

## Arlen Ness & Performance Machine

### Front End Makeover: Part 1

Story by **Jason Mook** – Photos by **Jesse B. Nelson**

There are two options when installing a big front wheel on your Bagger. You can cut the neck and install a neck kit or you can install triple trees to achieve proper rake and trail. There are advantages to both methods and over the next several issues of Urban Bagger Magazine our tech department will demonstrate both methods. In this story, we install a 23" Performance Machine Wheel on a 2006 Street Glide using only Arlen Ness K.O. Triple Trees. In part 1, we will show the teardown of the front end in preparation for installation of the new components. The Performance Machine 23" Paramount Wheel in Platinum Cut will be complimented with a 13" left side matching brake rotor. The dual four piston calipers will be replaced with a single chrome six piston-caliper from Hawg Halters, cleaning up the right side of the front wheel, while still providing plenty of stopping power. Progressive Suspension's Monotube Fork Cartridge Kit is recommended when using the Arlen Ness K.O. Trees, improving front end handling. The front end will be completed with a flush axle from Klock Werks and a tire-wrapping fender from Russ Wernimont Designs, attached to the fork sliders by Covington's Fender Spacers. While the parts list is extensive, the end result Big Wheel Bagger is well worth the time and effort spent.

**Difficulty Level:** 3/5      **Estimated Time to Complete:** 4.0 hours



We've assembled all the components needed for the 23" wheel conversion.



The 2006 Street Glide ready for a 23" wheel up front.

### Tool & Supplies Needed

- SAE Wrenches
- 10mm Wrench
- SAE Socket Set
- 10mm 12pt Socket
- Allen Wrenches
- Long 6mm Allen
- Torx Drivers
- 3/8" Ratchet Wrench with Extensions
- Retaining Ring Pliers
- Phillips Screwdriver
- Rubber Mallet
- Small Punch
- Hammer
- Impact Wrench
- Fork Cap Nut Socket
- Bungee Cords (2)
- Drain Pan
- Center Jack



1 Remove the seat. Use a 10mm wrench to disconnect the ground wire to the negative terminal of the battery.



2 With a 10mm 12pt socket, remove the two bolts holding the brake caliper to the fork slider.



3 Slide the caliper off the rotor.



4 Support the weight of the caliper with a bungee cord; do not let it hang from the brake line. Repeat the process for the other front brake caliper.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 1



5 Use a 3/4" wrench to loosen the front axle nut on the left side.



6 With a 1/2" wrench, loosen the two nuts holding the axle clamp.



7 Use a center jack to support the frame of the motorcycle, taking the weight off the front end. Gently tap the axle out from the left side of the motorcycle with a rubber mallet.



8 Maintain control of the wheel and spacers when removing the axle.



9 Use the center jack to raise the front end enough to remove the front wheel.



10 Bend the locking tabs down around the fender mounting bolts with a small punch and hammer.



11 With a 1/2" socket, remove the four fender mounting bolts.



12 Remove the fender from in between the fork legs from the front.



13 Use a 6mm Allen to remove the damper bolts from the bottom of the fork sliders. Have a drain pan ready to catch the fork oil.



14 Allow the old fork oil to drain into a suitable container.



15 Move the fork slider all the way down the fork leg. With a small flathead screwdriver, remove the retaining ring from above the fork seal.



16 In a "slide hammer" motion, remove the fork slider from the fork leg. Repeat the process for the other side.



Remove the three windshield bolts with a T27 Torx.



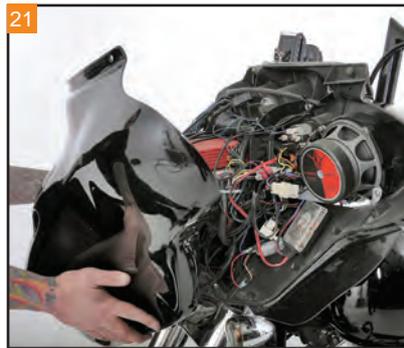
Lift the windshield trim off the outer fairing.



Lift the windshield up and out from between the inner and outer fairing.



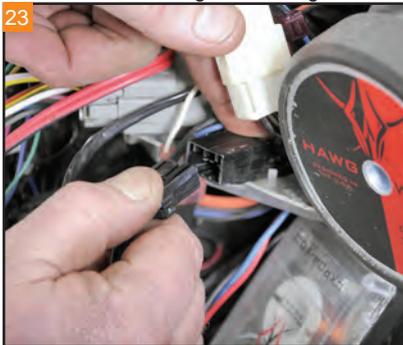
With a T27 Torx, remove the four bolts holding the outer fairing to the inner. Maintain control of the outer fairing while doing so.



Pull the outer fairing away from the inner fairing in order to access the headlight wiring connector.



Squeeze the two sides of the connector in order to release it from the headlight.



Unplug the wiring for the front turn signals.



With a T40 Torx, remove the two bolts per side holding the turn signals in place.



Remove the turn signal assembly from the motorcycle. Reinstall one of the turn signal mounting bolts back into a threaded hole to hold the inner fairing in place. Repeat for the other side.



With both turn signals removed, the lower outer fairing skirt can be removed from the front end.



Unplug the wiring from the motorcycle main wiring harness to the fairing interconnect harness.



Unplug the radio and wiring coming from the handlebar controls.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 1



Loosen the clutch cable adjuster in order to introduce slack in the clutch cable.



Use retaining ring pliers to remove the retaining ring from the clutch lever pivot pin in the left side hand controls. Lift the pivot pin up and out of the clutch perch.



Remove the clutch lever from the perch in order to remove the cable from the lever. Route the clutch cable out and clear from the fairing.



Loosen the banjo bolt at the front master cylinder to remove the brake line. Have a small drain pan ready to catch any brake fluid when removing the bolt.



Route the front brake line through the fairing and out. Remove the bolt holding the brake line junction block under the lower triple tree.



The brake line and calipers can be removed as an assembly from the motorcycle.



Loosen the adjusters in the throttle and idle cables in order to introduce slack in the cables.



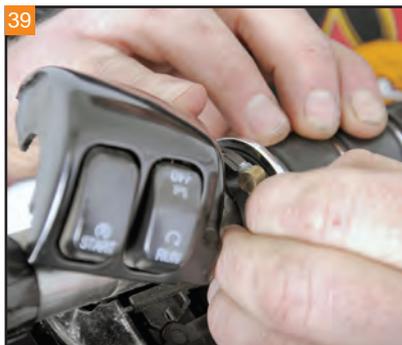
With a T25 Torx, remove the two bolts holding the switch housing together.



Remove the bolts holding the master cylinder assembly to the handlebars with a T27 Torx.



The front master cylinder can be removed from the handlebars.



Lift the top of the switch housing to expose the end of the right side handgrip. Remove the cable and brass ferrules for the throttle and idle cables from the handgrip.



The cable housings can be removed from the switch housings by pulling them straight down. Feed the cables through the inner fairing and clear of the front end.



41 Insert the key in the ignition switch. Mash the detent on the bottom of the switch while rotating the key counter-clockwise past unlock. Lift the ignition switch out of the post.



42 Use a 7/8" wrench to remove the plastic nut from the ignition post. Remove the two remaining plastic pieces from the post.



43 Gently pry the plastic cover from the lower inner fairing.



44 With a T27 Torx, remove the two bolts per side holding the lower inner fairing.



45 Lift the lower inner fairing up and off the ignition post to access the wiring underneath.



46 Unplug the wiring for the switches in the lower inner fairing.



47 Using a T40 Torx, remove the two turn signal bolts used to hold the inner fairing to the triple trees.



48 Remove the inner fairing by lifting it up and off the triple trees.



49 Loosen the riser clamp bolts with a 1/4" Allen. Maintain control of the handlebars while doing so.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 1



Remove the top clamps from the risers.



Lift the handlebars off the risers as an assembly.



Use a 5/32" Allen to remove the two bolts holding the ignition switch assembly.



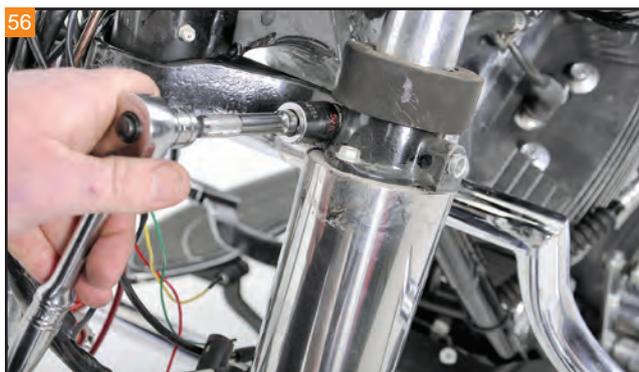
Lift the ignition switch assembly off the top triple trees.



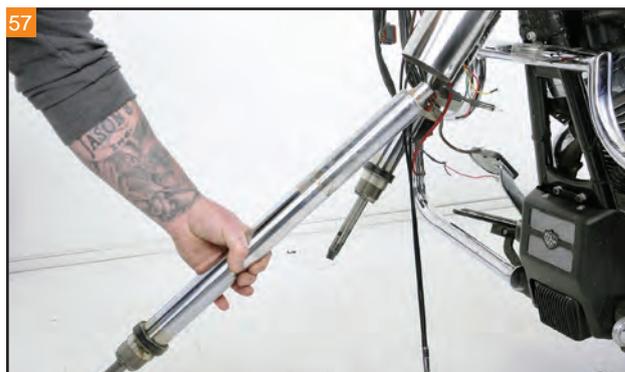
Remove the fork cap nut from the top of the fork leg with the specialty socket.



Using a small pick, remove the rubber seal from the top of the fork leg.



With a 5/8" socket, loosen the fork leg pinch bolt. Maintain control of the fork leg while loosening the pinch bolt.



Remove the fork leg from the triple trees. Repeat the process for the other fork leg.



Using a 3/8" socket, remove the two bolts holding the upper fork slider cover to the lower triple tree.



Remove the upper fork slider cover. Repeat the process for the other side.



Before removing the neck stem nut, use a punch and hammer to bend the locking tab down.



With a 1 1/2" socket, loosen the neck stem nut.



After removing the nut, lift the locking tab plate up and off the neck stem and top triple tree.



Remove the top triple tree from the neck stem.



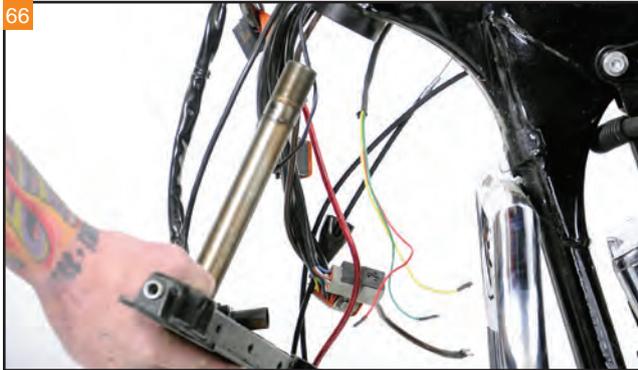
Loosen the spanner nut found underneath the top triple tree. Maintain control of the lower triple tree while loosening the nut.



Remove the nut and dust shield from the neck stem.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 1



Slide the lower triple tree and stem out from the neck of the frame.



Inspect the top neck bearing, along with the upper and lower neck bearing races for excessive wear and are need of replacing.

### KLOCK WERKS KUSTOM CYCLES

*Flush Front Axle  
fits 00-07 Touring Models.*  
(Part # 0214-0250)

605.996.3700  
[www.KustomBaggers.com](http://www.KustomBaggers.com)

### PROGRESSIVE SUSPENSION

*Monotube Fork Cartridge Kit,  
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(Part # 31-2500)

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[www.ProgressiveSuspension.com](http://www.ProgressiveSuspension.com)

### ARLEN NESS

*K.O. Raked Triple Trees +7,  
fit 97-13 Touring Models.*  
(Part # 20-379)

925.479.6300  
[www.ArlenNess.com](http://www.ArlenNess.com)

### PERFORMANCE MACHINE

*23" x 3.5" Paramount Front  
Wheel, Platinum Cut.*  
(Part # 1201-7306R-PAR-BMP)  
*13" Brake Rotor, Left,  
Paramount, Platinum Cut.*  
(Part # 0133-3015HEAS-BMP)

800.479.4037  
[www.PerformanceMachine.com](http://www.PerformanceMachine.com)

### RUSS WERNIMONT DESIGNS

*23" Front 6" LS-2 Fender.*  
(Part # RWD-50079)

951.698.9495  
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### HAWG HALTERS

*6 piston left side brake  
caliper, chrome 13" rotors.*  
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877.442.5837  
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### COVINGTON'S CUSTOMS

*Fender Spacers,  
Dimpled Black,  
fits 1986 – 2013 Touring.*  
(Part # C1102-B)

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[www.CovingtonsCycleCity.com](http://www.CovingtonsCycleCity.com)

### BLACK HILLS CYCLES

- Work Performed By -

605.717.5009  
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**AFTER**



The 2006 Street Glide is torn down, ready for new triple trees, front end, and 23" wheel.

## Arlen Ness & Performance Machine Front End Makeover: Part 2

Story by **Jason Mook** – Photos by **Jesse B. Nelson**

In Part 1, we showed the teardown of the front end of a 2006 Street Glide in preparation for installation of Arlen Ness K.O. Triple Trees, which provide proper rake and trail when installing a 23" Performance Machine front wheel. In Part 2, we reassemble the front end and install the 23" Performance Machine Platinum Cut front wheel with a 13" left side matching brake rotor and Ness K.O. Triple Trees. The stock dual calipers will be replaced with a single chrome six piston-caliper from Hawg Halters, cleaning up the right side of the front wheel. In preparation for the single disc application, the right side brake caliper-mounting boss was removed from the fork slider. Performance upgrades to the front end include the installation of Progressive Suspension's Monotube Fork Cartridge Kit, which improves front end handling. The front end will be completed with a Klock Werks Flush Axle and a Russ Wernimont Designs tire-wrapping fender attached to the fork sliders by Covington's Fender Spacers.

**Difficulty Level:** 4/5      **Estimated Time to Complete:** 6.0 hours



All the components needed for the 23" wheel conversion have been assembled.



The 2006 Street Glide ready for reassembly with the upgrades.

### Tool & Supplies Needed

- SAE Wrenches
- 10mm Wrench
- SAE Socket Set
- Allen Wrenches
- Long 6mm Allen
- Torx Drivers
- 3/8" Ratchet Wrench with Extensions
- 1/2" Ratchet Wrench
- Retaining Ring Pliers
- Phillips Screwdriver
- Cordless Drill with Assorted Bits
- Awl or Scribe
- Small Punch
- Hammer
- Impact Wrench
- Small Scale
- Hacksaw
- 41mm Fork Seal Installer
- Fork Cap Nut Socket
- Fork Cap Socket
- Neck Bearing Race Removal Tool
- Neck Bearing Race Installation Tool
- Blue Thread Locker
- Anti-seize Lubricant
- 10w Fork Oil (10 ounces)
- Grease
- Bearing Grease Packer
- Permanent Marker
- James Gaskets Fork Seal Kit. Part #JGI-45849-84
- Neck Bearing Cup (2 required). OEM Part #48315-60
- Neck Bearing. OEM Part #48300-60



1 Remove the upper and lower bearing races with the removal tool.



2 Place the new neck bearing races in the installation tool.



3 Apply a small amount of clean oil to the outside of the bearing races. Install the new neck bearing races into the neck.



4 After greasing the new upper neck bearing, place it in the upper section of the neck.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 2



Place the bushing spacers on the upper triple tree.



Install the riser bushings with center spacers.



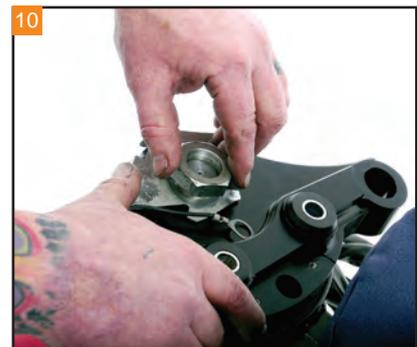
Using a 5/16" socket, install the ground wire and bolt in the threaded hole in the Ness KO Trees.



After applying grease to the lower neck bearing, bring the lower triple tree neck stem up through the frame neck.



Position the neck stem in the frame neck. Install the dust cover and top spanner nut.



Install the top triple tree with neck stem top nut and lock plate. As this is temporary, do not worry about torque at this point.



Slide the right side fork leg into the triple trees from the bottom.



Hold the leg in place with the top fork cap nut, hand tight.



Bring the front end to the left stop, and back approximately a 1/2". Mark a circle on the top plate of the frame with an awl or scribe for a new fork lock hole.



Create a mark with a punch in the center of the circle scribed on the frame plate. Drill a pilot hole first. Continue to enlarge the bit size until a 1/2" hole is made.



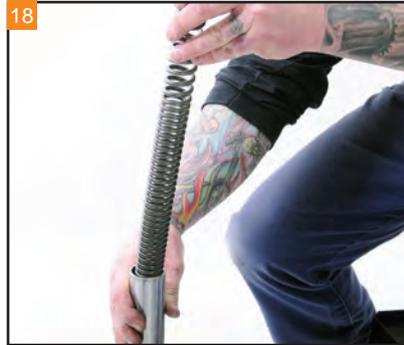
Reinstall the top triple tree with stem nut and locking plate.



Loosely install the upper fork slider covers with the hardware included with the Ness Trees. Use blue thread locker on the bolts, but do not tighten at this time.



17 Remove the fork leg top cap with specialty socket and impact wrench. Use caution as the internal spring causes the top cap to be under pressure. Apply slight pressure down when removing.



18 Remove all internals from the fork leg, including springs and damper tube. Thoroughly clean the inside of the fork leg.



19 Remove the protective plastic packaging from the Progressive Monotube Assembly.



20 Install the two plastic "c" shaped spacers onto the Monotube Assembly.



21 Slide the small spring over the end.



22 Insert the Monotube Assembly into the fork leg.



23 Tighten the top cap into the fork leg by hand. A light coat of fork oil on the included O-ring is recommended. Snug, do not final tighten, the top cap at this time.



24 After installing the bottom cup, install the fork leg into the slider.



25 Use a long 6mm Allen to tighten the damper bolt from the bottom of the fork slider.



26 Position the **old** seal using the fork seal installer. Reinstall the **old** retaining ring over the seal, in the groove in the fork slider. Repeat the process for the other fork leg.



27 Bring the fork leg into position in the triple trees. Do not forget the included new fork stop on the leg.



28 Start the fork cap top nut by hand.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 2



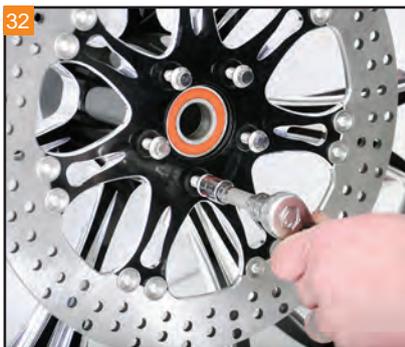
29 Snug the top nut with the specialty socket.



30 Tighten the two pinch bolts in the lower triple tree.



31 Use a 3/16" Allen to tighten the bolts for the upper fork slider covers.



32 Install the 13" rotor with hardware on to the hub of the front wheel. Use blue thread locker on the bolts.



33 Final torque the five bolts to 16-24 foot/lbs.



34 Position the front wheel in between the fork legs.



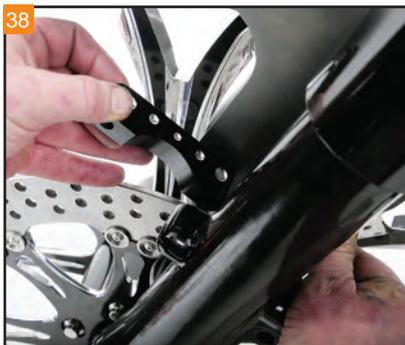
35 Install the stock axle with included spacers from Performance Machine, through the right side fork slider and hub.



36 Tighten the axle nut with a 15/16" wrench while holding the axle stationary. Use a 1/2" wrench to tighten the hardware for the fork clamp on the right side.



37 Bring the fender into position over the front wheel.



38 Insert the Covington's Fender Spacers between the fork slider and the fender.



39 Tighten the hardware with a 1/2" wrench.



40 Temporarily install the lower outer chrome fairing skirt over the triple trees. Use the stock hardware to hold it in place.



Use the scale to measure the distance between the top of the fender and the first point of potential contact.



Follow the formula found in the Ness Triple Tree Instructions to determine the length of travel limiter needed. Mark the limiter accordingly.



Use a hacksaw to cut the travel limiter to length. Ensure the cut is as straight as possible.



Remove and disassemble the fork legs from the fork sliders.



Thoroughly coat the inside of the travel limiter with grease.



Position the limiter over the bottom cup of the fork leg.



Slide the fork leg assembly into the fork slider.



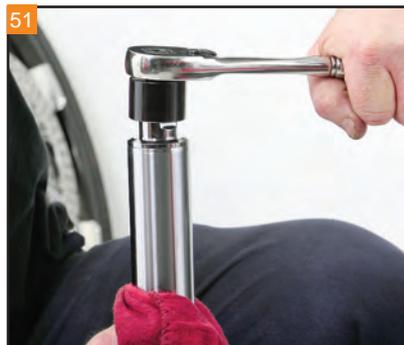
Install the damper bolt with new crush washer. Tighten with a 6mm Allen. Final torque to 132-216 inch/lbs.



Use a **new** 41mm fork seal from the James Gaskets Kit, with retaining ring.



After loosening the fork cap from the fork leg, pour five ounces of 10-weight fork oil into the fork tube.



Reinstall the fork cap using the specialty socket. Final torque of 22-58 foot/lbs. Repeat the process for the other fork leg.



Install the assembled fork legs with rubber stops back into the triple trees.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 2



53 After installing the fork cap top nut (final torque of 50-60 foot/lbs.), tighten the two pinch bolts in the lower triple tree. Use blue thread locker on the bolts. Final torque of the pinch bolts is 28-35 foot/lbs.



54 Using a 1 1/2" wrench tighten the neck stem top nut. Final torque of 60-80 foot/lbs. Ensure to bend the locking tab. Verify the adjustment of the neck bearings.



55 Use the included bolt, nut, and washer to install the Klock Werks' splined end cap in the left side fork slider.



56 Apply a **light** coat of anti-seize lubricant to the Klock Werks' Axle. The threads of the axle are treated with blue thread locker.



57 Reposition the front wheel between the fork legs.



58 Slide the axle in from the right side, through the fork slider, wheel spacers, and wheel hub.



59 Use a 3/4" deep well socket to tighten the axle. Use caution to **not** cross thread the axle in the end cap.



60 Final torque of the Klock Werks' Axle is 40-45 foot/lbs.



61 Install the end cap in the right side fork slider. Tighten the hardware with a 1/2" wrench. Final torque is 5-11 foot/lbs.



62 Reinstall the front fender with spacers and hardware.



63 Position the HHI caliper over the rotor.



64 Use the included hardware and large spacers to initially mount the caliper.



65

After determining the shims needed to center the caliper over the rotor, remove the hardware and install the appropriate shims.



66

Use blue thread locker on the bolts. Final torque the caliper hardware to 25 foot/lbs.



67

Install the handlebar risers with stock hardware into the top triple tree. Use a 3/4" socket to tighten the bolts. Final torque of 30-40 foot/lbs.



68

Use the stock hardware to install the ignition switch assembly onto the top triple tree.



69

For batwing fairing applications, the small spacers must be installed in the top triple tree on each side.



70

Position the handlebars in the risers with top clamp.



71

Apply blue thread locker to the riser clamp bolts. Using a 1/4" Allen to tighten them, final torque the bolts to 12-16 foot/lbs.



72

Bring the inner fairing into position over the triple trees. Temporarily install the bolts in the side of the triple trees to hold the fairing in place.



73

Reconnect all wiring from the fairing and handlebars to the main wiring harness.



74

Install the lower inner fairing over the ignition switch assembly.



75

Use a T27 Torx to tighten the bolts holding the lower inner fairing. Do **not** use thread locker on the bolts.



76

After installing all the plastic pieces over the stem of the ignition switch assembly, tighten the plastic top nut with a 7/8" wrench. Reinstall the ignition switch with spring.

# ARLEN NESS & PERFORMANCE MACHINE

## Front End Makeover: Part 2



77 Place the chrome outer fairing skirt over the front of the lower triple trees.



78 Reinstall the front turn signals, using a T40 Torx to tighten the hardware. Don't forget to plug in the turn signals.



79 Route and reinstall the throttle, idle, and clutch cables. Adjust the clutch and cables as necessary.



80 Bring the outer fairing into position, plugging in the headlight wiring connector before placing the outer fairing on the bike.



81 With a T27 Torx, install the four bolts holding the outer fairing to the inner.



82 Reinstall the windshield and trim.

### BLACK HILLS CYCLES

- Work Performed By -

605.717.5009  
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The 2006 Street Glide with 23" front wheel and front end upgrades.

AFTER

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K.O. Raked Triple Trees +7,  
fit 97-13 Touring Models.  
(Part # 20-379)

925.479.6300  
www.ArlenNess.com

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Wheel, Platinum Cut.

(Part # 1201-7306R-PAR-BMP)

13" Brake Rotor, Left,  
Paramount, Platinum Cut.

(Part # 0133-3015HEAS-BMP)

800.479.4037  
www.PerformanceMachine.com

### HAWG HALTERS

6 piston left side brake  
caliper, chrome 13" rotors.

(Part # LHSCC6013)

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