....	128	Checking Brake Fluid Level and Changing Brake Fluid....	147
Cleaning Denim Finish.....	129	Checking Brake Fluid Level.....	147
Exhaust Care.....	129	Changing Brake Fluid.....	148
Whitewall Tires.....	129	Checking Clutch and Brake Controls.....	149
Storing Motorcycle.....	129	Clutch Hand Lever.....	149
		Brake Hand Lever.....	149
MAINTENANCE AND LUBRICATION		Miscellaneous Lubrication.....	149
Maintenance.....	131	Check Drive Belt Deflection.....	149
Break-in Maintenance.....	131	Mechanical Clutch.....	153
Preparing the Motorcycle for Maintenance.....	131	Hydraulic Lifters.....	153
Setting Motorcycle Upright.....	132	Maintaining Front Fork.....	153
Disposal and Recycling.....	132	Adjusting Steering Head Bearings.....	154
Engine Lubrication.....	132	Checking for Exhaust Leaks.....	154
Engine Lubrication.....	132	Shock Absorbers.....	154
Low Temperature Lubrication.....	133	Inspecting Air Filter.....	154
Check Engine Oil Level.....	134	Removal.....	154

TABLE OF CONTENTS

Cleaning Filter Element.....	155
Rain Sock.....	156
Installation.....	156
Lubricating Fuel Cap Lock.....	159
Cleaning Battery.....	159
Replacing Spark Plugs.....	159
Checking Electrical Equipment and Switches.....	160

SERVICE PROCEDURES

Battery Tender Connector.....	161
Battery Maintenance.....	162
Battery Safety.....	162
Absorbed Glass Mat (AGM) Battery Charging Information.....	162
Cleaning and Inspecting.....	163
Charging and Storing the Battery.....	163
Battery Replacement.....	165
Removing the Battery.....	165
Installing Battery.....	165
Side Covers.....	168
Headlamp.....	169
Prepare.....	170
Check Alignment.....	170
Adjust.....	171
Replacing Headlamp.....	173

Tail Lamp Bulb Replacement: Incandescent.....	174
Removal.....	174
Installation.....	174
Tail Lamp Bulb Replacement: LED.....	175
Turn Signal Bulb Replacement: Incandescent.....	175
Replacing Turn Signal Bulb.....	175
Turn Signal Bulb Replacement: LED.....	176
Seat.....	176
General.....	176
Seats: Softail Models.....	177
Removal.....	177
Installation.....	178
FUSES.....	181
Main Fuse.....	181
Replacing Fuses.....	182

TROUBLESHOOTING

Troubleshooting: General.....	185
Engine.....	185
Starter Does Not Operate or Does Not Turn Engine Over.....	185
Engine Turns Over But Does Not Start.....	185
Starts Hard.....	185
Starts But Runs Irregularly or Misses.....	186
A Spark Plug Fouls Repeatedly.....	186

TABLE OF CONTENTS

Pre-ignition or Detonation (Knocks or Pings).....	186
Overheats.....	186
Excessive Vibration.....	186
Engine Oil Not Circulating (Oil Pressure Lamp Lit)....	187
Electrical System.....	187
Alternator Does Not Charge.....	187
Alternator Charge Rate is Below Normal.....	187
Transmission.....	187
Transmission Shifts Hard.....	187
Transmission Jumps Out of Gear.....	187
Clutch Slips.....	187
Clutch Drags or Does Not Release.....	187
Clutch Chatters.....	187
Brakes.....	188
ABS System Behavior.....	188
Brakes Do Not Hold Normally.....	188

WARRANTIES AND RESPONSIBILITIES

Warranty and Maintenance.....	189
Keeping It All Harley-Davidson.....	189
California and Select International Markets Evaporative Emission Controls.....	190
EPA Noise Regulations in the United States.....	190
EPA Regulations.....	190
Warranty/Service Information.....	191
Reporting Safety Defects in the United States.....	191

NHTSA Statement.....	191
Reporting Safety Concerns in Canada.....	192
Required Documentation for Imported Motorcycles.....	192
Owner Contact Information.....	192
Questions and Concerns.....	193

LIMITED MOTORCYCLE WARRANTY

2020 HARLEY-DAVIDSON LIMITED MOTORCYCLE WARRANTY.....	195
24 Months/Unlimited Miles.....	195
Duration.....	196
Owner's Obligations.....	196
Exclusions.....	196
Other Limitations.....	197
Important: Read Carefully.....	198

LIMITED MOTORCYCLE WARRANTY (AUSTRALIA)

2020 AUSTRALIA/NEW ZEALAND HARLEY-DAVIDSON MOTORCYCLE LIMITED WARRANTY.....	199
24 Months/Unlimited Miles.....	199
Your Consumer Rights.....	199
Warranty.....	199
Warranty Period.....	200
Obtaining Warranty Service.....	200
Exclusions.....	200

TABLE OF CONTENTS

Other Limitations.....	201
Important: Read Carefully.....	202

LIMITED NOISE WARRANTY

2020 HARLEY-DAVIDSON MOTORCYCLE NOISE CONTROL SYSTEM LIMITED WARRANTY.....	203
Other Rights.....	204
Recommendations for Required Maintenance.....	204

LIMITED EMISSION WARRANTY

2020 HARLEY-DAVIDSON EMISSION CONTROL SYSTEM LIMITED WARRANTY.....	205
USA Owners 49 State Limited Emissions Warranty....	205
Items Covered by this Emission Warranty.....	206
Other Rights.....	207
Recommendations for Required Maintenance.....	207

CALIFORNIA EMISSIONS CONTROL WARRANTY

California Emissions Control Warranty Statement.....	209
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USA Owners California Limited Emissions Warranty..	209
Your Warranty Rights and Obligations.....	209
Manufacturer's Warranty Coverage.....	209
Owner's Warranty Responsibilities.....	209
Additional Warranty Terms.....	210
What Is Covered by this Emission Warranty.....	211
What Is Not Covered by this Emission Warranty.....	211

SERVICE INTERVALS AND RECORDS

Service Records.....	213
Regular Service Intervals.....	213
Maintenance Records.....	216

APPENDIX

Acronyms and Abbreviations.....	219
H-D U.S.A., LLC Trademark Information.....	220
Product Registered Marks.....	221
Patents.....	221
Copyright.....	221

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/learntoride. 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.

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

CUSTOMER SERVICE ASSISTANCE

Most sales or service issues are resolved at the dealership.

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, contact 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

For customers outside the US, contact your local Harley-Davidson market office, call 1-414-343-4056 or visit harley-davidson.com.

Table 1. Vehicle and Personal Data

PERSONAL INFORMATION	DEALER INFORMATION
Date of Purchase:	
Name:	Name:
Address:	Address:
Address:	Address:
Vehicle Identification Number:	Sales Contact:
Key Number:	Service Contact:

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

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

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)

Harley-Davidson Motorcycles Are for On-Road Use Only

This motorcycle is not equipped with a spark arrester. This motorcycle is designed to be used only on the road. Operation or off-road usage in some areas may be illegal. Obey local laws and regulations.

General

⚠ 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)

- Make sure all equipment required by federal, state and local law is installed and in good operating condition.
- Know and respect the rules of the road. Read the safety information that is provided by your state or regional traffic authority.
- In the United States, read the RIDING TIPS booklet that is provided with this owner's manual. Read the MOTORCYCLE HANDBOOK which is made available by your state or regional traffic authority.
- Protect your motorcycle against theft. Lock the front fork. Remove the key when parking your motorcycle.

⚠ 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)

4 Safety First

Operation

Before operating your new motorcycle, it is your responsibility to read and follow the operating and maintenance instructions in this manual and follow these rules for your personal safety.

- Before starting the engine, review the Pre-Ride Checklist (Page 33).

⚠ 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)

⚠ 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 keep both hands on the handlebar grips at all times 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, rider control error, etc. These forces may influence the handling characteristics of your motorcycle. If this happens, 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.
- New riders should gain experience under various conditions while riding at moderate speeds.
- Operate your motorcycle defensively. In an accident, a motorcycle does not afford the same protection as an automobile.
- It is the rider's responsibility to instruct passengers on proper riding procedures.
- Do not allow other individuals to operate the motorcycle unless they are experienced, licensed riders and are thoroughly familiar with the operation of the motorcycle.

▲ WARNING

Front and/or rear guard(s) can provide limited leg and cosmetic vehicle protection under unique circumstances. (Fall over while stopped, very slow speed slide.) It is not made or intended to provide protection from bodily injury in a collision with another vehicle or any other object. (00022b)

Steering and Handling

▲ 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

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

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

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

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)

Accessories and Cargo

⚠ 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.
- The GVWR is shown on the information label, located on the frame steering head or the frame downtube.
- GAWR is the maximum amount of weight that can be safely carried on each end of the motorcycle.
- For GVWR and GAWR, front and rear. See Specifications (Page 25).
- Keep cargo weight concentrated close to the motorcycle and as low as possible.
- 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 (if equipped).
- Luggage racks (if equipped) are designed for lightweight items. Do not overload racks.
- Make sure cargo is secure. Make sure the cargo will not shift while riding and check the cargo periodically. Accessories that change the operator's riding position may increase reaction time and affect handling of the motorcycle.
- Large surfaces such as fairings, windshields, backrests and luggage racks (if equipped) can adversely affect on stability and handling.

Tires

⚠ 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 50 mph (80 km/h) for the first 24 hours after repair, and the repaired tire should NEVER be used over 80 mph (129 km/h). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

Towing and Trailing

⚠ 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

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

Never tow a trailer.

Fuel and Exhaust

⚠ 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)

⚠ WARNING

Avoid spills. Slowly remove 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. (00028a)

- Refuel in a well-ventilated area with the engine off.
- Remove the fuel filler cap slowly.
- Do not fill fuel tank above the bottom of the filler neck insert. Leave air space to allow for fuel expansion.
- If fuel tank was completely drained, add at least 1 gal (3.79 L) of gas.

⚠ 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)

⚠ 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

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

Brakes

⚠ 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

Apply front and rear brakes evenly. Favoring one brake accelerates wear and reduces braking efficiency. Operation with excessively worn brakes can lead to brake failure, which could result in death or serious injury. (00135a)

⚠ 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. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at sds.harley-davidson.com

(00240d)

⚠ WARNING

DOT 4 brake fluid absorbs moisture from the atmosphere over time, changing the properties of the fluid. Check brake fluid moisture content at every service interval or annually (whichever comes first). Flush and replace the brake fluid every two years, or sooner if moisture content is 3% or greater. Failure to flush and replace fluid can adversely affect braking, which could result in death or serious injury. (06304b)

To ensure the brake system is performing to design, check the moisture content of the brake fluid at every service interval or at least annually using a DOT 4 brake fluid moisture tester (part number HD-48497-A or equivalent) following the instructions included with the tool. Flush DOT 4 fluid every 2 years or sooner if the brake system fluid test shows moisture content is 3% or greater.

Harley-Davidson recommends using Harley-Davidson Platinum Label DOT 4 Brake Fluid because of its superior moisture and corrosion inhibiting properties

Battery

⚠ 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

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)

NOTICE

It is possible to overload your 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. See an authorized Harley-Davidson dealer for advice about the amount of current consumed by additional electrical accessories or for necessary wiring changes. (00211c)

Hazardous Materials

⚠ 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)

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)

- A new motorcycle must be operated according to the special break-in procedure. See Break-in Riding Rules (Page 34).
- Proper care and maintenance, including tire pressure, tire condition, tread depth and proper adjustment to steering head bearings are important to stability and safe operation of the motorcycle. See Service Records (Page 213).

Parts and Accessories

⚠ 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)

- Use only Harley-Davidson approved parts and accessories. Use of certain other manufacturer's performance parts will void your new motorcycle warranty. See your Harley-Davidson dealer for details.

⚠ 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

See the Accessories and Cargo 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. (00021b)

- 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 of the motorcycle when installing accessories or carrying additional weight.
- Additional electrical equipment may overload the electrical system possibly resulting in electrical system and/or component failure.

ANTI-LOCK BRAKE SYSTEM (ABS)

⚠ WARNING

If ABS lamp continues flashing at speeds greater than 3 mph (5 km/h) 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 Brake System (Page 96).

RULES OF THE ROAD

- Always sound your horn, 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 100 ft (30.5 m) 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.

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 for safety and maintenance labels which were on the vehicle when new. Refer to Table 2.

NOTE

Replacement labels can be purchased for your motorcycle. See a Harley-Davidson dealer. Some labels are available in different languages for destinations outside the United States.

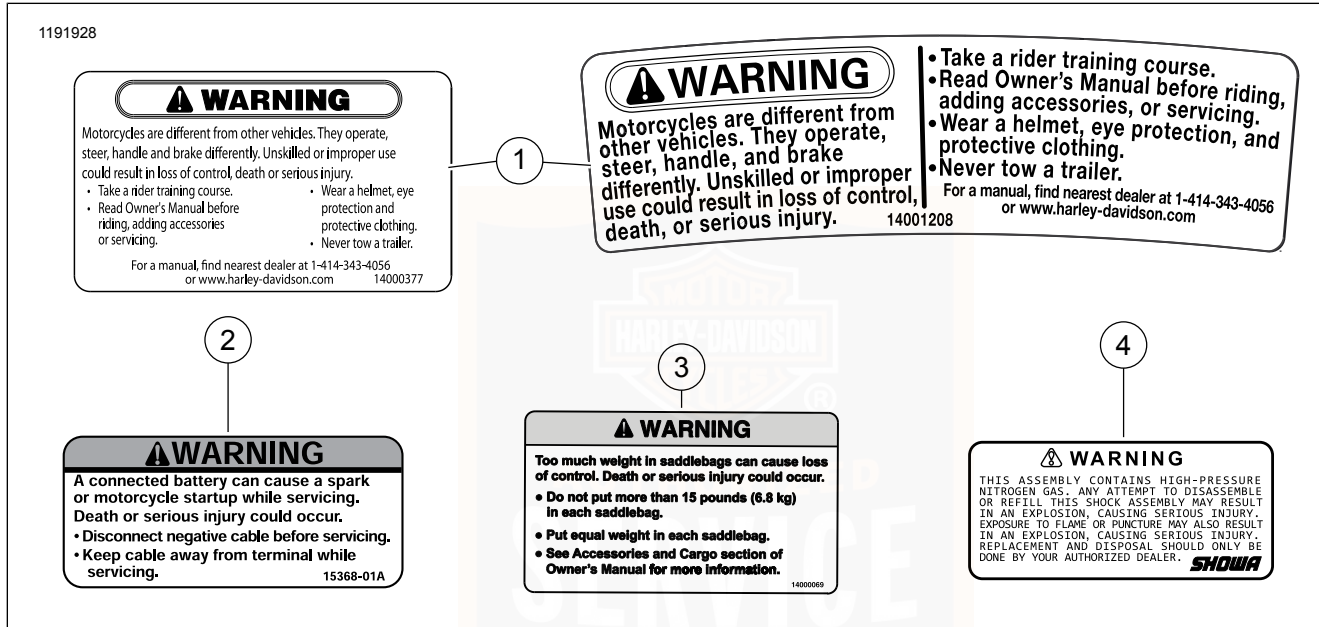


Figure 1. Labels

Table 2. Labels

ITEM	PART NO.	DESCRIPTION	LOCATION	TEXT
1	14001167	General warning Deluxe (FLDE), Low Rider (FXLR)	Top of air cleaner 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. <p>For a manual, find nearest dealer at 1-414-343-4056 or www.harley-davidson.com</p>
	14001208	Heritage Classic (FLHC), Softail Slim (FLSL), Sport Glide (FLSB), Street Bob (FXBB), Softail Standard (FXST)		
	28012-09	Fat Boy 114 (FLFBS), Breakout 114 (FXBRS)		
	14000377	Heritage Classic 114 (FL- HCS), Fat Bob 114 (FXFBS), FXDR 114 (FXDRS), Low Rider S (FXLRS), Fat Boy 114 ANV (FLFBSANV)		
2	15368-01A	Battery warning	On battery strap	<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.

Table 2. Labels

ITEM	PART NO.	DESCRIPTION	LOCATION	TEXT
3	14000069	Saddlebag load limit	Inside saddlebag (equipped models)	<p>WARNING: Too much weight in saddlebags can cause loss of control. Death or serious injury could occur.</p> <ul style="list-style-type: none">• Do not put more than 15 pounds in each saddlebag.• Put equal weight in each saddlebag.• See Accessories and Cargo section of Owner's Manual for more information.
4	Not sold separately	Shock absorber label	On shock absorber	<p>WARNING: This assembly contains high-pressure nitrogen gas. Any attempt to disassemble or refill this shock assembly may result in an explosion, causing serious injury. Exposure to flame or puncture may also result in an explosion, causing serious injury. Replacement and disposal should only be done by your authorized dealer.</p>

VEHICLE IDENTIFICATION NUMBER (VIN)

General

See Figure 3. A unique 17-digit serial or Vehicle Identification Number (VIN) is assigned to each motorcycle. Refer to Table 3.

Location

See Figure 2. The full 17-digit VIN is stamped on the right side of the frame near the steering head. In some destinations, a printed VIN label is also attached on the front downtube.

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 between the engine cylinders.

NOTE

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

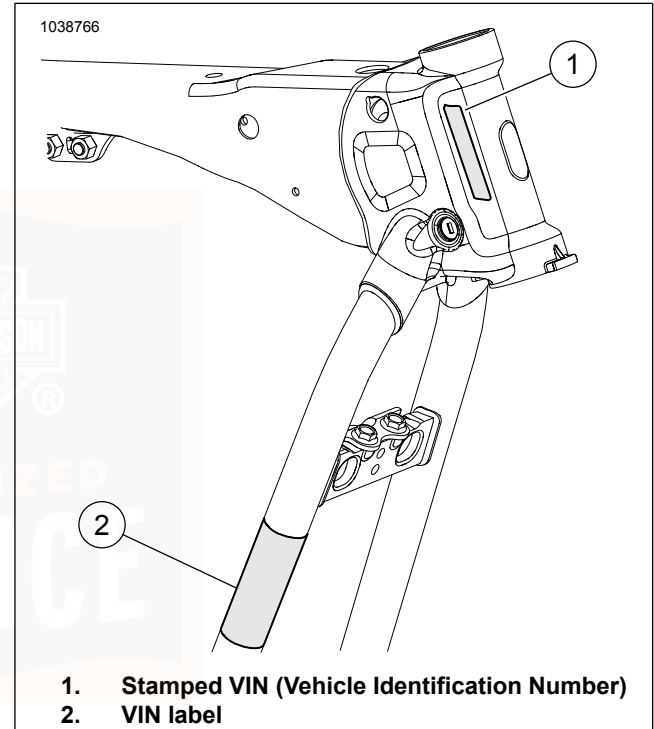


Figure 2. VIN Locations

1324213

1 **H** **D** **1** **Y** **C** **J** **1** **3** **L** **B** **1** **1** **1** **0** **0** **0**

Figure 3. Typical Harley-Davidson VIN: 2020 Softail Models

Table 3. Harley-Davidson VIN Breakdown: 2020 Softail 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 MLY=Originally manufactured in Thailand
2	Motorcycle type	1=Heavyweight motorcycle (901 cm ³ or larger)
3	Model	See VIN model table
4	Engine type	J=Milwaukee Eight™ 107 (1753 cm ³) air-cooled, fuel-injected, balanced K=Milwaukee Eight™ 114 (1868 cm ³) air-cooled, fuel-injected, balanced

Table 3. Harley-Davidson VIN Breakdown: 2020 Softail Models

POSITION	DESCRIPTION	POSSIBLE VALUES
5	Calibration/configuration, introduction	1=Domestic (DOM) 2=California (CAL) 3=Canada (CAN) 4=ENG, EN2, HDI, HD2, HD4 5=Japan (JPN) 6=Australia (AUS) 7=Brazil (BRZ) 8=Asia Pacific (APC) 9=India (IND/IN2) 0=ASEAN (AZN) A=China (CHN) G=HD3
6	VIN check digit	Can be 0-9 or X
7	Model year	L=2020
8	Assembly plant	B=York, PA U.S.A. D=H-D Brazil-Manaus, Brazil (CKD) N=Haryana India (Bawal District Rewari) S=Tasit, Pluagdang, Rayong, Thailand
9	Sequential number	Varies

Table 4. VIN Model Codes: Softail Models

CODE	MODEL	CODE	MODEL
BV	FXST Softail® Standard	YJ	FXBB Street Bob®
YA	FLHC Heritage Classic	YK	FXFB Fat Bob®
YB	FLHCS Heritage Classic 114	YL	FXFBS Fat Bob® 114
YC	FLDE Deluxe	YM	FLSB Sport Glide®
YD	FLSL Softail® Slim™	YN	FXLR Low Rider®
YF	FLFB Fat Boy®	YR	FLFBS ANV Fat Boy® 114 30 th Anniversary Limited Edition
YG	FLFBS Fat Boy® 114	YV	FXDRS FXDR114®
YH	FXBRS Breakout® 114	YW	FXLRS Low Rider® S

MODELS AND FEATURES

Some models, features or configurations shown in this manual may not be available in all markets.

PRIMARY CONTROLS AND SERVICE COMPONENTS

Familiarize yourself with the location of all the controls and service components on your motorcycle.

NOTE

Illustrations are for general reference only. Controls and service components shown are general locations and representations that do not show a specific model of motorcycle.

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

See Figure 4 for rider controls and service components accessible when seated.

See Figure 5 for rider controls and service components accessible from the right.

See Figure 6 for rider controls and service components accessible from the left.

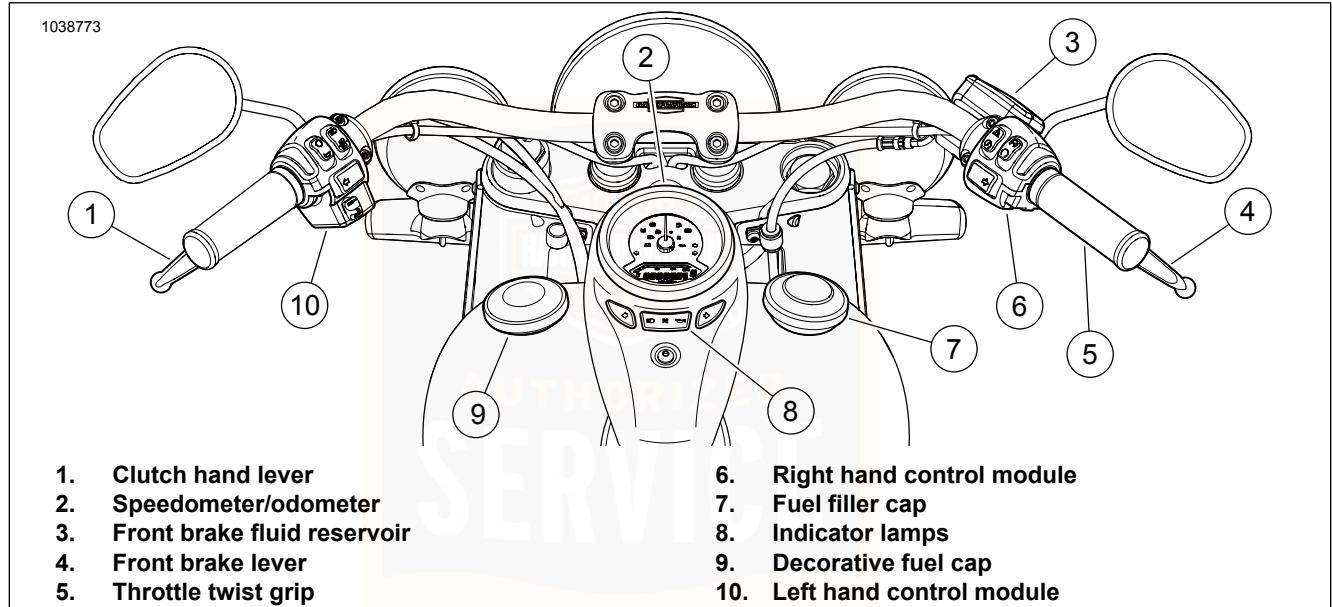
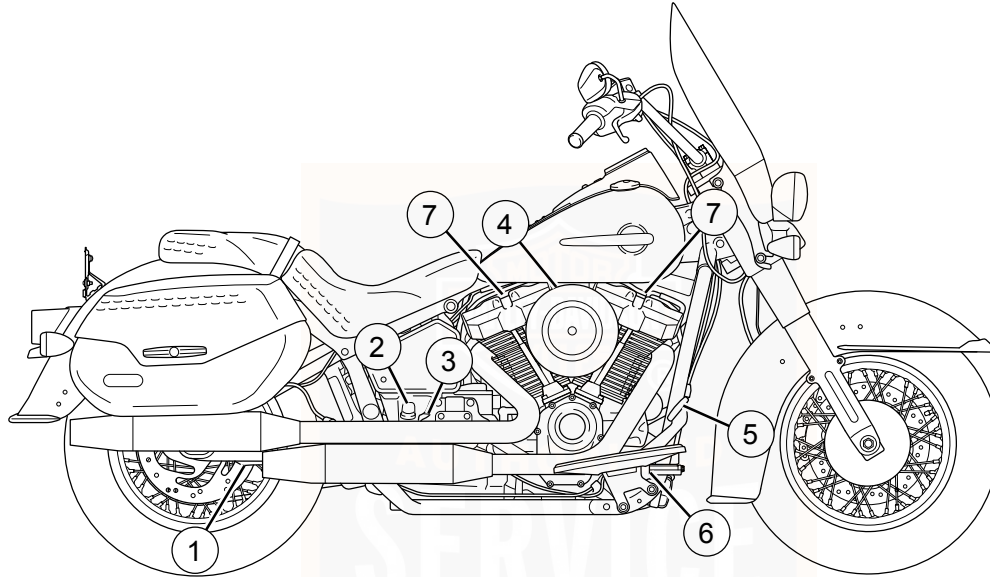
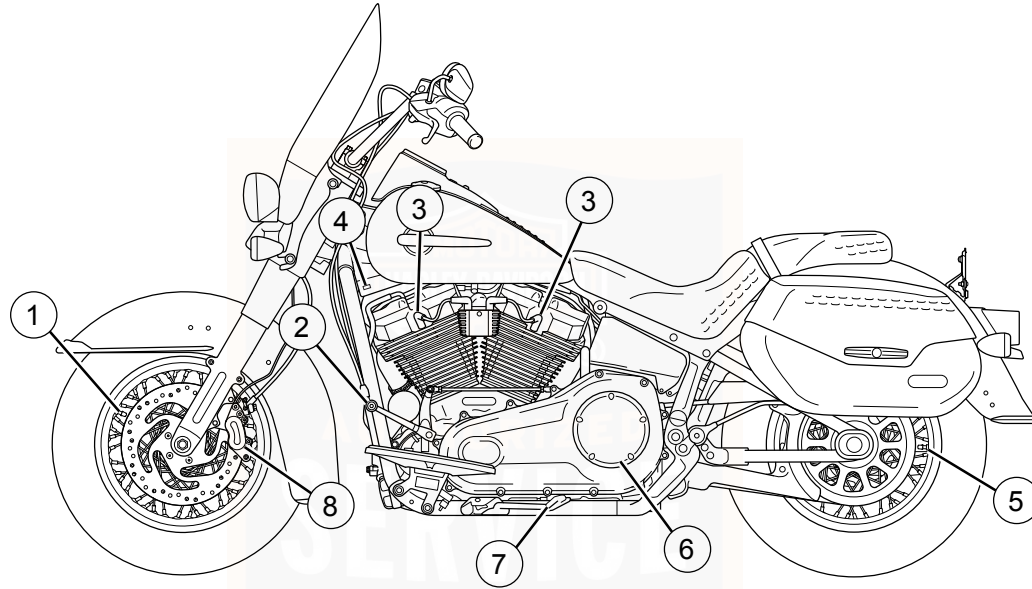


Figure 4. Controls and Service Components (Typical)



- | | |
|-----------------------------|-------------------------------|
| 1. Rear brake caliper | 5. Rear brake pedal |
| 2. Oil filler cap/dipstick | 6. Rear brake fluid reservoir |
| 3. Transmission filler plug | 7. Spark plug |
| 4. Air cleaner | |

Figure 5. Controls and Service Components (typical)



1. Air pressure valve
2. Gear shift lever
3. Spark plug
4. USB port (if equipped)

5. Air pressure valve
6. Clutch cover
7. Jiffy stand
8. Front brake caliper

Figure 6. Controls and Service Components (typical)

NOTES



SPECIFICATIONS

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 motorcycle differences. Customers seeking officially recognized regulatory specifications for their motorcycle should refer to certification documents and/or contact their respective dealer or distributor.

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

Tires

Table 5. Specified Tires

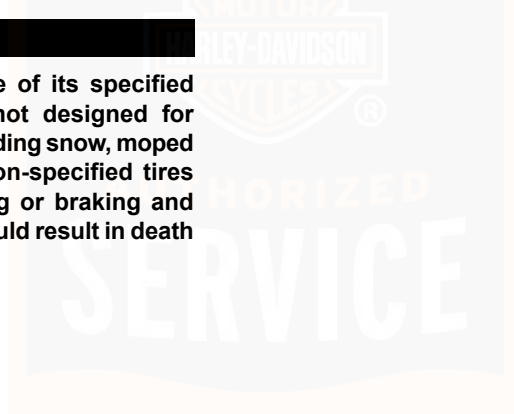
MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE (COLD 68.0 °F (20 °C))	
				psi	kPa
FLDE	front	16 in	Dunlop D402F MT90B16 72H WW	36	248
FLFB, FLFBS, FLFBSANV	front	18 in	Michelin Scorcher 11 160/60R18 70V BW	36	248
FLHC/S, FLSL	front	16 in	Dunlop D401F 130/90B16 73H BW	36	248
FXBB, FXST	front	19 in	Dunlop D401F 100/90B19 57H BW	36	248
FXBRS	front	21 in	Michelin Scorcher 11 130/60B21 63H BW	36	248
FXFB/S	front	16 in	Dunlop D429F 150/80B16 71H BW	36	248
FXLR/S	front	19 in	Michelin Scorcher 31 110/90B19 62H BW	32	221
FLSB	front	18 in	Michelin Scorcher 31 130/70B18 63H BW	36	248
FXDRS	front	19 in	Michelin Scorcher 11 120/70ZR19 60W	36	248
FLDE	rear	16 in	Dunlop D402 MU85B16 77H WW	40	276

Table 5. Specified Tires

MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE (COLD 68.0 °F (20 °C))	
				psi	kPa
FLFB/S/ANV, FXBRS, FXDRS	rear	18 in	Michelin Scorcher 11 240/40R18 79V BW	42	290
FLHC/S, FLSL, FXBB, FXST	rear	16 in	Dunlop D401T 150/80B16 77H BW	40	276
FXFB/S	rear	16 in	Dunlop 180/70B16 77H BW	40	276
FLSB, FXLR/S	rear	16 in	Michelin Scorcher 31 180/70B16 77H BW	40	276

▲ 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)



Weights and Dimensions

Table 6. Weights: FL Models

Item	Deluxe (FLDE)	Fat Boy® (FLFB), Fat Boy® 114 (FLFBS), Fat Boy® 114 (FLFBS ANV)	Heritage Classic (FLHC) Heritage Classic 114 (FLHCS)	Softail® Slim™ (FLSL)	Sport Glide™ (FLSB)
Running weight ⁽¹⁾	697 lb (316 kg)	699 lb (317 kg)	728 lb (330 kg)	670 lb (304 kg)	699 lb (317 kg)
Maximum added weight allowed ⁽²⁾	463 lb (210 kg)	476 lb (216 kg)	432 lb (196 kg)	489 lb (222 kg)	461 lb (209 kg)
GVWR	1,160 lb (526 kg)	1,175 lb (533 kg)	1,160 lb (526 kg)	1,160 lb (526 kg)	1,160 lb (526 kg)
GAWR front	450 lb (204 kg)	450 lb (204 kg)	450 lb (204 kg)	450 lb (204 kg)	450 lb (204 kg)
GAWR rear	730 lb (331 kg)	761 lb (345 kg)	730 lb (331 kg)	730 lb (331 kg)	730 lb (331 kg)
<i>(1) The total weight of the motorcycle as delivered with all oil/fluids and approximately 90% of fuel.</i>					
<i>(2) The total weight of accessories, cargo, riding gear, passenger and rider must not exceed this weight.</i>					

Table 7. Weights: FX Models

Item	Street Bob® (FXBB) Softail® Standard (FXST)	Breakout® 114 (FXBRS)	Fat Bob™ (FXFB)	Fat Bob™ 114 (FXFBS)	Low Rider® (FXLR)	Low Rider® S (FXLRS)	FXDR 114 (FXDRS)
Running weight ⁽¹⁾	655 lb (297 kg)	672 lb (305 kg)	672 lb (305 kg)	675 lb (306 kg)	661 lb (300 kg)	679 lb (308 kg)	668 lb (303 kg)
Maximum added weight allowed ⁽²⁾	505 lb (229 kg)	503 lb (228 kg)	487 lb (221 kg)	485 lb (220 kg)	498 lb (226 kg)	481 lb (218 kg)	507 lb (230 kg)
GVWR	1,160 lb (526 kg)	1,175 lb (533 kg)	1,160 lb (526 kg)		1,160 lb (526 kg)		1,175 lb (533 kg)
GAWR front	450 lb (204 kg)	450 lb (204 kg)	450 lb (204 kg)		450 lb (204 kg)		450 lb (204 kg)
GAWR rear	730 lb (331 kg)	760 lb (345 kg)	730 lb (331 kg)		730 lb (331 kg)		760 lb (345 kg)
<p><i>(1) The total weight of the motorcycle as delivered with all oil/fluids and approximately 90% of fuel.</i></p> <p><i>(2) The total weight of accessories, cargo, riding gear, passenger and rider must not exceed this weight.</i></p>							

Table 8. Dimensions: FL Models

Item	Deluxe (FLDE)	Fat Boy® (FLFB, FLFBS, FLFBS ANV)	Heritage Classic (FLHC), Heritage Classic 114 (FL-HCS)	Softail® Slim™ (FLSL)	Sport Glide™ (FLSB)
Length	95.1 in (2,415 mm)	93.3 in (2,370 mm)	95.1 in (2,415 mm)	90.9 in (2,310 mm)	91.5 in (2,325 mm)
Overall width	37.6 in (955 mm)	38.8 in (985 mm)	36.6 in (930 mm)	38.2 in (970 mm)	37.8 in (960 mm)
Overall height	44.3 in (1,125 mm)	43.1 in (1,095 mm)	53.9 in (1,370 mm)	43.1 in (1,095 mm)	44.1 in (1,120 mm)
Wheelbase	64.2 in (1,630 mm)	65.6 in (1,665 mm)	64.2 in (1,630 mm)	64.2 in (1,630 mm)	64.0 in (1,625 mm)
Road clearance	4.5 in (115 mm)	4.5 in (115 mm)	4.7 in (120 mm)	4.7 in (120 mm)	4.7 in (120 mm)
Seat height ⁽¹⁾	25.9 in (658 mm)	25.9 in (658 mm)	26.3 in (668 mm)	25.5 in (648 mm)	25.7 in (653 mm)
<i>(1) With 180 lb (81.6 kg) rider on seat</i>					

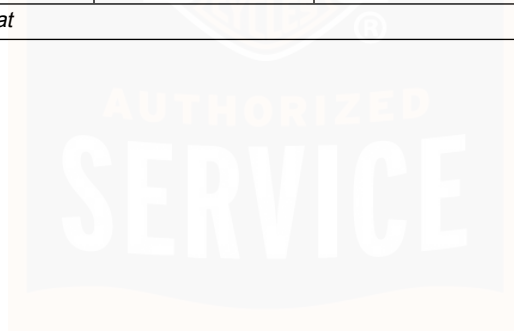


Table 9. Dimensions: FX Models

Item	Street Bob® (FXBB) Softail® Stand- ard (FXST)	Breakout® 114 (FXBRS)	Fat Bob™ (FXFB) Fat Bob™ 114 (FXFBS)	Low Rider® (FXLR)	Low Rider®S (FXLRS)	FXDR 114 (FXDRS)
Length	91.3 in (2,320 mm)	93.3 in (2,370 mm)	92.1 in (2,340 mm)	92.7 in (2,355 mm)	92.7 in (2,355 mm)	95.5 in (2,425 mm)
Overall width	34.1 in (865 mm)	37.4 in (950 mm)	37.8 in (960 mm)	38.0 in (965 mm)	33.5 in (850 mm)	36.4 in (925 mm)
Overall height	45.7 in (1,160 mm)	41.9 in (1,065 mm)	43.7 in (1,110 mm)	45.5 in (1,155 mm)	45.7 in (1,160 mm)	42.7 in (1,085 mm)
Wheelbase	64.2 in (1,630 mm)	66.7 in (1,695 mm)	63.6 in (1,615 mm)	64.2 in (1,630 mm)	63.6 in (1,615 mm)	68.3 in (1,735 mm)
Road clearance	4.9 in (125 mm)	4.5 in (115 mm)	4.7 in (120 mm)	5.1 in (130 mm)	4.7 in (120 mm)	5.5 in (140 mm)
Seat height ⁽¹⁾	25.8 in (655 mm)	25.6 in (650 mm)	27.7 in (704 mm)	26.2 in (665 mm)	26.5 in (673 mm)	27.7 in (704 mm)
<i>(1) With 180 lb (81.6 kg) rider on seat</i>						

Capacities

Table 10. Capacities

ITEM		U.S.	L
Fuel tank (total)	Softail Slim (FLSL), Sport Glide (FLSB), Deluxe (FLDE), Fat Boy (FLFB, FLFBS, FLFBS ANV), Heritage Classic (FLHC, FLHCS), Low Rider (FXLR, FXLRS)	5.0 gal	18.9
	Breakout 114 (FXBRS), Street Bob (FXBB), Fat Bob (FXFB, FXFBS), Softail Standard (FXST)	3.5 gal	13.25
	FXDR 114 (FXDRS)	4.4 gal	16.7
Low fuel warning light on ⁽¹⁾	All except FXDR 114 (FXDRS)	1.0 gal	3.8
	FXDR 114 (FXDRS)	1.4 gal	5.3
Oil tank with filter ⁽²⁾		5.0 qt	4.73
Transmission (approximate) ⁽³⁾		1.0 qt	0.95
Primary chaincase (approximate) ⁽⁴⁾	Deluxe (FLDE), Heritage Classic (FLHC, FLHCS), Sport Glide (FLSB), Softail Slim (FLSL), Street Bob (FXBB), Fat Bob 114 (FXFBS), Low Rider (FXLR), Low Rider S (FXLRS), Softail Standard (FXST)	1.25 qt	1.18
	Fat Boy (FLFB, FLFBS, FLFBS ANV), Breakout 114 (FXBRS), FXDR 114 (FXDRS)	1.43 qt	1.35
<p>(1) When refilling from empty, add at least 3.8 L (1.0 gal).</p> <p>(2) When refilling, initially add 3.78 L (4.0 qt) and add as needed to bring level within specification.</p> <p>(3) When refilling, initially add 0.83 L (28 oz) and add as needed to bring level within specification.</p> <p>(4) When refilling, initially add 1.06 L (36 oz) and add as needed to bring level within specification.</p>			

Engine and Transmission

Table 11. Engine: Milwaukee-Eight™ 107 Engine

ITEM	SPECIFICATION	
Number of cylinders	2	
Type	4-cycle, 45 degree V-Type, oil-cooled Single camshaft Dual balance shafts	
Compression ratio	10.0:1	
Bore	3.937 in	100 mm
Stroke	4.375 in	111.1 mm
Displacement	107 in ³	1746 cm ³
Fuel requirement	Premium unleaded	
Lubrication system	Pressurized, dry sump with oil cooler	

Table 12. Engine: Milwaukee-Eight™ 114 Engine

ITEM	SPECIFICATION	
Number of cylinders	2	
Type	4-cycle, 45 degree V-Type, oil-cooled Single camshaft Dual balance shafts	
Compression ratio	10.5:1	
Bore	4.016 in	102 mm
Stroke	4.500 in	114.3 mm

Table 12. Engine: Milwaukee-Eight™ 114 Engine

ITEM	SPECIFICATION	
Displacement	114 in ³	1868 cm ³
Fuel requirement	Premium unleaded	
Lubrication system	Pressurized, dry sump with oil cooler	

Table 13. Transmission

TRANSMISSION	SPECIFICATION
Type	Constant mesh, foot shift
Speeds	6 forward

Electrical

Table 14. Electrical

ITEM	SPECIFICATION
Ignition timing	Not adjustable
Battery	12 V, 17.5 Ah, 315 CCA sealed and maintenance free
Charging system	40–44 A maximum output
Spark plug size	10 mm
Spark plug gap	0.03–0.04 in (0.8–0.9 mm)
Spark plug torque	89–133 in-lbs (10–15 N·m)

REMOVING MOTORCYCLE FROM STORAGE

1. Charge and install the battery. See Battery Maintenance (Page 162).
2. Inspect spark plugs. See Replacing Spark Plugs (Page 159).
3. Inspect air filter and replace if necessary. See Inspecting Air Filter (Page 154).
4. Inspect drive belt and sprocket. See Check Drive Belt Deflection (Page 149).
5. Perform the items in the Pre-Ride Checklist (Page 33).

PRE-RIDE CHECKLIST

1. Check the amount of fuel in the tank. Add fuel if required. See Filling the Fuel Tank (Page 34).
2. Adjust mirrors to proper riding positions. See Adjusting Mirrors (Page 47).
3. Check the engine oil level. See Check Engine Oil Level (Page 134).
4. Check brake fluid level. See Checking Brake Fluid Level and Changing Brake Fluid (Page 147).

5. Inspect brake pads and discs for wear. See Inspecting Brake Pads and Discs (Page 145).
6. Check the hand and foot controls to be sure they are operating properly. Operate the front and rear brakes, throttle, clutch and shifter. See Operation (Page 71).
7. Inspect brake lines for wear or damage.
8. Check steering for smoothness by turning the handlebar 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)

9. Check tire condition, pressure and motorcycle loading. Refer to Checking Tire Pressure and Inspecting Tires (Page 41) for correct tire inflation pressure and motorcycle weight allowances.

10. Check rear shock settings. Adjust if necessary. See Adjusting Shock Absorbers (Page 48).
11. Check for any fuel, oil or hydraulic fluid leaks.
12. Check drive belt for wear or damage.

▲ 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)

13. Check all electrical equipment and switches including the stop lamp, turn signals and horn for proper operation.
14. Service your motorcycle as necessary.

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 500 mi (800 km).

1. During the first 50 mi (80 km) of riding, keep the engine speed below 3000 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 (800 km), vary the engine speed and avoid operating at any steady engine speed for long periods. Engine speed up to 3500 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. Break-in new brakes with moderate use for the first 100 mi (160 km).

FILLING THE FUEL TANK

See Safe Operating Rules (Page 3) and review the following safety alerts.

⚠ WARNING

Avoid spills. Slowly remove 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. (00028a)

⚠ 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

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

Do not use aftermarket fuel caps. Aftermarket fuel caps may fit improperly and leak, which could lead to death or serious injury. See a Harley-Davidson dealer for approved fuel caps. (00034a)

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)

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

FUEL FILLER CAP

Removal

NOTE

See Figure 7. Decorative fuel cap (1) is only to be removed if needed for cleaning the motorcycle.

Press down and then turn counterclockwise to remove. Properly align decorative cap and press down then turn clockwise to install.

See Figure 7. Turn fuel filler cap (2) counterclockwise to remove. The cap turns approximately three-quarters of a turn before it begins to loosen.

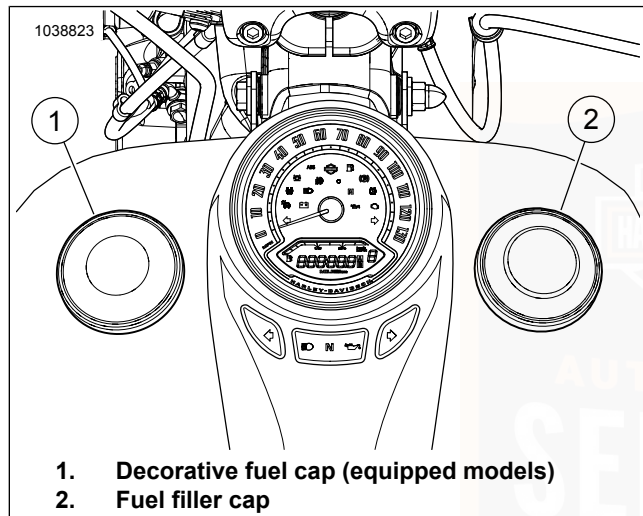


Figure 7. Fuel Tank

Filling

See Figure 8. Do not overfill the fuel tank. Insert the pump nozzle into the filler hole. Do not fill the tank beyond the bottom of the filler neck. A warm engine, the sun or extreme

temperatures can cause the fuel to expand. Fuel can spill out of the tank and damage the finish. See Safe Operating Rules (Page 3).

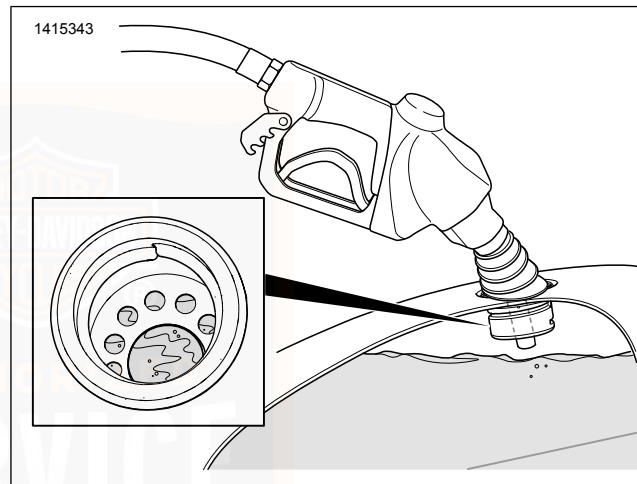


Figure 8. Fuel Level below Filler Neck

Installation

Turn fuel filler cap clockwise until it clicks to install. The ratchet action of the cap prevents over-tightening.

LOCKING FUEL FILLER CAP

Replacement Keys

Find the four-digit key number stamped on the back of the key opposite the H-D logo. Write the key number in the space provided at the front of this manual. With that number, your Harley-Davidson dealer can order a replacement.

Removal

1. See Figure 9. Rotate the lock cover to access the key lock.
2. Insert the key.
3. Hold the fuel filler cap in place. Turn the key counterclockwise until it stops.
4. Turn key back to its original position. Remove the key.
5. Turn cap counterclockwise until resistance is felt. Continue to turn cap counterclockwise to remove cap.

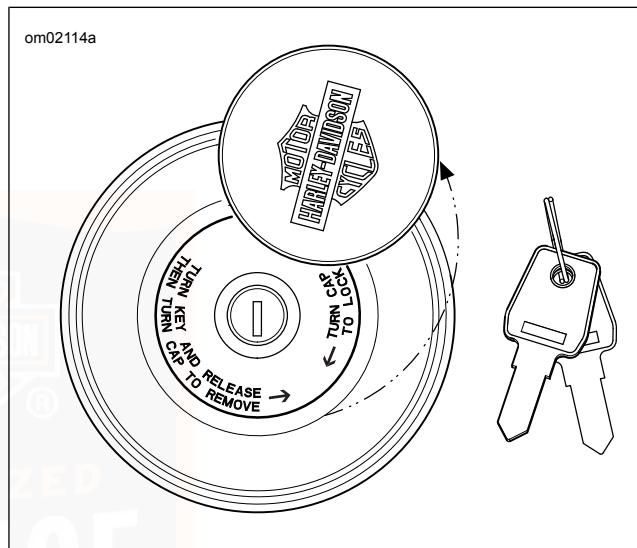


Figure 9. Locking Fuel Filler Cap

Installation

1. Insert the key into the lock.
2. To make sure that the cap is unlocked, firmly, hold the cap. Turn the key counterclockwise until it stops.
3. Allow the key to return to a neutral position. Remove the key.

NOTE

When installing the fuel cap, rotate the cap one full turn past the audible click.

4. Turn the cap clockwise to install the fuel cap.
5. Close the lock cover.

FUEL SYSTEM INFORMATION

Gasoline

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)

NOTICE

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

- ETHANOL fuel is a mixture of ethanol (grain alcohol) and unleaded gasoline and can have an impact on fuel mileage.
- 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 reduce evaporative losses to the environment. 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.
- 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.

Table 15. Octane Rating

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

Table 16. Fuel Specification

Common Identifier	Specification	Rating
MTBE	Methyl Tertiary Butyl Ether	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.
Methanol	Methanol or Racing Fuel	Do not use racing fuel or fuel containing methanol; use of these fuels will damage the fuel system.
E5	5 Percent Ethanol	Fuels with an ethanol content of up to 5 percent (E5) may be used in your motorcycle without affecting vehicle performance.
E10	10 Percent Ethanol	Fuels with an ethanol content of up to 10 percent (E10) may be used in your motorcycle without affecting vehicle performance. United States customers: The United States' Clean Air Act prohibits the use of gasoline blends containing greater than 10% ethanol in motorcycles.
	22 Percent Ethanol	Fuel in the Brazilian market has ethanol content which ranges from 21-27.5%. H-D Motorcycles configured for Brazil are equipped with engine control calibrations developed to work properly with these fuels. Use of fuels with high ethanol content in H-D motorcycles intended for other regulatory markets may result in poor drivability, setting of the check engine light and potential engine damage.
E85	85 Percent Ethanol	Do not use fuel containing 85 percent ethanol. Use of these fuels will damage the fuel system and may lead to engine damage.

Catalytic Converter

Vehicles in some markets are equipped with catalytic converters.

NOTICE

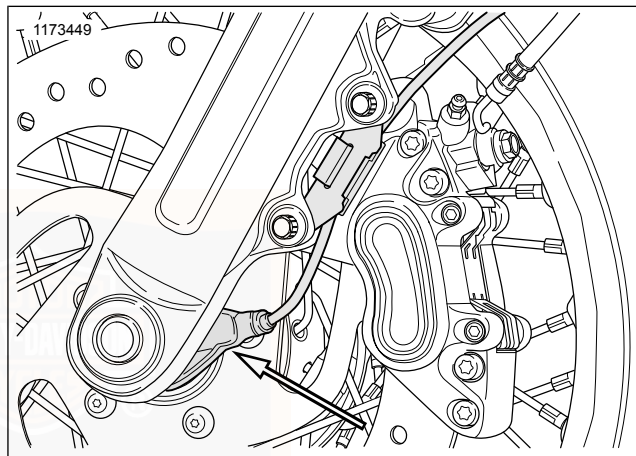
Do not operate catalytic converter-equipped vehicle with engine misfire. If you operate the vehicle under this condition, the exhaust will become abnormally hot, which can cause vehicle damage, including emission control loss. (00149c)

ABS BRAKE SYSTEM IDENTIFICATION

Identification

See Figure 10 or Figure 11. Models with the ABS option can be identified by a wheel speed sensor on the left side of the front wheel.

See Figure 12. Models with ABS will also have an ABS module (EHCU).



**Figure 10. Wheel Speed Sensor (ABS identification)
(standard fork)**

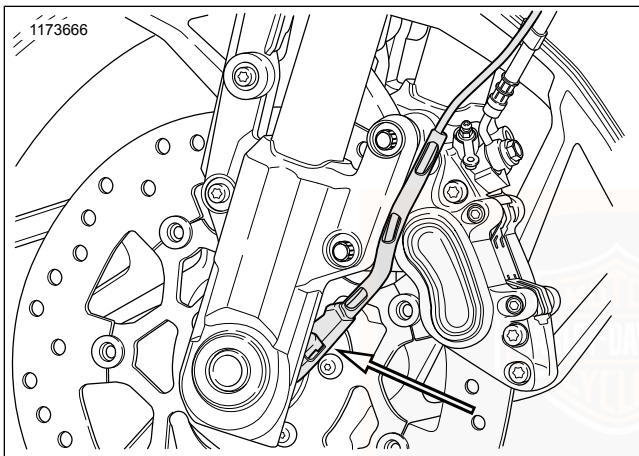


Figure 11. Wheel Speed Sensor (ABS identification) (inverted fork)

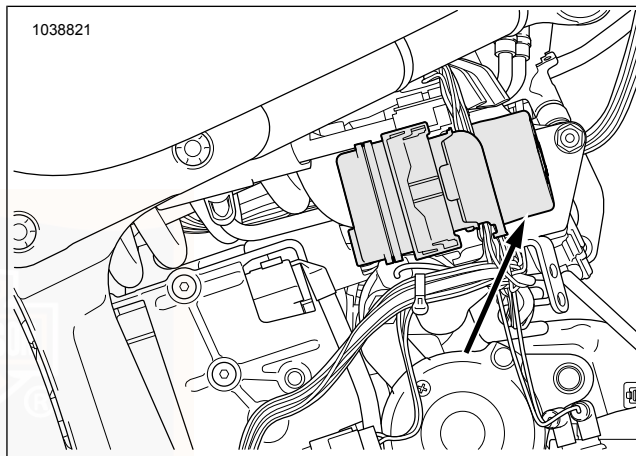


Figure 12. ABS Module (located behind right side cover)

CHECKING TIRE PRESSURE AND INSPECTING TIRES

General Information

▲ 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)

Before Riding 41

⚠ 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)

Tire Pressure

⚠ 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)

Tire pressures should be set using information in Table 17 and Table 18. Tires are considered Cold Tires if the vehicle has not been recently ridden. The tire pressure increases as the tire warms. Tires can warm due to both riding and high ambient air temperatures. Tires can remain warm for up to 2 hours after riding. For the most accurate reading, check tire pressures with a good gauge before riding while the tires are cold.

Check tire pressure:

- As part of the pre-ride checklist.
- At every scheduled service interval.

For Cold Tires with an Ambient Air Temp of 68 °F (20 °C) or less: Refer to Table 17.

Table 17. Specified Tires

MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE (COLD 68.0 °F (20 °C))	
				psi	kPa
FLDE	front	16 in	Dunlop D402F MT90B16 72H WW	36	248
FLFB, FLFBS, FLFBSANV	front	18 in	Michelin Scorcher 11 160/60R18 70V BW	36	248
FLHC/S, FLSL	front	16 in	Dunlop D401F 130/90B16 73H BW	36	248
FXBB, FXST	front	19 in	Dunlop D401F 100/90B19 57H BW	36	248
FXBRS	front	21 in	Michelin Scorcher 11 130/60B21 63H BW	36	248
FXFB/S	front	16 in	Dunlop D429F 150/80B16 71H BW	36	248

Table 17. Specified Tires

MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE (COLD 68.0 °F (20 °C))	
				psi	kPa
FXLR/S	front	19 in	Michelin Scorcher 31 110/90B19 62H BW	32	221
FLSB	front	18 in	Michelin Scorcher 31 130/70B18 63H BW	36	248
FXDRS	front	19 in	Michelin Scorcher 11 120/70ZR19 60W	36	248
FLDE	rear	16 in	Dunlop D402 MU85B16 77H WW	40	276
FLFB/S/ANV, FXBRS, FXDRS	rear	18 in	Michelin Scorcher 11 240/40R18 79V BW	42	290
FLHC/S, FLSL, FXBB, FXST	rear	16 in	Dunlop D401T 150/80B16 77H BW	40	276
FXFB/S	rear	16 in	Dunlop 180/70B16 77H BW	40	276
FLSB, FXLR/S	rear	16 in	Michelin Scorcher 31 180/70B16 77H BW	40	276

For Cold Tires with an Ambient Air Temp higher than 68 °F (20 °C): Refer to the first column in Table 18 to determine the tire pressure adjustments. For example: If the motorcycle has not been ridden for 2 hours or more and the ambient temperature is 88 °F (31 °C), the recommended front and rear pressures are Table 17 pressures plus 2 psi (14 kPa).

Tires warm due to riding which increases the tire pressure. If the vehicle has been recently ridden, refer to the second column in Table 18 to determine the tire pressure adjustment. For example: If the motorcycle has been recently ridden and

the ambient temperature is 88 °F (31 °C), the recommended front and rear pressures are the Table 17 pressures plus 7 psi (48 kPa).

If a tire pressure adjustment is made when the vehicle has been recently ridden, re-adjust the tire pressure per recommendations when the tires have cooled. Tires can remain warm for up to 2 hours after riding.

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

Table 18. Tire Pressure Adjustment

AMBIENT AIR TEMPERATURE	MOTORCYCLE NOT RIDDEN FOR 2 HOURS OR MORE: ADD TO FRONT AND REAR PRESSURES IN TABLE 1	MOTORCYCLE RECENTLY RIDDEN: ADD TO FRONT AND REAR PRESSURES IN TABLE 1
68 °F (20 °C) or less	0 psi (0 kPa)	5 psi (34 kPa)
79 °F (26 °C)	1 psi (7 kPa)	6 psi (41 kPa)
88 °F (31 °C)	2 psi (14 kPa)	7 psi (48 kPa)
99 °F (37 °C)	3 psi (21 kPa)	8 psi (55 kPa)
108 °F (42 °C) or higher	4 psi (28 kPa)	9 psi (62 kPa)

Inspecting Tires

▲ WARNING

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

Check tire tread:

- As part of the pre-ride checklist.
- At every scheduled service interval.

1. Inspect each tire for punctures, cuts and breaks.

Harley-Davidson tires are equipped with wear bars that run horizontally across the tread.

A tire is considered worn when the wear bars are visible or if only 0.031 in (0.8 mm) tread depth remains. A worn tire can:

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

See Figure 13, Figure 14 and Figure 15. Always replace tires before the tread wear bars appear.

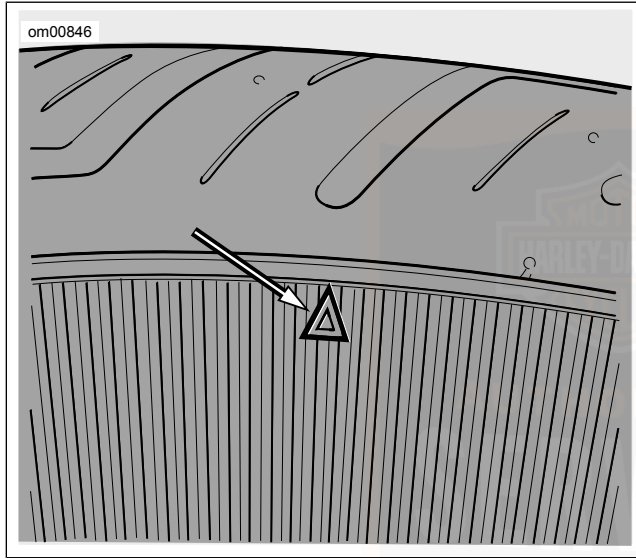


Figure 13. Dunlop Sidewall Tread Wear Indicator Bar Locator

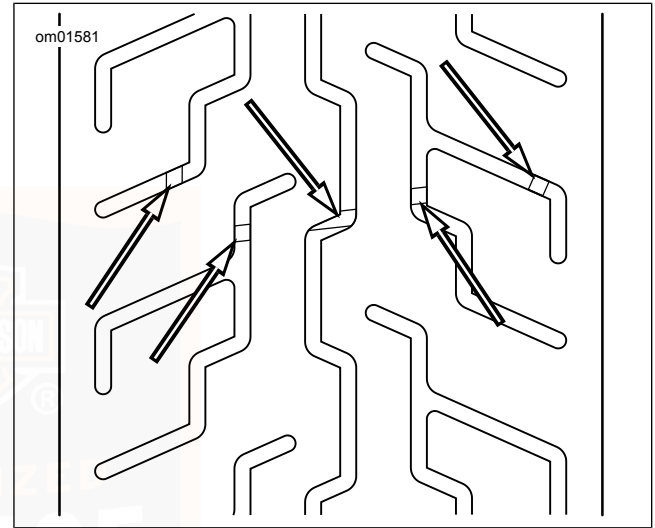


Figure 14. Dunlop Tread Wear Indicator Bar Appearance

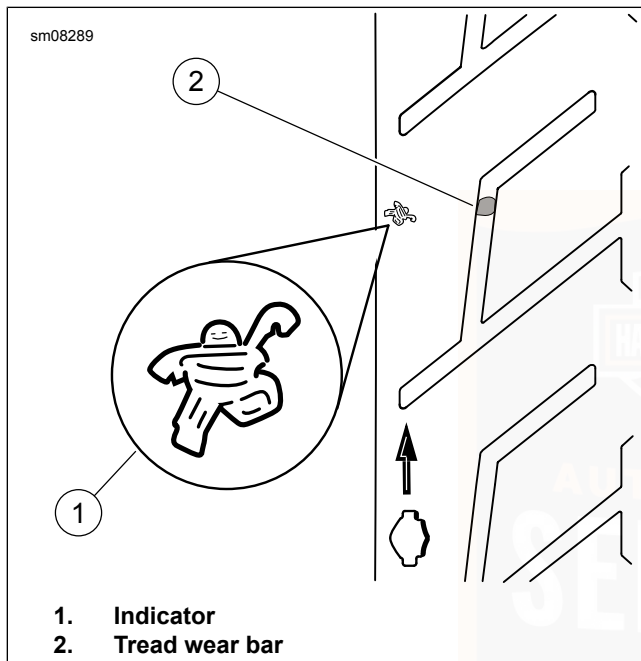


Figure 15. Tread Wear Indicator: Michelin Tires

Replacing Tires

⚠ 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

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)

⚠ 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

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 50 mph (80 km/h) for the first 24 hours after repair, and the repaired tire should NEVER be used over 80 mph (129 km/h). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

⚠ WARNING

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

New tires are needed if any of the following conditions exist (refer to for the specified replacement tires):

- Tread wear 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 be sure the rotational arrows molded into the sidewalls point in the direction of rotation when the vehicle is moving forward.

ADJUSTING 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)

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.

OPERATING JIFFY STAND

Location

⚠ 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.

See Figure 6. The jiffy stand is located on the left side of the motorcycle.

Jiffy Stand Switch: International Models

Some international models have a jiffy stand interlock switch.

The motorcycle will start and run with the jiffy stand down while the transmission is in neutral. If the jiffy stand is down and the transmission in gear, engaging the clutch stalls the

motorcycle. Raising the jiffy stand or putting the transmission in neutral will permit the engine to run.

While the motorcycle is in motion at speeds greater than 15km/h (10mph), lowering the jiffy stand will not stop the engine.

ADJUSTING SHOCK ABSORBERS

Calculate Preload Setting

▲ 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)

Adjust suspension to suit load conditions, riding style and personal comfort. Increase preload to accommodate the total load. Reduce the preload if carrying less weight. Do not exceed maximum GVWR or GAWR when loading.

NOTE

To determine the motorcycle configuration check the model character stamped on the VIN. See Vehicle Identification Number (VIN) (Page 17).

1. Add the weight of the rider to the total weight of the passenger and/or cargo to Identify the proper preload setting.
 - a. **Deluxe (FLDE):**
Refer to Table 19.
 - b. **Fat Boy (FLFB, FLFBS, FLFBS ANV):**
Refer to Table 20.
 - c. **Heritage Classic (FLHC, FLHCS):**
Refer to Table 21.
 - d. **Sport Glide (FLSB):**
Refer to Table 22.
 - e. **Softail Slim (FLSL):**
Refer to Table 23.
 - f. **Street Bob (FXBB), Softail Standard (FXST):**
Refer to Table 24.
 - g. **Low Rider (FXLR):**
Refer to Table 24.
 - h. **Breakout (FXBRS):**
Refer to Table 25.
 - i. **FXDR 114 (FXDRS):**
Refer to Table 26.
 - j. **Fat Bob (FXFB, FXFBS):**
Refer to Table 27.
 - k. **Low Rider S (FXLRS):**
Refer to Table 28.

Table 19. Suspension Preload Table: Deluxe (FLDE)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT			Preload Setting									
LB	KG		Preload Setting									
160	73		1	2	3	4	5	6	6	7	7	7
180	82		2	3	4	4	5	6	7	7	7	7
200	91		2	3	4	5	6	7	7	7	7	7
220	100		3	4	5	6	7	7	7	7	7	7
240	109		4	5	6	6	7	7	7	7	7	7
260	118		4	5	6	7	7	7	7	7	7	-
280	127		5	6	7	7	7	7	-	-	-	-
300	136		6	7	3.7	-	-	-	-	-	-	-

Table 20. Suspension Preload Table: Fat Boy (FLFB, FLFBS, FLFBSANV)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT			Preload Setting									
LB	KG		Preload Setting									
160	73		0	0.5	1	1.5	2	2.5	3	3.5	4	4
180	82		0.5	1	1.5	2	2.5	3	3.5	4	4.5	4.5
200	91		1	1.5	2	2	2.5	3	3.5	4	4.5	5
220	100		1	1.5	2	2.5	3	3.5	4	4.5	5	5
240	109		1.5	2	2.5	3	3.5	4	4	4.5	5	5
260	118		2	2.5	3	3	3.5	4	4.5	5	5	5
280	127		2	2.5	3	3.5	4	4.5	5	5	5	NA
300	136		2.5	3	3.5	4	4.5	5	NA	NA	NA	NA

Table 21. Suspension Preload Table: Heritage Classic (FLHC, FLHCS)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT												
LB	KG	Preload Setting										
160	73	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	
180	82	1	1.5	2	2.5	3	3	3.5	4	4.5	5	
200	91	1	1.5	2	2.5	3	3.5	4	4.5	5	5	
220	100	1.5	2	2.5	3	3.5	4	4.5	5	5	5	
240	109	2	2.5	3	3.5	4	4.5	4.5	5	5	5	
260	118	2	2.5	3	3.5	4	4.5	5	5	5	NA	
280	127	2.5	3	3.5	4	NA	NA	NA	NA	NA	NA	
300	136	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Table 22. Suspension Preload Table: Sport Glide (FLSB)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT												
LB	KG	Preload Setting										
160	73	1	1.5	2	2.5	3	3.5	4	4.5	5	5	
180	82	1	1.5	2	2.5	3	3.5	4	4.5	5	5	
200	91	1.5	2	2.5	3	3.5	4	4.5	5	5	5	
220	100	2	2.5	3	3.5	4	4.5	5	5	5	5	
240	109	2.5	3	3.5	4	4.5	5	5	5	5	5	
260	118	2.5	3	3.5	4	4.5	5	5	5	5	5	
280	127	3	3.5	4	4.5	5	5	5	5	5	5	
300	136	3.5	4	4.5	5	5	5	5	5	5	NA	

Table 23. Suspension Preload Table: Softail Slim (FLSL)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT		Preload Setting										
LB	KG											
160	73	1	2	3	4	5	6	7	7	7	7	7
180	82	2	2	3	4	5	6	7	7	7	7	7
200	91	2	3	4	5	6	7	7	7	7	7	7
220	100	3	4	5	6	7	7	7	7	7	7	7
240	109	4	5	5	6	7	7	7	7	7	7	7
260	118	4	5	6	7	7	7	7	7	7	7	7
280	127	5	6	7	7	7	7	7	7	7	7	7
300	136	6	7	7	7	7	7	7	7	NA	NA	NA

Table 24. Suspension Preload Table: Street Bob (FXBB), Low Rider (FXLR), Softail Standard (FXST)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT		Preload Setting										
LB	KG											
160	73	1	1	2	3	4	5	6	7	7	7	7
180	82	1	2	3	4	5	6	7	7	7	7	7
200	91	2	3	4	4	5	6	7	7	7	7	7
220	100	2	3	4	5	6	7	7	7	7	7	7
240	109	3	4	5	6	7	7	7	7	7	7	7
260	118	4	5	5	6	7	7	7	7	7	7	7
280	127	4	5	6	7	7	7	7	7	7	7	7
300	136	5	6	7	7	7	7	7	7	7	7	7

Table 25. Suspension Preload Table: Breakout 114 (FXBRS)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT												
LB	KG	Preload Setting										
160	73	0	0	0.5	1	1.5	2	2.5	3	3.5	4	
180	82	0	0.5	1	1.5	2	2.5	3	3.5	4	4	
200	91	0.5	1	1	1.5	2	2.5	3	3.5	4	4.5	
220	100	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	
240	109	1	1.5	2	2.5	3	3.5	4	4.5	4.5	5	
260	118	1.5	2	2.5	3	3	3.5	4	4.5	5	5	
280	127	1.5	2	2.5	3	3.5	4	4.5	5	5	5	
300	136	2	2.5	3	3.5	4	4.5	5	5	5	5	

Table 26. Suspension Preload Table: FXDR 114 (FXDRS)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT												
LB	KG	Preload Setting										
160	73	0.5	1	2	2.5	3	3.5	4	5	5	5	
180	82	1	1.5	2	3	3.5	4	4.5	5	5	5	
200	91	1.5	2	2.5	3.5	4	4.5	5	5	5	5	
220	100	2	2.5	3	4	4.5	5	5	5	5	5	
240	109	2.5	3	3.5	4.5	5	5	5	5	5	5	
260	118	3	3.5	4	5	5	5	5	5	5	5	
280	127	3.5	4	4.5	5	5	5	5	5	5	5	
300	136	4	4.5	5	5	5	5	5	5	5	5	

Table 27. Suspension Preload Table: Fat Bob (FXFB, FXFBS)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT												
LB	KG	Preload Setting										
160	73	0	0	0.5	1	1.5	2	2.5	3	3.5	4	
180	82	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	
200	91	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	
220	100	0.5	1	1.5	2	2.5	3	3.5	4	4.5	NA	
240	109	1	1.5	2	2.5	3	3.5	4	NA	NA	NA	
260	118	1.5	2	2.5	3	NA	NA	NA	NA	NA	NA	
280	127	1.5	2	NA	NA	NA	NA	NA	NA	NA	NA	
300	136	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Table 28. Suspension Preload Table: Low Rider S (FXLRS)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES										
		LB	0	20	40	60	80	100	120	140	160	180
		KG	0	9	18	27	36	45	54	64	73	82
RIDER WEIGHT												
LB	KG	Preload Setting										
160	73	0	0	0.5	1	1.5	2	2.5	3	3.5	3.5	
180	82	0	0.5	1	1.5	2	2.5	2.5	3	3.5	4	
200	91	0.5	1	1.5	1.5	2	2.5	3	3.5	4	4.5	
220	100	0.5	1	1.5	2	2.5	3	3.5	4	4.5	4.5	
240	109	1	1.5	2	2.5	3	3.5	3.5	4	4.5	5	
260	118	1.5	2	2	2.5	3	3.5	4	4.5	5	5	
280	127	1.5	2	2.5	3	3.5	4	4.5	5	5	5	
300	136	2	2.5	3	3.5	4	4	4.5	5	5	5	

Adjustment

NOTE

Adjust the shock with the motorcycle resting on the jiffy stand.

1. **Cam style:** See Figure 16.

- a. Remove seat.

NOTE

The provided spanner wrench is to be assembled before use.

- b. Insert the tang of the SPANNER WRENCH KIT (PART NUMBER: 14900102) in the slots in the rear shock, turn the cam until the indicator (1) points to the appropriate preload setting (2).

2. **Hydraulic external:** See Figure 17.

- a. Rotate the adjustment knob clockwise to increase preload setting, or counterclockwise to decrease preload setting until the indicator knob shows the appropriate preload setting on the scale.

3. **Hydraulic under seat:** See Figure 18.

- a. Remove seat.

NOTE

The provided spanner wrench is to be assembled before use.

- b. Using the socket end of the SPANNER WRENCH KIT (PART NUMBER: 14900102), rotate adjustment screw clockwise to increase preload setting, or counterclockwise to decrease preload setting until the indicator shows the appropriate preload setting.

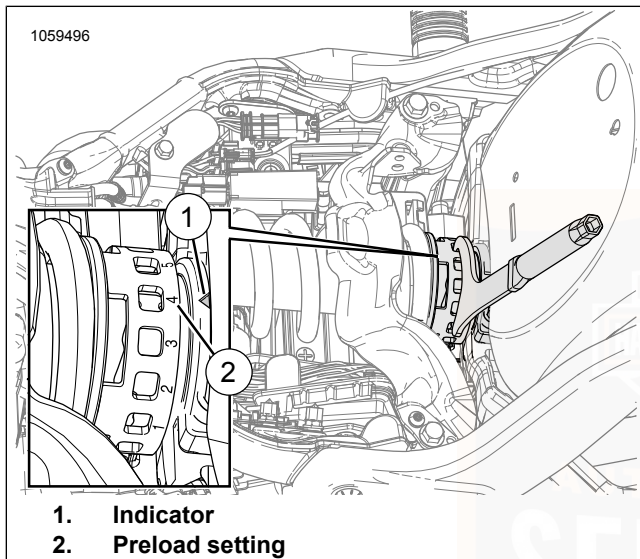


Figure 16. Preload Adjustment Cam

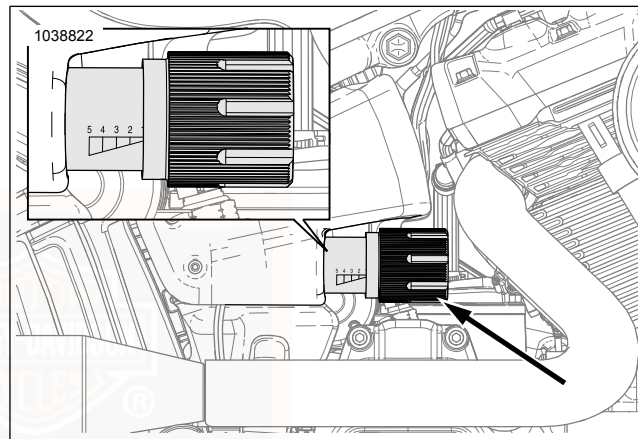


Figure 17. Preload Adjustment Knob

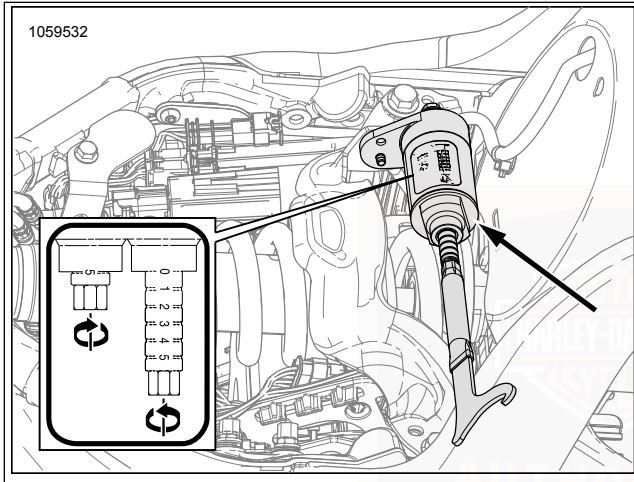


Figure 18. Preload Adjustment Screw

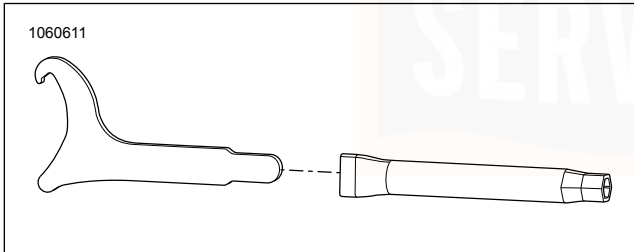


Figure 19. Spanner Wrench Kit

NOTES



SECURITY SYSTEM

Components

The security system consists of a control module, a hands-free antenna mounted on the motorcycle and a hands-free fob carried by the rider. The security system lamp in the speedometer face indicates when security is armed or disarmed.

See Arming and Disarming (Page 63).

Options

See a Harley-Davidson dealer or www.harley-davidson.com for security system options.

SECURITY SYSTEM FOB

Assigning Fob

See Figure 20. Key fobs are electronically assigned to the security system by a Harley-Davidson dealer. Only two fobs can be assigned at any one time.

Purchase replacement fobs from a Harley-Davidson dealer. The fobs can only be assigned to an individual motorcycle by a trained Harley-Davidson technician.

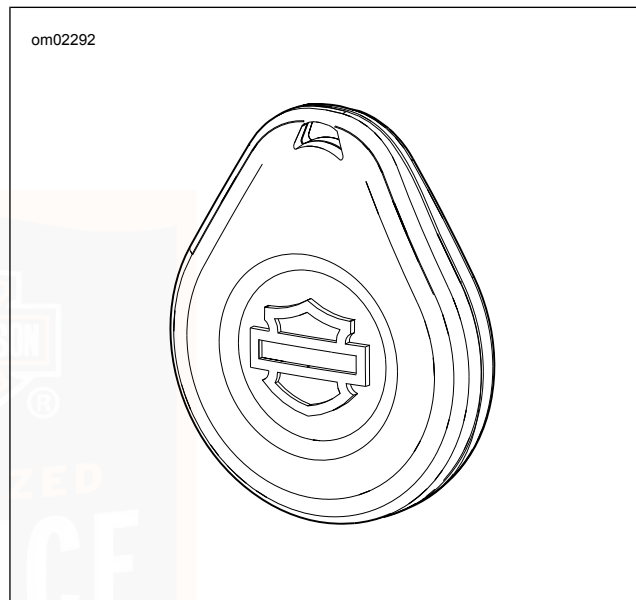


Figure 20. Fob: Security System

NOTE

- *The module will arm only if the fob has been assigned by a Harley-Davidson dealer and a Personal Identification Number (PIN) has been entered in the system. Record the PIN on the Personal Information page in the front of this Owner's Manual and on the removable wallet card.*

- If the fob is misplaced or fails, the rider can refer to the wallet card and use the PIN to manually disarm the system. See *Arming and Disarming* (Page 63) and *Troubleshooting* (Page 69).
- The rider can change the PIN at any time. See *Personal Identification Number (PIN)* (Page 61).

Fob Battery

Replace the fob battery every year.

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.
- See Figure 21. The serial number of the fob is also found on the inside of the fob.

1. See Figure 21. To open the fob, turn a thin blade in the slot (1).
2. Remove the battery (2) and discard in accordance with local regulations.
3. Install a **new** battery (Panasonic CR2032 or equivalent) with the positive side up.
4. Align the two halves of the fob. Snap the halves together.

60 SECURITY SYSTEM

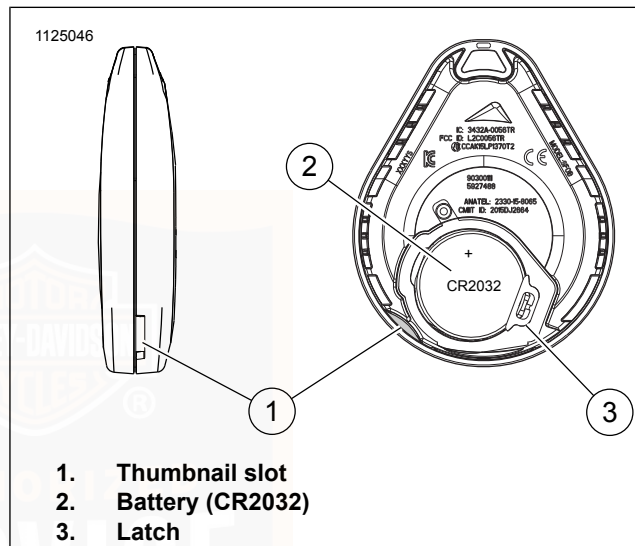


Figure 21. Replace Fob Battery

Riding with a Fob

- Always carry the fob when riding, loading, fueling, moving, parking or servicing the motorcycle.
- 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 without the fob in acceptable proximity, the odometer window temporarily displays "NO

FOB." To restart a motorcycle without a fob, disarm the security system with the PIN.

PERSONAL IDENTIFICATION NUMBER (PIN)

The personal identification number (PIN) is a number that can be used to disarm the security system. Use the PIN in case the 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

The rider can change the PIN at any time. Refer to Table 29.

Table 29. 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 OFF/RUN switch to RUN .		
3	Cycle the OFF/RUN switch twice: OFF - RUN - OFF - RUN .		

Table 29. Changing the PIN

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
4	Press left turn signal switch 2 times .	ENTER PIN scrolls through the odometer window.	
5	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.	
6	Enter first digit of new PIN by pressing and releasing the left turn signal switch until the selected digit appears.		
7	Press right turn signal switch 1 time and release.	The new digit will replace the current in odometer window.	
8	Enter second digit of selected PIN by pressing and releasing the left turn signal switch until the selected digit is present.		
9	Press right turn signal switch 1 time and release.	The new digit will replace the current in odometer window.	
10	Enter third digit of the selected PIN by pressing and releasing the left turn signal switch until the selected digit is present.		
11	Press right turn switch 1 time and release.	The new digit will replace the current in odometer window.	

Table 29. Changing the PIN

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
12	Enter fourth digit of new PIN by pressing and releasing the left turn signal switch until the selected digit is present.		
13	Press right turn switch 1 time and release.	The new digit will replace the current in odometer window.	
14	Enter fifth digit of the new PIN by pressing and releasing the left turn signal switch until the selected digit is present.		
15	Press right turn switch 1 time and release.	The new digit will replace the current in odometer window.	
16	Push the OFF/RUN switch to OFF .		Pushing the OFF/RUN switch to OFF stores the new PIN in the module.

SECURITY STATUS INDICATOR

See Indicators (Page 91). 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 OFF/RUN switch is moved to OFF, the security system arms automatically within five seconds if no motion is detected. Even when the fob is present, the system arms.

On arming, the turn signals flash twice and the siren chirps twice if the siren is in the chirp mode. While armed, the indicator lamp in the speedometer face flashes every three seconds.

NOTE

International models: *The system must be in the chirp mode for the siren to chirp on arming or disarming. See Siren Chirp Mode (Confirmation) (Page 67).*

Disarming

With the fob present, the rider may ride or move the motorcycle for parking, storage or service without setting off the alarm. Disarming is automatic as long as the fob is within range.

Fob: An armed security system is automatically disarmed when the fob is present and the motorcycle is moved or the OFF/RUN switch is moved to RUN.

The range of the fob is 1.5 m (5ft).

When the system disarms, the siren chirps once and the security indicator lamp illuminates for a solid four seconds and then turns off.

Personal identification number (PIN): If the fob is misplaced or if the present fob fails to communicate, the system can be disarmed with the personal identification number (PIN). Refer to Table 30.

Disarming with a PIN

Disarm the security system manually using the PIN if the fob is lost, the fob battery is discharged or if where you parked there is a strong electromagnetic interference.

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

- *If a mistake is made while entering PIN, move the OFF/RUN switch to OFF before entering the last digit and then start the procedure from the beginning.*
- *If the procedure fails to disarm the security system, wait two minutes before attempting another PIN disarm.*
- *The security system remains disarmed until the OFF/RUN switch is moved to OFF.*
- *At any time during a PIN disarm if the fob is brought within range, the security system disarms as the module receives the coded signal from the fob.*

Table 30. 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	Push the OFF/RUN switch to RUN .	The odometer window display will show ENTER PIN.	
3	Press and release the left turn signal switch.	In the odometer window, a flashing 1 will appear.	
4	Increment the digit by tapping the left turn signal until the odometer window displays the first digit of the PIN.	The first digit 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 next digit will flash.	Serves as enter key.
6	Increment the second digit using the left turn switch until the digit reaches the second digit of the PIN.	The second digit 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 digit will flash.	Serves as enter key.
8	Increment the third digit using the left turn switch until it reaches the third digit of the PIN.	The third digit 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 digit will flash.	Serves as enter key.
10	Increment the fourth digit using the left turn switch until it reaches the fourth digit of the PIN.	The fourth digit in the odometer will be the fourth digit in the PIN.	

Table 30. Entering a PIN to Disarm Security System

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
11	Press right turn switch 1 time .	The fourth digit is stored and the next digit will flash.	Serves as enter key.
12	Increment the fifth digit using the left turn switch until it reaches the fifth digit of the PIN.	The fifth digit in the odometer will be the fifth digit in the PIN.	
13	Press right turn switch 1 time .	The fifth digit is stored. The security system indicator lamp stops blinking.	Smart Security System is disarmed.

ALARM

Warnings

Once armed, if the motorcycle is moved or lifted up off of its jiffy stand and the fob is not present, the alarm will warn the operator with three alternate flashes of the turn signals and a chirp of the siren.

Within four seconds, if the motorcycle is back on its jiffy stand and no further motion is detected, the system will remain armed without activating the alarm.

If the motorcycle motion continues, the system will issue a second warning four seconds after the first.

NOTE

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

Alarm Activation

If the security system is still detecting motion after a second warning, the system will activate the alarm.

When activated, the security system will:

- Alternately flash the four turn signals.
- Sound the siren (if equipped).

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 an optionally purchased Harley-Davidson Security Pager. The range of a pager can be up to 0.5 mi (0.8 km). 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)

Vehicles with optional siren can be set to chirp upon arming and disarming.

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 still provides warning chirps and sounds the alarm if the motorcycle is moved without the fob present.

Switching Modes

Perform the following to switch between chirp and chirpless modes.

1. With security fob present, set the ignition switch to IGNITION.
2. When the security lamp turns off, set the ignition switch to OFF.
3. When the security lamp turns off (but before the turn signals flash twice), immediately set the ignition switch to IGNITION.
4. When the security lamp turns off, immediately set the ignition switch to OFF.
5. When the security lamp turns off (but before the turn signals flash twice), immediately set the ignition switch to IGNITION. The system changes mode. The siren chirps or remains silent accordingly.

TRANSPORT MODE

It is possible to arm the security system without enabling the motion detector for one ignition cycle. The motorcycle can be moved in an armed state. The motorcycle cannot be turned on or started while in transport mode until the fob is present.

To Enter Transport Mode

1. With security fob present, set the OFF/RUN switch to RUN.
2. Set the OFF/RUN switch to OFF.
3. Simultaneously press both the left and the right turn signal switches within five seconds of turning the OFF/RUN switch to OFF.
4. Following a single flash, the turn signals flash three times to indicate that the system is armed in transport mode.

NOTE

When transport mode is enabled the odometer window will display TSPORT MODE ACTIVE message.

To Exit Transport Mode

With the fob present, set the OFF/RUN switch to RUN to disarm the system and exit transport mode.

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 Storing Motorcycle (Page 129).

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.

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. Set the OFF/RUN switch to RUN.
3. Pull the main fuse from its holder.
4. Disconnect the battery if needed

NOTE

Set the OFF/RUN switch back to OFF before installing main fuse.

TROUBLESHOOTING

Security Lamp

If the security 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 3 in (76 mm) of any other electronic devices.
 - b. Place the fob on the seat and set the OFF/RUN switch to RUN. After the system disarms, return the fob to a convenient location.

- c. Move motorcycle at least 15 ft (5 m) from the spot of interference.

2. **Discharged fob battery:** Use the PIN to disarm the system. Replace the battery. See Security System Fob (Page 59).

NOTE

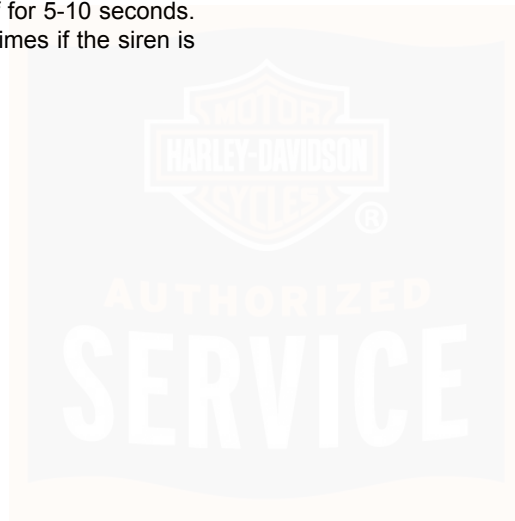
When fob battery is low the odometer window will display FOB LOW BATT message.

3. **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 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.



KEYLESS IGNITION

⚠ 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)

⚠ 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)

A Motorcycle with a keyless ignition does not require a key for operation. Instead, an assigned security fob must be present or the PIN must be used before the motorcycle can be started.

The key supplied with the motorcycle is for the fork lock. See Controls, Instruments and Switches (Page 72).

Ignition Mode

With security fob present, set the OFF/RUN switch to RUN. The lights and instruments become operational and the motor can be started. To disarm the security system using the PIN, see Arming and Disarming (Page 63).

The motorcycle remains on (or the engine continues running) until the OFF/RUN switch is set to OFF. Taking the security fob out of range will not shut down the engine or turn off the motorcycle after it is turned on. However, the speedometer will display a NO FOB message if the motorcycle begins moving without the fob present.

NOTE

With the OFF/RUN switch in RUN, the system will turn off after 15 minutes of inactivity.

When parked, set the OFF/RUN switch to OFF and take the security fob from the motorcycle to prevent theft or startup. With the motorcycle turned off and the security fob out of range, the starter, ignition system and OFF/RUN switch remain disabled, immobilizing the motorcycle.

Accessory Mode

See Figure 30. With the security fob present, press and hold the TRIP switch (1). The instruments and accessory circuit are powered. The headlamp (high and low beam) and turn signal lamps remain off. While in accessory mode:

- The speedometer displays the odometer functions.
- Power is supplied to the USB port.
- The headlamp hallow will illuminate.

- The headlamp can be activated by pressing the headlamp flash to pass switch.
- The stop lamps can be operated.

To turn off accessory mode, press and hold the TRIP switch.

Do not leave the motorcycle in accessory mode for an extended period. This can discharge the battery. If the vehicle is left in accessory mode for two hours, the vehicle will automatically shut off to prevent complete battery discharge. To resume accessory mode, press and hold the TRIP switch.

CONTROLS, INSTRUMENTS AND SWITCHES

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 4. The clutch hand lever (1) is operated with the fingers of the left hand. See Shifting Gears (Page 100).

Gear Shift Lever

See Figure 22. The gear shift lever is operated with the left foot. Neutral is found between first and second gear in the six speed shift pattern. See Shifting Gears (Page 100).

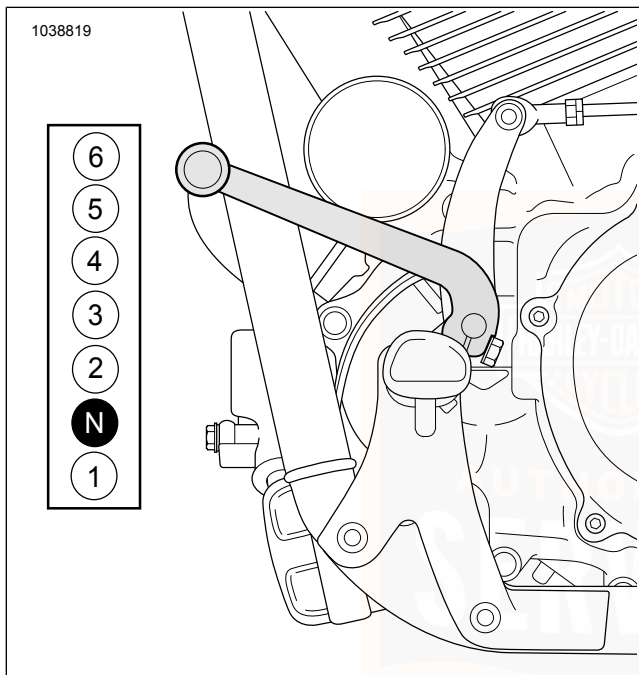


Figure 22. Shift Lever and Shift Pattern

Left-Hand Control Module

See Figure 4. Operate the switches on the left hand control module (10) with the thumb of the left hand. See Left Hand Control Switches (Page 79).

Speedometer/Odometer

See Figure 4. The current road speed is displayed in the speedometer (2). The accumulated mileage and individual trip mileage is displayed in the odometer window in the face of the speedometer. See Instruments (Page 75).

Right-Hand Control Module

See Figure 4. Operate the switches on the right hand control module (6) with the thumb of the right hand. See Right Hand Control Switches (Page 81).

Brakes

⚠ 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)

Front brake lever: See Figure 4. The front brake lever (4) controls the front brake. Operate the hand lever with the fingers of the right hand.

Rear brake pedal: See Figure 5. The rear brake pedal (5) activates the rear wheel brake.

⚠ 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)

Apply brakes evenly to prevent wheels from locking up. A balance between rear and front brake is best.

Throttle Twist Grip

Accelerate: See Figure 4. Slowly twist throttle twist grip (5) backward (toward rear of motorcycle) to open the throttle.

Decelerate: Slowly twist throttle control grip forward (toward the front) to close the throttle.

OFF/RUN Switch

NOTE

The headlamp and tail lamps operate when the switch is in the RUN position.

74 Operation

See Figure 31. To start the engine, see Starting the Engine (Page 88).

Fork Lock

⚠ 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

Protect your vehicle against theft. Failure to lock the motorcycle after parking could result in theft and/or equipment damage. (00151b)

See Figure 23. The fork lock is located in the steering head on the right side. The fork is locked with the key.

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

1. Turn fork to full left position.
2. Insert key into fork lock.
3. Turn key to right position (clockwise).
4. Remove key.

5. To unlock fork, insert key into fork lock and turn to the left position (counter-clockwise). Remove lock key.
6. Check steering for proper operation by turning the handlebars through the full operating range. Handlebars should turn smoothly without binding.

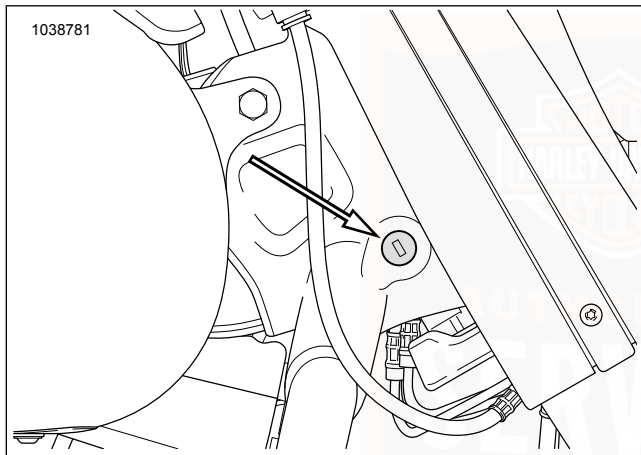


Figure 23. Fork Lock

INSTRUMENTS

Fuel

See Figure 24., Figure 25, Figure 26, Figure 27, or Figure 28. The fuel gauge displays eight bars when the fuel tank is full.

Each bar represents approximately one-eighth of the total fuel capacity.

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)

The speedometer registers miles per hour (U.S. models only), kilometers per hour (international models only) or is dimensioned in both mph and km/h for required markets.

Instrument backlighting activates after a slight delay. Changes to ambient lighting, such as going through a tunnel, may briefly change backlighting.

Odometer

Pressing the trip switch with the OFF/RUN switch in any position activates the odometer reading.

The odometer window also provides the following selectable displays:

- Odometer
- Trip odometer A

- Trip odometer B
- Fuel range
- Time
- Gear number
- Tachometer: Except Low Rider® (FXLR)

Press and release the trip switch to cycle through the displays.

Trip Odometers A and B

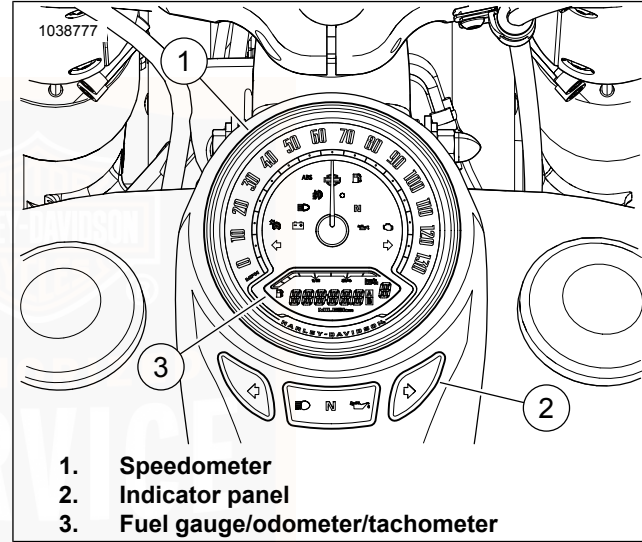
See Figure 29. To check mileage or to reset trip odometers, the OFF/RUN switch must be in the RUN position. Press and release the trip switch (1) until the desired trip odometer register, A (2) or B (3) is displayed. An A or B on the right of the display window identifies the trip odometer.

To reset or zero trip odometers, have desired (A or B) odometer in display window. Press the trip switch and hold for approximately three seconds. The trip odometer resets to zero.

Tachometer/Gear Selection: Except Low Rider (FXLR)

See Figure 29. Press and release the trip switch to cycle through the odometer window displays. The odometer shows the engine speed in revolutions per minute (rpm).

The current gear (1-6) shows next to the odometer. The gear number is blank if the vehicle is not moving, the transmission is in neutral, or the clutch lever is pulled in.



1. Speedometer
2. Indicator panel
3. Fuel gauge/odometer/tachometer

Figure 24. Instruments: Softail Slim (FLSL), Deluxe (FLDE), Heritage Classic (FLHC/S)

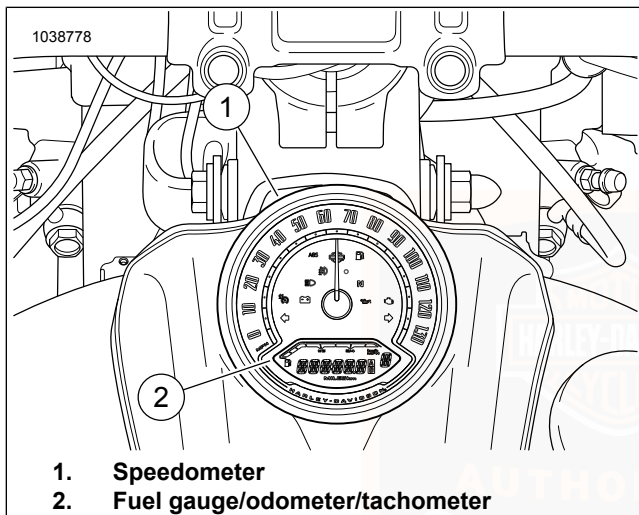


Figure 25. Instruments: Fat Boy (FLFB/S/ANV), Sport Glide (FLSB)

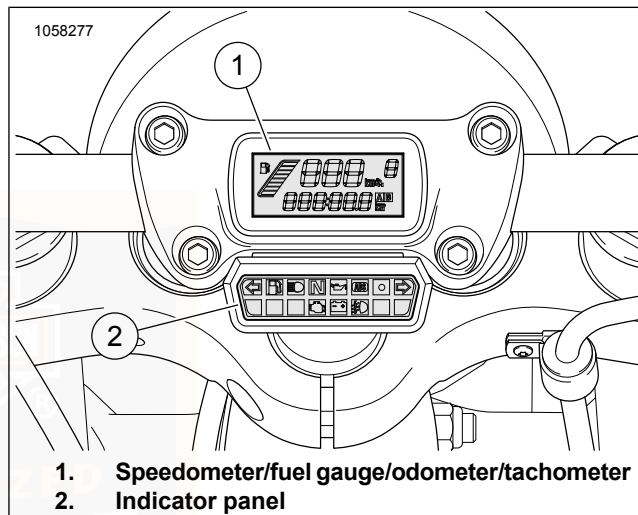


Figure 26. Instruments: Breakout (FXBRS), Street Bob (FXBB), FXDR 114 (FXDRS), Softail Standard (FXST) (typical)

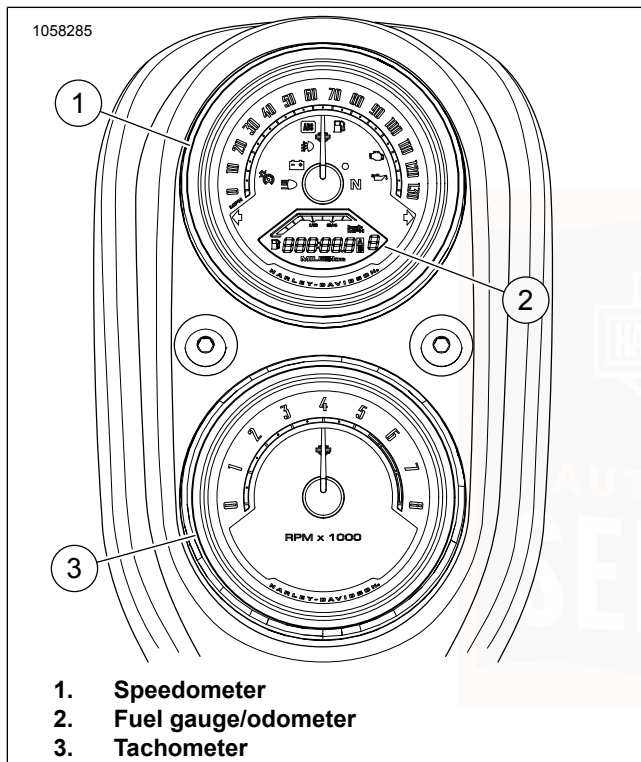


Figure 27. Instruments: Low Rider (FXLR/S)

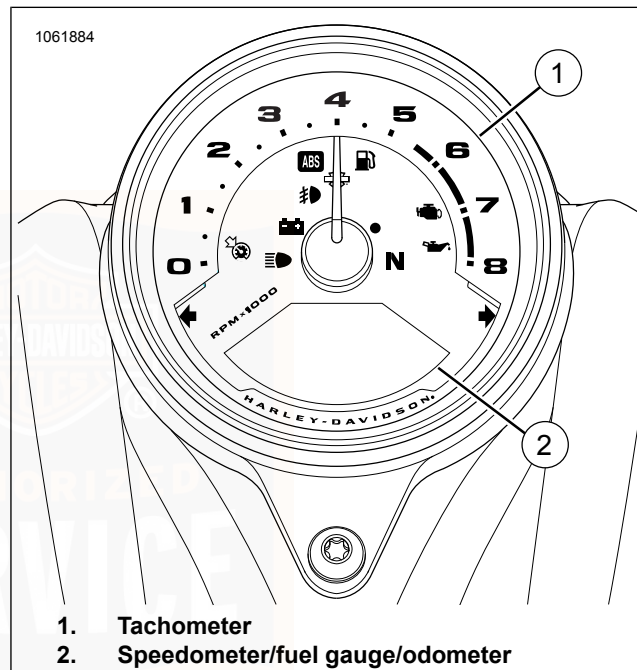


Figure 28. Instruments: Fat Bob (FXFB/S)

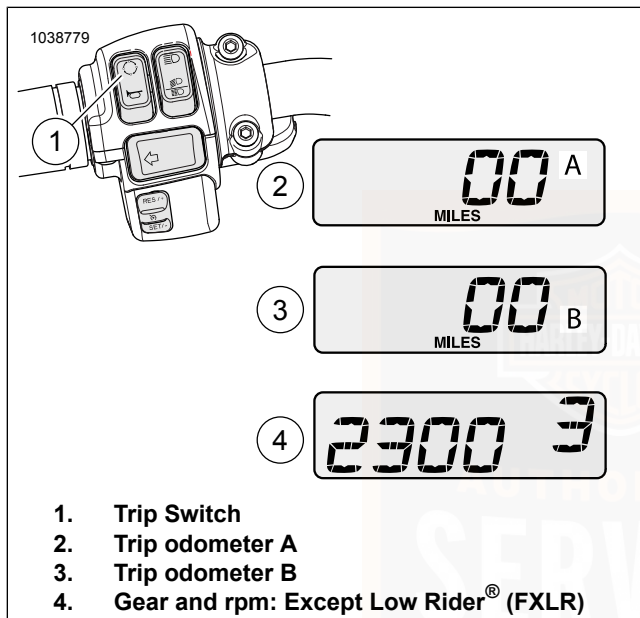


Figure 29. Trip Odometers, Tachometer, and Gear Selection

LEFT HAND CONTROL SWITCHES

Trip

See Figure 30. The trip switch (1) activates the trip odometers. The trip switch also is used to scroll through the optional screens of the odometer display. With the ignition off, the trip switch can activate time or odometer displays. Refer to Table 31.

High Beam

See Figure 30. Press the high beam switch (2) to activate the high beam. The (blue) high beam indicator lamp is lit when the high beam is on. Refer to Table 31.

Low Beam/Flash to Pass

Low beam: See Figure 30. Press the bottom of the switch to (3) activate the low beam.

Flash to pass: When the low beam switch is on, press and release the flash to pass switch (3) to flash the high beam before passing another vehicle. The high beam indicator lamp on the instrument cluster is illuminated as long as the flash to pass switch is pressed.

When in accessory, press the flash to pass switch to activate the headlamp. Refer to Table 31.

Auxiliary/Fog Lamps

The auxiliary/fog lamps provide additional light to the road and surrounding environment in dark or rainy conditions. The lamps also give the motorcycle more visibility to other motorists. When the lamps are on, the auxiliary/fog lamp indicator is displayed on the instrument cluster.

See Figure 30. Press the auxiliary/fog lamps switch (4) to activate the auxiliary/fog lamps. Refer to Table 31

Domestic/Canada configurations: The auxiliary/fog lamps are configured to automatically turn off when the high beam headlamp is turned on, except as required by state/province.

Auxiliary/fog lamps can be configured to turn on or off with high beam by the dealer, based on legal requirements for each location.

Left Turn Signal

Activate: See Figure 30. Press the left turn signal switch (5) to activate the left turn signal. Refer to Table 31.

Cancel:

Manual Operation: Press the left turn signal switch to cancel the right turn signal.

Automatic Operation: 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 7 mph (11 km/h). If the motorcycle is stopped or moving slower than this speed, the turn signal continues flashing.

NOTE

Front turn signal lamps also function as running lamps. This feature may not be available in all markets.

Horn

See Figure 30. The horn is operated by pressing the horn switch (6). The horn can be activated for up to 10 seconds at a time. If the horn switch is held for a longer period, the horn automatically deactivates. Refer to Table 31.

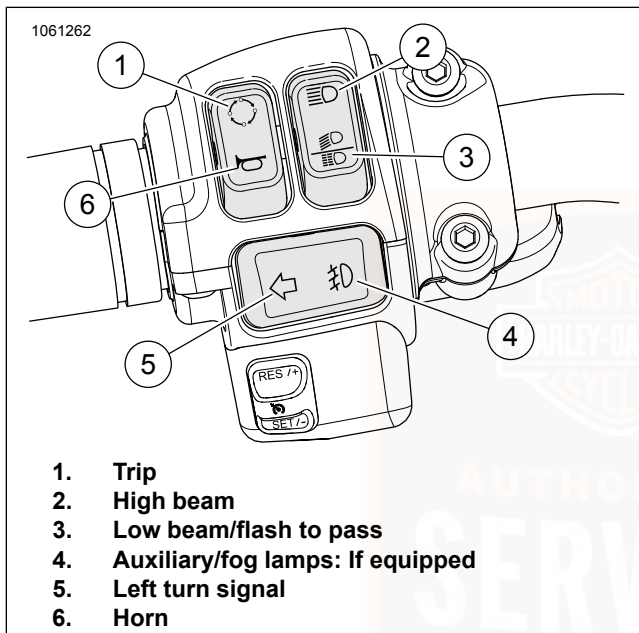


Figure 30. Left Hand Switch Module (typical)

Table 31. Left-Hand Control Switches

SWITCH	NAME	FUNCTION
	Trip	Press the switch to alternate odometer displays.
	High beam	Press the switch to switch the headlamp to high beam.
	Low beam/flash to pass	Press the switch to switch the headlamp to low beam. Press and release to flash the high beam. In ACC, press to activate the headlamp.
	Auxiliary/fog lamps	Press the switch to activate the auxiliary/fog lamps.
	Left turn	Press the switch to signal a left turn.
	Horn	Press the switch to sound the horn.

RIGHT HAND CONTROL SWITCHES

Hazard Warning 4-Way Flasher

See Figure 31. The hazard switch (1) is used to leave a stranded motorcycle in the 4-way flashing mode. With the

flashers, the motorcycle can be left with the ignition off until assistance is found. Refer to Table 32.

1. With the OFF/RUN switch in the run position, press on the hazard warning triangle to activate the 4-way flashers.

NOTE

- *The fob must be present when turning on the 4-way flashers and when canceling the flashers.*
 - *The four-way flashers will operate when the vehicle is tipped over regardless of OFF/RUN switch position. See Starting after Tipover (Page 89).*
2. Turn OFF/RUN switch to the off position. The 4-way flashers continue for 2 hours or until cancelled by the rider.
 3. To cancel, turn the OFF/RUN switch to the run position. Press the warning triangle above the start switch.

Start

See Figure 31. The start switch (5) is on the right handlebar control module. Refer to Table 32.

1. Switch the OFF/RUN switch to the run position (3). Shift the transmission to neutral. The neutral (green) indicator illuminates. See Starting the Engine (Page 88).
2. Press the start switch (5) to operate the starter motor.

82 Operation

NOTE

- *When the starter is activated, the headlamp is momentarily turned off to reduce battery load.*
- *If the engine does not start, the starter motor runs for ten seconds and stops. Release the start switch. Press the start switch to try again. After several unsuccessful attempts to start the engine, see a Harley-Davidson dealer.*

OFF

See Figure 31. Press the engine OFF/RUN switch to off (2) to shut off the engine. Refer to Table 32.

RUN

See Figure 31. Push the engine OFF/RUN switch to run (3) to enable engine start and run. The engine OFF/RUN switch must be in the run position to start or operate the engine. Refer to Table 32.

Right Turn Signal

Activate:

See Figure 31. Press the right turn signal switch (4) to activate the right turn signal. Refer to Table 32.

Cancel:

Manual Operation: Press the right turn signal switch to cancel the right turn signal.

Automatic Operation: 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 7 mph (11 km/h). If the motorcycle is stopped or moving slower than this speed, the turn signal continues flashing.

NOTE

Front turn signal lamps also function as running lamps. This feature may not be available in all markets.

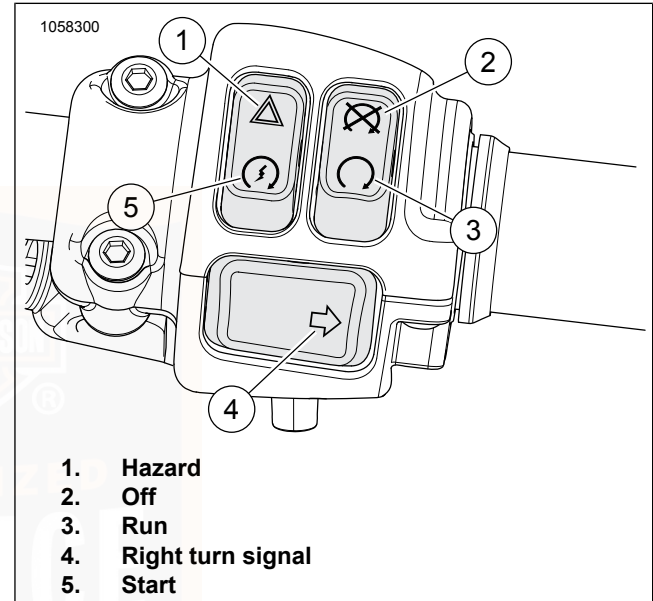







Figure 31. Right Hand Control Switches

Table 32. Right Hand Control Switches

SWITCH	NAME	FUNCTION
	Hazard	Press to activate the 4-way flashers.
	Start	Press to start the engine.
	Off	Press to stop the engine or to prevent the engine from starting.
	Run	Press to allow the engine to start.
	Right turn	Press to signal a right turn.

ODOMETER WINDOW DISPLAYS

Time

Press and release the trip switch to cycle through the odometer window displays to the time display. To set the time:

1. Turn OFF/RUN switch to RUN.
2. See Figure 32. Press and release the trip switch (1) until time (hour and minutes) is displayed. Press and hold the trip switch until 12Hr (2) begins to blink in the display window. Release the switch.

3. Press and release the trip switch once to advance to a blinking 24Hr or military style time display. Each time you press and release the switch, the display switches between 12Hr and 24Hr.
4. When the desired time style is displayed, press and hold the trip switch until the hours display (3) is blinking.
5. Press and release the trip switch repeatedly to advance the hours.
6. When the correct hour is displayed, press and hold the trip switch until the minutes display (4) starts blinking.
7. Press and release the trip switch repeatedly to advance the minutes display.
8. When the correct minutes are displayed (5), press and hold the trip switch until the display advances to the selection of AM or PM (6).

NOTE

AM or PM does not appear in the regular time display. The motorcycle uses the selection for diagnostic purposes.

9. In the 12Hr display, AM or PM flashes. Select AM or PM with the trip switch. Press and hold the switch for five seconds.
10. Turn OFF/RUN switch to OFF.

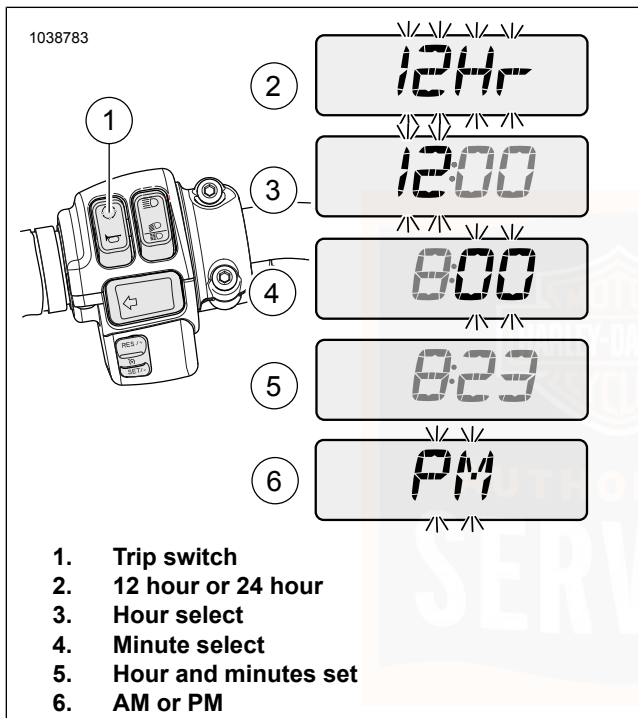


Figure 32. Time Displays

Fuel Range

See Figure 33. The fuel range display (1) shows the approximate mileage available with the amount of fuel left in the fuel tank.

With OFF/RUN switch in the RUN position, press the trip switch until fuel range is displayed, as indicated by the letter "R" in the left side of the 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 trip switch.

Low Fuel Warning

When the low fuel warning lamp illuminates, the fuel range feature automatically displays in the odometer window. The rider can press the trip switch to return to the cycle of odometer displays. The fuel range warning is not repeated until the OFF/RUN switch is cycled to OFF and back to RUN.

See Figure 33. After the fuel range drops to approximately 10 miles or 10 kilometers remaining, the fuel range display will scroll "R LO" (2) to indicate that the motorcycle will shortly run out of fuel.

Resetting the low fuel warning lamp and range requires OFF/RUN switch to be cycled. Always turn the OFF/RUN switch to OFF when fueling.

Disable: To disable this function while riding, press and hold the trip switch while in the fuel range display mode. The automatic range pop-up feature indicates that it is disabled when it blinks twice.

Enable: To enable the automatic low fuel warning range display, press and hold the trip switch. The low fuel range blinks once when the automatic feature is enabled.

NOTE

- *When the low fuel warning lamp turns on, the fuel level is low. Refuel as soon as possible.*
- *The range display is only updated when the vehicle is moving.*
- *The automatic fuel range display is enabled after the ignition is turned OFF-RUN.*

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)

See Figure 33. Should motorcycle be tipped over, the word "TIP" (3) appears in the odometer window. The engine can not start until reset.

NOTE

The four-way flashers will operate when the vehicle is tipped over.

Reset: To reset, set the motorcycle upright and turn the ignition switch OFF-IGN. Press the hazard button above the start switch.

No Fob Message

See Figure 33. If the motorcycle is driven off leaving the fob behind, "NO FOB" (4) temporarily displays in the odometer window.

With the motorcycle separated from its assigned fob, the motorcycle can only be started with a manual PIN entry to disarm the security system. See Arming and Disarming (Page 63).

Sidestand Message

See Figure 33. On international (HDI) models, a "SIDE-STAND" (5) message will scroll across the display if the motorcycle is placed into gear while the jiffy stand is down. See Operating Jiffy Stand (Page 47).

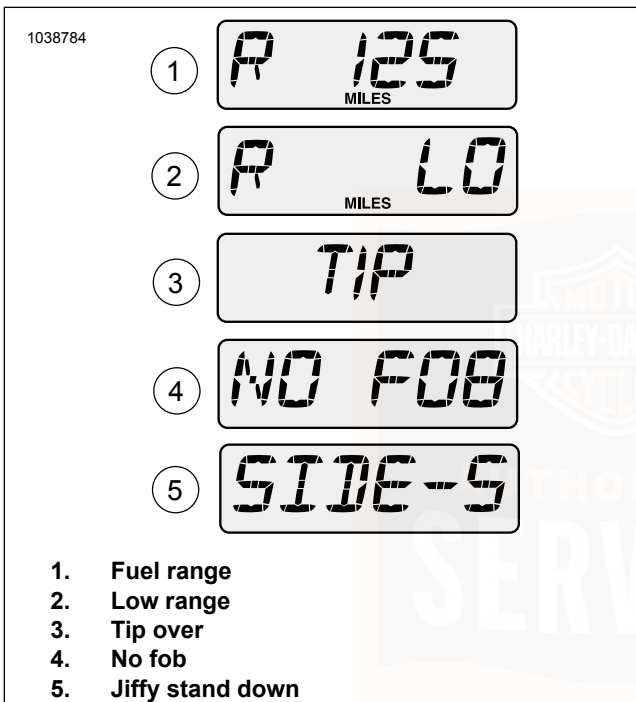


Figure 33. Odometer Window Displays

ELECTRONIC THROTTLE CONTROL (ETC)

The motorcycle has an Electronic Throttle Control (ETC). Instead of using a mechanical cable connection to the throttle body, this technology uses redundant grip sensors to indicate rider requested throttle position to the Electronic Control Module (ECM). The ECM then regulates proper fuel/air intake and ignition timing based on the rider's actions.

The Electronic Control Module (ECM) monitors the status of the grip sensors, throttle plate actuation and airflow. If Trouble Codes are detected, the ECM disables cruise control, illuminates the check engine lamp and will transition to one of the following modes.

ETC Limited Performance Mode

The rider experiences near-normal operation. The motorcycle operates with provisions to guard against unintended acceleration.

ETC Power Management Mode

The throttle plate actuator returns to an "idle detent" or "limp-home" position, which provides enough torque to achieve speed of about 25 mph (40 km/h). The motorcycle's response to grip sensor input is reduced.

ETC Forced Idle Mode

The throttle plate actuator is forced to a "fast idle" position, which provides enough torque to crawl, but not enough torque to operate at traffic speeds.

ETC Forced Shut Down Mode

The engine is forced to shut down.

STARTING THE ENGINE

⚠ WARNING

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

NOTICE

The engine should be allowed to run slowly for 15-30 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. (00563b)

NOTE

Do not open the throttle before starting the engine.

1. Bring an assigned fob within range.

2. See Figure 34. Switch the OFF/RUN switch to the RUN (3) position.

NOTE

- *When ignition is ON the check engine light will light and stay on until engine is started. Service would be required when the engine is started and the check engine light stays on.*
 - *The fuel pump may run for a few seconds to prime the fuel system prior to starting.*
 - *As the switch is placed in the RUN position a click noise will be heard as the automatic compression release (ACR) valve opens allowing for easier starting. If the engine is not started within approximately 10 seconds a second click will be heard as the ACR valve closes.*
3. Though the illuminated green neutral lamp indicates that the transmission is in neutral, verify neutral by rolling the motorcycle back and forth with the clutch lever out.
 4. Squeeze the clutch lever against the handlebar.
 5. Press the start switch (5).
 6. When the engine has started, you can operate your motorcycle as you normally would after raising the jiffy stand.

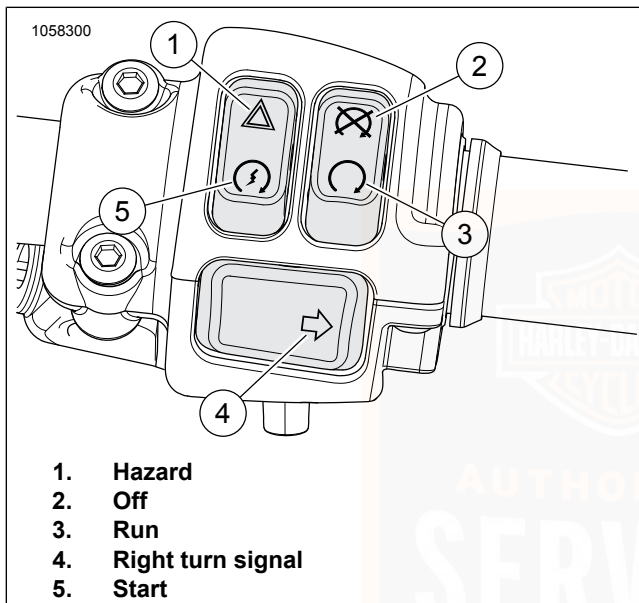


Figure 34. Right Hand Control Switches

STARTING AFTER TIPOVER

▲ 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)

NOTE

- If the motorcycle is tipped over, the word "tIP" appears in the odometer window and four-way flashers activate.
 - The engine cannot start until the tip condition is reset.
 - The ignition must be reset to turn four-way flashers off.
1. Set motorcycle upright.
 2. Cycle the ignition switch and the OFF/RUN switch to OFF.
 3. Wait 10 seconds.
 4. Cycle the ignition switch to IGNITION.
 5. Cycle the OFF/RUN switch to RUN.
 6. Push hazard switch to turn four-way flashers off.

ENGINE IDLE TEMPERATURE MANAGEMENT SYSTEM (EITMS)

The Engine Idle Temperature Management System (EITMS) can provide limited cooling of the rear cylinder for riders who frequently find themselves in prolonged idle conditions or traffic congestion.

Operation

When engine temperature reaches a predetermined point, the EITMS turns off the rear cylinder fuel injector. The rear cylinder becomes an "air pump" which works to cool the engine.

EITMS activates (rear cylinder turns off) when **all** of the following conditions are met:

- Ambient temperature or engine temperature exceeds temperature threshold.
- Throttle control is at idle.
- Vehicle speed under 2 km/h (1 mph).
- Engine speed under 1200 rpm.

NOTE

EITMS does not activate within the first four minutes after starting the vehicle.

EITMS disables (rear cylinder begins firing again) if **any one** of the following occurs:

- Ambient temperature or engine temperature falls below temperature threshold.
- Throttle control is above idle.
- Vehicle speed exceeds 3 km/h (2 mph).
- Engine speed exceeds 1350 rpm.
- Clutch is released with vehicle in gear.

When the engine is in EITMS operation, you may notice a difference in idle cadence. Additionally, there may be a unique exhaust odor. These are both considered to be normal conditions.

Enabling/Disabling EITMS

Enabled: The EITMS engine cooling feature automatically activates whenever the vehicle comes to a complete stop and is idling during elevated temperature conditions. When the feature is enabled, it may not activate under cool riding conditions.

Disabled: The EITMS feature is not active under any conditions.

EITMS can be enabled or disabled by performing the following procedure.

1. Bring an assigned fob within range. Push the engine OFF/RUN switch on the right handlebar to the RUN position (the motorcycle may be running or not running).
2. Push the throttle to roll-off position and hold.
3. See Figure 36. After approximately 3 seconds, the cruise indicator lamp will either flash green (EITMS enabled) or orange (EITMS disabled).
4. Repeat the procedure as necessary to enable or disable EITMS.

NOTE

- *A flashing cruise lamp indicates the EITMS setting. A solid (non-flashing) lamp indicates the cruise control setting.*
- *The EITMS setting remains in effect until it is changed by the rider or dealer. There is no need to reconfigure EITMS at each startup.*

STOPPING THE ENGINE

1. Push the off/run switch to off.
2. Remove assigned fob from range.

NOTE

If the engine stalls or stops for any reason, push the off/run switch to off to prevent battery discharge.

INDICATORS

Check Engine Lamp

See Figure 35 or Figure 36. The check engine lamp indicates the condition of the engine/engine management system.

The check engine lamp normally comes on when the ignition is first turned on. During this time, the engine management system runs a series of self-diagnostics.

If the engine lamp does not turn off after starting the engine or comes on at any other time, see a Harley-Davidson dealer.

Low Fuel Lamp

Solid: See Figure 35 and Figure 36. The low fuel warning lamp indicates when the gasoline in the tank reaches the low fuel level (approximate). Refer to Specifications (Page 25) for the low fuel level. See Odometer Window Displays (Page 84) for fuel range features.

Flashing: If the low fuel lamp flashes continuously or remains on after filling the fuel tank, see a Harley-Davidson dealer.

Battery Discharge Lamp

See Figure 35 and Figure 36. The battery discharge lamp indicates overcharging or undercharging of the battery. Refer to Battery Maintenance (Page 162).

Security Lamp

See Figure 35 and Figure 36. The security lamp displays the status of the security system and electrical self-diagnostics for the motorcycle. Refer to SECURITY SYSTEM (Page 59) for security system operation.

Flashing: The security system is armed.

Solid (security system armed): The alarm has been activated.

Solid (security system disarmed): If the lamp remains on after the security system has been disarmed, see a Harley-Davidson dealer.

Turn Signal Indicator Lamps

Flashing: A turn signal is activated. When the 4-way hazard flashers are operating, both turn indicators flash simultaneously.

Rapid flashing: A turn signal bulb is not operating. Exercise caution and use hand signals. Replace inoperative components at earliest opportunity.

Headlamp High Beam Lamp

See Figure 35 and Figure 36. The headlamp high beam lamp is on when the high beam or flash to pass switch is activated.

Neutral Lamp

See Figure 35 and Figure 36. The neutral lamp is on when the transmission is in neutral.

Cruise Control Lamp (If Equipped)

Off: Cruise control is not enabled.

Orange: Cruise control is enabled. Cruising speed is not set or has been disengaged.

Green: Cruising speed is set. Motorcycle speed is maintained by the cruise control system.

Auxiliary/Fog Lamp Indicator Lamp

The auxiliary/fog lamp indicator is on when the auxiliary/fog lamps are turned on (for equipped models).

ABS Lamp

▲ WARNING

If ABS lamp continues flashing at speeds greater than 3 mph (5 km/h) 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)

Flashing: See Figure 35 and Figure 36. On vehicles with ABS, the ABS lamp begins flashing when the vehicle is turned on. The flashing lamp indicates that the system is in self-diagnosis mode. It continues to flash until motorcycle speed exceeds 3 mph (5 km/h). ABS is not operational until the lamp turns off.

Solid: Continuous illumination of the lamp indicates an ABS malfunction. The ABS is disabled and the brakes are operating as if they were non-ABS brakes. See a Harley-Davidson dealer for service.

Oil Pressure Lamp

NOTICE

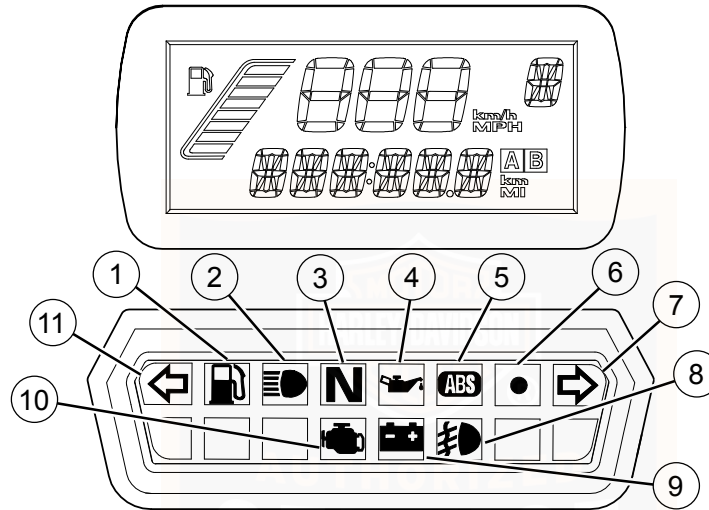
If the oil pressure indicator lamp remains lit, always check the oil supply first. If the oil supply is normal and the lamp is still lit, stop the engine at once and do not ride further until the trouble is located and the necessary repairs are made. Failure to do so may result in engine damage. (00157a)

See Figure 35 and Figure 36. The oil pressure lamp turns on when the ignition is turned on. The lamp remains on until the engine is started.

If the lamp is on while the engine is running, sufficient oil is not circulating through the engine.

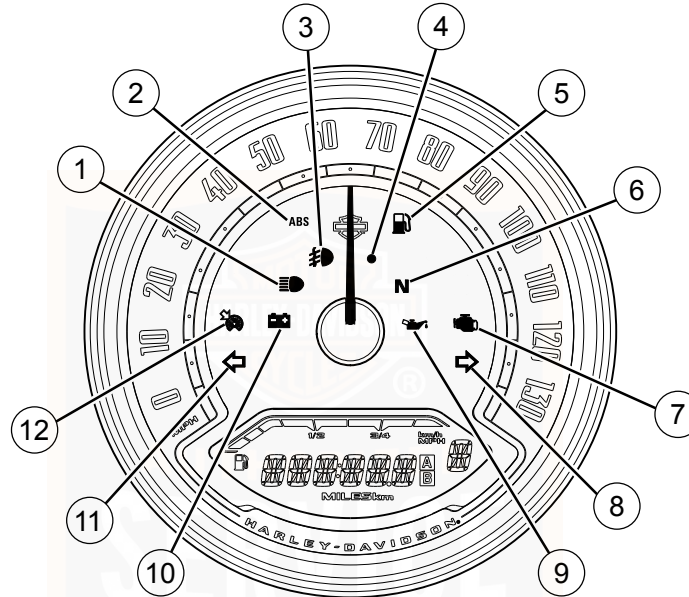
Check and add engine oil as necessary. See Check Engine Oil Level (Page 134). For other possible causes, see Engine (Page 185).

If the engine oil level is sufficient and the lamp remains on, stop the engine immediately. See a Harley-Davidson dealer for service.



- | | |
|-----------------------|-----------------------|
| 1. Low fuel | 7. Right turn signal |
| 2. Headlamp high beam | 8. Auxiliary/fog lamp |
| 3. Neutral | 9. Battery discharge |
| 4. Oil pressure | 10. Check engine |
| 5. ABS | 11. Left turn signal |
| 6. Security system | |

Figure 35. Instrument Lamps: Street Bob (FXBB), Breakout 114 (FXBRS), FXDR 114 (FXDRS), Softail Standard (FXST)



- | | |
|-----------------------|----------------------------------|
| 1. Headlamp high beam | 7. Check engine |
| 2. ABS | 8. Right turn signal |
| 3. Auxiliary/fog lamp | 9. Oil pressure |
| 4. Security system | 10. Battery discharge |
| 5. Low fuel | 11. Left turn signal |
| 6. Neutral | 12. Cruise control (if equipped) |

Figure 36. Instrument Lamps: Typical

SIDE-MOUNTED LICENSE PLATE

See Figure 37. 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.

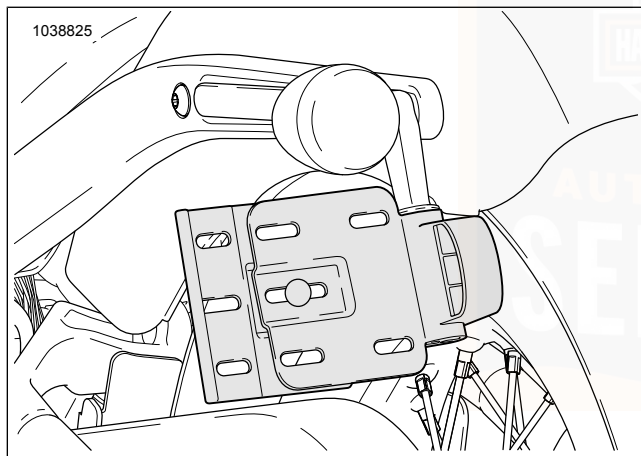


Figure 37. Side-Mounted License Plate Assembly

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)

See Figure 38. The front brake hand lever (1) controls the front wheel brake. The brake lever is located on the right handlebar. Operate the hand lever with the fingers of the right hand.

Rear Brake Pedal

See Figure 38. The rear brake pedal (2) controls the rear wheel brake. The brake pedal is located on the right side. Operate the rear brake pedal with the right foot.

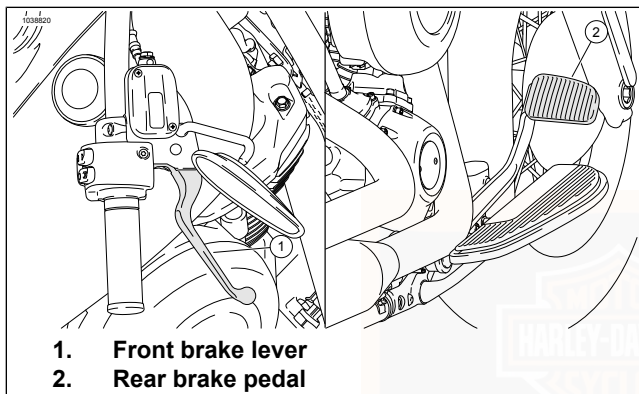


Figure 38. Brake Controls

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)

Harley-Davidson's 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.

See Figure 39. Models with ABS have ABS module (EHCU) located behind right side cover.

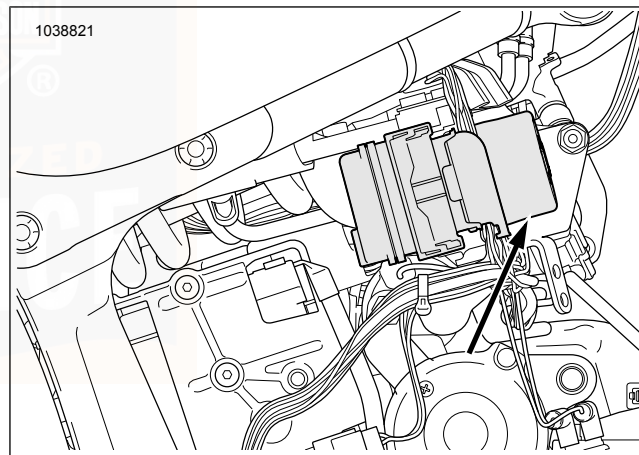


Figure 39. ABS Module (EHCU)

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 recognizes 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 33.

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 do not lock until the end of the stop when motorcycle speed reaches approximately 4 mph (6 km/h) 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 Table 33 can reduce ABS braking performance.

Table 33. 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 3 mph (5 km/h). ABS is not operational until the lamp turns off. If the lamp continues flashing at speeds greater than 3 mph (5 km/h), 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 3 mph (5 km/h) or on rear wheel below 5 mph (8 km/h).

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 40. Engage the next higher gear when the motorcycle reaches the shifting speed. Refer to Table 34.

Table 34. Recommended Upshift 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
Fifth to sixth	55	85

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.

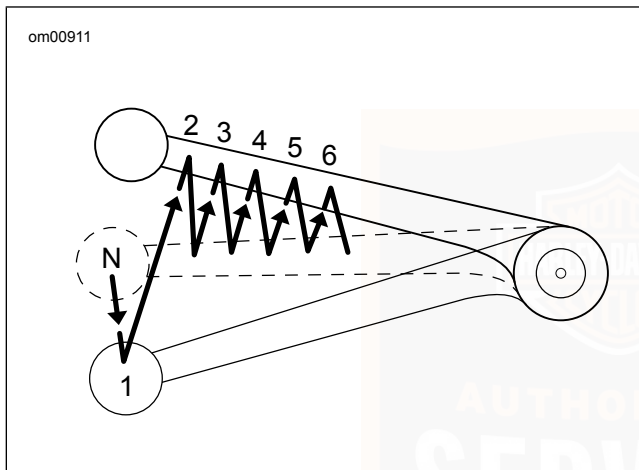


Figure 40. Shifting Sequence: Upshift

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 41. When speed decreases, as when climbing a hill or slowing for a turn, shift to the next lower gear. Refer to Table 35.

Table 35. Recommended Downshift Speeds

GEAR CHANGE	mph	km/h
Sixth to fifth	50	80
Fifth to fourth	40	65
Fourth to third	30	50
Third to second	20	30
Second to first	10	15

NOTE

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

- 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.

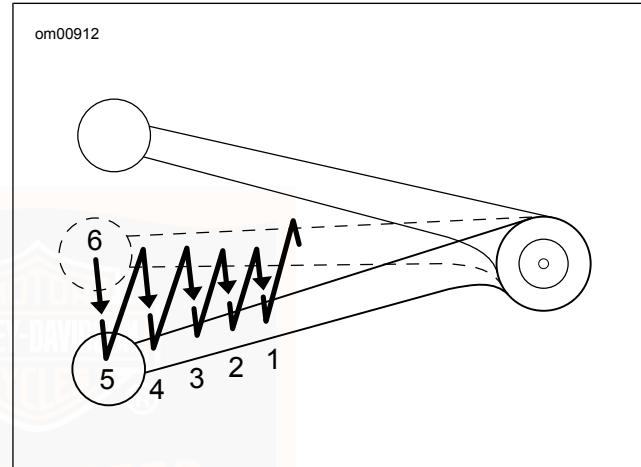


Figure 41. Shifting Sequence: Downshift

CRUISE CONTROL

NOTE

Cruise control is optional on some models and may not have been installed.

▲ WARNING

Do not use the cruise control system in heavy traffic, on roads with sharp or blind curves or on slippery roads of any kind. Using the cruise control in these circumstances can cause loss of control, which could result in death or serious injury. (00083a)

▲ 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)

Turn Cruise On

NOTE

Cruise control operates when:

- *At least 10 seconds have lapsed since the engine was started.*
- *Vehicle speed is between 25–90 mph (40–145 km/h) in second or higher gear.*

See Figure 42. Press the CRUISE switch to turn on cruise (1). When on, the cruise icon in the speedometer face glows amber.

Set Cruise Speed

See Figure 42. When the motorcycle reaches your intended speed, press the SET/- switch down to set the cruise speed (2). The amber cruise icon changes to green.

If necessary, adjust the cruise speed to match the speed limit or traffic conditions:

Increase/Decrease Cruise

Tapping the RES/+ switch up increases speed by 1 mph (1.6 km/h). Holding up the RES/+ switch gradually increases cruise speed.

Tapping the SET/+ switch down decreases speed by 1 mph (1.6 km/h). Holding the switch down gradually decreases cruise speed.

Disengage Cruise

See Figure 42. To drop out of cruise speed, roll the throttle closed through the roll-off switch (3).

Cruise also disengages when the rider:

- Squeezes the front brake lever or presses the rear brake pedal.
- Squeezes the clutch lever.

- Rolls the throttle open more than 10 mph (16 km/h) above the set speed.

Resume Cruise

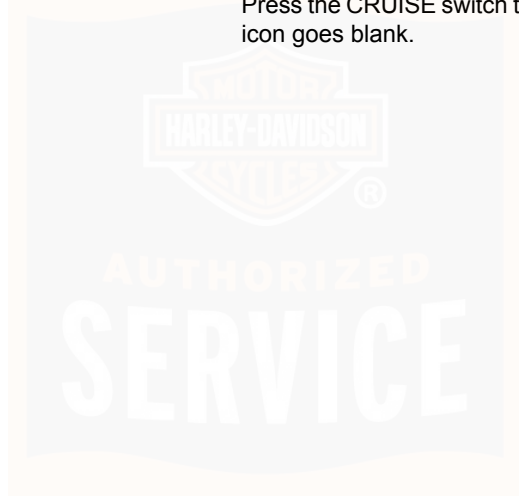
NOTE

If the current speed is more than 15 mph (24 km/h) below the cruise speed, cruise will not resume.

See Figure 42. If cruise has been disengaged yet the cruise indicator is amber, pressing the RES/+ switch up resumes cruise (4). The icon glows green. The motorcycle automatically resumes cruise at the set speed.

Turn Cruise Off

Press the CRUISE switch to turn off cruise control. The cruise icon goes blank.



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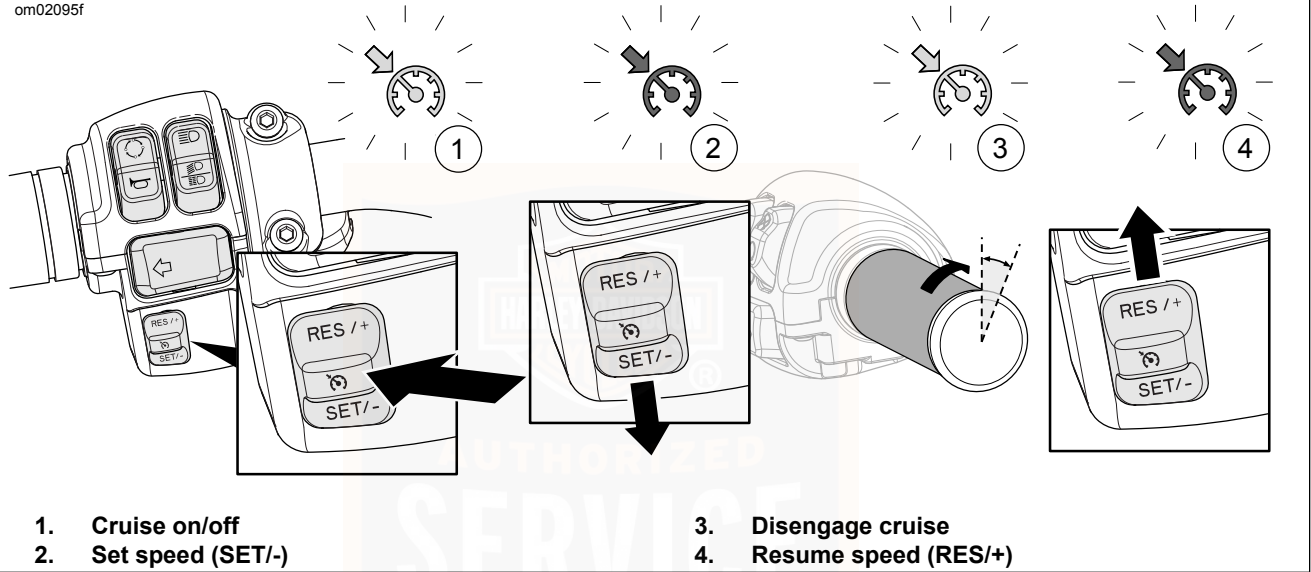


Figure 42. Cruise Control

USB PORT

⚠ WARNING

Set volume levels and other controls on audio and electronic devices before riding. Distractions can lead to loss of control, resulting in death or serious injury. (00088b)

See Figure 6. Your motorcycle may be equipped with a USB port to connect with a phone or media device. Use an interface cable to connect with these devices. The USB port is powered and operational when the vehicle is turned on or in accessory mode.

Keep USB port covered when not in use.

NOTE

Do not leave items connected to the USB port unattended.

Do not use media players with hard drives. Vibration may cause internal damage.

WINDSHIELD

APPLICABILITY



- 2020 HERITAGE CLASSIC 114 (FLHCS)
- 2020 HERITAGE CLASSIC (FLHC)

NOTICE

Polycarbonate windscreens/windshields require proper attention and care to maintain. Failure to maintain polycarbonate properly can result in damage to the windscreen/windshield. (00483d)

NOTICE

Use only Harley-Davidson recommended products on Harley-Davidson windshields. Do not use harsh chemicals or rain sheeting products, which can cause windshield surface damage, such as dulling or hazing. (00231c)

Removal

NOTE

Avoid contact with headlamp assembly to prevent cosmetic damage.

1. See Figure 43. Move the TOP of the windshield assembly (1) forward, until the TOP bracket (2) notches slide away from the grommets (3).

- Carefully lift the windshield bracket **BOTTOM** notches off the bottom grommets.

Installation

- See Figure 43. Verify grommets (3) and brackets (2) are in place and in good condition.

NOTE

If damage or wear is noticed, see a Harley-Davidson dealer.

- Slide the **BOTTOM** windshield bracket (2) notches onto the bottom grommets (3).
- Slide the **TOP** bracket notches onto the top grommets.

NOTE

Ensure all four mounting points are fully seated into the mounting grommets.

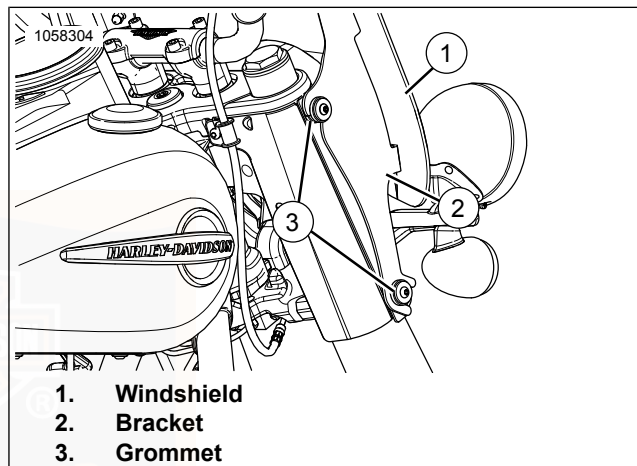


Figure 43. Windshield Assembly

FAIRING

APPLICABILITY	
	<ul style="list-style-type: none">• 2020 SPORT GLIDE (FLSB)

Removal

NOTICE

Polycarbonate windscreens/windshields require proper attention and care to maintain. Failure to maintain polycarbonate properly can result in damage to the windscreen/windshield. (00483d)

NOTICE

Use only Harley-Davidson recommended products on Harley-Davidson windshields. Do not use harsh chemicals or rain sheeting products, which can cause windshield surface damage, such as dulling or hazing. (00231c)

NOTE

Windshields require special care. Do not use ammonia-based or gas station window cleaners. These cleaners can damage the windshield. For proper windshield maintenance, see Windshield Care (Page 127).

1. See Figure 44. Remove fairing.
 - a. Point the front wheel straight forward.
 - b. Open clamps (4).
 - c. Straddle fender. Lift fairing (3) up over headlamp.

Installation

⚠ WARNING

Be sure that steering is smooth and free without interference. Interference with steering could result in loss of vehicle control and death or serious injury. (00371a)

1. See Figure 45. Inspect fairing.
 - a. Verify inner fairing bumpers (1) and clamp bumpers (3) are in place, clean, and in good condition.

NOTE

If damage or wear is noticed, see a Harley-Davidson dealer.

- b. Open and close clamps (4) to verify they are in working order.

2. Install fairing.
 - a. Point the front wheel straight forward.
 - b. Open clamps (4).
 - c. Straddle front fender. Place fairing over headlamp and onto front forks (5).
 - d. See Figure 44. Position upper bumper (2) on upper fork bracket (1).
 - e. Verify lower bumper (5) is seated on lower fork bracket (6).
 - f. Lock clamps.
 - g. Verify the upper bumpers and lower bumpers are properly seated and fairing is secure.
 - h. Verify there are no cables or wires pinched.

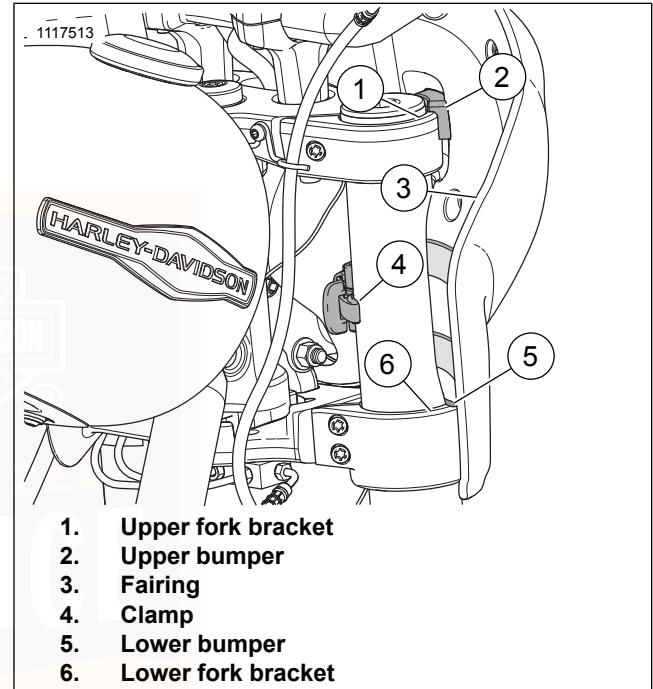


Figure 44. Fairing Installed

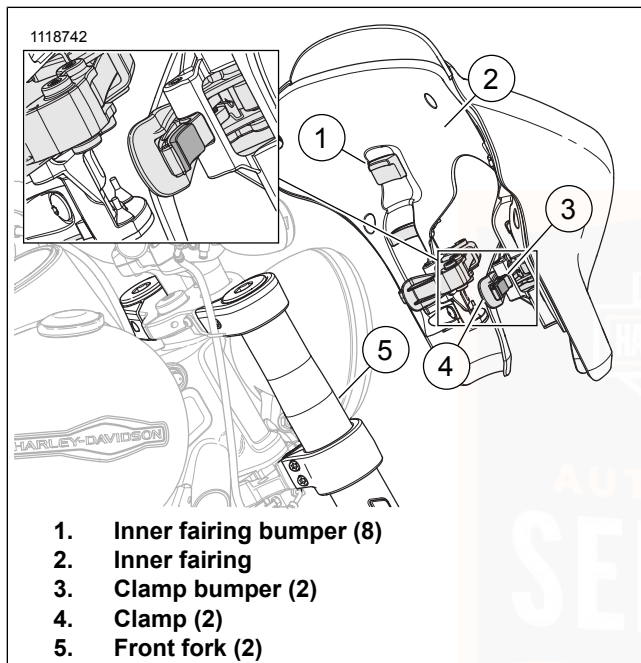


Figure 45. Fairing Clamps

APPLICABILITY



- 2020 FXDR 114 (FXDRS)

Removal

1. See Figure 46. Remove fairing.
 - a. Pull fairing (1) forward to release mounting studs (2) from grommets (3).
 - b. Remove fairing.

Installation

NOTE

If damage or wear is noticed, see a Harley-Davidson dealer.

1. Inspect fairing.
 - a. Check mounting studs and grommets for damage.
2. Install fairing.
 - a. Place fairing over headlamp and align mounting studs and grommets.

- b. Push fairing straight back until fully seated.
- c. Verify the mounting studs are properly seated and fairing is secure.

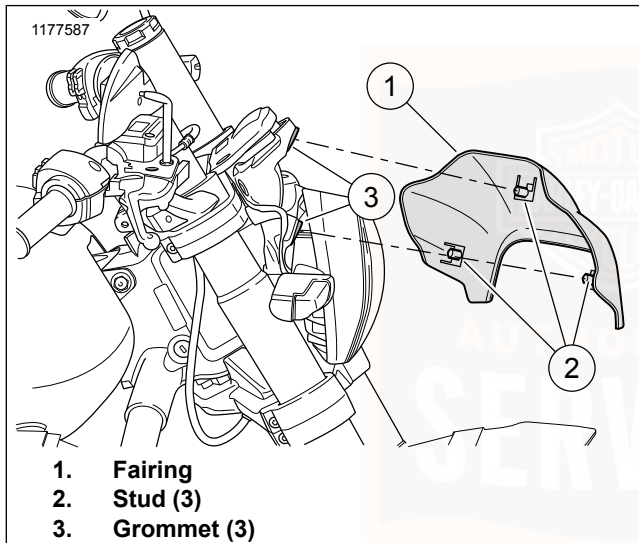


Figure 46. Fairing

APPLICABILITY



- 2020 LOW RIDER S (FXLRS)

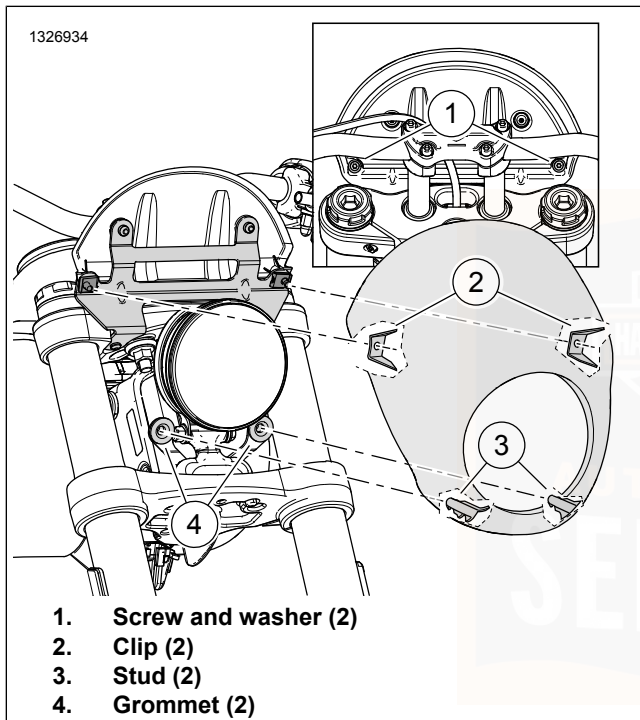
Removal

1. See Figure 47. Remove fairing.
 - a. Remove the screws and washers (1).
 - b. Pull fairing forward to release mounting studs (2) from grommets (3).
 - c. Remove fairing.

Installation

1. Install fairing.
 - a. Place fairing over headlamp and align mounting studs and grommets.
 - b. Push fairing straight back until fully seated.
 - c. Align the clips (2) with holes in bracket.
 - d. Install washers and screws (1). Tighten. 20–30 **in-lbs** (2.3–3.3 N·m)

1326934



1. Screw and washer (2)
2. Clip (2)
3. Stud (2)
4. Grommet (2)

Figure 47. Fairing

SADDLEBAGS

APPLICABILITY



- 2020 HERITAGE CLASSIC 114 (FLHCS)
- 2020 HERITAGE CLASSIC (FLHC)

NOTICE

Check that saddlebag frame(s) are fully seated and tightly secured with mounting hardware. Failure to do so could result in the saddlebags becoming detached and/or damaged. (00171b)

▲ WARNING

Do not exceed saddlebag weight capacity. Put equal weight in each bag. Too much weight in saddlebags can cause loss of control, which could result in death or serious injury. (00383a)

NOTE

Maximum saddlebag weight capacity is 15 lb (6.80 kg) in each saddlebag.

Opening

1. See Figure 48. Unlock saddlebag.
 - a. Insert key into latch button (7) and rotate one-half turn counterclockwise.
 - b. Remove key
2. Press latch button.
3. Lift the lid from the inner side of the saddlebag.

Closing

1. Close the saddlebag lid.
2. Check that the lid is secure.
3. See Figure 48. Lock saddlebag.
 - a. Insert key into latch button (7) and rotate one-half turn clockwise.
 - b. Remove key

Removal

1. See Figure 48. Open saddlebags.
2. Use one hand to support the saddlebag and another hand to remove the saddlebag mounting screws (1).

NOTE

It is not necessary to remove the O-ring (3) and spacer (2) from the saddlebag mounting screws. O-ring is used to help keep spacer in place but does not need to be present.

3. Lift saddlebag to disengage the saddlebag docking rod (6) from the mounting bracket grommet (5).

Installation

NOTE

If damage or wear is noticed, see a Harley-Davidson dealer.

1. See Figure 48. Verify spacers (2), O-rings (3), and grommets (5) are in place and in good condition.
2. Align the saddlebag docking rod with the mounting bracket grommet (5).
3. Align the saddlebag with the mounting holes on the fender support (4).

4. Install saddlebag mounting screws. Tighten.
Torque: 21–27 ft-lbs (28.5–36.5 N·m) *Saddlebag mounting screws*
5. Close saddlebag.
6. Check that the lid is secure.

⚠ WARNING

Do not allow passenger to use saddlebags as grab handles. Failure to use a grab strap, designed for passengers to hold onto when riding, could result in death or serious injury. (00081a)

⚠ WARNING

See the **Accessories and Cargo** 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. (00021b)

For proper saddlebag loading, see the **Accessories and Cargo** section of **Safe Operating Rules** (Page 3)

For proper saddlebag maintenance, see **Leather and Vinyl Care** (Page 128).

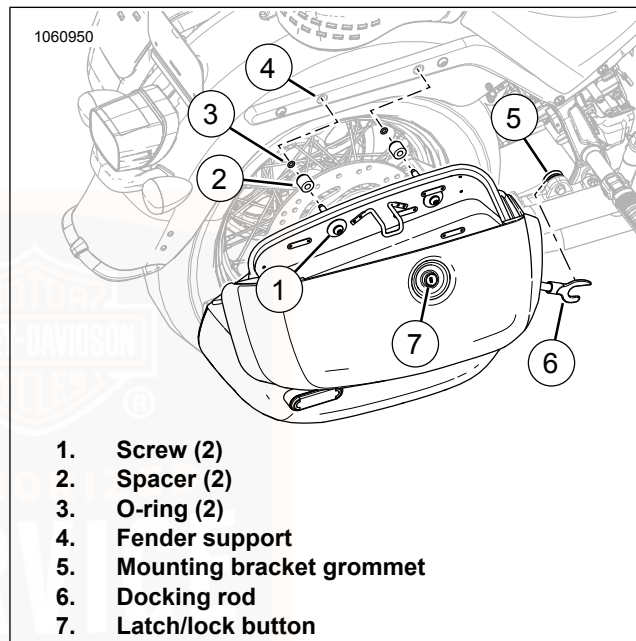


Figure 48. Saddlebag Assembly

APPLICABILITY	
<input checked="" type="checkbox"/>	• 2020 SPORT GLIDE (FLSB)

NOTICE

Check that saddlebag frame(s) are fully seated and tightly secured with mounting hardware. Failure to do so could result in the saddlebags becoming detached and/or damaged. (00171b)

⚠ WARNING

Do not exceed saddlebag weight capacity. Put equal weight in each bag. Too much weight in saddlebags can cause loss of control, which could result in death or serious injury. (00383a)

NOTE

Maximum saddlebag weight capacity is 15 lb (6.80 kg) in each saddlebag.

Opening

1. See Figure 49. Unlock saddlebag.
 - a. Insert key into lock (1) and rotate one-quarter turn counterclockwise.

- b. Remove key.
2. Lift latch lever (2).
3. Open saddlebag by pulling outer clamshell (3) away from inner clamshell.

Closing

1. See Figure 49. Close saddlebag.
 - a. Close clamshell by lifting outer clamshell (3).
 - b. While holding saddlebag outer clamshell closed lower latch lever (2).
2. Lock saddlebag.
 - a. Insert key into lock (1) and rotate one-quarter turn clockwise.
 - b. Remove key.

Removal

1. See Figure 49. Open saddlebag outer clamshell (3).

2. Pull out and turn lock knob (4) to the unlocked position (5).
3. Close saddlebag outer clamshell and lower latch lever (2).
4. See Figure 51. Slide saddlebag rearward to disengage the saddlebag docking rod (4) from the mounting bracket grommet (5).
5. Lift saddlebag outward away from motorcycle.

Installation

1. See Figure 49. Open saddlebag outer clamshell (3).
2. Pull out and turn lock knob (4) to the unlocked position (5).
3. See Figure 50 and Figure 51. Place saddlebag mounting bracket (2) on mounting studs (3) while aligning the saddlebag docking rod (4) with the mounting bracket grommet (5). Slide saddlebag completely forward.

NOTE

Indicator flag is for showing when lock knob is unlocked only. Do not use indicator flag (1) to lock or unlock saddlebag from motorcycle.

4. Rotate lock knob to the locked position until a click is heard. Without pulling out on the knob, verify that knob cannot rotate back to the unlocked position.
5. Verify the indicator flag (1) is not showing and saddlebag is securely fastened.
6. Pull saddlebag rearward to verify it is secure.
7. Close saddlebag.

▲ WARNING

Do not allow passenger to use saddlebags as grab handles. Failure to use a grab strap, designed for passengers to hold onto when riding, could result in death or serious injury. (00081a)

⚠ WARNING

See the Accessories and Cargo 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. (00021b)

For proper saddlebag loading, see the Accessories and Cargo section of Safe Operating Rules (Page 3).

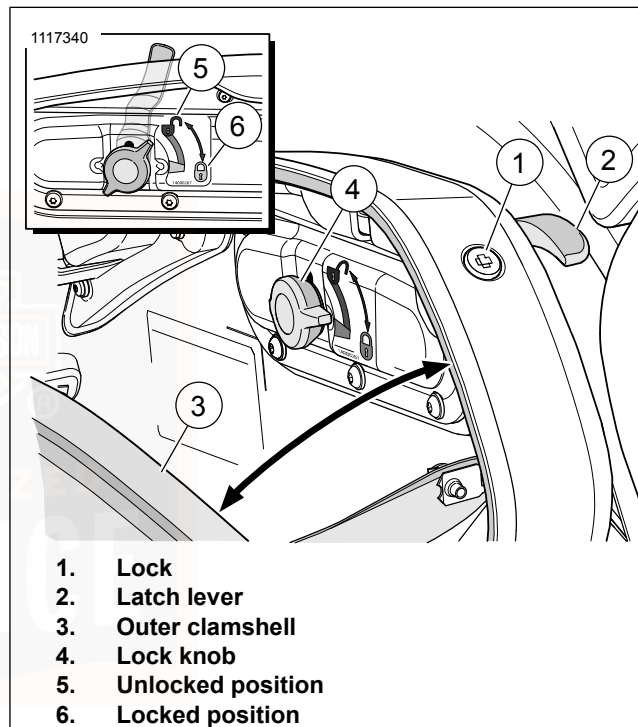


Figure 49. Saddlebag Lock Knob

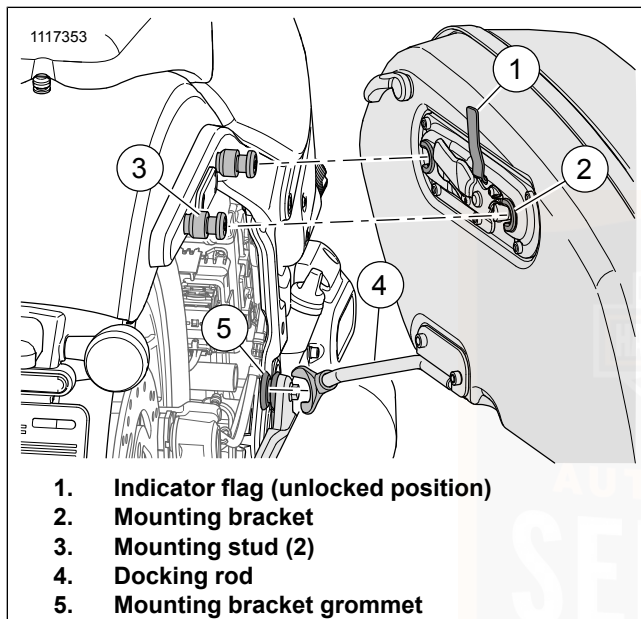


Figure 50. Saddlebag Mounting Bracket

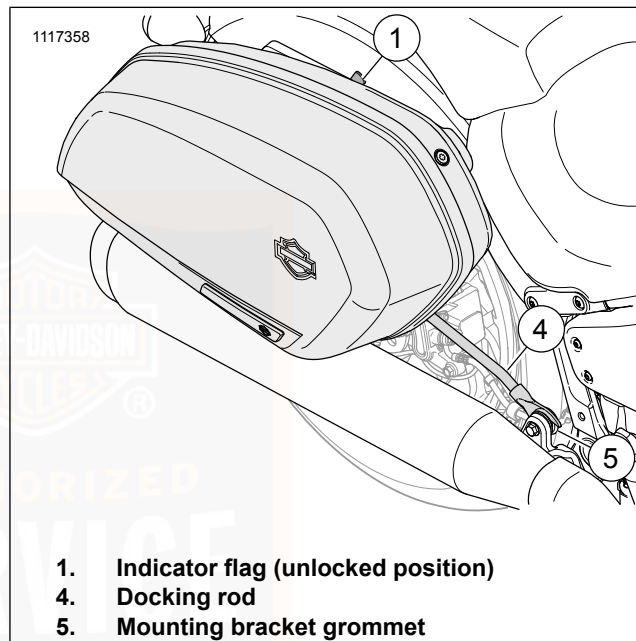


Figure 51. Saddlebag Docking Rod

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.

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.

CLEANING AND GENERAL CARE

- Harley-Davidson cleaning products are tested extensively for use on motorcycle surfaces. These products are formulated to be compatible with one another. See a Harley-Davidson dealer to purchase recommended cleaning products. Refer to Recommended Cleaning Products (Page 120).
- Care, cleaning and protection of the vehicle surfaces is the responsibility of the owner.
- Clean and protect the cosmetic surfaces on your motorcycle as often as possible to inhibit rust and corrosion.
- Some painted finishes and other surfaces may be scratched if gravel, dirt or grime are rubbed across the surface during washing. Use clean towels and avoid rubbing sediment across gloss finishes.
- Do not use paper towels, cloth diapers or other materials with nylon fibers which can cause fine scratches to surfaces.
- 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)

Cleaning Wheels and Tires

NOTE

Corrosion to wheels is not considered to be a defect in materials or workmanship.

- Fat Boy® (FLFB/S) bare aluminium wheels are equipped with corrosion protection coating, do not use Bare Metal Polish or corrosion protection coating will be removed.
- Wheels can corrode or be cosmetically damaged if they are not properly cleaned, polished and preserved.
- Harley-Davidson recommends that wheels be cared for weekly.
- 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 on your motorcycle. Refer to Recommended Cleaning Products (Page 120).

RECOMMENDED CLEANING PRODUCTS

The following products are recommended for Harley-Davidson motorcycles, parts and accessories. Your motorcycle may not have all the components shown in the tables.

Table 36. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
BARE ALUMINUM WHEEL PROTECTANT - INDIVIDUAL WIPES 93600063	Corrosion control for bare aluminum surfaces. ^(†)	No	No	Yes	No	"Burst" collection
BARE METAL POLISH 93600028 (U.S.) 93600083 (Non-U.S.)	Polishes non-clear coated polished aluminum or polished stainless steel surfaces.**	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
BOOT MARK REMOVER 93600001 (U.S.) 93600069 (Non-U.S.)	Removes boot marks from chrome exhaust components.	No	No	No	No	Exhaust system
BUG REMOVER 93600022 (U.S.) 93600075 (Non-U.S.)	Removes bugs from metal, plastic or painted surfaces. Also available as individual wipes (97400-10).	Yes	Yes	Yes	No	
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 93600064 (U.S.) 93600078 (Non-U.S.)	Waterless quick cleaner and detailer.	Yes	Yes	Yes	Yes	

Table 36. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
ENGINE BRIGHTENER 93600002 (U.S.) 93600068 (Non-U.S.)	Rejuvenates wrinkle black engine finish.	No	No	No	No	Wrinkle black engines
GLAZE POLY SEALANT 93600026 (U.S.) 93600079 (Non-U.S.)	Provides a protective barrier for glossy paint surfaces and chrome.	Yes	Yes	As applicable	No	
GLOSS DETAILER 93600062 (U.S.) 93600073 (Non-U.S.)	Produces high gloss with UV protection. Allows chrome to breathe, unlike wax. Good for windshields. Also available as individual wipes (97401-10).	Yes	Yes	Yes	No	
HARLEY TRAVEL CARE KIT 93600007	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 93600012 (U.S.) 93600071 (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 93600025 (U.S.) 93600074 (Non-U.S.)	Removes fine scratches and swirls.	Yes	Yes	No	No	

Table 36. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
SEAT, SADDLEBAG & TRIM CLEANER 93600010	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
SPRAY CLEANER & POLISH 93600029 (U.S.) 93600084 (Non-U.S.)	Aerosol quick cleaner and detailer. Reduces static attraction to dust. Works great for removing bugs. ⁽²⁾	Yes	Yes	Yes	No	
SUNWASH BIKE SOAP 93600023 (U.S.) 93600077 (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 93600024 (U.S.) 93600076 (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
WINDSHIELD CLEANER 93600067	Quick windshield cleaner in convenient single use wipe.	Yes	Yes	No	No	Windshield
<p><i>(1) BARE ALUMINUM WHEEL PROTECTANT - INDIVIDUAL WIPES can be used on Fat Boy (FLFB) bare aluminum wheels.</i></p> <p><i>(2) DO NOT use BARE METAL POLISH or SPRAY CLEANER & POLISH on Fat Boy (FLFB) aluminum wheels, protective coating will be removed.</i></p>						

Table 37. 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.
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.

Table 38. Wheel Polish and Sealing Products

WHEELS	PRODUCT	DESCRIPTION
Anodized	GLAZE POLY SEALANT	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.
Bare aluminum	BARE ALUMINUM WHEEL PROTECTANT	Creates a protective coating for bare aluminum wheels to prevent oxidation. Individual wipe.
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 aluminum or stainless steel	BARE METAL POLISH ⁽¹⁾	Microabrasive polish to refurbish polished wheels. Do not use on chrome.
<i>(1) DO NOT use on Fat Boy (FLFB) aluminum wheels, protective coating will be removed.</i>		

WASHING THE MOTORCYCLE

Use only recommended cleaning and care products. Refer to Recommended Cleaning Products (Page 120).

NOTE

During rinsing and washing, avoid direct spray on electrical components 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.

WINDSHIELD CARE

NOTICE

Polycarbonate windscreens/windshields require proper attention and care to maintain. Failure to maintain polycarbonate properly can result in damage to the windscreen/windshield. (00483d)

NOTICE

Use only Harley-Davidson recommended products on Harley-Davidson windshields. Do not use harsh chemicals or rain sheeting products, which can cause windshield surface damage, such as dulling or hazing. (00231c)

- Powdered, abrasive or alkaline cleanser can damage windscreen/windshields. Ammonia-based window cleaners cause permanent yellow effects to windshields.
- Do not use gas station windshield cleaner as finish can be damaged.
- Do not use a brush or squeegee as finish can be damaged.
- Do not clean in hot sun or high temperature.

Windshields require special care. However, windshields can be washed with WINDSHIELD CLEANER - INDIVIDUAL WIPES, SUNWASH BIKE SOAP or QUICK WASH when washing the entire motorcycle. Refer to Recommended Cleaning Products (Page 120).

NOTE

- Use BUG REMOVER to soft bug splatters. Wipe clean with a BUG EATER SPONGE.
 - Covering windshields with a clean, wet cloth for approximately 15-20 minutes before washing makes dried bug removal easier.
1. Use WINDSHIELD CLEANER to detail windshields.
 2. Wipe dry with a clean MICROFIBER DETAILING CLOTH.

NOTE

To minimize swirl marks, clean windshield when the motorcycle is cool and parked in the shade. Faint swirl marks are normal. Swirl marks are more visible on tinted windshields.

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 a 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.

128 After Riding

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, and 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. 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.

DENIM FINISH

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 will burnish or mar with age and use, thus adding character and personality to the finish. For recommended products, refer to Recommended Cleaning Products (Page 120).

- 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.

Cleaning Denim Finish

For Light deposits: Use DENIM PAINT CLEANER and a SOFTCLOTH.

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

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.

WHITEWALL TIRES

Use HARLEY-DAVIDSON WHEEL & TIRE CLEANER to clean whitewall tires following directions on the bottle.

STORING MOTORCYCLE

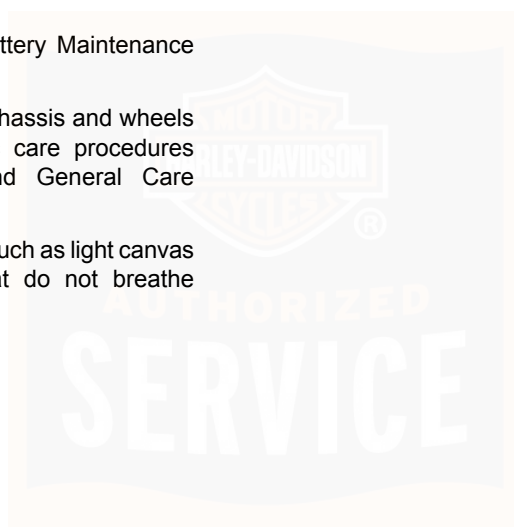
If the motorcycle will not be operated for several months, take steps to protect the motorcycle. Always protect parts against corrosion, preserve the battery and prevent the build-up of gum and varnish in the fuel before storage.

Make a list of everything you do and fasten it to a handlebar grip. When you take the motorcycle out of storage, this list is your reference/checklist to get your motorcycle in operating condition.

▲ 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)

1. Fill fuel tank and add a gasoline stabilizer. Use one of the commercially available gasoline stabilizers and follow the manufacturer's instructions.
2. Warm motorcycle to operating temperature. Change oil and turn engine over to circulate the new oil. See Change Oil and Oil Filter (Page 136).
3. Prepare battery for storage. See Battery Maintenance (Page 162).
4. To protect the body panels, engine, chassis and wheels from corrosion, follow the cosmetic care procedures before storage. See Cleaning and General Care (Page 119).
5. Cover the motorcycle with a material such as light canvas that breathes. Plastic materials that do not breathe promote condensation and corrosion.



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)

⚠ 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)

Service your motorcycle at the regular service intervals. Road conditions like dust, rain or riding styles can require servicing the motorcycle at more frequent intervals. See Service Intervals and Records (Page 213).

Though some of these procedures can be performed with a minimum of tools, always consult your Harley-Davidson dealer for updates. Remember, your authorized Harley-Davidson dealer always services your motorcycle with the latest factory approved methods and equipment.

Record each service to maintain the new motorcycle warranty. See Service Records (Page 213).

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 1000 mi (1,600 km), visit an authorized Harley-Davidson dealer for initial service. Refer to Service Records (Page 213).

PREPARING THE MOTORCYCLE FOR MAINTENANCE

⚠ WARNING

Be sure to check capacity rating and condition of hoists, slings, chains and cables before use. Exceeding capacity ratings or using lifting devices that are in poor condition can lead to an accident, which could result in death or serious injury. (00466c)

NOTE

Always support a motorcycle that is being serviced with blocks or stands.

Setting Motorcycle Upright

1. Place motorcycle upright on a level surface or suitable lift, if available.
2. Verify that the motorcycle is level.
3. Secure with tie-downs.

DISPOSAL AND RECYCLING

Help protect our environment! Many communities maintain facilities for recycling used fluids, plastics and metals. Dispose of or recycle used oil, lubricants, fuel, coolant, brake fluid and batteries in accordance with local regulations. Many Harley-Davidson parts and accessories are made of plastics and metals which can also be recycled.

ENGINE LUBRICATION

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)

Always use the proper grade of oil for the lowest temperature expected before the next scheduled oil change. Refer to Table 39.

This motorcycle was originally equipped with GENUINE HARLEY-DAVIDSON H-D 360 MOTORCYCLE OIL 20W50. H-D 360 is the preferred oil under normal operating conditions. If operation under extreme cold or heat are expected, refer to Table 39 for alternative choices.

If necessary and H-D 360 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 39. Recommended Engine Oils

TYPE	VISCOSITY	LOWEST AMBIENT TEMPERATURE	COLD-WEATHER STARTS BELOW 50 °F (10 °C)
Screamin' Eagle SYN3 Full Synthetic Motorcycle Lubricant	SAE 20W50	Above 30.2 °F (-1 °C)	Excellent
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 20W50	Above 39.2 °F (4 °C)	Good
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 50	Above 60.8 °F (16 °C)	Poor
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 60	Above 80.6 °F (27 °C)	Poor

Low Temperature Lubrication

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

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.

CHECK ENGINE OIL LEVEL

▲ 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)

NOTICE

Do not overfill oil. Doing so can result in oil carryover to the air cleaner leading to equipment damage and/or equipment malfunction. (00190b)

NOTE

Check engine oil level at each complete fuel refill.

Oil Level Cold Check

1. Place vehicle on level ground resting on the jiffy stand.

NOTE

Oil level on a cold engine should never be above the midway point.

2. See Figure 52. Check engine oil level.
 - a. Remove filler plug/dipstick.
 - b. Wipe off the dipstick.

- c. Insert the dipstick and tighten into the fill spout.
 - d. Remove filler plug/dipstick.
 - e. See Figure 53. Check oil level. The correct cold oil level is midway (2) between the ADD QT (1) and FULL HOT (3) marks on the dipstick.
3. If oil level is at or below the ADD QT mark, add only enough oil to bring the level to the ADD QT mark.
 4. Start and idle engine on jiffy stand for two minutes. Turn off engine.
 5. Check oil level. Add only enough to bring level midway between the ADD QT (1) and FULL HOT (3).

Oil Level Hot Check

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)

NOTE

Perform engine oil level hot check only with engine oil at normal operating temperature.

1. Ride motorcycle until engine oil reaches at least 200 °F (93 °C) or higher.

2. Allow engine to idle for 1-2 minutes on jiffy stand. Turn off engine.
3. See Figure 52. Check oil level.
 - a. Remove filler plug/dipstick.
 - b. Wipe off the dipstick.
 - c. Insert the dipstick and tighten into the fill spout.
 - d. Remove filler plug/dipstick.
 - e. See Figure 53. Check oil level. Oil level must register between the ADD QT and FULL HOT marks on the dipstick.
4. If oil level is at or below the ADD QT mark, add only enough oil to bring the level to the FULL HOT mark. Do not overfill.

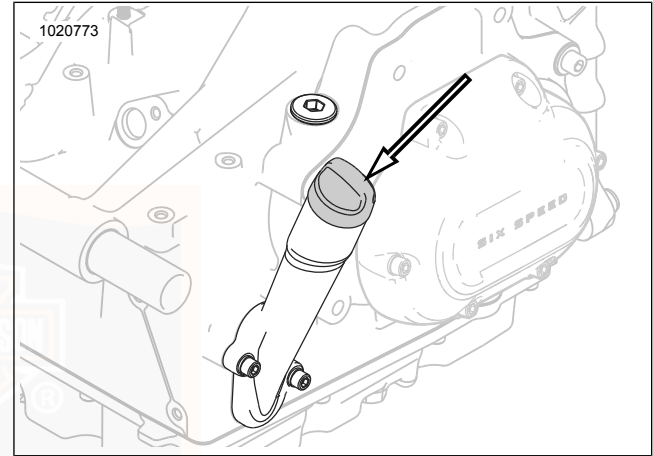


Figure 52. Engine Oil Filler Plug

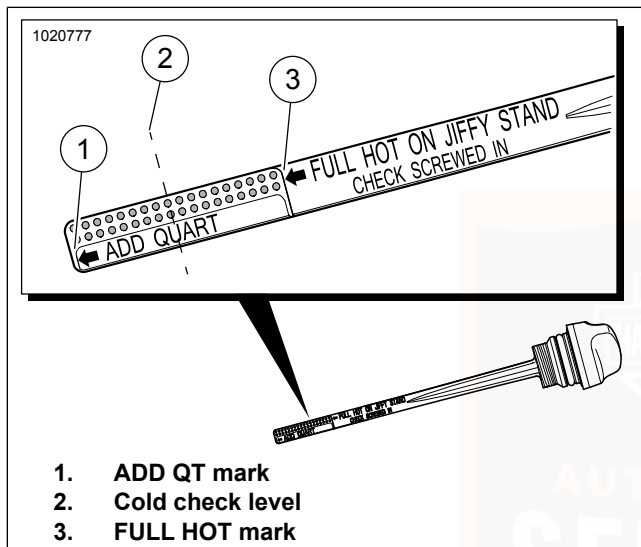


Figure 53. Engine Oil Dipstick

CHANGE OIL AND OIL FILTER

⚠ 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)

- Change engine oil at the first 1000 mi (1,600 km) for a **new** engine. After the initial service, change oil at regular intervals in normal service at warm or moderate temperatures. Refer to Service Records (Page 213).
 - Change oil at more frequent intervals in cold weather or severe operating conditions. See Winter Lubrication in Engine Lubrication (Page 132).
1. Run motorcycle until engine is at normal operating temperature. Turn off engine.
 2. Remove filler plug/dipstick.

NOTE

Replace drain plug O-ring.

3. See Figure 54. Remove the oil drain plug (2) and O-ring. Allow oil to drain completely.

NOTE

Use P&A Oil Catcher (Part No. 62700199) or equivalent to keep drain oil off crankcase when removing oil filter. Residual

drain oil could falsely appear as a crankcase oil leak at a later time.

4. Remove the oil filter using oil filter wrench and hand tools. Do not use with air tools.

Special Tool: OIL FILTER WRENCH (94863-10)

Special Tool: OIL FILTER WRENCH (94686-00)

5. Clean the oil filter mount flange.
6. Clean any residual oil for crankcase and transmission housing.
7. See Figure 55. Install **new** oil filter.
 - a. Lubricate gasket with a thin film of clean engine oil.
 - b. Install **new** oil filter.
 - c. Hand-tighten oil filter one-half to three-quarters of a turn after gasket first contacts filter mounting surface. Do NOT use oil filter wrench for installation.

NOTE

Use the proper grade of oil for the lowest temperature expected before the next oil change. Refer to Table 39 for recommended oil.

8. Install engine oil drain plug and **new** O-ring.
Torque: 14–21 ft-lbs (19–28.5 N·m) *Engine oil drain plug*
9. Add an initial volume of engine oil. Refer to Table 40.

Table 40. Initial Oil Fill

ITEM	QUANTITY
Engine oil initial fill	4.0 qt (3.8 L)

10. Verify proper oil level. See Check Engine Oil Level (Page 134).
 - a. Perform engine oil level **cold check**.
 - b. Start engine and carefully check for oil leaks around drain plug and oil filter.
 - c. Perform engine oil level **hot check**.

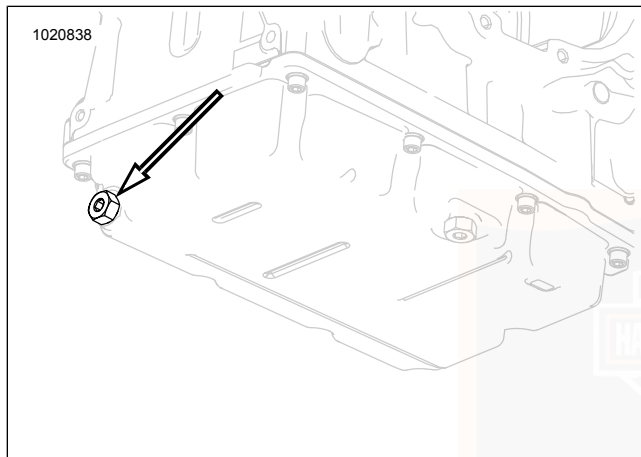


Figure 54. Engine Oil Drain Plug

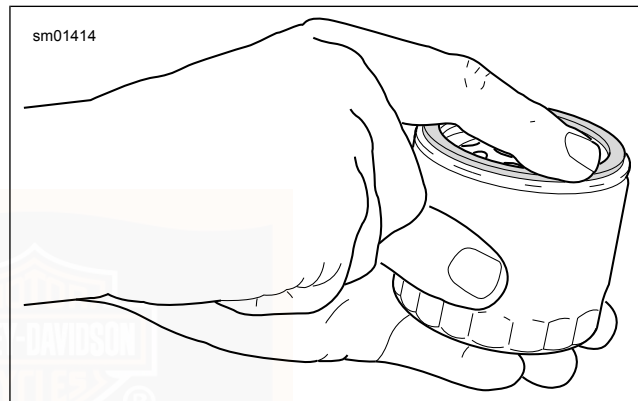


Figure 55. Lubricating New Oil Filter Gasket

OIL COOLER

Vehicle is equipped with an oil cooler. Keep the cooler clean and free from dirt and debris to maintain maximum cooling efficiency.

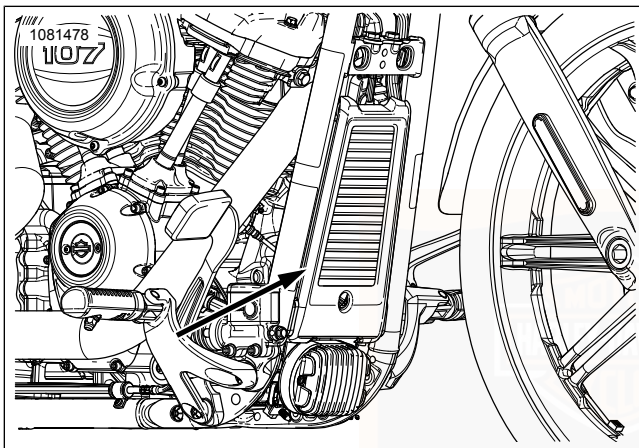


Figure 56. Oil Cooler

CHECK TRANSMISSION LUBRICANT

NOTE

Check transmission fluid with the motorcycle at ambient temperature. Inspect transmission dipstick O-ring. Replace if necessary.

1. Park motorcycle on a level surface on jiffy stand.
2. Remove right side cover. See Side Covers (Page 168)

3. See Figure 57. Remove transmission filler plug/dipstick. Wipe dipstick clean.
4. Install filler plug/dipstick until O-ring contacts the case. Do not tighten.
5. See Figure 58. Remove filler plug/dipstick. Check lubricant level on dipstick. Proper oil level is between the Add (A) (1) and Full (F) (2) marks.

NOTICE

Mixing mineral-based lubricants with SYN-3 in the transmission can damage the transmission. (00452b)

6. If lubricant level is low, add recommended Harley-Davidson lubricant to bring level to between the A mark and the F marks. Refer to Table 41.
7. Install filler plug/dipstick. Tighten to .
Torque: 25–75 **in-lbs** (2.8–8.5 N·m) *Transmission filler plug/dipstick*
8. Install right side cover. See Side Covers (Page 168)

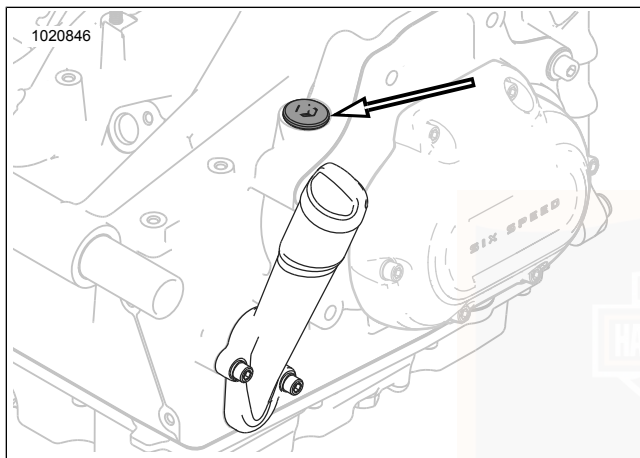


Figure 57. Transmission Filler Plug/Dipstick Location

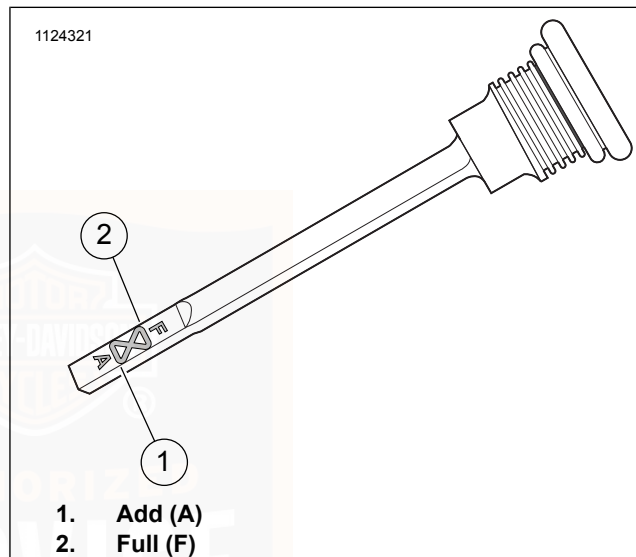


Figure 58. Transmission Lubricant Level

Table 41. Recommended Transmission Lubricants

LUBRICANT	QUANTITY *	
	fl oz	L
FORMULA+ TRANSMISSION AND PRIMARY CHAINCASE LUBRICANT	28	0.83
SCREAMIN' EAGLE SYN3 FULL SYNTHETIC MOTORCYCLE LUBRICANT 20W50	28	0.83
* Fill quantity for a transmission lubricant change.		

CHANGE TRANSMISSION LUBRICANT

1. See Figure 57. Remove transmission filler plug/dipstick.

⚠ 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)

2. See Figure 59. Remove transmission drain plug. Drain transmission.
3. Clean and inspect drain plug and O-ring.

NOTICE

Do not over-tighten filler or drain plug. Doing so could result in a lubricant leak. (00200b)

4. Install drain plug with **new** O-ring. Tighten. Do not over-tighten.

Torque: 14–21 ft-lbs (19–28.5 N·m) *Transmission drain plug*

5. Fill the transmission with recommended Harley-Davidson lubricant. Refer to Table 41.

Volume: 28 fl oz (0.83 L)

6. Check lubricant level. Add enough lubricant to bring the level between the add (A) and full (F) marks. See Figure 58.

7. Install filler plug/dipstick. Tighten.

Torque: 25–75 **in-lbs** (2.8–8.5 N·m) *Transmission filler plug/dipstick*

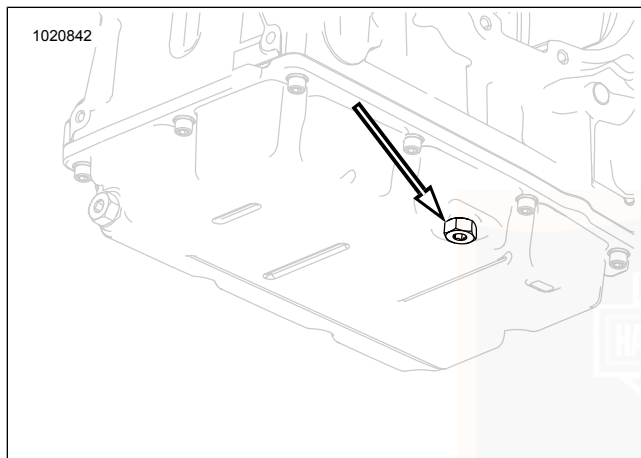


Figure 59. Transmission Drain Plug

CHANGE PRIMARY CHAINCASE LUBRICANT

1. Run motorcycle until engine is at normal operating temperature. Turn off engine.

⚠ 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)

142 Maintenance and Lubrication

2. Secure motorcycle upright (not leaning on jiffy stand) on a level surface.
3. See Figure 60. Drain primary chaincase.
4. Clean drain plug magnet. If plug has excessive debris, inspect the condition of chaincase components.
5. Install drain plug and **new** O-ring. Tighten.
Torque: 14–21 ft-lbs (19–28.5 N·m) *Primary chaincase drain plug*

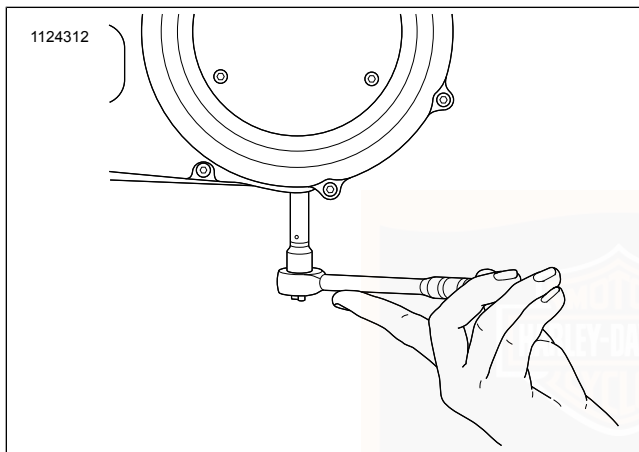


Figure 60. Removal/Installation of Chaincase Drain Plug

6. See Figure 62. Remove screws (3) and clutch inspection cover (2).

NOTE

Seal installed in groove in primary cover.

7. Remove seal (1). Wipe oil from primary cover and groove in inspection cover.

NOTICE

Do not overfill the primary chaincase with lubricant. Overfilling can cause rough clutch engagement, incomplete disengagement, clutch drag and/or difficulty in finding neutral at engine idle. (00199b)

8. Add lubricant.
 - a. Pour specified amount of FORMULA+ TRANSMISSION AND PRIMARY CHAINCASE LUBRICANT through clutch inspection cover opening. Refer to Table 42.
 - b. See Figure 61. Proper level is approximately at bottom of pressure plate OD.

Table 42. Primary Chaincase Lubricant

ITEM	DRY FILL ⁽²⁾		WET FILL ⁽³⁾	
	Oz	L	Oz	L
Amount ⁽¹⁾	40	1.18	36	1.06
<i>(1) Amount is approximate. Fill to bottom of pressure plate OD with vehicle upright.</i>				
<i>(2) Cover was removed and installed.</i>				
<i>(3) Lubricant was drained through the drain plug only.</i>				

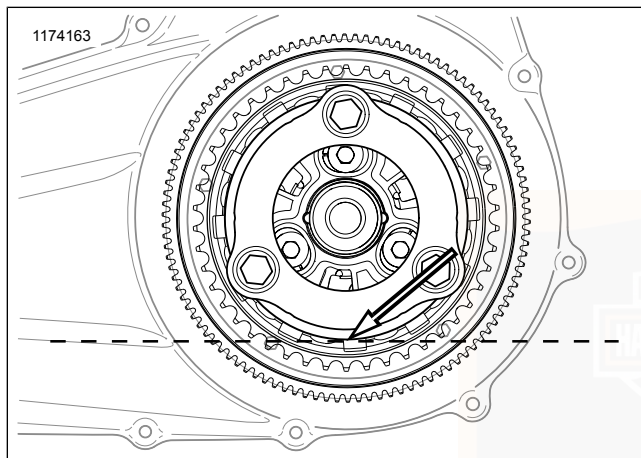


Figure 61. Primary Chaincase Lubricant Level

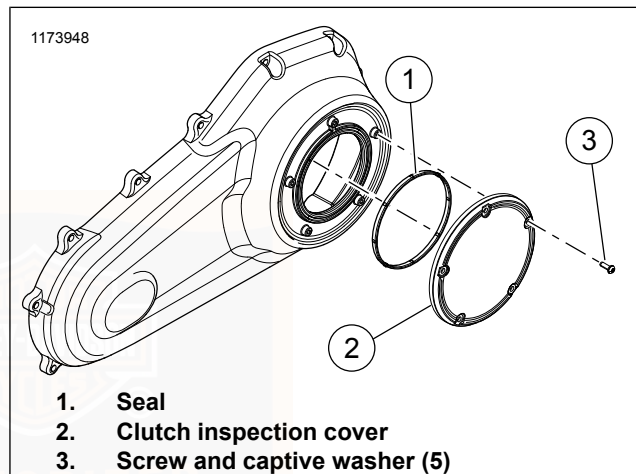


Figure 62. Clutch Cover (Typical)

9. Install clutch inspection cover and **new** seal:
 - a. See Figure 62. Install **new** seal (1) in groove in cover.
 - b. Secure clutch inspection cover with screws with captive washers (3).
 - c. See Figure 63. Tighten in sequence shown.
Torque: 25–35 **in-lbs** (2.8–3.9 N·m) *Clutch inspection cover screws*

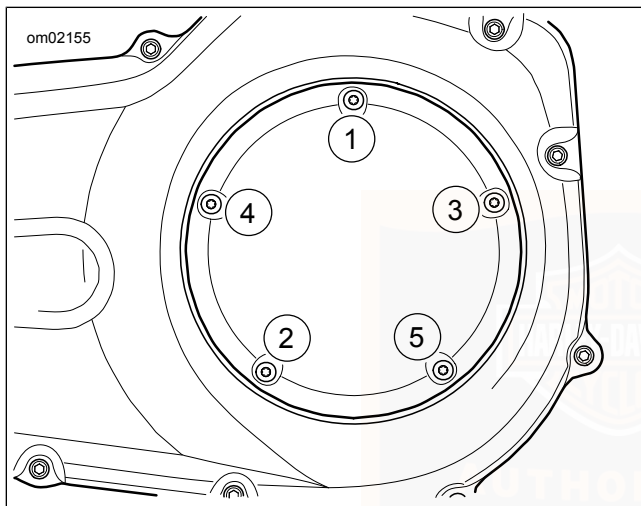


Figure 63. Clutch Cover Tightening Sequence
INSPECTING BRAKE PADS AND DISCS

Brake Pads

Harley-Davidson has provided your new motorcycle with the optimum brake pad friction material available. It is selected to give the best performance possible under dry, wet and high operating temperature conditions. It exceeds all regulatory requirements currently in effect. However, during some braking

conditions you may experience noise. This is normal for this friction material.

▲ 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)

1. Check the brake disc as it spins. The disc should run true in the brake caliper.
2. See Figure 64. Measure the thickness of the brake pad friction material.

NOTE

The pads do not necessarily wear evenly. The grooves on the brake pads are no longer visible when the pads are near the end of service life. See Figure 65.

3. Refer to Table 43. If the brake pad friction material is at the minimum thickness or less, replace the pads. Always replace brake pads in pairs. See a Harley-Davidson dealer.

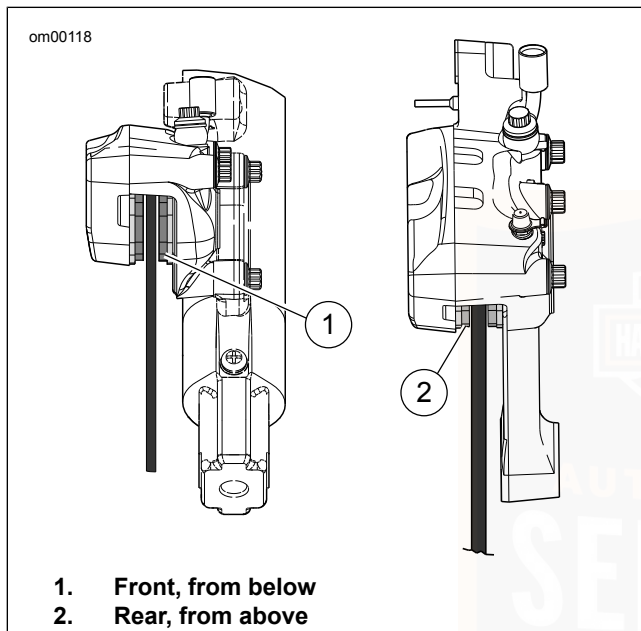


Figure 64. Brake Friction Material

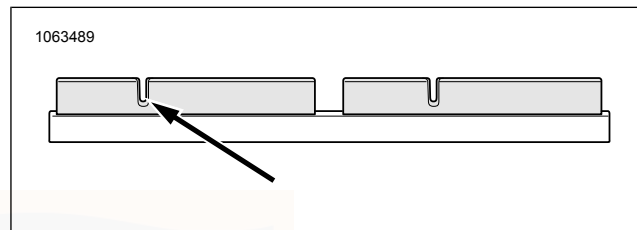


Figure 65. Brake Pad Wear Grooves

Table 43. Minimum Brake Pad Friction Material Thickness

MODEL	in	mm
All	0.040	1.02

CHECKING SYSTEMS FOR LEAKS OR ABRASIONS

Check all lines and hoses for leaks, damage or abrasions. Refer to Service Records (Page 213) for the appropriate intervals.

- Fuel system and fuel lines
- Oil cooling system and oil lines
- Brake system and brake lines

CHECKING BRAKE FLUID LEVEL AND CHANGING BRAKE FLUID

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.
- Do not add or remove fluid from the brake system to compensate for normal wear. Reservoir volume is adequate to provide fluid to the wear limits of the pads and discs.
- Fluid level in reservoir will decrease with brake wear. If fluid level is low, check brake pads and discs for wear. See *Inspecting Brake Pads and Discs* (Page 145).

Checking Brake Fluid Level

1. Set motorcycle upright. Verify that the fluid in the reservoir is level. See *Preparing the Motorcycle for Maintenance* (Page 131).
2. **Front:** See Figure 66. Check level in front reservoir sight glass. Level must be above minimum mark on side of reservoir.

3. **Rear:** See Figure 66. Check level on side of rear brake reservoir. Level must be above minimum mark on side of reservoir.

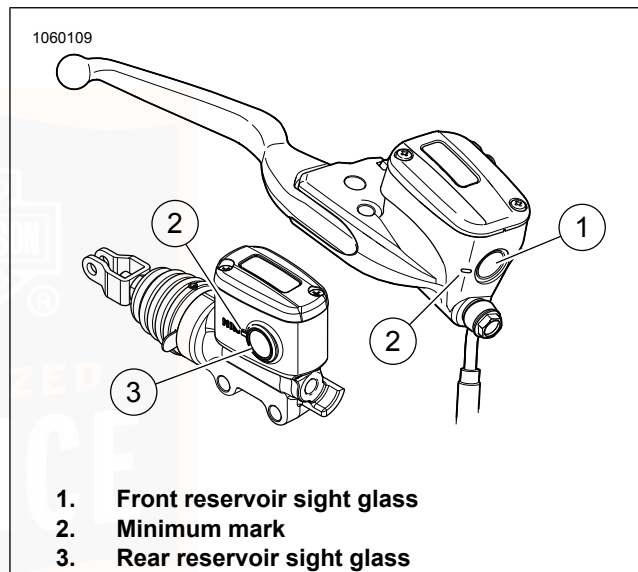


Figure 66. Brake Fluid Reservoirs

Changing Brake Fluid

▲ 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. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at sds.harley-davidson.com

(00240d)

▲ WARNING

DOT 4 brake fluid absorbs moisture from the atmosphere over time, changing the properties of the fluid. Check brake fluid moisture content at every service interval or annually (whichever comes first). Flush and replace the brake fluid every two years, or sooner if moisture content is 3% or greater. Failure to flush and replace fluid can adversely affect braking, which could result in death or serious injury. (06304b)

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)

To ensure the brake system is performing to design, check the moisture content of the brake fluid at every service interval or at least annually using a DOT 4 brake fluid moisture tester (part number HD-48497-A or equivalent) following the instructions included with the tool. Flush DOT 4 fluid every 2 years or sooner if the brake system fluid test shows moisture content is 3% or greater.

Harley-Davidson recommends using Harley-Davidson Platinum Label DOT 4 Brake Fluid because of its superior moisture and corrosion inhibiting properties.

CHECKING CLUTCH AND BRAKE CONTROLS

Clutch Hand Lever

The clutch hand lever should move smoothly through its full range.

See a Harley-Davidson dealer for service.

Brake Hand Lever

- The brake hand lever should move smoothly through its full range.
- Verify the brake hand lever has a firm feel when applied.

See a Harley-Davidson dealer for service.

MISCELLANEOUS LUBRICATION

Refer to Service Records (Page 213) for all maintenance schedules.

NOTE

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

1. Lubricate clutch control cable with HARLEY LUBE.
2. Lubricate front brake hand lever and clutch control hand lever only if necessary.
3. Inspect rear fork pivot shaft bearings.
4. Pack the steering head bearings with SPECIAL PURPOSE GREASE at recommended service intervals.
5. 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.

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:

- 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 FUSES (Page 181).
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 67. 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 10 lb (4.54 kg) mark (5) and hold steady.

4. Measure belt deflection:

- a. **Models equipped with belt deflection window:** See Figure 68. Measure belt deflection as viewed through belt deflection viewing window while holding gauge steady. Each deflection graduation is approximately 1/16 in (1.6 mm).
- b. **All other models:** See Figure 69. Measure amount of deflection (4) while holding gauge steady.

NOTE

Service belt tension specification is for belts with more than 1000 mi (1,600 km). Set belt to new belt tension specification if the belt has less than 1000 mi (1,600 km).

5. Compare with specifications. Refer to Table 44. If not within specifications, see a Harley-Davidson dealer.
6. Install main fuse.

Table 44. Drive Belt Deflection

MODEL	DEFLECTION ⁽¹⁾	
	in	mm
Service belt tension	1/2-9/16	12.7-14.2
New belt tension	3/16-1/2	4.7-12.7

(1) Deflection measured at 10 lb (4.5 kg) tension.

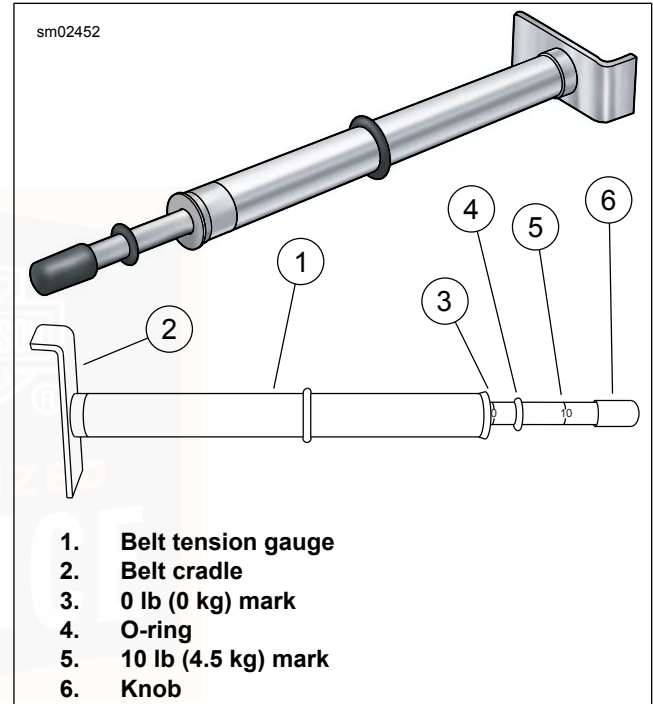


Figure 67. Belt Tension Gauge

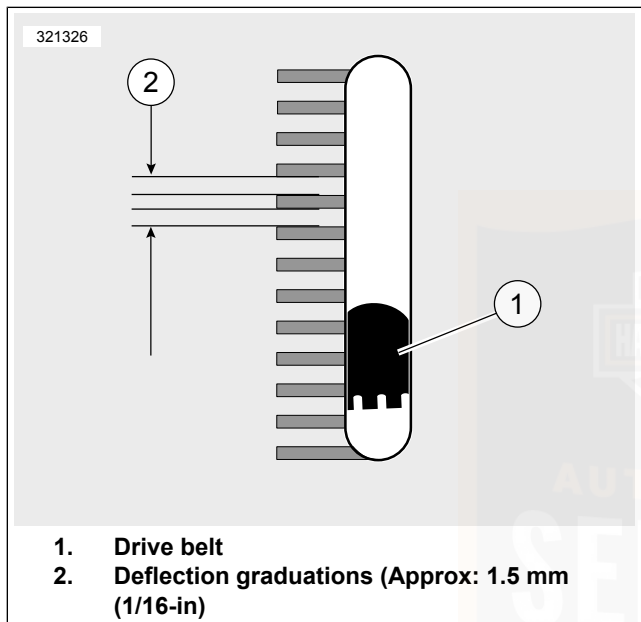


Figure 68. Belt Deflection Window

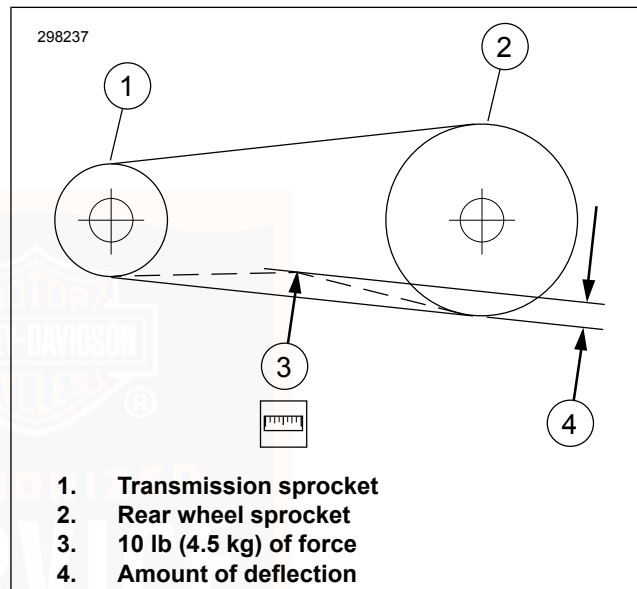


Figure 69. Checking Belt Deflection

MECHANICAL CLUTCH

NOTICE

The clutch control cable must be oiled and adjusted periodically to compensate for lining wear. See MAINTENANCE SCHEDULING in this manual. Failure to oil and adjust the clutch control cable can result in equipment damage. (00203b)

Adjust the clutch control cable at specified intervals. Refer to Service Records (Page 213).

If the clutch slips under load or drags when released, the control cable may need to be adjusted or clutch service may need to be performed. See a Harley-Davidson dealer for service.

HYDRAULIC LIFTERS

The hydraulic lifters are self-adjusting. They automatically adjust length to compensate for engine expansion and valve mechanism wear. This keeps the valve mechanism free of lash when the engine is running.

When starting an engine which has been turned off even for a few minutes, the valve mechanism may be slightly noisy until the hydraulic units completely refill with oil. If at any time the valve mechanism becomes abnormally noisy, other than for a short period immediately after engine is started, it is an

indication that one or more of the hydraulic units may not be functioning properly.

Always check the engine oil level first since normal circulation of oil through the engine is necessary for proper operation of the hydraulic lifters.

If engine oil is at the proper level, the lifters may not be functioning properly because of dirt in the oil supply passages leading to the lifter units. See a Harley-Davidson dealer for service.

MAINTAINING FRONT FORK

▲ 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)

Have a Harley-Davidson dealer drain the front fork oil and refill at proper intervals.

Rebound action of the fork will be impaired if the fork oil level is low.

If fork does not appear to be working properly or a significant oil leak should develop, see a Harley-Davidson dealer.

Refer to Service Records (Page 213) for all maintenance schedules.

ADJUSTING 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)

Refer to Service Records (Page 213) for all maintenance schedules.

See a Harley-Davidson dealer to adjust the steering head bearings.

CHECKING FOR EXHAUST LEAKS

Refer to Service Records (Page 213) for all maintenance schedules.

1. Check exhaust system for obvious signs of leakage such as carbon marks or marks at pipe joints.
 - a. Check for loose or missing fasteners.
 - b. Check for fractured pipe clamps or brackets.
 - c. Check for loose or fractured exhaust shields.

2. Correct any detected leaks. See a Harley-Davidson dealer.

SHOCK ABSORBERS

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

⚠ WARNING

Shock absorber cannot be serviced. Attempting service can cause an explosion, which could result in death or serious injury. (00602d)

- Do not refill, disassemble, puncture or expose shock to flames.
- Replacement and disposal should only be done by an authorized Harley-Davidson dealer.

INSPECTING AIR FILTER

Removal

Round air cleaner

1. See Figure 70 or Figure 71. Remove air cleaner cover.
 - a. Remove screws (1).
 - b. Remove cover (2).

2. Remove filter element.
 - a. Remove screws (6).
 - b. Remove filter element (4) while pulling breather tube (5) from element.
3. Remove breather tube (5) from breather bolts.
4. Inspect the breather tube and fittings for damage. Replace if necessary.
5. Clean and inspect the filter element. Replace if necessary.

Oval air cleaner

1. See Figure 72. Remove air cleaner trim insert.
 - a. Remove trim insert screws (1).
 - b. Remove trim insert (2).
2. Remove cover and filter element.
 - a. Remove screws (3).
 - b. Remove cover (4).
 - c. Remove filter element (5).
3. Clean and inspect the filter element. Replace if necessary.

Square air cleaner

1. See Figure 73. Remove air filter cover.
 - a. Remove screws (1).
 - b. Remove cover (2).
2. Remove filter element.
 - a. Remove screws (4).
 - b. Remove filter element (6) and seal (5). Discard seal.

Cleaning Filter Element

NOTE

- *Do not strike filter element on a hard surface to dislodge dirt.*
- *Do not use air cleaner filter oil on the Harley-Davidson paper/wire mesh or synthetic air filter element.*

⚠ WARNING

Do not use gasoline or solvents to clean filter element. Flammable cleaning agents can cause an intake system fire, which could result in death or serious injury. (00101a)

1. Clean filter element.
 - a. Wash the filter element and breather tubes in lukewarm water with a mild detergent.
 - b. **Synthetic element:** Rinse filter element with clean water. The filter element is sufficiently clean when water running from the filter element appears clear.
 - c. Allow filter element to air dry or use low-pressure compressed air from the inside.
 - d. **Paper/wire mesh element:** Hold the filter element up to a strong light source. The element is sufficiently clean when light is uniformly visible through the media.
 - e. Replace the filter element if damaged or if filter media cannot be adequately cleaned.

Rain Sock

If equipped with oval air cleaner: See Figure 72. In wet or rainy conditions, because the filter element is exposed, water can enter the engine. When parked, water can cause internal engine corrosion or damage. When running, water can cause the engine to misfire. In wet or rainy conditions, install the rain sock (6) over the air cleaner assembly to minimize water intrusion.

Installation

Round air cleaner

1. See Figure 70 or Figure 71. Install filter element.
 - a. Install breather tube (5) onto breather bolts.
 - b. Install filter element (4) while pushing breather tube into element.
 - c. Install screws (6). Tighten. **48–72 in-lbs** (5.4–8.1 N·m)
2. Verify that rubber seal (3) is properly seated and not damaged. Replace if necessary.
3. Install air cleaner cover.
 - a. Apply **LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)** (99642-97) to threads of screw (1).
 - b. Install cover (2).
4. Install screw (1).
 - a. **Single-screw cover:** Tighten. **50–65 in-lbs** (5.6–7.3 N·m)
 - b. **Five-screw cover:** Install screws (1). Tighten in a star pattern. **48–72 in-lbs** (5.4–8.1 N·m)

Oval air cleaner

1. See Figure 72. Install cover and filter element.
 - a. Install filter element (5).
 - b. Install cover (4).
 - c. Install screws (3). Tighten. 50–60 **in-lbs**
(5.7–6.75 N·m)
2. Install air cleaner trim insert.
 - a. Install trim insert (2).
 - b. Install trim insert screws (1). Tighten. 27–32 **in-lbs**
(3–3.6 N·m)

Square air cleaner

1. See Figure 73. Install filter element.
 - a. Install **new** seal (5) on filter element (6).
 - b. Install filter element.
 - c. Install screws (4). Tighten. 48–72 **in-lbs**
(5.4–8.1 N·m)
2. Install air cleaner cover.
 - a. Install cover (2).

- b. Install screws (1). Tighten. 48–72 **in-lbs**
(5.4–8.1 N·m)

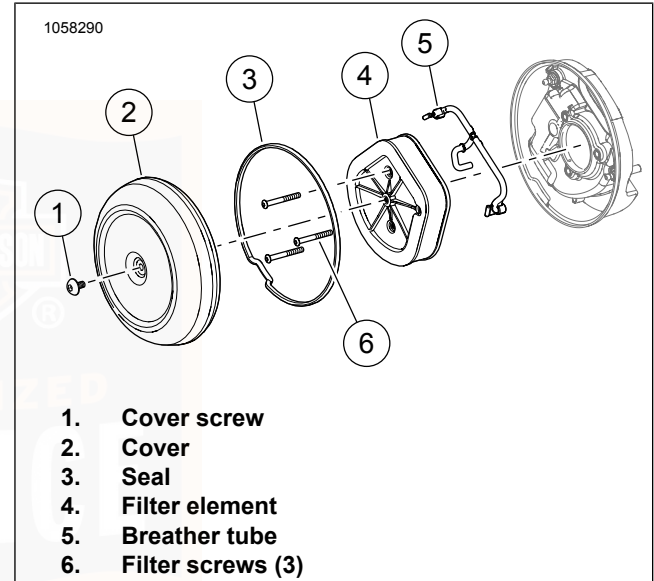


Figure 70. Air Cleaner: Single Screw

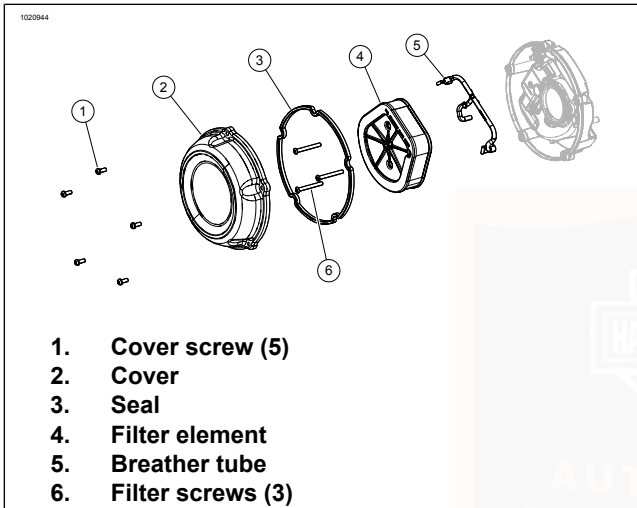


Figure 71. Air Cleaner: Five Screw

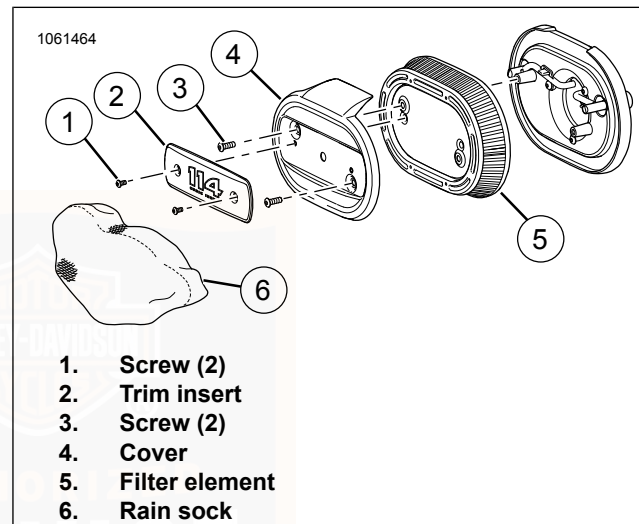


Figure 72. Air Cleaner: Oval

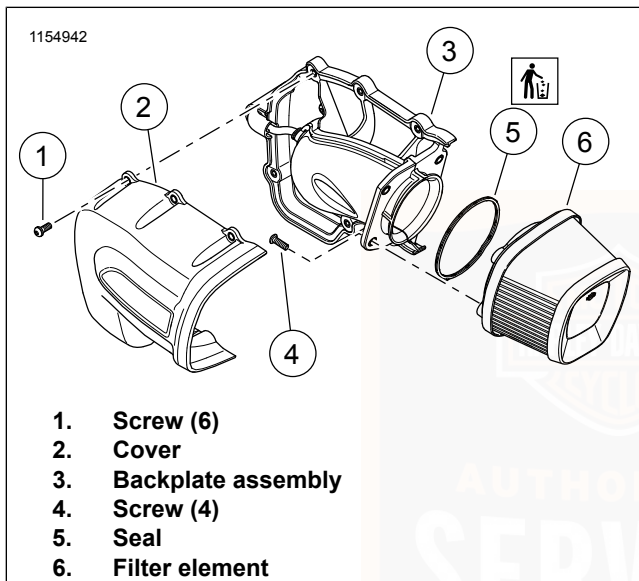


Figure 73. Air Cleaner: Square

LUBRICATING FUEL CAP LOCK

Lubricate fuel cap lock with HARLEY LUBE.

CLEANING BATTERY

See Battery Maintenance (Page 162) for cleaning instructions.

REPLACING SPARK PLUGS

⚠ WARNING

Disconnecting spark plug cable with engine running can result in electric shock and death or serious injury. (00464b)

⚠ 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)

NOTE

Fuel tank removal improves access to the center spark plug. Refer to the service manual or see a Harley-Davidson dealer for service.

Check the spark plugs at proper intervals. Refer to Service Records (Page 213).

1. Disconnect spark plug cables from plugs by pulling up on the molded connector caps.
2. Check spark plug type. Only use spark plugs specified for your model motorcycle.
3. Check spark plug gap against specifications. Refer to Table 14.

4. Always tighten to the proper torque. Spark plugs must be tightened to the torque specified for proper heat transfer. Refer to Table 14.
5. Connect each molded connector cap until the cap snaps firmly into place over the spark plug.

CHECKING ELECTRICAL EQUIPMENT AND SWITCHES

⚠ 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)

Check all electrical equipment and switches including the tail lamps, turn signals, headlamp and horn for proper operation.

BATTERY TENDER CONNECTOR

See Figure 74. Maintaining the battery between rides and while stored can maintain battery charge and extend the life of the battery. Connect the battery tender connector to a battery tender during storage or to a battery charger if the battery voltage drops below specification. See Battery Maintenance (Page 162).

See Side Covers (Page 168). Remove the left side cover to access the connector. Remove the connector cap. Connect the battery through the connector to an automatic, constant monitoring battery charger/tender. The connector is compatible with all Harley-Davidson battery tender/chargers.

When removing the tender/charger, replace the connector cap to prevent moisture damage when not in use. Properly stow connector back under side cover.

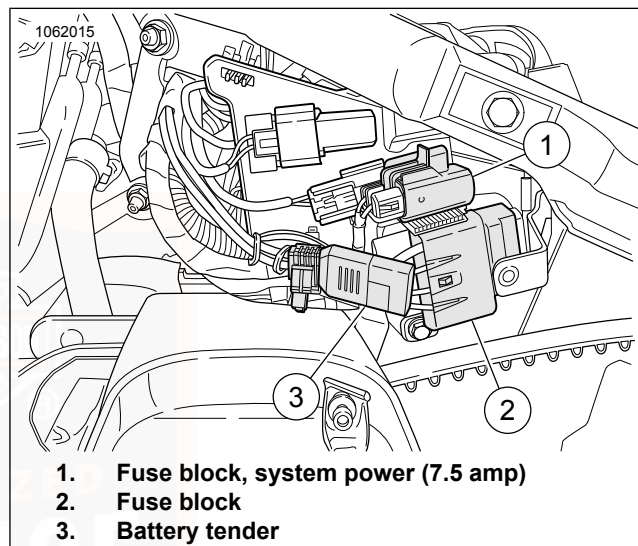


Figure 74. Fuses

BATTERY MAINTENANCE

Battery Safety

⚠ 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)

Absorbed Glass Mat (AGM) Battery Charging Information

The motorcycle has a permanently sealed, maintenance-free Absorbed Glass Mat (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, nonspillable battery design, an automatic, constant monitoring battery charger/tender with a charging rate of 5 amps or less at less than 14.6 volts is recommended to prevent overcharging conditions that will dry out the cells of the battery. Constant current battery chargers (including trickle chargers) are not recommended and can damage AGM batteries. Do not attempt to open the battery for any reason.

A Harley-Davidson constant monitoring battery charger or tender is recommended to maintain a full charge between rides or when your motorcycle will not be ridden for more than two weeks. The best practice is installing the charger/tender any time the motorcycle is not in use. Harley-Davidson offers a variety of fully automatic charger/tenders (North American

and international versions available). These battery charger/tenders include a quick disconnect cable, allowing easy connection to charge the battery without disassembly of the motorcycle.

Lack of regular battery charging or use of constant current battery chargers may void battery warranty.

Cleaning and Inspecting

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

1. Clean top of battery.
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. Any of these conditions indicate that the battery has been frozen, overheated or overcharged.
6. Inspect the battery case for cracks or leaks.

Charging and Storing the Battery

A battery that is left in the motorcycle can either self-discharge or discharge from parasitic loads. Parasitic loads occur from things like diode leakage and maintaining computer memory. A battery that is removed from the motorcycle can also self-discharge. It is not necessary to remove battery from vehicle for storage.

- Batteries self-discharge at a faster rate at higher ambient temperatures.
- To reduce the self-discharge rate, store battery in a cool, dry place.

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 the general safety precautions.

Charge the battery when:

- Motorcycle lights appear dim.
- Electric starter sounds weak.
- Battery has not been used for two weeks or more.

⚠ 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)

NOTE

Make sure that the ignition and all electrical accessories are turned off.

Always follow charging instructions supplied with the charger/tender.

1. With battery in the motorcycle.
 - a. Connect battery charger/tender lead to motorcycle battery tender connector. See Battery Tender Connector (Page 161).
 - b. When charging is completed turn OFF the charger. Disconnect the motorcycle battery tender connector.
2. With battery removed from motorcycle.
 - a. Place the battery on a level surface.

- b. Connect battery charger/tender lead to battery connector adapter lead supplied with the battery charger/tender.

NOTICE

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

- c. Connect the red battery charger lead to the positive terminal of the battery.
- d. Connect the black battery charger lead to the negative terminal of the battery.
- e. 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)

- f. When charging is completed turn OFF the charger. Disconnect the black battery charger lead. Disconnect the red battery charger lead.

BATTERY REPLACEMENT

Removing the Battery

1. Remove seat. See Seats: Softail Models (Page 177).
2. Remove right side cover. See Side Covers (Page 168).

NOTE

If equipped with siren: See Disconnecting Power (Page 68) before disconnecting power.

3. See Figure 75. Disconnect negative battery cable (2).
4. Remove close-out cover (4)
5. Open clip (1) and position wiring harness (3) out of the way.
6. See Figure 76. Disconnect WSS (Wheel Speed Sensor) connector (1).

NOTE

Use caution when removing WSS wiring from battery strap, or damage to wiring and routing tabs can occur.

7. Remove WSS wiring (2) from routing tabs then remove wiring from battery strap.
8. See Figure 77. Remove battery strap.
 - a. Unlock retaining clip (9).

- b. Disconnect back tab (1) from battery strap (3) to battery tray (4).
 - c. Disconnect front left tab (2) from battery strap to battery tray.
 - d. Remove battery strap.
9. Disconnect positive battery cable.

NOTE

If engine oil dipstick is removed, cover oil fill spout with a clean rag to prevent oil contamination.

10. Remove engine oil dip stick if necessary.
11. Retrieve nylon battery strap (8) from rear slot (7).
12. Remove battery.
 - a. Pull up on nylon battery strap.
 - b. Slide battery out and remove.

Installing Battery

⚠ 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)

NOTE

- *Verify battery is under tab on ECM (Electronic Control Module) caddy, upper left corner on back side.*
 - *Verify nylon strap does not slide back when installing battery.*
1. See Figure 77. Install battery.
 - a. Position nylon battery strap (8) in bottom of battery tray (4).
 - b. Feed nylon battery strap into rear slot (7) of the battery tray.
 - c. Install battery into battery tray.
 2. Install engine oil dip stick if removed.
 3. Connect the positive battery cable to the positive battery terminal. Tighten. 72–96 **in-lbs** (8.1–10.8 N·m)
 4. Install battery strap (3).
 - a. Position battery strap.

- b. Connect front left tab (2) on battery strap to battery tray.
- c. Connect back tab (1) on battery strap to battery tray.
- d. Lock retaining clip (9).

5. See Figure 76. Install WSS wiring (2) to battery strap.
6. Connect WSS connector (1).
7. See Figure 75. Position wiring harnesses (3) and lock clip (1).
8. Connect negative battery cable (2) to negative battery terminal. Tighten. 72–96 **in-lbs** (8.1–10.8 N·m)
9. Install close-out cover (4).

NOTE

Verify all close-out tabs are fully seated into battery strap.

10. Install right side cover. See Side Covers (Page 168).
11. Install seat. See Seats: Softail Models (Page 177).

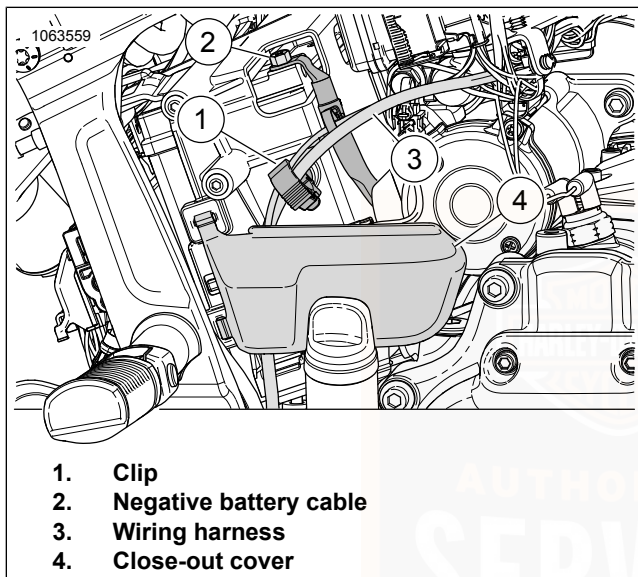


Figure 75. Negative Battery Cable and Close-Out Cover

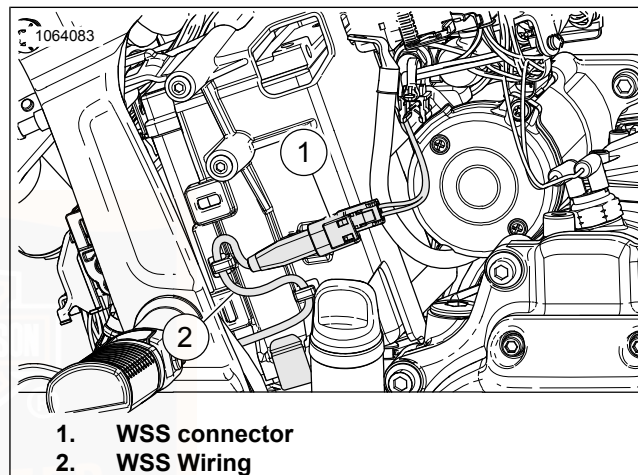


Figure 76. WSS and Wiring

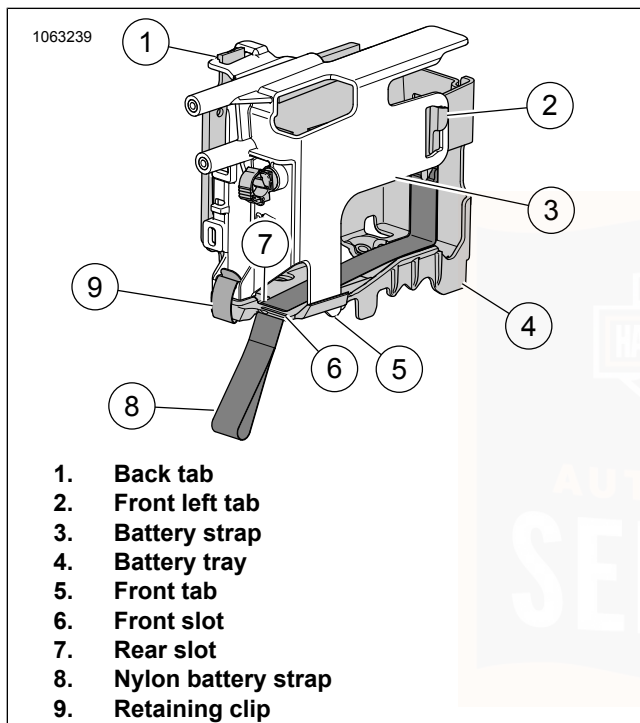


Figure 77. Battery Strap and Tray: (Removed for clarity)

SIDE COVERS

See Figure 78 or Figure 79. The procedure for removing the side cover is similar for left and right sides.

1. **Remove:** Remove screw(s) (1) and pull side cover (2) from mounting stud(s) (3).
2. **Install:** Align side cover grommets with mounting stud(s) (3) on the frame and press side cover (2) until mounting stud(s) are fully seated in grommets. Secure side cover with screw(s) (1).
3. **Horizontal screws only:** Apply LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE) to screws (1).
4. Tighten screws.

Torque: 24–36 **in-lbs** (2.7–4.1 N·m) *Side cover screw, vertical and single*

Torque: 60–84 **in-lbs** (6.8–9.5 N·m) *Side cover screw, horizontal*

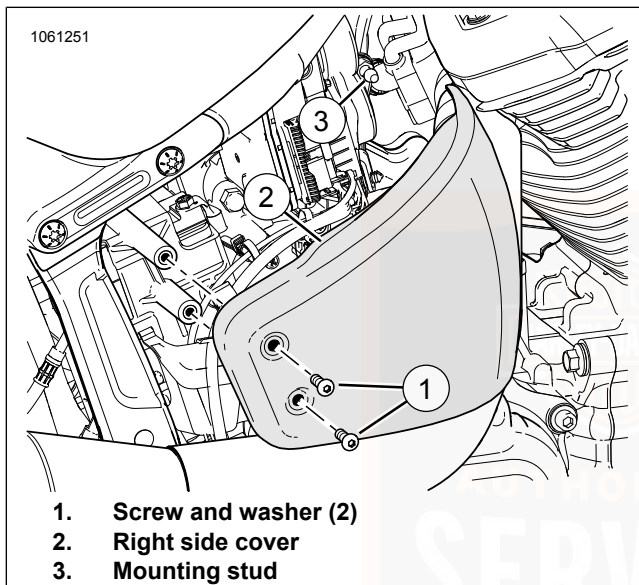


Figure 78. Right Side Cover

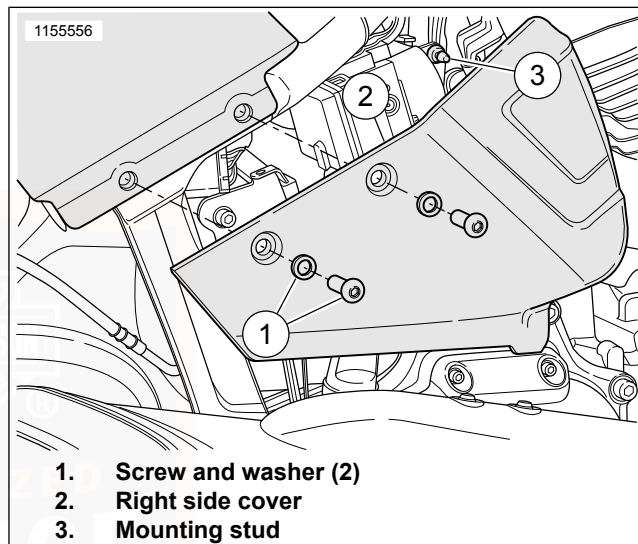


Figure 79. Right Side Cover, Horizontal Screws
HEADLAMP

⚠ 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)

Prepare

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

Check Alignment

1. See Figure 80. Park the motorcycle on a line (1) perpendicular to the wall.
2. Set vehicle distance from wall to front axle.
25 ft (7.6 m)
3. Draw a vertical centerline (2) on the wall aligned with line (1).
4. With the motorcycle loaded, point the front wheel straight forward at wall. Measure the distance (4) from the floor to the center of headlamp.
5. Draw a horizontal line (5) through vertical line (2) using the same height measurement as low beam bulb centerline (4).

6. Align the top of the hot spot to horizontal line (5) with headlamp set to low beam.
7. Adjust headlamp, if necessary.

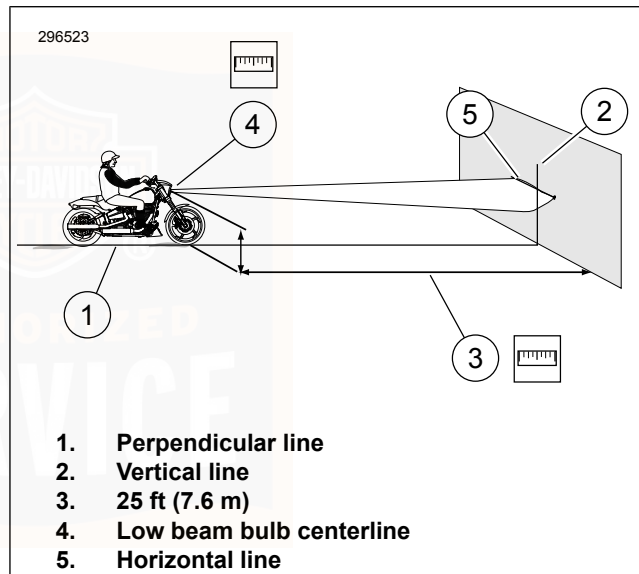


Figure 80. LED Headlamp Alignment

Adjust

Round: Heritage Classic (FLHC), Heritage Classic 114 (FLHCS), Deluxe (FLDE), Street Bob (FXBB), Low Rider (FXLR), Low Rider S (FXLRS), and Softail Standard (FXST):

1. See Figure 81. Adjust headlamp horizontal alignment.
 - a. Loosen horizontal adjustment screw (2). Adjust headlamp horizontally to direct light beam straight ahead.
 - b. Tighten horizontal adjustment screw:
Torque: 18–30 ft-lbs (25–40.6 N·m) *Heritage Classic (FLHC), Heritage Classic 114 (FLHCS), Deluxe (FLDE)*
Torque: 22–28 ft-lbs (29.8–37.9 N·m) *Street Bob (FXBB), Low Rider (FXLR), Low Rider S (FXLRS), Softail Standard (FXST)*
2. Adjust headlamp vertical alignment.
 - a. Loosen vertical adjustment screw (1). Adjust headlamp vertically until beam centers on horizontal line.

- b. Tighten vertical adjustment screw (1):
Torque: 27–32 ft-lbs (36.6–43.3 N·m)

Round: Sport Glide (FLSB), Softail Slim (FLSL):

NOTE

Horizontal alignment is not adjustable on Sport Glide™ (FLSB) and Softail® Slim™ (FLSL) headlamps.

1. Sport Glide™ (FLSB): Remove fairing. See Fairing (Page 108).
2. See Figure 81. Adjust headlamp vertical alignment.
 - a. Loosen vertical adjustment screw (1). Adjust headlamp vertically until beam centers on horizontal line.
 - b. Tighten vertical adjustment screw (1):
Torque: 27–32 ft-lbs (36.6–43.3 N·m)
3. Sport Glide™ (FLSB): Install fairing.

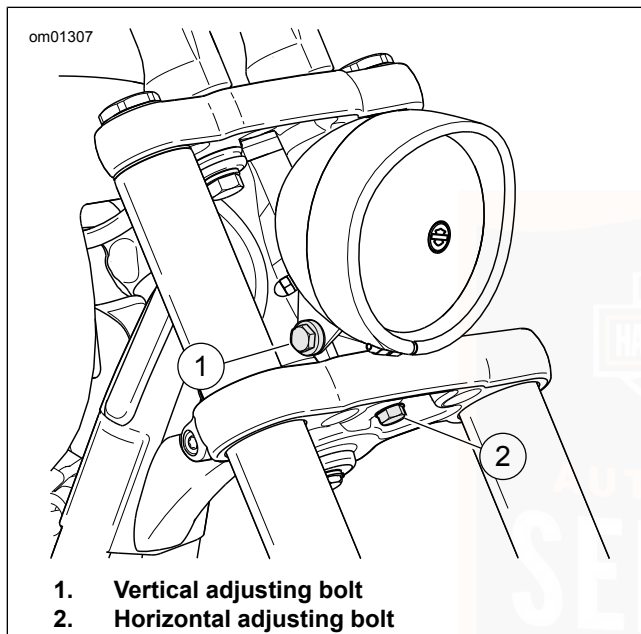


Figure 81. Headlamp Adjustment

Breakout 114 (FXBRS), Fat Bob 114 (FXFBS), and FXDR 114 (FXDRS)

1. FXDR 114 (FXDRS): Remove fairing.

2. See Figure 82 and Figure 83. Loosen vertical adjustment screw (3). Adjust headlamp vertically until beam centers on horizontal line.
3. Tighten vertical adjustment screw (3):
Torque: 10–13 ft-lbs (13.5–17.6 N·m) *Breakout 114 (FXBRS), FXDR 114 (FXDRS)*
Torque: 11–14 ft-lbs (14.9–19 N·m) *Fat Bob 114 (FXFBS)*

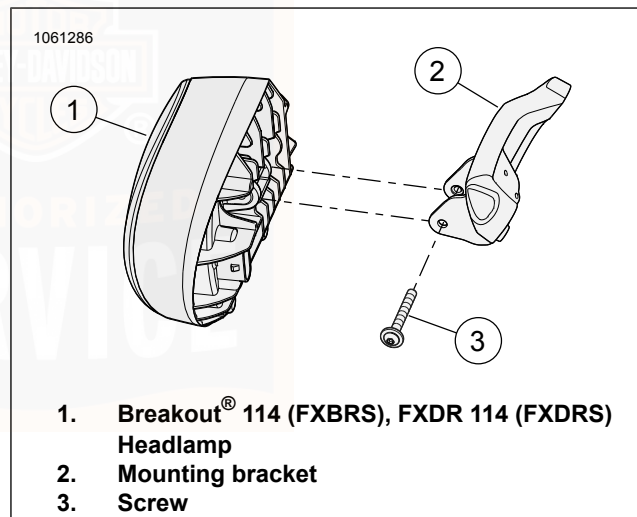


Figure 82. Headlamp Adjustment

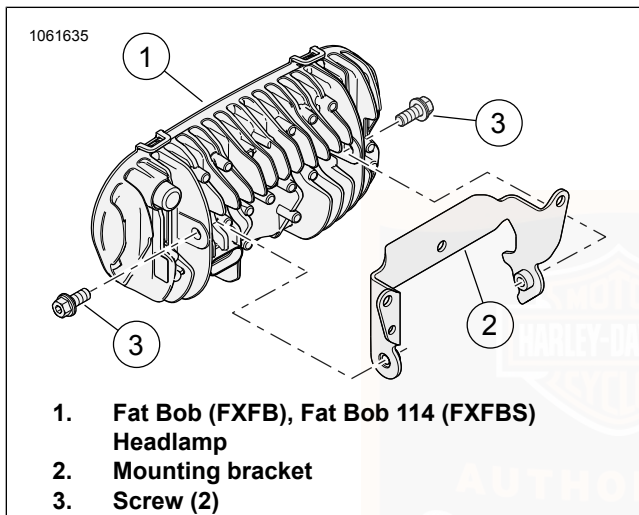


Figure 83. Headlamp Adjustment

Fat Boy (FLFB/S/ANV)

1. See Figure 84. Rotate horizontal adjustment screw (1). Adjust headlamp horizontally to direct light beam straight ahead.
2. Rotate vertical adjustment screw (2). Adjust headlamp vertically until beam centers on horizontal line.

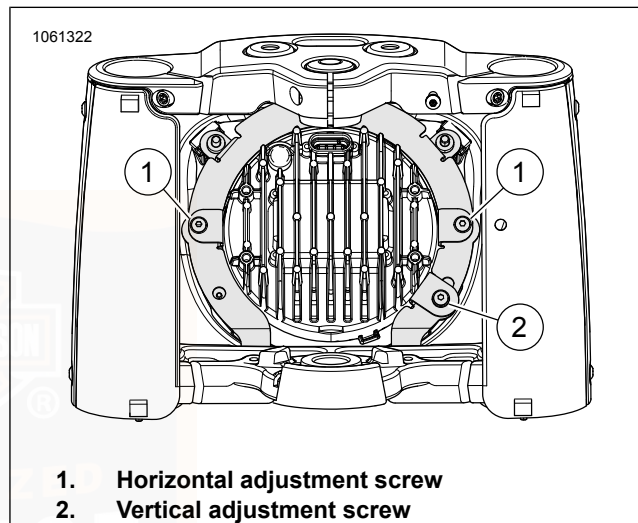


Figure 84. Headlamp Adjustment

Replacing Headlamp

The headlamp contains no replaceable bulbs. The entire assembly must be replaced upon failure. See a Harley-Davidson dealer for service.

TAIL LAMP BULB REPLACEMENT: INCANDESCENT

Removal

1. Remove two screws to release tail lamp assembly from chrome base.
2. See Figure 85. Disconnect tail lamp connector (3).
3. Rotate bulb socket (4) a quarter turn counterclockwise and remove from tail lamp assembly. Remove bulb.

Installation

1. Coat base of **new** bulb with ELECTRICAL CONTACT LUBRICANT. Install **new** bulb.
2. See Figure 85. Insert socket (4) into tail lamp assembly. Rotate a quarter turn clockwise.
3. Attach tail lamp connector (3).

NOTE

Do not over-tighten screws.

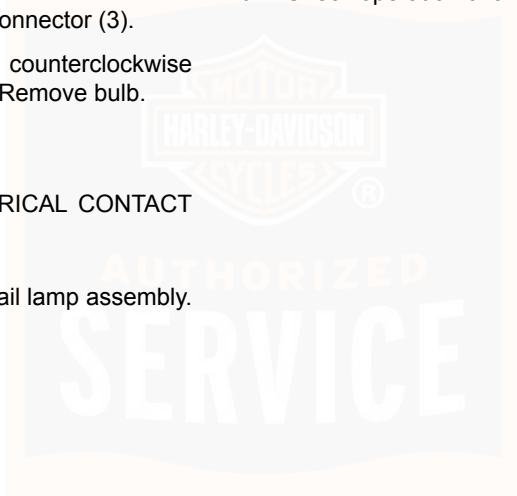
4. Place tail lamp into position against chrome base.
5. Install two screws. Tighten to 20–24 **in-lbs** (2.3–2.7 N·m).

174 Service Procedures

▲ 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)

6. Check operation of all lamps.



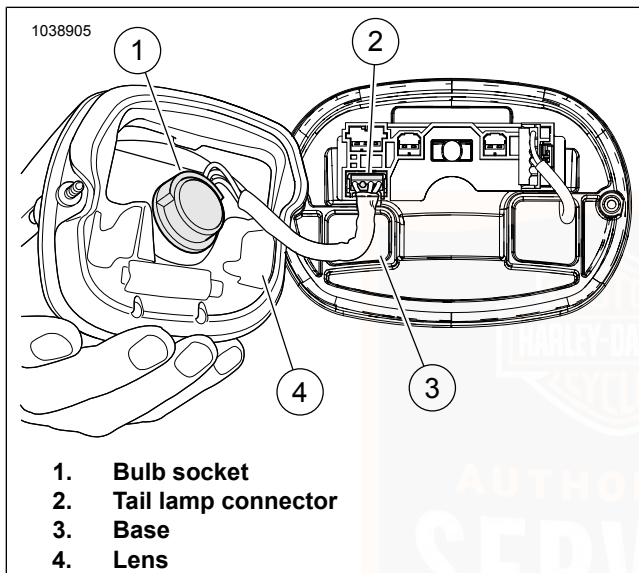


Figure 85. Incandescent Tail Lamp Assembly

TAIL LAMP BULB REPLACEMENT: LED

The tail lamp is an LED assembly. Replace the tail lamp as a unit. See a Harley-Davidson dealer.

TURN SIGNAL BULB REPLACEMENT: INCANDESCENT

Replacing Turn Signal Bulb

1. See Figure 86. Insert coin in notch. Carefully twist until the lens cap pops out of the lamp housing.
2. While pushing bulb in, rotate counterclockwise to remove. Remove bulb.
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 the contacts in socket and at bottom of the **new** bulb.
5. Align pins on **new** bulb with guides in bulb socket. Push and rotate **new** bulb clockwise into socket.
6. With the notch at the bottom, snap the lens cap onto the lamp housing.

▲ 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)

7. Check operation of all lamps.

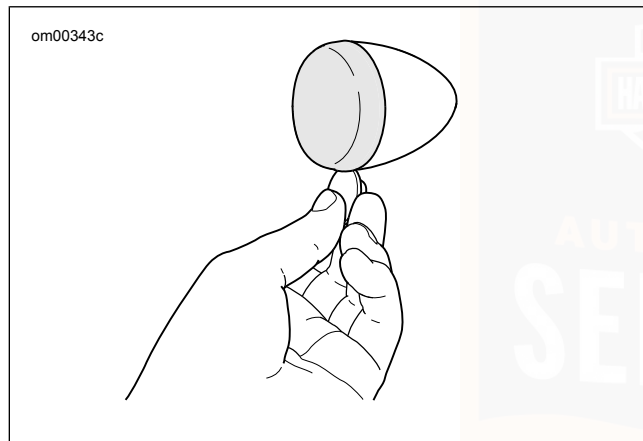


Figure 86. Remove Lens

TURN SIGNAL BULB REPLACEMENT: LED

The LED turn signal lamp is a sealed assembly. Replace the turn signal lamp as a unit. See a Harley-Davidson dealer.

176 Service Procedures

SEAT

General

See Figure 87 and Figure 88. The seat has a tongue which engages a slot in the back end of the frame. Follow the appropriate procedure for your model motorcycle to remove or install the seat.

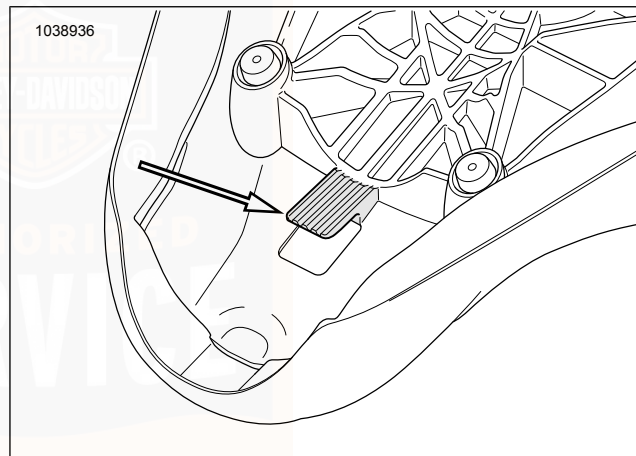


Figure 87. Seat Tongue (Typical)

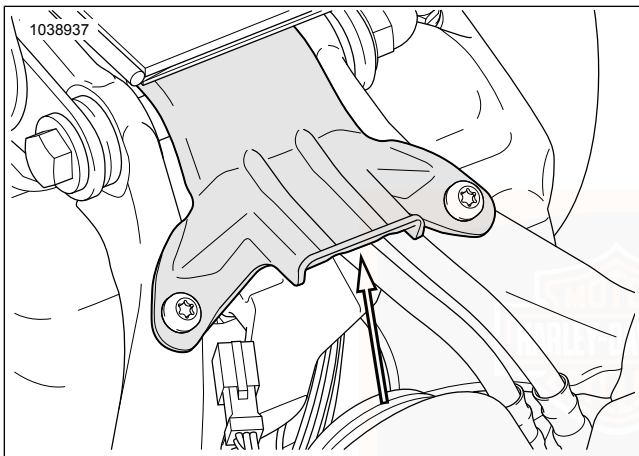


Figure 88. Seat Mounting Bracket

SEATS: SOFTAIL MODELS

Removal

1. See Figure 89.
2. Two-up One-piece Seat:
 - a. Remove the thumbscrew (1).
3. Two-up Two-piece Seat:
 - a. Remove the thumbscrew (1).
 - b. Remove the passenger pillion (3) by moving rearward.
 - c. Remove mounting nuts (2).
 - d. Raise the rear of the seat (6) off the mounting posts and slide seat tongue out of the bracket.
 - e. Remove grab strap (4) if needed.
4. Solo Seat:
 - a. Remove the thumbscrew (1) or mounting nuts (2).
 - b. Raise the rear of the seat (7 or 8) and slide seat tongue out of the bracket.

5. Solo Seat W/Hex Head Screws: See Figure 90
 - a. Lift seat cowl (1) from back.
 - b. Remove seat cowl.
 - c. Remove screws (2).
 - d. Raise the rear of the seat and slide seat tongue out of the bracket.

Installation

1. See Figure 89.
2. Two-up One-piece Seat:
 - a. Install grab strap (4) if needed.
 - b. Install seat (5) rearward through the grab strap.
 - c. Move seat forward to engage seat tongue in frame and lower rear of seat.
 - d. Install thumbscrew (1). Tighten.
Torque: 15–30 **in-lbs** (1.7–3.4 N·m)

3. Two-up Two-piece Seat:
 - a. Install grab strap (4) if needed.
 - b. Insert tongue at front of seat into the seat mounting bracket.
 - c. Install mounting nuts (2).
 - d. Slide slots on passenger pillion (3) to engage the seat mounting nuts.
 - e. Install thumbscrew (1). Tighten.
Torque: 15–30 **in-lbs** (1.7–3.4 N·m)

4. Solo Seat:
 - a. Insert tongue at front of seat into the seat mounting bracket.
 - b. Install thumbscrew (1) or mounting nuts (2). Tighten.
Torque: 15–30 **in-lbs** (1.7–3.4 N·m)
5. Solo Seat W/Hex Head Screws: See Figure 90.
 - a. Insert tongue at front of seat into the seat mounting bracket.

- b. Install screws (2). Tighten.

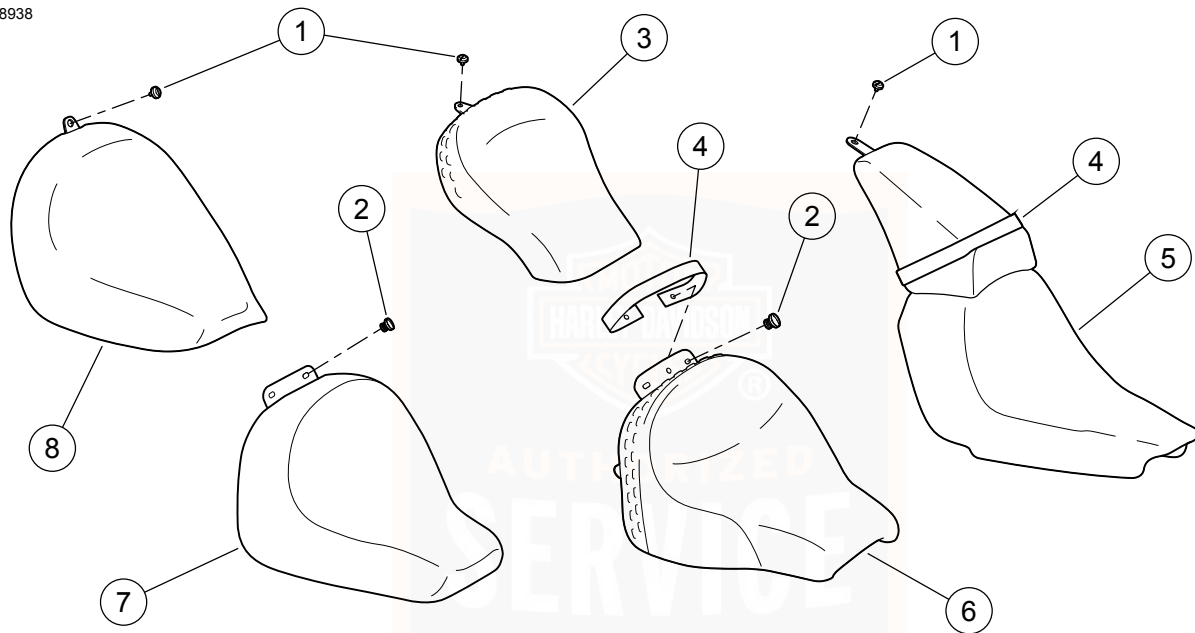
Torque: 84–108 **in-lbs** (9.5–12.2 N·m)

6. Pull up on the seat to verify it is secure.

7. Install seat cowl.



1038938



- 1. Thumbscrew
- 2. Mounting nut (2)
- 3. Pillion
- 4. Grab strap

- 5. Two-up one-piece seat
- 6. Two-up two-piece seat
- 7. Solo seat dual fastener
- 8. Solo seat single fastener

Figure 89. Seat: Softail Models

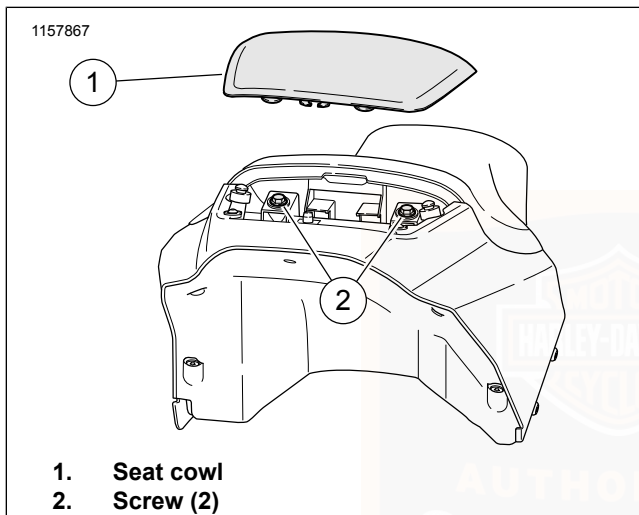


Figure 90. Seat Cowl

FUSES

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

NOTE

- Fuses do not reset.
- Only replace a fuse with a fuse of the same rating.

- Use only automotive type ATO fuses as replacements.

Main Fuse

NOTE

The amperage of the main fuse is 40A.

Remove the main fuse whenever you perform maintenance on your motorcycle.

1. Set Off/Run switch to Off.
2. Remove left side cover. See Side Covers (Page 168).
3. See Figure 91 and Figure 92. Remove fuse block from caddy on motorcycle.
4. Remove the cover from the fuse block.
5. Remove the main fuse.
6. Install the main fuse when maintenance is complete.
7. Install the fuse block cover so the tabs snap into place.
8. Install fuse block to caddy.

9. Install left side cover.

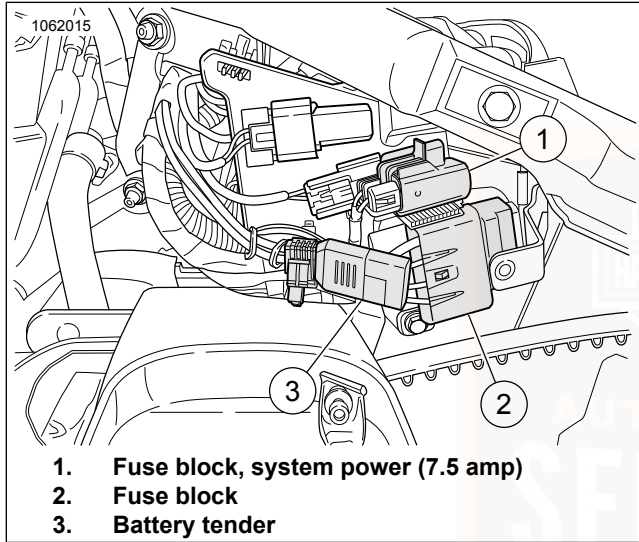


Figure 91. Fuses

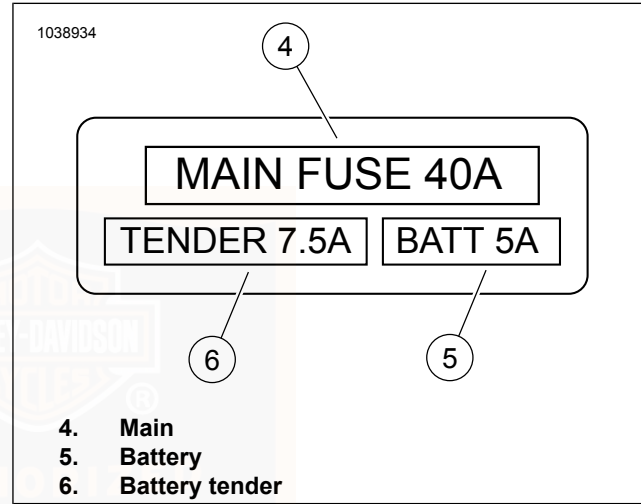


Figure 92. Fuse Block

Replacing Fuses

1. Set Off/Run switch to Off.
2. Remove left side cover. See Side Covers (Page 168).
3. See Figure 91 and Figure 92. Remove fuse block from caddy on motorcycle.

4. Remove the cover from the fuse block.
5. Remove the suspect fuse and inspect the element.
Replace the fuse if the element is burned or separated.
6. Install the fuse block cover so the tabs snap into place.
7. Install fuse block to caddy.
8. Install left side cover.



NOTES



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 OFF/RUN switch off.
2. Discharged battery or loose or corroded connections (solenoid chatters).
3. Clutch lever not squeezed against handlebar or transmission not in neutral.
4. Jiffy stand not in retracted position (for models equipped with jiffy stand interlock).
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 cable connections loose or in bad condition and shorting.
6. Loose or corroded wire or cable connection 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. Spark plug cables in bad condition and leaking.
3. Battery nearly discharged.
4. Loose wire or cable connection at one of the battery terminals or at coil.
5. Engine oil too heavy (cold weather).

6. Fuel tank vent plugged or fuel line closed off, restricting fuel flow.
7. Water or dirt in fuel system or filter.
8. Fuel pump inoperative.

Starts But Runs Irregularly or Misses

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

A Spark Plug Fouls Repeatedly

1. Fuel mixture too rich.
2. Incorrect spark plug for service

Pre-ignition or Detonation (Knocks or Pings)

1. Incorrect fuel.
2. Incorrect spark plug for service

Overheats

1. Insufficient oil supply or oil not circulating.
2. Heavy carbon deposit from lugging engine. See dealer.
3. Insufficient air flow over cylinder heads during extended periods of idling or parade duty.

Excessive Vibration

1. Rear fork pivot shaft loose. See dealer.
2. Front engine mounting bolts loose. See dealer.
3. Front chain or links tight as a result of insufficient lubrication or belt badly worn.
4. Engine to transmission mounting bolts loose (applicable models). See dealer.
5. Damaged frame. See dealer.
6. Wheels and/or tires damaged. See dealer.
7. 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 or faulty signal switch. See dealer.
4. Damaged or improperly installed check valve. See dealer.
5. Oil pump problem. See dealer.

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.

Transmission Jumps Out of Gear

1. 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. Primary chaincase overfilled.
3. Clutch discs warped. See dealer.

Clutch Chatters

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

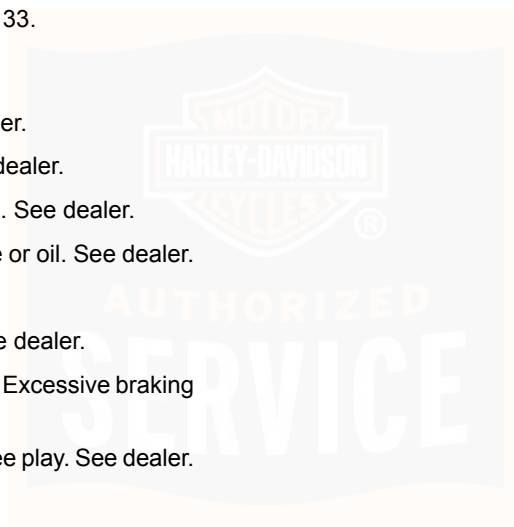
BRAKES

ABS System Behavior

1. ABS lamp does not shut off above 3 mph (5 km/h). See dealer.
2. Other ABS symptoms. Refer to Table 33.

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.



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 1000 mi (1,600 km), 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 your 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. See an authorized Harley-Davidson dealer for advice about the amount of current consumed by additional electrical accessories or for necessary wiring changes. (00211c)

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

190 Warranties and Responsibilities

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.

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

REPORTING SAFETY CONCERNS IN CANADA

Safety concerns may be reported to the Canadian Department of Transportation and Harley-Davidson.

You can contact the Canadian Department of Transportation through the following means.

Mailing Address:

Transport Canada - ASFAD

330 Sparks Street

Ottawa, ON

K1A 0N5

Telephone: 819-994-3328 (Gatineau-Ottawa area or internationally)

Toll free: 1-800-333-0510 (in Canada)

Online:

<http://www.tc.gc.ca/recalls>

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



2020 HARLEY-DAVIDSON LIMITED MOTORCYCLE WARRANTY

24 Months/Unlimited Miles

Harley-Davidson warrants for any new 2020 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: light bulbs, 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.

2020 AUSTRALIA/NEW ZEALAND HARLEY-DAVIDSON MOTORCYCLE 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 2020 or prior-model Harley-Davidson motorcycle in Australia and New Zealand only after 1st January 2019.

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 2020 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.

200 Limited Motorcycle Warranty (Australia)

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: light bulbs, 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.

2020 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 3730 mi (6,000 km) 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.

Limited Noise Warranty 203

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.

2020 HARLEY-DAVIDSON EMISSION CONTROL SYSTEM LIMITED WARRANTY

USA Owners 49 State Limited Emissions 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 18641 mi (30,000 km), 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.

Limited Emission Warranty 205

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
- 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.

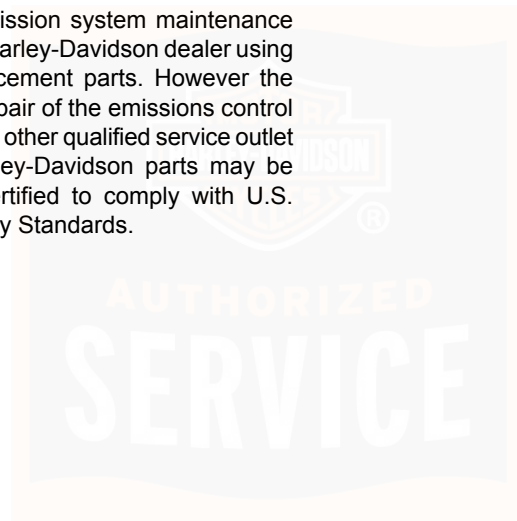
Detailed instructions for proper maintenance and use of this motorcycle, including the time and/or mileage intervals at which such maintenance is to be performed, may be found in this Owner's Manual under Service Records (Page 213).

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

USA Owners California Limited Emissions Warranty

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 18641 mi (30,000 km), 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
- 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.

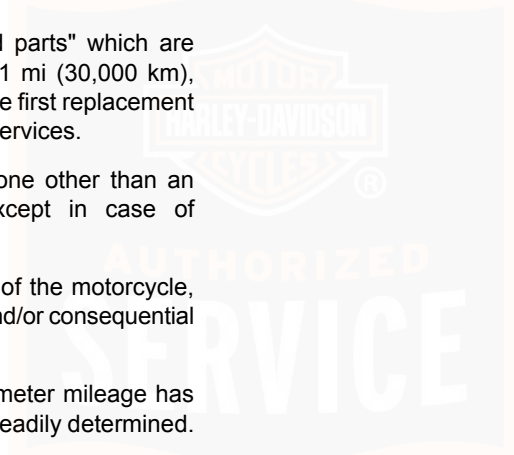
Damage resulting from accident, acts of nature or other events beyond the control of Harley-Davidson.

The repair or replacement of "warranted parts" which are scheduled for replacement prior to 18641 mi (30,000 km), 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

Regular Service Intervals

Service must be performed at specified intervals to keep your Harley-Davidson motorcycle operating at peak performance. Refer to Table 45.

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, may require additional annual (or semi-annual) regular maintenance steps to be performed to keep your limited warranty in effect and/or comply with vehicle regulations. Check with your authorized Harley-Davidson dealer as well as the motorcycle regulations in your country.*
- *After completing the final service interval, repeat the service schedule starting at the 8000 km (5000 mi) interval.*
- *Whenever a vehicle is in for maintenance, always check for and complete recalls and open product programs.*
- *Whenever a vehicle is in for maintenance, always verify that the latest calibration is installed.*

Table 45. Regular Service Intervals: Harley-Davidson Softail 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
Check front wheel spoke torque (if equipped)	X	X			X			X			X	2, 3, 4

Table 45. Regular Service Intervals: Harley-Davidson Softail 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 front brake fluid level	X	X	X	X	X	X	X	X	X	X	X	
Check DOT4 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		X		X		X	2
Lubricate steering head bearings							X					2, 6
Inspect windshield bushings (if applicable)			X		X		X		X		X	
Check upper and lower switch housing screw torque	X		X		X		X		X		X	1, 2, 5
Check clutch lever handlebar clamp screw torque	X		X		X		X		X		X	1, 2, 5
Check master cylinder handlebar clamp screw torque	X		X		X		X		X		X	1, 2, 5
Inspect air cleaner, service as required		X	X	X	X	X	X	X	X	X	X	4
Replace engine oil and filter	X	X	X	X	X	X	X	X	X	X	X	1, 4
Clean and inspect oil cooler	X	X	X	X	X	X	X	X	X	X	X	
Replace primary chaincase lubricant	X		X		X		X		X		X	4
Replace transmission lubricant	X				X				X			4
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

Table 45. Regular Service Intervals: Harley-Davidson Softail 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 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	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 torque	X		X		X		X		X		X	1, 2, 5
Inspect and lubricate jiffy stand	X	X	X	X	X	X	X	X	X	X	X	2, 4
Check clutch adjustment	X	X	X	X	X	X	X	X	X	X	X	2, 4
Check, adjust and lubricate brake and clutch controls	X	X	X	X	X	X	X	X	X	X	X	
Check rear wheel spoke torque (if equipped)	X	X			X			X			X	2, 3, 4
Check rear tire pressure, inspect tread	X	X	X	X	X	X	X	X	X	X	X	1
Check drive belt slot spacer screw torque	X		X		X		X		X		X	1,2,5
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, 5
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, 4
Battery	Check battery, terminal torque and clean connections annually.											1
Spark plugs	Replace spark plugs every two years or every 30000 mi (48,000 km), whichever comes first.											
Front forks	Disassemble, inspect, rebuild front forks and replace fork oil every 50000 mi (80,000 km).											2
Fuel filter	Replace fuel filter every 100000 mi (161,000 km).											2, 4
Brake system	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 45. Regular Service Intervals: Harley-Davidson Softail 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:	<p>1. Perform annually or at specified intervals, whichever comes first.</p> <p>2. Should be performed by an authorized Harley-Davidson dealer, unless you have the proper tools, service data and are mechanically qualified.</p> <p>3. Perform spoke tension check at the 1000 mi (2,000 km), 5000 mi (8,000 km), 20000 mi (32,000 km) services and every 15000 mi (24,000 km) interval thereafter. Not all vehicles are equipped with spoke wheels. Consult appropriate topic in service manual.</p> <p>4. 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).</p> <p>5. For torque instructions, see Shop Practices in the service manual.</p> <p>6. Disassemble, lubricate and inspect every 30000 mi (48,000 km).</p>											

Maintenance Records

Maintain a record of this service to keep your new motorcycle limited warranty in force. Refer to Table 46.

Table 46. Owner's Maintenance Records

SERVICE MILE INTERVAL	DATE	DEALER NUMBER	TECHNICIAN NAME	TECHNICIAN SIGNATURE
1,000 mi (1,600 km)				
5,000 mi (8,000 km)				
10,000 mi (16,000 km)				
15,000 mi (24,000 km)				
20,000 mi (32,000 km)				
25,000 mi (40,000 km)				
30,000 mi (48,000 km)				

Table 46. Owner's Maintenance Records

SERVICE MILE INTERVAL	DATE	DEALER NUMBER	TECHNICIAN NAME	TECHNICIAN SIGNATURE
35,000 mi (56,000 km)				
40,000 mi (64,000 km)				
45,000 mi (72,000 km)				
50,000 mi (80,000 km)				



NOTES



ACRONYMS AND ABBREVIATIONS

Table 47. Acronyms and Measurement Symbols

ITEM	DEFINITION
A	Amperes
ABS	Anti-lock braking system
AC	Alternating current
AGM	Absorbed glass mat (battery)
Ah	Ampere-hour
BCM	Body control module
°C	Celsius (Centigrade)
CCA	Cold cranking amps
cm	Centimeters
cm ³	Cubic centimeters (cc)
CVO	Custom vehicle operations
DC	Direct current
DLC	Data link connector
DOM	Domestic
DTC	Diagnostic trouble code
ECM	Electronic control module
EHCU	Electro hydraulic control unit
EITMS	Engine idle temperature management system
EHCU	Electro hydraulic control unit
ETC	Electronic throttle control
EV	Electric vehicle
EVAP	Evaporative emissions control system

Table 47. Acronyms and Measurement Symbols

ITEM	DEFINITION
EVPT	Electric vehicle power-train
EVSE	Electric vehicle supply equipment
°F	Fahrenheit
fl oz	Fluid ounce
ft	Feet
ft-lbs	Foot pounds
FTP	Flash to pass
g	Gram
gal	Gallon
GAWR	Gross axle weight rating
GND	Ground (electrical)
GPS	Global positioning system
GVWR	Gross vehicle weight rating
H-DSSS	Harley-Davidson smart security system
HCU	Hydraulic control unit
HDI	Harley-Davidson International
HV	High voltage
Hz	Hertz
IGN	Ignition light/key switch position
IMU	Inertia measurement unit
in	inch
in ³	Cubic inch
in-lbs	Inch pounds
kg	Kilogram
km	Kilometer

Table 47. Acronyms and Measurement Symbols

ITEM	DEFINITION
km/h	Kilometers per hour
kPa	Kilopascal
kW	Kilowatt
L	Liter
lb	Pounds
LED	Light emitting diode
LV	Low voltage
mA	Milliampere
mi	Mile
MIL	Malfunction indicator lamp
Min	Minimum
mL	Milliliter
mm	Millimeter
mph	Miles per hour
ms	Millisecond
Nm	Newton-meter
OBC	On board charger
oz	Ounce
P&A	Parts and Accessories
PA	Public address
Part No.	Part number
PIN	Personal identification number
PPE	Personal protective equipment
psi	Pounds per square inch
qt	Quart

Table 47. Acronyms and Measurement Symbols

ITEM	DEFINITION
RDRS	Reflex defensive rider systems
RESS	Rechargeable energy storage system
rpm	Revolutions per minute
SDS	Safety data sheet
SoC	State of charge
SoH	State of health
SW	Software
TCS	Traction control system
TPMS	Tire pressure monitoring system
USB	Universal serial bus
V	Volt
VAC	Volts of alternating current
VDC	Volts of direct current
VIN	Vehicle identification number
VR	Voice recognition
W	Watt
Wh	Watt-hour

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NOTES



Index

A

ABS.....	96
ABS Brakes.....	96
AGM Battery.....	162
Accessories and Cargo Guidelines.....	3
Acronyms and Abbreviations.....	219
Adjust.....	47, 48, 169
Adjusting Steering Head Bearings.....	154
Air Filter, Inspecting.....	154
Alarm.....	66
Anti-Lock Brake System.....	96
Anti-Lock Brake System (ABS).....	12
Anti-lock Brake System (ABS) Identification.....	40

B

Battery.....	68, 162, 165
Battery, Cleaning.....	159
Before You Ride.....	33
Brake.....	72
Brake Fluid Level , Checking.....	147
Brake Fluid, Changing.....	147
Brake Pads and Discs, Inspecting.....	145
Brake System.....	96

Brakes.....	96, 188
Break-in.....	34, 131
Break-in Maintenance.....	131
Bulb.....	169
Bulb, Replacement Incandescent Tail Lamp.....	174
Bulb, Replacement Incandescent Turn Signal.....	175
Bulb, Replacement LED Tail Lamp.....	175
Bulb, Replacement LED Turn Signal.....	176

C

California Evaporative Emission Controls.....	190
Capacity.....	48
Carrying Capacity.....	48
Catalytic Converter.....	38
Changing Engine Oil.....	136
Changing Transmission Lubricant.....	141
Charging.....	162
Charging Battery.....	162
Check.....	169
Check Engine.....	91
Check Engine Indicator.....	91
Checking Brake Fluid Level and Changing Brake Fluid....	147
Checking Clutch and Brake Controls.....	149
Checking Electrical Equipment and Switches.....	160

Index

Checking Engine Oil.....	134
Checking Systems for Leaks or Abrasions.....	146
Checking for Exhaust Leaks.....	154
Checklist.....	33
Clean.....	119, 120, 125, 128 162
Cleaning.....	120, 125
Cleaning Battery.....	159
Clutch.....	153
Clutch and Brake Controls, Checking.....	149
Control, Cruise.....	102
Controls.....	20, 72, 96
Coolant.....	25
Copyright.....	221
Cover.....	168
Cruise Control.....	102
Customer service.....	1

D

Dealer Locator.....	191
Dealer Locator Phone Number.....	191
Denim Finish.....	128
Displays, Odometer Window.....	84

Disposal and Recycling.....	132
Drive Belt.....	149
Drive Belt Deflection Specifications.....	149

E

EITMS.....	90
EPA Noise Regulations.....	190
Electrical Equipment and Switches, Checking.....	160
Electrical System.....	187
Engine.....	34, 91, 185
Engine Idle Temperature Management System.....	90
Engine OFF/RUN Switch.....	81
Engine Oil.....	132, 134, 136
Engine Oil and Filter.....	136
Exhaust Leaks, Checking for.....	154

F

Factory Replacement Parts.....	189
Fill.....	34
Fob.....	59
Fork Maintenance.....	131

Index

Front Fork, Maintaining.....	153	Indicator.....	91
Fuel.....	34, 38	Inspect.....	162
Fuel Cap Lock, Lubricating.....	159	Inspecting Air Filter.....	154
Fuses.....	68, 181	Inspecting Brake Pads and Discs.....	145
Fuses and Relays.....	68	Inspection.....	162
		Install.....	176
		Instruments.....	75
G			
Gasoline.....	38	J	
Gear Shift.....	72	Jiffy Stand.....	47
Genuine Motor Parts and Accessories.....	119		
		K	
H		Key.....	59
Hand Control Modules.....	79, 81	Kick Stand.....	47
Hazard Warning 4-Way Flashers.....	63		
Headlight.....	169	L	
High Beam.....	91	Labels.....	13
High Beam Indicator.....	91	Leaks or Abrasions, Checking Systems for.....	146
Hydraulic Lifters.....	153	Leather.....	128
		Leather Care.....	128
I		Left Turn.....	91
Importing a Motorcycle.....	192		

Index

Left Turn Indicator.....	91
License Plate, Side-Mounted.....	96
Low Beam Switch.....	79
Low Fuel.....	91
Low Fuel Indicator.....	91
Lubricating Fuel Cap Lock.....	159
Lubrication, Miscellaneous.....	149

M

Maintaining Front Fork.....	153
Maintenance.....	131, 132, 134, 136, 141 149, 153, 154, 189, 213
Maintenance, Preparing the Motorcycle for.....	131
Manual.....	1
Manufacturing and Import.....	
Mirror Adjustment.....	47
Mirrors.....	47
Miscellaneous Lubrication.....	149
Models and Features.....	20

N

National Highway Traffic Safety Administration.....	191
National Highway Traffic Safety Administration (NHTSA).....	191
Neutral.....	91
Neutral Indicator.....	91
Noise Control System.....	13

O

Odometer Toggle.....	91
Odometer Window Displays.....	84
Oil.....	132
Oil Cooler.....	138
Oil Level.....	134
Oil Pressure.....	91
Oil Pressure Indicator.....	91
Operation.....	47, 89, 91
Owner Contact Information.....	192

Index

P

Parking Brake.....	3
Patents.....	221
Polishing.....	125
Power Disconnect.....	68
Pre-Ride Checklist.....	33
Pre-Riding Checklist.....	33
Preload Adjustment.....	48
Preparing the Motorcycle for Maintenance.....	131
Primary Chaincase.....	25, 142

R

Recommended Cleaning Products.....	120
Registered Marks.....	221
Remove.....	33, 165, 176
Replace.....	169
Replacing Spark Plugs.....	159
Right Turn.....	91
Right Turn Indicator.....	91
Rules of the Road.....	12

S

Safe Operating Rules.....	3
Safety.....	3, 13, 162
Safety Concerns Canada.....	192
Safety Defects.....	
Seat.....	176
Security System.....	59, 61, 63 66, 67, 68, 69
Service Records.....	213
Shifting Gears.....	100
Shock Absorbers.....	154
Shocks.....	48
Side Covers.....	168
Side cover.....	168
Side-Mounted License Plate.....	96
Smart Security System.....	68, 69
Spark Plugs, Replacing.....	159
Specifications.....	25, 132, 149
Start Switch.....	81
Starting the Engine.....	88, 89
Steering Head Bearings, Adjusting.....	154
Stopping the Engine.....	91
Storage.....	33
Storing.....	33, 162
Storing.....	129

Index

Switch.....72, 79, 81

T

Tail Lamp Bulb Relacemaent Incandescent.....174

Tail Lamp Bulb Replacement LED.....175

Throttle.....72

Tire.....119

Tires.....96, 119

Tires, Checking Pressure and Inspecting.....41

Trademarks.....220

Transmission.....25, 139, 141, 187

Transport Mode.....68

Troubleshooting.....69, 96, 185, 187

188

Turn.....91

Turn Signal.....91

Turn Signal Bulb Replacement Incandescent.....175

Turn Signal Bulb Replacement LED.....176

V

Vehicle Identification Number (VIN).....17

Vehicle Storage.....33

Vinyl.....128

Vinyl Care.....128

Voltage test.....162

W

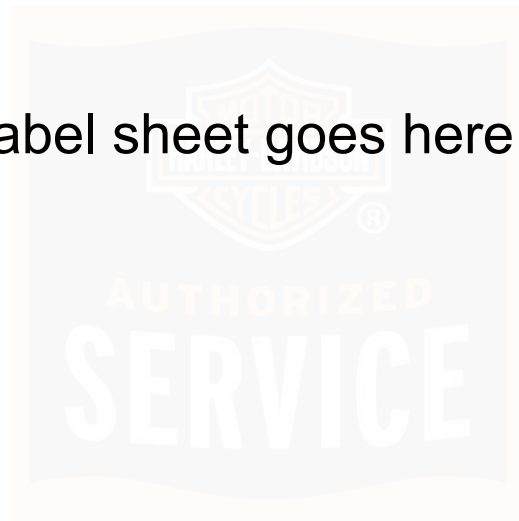
Warranty.....189, 191, 193

Warranty Repair Work.....191

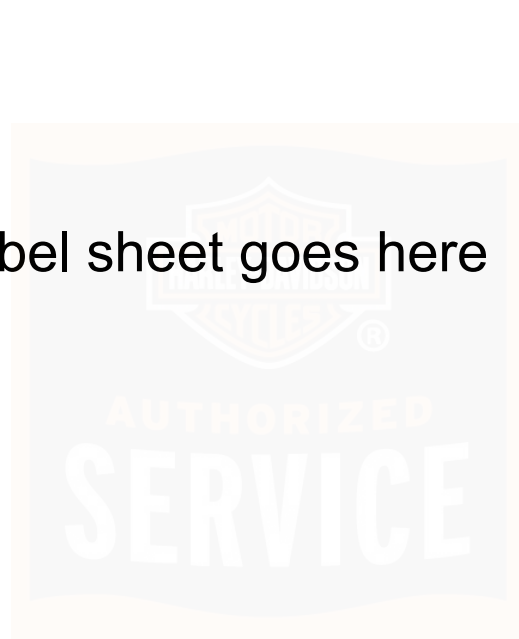
Washing.....125

Wheels.....119

Front of label sheet goes here



Back of label sheet goes here



INSIDE BACK COVER GOES HERE



OUTSIDE BACK COVER GOES HERE

