



Bushtec Trailer Hitch for
BMW R 1200 RT
Installation Instructions

READ ALL INSTRUCTIONS BEFORE YOU START

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

BMW Motorrad USA, BMW North America, LLC. 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: THIS HITCH SYSTEM HAS BEEN EXCLUSIVELY DESIGNED FOR USE ONLY ON A STOCK BMW R 1200 RT. 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* 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.

BMW R 1200 RT HITCH SYSTEM CONTENTS

1	Primary Hitch Hoop	1	8mm-1.25 x 40mm SHCS SS
1	Right Side Hoop Arm	2	8mm-1.25 x 45mm SHCS SS
1	Strut, Bent	1	8mm-1.25 x 55mm SHCS SS
1	Round Clamp Half and Flat Tab	2	8mm-1.25 Nylock Nut
1	Electronic Relay Isolator Package	2	1/4"-20 x 3/4" Gr. 8 Hex Bolt
1	CAN-bus SWS Trailer Isolator Adapter	2	1/4"-20 Nylock Nut
1	Isolator Subharness for R1200RT	1	5/16"-18 x 1" SHCS SS
Hardware Package to include:		1	5/16"-18 x 1 1/4" SHCS
1	Short Spacer	1	5/16"-18 x 3/4" Gr. 8 Hex Bolt
1	Long Spacer	2	5/16-18 Nylock Nut

TOOLS NEEDED FOR INSTALLATION

Additional tools may be required

FACTORY SERVICE MANUAL

7/16" & 1/2" wrench	T20 Torx Socket
7/16" & 1/2" Socket	T30 Torx Socket
Ratchet w/Extension	T40 Torx Socket
5mm Allen Head Socket	T45 Torx Socket
6mm Allen Head Socket	12mm & 13mm Wrench
1/4" Allen Head Socket	Wire Cutters
Crimping Tool	Pliers
Phillips Head Screw Driver	Wire Ties (optional)
Removable Thread Lock	Electrical Tape (optional)

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

WARNING: PLEASE FOLLOW ALL INSTALLATION INSTRUCTIONS ON THE PREVIOUS PAGES AND ABIDE BY ALL NOTES, CAUTIONS AND WARNINGS!

CAUTION: THESE INSTRUCTIONS ARE FOR A STOCK MOTORCYCLE INSTALLATION. INSTALLATION OF BRAKE FLASHERS OR TURN SIGNAL CONVERSION MODULES REQUIRE ATTACHING THE TRIGGER WIRE CONNECTIONS FOR THE RELAY FORWARD OF ANY MODULE CONNECTIONS.



1. Place motorcycle on level ground, place on centerstand.
2. Remove saddlebags, passenger seat, and rider seat. Remove tool kit and securing strap from under seat.
3. Remove 2 Phillips head screws securing taillight. Twist each bulb socket out of the taillight housing. Set the housing on a soft surface to avoid damaging it.
4. Remove 8 Torx bolts securing rear rack using T30 Torx; 2 each passenger handle (4), 2 above taillight recess, and 2 under rear edge of passenger seat.
5. Using T20 Torx, remove three Torx screws securing right fairing side panel to side cover above rider peg on right side. (PHOTO 1) Remove right rear tail section plastic by removing 5 Torx screws using T20 Torx as follows; 1 behind fairing side panel where 3 screws were previously removed, 1 screw at rear inside of panel (between taillight and rear saddlebag mount), 1 screw between rear rack passenger handle screw bosses, 1 screw at seam between tail section and side cover/ false tank shelter and 1 screw above passenger peg on underside of panel.
6. Remove left side tail section cover by repeating procedure from step 5.
7. Remove 4 Torx bolts securing right saddlebag mount using T30 Torx. Remove mount and set aside.
8. Remove 6 Torx screws securing rear inner fender using T30 Torx; 2 below rear shock adjusting knob, 2 outboard rear seat latch (one each side), and 2 forward of taillight. Push inner fender down toward tire as far as possible.
9. Install supplied round clamp half in gap of rear rack passenger handle mount bracket over lower subframe tube. The clamp will locate to the outside of the frame tube when installed and the three hole tab that is secured to it will locate to the inside of the frame tube, with the third hole below and toward the rear of the round clamp. Install $\frac{1}{4}$ -20 x $\frac{3}{4}$ Grade 8 hex bolt through the upper clamp hole, then through the upper tab hole and install the supplied $\frac{1}{4}$ -20 nylock nut on the backside. Do not tighten. Rotate the clamp and tab, install $\frac{1}{4}$ -20 x $\frac{3}{4}$ Grade 8 hex bolt through the lower tab (two holes in flat tab) from the back side then through the clamp, then secure with the supplied $\frac{1}{4}$ -20 nylock nut. Do not tighten. (PHOTO 2)
10. Secure long end of bent strut to bottom hole in tab using $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " bolt and $\frac{5}{16}$ "-18 Nylock nut provided. Strut will mount to inside of tab and is secured with the bolt from outside in. Long end of strut will run vertically with short end at bottom bending away from rear tire. Do not tighten.
11. Remove Torx bolt and stock nut securing right side passenger peg mount to frame bracket using T45 Torx. Replace bolt with supplied 8mm-1.25 x 45 mm Socket Head Cap Screw. Install short spacer on back side, then install right side arm to back side of bracket via flat tab end, securing with stock nut. (PHOTO 3) Do not tighten. The radius bend in arm should mirror the rear drive pumpkin on the rear wheel to maximize clearance.
12. Attach strut to side arm with supplied $\frac{5}{16}$ -18 x 1 inch Socket Head Cap Screw, through collar on side arm, strut and secure with supplied $\frac{5}{16}$ -18 Nylock nut.
13. Remove 2 Torx Bolts rearward of the left rider peg using T45 Torx.



14. Install supplied 8mm-1.25 x 55 mm Socket Head Cap Screw into upper hole. Install 8mm-1.25 x 40 mm Socket Head Cap Screw into lower hole. Tighten until ¼ inch protrudes through back side of frame bracket.
15. Remove Torx bolt and stock nut securing left side passenger peg mount to frame bracket using T45 Torx. Replace bolt with supplied 8mm-1.25 x 45 mm Socket Head Cap Screw. Install longer supplied spacer on back side.
16. Install hitch by passing between tire/inner fender and exhaust hanger/frame bracket on left side. Install the front bracket on hitch hoop over inside of bolts rearward of left rider peg, tighten bolts and secure with supplied 8mm-1.25 Nylock nuts. Do not tighten nuts.

NOTE: The factory washers may be reused or omitted to achieve proper spacing of the bolts. Full penetration of the Nylock nut with the bolt is desired while maintaining clearance between the bolt end and the swingarm.

17. Secure tab on hitch hoop to inside of left frame mount bracket (step 14) and secure with stock nut on backside. Do not tighten. (PHOTO 4)
18. Attach right side arm to hitch at right rear with supplied 5/16-18 x 1 ¼ inch Socket Head Cap Screw. (PHOTO 5)
19. Tighten in following order; 2 bolts and Nylock nuts securing front of hitch hoop, left and right passenger peg mount bolts and nuts, frame mount brackets, bolt securing right side arm to hitch hoop, two ¼-20 bolts and nuts securing clamp halves, and 5/16-18 bolts and nut securing upper and lower ends of strut to clamp and right side arm.
20. Reinstall rear inner fender.
21. Reinstall right side saddlebag mount with thread lock.
22. Reinstall right and left tail section side covers, and secure fairing side panels on both sides.
23. Reinstall rear rack.

Installation of the hitch is now complete. You will reassemble the motorcycle after the following hitch pin and wiring installation instructions. If you are using this hitch for anything other than a Bushtec trailer, you will need to purchase the appropriate size ball and safety chain plate for your application, which are available from your local parts store. Installation and maintenance of these parts should be performed in accordance with their manufacturer instructions.

WIRING INSTRUCTIONS

NOTE: The CAN-bus SWS Trailer Isolator, Isolator Adaptor and Sub Harness package you received with your new hitch comes with less specific wiring instructions. The instructions you are holding are specific to installation with the Bushtec trailer hitch for BMW R1200RT, although wire routing, connections and isolator location is left up to the individual installer. These instructions will guide you through the process.



If you purchased this hitch with a new Bushtec trailer, you will have received a wire harness inside 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 wiring to reach the isolator package from your local parts store or your trailers manufacturer.

1. (BUSHTEC APPLICATION) Mount the plug body of the harness within 2-3 inches of the hitch pin adapter using wire ties, electrical tape or a fastener of your choice. Run the harness up the rear support strut and into the rear section of the motorcycle (under the seat). 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.
2. Mount the Isolator and Isolator Adaptor in an area as free from moisture and heat as possible, keeping in mind that you will need to reach the battery with the red and black wires, and the trailer harness with the solid color wires stemming from the isolator.

NOTE: Bushtec recommends installing the Adaptor and Isolator forward of the taillight cavity in the tailsection of the motorcycle. This allows for ease of access with the subharness to the taillight.

3. Locate the motorcycle wiring for the taillight and turnsignals to the bulb bases. Note the wire colors on all three sockets. One wire on each socket is the same color. This is your ground wire.
4. On the ground wire for the right turn signal, unplug the wire from the socket. Plug in the black wire from the supplied subharness to the empty connector on the socket and into the factory wiring.
5. On the NON ground wire for the right turn signal, unplug it from the socket. Plug in the yellow wire from the subharness to the empty connector on the socket and into the factory wiring.
6. On the right tail/brake light socket unplug the NON ground wire from the socket. Plug in the blue wire from the subharness to the empty connector on the socket and into the factory wiring.
7. On the left turn signal, unplug the NON ground wire from the socket. Plug in the brown wire from the subharness to the empty connector on the socket and into the factory wiring.
8. Run the 4 pin connector from the subharness into the tailsection cavity along with the main tail light wiring harness.
9. Reinstall the bulb sockets into the taillight and reinstall the taillight housing. Be sure to keep both wiring harnesses out of the way of the light housing.
10. Connect the subharness to the CAN-bus SWS Adaptor.
11. If your trailer is a 4 wire system, you will need a trailer light converter. Bushtec recommends the Electrical Connection P/N 07664 5-to-4 wire adaptor.
12. Connect the CAN-bus SWS Adaptor to the Isolator.



13. For a Bushtec trailer, connect the solid color output wires from the isolator as follows;

<u>ISOLATOR OUTPUT</u>	<u>FUNCTION</u>	<u>TRAILER COLOR</u>
Green	Running Light	Green
Blue	Brake	Blue
Brown	Left Turn	Brown
Yellow	Right Turn	Yellow
Black	Ground	White
	Interior Light	Black (see step 14)

14. (BUSHTEC APPLICATION) The black wire of the trailer harness operates the interior light, Bushtec recommends combining the black wire and green wire of the trailer harness and connecting both to the green wire output from the isolator so that the interior light operates only when 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, you will need to connect the black wire of the trailer harness directly to the positive (+) terminal of the battery with an the appropriate inline fuse. Connect the remaining wires according to the isolator package instructions.
15. Route red and black wires to battery along frame. Connect the red wire to the 12V positive terminal using the in-line fuse holder provided. Connect the black wire to the 12V negative terminal using the ring terminal provided.
16. Secure all the wiring making sure that nothing will affect the reassembly of the motorcycle. Check wiring functions and complete reassembly of the motorcycle.

CHECK ALL HARDWARE TO MAKE SURE ITS TIGHT. CHECK ALL ELECTRICAL CONNECTIONS.

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

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!

Installation of all the hitch components is now complete. Recheck all bolts to insure tightness and alignment of hitch.

FINAL TRAILER HOOKUP



HITCH PIN ADAPTER INSTALLATION
(AND STANDARD BALL)

WARNING: USE OF A TRAILER BALL ON THIS HITCH REQUIRES A SAFETY CHAIN PLATE, DO NOT ATTEMPT TO USE THE 5/16" SLOT ON THE REAR OF THE HITCH PLATFORM OR ANY OTHER AREA OF THE HITCH!

1. Install the appropriate size ball and safety chain plate to their manufacturers recommendation.

(BUSHTEC APPLICATION)

1. Wrap the hex base of the hitch pin adapter with 3/4" masking tape to avoid chipping the chrome plating.(several layer will be necessary)
2. Insert the adapter into the hole in the hitch platform. Tape the top of the platform to avoid scratching the hitch plating.
3. Install the supplied safety chain bracket and hitch pin nut and tighten. Use a crescent wrench on the adapter and a 1 1/16" socket on the nut.

CAUTION: DO NOT ALLOW THE ADAPTER TO SPIN, TURN THE NUT ONLY TO HELP AVOID SCRATING THE PLATFORM.

Stainless steel lock: Place the key into the lock, hold the lock and turn the key 1/4 turn clockwise to unlock. Place the lock on top of the pin and turn the key clockwise 1/4 turn and remove the key. Lift up on the lock to insure lock is engaged on the pin. The supplied black cover is designed to keep the keyway free of debris.

WARNING: THE KEY IS REMOVABLE REGARDLESS IF THE LOCK IS ENGAGED!

WARNING: BUSHTEC TRAILERS HAVE A GVWR OF 350LBS AND A LOADED TONGUE WEIGHT NOT TO EXCEED 55LBS. THIS INFORMATION IS LOCATED IN YOUR BUSHTEC TRAILER OWNERS MANUAL AND MUST NOT BE MISTAKEN FOR THE MAXIMUM WEIGHT-RATINGS OF THIS PARTICULAR HITCH!

1. With motorcycle reassembled, check if trailer is equipped with tongue stand, it is secured in the up position. Place the heim joint down over the hitch pin. Place the lock over the pin in the fully unlocked position. Hold the lock and turn the key 1/4 turn. Remove the key. Lift on the lock to ensure it is engaged. Install dust cover.
2. Connect safety chain to link under hitch pin.
3. Place harness over top of chassis neck and connect to bike side harness, aligning the catch and lock. Snap to lock. Check lighting and you are ready to tow.



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350 LBS. MAXIMUM GVWR
55 LBS. MAXIMUM TONGUE WEIGHT

All Manufacturers names, model designations, brand names, trademarks and registered trademarks are the property of their respective holders

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PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

BUSHTEC

Performance Sport Trailers



PHOTO 5