

Safety First

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. (00556c)

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

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

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

WARNING

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

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

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)

When refueling your motorcycle, observe the following rules.

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

WARNING

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

⚠WARNING

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

⚠WARNING

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

⚠WARNING

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

⚠WARNING

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

- A new motorcycle must be operated according to the special break-in procedure. See Break-in Riding Rules.
- Operate motorcycle at moderate speed and out of traffic until you become thoroughly familiar with its operation and handling characteristics under all conditions.

NOTE:

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

⚠WARNING

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

- Do not exceed the legal speed limit or drive too fast for existing conditions. Always reduce speed when poor driving conditions exist. High speed increases the influence of any other condition affecting stability and increases the possibility of loss of control.
- Pay strict attention to road surfaces and wind conditions. Keep both hands on the handlebar grips when riding the motorcycle. Any two-wheeled vehicle may be subject to upsetting forces such as wind blasts from passing trucks, holes in the pavement, rough road surfaces and rider control error. These forces may influence the handling characteristics of your

motorcycle. If you experience these conditions, reduce speed and guide the motorcycle with a relaxed grip to a controlled condition. Do not brake abruptly or force the handlebar. This may aggravate an unstable condition.

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

NOTE:

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

- Operate your motorcycle defensively. Remember, a motorcycle does not afford the same protection as an automobile in an accident. One common risk for an accident occurs when another vehicle turns left in front of an on-coming motorcyclist. Operate only with headlamp on.
- Wear an approved helmet, clothing and foot gear suited for motorcycle riding. Bright or light colors are best for greater visibility in traffic, especially at night. Avoid loose, flowing garments and scarves.

⚠ 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)

- When carrying passengers, it is your responsibility to instruct them on proper riding procedures. See the RIDING TIPS booklet included in your owner's kit (in the U.S.) or available on www.msf-usa.org.
- Do not allow other individuals, under any circumstances, to operate your motorcycle unless you know that they are experienced and licensed riders. Make sure they are thoroughly familiar with the operation of your particular motorcycle.
- Protect your motorcycle against theft. Using the fork lock immediately after parking your motorcycle will discourage unauthorized use or theft.
- Safe motorcycle operation requires alert mental judgment combined with a defensive driving attitude. Do not allow fatigue, alcohol or drugs to endanger your safety or that of others.
- For vehicles with a sound system, adjust the volume to a non-distracting level before operating vehicle.
- Maintain your motorcycle in proper operating condition in accordance with Regular Service Intervals: 2015 FLSTNSE. Proper care and maintenance, including tire pressure, condition and tread depth plus proper adjustment to steering head bearings are important to the stability and safe operation.

CAUTION

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)

⚠ WARNING

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

⚠WARNING

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

⚠WARNING

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

⚠WARNING

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

⚠WARNING

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

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

⚠WARNING

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

⚠WARNING

Replace punctured or damaged tires. In some cases, small punctures in the tread area may be repaired from within the removed tire by a Harley-Davidson dealer. Speed should NOT exceed 50 mph (80 km/h) for the first 24 hours after repair, and the repaired tire should NEVER be used over 80 mph (130 km/h). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

⚠WARNING

Only install original equipment tire valves and valve caps. A valve, or valve and cap combination, that is too long or too heavy can strike adjacent components and damage the

valve, causing rapid tire deflation. Rapid tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00281a)

⚠WARNING

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

- GVWR is the sum of the weight of the motorcycle, accessories and the maximum weight of the rider, passenger and cargo that can be safely carried.
- GAWR is the maximum amount of weight that can be safely carried on each axle.
- The GVWR and GAWR are shown on the information label, on the frame steering head or the frame downtube.
- Refer to weight tables. See Specifications.

⚠WARNING

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

⚠WARNING

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

⚠CAUTION

Direct contact of D.O.T. 4 brake fluid with eyes can cause irritation. Avoid eye contact. In case of eye contact flush with large amounts of water and get medical attention. Swallowing large amounts of D.O.T. 4 brake fluid can cause digestive discomfort. If swallowed, obtain medical attention. Use in well ventilated area. KEEP OUT OF REACH OF CHILDREN. (00240a)

⚠WARNING

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

⚠WARNING

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

⚠WARNING

Consult a Harley-Davidson dealer regarding any questions

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.

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)

See Brake System to operate motorcycles equipped with an anti-lock brake system.

Rules of the Road

- Always sound your horn, actuate your turn signals, and exercise caution when passing other vehicles going in the same direction. Never try to pass another vehicle 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 it is your turn.
- Always signal when preparing to stop, turn or pass.
- All traffic signs, including those used for the control of traffic at intersections, should be obeyed promptly. SLOW DOWN signs near schools and CAUTION signs at railroad crossings should always be observed and your actions governed accordingly.
- 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) in the traffic control systems at intersections, slow down and wait for the light to change. Never run through a yellow or red traffic light.
- While turning either right or left, watch for pedestrians, animals, as well as vehicles.
- Do not leave the curb or parking area without signaling. Make sure your way is clear to enter moving traffic. A moving line of traffic always has the right-of-way.
- Make sure your license plate is installed in the position specified by law and is clearly visible at all times. Keep the license plate clean.
- Ride at a safe speed that is consistent with the type of highway you are on. Pay strict attention to whether the road is dry, oily, icy or wet.
- Watch for debris such as leaves or loose gravel.
- Weather and traffic conditions on the highway dictate adjusting your speed and driving habits accordingly.

Accessories and Cargo

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

⚠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 sum of the weight of the motorcycle, accessories, and the maximum weight of the rider, passenger and cargo that can be safely carried.
- GAWR is the maximum amount of weight that can be safely carried on each axle.
- The GVWR and GAWR are shown on the information label which is located on the frame downtube in some destinations.
- Refer to weight tables. See Specifications.

⚠WARNING

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

Accessories and Cargo Guidelines

The following guidelines should be used when equipping a motorcycle, carrying passengers and/or cargo.

⚠WARNING

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

- Do not exceed the legal speed limit or drive too fast for existing conditions. Always reduce speed when poor driving conditions exist. High speed increases the influence of any other condition affecting stability and increases the possibility of loss of control.
- Pay strict attention to road surfaces and wind conditions, and 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, and so on. These forces may influence the handling characteristics of your motorcycle. If you experience these conditions, reduce speed and guide the motorcycle with a relaxed grip to a controlled condition. Do not brake abruptly or force the handlebar. This may aggravate an unstable condition.
- Keep cargo weight concentrated close to the motorcycle and as low as possible. This minimizes the change in the motorcycle's center of gravity.

- Distribute weight evenly on both sides of the vehicle.
- Do not load bulky items too far behind the rider or add weight to the handlebars or front forks.
- Do not exceed maximum specified load in each saddlebag.
- Luggage racks are designed for lightweight items. Do not overload racks.
- Be sure cargo is secure and will not shift while riding and recheck the cargo periodically. Accessories that change the operator's riding position may increase reaction time and affect handling of the motorcycle.
- Additional electrical equipment may overload the motorcycle's electrical system possibly resulting in electrical system and/or component failure.

⚠WARNING

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

- Large surfaces such as fairings, windshields, backrests, and luggage racks can have an adverse effect on stability and handling.
- Only properly installed Genuine Harley-Davidson accessories designed specifically for your motorcycle model should be used.
- Pay particular attention to the weights of accessories, cargo, riding gear, passenger and rider and how the sum total of all these weights affect the loading capacity of your motorcycle.

⚠WARNING

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

⚠WARNING

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

Noise Control System

Tampering

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

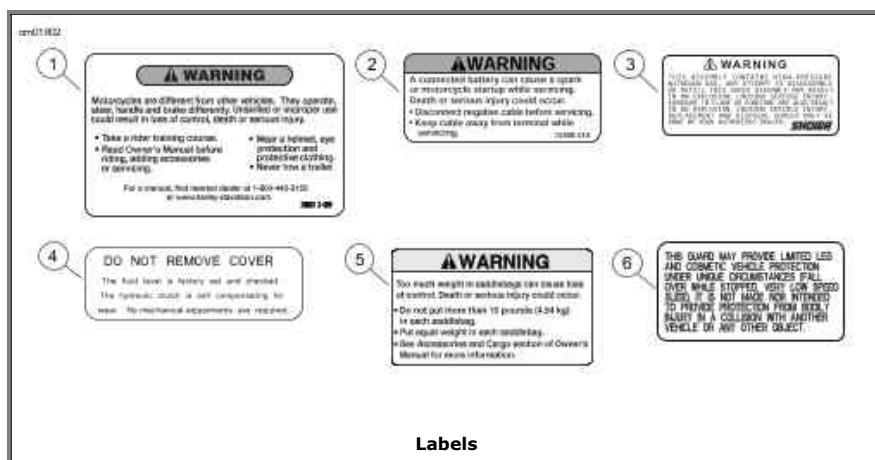
Labels

See Labels for safety and maintenance labels which were on the vehicle when new. If removed, replacement labels may be purchased for your motorcycle. Refer to Labels.

NOTE:

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

See a Harley-Davidson dealer for all labels available for purchase.



Labels

Labels

ITEM	PART NO.	DESCRIPTION	LOCATION	TEXT
1	28012-09	General warnings	Top of air cleaner	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 1-800-443-2153 or www.harley-davidson.com
2	15368-01A	Battery warning	On left side of frame above oil tank	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.
3	Not sold separately	Shock label	On shock absorbers	WARNING: This assembly contains high-pressure nitrogen gas. Any attempt to disassemble or refill this shock assembly may result in an explosion, causing serious injury. Exposure to flame or puncture may also result in an explosion, causing serious injury. Replacement and disposal should only be done by your authorized dealer.
4	14810-03 (not sold)	Hydraulic clutch service notice	On clutch cover	Do not remove cover. The fluid level is factory set and checked. The hydraulic clutch is self compensating for wear. No mechanical adjustments are required.
5	90820-93D	Saddlebag load limits	Inside saddlebag	WARNING: Too much weight in saddlebags can cause loss of control. Death or serious injury could occur. • Do not put more than 10 pounds (4.54 kg) in each saddlebag. • Put equal weight in each saddlebag. • See Accessories and Cargo section of Owner's Manual for more information.

6	14148-86	Engine guard label	Front of engine guard	This guard may provide limited leg and cosmetic vehicle protection under unique circumstances (fall over while stopped, very low speed slide). It is not made nor intended to provide protection from bodily injury in a collision with another vehicle or any other object.
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Identification

Vehicle Identification Number (VIN)

General

See Typical Harley-Davidson VIN: 2015 FLSTNSE Models. A unique 17-digit serial or Vehicle Identification Number (VIN) is assigned to each motorcycle. For a description of each item in the VIN, refer to Harley-Davidson VIN Breakdown: 2015 FLSTNSE Models.

Location

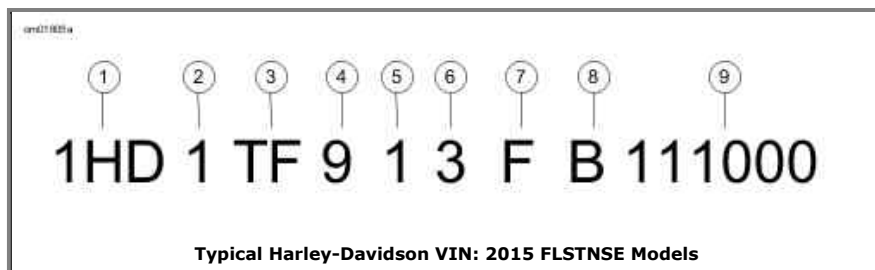
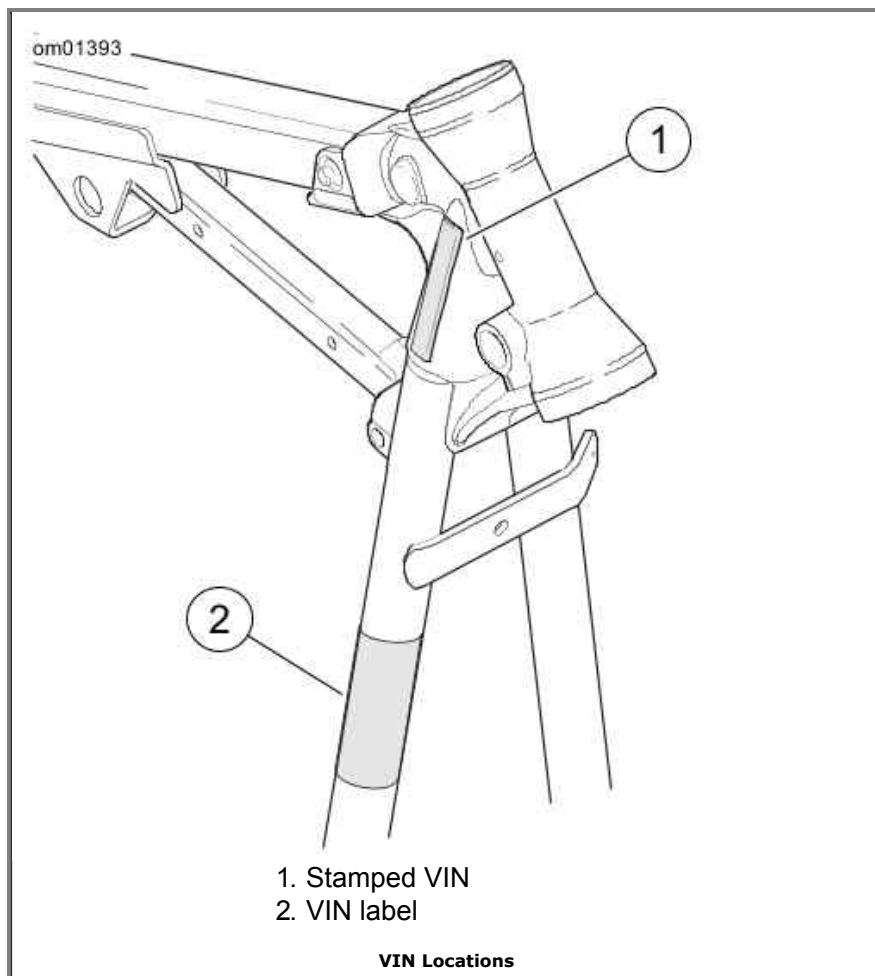
See VIN Locations. The full 17-digit VIN (1) is stamped on the right side of the frame near the steering head. In some destinations, a printed VIN label (2) is also attached to the front downtube.

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.



Harley-Davidson VIN Breakdown: 2015 FLSTNSE Models

POSITION	DESCRIPTION	POSSIBLE VALUES	
1	World manufacturer identifier	1HD=Originally manufactured for sale in the United States 5HD=Originally manufactured in the United States for sale outside of the United States 932=Originally manufactured in Brazil MEG=Originally manufactured in India	
2	Motorcycle type	1=Heavyweight motorcycle (901 cm ³ or larger)	
3	Model	TF=FLSTNSE CVO™ Softail® Deluxe	
4	Engine type	9=Twin Cam 110B™ (1802 cm ³) air-cooled, fuel-injected, balanced	
5	Calibration/configuration, introduction	Normal Introduction 1=Domestic (DOM) 3=California (CAL) A=Canada (CAN)	Mid-year or Special Introduction 2, 4=Domestic (DOM) 5, 6=California (CAL) B=Canada (CAN)

		C=HDI E=Japan (JPN) G=Australia (AUS) L=Asia Pacific (APC)	D=HDI F=Japan (JPN) H=Australia (AUS)
6	V.I.N. check digit	Can be 0-9 or X	
7	Model year	F=2015	
8	Assembly plant	B=York, PA U.S.A. D=H-D Brazil-Manaus, Brazil (CKD) N=Haryana India (Bawal District Rewari)	
9	Sequential number	Varies	

Premium CVO Items

The following items are included with your new motorcycle. Some may be found loose while others were installed during dealer set-up.

- Security fob
- Keys
- ABS DVD
- Owner's Kit/Manual
- Leather Protectant
- Rain Sock, Air Cleaner
- Motorcycle Cover
- Garmin zumo GPS Kit*

*Item not provided in all markets.

Specifications

Specifications

Engine: Twin Cam 110B™

ITEM	SPECIFICATION	
Number of cylinders	2	
Type	4-cycle, 45 degree V-Type, air-cooled	
Compression ratio	9.2-1	
Bore	4.00 in	101.6 mm
Stroke	4.374 in	111.1 mm
Displacement	110.0 in ³	1801 cc

Electrical

COMPONENT	SPECIFICATION
Ignition timing	Not adjustable
Battery	12 volt, 19 amp-hr, 315 CCA, sealed and maintenance-free
Charging	Three-phase, 38-amp system (439W @

system	13V, 2000 rpm, 489W max power @ 13V)	
Spark plug type	6R12	
Spark plug size	12 mm	
Spark plug gap	0.038-0.043 in	0.97-1.09 mm
Spark plug torque	12-18 ft-lb	16.3-24.4 Nm

Transmission

TRANSMISSION	SPECIFICATION
Type	Constant mesh, foot shift
Speeds	6 forward

NOTE:

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

Sprocket Teeth

DRIVE	ITEM	NUMBER OF TEETH
Primary	Engine	34
	Clutch	46
Final	Transmission	32
	Rear wheel	66

Overall Drive Ratios

GEAR	RATIO
1st Gear	9.311
2nd Gear	6.454
3rd Gear	4.793
4th Gear	3.882
5th Gear	3.307
6th Gear	2.790

Capacities

ITEM	U.S.	LITERS
Fuel tank (total)	5.0 gal	18.9
Low fuel warning light on	1.0 gal	3.79
Oil tank with filter*	3.0 qt	2.84
Transmission** (approximate)	1.0 qt	0.95
Primary chaincase	1.0 qt	0.95

(approximate)		
* When refilling, initially add 2.5 qt 2.37 L . Bring vehicle to operating temperature. Add oil to bring level within specification.		
** When refilling, initially add 28 oz 0.83 L . Bring vehicle to operating temperature. Add oil to bring level within specification.		

Dimensions

ITEM	IN	MM
Length	95.7	2430
Overall width	39.2	995
Overall height	57.3	1455
Wheelbase	64.2	1630
Road clearance	4.7	120
Seat height*	24.0	610
*With 180 lb 82 kg rider on seat		

WARNING

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

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

NOTE:

The maximum additional weight allowed on the motorcycle equals the Gross Vehicle Weight Rating (GVWR) minus the running weight. For example, a motorcycle with GVWR of 1200 lbs 544 kg having a running weight of 800 lbs 363 kg , would allow a maximum of an additional 400 lbs 181 kg combined weight of the rider, passenger, riding gear, cargo and installed accessories.

Weights

ITEM	LB	KG
Running weight*	782	355
Maximum added weight allowed**	378	171
GVWR	1160	526
GAWR front	430	195
GAWR rear	730	331
*The total weight of the motorcycle as delivered with oil/fluids and approximately 90% of fuel.		
**The total weight of accessories, cargo, riding gear, passenger and rider cannot exceed this weight.		

Bulb Chart

LAMP	DESCRIPTION (ALL LAMPS 12 VOLT)	BULBS REQUIRED	CURRENT DRAW (AMPERAGE)		H-D PART NUMBER
Headlamp	high beam/low beam (all but Australia, England, HDI, Japan)	Illuminated with LEDs. Replace assembly upon failure.			
	high beam (Australia, England, HDI, Japan)	1	2.7		67717-01
	low beam (Australia, England, HDI, Japan)	1	4.3		68881-01
Turn signal lamp	front/running	2	2.25	0.59	68168-89A
	front international	2	1.75		68163-84
	rear	2	2.25	0.59	68168-89A
	rear (Canada)	2	1.75		68163-84
	rear (Australia, England, HDI, Japan)	Illuminated with LEDs. Replace assembly upon failure.			
Stop/tail lamp	Canada	2	2.10	0.59	68167-04
Instrument panel and console lamps		Illuminated with LEDs. Replace assembly upon failure.			

Specified Tires

MOUNT	SIZE	SPECIFIED TIRE	TIRE PRESSURE (COLD)	
			PSI	kPa
Front	16 in	Dunlop D402F MT90B16	36	248
Rear	16 in	Dunlop D402 MU85B16	40	276

Tire Data

⚠ WARNING

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

⚠ WARNING

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

⚠ WARNING

Use only Harley-Davidson specified tires. See a Harley-Davidson dealer. Using non-specified tires can adversely

affect stability, handling or braking, which could result in death or serious injury. (00024b)

Refer to Specified Tires for specified tires and recommended pressures.

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

⚠WARNING

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

⚠WARNING

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

Always maintain proper tire pressure as specified in Specified Tires. Do not load tires beyond the GAWR specified in Weights. Under inflated, over inflated, or over loaded tires can fail.

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.

⚠WARNING

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

⚠WARNING

Replace tire immediately with a Harley-Davidson specified tire when wear bars become visible or only 1/32 in (0.8 mm) tread depth remains. Riding with a worn tire could result in death or serious injury. (00090c)

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

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

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

Gasoline Blends

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

CAUTION

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

- Gasoline/METHYL TERTIARY BUTYL ETHER (MTBE) blends are a mixture of gasoline and as much as 15 percent MTBE. Gasoline/MTBE blends use in your motorcycle is approved.
- ETHANOL fuel is a mixture of ethanol (grain alcohol) and unleaded gasoline and can have an impact on fuel mileage. Fuels with an ethanol content of up to 10 percent may be used in your motorcycle without affecting vehicle performance. U.S. EPA regulations currently indicate that fuels with 15 percent ethanol (E15) are restricted from use in motorcycles at the time of this publication. Some motorcycles are calibrated to operate with higher ethanol concentrations to meet the fuel standards in certain countries.
- REFORMULATED OR OXYGENATED GASOLINES (RFG) describes gasoline blends that are specifically designed to burn cleaner than other types of gasoline. This results in fewer tailpipe emissions. They are also formulated to evaporate less when filling the tank. Reformulated gasolines use additives to oxygenate the gas. Your motorcycle will run normally using this type of fuel. Harley-Davidson recommends using it whenever possible as an aid to cleaner air in our environment.
- Do not use racing fuel or fuel containing methanol. Use of these fuels will damage the fuel system.
- Using fuel additives other than those approved for use by Harley-Davidson may damage the engine, fuel system and other components.

Some gasoline blends might adversely affect starting, driveability or fuel efficiency. If any of these problems are experienced, try a different brand of gasoline or gasoline with a higher octane blend.

Fuel

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

⚠ WARNING

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

⚠ WARNING

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

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

Octane Ratings

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

Catalytic Converters

All models are equipped with catalytic converters.

CAUTION

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)

CAUTION

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

Controls and Indicators

General: Controls and Indicators

⚠ WARNING

Read the CONTROLS AND INDICATORS section before riding your motorcycle. Failure to understand the operation of the motorcycle could result in death or serious injury. (00043a)

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.

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)

The motorcycle has keyless ignition. A key is not required to operate the motorcycle. 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 Fork Lock.

Ignition Mode

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

The motorcycle will remain on (or the engine will continue 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 temporarily display a NO FOB message if the motorcycle is driven off without the fob present.

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

With the security fob present, press and hold the TRIP switch. The instruments and accessory circuit will be powered. The headlamp and turn signal lamps will remain off. While in accessory mode, the instruments display the fuel gauge and odometer functions. The headlamp can be activated by pressing the headlamp flash to pass switch.

To turn the motorcycle back off, press and hold the TRIP switch.

Do not leave the motorcycle in accessory mode for an extended period of time. 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 again.

Hand Controls

Electric Starter/Hazard Warning Switch

See Handlebar Controls. The electric starter/hazard warning switch is located on the right handlebar control group.

START: Pushing on the bottom of the switch (START) operates the starter motor. See Starting the Engine.

1. Put the engine OFF/RUN switch in the RUN position and the transmission in neutral. Neutral (green) indicator lamp should be illuminated.
2. Push the START switch to operate starter motor.

NOTE:

If the engine does not start, the starter motor will operate for five seconds and then stop. Release and press the START switch. After several unsuccessful start attempts, see your Harley-Davidson dealer.

Hazard Warning (4-Way Flasher): Pushing on the top of the switch (triangle symbol) operates the 4-way flashers. This system allows a stranded motorcycle to be left in the 4-way flashing mode and secured until help is found.

1. With the OFF/RUN switch in the RUN position, press on the hazard warning triangle to activate the 4-way flashers.
2. Put the OFF/RUN switch in the OFF position. The security system will arm and the 4-way flashers will continue for two hours, or until cancelled by the operator.
3. To cancel, push the OFF/RUN switch to the RUN position (with fob present) and press the warning triangle on the electric starter switch.

Engine OFF/RUN Switch

See Handlebar Controls. The engine OFF/RUN switch turns the engine power on or off. The engine OFF/RUN switch is located on the right handlebar control.

1. Push the top portion of the engine OFF/RUN switch to shut the engine off.
2. Push the bottom portion of the engine OFF/RUN switch to turn on engine power.

NOTES:

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

Throttle Control Grip

See Handlebar Controls. The throttle control grip is located on the right handlebar control and is operated with the right hand.

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 Handlebar Controls. The clutch hand lever is located on the left handlebar and is operated with the fingers of the left hand.

1. Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch.
2. Shift to first gear using the gear shifter lever. See Gear Shift Lever.
3. Slowly release the clutch hand lever to engage clutch.

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

HORN/TRIP Switch

HORN: See Handlebar Controls. The horn is operated by pressing on the HORN switch located on the left handlebar control. 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.

TRIP: The TRIP switch activates the trip odometers and is used to set a personal identification number or PIN, deactivate the Hands-Free Security System, set the clock and perform other diagnostic functions.

Headlamp Dimmer Switch

See Handlebar Controls. The headlamp dimmer switch is located on the left handlebar.

High beam: Press the top of the switch to activate the high beam. The (blue) high beam indicator lamp in the speedometer will be lit when the high beam is on.

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

Flash to pass: Press and hold the bottom of the switch to flash the high beam lamp. When in accessory mode, press the flash to pass switch to activate the headlamp.

Turn Signal Switches

See Handlebar Controls. Each handlebar control group contains a turn signal switch.

- The right turn signal switch operates the right front and right rear flashing lamps.
- The left turn signal switch operates the left front and left rear flashing lamps.

NOTE:

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

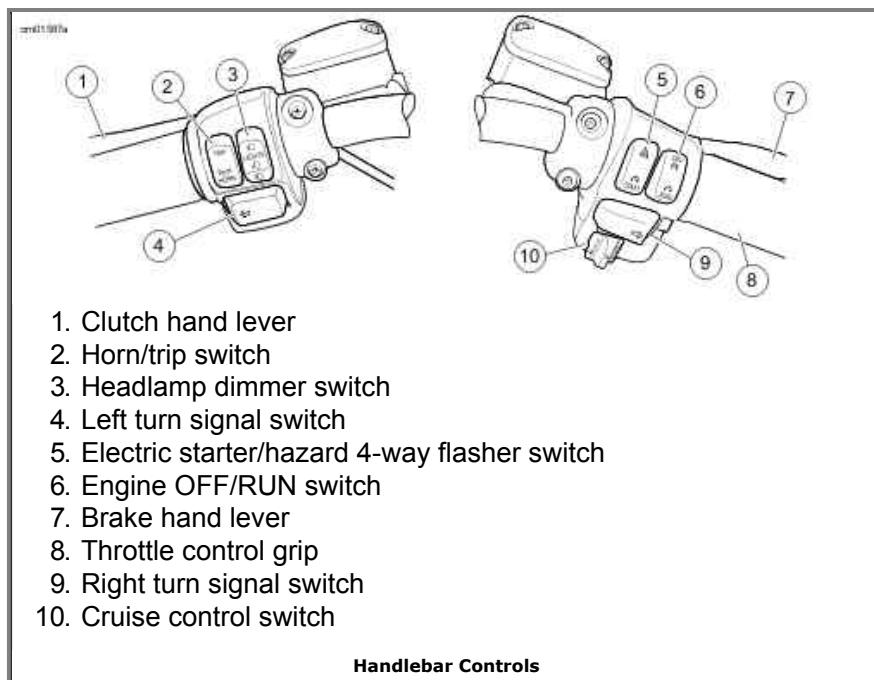
Cruise Control Switches

See Handlebar Controls. The cruise control resume/set switch automatically maintains the speed of the motorcycle. Refer to Cruise Control for instructions.

CRUISE: Press the switch straight in (CRUISE icon) to activate or deactivate cruise control.

SET: With cruise control activated, press the left side of the switch (SET) to set the cruising speed (or decrease the current cruising speed).

RESUME: With cruise control activated, press the right side of the switch (RES) to resume cruising speed (or increase the current cruising speed).



Electronic Throttle Control (ETC)

The motorcycle is equipped with Electronic Throttle Control (ETC). Instead of using a mechanical cable connection to the throttle body, this technology uses redundant grip sensors to indicate rider requested throttle position to the Electronic Control Module (ECM). The ECM then regulates proper fuel/air intake and ignition timing based on the rider's actions. The grip sensor is manufactured with internal cams and spring retainer for natural feel and operation.

In the event of a component failure, the ETC operation is designed for rider safety and continued motorcycle operation. The Electronic Control Module monitors the status of the grip sensors, throttle plate actuation and airflow. If any problems are detected, the motorcycle will disable cruise control, illuminate the check engine lamp and revert to one of the following fallback modes.

ETC Limited Performance Mode

The rider will experience near-normal operation. The motorcycle will operate with provisions to guard against unintended acceleration.

ETC Power Management Mode

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

ETC Forced Idle Mode

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

ETC Forced Shutdown Mode

The engine is forced to shut down.

Turn Signal Switch Operation

Operating

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

NOTE:

If a turn signal indicator flashes rapidly, a turn signal is not operating. Exercise caution and use hand signals. Replace defective components at earliest opportunity.

Automatic Canceling

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

The lamps also cancel if the turn signal has been activated for a prolonged period while the vehicle 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.

Manual Canceling

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

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

Instruments

The instrument appearance, features, and backlighting colors can be adjusted. See Configuring Instruments for customization instructions.

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 Instruments. The digital speedometer registers vehicle speed. See Configuring Speedometer Units to adjust the speedometer units between miles per hour (mph) and kilometers per hour (km/h).

Analog Tachometer

See Instruments. The analog tachometer shows the engine speed in revolutions per minute (RPM x 1000).

Fuel Gauge

See Instruments. The fuel gauge displays four bars when the fuel tank is full. Each bar represents approximately one-fourth of the total fuel capacity.

Gear Indicator

See Instruments. The digital gear indicator displays the currently selected gear (1-6). The gear indicator will remain blank when the transmission is in neutral, the clutch lever is pulled in, or the vehicle is not moving.

Odometer

See Odometer Functions. The odometer shows the total accumulated mileage for the motorcycle. Pressing the TRIP switch will cycle through different odometer functions.

Trip Odometers A and B

See Odometer Functions. The two trip odometers (A and B) display the total accumulated mileage since they were last reset. To check mileage, press and release the TRIP switch until the desired trip odometer (A or B) is displayed.

To reset a trip odometer, have desired (A or B) odometer in display window. Press and hold the TRIP switch until the selected trip odometer resets to zero.

Time

See Odometer Functions. Press and release the TRIP switch until the time is displayed in the odometer window. See Configuring Time to change the time settings.

Digital Tachometer

See Odometer Functions. Press and release the TRIP switch repeatedly until the digital tachometer is displayed. The odometer window briefly displays an 'RPM' message, then displays the engine speed.

Fuel Range

See Odometer Functions. The fuel range display shows the approximate mileage available with the amount of fuel left in the fuel tank.

With the OFF/RUN switch in the RUN position, press the TRIP switch until fuel range is displayed, as indicated by the letter "R" in the left side of the display. The calculated remaining distance (miles or kilometers) to empty is displayed, based on the amount of fuel in tank. Range can be accessed at any time using the TRIP switch.

The fuel range is automatically displayed when the low fuel lamp is lit. After the fuel range drops to 10 mi or 10 km remaining, the fuel range displays "LO RNG" to indicate that the motorcycle will shortly run out of fuel. Refuel as soon as possible.

The range display is only updated when the vehicle is moving.

Disable: To disable the automatic low fuel warning range function while riding, press and hold the TRIP switch while in the fuel range display mode. The automatic range pop-up feature will show that it is disabled by blinking twice.

Enable: To enable the automatic low fuel warning range display, press and hold the TRIP switch. The low fuel range will blink once when the automatic feature is enabled. The automatic fuel range display is also enabled after the OFF/RUN switch is turned to OFF then to RUN.

Reset: Resetting the low fuel warning lamp and range requires sufficient fuel in the tank and an ignition cycle change (OFF-RUN).

"No Fob"

See Odometer Functions. If the motorcycle is ridden off without the fob, "NO FOB" will appear in the odometer window for 10 seconds after the motorcycle starts moving. With the motorcycle separated from its assigned fob, the motorcycle can only be restarted with a manual PIN entry to disarm the security system. See Arming and Disarming.

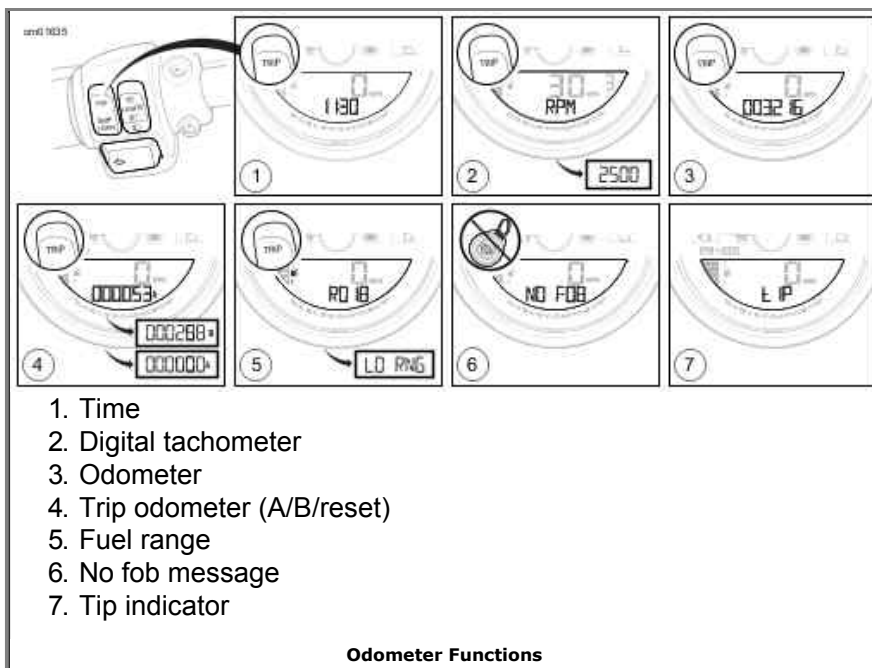
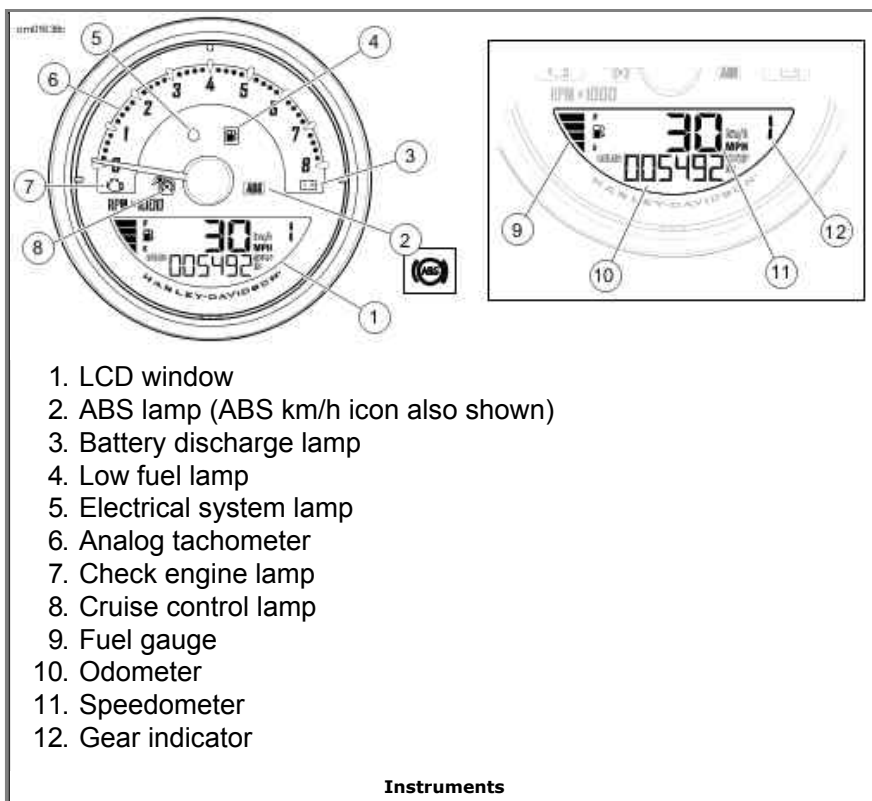
Tip Indicator

WARNING

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

See Odometer Functions. If the motorcycle is tipped over, the word "tIP" will appear in the odometer window. The engine will not start until the tip condition is reset.

Reset: Bring the motorcycle to the upright position. Set the OFF/RUN switch to OFF then back to RUN.



Instrument Lamps

Check Engine Lamp

See Instruments. The check engine lamp in the instrument cluster indicates the condition of the engine/engine management system.

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

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

Low Fuel Lamp

Solid: See Instruments. The low fuel warning lamp illuminates when the gasoline in the tank reaches the low fuel level (approximate). Refer to Capacities.

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

Battery Discharge Lamp

See Instruments. The battery lamp indicates either overcharging or undercharging of the battery. Refer to Battery Maintenance.

Electrical System Lamp

See Instruments. The electrical system lamp displays the status of the security system and electrical self-diagnostics for the motorcycle. Refer to Security System for security system operation.

Flashing: The security system is armed.

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

Solid (security system disarmed): First check all the motorcycle's lighting for a failed bulb and replace as required. If all bulbs are operating and the electrical system remains lit, 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 Instruments. The ABS indicator lamp flashes when the OFF/RUN switch is set to RUN to indicate that the system is operational. It continues to flash until motorcycle speed exceeds 3 mph 5 km/h . ABS is not operational until the lamp turns off.

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

Indicator Lamps

See Indicator Lamps (Typical). Five indicator lamps are provided in the instrument panel.

Turn Indicator Lamps

The turn indicators flash when a turn signal is activated. When the 4-way hazard flashers are operating, both turn indicators will flash simultaneously.

Headlamp High Beam Indicator Lamp

The headlamp high beam indicator lamp is lit when the high beam or flash to pass switch is

activated.

Neutral Indicator Lamp

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

Oil Pressure Indicator Lamp

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

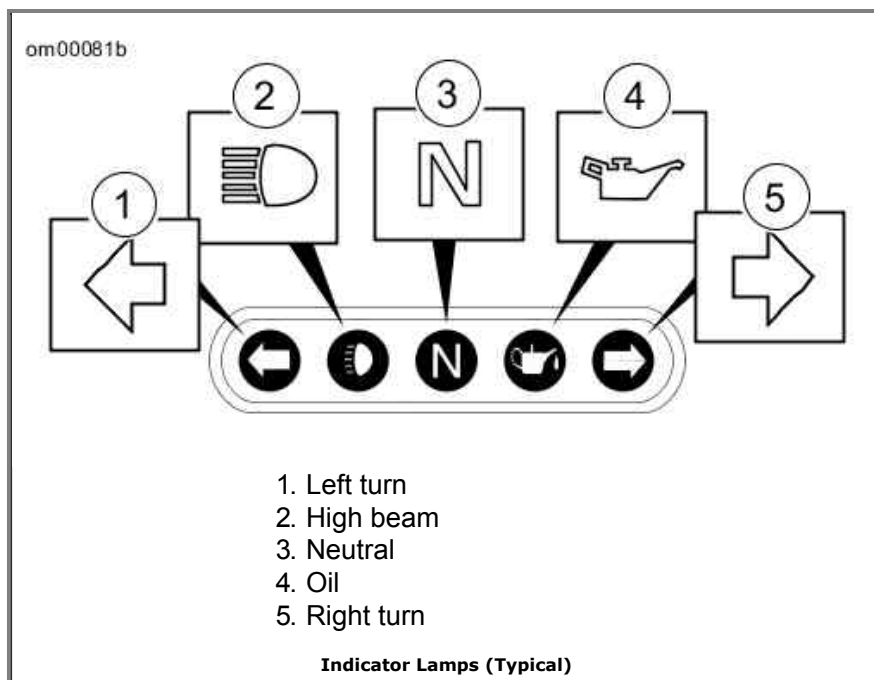
The lamp is lit when the ignition is turned on prior to starting engine. With engine running, lamp should be off when engine speed is above idle.

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.
- See Troubleshooting for further information.

CAUTION

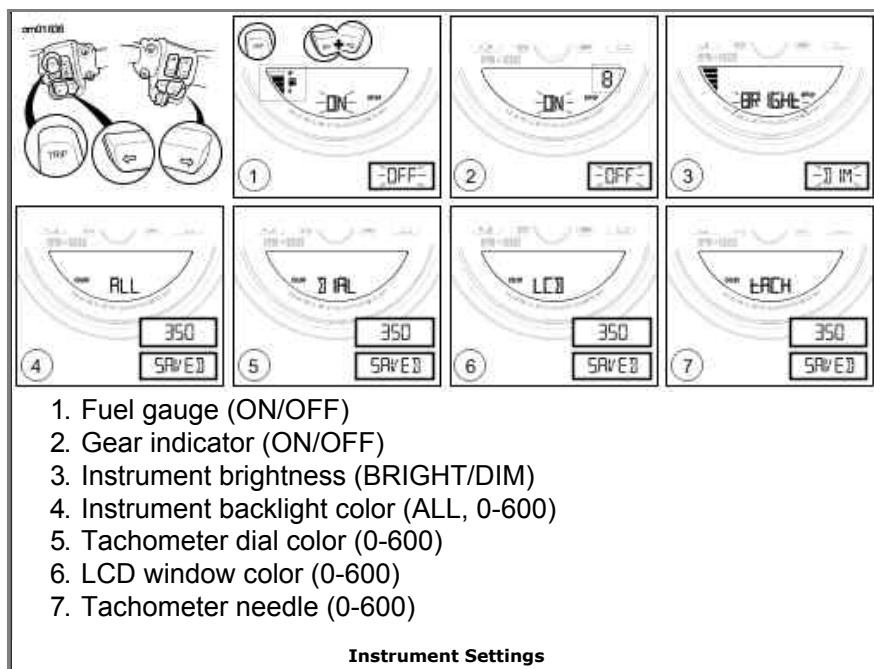
If the oil pressure indicator lamp remains lit, always check the oil supply first. If the oil supply is normal and the lamp is still lit, stop the engine at once and do not ride further until the trouble is located and the necessary repairs are made. Failure to do so may result in engine damage. (00157a)



Configuring Instruments

1. With the security system fob present, press and hold the TRIP switch to begin accessory mode.
2. See Instrument Settings. Press and hold both turn signal switches until "SETUP" is displayed in the LCD window.
3. Press the left or right turn signal switches to navigate through the following settings.

4. **Fuel Gauge:** Displays the fuel gauge. Press and hold both turn signal switches to toggle the fuel gauge ON or OFF.
5. **Gear Indicator:** Displays the gear indicator. Press and hold both turn signal switches to toggle the gear indicator ON or OFF.
6. **Brightness:** Controls the instrument backlighting brightness. Press and hold both turn signal switches to toggle between BRIGHT or DIM.
7. **ALL:** Controls the backlighting color for all the instruments. Press and hold both turn signal switches until a number appears. Press right or left turn signal switches to select a color (0-600). Press and hold both turn signal switches until "SAVED" is shown.
8. **DIAL:** Controls the backlighting color for the tachometer dial. Press and hold both turn signal switches until a number appears. Press right or left turn signal switches to select a color (0-600). Press and hold both turn signal switches until "SAVED" is shown.
9. **LCD:** Controls the backlighting color for the LCD window. Press and hold both turn signal switches until a number appears. Press right or left turn signal switches to select a color (0-600). Press and hold both turn signal switches until "SAVED" is shown.
10. **TACH:** Controls the backlighting color for the tachometer needle. Press and hold both turn signal switches until a number appears. Press right or left turn signal switches to select a color (0-600). Press and hold both turn signal switches until "SAVED" is shown.
11. When finished, press and hold the TRIP switch to turn the motorcycle off.



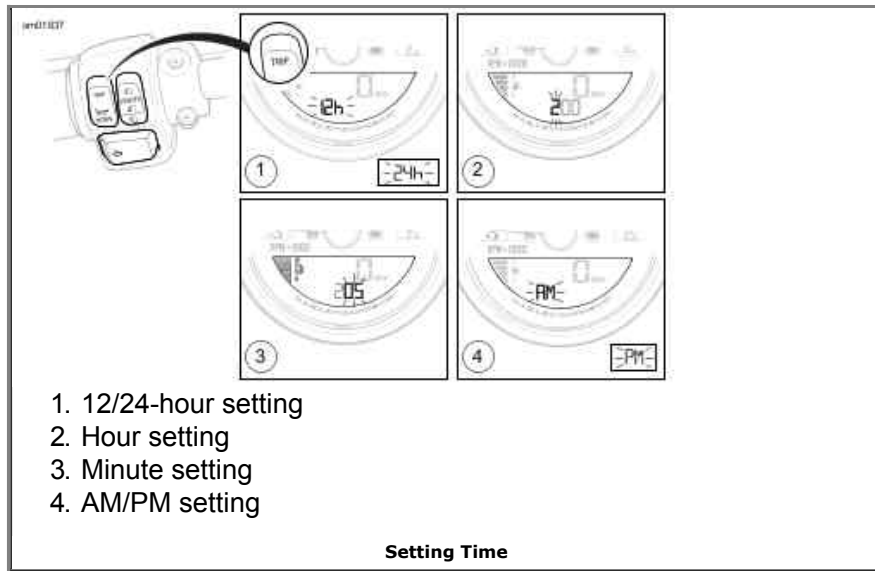
Configuring Time

1. Press the OFF/RUN switch to RUN.
2. Press and release the TRIP switch until time is displayed.
3. **12HR/24HR:** See Setting Time. Press and hold the TRIP switch until 12HR begins to flash. Press the TRIP switch to select between 12HR or 24HR (military style time).
4. **Hour:** Press and hold the TRIP switch until hours display is flashing. Press the TRIP switch repeatedly to advance the hours to the correct time.
5. **Minutes:** Press and hold the TRIP switch until the minutes display is flashing. Press the TRIP switch repeatedly to advance the minutes to the correct time.
6. **AM/PM:** Press and hold the TRIP switch until AM begins to flash (if 12HR setting was selected). Press the TRIP switch to select between AM or PM.

NOTE:

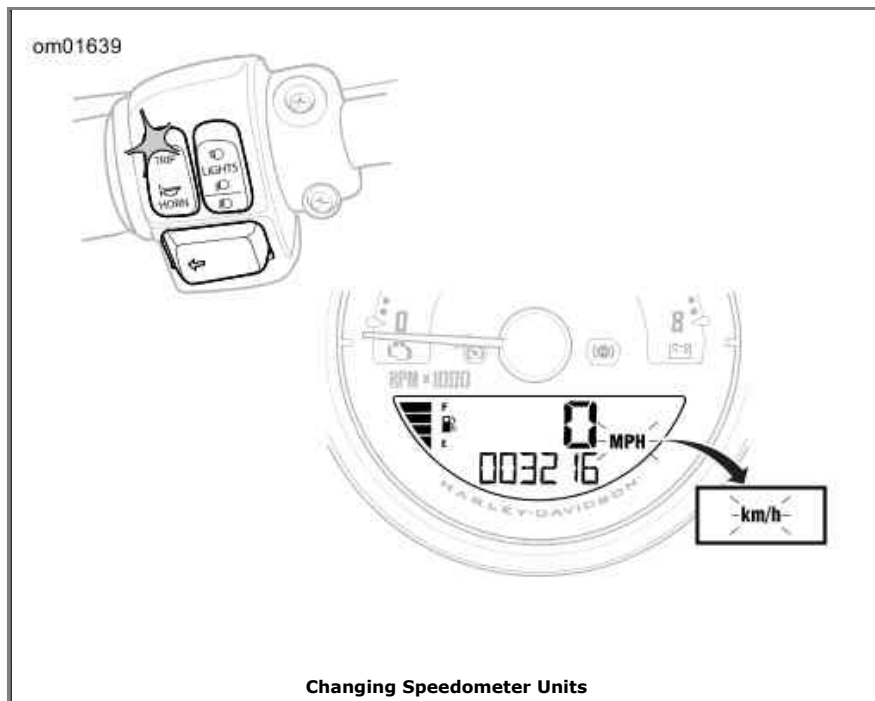
AM or PM will not appear in the regular time display. The motorcycle uses the selection for diagnostic purposes.

7. Press the OFF/RUN switch to OFF.



Configuring Speedometer Units

1. With the security system fob present, push the OFF/RUN switch to RUN.
2. See Changing Speedometer Units. Press and hold the TRIP switch until the speedometer units change (mph or km/h).



Cruise Control

⚠ WARNING

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

WARNING

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

Cruise control can be engaged to automatically maintain the cruising speed of the motorcycle. The rider remains in control and may disengage cruise control at any time by applying the brakes, pulling the clutch lever, rolling back the throttle or turning off cruise control.

Cruise control can be engaged at speeds between 30 mph 48 km/h and 90 mph 145 km/h . The system will not engage at speeds outside this range.

While cruising, the rider can increase speed 10 mph 16 km/h or more (depending on how hard the rider rolls on the throttle and the condition of the vehicle) over the SET point before the system automatically deactivates. This allows the rider to momentarily increase speed, if necessary. Rolling on the throttle too greatly may disengage the system.

NOTE:

Non-specified tires or gearing impact cruise control operation.

Set Cruising Speed

1. See Handlebar Controls. Press the CRUISE switch straight in to enable cruise control. The cruise control lamp turns orange to indicate that cruise control is enabled. See Instruments.
2. With the motorcycle traveling at the desired cruising speed of 30-90 mph 48-145 km/h , momentarily press SET to engage cruise control at the current vehicle speed. The cruise control lamp turns green to indicate that the selected cruising speed is locked in.

Disengage Cruising Speed

When cruising speed is disengaged, the cruise control indicator lamp turns orange. Cruise control is still enabled and the previous cruising speed can be resumed. Cruising speed automatically disengages when any of the following events are detected.

- Front or rear brake is applied.
- Motorcycle clutch is disengaged (module senses too great an increase in engine rpm).
- Throttle is rolled off or closed, actuating roll-off (disengage) switch.
- Rolling on the throttle more than 10 mph 16 km/h above the SET speed (depending on how hard the rider rolls on the throttle and the condition of the vehicle).
- The CRUISE switch is pressed straight in (cruise control turns off).
- Vehicle speed is out of the operating range.

Resume Cruising Speed

If the system is disengaged using one of the methods described in DISENGAGE CRUISING SPEED, the system is still enabled. The previous SET speed is retained and can be resumed until cruise control is turned off.

See Handlebar Controls. To resume the previous SET speed, press RESUME.

Cruise control will not resume if the vehicle speed is more than 15 mph 24 km/h below the previous SET speed. In this case, press SET to engage a new cruising speed.

Increase/Decrease Cruising Speed

With the cruising speed set, momentarily press RESUME/+ to increase speed, or press SET/- to decrease speed. The cruising speed increases or decreases by 1 mph 1.6 km/h .

Holding the switch increases or decreases speed in increments of 1 mph 1.6 km/h until the switch is released. There is a delay of about 2 seconds before the speed changes.

Deactivate Cruising Speed

Press the CRUISE switch straight in to turn off cruise control. The cruise control lamp turns off to indicate that the system is off. Cruise control must be turned back on before setting a new cruising speed. Cruise control also deactivates when shutting off and restarting the motorcycle.

Fuel Filler Cap

WARNING

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

See Fuel Filler Cap. To remove, turn fuel filler cap counterclockwise. The cap turns approximately three-quarters of a turn before it begins to loosen.

To install, turn fuel filler cap clockwise until it clicks. The ratchet action of the cap prevents over-tightening.

See SAFE OPERATING RULES section and review the following safety procedures.

WARNING

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

WARNING

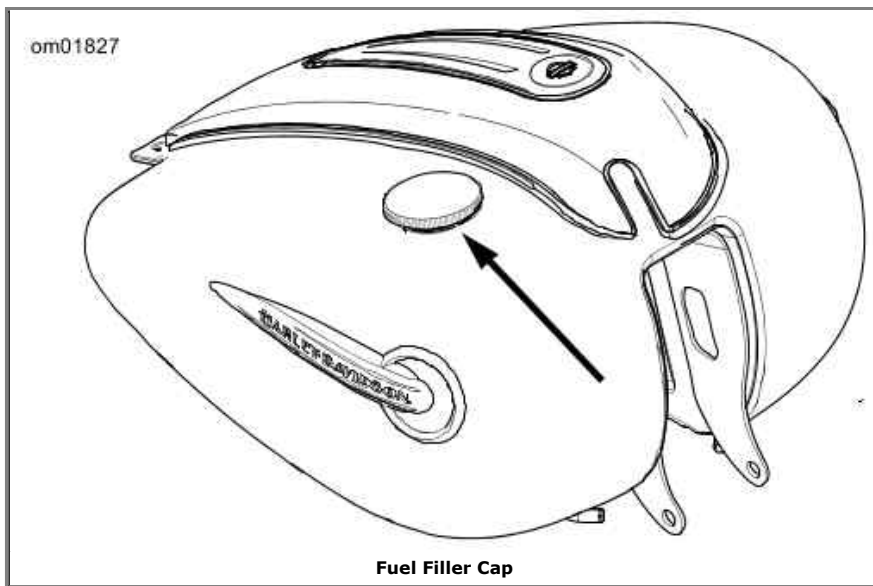
Do not use aftermarket fuel caps. Aftermarket fuel caps may fit improperly and leak, which could lead to death or serious injury. See a Harley-Davidson dealer for approved fuel caps. (00034a)

CAUTION

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)

CAUTION

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



Fork Lock

CAUTION

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

⚠WARNING

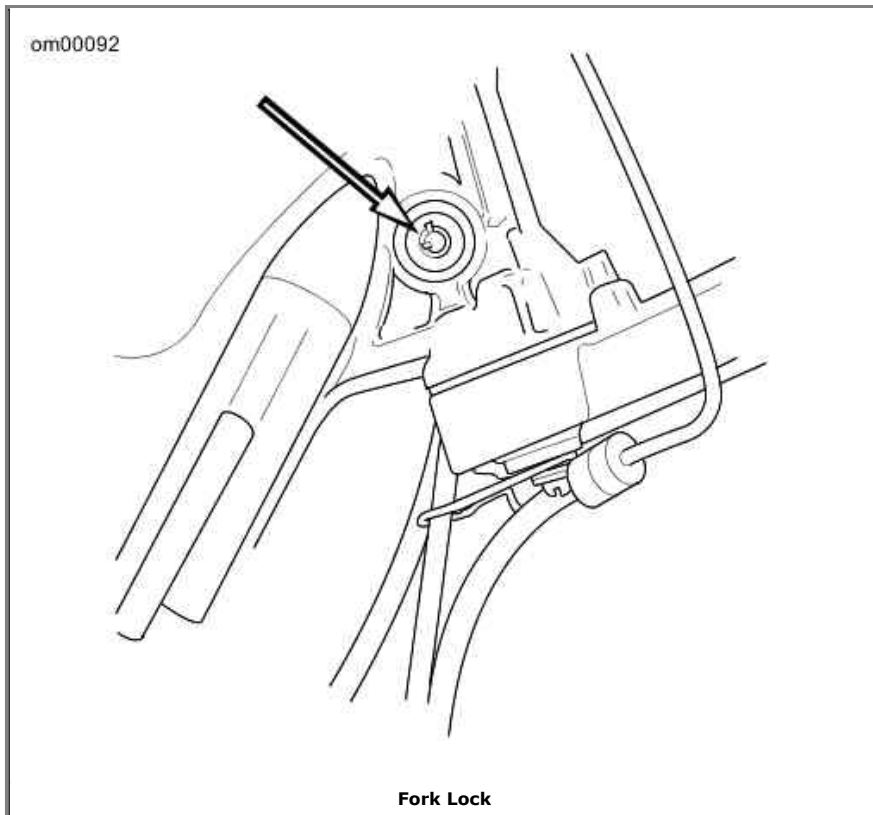
Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)

See Fork Lock. The fork lock is incorporated in the steering head on the right side.

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

To Lock Fork

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



Gear Shift Lever

CAUTION

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

The gear shift lever is located on the left side of the motorcycle and is operated with the left foot.

1. Push the gear shift lever all the way down (full stroke) to shift the transmission to the next lower gear.
2. Lift the gear shift lever all the way up (full stroke) to shift the transmission to the next higher gear.

NOTES:

- *Release the gear shift lever after each gear change.*
- *The lever must return to its central position before another gear change can be made.*

Neutral is located between first and second gear. The green neutral indicator lamp on the dash will illuminate when the transmission is in neutral.

1. To shift from first gear to neutral, lift the gear shift lever 1/2 of its full stroke.
2. To shift from second gear to neutral, push the gear shift lever downward 1/2 of its full stroke.

When the motorcycle is standing still and the engine is not running, shifting gears requires a different technique. Before shifting in this condition, move the motorcycle backward and forward with the clutch fully disengaged (clutch lever pulled in). While maintaining slight pressure on the shift lever, shift from one gear to another.

Even with the engine running and the motorcycle standing still, difficulty may be experienced in shifting gears. This difficulty occurs because transmission gears are not turning and shifting parts are not lined up to permit engagement.

CAUTION

When difficulty of shifting gears is experienced, do not under any circumstances, attempt to force the shift. The results of such abuse will be a damaged or broken shifter mechanism. (00161a)

See Shifting Gears for more information.

Heel-Toe Foot Shifter

See Heel-Toe Foot Shift Lever. Some motorcycles have a heel-toe shifter lever. Upshifts can be made with the heel of the left foot. Upshifts and downshifts can be made with the toe.

Downshift (toe): Push toe shift lever all the way down (full stroke)

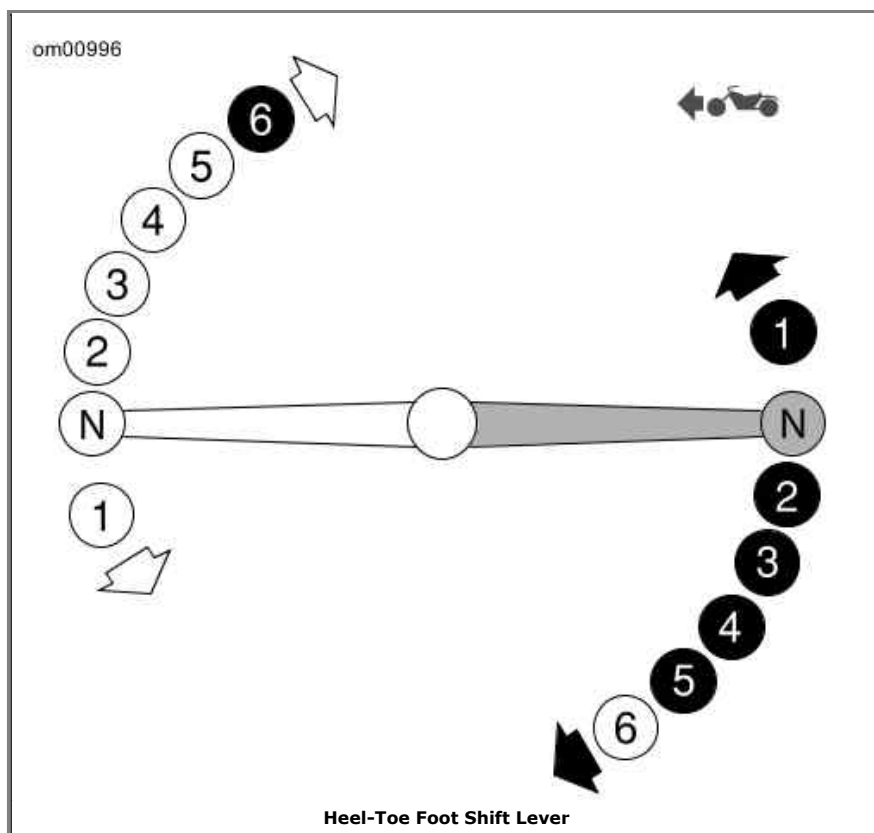
Upshift (toe): Lift the toe shift lever all the way up (full stroke)

Upshift (heel): Push the heel shift lever all the way down (full stroke)

Release the foot shift lever after each gear change to allow the lever to return to its center position before another gear change.

NOTE:

The height of the heel and toe shift levers can be adjusted for rider preference. Verify that full lever movement is available after adjustment. See the service manual.



Brake System

General

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

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.

⚠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)

Anti-lock Brake System (ABS)

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

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, or if the deceleration rate does not match a criteria stored in memory, the ABS reacts. The system rapidly opens and closes valves to modulate the brake pressure being applied by the rider. During ABS activation, the system provides the electronic equivalent of manually pumping the brakes and 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 ABS Symptoms and Conditions.

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 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 kph 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 Specified Tires can reduce ABS braking performance.

ABS Symptoms and Conditions

SYMPTOM	CONDITION

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

Jiffy Stand

⚠WARNING

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

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

⚠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)

Jiffy Stand Interlock: International Models

Some international models have a jiffy stand interlock.

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. The message "SidEStAnd" will scroll across the odometer. Raising the jiffy stand or putting the transmission in neutral, will permit the engine to run. The odometer will clear the message.

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

The rider may clear the text messages at any time by pressing the TRIP switch once while the vehicle is powered up.

Rear View Mirrors

⚠WARNING

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

Your vehicle is equipped with 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 will 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 clearly 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.

Shock Absorbers

Calculate Number of Turns

Softail models feature adjustable rear shock absorbers. The rear shock spring preload is adjusted to the total load or may be varied to suit your own personal comfort.

1. Refer to Recommended Shock Absorber Preload. Identify the number of preload turns for the weight of the rider.
2. Calculate the number of turns for the intended passenger and cargo.
3. Add the number of turns for the rider to the number of additional turns required for the total weight of the passenger and/or cargo.

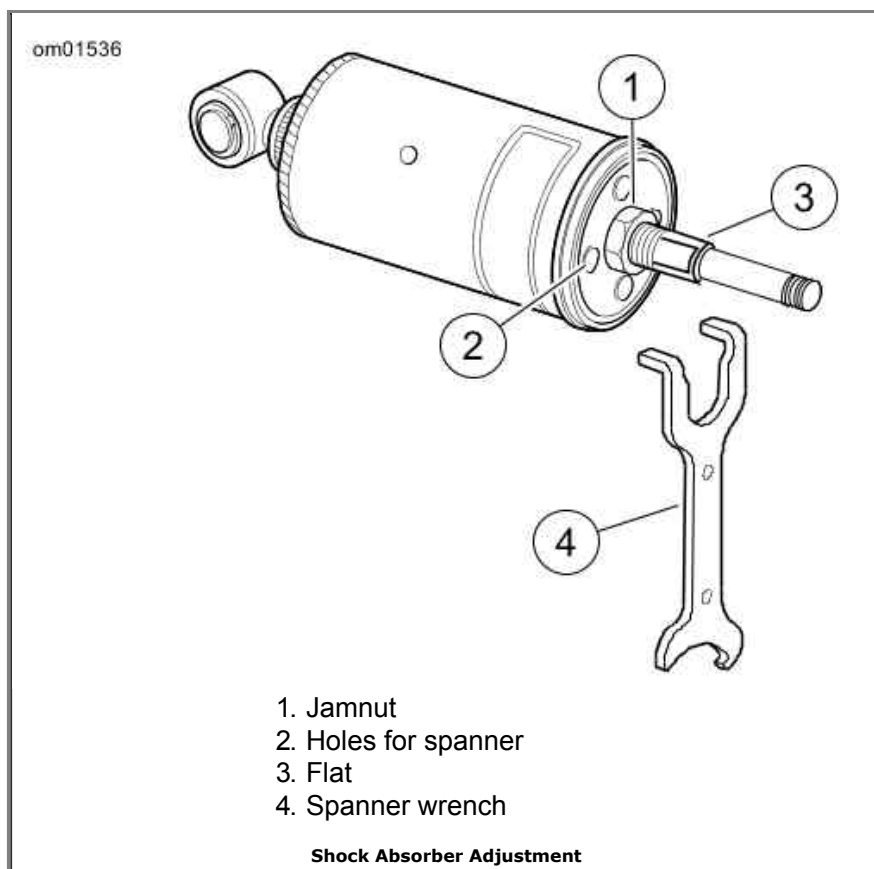
Adjustment

NOTES:

- *Adjust the shocks with the motorcycle resting on the jiffy stand.*
 - *Adjust both shocks the same number of turns.*
1. See Shock Absorber Adjustment. Hold the shaft with a wrench on the flats of the shock shaft and loosen the jamnut (1) with the SHOCK ADJUSTMENT SPANNER 94448-82B .
 2. Use the tangs of the spanner in the holes (2) in the spring canister to turn the canister clockwise until it stops. This is the minimum preload position.
 3. Mark the face of the canister for reference.
 4. Turn the canister counterclockwise the number of turns calculated for the total load.
 5. Tighten the jamnut.

Recommended Shock Absorber Preload

RIDER WEIGHT*	POSITION (TURNS FROM MINIMUM)
Less than 185 lb 84 kg	0
185-235 lb 84-107 kg	1
235-285 lb 107-129 kg	2
285-340 lb 129-154 kg	3
340 lb 154 kg to maximum added weight allowed (refer to Weights)	4
* Passenger/Cargo: For every 35 lb (16 kg), increase preload one turn.	



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

⚠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 and will not shift while riding. Periodically recheck load.
- Close and lock luggage before riding or leaving the vehicle unattended.

Saddlebags

⚠WARNING

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

⚠WARNING

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

NOTE:

Maximum saddlebag weight capacity is 10 lb 4.54 kg in each saddlebag.

Opening

1. Insert the key into the saddlebag lock. Rotate the key to the upright position to unlock the saddlebag.

2. See Saddlebag Latches. Lift the outer edge of the saddlebag. Gently push the lid toward the motorcycle to unhook the two latches on the inner side of the saddlebag.
3. Lift the inner side of the saddlebag lid to open.

Closing

NOTE:

The saddlebag lid will not properly close unless the saddlebag is properly latched to the motorcycle.

1. See Saddlebag Latches. Lower the saddlebag lid and engage the two latches on the inner side of the saddlebag.
2. Gently press down on the outer side of the lid to close.
3. Insert the key into the saddlebag lock. Rotate the key to the forward position to lock the saddlebag.

Removal

1. Open the saddlebag.
2. See Saddlebag Latch Disengaged. Rotate the handle upward to raise the latch.
3. See Saddlebag Removal/Installation. Push bag toward rear of the vehicle to disengage the saddlebag brackets from the docking points.
4. Pull bag off the three docking points.

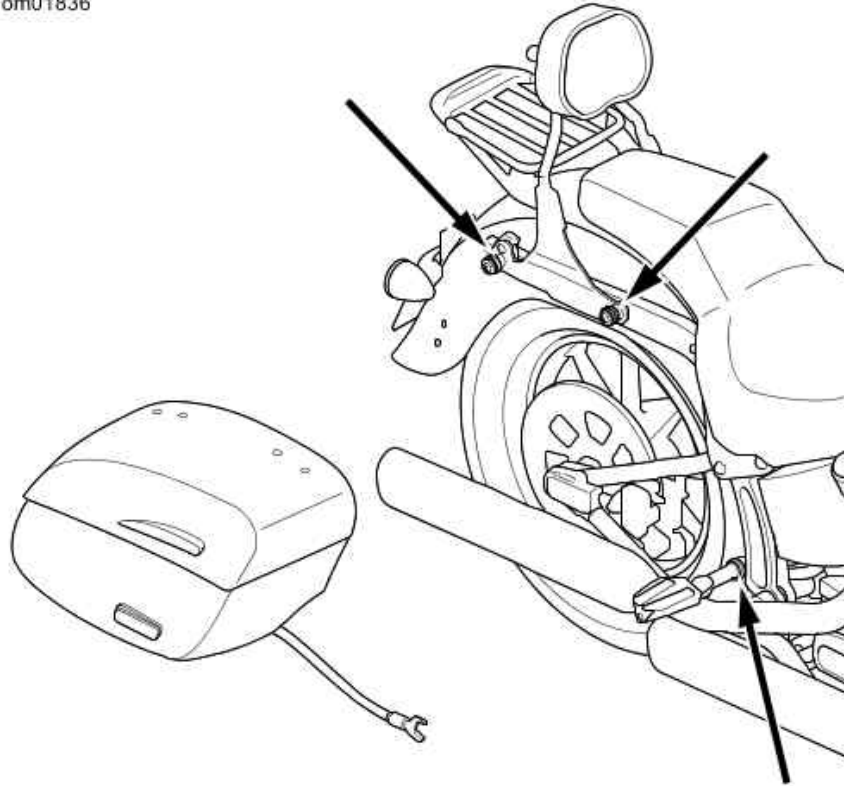
Installation

1. Open the saddlebag.
2. See Saddlebag Removal/Installation. Align the slots on the saddlebag mounting bracket with the two docking points on the rear fender. Insert the front bracket arm into the mounting point on the passenger footpeg bracket.
3. Push the saddlebag forward to seat the brackets on to the three docking points.
4. See Saddlebag Latch Engaged. Check that the saddlebag is secure on all mounting points and that the latch is engaged as shown.

CAUTION

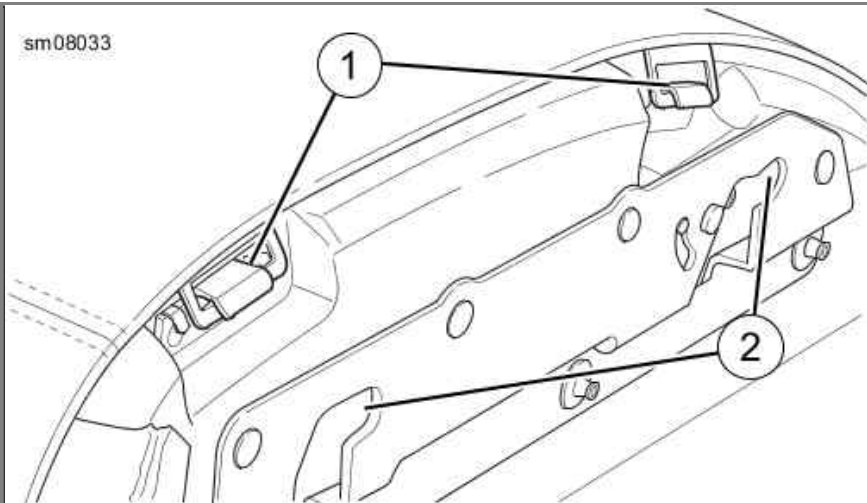
Check that saddlebag frame(s) are fully seated and tightly secured with mounting hardware. Failure to do so could result in the saddlebags becoming detached and/or damaged. (00171b)

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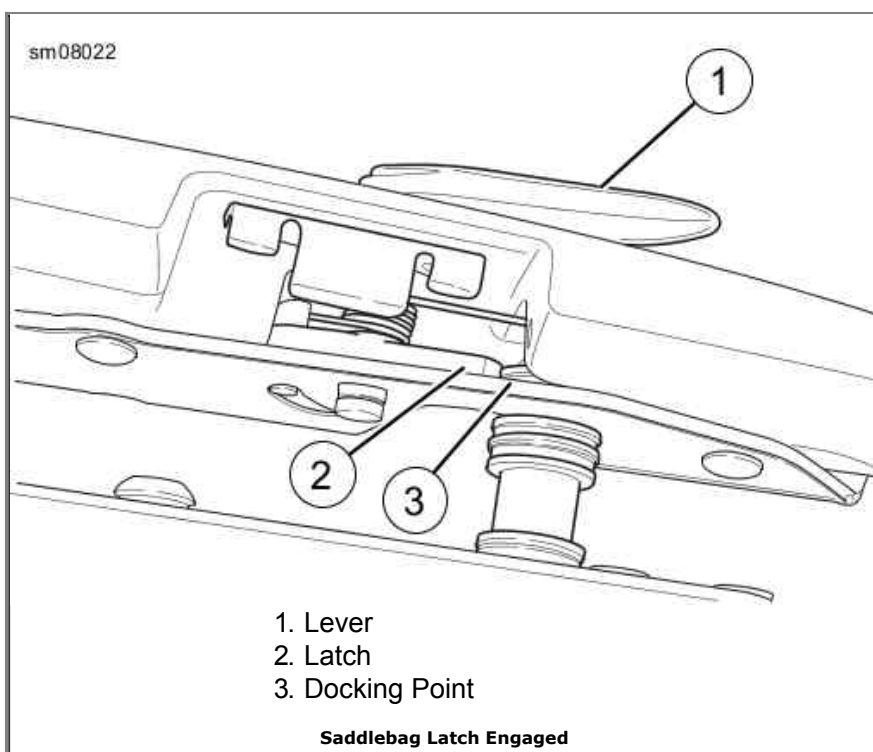
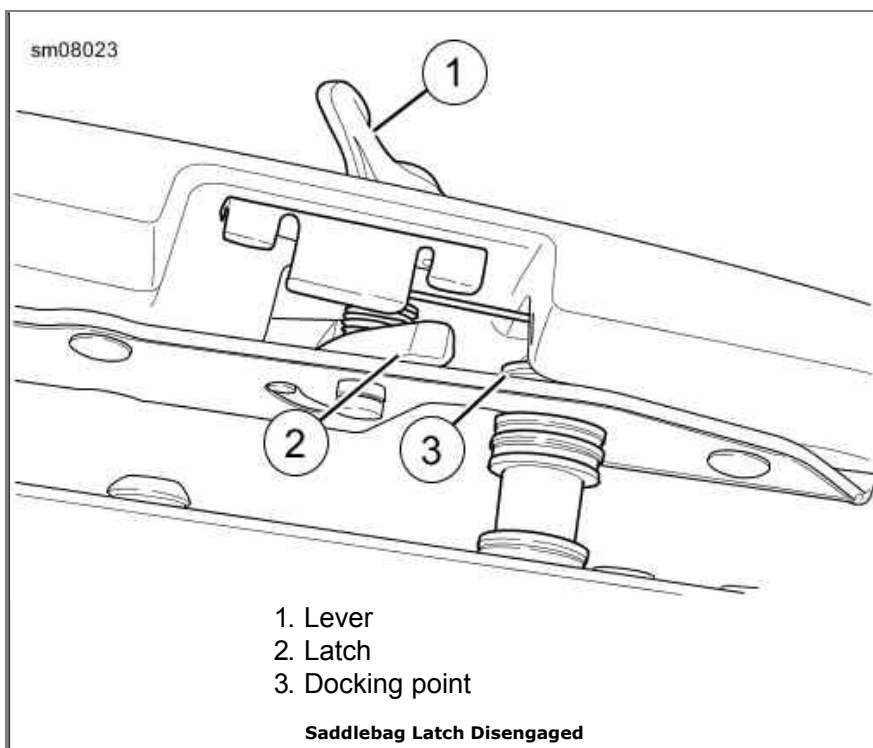
Saddlebag Removal/Installation

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- 1. Latches
- 2. Mounting bracket slots

Saddlebag Latches



Windshield

Removal

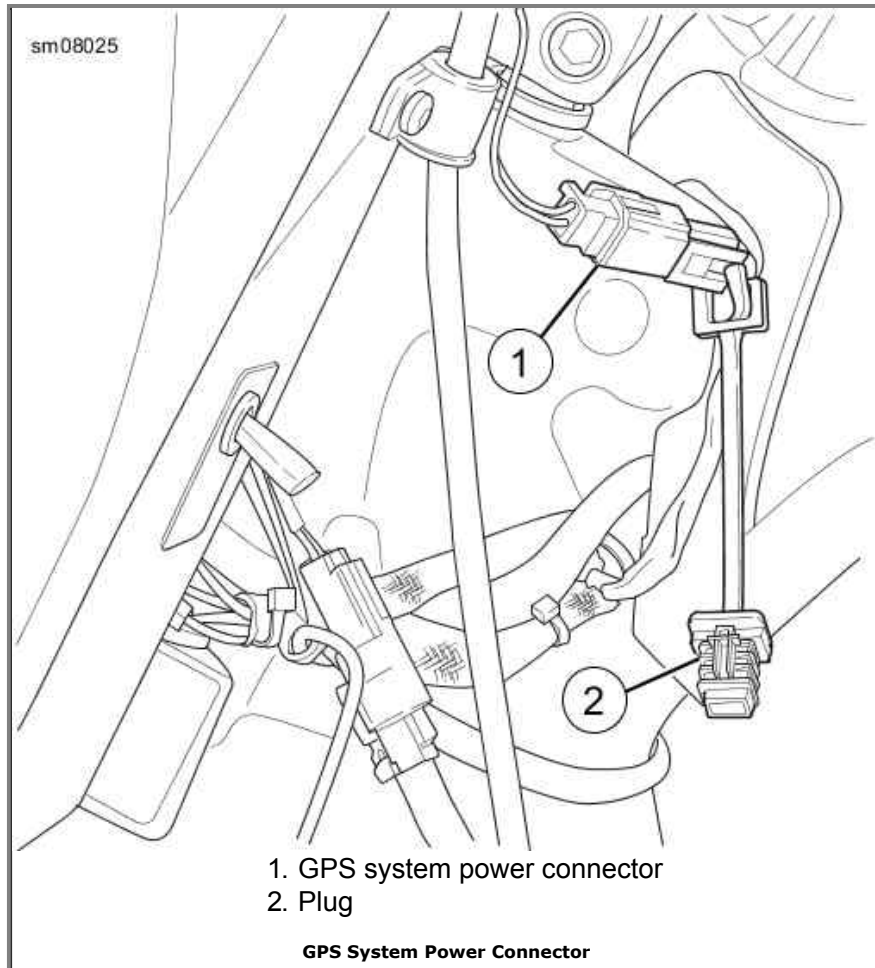
1. See GPS System Power Connector. Disconnect the GPS system power connector on the left side of the steering head.
2. Install rubber plug on motorcycle wire harness.
3. See Windshield. Move the TOP of the windshield assembly forward, until the TOP bracket notches slide away from the grommets.
4. Carefully lift the windshield bracket BOTTOM notches off the bottom grommets.

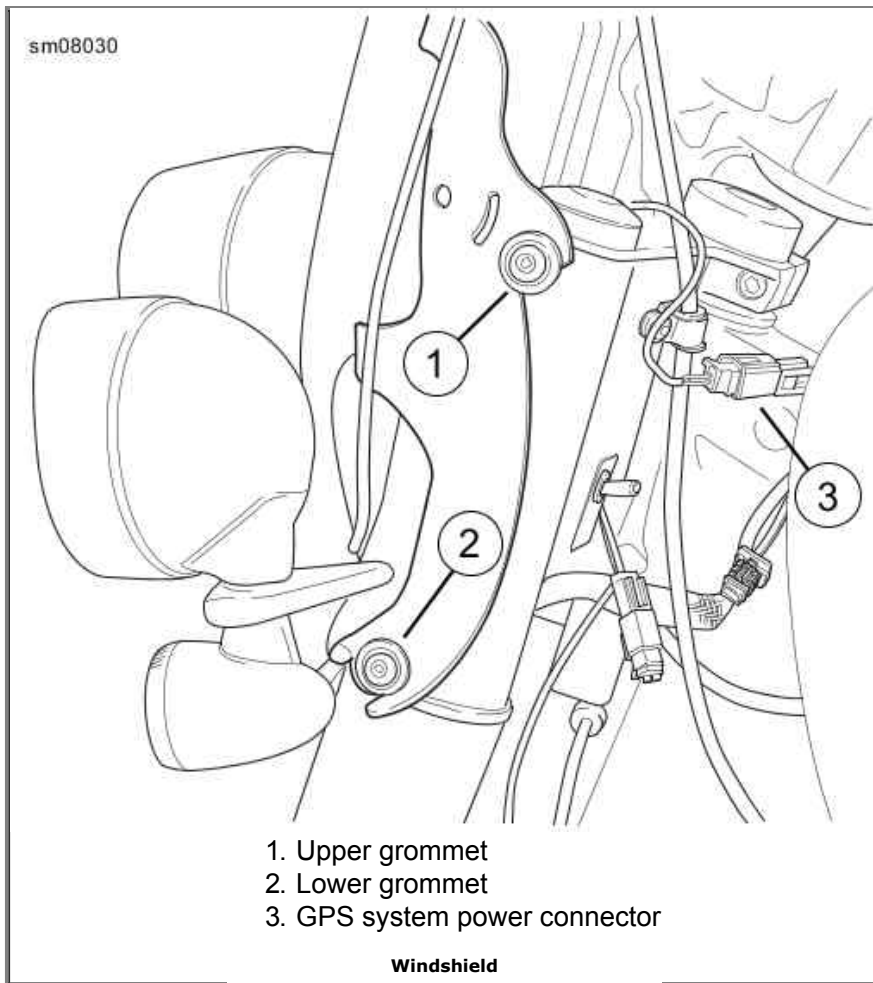
Installation

1. See Windshield. Slide the BOTTOM windshield bracket notches onto the bottom grommets.
2. Slide the TOP bracket notches onto the top grommets.
3. Route GPS system power wire over upper fork bracket.
4. See GPS System Power Connector. Remove rubber boot from connector.
5. Attach GPS connector.

NOTE:

For proper windshield maintenance, see Windshield Care.

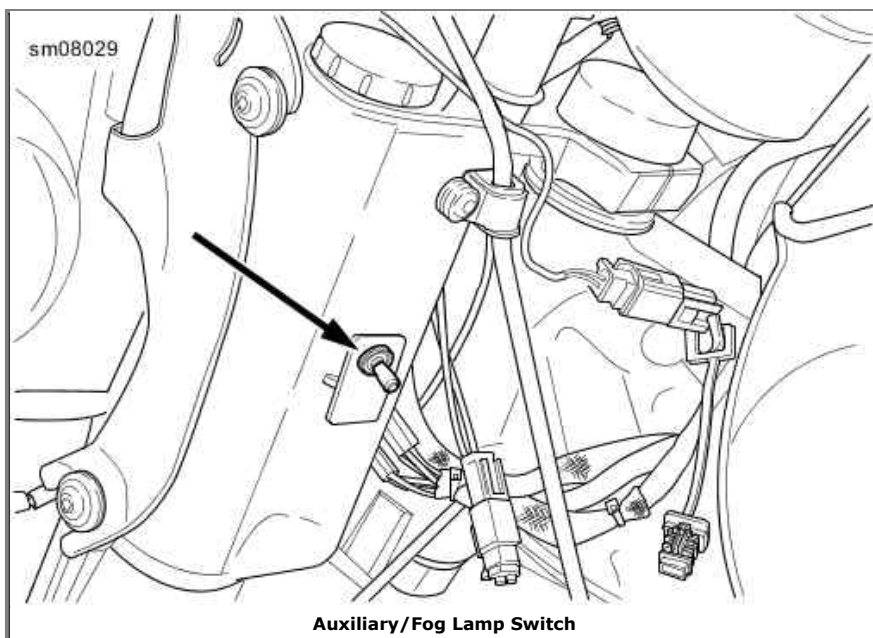




Auxiliary/Fog Lamps

See Auxiliary/Fog Lamp Switch. The auxiliary/fog lamp switch is on the left steering head panel. Turn on the auxiliary/fog lamps as needed.

When the headlamp is on high beam, the auxiliary/fog lamps turn off (except for Japan configuration motorcycles).



Road Tech zumo 660 GPS Unit

⚠WARNING

Do not attempt to enter route information or adjust this device while driving. Failure to pay full attention while riding could result in death or serious injury. (00614b)

See Road Tech zumo 660 GPS Unit. The Road Tech™ zumo® 660 GPS unit provides maps and audio instructions for navigating while riding. The unit is loaded with destinations for Harley-Davidson facilities dealers, and other points of interest. It can be personalized with a home location and favorite destinations.

Routes, maps and trip logs can be shared with others by connecting the unit to a computer. A microSD card can also be used. Ride plans can also be created, shared and downloaded to the GPS unit from the Ride Planner on www.harley-davidson.com.

See the on-screen help and the Road Tech zumo 660 owner's manual to set up and operate the GPS unit.

NOTES:

- *Traffic features are not active on the GPS unit. Traffic receivers and subscription services can be purchased for the GPS unit from Garmin International, Inc.*
- *Maps are preinstalled on the GPS unit. The City Navigator® NT software which comes with the GPS unit can be installed on a computer. It can be used to plan trips and to load trip information into the GPS unit.*

Installation

NOTES:

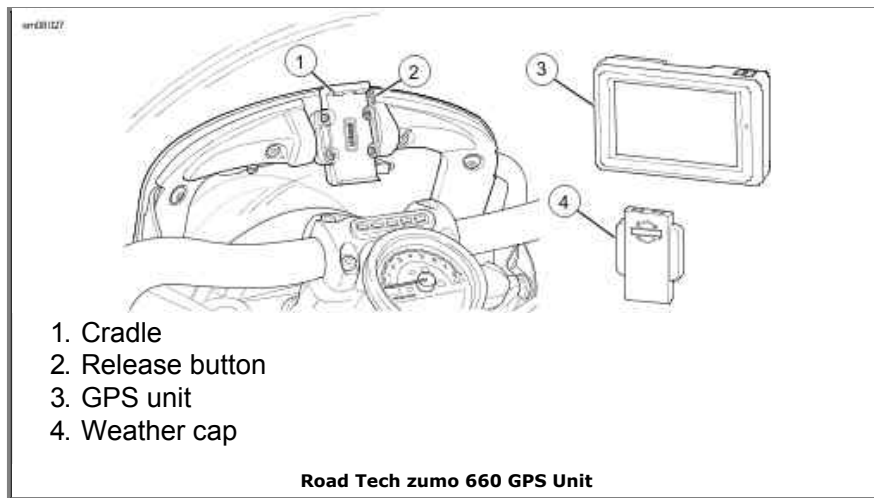
- *Install the battery before using the GPS unit for the first time. See the Road Tech zumo 660 owner's manual for battery installation.*
- *The suction cup mount and power cable provided with the system is intended for use in automobiles only. See the Road Tech zumo 660 owner's manual for proper operation in an automobile.*

1. See Road Tech zumo 660 GPS Unit. Remove the weather cap from the cradle.
2. Insert the bottom of the GPS unit into the cradle.
3. Snap the upper end of the GPS unit into place.

Removal

Remove the GPS unit when the motorcycle is not in use to prevent theft or damage.

1. See Road Tech zumo 660 GPS Unit. Press the release button on the side of the cradle.
2. Remove the GPS unit from the cradle.
3. Snap the weather cap onto the cradle mount.
4. Store the unit in a secure location.



Turning the GPS Unit On/Off

Push the OFF/RUN switch to RUN (to turn on the ignition) or push and hold the TRIP switch (to enter accessory mode). The GPS unit automatically turns on and begins charging using motorcycle power.

Turning off the motorcycle ignition or exiting accessory mode will cause the GPS unit to turn off after a 30 second delay.

The GPS unit can also be run on its own battery power. Press the power button on the top of the GPS unit.

Security System

Security System

Components

The security system is a self-arming system with an audible battery-backed alarm. The system is disarmed by a hands-free fob which is carried by the rider.

After parking the motorcycle, set the OFF/RUN switch to OFF, and the security system will automatically **arm** within five seconds. While armed, the starter and ignition are disabled and the rider may leave the motorcycle knowing that the module will activate an alarm if someone tampers with the ignition or attempts to move the motorcycle.

When the fob is present, the security system will automatically **disarm** when the OFF/RUN switch is set to RUN, or when the trip switch is pressed (for accessory mode).

Options

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

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

See a Harley-Davidson dealer for details.

FCC Regulations

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

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

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

NOTE:

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

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

Security System Fob

Fob Assignment

See Fob: Security System. Key fobs are electronically assigned to the security system by a Harley-Davidson dealer so that the motorcycle can recognize a fob's unique signal. Only two fobs can be assigned at any one time.

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

NOTES:

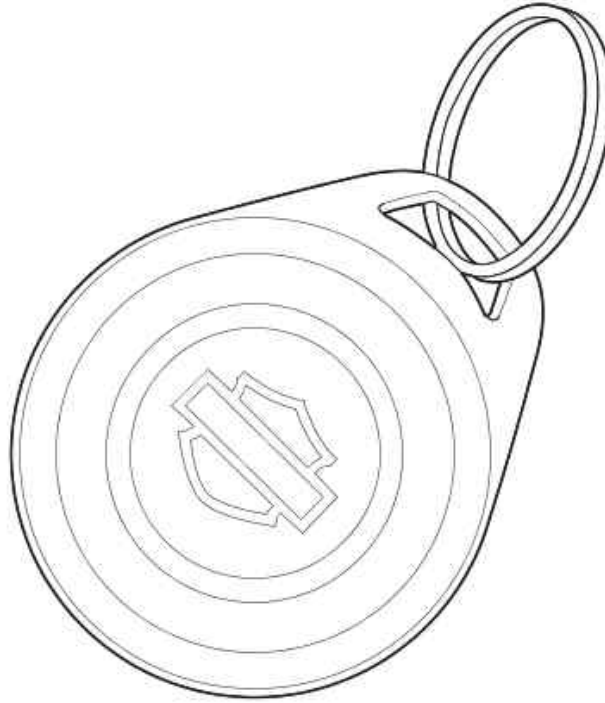
- *The reusable label found on the fob packaging lists the serial number of the fob. For reference, affix the label to a blank "NOTES" page in this Owner's Manual.*
- *The serial number of the fob is also found on the inside of the fob. See Fob Battery.*
- *The module will arm only if the fob has been assigned by a Harley-Davidson dealer and a Personal Identification Number (PIN) has been entered in the system. The PIN should be recorded on the Personal Information page in the front of this Owner's Manual and on the removable wallet card.*
- *Should the rider misplace the fob or if the fob fails, the rider can refer to the wallet card and use the PIN to manually disarm the system. Refer to Arming and Disarming and Troubleshooting.*
- *The rider can change the PIN at any time. Refer to Arming and Disarming.*

Riding with a Fob

- Always carry the fob when riding, loading, fueling, moving, parking or servicing the motorcycle. Carry the fob in a convenient pocket.
- Do not leave the fob attached to the handlebars or store the fob in a luggage compartment. Unintentionally leaving the fob with the motorcycle when it is parked prevents the system from activating the alarm..
- Do not ride with the fob stored in a metal case or with the fob closer than 3.0 in 76 mm to a mobile phone, PDA, display or other electronic device. Any electromagnetic interference may prevent the fob from disarming the system.
- For added security, always lock the fork and remove the key when parked. If the fob is within range and the motorcycle is unlocked, tampering with the motorcycle will not activate the alarm.

Riding without a Fob

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



Fob: Security System

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 Changing the PIN.

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.	
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 Odometer Functions. The electrical system 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 set to OFF, the security system arms automatically within five seconds if no motion is detected. Even when the fob is present, the system will arm.

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

NOTE:

The system must be in the Chirp Mode for the siren to chirp on arming or on disarming. See Siren Chirp Mode (Confirmation).

Disarming

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

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

When the system disarms, the siren will chirp once and the security indicator lamp will illuminate for a solid four seconds and then turn off.

NOTE:

On any motion, like lifting the motorcycle up off of its jiffy stand, the system will electronically "poll" for the presence of the fob. If the fob is present, the system disarms.

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).

Disarming with a PIN

NOTES:

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

Entering a PIN to Disarm Security System

STEP NO.	ACTION	WAIT FOR CONFIRMATION	NOTES
1	If necessary, verify the current 5-digit PIN.		Should be recorded on wallet card.
2	Push the OFF/RUN switch to RUN .	The odometer window display will show ENTER PIN.	
3	Press and release the left turn signal switch.	In the odometer window, a flashing 1 will appear.	
4	Increment the digit by tapping the left turn signal until the odometer window displays the first digit of the PIN.	The first digit in the odometer will be the first digit in the PIN.	
5	Press right turn switch 1 time .	The first digit is stored and the next digit will flash.	Serves as enter key.
6	Increment the second digit using the left turn switch until the digit reaches the second digit of the PIN.	The second digit in the odometer will be the second digit in the PIN.	
7	Press right turn switch 1 time .	The second digit is stored and the next digit will flash.	Serves as enter key.
8	Increment the third digit using the left turn switch until it reaches the third digit of the PIN.	The third digit in the odometer will be the third digit in the PIN.	
9	Press right turn switch 1 time .	The third digit is stored and the next digit will flash.	Serves as enter key.
10	Increment the fourth digit using the left turn switch until it reaches the fourth digit of the PIN.	The fourth digit in the odometer will be the fourth digit in the PIN.	
11	Press right turn switch 1 time .	The fourth digit is stored and the next digit will flash.	Serves as enter key.

12	Increment the fifth digit using the left turn switch until it reaches the fifth digit of the PIN.	The fifth digit in the odometer will be the fifth digit in the PIN.	
13	Press right turn switch 1 time .	The fifth digit is stored. The security system indicator lamp stops blinking.	Smart Security System is disarmed.

Alarm

Warnings

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

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

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

NOTE:

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

Alarm Activation

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

When activated, the security system will:

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

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

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

NOTE:

The alarm will also activate the LED, vibration or audible modes of an optionally purchased Harley-Davidson Security Pager. The range of a pager can be up to 0.5 mi 0.8 km . See a Harley-Davidson dealer for details.

Alarm Deactivation

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

Siren Chirp Mode (Confirmation)

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. This allows the vehicle to be picked up and 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 the 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. This must be done within five seconds of turning the OFF/RUN switch to OFF.
4. The turn signals flash once, then 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 20 ft 6 m . If the motorcycle is to be moved while parked, have the fob present.

If the motorcycle will not be operated for several months, such as during the winter season, refer to Motorcycle Storage.

Service Departments

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

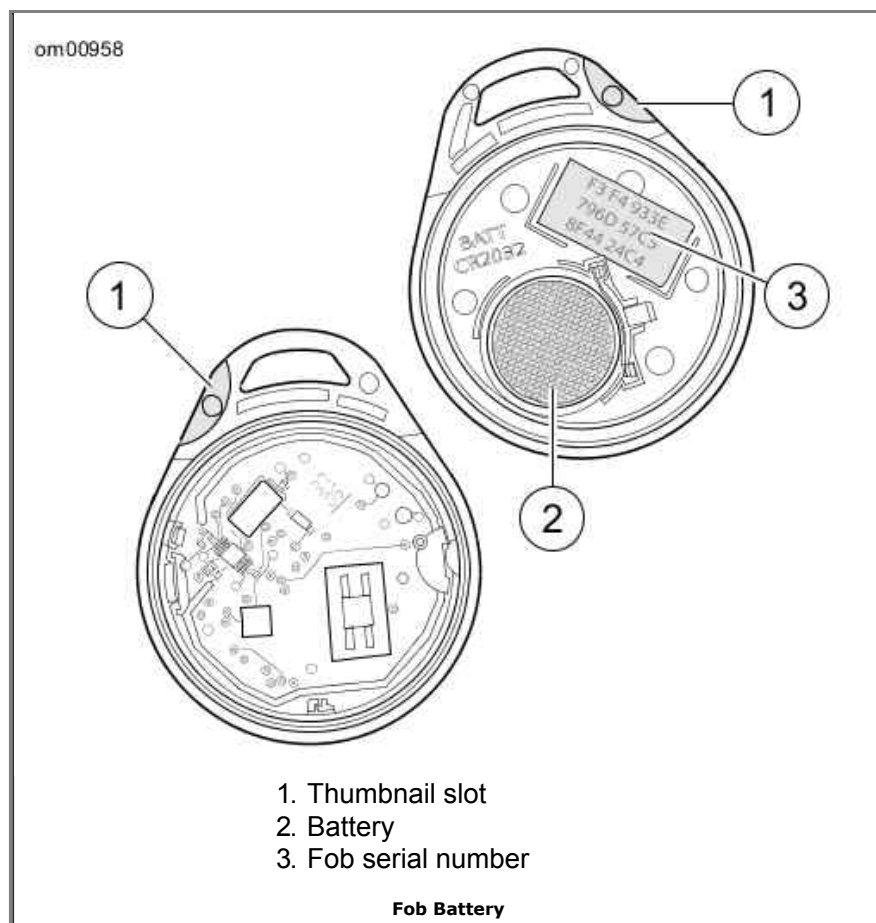
1. Leave an assigned fob with the dealer.
2. To maintain possession of the fob, ask the dealer to disable the system for service (service mode) before leaving the dealership.

Fob Battery

Replacing the Battery

Replace the fob battery every year.

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



Disconnecting Power

Optional Siren

When disconnecting the battery or removing the main fuse, perform the following steps to prevent the optional siren from sounding.

1. Verify that the fob is present.
2. Set the OFF/RUN switch to RUN.
3. Pull the main fuse from its holder or disconnect the battery.

NOTE:

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

Troubleshooting

Security System Lamp

If the security system 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, one of the following can be the cause:

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. Refer to Fob Battery.
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.

Operation

Operating Recommendations

⚠WARNING

Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use could result in loss of control, death or serious injury. (00556c)

- 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.

⚠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)

CAUTION

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

CAUTION

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

- The maximum recommended safe engine speed is 5500 rpm.
- Do not idle engine unnecessarily for more than a few minutes with motorcycle standing still.

CAUTION

Air-cooled engines require air movement over the cylinders and heads to maintain proper operating temperature. Extended periods of idling or parade duty can overheat the engine, resulting in serious engine damage. (00178a)

An engine running long distances at high speed must be given closer than ordinary attention to avoid overheating and possible engine damage.

This applies particularly to a motorcycle equipped with windshield and fairing.

NOTE:

Have the engine checked regularly and keep it well tuned.

⚠WARNING

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

(00041a)

NOTE:

When descending upon a long, steep grade, downshift and use engine compression together with intermittent application of both brakes to slow the motorcycle.

⚠WARNING

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

⚠WARNING

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

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 miles 800 kilometers .

1. During the first 50 miles 80 kilometers 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 miles 800 kilometers , 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 by moderate use for the first 200 miles 300 kilometers .

Pre-Riding Checklist

⚠WARNING

Read the CONTROLS AND INDICATORS section before riding your motorcycle. Failure to understand the operation of the motorcycle could result in death or serious injury. (00043a)

Before riding your motorcycle, make a general inspection to make sure that it is in safe riding condition.

⚠WARNING

Stop the engine when refueling or servicing the fuel system. Do not smoke or allow open flame or sparks near gasoline. Gasoline is extremely flammable and highly

**explosive, which could result in death or serious injury.
(00002a)**

⚠WARNING

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

⚠WARNING

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

1. Check fuel level. Add fuel if necessary.
2. Adjust mirrors to proper riding positions.
3. Check engine oil level. Add oil if necessary.
4. Check controls to make sure that they operate properly. Operate the front and rear brakes, throttle, clutch and shifter. All controls should operate freely without binding.
5. Check steering for proper operation by turning the handlebars through the full operating range. Handlebars should turn smoothly without binding.

⚠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)

6. Check tire condition, pressure and motorcycle loading. Incorrect pressure and excessive loading can lead to tire or wheel failure, and can affect handling and stability. Refer to Specified Tires for correct inflation pressure.

⚠WARNING

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

7. Test all switches and lights for proper operation.
8. Check for any fuel, oil or hydraulic fluid leaks. Check for coolant leaks on applicable vehicles.
9. Check drive belt for wear or damage.
10. Service your motorcycle as necessary.

Starting the Engine

General

CAUTION

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)

Rolling the throttle before starting the motorcycle is unnecessary.

Starting

⚠ WARNING

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

1. See Right Handlebar Controls. With the security system fob present, turn the off/run switch to RUN position. Do not roll the throttle.

NOTE:

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

2. Raise the jiffy stand (required on international models, unless transmission is in neutral).
3. Squeeze the clutch lever in against the handgrip. Shift transmission to neutral.

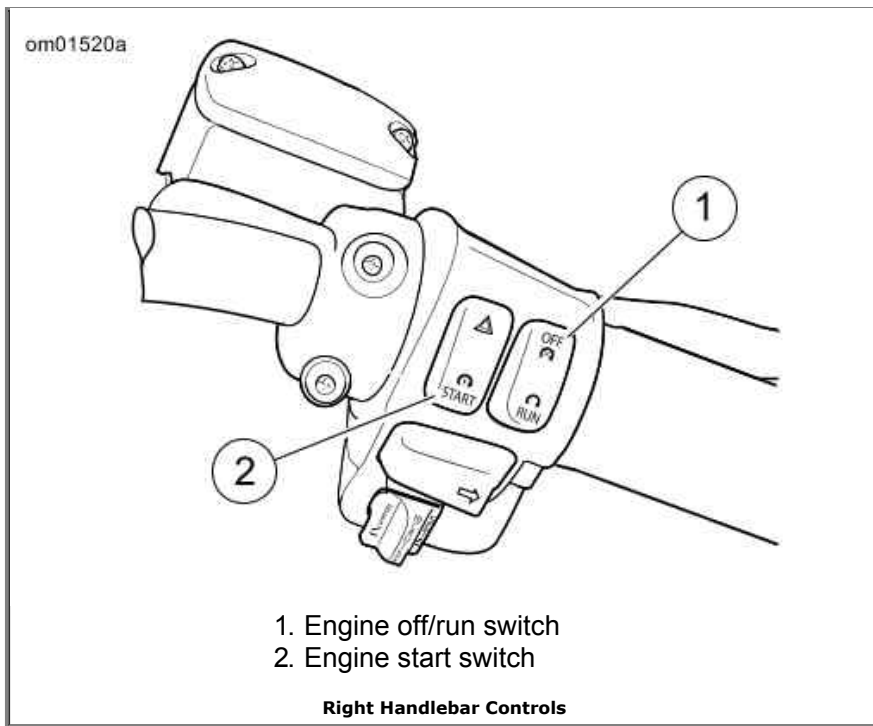
NOTE:

To activate the starting system, the clutch interlock circuitry requires that the clutch be disengaged. The clutch lever must be pulled in against the left handlebar grip and/or the transmission must be shifted to the neutral position (with the green neutral lamp lit). Apply the brake to prevent movement of the motorcycle.

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

NOTE:

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



Engine Idle Temperature Management System

For those riders who frequently find themselves in riding conditions where the vehicle is subjected to prolonged idle conditions or traffic congestion, the motorcycle is equipped with an Engine Idle Temperature Management System (EITMS) to provide limited cooling of the rear cylinder.

Operation

When engine temperature reaches a pre-determined point, the EITMS will turn off the rear cylinder fuel injector. Idle speed will be maintained, however the rear cylinder will become an "air pump" which will work to cool the engine.

EITMS will activate (rear cylinder will turn off) when **all** of the following conditions are met:

- Engine temperature is greater than 287°F 165°C
- Twist grip opening is at idle
- Vehicle speed under 1 mph 2 km/h
- Engine speed under 1200 RPM

EITMS will disable (rear cylinder will again fire) if **any one** of the following occurs:

- Engine temperature falls below 275°F domestic 135°C
- Twist grip opening is greater than idle
- Vehicle speed exceeds 2 mph 3 km/h
- Engine speed exceeds 1350 RPM
- Clutch is released with vehicle in gear

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

Enabling/Disabling EITMS

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

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

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

1. Push the engine OFF/RUN switch on the right handlebar to the RUN position (the motorcycle may be running or not running).
2. Push the throttle to roll-off position and hold.
3. See Odometer Functions. After approximately 3 seconds, the cruise indicator lamp will either flash green (EITMS enabled) or red (EITMS disabled).

NOTE:

A flashing lamp indicates the EITMS setting. A solid (non-flashing) lamp indicates the cruise control setting.

4. Repeat the procedure as needed to enable or disable EITMS.

NOTE:

The EITMS setting will remain in effect until it is changed by the rider or dealer. It does not have to be reconfigured at each startup.

Stopping The Engine

1. Stop the engine by turning OFF the engine stop switch on the right handlebar.
2. Take the key fob from the motorcycle to arm the security system and prevent the motorcycle from being turned on or started.

Shifting Gears

Stopped, Engine Off

Squeeze in the clutch lever to fully disengage the clutch. Gears may 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 on the shift lever.

Starting from a Stop

CAUTION

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

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 in against the handlebar grip to fully disengage the clutch.
2. Press the gear shift lever down to 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 Shifting Sequence: Upshift. Engage the next higher gear when the motorcycle reaches the shifting speed. Refer to Upshift (Acceleration) Gear Speeds.

Upshift (Acceleration) Gear Speeds

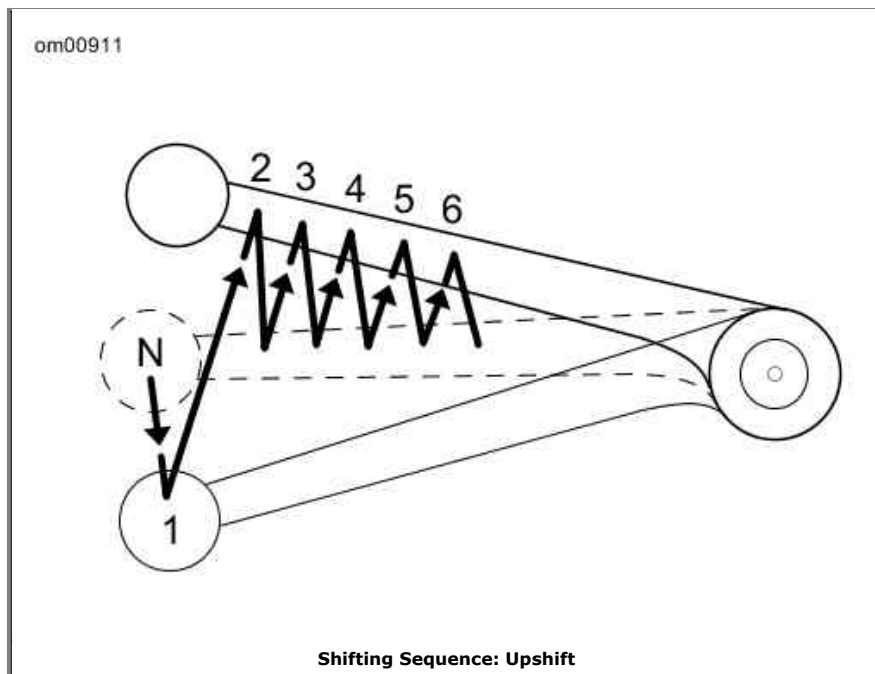


GEAR CHANGE	mph	km/h
First to second	15	25
Second to third	25	40
Third to fourth	35	55
Fourth to fifth	45	70
Fifth to sixth	55	85

1. Close the throttle.
2. Disengage the clutch (pull the clutch lever in).
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.

NOTES:

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



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 Shifting Sequence: Downshift. When engine speed decreases, as when climbing a hill or slowing for a turn, shift to the next lower gear. Refer to Downshift (Deceleration) Gear Speeds.

Downshift (Deceleration) Gear Speeds

GEAR CHANGE	mph	km/h
-------------	-----	------

Sixth to fifth	50	80
Fifth to fourth	40	65
Fourth to third	30	50
Third to second	20	30
Second to first	10	15

NOTE:

The shifting points shown in the table are recommendations. Vehicle owners may determine that their own individual shifting patterns may differ from those stated and are additionally appropriate for individual riding styles.

1. Close the throttle.
2. Disengage the clutch (pull the clutch lever in).
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.

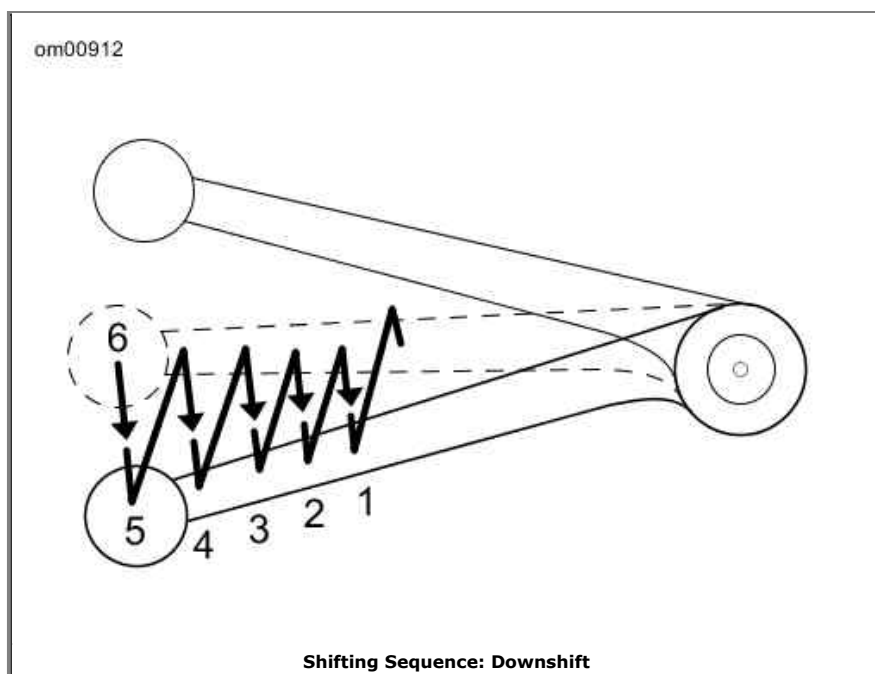
NOTES:

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

CAUTION

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.



Maintenance and Lubrication

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)

⚠WARNING

If you operate your motorcycle under adverse conditions (severe cold, extreme heat, very dusty environment, very bad roads, through standing water, etc.), you should perform the regular maintenance intervals more frequently to ensure the safe operation of your motorcycle. Failure to maintain your motorcycle could result in death or serious injury. (00094a)

Good maintenance leads to safe motorcycling. 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, excessive wear or any signs of tire damage.
2. Drive belt 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, brake 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.

Refer to Regular Service Intervals: 2015 FLSTNSE. After a new motorcycle has been ridden its first 1000 miles (1600 kilometers), it should be taken to an authorized Harley-Davidson dealer for initial service operations.

Engine Lubrication: Synthetic Oil

Engine oil is a major factor in the performance and service life of the engine. Always use the proper grade of oil for the lowest temperature expected before the next scheduled oil change. Your authorized dealer has the proper oil to suit your requirements.

Motorcycles with a Twin Cam 110 engine are shipped from the factory with SCREAMIN' EAGLE SYN3 FULL SYNTHETIC MOTORCYCLE LUBRICANT 20W50. If SYN3 is not available and addition of motor oil is required, the first choice would be to add GENUINE HARLEY-DAVIDSON H-D 360 MOTORCYCLE OIL 20W50 to the SYN3 for engine lubrication. Although H-D 360 is compatible with SYN3, we suggest the mixture of the fluids be changed as soon as possible.

To switch lubricant to H-D 360, completely drain the SYN3 before filling with H-D 360. A residual amount of fluid will remain. It is not required to flush out the residual fluid.

CAUTION

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

Recommended Engine Oils

TYPE	VISCOSITY	RATING	LOWEST AMBIENT TEMPERATURE	COLD-WEATHER STARTS BELOW 50 °F (10 °C)
Screamin' Eagle SYN 3 Full Synthetic Motorcycle Lubricant	SAE 20W50	HD 360	Above 30 °F -1 °C	Excellent
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 20W50	HD 360	Above 40 °F 4 °C	Good
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 50	HD 360	Above 60 °F 16 °C	Poor
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 60	HD 360	Above 80 °F 27 °C	Poor
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 10W40	HD 360	Below 40 °F 4 °C	Excellent

Checking Oil Level

Engine oil level should be checked only when engine is at normal operating temperature.

- Check engine oil supply at each complete fuel refill.
- Refer to Regular Service Intervals: 2015 FLSTNSE. Oil should be changed at proper intervals in normal service at warm or moderate temperatures.
- Oil change intervals should be shorter in cold weather. See Winter Lubrication.

NOTE:

The motorcycle should be on jiffy stand when checking oil level.

CAUTION

Oil level cannot be accurately measured on a cold engine. For pre-ride inspection, with motorcycle leaning on jiffy stand on level ground, oil should register on dipstick between arrows when engine is cold. Do not add oil to bring the level to the FULL mark on a COLD engine. (00185a)

CAUTION

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)

CAUTION

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

Oil Level Cold Check

Perform engine oil level **COLD CHECK** as follows:

1. See Engine Oil Filler Cap/Dipstick. For pre-ride inspection with the vehicle on jiffy stand on level ground, remove and wipe off the dipstick. Install filler cap/dipstick back onto spout until tight.
2. See Engine Oil Level. Remove the filler cap/dipstick and verify oil registers on the dipstick between the two marks.
 - a. If oil level registers on the dipstick, proceed to Oil Level Hot Check.
 - b. If oil does not register on the dipstick, proceed to step 3.
3. With the dipstick removed, look into the dipstick opening and verify the oil level is near the filler neck.
 - a. If the oil level is at or near the filler neck, proceed to Oil Level Hot Check.
 - b. If the oil level is not present, add only enough oil to bring the level to the filler neck. Then proceed to Oil Level Hot Check.

Oil Level Hot Check

Perform engine oil level **HOT CHECK** as follows:

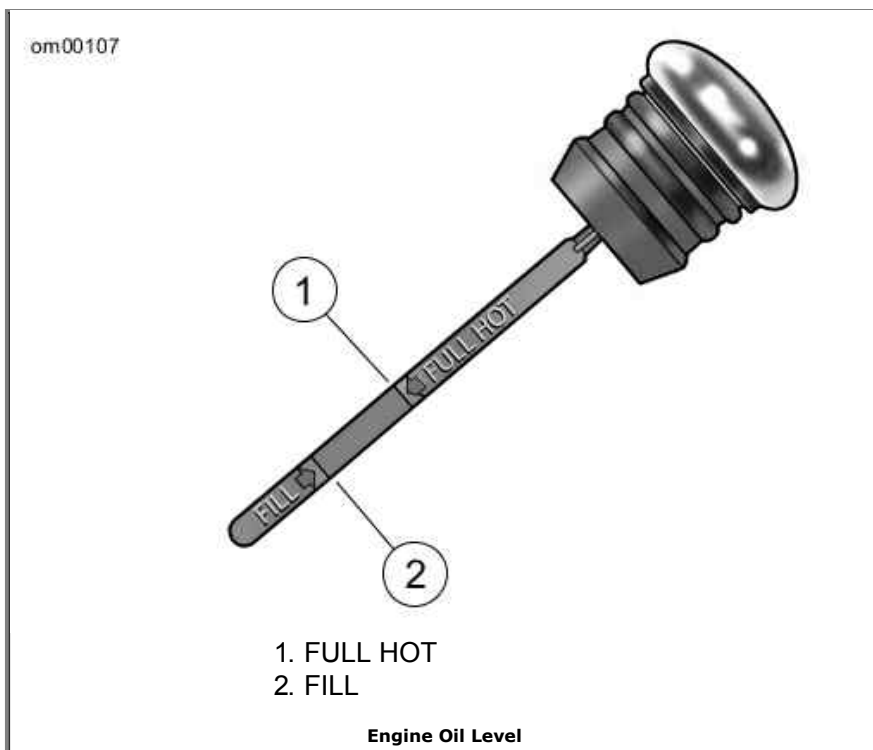
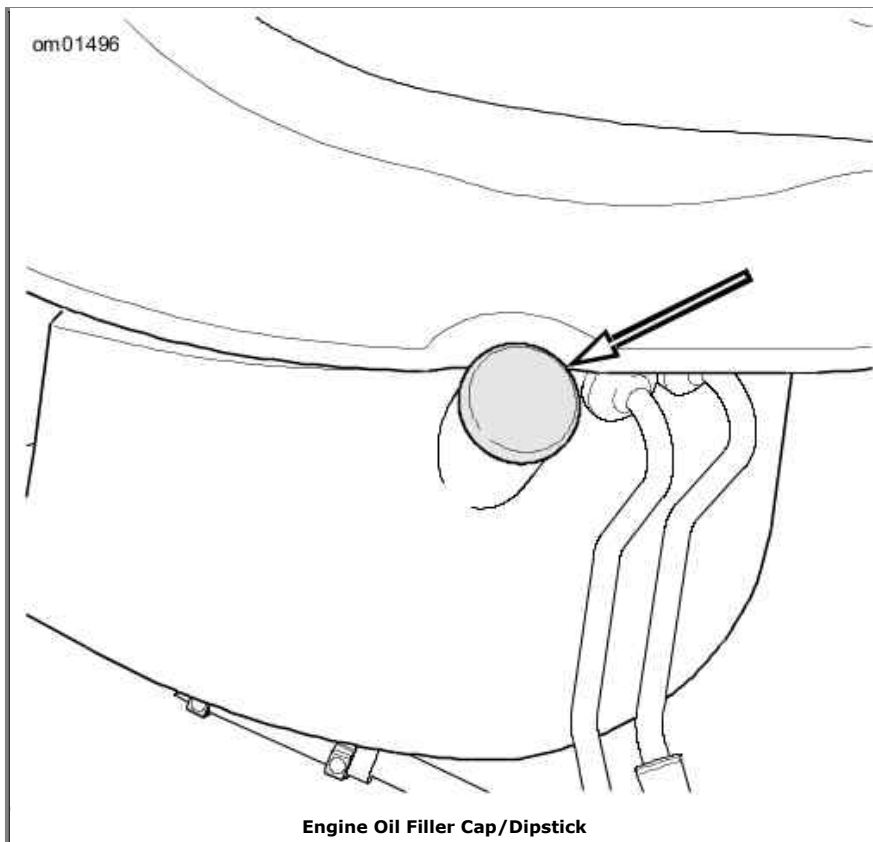
1. Run motorcycle until engine is at normal operating temperature.

NOTE:

The engine will require a longer warm-up period in colder weather.
2. With the vehicle upright on level ground, allow engine to idle for 1-2 minutes. Turn off engine.
3. With vehicle on jiffy stand, remove and wipe off the dipstick. Install the filler cap/dipstick until fully seated in the spout.
4. See Engine Oil Level. Remove the dipstick and note the oil level. Add only enough oil to bring the level to the FULL mark on the dipstick. Do not overfill.

NOTE:

Refer to Recommended Engine Oils. Use only recommended oil specified under Engine Lubrication: Synthetic Oil.
5. Start engine and carefully check for oil leaks around drain plug and oil filter.



Changing Oil and Oil Filter

The oil filter is located on an oil filter mount in front of the engine.

CAUTION

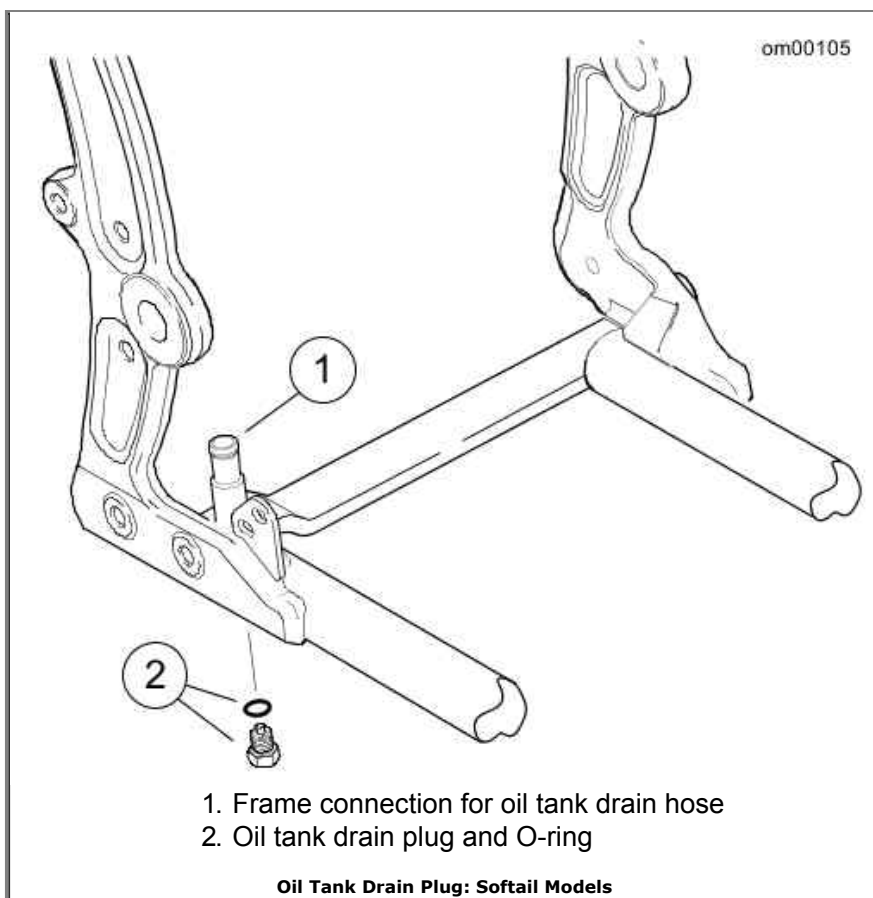
Do not switch lubricant brands indiscriminately because some lubricants interact chemically when mixed. Use of inferior lubricants can damage the engine. (00184a)

⚠ 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)

Twin Cam 110B equipped vehicles require the premium oil filter (Part No. 63798-99A Chrome or Part No. 63731-99A Black).

1. See Engine Oil Filler Cap/Dipstick. Unscrew and remove the filler cap/dipstick.
2. See Oil Tank Drain Plug: Softail Models. Remove engine oil drain plug with o-ring (2). Allow oil to completely drain into a suitable container.



CAUTION

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

NOTE:

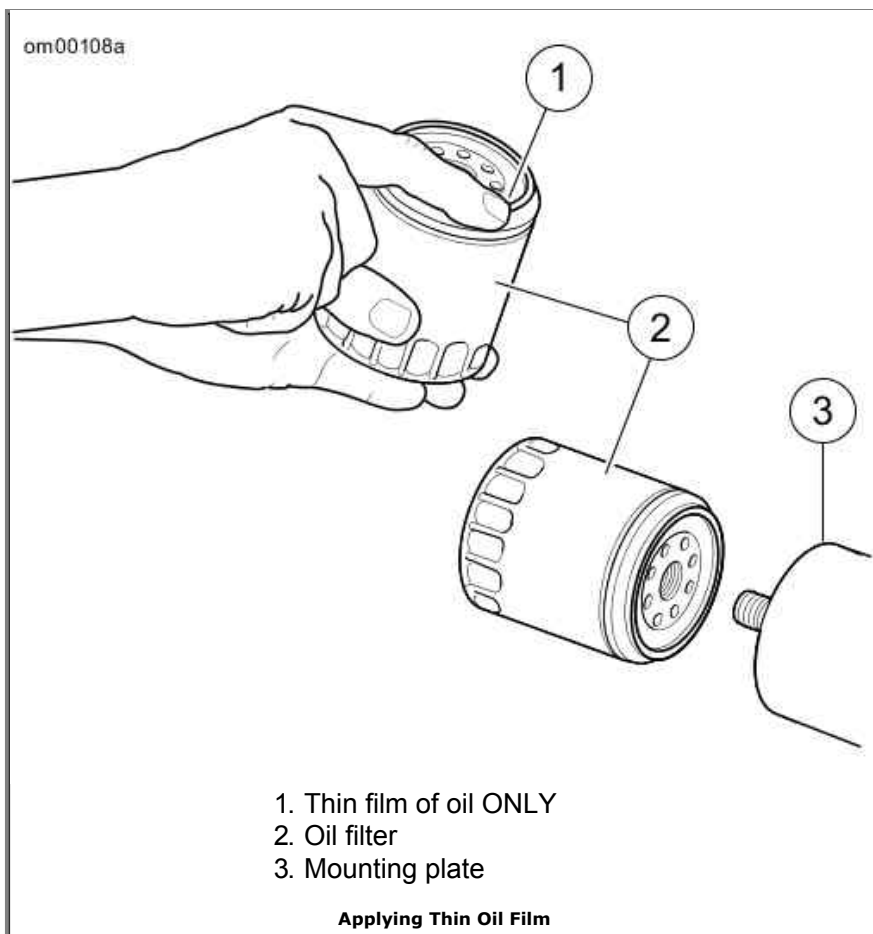
Dispose of oil and oil filter in accordance with local regulations.

3. See Oil Filter Wrench (Part No. HD-44067). Remove the oil filter using the OIL FILTER WRENCH HD-44067 . Clean the oil filter mount flange of any old gasket material (surface should be smooth and free of any debris or old gasket material).
4. Inspect o-ring for tears or damage. Replace if required. Wipe any foreign material from plug.
5. Install o-ring and drain plug and tighten to 14-21 ft-lbs (19.0-28.5 Nm).
6. See Applying Thin Oil Film. Apply a thin film of oil to gasket contact surface on mounting plate, gasket and new oil filter.
7. Screw filter onto adapter until gasket contacts plate surface, then apply another 3/4-1 full turn.
8. Fill oil tank with no more than 2.5 U.S. quarts 2.37 liters of oil. Use the proper grade of oil for the lowest temperature expected before next oil change.

CAUTION

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

9. Start engine and carefully check for oil leaks around drain plug and oil filter.
10. See Engine Oil Level. Bring vehicle to operating temperature. Add oil to bring level to full hot (1) on dipstick.



Winter Lubrication

Change engine oil often in colder climates. If motorcycle is frequently used for trips less than 15 mi 24 km , in ambient temperatures below 60 °F 16 °C , reduce oil change intervals to 1500 mi 2400 km .

NOTE:

The further below freezing the temperature drops, the shorter the oil change interval should be.

Water vapor is a normal by-product of combustion in any engine. During cold weather operation, some water vapor condenses to liquid form on the cool metal surfaces inside the engine. In freezing weather this water will become slush or ice. Over time, accumulated slush or ice may block the oil lines and cause engine damage.

If the engine is run frequently and allowed to thoroughly warm up, most of this water will become vapor again and will be blown out through the crankcase breather.

If the engine is not run frequently and not allowed to thoroughly warm up, this water will accumulate, mix with the engine oil and form a sludge that is harmful to the engine.

Transmission Lubrication

The transmission lubricant level should be checked monthly.

Your motorcycle comes equipped with Screamin' Eagle SYN3 Synthetic Motorcycle Lubricant. For transmission lubrication, it is not recommended to mix SYN3 with other lubricant products.

Refer to Regular Service Intervals: 2015 FLSTNSE. The transmission should be drained and refilled with fresh lubricant at proper intervals.

NOTE:

When checking the transmission lubricant level, the motorcycle should be leaning on the jiffy stand. Allow a short period of time to equalize lubricant level in the transmission compartments.

Check Lubricant Level

1. Park motorcycle on the jiffy stand.
2. See Transmission Filler Plug/Dipstick Location. Remove the threaded filler plug/dipstick by turning the plug counterclockwise.
3. See Transmission Filler Plug/Dipstick Lubricant Level. Wipe off filler plug/dipstick and place it back in the filler hole. Do not screw in. (Dipstick should rest on threads of the case.)
4. Remove the plug/dipstick and check the level. The lubricant level should be between the ADD and FULL lines on the dipstick.

WARNING

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

CAUTION

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

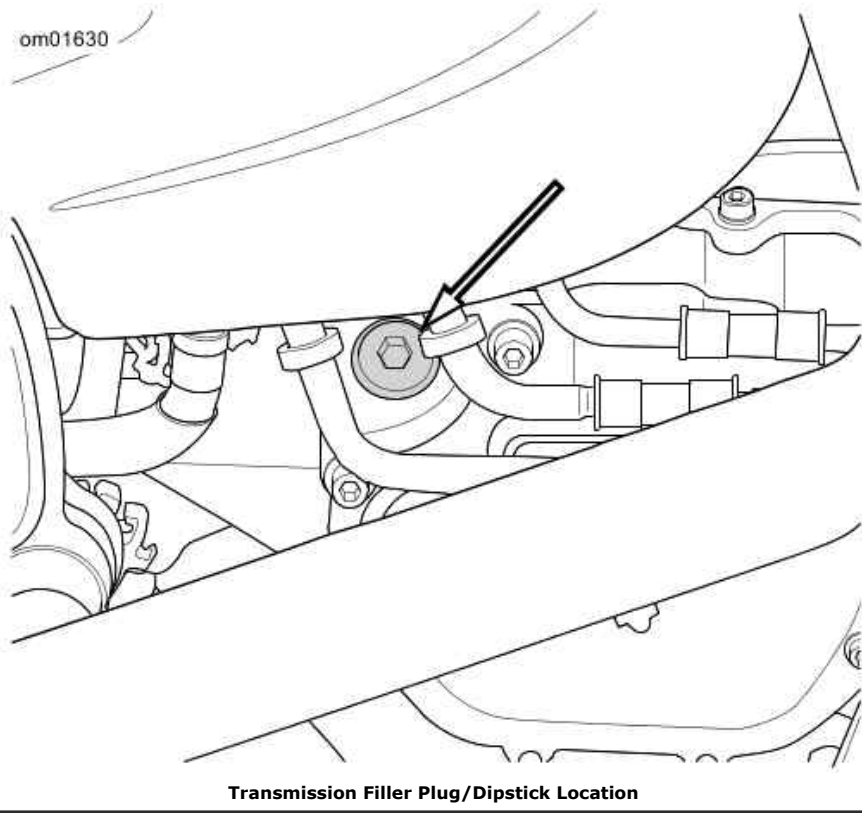
5. If the lubricant level is below the ADD mark, add lubricant. Do not overfill (bringing the level above the FULL mark) or leakage may occur. The transmission fluid capacity is approximately 28-32 fluid ounces 0.83-0.95 liters .

NOTES:

- *When filling the transmission, use Screamin' Eagle SYN3 Synthetic Motorcycle Lubricant (Part No. 99824-03, U.S. quart).*
- *If SYN3 is not available and addition of lubricant to the transmission is required, SYN3 must be completely drained before using other lubricant products. A residual amount of fluid will remain. It is not required to flush out the residual fluid.*

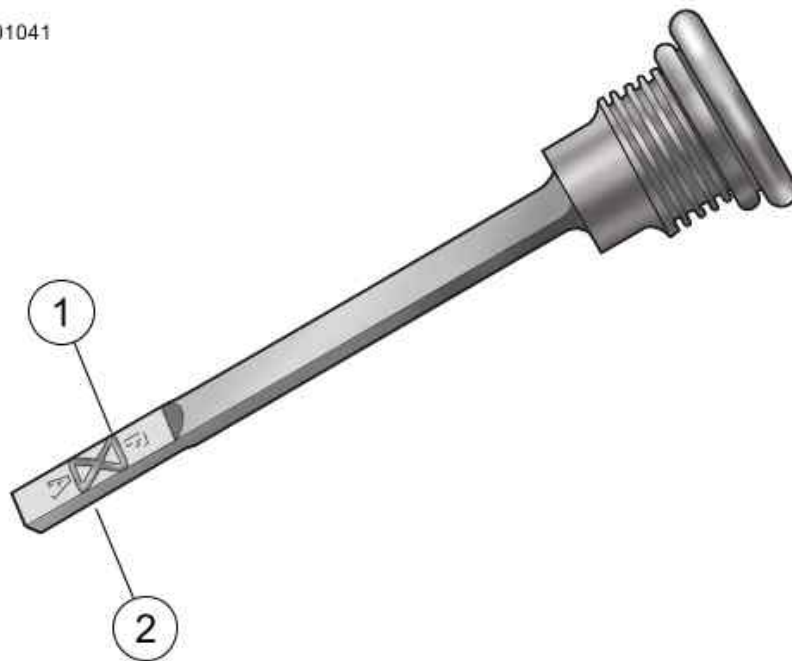
6. Inspect o-ring for tears or damage. Replace if required. Wipe any foreign material from plug.
7. Install threaded filler plug/dipstick and tighten to 25-75 in-lbs (2.8-8.5 Nm).

om01630



Transmission Filler Plug/Dipstick Location

om01041



- 1. FULL
- 2. ADD

Transmission Filler Plug/Dipstick
Lubricant Level

Changing Transmission Fluid

1. See Transmission Filler Plug/Dipstick Location. Remove the transmission filler plug/dipstick.
2. See Transmission Drain Plug (Bottom View). Remove transmission drain plug and drain lubricant into a suitable container.

CAUTION

When draining or adding lubricant, do not allow dirt, debris

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

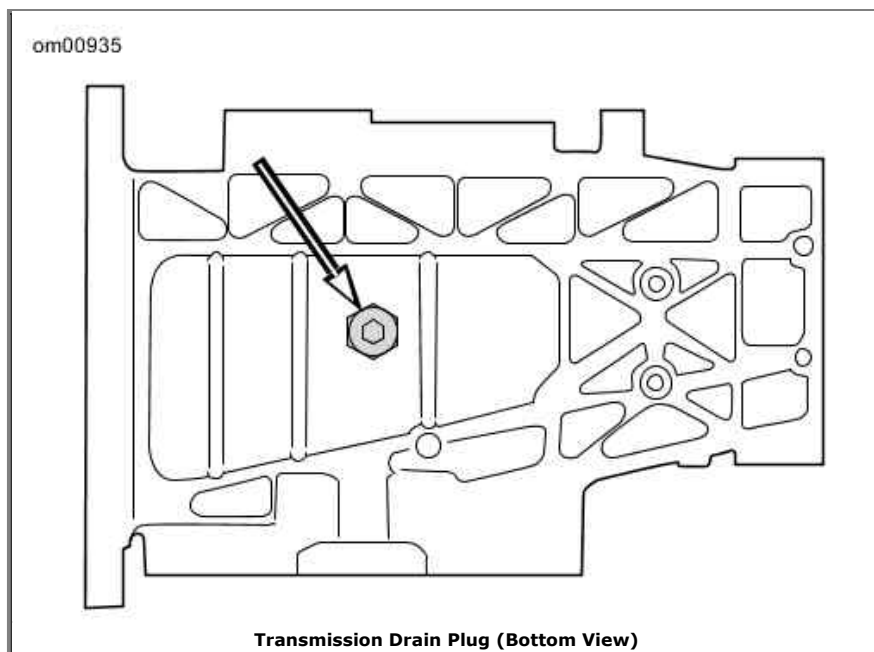
⚠ WARNING

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)

NOTE:

Dispose of transmission lubricant in accordance with local regulations.

3. Inspect o-ring for tears or damage on the drain plug. Replace if required. Wipe any foreign material from plug.
4. Install drain plug and tighten to 14-21 ft-lbs (19.0-28.5 Nm).
5. Fill the transmission with 28-32 fluid ounces 0.83-0.95 liters of Screamin' Eagle SYN3 Synthetic Motorcycle Lubricant (Part No. 99824-03, U.S. quart). Do not overfill or leakage may occur.
6. Install threaded filler/check plug and tighten to 25-75 in-lbs (2.8-8.5 Nm).
7. Start engine and carefully check for oil leaks around drain plug.
8. See Transmission Filler Plug/Dipstick Lubricant Level Bring vehicle to operating temperature. Add oil to bring level to full (1) on dipsitck.
9. Install threaded filler/check plug and tighten to 25-75 in-lbs (2.8-8.5 Nm).



Chaincase Lubricant

Refer to Regular Service Intervals: 2015 FLSTNSE. The chaincase lubricant should be drained and refilled with fresh lubricant at proper intervals.

CAUTION

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)

Changing Chaincase Lubricant

1. Ride motorcycle until engine is warmed up to normal operating temperature.

CAUTION

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

2. See Clutch Cover. Using a T27 TORX drive head, remove five screws (3) (with captive washers) to free clutch inspection cover (2) from primary chaincase cover.
3. See Removing Chaincase Drain Plug. Remove magnetic drain plug at bottom of inner primary chaincase cover. Drain lubricant into suitable container.

NOTE:

Dispose of chaincase lubricant in accordance with local regulations.

4. Clean drain plug. If plug has accumulated a lot of debris, inspect the condition of the chaincase components.
5. Install **new** o-ring on drain plug.
6. Install drain plug back into inner primary chaincase cover. Tighten plug to 14-21 ft-lbs (19-28 Nm).

CAUTION

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)

7. Pour 32 fluid ounces 0.95 liter of Harley-Davidson Screamin' Eagle SYN3 Synthetic Motorcycle Lubricant (Part No. 99824-03 U.S. quart) through the clutch inspection cover opening.

⚠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)

CAUTION

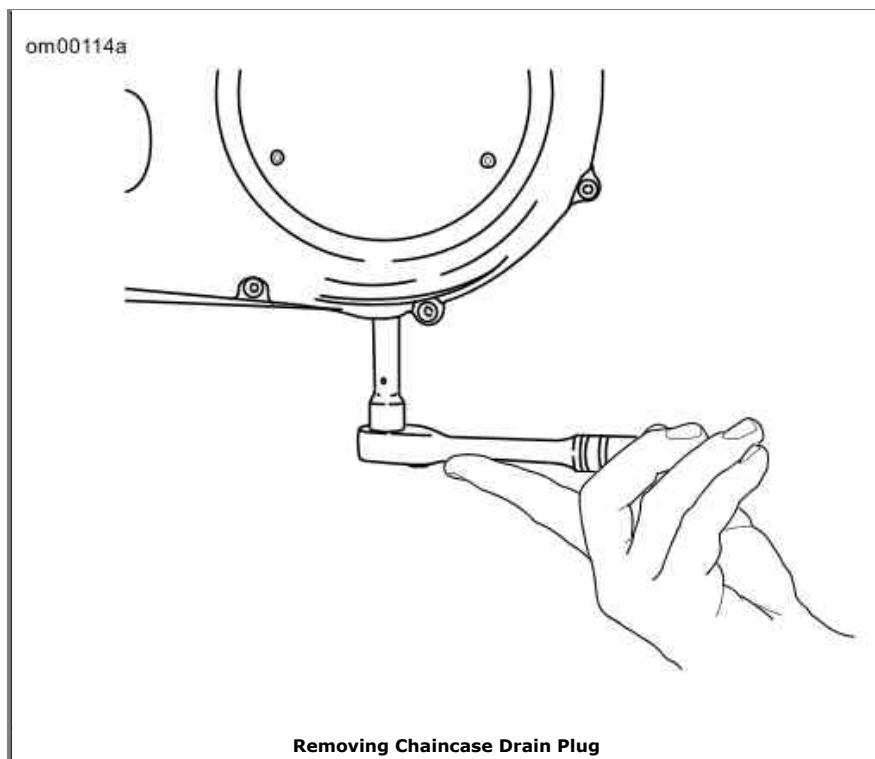
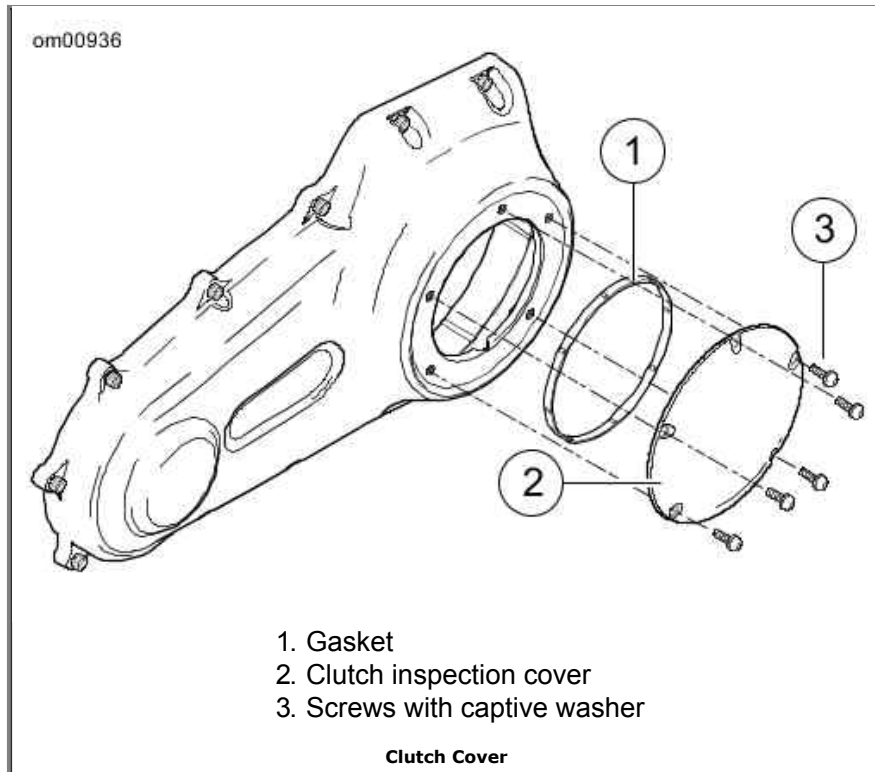
When draining or adding lubricant, do not allow dirt, debris or other contaminants to enter the engine. (00198a)

NOTE:

Use only Harley-Davidson Screamin' Eagle SYN3 Synthetic Motorcycle Lubricant.

8. Install clutch inspection cover and **new** gasket as follows:
 - a. Thoroughly wipe all lubricant from cover mounting surface and groove in chaincase.
 - b. Position gasket in groove in primary chaincase cover and press each of the nubs on gasket into the groove. The nubs will retain the seal in position.

- c. Insert screw (with captive washer) through clutch inspection cover and thread it into the top cover screw hole.
- d. Start the remaining four screws (with captive washers).
- e. Using a T27 TORX drive head, alternately tighten screws to 84-108 in-lbs (9.5-12.2 Nm).



Drive Belt

General

The inner tooth surface of the secondary belt has a thin coating of polyethylene lubricant. During initial operation, this coating will wear off as it is burnished into the belt fabric. This is a normal

condition and not an indication of belt wear.

Refer to Regular Service Intervals: 2015 FLSTNSE. Belt tension is set at the factory and should be checked after the first 1000 miles 1600 kilometers and at proper intervals thereafter.

Checking Deflection

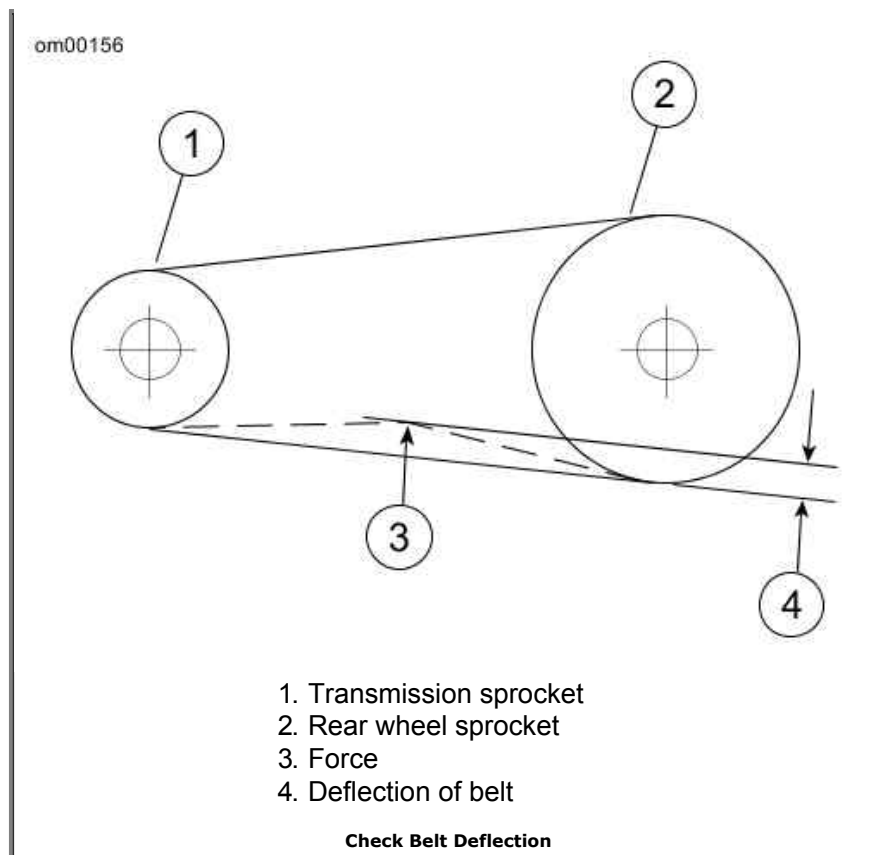
See Check Belt Deflection. Check belt deflection at the loosest spot in the belt with the transmission in neutral and the motorcycle at ambient temperature. Use the BELT TENSION GAUGE HD-35381-A to apply 10 lbs. 4.5 kg of force at the midpoint of the bottom belt strand with motorcycle resting on jiffy stand.

Belt deflection should be within 1/4-5/16 in. 6.4-7.9 mm . If belt tension adjustment is necessary, see a Harley-Davidson dealer or follow the instructions given in the applicable Service Manual.

⚠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)

Check rear brake caliper position on rear brake disc. Disc should run true within brake caliper.



Chassis Lubrication

Refer to Regular Service Intervals: 2015 FLSTNSE for all maintenance schedules.

NOTE:

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

1. Remove and lubricate handlebar throttle control grip sleeve with fresh graphite.

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

NOTE:

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

Oil Applications

Refer to Regular Service Intervals: 2015 FLSTNSE for all control connections and parts. Vehicle should be lubricated at regular intervals, particularly after washing motorcycle or driving in wet weather.

Hydraulic Clutch

Refer to Regular Service Intervals: 2015 FLSTNSE. Check clutch fluid level at specified intervals.

NOTE:

Clutch fluid should never need to be added or removed from the system during normal wear.

1. Position motorcycle and handlebar so that master cylinder reservoir is level.
2. See Clutch Reservoir Sight Glass. Check fluid level in clutch reservoir. Sight glass appears dark if fluid is present. If fluid level is low, proceed to next step.

CAUTION

D.O.T. 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. (00239b)

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

NOTES:

- *Do not overfill clutch reservoir. Clutch fluid volume increases with clutch wear. Overfilling can damage seals and damage clutch system.*
- *If fluid level is substantially above the FILL level, a worn clutch may be the cause.*

⚠ CAUTION

Direct contact of D.O.T. 4 brake fluid with eyes can cause irritation. Avoid eye contact. In case of eye contact flush with large amounts of water and get medical attention. Swallowing large amounts of D.O.T. 4 brake fluid can cause digestive discomfort. If swallowed, obtain medical

attention. Use in well ventilated area. **KEEP OUT OF REACH OF CHILDREN.** (00240a)

CAUTION

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

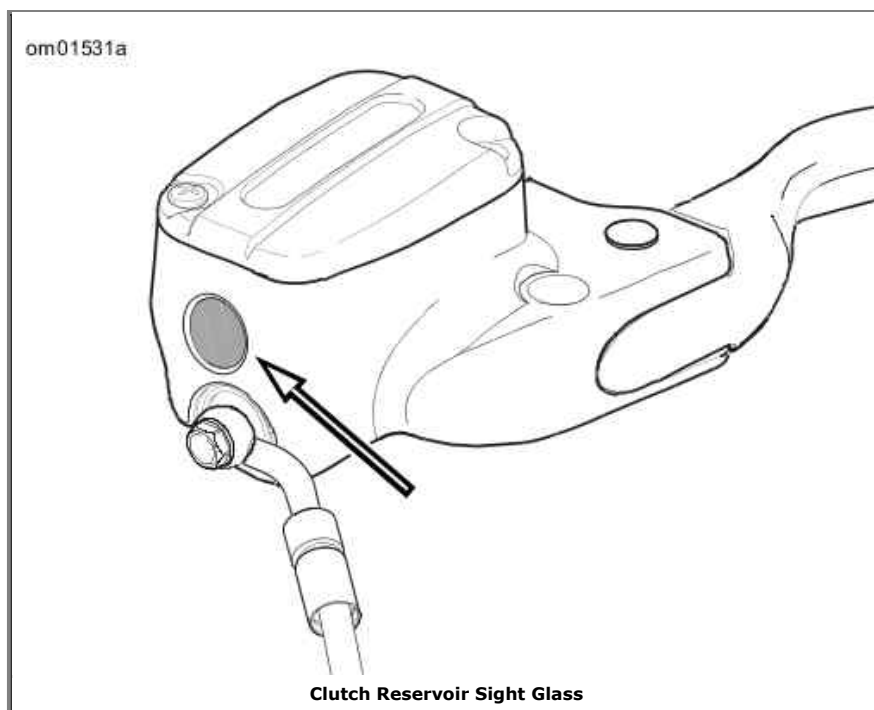
CAUTION

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)

5. Inspect the clutch master cylinder cover gasket for rips, cuts, cracks or other signs of damage. Replace the gasket if necessary. Carefully place the cover and cover gasket on the master cylinder reservoir. Secure with the two cover screws. Tighten the screws to 12-15 in-lbs (1.4-1.7 Nm).

NOTE:

If the fluid level is correct but the clutch does not operate properly, refer to the service manual or see your 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.

Steering Head Bearings

⚠WARNING

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

Check for proper steering head bearing adjustment and lubricate bearings using SPECIAL PURPOSE GREASE at proper intervals. Refer to Regular Service Intervals: 2015 FLSTNSE.

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

Brakes

Refer to Regular Service Intervals: 2015 FLSTNSE. Inspect brake fluid level and check brake pads and discs for wear at proper intervals.

Brake Fluid

⚠WARNING

Clean filler cap before removing. Use only D.O.T. 4 brake fluid from a sealed container. Contaminated fluid can adversely affect braking, which could result in death or serious injury. (00504c)

⚠CAUTION

Direct contact of D.O.T. 4 brake fluid with eyes can cause irritation. Avoid eye contact. In case of eye contact flush with large amounts of water and get medical attention. Swallowing large amounts of D.O.T. 4 brake fluid can cause digestive discomfort. If swallowed, obtain medical attention. Use in well ventilated area. KEEP OUT OF REACH OF CHILDREN. (00240a)

CAUTION

D.O.T. 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. (00239b)

CAUTION

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:

- *If the brake system is not leaking, there should never be a need to add fluid. If the fluid level is low, the pads are probably worn. By replacing the pads, the fluid level will return to its normal level.*
- *Use only DOT 4 brake fluid and replace the brake fluid every two years. See a Harley-Davidson dealer.*

1. Position vehicle on a flat, level surface.

a. **Front brake:** Level the master cylinder by turning the handlebar and/or standing the motorcycle upright (not leaning on jiffy stand).

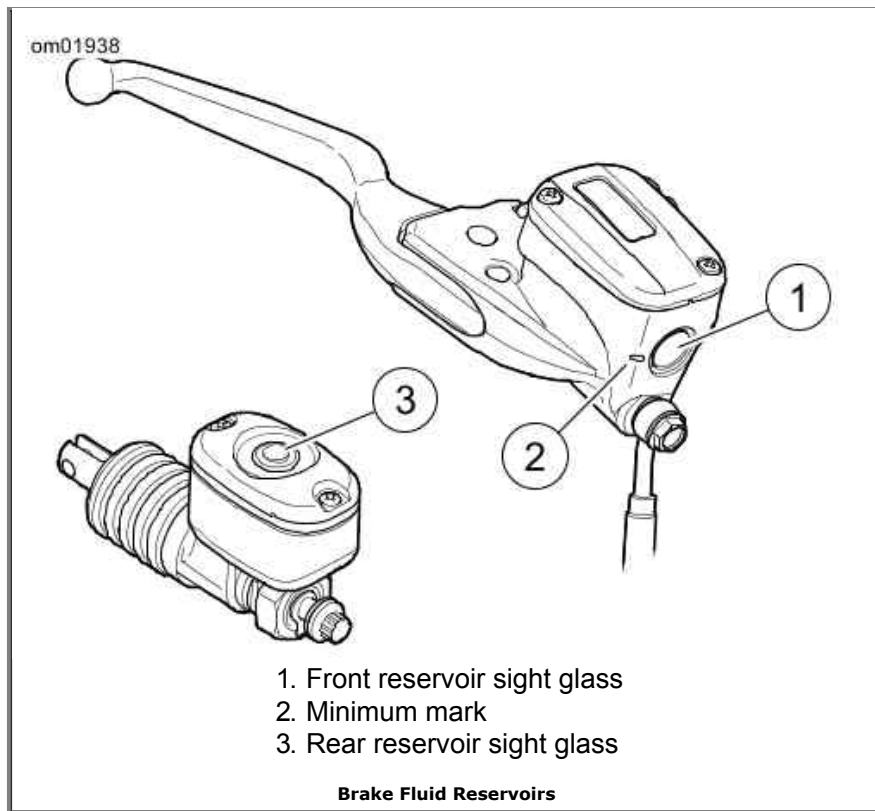
b. **Rear brake:** Position the motorcycle so the master cylinder reservoir is level.

2. See Brake Fluid Reservoirs. View reservoir sight glass.

a. **Front:** Verify that fluid is visible in the sight glass (1). If the fluid level is below the minimum mark (2) or not present, see a Harley-Davidson dealer.

b. **Rear:** Verify fluid presence. The sight glass (3) appears dark if fluid is present. If the sight glass is clear, see a Harley-Davidson dealer.

3. 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.



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)

⚠WARNING

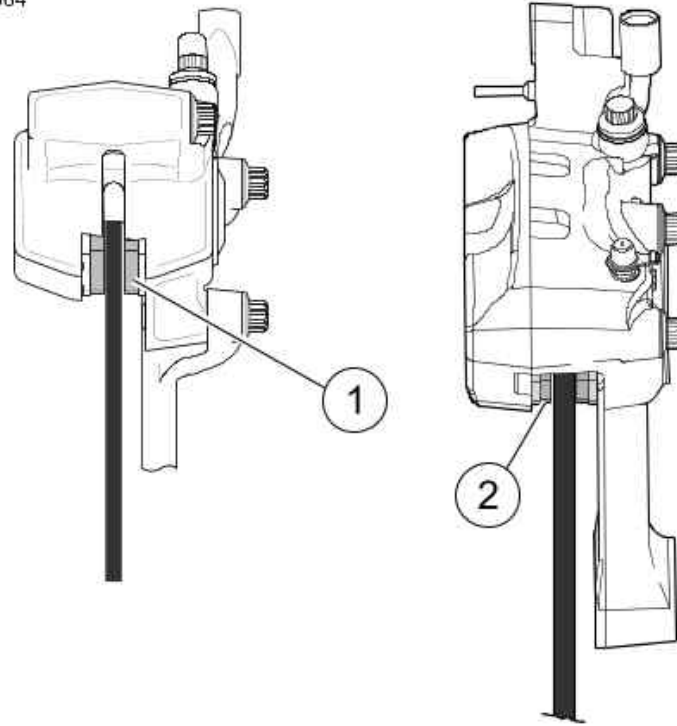
Be sure wheel and brake caliper are aligned. Riding with a misaligned wheel or brake caliper can cause the brake disc to bind and lead to loss of control, which could result in death or serious injury. (00050a)

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

Minimum Brake Pad Friction Material Thickness

in	mm
0.040	1.02

1. See Brake Friction Material. Check the brake disc as it spins. The disc should run true in the brake caliper.
2. Measure the thickness of the brake pad friction material. The pads do not necessarily wear evenly. Check each pad. The grooves on the brake pads are no longer visible when the pads are near the end of service life.
3. Refer to Minimum Brake Pad Friction Material Thickness. If the brake pad friction material is at the minimum thickness or less, replace the pads. Always replace brake pads in pairs. See a Harley-Davidson dealer.



1. Front brake
2. Rear brake

Brake Friction Material

Tires

Refer to Specified Tires for tires and pressures.

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

⚠WARNING

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

⚠WARNING

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

⚠WARNING

Only install original equipment tire valves and valve caps. A valve, or valve and cap combination, that is too long or too heavy can strike adjacent components and damage the valve, causing rapid tire deflation. Rapid tire deflation can

cause loss of vehicle control, which could result in death or serious injury. (00281a)

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

Use only Harley-Davidson specified tires. Refer to Specified Tires Tire Specifications. Other tires may not fit correctly and could adversely affect stability, handling and performance.

⚠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 (130 km/h). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

⚠WARNING

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

Tire Replacement

Inspection

⚠WARNING

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

⚠WARNING

Replace tire immediately with a Harley-Davidson specified tire when wear bars become visible or only 1/32 in (0.8 mm) tread depth remains. Riding with a worn tire could result in death or serious injury. (00090c)

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

tire is worn to the point the tread wear indicator bars become visible on the tread surfaces, or 1/32 in 0.8 mm tread depth remains, the tire can:

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

See Tire Sidewall Wear Bar Locator. Arrows on the tire sidewalls pinpoint location of wear bar indicators.

See Wear Bar Appearance. Always replace tires before the tread wear indicator bars appear.

When To Replace Tires

⚠WARNING

Use only Harley-Davidson specified tires. See a Harley-Davidson dealer. Using non-specified tires can adversely affect stability, handling or braking, which could result in death or serious injury. (00024b)

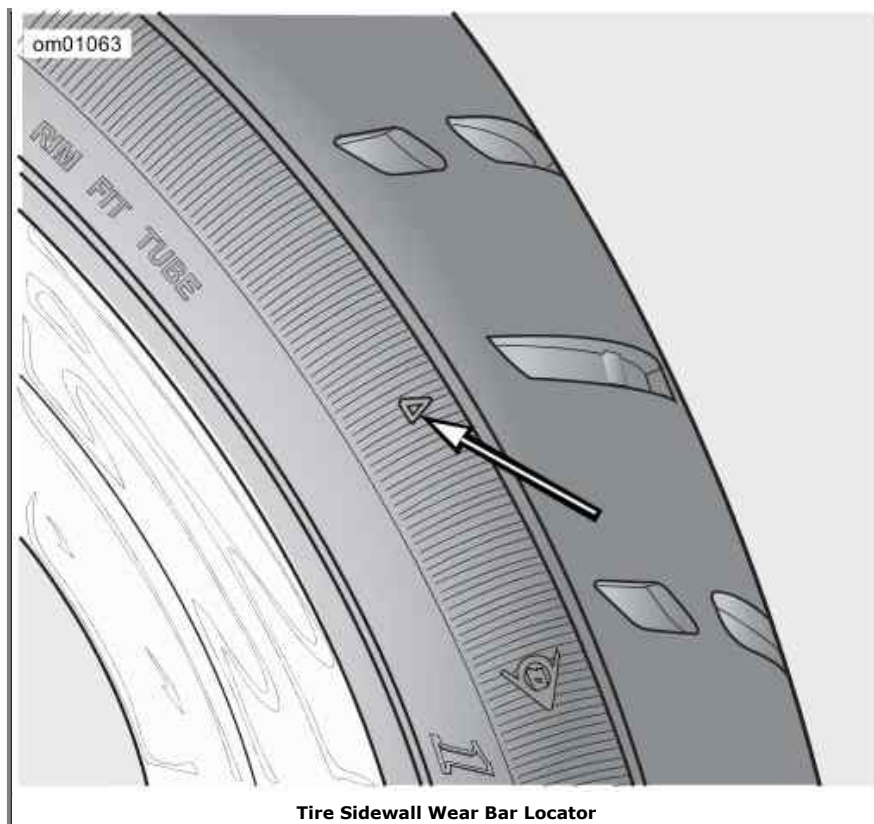
NOTE:

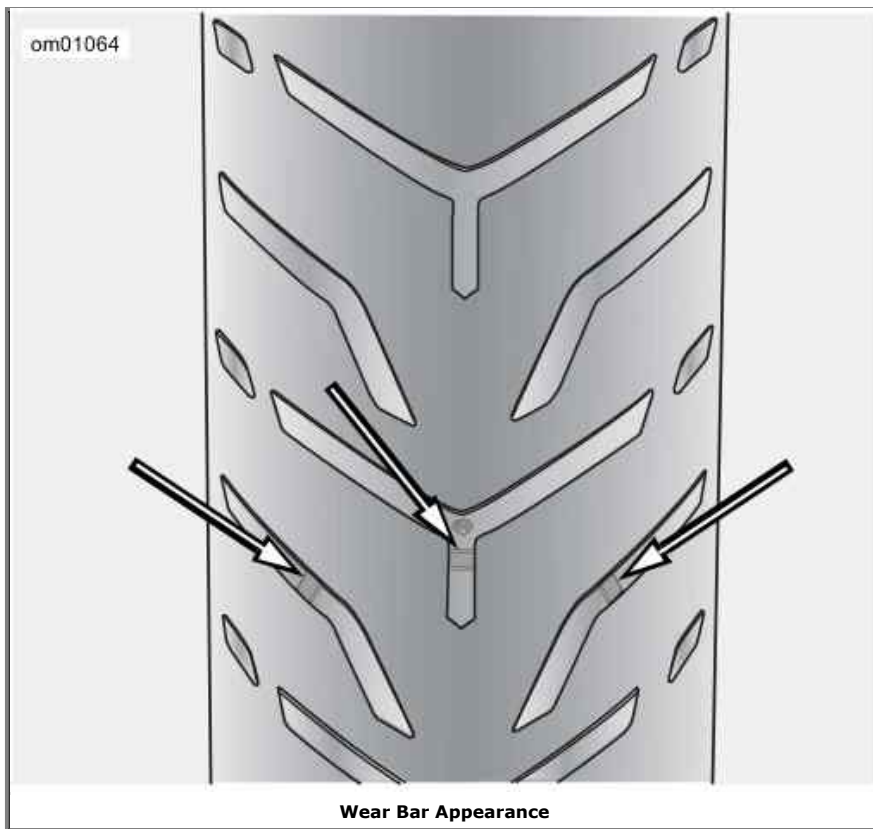
Refer to Specified Tires for the specified replacement tires.

New tires are needed if any of the following conditions exist:

1. Tread wear indicator bars become visible on the tread surfaces.
2. Tire cords or fabric become visible through cracked sidewalls, snags or deep cuts.
3. Bumps, bulges or slits in the tire.
4. 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.





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

⚠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)

Check the spark plugs at proper intervals. Refer to Regular Service Intervals: 2015 FLSTNSE.

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.

NOTE:

*If a torque wrench is not available, tighten **new** spark plugs finger-tight and then tighten an additional one-quarter turn with a spark plug wrench.*

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

Air Filter Element

⚠ WARNING

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

CAUTION

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

NOTE:

Refer to Regular Service Intervals: 2015 FLSTNSE. Remove air cleaner cover and inspect filter element at proper intervals. When operated under dusty conditions, inspect more often.

1. Remove fasteners (1) and air cleaner insert (2).
2. Remove fastener (3) and air cleaner cover (4).
3. Remove fasteners (5) and air filter element (6).

NOTES:

- *Never strike filter element on a hard surface to dislodge dirt.*
 - *Fill the cleaning pan only about 0.375 in 9.5 mm deep to prevent dirty cleaning solution from entering the inside of the element.*
4. Use a shallow pan with lukewarm water and a mild detergent to wash the paper/wire mesh filter element. Roll the element in the solution to soak the entire outer perimeter being careful not to let cleaning solution inside the element.
 5. Remove element and allow five minutes for solution to dissolve dirt.
 6. From the inside out, rinse the element.
 7. Shake off excess water and allow filter element to air dry. Do NOT use compressed air!
 8. Hold the filter element up to a strong light source. The element is sufficiently clean if light is uniformly visible through the media.
 9. Replace the filter element if damaged or if filter media cannot be adequately cleaned.

NOTE:

Never apply oil to air filter element.

10. Apply a drop of LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (blue) to the threads of the filter element fasteners (5). Tighten screws to specification. Refer

to Air Cleaner Fastener Torque.

11. Install air cleaner cover (4) and tighten fastener (3) to specification. Refer to Air Cleaner Fastener Torque.
12. Install insert (2) and tighten screw (1) to specification. Refer to Air Cleaner Fastener Torque.

NOTE:

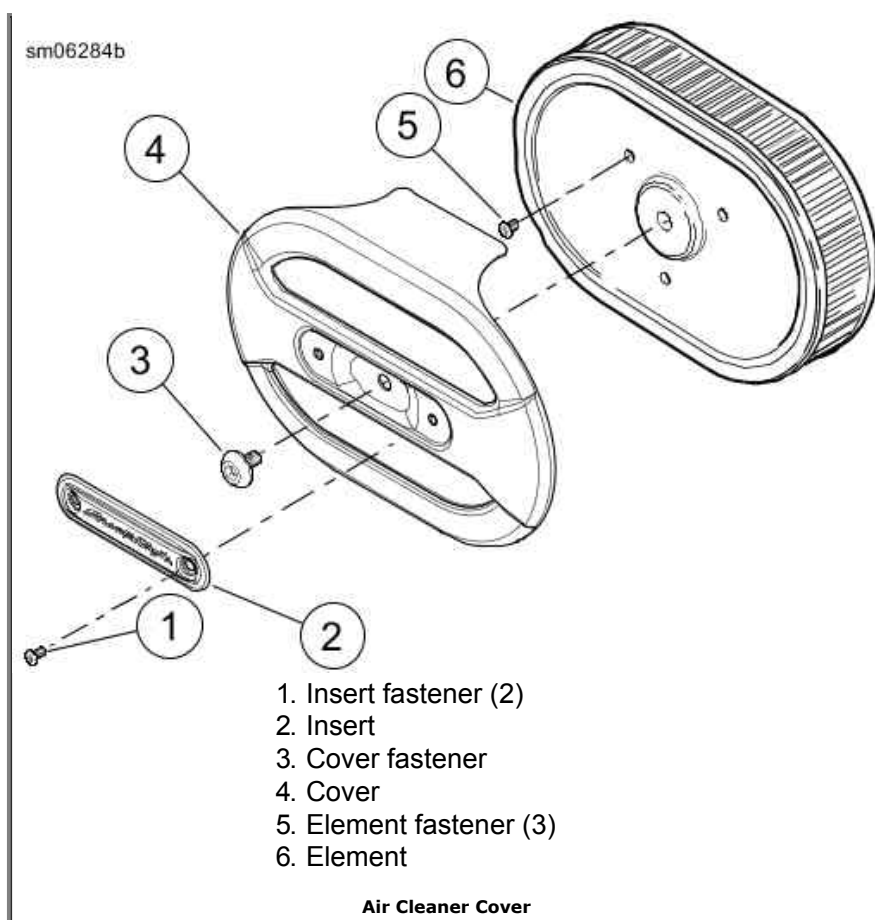
Water intrusion could occur in rainy conditions with an exposed filter element:

- *When parked resulting in internal engine damage.*
- *When running resulting in engine misfire.*

When not operating the motorcycle, cover the exposed air filter element with the provided rain sock to prevent the chance of water intrusion.

Air Cleaner Fastener Torque

FASTENER	TORQUE
Air filter element	55-60 in-lbs (6.2-6.8 Nm)
Air cleaner cover	36-60 in-lbs (4.0-6.8 Nm)
Air cleaner insert	27-32 in-lbs (3.1-3.6 Nm)



Headlamp LED Assembly Replacement

⚠WARNING

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

CAUTION

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)

LED Assembly Removal

⚠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 Fuses.
2. See Headlamp LED Assembly. Remove trim ring screw (1).
3. Remove trim ring (2).
4. Remove retaining ring screws (4).
5. Remove retaining ring (3).
6. Replace LED assembly.

LED Assembly Installation

CAUTION

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)

NOTE:

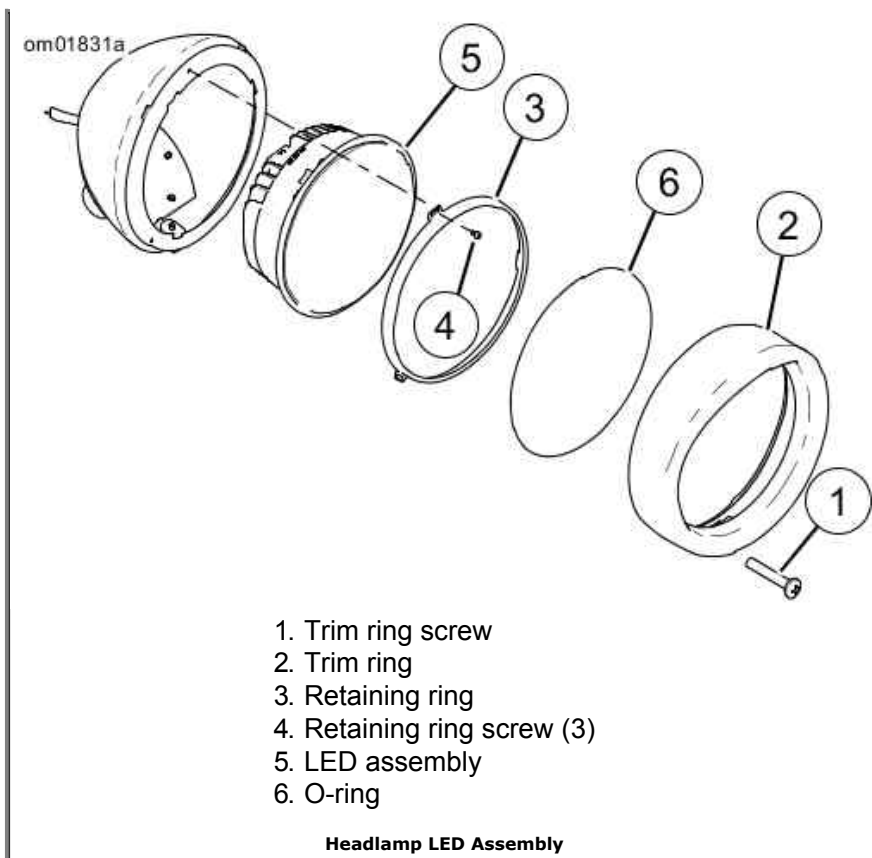
When installing a **new** LED assembly, make sure that connector contacts are clean for good electrical contact.

1. See Headlamp LED Assembly. Install retaining ring (3).
2. Install retaining ring screws (4).
3. Install trim ring (2).
4. Install trim ring screw (1).
5. Install main fuse.

⚠WARNING

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

6. Check for proper operation of headlamp.



Headlamp Halogen Bulb Replacement

⚠ WARNING

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

CAUTION

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)

Replace failed bulbs. Refer to Bulb Chart for bulbs.

Bulb Removal

⚠ 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 Fuses.
2. See Headlamp Halogen Bulbs. Remove trim ring screw (1).
3. Remove trim ring (2).
4. Remove retaining ring screws (4).

5. Remove retaining ring (3).
6. Remove headlamp lens (5).
7. Replace bulb.

Bulb Installation

CAUTION

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)

NOTE:

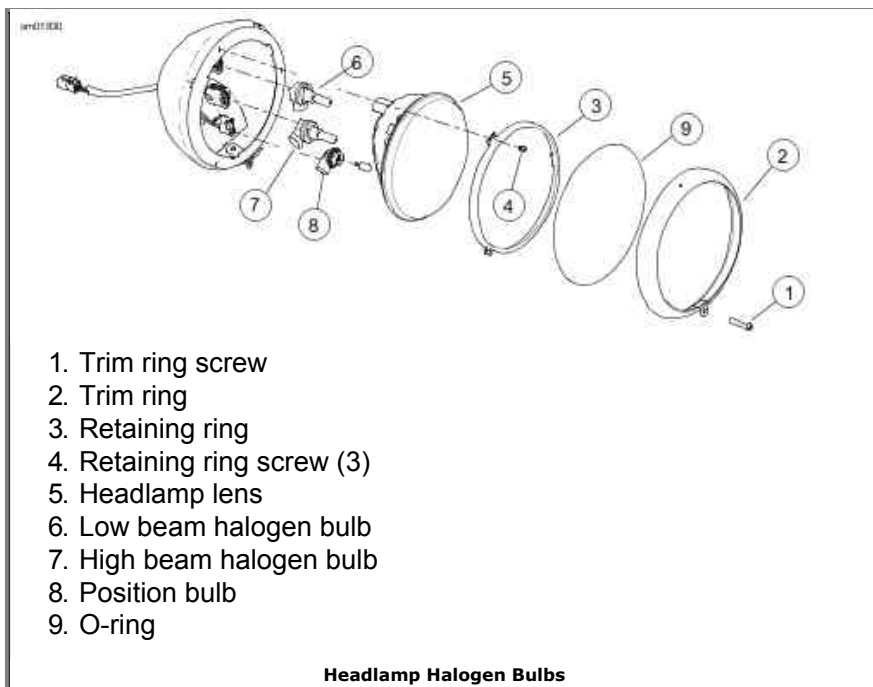
*When installing a **new** bulb, make sure that connector contacts are clean for good electrical contact.*

1. See Headlamp Halogen Bulbs. Install headlamp lens (5).
2. Install retaining ring (3).
3. Install retaining ring screws (4).
4. Install trim ring (2).
5. Install trim ring screw (1).
6. Install main fuse.

WARNING

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

7. Check for proper operation of headlamp.



Checking Headlamp Alignment

⚠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)

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

NOTE:

Choose a wall in minimum light.

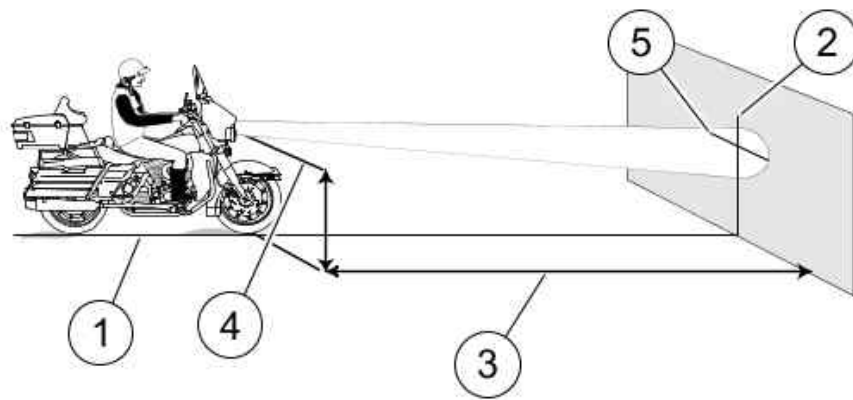
4. See Headlamp Alignment: Quartz Halogen Type. Park the motorcycle on a line (1) perpendicular to the wall.
5. Position motorcycle with the front axle 25 ft 7.6 m from wall.
6. Draw a vertical centerline (2) on the wall.

NOTE:

The upper lens is low beam on LED headlamps.

7. With the motorcycle loaded, point the front wheel straight forward at wall. Measure the distance (4) from the floor to the bulb centerline:
 - a. **Quartz halogen:** Center of **high** beam bulb.
 - b. **LED:** Center of **low** beam bulb.
8. Draw a horizontal line (5) through the vertical line:
 - a. **Quartz halogen:** See Headlamp Alignment: Quartz Halogen Type. 2.1 in 53.3 mm lower than **high beam** bulb centerline.
 - b. **LED:** See Headlamp Alignment: LED Type (typical). At **low beam** centerline.
9. The headlamp is aligned when the light beam hot spot is located as shown.
 - a. **Quartz halogen:** See Headlamp Alignment: Quartz Halogen Type. Hot spot centered on mark with headlamp set to **high beam**.
 - b. **LED:** See Headlamp Alignment: LED Type (typical). Top of hot spot at mark with headlamp set to **low beam**.

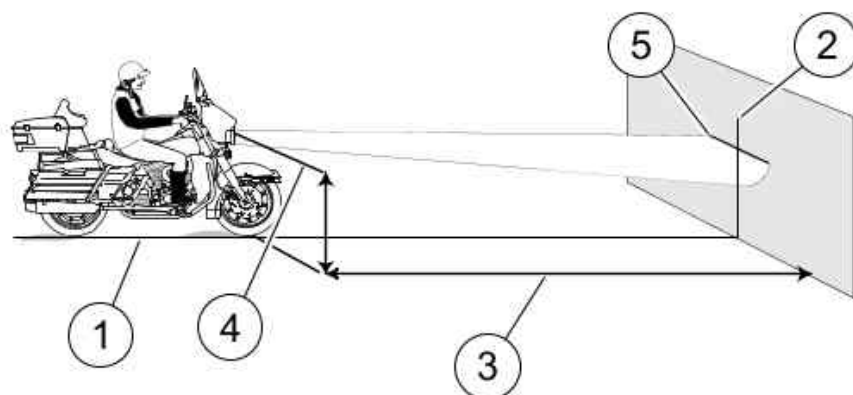
sm05861



1. Perpendicular line
2. Vertical line
3. 25 ft (7.6 m)
4. High beam bulb centerline
5. Horizontal line 2.1 in (53.3 mm) lower than high beam centerline

Headlamp Alignment: Quartz Halogen Type

sm05861a



1. Perpendicular line
2. Vertical line
3. 25 ft (7.6 m)
4. Low beam bulb centerline
5. Horizontal line

Headlamp Alignment: LED Type (typical)

Headlamp Adjustment

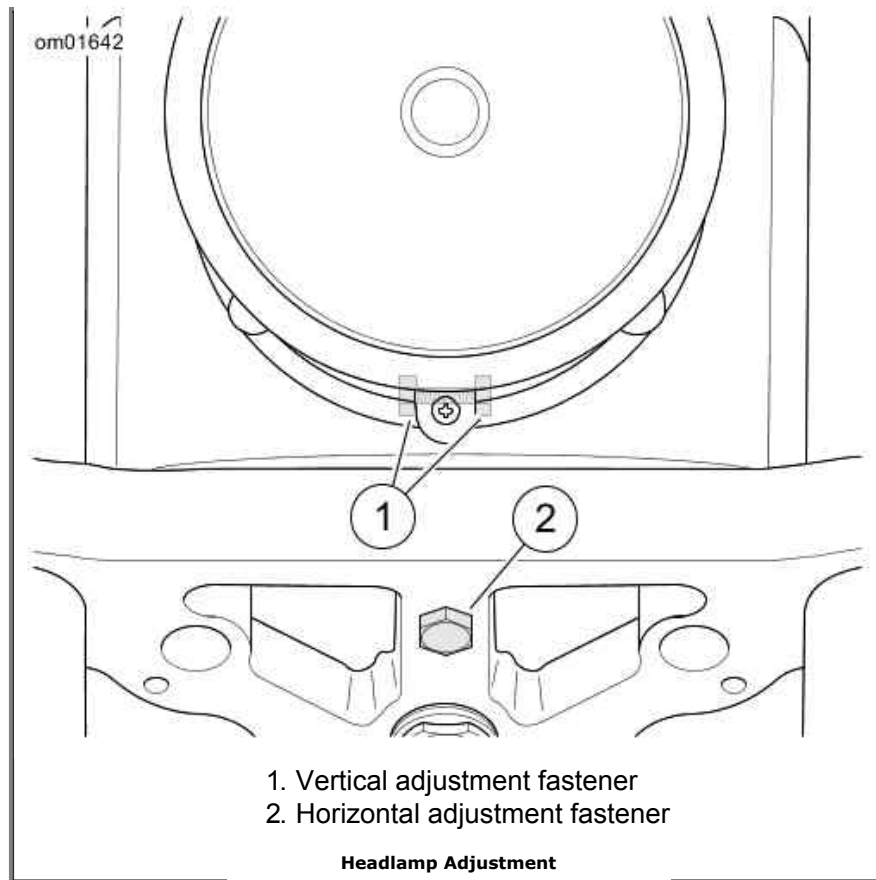
1. See Headlamp Adjustment. Loosen horizontal adjustment fastener (2). Tilt headlamp left or right to direct light beam straight ahead.
2. Tighten horizontal adjustment fastener to 30-35 ft-lbs (40.7-47.5 Nm).

NOTE:

The vertical adjustment fastener (1) may be more easily accessed from the rear of the panel.

3. Loosen vertical adjustment fastener (1). Tilt headlamp up or down in relationship to the horizontal line from the headlamp alignment inspection.

4. Tighten vertical adjustment fastener to 35-45 ft-lbs (47.5-61.0 Nm).



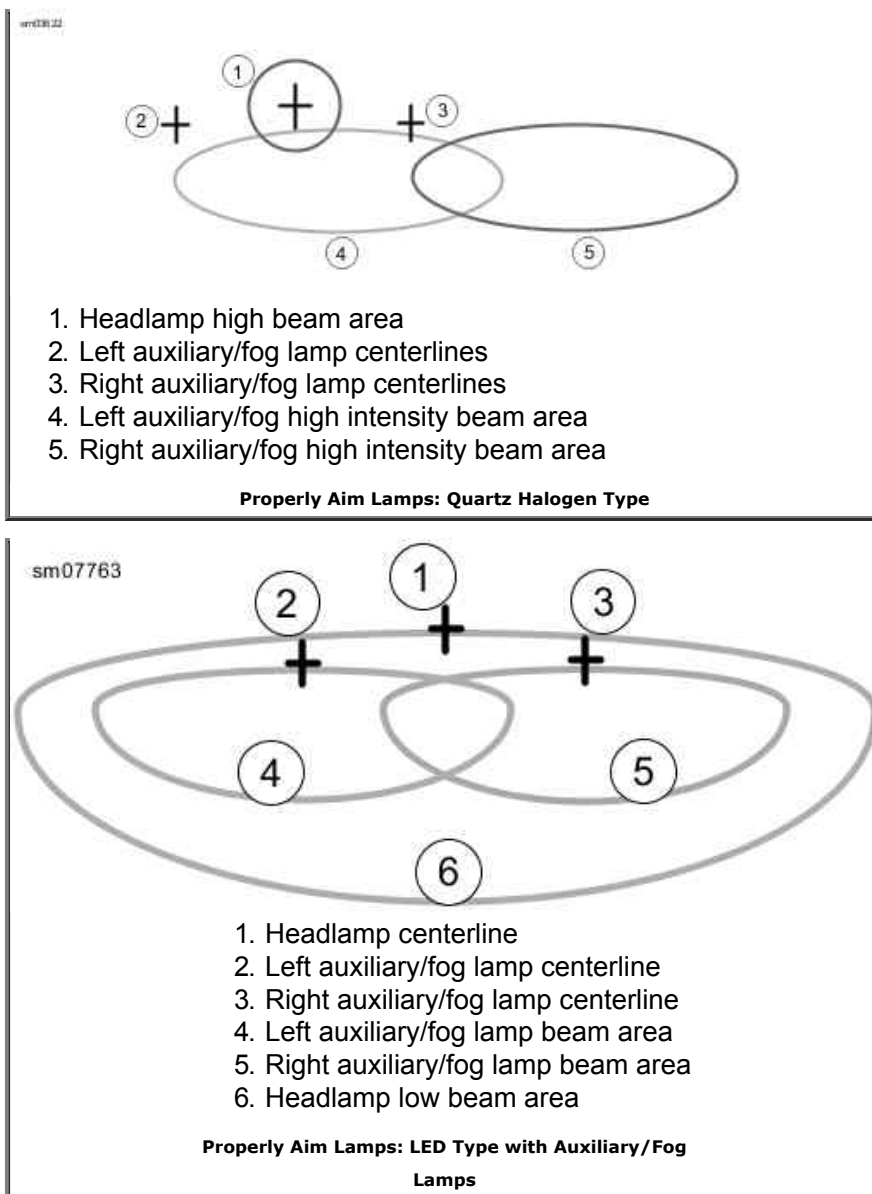
Auxiliary/Fog Lamp Alignment

1. Place the vehicle facing a target wall as described in Checking Headlamp Alignment.

NOTE:

The weight of the rider compresses the suspension slightly. Have a person weighing roughly the same as that of the principal rider sit on the motorcycle.

2. With the vehicle upright and a rider seated on the motorcycle, measure the distance from the floor to the centerline of each auxiliary/fog lamp.
3. Measure the horizontal distance from the headlamp vertical centerline to the vertical centerline of each auxiliary/fog lamp.
4. See Properly Aim Lamps: Quartz Halogen Type. Mark the auxiliary/fog lamp horizontal and vertical centerlines (2, 3) on the wall.
5. Turn on the headlamp low beam and cover both the headlamp and the right auxiliary/fog lamp.
 - a. **Quartz Halogen:** Adjust the left auxiliary/fog lamp so the entire high intensity zone (4) is below and to the right of the left auxiliary/fog lamp centerlines as shown in Properly Aim Lamps: Quartz Halogen Type.
 - b. **LED:** Adjust the left auxiliary/fog lamp so the entire high intensity zone (4) is below the centerline as shown in Properly Aim Lamps: LED Type with Auxiliary/Fog Lamps.
6. Repeat procedure with right lamp.



Turn Signal Bulb Replacement

Turn signal lamps are illuminated with LEDs. Replace assembly upon failure. Refer to the service manual for removal and installation of the turn signal lamp.

Battery Maintenance

Type

Your motorcycle uses an Absorbed Glass Mat (AGM) battery. The AGM battery is permanently sealed, valve regulated, maintenance-free, lead/calcium and sulfuric acid battery. All batteries are shipped precharged and ready for service. Do not attempt to open the battery for any reason.

Antidotes for Battery Acid

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

⚠WARNING

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

⚠WARNING

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

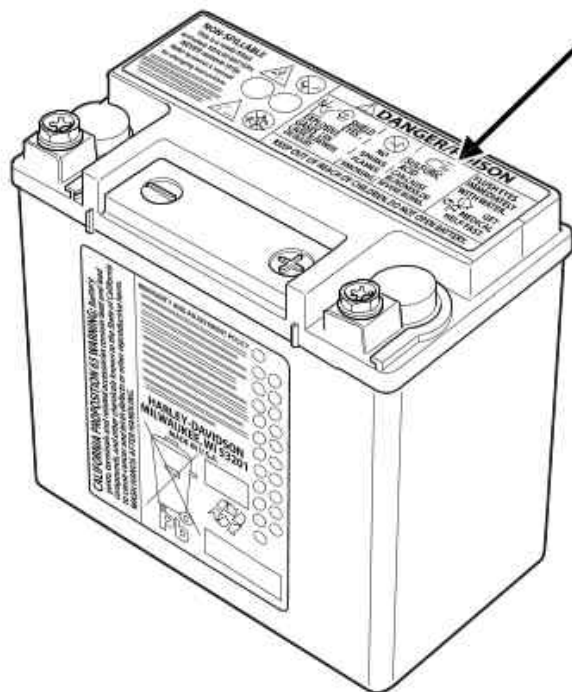
⚠WARNING

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

⚠WARNING

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

om01163



Battery Warning Label



Voltmeter Test

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

Voltmeter Test

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

Cleaning and Inspection

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

1. Clean battery top.
2. Clean cable connectors and battery terminals using a wire brush or fine grit sandpaper to remove any oxidation.
3. Inspect and clean the battery screws, clamps and cables. Check for breakage, loose connections and corrosion.
4. Check the battery posts for melting or damage caused by over-tightening.
5. Inspect the battery for discoloration, a raised top or a warped or distorted case. These conditions might indicate that the battery has been frozen, overheated or overcharged.
6. Inspect the battery case for cracks or leaks.

Charging

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

Charge the battery if any of the following conditions exist:

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

⚠ WARNING

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

⚠ WARNING

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

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

⚠ WARNING

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

⚠ WARNING

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

⚠ WARNING

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

CAUTION

Do not reverse the charger connections described in the

following steps or the charging system of the motorcycle could be damaged. (00214a)

NOTES:

- *Do not use chargers with excessively high voltage designed for flooded batteries or excessively high current designed for much larger batteries. Do not charge at more than 5 amps or more than 14.6 volts.*
- *Most automatic, constant monitoring battery chargers are completely automatic and can be left connected to both AC power and to the battery that is being charged. When leaving this type of charger connected for extended periods of time, periodically check the battery to see if it is unusually warm. This is an indication that the battery may have a weak cell or internal short. Read the manufacturer's instructions for the charger being used.*

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

NOTE:

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

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

⚠ WARNING

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

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

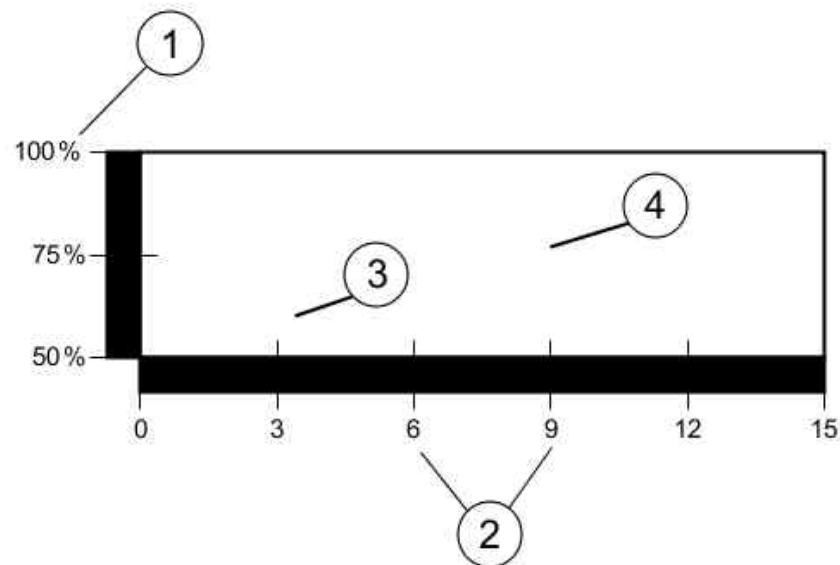
Storage

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

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

A battery that is removed from the vehicle is affected by self-discharge. A battery that is stored in the vehicle is affected by both self-discharge and, more significantly, parasitic loads. Parasitic loads occur from things like diode leakage and maintaining computer memory with the vehicle off.

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



1. Capacity
2. Months of non-use
3. Measured at 105 °F (40 °C)
4. Measured at 77 °F (25 °C)

Effective Rate of Temperature on Battery
Self-discharging Rate

Battery

Disconnection and Removal

See Battery. Before you can inspect or disconnect your battery you must read the section containing information about seat removal.

⚠ 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. If equipped with security system siren, turn the OFF/RUN switch to RUN with the hands-free fob present to disarm the security system.
2. Loosen bolt and remove battery negative cable (black) from battery negative (-) terminal.
3. Loosen bolt and remove battery positive cable (red) from battery positive (+) terminal.
4. Lift battery from battery box within oil tank cavity.

Installation and Connection

CAUTION

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

(00216a)

⚠ WARNING

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

⚠ WARNING

Do not allow positive (+) battery cable to contact ground with negative (-) cable connected. Resulting sparks can cause a battery explosion, which could result in death or serious injury. (00069a)

1. Place the fully charged battery into the battery box located within oil tank cavity, terminal side forward.
2. Install battery positive cable (+) (red) to battery positive (+) terminal.
3. Tighten fastener to 60-70 in-lbs (7-9 Nm).
4. Install battery negative cable (black) to battery negative (-) terminal.
5. Tighten fastener to 60-70 in-lbs (7-9 Nm).

CAUTION

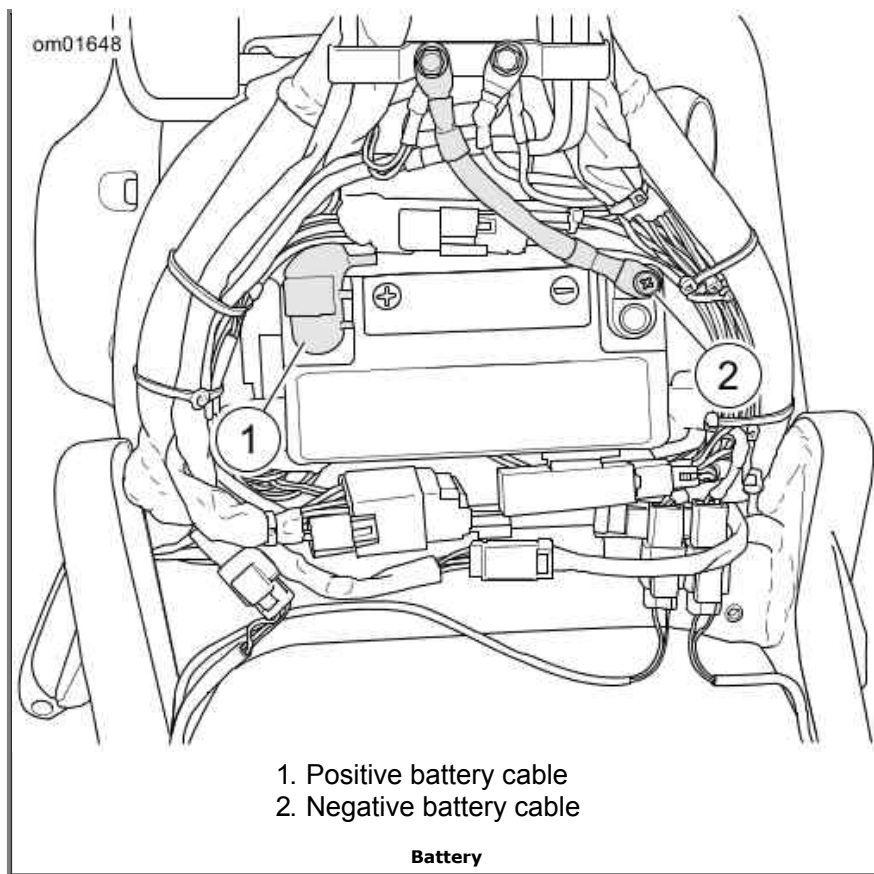
Keep battery clean and lightly coat terminals with petroleum jelly to prevent corrosion. Failure to do so could result in damage to battery terminals. (00217a)

6. Apply a light coat of petroleum jelly or corrosion retardant material to both battery terminals.

⚠ 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)

7. Install seat.



Jump Starting

Jump starting a motorcycle is typically not recommended. However, there may be circumstances when it is necessary to do so. If a jump-start is necessary, use the following procedure.

⚠ WARNING

Be sure jumper cables touch only appropriate battery terminals or ground. Allowing jumper cables to touch each other can result in sparks and a battery explosion, which could result in death or serious injury. (00072a)

⚠ 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)

CAUTION

Be sure both vehicles have the same battery voltage when jump starting. Connecting vehicles with different system voltages can result in vehicle damage. (00220c)

NOTES:

- This procedure presumes the BOOSTER battery is in another vehicle. DO NOT jump start from a running booster vehicle. The high output charging systems on some vehicles can damage the electrical components on the motorcycle.
- Make sure the motorcycle and the BOOSTER vehicle are not touching one another.

1. Turn off all unnecessary lamps and accessories.

Positive Cable

2. See Jump Start Cable Connections. Connect one end of a jumper cable to the DISCHARGED battery positive terminal (1).
3. Connect the other end of the same cable to the BOOSTER battery positive terminal (2).

Negative Cable

⚠ WARNING

Do not connect negative (-) cable to or near the discharged battery negative (-) terminal. Doing so could cause a spark and explosion, which could result in death or serious injury. (00073a)

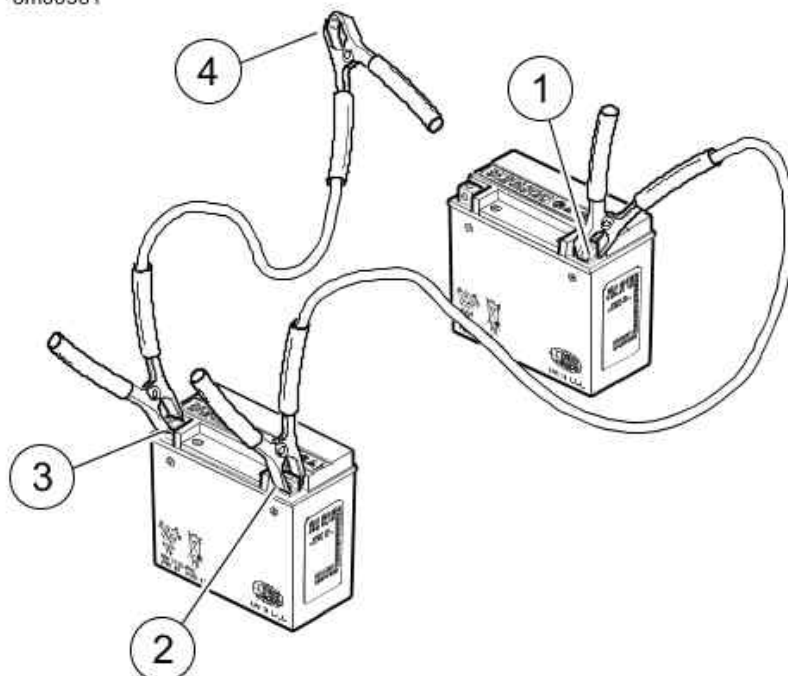
4. Connect one end of a jumper cable to the BOOSTER battery negative (-) terminal (3).

CAUTION

Do not connect the negative (-) cable to painted or chrome parts. Doing so could result in discoloration at the attachment point. (00221a)

5. Connect other end of the same cable (4) to a safe ground, (away from the DISCHARGED battery).
6. Start motorcycle.
7. Disconnect cables in reverse order of Steps 2, 3, 4, 5; that is: Steps 5, 4, 3, 2.

om00381



1. Discharged battery positive (+) terminal
2. Booster battery positive (+) terminal
3. Booster battery negative (-) terminal
4. Ground

Jump Start Cable Connections

Fuses

See Fuse Block. The motorcycle has the following three fuses to protect electrical systems.

Main fuse (1): A 40A fuse that protects all the circuits including those protected by the 15A Battery fuse. Failure of this fuse will cause the motorcycle to stop running. See a Harley-Davidson dealer.

P&A fuse (2): A 15A fuse that protects the circuits of any installed accessories.

Battery fuse (3): A 15A fuse that protects all the circuits. If the battery fuse fails while the engine is running, the engine will continue to run and critical circuits like the ABS brakes will continue to function. The failure of this fuse will trigger a diagnostic code. See a Harley-Davidson dealer.

All other electrical protection for the motorcycle is accomplished by the body control module (BCM). The BCM senses conditions for individual circuits, interrupts power as needed, and resets circuits. If replacing a fuse or cycling power to the motorcycle does not resolve the problem, see an authorized Harley-Davidson dealer for diagnostics and repair.

Fuse Replacement

CAUTION

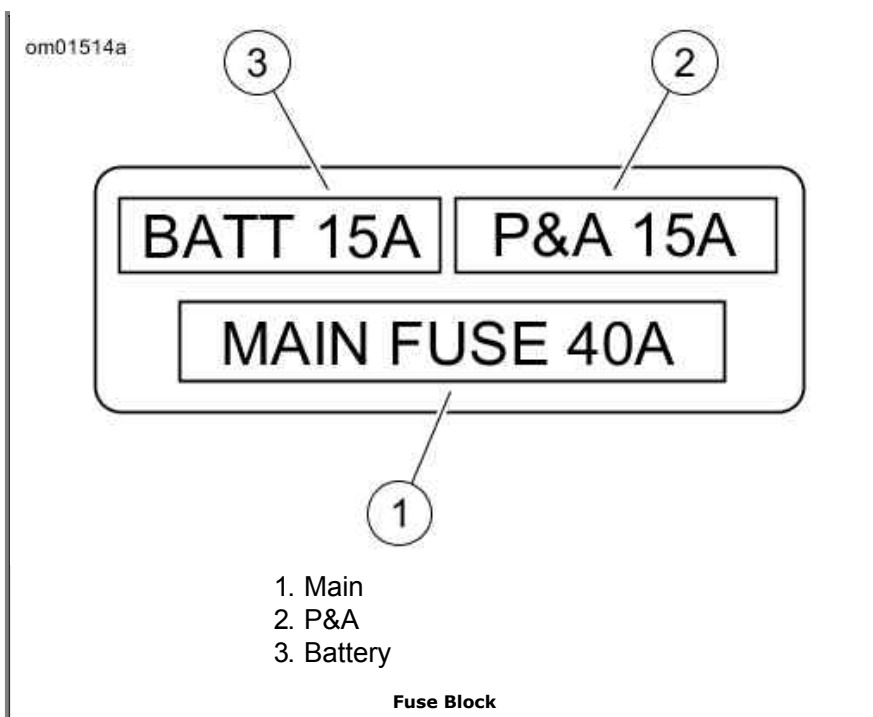
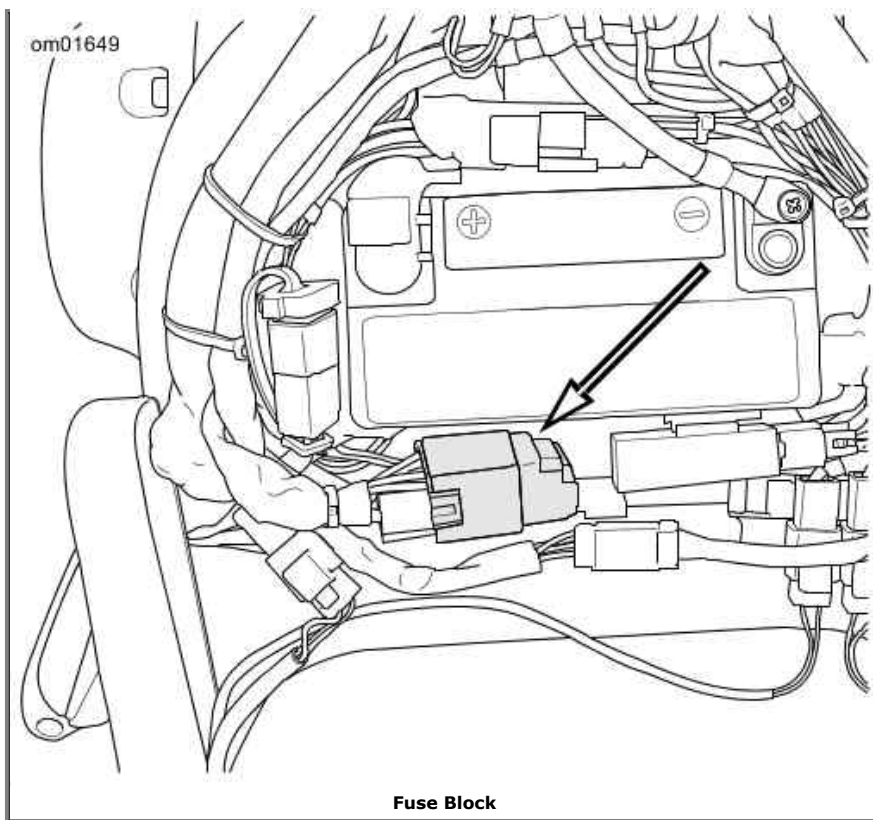
Always use replacement fuses that are of the correct type and amperage rating. Use of incorrect fuses can result in damage to electrical systems. (00222a)

1. Remove the seat. See Seat and Pillion.
2. See Fuse Block. Pull cover off fuse block.
3. See Fuse Block. Replace suspect fuse with a **new** fuse.
4. Place cover on fuse block.

⚠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)

5. Install seat. See Seat and Pillion.



Seat and Pillion

Pillion Removal

1. See Seat and Pillion. Remove the thumbscrew and washer from top of rear fender.
2. Slide the pillion back from the seat mounting screws.

Pillion Installation

1. Slide the front of the pillion to engage the notches in the pillion bracket with the seat mounting screws.

2. Tighten thumbscrew with washer to secure pillion to rear fender.

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)

3. Pull up on pillion to verify that it is properly secured.

Seat Removal

1. See Seat and Pillion. Remove the pillion.
2. Remove the two nuts from the rear of the seat.
3. Lift rear of seat and pull rearward to remove seat.
4. Remove seat strap.

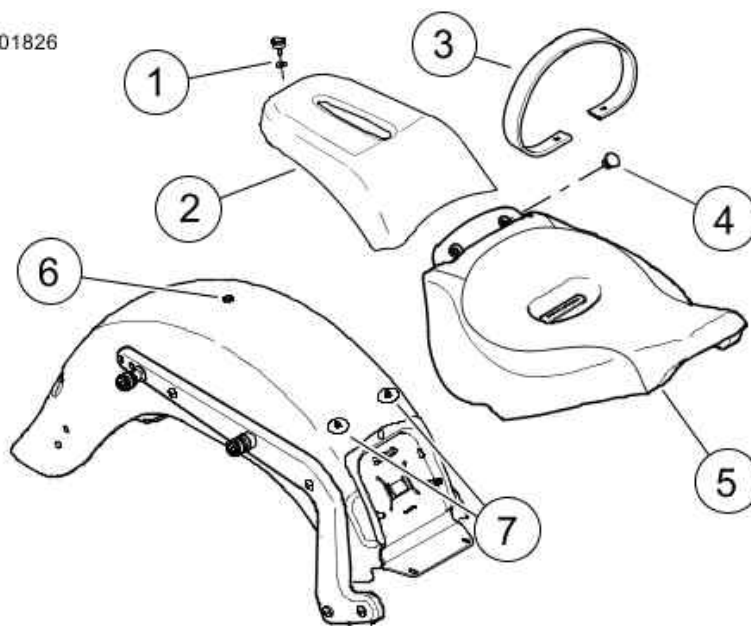
Seat Installation

1. Install seat strap on seat mounting studs.
2. Slide seat toward front of motorcycle to engage the tongue into the slot in the frame back while lowering the rear of the seat onto the seat mounting studs.
3. Install seat mounting nuts. Tighten securely.
4. Install the pillion.

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)

5. Pull up on seat and pillion to verify that it is properly secured.



1. Pillion thumbscrew
2. Pillion
3. Seat strap
4. Seat mounting nuts (2)
5. Seat
6. Pillion mounting nut
7. Seat mounting studs

Seat and Pillion

Passenger Backrest

Installation

1. See Passenger Backrest Docking Points. Stand behind the motorcycle and place the left and right front sideplate notches into the grooves of the front docking points.

NOTE:

Failure to align the front docking points and upright sideplates can damage to the rear docking points or cosmetic finishes.

2. Position rotary latches over the rear docking points. Pull the rotary latches back to their rearmost position.

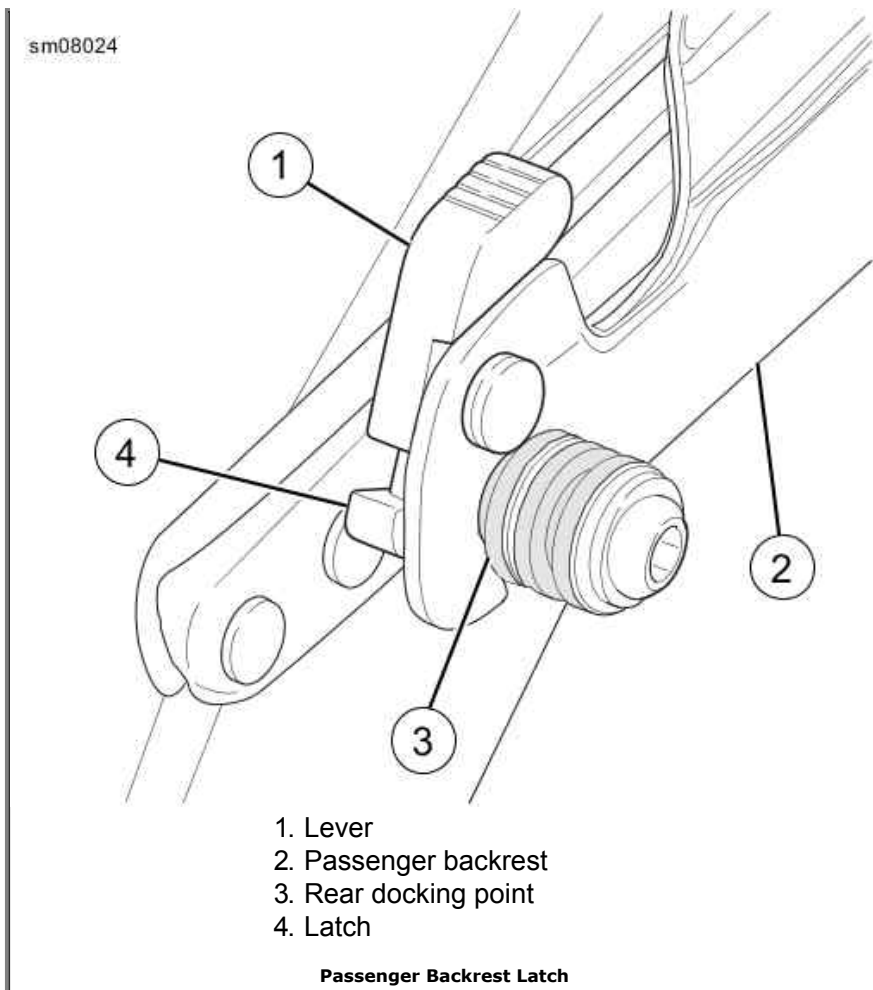
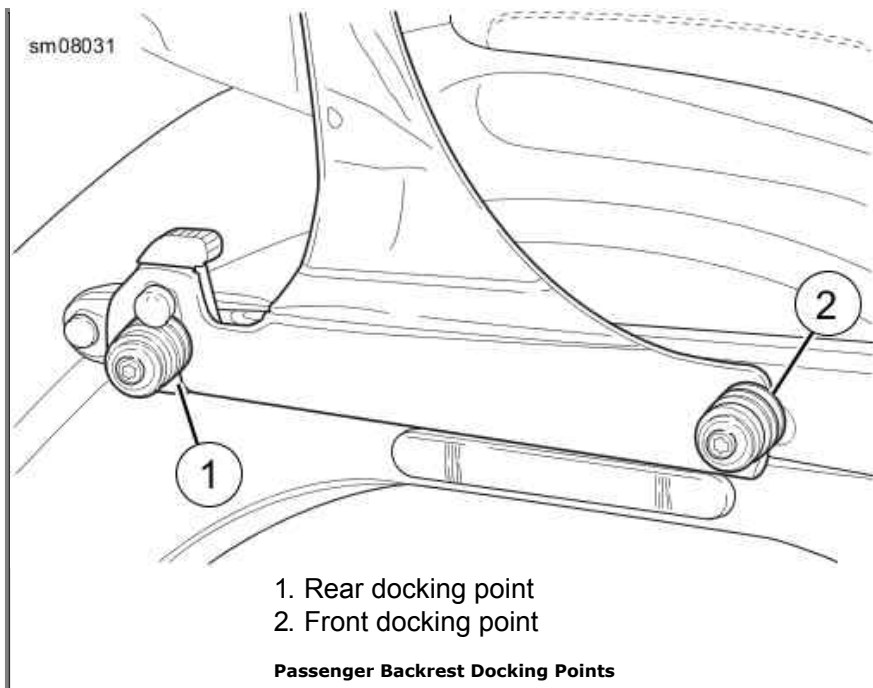
Verify the upright notches and latches fit into the groove of the rear docking point.

3. See Passenger Backrest Latch. Push the rear of the upright sideplates down. Push the latch levers forward to close the rotary latches. A click is heard when the latches are in place.

If the latches do not easily close, do not force. Check the upright alignment again.

Removal

1. Press the release button on each side. Push the latch levers forward.
2. Carefully lift the rear of the sideplates up. Pull the front sideplate notches out of the front docking points.



Motorcycle Storage

Placing Motorcycle in Storage

CAUTION

Proper storage is important for the trouble-free operation of your motorcycle. See your Owner's Manual for storage recommendations or see a Harley-Davidson dealer.

Improper storage procedures can lead to equipment damage. (00046a)

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

Store the motorcycle in a dry area with a stable temperature (if possible). Keep the motorcycle away from harsh chemicals or other substances such as fertilizers or salt.

⚠WARNING

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

NOTE:

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

1. Fill fuel tank. Add fuel stabilizer following manufacturer's instructions.
2. Warm motorcycle to operating temperature. Change oil and turn engine over to circulate the new oil.
3. Check and adjust belt if necessary.
4. Check tire pressure. Refer to Specified Tires for specified pressure.
5. Protect the vehicle's body panels, engine, chassis and wheels from corrosion. Follow the cosmetic care procedures described in the Care and Cleaning section of this owner's manual before storage.
6. Prepare battery for winter storage. See Battery Maintenance.

⚠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)

NOTES:

- *If the motorcycle is being stored with the security system armed, connect a 750Ma SUPERSMART BATTERY TENDER 94654-98B to maintain battery charge.*
 - *If the motorcycle is being stored with the security system disarmed, turn on the motorcycle while the hands-free fob is present. This prevents the optional siren from sounding. Disconnect the negative battery cable and prepare battery for storage. See Battery Maintenance.*
7. If motorcycle is to be covered, use a material such as light canvas that can breathe. Plastic materials that do not breathe promote the formation of condensation.
 8. Remove the antennas (if equipped) or allow them to protrude through the cover. Do not bend or tuck antennas under the cover.

Removing Motorcycle From Storage

⚠WARNING

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

NOTE:

*When lubricants are contaminated by water, they often take on a milky white appearance. Replace contaminated lubricants with the appropriate **new** Harley-Davidson lubricant.*

1. See Battery Maintenance for proper battery care. Charge and install the battery.
2. Run motorcycle until engine is at normal operating temperature. Turn off engine.
3. Check engine oil level.
4. Check the transmission lubricant level.
5. Check controls to make sure that they are operating properly. Operate the front and rear brakes, throttle, clutch and shifter.
6. Check steering for smoothness by turning the handlebars through the full operating range.

⚠WARNING

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

7. Check tire pressure. Refer to Specified Tires for specified pressure.
8. Check overall tire condition. See Tire Replacement.
9. Test all switches and lights for proper operation.
10. Check for any fluid leaks.

CAUTION

Turn engine over a few times to be sure there is no oil in the crankcase and that all oil has been pumped back into the oil tank. Stop engine and re-check oil level. Failure to do so can result in engine damage. (00071a)

Care and Cleaning

Cleaning and General Care

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

Refer to Recommended Cleaning and Care Products and Recommended Surface Care Products. Harley-Davidson cleaning products are tested extensively for use on vehicle surfaces

and are formulated to be compatible with one another. See a Harley-Davidson dealer to purchase recommended cleaning products.

NOTES:

- *Use recommended surface care products. Do not use paper towels, terry cloths, cloth diapers or other materials with nylon fibers which can create fine scratches to surfaces.*
- *Painted finishes and other surfaces may be scratched if gravel, dirt or grime are scraped across the surface during washing. Use clean towels and avoid rubbing sediments across gloss finishes.*
- *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)

CAUTION

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

CAUTION

**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)**

Recommended Cleaning and Care Products

PRODUCT	PART NO.	PURPOSE	FRAME	BODY PANELS	WHEELS	DENIM FINISH	OTHER
BARE ALUMINUM WHEEL PROTECTANT - INDIVIDUAL WIPES	99846-10	Corrosion control for bare aluminum surfaces.	No	No	Yes	No	
BARE METAL POLISH	93600028 (U.S.) 93600083 (Non-U.S.)	Polishes non-clear coated polished aluminum or polished stainless steel surfaces.	As applicable				
BLACK LEATHER REJUVENATOR	93600033 (U.S.) 93600081 (Non-U.S.)	Rejuvenates black leather products so they look brand new.	No	No	No	No	Black leather goods

BOOT MARK REMOVER	93600001 (U.S.) 93600069 (Non- U.S.)	Removes boot marks from chrome exhaust components.	No	No	No	No	Exhaust system
BUG REMOVER	93600022 (U.S.) 93600075 (Non- U.S.)	Removes bugs from metal, plastic or painted surfaces. Also available as individual wipes (93600065).	Yes	Yes	Yes	Yes	
CHROME CLEAN & SHINE	93600003 (U.S.) 93600082 (Non- U.S.)	Shines chrome- plated surfaces and cleans brushed aluminum or stainless steel surfaces.	As applicable				
DENIM PAINT CLEANER	93600064 (U.S.) 93600078 (Non- U.S.)	Waterless quick cleaner and detailer.	Yes	Yes	Yes	Yes	
ENGINE BRIGHTENER	93600002 (U.S.) 93600068 (Non- U.S.)	Rejuvenates wrinkle black engine finish.	No	No	No	No	Wrinkle black engines
GLAZE™ POLY SEALANT	93600026 (U.S.) 93600079 (Non- U.S.)	Polishes windshields, painted surfaces and chrome.	Yes	Yes	As applicable	No	
GLOSS DETAILER	93600062 (U.S.) 93600073 (Non- U.S.)	Produces high gloss with UV protection. Allows chrome to breathe, unlike wax. Good for windshields. Also available as individual wipes (97401- 10).	Yes	Yes	Yes	No	
HARLEY® TRAVEL CARE KIT	93600007	Travel size cleaning and care products.	Yes	Yes	Yes	Yes	
LEATHER PROTECTANT	93600034 (U.S.) 93600080 (Non- U.S.)	Weatherproofs and preserves leather products.	No	No	No	No	Leather goods
QUICK WASH	93600012	A quick wash for	Yes	Yes	Yes	Yes	

	(U.S.) 93600071 (Non-U.S.)	a lightly soiled motorcycle. Cleans all surfaces, sheeting action prevents spots.					
SCRATCH & SWIRL REPAIR	93600025 (U.S.) 93600074 (Non-U.S.)	Removes fine scratches and swirls.	Yes	Yes	No	No	
SEAT, SADDLEBAG & TRIM CLEANER	93600010 (U.S.) 93600070 (Non-U.S.)	Cleans and conditions vinyl, leather and plastic. Use on seats, saddlebags, inner fairings and any other trim.	No	No	No	No	Seats, saddlebags and trim
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	
SUNWASH® BIKE SOAP	93600023 (U.S.) 93600077 (Non-U.S.)	Thorough washing of all surfaces with a wash mitt. Reduces hard water spots when washing a motorcycle in the sun.	Yes	Yes	Yes	Yes	
WHEEL & TIRE CLEANER	93600024 (U.S.) 93600076 (Non-U.S.)	Removes brake dust and road grime from wheels, tires and whitewalls. Do not use on frames or anodized parts.	No	No	Yes	No	Black-coated exhaust pipes and mufflers
WINDSHIELD CLEANER - INDIVIDUAL WIPES	93600067	Quick windshield cleaner in convenient single use wipe.	Yes	Yes	No	No	Windshield
WINDSHIELD WATER REPELLENT	93600032 (Global)	Allows water to bead and dissipate from the windshield.	No	No	No	No	Windshield

Recommended Surface Care Products

PRODUCT	PART NO.	DESCRIPTION
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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.
CLOTH DETAILING STRIPS	94680-99	For cylindrical surfaces such as handlebars, forks, pushrod covers and spokes.
DETAILING SWABS	93600107	Large cotton swabs for cleaning crevices and detailed surfaces.
DISPOSABLE DETAILING SOFT CLOTH	94656-98	Non-absorbent cloth for applying and buffing SWIRL & SCRATCH REPAIR and GLAZE™ POLY SEALANT to painted surfaces or chrome.
HARLEY® WASH BUCKET	94811-10	Wash bucket with apron to hold your supplies. Includes GRIT GUARD® insert.
HOG® BLASTER MOTORCYCLE DRYER	94651-09 (120 V) 94865-09 (220 V)	Blows a stream of warm dry filtered air. Reduces streaks and water spots.
MICROFIBER DETAILING CLOTH	94663-02	Highly absorbent detailing cloth for polishing and sealing. Contains no nylon fibers.
SYNTHETIC DRYING CHAMOIS	94791-01	Extra-absorbent, non-streaking synthetic towel for drying. Dampen towel and wring out before using for greatest absorbency.
WASH MITT	94760-99	Absorbent wool-blended washing mitten.
WHEEL & SPOKE BRUSH	43078-99	Cone-shaped scrub brush for wheels.

Washing the Motorcycle

Use only recommended cleaning and care products. Refer to Recommended Cleaning and Care Products and Recommended Surface Care Products.

NOTE:

During rinsing and washing, avoid direct spray on radio, speakers, saddlebags, trunk or Tour-Pak 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. Use CLOTH

DETAILING STRIPS to clean wheel spokes. 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:

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

1. Fill a HARLEY WASH BUCKET with clean water.
2. Add SUNWASH BIKE SOAP, following the directions on the package.
3. Soak the WASH MITT in the SUNWASH solution. Wash all surfaces from the top working down.
4. Spray BUG REMOVER to remove any bugs.
5. Rinse the motorcycle:
 - 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 as described in Wheel Care to prevent corrosion.

NOTE:

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

Leather and Vinyl Care

CAUTION

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 and should be protected 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 will gain "character", such as wrinkles, with age. Leather is porous and organic and each leather product will settle into its own distinct form with use. Your leather product will mature into its own custom shape and style from the sun, rain and time. This maturing is natural and will enhance the custom quality of your Harley-Davidson motorcycle.

Wheel Care

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

NOTE:

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

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 in Wheel Polish and Sealing Products according to the type of wheels on your motorcycle.

Wheel Polish and Sealing Products

WHEELS	PRODUCT	DESCRIPTION
Anodized	GLAZE™ POLY SEALANT	Cleans surface, removes fine scratches. Provides a breathable sealant against acid, chemicals, salt and brake dust.
	GLOSS DETAILER	Seals and protects against harsh chemicals, salt and other sediments to prevent corrosion.
Bare aluminum	BARE ALUMINUM WHEEL PROTECTANT - INDIVIDUAL WIPES	Creates a protective coating for bare aluminum wheels to prevent oxidation.
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.

Windshield Care

CAUTION

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

CAUTION

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

Windshields require special care. However, windshields may be washed with SUNWASH® BIKE SOAP or QUICK WASH when washing the entire motorcycle. Refer to Recommended Cleaning and Care Products for recommended cleaning products.

NOTES:

- *To treat the windshield with water repellent use WINDSHIELD WATER REPELLENT.*
- *Covering the windshield with a clean, wet cloth for approximately 15-20 minutes before washing makes dried bug removal easier.*

1. Use WINDSHIELD CLEANER - INDIVIDUAL WIPES to detail the windshield.
2. Wipe dry with a clean MICROFIBER DETAILING CLOTH.

NOTE:

To minimize swirl marks, cleaning should be done when motorcycle is cool and parked in the shade. Faint swirl marks are normal and are more visible on tinted windshields.

Troubleshooting

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)

The following checklist of possible operating troubles and their probable causes will be helpful in keeping your motorcycle in good operating condition. More than one of these conditions may be causing trouble and should be carefully checked.

Engine

Starter Does Not Operate or Does Not Turn Engine Over

1. Engine run switch in OFF position.
2. Discharged battery or loose or corroded connections (solenoid chatters).
3. Clutch lever not squeezed against handlebar or transmission not in neutral.
4. Jiffy stand not in retracted position (required for international models).
5. Blown fuse.

Engine Turns Over but Does Not Start

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

Starts Hard

1. Automatic Compression Release (ACR) not functioning properly.
2. Spark plugs in bad condition, have improper gap, or are partially fouled.
3. Spark plug cables in bad condition and leaking.
4. Battery nearly discharged.
5. Loose wire or cable connection(s) at one of the battery terminals or at coil.
6. Engine oil too heavy (winter operation).
7. Fuel tank vent plugged or fuel line closed off, restricting fuel flow.
8. Water or dirt in fuel system.
9. 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. Incorrect spark plug.

Pre-Ignition or Detonation (Knocks or Pings)

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

Overheats

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

Excessive Vibration

1. Rear fork pivot shaft nuts loose. See dealer.
2. Front engine mounting bolts loose. See dealer.
3. Engine to transmission mounting bolts loose. See dealer.
4. Damaged frame. See dealer.
5. Front chain or links tight as a result of insufficient lubrication or belt badly worn.
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. Worn friction discs. See dealer.
2. Insufficient clutch spring tension. See dealer.

Clutch Drags or Does Not Release

1. Primary chaincase overfilled.
2. 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.

Accessories

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 on emissions. See your Harley-Davidson dealer for more information.

Shop For Your Bike

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

Customizer

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

Fit Shop

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

Custom Seats

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

Custom Coverage

Add Accessories To Your New Motorcycle

NOTE:

Custom Coverage is not offered in some regions. See an authorized Harley-Davidson dealer to determine the parts and accessories warranty policies, terms and conditions in your area.

Harley-Davidson offers the Custom Coverage extended limited warranty for parts and accessories that are purchased and installed at an authorized Harley-Davidson dealer within 60 days after retail purchase of the motorcycle.

This limited warranty provides coverage for eligible *street legal* Genuine Harley-Davidson Motor Parts and Genuine Harley-Davidson Motor Accessories. This extended coverage on parts and accessories remains in effect for the remainder of the Harley-Davidson Motorcycle Limited Warranty for the vehicle. See Limited Motorcycle Warranty.

Purchases qualifying for Custom Coverage must be made at an authorized Harley-Davidson dealership within 60 days after retail purchase. Additional parts and accessories may be purchased and installed as often as desired within 60 days after retail purchase of the motorcycle.

Parts and accessories must be purchased and installed at an authorized Harley-Davidson dealership to qualify for Custom Coverage. Parts and accessories purchased via the internet are not eligible.

Warranties and Responsibilities

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 miles 1600 kilometers , 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.

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.

CAUTION

It is possible to overload your vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. See an authorized Harley-Davidson dealer for advice about the amount of current consumed by additional electrical accessories or for necessary wiring changes. (00211c)

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.

California and Select International Markets Evaporative Emission Controls: 2015 Models

All new 2015 Harley-Davidson motorcycles sold in the State of California and select international

markets are equipped with 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. Periodic inspection is required to make sure hoses are properly routed, not kinked or blocked and that all fittings are secure. Mounting hardware should also be checked periodically for tightness.

Warranty/Service Information

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

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

Reporting Safety Defects in the United States

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

NHTSA Statement

If you believe that your motorcycle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Harley-Davidson.

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

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

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

Website: www.safercar.gov

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

Required Documentation for Imported Motorcycles

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

Owner Contact Information

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

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

The rights and benefits conferred upon you and the obligations of Harley-Davidson as set forth herein are separate and distinct from any rights and duties set forth in any service contract you may have purchased from a dealership and/or third-party insurance company. Harley-Davidson

does not authorize any entity to expand Harley-Davidson's warranty obligations in connection with your motorcycle or this limited warranty.

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

Questions and Concerns

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

1. Contact the selling and/or servicing dealership and speak to the sales and/or service manager.
2. If your concern cannot be addressed to your satisfaction by the dealership, contact the Harley-Davidson Customer Support Center by mailing your concern to the following address or calling the phone number below.

In the U.S., state warranty laws, often referred to as lemon laws, may provide you with certain rights not specifically mentioned here. To the extent allowed by your state, Harley-Davidson requests that you first send written notification of any defect or warranty non-conformity that you have experienced with your motorcycle to Harley-Davidson. Harley-Davidson appreciates the opportunity to investigate your concerns and restore your satisfaction in your motorcycle by making the necessary repairs consistent with the terms of Harley-Davidson's limited warranty. Harley-Davidson requests that you send your complaint to the Harley-Davidson Customer Support Center.

- Harley-Davidson Motor Company
- Attention: Harley-Davidson Customer Support Center
- P.O. Box 653
- Milwaukee, Wisconsin 53201
- 1-800-258-2464 (U.S. only)
- 1-414-343-4056

This warranty does not mean that each Harley-Davidson motorcycle is free from defects. Defects may be unintentionally introduced into motorcycles during the design and manufacturing processes and such defects could result in the need for repairs. For this reason, Harley-Davidson provides the Limited Warranty in order to remedy any such defects that result in a component malfunction or failure during the warranty period. The remedy under this written warranty, and any implied warranty, is limited to repair, replacement or adjustment of the defective part. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Harley-Davidson, through its authorized dealers, is willing and able to repair, replace or adjust defective parts in the prescribed manner. Harley-Davidson's liability, if any, shall in no event exceed the cost of correcting any defect as herein provided and upon expiration of this warranty, any such liability shall terminate.

Limited Motorcycle Warranty

2015 Harley-Davidson Motorcycle Limited Warranty

24 Months/Unlimited Miles

Harley-Davidson warrants for any new 2015 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.

These limited warranties are the only express warranties applicable to your motorcycle. No person, including Harley-Davidson dealers, may modify, extend or waive any part of these warranties.

As a condition of these warranties, 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: 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 hitch, non-approved tires, lowering kits, handlebars, and add-ons connected to the factory electrical system.

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.

Limited Motorcycle Warranty (Australia)

Australia/New Zealand 2015 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 2015 or prior-model Harley-Davidson motorcycle in Australia and New Zealand only after 1st January 2015.

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 2015 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 that goods presented for repair may be replaced by refurbished goods of the same type

rather than being repaired. Refurbished parts may be used to repair goods.

The following terms and conditions apply to this H-D Motorcycle Warranty:

Warranty Period

The duration of this H-D Motorcycle Warranty is twenty-four months, starting from the earlier of:

- (a) the date of delivery by an authorised Harley-Davidson dealer to the first retail purchaser; or
- (b) the third anniversary of the last day of the model year of the motorcycle (if not sold to a retail purchaser before that date).

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

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

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

Obtaining Warranty Service

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

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

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

Exclusions

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

1. which has not been operated or maintained as specified in the Owner's Manual.
2. which has been abused, neglected, misused, improperly stored, used "off the highway," or used for racing or competition of any kind.
3. which was not originally manufactured for use or sold in Australia and New Zealand and/or does not comply with Australian and New Zealand homologation requirements.
4. which has off-road or competition parts installed to enhance performance, or has unapproved modifications. These modifications may void all or part of your new H-D Motorcycle Warranty. See an authorised Harley-Davidson dealer for details.
5. where damage is caused by, or Harley-Davidson is unable to honour this H-D Motorcycle Warranty due to, acts of God, war, riot, insurrection, natural disasters, including, but not limited to, nuclear contamination, lightning, forest fires, dust storms, hail storms, ice storms, earthquakes, floods, or other circumstances out of Harley-Davidson's control.
6. which has been in an accident, collision, dropped or struck.

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

Other Limitations

This H-D Motorcycle Warranty does not cover:

1. Parts and accessories not manufactured by Harley-Davidson, or any damage caused to the motorcycle by the installation of such parts and accessories, even if such parts and accessories are installed on the motorcycle at the date of initial retail purchase. A separate third party warranty may apply to such parts and accessories. See an authorised Harley-Davidson dealer for details.
2. Parts and labour for normal maintenance as recommended in the Owner's Manual, or the replacement of parts due to normal wear and tear including, but not limited to, the following: tyres, lubrication, oil and filter change, fuel system cleaning, battery maintenance, engine tune-up, spark plugs, brake, clutch, chain/belt adjustment and chain replacement.
3. Cosmetic or other concerns that arise as a result of owner abuse, lack of proper maintenance or environmental conditions (except concerns that result from defects in factory materials or workmanship, which are covered by this H-D Motorcycle Warranty for the duration of the warranty period).
4. Any cosmetic condition existing at the time of retail delivery that has not been documented by the authorised Harley-Davidson selling dealer prior to retail delivery.
5. Defects or damage to the motorcycle caused by alterations outside of Harley-Davidson's factory specifications, including the installation of competition or closed course parts and accessories and the addition of loads and stresses to the motorcycle above those recommended by Harley-Davidson.
6. Damage caused by installation or use of non-Harley-Davidson components, even those installed by an authorised dealership, that cause a Harley-Davidson part to fail. Examples include, but are not limited to performance-enhancing powertrain components or software, exhaust systems, non-approved tyres, lowering kits, handlebars, add-ons connected to the factory electrical system, tow bars, etc.

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

Important: Read Carefully

1. Authorised Harley-Davidson dealers are independently owned and operated and may sell non-Harley-Davidson products. Because of this, HARLEY-DAVIDSON IS NOT RESPONSIBLE FOR THE SAFETY, QUALITY, OR SUITABILITY OF ANY NON-HARLEY-DAVIDSON PART, ACCESSORY OR DESIGN MODIFICATION WHICH MAY BE SOLD AND/OR INSTALLED BY AUTHORISED HARLEY-DAVIDSON DEALERS OR LABOUR CARRIED OUT BY DEALERS.
2. This H-D Motorcycle Warranty is a contract between you and Harley-Davidson. It is separate and apart from any warranty you may receive or purchase from an authorised Harley-Davidson dealer. An authorised Harley-Davidson dealer is not authorised to alter, modify, or in any way change the terms and conditions of this H-D Motorcycle Warranty.

Any warranty work or parts replacement authorised by Harley-Davidson will not preclude Harley-Davidson from later relying on any exclusion where Harley-Davidson later becomes aware that an exclusion applied or the warranty claim did not otherwise comply with the terms of this H-D Motorcycle Warranty.

Limited Noise Warranty

2015 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 3,730 miles 6,000 kilometers 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.

Limited Emission Warranty

2015 Harley-Davidson Emission Control System Limited Warranty

The following limited warranty applies to the emission control system, is in addition to the MOTORCYCLE LIMITED WARRANTY and NOISE CONTROL SYSTEM LIMITED WARRANTY, and applies only to Harley-Davidson motorcycles certified for sale, registered, and normally operated in the U.S. Refer to the CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT for additional warranty provisions applicable to California motorcycles.

Harley-Davidson Motor Company warrants to the first owner and each subsequent owner that this vehicle is designed, built, and equipped so as to conform at the time of sale with applicable regulations under section 7521 of Title 42 of the United States Code, and that it is free from defects in materials and workmanship which would cause this motorcycle to fail to conform with applicable regulations for five (5) years from the initial retail purchase and delivery from an authorized Harley-Davidson dealer (or five (5) years from the date the motorcycle is first placed in service, if it is first placed in service as a "demonstrator" or "company" motorcycle prior to delivery), or 18,641 miles 30,000 kilometers, 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 filter
- Cam shaft

- Spark plug
- Ignition coil
- Ignition wires
- Vapor valve
- Catalytic converter
- Crankcase breather
- MAP sensor
- TMAP sensor
- Intake air temperature sensor
- Throttle position sensor
- Fuel injectors
- Induction module or throttle body
- Engine temperature sensor
- Electronic control unit
- Regulator/fuel pump (for leaks and/or high and low pressure failures)
- Fuel filter
- Oxygen sensors

Fuel Tank (non-cosmetic failures only)

- Leaks
- Fuel vapor separator
- Fuel cap

If used on the above: hoses, clamps, fittings, tubing, sealing gaskets and mounting hardware.

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

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.

California Emissions Control Warranty

California Emissions Control Warranty Statement

Your Warranty Rights and Obligations

The California Air Resources Board and Harley-Davidson Motor Company are pleased to explain the emission control system warranty on your 2015 model year 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 18,641 miles 30,000 kilometers , 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 filter
- Cam shaft
- Spark plug
- Ignition coil
- Ignition wires
- Vapor valve
- Catalytic converter
- Crankcase breather
- MAP sensor
- TMAP sensor
- Intake air temperature sensor
- Throttle position sensor
- Fuel injectors
- Induction module or throttle body
- Engine temperature sensor
- Electronic control unit
- Regulator/fuel pump (for leaks and/or high and low pressure failures)
- Fuel filter
- Oxygen sensors
- Carbon canister
- Purge control valve

Fuel Tank (non-cosmetic failures only)

- Leaks
- Fuel vapor separator
- Fuel cap

If used on the above: hoses, clamps, fittings, tubing, sealing gaskets and mounting hardware.

What Is Not Covered By This Emission Warranty

The emission control system warranty does not cover:

Malfunctions in any "warranted parts" caused by any of the following: abuse, misuse, unapproved modification or alteration, tampering, disconnection, or improper or inadequate maintenance. The warranty also does not cover replacement of listed parts in the event that the vehicle has been rendered emissions non-compliant in the state of California through actions noted above.

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

The repair or replacement of "warranted parts" which are scheduled for replacement prior to

18,641 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.

Maintenance Scheduling

Regular Service Intervals

Refer to Regular Service Intervals: 2015 FLSTNSE. Regular maintenance must be performed at specific intervals to help keep your new Harley-Davidson motorcycle operating at peak performance and keep your new motorcycle limited warranty in force. Your authorized Harley-Davidson dealer knows best how to service your motorcycle with factory approved methods and equipment assuring you of thorough and competent workmanship.

Some maintenance items should be done at least once per year as specified, even if the next mileage interval has not been reached. In severe riding conditions, some maintenance items may need to be performed more frequently. Refer to the notes in Regular Service Intervals: 2015 FLSTNSE.

NOTES:

- *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 or 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 services to be performed to keep your limited warranty in effect and/or comply with vehicle regulations. Check with your authorized Harley-Davidson dealer and check the motorcycle regulations in your country for local requirements.*
- *After completing the final service interval in Regular Service Intervals: 2015 FLSTNSE, repeat the schedule starting at the 5000 mi 8000 km interval.*

WARNING

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

WARNING

If you operate your motorcycle under adverse conditions (severe cold, extreme heat, very dusty environment, very bad roads, through standing water, etc.), you should perform the regular maintenance intervals more frequently to ensure the safe operation of your motorcycle. Failure to maintain your motorcycle could result in death or serious injury. (00094a)

Regular Service Intervals: 2015 FLSTNSE

ITEM SERVICED	PROCEDURE	1000 MI	5000 MI	10000 MI	15000 MI	20000 MI	25000 MI	30000 MI	35000 MI	40000 MI	45000 MI	50000 MI
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[illegible]

Fuel lines and fittings	Inspect for leaks, contact or abrasion	X	X	X	X	X	X	X	X	X	X	X	1
Rear brake fluid	Inspect sight glass	X	X	X	X	X	X	X	X	X	X	X	3
Reservoir cover screw: rear	Check torque	X		X		X		X		X		X	1
Brake pads and discs	Inspect for wear	X	X	X	X	X	X	X	X	X	X	X	
Front axle nut	Check torque	X		X		X		X		X		X	1
Brakes: banjo bolt	Check torque	X		X		X		X		X		X	1
Banjo bolts: front and rear HCU	Check torque	X		X		X		X		X		X	1
Jiffy stand	Inspect and lubricate	X	X	X	X	X	X	X	X	X	X	X	1
Brake and clutch controls	Check, adjust and lubricate	X	X	X	X	X	X	X	X	X	X	X	
Rear tire	Check pressure, inspect tread	X	X	X	X	X	X	X	X	X	X	X	7
Drive belt and sprockets	Inspect, adjust belt	X	X	X	X	X	X	X	X	X	X	X	1
Rear axle nut	Check torque	X		X		X		X		X		X	1
Exhaust system	Inspect for leaks, cracks and loose or missing fasteners or exhaust shields	X	X	X	X	X	X	X	X	X	X	X	4
Battery		Check battery, terminal torque and clean connections annually.											7
Spark plugs		Replace every two years or every 30,000 mi (48,000 km), whichever comes first.											
Front fork	Rebuild												1
Fuel filter element		Replace every 100,000 mi 160,000 km											1
Road test	Verify component and system functions	X	X	X	X	X	X	X	X	X	X	X	
NOTES:	1. Should be performed by an authorized Harley-Davidson dealer, unless you have the proper service data and are mechanically qualified. 2. Disassemble, lubricate and inspect every 30,000 mi 48,000 km . 3. Replace DOT 4 brake fluid and flush system every two years. 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. Attempt to turn the fastener using a torque wrench set to the minimum torque specification												

that fastener. If fastener does not rotate, the fastener torque has been maintained. No further attention is necessary. If fastener moves, tighten to specification.

6. Disassemble, inspect, rebuild forks and replace fork oil every 50,000 mi 80,000 km .

7. Perform annually or at specified intervals, whichever comes first.

* Clutch fluid level will rise as clutch wears.

Owner's Maintenance Records

SERVICE MILE INTERVAL	DATE	DEALER NUMBER	TECHNICIAN NAME	TECHNICIAN SIGNATURE
1000 mi 1600 km				
5000 mi 8000 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				
40,000 mi 64,000 km				
45,000 mi 72,000 km				
50,000 mi 80,000 km				

Service Literature

Refer to Service Literature: 2015 FLSTNSE. Visit any Harley-Davidson dealer or go to www.harley-davidson.com to purchase a service or parts manual for your motorcycle. Factory authorized manuals are the complete and detailed source of information outside of your Harley-Davidson dealer.

Service Literature: 2015 FLSTNSE

DOCUMENT	LANGUAGE	PART NUMBER
Softail Models Service Manual	English	99482-15
	French	99482-15FR
	German	99482-15DE
	Spanish	99482-15ES
	Italian	99482-15IT
	Simplified Chinese	99482-15ZH
	Japanese	99482-15JA
Softail Models Electrical Diagnostic Manual	English	99498-15
	French	99498-15FR
	German	99498-15DE
	Spanish	99498-15ES
	Italian	99498-15IT
	Simplified Chinese	99498-15ZH
	Japanese	99498-15JA
FLSTNSE Service Manual Supplement	English	99525-15
	French	99525-15FR

	German	99525-15DE
	Spanish	99525-15ES
	Italian	99525-15IT
	Japanese	99525-15JA
FLSTNSE Parts Catalog	English	99431-15

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