



INSTRUCTIONS

-J03701

2005-03-21

XL CUSTOM MINI-TACH KIT

GENERAL

Kit Number

69427-04, 69445-04 and 69446-04

Models

These kits fit 2004 and later XL Custom model motorcycles.

Additional Parts Required

For proper installation, this kit requires the installation of a Sportster Custom Mini-Tach Bracket Kit (69426-04).

⚠ WARNING

Rider and passenger safety depend upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333b)

NOTE

This instruction sheet references Service Manual information. A Service Manual for your model motorcycle is required for this installation and is available from a Harley-Davidson Dealer.

NOTICE

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

⚠ WARNING

When installing any electrical accessory, be certain not to exceed the maximum amperage rating of the fuse or circuit breaker protecting the affected circuit being modified. Exceeding the maximum amperage can lead to electrical failures, which could result in death or serious injury. (00310a)

NOTE

This kit requires up to 280 milliamps of additional current from the electrical system.

Kit Contents

See Figure 5 and Table 1.

INSTALLATION

Prepare the Motorcycle

1. Follow the instructions found in the Service Manual to remove the seat and any side covers.

⚠ WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect negative (-) battery cable before proceeding. (00048a)

2. Disconnect negative (-) battery cable from the battery.

⚠ WARNING

Gasoline can drain from the carburetor fuel line when disconnected from fuel valve fitting. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. Wipe up spilled fuel immediately and dispose of rags in a suitable manner. (00256a)

3. Turn the fuel supply valve to OFF. Remove the fuel line from the valve.
4. Follow the instructions in the Service Manual to remove the fuel tank.

Install the Bracket Kit and Shift Gauge

NOTE

Follow the instructions sheets found in the gauge kit thru routing the wire harness, installing the gauge, wiring the power, sensor and ground leads, and returning the motorcycle to service.

1. Follow the bracket kit instructions to install the gauge bracket.
2. See Figure 5. Obtain from mini-tach gauge kit, the rubber isolation gasket (2) and the mini-tach (3).

NOTE

Lubricating the gasket with soap and water will make installation of the gasket and the gauge easier.

3. Fit the perimeter groove in the rubber isolation gasket to the inside edge of the bracket and the tab of the isolation gasket to the square cutout in the bracket.
4. Rotate the gauge to align the face legend horizontal to the rider and push in the gauge. The locating tab on the gauge will align with the locating notch in the gasket.

Install the Converter Box

NOTE

Do **not** secure the converter box to the throttle cable.

-J03701



Many Harley-Davidson® Parts & Accessories are made of plastics and metals which can be recycled. Please dispose of materials responsibly.

1 / 4

1. See Figure 1. Position the digital to analog converter box under the frame backbone.
2. Using a cable tie through the left hand hole in the converter box flange, secure the converter to the wiring harness on the left.

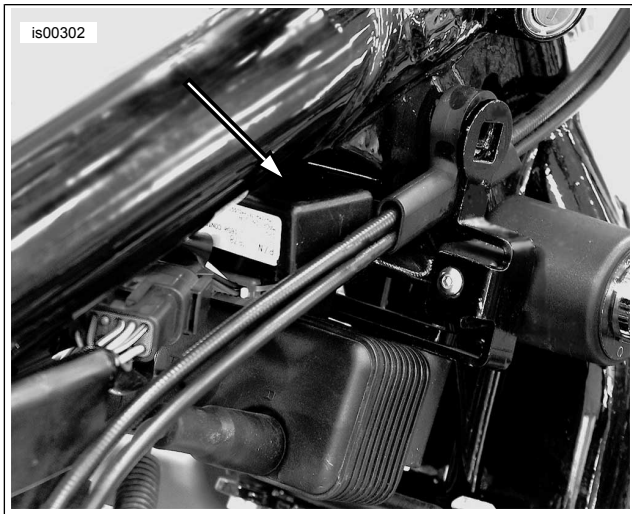


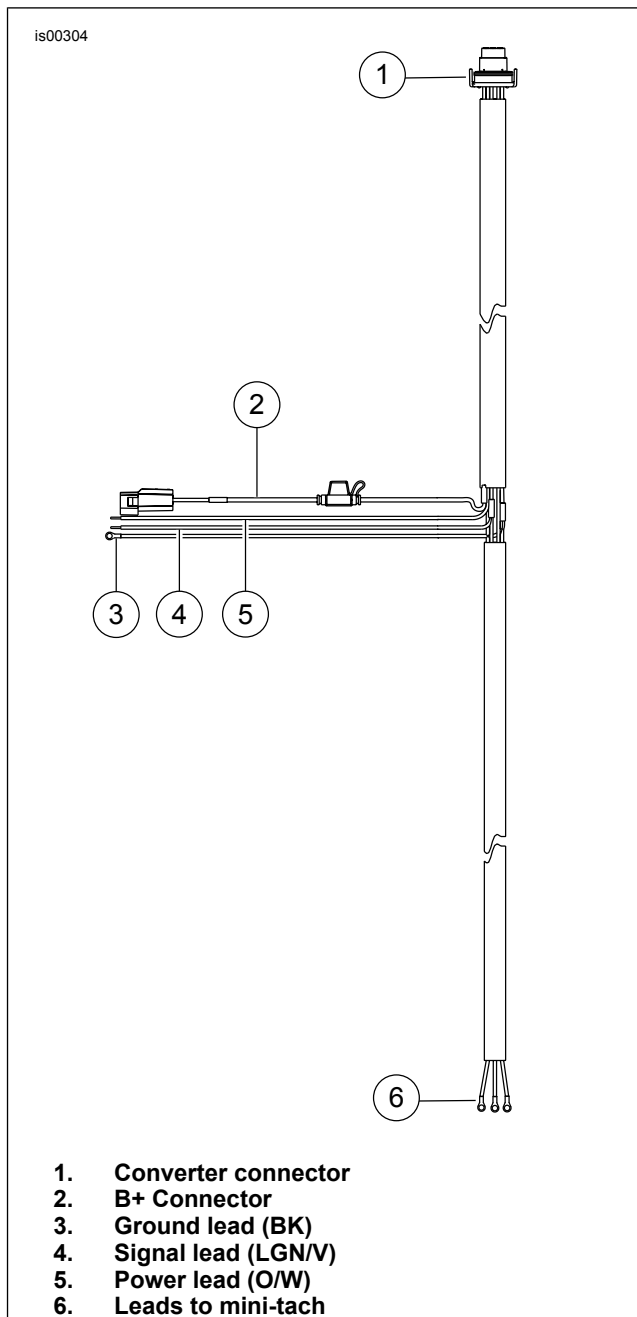
Figure 1. Converter Box Location

Route the Wire Harness

NOTE

Route the wire harness to all terminal locations and adjust as necessary during the installation to achieve a tight but flexible arrangement.

1. See Figure 2. Mate the connector (1) on the wire harness to the connector on the digital to analog converter box. Cable tie the mini-tach harness at the converter box to the main harness along the left side of the backbone.
2. Layout the wiring harness conduit along the frame backbone and loosely locate the harness leads.
 - a. The junction of the LGN/V, O/W and black unterminated leads and the single B+ connector will fall right in front of the seat post.
 - b. Mate the lead with the B+ connector (2) routed toward the B+ connector [160B] on the main wire harness.
 - c. Route the mini-tach leads (6) wrapped in conduit forward toward the gauge and bracket. If necessary, locate the B+ connector [160B] on the main wire harness and route the connector and conduit to the B+ connector on the gauge wiring harness. Route the mini-tach leads (6) in conduit toward the gauge and loosely secure the doubled harness with 2 cable ties without clipping off the ends of the ties.
 - d. The signal lead (LGN/V) (4) toward the data link connector [91A].
 - e. The ground lead (BK) (3) toward a ground stud.
 - f. The power lead (O/W) toward the rear fender lighting connector [7A].
 - g. Loosely secure the harness with cable ties. Leave the lead ends unclipped and continue to adjust leads and conduit for length and clearance from chafe and heat points.



1. Converter connector
2. B+ Connector
3. Ground lead (BK)
4. Signal lead (LGN/V)
5. Power lead (O/W)
6. Leads to mini-tach

Figure 2. Mini-Tach Wire Harness

Route the Signal Lead

1. Locate the gray data link connector [91A] under the left side cover.
2. Route the signal lead (LGN/V) from the mini-tach wiring harness to the data link connector [91A].
3. Cut the LGN/V wire 1.5 in. from the connector.
4. Splice lead from the connector to the LGN/V lead from the mini-tach wiring harness.

Wire the Ground

1. See Figure 3. Route the ground lead (BK) to the ground stud on the engine/transmission case.
2. Remove the bolt or nut from the ground and install the shift gauge ground.

NOTE

For multiple gauge installation, stack up the ground lead ring terminals on the ground.

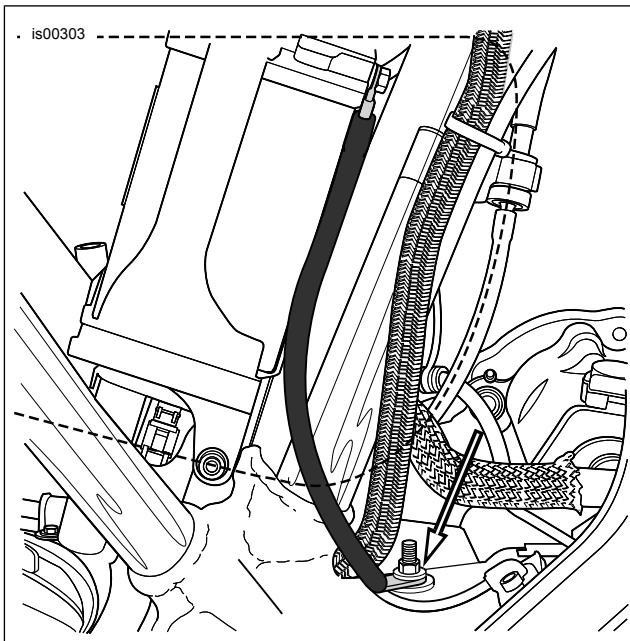


Figure 3. 2004 and Later XL Custom Ground Location

Route the Power Lead

1. Route the orange power lead underneath and down a rear frame rail to the power location for the model. Locate the rear taillamp connector [7] and identify the power lead (O/W) into the pin half (socket 1). Cut the lead 1 1/2 in. from the pin connector [7A].
2. Determine the length for the power lead (O/W) and cut the lead.
3. Strip 3/8 in. (9.53 mm) of insulation from the lead.

Splice Power/Signal Leads

NOTE

The splice connector (70586-93) is blue for 14-16 gauge wire.

1. After determining the length required for the power lead (O/W) and the signal lead (LGN/V), cut the the lead as necessary.
2. Expose bare wire by stripping 3/8 in. (9.53 mm) insulation from the ends of the leads.
3. See Figure 4. Identify the splice configuration required for the power and signal leads.
4. Insert the leads and crimp the metal insert of the splice.

▲ WARNING

Be sure to follow manufacturer's instructions when using the UltraTorch UT-100 or any other radiant heating device. Failure to follow manufacturer's instructions can cause a fire, which could result in death or serious injury. (00335a)

- Avoid directing the heat toward any fuel system component. Extreme heat can cause fuel ignition/explosion resulting in death or serious injury.
- Avoid directing heat toward any electrical system component other than the connectors on which heat-shrink work is being performed.
- Always keep hands away from tool tip area and heat shrink attachment.

5. Using the UltraTorch UT-100 (HD-39969) or other suitable radiant heating device, heat the crimped splice from the center of the crimp out to each end until the sealant exudes out both ends of the connector and the tubing assumes a smooth cylindrical appearance.

Wire the Mini-Tach Harness to the Mini-Tach

1. Lubricate the mini-tach harness conduit with soap and water and pull the 3 leads and conduit through the isolation gasket grommet.
2. Orient the face of the mini-tach to the rider and install the mini-tach in the isolation gasket.
3. Match colors to terminal posts on back of mini-tach: Match colors to terminal posts on back of mini-tach:
 - a. O/W (power) to + terminal.
 - b. BK (ground) to G terminal.

NOTE

Over tightening nuts may damage the mini-tach.

- c. P (signal) to S terminal.
4. Use the nut and lockwasher on each post to secure the ring terminal to that post. Tighten nuts to 0.4–0.9 N·m (4–7 in-lbs).
 5. Verify that the ring terminals or leads are not grounding against each other.
 6. Follow the instructions in the gauge housing kit and push the gauge housing into the isolation gasket capturing the isolation gasket grommet in the housing cutout and install the flat head screw from the gauge housing kit.
 7. Tighten the flat head screw to snug the housing up against the isolation gasket.
 8. Check seal of isolation gasket around the entire housing.

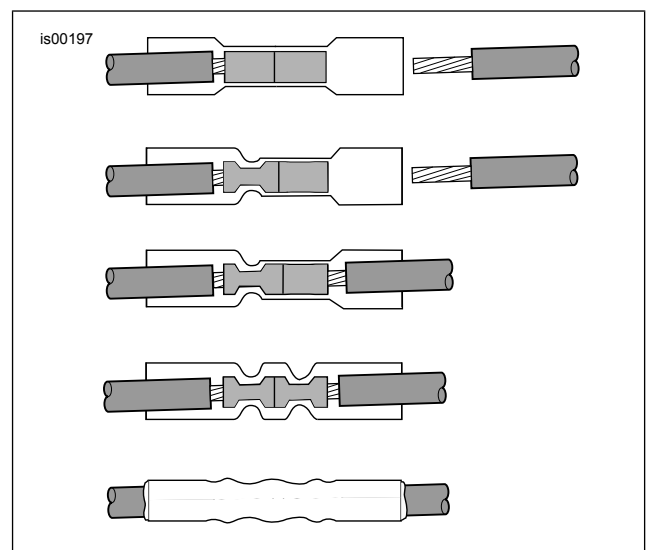


Figure 4. Splice 1 into 1 Sequence

Inspect and Secure the Wire Harness

1. Bounce motorcycle to look for pinch points between suspension components and mini-tach wire harness.
2. Turn front forks lock-to-lock, to look for pinch points.
3. Check for slack in wiring so that handlebar movement is not restricted.
4. Verify clearance from heat sources along harness.
5. Trial fit fuel tank and instrument console and repeat checks for pinch points, and slack, clearance.
6. See Figure 5. At several locations along the main harness, bundle the mini-tach harness to the main harness with cable straps (5) to support wires so they do not chafe or contact hot or moving points.
7. Install the cover and the fuse block.

SERVICE PARTS

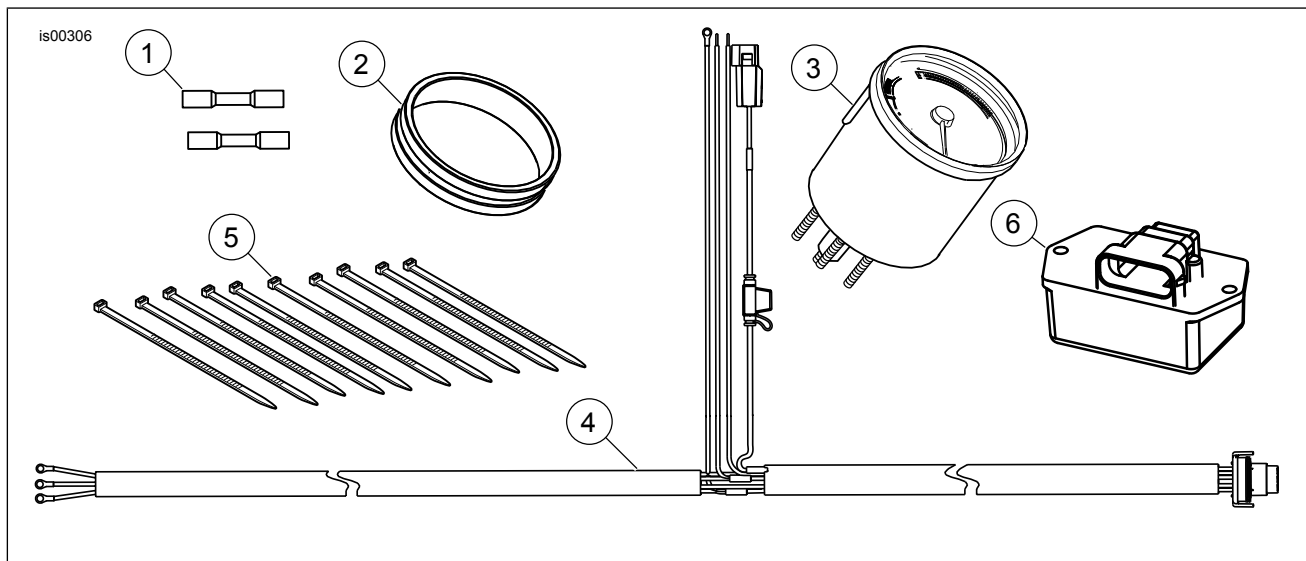


Figure 5. Service Parts for XL Custom Mini-Tach Kit

Table 1. Service Parts Table

Item	Description (Quantity)	Part Number
1	Butt splice, 14-16 gauge (2)	70586-93
2	Isolation gasket	67952-96
3	Mini-Tach	Not Sold Separately
4	Wiring harness	69428-04
5	Cable strap (10)	10006
6	Converter box, digital-to-analog	72358-04