

V.2 BUSHTEC GL1800 STANDARD & DELUXE
VERTICAL RECEIVER HITCH SYSTEM
Trailer Hitch Installation Instructions

READ ALL INSTRUCTIONS BEFORE YOU START

ATTENTION INSTALLER: THESE INSTRUCTIONS MUST BE GIVEN TO THE END USER!!!

AMERICAN HONDA MOTOR CO. INC AND/OR ANY AFFILIATE OR SUBSIDIARY HAS NEITHER APPROVED OR ENDORSED *BUSHTEC* MFG. & SALES INC., ITS PRODUCTS, TRAILERS OR HITCHES. USE OF A TRAILER OR TRAILER HITCH ON ANY MOTORCYCLE COULD VOID YOUR WARRANTY AND MAY INCREASE YOUR CHANCES OF INJURY OR DEATH IN AN ACCIDENT SITUATION.

Important information is distinguished by the following notation:

NOTE: Provides key information to make procedures easier and clearer.

CAUTION: Indicates special procedures that must be followed to avoid damage to the motorcycle, trailer or accessories.

WARNING: Indicates special procedures that must be followed to avoid serious injury and/or death to a motorcycle operator or others.

WARNING: THE *BUSHTEC* GL1800 VERTICAL RECEIVER HITCH SYSTEM HAS BEEN EXCLUSIVELY DESIGNED FOR USE ONLY ON A STOCK HONDA GL1800. IT WILL NOT WORK ON ANY OTHER MOTORCYCLE. ANY MODIFICATION TO ANY PART OF THIS HITCH, INCLUDING BUT NOT LIMITED TO ALTERING THE SUPPLIED HARDWARE OR IMPROPER INSTALLATION COULD CAUSE INJURY OR DEATH AND IMMEDIATELY VOIDS ANY AND ALL WARRANTIES.

WARNING: INSTALLATION OF THE *BUSHTEC* GL1800 VERTICAL RECEIVER HITCH SYSTEM SHOULD BE PERFORMED BY A QUALIFIED MECHANIC. THESE INSTALLATION PROCEDURES ARE ONLY A GUIDE AND SHOULD BE USED IN CONJUNCTION WITH THE FACTORY SERVICE MANUAL AND THE NECESSARY MECHANICAL SKILLS.

WARNING: THE END USER OF THIS PRODUCT ASSUMES ALL LIABILITY AND RESPONSIBILITIES THAT MAY ARISE DUE TO BUT NOT LIMITED TO, NEGLIGENCE FROM IMPROPER INSTALLATION OR USE, INCLUDING OVERLOADING, EXCEEDING THE RECOMMENDED LOAD LIMITS AND IMPROPER MAINTENANCE.

WARNING: ALL HITCH HARDWARE SHOULD BE CHECKED PRIOR TO EACH USE. FAILURE TO DO SO COULD RESULT IN INJURY OR DEATH.

(Revised 2004)

V.2 BUSHTEC GL1800 STANDARD & DELUXE VERTICAL RECEIVER HITCH SYSTEM CONTENTS

2	Hitch Hoop Sides (L&R)	2	5/16-18 x 3/4" GR8HH Bolt
1	Receiver Center Section	2	5/16-18 x 2 1/2" GR8HH Bolt
2	Support Strut	4	5/16-18 Nylock Nut
1	Plug-N-Play Relay Isolator Package With Subharness	4	1/4" Flat Washer
1	Masterlock Receiver Lock	2	3/8" Strut Spacer
1	Chrome Hitch head w/ QMC 1 7/8" Stainless Steel Ball	2	1/4-20 x 1 1/4" U-Bolt
	Or	2	U-Bolt Backing Plate
1	Chrome Bushtec receiver head w/ Stainless Steel Lock, 2 Keys & Cover	4	1/4-20 Nylock Nut
1	Instructions	4	3/8-16 x 1" GR8HH Bolt
1	Hardware Package to include:	4	3/8-16 Nylock Nut
		2	8mm x 35mm x 1.25 Bolt
		2	8mm x 1.25 Standard Nut

Deluxe Package also includes:

- 1 Bushtec Contoured Mudflap
- 1 Bushtec Mudflap Bracket

TOOLS NEEDED FOR INSTALLATION

GL1800 FACTORY SERVICE MANUAL

7/16" wrench

1/2" Socket

9/16" Socket

1 1/8" Socket (For Ball Application)

1/2" Wrench

9/16" Wrench

12mm Socket

12mm Wrench

13mm Socket

13mm Wrench

5mm Allen Head Socket

6mm Allen Head Socket

Ratchet w/Extensions

Torque Wrench

Pliers

Wire Cutters

Crimping Tool

Wire Ties (optional)

Electrical Tape (optional)

An Assistant

Loctite 242 or Equivalent Removable Thread Lock

CAUTION: THESE STEPS MUST BE PERFORMED IN THE FOLLOWING ORDER:

CAUTION: THE HONDA GL1800 USES AN ALUMINUM FRAME AND SUBFRAME (SADDLEBAG STAY). ALL FACTORY BOLT HOLE LOCATIONS CAN BE EASILY CROSS-THREADED AND/OR STRIPED IF ABSOLUTE CARE IS NOT TAKEN. BUSHTEC MFG. & SALES INC. WILL NOT BE HELD RESPONSIBLE FOR ANY INCOMPETENCE IN INSTALLATION

1. Place the motorcycle on its centerstand on level ground. Remove the four bolts in the seat handles with a 6mm Allen head socket and remove the seat. **NOTE:** The rubber bushings inside the seat may fall out during removal; Make sure they are in place upon reassembly.
2. Remove both side covers.
3. Remove the (5) five bolts in the rear fender (license plate panel, between saddlebags) with a 5mm Allen head socket. Remove the rear fender. **NOTE:** The fifth bolt is behind the license plate.

4. Remove the (3) three bolts in the passenger floorboard holder cover with a 5mm Allen head socket. Remove the cover and repeat for other side.
5. Remove the (2) bolts in the rear saddlebag guard with a 12mm socket. Remove the saddlebag guard and repeat for other side.
6. Remove the bolt in the muffler hanger using a 12mm socket. Repeat for other side.
7. Loosen, but do not remove, the muffler clamps using a 6mm Allen head socket. Rotate the mufflers down slightly to allow the hitch hoop to slide between the mufflers and the saddlebags. **CAUTION: DO NOT ROTATE THE MUFFLERS TOO FAR; YOU WILL BEND THE CHROME SHIELDS IF YOU DO SO. TAKE NOTE OF SHIELD POSITION ABOVE THE CLAMPS.**

8. **CAUTION: PERFORM THIS NEXT STEP ONE SIDE AT A TIME. IF YOU REMOVE BOTH BOLTS AT THE SAME TIME, THE SADDLEBAG SUBFRAME CAN MOVE FORWARD AND CAUSE DIFFICULTY IN COMPLETING THIS STEP INCLUDING DAMAGING THE ALUMINUM THREADS.**

Remove the lower front bolt of the saddlebag subframe; located behind the saddlebag guard you removed earlier, using a 12mm socket. Install the supplied 8mm x 35mm bolt using a 13mm socket. Thread the bolt all the way into the frame and tighten this bolt to your service manuals specification. You will attach a nut to this bolt later. Repeat for other side.

CAUTION: YOU MAY WANT AN ASSISTANT TO HELP YOU. THE SUBFRAME, EVEN WITH COMPLETING THIS STEP ONE SIDE AT A TIME, CAN STILL MOVE SLIGHTLY. ALIGNING THE HOLE IN THE SUBFRAME AND THE MAIN FRAME IS OF UTMOST IMPORTANCE TO KEEP FROM DAMAGING THE THREADS. IF THE BOLT STARTS TO BIND EVEN THE SLIGHTEST BIT, BACK THE BOLT OUT AND CHECK THE THREADS. IF YOU TRY TO FORCE THE BOLT IN, IT IS POSSIBLE TO BREAK THE BOLT, WHICH WOULD LEAD TO HAVING TO EXTRACT IT AND INSTALL AN INSERT. (NOT SOMETHING YOU WANT TO DO ON A SATURDAY AFTERNOON) *IF* YOU DO CROSS-THREAD THE BOLT OR THREADS, IT IS BETTER TO “CHASE” THE THREADS WITH THE APPROPRIATE SIZE TAP AND TAPPING FLUID (WHICH CAN BE BROKEN ALSO IF FORCED) THAN TO FORCE THE BOLT. HAVE AN ASSISTANT HELP YOU AND DO NOT FORCE ANYTHING!!!

9. Loosely assemble the hoop sides and the receiver center section using the supplied 3/8-16 x 1' bolts and nylock nuts. **NOTE:** Looking from the rear of the bike, the receiver center section should have the embossed “Bushtec” on the top left. The left hoop side should have the single bend with strut hole on top and the right hoop side should have three bends with the strut hole on top also. Install the supplied hardware with the bolts running from the inside to the outside. Do not tighten yet.
10. Slide the hoop in from the rear of the bike, above the mufflers and below the saddlebags. **NOTE:** You may want to cover the exhaust tips to prevent scratching them. Have your assistant hang the front of the hoop sides onto the bolts that you installed in the last step and make sure that they pass through the holes in the front of the hoop. Loosely attach an 8mm standard nut to the bolts to keep the hoop in place. The hoop will now hang freely. Install the (2) two U-bolts around the subframe, through the “ears” on the hoop sides (it may be necessary to spread the U-bolts slightly to fit around the subframe tube). Install the backing plates and 1/4”-20 Nylock nuts onto each U-bolt. Do not tighten at this time. **NOTE:** The threaded ends of the U-bolts should be facing the ground with the backing plate and Nylock nuts on the bottom of the hoop ears.
11. **CAUTION: COMPLETE THIS STEP ONE SIDE AT A TIME.** Remove the bolt in the top of the saddlebag subframe using a 12mm socket and wrench. **NOTE:** This is the bolt at top-rear of the main frame, just in front of the trunk, under the seat. Install the supplied 5/16”-18 x 2-1/2” bolt and 1/4” washer from the outside of the frame to the inside. Slide the

strut down and in-between the saddlebag and inner fender with the angled end on top, and the straight end pointing towards the rear. With the bolt in place, slide the supplied 3/8" spacer and then the strut onto the bolt, followed by another 1/4" flat washer and Nylock nut. From the outside in, you should see the bolt, washer, subframe, mainframe, spacer, strut, washer and nut. **CAUTION: MAKE SURE THAT THERE ARE NO WIRES CAUGHT BETWEEN THE STRUT AND OTHER COMPONENTS OF THE MOTORCYCLE.** Attach the bottom end of the strut to the tab on the hoop platform using the (2) two supplied 5/16-18 x 3/4" bolts and nylock nuts. The strut should be on the inside of the hoop tabs with the bolt running from the inside out. Do not tighten at this time.

Assembly of all the hitch components is now complete. You must tighten all components in this sequence:

1. Tighten the (4) four 3/8-16 x 1" bolts at the receiver section flanges using a 9/16" socket and wrench.
2. Align (center) the receiver center section left and right then tighten the (4) four 1/4"-20 Nylock nuts on the U-bolts on both hoop sides using a 7/16" wrench until there is an equal length of thread showing on each U-bolt. **CAUTION: DO NOT OVER TIGHTEN THESE NUTS; IT IS POSSIBLE TO CRUSH THE SUBFRAME TUBING.**
3. Tighten the (2) two upper strut bolts using a 1/2" socket and wrench. **CAUTION: MAKE SURE THAT THERE IS NO INTERFERENCE BETWEEN THE STRUT AND OTHER COMPONENTS OF THE MOTORCYCLE.**
4. Tighten the (2) two lower strut bolts using a 1/2" socket and wrench. **NOTE:** The struts should be on the inside of the hoop platform tabs.
5. Apply the manufactures recommended amount of blue Loctie 242 or similar removable threaded lock onto the (2) two supplied 8mm nuts and install them onto the bolts you installed earlier at the front of the hoop. Tighten these nuts using a 13mm wrench. **CAUTION: DO NOT USE RED LOCTITE OR ANY OTHER PERMANENT THREAD LOCKING COMPOUND.**
WARNING: FAILURE TO APPLY A REMOVABLE THREAD LOCKING COMPOUND TO THESE NUTS MAY RESULT IN DAMAGE TO YOUR MOTORCYCLE, TRAILER, ACCESSORIES AND/ OR INJURY OR DEATH TO A MOTORCYCLE OPERATOR OR OTHERS.

Installation of the hitch is now complete. You will reassemble the motorcycle after the following wiring and receiver head instructions.

RECEIVER HEAD INTALLATION INSTRUCTIONS

(BUSHTEC PIN AND STAINLESS STEEL BALL)

All *BUSHTEC* GL1800 Vertical Receiver Hitch Systems hitches are shipped with a **TRITON Model #T-2 Receiver lock**. If you ordered your hitch for use with a *BUSHTEC* trailer, you will have received a receiver head with the *BUSHTEC* pin welded in place. If you ordered your hitch for use with any other trailer, you will have received your receiver head with the standard 3/4" hole along with a **1 7/8" QMC TECHNOLOGIES, INC. Stainless Steel Ball w/ Stainless Steel Hardware**. **WARNING: MAKE SURE THAT YOUR TRAILER REQUIRES A 1 7/8" BALL, FAILURE TO USE THE APPROPRIATE SIZE BALL WILL ALLOW THE TRAILER TO DISCONNECT AND CAUSE INJURY OR DEATH TO YOU OR OTHERS.**

NOTE: The following steps are to be accomplished with the rear fender removed. These steps will familiarize you with the operation procedures required for this hitch and to aide in determining a location for your wiring harness. The receiver head will need to be removed to reassemble the rear fender once you have completed these steps:

1. (ALL APPLICATIONS) At the bottom rear of the receiver center section, there is a 3/8"-16 x 1" bolt with a jam nut. Back the bolt out of the receiver center section so you can insert the receiver head. **NOTE:** The Bushtec pin or 3/4" hole in the head should be towards the rear.
2. Remove the #T-2 receiver lock from its package and familiarize yourself with its operation.
3. Insert the receiver head into the receiver center section. Insert the #T-2 receiver lock through both components in the 1/2" hole just below the hitch platform. Install the #T-2 receiver lock and make sure that it is secure. Tighten the jam bolt with a 9/16" wrench. **WARNING: DO NOT OVER TIGHTEN THIS BOLT. IT IS DESIGNED TO STOP ANY PLAY THAT THERE MIGHT BE BETWEEN THE RECEIVER HEAD AND RECEIVER CENTER SECTION. OVERTIGHTENING CAN CAUSE HITCH FAILURE RESULTING IN DAMEGE TO YOUR MOTORCYCLE, TRAILER AND/OR INJURY OR DEATH.**
4. Once you have tightened the jam bolt, tighten the jam nut to the receiver center section (not the bolt head) with a 9/16" wrench. This will keep the jam bolt from coming loose.
NOTE: *Become familiar with this operation, you will not be able to see the hitch when the bike is assembled.*
5. (BUSHTEC Application) You are now ready to wire the motorcycle.
6. (All other applications) Install the 1 7/8" stainless steel ball according to the supplied manufactures instructions. You are now ready to wire the motorcycle.

WIRING INSTRUCTIONS

NOTE: If your trailer is equipped with combined turn signal and brake lights and/ or a 4 pin harness, a Trailer Light Converter will be required to complete the installation.

NOTE: The isolator package you receive with your new hitch comes with generic wiring instructions. The instructions you are holding are more specific to the Honda GL1800 although wire routing, connections and isolator location is left up to the individual installer. These instructions are a guide through the procedure.

If you purchased this hitch with a new *BUSHTEC* trailer, you will have received a 4' bike side wire harness with the trailer. If you need a new harness, they are available from the factory at an additional cost. If you are using this hitch with anything other than a *BUSHTEC* trailer, you will need to purchase the appropriate plug and sufficient length of wiring to reach the isolator package from your local parts store or your trailers manufacturer.

NOTE: The rear fender should still be off of the motorcycle. However, you may need to put the fender back into position to gauge the distance of wire you will need exposed as described below. If you need or want to install the fender, you will need to remove the

receiver head, install the fender (without the screws) then reinstall the receiver head. This will help in familiarizing yourself with the hidden hitch.

1. (*BUSHTEC* APPLICATION) Attach the plug body of the bike side harness within 2-3 inches of the hitch pin using wire ties, electrical tape or a fastener of your choice.
2. (ALL OTHER APPLICATIONS) Attach your plug body in a suitable location that, once connected to the trailer, allows sufficient movement in the trailer harness. (I.e. Too long or too short, the harness will drag the ground or disconnect respectively)

NOTE: Make sure that the plug is accessible once the rear fender is in place.

CAUTION: MAKE SURE THAT THE HARNESS DOES NOT RUB THE BOTTOM OF THE FENDER WHEN IN USE.

3. Run the bike side harness up the left side of the bike to the underside of the trunk. Fasten the harness so that it does not interfere with the movement of the trailer, exhaust pipe, rear tire or get in the way of reassembling your motorcycle.
4. Plug the supplied subharness into the supplied relay package using the 4 pin connector. The subharness will plug in between the factory Honda 2-pin and 3-pin connectors underneath the trunk for the saddlebag and trunk lighting. Locate the black rubber boot which covers the connectors. Slide it to the side.
5. Locate the red Honda 3-pin connector with the ORANGE wire. Disconnect the two halves and connect the subharness 3-pin connectors with the BROWN wire to each end.

NOTE: Make sure that you plug both ends of the connectors into both sides of the subharness.

6. Locate the blue Honda 3-pin connector with the LIGHT BLUE wire. Disconnect the two halves and connect the subharness 3-pin connectors with both the GREEN and YELLOW wires.
7. Locate the red Honda 2-pin connector. Disconnect the two halves and connect the subharness 2-pin connector.
8. Position the relay block on the shelf created by the rear inner fender. Clean the surface with the supplied wipe and mount using the double sided adhesive tape on the relay block.

NOTE: Do not use the Honda 5 amp accessory circuit for 12V connection of the trailer relay block. It is not capable of handling the load.

Route the large red and black wires to the battery under the trunk and along the left upper frame rail. Connect the black wire to the battery ground terminal using the supplied eyelet connector.

NOTE: Remove the 30 amp main fuse from the fuse holder prior to establishing battery connections.

9. Connect the supplied fuse holder to the battery positive terminal. Now connect the free side of the fuse holder to the red wire from the relay block.
10. Use the supplied black plastic split loom to cover the power and ground wires as needed.
11. (*BUSHTEC* APPLICATION) The *BUSHTEC* harness contains a Sixth wire (the black wire), which operates the interior light. *BUSHTEC* recommends combining the black wire with the green running light wire so that the interior light operates only when the running lights are functioning, otherwise you may drain your battery if the light is left on. If you wish to be able to operate the interior light at any time without turning on the ignition, you will need to connect the black wire of the trailer harness directly to the positive (+) terminal of the battery with the appropriate inline fuse (not supplied).

NOTE: DO NOT confuse the black wire of the trailer harness with the black wire of the isolator package.

12. Connect the *BUSHTEC* Trailer harness to the isolator package using the supplied blue butt connectors as follows:

<u>Function</u>	<u>Isolator Output</u>	<u>Bushtec Harness</u>
Brake Light	Solid Blue	Solid Blue
Left Signal	Solid Brown	Solid Brown
Right Signal	Solid Yellow	Solid Yellow
Running Light	Solid Green	Solid Green
Interior Light	(refer to step# 12)	Solid Black
Ground	Solid Black	Solid White

13. (ALL OTHER APPLICATIONS) Connect your harness to the isolator package using the above solid colored outputs to the appropriate wires of your harness. **NOTE:** the red and black wire of the Isolator should always be hooked up directly to the Positive (+) and Negative (-) terminals of the battery. Chassis ground is not acceptable in any application. Your trailers harness ground wire will need to be attached to the solid black wire of the relay package.
14. Insert the supplied 30amp fuse into the fuse holder and check the functions with your trailer plugged in.
15. Secure all the wiring making sure that nothing will affect the reassembly of the motorcycle.

CHECK ALL HARDWARE TO MAKE SURE IT'S TIGHT. CHECK ALL ELECTRICAL CONNECTIONS.

YOU ARE NOW READY TO REASSEMBLE YOUR MOTORCYCLE. REFER TO YOUR FACTORY SERVICE MANUAL FOR THE PROPER PROCEDURES.

AS A GUIDE ONLY, HERE IS A RUN DOWN ON REASSEMBLY:

1. Install rear fender.
2. Install the muffler hanger bolts and tighten muffler clamps. (Both sides)
3. Install both saddlebag guards.
4. Install passenger floorboard covers.
5. Install side covers.
6. Install seat.

FINAL TRAILER HOOKUP

1. Install the hitch head into the receiver and secure with lock and jam bolt as described.
2. (*BUSHTEC* APPLICATION) Set the hiem joint onto the hitch pin. Place the key into the lock and turn ¼ turn to the right. Place the lock on top the hitch pin and turn the key to the left ¼ turn and remove key. Lift up on the lock to insure lock is engaged on the hitch pin. Place the black rubber cover over the lock to keep keyway free from debris. **WARNING: THE KEY IS REMOVABLE REGARDLESS IF THE LOCK IS ENGAGED OR NOT!**
3. Remove the dead plug from the end of the bike harness and plug the trailer in. Hook the safety chain catch to the ring below the pin. CHECK ALL TRAILER CONNECTIONS ONCE AGAIN!
4. (ALL OTHER APPLICATIONS) Attach the trailer to the ball and secure the coupler latch. Check that the trailer coupler is adjusted properly and in excellent working order. **WARNING: BUSHTEC ASSUMES ABSOLUTELY NO RESPONSIBILITY IN THE USE OF ANYTHING OTHER THAN A BUSHTEC TRAILER. PROPER USE, MAINTAINENCE, AND ANY AND ALL WARNINGS ASSOCIATED WITH TRAILERING ARE THE RESPONSIBILITIES OF YOUR RESPECTIVE TRAILERS MANUFACTURER. BUSHTEC'S TOTAL LIABILITY WILL BE LIMITED TO THE INITIAL PURCHASE PRICE OF THIS PRODUCT OR REPLACEMENT OF THIS PRODUCT AT OUR DISCRETION.**
5. Plug your trailer into the bike harness. Attach your safety chain to the rings on the sides of the receiver tube. **CHECK ALL TRAILER CONNECTION.**

WARNING: DUE TO THE NATURE OF TOWING A TRAILER AND THE ENGINEERING INVOLVED WITH THIS HITCH OR ANY MOTORCYCLE HITCH, ALL HARDWARE MUST BE CHECKED BEFORE, DURING AND AFTER YOU TOW TO INSURE THE PROPER WORKING ORDER OF THIS PRODUCT!

500 LBS. MAXIMUM GVWR
75 LBS. MAXIMUM TONGUE WEIGHT

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