Contents

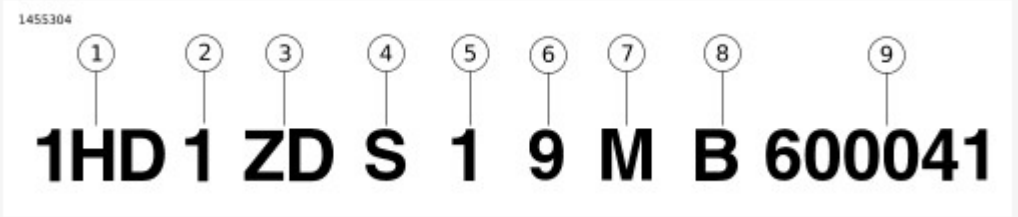
1 Reference Data

1.1 Key Info

Tyre Pressure (PSI)	Front 36 / Rear 42
Brake fluid	HD Platinum Label DOT 4 Brake Fluid P/N 41800770 355ml £10.01
Coolant	HD EXTENDED LIFE ANTIFREEZE AND COOLANT is pre-diluted and ready to use full strength. It provides temperature protection to -36.7 °C (-34.0 °F). DO NOT add water. P/N 26800119 473ml £12.99 P/N 99822-02A 3.78L £28.87
Oil 2.8L	HD Genuine SYN-BLEND Motorcycle Lubricant SAE 15W50 P/N 62600101 946ml £12.56
Fuel	E5/10 can be used, do NOT use E85
Service Intervals	1st 1000mi then @5000mi thereafter
FOB Battery	CR1632

1.2 VIN

A unique 17-digit serial or Vehicle Identification Number (VIN) is assigned to each motorcycle.



1.2.1 Table 1. Harley-Davidson VIN Breakdown: 2021 Pan America Models

POSITION	DESCRIPTION	POSSIBLE VALUES
1	World manufacturer identifier	1HD=Originally manufactured in the United States 5HD=Originally manufactured in the United States for sale outside of the United States

POSITION	DESCRIPTION	POSSIBLE VALUES
		932=Originally manufactured in Brazil MEG=Originally manufactured in India MLY=Originally manufactured in Thailand
2	Motorcycle type	1=Heavyweight motorcycle (901 cm^3 or larger)
3	Model	See VIN model table
4	Engine type	S=Revolution Max™ 1250 cm^3 liquid-cooled, fuel-injected
5	Calibration/configuration, introduction	1=Domestic (DOM) 2=California (CAL) 3=Canada (CAN) 4=ENG/EN2/HDI/HD2/HD4 5=Japan (JPN) 6=Australia (AUS) 7=Brazil (BRZ) 8=Asia Pacific (APC) 9=IND/IN2 0=ASEAN (AZN) A=China (CHN) G=HD3
6	VIN check digit	Can be 0-9 or X
7	Model year	M=2021
8	Assembly plant	B=York, PA U.S.A. D=H-D Brazil-Manaus, Brazil (CKD) N=Haryana India (Bawal District Rewari) S=Tasit, Pluagdang, Rayong, Thailand
9	Sequential number	Varies

1.2.2 Table 2. VIN Model Codes: Pan America Models

CODE	MODEL	CODE	MODEL
ZD	RA1250 Pan America®	ZE	RA1250S Pan America® Special

1.3 Pre-ride Checklist (POWDERY)

- P – Petrol (Fuel)
- O – Oil / Brake Fluid
- W – Water (Coolant)
- D – Damage / Drive (Chain)
- E – Electrical (Lights, Horn, etc.)
- R – Rubber (Tyres)
- Y – You (I AM SAFE)
    - I – Illness
    - A – Attitude
    - M – Medication
    - S – Sleep
    - A – Alcohol
    - F – Food

- E – Emotion

1.3.1 Other

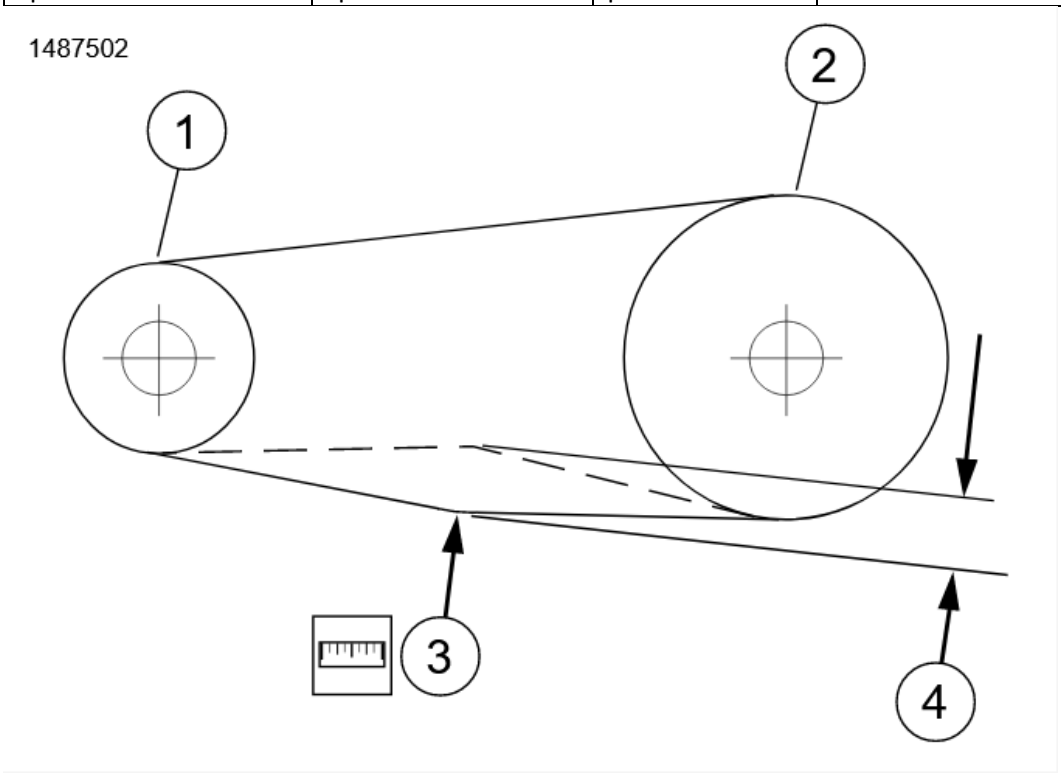
1.3.1.1 Table 1. Brake Specifications

Do not add or remove fluid from the brake system to compensate for normal wear. Reservoir volume is adequate to provide fluid to the wear limits of the pads and discs.

MINIMUM THICKNESS	mm	in
Front brake pads	0.5	0.020
Rear brake pads	1.0	0.039
Front brake discs	4.0	0.177
Rear brake disc	4.5	0.177

1.3.1.2 Table 1. Drive Chain Deflection

1 - Transmission sprocket	2 - Rear wheel sprocket	3 - Measure point	4 - Amount of deflection

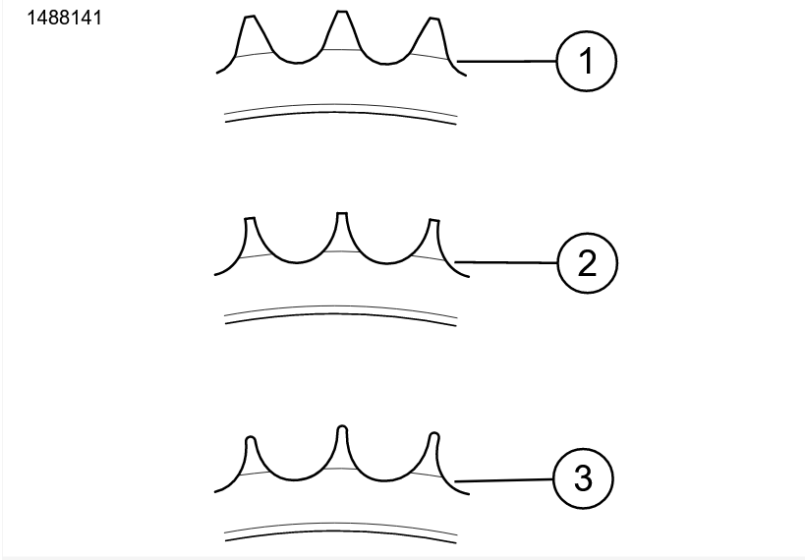


VEHICLE POSITION	DEFLECTION	
	in	mm
Vehicle on center stand	1.97-2.36	50-60
Vehicle on jiffy stand	1.81-2.20	46-56

1.3.1.3 Sprocket Teeth Wear

1 – Good	2 – Worn	3 - Replace

1488141



2 Maintain

2.1 Running In

To allow your engine to wear-in its critical parts, we recommend that you observe the riding rules provided below for the first 805 km (500 mi).

1. **<50mi**: During the first 80 km (50 mi) of riding, keep the engine speed below 5000 rpm in any gear. Do not lug the engine by running or accelerating at very low rpm, or by running at high rpm longer than needed for shifting or passing.
2. **<500mi**: Up to 805 km (500 mi), vary the engine speed and avoid operating at any steady engine speed for long periods. Engine speed up to 7000 rpm in any gear is permissible.
3. Drive slowly and avoid fast starts at wide open throttle until the engine has warmed up.
4. Avoid lugging the engine by not running the engine at very low speeds in higher gears.
5. Avoid hard braking. Break-in new brakes with moderate use for the first 161 km (100 mi).

2.2 Service Intervals

Component	1K	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K
Electrical equipment and switches Inspect	X	X	X	X	X	X	X	X	X	X	X
Front tire pressure and tread Check	X	X	X	X	X	X	X	X	X	X	X
Front wheel spoke tightness (if equipped) Check	X	X			X			X			X
Front brake fluid level Inspect	X	X	X	X	X	X	X	X	X	X	X
DOT4 front brake fluid moisture content Check	X	X	X	X	X	X	X	X	X	X	X
Steering head bearings Adjust	X		X		X		X		X		X

Component	1K	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K
Steering head bearings Lubricate						X					X
Clutch lever handlebar clamp screw torque Tighten	X		X		X		X		X		X
Master cylinder handlebar clamp screw torque Tighten	X		X		X		X		X		X
Air cleaner filter Inspect	X	X	X	X	X	X	X	X	X	X	X
Engine oil and filter Replace	X	X	X	X	X	X	X	X	X	X	X
Coolant Replace (@30K)							X				
Clean radiators and oil cooler Clean	X	X	X	X	X	X	X	X	X	X	X
Brake system Inspect	X	X	X	X	X	X	X	X	X	X	X
Fuel lines and fittings Inspect	X	X	X	X	X	X	X	X	X	X	X
Rear brake fluid level Inspect	X	X	X	X	X	X	X	X	X	X	X
DOT4 rear brake fluid moisture content Check	X	X	X	X	X	X	X	X	X	X	X
Brake systems Replace (Flush system & Replace fluid @2years)											
Brake pads and discs Inspect	X	X	X	X	X	X	X	X	X	X	X
Jiffy stand Lubricate	X	X	X	X	X	X	X	X	X	X	X
Centerstand (if equipped) Lubricate	X	X	X	X	X	X	X	X	X	X	X
Clutch system Adjust	X	X	X	X	X	X	X	X	X	X	X
Brake and clutch controls Lubricate	X	X	X	X	X	X	X	X	X	X	X
Rear wheel spoke tightness (if equipped) Check	X	X			X			X			X
Rear tire pressure and tread Check	X	X	X	X	X	X	X	X	X	X	X
Drive chain, sprockets and chain guide Inspect	X	X	X	X	X	X	X	X	X	X	X
Drive chain Adjust (Clean, Lubricate & Adjust @600)											

Component	1K	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K
Exhaust system, fasteners and shields Inspect	X	X	X	X	X	X	X	X	X	X	X
12 volt battery Check (Check Torque and Lubricate terminals annually)											
Spark plugs Replace (@2 years or 10K)			X		X		X		X		X
Front forks Rebuild (Disassemble, Inspect & Rebuild @50K)											
Rear sprocket compensator Inspect @Rear Tyre change											
Component and system functions Road Test	X	X	X	X	X	X	X	X	X	X	X

2.3 Suspension Tuning

Make all suspension adjustments in small increments. Radical setting changes may cause you to skip the best adjustment.

Refer to Table 1 below for possible suspension and operating characteristics and their probable causes.

To achieve the proper settings, you will need the preload properly adjusted, the tires properly inflated and a familiar bumpy road. It is useful if the road contains a variety of different kinds of bumps from small sharp bumps such as potholes or frost heaves to large cracks.

2.3.1 Table 1. Suspension Tuning

SUSPENSION CHARACTERISTICS	SOLUTION
Bike wallows through turns.	Increase rebound damping.
Bike feels loose or vague after bumps.	
Wheel tends to "pogo" or suffer continuous bouncing after passing a bump. This is often noticable by watching the bike as it travels over bumps.	
Wheel responds to bump but doesn't return to ground quickly after bumps. This is more pronounced over a series of bumps and is often referred to as "packing down."	Reduce rebound damping.
Bike bottoms in dips or while cornering.	Increase compression damping.
Bike has excessive brake dive.	
Harsh ride, particularly over washboard surfaces.	Reduce compression damping.
Bumps transfer through handlebars or seat.	
Suspension seems not to respond to bumps. Tires chatter through corners or rider is jolted over rough roads.	

2.4 Winterize

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

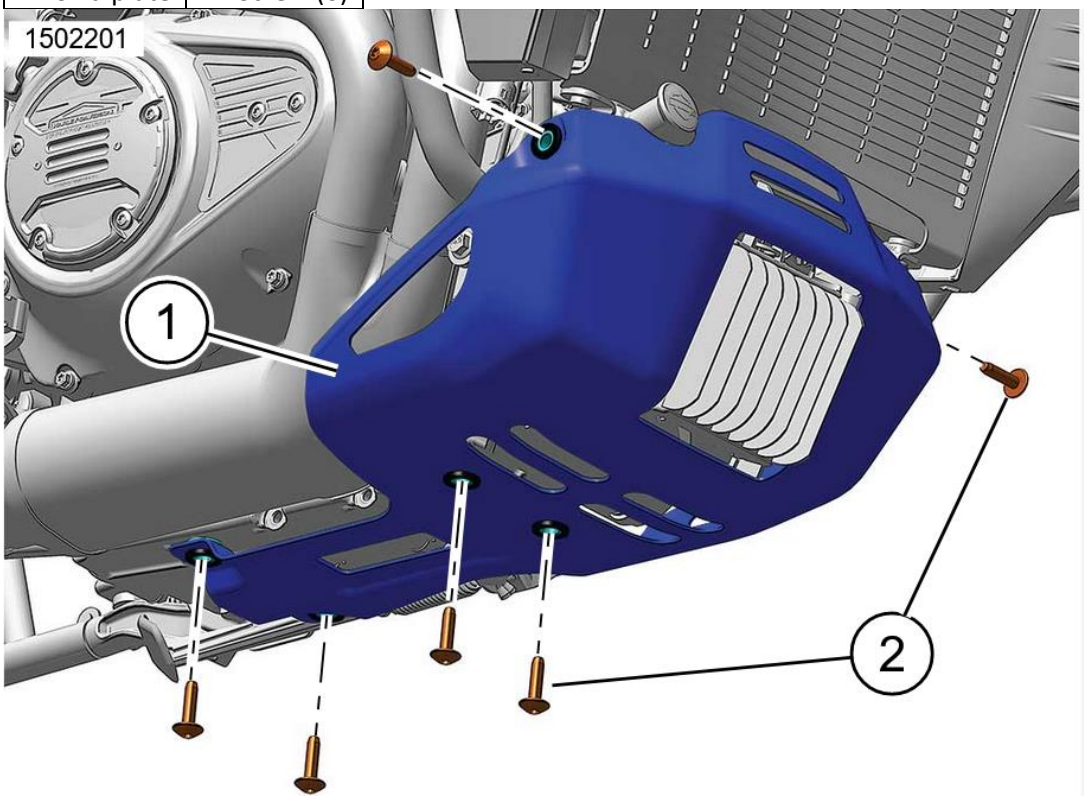
2.5 Remove / Install.

2.5.1 Skid Plate – One Piece

2.5.1.1 Remove Skid Plate

1. Remove screws (2).

1 - Skid plate	2 - Screw (6)

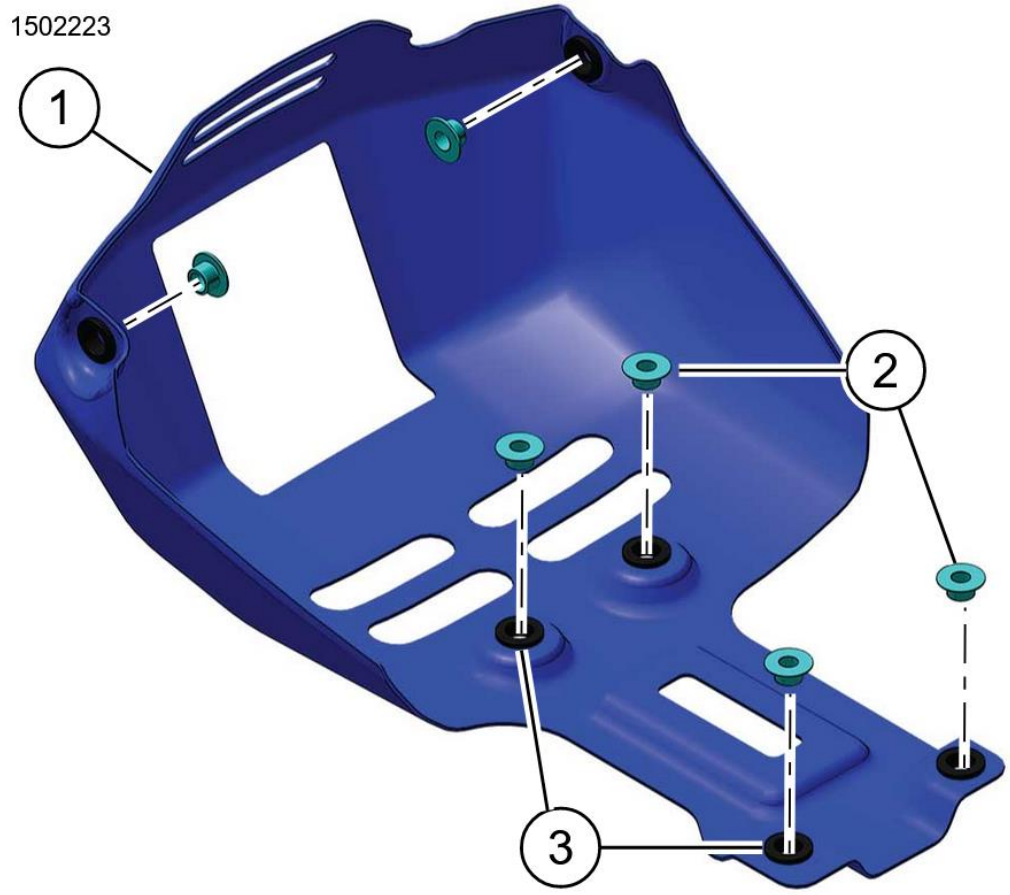


2. Remove skid plate (1).

2.5.1.2 Install Skid Plate

1. Verify that grommets (3) and limiters (2) are in place.

1 - Skid plate	2 - Limiter (6)	3 - Grommet (6)



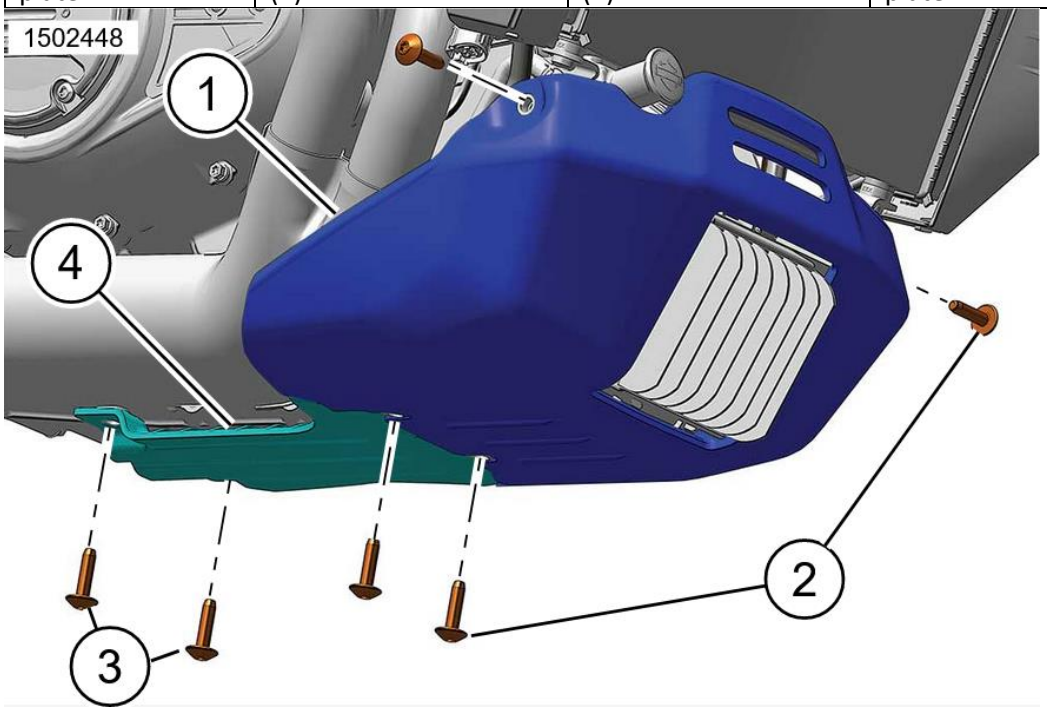
2. Position skid plate.
3. Install screws (2). Tighten to Torque: 19.5–23.8 N·m (14–18 ft-lbs)

2.5.2 Skid Plate – Two Piece

2.5.2.1 Remove Skid Plate

1. Remove screws (2).
2. Remove front skid plate (1).
3. Remove rear skid plate (4).

1 - Front skid plate	2 - Front plate screw (4)	3 - Rear plate screw (2)	4 - Rear skid plate

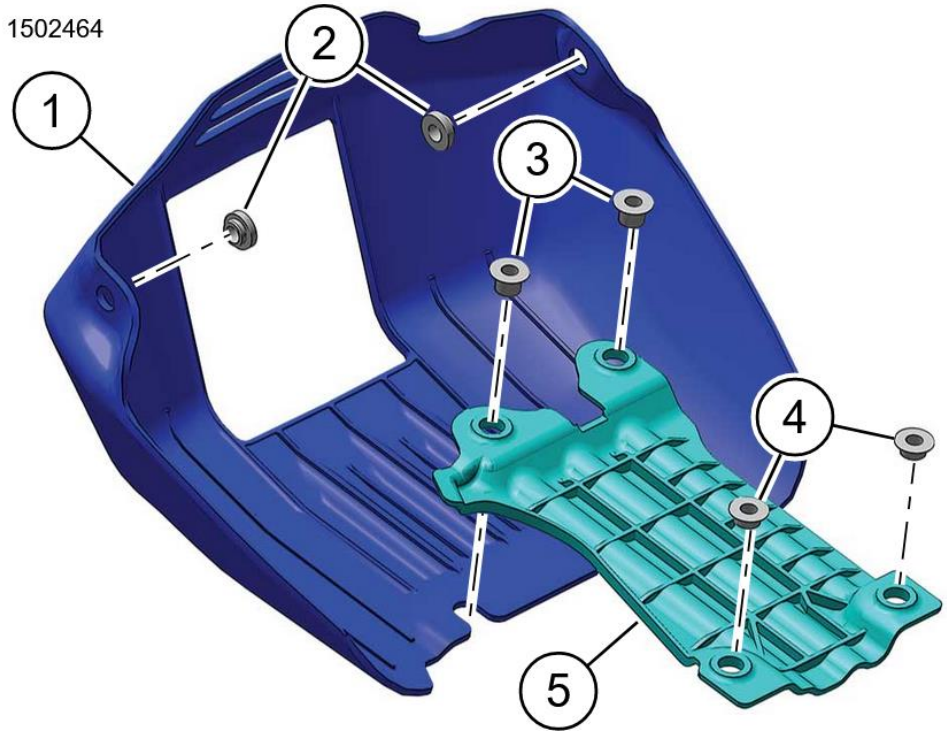


4. Remove skid plate (1).

2.5.2.2 Install Skid Plate

1. Verify that both long and medium limiters (3 & 4) are in place.
2. Position rear skid plate (4).
3. Install screws (3). Hand tighten.
4. Verify that short limiters (2) are in place.
5. Position front skid plate (1).
6. Install screws (2). Tighten screws (2 & 3) to Torque: 19.5–23.8 N·m (14–18 ft-lbs)

1 - Front skid plate	2 - Short limiter (2)	3 - Long limiter (2)	4 - Medium limiter (2)	5 - Rear skid plate



1. Position skid plate.
2. Install screws (2). Tighten to Torque: 19.5–23.8 Nm (14–18 ft-lbs)

2.5.3 Battery

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

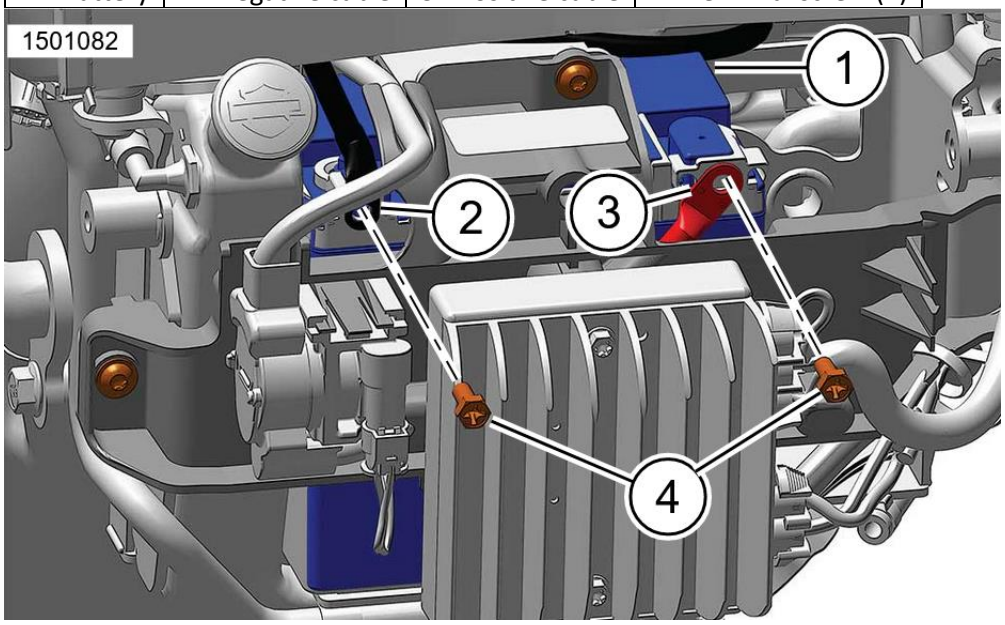
1. Verify that the fob is present.
2. Set the OFF/RUN switch to RUN.
3. Pull the main fuse from its holder.
4. Disconnect the battery if needed.

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

2.5.3.1 Remove Battery

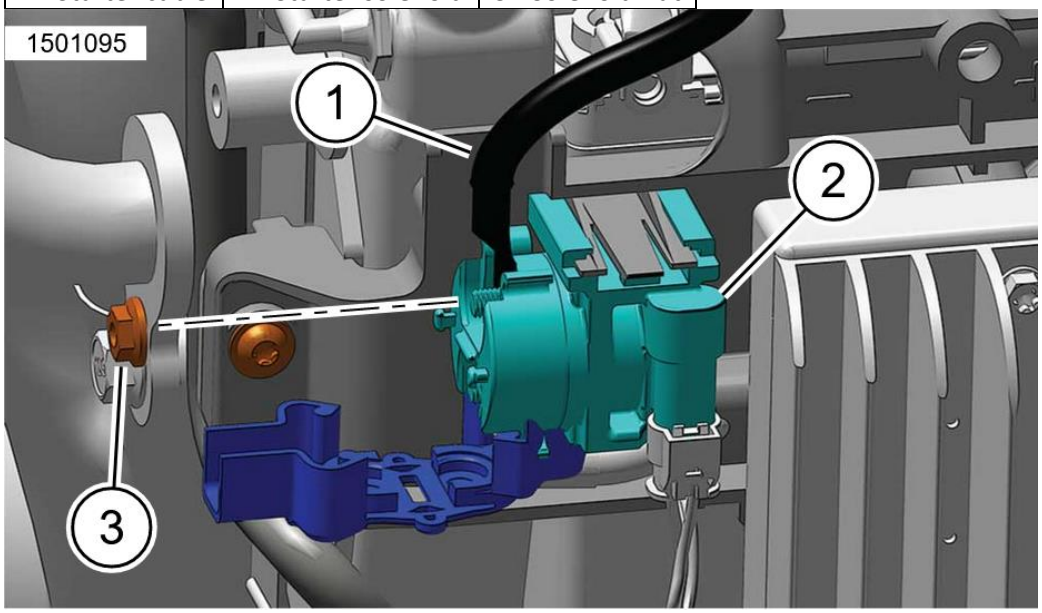
1. Remove skid plate. See Service Procedures → Skid Plate.
2. Remove battery negative cable (2) from battery (1).

1 – Battery	2 - Negative cable	3 - Positive cable	4 - Terminal screw (2)



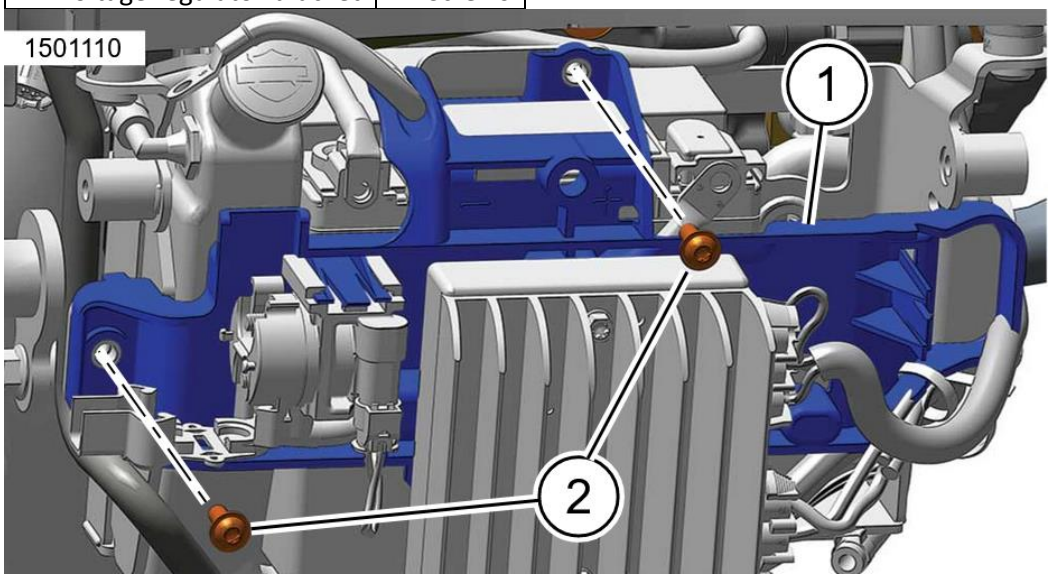
3. Remove battery positive cable (3) from battery.
4. Remove starter cable (1) from starter solenoid (2).

1 - Starter cable	2 - Starter solenoid	3 - Solenoid nut



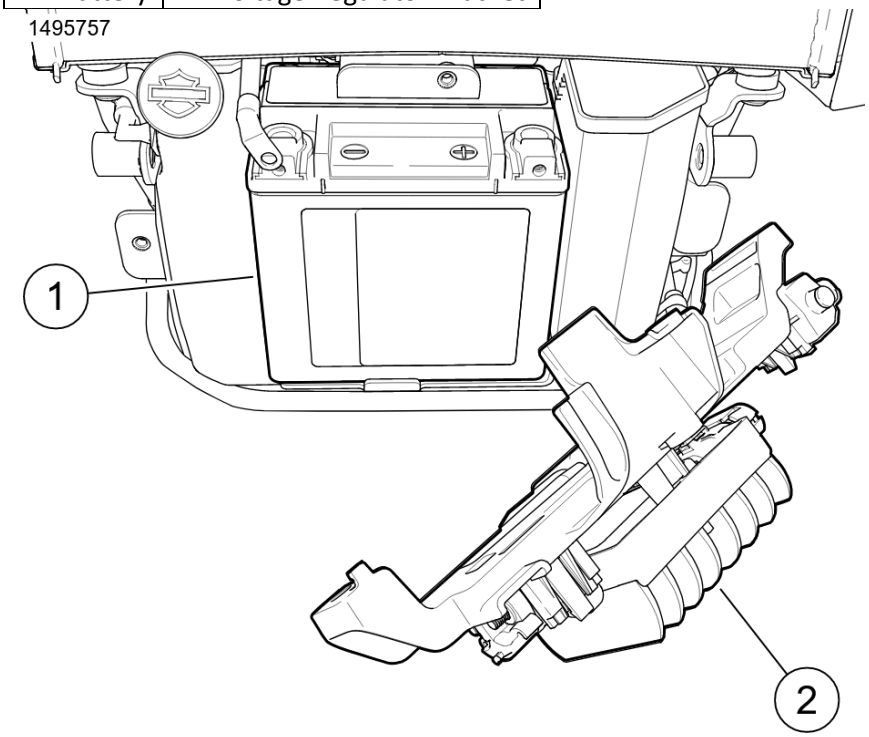
5. Remove voltage regulator bracket screws (2).

1 - Voltage regulator bracket	2 - Screws



6. Position voltage regulator bracket (2) out of way.

1 – Battery	2 - Voltage Regulator Bracket

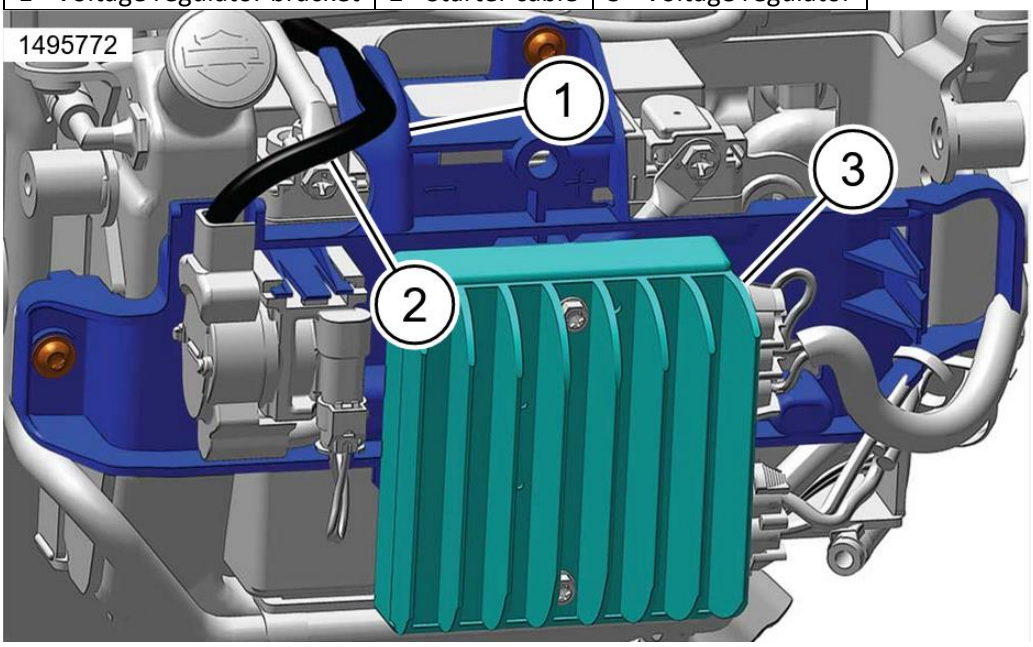


7. Remove battery (1).

2.5.3.2 Install Battery

1. Position voltage regulator bracket (1).
2. Install voltage regulator bracket screws (3). Tighten to Torque: 4–5 N·m (35–44 in-lbs).
3. Install battery positive cable (3) to battery. Tighten to Torque: 6.8–8.1 N·m (60–72 in-lbs)
4. Install battery negative cable (2) to battery. Tighten to Torque: 6.8–8.1 N·m (60–72 in-lbs)
5. Install starter cable (1) to starter solenoid (2). Tighten to Torque: 3–4.6 N·m (27–41 in-lbs)
    a. Route starter cable (2) in bracket (1).

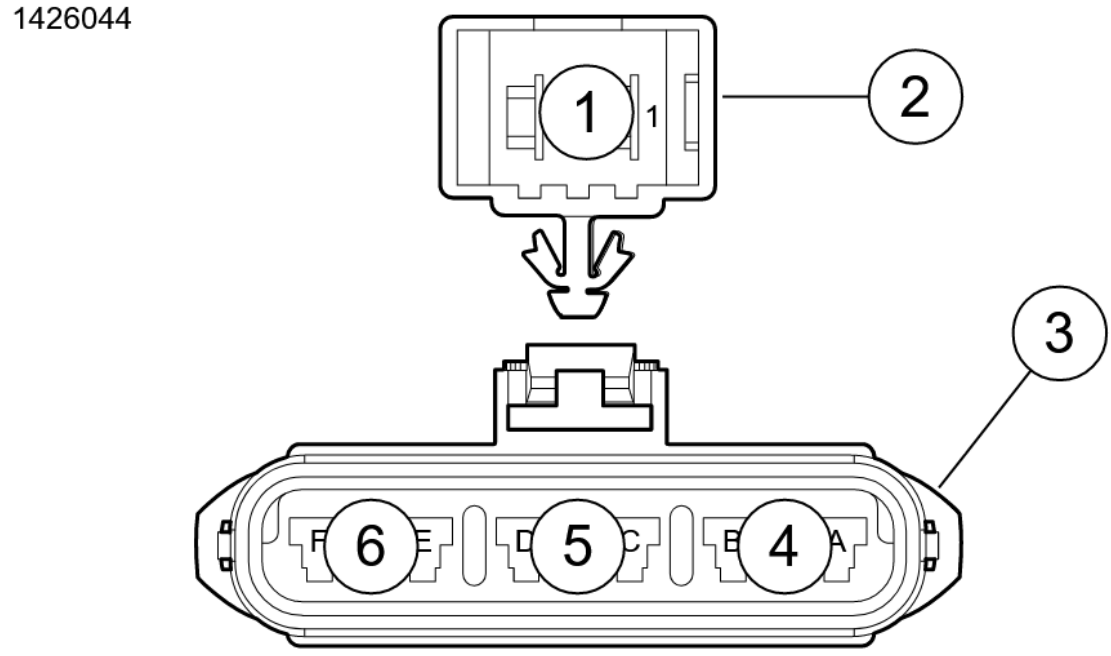
1 - Voltage regulator bracket	2 - Starter cable	3 - Voltage regulator



6. Install skid plate. See Service Procedures → Skid Plate.

2.5.4 Fuses

1 - Main fuse - 40 A	2 - Main fuse block	3 - Fuse block	4 - Infotainment - 10 A	5 - Battery - 7.5 A	6 - P&A/Battery tender - 15 A

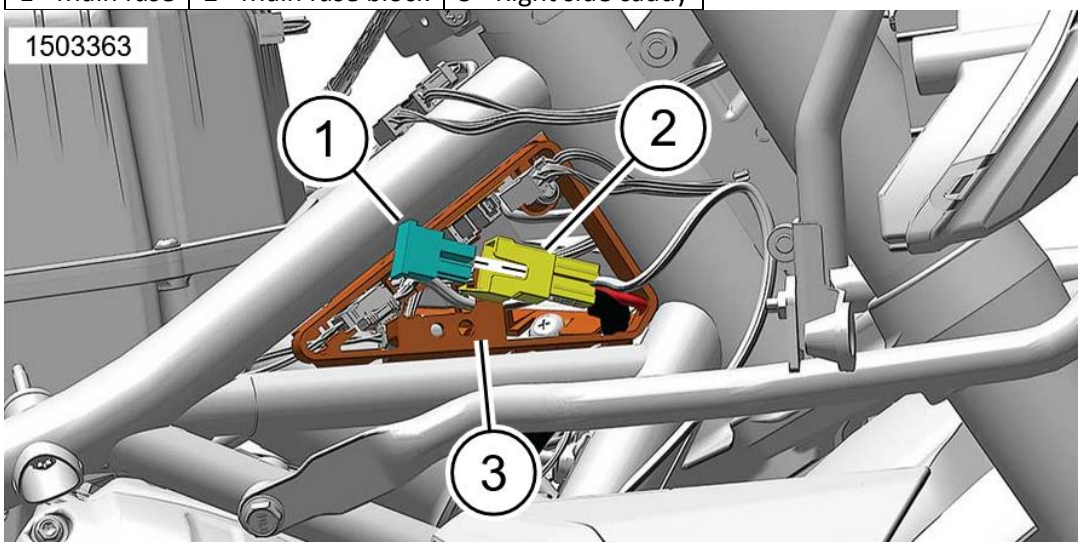


2.5.4.1 Main Fuse

2.5.4.1.1 Remove

1. Set OFF/RUN switch to Off.
2. Remove right steering head cover. See Service Procedures → Side Covers.
3. Remove main fuse block (2) from right side caddy (3).

1 - Main fuse	2 - Main fuse block	3 - Right side caddy



4. See Figure 2. Remove main fuse (1).

2.5.4.1.2 Install

1. Install main fuse (1).
2. Install main fuse block (2) into right side caddy (3).
3. Install right steering head cover.

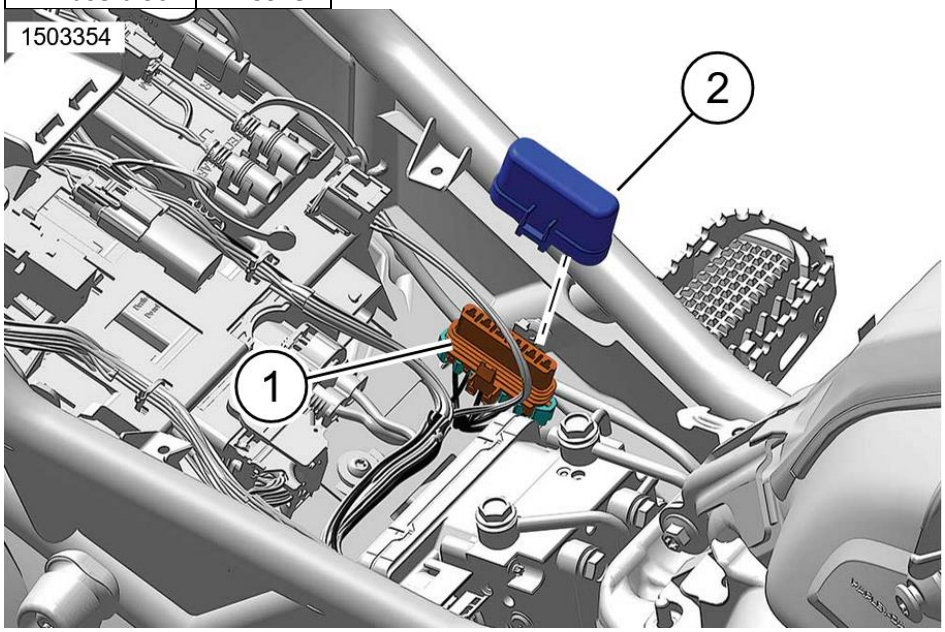
2.5.4.2 Fuse Block

The Fuse block is located under the Riders seat

2.5.4.2.1 Remove

1. Set OFF/RUN switch to Off.
2. Remove seat. See Service Procedures → Seat.
3. Remove cover (2) from fuse block (1).

1 - Fuse block	2 - Cover



4. Remove suspect fuse and inspect element.
    a. Verify that suspected fuse is open.
5. Replace fuse as needed.

2.5.4.2.2 Install

1. Install fuse block cover (2).
    a. Verify tabs snap into fuse block (1).
2. Install seat.

2.5.5 Fairing

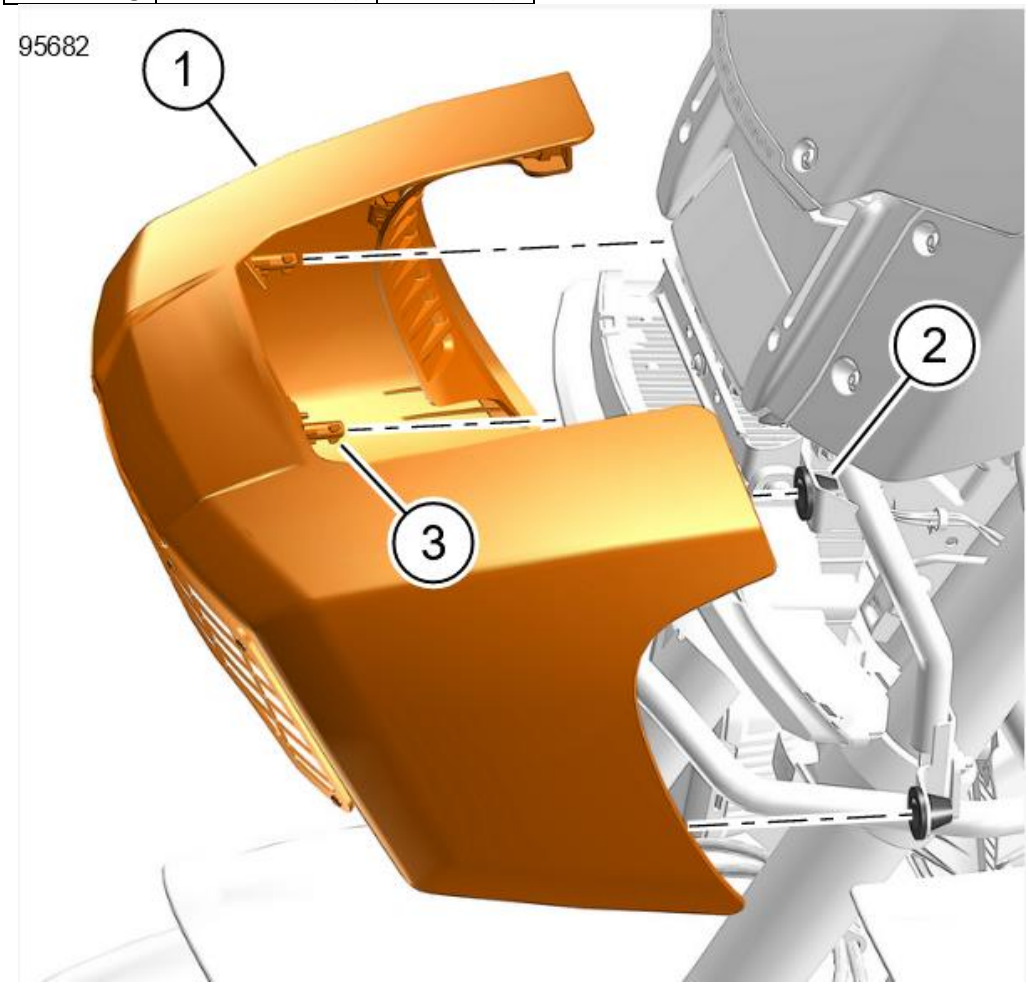
2.5.5.1 Remove fairing.

1. Pull fairing (1) away from the grommets (2).

2.5.5.2 Install fairing.

1. Align fairing posts (3) with grommets (2).
2. Push fairing (1) into grommets.

1 – Fairing	2 - Grommet (4)	3 - Post (4)



2.5.6 Side Covers

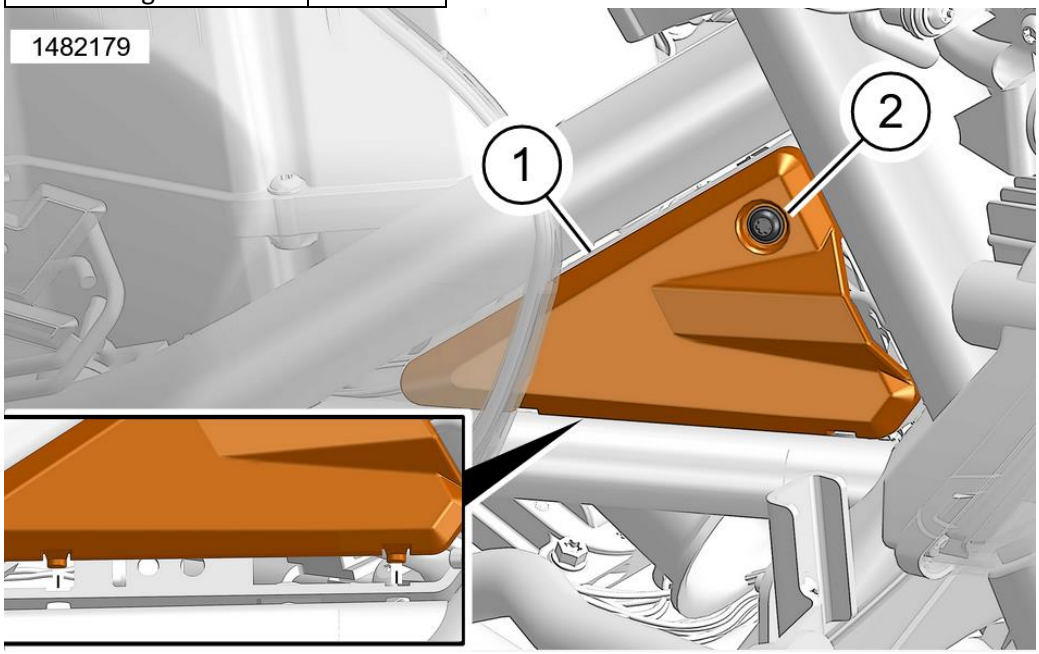
2.5.6.1 Remove Side Covers:

1. Remove Fairing
2. Remove screw (2) and tip side cover (1) out slightly while lifting up.

2.5.6.2 Install Side Covers:

3. Align tabs on side cover (1) with mounting holes on vehicle. Secure side cover with screw (2).
4. Tighten screw to Torque: 0.8–1.2 N·m (7–11 in-lbs) Screw, steering head cover
5. Install fairing.

1 - Steering head cover	2 - Screw

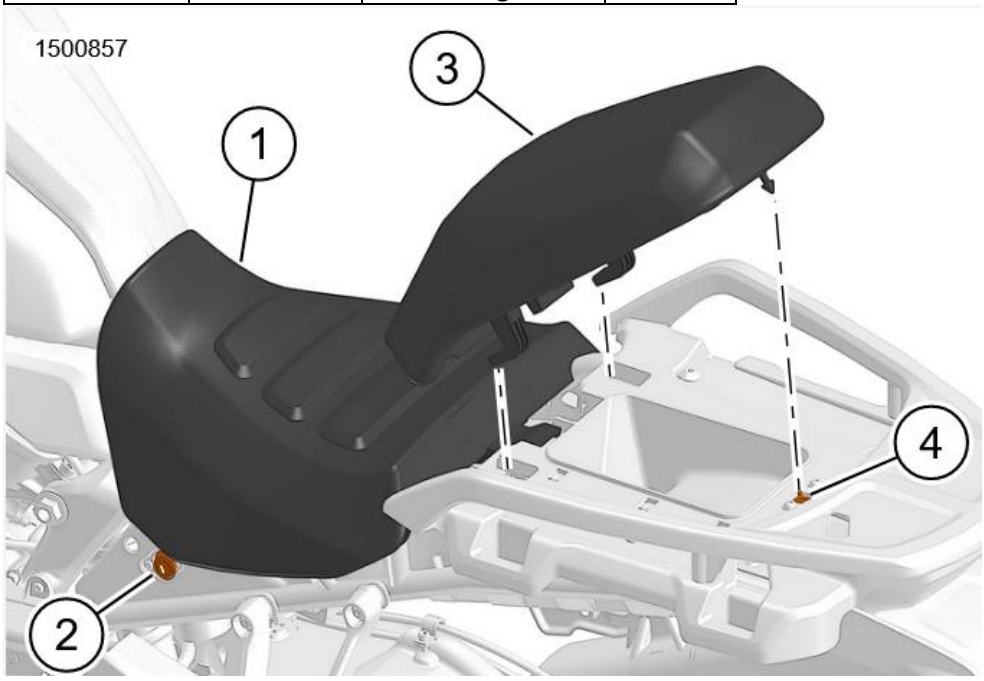


2.5.7 Seat

2.5.7.1 Remove

1. Insert key in seat lock (2).
2. Turn the key to release latch (4).
3. Lift up then back on passenger seat (3) to remove.

1 - Rider seat	2 - Seat lock	3 - Passenger seat	4 - Latch



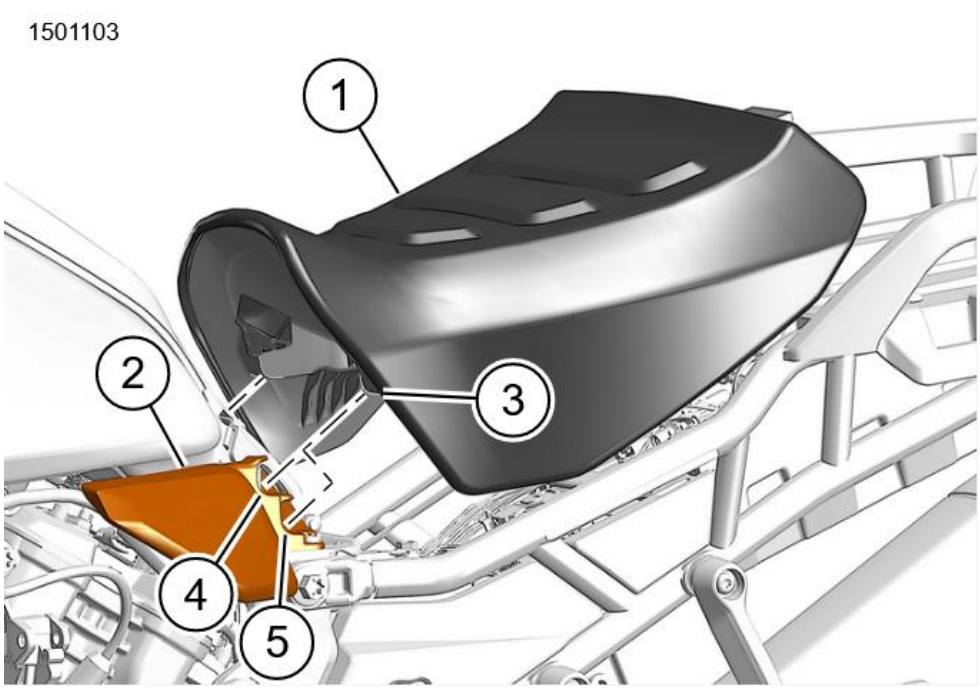
4. Lift up then back on rear of rider seat (1) to remove.

2.5.7.2 Install

NOTE: Rider seat may be installed in either high position or low position slots to adjust seat height.

1. Insert tabs (3) of rider seat (1) into high position (4) or low position (5) slots in side covers (2).

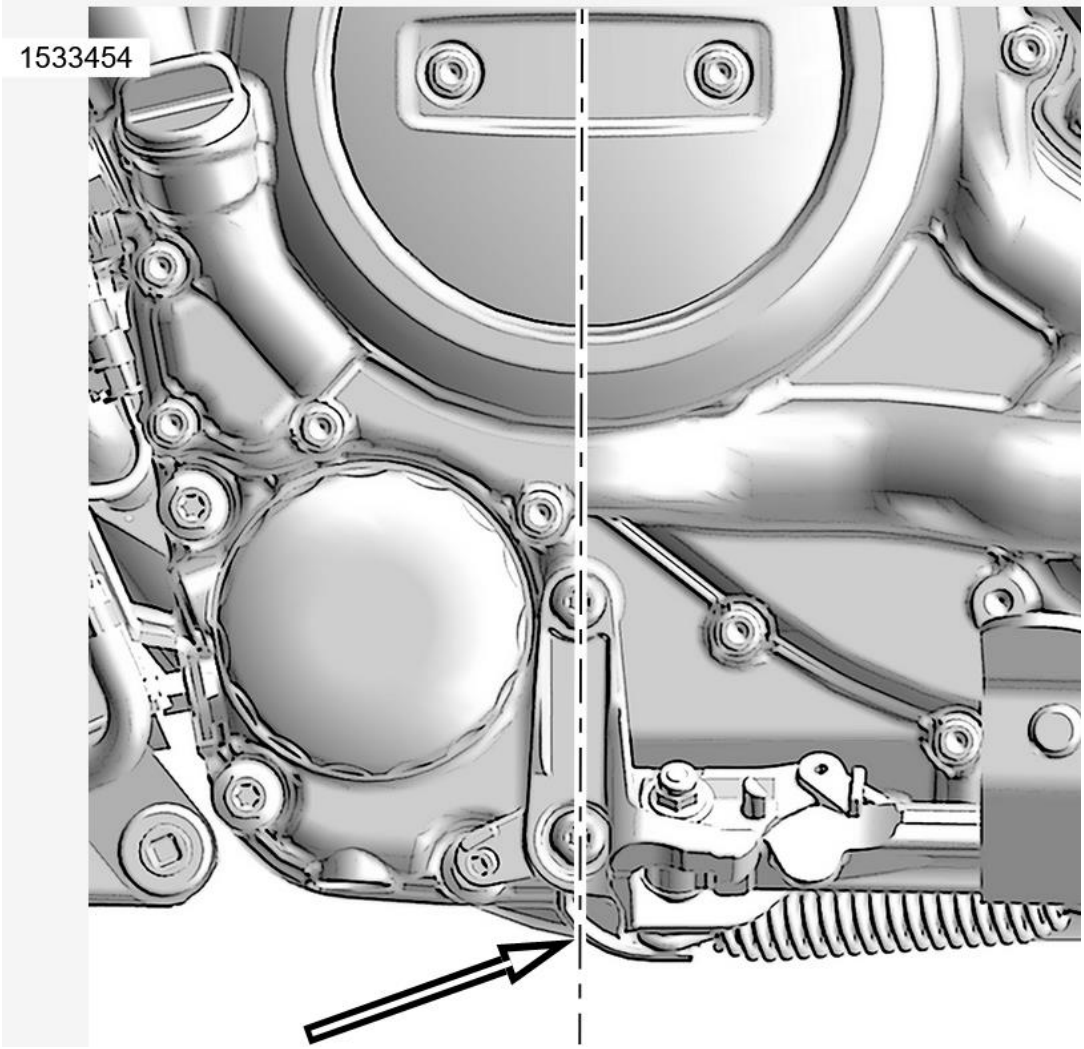
1 - Rider seat	2 - Side cover (2)	3 - Tab (2)	4 - High position	5 - Low position



2. Lower rear of rider seat (1) into position.
3. Engage tabs on passenger seat (3) in slots of seat support.
4. Lower rear of passenger seat.
5. Press rear of passenger seat down until a click is heard.
6. Pull up on the seat to verify it is secure.

2.6 Adjust

2.6.1 Lifting Motorcycle



1. Remove skid plate.
2. Place jack with block of wood below crankshaft centreline.
3. Raise motorcycle to allow servicing.

2.6.2 Headlight

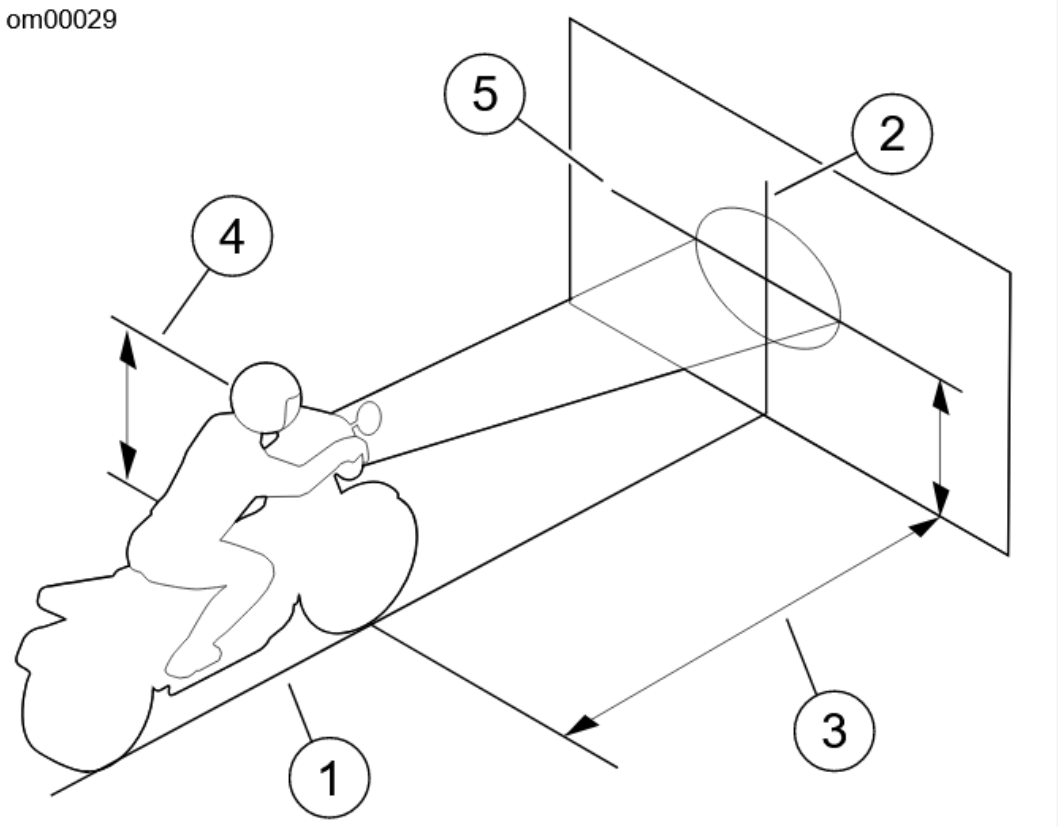
2.6.2.1 Preparation

1. Check tire pressure.
2. Adjust suspension preload for rider and intended load. Preload adjustments will vary by model. See Before Riding → Suspension Adjustments.
3. Fill fuel tank or add an equal amount of ballast.

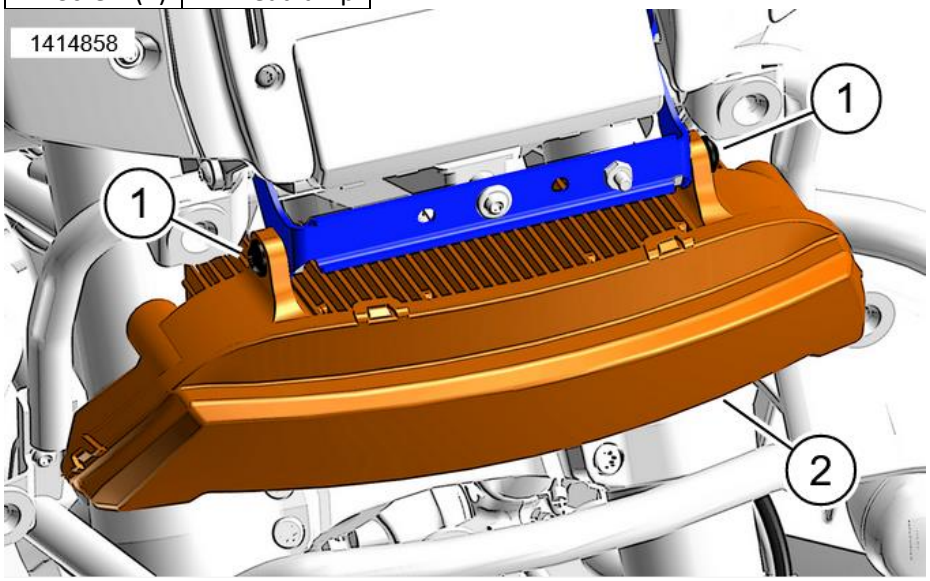
2.6.2.2 Check Alignment

1. Park the motorcycle on a line (1) perpendicular to the wall.
2. Set vehicle distance from wall to front axle, Distance: 7.6 m (25 ft)
3. Draw a vertical line (2) on wall.
4. Point the front wheel straight forward at wall.
5. Measure distance (4) from floor to center of low beam.
6. With the low beam activated, verify headlamp alignment.
7. Adjust headlamp, if necessary.
8. Remove fairing.
9. Loosen screws (1).
10. Set vertical adjustment.
11. Tighten screws to Torque: 24–30 N·m (18–22 ft-lbs) Headlamp screw
12. Install Fairing

1 - Perpendicular line	2 - Vertical line	3 - 7.6 m (25 ft)	4 - Low beam centreline	5 - Horizontal line 6.65 cm (2.6 in) lower than centreline



1 - Screw (2)	2 - Headlamp

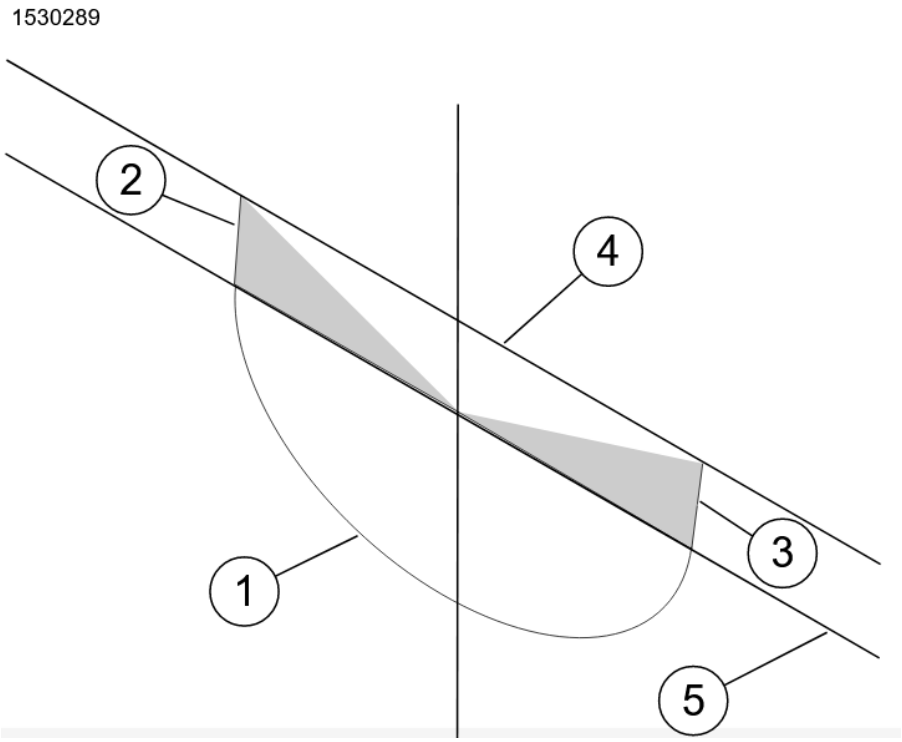


2.6.3 Bank Angle Light

2.6.3.1 Preparation

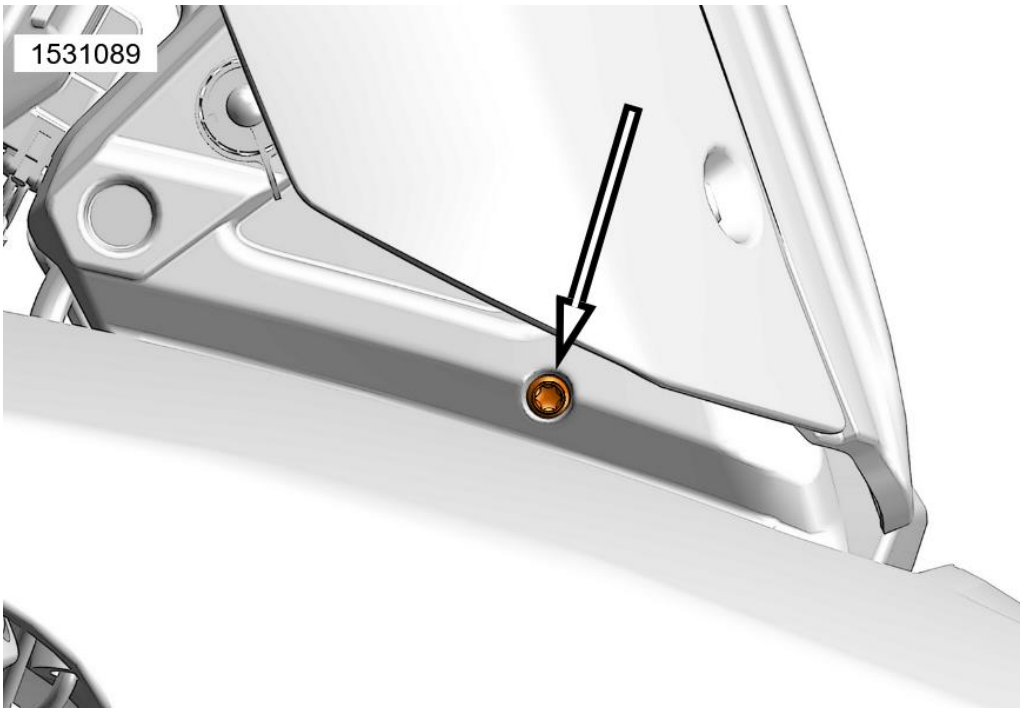
1. Place vehicle in accessory mode.
2. Access settings menu, see Operation → Instruments.
3. To check bank angle lighting, navigate to aiming ready menu. SETTINGS> RIDE CUSTOMIZATION> BANK LAMP AIMING> AIMING READY.
4. If bank angle lights do not align as shown, adjustment is necessary.

1 - Low beam pattern	2 - Left bank angle light	3 - Right bank angle light	4 - Horizontal centerline	5 - Horizontal line 6.65 cm (2.6 in) lower than centerline



2.6.3.2 Adjustment

1. Loosen bank angle light screws.
2. Set vertical adjustment.
3. Tighten screws to Torque: 8–10 N·m (71–89 in-lbs) Bank angle light screws



2.7 Fluids & Lubricants

2.7.1 Table 1. Recommended Engine Oils

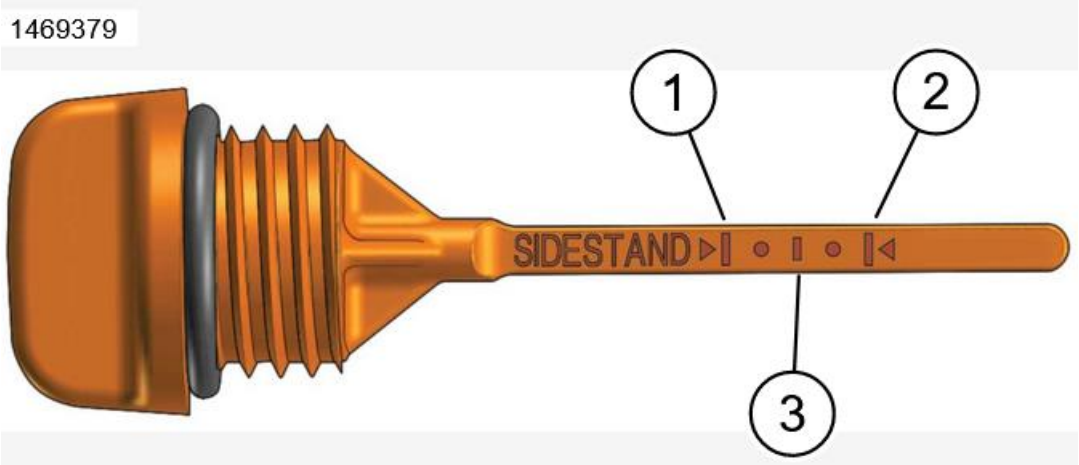
This motorcycle was originally equipped with GENUINE HARLEY-DAVIDSON SYN-BLEND MOTORCYCLE OIL 15W50. SYN-BLEND is the preferred oil under normal operating conditions.

Change engine oil often in colder climates. If motorcycle is frequently ridden less than 24 km (15 mi), in ambient temperatures below 16 °C (60.8 °F), reduce oil change intervals to 2,400 km (1,491½ mi).

TYPE	VISCOSITY	LOWEST AMBIENT TEMPERATURE	COLD-WEATHER STARTS BELOW 50 °F (10 °C)
Harley-Davidson Genuine SYN-BLEND Motorcycle Lubricant	SAE 15W50	Above -1 °C	Excellent
Screaming Eagle SYN3 Full Synthetic Motorcycle Lubricant	SAE 20W50	Above -1 °C	Excellent
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 20W50	Above 4 °	Good

2.7.1.1 Check Engine Oil

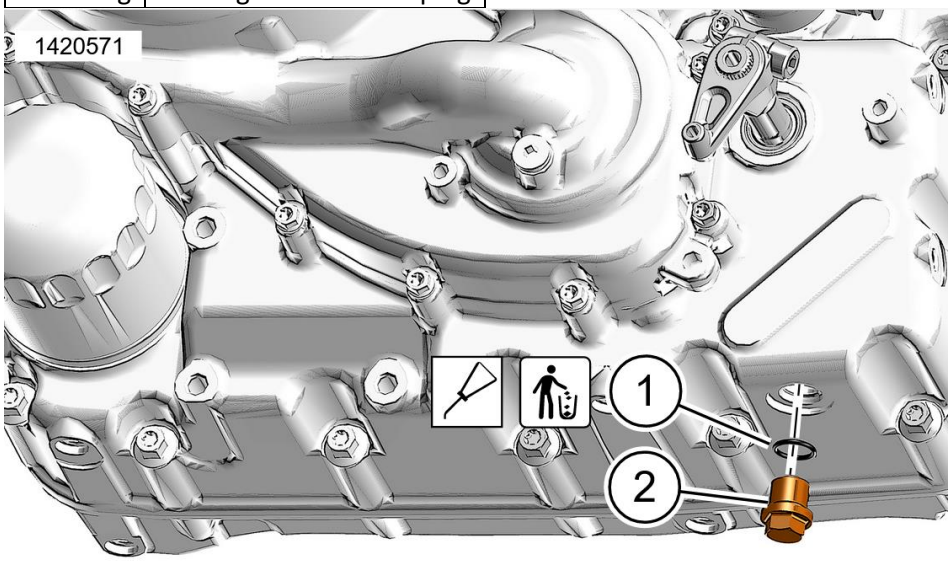
1 - Full hot mark	2 - Add quart mark	3 - Engine oil level range



1. Check engine oil hot.
    a. Ride vehicle for more than 5 minutes at mid-range engine speeds or idle for 10 minutes on jiffy stand.
2. Rest bike on jiffy stand.
3. Check oil level.
    a. Remove filler plug/dipstick.
    b. Wipe off the dipstick.
    c. Insert the dipstick and tighten.
    d. Remove filler plug/dipstick.
    e. Check oil level range (3). Oil level must register between full hot (1) and add quart (2) marks on the dipstick.

2.7.1.2 Change Engine Oil

1 - O-ring	2 - Magnetic oil drain plug



1. Run motorcycle until engine is at normal operating temperature. Turn off engine.
2. Rest bike on jiffy stand.
3. Remove skid plate. See Service Procedures → Skid Plate.
4. Remove filler plug/dipstick.
5. Remove magnetic oil drain plug (2). Allow oil to drain completely.
    a. Remove and discard O-ring (1).
6. Remove oil filter using special tool OIL FILTER WRENCH (HD-52991)
7. Clean oil filter mount flange.
8. Clean any residual oil from crankcase housing.
9. Install new oil filter.
    a. Lubricate gasket with a thin film of clean engine oil.
    b. Fill new oil filter half full of engine oil.
    c. Install new oil filter.
    d. Hand-tighten oil filter three-quarters of a turn after gasket first contacts filter mounting surface. Do NOT use oil filter wrench for installation.
10. Install new O-ring (1).
    a. Lubricate with clean engine oil.
11. Install magnetic oil drain plug (5). Tighten Torque: 20 N·m (15 ft-lbs) Plug, magnetic oil drain.
12. Add an initial volume of engine oil of 2.8L (3 qt.)
13. Install filler plug/dipstick.
14. Run engine for 10 seconds.
15. Turn off engine and remove filler plug/dipstick.
16. Check Engine Oil Level → Engine Oil Dipstick (Vehicle Sidestand Gauge). Add only enough oil to bring the level to the add quart mark.
17. Verify proper oil level.
    a. Start engine and carefully check for oil leaks around drain plug and oil filter.
    b. Check engine oil level. NOTE: Level must be checked at normal operating temperature.
18. If oil level is at or below the add quart mark, add only enough oil to bring the level to the full hot mark. Do not overfill.
19. Install skid plate.

2.7.2 Harley Lube

- Lubricate clutch control cable with HARLEY LUBE.
- Lubricate fuel cap lock with HARLEY LUBE

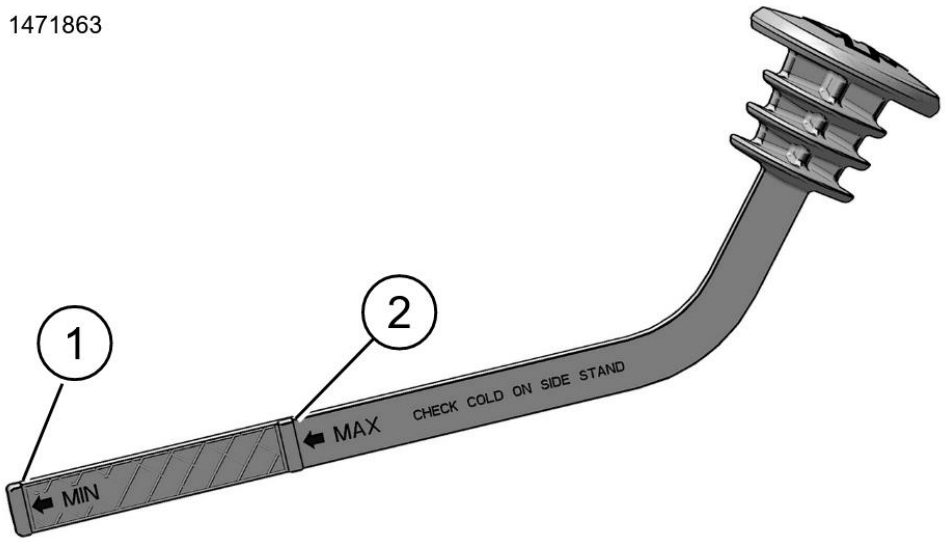
2.7.3 Coolant

Keep Radiator fins clear of any debris. Leaves and other debris can collect on the radiator surface and degrade radiator performance which could lead to overheating and motorcycle damage.

2.7.3.1 Checking Coolant Level

1 - Minimum fill level	2 - Maximum fill level

1471863



1. Position vehicle on level ground resting on the jiffy stand.
2. Allow motorcycle to cool.
3. Remove coolant plug/dipstick.
4. Check that coolant level is at the "MAX" line (2).
5. If level is below "MIN" line (1), add GENUINE HD EXTENDED LIFE ANTIFREEZE AND COOLANT until fluid level reaches the "MAX" line (2).
6. Install coolant reservoir plug/dipstick.

3 Security

3.1 Assigning Fob

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

The module arms only if the fob has been assigned by a Harley-Davidson Dealer and a Personal Identification Number (PIN) has been entered in the system.

3.2 Chirp Mode

3.2.1 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. Count 2 s, set the OFF/RUN switch to OFF.
3. Before the turn signals flash twice, set the OFF/RUN switch to RUN.
4. Count 2 s, immediately set the OFF/RUN switch to OFF.
5. Before the turn signals flash twice, set the OFF/RUN switch to RUN. The system changes mode. The siren chirps or remains silent accordingly.

3.3 Alarm - Disarming with a PIN

Use this procedure when Fob is lost, or Fob Battery is dead.

The PIN screen will automatically show up on the Instrument Module (IM) when the fob is not present, and the vehicle is turned ON.

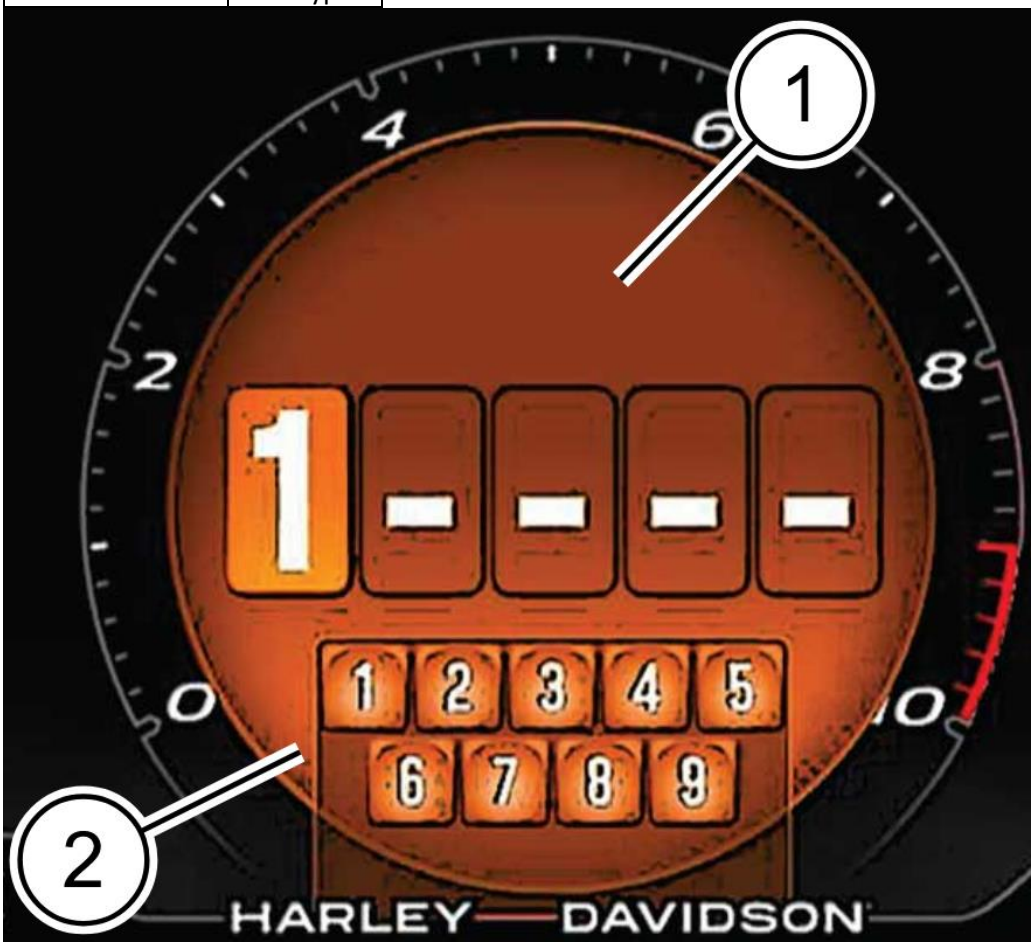
NOTE:

- If a mistake is made while entering PIN, move the OFF/RUN switch to OFF before entering the last digit and then start the procedure from the beginning.
- If the procedure fails to disarm the security system, wait 2 min before attempting another PIN disarm.
- The security system remains disarmed until the OFF/RUN switch is moved to OFF.

3.3.1 Touch Screen Entry

1. See Figure 1. Touching the PIN screen (1) will display the keypad (2) entry.
2. Using the keypad enter the complete five-digit PIN.
3. Push right turn signal to enter PIN.

1 - Touch screen	2 - Keypad



3.3.2 Hand Control Entry

1. Select the first digit of the PIN.
    a. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
2. Select the next digit.
    a. Push the right turn signal to move cursor to the right.
    b. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
3. Repeat step 2 until all five-digits are filled in with the desired PIN.
4. Push right turn signal to enter PIN.

3.4 Alarm - Changing the PIN

The rider can change the PIN at any time.

- Ignition must be ON
- Fob must be present.
- Select numbers between 1-9

1. Navigate dashboard menu:
    a. Settings > General > Change Security PIN
    b. Click OK/enter.
    c. The PIN screen will display.

3.4.1 Touch Screen Entry

1. Touching the PIN screen will display the keypad entry.
2. Using the keypad enter the complete five-digit PIN.
3. Cycle the ignition to save PIN.

3.4.2 Hand Control Entry

1. Select the first digit of the PIN.
    a. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
2. Select the next digit.
    a. Push the right turn signal to move cursor to the right.
    b. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
3. Repeat step 2 until all five-digits are filled in with the desired PIN.
4. Cycle the ignition to save PIN.

3.5 Transport Mode

To Enter Transport Mode

1. With security fob present, set the OFF/RUN switch to RUN.
2. Simultaneously press both the left turn signal switch and the flash to pass button for 10 s .
3. While still holding the switch/button, turn ignition OFF.
4. The Instrument Module (IM) will display transport mode activated.

4 Operation

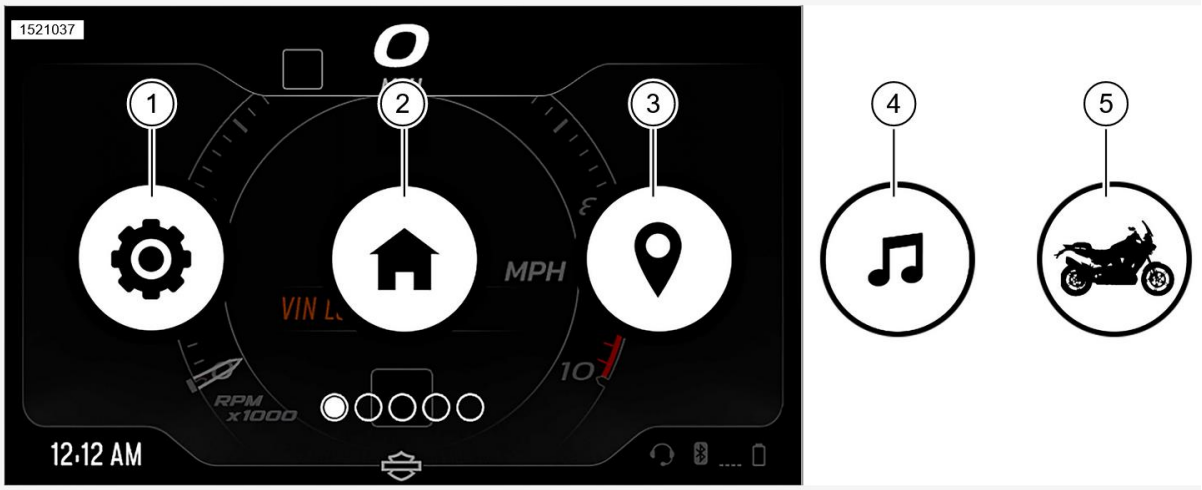
4.1 Instrument Module

4.1.1 General Display (Home)

1 – Clock	2 – Tachometer	3 – Speedometer	4 – Odometer	5 – Fuel gauge	6 - Widget

4.1.2 Other Screens

1 – Settings	2 – Home	3 – Navigation	4 – Audio	5 – Bike Status



4.1.2.1 Settings

4.1.2.1.1 Bluetooth

Pairing Device:

1. Activate Bluetooth on your device.
2. Select: settings menu (1).
3. Select: Bluetooth
4. Select: Add new device.
    a. Phone: Select: Add New Phone
    b. Headset: Select: Add New Headset
5. Follow on screen prompts to complete pairing.

4.1.2.1.2 Phone

NOTE:

- A phone must first be paired before call or text notifications can be viewed through the IM.
- A headset with microphone is required to make and receive calls via Bluetooth.

Notifications:

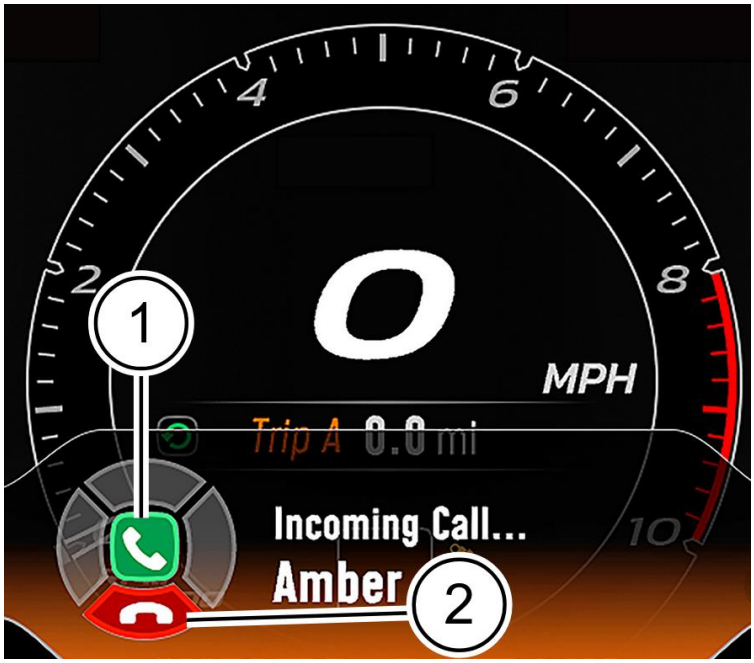
Call and text notifications can be turned on or off through the settings menu.

1. Select: settings menu (1).
2. Select: Phone Notifications.
3. Adjust notification settings.

4.1.2.1.3 Call:

Receiving a Call:

- When receiving a call a notification will be displayed on the IM.
- Use the LHCM to answer or decline the call.



4.1.2.2 Navigation

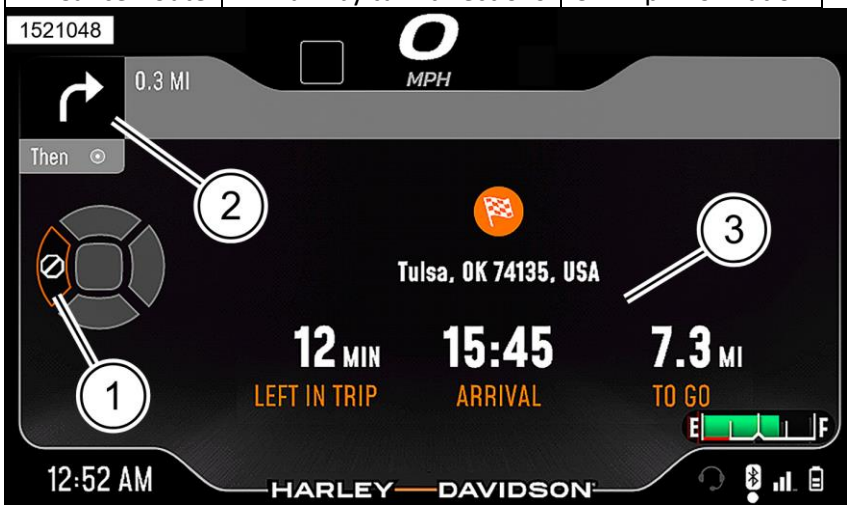
A device using the H-D Mobile App must be paired to the IM before navigation functions can be used.

4.1.2.2.1 Moving Map Display

1 - Cancel route	2 - Zoom out	3 - Trip information toggle	4 - Zoom in	5 - Trip information

4.1.2.2.2 Turn By Turn Display

1 - Cancel route	2 - Turn by turn directions	3 - Trip information



4.1.3 Widgets

Widget to be displayed in Instrument Module display can be any of the following:

- Trip details: Fuel range, odometer reading, trip A and trip B mileage.
- Bike status: Ambient temperature, coolant temperature and battery voltage
- Audio: Music information for song title, artist, album, play pause icon and song duration.
- Navigation: Turn by turn navigation information using the HD app. Includes next action icon, distance to next action and arrival time information.
- TPMS: Tyre pressure data for front and rear tyre

4.2 Service Lamps

1 - Left turn signal	2 - Fault alert	3 - Traction control	4 – ABS	5 - Rear wheel ABS disabled
6 - Maintenance required	7 - TPMS fault	8 - Ride mode	9 - HHC – Hill Hold Control (models with)	10 - Headlamp high beam
11 - Low fuel	12 - Check engine	13 - Oil pressure	14 - Coolant temperature	15 - Battery discharge
16 - Right turn signal	17 - Cruise control	18 - Gear indicator	19 -Adaptive Ride Height (ARH) (models with)	20 - Headset connection
21 – Bluetooth	22 - Device signal	23 - Device battery	24 - Heated hand grip (models with)	

4.2.1 TCS – Traction Control System (3)

- Solid: Traction control has been turned off.
- Flashing: Traction control system active intervention.
- Off: Traction control system is on.
- Solid with fault alert indicator illuminated: Continuous illumination of the traction control indicator along with the alert indicator illuminated indicates a traction control fault. Traction control may be disabled, and the motorcycle may be operating as if traction control is turned off. See a Harley-Davidson dealer for service.

4.2.2 ABS Indicator State (4)

During start up, the traction-control lamp flashes simultaneously with the ABS lamp, this indicates that both systems are waiting for the vehicle to complete a wheel speed sensor check. The traction control system is operational after start-up even during the wheel speed sensor check. The traction control lamp should turn off when the sensor check is complete.

ABS INDICATOR	STATE
ABS indicator Flashes	START-UP: ABS indicator check.
ABS indicator OFF	NORMAL OPERATION: After vehicle speed > 5 km/h (3 mph).

ABS INDICATOR	STATE
ABS indicator Continuous	ABS not functioning.
ABS indicator Rapid Flash with Solid Fault Alert and Traction Control indicator	Brake System Fault, Do not ride.

4.2.3 TPMS – Tyre Pressure Monitoring System

The Tire Pressure Monitoring System (TPMS) displays current front and rear tire pressure on the on the colour display screen and displays an indicator to alert the rider when tire pressure is low, and the pressure should be checked. TPMS is standard on the Pan America™ 1250 Special model and is a dealer-installed option for the Pan America 1250 model.

- Flashing (60 seconds, followed by solid lamp): TPMS fault has been detected. This event can occur for a variety of reasons, including loss of signal from the sensors or sensor battery failure. Tire pressure data may not be available while the lamp is lit. See a Harley-Davidson dealer for service.
- Solid: The system has detected that one or more tires have low pressure. Safely stop the vehicle and use a tire pressure gauge to check the pressure of each affected tire. Inflate the tires according to specifications in Before Riding → Checking Tire Pressure and Inspecting Tires, or as specified on the label on the frame downtube. The indicator will turn off when you begin riding the motorcycle with the correct pressure in the tires.

4.2.4 Ride Modes (8)

Ride Modes	Note	Pan America (base)	Pan America Special
Rain		x	x
Road	Default in some markets	x	x
Sport		x	x
Off-Road	Rear Wheel ABS On	x	x
-> Off-Road Plus	Rear Wheel ABS Off	x	x
Custom Off-Road	Rear Wheel ABS On		x
-> Custom Off-Road Plus	Rear Wheel ABS Off		x
Custom A	Rear Wheel ABS On	x	x
Custom B	Rear Wheel ABS On		x

- Road: Delivers balanced performance with ABS and TCS enabled. This mode offers less-aggressive throttle response and less mid-range engine power than Sport Mode, with a higher level of C-ABS and C-TCS intervention. On the Pan America 1250 Special model Road Mode selects a suspension damping setting that delivers a softer ride than Sport Mode.
- Rain: This mode offers restrained acceleration and limited engine braking with higher levels of ABS and traction control intervention. This mode is designed for riding in the rain or when traction is otherwise limited. The Rain Mode is also an appropriate setting for riders as they become familiar with the motorcycle. On the Pan America 1250 Special model Rain Mode will also adjust suspension damping to a compliant comfort setting.
- Sport: Delivers the full performance potential of the motorcycle in a direct and precise manner, with full power and the quickest throttle response on tap. TCS is set to lowest level and Engine braking is increased. On the Pan America™ 1250 Special model, Sport Mode will also increase the rate of suspension damping for enhanced feedback to the rider at higher speeds.

- Off-Road: Midrange level of power with torque characteristics tailored for use in an off-road environment. ABS active on both wheels, with interventions designed specifically for loose unpaved surfaces. TCS is set at same level as Sport Mode. On the Pan America 1250 Special model Off-Road Mode adjusts suspension damping to an off-road setting for enhanced control over uneven surfaces.
- Off-Road Plus: Same engine performance as Off-Road mode, with key changes to ABS and TCS that best support use in off-road environments by an experienced rider ideally with the motorcycle equipped with Harley-Davidson® Genuine Motor Parts & Accessories off-road tires. Rear wheel ABS is disabled, front to rear electronically linked braking function is disabled, and drag-torque slip control is disabled. The TCS provides the least intervention available. Front wheel lift mitigation and rear wheel lift mitigation are also disabled. Cornering enhancements to TCS, and front wheel ABS are disabled, these systems will be at their lowest level of intervention regardless of motorcycle lean angle. The intent is to give the rider the ability to use braking and engine power to control the motorcycle over a loose surface or larger obstacles; for example, to use the rear brake to lock the rear wheel in a controlled slide, or to use engine power to lift the front wheel to better clear an obstacle. Engine performance is the same as Off-Road mode. On the Pan America™ 1250 Special model the Off-Road Plus Mode will adjust the suspension to have less initial damping for increased compliance over larger suspension inputs – bumps on the trail, obstacles or landing after leaving the surface.

  Note: To select Off-Road Plus Mode the motorcycle must be in Off-Road Mode and stationary with the engine running. Pushing and holding the Mode button will then select the Off-Road Plus Mode. The rider may exit Off-Road Plus Mode by pushing the Mode button at any time. The mode will change back to Off-Road Mode, and the rider may then use the Mode button to change to any other Ride Mode setting.

4.2.4.1 Table 2. Custom Ride Mode Settings

Selection	Result
Engine Map	Sets overall power delivery characteristics in the custom ride mode. Selection will copy engine map characteristics from one of the pre set ride modes.
Engine Braking	Adjusts how much engine braking will be enabled in the custom ride mode.
Throttle Response	Adjusts the intensity of throttle response felt by the rider in the custom ride mode.
Traction Control	The traction control level adjusts how much rear wheel slip and front wheel lift mitigation the system will allow. Selection will copy traction control characteristics from one of the pre set ride modes.
Anti-Lock Braking	Adjusts how much rear wheel lift mitigation and ABS intervention is present within ride mode. Selection will copy ABS characteristics from one of the pre set ride modes.
Suspension Damping(1)	Adjusts suspension damping to the desired level.

Selection	Result
Adaptive Ride Height[(2)]	Adjust the timing of when the ARH system will automatically lower or to keep it at ride height.

- *(1) Available on vehicles equipped with electronic suspension.*
- *(2) Available on vehicles equipped with ARH.*

4.2.5 HHC – Hill Hold Control (9)

- Solid: Hill Hold Control (HHC) is engaged and maintaining brake pressure.
- Slow flashing: Indication that brake pressure is being released or is about to be released automatically. The rider should be prepared to engage the brake manually or drive off.

4.2.6 ARH – Adaptive Ride Height (19)

4.2.6.1 Display

- Off: Suspension is at normal ride height.
- Flashing: Suspension is lowered.
- Solid: The indicator is solid if ARH has been locked at ride height in the settings menu or if there is a fault with the ARH system. If ARH is enabled in the settings menu and indicator is solid see a Harley-Davidson dealer for service.

4.2.6.2 Modes

- Auto Mode: The system determines how quickly to lower the suspension based on how aggressive the braking action is, with the target of having the suspension fully lowered when the bike comes to a stop.
- Short Delay and Long Delay Modes: In these modes the lowering function is delayed until the motorcycle comes to a stop, so that ride height is maintained while the motorcycle is moving at low speeds, such as when negotiating a parking lot.
- Locked Mode: The Adaptive Ride Height system will maintain the normal ride height and does not lower at a stop. This mode might be selected by a tall rider who does not need Adaptive Ride Height to be flat footed at a stop, or for off-road riding when full ride height is desirable at low speeds.

4.3 RDRS – Reflex Defensive Rider System

The Pan America 1250 and Pan America 1250 Special models are equipped with a collection of technologies designed to match motorcycle performance to available traction* during acceleration, deceleration, and braking. The systems are designed to aid the rider in controlling the motorcycle while accelerating and braking in a straight line or while in a turn. A rider may find the systems most helpful when riding in adverse road conditions or in unexpected situations. The systems are electronic and utilize the latest chassis control, electronic brake control and powertrain.

Some elements of Cornering Rider Safety Enhancements may be “cornering enhanced” with technology that is motorcycle specific. An inertial measurement unit, or IMU, measures and reports the motorcycle lean angle as it navigates a turn. Because many motorcycles have different size front and rear tires when the motorcycle leans into a turn the wheels begin to rotate at slightly different speeds. The tire traction patch – the part of the tire touching the pavement – also changes as the motorcycle leans in a turn. Cornering enhanced technology takes this into account and, for optimal performance, intervenes differently when the motorcycle is leaned compared to when the motorcycle is upright.

4.3.1 Features

4.3.1.1.1 ABS - Antilock Braking System

ABS is designed to prevent the wheels from locking under braking and helps the rider maintain control when braking in a straight-line, urgent situation. ABS operates independently on front and rear brakes to keep the wheels rolling and prevent uncontrolled wheel lock.

4.3.1.1.2 C-ABS – Cornering Enhanced Antilock Braking System

The Cornering Enhanced Antilock Braking System (C-ABS) is a variant of ABS that takes into consideration the lean angle of the motorcycle. While cornering, the available grip for braking is reduced and C-ABS automatically compensates for this reality.

4.3.1.1.3 FLM – Front-wheel Lift Mitigation

Part of C-TCS, covered in C-TCS section below, pasting also here for convenience.

C-TCS is also designed to support Front-Wheel Lift Mitigation (FLM) to reduce the height and duration of front-wheel lift (wheelie). The height and duration of front-wheel lift is tied to the rider-selected Ride Mode, with Rain being the most-restrictive and Sport/Off Road being the least-restrictive of the standard modes. In Off-Road Plus Mode C-TCS will allow an even greater amount of rear-wheel slip appropriate for off-road use only and fully disables FLM so that an experienced rider may use throttle to lift the front wheel to clear obstacles. Turning off TCS fully disables both TCS and FLM.

4.3.1.1.4 RLM - Rear-wheel Lift Mitigation

Rear-wheel Lift Mitigation (RLM) utilizes the C-ABS sensors and the six-axis inertial measurement unit (IMU) to manage rear-wheel lift during heavy braking and further balance deceleration and rider control. The height and duration of RLM is tied to the selected Ride Mode. RLM allows for the least rear-wheel lift in Rain Mode and the most rear-wheel lift in Off-Road mode. Rear wheel ABS and RLM are disabled when the rider selects the Off-Road Plus or Custom Off-Road Plus Ride Mode

4.3.1.1.5 C-ELB - Cornering Enhanced Electronic Linked Braking

The C-ELB system provides balanced front and rear braking under a wide variety of brake applications. The system provides more linking when the rider is applying heavier braking and reduces or eliminates linking for light braking and low speeds. When linked, applying the front brake lever alone will cause the system to also apply an amount of braking dynamically to the rear. C-ELB considers the motorcycle lean angle and will alter the proportioning of brake pressure between the front and rear brakes while cornering to improve the ability of the bike to maintain the rider's intended path.

4.3.1.1.6 HHC – Hill Hold Control

The Hill Hold Control (HHC) applies and holds brake pressure when activated and prevents the motorcycle from rolling after the rider has released the brake controls. The primary function of HHC is to prevent the motorcycle from rolling when it is stopped – for example at a stop sign on a hill, in stop-and-go traffic on a slope, or on a steep decline out of a parking structure. HHC is designed to make it easier to ride away with confidence by minimizing the number of controls needed to pull away smoothly. The system applies brake pressure until the rider actuates the throttle and clutch to pull away. HHC may also be engaged when the motorcycle is stopped on a flat surface if the rider wants to maintain position without applying pressure to a brake control.

HHC is not to be used as a parking brake. In most situations after ten seconds the indicator light will flash and the HHC will release if there is no rider action. HHC is not intended as a substitute for a

parking brake in any situation. The rider may use the instrument display to disable (or re-activate) HHC if they desire.

1. Activation: The rider activates HHC by applying extra pressure to either the front brake hand lever or the rear brake foot control after the motorcycle has come to a complete stop. If rider brakes very hard to a stop, and holds the brake pressure after stopped, HHC may also set without any added squeeze. A HHC indicator light will illuminate to confirm that the rider has activated HHC, and the ABS system will hold brake pressure after the rider releases the brake control. The indicator light will blink if the rider attempts to engage HHC but that action is not available – for example if the side-stand is down on models equipped with a side stand sensor.
2. Deactivation: HHC is deactivated automatically as the rider begins to pull away from a stop, or if the rider applies and releases brake control. HHC may deactivate if rider aggressively revs the engine with clutch lever pulled in. HHC will also deactivate if the rider lowers the side stand on models with a side stand sensor (not in all markets) or shifts into neutral on models without a side stand sensor or if the engine is turned off. HHC will deactivate after approximately 10s. In most situations, the indicator light will flash and the HHC will release if there is no rider action.

4.3.1.1.7 TCS – Traction Control System

Traction control is designed to keep the rear wheel from "spinning out" when the motorcycle is accelerating, and enhances rider confidence, especially in wet weather. TCS can improve rider confidence when available traction is compromised by wet weather, a sudden unanticipated change in the surface, or when riding on an unpaved road.

In the Off-Road Plus or Custom Off-Road Plus Ride Mode (see Ride Mode section) TCS is enabled without any cornering adjustments, allowing the rider to take advantage of ruts, banking, and berms to better accelerate at lean. In Off-Road Plus mode TCS will allow a greater amount of rear-wheel slip appropriate for off-road use only and fully disables FLM so that an experienced rider may use throttle to lift the front wheel to clear obstacles.

The traction control button activates and deactivates the traction control system.

- Disable: Press button for 1 s with engine running and vehicle stopped.
- Enable: Press button at any time to resume traction control operation.

4.3.1.1.8 C-TCS - Cornering Enhanced Traction Control System

The Cornering Enhanced Traction Control System (C-TCS) is designed to prevent the rear wheel from excessive spinning under acceleration when going straight or cornering. C-TCS can improve rider confidence when available traction is compromised by wet weather, a sudden unanticipated change in the surface, or when riding on an unpaved road. The action of C-TCS is also tailored when cornering based on lean angle. Each pre-programed ride mode has a specific level of C-TCS. In the customizable ride modes, the rider can select from three levels of C-TCS intervention.

The rider can deactivate C-TCS in any Ride Mode when the motorcycle is stopped, and the engine is running. Changing to Rain Mode will automatically re-enable C-TCS, but C-TCS may be disabled again after Rain Mode has been selected. C-TCS can be reactivated with the push of a button on the right-hand control when the motorcycle is stopped or underway.

C-TCS is also designed to support Front-Wheel Lift Mitigation (FLM) to reduce the height and duration of front-wheel lift (wheelie). The height and duration of front-wheel lift is tied to the rider-

selected Ride Mode, with Rain being the most-restrictive and Sport/Off Road being the least-restrictive of the standard modes. In Off-Road Plus Mode C-TCS will allow an even greater amount of rear-wheel slip appropriate for off-road use only and fully disables FLM so that an experienced rider may use throttle to lift the front wheel to clear obstacles. Turning off TCS fully disables both TCS and FLM.

4.3.1.1.9 C-DSCS - Cornering Enhanced Drag-Torque Slip Control

Cornering Enhanced Drag-Torque Slip Control (C-DSCS) is designed to reduce excessive rear-wheel slip and help prevent rear-wheel lock under deceleration, which typically occurs when the rider makes an abrupt down-shift gear change or decelerates on wet or slippery road surfaces.

When C-DSCS detects excessive rear wheel slip under deceleration it will adjust engine torque delivery to better match rear-wheel speed to road speed. The action of DSCS is tailored when cornering, based on detected lean angle. C-DSCS is disabled in Off-Road Plus and Custom Off-Road Plus (because rear ABS is disabled). Additionally, C-DSCS intervention may be diminished when TCS is disabled by the rider.

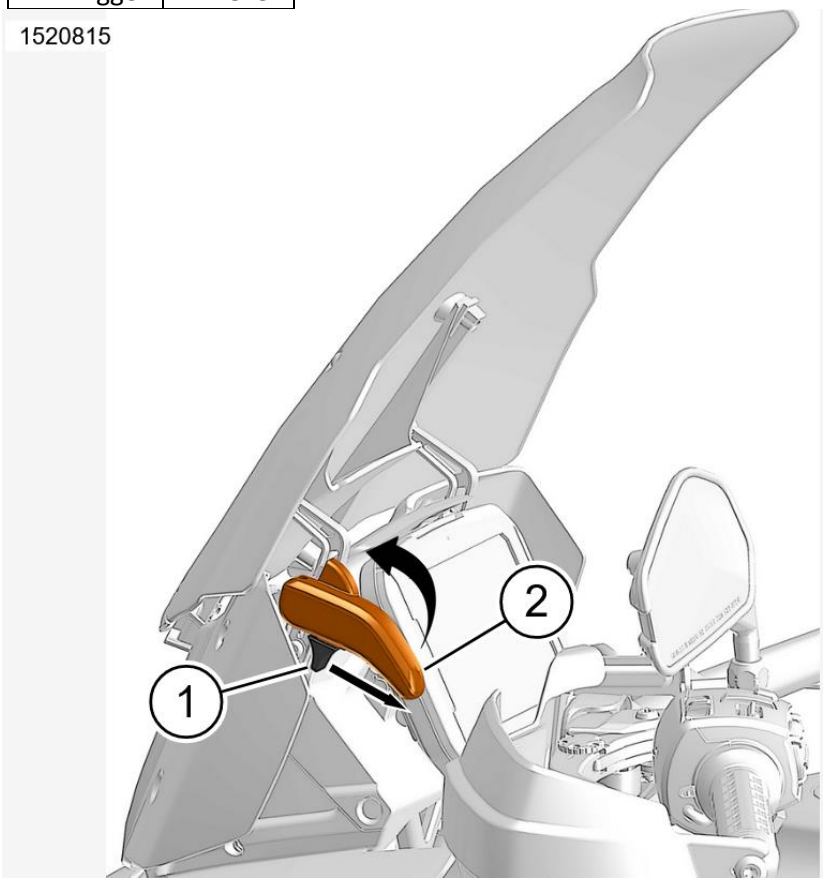
Disabling your Traction Control will not disable Drag Torque Slip Control.

4.3.1.1.9.1 Table 1. Traction Control Symptoms and Conditions

SYMPTOM	CONDITION
Traction control lamp off	Traction control system active.
Traction control lamp continuously lit	Traction control system deactivated by user.
Traction control lamp and security/fault indicator lamp continuously lit	Traction control system faulted.
Traction control lamp flashing	Normal condition. Traction control intervention.
Reduction of throttle response during a traction control event	Normal condition. Traction control intervention.
"Surge" sensation while decelerating	Normal condition. Drag torque slip control intervention.

4.4 Windshield

1 – Trigger	2 - Lever



4.4.1 Raise

1. While holding lever (2) pull trigger (1) until lever can be moved down.
2. Carefully move lever down to raise windshield.
3. Release trigger to lock windshield in one of four available heights.
4. Verify trigger has moved forward to original position.

4.4.2 Lower

1. While holding lever (2) pull trigger (1) until lever can be moved up.
2. Carefully lift lever up to lower windshield.
3. Release trigger to lock windshield in one of four available heights.
4. Verify trigger has moved forward to original position.

4.5 Bike Tipped Over

Should your bike tip over then follow process below to get up and running again:

1. Set motorcycle upright.
2. Cycle the OFF/RUN switch to OFF.
3. Wait 10 seconds.
4. Cycle the OFF/RUN switch to RUN.
5. Push hazard switch to turn four-way flashers off.

5 Appendix

5.1 Specifications

5.1.1 Table 1. Specified Tires

MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE COLD	
				psi	kPa
RA1250 Pan America™ RA1250S Pan America™ Special	Front	19 in	Michelin® Scorcher® Adventure 120/70R19 60V	36 psi	248 kPa
RA1250 Pan America™ RA1250S Pan America™ Special	Rear	17 in	Michelin® Scorcher® Adventure 170/60R17 72V	42 psi	290 kPa

5.1.2 Table 2. Weights

ITEM	Pan America™ (RA1250)		Pan America™ Special (RA1250S)	
	lb	kg	lb	kg
Running weight (1)	534	242	559	254
Maximum added weight allowed (2)	469	212	444	201
GVWR	1003	454	1003	455
GAWR front	399	181	399	181
GAWR rear	665	302	665	302

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

5.1.3 Table 3. Dimensions

ITEM	Pan America™ (RA1250)		Pan America™ Special (RA1250S)	
	in	mm	in	mm
Length	89.2	2265	89.2	2265
Overall Width	38	965	38	965
Overall height	59.4	1510	59.4	1510
Wheelbase	62.2	1580	62.2	1580
Road clearance	8.3	210	6.9	175
Seat height (1)	32.9	836	32.9	836
Seat height	34.2 – 35.2	868.68 – 894.08	33.4 – 34.4 32.7 – 33.7 ARH	848.36 – 873.76 830.58 – 855.98

(1) With 81.7 kg (180 lb) rider on seat

5.1.4 Table 4. Capacities

ITEM	U.S.	METRIC
Fuel tank (total)	5.6 gal	21.2 L
Low fuel warning light on (approximate)	1.0 gal	3.8 L
Engine oil capacity with filter	4.75 qt	4.5 L
Coolant	2.32 qt	2.2 L

ITEM	U.S.	METRIC
(approximate)		

5.1.5 Table 5. Engine

ITEM	SPECIFICATION	
Number of cylinders	2	
Type	4-cycle, 60 degree V-Type, Liquid cooled Dual overhead camshafts (DOHC)	
Compression ratio	13.0:1	
Bore	4.13 in	105 mm
Stroke	2.84 in	72 mm
Displacement	76.3 in^3	1252 cm^3
Fuel requirement	Premium unleaded	
Lubrication system	Pressurized, wet sump	

5.1.6 Table 6. Transmission

TRANSMISSION	SPECIFICATION
Type	Constant mesh, foot shift
Speeds	6 forward

5.1.7 Table 7. Electrical

ITEM	SPECIFICATION
Ignition timing	Not adjustable
Battery	12 V, 12 Ah, 225 CCA sealed and maintenance free
Charging system	45 A maximum output

5.2 Fault Diagnosis

5.2.1 Engine

5.2.1.1 Starter Does Not Operate or Does Not Turn Engine Over

1. Engine OFF/RUN switch is off.
2. Discharged battery or loose or corroded connections (solenoid chatters).
3. Clutch lever not squeezed against handlebar or transmission not in neutral.
4. Jiffy stand not in retracted position (for models equipped with jiffy stand interlock).
5. Blown fuse.

5.2.1.2 Engine Turns Over but Does Not Start

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

5.2.1.3 Starts Hard

1. Spark plugs in bad condition, have improper gap or are partially fouled.
2. Spark plug cables in bad condition and leaking.
3. Battery nearly discharged.
4. Loose wire or cable connection at one of the battery terminals or at coil.
5. Engine oil too heavy (cold weather).
6. Fuel tank vent plugged, or fuel line closed off, restricting fuel flow.
7. Water or dirt in fuel system or filter.
8. Fuel pump inoperative.

5.2.1.4 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.

5.2.1.5 A Spark Plug Fouls Repeatedly

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

5.2.1.6 Pre-ignition or Detonation (Knocks or Pings)

1. Incorrect fuel.
2. Incorrect spark plug

5.2.1.7 Overheats

1. Insufficient oil supply or oil not circulating.
2. Heavy carbon deposit from lugging engine. See dealer.
3. Insufficient air flow through radiator during extended periods of idling.

5.2.1.8 Excessive Vibration

1. Rear fork pivot shaft loose. See dealer.
2. Drive chain or links tight because of insufficient lubrication.
3. Damaged frame. See dealer.
4. Wheels and/or tires damaged. See dealer.
5. Vehicle not properly aligned. See dealer.

5.2.2 Engine Oil Not Circulating (Oil Pressure Indicator Lit)

1. Insufficient or diluted oil supply.
2. Grounded oil signal switch wire or faulty signal switch. See dealer.
3. Oil pump problem. See dealer.

5.2.3 Transmission

5.2.3.1 Transmission Shifts Hard

1. Clutch controls or clutch cable improperly adjusted. See dealer.
2. Bent shifter rod. See dealer.

5.2.3.2 Transmission Jumps Out of Gear

1. Worn shifter dogs in transmission. See dealer.

5.2.3.3 Clutch Slips

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

5.2.3.4 Clutch Drags or Does Not Release

1. Clutch controls or clutch cable improperly adjusted. See dealer.
2. Clutch discs warped. See dealer.

5.2.3.5 Clutch Chatters

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

5.2.4 Cooling System

5.2.4.1 Overheats

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

5.2.5 Electrical

5.2.5.1 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.

5.2.5.2 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.

5.2.6 Brakes

5.2.6.1 Brakes Do Not Hold Normally

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

5.3 ETC - Electronic Throttle Control

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

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

5.3.1 ETC Limited Performance Mode

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

5.3.2 ETC Power Management Mode

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

5.3.3 ETC Forced Idle Mode

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

5.3.4 ETC Forced Shut Down Mode

The engine is forced to shut down.

5.4 ABS Symptoms and Conditions

SYMPTOM	CONDITION
ABS lamp continuously lit	ABS fault detected. See a Harley-Davidson dealer for service.
ABS lamp slow flashing	This indicates a normal self-diagnostics process when the motorcycle is first turned on and the speed is under 5 km/h (3 mph). ABS is not operational until the lamp turns off. If the lamp continues flashing at speeds greater than 5 km/h (3 mph), see a Harley-Davidson dealer for service.
ABS lamp rapid flashing and solid fault alert and traction control indicators	This indicates a potential brake system fault. Apply both front and rear brakes to reduce speed and to stop motorcycle. The brake controls could feel stiff when applied. If this occurs, move the motorcycle to a safe location to stop. Service is required to correct the fault before continuing to ride. 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

SYMPTOM	CONDITION
	braking at slow speeds, and other conditions. This is due to ABS modulating calliper 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 calliper 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 5km/h (3mph) or on rear wheel below 8km/h (5mph).