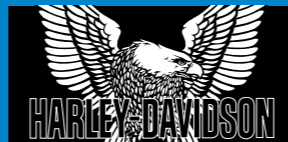


SPORTSTER® MODELS

2019 HARLEY-DAVIDSON® OWNER'S MANUAL



Harley-Davidson Motor Company
Service Communications
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⚠ WARNING: Operating, servicing and maintaining a passenger vehicle or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle

⚠ WARNING: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

⚠ WARNING: Crude oil, gasoline, diesel fuel and petroleum products can expose you to chemicals, including toluene and benzene, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

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.....	6
Towing and Trailering.....	7
Fuel and Exhaust.....	7
Brakes.....	8
Battery.....	9
Hazardous Materials.....	10
Maintenance.....	10
Parts and Accessories.....	10
Anti-Lock Brake System (ABS).....	11
Rules of the Road.....	11
Noise Control System.....	12

Tampering.....	12
Labels.....	12

YOUR MOTORCYCLE

Vehicle Identification Number (VIN).....	15
General.....	15
Location.....	15
Abbreviated VIN.....	15
Models and Features.....	18
Primary Controls and Service Components.....	18

SPECIFICATIONS

Specifications.....	23
Tires.....	23
Weights and Dimensions.....	24
Capacities.....	26
Engine and Transmission.....	27
Electrical.....	27

BEFORE RIDING

Removing Motorcycle from Storage.....	29
Pre-Ride Checklist.....	29
Break-in Riding Rules.....	30
The First 500 Miles (800 Kilometers).....	30
Filling the Fuel Tank.....	31
Removing Fuel Filler Cap.....	31

TABLE OF CONTENTS

Filling the Tank.....	32	Changing the PIN.....	51
Fuel System Information.....	32	Security Status Indicator.....	53
Gasoline.....	32	Arming and Disarming.....	54
Catalytic Converter.....	34	Arming.....	54
ABS Brake System Identification.....	35	Disarming.....	54
Identification.....	35	Disarming with a PIN.....	54
Adjusting Mirrors.....	36	Alarm.....	56
Operating Jiffy Stand.....	37	Warnings.....	56
Location.....	37	Alarm Activation.....	56
Jiffy Stand Switch: International Models.....	38	Alarm Deactivation.....	57
Adjusting Shock Absorbers.....	38	Siren Chirp Mode (Confirmation).....	57
Identify Shock.....	41	Chirp Mode.....	57
Identify the Preload Dot.....	43	Chirpless Mode.....	57
Shock Adjustment.....	45	Switching Modes.....	57
SECURITY SYSTEM		Transport Mode.....	57
Security System.....	49	To Enter Transport Mode.....	58
Components.....	49	To Exit Transport Mode.....	58
Options.....	49	Storage and Service Departments.....	58
Security System Fob.....	49	Long-Term Parking.....	58
Assigning Fob.....	49	Service Departments.....	58
Fob Battery.....	50	Disconnecting Power.....	58
Riding with a Fob.....	51	All Models.....	58
Riding without a Fob.....	51	Troubleshooting.....	59
Personal Identification Number (PIN).....	51	Security Lamp.....	59
		Fob.....	59

TABLE OF CONTENTS

Siren.....	59	Odometer.....	70
OPERATION		Trip Odometers A and B.....	70
Keyless Ignition.....	61	Clock.....	70
Ignition Mode.....	61	Indicators.....	71
Accessory Mode.....	61	Turn Signal Indicator Lamps.....	71
Keyed Ignition.....	62	Headlamp High Beam Lamp.....	71
Fork Lock.....	63	Neutral Lamp.....	71
General: Controls and Indicators.....	64	Oil Pressure Lamp.....	71
Controls, Instruments and Switches.....	65	Check Engine Lamp.....	72
Clutch Hand Lever.....	65	Low Fuel Lamp.....	72
Gear Shift Lever.....	65	Battery Discharge Lamp.....	72
Left-Hand Control Module.....	65	Security Lamp.....	72
Speedometer/Odometer.....	66	ABS Lamp.....	72
Right-Hand Control Module.....	66	Left Hand Control Switches.....	74
Brakes.....	66	Trip.....	74
Throttle Twist Grip.....	66	Horn.....	74
OFF/RUN Switch.....	66	High Beam.....	74
Instruments.....	67	Low Beam/Flash to Pass.....	74
Speedometer.....	67	Left Turn Signal.....	75
Odometer.....	67	Right Hand Control Switches.....	76
Trip Odometers A and B.....	68	Hazard Warning 4-Way Flasher.....	76
Gear Selection/Tachometer.....	68	Start.....	76
Tachometer.....	69	Engine Off.....	77
Speedometer.....	69	Engine Run.....	77
Gear Selection.....	70	Friction Screw.....	77
		Right Turn Signal.....	77

TABLE OF CONTENTS

Odometer Window Displays.....	78	SADDLEBAGS.....	91
Changing Units of Measurement.....	78	Open.....	91
Time.....	79	Close.....	91
Tip Message.....	80	Luggage.....	92
No Fob Message.....	80	Side-Mounted License Plate.....	93
Sidestand Message.....	81	AFTER RIDING	
Starting the Engine.....	81	Genuine Motor Parts and Accessories.....	95
Starting after Tipover.....	83	Online Catalog.....	95
Stopping the Engine.....	83	Shop for Your Bike.....	95
Brake System.....	83	Customizer.....	95
Front Brake Lever.....	83	Fit Shop.....	95
Rear Brake Pedal.....	84	Custom Seats.....	95
Non-ABS Brake System.....	84	Cleaning and General Care.....	95
Anti-lock Brake System (ABS).....	84	Cleaning Wheels and Tires.....	96
How ABS Works.....	84	Recommended Cleaning Products.....	96
How To Use ABS.....	84	Washing the Motorcycle.....	100
ABS: Tires and Wheels.....	85	Preparation.....	100
Shifting Gears.....	86	Cleaning Wheels and Tires.....	100
Stopped, Engine Off.....	86	Washing the Motorcycle.....	101
Starting from a Stop.....	86	Drying the Motorcycle.....	101
Upshift (Acceleration).....	87	Polishing and Sealing.....	101
Downshift (Deceleration).....	87	Windshield Care.....	102
WINDSHIELD.....	89	Leather and Vinyl Care.....	102
Removal.....	89	Denim Finish.....	103
Installation.....	89		

TABLE OF CONTENTS

Cleaning Denim Finish.....	103
Hard Candy Custom Paint.....	103
Exhaust Care.....	104
Wheel Care.....	104
Storing Motorcycle.....	105

MAINTENANCE AND LUBRICATION

Safe Operating Maintenance.....	107
Break-in Maintenance.....	107
Preparing the Motorcycle for Maintenance.....	108
Setting Motorcycle Upright.....	108
Disposal and Recycling.....	108
Engine Lubrication.....	108
Engine Lubrication.....	108
Low Temperature Lubrication.....	109
Check Engine Oil Level.....	110
Removing and Replacing Oil Filler Cap.....	110
Oil Level Cold Check.....	111
Oil Level Hot Check.....	112
Change Oil and Oil Filter.....	113
Draining Oil Tank.....	113
Removing Oil Filter.....	114
Installing Oil Filter.....	115
Refilling Oil Tank.....	116
Transmission Lubricant.....	117
Check Lubricant Level.....	118

Changing Lubricant.....	120
Primary Chain Free Play.....	122
Primary Chain Inspection.....	122
Primary Chain Adjustment.....	124
BRAKES.....	125
Brake Fluid.....	125
Brake Pads.....	127
Check Drive Belt Deflection.....	129
Lubricating Fuel Cap Lock.....	131
Mechanical Clutch.....	132
Hydraulic Lifters.....	132
Maintaining Front Fork.....	132
Adjusting Steering Head Bearings.....	133
Checking for Exhaust Leaks.....	133
Shock Absorbers.....	133
Spark Plugs.....	133
Inspecting Air Filter.....	134
Removal.....	134
Cleaning Filter Element.....	135
Installation.....	135

SERVICE PROCEDURES

Tires.....	139
General Information.....	139
Inspecting Tires.....	141
Replacing Tires.....	143

TABLE OF CONTENTS

Side Covers.....	143	Tail Lamp.....	162
Opening.....	143	XL883L, XL1200T and Models with Standard Style Tail Lamp.....	162
Closing.....	144	XL1200C.....	163
Battery Tender Connector.....	145	XL883N, XL1200NS, XL1200X, XL1200XS, XL1200CX.....	164
Battery Maintenance.....	146	XL883N, XL1200NS, XL1200CX, XL1200X, XL1200XS Models with LED Turn Signal Tail and Stop Lamps.....	164
Battery Safety.....	146	Turn Signal Bulb Replacement: Incandescent.....	164
Absorbed Glass Mat (AGM) Battery Charging Information.....	146	Replacing Turn Signal Bulb.....	164
Cleaning and Inspecting.....	147	Turn Signal Bulb Replacement: LED.....	165
Charging and Storing the Battery.....	147	Seat.....	165
Battery Replacement.....	149	Removal.....	165
Removing the Battery.....	149	Installation.....	166
Installing the Battery.....	150	TROUBLESHOOTING	
Fuses.....	152	Troubleshooting: General.....	169
Fuse Replacement.....	152	Engine.....	169
Main Fuse.....	153	Starter Does Not Operate or Does Not Turn Engine Over.....	169
Check Headlamp Alignment.....	154	Engine Turns Over But Does Not Start.....	169
Headlamp Alignment.....	155	Starts Hard.....	169
XL1200C, XL1200CX, XL1200X, XL1200XS Models...	155	Starts But Runs Irregularly or Misses.....	170
XL883L, XL883N, XL1200T Models.....	156	A Spark Plug Fouls Repeatedly.....	170
XL1200NS.....	157	Pre-ignition or Detonation (Knocks or Pings).....	170
Headlamp Replacement.....	158		
Removal.....	158		
Installation.....	160		
Position Lamp.....	162		

TABLE OF CONTENTS

Overheats.....	170
Excessive Vibration.....	170
Engine Oil Not Circulating (Oil Pressure Lamp Lit).....	170
Electrical System.....	171
Alternator Does Not Charge.....	171
Alternator Charge Rate is Below Normal.....	171
Transmission.....	171
Transmission Shifts Hard.....	171
Transmission Jumps Out of Gear.....	171
Clutch Slips.....	171
Clutch Drags or Does Not Release.....	171
Clutch Chatters.....	171
Brakes.....	171
Brakes Do Not Hold Normally.....	171

TRADEMARKS

H-D U.S.A., LLC Trademark Information.....	173
Product Registered Marks.....	173

WARRANTIES AND RESPONSIBILITIES

Warranty and Maintenance.....	175
Keeping It All Harley-Davidson.....	175
California and Select International Markets Evaporative Emission Controls.....	176
EPA Noise Regulations in the United States.....	176
EPA Regulations.....	176

Warranty/Service Information.....	177
Reporting Safety Defects in the United States.....	177
NHTSA Statement.....	177
Required Documentation for Imported Motorcycles.....	177
Owner Contact Information.....	178
Questions and Concerns.....	178

LIMITED MOTORCYCLE WARRANTY

2019 Harley-Davidson Limited Motorcycle Warranty.....	181
24 Months/Unlimited Miles.....	181
Duration.....	182
Owner's Obligations.....	182
Exclusions.....	182
Other Limitations.....	183
Important: Read Carefully.....	183
Environmental Factors.....	184

LIMITED MOTORCYCLE WARRANTY (AUSTRALIA)

2019 Australia/New Zealand Harley-Davidson Motorcycle Manufacturer's Limited Warranty.....	185
24 Months/Unlimited Miles.....	185
Your Consumer Rights.....	185
Warranty.....	185
Warranty Period.....	185
Obtaining Warranty Service.....	186

TABLE OF CONTENTS

Exclusions.....	186
Other Limitations.....	187
Important: Read Carefully.....	188
Environmental Factors.....	188

LIMITED NOISE WARRANTY

2019 Harley-Davidson Motorcycle Noise Control System Limited Warranty.....	191
Other Rights.....	192
Recommendations for Required Maintenance.....	192

LIMITED EMISSION WARRANTY

2019 Harley-Davidson Emission Control System Limited Warranty.....	193
USA Owners 49 State Limited Emissions Warranty.....	193
Items Covered by this Emission Warranty.....	194
Other Rights.....	194
Recommendations for Required Maintenance.....	195

CALIFORNIA EMISSIONS CONTROL WARRANTY

California Emissions Control Warranty Statement.....	197
USA Owners California Limited Emissions Warranty.....	197
Your Warranty Rights and Obligations.....	197
Manufacturer's Warranty Coverage.....	197
Owner's Warranty Responsibilities.....	197
Additional Warranty Terms.....	198
What Is Covered by this Emission Warranty.....	199
What Is Not Covered by this Emission Warranty.....	199

SERVICE INTERVALS AND RECORDS

Service Records.....	201
Regular Service Intervals.....	201
Maintenance Records.....	204
Service Literature.....	205

GLOSSARY

Acronyms and Measurement Symbols.....	207
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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.americanmotorcyclist.com 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.com.
Harley-Davidson market office, call 1-414-343-4056 or visit

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)

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 Before Riding > Pre-Ride Checklist (Page 29).

⚠ 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

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

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 > Specifications (Page 23).

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

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

(00240e)

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

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 Before Riding > Break-in Riding Rules (Page 30).
- 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 Intervals and Records > Service Records (Page 201).

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 Operation > Brake System (Page 83).

RULES OF THE ROAD

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

APPLICABILITY	
<input type="checkbox"/>	• CHN

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.

om011041

1

⚠ WARNING

A connected battery can cause a spark or motorcycle startup while servicing. Death or serious injury could occur.

- Disconnect negative cable before servicing.
- Keep cable away from terminal while servicing.

15368-01A

2

⚠ 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.

For a manual, find nearest dealer at 1-414-343-4056 or www.harley-davidson.com

29127-90B

3

⚠ WARNING

Too much weight in saddlebags can cause loss of control. Death or serious injury could occur.

- Do not put more than 7 pounds (3.2 kg) in each saddlebag.
- Put equal weight in each saddlebag.
- See Accessories and Cargo section of Owner's Manual for more information.

Figure 1. Labels

Table 2. Labels

LABEL	PART NO.	DESCRIPTION	LOCATION	TEXT
1	15368-01A	Battery warning	On frame under seat	<p>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 side while servicing.
2	29147-07	General warnings XL883N, XL1200C, XL1200CX, XL1200NS, XL1200X, XL1200XS	Top of air cleaner cover	<p>Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use can 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>
	29127-95B	General warnings XL883L, XL1200T	Top of air cleaner cover	
3	91494-06	Saddlebag warning XL1200T	Inside saddlebag	<p>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 7 pounds (3 kg) in each saddlebag. • Put equal weight in each saddlebag. • See Accessories and Cargo section of Owner's Manual.

VEHICLE IDENTIFICATION NUMBER (VIN)

APPLICABILITY	
<input type="checkbox"/>	• CHN

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.

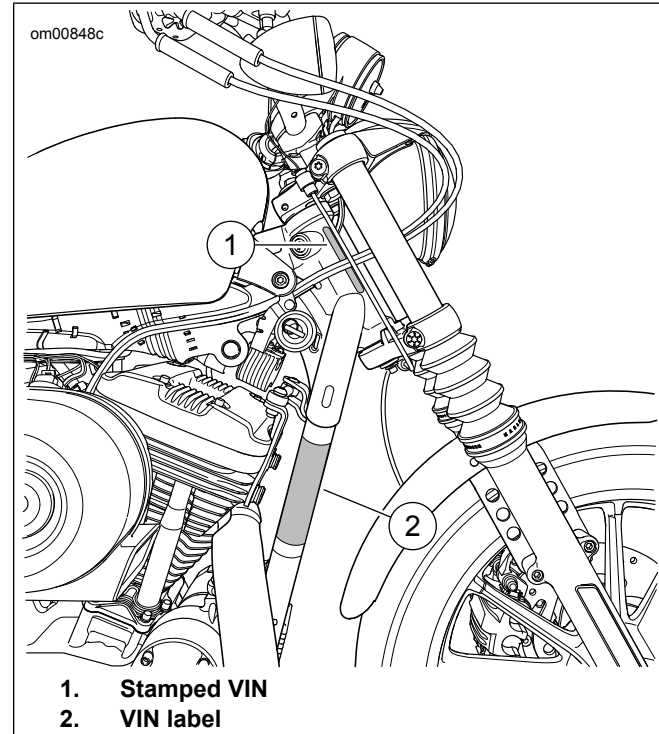


Figure 2. VIN Locations

1173944

1 2 3 4 5 6 7 8 9

1HD 4 CR 2 1 3 K C 111000

Figure 3. Typical Harley-Davidson VIN: 2019 Sportster Models

Table 3. Harley-Davidson VIN Breakdown: 2019 Sportster 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) 4=Middleweight motorcycle (351 cm ³ to 900 cm ³)
3	Model	See VIN model table
4	Engine type	2=Evolution [®] 883 cm ³ air-cooled, fuel-injected 3=Evolution [®] 1202 cm ³ air-cooled, fuel-injected

Table 3. Harley-Davidson VIN Breakdown: 2019 Sportster Models

POSITION	DESCRIPTION	POSSIBLE VALUES	
5	Configuration/calibration, introduction	Normal Introduction 1=Domestic (DOM) 3=California (CAL) A=Canada (CAN) C=HDI E=Japan (JPN) G=Australia (AUS) J=Brazil (BRZ) L=Asia Pacific (APC) N=India (IND) R=ASEAN (AZN) T=China (CHN)	Mid-year or Special Introduction 2, 4=Domestic (DOM) 5, 6=California (CAL) B=Canada (CAN) D=HDI F=Japan (JPN) H=Australia (AUS) K=Brazil (BRZ) M=Asia Pacific (APC) P=India (IND) S=ASEAN (AZN) U=China (CHN)
6	VIN check digit	Can be 0-9 or X	
7	Model year	K=2019	
8	Assembly plant	C=Kansas City, MO 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: 2019 Sportster Models

CODE	MODEL	CODE	MODEL
CR	XL883L SuperLow®	LL	XL1200T SuperLow® 1200T
CT	XL1200C 1200 Custom	LM	XL1200CX Roadster™

Table 4. VIN Model Codes: 2019 Sportster Models

CODE	MODEL	CODE	MODEL
LC	XL1200X Forty-Eight [®]	LP	XL1200NS Iron 1200 [™]
LE	XL883N Iron 883 [™]	LR	XL1200XS Forty-Eight [®] Special

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

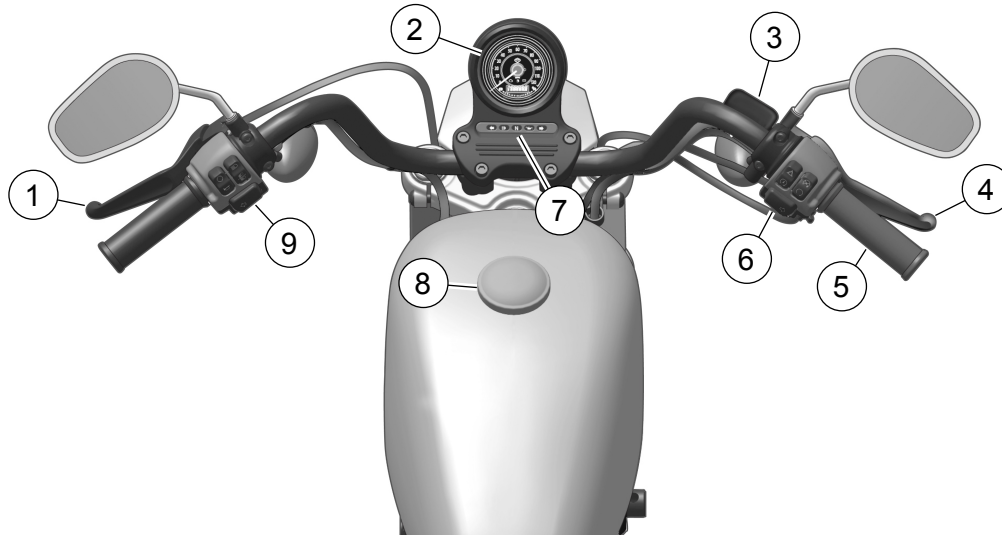
Illustrations are for general reference only. Controls and service components shown are general locations and representations that do not show a specific model of motorcycle.

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.

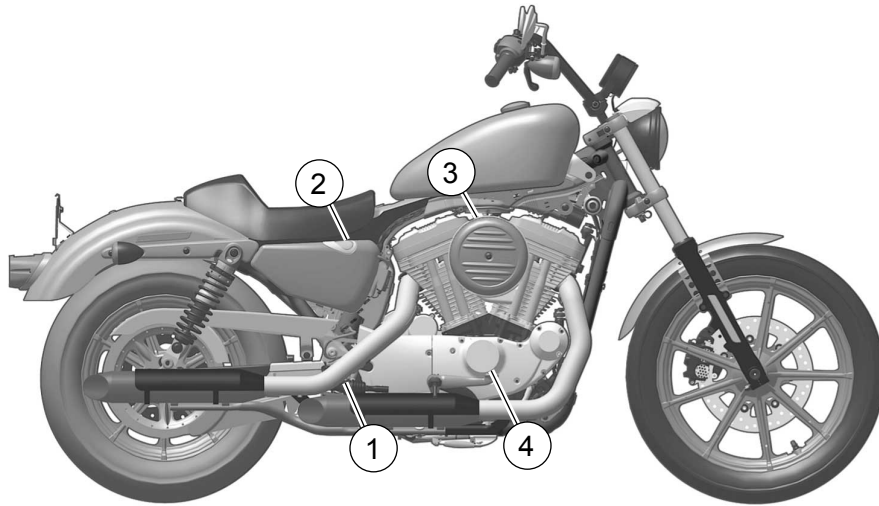
See Figure 6 for rider controls and service components accessible from the left.



- | | |
|--------------------------------|------------------------------|
| 1. Clutch hand lever | 6. Right hand control module |
| 2. Speedometer/odometer | 7. Indicator lamps |
| 3. Front brake fluid reservoir | 8. Fuel cap |
| 4. Front brake lever | 9. Left hand control module |
| 5. Throttle twist grip | |

Figure 4. Controls and Service Components (typical)

1172125



- 1. Rear brake fluid reservoir
- 2. Oil filler cap/dipstick

- 3. Air cleaner
- 4. Rear brake pedal

Figure 5. Controls and Service Components (typical)



- | | |
|-----------------------------------|-----------------------|
| 1. Air pressure valve | 5. Clutch cover |
| 2. Front brake caliper | 6. Rear brake caliper |
| 3. Spark plug | 7. Jiffy stand |
| 4. Primary chain inspection cover | 8. Gear shift lever |

Figure 6. Controls and Service Components (typical)

NOTES

SPECIFICATIONS

APPLICABILITY	
<input type="checkbox"/>	• CHN

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

⚠ 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)

Table 5. Specified Tires

MODEL	MOUNT	DIAMETER	SPECIFIED TIRE	PRESSURE (cold 68 °F (20 °C)) ⁽¹⁾	
		in		psi	kPa
XL883L	Front	18	Michelin Scorcher "11F" 120/70ZR18 M/C 59W	36	248
	Rear	17	Michelin Scorcher "11" 150/60ZR17 M/C 66W	42	290
XL883N	Front	19	Michelin Scorcher "31" 100/90B19 M/C 57H	30	207
	Rear	16	Michelin Scorcher "31" 150/80B16 M/C 77H	40	276
XL1200C	Front	16	Michelin Scorcher "31" 130/90B16 M/C 73H	36	248
	Rear	16	Michelin Scorcher "31" 150/80B16 M/C 77H	40	276

Table 5. Specified Tires

MODEL	MOUNT	DIAMETER	SPECIFIED TIRE	PRESSURE (cold 68 °F (20 °C)) ⁽¹⁾	
		in		psi	kPa
XL1200CX	Front	19	Dunlop GT502F 120/70R19 M/C 60V	36	248
	Rear	18	Dunlop GT502 150/70R18 M/C 70V	42	290
XL1200NS	Front	19	Michelin Scorcher "31" 100/90B19 M/C 57H	30	207
	Rear	16	Michelin Scorcher "31" 150/80B16 M/C 77H	40	276
XL1200T	Front	18	Michelin Scorcher "11T" 120/70ZR18 M/C 59W	36	248
	Rear	17	Michelin Scorcher "11T" 150/70ZR17 M/C 69W	42	290
XL1200X	Front	16	Michelin Scorcher "31" 130/90B16 M/C 73H	36	248
	Rear	16	Michelin Scorcher "31" 150/80B16 M/C 77H	40	276
XL1200XS	Front	16	Michelin Scorcher "31" 130/90B16 M/C 73H	36	248
	Rear	16	Michelin Scorcher "31" 150/80B16 M/C 77H	40	276

(1) Tire pressure will vary with changes in ambient and tire temperature. Check pressure with tires cold (68 °F (20 °C)). Increase tire pressure by 1.0 psi (6.9 kPa) for every 5 °C (10 °F) in ambient air temperature above this point.

Weights and Dimensions

Table 6. Weights: XL883 Models

ITEM	XL883L		XL883N	
	lb	kg	lb	kg
Running weight *	569	258	564	256
Maximum added weight allowed **	431	196	436	198
GVWR	1000	454	1000	454
GAWR front	339	154	335	152

Table 6. Weights: XL883 Models

ITEM	XL883L		XL883N	
	lb	kg	lb	kg
GAWR rear	661	300	665	302

* The total weight of the motorcycle as delivered with all oil/fluids and approximately 90% of fuel.
 ** The total weight of accessories, cargo, riding gear, passenger and rider must not exceed this weight.

Table 7. Weights: XL1200 Models

ITEM	XL1200C		XL1200CX		XL1200NS/XS		XL1200T		XL1200X	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Running weight ⁽¹⁾	591	268	571	259	564	256	604	274	556	252
Maximum added weight allowed ⁽²⁾	409	186	429	195	436	198	396	180	444	201
GVWR	1000	454	1000	454	1000	454	1000	454	1000	454
GAWR, front	335	152	335	152	335	152	335	152	335	152
GAWR, rear	665	302	665	302	665	302	665	302	665	302

(1) Total weight as delivered with all oil/fluids and approximately 90% of fuel.
 (2) The total weight of accessories, cargo, riding gear, passenger and rider must not exceed this weight.

Table 8. Dimensions: XL883 Models

ITEM	XL883L		XL883N	
	in	mm	in	mm
Length	87.6	2225	86	2185
Overall width	33.3	845	32.1	815
Overall height	46.1	1170	44.9	1140
Wheel base	59.1	1500	59.6	1515
Road clearance	3.9	100	5.5	140

Table 8. Dimensions: XL883 Models

ITEM	XL883L		XL883N	
	in	mm	in	mm
Seat height *	25.5	648	25.7	653

* With 81.7 kg (180 lb) rider on seat.

Table 9. Dimensions: XL1200 Models

ITEM	XL1200C		XL1200CX		XL1200NS		XL1200T		XL1200X		XL1200XS	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Length	87.6	2225	86.0	2185	86.6	2200	87.0	2210	85.2	2165	85.2	2165
Overall width	33.1	840	33.9	860	36.0	915	33.5	850	32.9	835	34.3	870
Overall height	45.3	1150	42.5	1080	48.8	1240	52.6	1335	43.3	1100	46.5	1180
Wheelbase	60.2	1530	59.3	1505	59.6	1515	59.1	1500	58.9	1495	58.9	1495
Road clearance	4.1	105	5.9	150	5.5	140	3.7	95	4.3	110	4.3	110
Seat height ⁽¹⁾	26.6	676	29.5	749	25.7	653	26.1	664	26.2	665	26.2	665

(1) With Weight: 180 lb (82 kg) rider on seat.

Capacities

Table 10. Capacities: XL883 Models

ITEM	XL883L		XL883N	
	U.S.	L	U.S.	L
Fuel tank (total)	4.5 gal	17.0	3.3 gal	12.5
Oil tank with filter	2.8 qt	2.6	2.8 qt	2.6
Transmission (approximate)	1.0 qt	0.95	1.0 qt	0.95
Low fuel warning light	1.0 gal	3.8	0.8 gal	3.0

Table 11. Capacities: XL1200 Models

ITEM	XL1200C/T		XL1200CX/NS		XL1200X/XS	
	U.S.	L	U.S.	L	U.S.	L
Fuel tank (total)	4.5 gal	17.0	3.3 gal	12.5	2.1 gal	7.9
Oil tank with filter	2.8 qt	2.6	2.8 qt	2.6	2.8 qt	2.6
Transmission (approximate)	1.0 qt	0.95	1.0 qt	0.95	1.0 qt	0.95
Low fuel warning light	1.0 gal	3.8	0.8 gal	3.0	0.65 gal	2.5

Engine and Transmission

Table 12. Engine

ITEM	XL883 MODELS		XL1200 MODELS	
Number of cylinders	2			
Type	4-cycle, 45 degree, V-twin, air cooled			
Compression ratio	9:1		10:1	
Bore	3.000 in	76.2 mm	3.500 in	88.9 mm
Stroke	3.811 in	96.8 mm	3.811 in	96.8 mm
Displacement	53.9 in ³	883 cm ³	73.4 in ³	1202 cm ³

Table 13. Transmission

TRANSMISSION	SPECIFICATION
Type	Constant mesh, foot shift
Speeds	5 forward

Electrical

Table 14. Electrical

COMPONENT	SPECIFICATION
Ignition timing	Not adjustable
Battery	12 V, 225 CCA, 12 Ah, sealed and maintenance free

Table 14. Electrical

COMPONENT	SPECIFICATION
Charging system	Single-phase, 30 A system (375 W @ 13.5 V, 2000 rpm, 405 W max power @ 13.5 V)

Table 14. Electrical

COMPONENT	SPECIFICATION	
Spark plug size	12 mm	
Spark plug gap	0.038-0.043 in	0.97-1.09 mm
Spark plug torque	12-18 ft-lbs	16.3-24.4 Nm

REMOVING MOTORCYCLE FROM STORAGE

1. Charge and install the battery. See Service Procedures > Battery Maintenance (Page 146).
2. Inspect spark plugs. See Maintenance and Lubrication > Spark Plugs (Page 133).
3. Inspect air filter and replace if necessary. See Maintenance and Lubrication > Inspecting Air Filter (Page 134).
4. Inspect drive belt and sprocket. See Maintenance and Lubrication > Check Drive Belt Deflection (Page 129).
5. Perform the items in the Before Riding > Pre-Ride Checklist (Page 29).

PRE-RIDE CHECKLIST

APPLICABILITY	
<input type="checkbox"/>	• CHN

1. Check the amount of fuel in the tank. Add fuel if required. See Before Riding > Filling the Fuel Tank (Page 31).
2. Adjust mirrors to proper riding positions. See Before Riding > Adjusting Mirrors (Page 36).
3. Check the engine oil level. See Maintenance and Lubrication > Check Engine Oil Level (Page 110).

4. Check brake fluid level. See Maintenance and Lubrication > BRAKES (Page 125).
5. Inspect brake pads and discs for wear. See Maintenance and Lubrication > BRAKES (Page 125).
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 Owner Manual > Operation (Page 61).
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 tire specifications in Table 5 for correct inflation pressure. Refer to Specifications > Specifications (Page 23) for weight allowances.
10. Check rear shock settings. Adjust if necessary. See Before Riding > Adjusting Shock Absorbers (Page 38).
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

Removing Fuel Filler Cap

⚠ 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)

NOTE

Fuel filler cap rotates approximately a three-quarter turn before it starts unscrewing.

See Figure 7. To open, turn fuel filler cap counterclockwise and lift. To close, turn fuel filler cap clockwise until it clicks. The ratchet action of the cap prevents over-tightening.

Sportsters sold in some countries have a locking fuel cap.

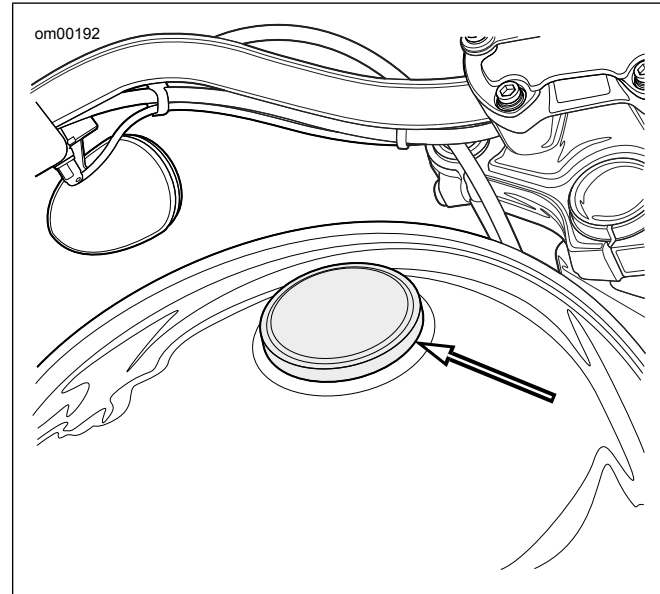


Figure 7. Fuel Filler Cap

Filling the Tank

⚠ WARNING

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

⚠ WARNING

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

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)

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

32 Before Riding

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 Safety First > Safe Operating Rules (Page 3).

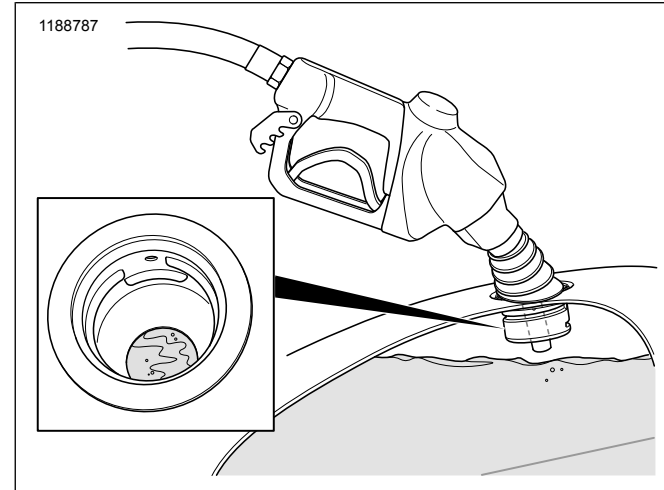


Figure 8. Fuel Level below Filler Neck

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% 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% Ethanol	Fuels with an ethanol content of up to 5% (E5) may be used in your motorcycle without affecting vehicle performance.
E10	10% Ethanol	Fuels with an ethanol content of up to 10% (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% Ethanol	Fuel in the Brazilian market has ethanol content which ranges from 21–27.5%. Harley-Davidson 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 Harley-Davidson motorcycles intended for other regulatory markets may result in poor drivability, setting of the check engine light and potential engine damage.
E85	85% Ethanol	Do not use fuel containing 85% 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 9. Models with the ABS option can be identified by a wheel speed sensor on the left side of the front wheel.

See Figure 10. Models with ABS will also have an ABS module (EHCU).

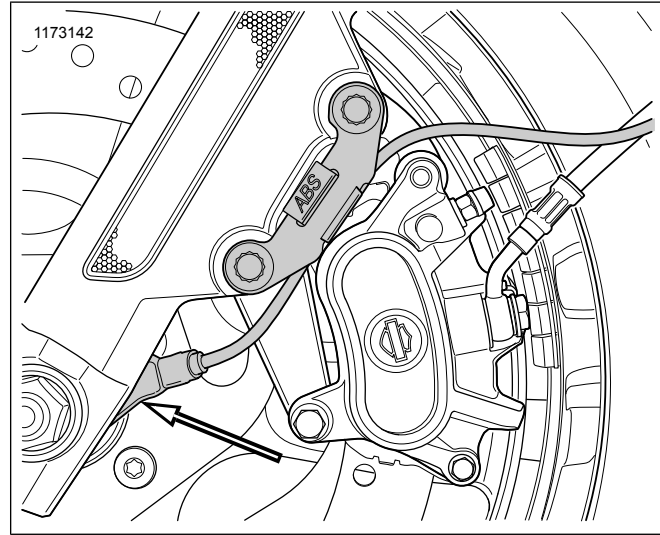


Figure 9. Wheel Speed Sensor (ABS Identification)

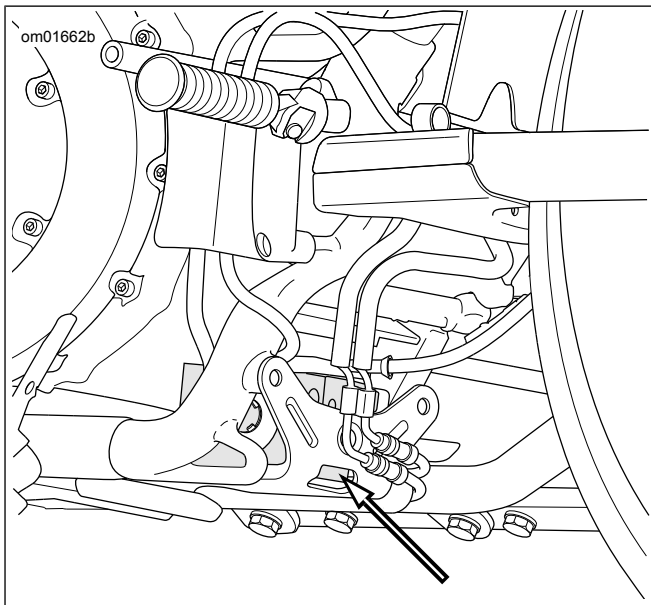


Figure 10. ABS Module (EHCU) (located in front of rear tire)

ADJUSTING MIRRORS

APPLICABILITY	
<input type="checkbox"/>	• 2019 FORTY-EIGHT (XL1200X)

⚠ WARNING

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

Your motorcycle has two convex rear view mirrors.

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

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

NOTE

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

APPLICABILITY	
<input checked="" type="checkbox"/>	• 2019 FORTY-EIGHT (XL1200X)
<input type="checkbox"/>	• CHN

NOTICE

Improperly aligned handlebars or components can contact the fuel tank when turned to the left or right. Contact with the fuel tank can cause cosmetic damage. (00372b)

See Figure 11. Make sure the rear view mirrors do not contact the fuel tank. Slowly turn handlebar to full left lock and full right lock.

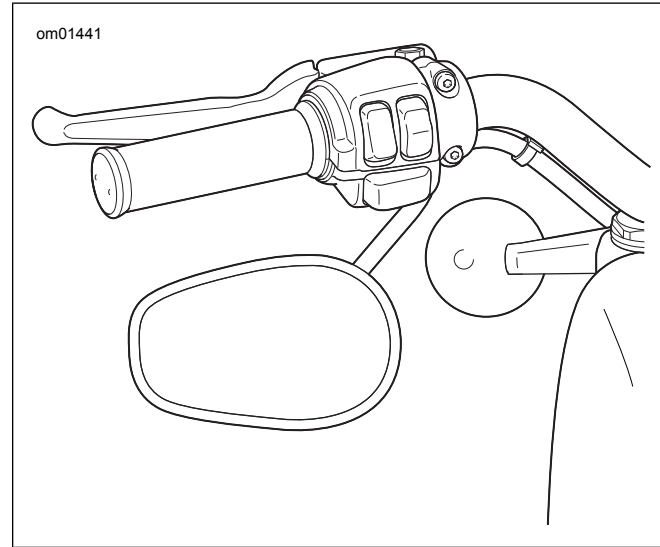


Figure 11. Rear View Mirror: XL1200X

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.

38 Before Riding

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

APPLICABILITY	
<input checked="" type="checkbox"/>	• 2019 SUPERLOW 1200T (XL1200T)
<input type="checkbox"/>	• CHN

⚠ WARNING

Adjust rear shock before riding. Distractions can lead to loss of control, resulting in death or serious injury. (00638b)

⚠ WARNING

Do not adjust suspension while riding. Adjustment knob is located near spinning rear tire/wheel, which could be inadvertently contacted, resulting in serious injury. (00639b)

1. See Figure 12. Locate the preload adjustment knob behind the left saddlebag.
2. Rotate the preload adjustment knob counterclockwise until it stops aligned with the LOW mark. The LOW setting is the minimum preload position.

NOTE

- **Example:** For a rider weighing 160 lb (73 kg) riding with a passenger weighing 125 lb (56.7 kg) and 10 lb (4.5 kg) of cargo in the saddlebags, the recommended preload setting is 16 turns (32 clicks) from the LOW setting.
- The HIGH setting is the maximum preload position.

▲ 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)

3. Rotate the preload adjustment knob clockwise the recommended number of turns for the weight of the rider and the combined weight of a passenger and cargo. Two clicks of the knob are a turn. Refer to Table 18.

NOTE

- **GVWR:** GVWR is the sum of the weight of the motorcycle, accessories and the maximum weight of the rider, passenger and cargo that can be safely carried.
- **GAWR:** GAWR is the maximum amount of weight that can be safely carried on each axle.

- See information label on frame downtube for GVWR, front axle GAWR and rear axle GAWR. Refer to Table 6 or Table 7 .
- Maximum additional weight allowed cannot exceed specifications. Refer to Table 17.

Table 17. Maximum Added Weight Allowed: XL1200T

MODEL	SPECIFICATIONS	
	lb	kg
XL1200T	396	180

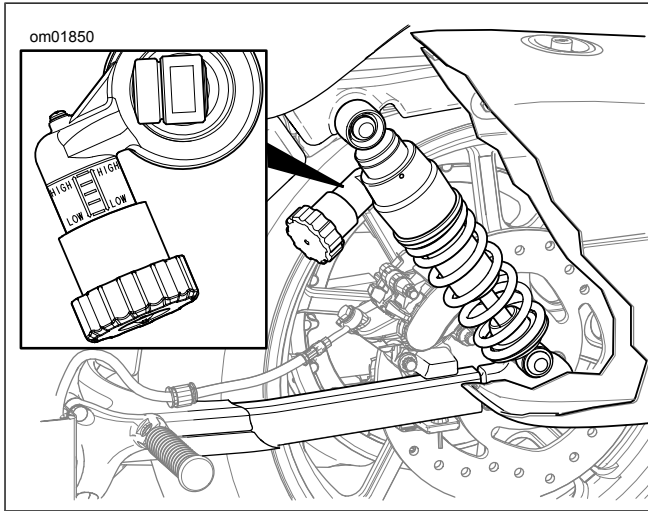


Figure 12. Preload Adjustment Knob: XL1200T

Table 18. Recommended Turns: XL1200T Shock Preload Knob (two clicks equal one turn)

		ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES																											
lb		0	8	15	23	30	38	45	53	60	68	75	83	90	98	105	113	120	128	135	143	150	158	165	173	180	188	195	
kg		0	3	7	10	14	17	20	24	27	31	34	37	41	44	48	51	54	58	61	65	68	71	75	78	82	85	88	
RIDER WEIGHT																													
lb	kg	Full turns of knob																											
100	45	LOW										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
110	50	LOW								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH	
120	54	LOW						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH			
130	59	LOW				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH					
140	64	LOW		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH							

Table 18. Recommended Turns: XL1200T Shock Preload Knob (two clicks equal one turn)

ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES																																					
150	68	LOW																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH	
160	73	LOW																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH	
170	77	LOW																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH	
180	82	LOW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH																
190	86	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH																	
200	91	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH																		
210	95	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH																			
220	100	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH																				
230	104	5	6	7	8	9	10	11	12	13	14	15	16	17	18	HIGH																					

APPLICABILITY	
<input type="checkbox"/>	<ul style="list-style-type: none"> • 2019 SUPERLOW 1200T (XL1200T) • CHN

Identify Shock

Sportster models except the XL1200T and the XL1200CX have low, medium or tall shock absorbers depending on the market in which it is sold.

1. Park your motorcycle on the jiffy stand without any luggage or load.

2. Identify the shock.

- a. **All except XL1200T and XL1200CX:** See Figure 13. Measure from the center of the lower shock mounting bolt to the center of the upper mounting bolt. Compare the measurement to the identification table to determine if your motorcycle has low, medium or tall shock absorbers. Refer to Table 19.
- b. **XL1200CX:** See Figure 14. Identify the shock on the XL1200CX by the orange Harley-Davidson Bar & Shield (1) on the top of the shock.

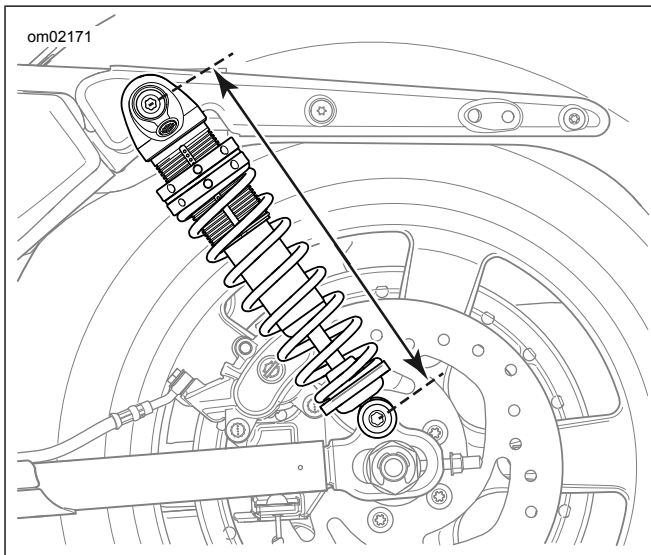


Figure 13. Shock Absorber Length

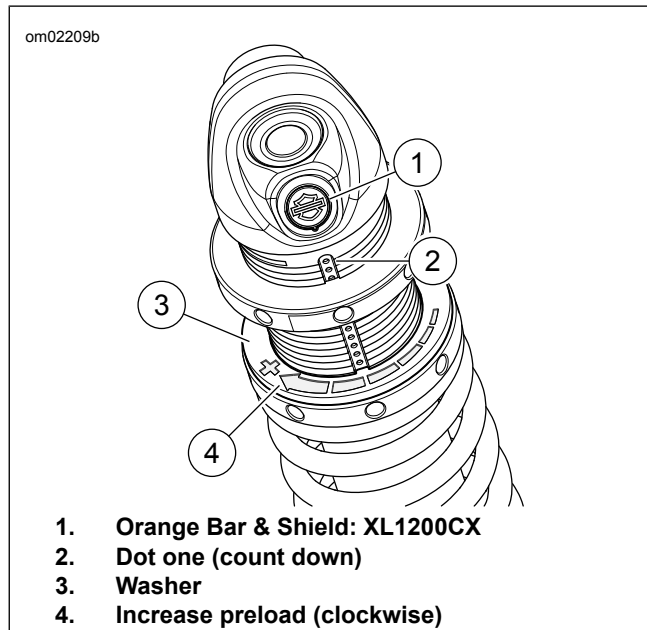


Figure 14. Preload Adjustment Arrow

Table 19. Shock Absorber Length

MEASUREMENT *		SHOCK
in	mm	
11.220	285.0	Low. Refer to Table 21.
11.712	297.5	Medium. Refer to Table 22.

Table 19. Shock Absorber Length

MEASUREMENT *		SHOCK
in	mm	
13.366	339.5	Tall. Refer to Table 23.
* Measure unladen on jiffy stand.		

Identify the Preload Dot

NOTE

The total of rider weight and passenger plus cargo and accessories cannot exceed the maximum added weight allowed. Refer to Table 20.

1. Add the weight of the rider and riding gear to get the rider weight.
2. Separately, add the weight of the passenger, their riding gear, intended cargo and any accessories.

Table 20. Maximum Added Weight Allowed: All except XL1200T

MODEL	SPECIFICATIONS	
	lb	kg
XL883L	431	196
XL883N	436	198
XL1200C	409	186
XL1200CX	429	195
XL1200NS	438	199

Table 20. Maximum Added Weight Allowed: All except XL1200T

MODEL	SPECIFICATIONS	
	lb	kg
XL1200X	444	202
XL1200XS	438	199

3. Identify the table that corresponds to the model and shock absorber configuration of your motorcycle.
 - a. **Low Travel:** Refer to Table 21.
 - b. **Medium Travel:** Refer to Table 22.
 - c. **Tall Travel:** Refer to Table 23.
 - d. **XL1200CX:** Refer to Table 24.
4. In the table, locate the preload dot number corresponding to the rider, passenger, cargo and accessories calculations.
 - a. Under RIDER WEIGHT, identify the row that includes the total weight of the rider
 - b. In the row of PASSENGER, CARGO AND ACCESSORIES, identify the total weight column for any passenger, cargo and accessories.
 - c. The number at the intersection of the RIDER WEIGHT row and the PASSENGER, CARGO AND ACCESSORIES column is the recommended preload dot.

Table 21. Low Travel Shocks Preload

ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES														
lb		0	20	40	60	80	100	120	140	160	180	200	220	240
kg		0	9	18	27	36	45	54	64	73	82	91	100	109
RIDER WEIGHT		PRELOAD DOT												
lb	kg													
100-129	45-59	1	2	3	4	5	6	6	7	8	9	9	10	10
130-159	59-72	2	3	4	5	6	7	7	8	9	9	10	10	11
160-189	73-86	3	4	5	6	7	7	8	9	9	10	10	11	12
190-219	86-99	4	5	6	7	7	8	9	9	10	11	11	12	-

Table 22. Medium Travel Shocks Preload

WEIGHT OF PASSENGER, CARGO AND ACCESSORIES																	
lb		0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
kg		0	7	15	22	29	36	44	51	58	65	73	80	87	94	102	109
RIDER WEIGHT		PRELOAD DOT															
lb	kg																
100-123	45-56	1	2	3	4	5	6	7	7	8	9	9	10	11	11	12	13
124-147	56-67	2	3	4	5	6	7	7	8	9	9	10	11	11	12	13	13
148-171	67-78	3	4	5	6	7	8	8	9	9	10	11	11	12	13	13	-
172-195	78-89	4	5	6	7	8	8	9	10	10	11	12	12	13	13	-	-
196-219	89-99	5	6	7	8	8	9	10	10	11	12	12	13	13	-	-	-

Table 23. Tall Travel Shocks Preload

WEIGHT OF PASSENGER, CARGO AND ACCESSORIES																	
lb		0	18	36	54	72	90	108	126	144	162	180	198	216	234		
kg		0	8	16	25	33	41	49	57	65	73	82	90	98	106		
RIDER WEIGHT		PRELOAD DOT															
lb	kg																
116-141	53-64	1	2	3	4	5	6	7	8	9	10	11	11	12	13	-	-
142-167	64-76	2	3	4	5	6	7	8	9	10	11	11	12	13	-	-	-
168-193	76-88	3	4	5	6	7	8	9	10	11	11	12	13	-	-	-	-
194-219	88-99	4	5	6	7	8	9	10	11	11	12	13	-	-	-	-	-

Table 24. Shock Preload: XL1200CX

WEIGHT OF PASSENGER, CARGO AND ACCESSORIES											
lb		0	25	50	75	100	125	150	175	200	225
kg		0	11	23	34	45	57	68	80	91	102
RIDER WEIGHT		PRELOAD DOT									
lb	kg										
88-124	40-56	1	2	3	4	5	6	7	8	9	10
125-161	57-73	2	3	4	5	6	7	8	9	10	11
162-198	74-90	3	4	5	6	7	8	9	10	11	12
199-235	91-107	4	5	6	7	8	9	10	11	12	-

Shock Adjustment

⚠ WARNING

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

NOTE

To prevent damage to the adjustment and locking rings, do not use any other wrench than the one supplied with your motorcycle.

1. Remove seat. See Service Procedures > Seat (Page 165).
2. See Figure 15. Lift the latch (2) and slide the spanner wrench (1) from the retention pocket.

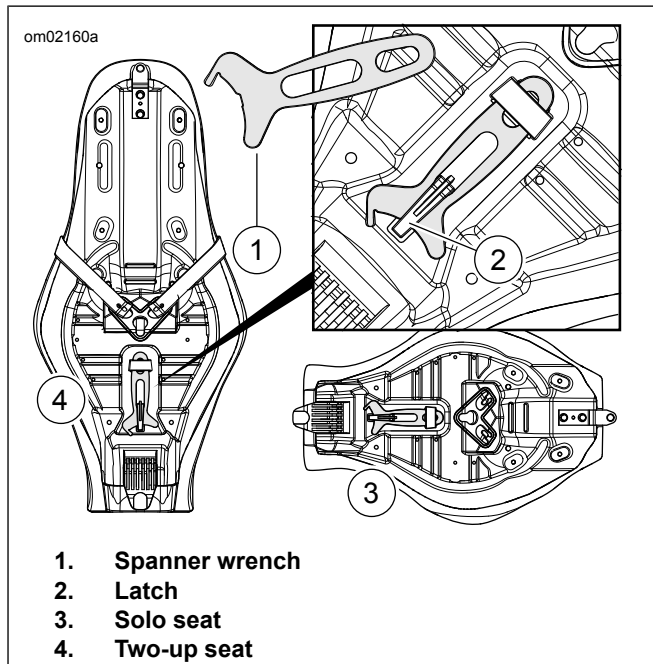


Figure 15. Spanner Wrench Retention Pocket

NOTICE

Avoid shock damage. Make sure shock threads are clean and free of debris before loosening or tightening shock adjusting nuts. (00646b)

3. If necessary, clean the threads on the shock absorber.
4. See Figure 16. Use the spanner wrench to turn the upper locking ring counterclockwise (1) to unlock the ring.

NOTE

See Figure 14. Rotate the lower adjustment ring clockwise (3) to increase preload. Rotate the lower adjustment ring counterclockwise to decrease preload.

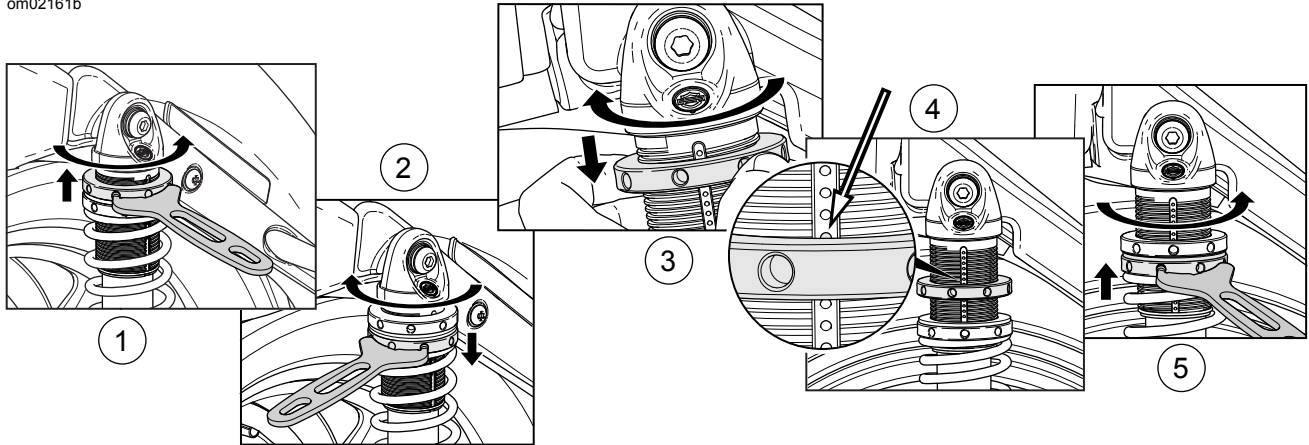
5. See Figure 16. Use the spanner wrench to turn (2) the lower adjustment ring below the recommended dot.

NOTE

See Figure 14. Count down from the top dot (2) on the shock dot scale to identify the recommended preload dot.

6. Rotate the upper locking ring to align with the recommended preload dot (3).
7. Cover one-half the recommended preload dot (4) with the upper locking ring.
8. Use the wrench to hand tighten the lower adjustment ring against the upper locking ring (5).
9. Adjust the opposite shock absorber to the same preload dot.
10. Return the spanner wrench to the retention pocket under the seat.
11. Install seat. See Service Procedures > Seat (Page 165).

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1. Loosen upper locking ring
2. Turn lower adjustment ring below recommended dot
3. Rotate upper locking ring to dot
4. Align upper locking ring to dot
5. Tighten lower adjustment ring

Figure 16. Preload Adjustment

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 SECURITY SYSTEM > Arming and Disarming (Page ?).

Options

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

SECURITY SYSTEM FOB

Assigning Fob

See Figure 17. 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.

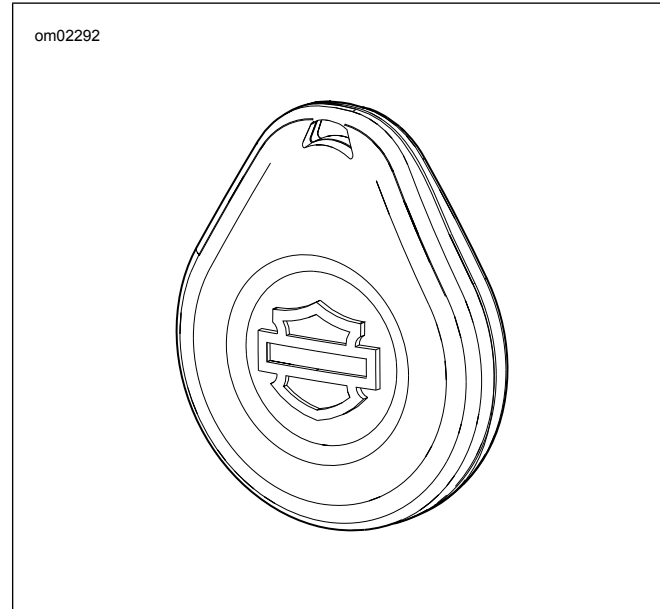


Figure 17. Fob: Security System

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 SECURITY SYSTEM > Arming and Disarming (Page ?) and SECURITY SYSTEM > Troubleshooting (Page 59).
- The rider can change the PIN at any time. See SECURITY SYSTEM > Personal Identification Number (PIN) (Page 51).

Fob Battery

⚠ WARNING



CONTAINS BUTTON OR COIN CELL BATTERY. KEEP OUT OF REACH OF CHILDREN.

Ingestion can result in death or serious injury. Choking, chemical burns and perforation of soft tissue may result. Severe burns can occur within 2 hours of ingestion or placement in any part of the body. Seek medical attention immediately. (13105b)

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 18. The serial number of the fob is also found on the inside of the fob.

1. See Figure 18. 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.

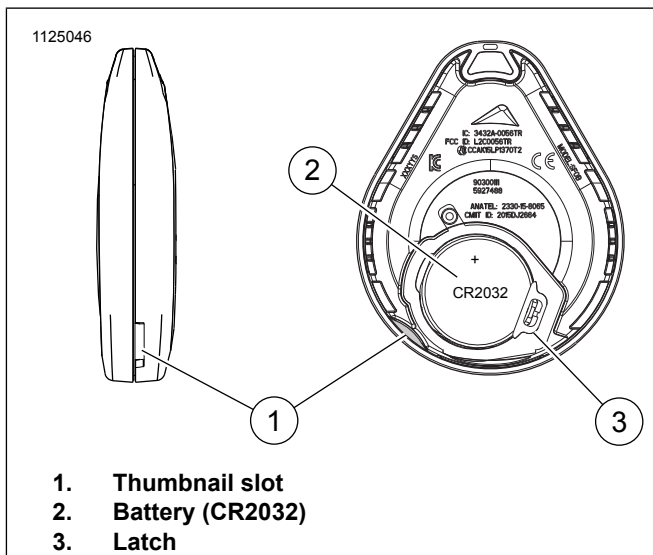


Figure 18. Replace Fob Battery

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 25.

Table 25. 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 .		
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.	

Table 25. Changing the PIN

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
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.	
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 Operation > Indicators (Page 71). 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 SECURITY SYSTEM > Siren Chirp Mode (Confirmation) (Page 57).*

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 26.

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 26. Entering a PIN to Disarm Security System

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
1	If necessary, verify the current 5-digit Personal Identification Number (PIN).		Should be recorded.
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.

Table 26. Entering a PIN to Disarm Security System

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
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.	
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.	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.

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 ½ 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)

Chirp Mode

Vehicles with a siren can be set to chirp upon arming and disarming. 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 OFF/RUN switch to RUN.
2. When the security lamp turns off, set the OFF/RUN switch to OFF.
3. When the security lamp turns off (but before the turn signals flash twice), immediately set the OFF/RUN switch to RUN.
4. When the security lamp turns off, immediately set the OFF/RUN switch to OFF.
5. When the security lamp turns off (but before the turn signals flash twice), immediately set the OFF/RUN switch to RUN. 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.

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 5 ft (1.5 m). 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 After Riding > Storing Motorcycle (Page 105).

Service Departments

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

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

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 3.0 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 > Security System Fob (Page 49).

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.

NOTES

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 Operation > Fork Lock (Page 63).

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 SECURITY SYSTEM > Arming and Disarming (Page ?).

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

- The speedometer displays the odometer functions.
- The headlamp can be activated by pressing the headlamp flash to pass switch.
- The stop lamps can be operated.
- The license plate lamp illuminates.

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.

KEYED 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)

See Figure 19. The ignition switch controls electrical functions of the motorcycle. The switch is located on the right side of the steering head. Refer to Table 27.

Turn the key to the OFF position and remove key when the motorcycle is not in operation. The key may also be removed in the ACC position.

NOTE

- *Write the key number in the space provided at the front of this manual.*
- *The lamps work when the switch is in the IGNITION position, as required by law in some localities.*

⚠ 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)

NOTICE

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

NOTICE

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

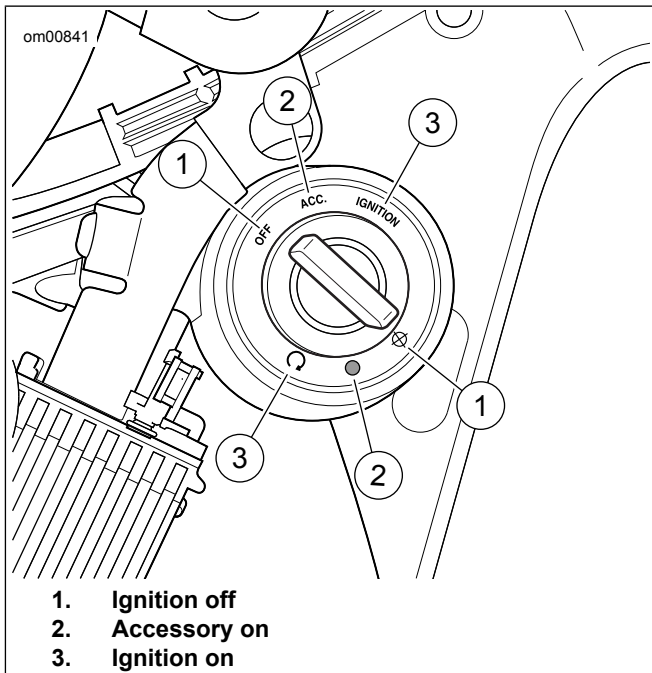


Figure 19. Ignition Switch: Sportster Models

Table 27. Ignition Switch

POSITION	FUNCTION
OFF	Ignition and lamps are off. Key can be removed.
ACC.*	Instrument lamps are on. Brake lamp and horn can be activated. Key can be removed.
IGNITION	Ignition and lamps are on.

*International models: Position and tail lamps are also on.

FORK LOCK

NOTICE

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

See Figure 20. Sportster models have the fork lock on the right side of the steering head. Using the fork lock immediately after parking your motorcycle will discourage unauthorized use or theft.

⚠ 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)

See Figure 21. Lock the fork.

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

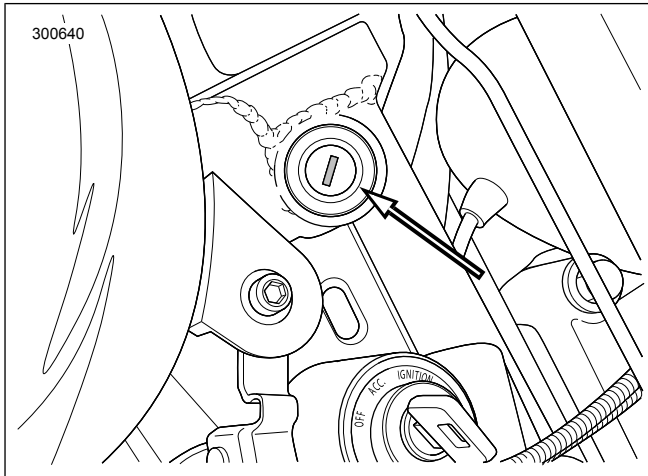


Figure 20. Fork Lock Location: Sportster Models

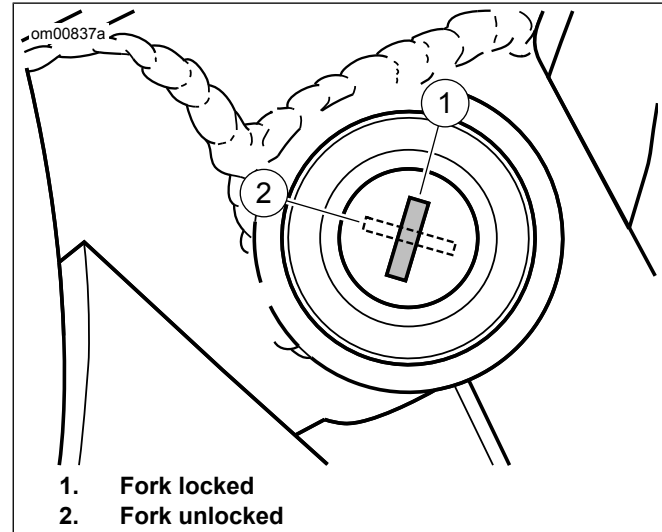


Figure 21. Fork Lock Positions: Sportster Models
GENERAL: CONTROLS AND INDICATORS

⚠ WARNING

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

Some features explained are unique to certain models. These features may be available as accessories for your

Harley-Davidson motorcycle. See a Harley-Davidson dealer for a complete list of accessories that will fit your specific motorcycle.

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 Operation > Shifting Gears (Page 86).

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 five speed shift pattern. See Operation > Shifting Gears (Page 86).

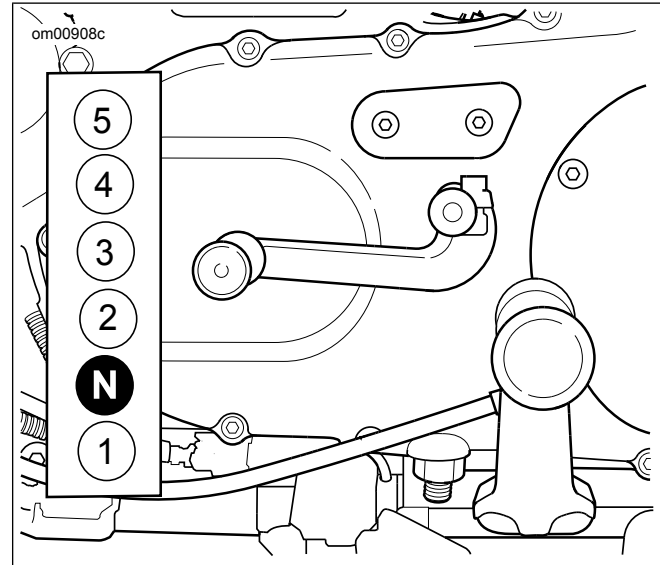


Figure 22. Shift Lever and Shift Pattern

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 Operation > Left Hand Control Switches (Page 74).

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 Operation > Instruments (Page 67).

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 Operation > Right Hand Control Switches (Page 76).

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.

See Figure 30. To start the engine, see Operation > Starting the Engine (Page 81).

INSTRUMENTS

APPLICABILITY	
	<ul style="list-style-type: none">• 2019 1200 ROADSTER (XL1200CX)• CHN

NOTE

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

Speedometer

▲ WARNING

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

See Figure 23. The speedometer (1) registers miles per hour (U.S. models), kilometers per hour (international models) or in certain markets, displays both mph and km/h.

Odometer

See Figure 23. The odometer window (2) is located in the speedometer face.

Keyed ignition: The ignition switch must be in the ACC or IGNITION position.

Keyless ignition: With an assigned fob within range, turn the OFF/RUN switch to RUN.

The odometer window provides the following selectable displays:

- Odometer
- Trip odometer A
- Trip odometer B
- Time
- Gear number and tachometer

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

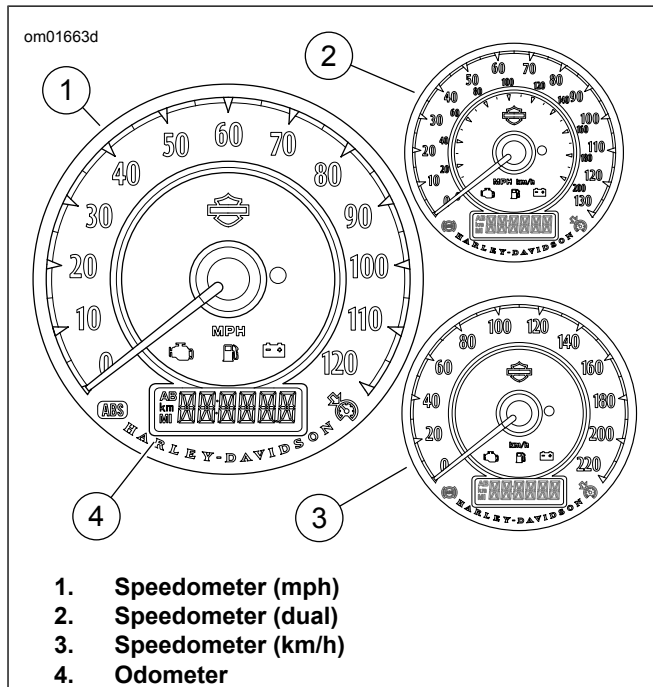


Figure 23. Instruments: All except XL1200CX

Trip Odometers A and B

See Figure 24. To check or to reset the trip odometers, press and release the TRIP switch (1) to display either the A (2) or

B (3) trip odometer. An A or B in the upper left of the display window identifies the trip odometer.

To reset trip odometers, select the A or B odometer. Press the TRIP switch and hold for approximately three seconds. The trip odometer resets to zero.

Gear Selection/Tachometer

See Figure 24. Press and release the TRIP switch (1) to cycle through the odometer displays to select the gear number and the tachometer display (4). The odometer shows the current gear (1-5) and the engine speed in revolutions per minute (rpm).

When the transmission is in neutral or the clutch lever is pulled in, the gear number is blank.

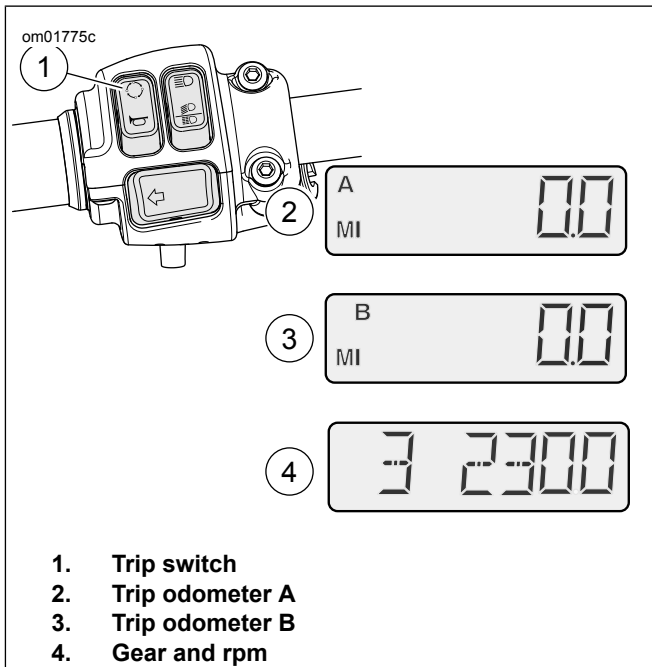


Figure 24. Trip Odometers, Gear Indicator and RPM: All except XL1200CX

APPLICABILITY	
<input checked="" type="checkbox"/>	• 2019 1200 ROADSTER (XL1200CX)
<input type="checkbox"/>	• CHN

NOTE

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

Tachometer

See Figure 25. The sweep needle of the tachometer (1) indicates the engine speed in revolutions per minute (rpm).

Speedometer

⚠ WARNING

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

See Figure 25. The speedometer (2) registers miles per hour (U.S. models) or kilometers per hour (international models). The display can be changed from mph to km/h. See Operation > Odometer Window Displays (Page 78).

Gear Selection

See Figure 25. The currently selected gear number (3) is displayed when the motorcycle is moving. When the transmission is in neutral or the clutch lever is pulled in, the gear number is blank.

Odometer

See Figure 25. The odometer (5) is located in the speedometer face.

Keyed ignition: The ignition switch must be in the ACC or IGNITION position.

Keyless ignition: With an assigned fob within range, turn the OFF/RUN switch to RUN.

Trip Odometers A and B

See Figure 25. To check mileage, press and release the trip switch to display either the A or B trip odometer in the odometer window. An A or B (4) identifies the trip odometer.

To reset the trip odometers, select A or B. Press the trip switch and hold for approximately three seconds. The trip odometer resets to zero.

Clock

See Figure 25. Press and release the trip switch to display the clock (6) in the odometer window.

70 Operation

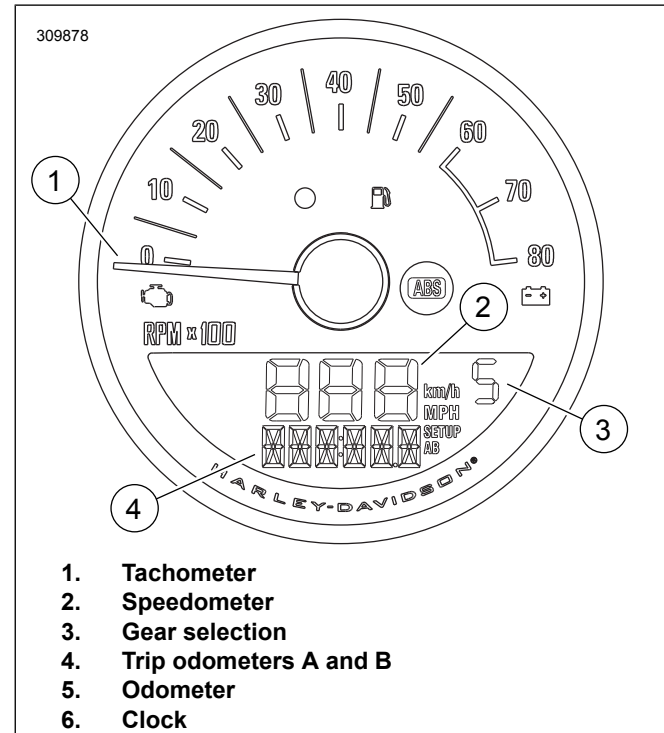


Figure 25. Instruments: XL1200CX

INDICATORS

APPLICABILITY	
<input type="checkbox"/>	• CHN

Turn Signal Indicator Lamps

See Figure 26. The turn indicators (1, 5) flash when a turn signal is activated. When the 4-way hazard flashers are operating, both turn indicators flash simultaneously.

Headlamp High Beam Lamp

See Figure 26. The headlamp high beam indicator lamp (2) is lit when the high beam or flash to pass switch is activated.

Neutral Lamp

See Figure 26. The neutral indicator lamp (3) is lit when the transmission is in neutral.

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 26. The oil pressure indicator lamp (4) is lit when sufficient oil is not circulating through the engine.

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

Circumstances that could cause the oil indicator lamp to illuminate:

- Low oil level. Stop engine immediately. Add oil.
- Diluted oil. Change oil as soon as possible.
- Incorrect oil for the operating temperature. Change oil as soon as possible.
- For further information, see Owner Manual > Troubleshooting (Page 169).

Check Engine Lamp

See Figure 27 or Figure 28. The check engine lamp (1) indicates whether the engine/engine management system is operating normally. The engine lamp color is amber.

When ignition is ON the check engine light will light and stay on until engine is started.

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

See Figure 27 or Figure 28. The low fuel lamp (2) indicates when fuel falls below the reserve level in the fuel tank. Refer to Table 10 or Table 11. The low fuel lamp does not turn off until there is sufficient fuel in the tank, the ignition switch has been turned off and back on, and the vehicle has begun forward speed. If the low fuel lamp flashes at a steady rate, see a Harley-Davidson dealer.

Battery Discharge Lamp

See Figure 27 or Figure 28. The battery discharge lamp (3) indicates overcharging or undercharging of the battery. Refer to Service Procedures > Battery Maintenance (Page 146).

Security Lamp

See Figure 27 or Figure 28. The red security lamp (4) indicates when the security system is armed. Refer to Owner Manual > SECURITY SYSTEM (Page 49) for security system operation.

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

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 27 or Figure 28. 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. Refer to Operation > Brake System (Page 83).

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.

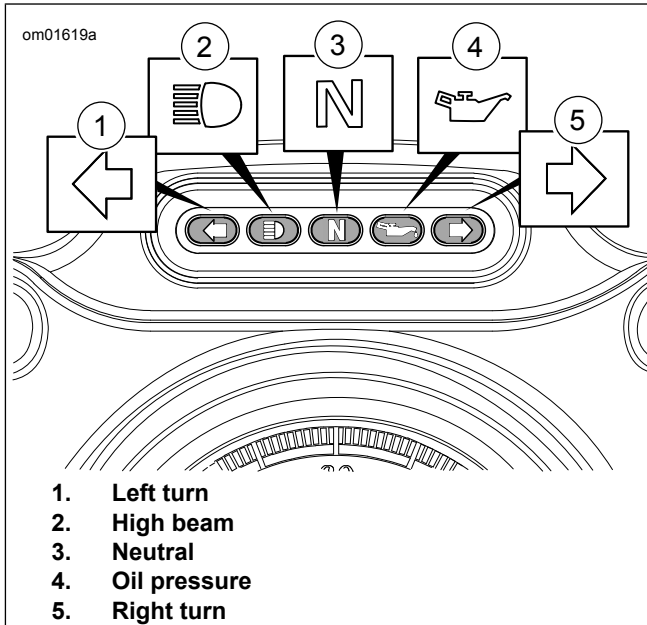


Figure 26. Indicator Lamp Bar

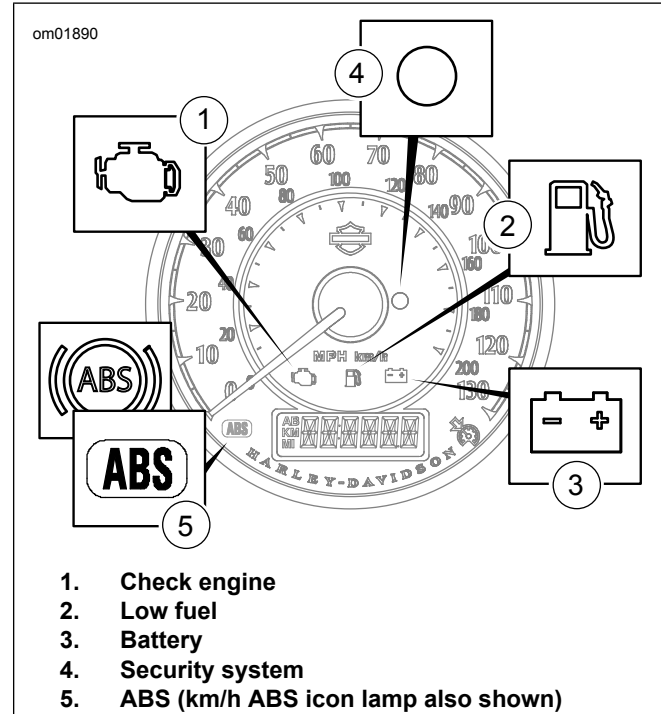


Figure 27. Instrument Lamps: All except XL1200CX

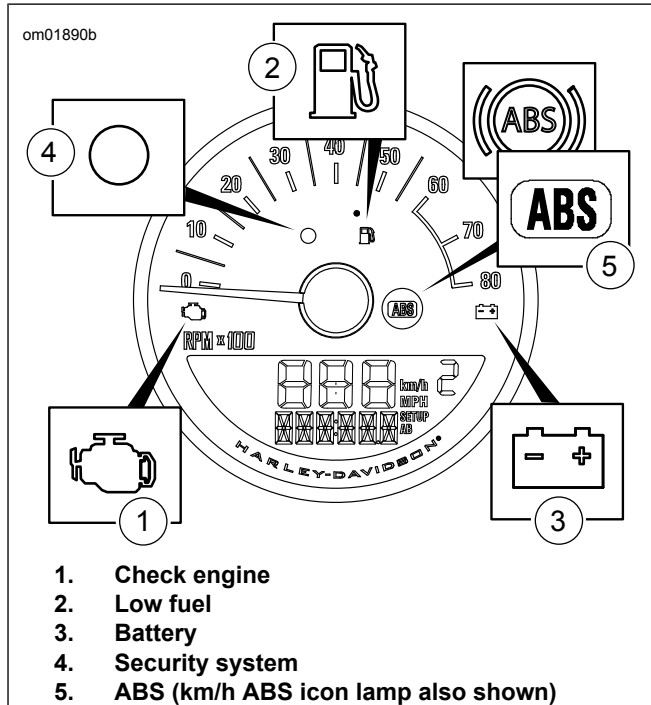


Figure 28. Instrument Lamps: XL1200CX

LEFT HAND CONTROL SWITCHES

Trip

The TRIP switch activates the trip odometers. It is used to activate the odometer display to scroll through the optional screens. With the ignition off, the TRIP switch can activate time or odometer displays. Refer to Table 28.

Horn

See Figure 29. Press the HORN switch to activate the horn. 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 will automatically deactivate. Refer to Table 28.

High Beam

See Figure 29. Press the high beam switch to activate the high beam. The (blue) high beam indicator lamp is lit when the high beam is on. Refer to Table 28.

Low Beam/Flash to Pass

Low beam: See Figure 29. Press the bottom of the switch to activate the low beam.

Flash to pass: When the low beam switch is on, press and release the flash to pass switch to flash the high beam before passing another vehicle. The high beam indicator lamp 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 28.

Left Turn Signal

Activate: See Figure 29. Press the left turn signal switch to activate the left turn signal. Refer to Table 28.

Cancel:

Manual Operation: Press and release the turn signal switch a second time.

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.

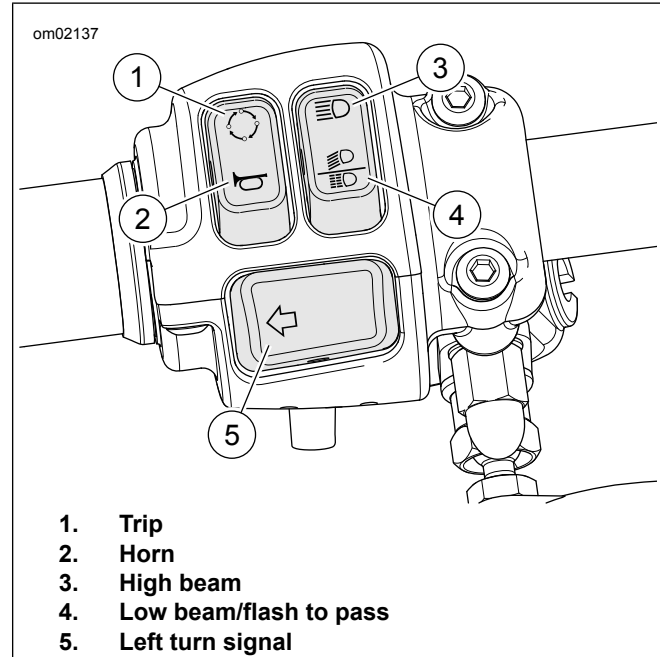







Figure 29. Left Hand Switch Module

Table 28. Left Hand Control Switches

SWITCH	NAME	FUNCTION
	Trip	Press the switch to alternate odometer displays.
	Horn	Press the switch to sound the horn.
	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.
	Left turn	Press the switch to activate the left turn signal.

RIGHT HAND CONTROL SWITCHES

Hazard Warning 4-Way Flasher

See Figure 30. Use this switch to allow a stranded motorcycle to be left in the 4-way flashing mode. With the flashers, the motorcycle can be left with the ignition locked until help is found. Refer to Table 29.

1. With the ignition switch in the IGNITION or ACC position, press on the hazard warning triangle to activate the 4-way flashers.

NOTE

Security models: The fob must be present when turning on the 4-way flashers and when canceling the flashers.

2. Turn ignition off. The 4-way flashers continue for 2 hours or until cancelled by the rider.
3. To cancel, turn the ignition to ACC or IGNITION. Press the warning triangle above the start switch.

Start

See Figure 30. The start switch is on the right handlebar control module. Refer to Table 29.

1. Switch the OFF/RUN switch to the RUN position. Shift the transmission to neutral. The neutral (green) indicator illuminates. See Operation > Starting the Engine (Page 81).
2. Turn the ignition switch to IGNITION. Press the start switch to operate the starter motor.

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 5 seconds and then 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.

Engine Off

See Figure 30. Press the engine OFF switch to shut off the engine. Refer to Table 29.

After turning off the engine. Turn the ignition switch to OFF to disconnect the electric power.

Engine Run

See Figure 30. Push the engine RUN switch 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 29.

Friction Screw

⚠ WARNING

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

See Figure 30. To reduce rider fatigue on long trips, a spring-loaded throttle friction adjustment screw (4) is at the bottom of the throttle grip clamp. The throttle friction adjustment screw should not be used under normal stop and go operating conditions.

Return tension: Loosen the throttle friction adjustment screw so the throttle returns to the idle position when the hand is removed from the grip.

Roll on tension: Screw the throttle adjustment screw in to increase friction on the grip. The friction provides a damping effect on throttle motion.

Right Turn Signal

Activate: See Figure 30. Press the right turn signal switch to activate the right turn signal. Refer to Table 29.

Cancel:

Manual Operation: Press and release the turn signal switch a second time.

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.

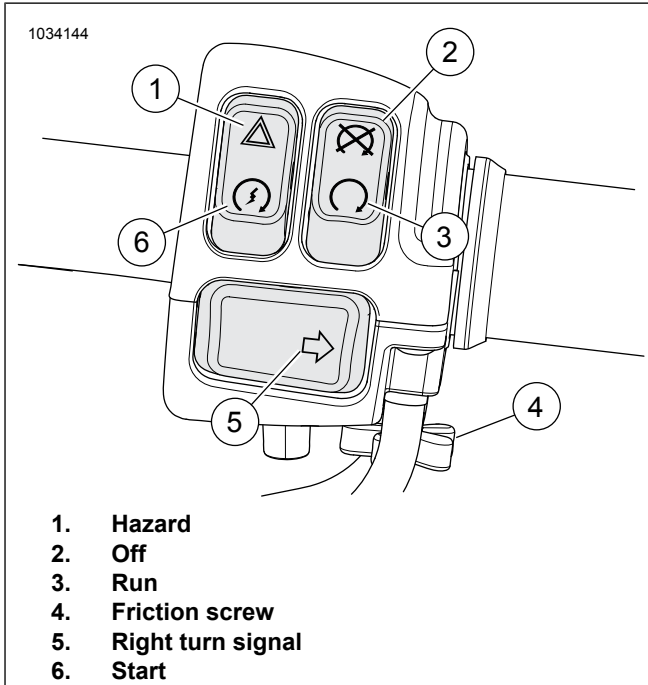


Figure 30. Right Hand Control Module

Table 29. Right Hand Control Switches

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

ODOMETER WINDOW DISPLAYS

APPLICABILITY	
<input type="checkbox"/>	• CHN

Changing Units of Measurement

- **All except XL1200CX:** Press and hold the TRIP switch until the odometer units change (MI to km).
- **XL1200CX:** Press and hold the TRIP switch until the speedometer units change (MPH to km/h). The odometer units also change.

Time

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

1. See Figure 31. Press and release the TRIP switch (1) until time (hour and minutes) is displayed. Press and hold the TRIP switch until 12h (2) begins to blink in the speedometer display window. Release the switch.
2. Press and release the TRIP switch once to advance to a blinking 24h or military style time display. Each time you press and release the switch, the display switches between 12h and 24h.
3. When the desired time style is displayed, press and hold the TRIP switch until the hours display (3) is blinking.
4. Press and release the TRIP switch repeatedly to advance the hours.
5. When the correct hour is displayed, press and hold the TRIP switch until the minutes display (4) starts blinking.
6. Press and release the TRIP switch repeatedly to advance the minutes display.
7. When the correct minutes are displayed (5), press and hold the TRIP switch until the display advances to AM or PM (6).

NOTE

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

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

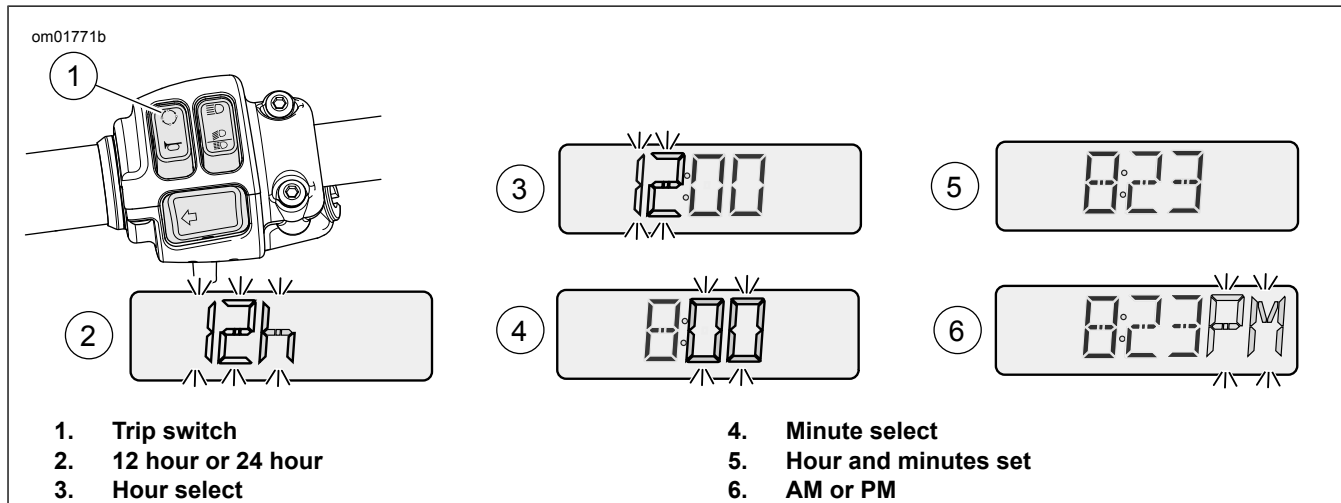


Figure 31. Time Displays

Tip Message

▲ 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 32. When the motorcycle is tipped over, the word "tIP" (1) appears in the odometer window. The engine does not start until reset.

To reset the odometer tIP message, see Operation > Starting after Tipover (Page 83).

No Fob Message

See Figure 32. If the motorcycle has a security system and is driven off leaving the fob behind, "NO FOB" (2) is displayed in

the odometer window as the motorcycle starts moving. The display lasts for 10 seconds as a reminder to retrieve the fob.

Without the fob, the motorcycle can only be started with a manual PIN entry to disarm the security system. See SECURITY SYSTEM > Arming and Disarming (Page ?).

Sidestand Message

See Figure 32. On international (HDI) models, if the motorcycle is placed into gear while the jiffy stand is down a 'SidEstAnd' (3) message is displayed. See Before Riding > Operating Jiffy Stand (Page 37).

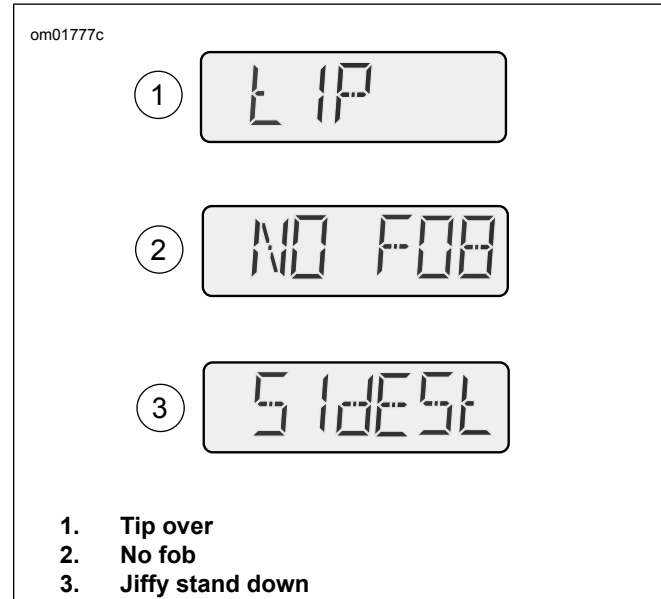


Figure 32. tIP, NO FOB and SidEstAnd

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. Turn the ignition on.
 - a. **Keyed ignition:** Turn key to IGNITION.
 - b. **Keyless ignition:** Bring an assigned fob within range.
2. See Figure 33. Switch the OFF/RUN switch to the RUN (1) 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.*
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 (2).
6. When the engine has started, you can operate your motorcycle as you normally would after raising the jiffy stand.

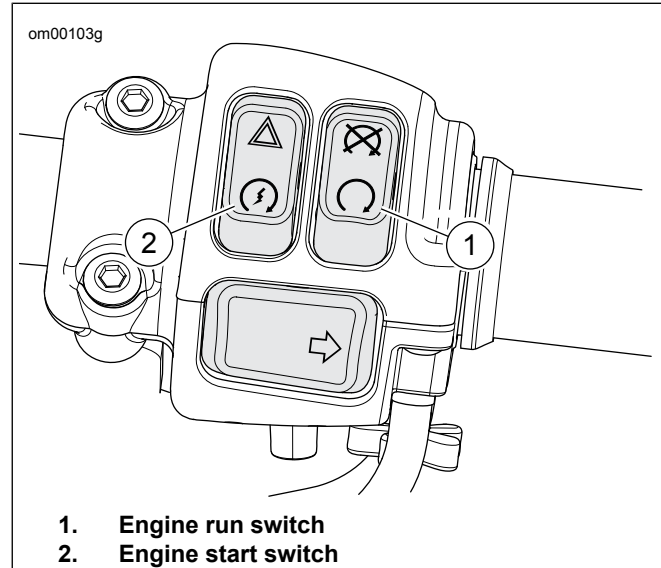


Figure 33. Right Handlebar Controls

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 the motorcycle upright.
 2. **Keyed ignition:**
 - a. Cycle the ignition switch to OFF then IGNITION.
 3. **Keyless ignition:**
 - a. Cycle OFF/RUN switch to OFF then RUN.
 4. Push hazard switch to turn four-way flashers off.

STOPPING THE ENGINE

NOTE

Keyed ignition: If the engine stalls or is stopped, turn the ignition switch to OFF to prevent battery discharge until the engine is restarted.

1. **Keyed ignition:**
 - a. Stop the engine by turning the engine OFF/RUN switch to OFF.
 - b. Turn the ignition switch to OFF.
2. **Keyless ignition:** Stop the engine by turning the engine OFF/RUN switch to OFF.

BRAKE SYSTEM

Front Brake Lever

⚠ WARNING

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

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

Rear Brake Pedal

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

Non-ABS Brake System

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

⚠ WARNING

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

Anti-lock Brake System (ABS)

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

How ABS Works

The ABS monitors sensors at the front and rear wheels to determine wheel speed. If the system detects one or both

wheels are slowing down too quickly, which indicates they are close to locking, the ABS reacts. If the deceleration rate does not match a criteria stored in memory, the ABS also reacts. The system rapidly opens and closes valves to modulate the brake caliper pressure utilizing only the brake lever/pedal pressure being applied by the rider. During ABS activation, the system provides the electronic equivalent of manually pumping the brakes. ABS is capable of cycling up to seven times per second.

The rider will recognize ABS activation by the slight pulsing sensation in the hand lever or the rear brake pedal. The pulsing sensation may also be accompanied by a clicking sound from the ABS module. Both are the result of normal operation. Refer to Table 30.

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

How To Use ABS

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

Harley-Davidson ABS is a manual assist system. When stopping in an emergency stopping situation, maintain pressure on the brakes through all ABS events. Do not modulate or "pump" the brake controls. The wheels will not lock until the end of the stop when motorcycle speed reaches approximately 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 Specifications > Specifications (Page 23) can reduce ABS braking performance.

Table 30. 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.

Table 30. ABS Symptoms and Conditions

SYMPTOM	CONDITION
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 34. Engage the next higher gear when the motorcycle reaches the shifting speed. Refer to Table 31.

Table 31. Upshift (Acceleration) Road Speeds*

GEAR CHANGE	mph	km/h
First to second	15	25
Second to third	25	40
Third to fourth	35	55
Fourth to fifth	45	70

* The listed speeds are recommendations. Individual riding styles can determine gear change road speeds.

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

NOTE

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

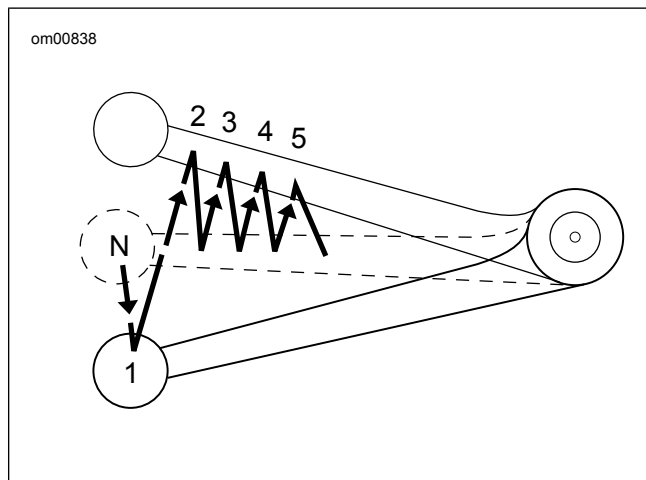


Figure 34. Upshift Sequence: Sportster Models

Downshift (Deceleration)

⚠ WARNING

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

See Figure 35. When speed decreases, as when climbing a hill or slowing for a turn, shift to the next lower gear. Refer to Table 32.

Table 32. Downshift (Deceleration) Road Speeds*

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

* The listed speeds are recommendations. Individual riding styles can determine gear change road speeds.

NOTE

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

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

NOTE

- Disengage the clutch completely before each gear change.

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

NOTICE

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

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

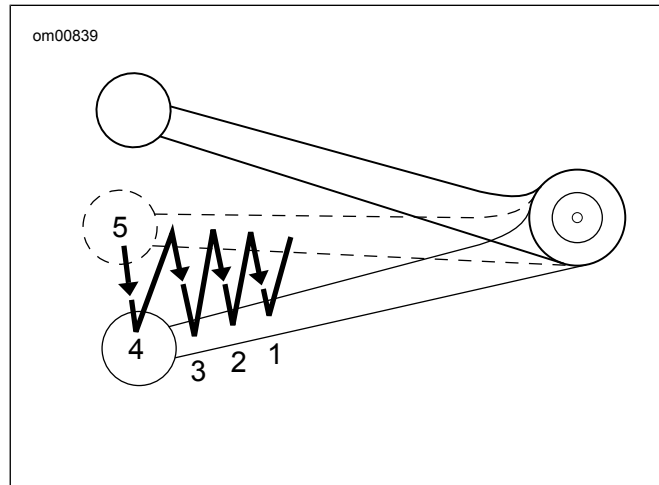



Figure 35. Downshift Sequence: Sportster Models

WINDSHIELD

APPLICABILITY	
	• 2019 SUPERLOW 1200T (XL1200T)

Removal

NOTICE

Polycarbonate windshields/wind deflectors require proper attention and care to maintain. Failure to maintain polycarbonate properly can result in damage to the windshield/wind deflector. (00483e)

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 After Riding > Windshield Care (Page 102).

1. See Figure 36. Support the windshield and open the clamp levers.

2. Lift the windshield forward off the front forks.

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)

⚠ WARNING

Pinched throttle cables can restrict throttle response, which could result in loss of control and death or serious injury. (00423b)

1. Verify that rubber gaskets are in place in the clamp saddles.
2. To check operation, cycle the clamps open and close.
3. Straddle the front fender. Hold the windshield with both hands.
4. Fit the clamps to the fork slider tubes between the upper and lower fork brackets. If any of the four clamps do not align to the fork slider tubes:
 - a. Loosen the clamp shoulder bolt.

- b. Rotate the clamp to align with the slider tube.
 - c. Repeat until all four clamps align to the slider tube.
 - d. Seat each clamp bolt in the windshield bracket. Tighten to 48–72 **in-lbs** (5.4–8.1 N·m).
5. Align the windshield:
 - a. Center the windshield to the fork tubes, headlamp and speedometer.
 - b. Align the height. Do not block turn signals, pinch turn signal wire harnesses or interfere with clutch or throttle cables.
6. Lock the clamps with the levers.
7. Check that all four clamps are in the locked position and the windshield is secure.

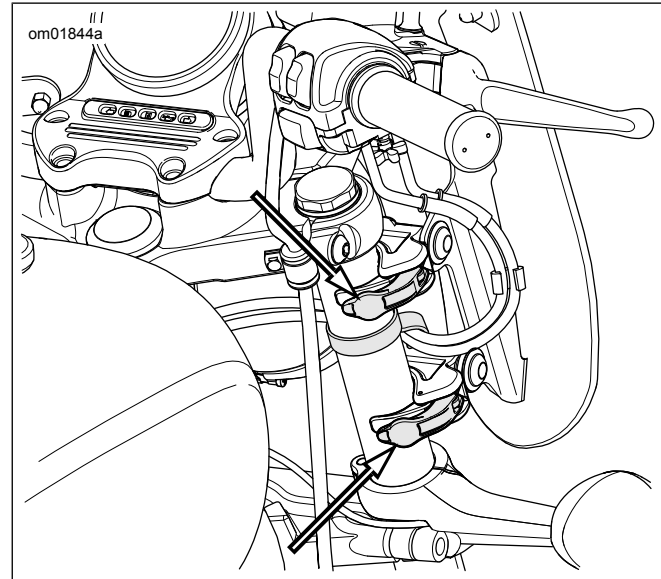


Figure 36. Windshield Clamp Levers

Check the windshield mounting hardware periodically. Never ride with loose mounts. A loose mount causes extra stress on the remaining mounts, as well as the windshield itself, and could cause premature failure of components.

SADDLEBAGS

APPLICABILITY	
<input checked="" type="checkbox"/>	• 2019 SUPERLOW 1200T (XL1200T)
<input type="checkbox"/>	• CHN

⚠ 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)

⚠ 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)

NOTE

Maximum saddlebag weight capacity is 7 lb (3.2 kg) in each saddlebag.

Open

1. See Figure 37. Unlock saddlebag with the key.
2. Press and release the latch button (1).

3. Lift the lid from the inner side of the saddlebag.

NOTE

The docking points (2, 3) on the saddlebag mounts fit several P&A accessories (backrest, luggage rack, and so on). Follow all installation and usage instructions that include P&A accessories.

Close

1. See Figure 37. Close the saddlebag lid.
2. Lock the saddlebag.

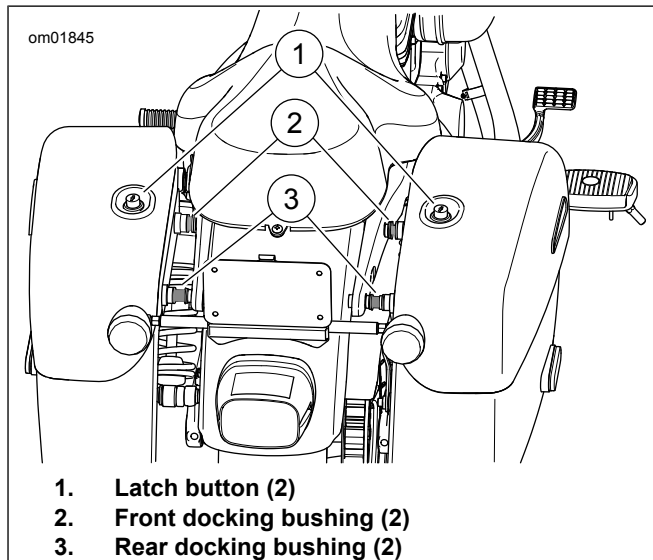


Figure 37. Saddlebags: XL1200T

LUGGAGE

⚠ 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)**

⚠ 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 total weight of the motorcycle, accessories, rider, passenger and cargo that can be safely carried.
- GAWR is the maximum amount of weight that can be safely carried on each axle.
- See information label on frame steering head or frame downtube for GVWR and GAWR.

⚠ WARNING

Improper loading of cargo or installation of accessories can affect motorcycle stability and handling, which could result in death or serious injury. (00095a)

- Keep cargo weight concentrated close to the motorcycle and as low as possible to minimize the change in the motorcycle's center of gravity. Distribute weight evenly on both sides of the vehicle. Do not load bulky items too far behind the rider or add weight to the handlebars or front forks. Do not exceed maximum load on the label within the luggage.

- Check that cargo is secure. The cargo cannot shift while riding. Periodically recheck load.
- Close and lock luggage before riding or leaving the vehicle unattended.

SIDE-MOUNTED LICENSE PLATE

See Figure 38. 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.

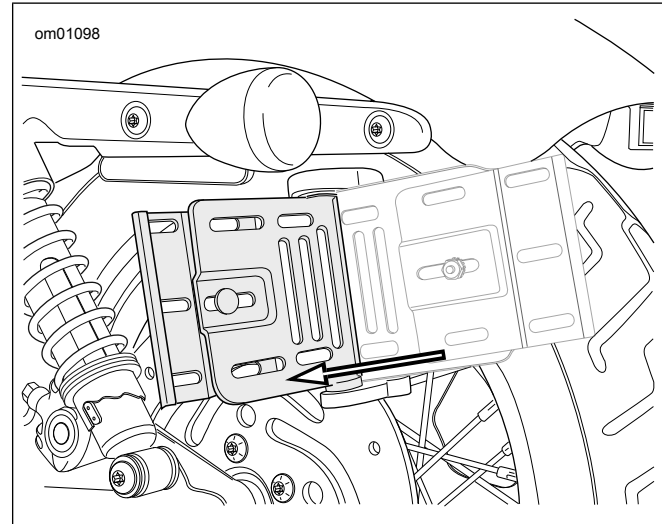


Figure 38. Side-Mounted License Plate Assembly

NOTES

GENUINE MOTOR PARTS AND ACCESSORIES

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

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

Online Catalog

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

NOTE

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

Shop for Your Bike

Browse through categories of accessories and options available specifically for your motorcycle. View product descriptions, pricing, fitment and online instruction sheets for many of the available products.

Customizer

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

Fit Shop

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

Custom Seats

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

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 Table 33 and Table 34 .
- 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.

- 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 Table 33 .

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 33. 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
BUG REMOVER 93600122 (U.S.) 93600140 (Non-U.S.)	Removes bugs from metal, plastic or painted surfaces. Also available as individual wipes (97400-10).	Yes	Yes	Yes	Yes	
CHROME CLEAN & SHINE 93600031 (U.S.) 93600082 (Non-U.S.)	Shines chrome-plated surfaces and cleans brushed aluminum or stainless steel surfaces.	As applicable				
DENIM PAINT CLEANER 93600124 (U.S.) 93600127 (Non-U.S.)	Waterless quick cleaner and detailer.	Yes	Yes	Yes	Yes	
ENGINE BRIGHTENER 93600002 (U.S.) 93600068 (Non-U.S.)	Rejuvenates wrinkle black engine finish.	No	No	No	No	Wrinkle black engines

Table 33. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
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 93600123 (U.S.) 93600125 (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 93600011 (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	
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.	Yes	Yes	Yes	No	

Table 33. Recommended Cleaning and Care Products

PRODUCT PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
SUNWASH BIKE SOAP 93600129 (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

Table 34. 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.

Table 34. Recommended Surface Care Products

PRODUCT PART NO.	PURPOSE
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.

WASHING THE MOTORCYCLE

Use only recommended cleaning and care products. Refer to Table 33 and Table 34 .

NOTE

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

Preparation

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

Cleaning Wheels and Tires

1. Rinse wheel and tire surfaces. Avoid splashing brake dust on chrome or painted parts.

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

Washing the Motorcycle

NOTE

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

1. If necessary, use BUG REMOVER to remove bug splatters.
 - a. Rinse the affected surfaces during preparation.
 - b. Spray the area with BUG REMOVER.
 - c. Wait one minute while the BUG REMOVER penetrates the bug splatters.
 - d. Use the BUG EATER SPONGE while washing to easily remove bugs.
2. Prepare the wash.
 - a. Fill a HARLEY WASH BUCKET with clean water.

- b. Add SUNWASH BIKE SOAP, following the directions on the package.
 - c. Soak the WASH MITT and/or a BUG EATER SPONGE in the SUNWASH solution.
3. Wash all surfaces starting at the top working down toward the ground.
4. Rinse the motorcycle twice in both directions:
 - a. Rinse from the bottom up.
 - b. Rinse from the top down.

Drying the Motorcycle

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

Polishing and Sealing

NOTE

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

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

WINDSHIELD CARE

NOTICE

Polycarbonate windshields/wind deflectors require proper attention and care to maintain. Failure to maintain polycarbonate properly can result in damage to the windshield/wind deflector. (00483e)

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.

102 After Riding

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 Table 33 .

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.
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 Table 33 .

- 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.

HARD CANDY CUSTOM PAINT

Hard Candy Custom paint features a unique coating which may include flakes of varied color and size. The surface may have an uneven texture, resulting from multiple layers of clear coat being applied over heavy concentrations of metallic flake. Each

part has its own distinct and custom appearance. These are normal characteristics of the custom paint process, and do not reflect warrantable conditions.

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.

WHEEL CARE

Wheels can corrode or be cosmetically damaged if they are not properly cleaned, polished and preserved. Cleaning and sealing wheels with the proper treatment guards against pitting, corrosion, spots and stains. Harley-Davidson recommends that wheels be cared for weekly. Corrosion to wheels is not considered a defect in materials or workmanship.

NOTE

Bare aluminum wheels do not have a protective coating and corrode unless properly treated. Apply BARE ALUMINUM WHEEL PROTECTANT when purchasing the motorcycle and at least twice per year to prevent cosmetic damage.

Keep wheels clean from harsh chemicals, acid-based wheel cleaners, salt and accumulated brake dust. After washing wheels with WHEEL & TIRE CLEANER, use the polish and sealing products according to the type of wheels. Refer to Table 35.

Table 35. 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.

Table 35. Wheel Polish and Sealing Products

WHEELS	PRODUCT	DESCRIPTION
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	Microabrasive polish to refurbish polished wheels. Do not use on chrome.

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 Maintenance and Lubrication > Change Oil and Oil Filter (Page 113).
3. Prepare battery for storage. See Service Procedures > Battery Maintenance (Page 146).
4. To protect the body panels, engine, chassis and wheels from corrosion, follow the cosmetic care procedures before storage. See After Riding > Cleaning and General Care (Page 95).
5. Cover the motorcycle with a material such as light canvas that breathes. Plastic materials that do not breathe promote condensation and corrosion.

NOTES

SAFE OPERATING MAINTENANCE

▲ WARNING

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

NOTICE

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

Good maintenance creates a safe motorcycle. A careful check of certain equipment must be made after periods of storage. Also, frequently inspect the motorcycle between the regular service intervals to determine if additional maintenance is necessary.

Check the following items:

1. Tires for correct pressure, abrasions or cuts.
2. Belt and primary chain for proper tension, wear or damage.

3. Brakes, steering and throttle for responsiveness and freedom from binding.
4. Brake fluid level and condition. Hydraulic lines and fittings for leaks. Also, check brake pads and discs for wear.
5. Cables for fraying or crimping and free operation.
6. Engine oil and primary chaincase/transmission fluid levels.
7. Headlamp, tail lamp, stop lamp and turn signals for proper operation.

BREAK-IN MAINTENANCE

NOTE

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

After a new motorcycle has been ridden 1000 mi (1,600 km), visit an authorized Harley-Davidson dealer for initial service. Refer to Service Intervals and Records > Service Records (Page 201).

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 36.

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 36 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 36. 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

Removing and Replacing Oil Filler Cap

1. Park motorcycle on a level surface on jiffy stand.
2. See Figure 39. Remove the filler cap from the oil tank.
 - a. Press straight down on the filler cap and release. The cap will pop up.
 - b. Pull up on the filler cap while turning counterclockwise one-quarter turn as if removing the filler cap.
3. Wipe dipstick clean.

NOTE

See Figure 40. Align tabs on oil tank filler neck to slots (1, 2) on dipstick.

4. Install the dipstick into the tank.
 - a. Turn the filler cap clockwise one-quarter turn as if screwing the filler cap into tank. When the filler cap stops turning, it is seated.
 - b. Press down on the filler cap until it snaps in place, flush with the top of the oil tank cover.

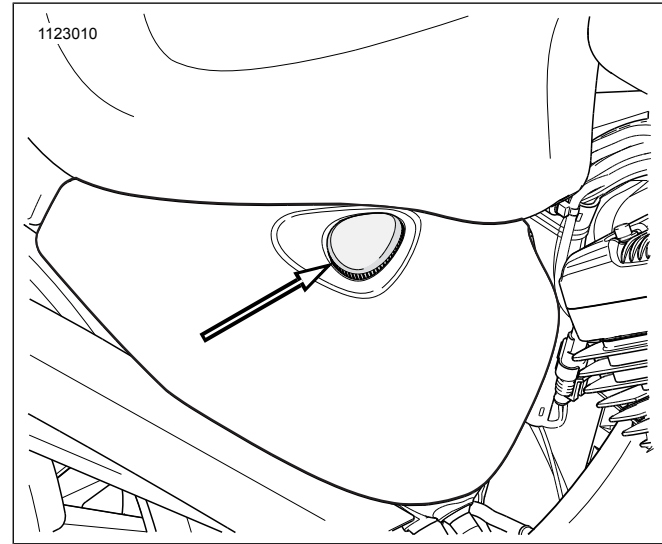
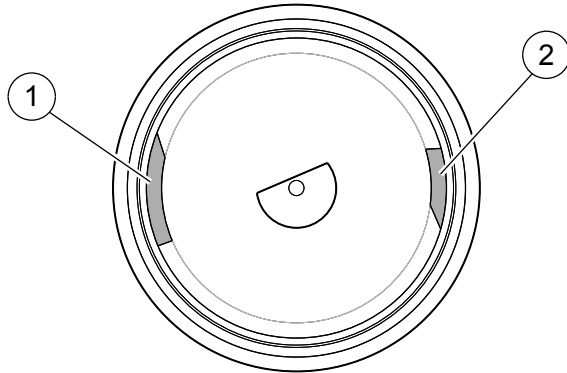


Figure 39. Filler Cap Location

1123020



1. Wide slot
2. Narrow slot

Figure 40. Filler Cap Slots

Oil Level Cold Check

NOTE

- Check engine oil level at each complete fuel refill.
- An accurate engine oil check can only be made with the engine at operating temperature (Hot Check).

1. Park motorcycle on a level surface on jiffy stand.
2. Remove the filler cap and wipe the dipstick clean. Install the oil filler cap in tank.
3. Remove oil filler cap again and visually check for oil in the tank.
4. If oil is not visible in the tank, install the filler cap.

NOTE

If the oil pressure lamp stays lit after starting engine, immediately shut off the engine.

5. Start and idle the engine for 30 seconds. Stop the engine.
6. Remove oil filler cap and visually check for oil in the tank.

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

Use only recommended oil. Recommended viscosity depends upon ambient temperature. Refer to Table 36 .

7. If there is no oil visible in the tank, add oil until it is present on the bottom of the dipstick.
8. When oil is present on the bottom of the dipstick, perform a hot check.

Oil Level Hot Check

1. Run the engine until the engine oil is at operating temperature.
2. Idle the motorcycle on the jiffy stand for one to two minutes. Turn off engine.
3. Park motorcycle on a level surface on jiffy stand.
4. Remove the filler cap. Wipe dipstick clean. Install the filler cap in the tank.

NOTICE

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

NOTICE

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

NOTE

- *Use only recommended oil. Recommended viscosity depends upon ambient temperature. Refer to Table 36 .*

- *The oil tank has a built-in pressure relief valve. If the oil tank is overfilled, excessive pressure is created in the oil tank. The pressure relief valve opens to relieve the pressure and prevent damage to the oil tank. Excessive oil due to overfilling is forced out the pressure relief valve when it opens.*
5. See Figure 41. Remove the filler cap. Check engine oil level.
 - a. **Below the lower mark:** Add only enough oil until the level reads between the upper and lower marks.
 - b. **Between the upper and lower marks:** It is safe to operate the motorcycle.
 - c. **Above the upper mark:** Drain the oil until the level reads between the upper and lower marks.
 6. Install the filler cap.
 7. If oil was added, remove the filler cap to verify the engine oil level in the oil tank. Do not fill oil tank to a level above upper mark on the dipstick. Install the filler cap.

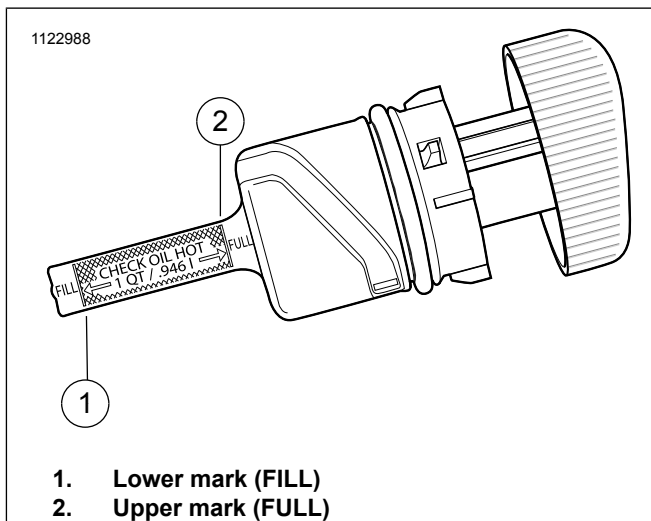


Figure 41. Dipstick

CHANGE OIL AND OIL FILTER

Draining Oil Tank

⚠ 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)

⚠ 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)

Completely drain oil tank of used oil at scheduled service intervals. Refill with fresh oil. Refer to Service Intervals and Records > Service Records (Page 201).

NOTE

- Change oil at specified intervals in normal service at warm or moderate temperatures.
 - Change engine oil at shorter intervals in cold weather or in severe operating conditions. See Maintenance and Lubrication > Engine Lubrication (Page 108).
 - Change engine oil at shorter intervals if ridden extremely hard, used in competition or driven on dusty roads.
 - Always change oil filter when changing engine oil.
1. Run motorcycle until engine is at normal operating temperature.

2. Remove dipstick from oil tank.

NOTE

The drain pan must hold approximately 3.0 qt (2.8 L).

3. Place a drain pan directly under the oil tank.
4. See Figure 42. Pull clip (1) from frame tube.
5. Direct drain hose (2) in front of bracket (3) into drain pan.
6. Loosen clamp (4). Remove plug (5) from end of hose.

NOTE

Completely drain engine oil from oil tank.

7. Allow oil to drain.
8. Install plug into hose.
9. Tighten clamp.
Torque: 6–10 **in-lbs** (0.7–1.1 N·m) *Oil drain hose clamp*
10. Route drain hose along frame tube.
11. Clip hose to frame.

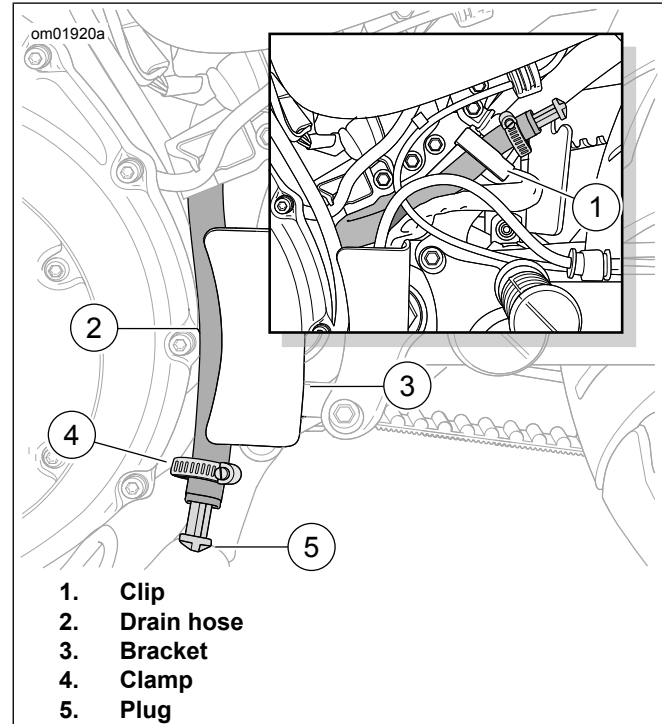


Figure 42. Drain Hose

Removing Oil Filter

1. Place a drain pan under the oil filter.

NOTE

See Figure 43. Turn filter (1) counterclockwise to remove from mount (2).

NOTICE

Use Harley-Davidson oil filter wrench for filter removal. This tool can prevent damage to crankshaft position sensor and/or sensor cable. (00192b)

2. Remove oil filter with wrench.
Special Tool: OIL FILTER WRENCH (94863-10)
Special Tool: OIL FILTER WRENCH (94686-00)
3. Drain engine oil. Discard oil filter.
4. Clean any oil spills off crankcase and frame.

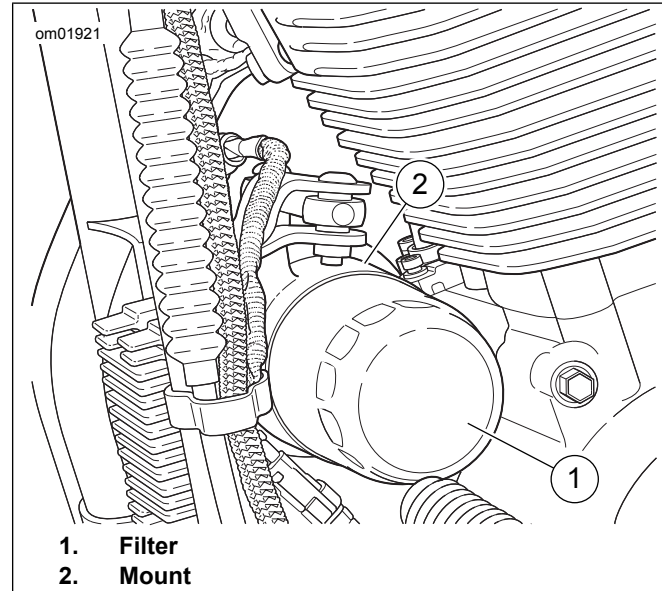


Figure 43. Oil Filter

Installing Oil Filter

NOTE

To build oil pressure on engine startup, partially fill oil filter.

1. Pour about 4 fl oz (120 ml) of fresh, clean engine oil into **new** oil filter.

2. Allow time for oil to soak into filter element.
3. See Figure 44. Wipe oil filter mount contact surface (1) with a clean cloth. Surface must be smooth and free of debris or old gasket material.
4. Apply a thin film of oil to contact surface of the oil filter mount and filter gasket (2) of **new** oil filter.

NOTE

*Do not use oil filter wrench to install **new** oil filter.*

5. Install **new** oil filter.
 - a. Screw filter onto adapter (3) until gasket contacts the gasket contact surface.
 - b. Hand-tighten one-half to three-quarters turn to secure the oil filter.

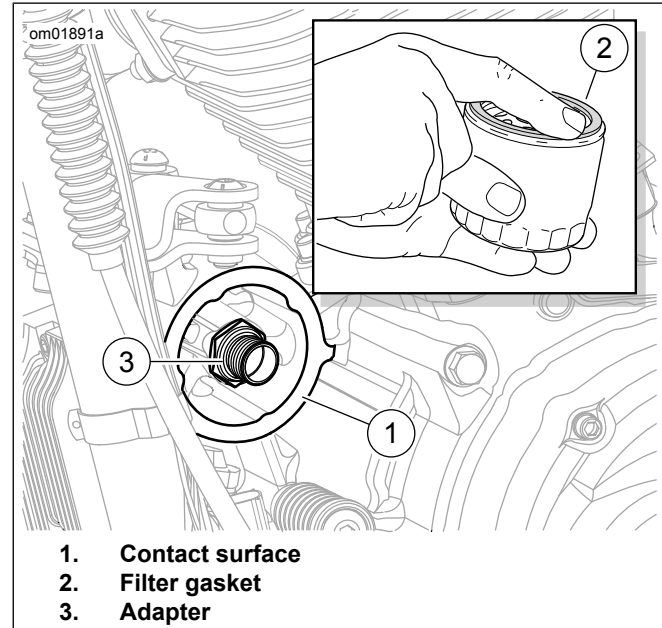


Figure 44. Installing Oil Filter

Refilling Oil Tank

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

Use the proper grade of oil for the lowest temperature expected before the next oil change. Refer to Table 36 .

1. Pour 2 qt (1.9 L) of oil into engine oil tank.
2. Install dipstick in oil tank. Seat cap.
3. See Figure 45. Verify oil pressure.
 - a. Start engine.
 - b. Verify that the oil pressure indicator turns off at 1000 rpm or above.
 - c. Turn off engine.
4. Perform engine oil level hot check.
5. Start engine and carefully check for oil leaks around drain plug and oil filter.

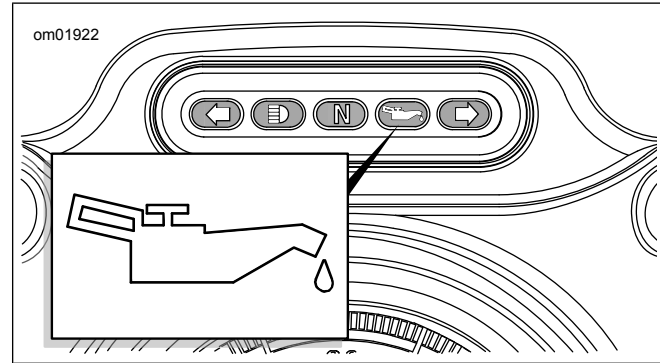


Figure 45. Oil Pressure Indicator

TRANSMISSION LUBRICANT

NOTE

When checking the transmission lubricant level, motorcycle should be standing **STRAIGHT UP**, not leaning on the jiffy stand. Keep motorcycle upright for a short time to equalize lubricant level in the transmission compartments.

Drain and refill the transmission with fresh lubricant at proper intervals. For best results, drain lubricant while hot. Refer to Service Intervals and Records > Service Records (Page 201).

⚠ 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

When draining or adding lubricant, do not allow dirt, debris or other contaminants to enter the engine. (00198a)

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)

Check Lubricant Level

1. Run motorcycle until engine is at normal operating temperature.
2. Position motorcycle straight up.

⚠ WARNING

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

118 Maintenance and Lubrication

3. Turn off ignition switch and STOP/RUN switch.
4. **XL models with mid-mount controls:** See Figure 48. Remove screws and detach the rider footrest support bracket from the left side of the vehicle.
5. See Figure 46. Remove screws with washers from clutch inspection cover. Remove clutch inspection cover from primary cover.

NOTE

The filler access is the clutch inspection cover.

6. See Figure 47. Verify that lubricant level is even with bottom of clutch diaphragm spring.

NOTE

Add only enough of FORMULA+ TRANSMISSION AND PRIMARY CHAINCASE LUBRICANT through clutch inspection cover opening until the lubricant reaches the bottom of clutch diaphragm spring.

7. Install the clutch inspection cover.
 - a. Install **new** quad ring.
 - b. Verify that quad ring is fully seated in groove of primary cover.

- c. Install clutch inspection cover. Secure with six screws.
 - d. Tighten in a crosswise pattern.
Torque: 84–108 **in-lbs** (9.5–12.2 N·m) *Clutch inspection cover screw*
8. If the left footrest assembly was removed, install support bracket with two screws. Tighten screws.
Torque: 45–50 ft-lbs (61–67.8 N·m) *Rider footrest support bracket mounting screw*
9. Install main fuse.
10. Start engine. Check for any lubricant leaks.
11. Turn off engine.

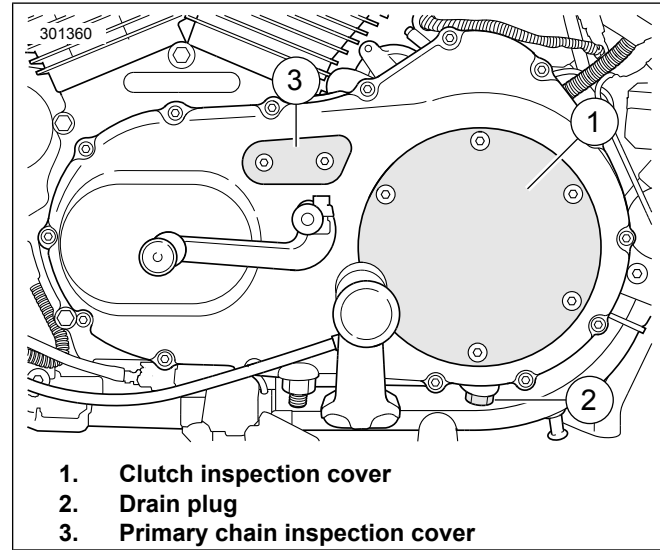


Figure 46. Primary Cover

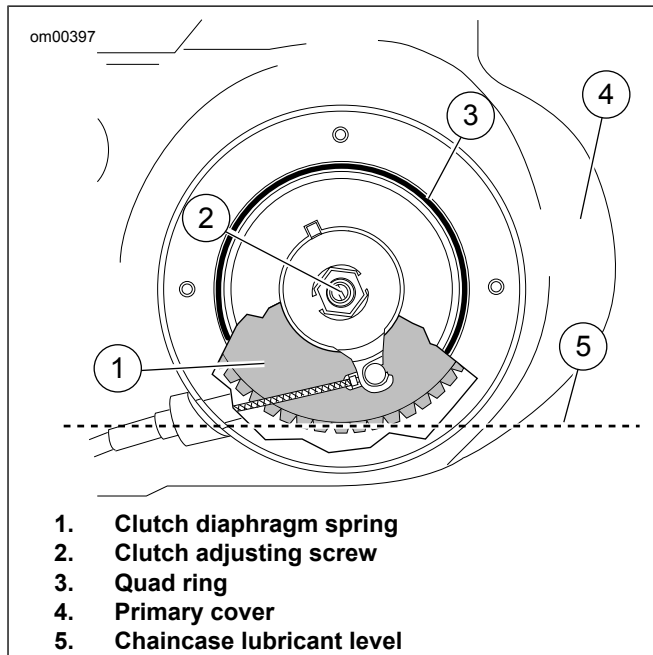


Figure 47. Chaincase Lubricant Level

Changing Lubricant

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

2. When the engine reaches normal operating temperature, park motorcycle on jiffy stand. This allows the chaincase lubricant to drain out of transmission.

▲ WARNING

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

3. Turn off ignition switch and STOP/RUN switch.
4. See Figure 46. Position a suitable container under transmission drain plug (2).
5. The drain plug is located under the clutch, on the underside of the primary cover. Remove drain plug and drain lubricant.
6. Position the motorcycle STRAIGHT UP and LEVEL. This allows more fluid to drain from the clutch compartment.

NOTE

Dispose of lubricant in accordance with local regulations.

NOTICE

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

7. Clean magnetic drain plug. Replace drain plug O-ring if damaged.
8. Apply LOCTITE 565 PIPE SEALANT WITH TEFLON to the drain plug. Install and tighten drain plug.
Torque: 14–30 ft-lbs (19–40.7 N·m) *Primary chaincase drain plug*
9. **XL models with mid-mount controls:** See Figure 48. Remove screws (2) and detach the rider footrest support bracket (1) from the left side of the vehicle.
10. See Figure 46. Remove screws with washers from clutch inspection cover (1). Remove clutch inspection cover from primary cover.
 - b. Verify that quad ring is fully seated in groove of primary cover.
 - c. Install clutch inspection cover. Secure with six screws.
 - d. Tighten in a crosswise pattern to 84–108 **in-lbs** (9.5–12.2 N·m).
11. See Figure 47. Add FORMULA+ TRANSMISSION AND PRIMARY CHAINCASE LUBRICANT through clutch inspection cover opening until the lubricant reaches the bottom of clutch diaphragm spring.
Volume: 1 qt (0.95 L)
12. Install the clutch inspection cover.
 - a. Install **new** quad ring (3).
13. If the left footrest assembly was removed, install support bracket with two screws. Tighten screws.
Torque: 45–50 ft-lbs (61–67.8 N·m) *Rider footrest support bracket mounting screw*
14. Install main fuse.
15. Start engine. Check for any lubricant leaks.
16. Turn off engine.

NOTE

The filler access is the clutch inspection cover.

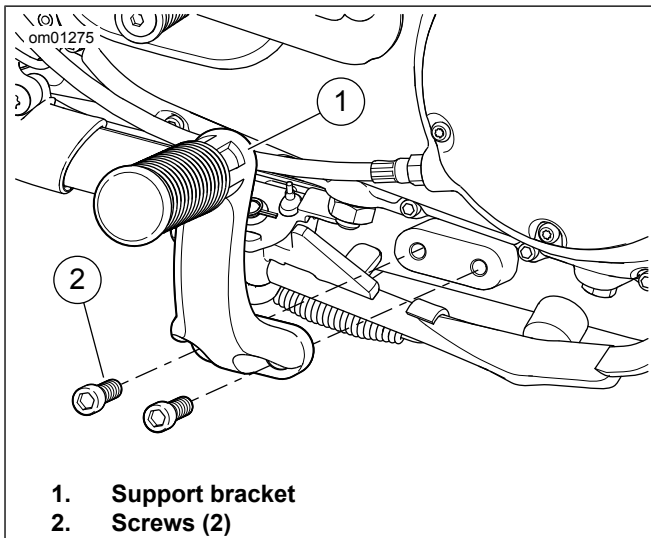


Figure 48. Mid-Mount Rider Footrest Assembly

PRIMARY CHAIN FREE PLAY

Primary Chain Inspection

Inspect primary chain free play at proper intervals and adjust as necessary. Loose chains cause the motorcycle to jerk when running at low speed, and chain and sprockets wear excessively. If this condition occurs, see a Harley-Davidson dealer.

⚠ WARNING

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

1. Remove main fuse. See Service Procedures > Fuses (Page 152).
2. See Figure 49. Remove the two screws and the primary chain inspection cover.
3. See Figure 50. Check primary chain tension by measuring free play.
 - a. Measure free play through chain inspection cover opening.
 - b. Rotate engine to move primary chain to a different position on sprockets.
 - c. Measure free play several times, each time with primary chain moved so that the measurement is taken with sprockets rotated to the tightest chain position.
4. The tightest measurement in previous step must be within the specifications. Adjust as necessary. Refer to Table 37.

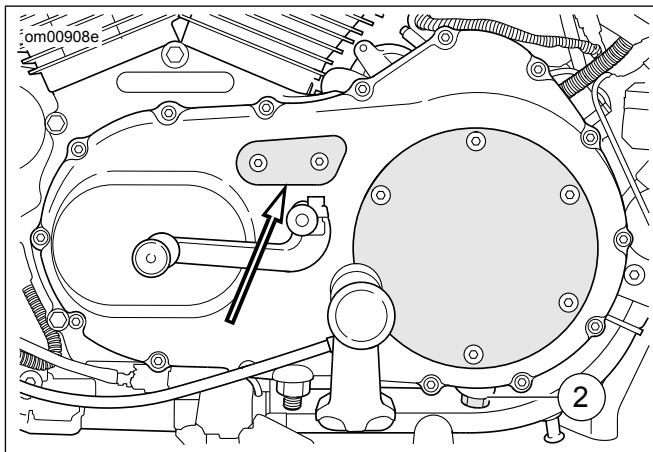


Figure 49. Primary Chain Inspection Cover

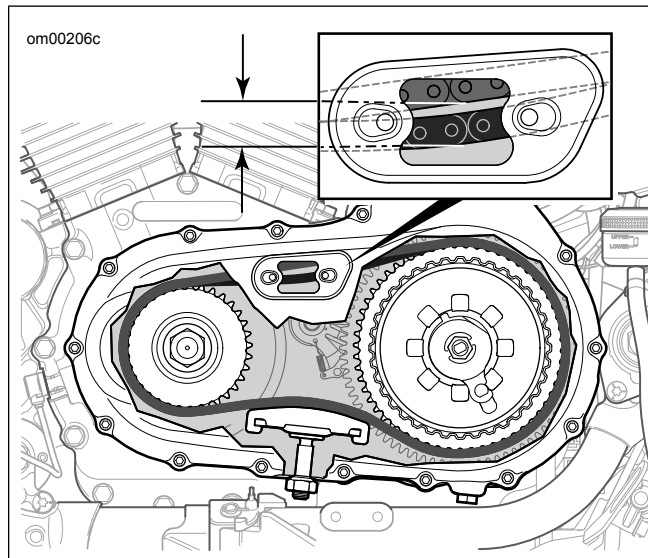


Figure 50. Primary Chain Free Play

Table 37. Primary Chain Free Play Specifications

ENGINE	in	mm
Cold	3/8-1/2	9.5-12.7
Hot	1/4-3/8	6.3-9.5

Primary Chain Adjustment

NOTICE

Do not adjust the primary chain tighter than specified. Running chain too tight will result in excessive wear. (00202a)

1. See Figure 51. Loosen locknut (1).
2. Turn chain adjuster screw (2) clockwise (inward) to reduce free play or counterclockwise (outward) to increase free play. Free play must fall within specifications. Refer to Table 37.

NOTE

If free play cannot be set within specification, then primary chain and/or chain adjuster are worn beyond adjustment limits. See your Harley-Davidson dealer.

3. When free play is set correctly, hold chain adjuster screw and tighten locknut to 20–25 ft-lbs (27–34 N·m).
4. Install primary chain inspection cover with a **new** gasket. Tighten screws to 100–120 **in-lbs** (11.3–13.6 N·m).
5. Install main fuse.

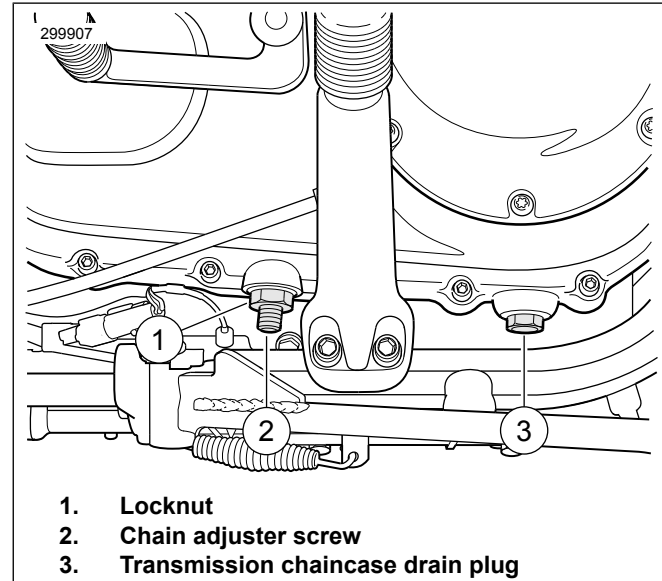


Figure 51. Primary Chain Adjuster: Sportster Models

BRAKES

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

(00240e)

⚠ 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.

⚠ WARNING

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

NOTICE

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

NOTICE

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

NOTE

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

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

See Figure 52. View sight glass (1) to verify that fluid level is at or above the center of sight glass.

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

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

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

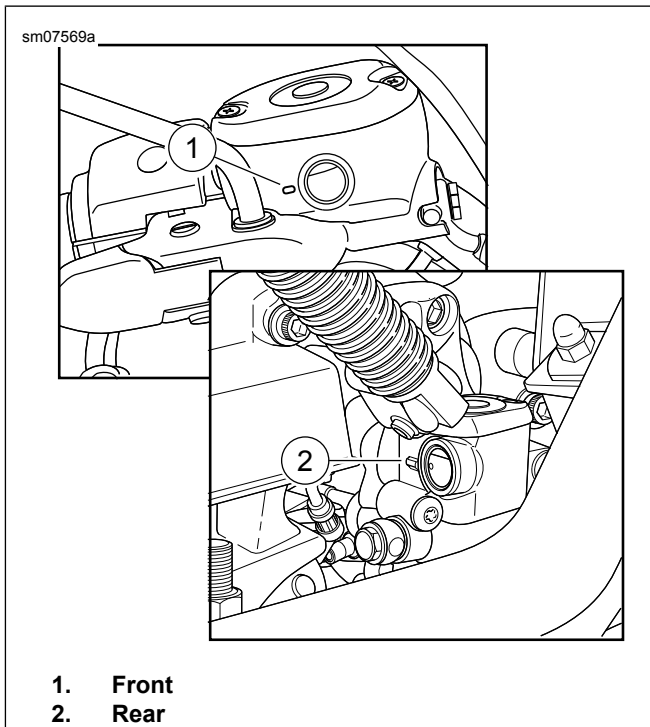


Figure 52. Brake Fluid Minimum Marks

Brake Pads

⚠ WARNING

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

⚠ WARNING

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

⚠ WARNING

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

⚠ WARNING

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

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

⚠ WARNING

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

1. Check the rear brake disc as it spins. The disc should run true in the brake caliper.
2. See Figure 53. Measure the thickness of the brake pad friction material. For rear brakes, place the ruler against the brake disc through the space alongside the caliper.

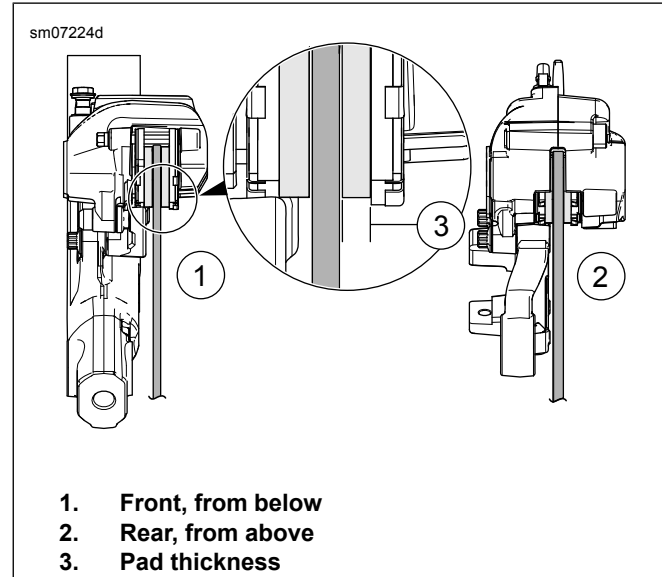


Figure 53. Brake Pad Thickness

NOTE

Always replace brake pads in pairs.

3. Replace brake pads before friction material reaches minimum thickness. See a Harley-Davidson dealer. Refer to Table 38.

Table 38. Minimum Brake Pad Friction Material Thickness

in	mm
0.040	1.020

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 Service Procedures > Fuses (Page 152).
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 54. Measure belt deflection using:
Special Tool: BELT TENSION GAUGE (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 56. 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 55. Measure amount of deflection (4) while holding gauge steady.

5. *NOTE*

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

Compare with specifications. Refer to Table 39. If not within specifications, see a Harley-Davidson dealer.

6. Install main fuse.

Table 39. Belt Deflection Specifications*

MODELS	in	mm
All models	1/4-5/16	6.4-7.9
* Deflection measured at 10 lb (4.5 kg) tension.		

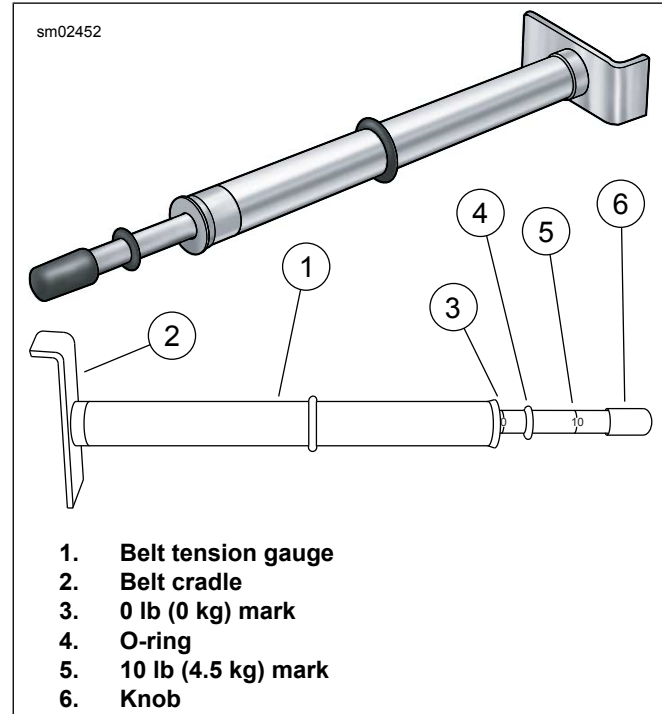


Figure 54. Belt Tension Gauge

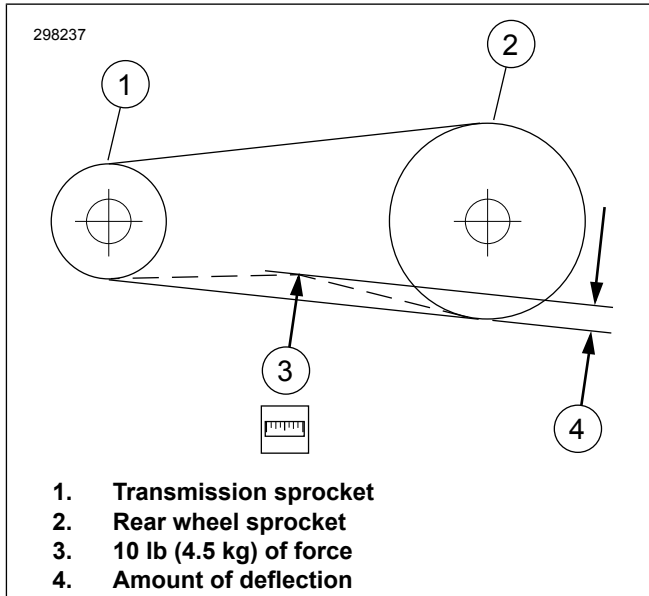


Figure 55. Checking Belt Deflection

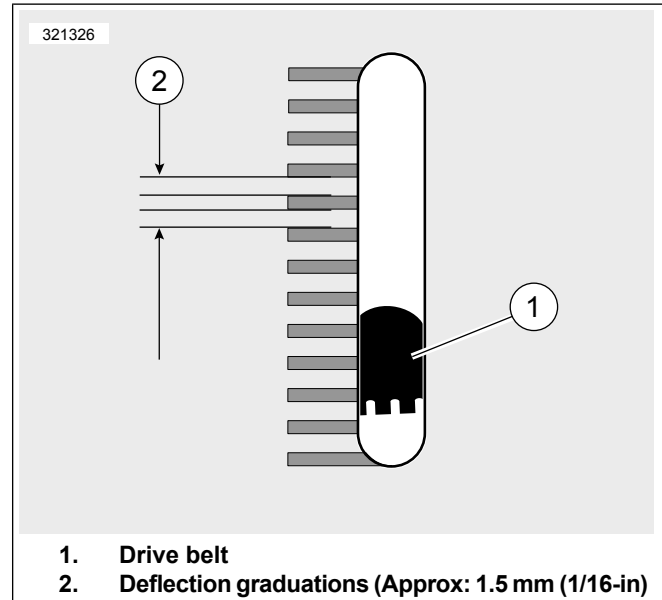


Figure 56. Belt Deflection Window

LUBRICATING FUEL CAP LOCK

Lubricate fuel cap lock with HARLEY LUBE.

MECHANICAL CLUTCH

NOTICE

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

Adjust the clutch control cable at specified intervals. Refer to Service Intervals and Records > Service Records (Page 201).

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 Intervals and Records > Service Records (Page 201) 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 Intervals and Records > Service Records (Page 201) for all maintenance schedules.

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

CHECKING FOR EXHAUST LEAKS

Refer to Service Intervals and Records > Service Records (Page 201) for all maintenance schedules.

1. Allow exhaust components to cool.
2. 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.
3. 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.

SPARK PLUGS

Replace the spark plugs at specified mileage intervals. See Service Intervals and Records > Service Records (Page 201).

⚠ 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)

Refer to Table 14 for spark plug specifications.

1. Disconnect spark plug cables from plugs by pulling up on the molded connector caps.
2. Check spark plug type. Only use those spark plugs specified for your model motorcycle.
3. Check spark plug gap against specifications table.
4. Always tighten to the proper torque.
5. Connect each molded connector cap until the cap snaps firmly into place over the spark plug.

INSPECTING AIR FILTER

APPLICABILITY	
<input type="checkbox"/>	• CHN

Removal

NOTICE

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

NOTE

At regular intervals, inspect the air filter element. Under dusty conditions, inspect more often. Refer to Service Intervals and Records > Service Records (Page 201).

1. See Figure 57. Depending on your model Sportster, remove the cover screws (2), trim (8) and the air cleaner cover (6).
2. Inspect the filter element (3).
3. Remove and clean the air filter element if necessary.

Cleaning 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)

NOTE

- Do not tap the filter on a hard surface to dislodge dirt.
- Replace the filter element if damaged or if the element cannot be cleaned.

1. Wash the filter in warm soapy water.

NOTE

The filter is clean if light is visible through it.

2. Hold the filter up to a light.

NOTE

Do NOT use air cleaner filter oil on the paper/wire mesh element.

⚠ WARNING

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

3. Air dry or blow dry the filter from the inside with low-pressure air.

Installation

NOTE

See Figure 57. Check that the O-rings (1) on the breather tubes are in place.

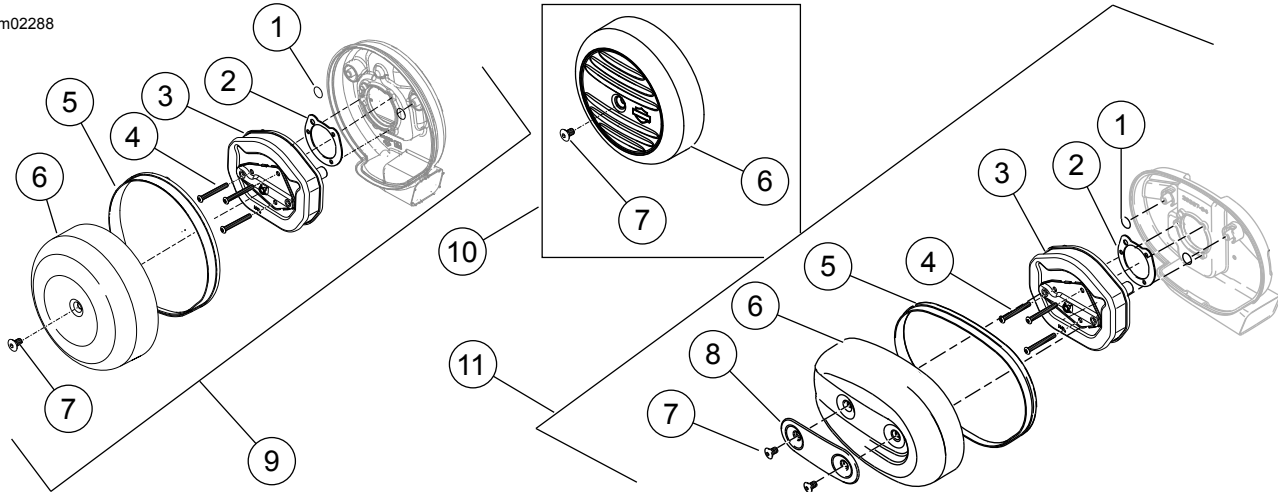
1. If removed, install the air filter element:
 - a. Install the baseplate gasket (2).
 - b. Install the air filter element (3).
 - c. Apply a drop of LOCTITE THREADLOCKER 243 (blue) to the threads of the element screws (4).
 - d. Install the element screws.
 - e. Tighten to specification. Refer to Table 40.

2. Install air cleaner cover.
 - a. Verify the air cleaner seal (5) is in place.
 - b. Install the cover (6).
 - c. Depending on your model Sportster, install the trim (8) and the screws (7).
 - d. Tighten to specification. Refer to Table 40.

Table 40. Air Cleaner Fastener Torque

FASTENER	TORQUE	
	in-lbs	Nm
Air filter element screws	40-60	4.5-6.8
Air filter cover screws	36-60	4.1-6.8

om02288



- 1. O-ring (2)
- 2. Gasket
- 3. Filter element
- 4. Element screw (3)
- 5. Seal
- 6. Cover

- 7. Cover screw
- 8. Trim
- 9. XL1200X, XL1200XS models
- 10. XL883N, XL1200NS models
- 11. XL883L, XL1200C, XL1200CX, XL1200T models

Figure 57. Air Cleaner

NOTES

TIRES

APPLICABILITY	
<input type="checkbox"/>	• CHN

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)

⚠ 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

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)

For Cold Tire with Ambient Temp 68 °F (20 °C) or less: Refer to Table 5 for tire information and pressures.

- Maintain correct tire pressure.
- Follow tire data for correct cold tire inflation pressure.
- Check before riding when tires are cold.

For Cold Tire with Ambient Temp higher than 68 °F (20 °C): Refer to Table 41 to determine corrected pressures.

For Hot Tire with Ambient Temp higher than 68 °F (20 °C): Refer to Table 42 to determine corrected pressures.

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 41. Tire Pressure Adjustment - Cold Tire

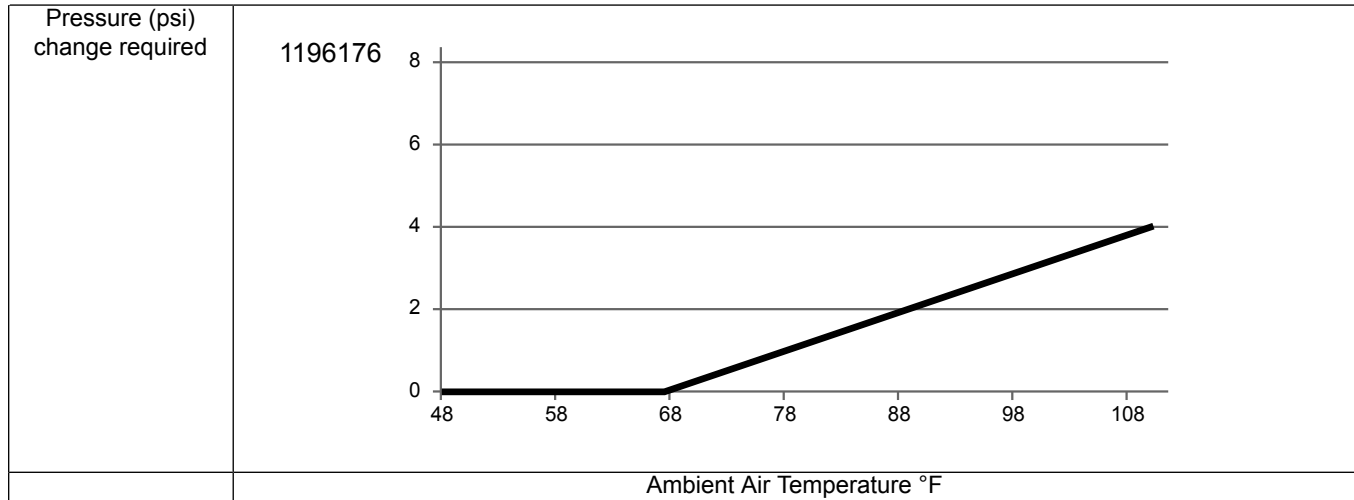
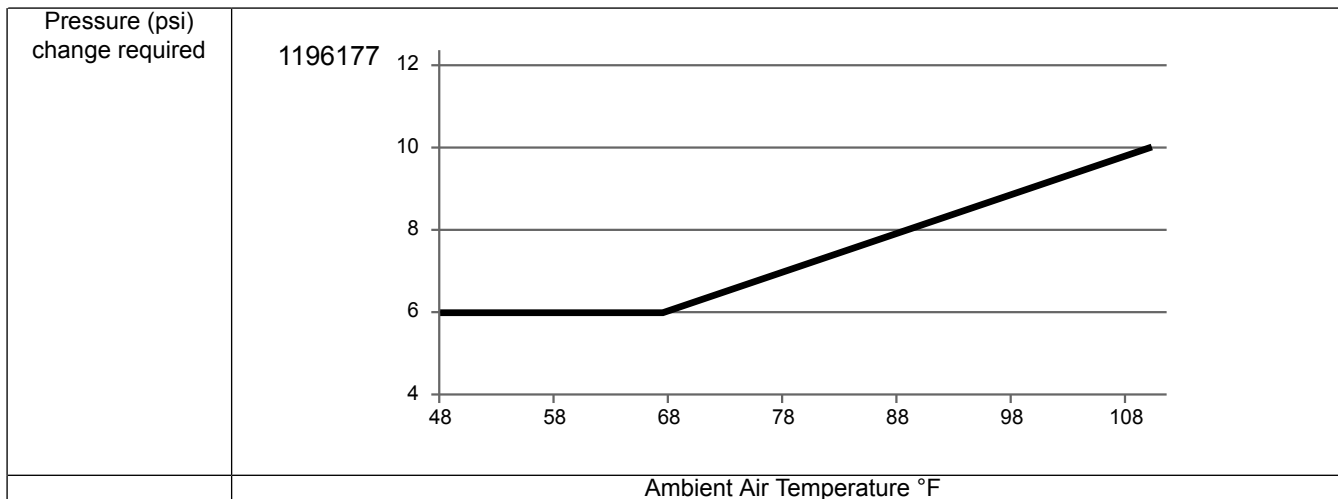


Table 42. Tire Pressure Adjustment - Hot Tire



Inspecting Tires

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 58 or Figure 59. Always replace tires before the tread wear bars appear.

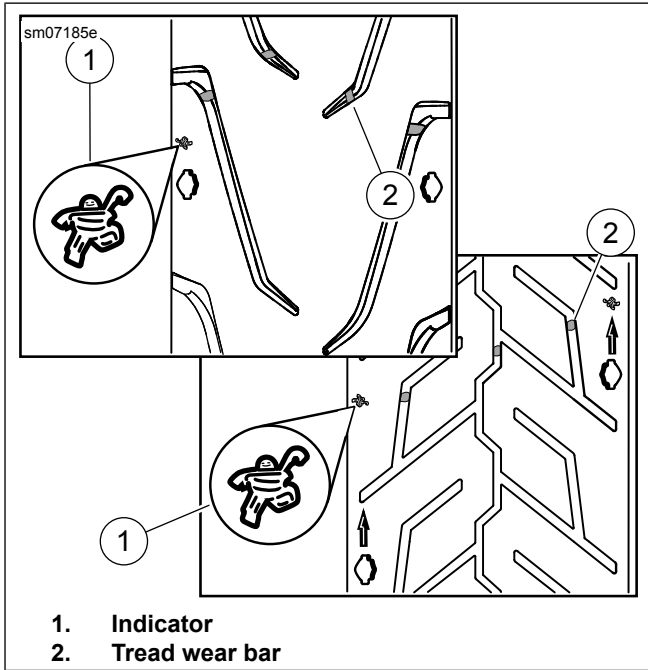


Figure 58. Tread Pattern: Michelin Tires

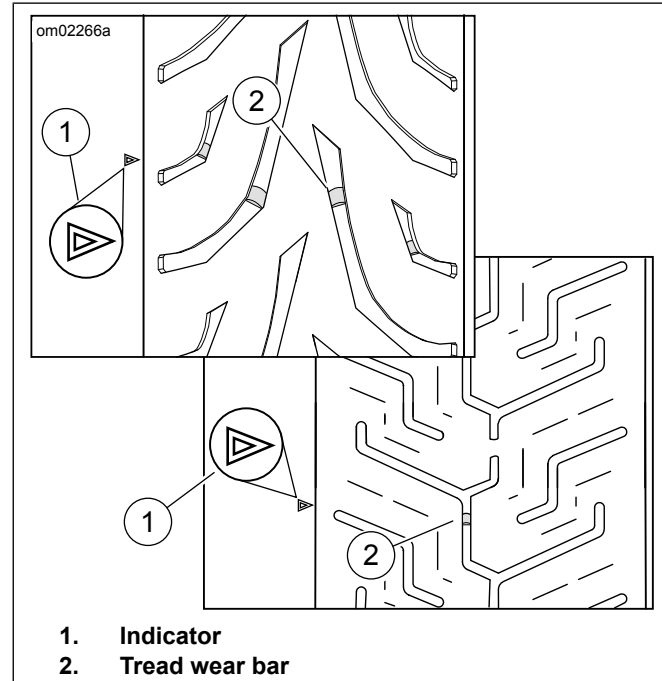


Figure 59. Tread Pattern: Dunlop Tires

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

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 Table 5 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.

SIDE COVERS

The left side cover provides access to the battery and fuse block. No tools are required to remove or install the side cover.

Opening

NOTE

- *The left side cover does not need to be completely removed from the vehicle to access the battery or fuses.*
 - *Place a shop cloth or other clean, dry cloth over left passenger footpeg (if applicable). This will protect cover from damage.*
1. See Figure 60. Grasp left side cover at upper corners and gently pull away from frame. Disengage the front clip first for easier opening.

2. While rotating top of cover out away from motorcycle, slide cover down slightly so mounting slot slides down from mounting tab on battery tray.

Closing

1. Raise the left side cover.
2. Align the barrel clips on the cover with the socket clips on the frame. Press the cover to secure.

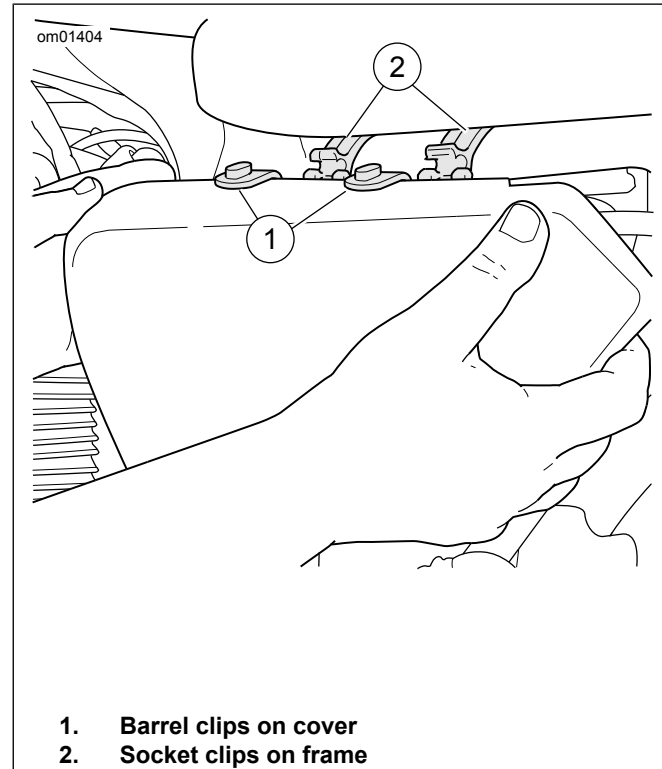


Figure 60. Left Side Cover

BATTERY TENDER CONNECTOR

See Figure 61. 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 Service Procedures > Battery Maintenance (Page 146).

See Service Procedures > Side Covers (Page 143). 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.

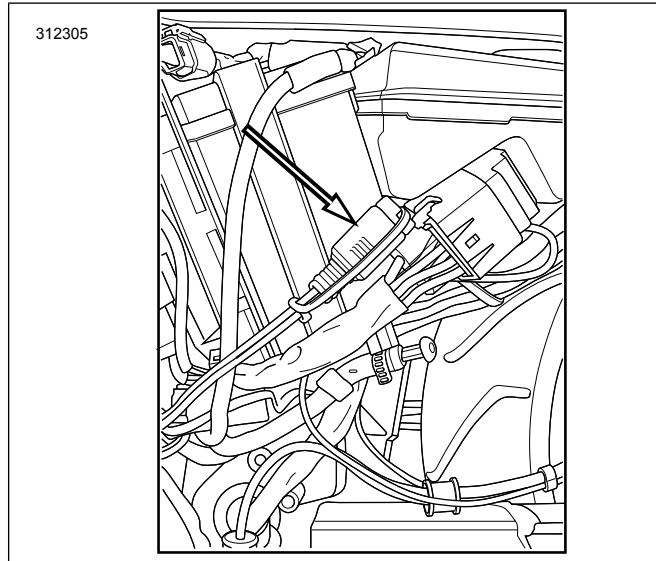


Figure 61. Battery Tender

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 Service Procedures > Battery Tender Connector (Page 145).
 - 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

⚠ WARNING

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

1. Remove seat.
2. Remove left side cover.
3. **Keyless models with sirens:** Verify that fob is present. Switch OFF/RUN switch to RUN before removing main fuse or disconnecting battery.
4. See Figure 62. Pull fuse block (1) aside.
5. Remove main fuse.
6. Disconnect negative battery cable at negative terminal (2).
7. Remove positive terminal boot (3) from positive battery terminal. Disconnect positive battery cable.
8. See Figure 63. Remove strap fastener (1).
9. Unhook battery strap from mount (2) on top of battery.
10. Remove battery.

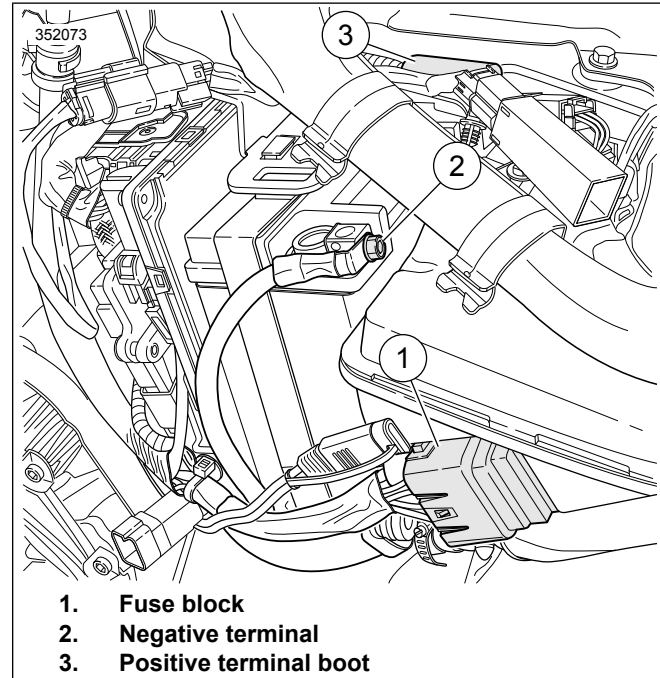


Figure 62. Battery Compartment

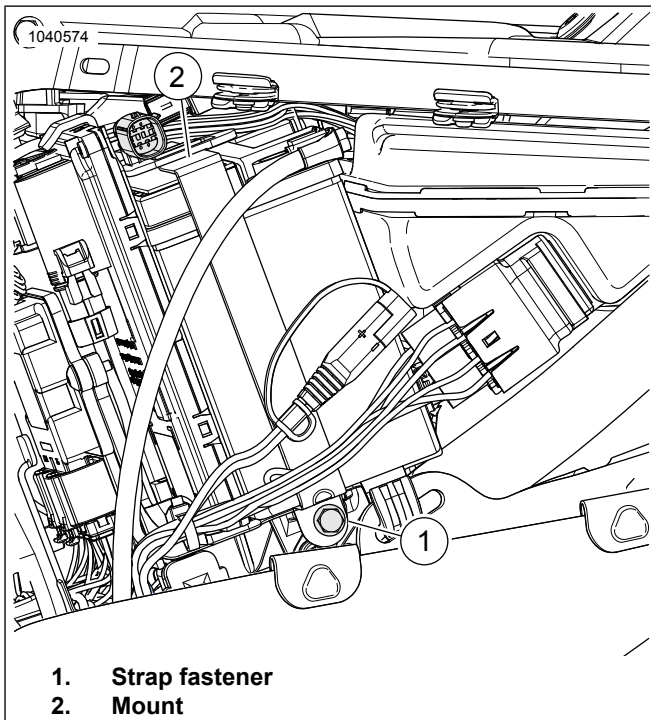


Figure 63. Battery Strap

Installing the Battery

NOTICE

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

1. Apply a light coat of petroleum jelly or corrosion retardant to negative and positive terminals.
2. Install battery.
3. See Figure 63. Install top of battery strap to mount (2). Install strap fastener (1). Tighten.

Torque: 72–96 **in-lbs** (8.1–10.8 N·m) *Battery strap fastener*

⚠ 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)

4. See Figure 64. Install positive terminal screw through main fuse cable (1) then positive cable (2). Tighten.

Torque: 60–70 **in-lbs** (6.8–7.9 N·m) *Battery terminal screw*

5. Install rubber boot over terminal.

NOTE

See Figure 65. Route negative battery cable under fuse block wire harness.

6. Install screw through negative battery cable and into negative battery terminal. Tighten.

Torque: 60–70 **in-lbs** (6.8–7.9 N·m) *Battery terminal screw*

7. Install main fuse.
8. Install fuse block to oil tank.
9. Install left side cover.

⚠ WARNING

After installing seat, pull upward on seat to be sure it is locked in position. While riding, a loose seat can shift causing loss of control, which could result in death or serious injury. (00070b)

10. Install seat.

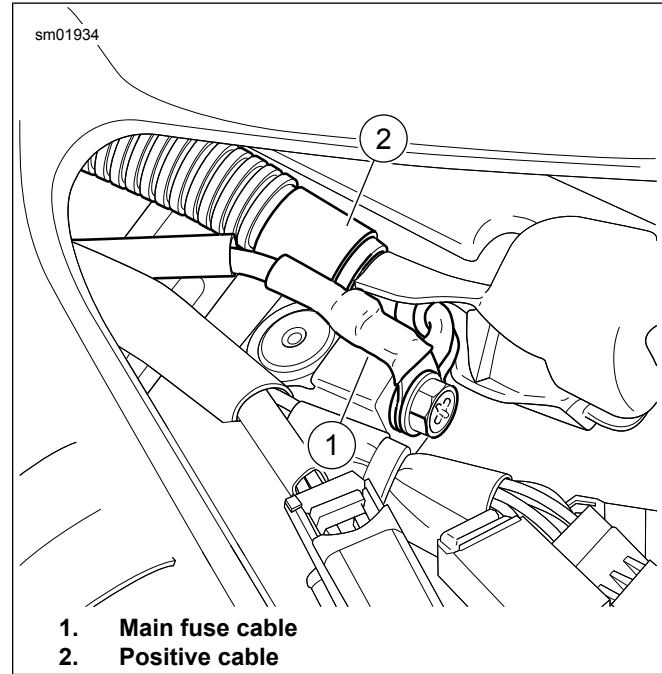


Figure 64. Positive Terminal

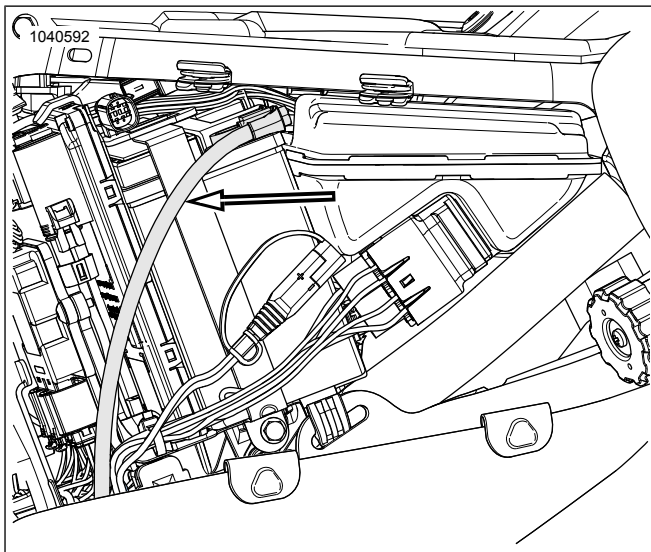


Figure 65. Negative Battery Cable under Fuse Block Wire Harness

FUSES

Fuse Replacement

NOTICE

Always use replacement fuses that are of the correct type and amperage rating. Use of incorrect fuses can result in damage to electrical systems. (00222a)

If replacing a fuse does not correct the problem or if a fuse is repeatedly blown, see a Harley-Davidson dealer.

1. Turn off the ignition.
 - a. **Keyed ignition:** Turn the key to OFF.
 - b. **Keyless ignition:** With a fob near, switch OFF/RUN switch to OFF.
2. Open left side cover.
3. See Figure 66. Pull the fuse block from the oil tank.
4. Lift the side latches to remove the cover.

NOTE

Models with sirens: With fob present, turn OFF/RUN switch to RUN.

5. See Figure 67. Remove the suspect fuse.
 - a. Main fuse (1)
 - b. P&A (2)
 - c. Battery (3)
6. Inspect the element. If the element is burned or separated, replace the fuse with an automotive type ATO fuse with the same Amp rating.
7. Align fuse block cover with retaining guide. Slide the fuse block cover until tab latches.

8. Press the fuse block into the recess in the oil tank.
9. Close left side cover.

Main Fuse

The 40 amp main fuse can be removed to disconnect power from the electrical system (except starter motor/solenoid).

To prevent a security siren from sounding, turn on the ignition with the hands-free fob present to disarm the security system before removing the main fuse.

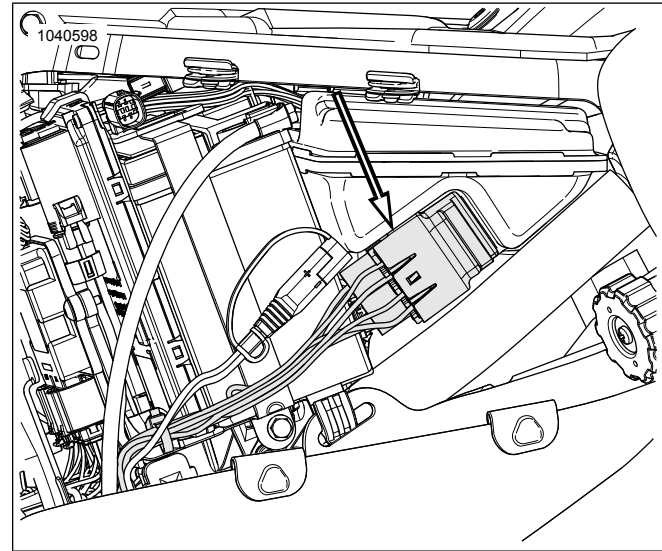


Figure 66. Fuse Block

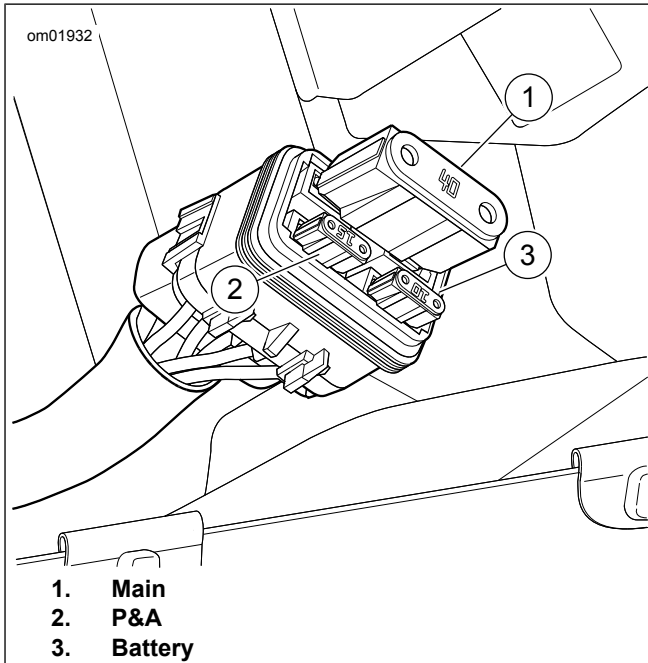


Figure 67. Fuses

CHECK HEADLAMP ALIGNMENT

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

154 Service Procedures

NOTE

Choose a wall in minimum light.

4. See Figure 68. Park the motorcycle on a perpendicular line (1) with the front axle 25 ft (7.6 m) (3) from a wall.
5. Draw a vertical line (2) on the wall.

NOTE

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

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

NOTE

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

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

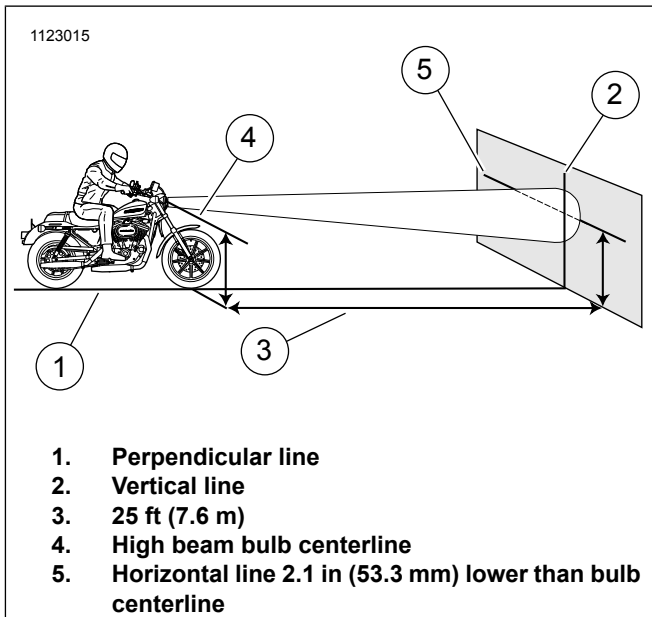


Figure 68. Headlamp Alignment: Sportster Models

HEADLAMP ALIGNMENT

APPLICABILITY	
<input type="checkbox"/>	• CHN

XL1200C, XL1200CX, XL1200X, XL1200XS Models

1. Set horizontal adjustment:
 - a. See Figure 69. Loosen horizontal adjustment screw (3).
 - b. Turn headlamp right or left as necessary to direct light beam straight ahead.
 - c. Tighten horizontal adjustment screw to:
 Torque: 30–35 ft-lbs (40.7–47.5 N·m) *Headlamp horizontal adjustment: XL1200C, XL1200CX, XL1200X, XL1200XS*

2. Set vertical adjustment:
 - a. Loosen locknut (1) for vertical adjustment bolt.
 - b. Tilt headlamp up or down to aim it at horizontal line on wall.

- c. Tighten headlamp locknut.

Torque: 30–35 ft-lbs (40.7–47.5 N·m) *Headlamp vertical adjustment: XL1200C, XL1200CX, XL1200X, XL1200XS*

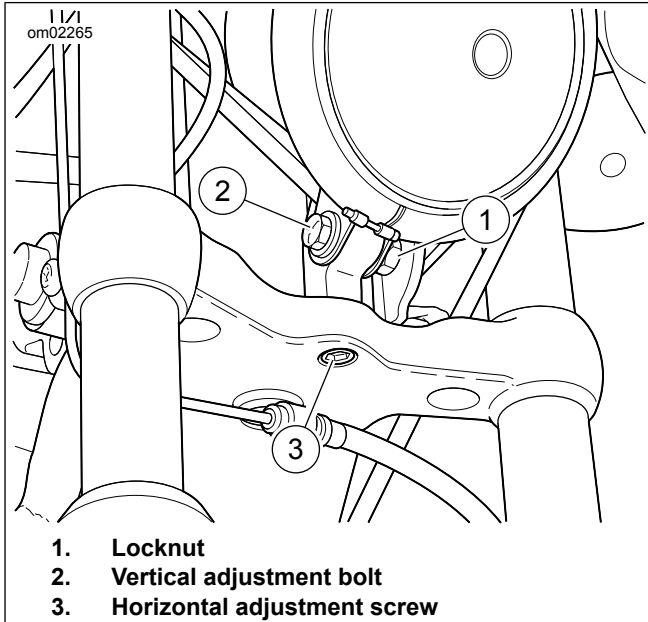


Figure 69. Headlamp Adjustment: XL1200C, XL1200CX, XL1200X, XL1200XS

XL883L, XL883N, XL1200T Models

1. See Figure 70. Remove snap plug (1) on top of headlamp bracket (2).
2. Loosen headlamp clamp nut (3).
3. Tilt headlamp up or down to aim it at horizontal line. At same time, turn it right or left to aim beam straight ahead.
4. After lamp is properly positioned tighten headlamp clamp nut.

Torque: 120–240 **in-lbs** (13.6–27.1 N·m) *Headlamp clamp nut: XL883L, XL883N, XL1200T*
5. Install snap plug.

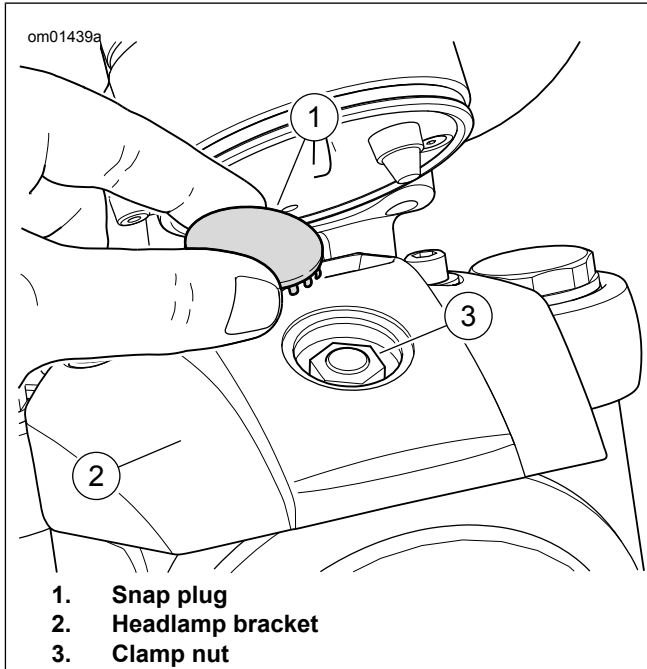


Figure 70. Headlamp Adjustment: XL883L, XL883N, XL1200T

XL1200NS

1. See Figure 71. Remove visor screws (7) and washers (6).

2. Remove headlamp visor (1) from headlamp visor bracket (2).
3. Remove screw (3) and washer (4).
4. Loosen headlamp clamp nut (5).
5. Tilt headlamp up or down to aim at horizontal line. At same time, turn it right or left to aim beam straight ahead.
6. After lamp is properly positioned tighten headlamp clamp nut.
Torque: 120–240 **in-lbs** (13.6–27.1 N·m) *Headlamp clamp nut: XL1200NS*
7. Install washer (4) and screw (3). Tighten.
Torque: 40 **in-lbs** (4.5 N·m) *Headlamp screw*
8. Install headlamp visor.
 - a. Align visor on bracket.
 - b. Install washers (6) and screws (7). Tighten.
Torque: 40 **in-lbs** (4.5 N·m) *Visor screws*

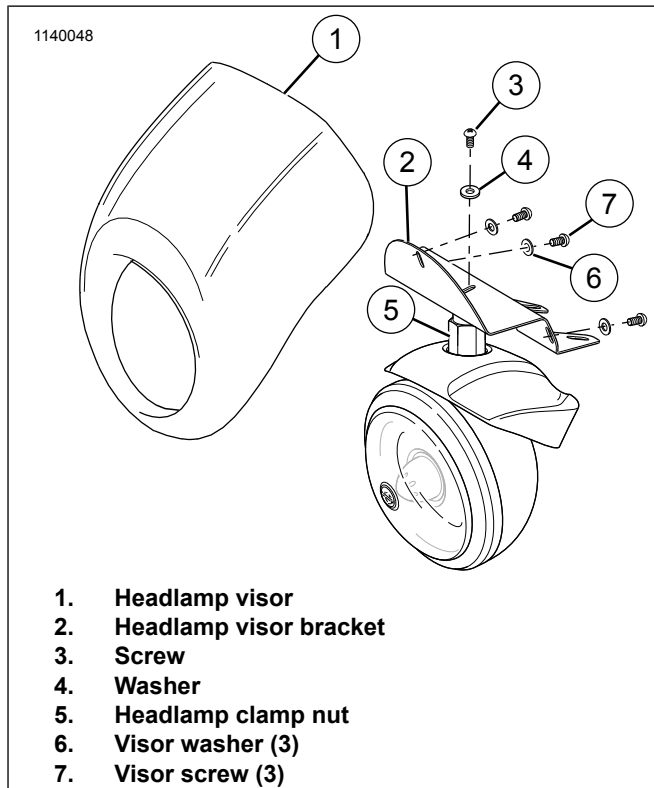


Figure 71. Headlamp Adjustment: XL1200NS

HEADLAMP REPLACEMENT

APPLICABILITY	
<input type="checkbox"/>	• CHN

Removal

⚠ WARNING

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

NOTICE

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

1. Remove main fuse. See Service Procedures > Fuses (Page 152).
2. **For Model XL1200NS:** See Service Procedures > Headlamp Alignment (Page 155).
 - a. Remove headlamp visor.
3. See Figure 73. Loosen the trim ring screw (4). Remove the trim ring.

4. Support the lens and reflector.
5. See Figure 72. While compressing the release tabs (1) on the connector, pull the connector off the bulb spade terminals.
6. Pull the rubber boot (2) back.
7. Press the loop (3) on the wire retaining clip (4) down and to one side to disengage the free end of the clip from the metal catch. Rotate the clip up. Remove the bulb from the lens and reflector.

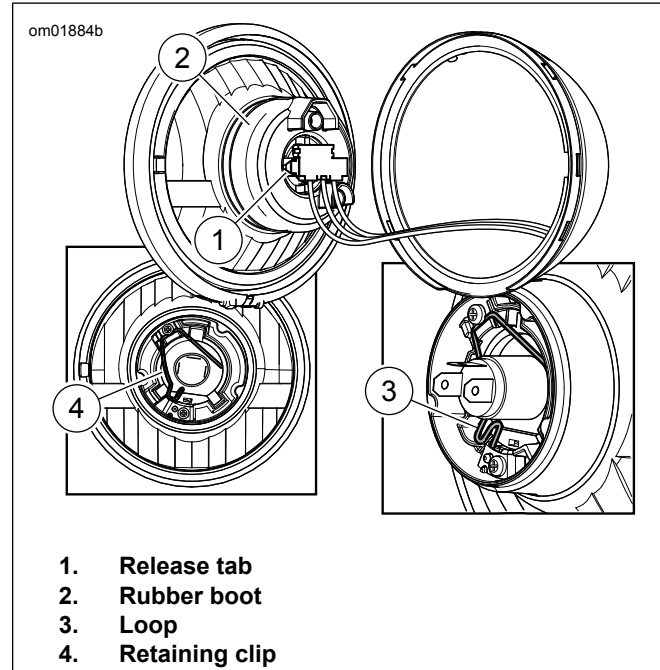


Figure 72. Headlamp

Installation

⚠ WARNING

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

NOTICE

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

1. Align bulb tabs with slots in the reflector. Install the bulb.
2. See Figure 72. Rotate the retaining clip down against the bulb flange. Press the wire loop down and in until the free end of the clip engages the metal catch.
3. See Figure 73. Match the rubber boot TOP arrow to the reflector arrow (1). Fit the rubber boot over the spade terminals of the bulb. Press the air out of the boot to seal over the lens and the reflector assembly.
4. Install the connector.
5. Verify that the adapter ring (2) is in place with the two tabs of the ring in the two bulges in the headlamp shell.

160 Service Procedures

6. Match the single tab on the reflector to the notch (3) on the inside of the adapter ring.
7. **For Model XL1200C:** Install rubber finger gasket (5).
8. Fit the trim ring and rotate the ring clockwise to lock the ring on the lens and reflector.
9. **All except XL1200C:** Install screw (4) and nut. **For Model XL1200C:** Install screw (4).
10. Tighten screw.
Torque: 9–14 **in-lbs** (1.0–1.6 N·m)
11. Install main fuse. See Service Procedures > Fuses (Page 152).

⚠ 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)

12. Test headlamp operation.
13. Align headlamp. See Service Procedures > Headlamp Alignment (Page 155).

14. **For Model XL1200NS:** Install headlamp visor. See Service Procedures > Headlamp Alignment (Page 155).

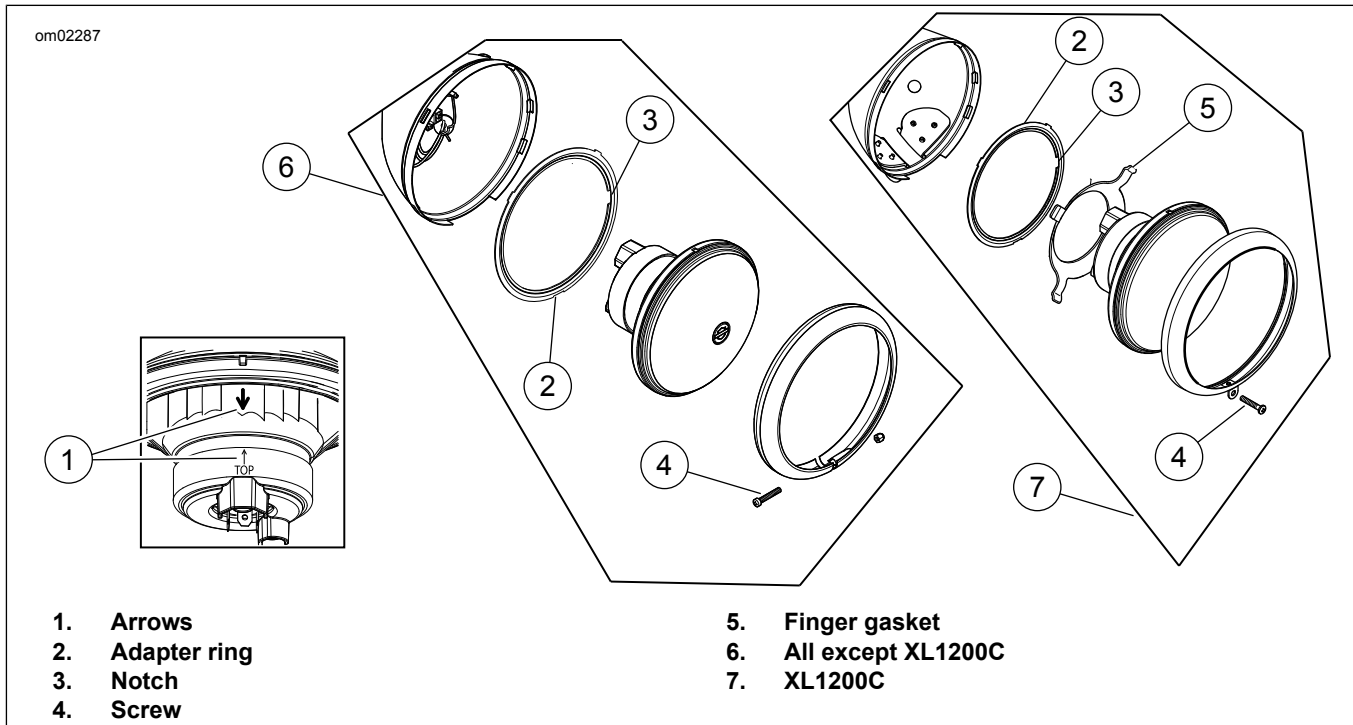


Figure 73. Headlamp Assembly

POSITION LAMP

1. Remove the main fuse. See Service Procedures > Fuses (Page 152).
2. Remove the trim ring. Support the lens and reflector.
3. See Figure 74. Remove the spade connectors from the bulb.
4. Pull the bulb holder from the lens and reflector.
5. Pull bulb out to remove. Push bulb in to install.
6. Install the bulb and holder.
7. Match the reflector tab to the adapter ring notch.
8. Install the trim ring. Tighten to:
Torque: 9–14 **in-lbs** (1–1.5 N·m) *Trim ring screw*

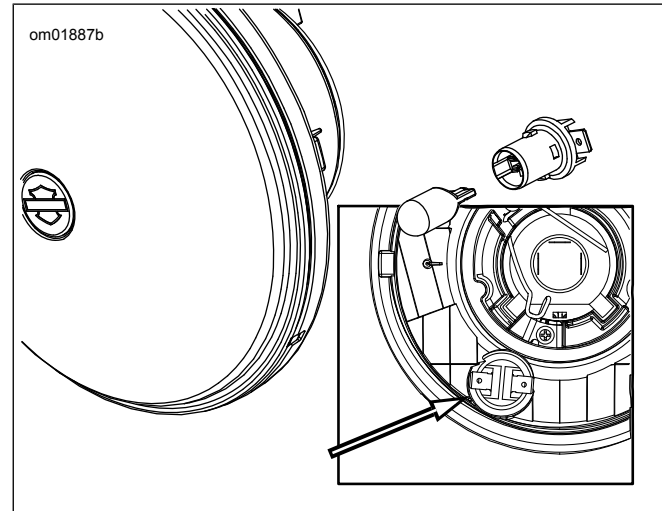


Figure 74. Position Lamp

TAIL LAMP

APPLICABILITY	
<input type="checkbox"/>	• CHN

XL883L, XL1200T and Models with Standard Style Tail Lamp

1. See Figure 75. Remove two screws and lens from base.

NOTE

Remove the 4-pin connector to ease bulb removal.

2. Pull bulb assembly from lens. Remove bulb.
3. Coat base of **new** bulb with ELECTRICAL CONTACT GREASE. Install **new** bulb.
4. Install (push) bulb assembly to lens.
5. If removed, connect connector to circuit board.
6. Install lens to base with two screws. Tighten to:
Torque: 20–24 **in-lbs** (2.3–2.7 N·m) *Tail lamp lens screws*

▲ 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. Turn on ignition. Check operation of all lamps.

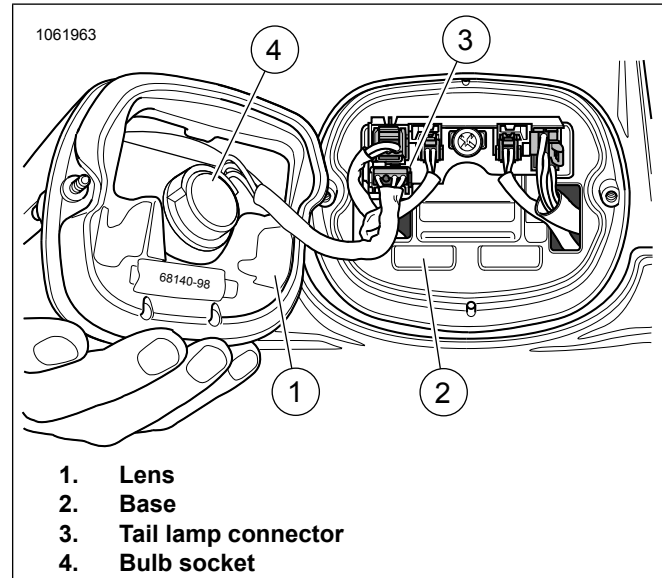


Figure 75.

XL1200C

Although similar in appearance to the standard style tail lamp, the tail lamp on XL1200C model is an LED assembly. See a dealer or service manual for replacement.

XL883N, XL1200NS, XL1200X, XL1200XS, XL1200CX

The tail and stop lamps are dual filament turn bulbs in the rear turn signal bullet housings with red lenses. To replace a tail or stop lamp, replace the turn signal bulbs. See Service Procedures > Turn Signal Bulb Replacement: Incandescent (Page 164).

XL883N, XL1200NS, XL1200CX, XL1200X, XL1200XS Models with LED Turn Signal Tail and Stop Lamps

On International and Japan XL883N, XL1200NS, XL1200CX, XL1200X and XL1200XS models, the rear turn signal/tail lamps is an LED assembly. On XL1200CX models for certain markets, the center stop lamp is an LED assembly. There are no replacement bulbs for this style lamp. See a dealer or service manual for replacement.

TURN SIGNAL BULB REPLACEMENT: INCANDESCENT

Replacing Turn Signal Bulb

1. See Figure 76. 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.

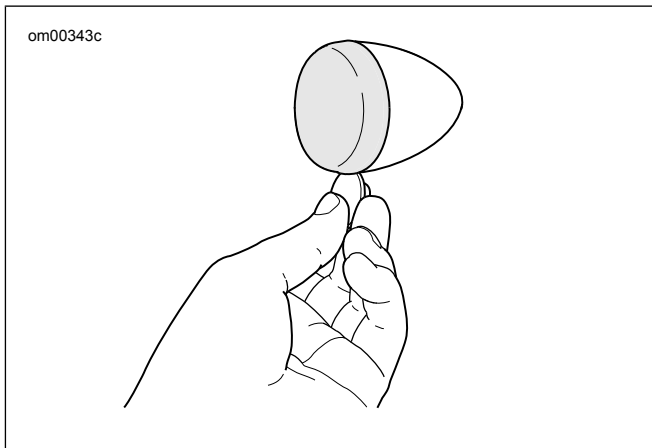


Figure 76. Remove Lens

TURN SIGNAL BULB REPLACEMENT: LED

The Light Emitting Diode (LED) turn signal lamp is a sealed assembly. Replace the turn signal lamp as a unit. See a Harley-Davidson dealer.

SEAT

Removal

1. See Figure 77. Remove mounting screw (1) to detach seat from rear fender.
2. Press seat down and forward (2).
3. Lift (3) slightly to detach keyhole bracket from seat post.
4. Pull seat back (4) to detach seat tongue from fuel tank bracket.
5. Verify that tongue and mounting bracket are tightly secured to the seat bottom.
6. **Two-up seat:** Inspect grab strap for damage or excessive wear.

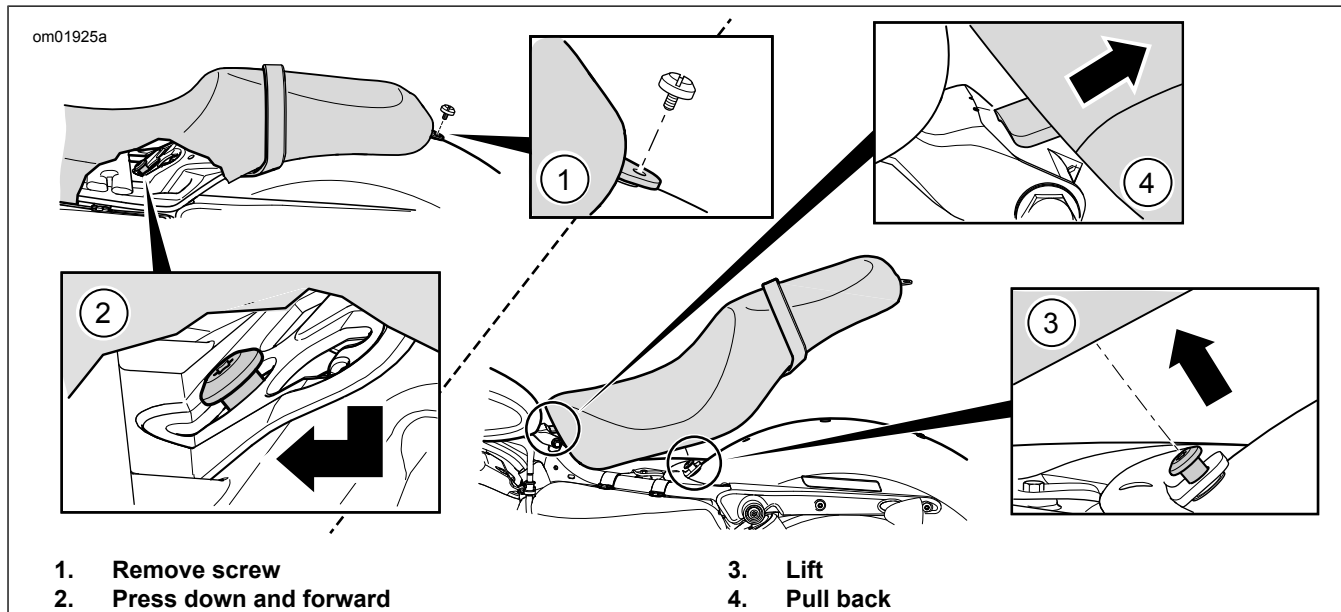


Figure 77. Remove Seat

Installation

1. See Figure 78. Position seat on frame with mounting bracket (1) at rear.
2. Slide seat forward until the tongue (2) fits snugly under fuel tank bracket.

3. Push seat forward to engage keyhole (3) onto seat post. Pull seat back slightly.

NOTE

Mounting bracket of solo seat uses forward hole in rear fender. Dual seat bracket uses rearward hole.

4. Install seat mounting screw to fasten seat mounting bracket to top of rear fender. Tighten to:
Torque: 15–30 **in-lbs** (1.7–3.4 N·m) *Seat mounting screw*
5. Pull up on seat to verify that it is locked at all three points.

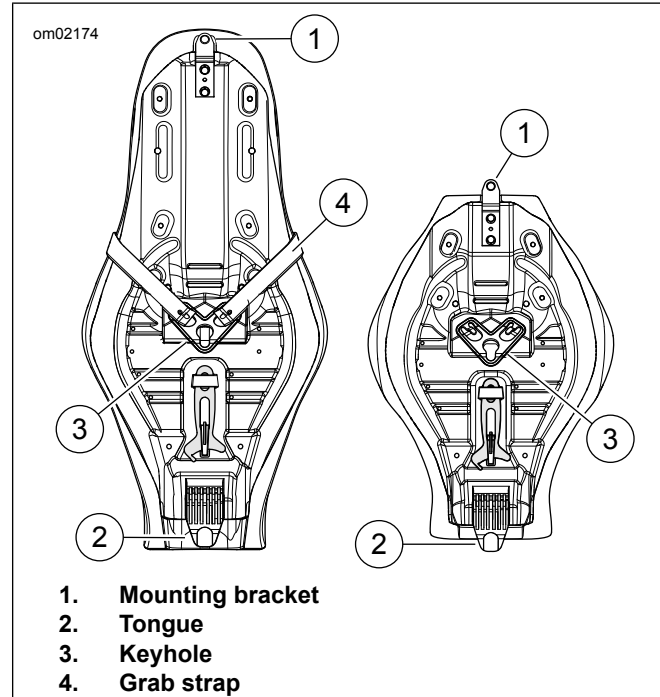


Figure 78. Solo and Two-Up Seats

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. Ignition switch off.
3. Discharged battery or loose or corroded connections (solenoid chatters).
4. Clutch lever not squeezed against handlebar or transmission not in neutral.
5. Jiffy stand not in retracted position (for models equipped with jiffy stand interlock).
6. 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

Brakes Do Not Hold Normally

1. Master cylinder low on fluid. See dealer.
2. Brake line contains air bubbles. See dealer.
3. Master cylinder 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.

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NOTES

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

NOTE

Installing off-road or competition parts to enhance performance may void all or parts of your limited warranty. See the Harley-Davidson Motorcycle Limited Warranty in this owner's manual or an authorized Harley-Davidson dealer for details.

CALIFORNIA AND SELECT INTERNATIONAL MARKETS EVAPORATIVE EMISSION CONTROLS

All new Harley-Davidson motorcycles sold in the State of California and select international markets have an evaporative emission control system. This system is designed to meet CARB and local regulations in effect at the time of manufacture.

The system requires a small amount of maintenance. Periodically inspect system to verify that hoses are properly routed, not kinked or blocked and that all fittings are secure. Periodically check mounting hardware for tightness.

EPA NOISE REGULATIONS IN THE UNITED STATES

EPA noise regulations require that the following statements be included in the Owner's Manual.

EPA Regulations

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE FOLLOWING:

1. Replacing the muffler(s) and/or the entire exhaust system with parts not certified to be noise legal for street use.
2. Removing or modifying the muffler internal baffles in any way.
3. Replacing the air intake/cleaner assembly with one not certified to be noise legal for street use.
4. Modifying the air intake/cleaner assembly in such a way as to make the vehicle no longer noise legal for street use.

Harley-Davidson recommends that any and all noise related maintenance be done by an authorized Harley-Davidson dealer using Genuine Harley-Davidson parts.

WARRANTY/SERVICE INFORMATION

Any authorized Harley-Davidson dealer may provide warranty repair work on your motorcycle. The fact that an authorized Harley-Davidson dealership performs warranty repairs does not create an agency relationship between Harley-Davidson and the authorized dealership. If you have any questions regarding warranty obligations contact your authorized Harley-Davidson dealer.

For normal service work or warranty work under the above conditions, you may obtain the name and location of your nearest U.S. authorized Harley-Davidson dealer by calling 1-800-258-2464 (U.S. only). To find dealers worldwide, see www.harley-davidson.com.

REPORTING SAFETY DEFECTS IN THE UNITED STATES

Safety defects must be reported to the National Highway Traffic Safety Administration (NHTSA) and Harley-Davidson.

NHTSA Statement

If you believe that your motorcycle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety

Administration (NHTSA) in addition to notifying Harley-Davidson.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of motorcycles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your authorized Harley-Davidson dealer, or Harley-Davidson.

You can contact NHTSA through the following means. Additional information about motor vehicle safety is available through the website.

Telephone: Vehicle Safety Hotline (toll-free) at 1-888-327-4236 (TTY: 1-800-424-9153).

Website: www.safercar.gov

Address: Administrator, NHTSA, 400 Seventh Street SW, Washington, DC 20590

REQUIRED DOCUMENTATION FOR IMPORTED MOTORCYCLES

If a Harley-Davidson motorcycle is imported into the United States, additional documentation is required for that motorcycle to be eligible for the United States Harley-Davidson Motorcycle Limited Warranty. An authorized Harley-Davidson dealer can provide a form explaining the requirements.

OWNER CONTACT INFORMATION

If you move from your present address, sell your motorcycle, or purchase a pre-owned Harley-Davidson motorcycle, see an authorized Harley-Davidson dealer to update your owner contact information.

This will provide Harley-Davidson with an accurate registration (as required by law in some countries), and will allow Harley-Davidson to notify you in the event of a recall or product program.

The rights and benefits conferred upon you and the obligations of Harley-Davidson as set forth herein are separate and distinct from any rights and duties set forth in any service contract you may have purchased from a dealership and/or third-party insurance company. Harley-Davidson does not authorize any entity to expand Harley-Davidson's warranty obligations in connection with your motorcycle or this limited warranty.

When updating your contact information, your authorized Harley-Davidson dealer will need your Vehicle Identification Number (VIN), odometer mileage, and date of vehicle transfer (if applicable).

QUESTIONS AND CONCERNS

If you have questions or concerns regarding the performance of your motorcycle or the application of the limited warranty described here, or are not satisfied with the service you are receiving from an authorized Harley-Davidson dealership, do the following:

178 Warranties and Responsibilities

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

2019 HARLEY-DAVIDSON LIMITED MOTORCYCLE WARRANTY

24 Months/Unlimited Miles

Harley-Davidson warrants for any new 2019 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.

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.
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.

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.

Environmental Factors

1. Warranty will cover rust/corrosion and/or pitting on one component, one time only, under appropriate conditions. If a vehicle is exhibiting any of these conditions on more than one component, warranty coverage will be denied.
2. Warranty will cover rust/corrosion and/or pitting on multiple components only if they are the same component (i.e. both mirrors, both rider footboards, etc.)
3. Warranty will not cover rust/corrosion and/or pitting on wheels at any time unless the condition had been properly documented in the DPQA. For warrantable conditions see Cosmetic Quality Guide.
4. Warranty will not cover rust/corrosion and/or pitting as a result of damage from road debris, hazards, neglect, chemical exposure or abuse/misuse of the motorcycle.
5. Warranty will not cover rust/corrosion inside fuel tanks.

The owner is responsible for protecting the motorcycle from any cosmetic concerns that result from use and/or from exposure to the elements.

2019 AUSTRALIA/NEW ZEALAND HARLEY-DAVIDSON MOTORCYCLE MANUFACTURER'S LIMITED WARRANTY

24 Months/Unlimited Miles

This motorcycle limited warranty, referred to below as the "H-D Motorcycle Warranty" applies to all persons who purchase a new 2019 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 2019 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

Limited Motorcycle Warranty (Australia) 185

(b) the third anniversary of the last day of the model year of the motorcycle (if not sold to a retail purchaser before that date).

Your authorised Harley-Davidson dealer will submit an electronic Sales and Warranty Registration form to initiate your H-D Motorcycle Warranty.

Note: If the motorcycle was used as a demonstrator or company motorcycle, then the warranty period may have started and/or expired prior to the initial retail sale. See an authorised Harley-Davidson dealer for details.

Any unexpired portion of this H-D Motorcycle Warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the warranty period. See the OWNER CONTACT INFORMATION section of the Owner's Manual for information regarding notification of ownership changes.

Obtaining Warranty Service

To obtain warranty service, return your motorcycle at your expense within the warranty period to an authorised dealer. Harley-Davidson's network of authorised dealers is large, and continues to expand. To find current contact information for your nearest authorised dealer, visit our website at www.h-d.com.au.

The authorised Harley-Davidson dealer should be able to provide warranty service during normal business hours and as soon as possible, depending upon the workload of the

authorised dealer's service department and the availability of necessary parts

You are responsible for collecting the motorcycle from the authorized dealer once the warranty service has been completed, at your expense.

Exclusions

This H-D Motorcycle Warranty will not apply to any motorcycle (or part or accessory):

1. Which has not been operated or maintained as specified in the Owner's Manual.
2. Which has been abused, neglected, misused, improperly stored, used "off the highway," or used for racing or competition of any kind.
3. Which was not originally manufactured for use or sold in Australia and New Zealand and/or does not comply with Australian and New Zealand homologation requirements.
4. Which has off-road or competition parts installed to enhance performance, or has unapproved modifications. These modifications may void all or part of your new H-D Motorcycle Warranty. See an authorised Harley-Davidson dealer for details.

5. Where damage is caused by, or Harley-Davidson is unable to honour this H-D Motorcycle Warranty due to, acts of God, war, riot, insurrection, natural disasters, including, but not limited to, nuclear contamination, lightning, forest fires, dust storms, hail storms, ice storms, earthquakes, floods, or other circumstances out of Harley-Davidson's control.
6. Which has been in an accident, collision, dropped or struck.

Note: Even though this H-D Motorcycle Warranty does not apply in the circumstances set out above, you may still have rights under Australian and New Zealand laws, including the Australian Consumer Law in such circumstances.

Other Limitations

This H-D Motorcycle Warranty does not cover:

1. Parts and accessories not manufactured by Harley-Davidson, or any damage caused to the motorcycle by the installation of such parts and accessories, even if such parts and accessories are installed on the motorcycle at the date of initial retail purchase. A separate third party warranty may apply to such parts and accessories. See an authorised Harley-Davidson dealer for details.
2. Parts and labour for normal maintenance as recommended in the Owner's Manual, or the replacement of parts due to normal wear and tear including, but not limited to, the following: 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.

Environmental Factors

1. Warranty will cover rust/corrosion and/or pitting on one component, one time only, under appropriate conditions. If a vehicle is exhibiting any of these conditions on more than one component, warranty coverage will be denied.
2. Warranty will cover rust/corrosion and/or pitting on multiple components only if they are the same component (i.e. both mirrors, both rider footboards, etc.)
3. Warranty will not cover rust/corrosion and/or pitting on wheels at any time unless the condition had been properly documented in the DPQA. For warrantable conditions see Cosmetic Quality Guide.

4. Warranty will not cover rust/corrosion and/or pitting as a result of damage from road debris, hazards, neglect, chemical exposure or abuse/misuse of the motorcycle.
5. Warranty will not cover rust/corrosion inside fuel tanks.

The owner is responsible for protecting the motorcycle from any cosmetic concerns that result from use and/or from exposure to the elements.

NOTES

2019 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.

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.

2019 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.
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 Intervals and Records > Service Records (Page 201).

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

APPLICABILITY	
<input type="checkbox"/>	• JPN

Regular Service Intervals

Service must be performed at specified intervals to keep your Harley-Davidson motorcycle operating at peak performance. Refer to Table 43.

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 43. Regular Service Intervals: Harley-Davidson Sportster 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
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

Table 43. Regular Service Intervals: Harley-Davidson Sportster 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
Adjust steering head bearings	X		X		X		X		X		X	2
Lubricate steering head bearings							X					2, 6
Check, adjust and lubricate throttle controls	X	X	X	X	X	X	X	X	X	X	X	2
Check upper and lower switch housing 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
Check primary chain adjustment	X	X	X	X	X	X	X	X	X	X	X	
Replace transmission lubricant	X		X		X		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
Check upper front stabilizer link to engine bracket mounting screw torque	X		X		X		X		X		X	1, 2, 5
Check front isolator mounting bolt and nut torque	X		X		X		X		X		X	1, 2, 5
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
Brake system	Flush brake system and replace DOT 4 hydraulic brake fluid every two years or sooner if moisture content is 3% or greater											2
Inspect brake pads and discs for wear	X	X	X	X	X	X	X	X	X	X	X	
Check front axle nut torque	X		X		X		X		X		X	1, 2, 5

Table 43. Regular Service Intervals: Harley-Davidson Sportster 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 brake banjo bolt 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
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 30,000 mi (48,000 km), whichever comes first.											
Rebuild front forks											X	2, 7
Fuel filter	Replace fuel filter element every 100000 mi (161,000 km).											2, 4

Table 43. Regular Service Intervals: Harley-Davidson Sportster 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:	<ol style="list-style-type: none"> 1. Perform annually or at specified intervals, whichever comes first. 2. Should be performed by an authorized Harley-Davidson dealer, unless you have the proper tools, service data and are mechanically qualified. 3. Perform spoke tension check at 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 have spoked wheels. Consult appropriate topic in service manual. 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). 5. For torque instructions, see Shop Practices in the service manual. 6. Disassemble, lubricate and inspect every 30000 mi (48,000 km). 7. Disassemble, inspect, rebuild forks and replace fork oil every 50000 mi (80,000 km). 											

Maintenance Records

Maintain a record of this service to keep your new motorcycle limited warranty in force. Refer to Table 44.

Table 44. 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)				
35,000 mi (56,000 km)				

Table 44. Owner's Maintenance Records

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

SERVICE LITERATURE

Visit any Harley-Davidson dealer to purchase a service or parts manual for your motorcycle. Factory authorized manuals are the most complete and detailed source of information outside of your Harley-Davidson dealer. Refer to Table 45.

Table 45. Service Literature: 2019 Sportster Models

DOCUMENT	PART NUMBER
Sportster Models Service Manual	94000546
Sportster Models Electrical Diagnostic Manual	94000553
Sportster Models Parts Catalog	94000557
Publication numbers listed are English language manuals. Other languages are available from a Harley-Davidson dealer.	

NOTES

ACRONYMS AND MEASUREMENT SYMBOLS

Table 46. Acronyms and Measurement Symbols (A-C)

ITEM	DEFINITION
A	Amperes
ABS	Anti-lock braking system
AC	Alternating current
AGM	Absorbed glass mat (battery)
Ah	Ampere-hour
BAS	Bank angle sensor
BCM	Body control module
°C	Celsius (Centigrade)
CCA	Cold cranking amps
cm	Centimeters
cm ³	Cubic centimeters (cc)
CVO	Custom vehicle operations

Table 47. Acronyms and Measurement Symbols (D-F)

ITEM	DEFINITION
DC	Direct current
DLC	Data link connector
DOM	Domestic
DTC	Diagnostic trouble code
ECM	Electronic control module
EHCUC	Electro hydraulic control unit
EITMS	Engine Idle Temperature Management System

Table 47. Acronyms and Measurement Symbols (D-F)

ITEM	DEFINITION
EHCUC	Electro hydraulic control unit
ETC	Electronic throttle control
EVAP	Evaporative emissions control system
°F	Fahrenheit
fl oz	Fluid ounce
ft	Feet
ft-lbs	Foot pounds
FTP	Flash to pass

Table 48. Acronyms and Measurement Symbol (G-Z)

ITEM	DEFINITION
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
IGN	Ignition light/key switch position
in	inch
in ³	Cubic inch
in-lbs	Inch pounds
kg	Kilogram
km	Kilometer

Table 48. Acronyms and Measurement Symbol (G-Z)

ITEM	DEFINITION
km/h	Kilometers per hour
kPa	Kilopascal
kW	Kilowatt
L	Liter
lb	Pounds
LED	Light emitting diode
mA	Milliampere
mi	Mile
mL	Milliliter
mm	Millimeter
mph	Miles per hour
ms	Millisecond
Nm	Newton-meter
oz	Ounce
P&A	Parts and Accessories

Table 48. Acronyms and Measurement Symbol (G-Z)

ITEM	DEFINITION
PA	Public address
Part No.	Part number
PIN	Personal identification number
psi	Pounds per square inch
qt	Quart
rpm	Revolutions per minute
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

Index

A

ABS.....	83
ABS Brakes.....	83
Accessories and Cargo Guidelines.....	3
Acronyms.....	207
Adjust.....	36,38
Adjusting Steering Head Bearings.....	133
AGM Battery.....	146
Air Filter, Inspecting.....	134
Alarm.....	56
Anti-Lock Brake System.....	83
Anti-Lock Brake System (ABS).....	11
Anti-lock Brake System (ABS) Identification.....	35

B

Battery.....	58,146,149
Before You Ride.....	29
Brake.....	65,162
Brake System.....	83
Brakes.....	83,171
Break-in.....	30,107
Break-in Maintenance.....	107
Bulb.....	162
Bulb, Replacement Incandescent Turn Signal.....	164

Bulb, Replacement LED Turn Signal.....	165
--	-----

C

California Evaporative Emission Controls.....	176
Capacity.....	38
Carrying Capacity.....	38
Catalytic Converter.....	32
Changing Engine Oil.....	113
Charging.....	146
Charging Battery.....	146
Checking Engine Oil.....	110
Checking for Exhaust Leaks.....	133
Checklist.....	29
Clean.....	95,96,100,102,103, 146
Cleaning.....	96,100
Clutch.....	132
Controls.....	18,65,83
Coolant.....	23
Customer service.....	1

D

Dealer Locator.....	177
---------------------	-----

Index

Dealer Locator Phone Number.....	177
Denim Finish.....	103
Displays, Odometer Window.....	78
Disposal and Recycling.....	108
Drive Belt.....	129
Drive Belt Deflection Specifications.....	129

E

Electrical System.....	171
Engine.....	30,83,169
Engine OFF/RUN Switch.....	76
Engine Oil.....	108,110,113
Engine Oil and Filter.....	113
EPA Noise Regulations.....	176
Exhaust Leaks, Checking for.....	133

F

Factory Replacement Parts.....	175
Fill.....	31
Fob.....	49
Front Fork, Maintaining.....	132
Fuel.....	31,32

Fuses.....	58,152
Fuses and Relays.....	58

G

Gasoline.....	32
Gear Shift.....	65
Genuine Motor Parts and Accessories.....	95
Glossary.....	207

H

Hand Control Modules.....	74,76
Hazard Warning 4-Way Flashers.....	54
Hydraulic Lifters.....	132

I

Importing a Motorcycle.....	177
Indicators.....	71
Inspect.....	146
Inspecting Air Filter.....	134
Inspection.....	139,146

Index

Instruments.....67

J

Jiffy Stand.....37

K

Key.....49

Kick Stand.....37

L

Labels.....12

Leather.....102

Leather Care.....102

Low Beam Switch.....74

M

Maintaining Front Fork.....132

Maintenance.....107,107,108,110,113,
122, 129, 132, 132, 133, 133, 175, 201

Maintenance, Preparing the Motorcycle for.....108

Manual.....1

Measurement Symbols.....207

Mirror Adjustment.....36

Mirrors.....36

Models and Features.....18

N

National Highway Traffic Safety Administration.....177

National Highway Traffic Safety Administration (NHTSA)...177

Noise Control System.....12

O

Odometer Window Displays.....78

Oil.....108

Oil Level.....110

Operation.....37,83,83

Owner Contact Information.....178

P

Polishing.....100

Index

Power Disconnect.....	58
Pre-Ride Checklist.....	29
Preload Adjustment.....	38
Preparing the Motorcycle for Maintenance.....	108
Primary Chain.....	122
Primary Chain Adjustment.....	122
Primary Chain Free Play.....	122
Primary Chaincase.....	23

R

Recommended Cleaning Products.....	96
Replace.....	139
Rules of the Road.....	11

S

Safe Operating Rules.....	3
Safety.....	3,12,107,146
Seat.....	165
Security System.....	49,49,51,53,54, 56, 57, 57, 58, 58, 59
Service Literature.....	205
Service Records.....	201

Shifting Gears.....	86
Shock Absorbers.....	133
Shocks.....	38
Smart Security System.....	58,58,59
Spark Plug Replacement.....	133
Spark Plugs.....	133
Specifications.....	23,108,129
Start Switch.....	76
Starting the Engine.....	81,83
Steering Head Bearings, Adjusting.....	133
Stopping the Engine.....	83
Storage.....	29
Storing.....	29,146
Storing.....	105
Switch.....	65,74,76

T

Tail Lamp.....	162
Tail Lamp Bulb.....	162
Throttle.....	65
Tire.....	95,139
Tires.....	83,95
Trademarks.....	173,173

Index

Transmission.....	23,117,171
Transport Mode.....	57
Troubleshooting.....	59,83,169,171,171, 171
Turn Signal Bulb Replacement Incandescent.....	164
Turn Signal Bulb Replacement LED.....	165

V

Vehicle Identification Number (VIN).....	15
Vehicle Storage.....	29
Vinyl.....	102
Vinyl Care.....	102
Voltage test.....	146

W

Warranty.....	175,177,178
Warranty Repair Work.....	177
Washing.....	100
Wheels.....	95

NOTES
