

#### HITCH INSTALLATION INSTRUCTIONS

MAKE: YEARS: MODEL/TRIM:

**KIA** 2020 - 2023 Telluride

www.stealthhitches.com

833.694.4824

RACK RECEIVER KIT#: SHR63001

COMPATIBLE WITH TOW KIT: SHT25031 & SHT25060

2" RACK RECEIVER MAXIMUM PAYLOAD: 600 LBS

**MAXIMUM TOW RATING:** 6000 LBS **MAXIMUM TONGUE WEIGHT:** 600 LBS

#### UNDER VEHICLE TRIMMING:

**HEAT SHIELD: NO** FASCIA: NO

GRAVEL GUARD TRIMMING: NO



**READ ALL INSTRUCTION** WARNINGS AND LABELS

NO WELDING, METAL DRILLING OR VISIBLE TRIMMING REQUIRED

#### PARTS SUPPLIED WITH RACK RECEIVER KIT:



LATCH BLOCK & KEYS



(2) BOLTS 5/8"-11 x 5"



(2) 5/8"NYLOCK NUTS



(4) BOLTS 1/2" - 13 x 4 1/2"



(8) 1/2" FLAT WASHERS



(4) 1/2" NYLOCK NUTS



(4) M10 1.25 x 40mm BOLTS FINE THREAD



(4) M10 LOCK WASHERS



(4) M10 FLAT WASHERS



2" RACK RECEIVER





(8) 3/8" X 1-1/4" CAP CREW



(8) 3/8" FLANGE **NUTS** 

#### ADDITIONAL PARTS FOR TOW KIT:



BALL MOUNT 5" RISE, LONG



CHAIN HOOKS



2" BALL



#### **TOOLS REQUIRED:**



3/4", 9/16", & 15/16"

**OPEN END** 

WRENCH



3/4", 9/16"

& 15/16" SOCKETS

14mm, 17mm,



**RATCHET** 



TORQUE WRENCH





90 DEGREE

PICK

SAFETY GLASSES FLASHLIGHT



PRY BAR

RATCHET STRAP



FLATHFAD **SCREWDRIVER** 



ADDITIONAL TOOLS FOR TOW KIT:

PHILLIPS HEAD **SCREWDRIVER** 



STRIPPER/ CRIMPING TOOL



DRILL



5/16" NUT DRIVER BIT



MULTIMETER



PLIFRS vehicle not

pre-wired



10mm SOCKET vehicle not pre-wired



PLASTIC PRY TOOLS vehicle not pre-wired

NOTICE: Two passive tow kits exist for this vehicle.

**Tow kit SHT25060:** This kit uses a "universal" wiring kit that clips into the tail light wiring. This kit works with all vehicles.

Tow kit SHT25031: This kit uses a wiring kit with a connector that can only be used if the vehicle comes pre-wired with a plug for the wiring kit connector.

RACK RECEIVER INSTALLATION: USE STEPS 1-9, 31-33

TOW KIT INSTALLATION (NOT PRE-WIRED): USE STEPS 1-21, 26-33 TOW KIT INSTALLATION (PRE-WIRED): USE STEPS 1-9, 22-33

### <THESE INSTRUCTIONS MUST BE GIVEN TO THE END USER>

**NOTICE:** Installation of Stealth products may or may not require the addition of a wiring harness to the vehicle.

- The Rack Receiver only product does not require adding a wiring harness.
- The <u>Rack Receiver plus Tow Kit</u> requires the addition of a "Passive" wiring harness to the vehicle. The passive harness "reads" the output of the vehicle's lights and translates the signals to the trailer without being connected to the vehicle computer.

**INSTALLATION NOTE:** In most instances, these instructions will only outline disassembly of vehicle components. Re-installation of components will require the installer to retain vehicle hardware and work through disassembly instructions in reverse order. When installation is complete, double check that all vehicle components have been replaced and are secured.

#### IMPORTANT SAFETY NOTICE FOR STEALTH HITCH INSTALLERS AND CUSTOMERS.

Read all installation and operating instructions along with all labels before installing or using this product. Do not perform any installation or towing procedures without fully understanding the correct tools and actions for all steps. Call for support if needed.



## Failure to comply with the safety information in these instructions could result in serious injury or death.



Do not modify this product in any manner. Doing so could alter its integrity and lead to a loss of attachment between the trailer and the tow vehicle.



While installation is being performed, check for signs of damage or excessive corrosion. Do not install hitch components over vehicle parts that are broken or have compromised structural integrity.



Adding Stealth hitch components to the chassis of any vehicle can be hazardous. There is potential for unexpected combustion of fuel, electric shock, burns, shifting or falling of unstable vehicle, damage to vehicle, injury from tool usage and many other hazards. This installation must be completed by someone who is aware of the hazards involved. This person must be knowledgeable of proper safety procedures for a vehicle modification of this nature, and for usage of the equipment required to perform the installation.



This product was designed to fit vehicles in their original, "as manufactured" condition. Compatibility with vehicles having replacement parts, or other modifications is not guaranteed. Inspect vehicle for modifications before installation of this product.



Some accessories, like the rack receiver, are not rated for towing. Do not use any accessories without proper knowledge of their use.



Without proper knowledge, towing can be a dangerous activity. Understand all the risks involved with towing before proceeding. For information on towing safety, see "The Trailer Handbook: A Guide to Understanding Trailer and Towing Safety" from the National Association of Trailer Manufacturers, www.NATM.com and your trailer and tow vehicle manufacturer's owner's manual.



A visual inspection of the hitch should be performed before each use. Regularly check that all connections are secure, including those that secure the hitch to the vehicle. Check for cracks or damage to the hitch. Do not use the hitch if cracks or damage outside of normal wear is found. Using a hitch that has unsecure connections and/or cracks or damage could result in damage to the tow vehicle, trailer, towing components and loss of attachment between the tow vehicle and trailer.



Do not exceed tow or tongue rating of coupler, tow or tongue rating of hitch, or tow or weight ratings of tow vehicle or trailer. See vehicle and trailer manufacturer information for ratings. Exceeding these ratings may cause damage to towing components or loss of attachment between the trailer and vehicle.



Stealth hitches are not compatible with any weight distribution or sway control products. Adding additional products to the trailer or chassis which modifies the function of the Stealth hitch may cause hitch failure.

**NOTICE:** Installation of hitch requires removal of vehicle parts and interaction with vehicular electronics. Before installation, check the condition of body panels and note any locations where panels are not flush. Check the electronic functions of the vehicle, such as: headlights, taillights, turn signals, cameras, backup sensors, Parking Distance Controller (PDC), foot activated cargo access, etc. It is the responsibility of the installer to restore the fit and function of the vehicle.

#### **GAIN ACCESS TO MOUNTING AREA**





21mm SOCKET



1. Inside the rear cargo area, lift rear floor panel to gain access to the spare tire lowering nut.

## USE SPARE TIRE LEVER OR 21mm SOCKET TO LOWER THE SPARE TIRE





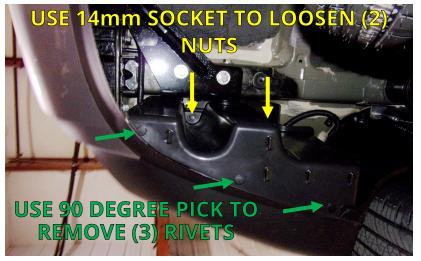
2. Lower and remove the spare tire. Refer to the vehicle owner's manual if needed.







 Under the rear of the vehicle, locate the driver side gravel guard. Loosen (2) nuts (yellow arrows) and remove (3) plastic rivets (green arrows) holding the gravel guard to the vehicle.



#### **GAIN ACCESS TO MOUNTING AREA CONTINUED**



RATCHET STRAP



4. Attach a ratchet strap under the vehicle to support the exhaust. Above the exhaust are (2) brackets connected by rubber isolators. Use a pry bar to disconnect the top of the isolators from the vehicle. Using the ratchet strap, lower the exhaust to gain access to the area above the exhaust.

**NOTE:** Spray lubricant on the connection points to ease removal.





5. On each side of the vehicle, locate the (2) threaded holes on the underside of the chassis beam. These threaded holes will be used for the installation. They need to be free from debris to allow a bolt to be threaded into them. A wire brush can be used to clean these holes. Screw the (4) supplied M10-1.25 bolts into these holes to confirm they are clean and have no obstructions. Remove the bolts.



#### **INSTALL STEALTH HITCH FRAME**



SOCKET

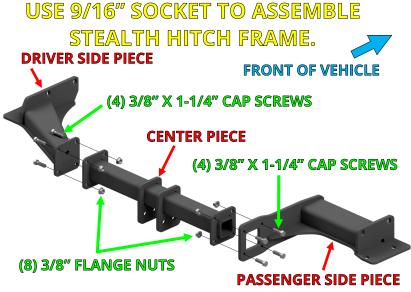


OPEN END



TORQUE WRENCH

- 6. The Stealth hitch frame is made up of three pieces which must be assembled. Retrieve the three hitch frame pieces, (8) 3/8" X 1-1/4" cap screws, and (8) 3/8" flange nuts. Use the image to orient and assemble the hitch frame.
- Torque the 8 bolted connections to 30 ft. lbs.



#### **INSTALL STEALTH HITCH FRAME CONTINUED**



17mm SOCKET



3/4" SOCKET

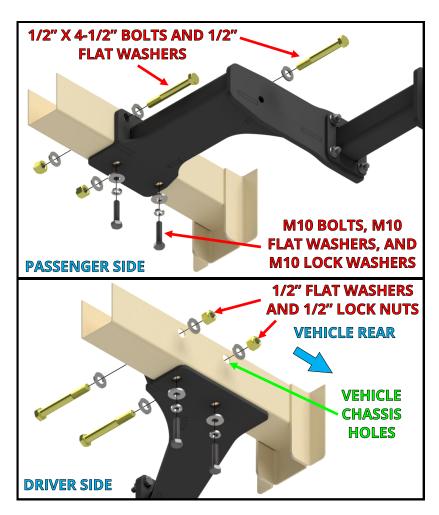


3/4" OPEN END WRENCH



TORQUE WRENCH

- 7. Lift the Stealth hitch frame under the vehicle and align the top holes with the vehicle chassis holes. Insert supplied 1/2" x 4-1/2" bolts and flat washers from the inside, as shown, to hold the hitch frame in place.
- 8. Align the (4) holes on the bottom of the hitch frame with the threaded holes on the underside of the chassis beams. Insert (4) M10 bolts, lock washers, and washers, as shown. Add 1/2" washers and nuts to the (4) 1/2" bolts that are inserted from the side.
- Tighten and torque the (4) M10 bolts to 45 ft.-lbs.
- Tighten and torque the (4) 1/2" bolts to 100 ft.-lbs.



#### MOUNT LATCH BLOCK



15/16" SOCKET

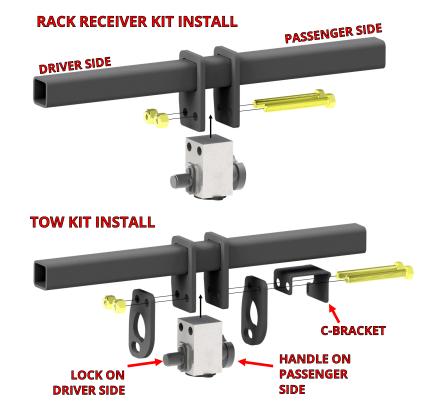


15/16" OPEN END WRENCH



- Installation of the latch block varies depending on which kit you are installing.
- Rack Receiver Kit: Install the latch block with (2) 5/8"-11 x 5" bolts and (2) 5/8" nylock nuts. Tighten each bolt to 150 ft.-lbs.
- **Tow Kit:** Retrieve C-bracket from wiring harness kit box. Install the latch block, (2) chain hooks, and C-bracket with (2) 5/8"-11 x 5" bolts and (2) 5/8" nylock nuts. Tighten each bolt to 150 ft.-lbs.

NOTICE: Keys are packaged within the latch block, remove keys and store in safe location.

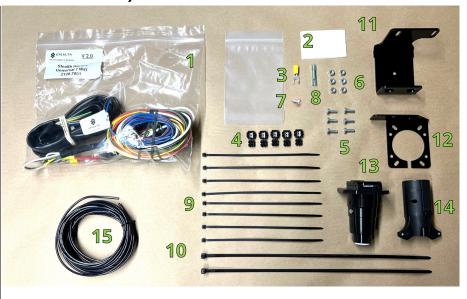




IF INSTALLING A RACK RECEIVER KIT, SKIP TO STEP 31.
IF INSTALLING THE NOT PRE-WIRED TOW KIT (SHT25060), SKIP TO STEP 10.
IF INSTALLING THE PRE-WIRED TOW KIT (SHT25031), SKIP TO STEP 22

#### **INSTALL PASSIVE WIRING KIT (VEHICLE NOT PRE-WIRED)**

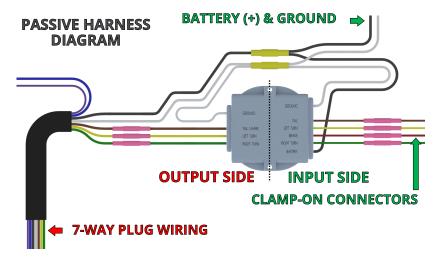
#	DESCRIPTION				
1	7-WAY WIRING HARNESS	1			
	<ul> <li>FUSE HOLDER &amp; FUSE</li> </ul>				
	<ul> <li>CONTROL MODULE &amp; WIRES</li> </ul>				
2	ADHESIVE FOAM STRIP				
3	FORK TERMINAL	1			
4	CLAMP-ON CONNECTORS	5			
5	5/8" LONG PHILLIPS SCREWS	6			
6	#10 LOCK NUT	6			
7	SELF-TAPPING SCREW	1			
8	BUTT CONNECTOR (BLUE)	1			
9	CABLE TIE – 8"	8			
10	CABLE TIE – 14"	2			
11	C-BRACKET	1			
12	MOUNTING BRACKET	1			
13	7-POLE HOUSING	1			
14	7-POLE TO 4-POLE ADAPTER	1			
15	POWER WIRE	1			

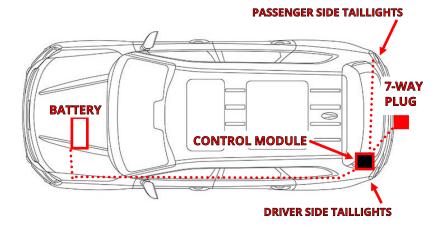




10. Locate the wiring kit box. Review the contents of the box against the list above to check for missing components. The passive wiring kit uses a control module to manage the functions of the trailer lighting. The module has an "input" side that receives power from the vehicle's battery and signals from the vehicle's taillights. The "output" side of the module delivers this information to the 7-way plug. The control module is connected to the vehicle's battery and taillight wiring as outlined in the next steps.

NOTICE: Do not allow electrical system to become disconnected from power or ground. Doing so may interrupt electrical systems.







11. Open the rear hatch of the vehicle. Locate the plastic taillight cover trim between the taillight and the cargo area door. Use a plastic pry tool to find the gap between the plastic cover and the taillight. Pry inward on the cover trim to remove it. Repeat on other side of vehicle.



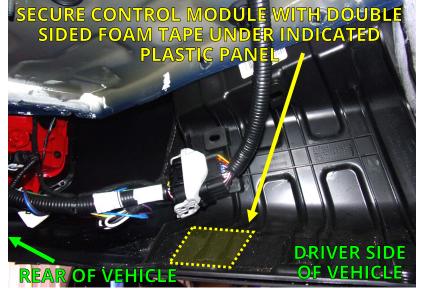




PHILLIPS HEAD SCREWDRIVER 12. Using a socket or screwdriver locate and remove (3) screws holding the taillight to the vehicle. Slide the taillight rearward far enough to unplug and remove the taillight. Place the taillight in a safe location. Repeat on other side of vehicle.



13. Retrieve the control module in the wiring kit box. Attach the adhesive foam strip to the back of the control module. Locate the area in the image under the rear driver side of the vehicle. Pass the control module under the indicated plastic panel and stick it to the vehicle body.





DRILL



DRIVER BIT



TOOL

14. Retrieve the self-tapping screw and fork terminal. Locate a spot on the metal underbody to attach the ground screw, see image. Trim the ground wire so that it will reach that location with little excess wire. Crimp supplied fork terminal to ground wire with a crimping tool. Use a 5/16" nut driver bit to drill the supplied selftapping screw to secure the ground terminal to the vehicle.







15. Locate the fuse holder in the wiring kit box and remove the fuse. Locate and open the battery terminal box under the hood. Locate the power wire and unroll it. Use a crimping tool to attach one end of the power wire to the fuse holder. Use a 10mm socket to connect the eyelet to the battery as shown.





16. On the driver side of the engine compartment locate the plastic panel shown in the image. Lift up and dislodge the panel. Route the power wire from the battery over to the panel area. Pass the wire down to the area behind the driver side front tire. Replace the side panel.

**NOTE:** Use a stiff wire to "fish" the power wire to the correct area if needed.





17. Locate the Phillips head screws behind the driver side front tire as shown in the image. Use a screw driver to remove the (3) screws. With the fasteners removed, open up the wheel well liner and find the power wire (and fish wire).







18. Route the power wire along the bottom of the driver side of the vehicle. Use a 10mm socket to remove (3) screws in the trim. Use the underbody trim to hold and hide the power wire as much as possible. Avoid areas where the power wire can be pinched or damaged. The power wire needs to be taken back to the control module. Use a butt connector and a crimping tool to connect the power wires from the battery and the control module.

# NOTICE (OPTIONAL): The butt connector is a heat shrink connector. Apply heat to waterproof the connector after crimping.

19. Route the green input wire from the control module on the driver side to the passenger side. Route the wire along existing vehicle harness wires. Fish the wire up into the passenger side taillight area.





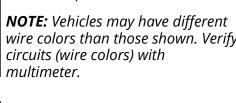






20. The wires on the input side of the module need to be attached to the vehicle wiring. Inside the passenger side taillight area locate the indicated part of the vehicle wiring harness. Use clamp-on connector to connect the green wire to the input wire. (As shown in reference table below.)

wire colors than those shown. Verify





TOOL





21. On the driver side of the vehicle, fish the yellow and brown wires up from the control module into the driver side taillight area. Locate the indicated part of the vehicle wiring harness. Use clamp-on connectors to connect the yellow and brown wires to the input wires. (As shown in reference table below.)

**NOTE:** Vehicles may have different wire colors than those shown. Verify circuits (wire colors) with multimeter.

**SKIP TO STEP 26 TO CONTINUE** WIRING INSTALLATION.





CLAMP-ON CONNECTOR COLOR REFERENCE TABLE								
SIGNAL INPUT WIRES			POWER & GROUND WIRES					
<u>FUNCTION</u>	<u>HARNESS</u>	<u>VEHICLE</u>	POWER & GROUND WIRES		ND WIRLS			
LEFT TURN	YELLOW	YELLOW/RED	12V+ (POWER)	BLACK	BATTERY (+)			
RIGHT TURN	GREEN	GREY/BLACK	GROUND	WHITE	GROUND SCREW			
MARKER	BROWN	BLUE/BLACK						
<u>BRAKE</u>	RED	NOT USED	Do not connect the red brake wire. This vehicle does not utilize a separate brake circuit. The brake signal is sent					
REVERSE	PURPLE	For use with trailer reverse lights or to disable the trailer brakes when backing with surge brakes. To connect, isolate vehicle's reverse light circuit and connect the purple wire from the trailer wiring harness to vehicle reverse light circuit. <i>Trailers rarely have reverse lights or surge brakes</i> .						
ELECTRIC BRAKE	BLUE	Only used when a hard wired brake controller is mounted inside the vehicle and your trailer has electric brakes. See brake controller instructions for this wire.						

#### **INSTALL PASSIVE WIRING KIT (VEHICLE PRE-WIRED)**

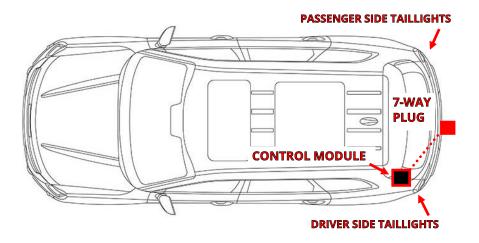
	HASTALL LASSIVE WHATING INT (ATTRICTE						
	#	DESCRIPTION					
	1	7-WAY WIRING HARNESS					
l		<ul> <li>CONTROL MODULE &amp; WIRES</li> </ul>					
		CABLE TIE					
		<ul> <li>SELF-TAPPING SCREW</li> </ul>					
		ADHESIVE SQUARE					
	2	5/8" LONG PHILLIPS SCREWS	6				
	3	#10 LOCK NUT	6				
	4	CABLE TIE – 14"	2				
	5	C-BRACKET	1				
	6	MOUNTING BRACKET	1				
	7	7-WAY HOUSING	1				
	8	7-POLE TO 4-POLE ADAPTER	1				





22. Locate the wiring kit box. Review the contents of the box against the list above to check for missing components. The passive wiring kit uses a control module to manage the functions of the trailer lighting. The module will connect to the vehicle through an included wire harness. The harness has an "input" side that receives power and signals from the vehicle's electronic systems. The "output" side of the harness delivers this information to the 7-way plug. The control module is connected to the vehicle as outlined in the next steps.

NOTICE: Do not allow electrical system to become disconnected from power or ground. Doing so may interrupt electrical systems.



23. Locate the factory trailer wire harness plug under the driver side rear of vehicle. Remove the tape connecting the plug to the rest of the harness. Remove the protective cap from the plug.



24. Retrieve the control module and wires from the wiring kit box. Plug the harness into the factory trailer wire harness plug, as shown.

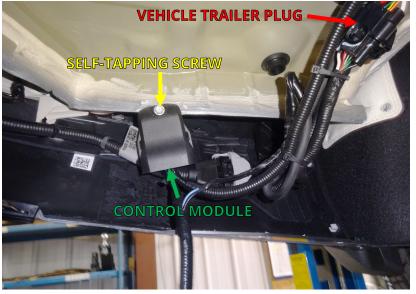






25. Use the supplied self-tapping screw to mount the control module to bottom edge of the vehicle, as shown. Use cable ties to secure wiring.

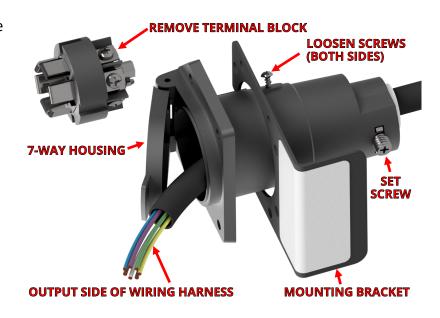
NOTICE: Make sure the control module is mounted so that the epoxy side of the module is facing toward the ground, to prevent water buildup.



#### **WIRE 7-WAY PLUG**



26. Locate the 7-way housing. Use a screwdriver to loosen (2) screws. Remove 7-way round terminal block. Place the mounting bracket onto the 7-way housing as shown. Use a screwdriver to loosen the set screw at the bottom of the 7-way housing. Route output side wires of the wiring harness through the 7-way housing.



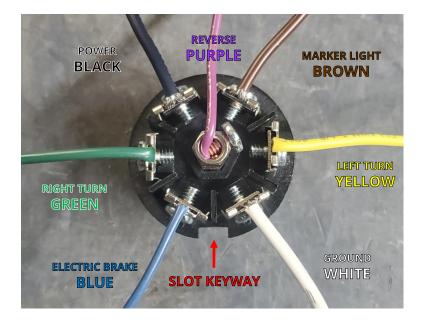
<u>Please follow instructions below very carefully.</u>
<u>Incorrect wiring of the 7-way receptacle causes the vast majority of wiring problems.</u>





- 27. Locate the slot keyway. Starting from the keyway going **clockwise**, attach the wires as follows:
  - Blue
  - Green
  - Black
  - Brown
  - Yellow
  - White
  - Purple (middle)

NOTICE: Markings on the receptacle may not match the correct wire configuration. Please disregard and follow the instruction above.



#### **TEST 7-WAY HARNESS WIRING**

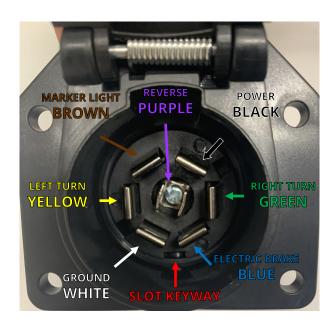


PHILLIPS HEAD SCREWDRIVER



- 28. Put the 7-way receptacle back together. While everything is still accessible, you should test the wiring to make sure everything is connected properly and in working order.
- If installing the not pre-wired kit, replace the 20 Amp fuse into the fuse holder located near the battery.

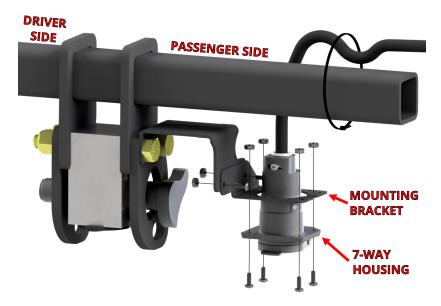
**NOTE:** Taillights will need to be temporarily plugged in during testing.



- Start by connecting the multimeter negative probe to the ground blade on the 7-way receptacle.
- Next, connect the multimeter positive probe to the power blade on the 7-way receptacle and check for 12 volts.
- Once that is confirmed, move the positive probe to the left turn blade on the 7-way receptacle and check for 12 volts when the vehicle left turn blinker is active. You should see it pulse.
- Next, move the positive probe to the right turn blade and check for 12 volts when the right turn blinker is active. You should see it pulse.
- Next, move the positive probe to the marker/taillights. With the vehicle lights on you should see 12 volts constant.
- Lastly, with the brake depressed, move the positive probe to the left turn blade where you should see 12 volts constant. Move the probe to the right turn blade where you should also see 12 volts constant.



- 29. Attach the mounting bracket and 7-way housing to the Stealth hitch frame as shown. Secure harness to Stealth hitch frame with cable ties.
- 30. Secure all wires and wiring components. Use the remaining cable ties to secure wiring so that it is not loose. Wiring should not be visible once the vehicle is reassembled.
- If installing the not pre-wired kit, Replace the taillight covers and taillights removed in Steps 11-12.



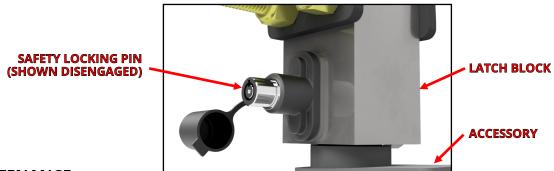
#### **REINSTALL VEHICLE COMPONENTS**

31. Reattach the exhaust and spare tire. Refer to Steps 1-4. Pictured is the finished install from underneath the vehicle.



#### FINAL VEHICLE EXAMINATION

- 32. Examine the body panels to ensure that they are in a pre-installation condition. Test the electronic functions of the vehicle. Correct any inconsistencies.
- 33. Ensure that hitch components work properly.
- *Verify that the lock works correctly.* Push in the safety lock on the latch block then unlock with key. The lock should slide back out with the key when unlocked.
- **Verify that each accessory can be installed correctly.** Use the following steps to install and remove each accessory that will be used with the hitch. (<u>Rack Receiver</u> and <u>Ball Mount</u> if purchased.)
  - 1. Prepare latching mechanism. Turn handle clockwise if needed.
  - 2. Firmly insert "post" of accessory into latch block until handle releases indicating that the accessory is latched.
  - 3. Push in the safety locking pin until it fully engages. The locking pin prevents the handle from turning when pushed in, and confirms that the block is securely latched onto the accessory. The safety locking pin will not depress if the accessory is not fully latched.
  - 4. Use key to release safety locking pin.
  - 5. While holding on to the accessory, rotate handle clockwise to release and remove the accessory.
- Verify that no part of the accessories come into contact with the body of the vehicle.



#### PRODUCT USE AND MAINTENANCE

NOTICE: If the hitch is being installed by a professional, the installer is responsible for training the end user in the use and maintenance of the product.

- Accessory installation procedure:
  - 1. Prepare latching mechanism. Turn handle clockwise if needed.
  - 2. Firmly insert "post" of accessory into latch block until handle spins counterclockwise indicating that the accessory is latched.
  - 3. Always depress the safety locking pin and check that it has fully engaged.
- **Never use any accessory with the safety lock disengaged.** Until the safety locking pin is engaged, the handle is able to turn. A fully engaged safety locking pin is confirmation that the accessory is properly latched into the latch block.
- **Never use the rack receiver for towing.** The rack receiver accessory is only to be used with payload carrying products, such as bike racks or luggage racks.
- Before each use, give the post of the accessory a light coating of lithium based grease.
- Before each use, inspect the hitch to ensure that all bolted connections are secure and that no cracks or damage are present. Do not tow with the hitch if cracks or damage outside of normal wear is found.
- Remove the Stealth accessories from the latch block after each use. Do not leave accessories plugged in for extended periods of time.

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