

Rev. D 08-21

ASSEMBLY INSTRUCTIONS FOR
SAS Consulting LLC, MOTORCYCLERACKS
(www.motorcycleracks.net;www.motorcycleracks.us;www.carriers4cycles.com)
C, CD, CE, CE Dual Style Hitch Carriers

ALSO SEE WEBSITE ABOVE FOR ASSEMBLY VIDEO, SEE LINK TOP OF HOME PAGE

Note: The carrier structure includes a 2 year, limited warranty for the original purchaser.

Warning: The warranty may be voided if the buyer: substitutes inferior fasteners, modify the carrier structure, misuse by overloading it or abuse it during the tie down process. Doing this may also create a hazardous condition. Also, See notes Below under **"DON'TS"**, see page 4.

Carrier Assembly: BOM Package Contents and Specs.

- **A- Receiver Assembly(CD style shown in illustrations)**
- **B- Hitch Locking Bolt/Through pin(banjo bolt) 1/2-13 special x 3" long, grade 5 w/lock washer and pin**
- **C- Side Supports LH and RH, welded plate faces up**
- **D- Main carrying Tray**
- **E- (4) Hex Bolts 1/2-13x2.5" long Grade 5**
- **F- (4) 1/2-13 Hex Nuts**
- **G- (4) 1/2 Lockwasher**
- **H- (4) or (6) 1/2-13 x 1" long Button Head Socket Cap Screw w/ 1/2-13 Serrated Hex flange nut**
- **I- Horizontal Stabilizer bar(HSB) 24" long standard**
- **J- Button Head Socket Caps screws(2) 5/16-18 x 1.5" long w/ 5/16-18 Flange nut**
- **K- Vertical Sta-bar assembly(1) or (2) Note: (2) VSB's required for bikes over 350 lbs**
- **L- Hex Bolt Ass'y(2) 1/2-13 x 1.50" w/full hex nut and safety nylon jamb nut**
- **M- Hex Bolt 5/8-18 x1" and Welded 5/8-18 Tee Bolt for no tools tightening**
- **N- Vertical Sta-Bar adaptor for outside attachment (bikes over 350 lbs) C, CD,CE**
- **O- Loading Ramp x min. 60" long with 3/8-16 wing nut**
- **P- Socket Head Cap screw(2) 3/8-16 x3/4" Long with 3/8" flange nut for load ramp mounting**
- **Q- (3) lashing straps.**
- **R- Optional VSB 6.5" offset bracket w/bolt assembly**
- **S- Optional detachable VSB assembly w/tee bolt**
- **T-Optional Adjusting VSB support/U bolt**

Recommended Materials & Tools required:

- **Wire brush, Metal Scraper, wooden blocks, 2x4, 4x4, etc. Drywall screws x 2 to 2-1/2" long**
- **File, cable ties, 3/4" pipe insulation or swimming noodles x 6' long, indoor/outdoor carpet, felt padding, rubber sheeting(old inner tubes can work also)**
- **(2) 3/4"&(1) 1/2" boxed in wrench; 3/8" ratchet w/3/4" socket; Adjustable Wrench 8" min.**
- **5/16" 3/16" high quality Allen/hex key wrench**
- **Torque wrench and matching sockets up to 75 ft-lbs**

Make sure you have read and comprehend these instructions before attempting to assemble and use product.

Note: If the hitch is rusted or has debris present on the inside of the receiver, clean the square opening with a file, chisel, wire brush and/or scrapper. Hitch opening must be clean to begin assembly.

Caution: Do not force or hammer receiver assembly into hitch opening as this will damage the paint and removal will be very difficult!

Step 1: Insert receiver assembly (A) into vehicle hitch and align hitch pin holes.

Hint: A Philips screwdriver or tapered alignment tool can be used to better align the holes by inserting into hitch pin opening when receiver assembly hole is close to hitch hole opening. Work tool back and forth for proper alignment.

Step 2: After receiver assembly and hitch receiver holes are aligned insert B and snug tight(Later when finished w/assembly torque to 65 ft-lbs)

Step 3: Assemble C, side supports: LH and RH, welded plate on newer models faces up

Install fasteners: E, F, and G. Hand tighten. Remove Hex Bolt M on bottom of receiver and install welded Tee bolt, leave loose.

Step 4: Mount Main Carrying Tray (D) to one or more available patterns: Front to back of vehicle and left to right. Note: Multiple bolt patterns are available on the receiver and on the main tray for fine tuning. Try to install the tray closest to vehicle if, possible, to create the least load on the vehicle's suspension and best drive-ability of the hauling vehicle.

Start with the mid position on the carrying tray(left to right). The main tray with the motorcycle loaded and in position should not put excessive twist on the receiver assembly. It may be necessary to move the tray to the left or right to properly balance the load. Install (4) H bolt assembly and snug the nut. Use a high quality 5/16" hex key wrench and hold nut with a 3/4" wrench.

Step 5. Install HSB I and J for bolts, tighten to 13 ft-lbs. Notice bolt pattern so the HSB can be moved fore and aft of vehicle if any interference exists. Other length of HSB's are available.

Step 6. Load bike onto carrier and verify it fits. Normal clearance from handlebars or fairing to vehicle is 1.5-3". You may want a partner here to help balance the bike while assessing the clearance.

Step 7. Remove bike and Lay the carrier on the grass. If only a driveway is available, lay carpet down as to not scratch up the carrier. Laying the carrier on the ground will not be possible with the DS/US (downshift/upshift) type so leave it in the hitch if you have bought that option.

Step 8. Install K Vertical Sta-Bars onto receiver assembly inside and outside. Place angle iron against angle iron and install L 1/2-13x1.5" hex bolt w/hex nut. Snug hex nuts at this stage. Leave jamb safety nut off at this point. On the outside VSB, you will install it on the outside of N. For the inside VSB, install it on the inside.

Step 9. Cover the 1" square tubing on the VSB with 3/4" pipe insulation or swimming noodles and use cable ties(zip ties) to secure it. Have wooden blocks and padding available in case they are needed.

Step 10. Load the bike on the carrier (which is on the ground)prop up the kick stand with a block of wood to level it and push it up against the wheel chock. Make sure the wooden block spacer in the front is not interfering with it resting fully against the wheel chock. You may have to cut a tapered wooden block of desired width to remove excessive play in the front wheel/wheel chock.

Step 11. Arrange both the VSB's so they can squeeze the bike in a suitable place. The VSB's do not have to be at 90 degrees/straight up, they can be moved to another suitable angle but need to be somewhat in-line with each other as they get tied to each other at the top later.

The vertical bar **must "pinch"** against a part on the bike i.e. frame, exhaust pipe, seat, shrouding or side/engine covers. Never place then VSB's against the fuel tank! On the wooden block, use rubber, carpet or felt to pad it. The Padding i.e. foam, rubber or carpet, must be stapled or screwed into the wooden block to prevent the material from working its way off during travel. **Be sure you are not bottoming out part N on the receiver assembly. If you are bottoming out/not pushing on the bike, a wooden spacer blocks will be required.** After you have arranged the VSB's so can reach the bike in a suitable place. Remove the bike.

NOTES FOR CARRIER STYLE C, AND CE ONLY: (when using just (1) vertical stabilizer bar): With the bike loaded, install a 10' min. length ratcheting tie down against the bike to the inside VSB. The object here is to provide clamping of the bike against the inside VSB. This is done by hooking the ratcheting tie down end to the 1" washer on the top of the Inside VSB. Next take the loose end and hook it on the washer and route the tie down around the bike and under the tray and back up to the ratcheting end to tighten. While tightening, be sure the tie down strap stays straight and doesn't rub against or catch any sharp surfaces on the motorcycle i.e. foot pegs or bolt heads that could damage the fabric on the tie-down.

Step 12. Place the fully assembled carrier on the vehicle and tighten down the hitch pin to 65 ft-lbs. Install the clip on the end.

Load the bike with the inside vertical bar presented up.(this is a good time to solicit help from someone to help balance the bike) When loading the bike, it might be necessary to lean the bike to get clear of the inside VSB and get it up on the carrying tray. If this lean is excessive or a risk of tipping the bike over exists, call for optional detachable VSB, Part no: S, so that it can be installed after the bike is up on the carrier. Note: if turns out you cannot find a suitable place to arrange the VSB as it seems to interfere with the motorcycles controls i.e. brake lever or shift lever, I can provide an offset bracket, Part no. R, to move it left or right 6.5" from the attachment point.

Step 13. Push the outside VSB **tight** against the bike and tighten the T bolt M against the adaptor bar. Tie a lashing strap or cam buckle against the two washers on the top of the VSB's to secure it tight. You should have very little sway on the bike at this point.

Step 14. Tiedown the front handlebars to Part I(the HSB) with (2) cam buckle type strap securing them against the washers. The use of soft ties to tie to the handlebars are recommended over using the steel hooks on the handlebars. Ratcheting straps are not required here and ratcheting the straps down excessively is not recommend as this may cause premature wear to the front forks, especially on long trips.

Step 15. Use the lashing straps provided. Secure the front and rear wheels to D, the main carrying tray. Wrap the excess strap around the wheel and tie it off.

Step 16. Remove the loading ramp and check for tilting/leaning of the main tray. You may have to move the tray out of the middle position and either left or right to balance it. Once balanced, Add the two additional H bolts/nuts(this will only be required on the position further from vehicle) and tighten down all of the bolts on the receiver assembly, the E bolts. Torque to 65 ft-lbs.

Note: Scooters and some motorcycles are inherently balanced toward the rear which means moving the tray to the left might be required. To test for excessive twist(torsion) on the receiver assembly, load the bike and stand in the back of the carrier approx. 10' back and observe any leaning or twisting on the assembly. A quick test is to pull up or push down on the end of the tray to find the balance point. Approx. 25-35 lbs. of force to move it past the balance point is normal.(if not sure what 25-35 lbs feels like, use a fish scale by attaching to the loading ramp hole on the main carrying tray.

Step 17. Loading ramp storage. The loading ramp might be able to be stored on the two open ½" holes on the receiver assembly. C, CE style have their own bracketry or using the two studs. For CD style, turn the ramp on its side(flange) and use Part P to the open holes on the receiver assembly to the holes in the side of the loading ramp.

For low riders or large road bikes with min. ground clearance an optional hanging kit is available if your distance from center of hitch to ground is 18" or more(you will lose 3" of clearance when using the optional hanging kit)

DO'S

DO USE the Vertical stabilizer bars to support the bike from swaying and make sure the bike is balanced, left to right. Do Check the following for Balance:

To determine if the bike is balanced left to right, tie the bike down, remove the loading ramp and stand behind it approx. 8-10' and see if the carrier is "leaning down or up." Also, grab the main carrying tray at the tongue (or end of the tray) and see how much effort it takes to lift it to the balance point. 25-35 lbs. is normal effort to reach the balance point. The tray can be moved to the next set of holes left or right to prevent this lean which puts excessive twist stress on the carrier and the hitch.

If the bike is leaning down to the left, move the tray to the right on the hole pattern. The reference point L/R is standing behind the hitch carrier and facing the back of the hauling vehicle.

DON'TS

-Do Not Use the carrying tray mounting holes as tie down points! This may bend and/or twist the tray and void the warranty.

-Do Not Ride the bike up the loading ramp to load it onto the vehicle! The loading ramp may get deformed/bent downward. The loading ramp was not intended to have an additional 200 lb. load placed on the center of it!!

C,CE, CE Dual style carriers less than 350 lb bike, below w/single vertical sta-bars. Wrap ratcheting tie down around bike and carrying tray to "clamp" bike to the VSB.



Inside Vertical Sta-Bar, Part K

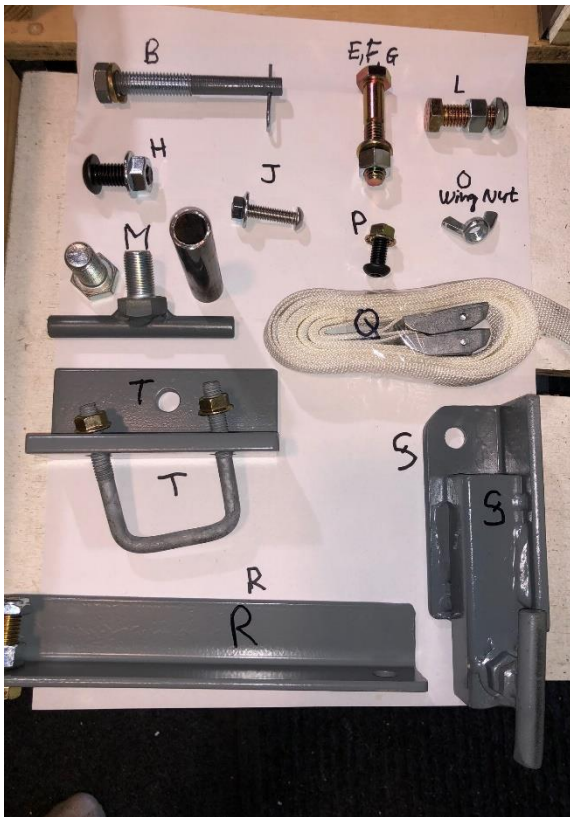
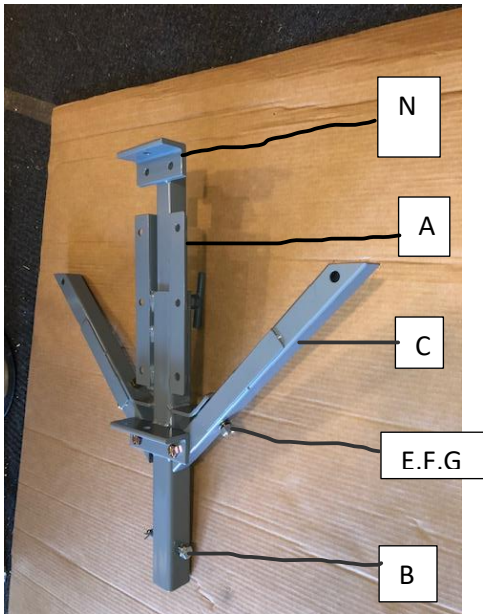


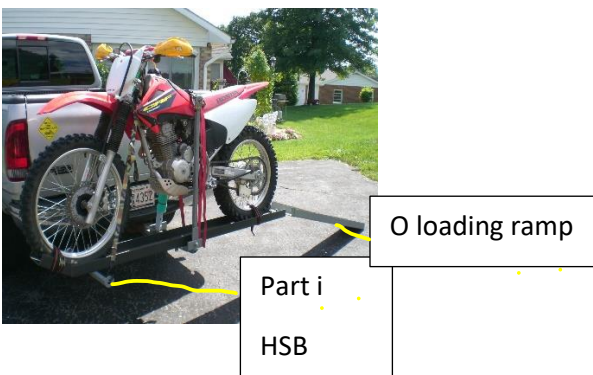
photo of parts w/letters, see photos

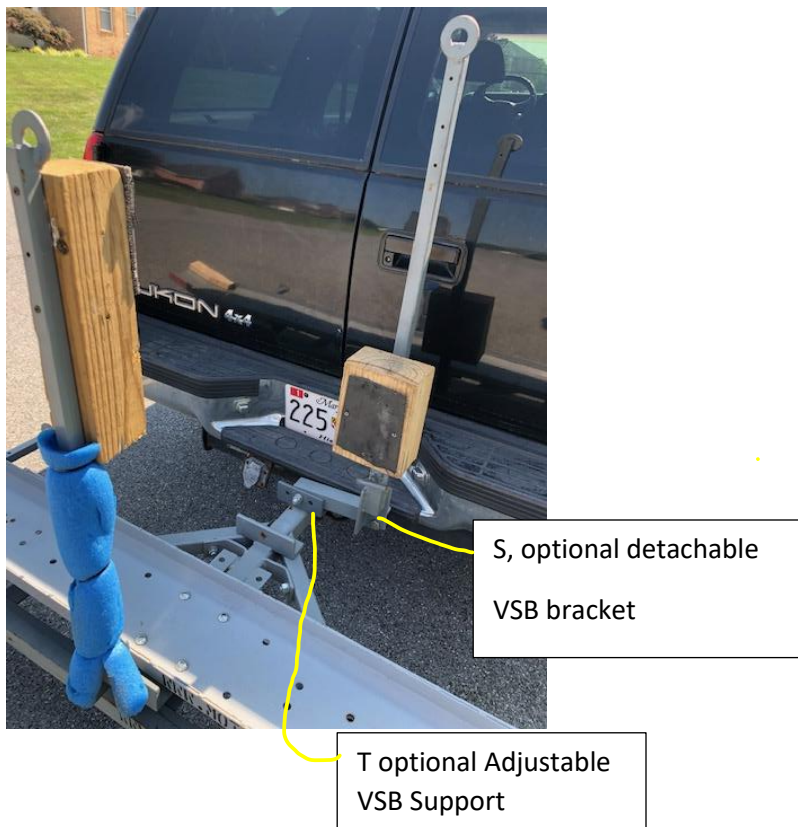
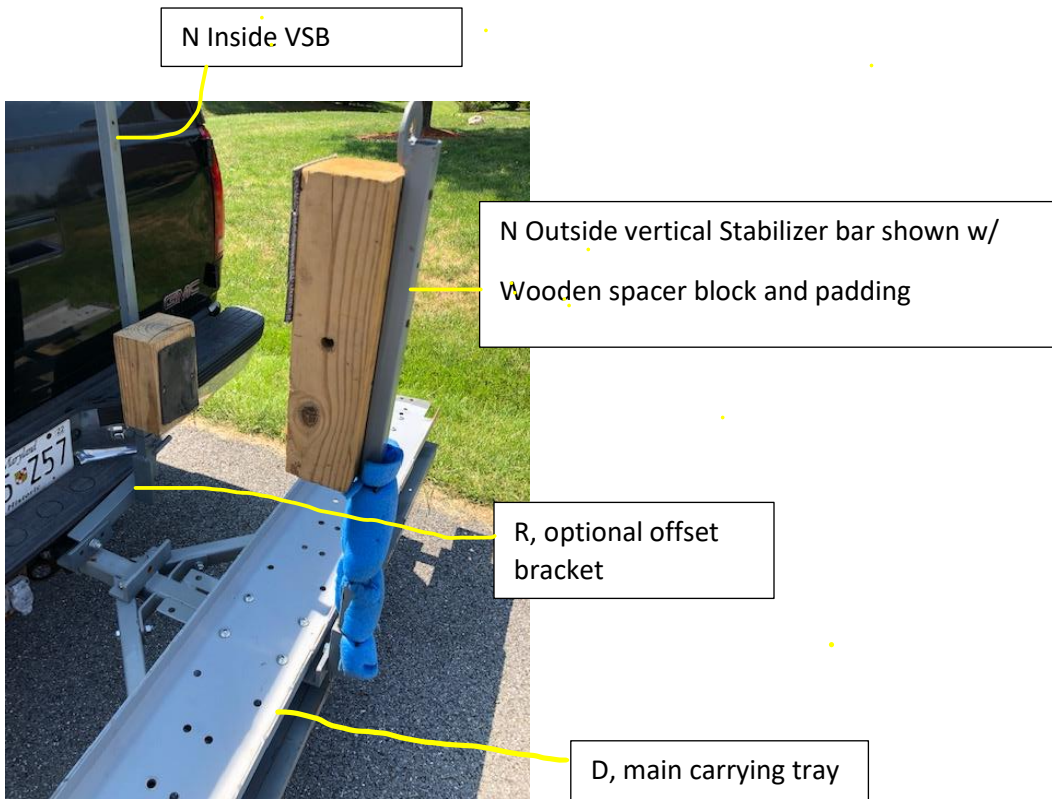


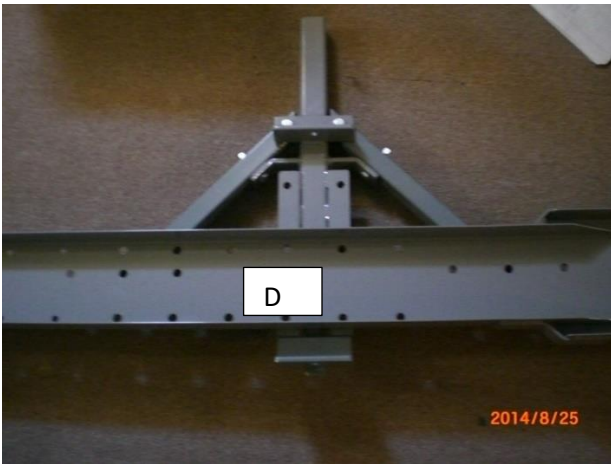
CD Receiver assembly shown in top 2

2 photos w/side supports attached

Shown upside down in photo above







Carrying Tray shown on position further from vehicle. Move Tray left to right to balance it by using available bolt pattern.

Note: less load will be placed on the vehicles suspension if you Can move the tray closer to vehicle for hauling. I recommend Moving tray closer to vehicle first and check clearance.

On newer models, 2 holes in the main carrying tray for State Tag Mounting as shown. Use 1/4-20 pan head and 3/4" long w/Flange nuts provided.



NOTES/FYI FOR TRAILERING VS MOTORCYCLE CARRIER USAGE:

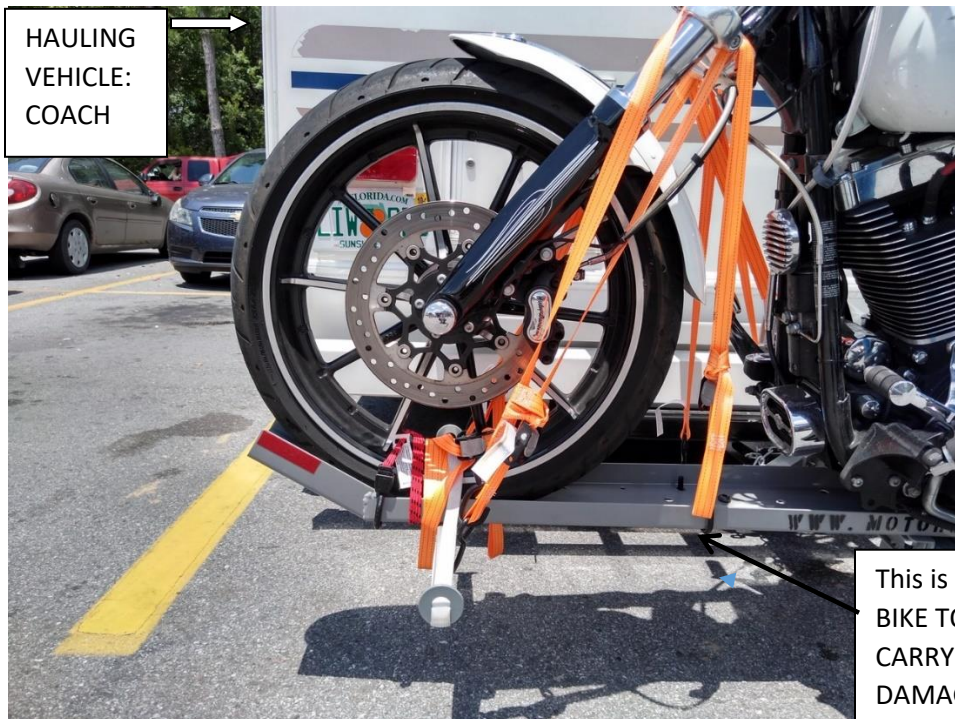
Typical Trailering tie down shown below: Transportation direction AND vehicle travel direction = same, Large footprint, rigid deck, and wide platform available with long tie down lengths on shallow angle



Typical direction of hauling vehicle travel for trailering

Motorcycle rack shown below: bike is turned 90 degrees from typical trailer hauling direction, width is limited and ground clearance can be an issue, thus the use of two Vertical Stabilizer Bars to prevent swaying.

Motorcycle is turned 90 degrees to the direction of the hauling vehicle, therefore the rules of tie down/securing the bike change!



Travel Direction

This is a no/no. DO NOT TIE BIKE TO MOUNTING HOLES! CARRYING TRAY WILL BE DAMAGED & VOID WARRANTY!

DO NOT DO THE ABOVE!

This arrangement of ratcheting bike to the mounting holes of the tray can permanently twist and bend the carrying tray and void the warranty. Also, the tie straps at the front wheel are used improperly for several reasons.

TIME SAVINGS TIPS:

1. Assemble cycle carrier on the ground to perform a basic check of fitting of all parts w/the bike and stabilizer bars. This is also good practice to learn all of the parts.
 2. Load motorcycle into carrying tray on the ground or in the grass. Prop up bike to level using a block of wood under the kickstand.
 3. Install VSB's and padding while carrier is on the ground to allow access to both sides to arrange all components.
 4. It ok to have the VSB's on an angle(they do not have to be at 90 degrees). Also note the VSB's can be reversed in the direction mounted on the angle iron to allow pivoting in the other direction.
 5. Install all fasteners to hand tight to allow quick rearrangement as the carrier is assembled.
 6. Send me photos of what you have tried if having difficult assembling the carrier.
 7. It might be necessary to lean the bike to the left side when loading to get past the inside VSB. Watch the loading video: www.motorcyclercracks.net, home page.
- Steve Slavick, owner Motorcyclercracks

DUAL MOTORCYCLE CARRIERS AND OTHER OPTIONS:



Add on Kit for raising or lowering
The carrying tray.



Raising or lowering kit here

Flat towing with receiver
hitch on the cycle carrier.



LARGE ROAD BIKES USING (2)VSB'S WITH PIPE INSULATION.
VSB'S PUSH AGAINST EXHAUST PIPE IS BEST.