



RHINO-RACK

Aerodynamic & Heavy Duty Roof Rack Systems

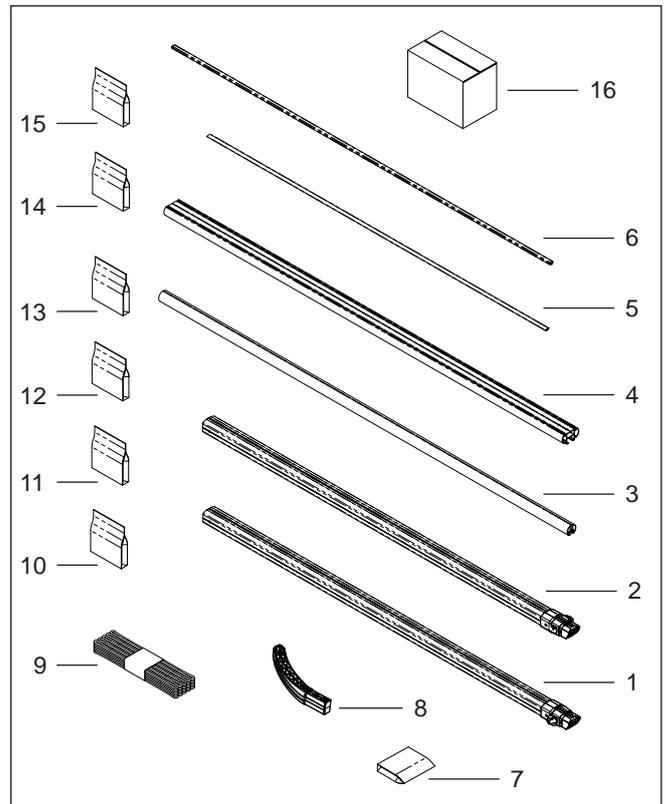
RSBL - Rhino Side Boat Loader

Place these instructions in the vehicle's glove box after installation is complete.

Important: Please read these instructions carefully prior to installation. Please refer to your fitting instruction to ensure that the roof racks are installed in the correct locations. Check the contents of this kit before commencing fitment and report any discrepancies (*Refer subsequent pages for individual hardware kit contents*).

Parts List

Item	Component Name	Qty	Part No.
1	Ramp Sub Assembly - LH	1	SBLK1-LH
2	Ramp Sub Assembly - RH	1	SBLK1-RH
3	Worm Drive Axle/Support Bar	3	A295
4	Top Sliding Bar	2	A297
5	Ramp Slip Strip	2	R049
6	Sliding Bar Slip Strip	4	R050
7	SBL Ratchet Strap	2	C626
8	Ramp Curved Piece	2	M226
9	Rope Kit	1	SBLK9
10	Ramp Hardware Kit	1	SBLK1-HW
11	Axle Bar Hardware Kit	1	SBLK2
12	Support Bar Hardware Kit	1	SBLK4
13	Top Sliding Bar Hardware Kit	1	SBLK5
14	Underslung Bracket Hardware Kit	1	SBLK6
15	Linkage Hardware Kit	1	SBLK8
16	Boxed Components	1	SBLK10
17	Fitting Instructions	1	RS-329



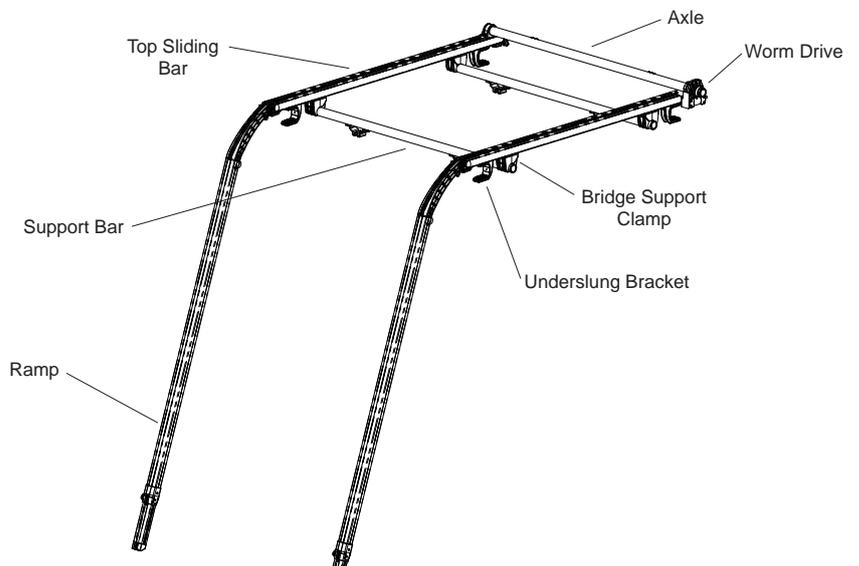
Care Instruction:

Thoroughly clean vehicle roof racks prior to fitting the Rhino Side Boat Loader.

Tools Required

Tape Measure, Hack Saw, File, Electric Drill, 6.5 & 7mm Drill Bits, Deburring Tool, Rubber Mallet, Pencil, Centre Punch, Hammer.

Layout



Before you Start Consider the Following

- 1) Do not cut anything until you read these instructions.
- 2) It's best if you can place the roof rack crossbars as far apart as possible (track/gutter mount models only). This keeps the boat more secure on the roof bars.
- 3) To avoid seat damage the top sliding bars of the side boat loader ***MUST NOT be aligned*** with the boat seats. They need to be positioned either in front or behind the seats.
- 4) Assess your boats load position (as outlined in Steps 18 & 19). Having the boat incorrectly positioned may make driving the vehicle difficult.
- 5) Know the weight of your boat. Ensure the total weight of both the boat and the side boat loader does not weigh more than the maximum carrying capacity of your roof racks/vehicle (*side boat loader weighs approx. 25kg*).
- 6) Care must be taken **NOT TO OVER STRAIN** the Worm Drive when pulling boat up to end stops. Excessive force at this point can result in damage to the Worm Drive unit.
- 7) Boats with sharp lips and small radius on the gunnel can be prone to getting caught when sliding up the ramp. Observe extreme caution and consider fitting gunnel strips (*included in the kit*).
- 8) Objects within your boat that have sharp edges and located close to the ramps (eg. rowlock holders) can also jam on the ramps if the boat slides sideways. It is mandatory that these sharp edges be removed/rounded off to avoid damage to the vehicle and/or boat loader. **LISTEN TO THE WORN DRIVE** and stop if the boat jams or the worm drive sounds strained. Fitment of gunnel strips may also help in this situation (*gunnel strips included in kit*).

Note:

The Rhino Side Boat Loader is very flexible in its configuration some variations may apply to particular Boat/Vehicle configurations. Common sense must always prevail when deviating from the standard fitting instructions.

All fasteners must be tightened as follows:

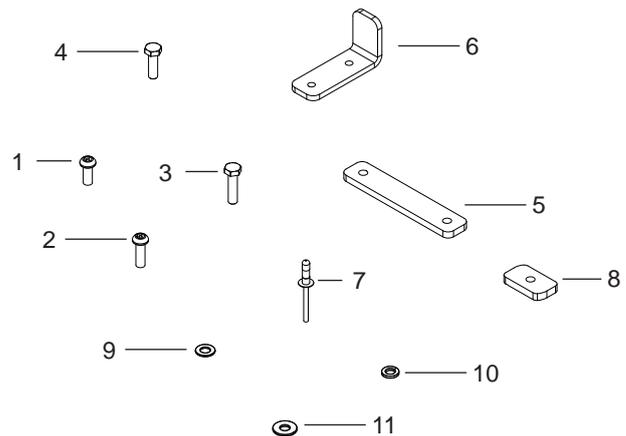
M6 Security Screws tighten to 4Nm; M6 Hex Screws tighten to 8Nm; M8 Hex Screws tighten to 15Nm.

SBLK1-HW Ramp Hardware Kit

Item	Component Name	Qty	Part No.
1	1/4 x 18mm Flange Head Screw	8	B046
2	M6 x 15mm T-Bolt	2	B095
3	M6 Eye Nut	2	C623
4	M6 Spring Washer	2	W004
5	M6 x 16mm Flat Washer	2	W031

SBLK2 Axle Bar Hardware Kit

Item	Component Name	Qty	Part No.
1	M6 x 16mm Security Screw	2	B061
2	M6 x 20mm Security Screw	2	B062
3	M6 x 25mm Hex Bolt	2	B067
4	M6 x 20mm Hex Bolt	2	B082
5	Plate Nut Large	2	C396
6	Gunnel Stop Post	1	C625
7	5mm Rivet	2	H008
8	M6 Channel Nut	4	N002
9	M6 x 12.5mm Flat Washer	6	W003
10	M6 Spring Washer	8	W004
11	M6 x 16mm Flat Washer	4	W031

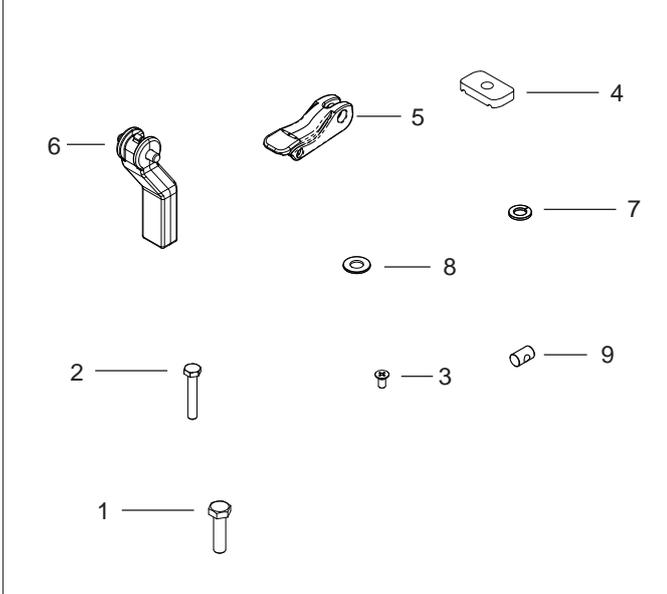


SBLK5 Top Sliding Bar Hardware Kit

Item	Component Name	Qty	Part No.
1	M6 x 16mm Security Screw	4	B061
2	SBL Plate Nut	2	C593
3	M6 Spring Washer	4	W004

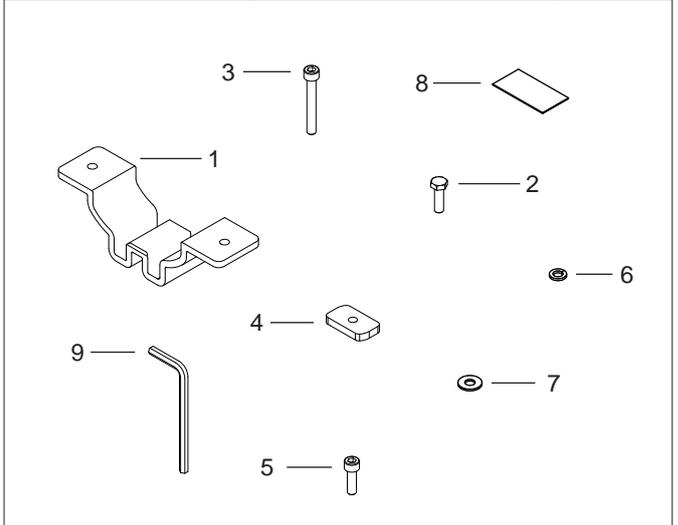
SBLK6 Underslung Bracket Hardware Kit

Item	Component Name	Qty	Part No.
1	M8 x 30mm Hex Bolt	4	B026
2	M6 x 35mm Hex Bolt	4	B100
3	M5 x 10mm Countersunk Screw	2	B164
4	M8 Channel Nut	4	N003
5	OC Lever	4	M196
6	Swing Arm Assembly (with Pin)	4	SUB0238
7	M8 Spring Washer	4	W019
8	M8 x 17mm Flat Washer	4	W020
9	M6 Dowel Nut (Centre Thread)	4	N027



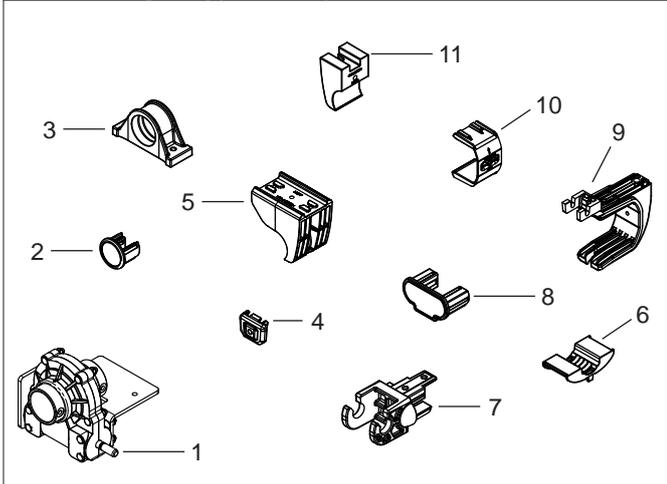
SBLK4 Support Bar Hardware Kit

Item	Component Name	Qty	Part No.
1	SBL Saddle Clamp	4	A370
2	M6 x 20mm Hex Bolt	8	B082
3	M6 x 45mm Skt Hd Cap Screw	4	B038
4	M6 Channel Nut	16	N002
5	M6 x 20mm Skt Hd Cap Screw	8	B054
6	M6 Spring Washer	20	W004
7	M6 x 16mm Flat Washer	20	W031
8	Insert Bumpon Tape	4	C624
9	5mm Allen Key	1	H002



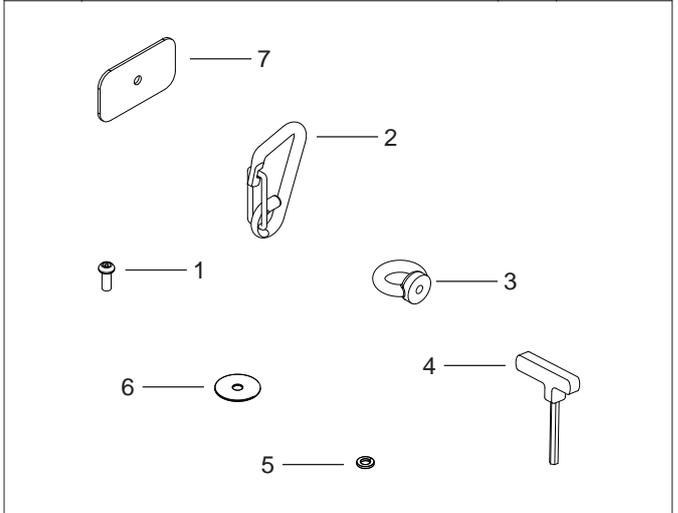
SBLK10 Boxed Components

Item	Component Name	Qty	Part No.
1	Worm Drive Assembly	1	SBLK3
2	Axle & Support Bar End Cap	6	M230
3	Pillow Block Bearing	1	M232
4	Rope Retainer	2	M346
5	Bridge Support Clamp Outer Ass.	4	M397
6	Saddle Clamp Insert	4	M345
7	Ramp Hook Connector	2	M227
8	Sliding Bar End Cap	2	M231
9	Underslung Bracket	4	M347
10	Underslung Insert	2	M349
11	Bridge Support Clamp Inner Assem.	4	M398



SBLK8 Linkage Hardware Kit

Item	Component Name	Qty	Part No.
1	M6 x 16mm Security Screw	4	B061
2	Snap Hook	6	C086
3	M6 Eye Nut	4	C623
4	Security Key Short	1	SECKEY-S
5	M6 Spring Washer	4	W004
6	1 1/4" Flat Washer	4	W029
7	M6 Plate Washer	4	C664



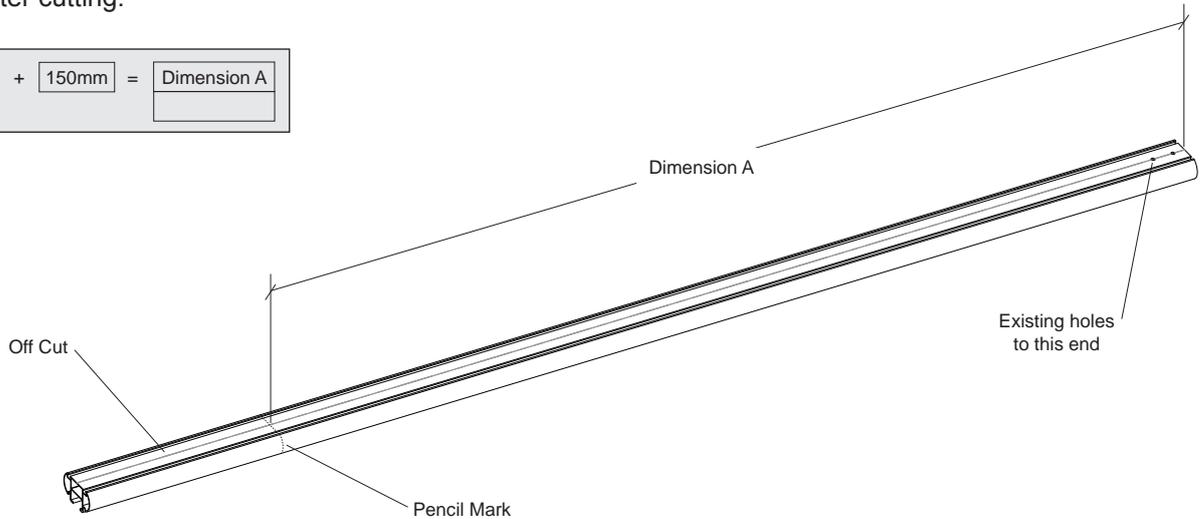
SBLK9 Rope Kit

Item	Component Name	Qty	Part No.
1	SBL Rope Long 7.5m	2	C549
2	SBL Rope Short 2.5m	2	C631

1 Mark & Cut Top Sliding Bars:

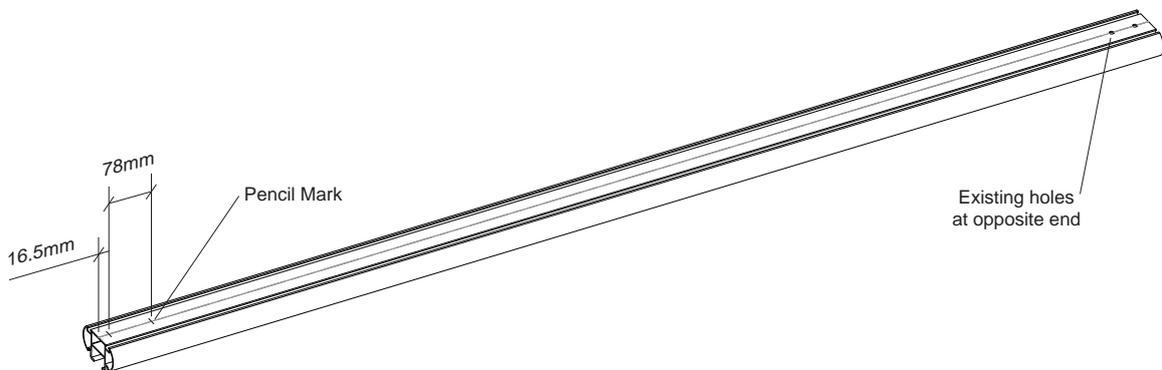
Measure the width of the boat at its widest point and calculate the formula below. Proceed to measure and mark the two top sliding bars as indicated, ensuring that the existing holes at one end are not cut off. Cut to size using a drop saw or hack saw, if using a hack saw be sure to keep the cut as square as possible and remove any sharp edges with a file after cutting.

Boat Width	+	150mm	=	Dimension A



2 Drill Top Sliding Bars:

Measure and mark the appropriate drill locations with a pencil as detailed in the image below. With a hammer and centre punch, punch the pencil marks within the centre groove on the extrusion. Drill with a 7mm drill through the top surface only and deburr the holes after drilling. If you do not have a deburring tool you can run a file down the inside of the extrusion to remove any large burrs.

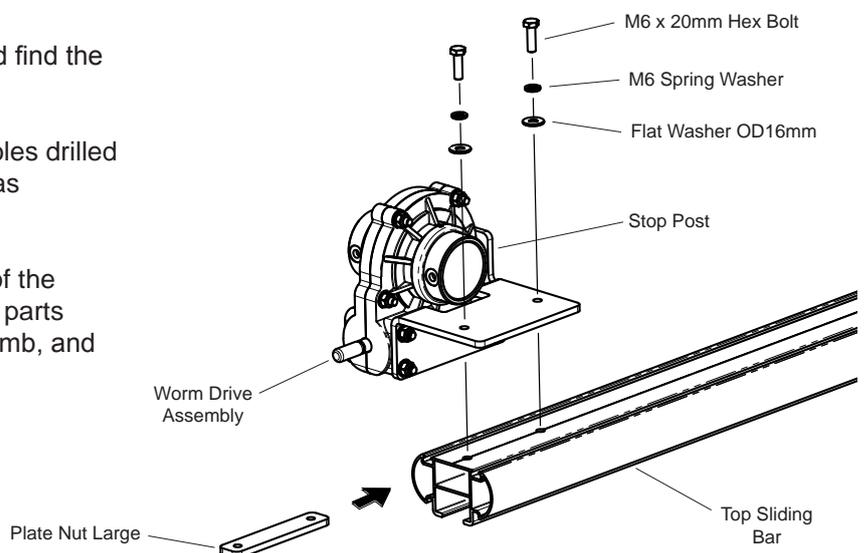


3 Attach Worm Drive:

Open the axle bar hardware kit (SBLK2) and find the appropriate hardware.

Place the Worm Drive Assembly over the holes drilled in step 2, with the stop post facing inwards as displayed.

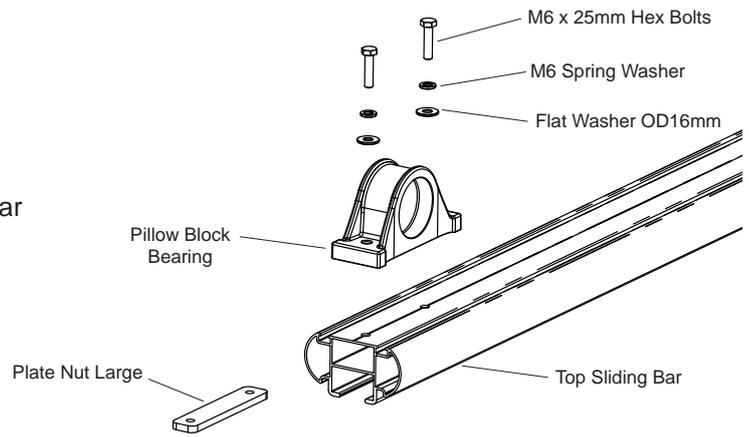
Slide the Plate Nut Large into the centre channel of the Sliding Top Bar and align all holes. Hold the parts in this position using your forefinger and thumb, and assemble with hardware as indicated.



4 Attach Pillow Block:

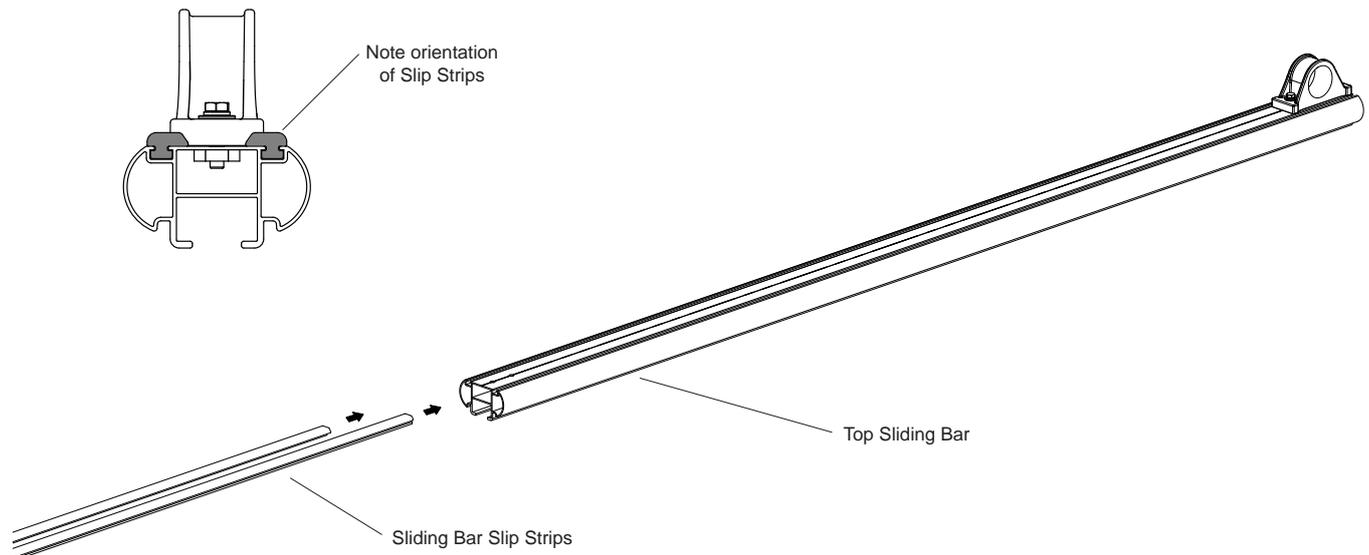
Locate the appropriate hardware (SBLK2) to attach the Pillow Block Bearing.

Place the Pillow Block Bearing over the holes (drilled in Step 2) of the second Top Sliding Bar. Slide the Plate Nut into the centre channel of the Top Sliding Bar and align all holes. Hold the parts in this position and assemble with hardware as indicated.



5 Insert Slip Strips:

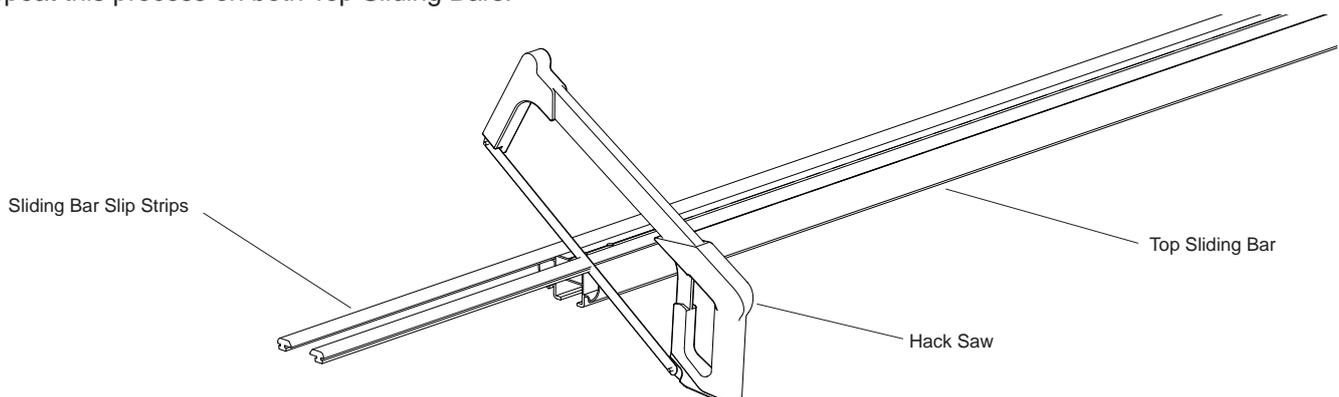
Slide the appropriate Slip Strips into the Top Sliding Bar taking note of the orientation detailed below. Slide the Slip Strips all the way until they can go no further. Repeat this process on both Top Sliding Bars.



6 Cut Slip Strips:

Ensure that both Slip Strips are still as far as possible within the Top Sliding Bar and hold firmly in place. Cut off the excess Slip Strip as indicated below using a hack saw. Use the end face of the Top Sliding bar as a guide by running the hack saw blade along the end face as you cut. Cut through both Slip strips.

Repeat this process on both Top Sliding Bars.

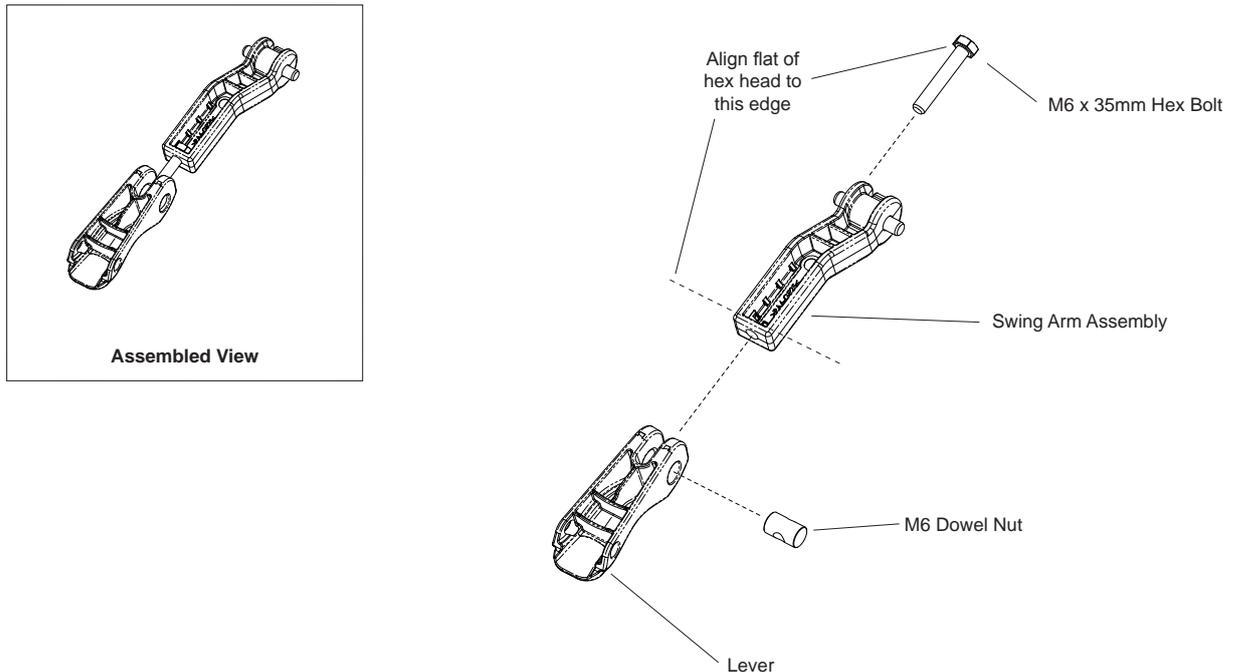


7 Fit Lever to Swing Arm:

With the hardware shown below (SBLK6) you will assemble and fit the lever to each of the four swing arms.

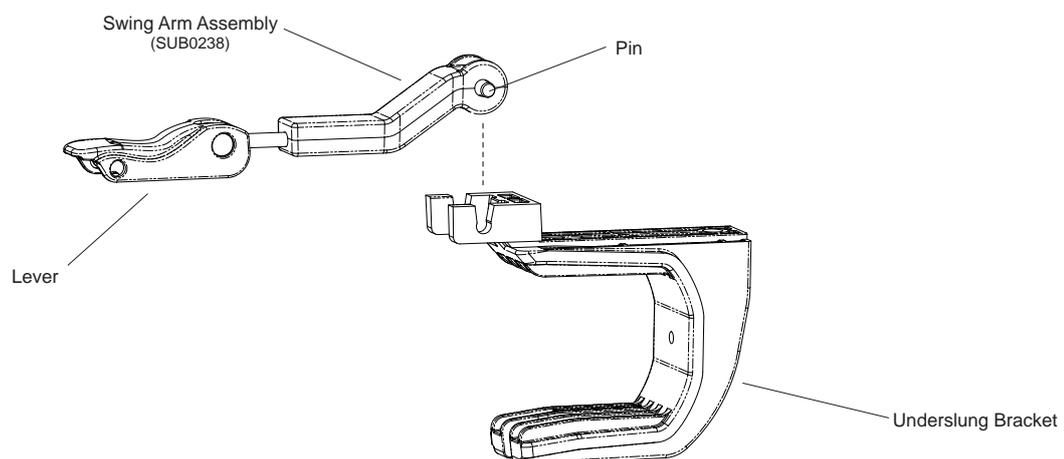
Insert bolt into hole at the end of the Swing Arm and push through. Grab the threaded end and rotate the bolt so that one flat of the hex head is parallel with the back edge of the swing arm as detailed. Pull down on the threaded end of the bolt until the head snaps in place, proceed to assemble the lever as indicated.

Note: If you are having difficulty snapping the head of the screw in place you can fully tighten the lever against the base of the swing arm to assist in pulling the bolt down into position.



8 Assemble Swing Arm:

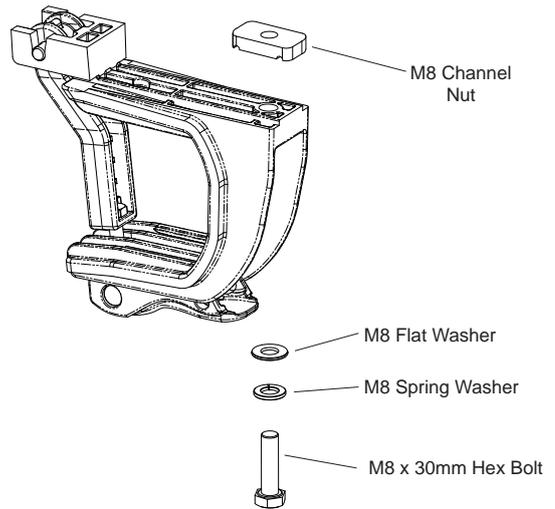
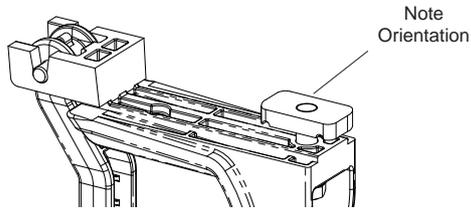
Assemble the Swing Arm with Underslung Bracket by lowering the metal pins into the Underslung Bracket as indicated, press down until it snaps in place. Repeat for all four Swing Arms.



9 Assemble Underslung Bracket Hardware:

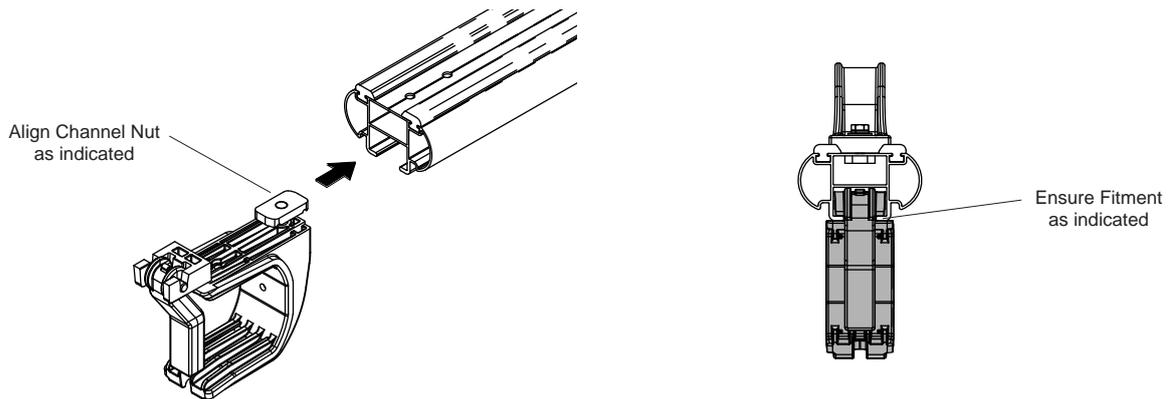
Locate the hardware kit SBLK6. Assemble hardware in Underslung Bracket as detailed.

Note the orientation of channel nut for assembly.



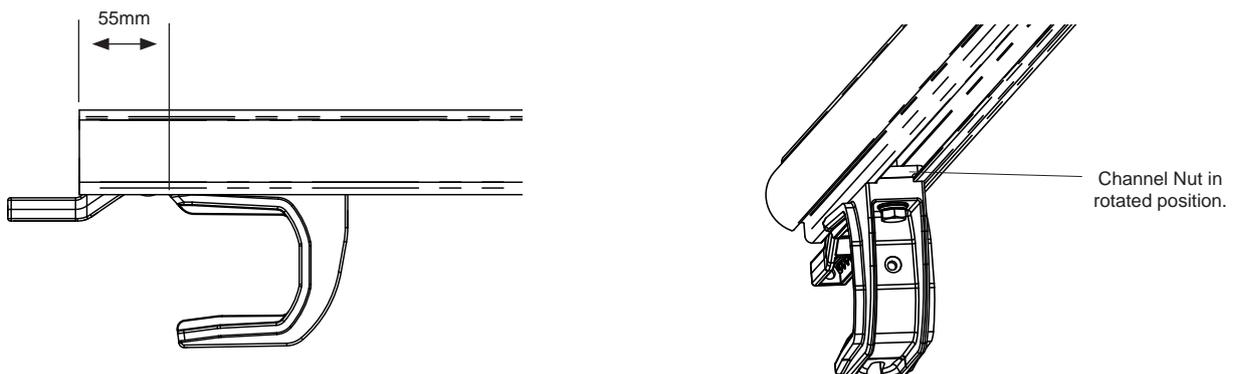
10 Insert Underslung Brackets:

Insert Underslung Brackets into the end of the Top Sliding Bars. When fitted at either end the swing arm must be oriented towards the closest end of the Top Sliding Bar.



11 Position Underslung Brackets:

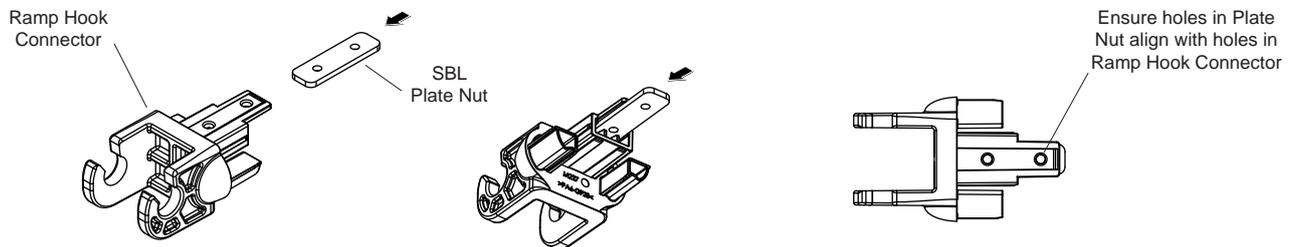
Position the Underslung Bracket to the specified location as detailed below. Tighten the M8 screw ensuring that the channel nut has rotated within the Top Sliding Bar (detailed below). Repeat steps 9 & 10 for all four Underslung Brackets, you should have a bracket at each end of both Top Sliding Bars.



12 Insert Plate Nut into Ramp Hook Connector:

Open the top sliding bar hardware kit (SBLK5). Locate SBL Plate Nut and insert into Ramp Hook Connector as indicated, repeat for both Plate Nuts. You will need to tap the Plate Nut into the moulding with a hammer.

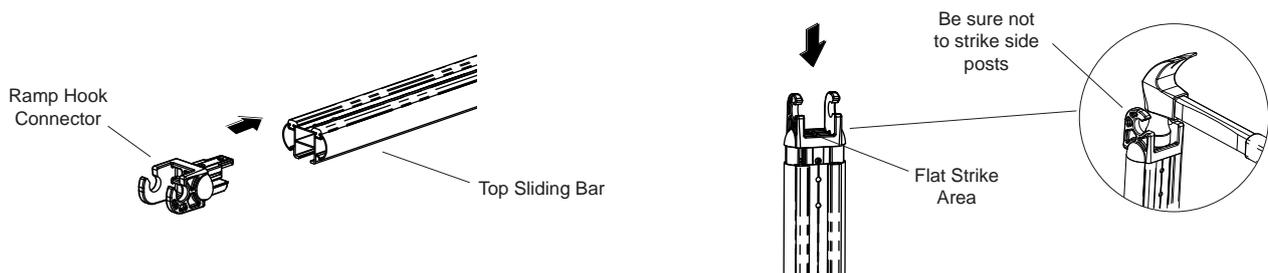
Once inserted check that the holes of the Plate Nut are aligned with the holes in the Ramp Hook Connector.



13 Insert Ramp Hook Connector into Top Sliding Bar:

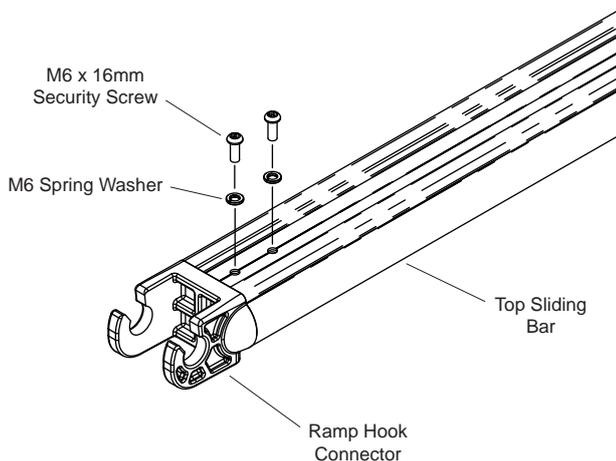
Insert the Ramp Hook Connector (assembled in previous step) into the end of the Top Sliding Bar opposite to the Worm Drive/Pillow Block Bearing as shown. Push the connector as far in as you can by hand.

Place the other end of the extrusion on the ground (preferably on a piece of cardboard) and proceed to tap the Ramp Hook Connector into the extrusion with a hammer. Be sure to hit between the two vertical prongs of the connector on the flat ribbed area. Repeat this process with the other Top Sliding Bar.



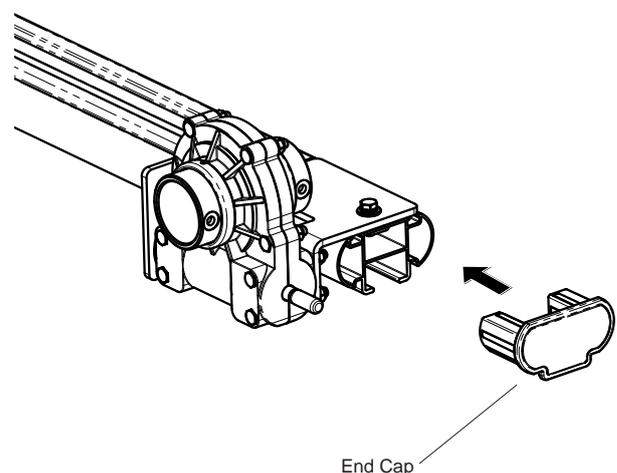
14 Fasten Ramp Hooks Connector:

Fasten the Ramp Hook Connector in place using the appropriate hardware (SBLK5) as indicated below. Tighten using security key provided.



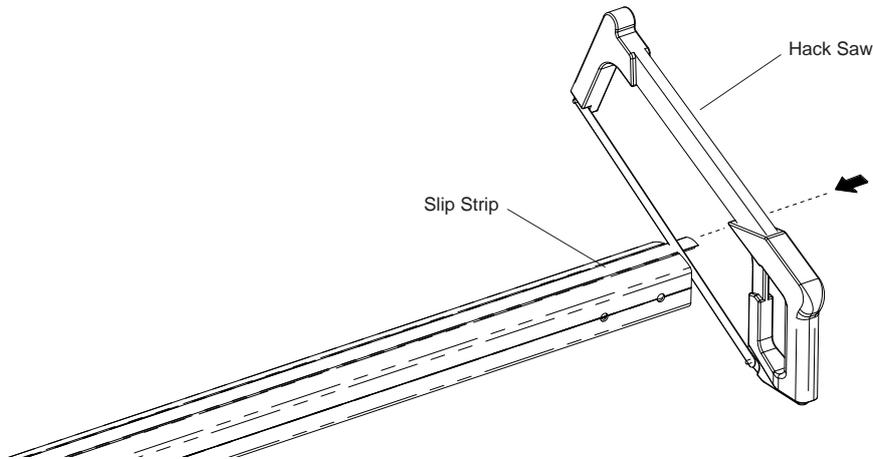
15 Insert Sliding Bar End Caps:

Insert the Sliding Bar End Cap as indicated and tap in place using a rubber mallet. Repeat process on the other Top Sliding Bar.



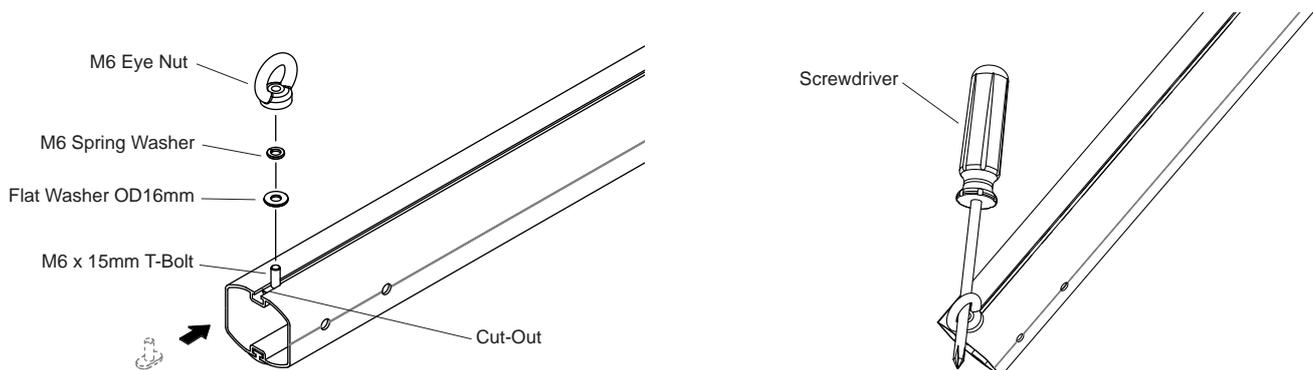
16 Cut Ramp Slip Strip:

Locate one of the Ramp Assemblies. Ensure that the Ramp Slip Strip is slid as far into the Ramp as possible and hold in place. Cut off the excess slip strip with a hack saw using the end of the extrusion as a guide for you hack saw blade. Repeat this process on both Ramps.



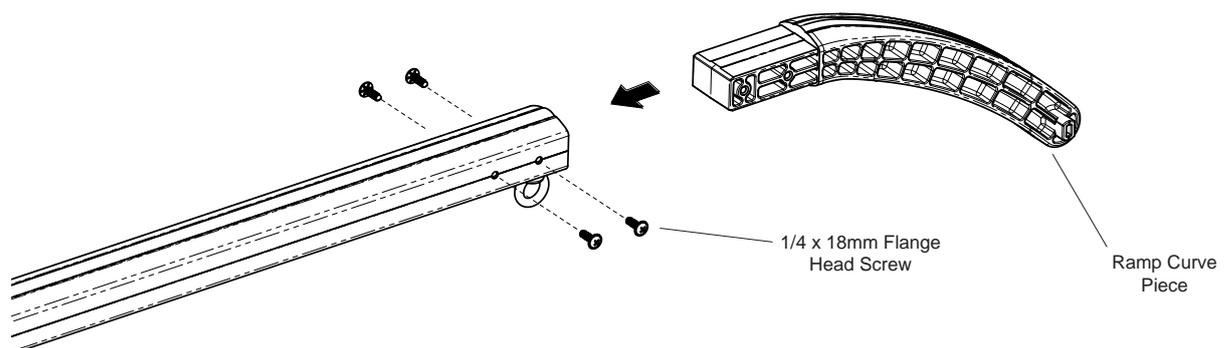
17 Fit Eye Bolt to Ramp Assembly:

Slide T-Bolt (SBLK1-HW) into the small cut-out on the under side of the Ramp Assembly as indicated. Assemble remaining hardware with Eye Nut and tighten with a screwdriver.



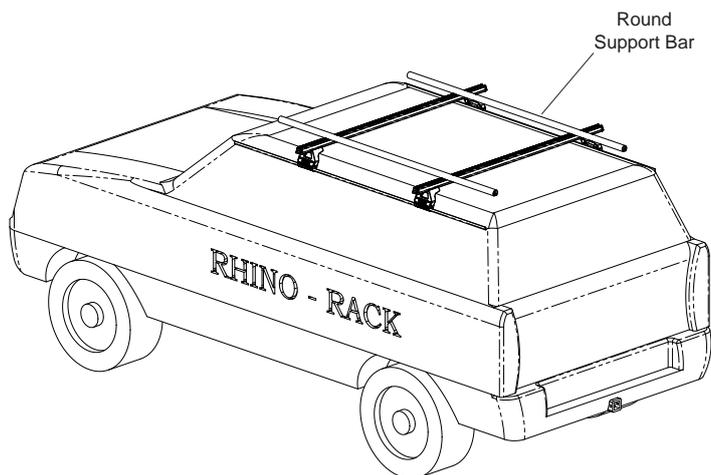
18 Insert Ramp Curve Piece:

Insert the Ramp Curve Piece into the Ramp Assembly as indicated. You may have to use a Rubber Mallet to tap into place, fasten with appropriate hardware from kit SBLK1-HW. Repeat for both Ramp Assemblies.



19 Place Round Support Bars on Vehicle

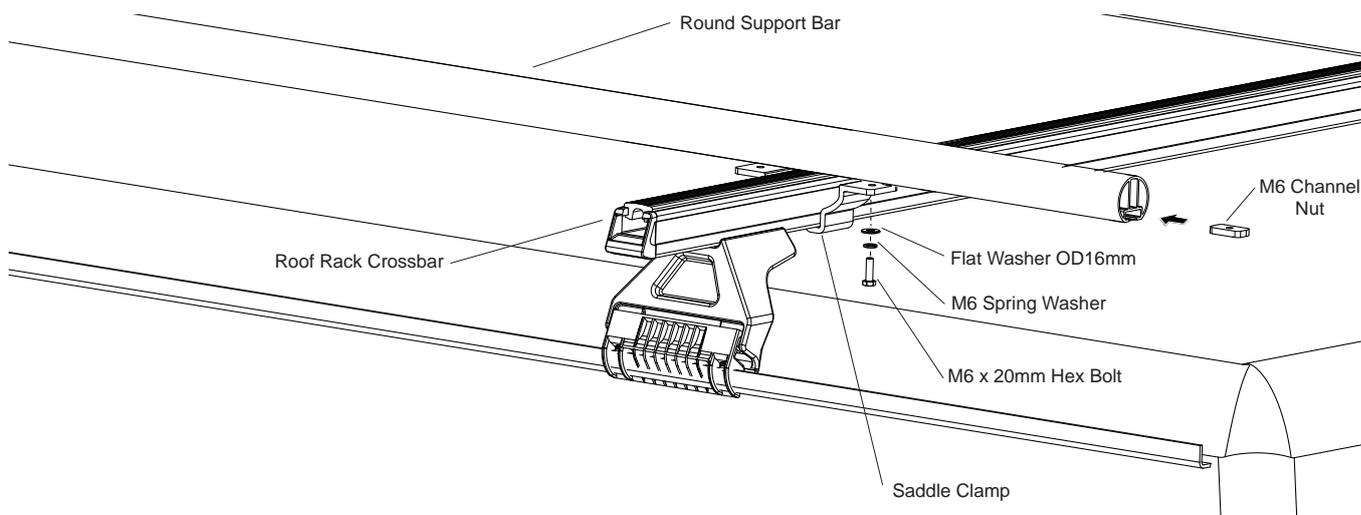
Place two Round Support Bars on top of your roof rack crossbars as indicated below. Be sure to sit the round bars with the flat face resting on the crossbars (ie. flat face down). Position the bars on the inside of the roof rack legs.



20 Loosely Attach Saddle Clamps:

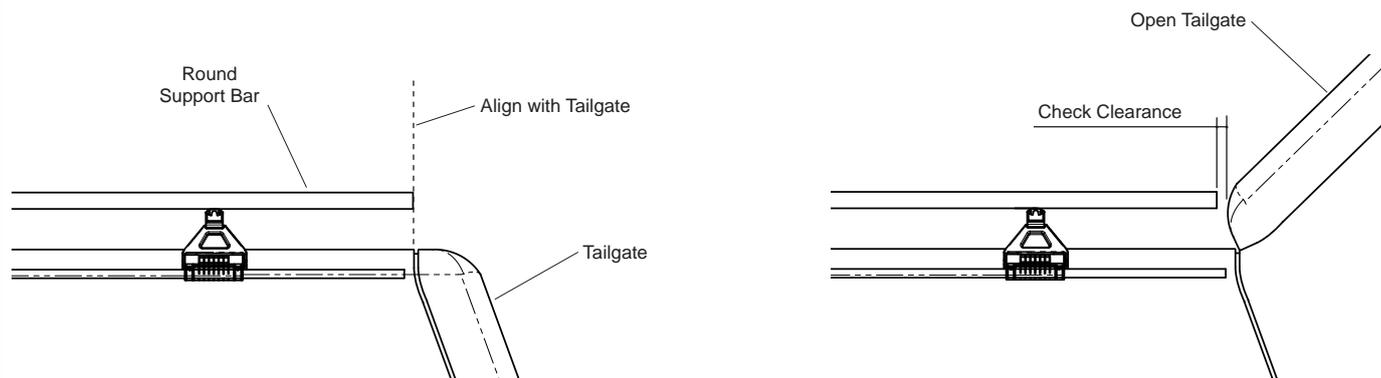
Obtain the appropriate hardware from kit SBLK4 as detailed below. Slide 2 x M6 Channel Nuts into end of the Round Support Bar as indicated. Place the Saddle Clamps underneath the roof rack crossbar, and within the roof rack legs, and align the Channel Nuts with the holes in the Clamp. Loosely fix the Saddle Clamp to the Round Support Bar with hardware as shown. Proceed to fit all four Saddle Clamps in this manner.

Note: If fitting to European Round or Square roof rack crossbars refer to Appendix B.



21 Set Rear Position of Round Bar:

Slide the round support bar until one end is in line with the inner edge of the rear tailgate as shown. Proceed to carefully open the tailgate and check that there is adequate clearance when the tailgate is fully open. Adjust position of the round support bar as required.



22 Ensure Round Support Bars are Parallel:

As shown in image 21.2 both round support bars must be parallel to each other and the vehicle. The easiest way to achieve this is to follow the procedure set here:

22.1 Measure the overhang on each side of the rear crossbar. If required adjust the overhang until it's equal on both side (*refer roof rack instructions for adjustment procedure*).

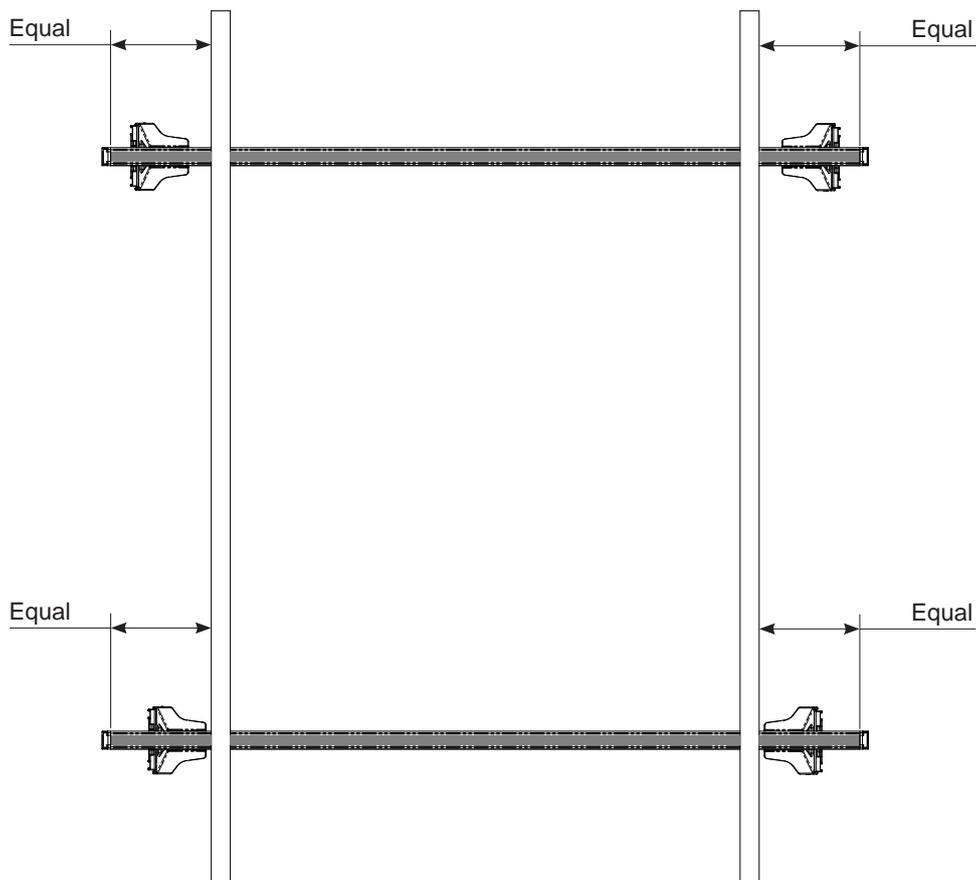


Repeat this step for the front crossbar.

22.2 The ends of each crossbar should now be parallel to the vehicle and provide an accurate point to measure from when setting the round support bars in position.

Measure from the end of each crossbar to the round support bars as shown. Adjust the support bar position until they measure equal at all four points. This will ensure that the round support bars are parallel with the vehicle.

Note: You want to set the support bars as far apart as possible whilst keeping the bars parallel.



22.3 Fasten the bolts on all four saddle clamps to secure the support bars in this position.

23 Place boat along side vehicle:

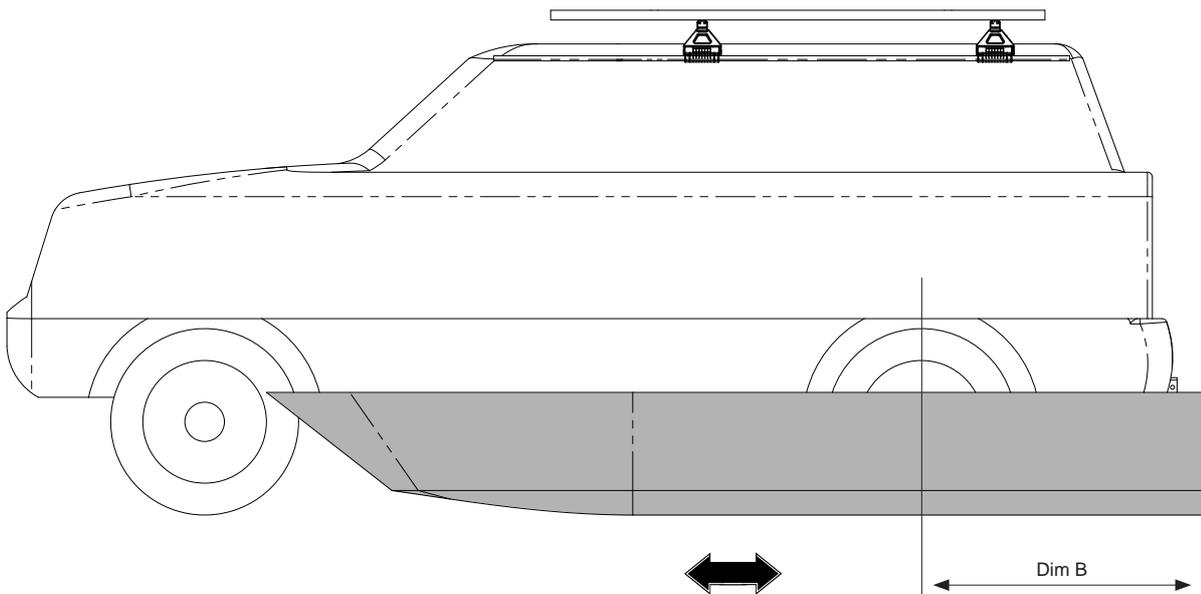
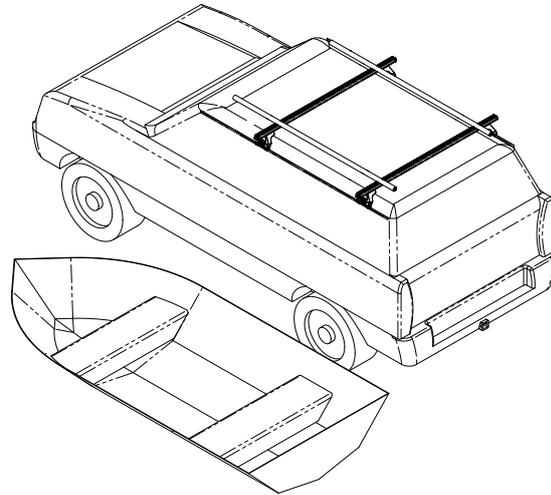
Place your boat on the ground along side your vehicle as indicated in image below.

Measure the length of the boat and calculate $\frac{1}{3}$ of this length. Measure from the rear transom of the boat forward as indicated by 'Dim B' and mark this position on the gunnel closest to the vehicle (top edge on side of boat).

Slide the boat until the mark is aligned with the centre of the rear wheel of the vehicle.

Stand back and visualise the boat in this position sitting on the roof of the vehicle. The weight of the boat should be balanced over the rear axle of the vehicle. If the current position appears unbalanced, then slide the boat to the desired location.

This is the starting position for your boat, however this position may be altered slightly at a later step.

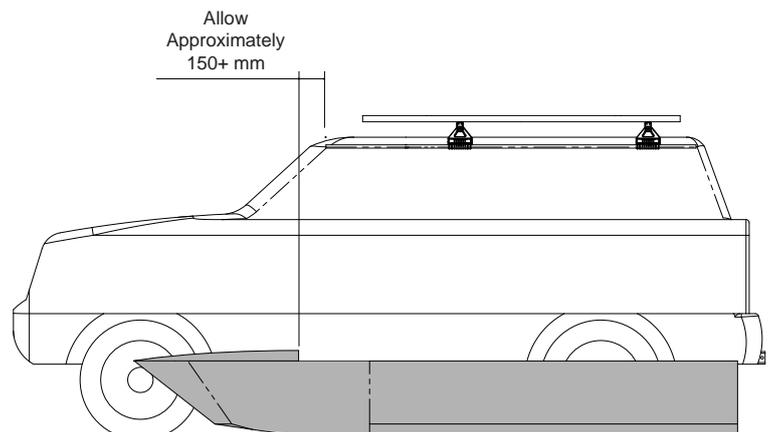


Important Note for Boats with Raised Bow Plates:

It is recommended that when dealing with raised Bow Plates the Boat be positioned as indicated.

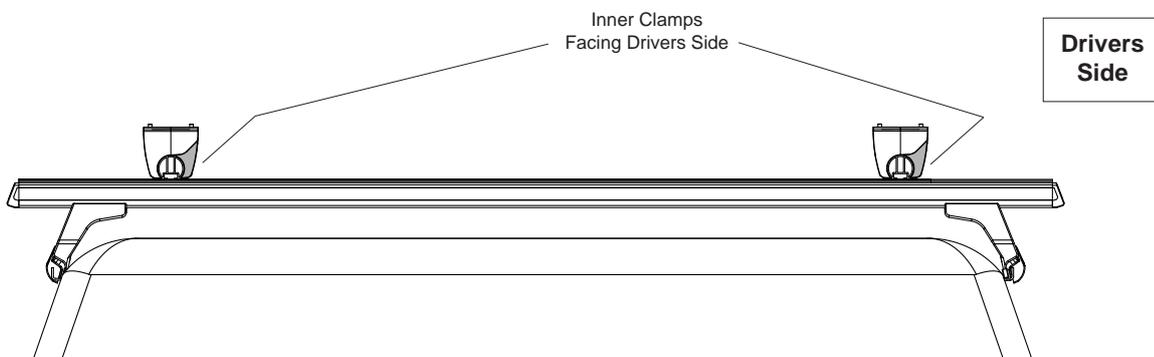
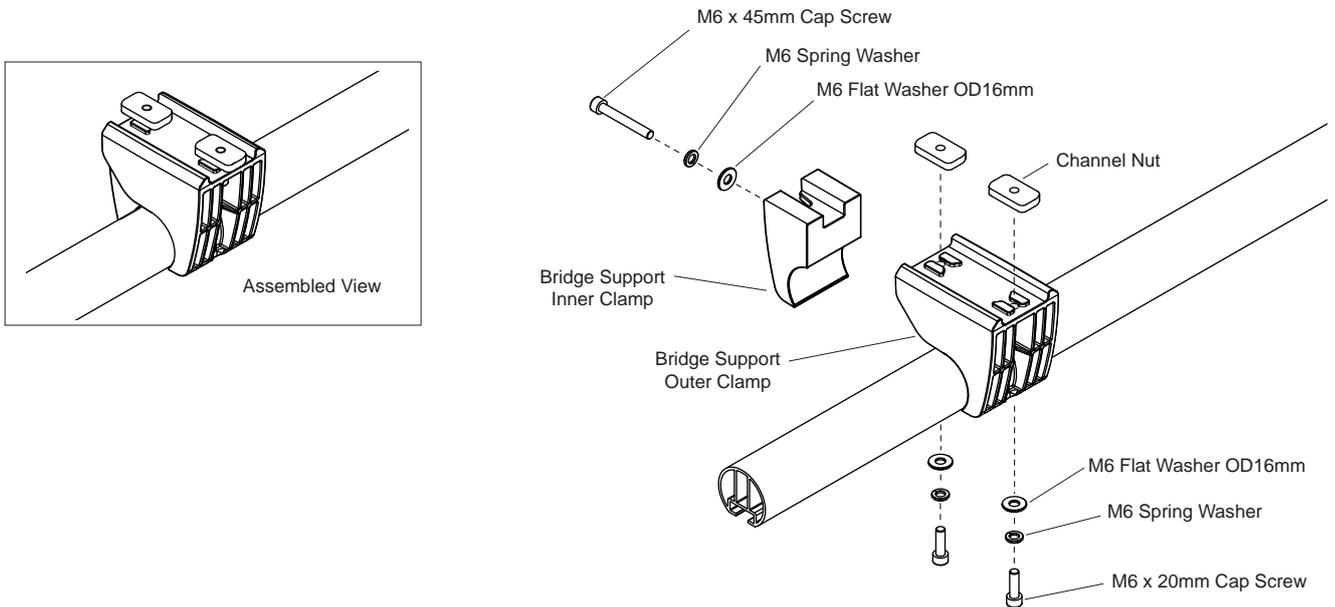
This will provide added clearance when pulling the Boat up and over the Ramps.

Note: Extra care must be taken to check this clearance when operating for the first time.



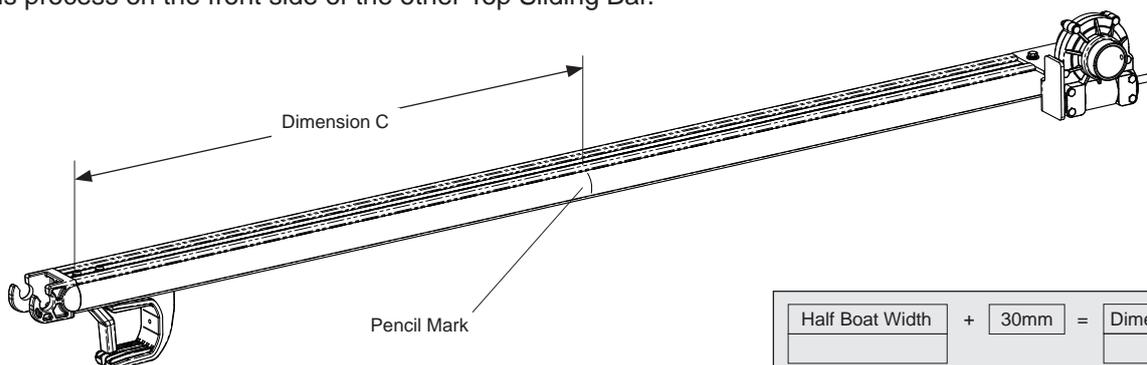
24 Fit Bridge Support Clamps:

Assemble fasteners from kit SBLK4 to the Bridge Support Clamp as indicated. Fit two clamps to each of the round support bars making sure that the **small inner clamps face the drivers side of the vehicle** as shown in image below. **Do not completely tighten at this stage**, the clamp should not spin freely but able to be rotated with a little pressure.



25 Mark Rear Top Sliding Bar:

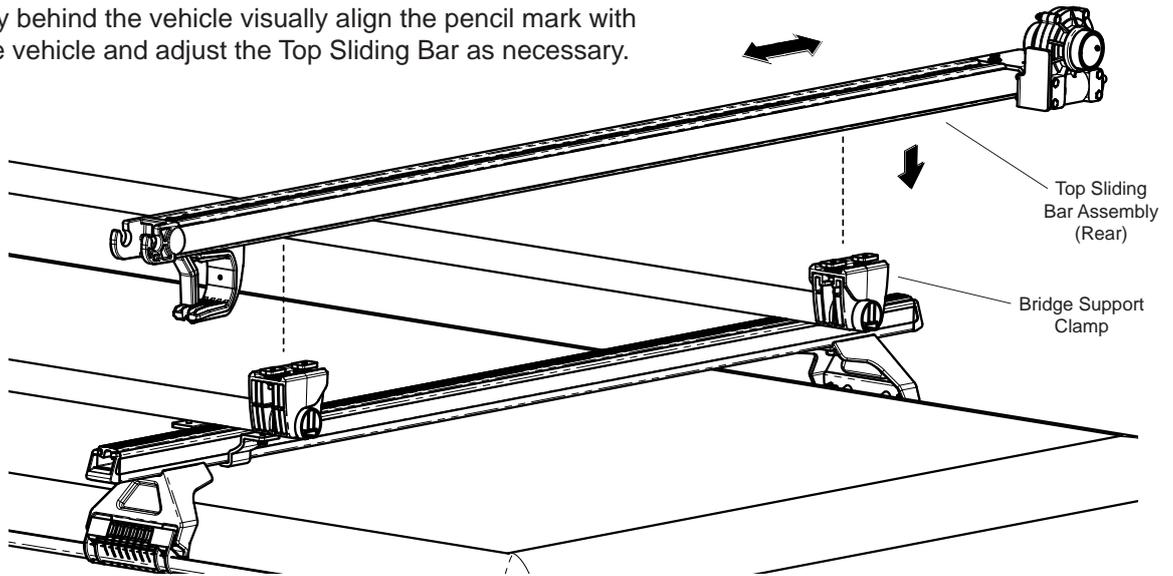
Using the formula, mark with a pencil the rear Top Sliding Bar (with worn drive fitted) as indicated below. This will give you the centre point of the boat and can be used to align with the centre of the vehicle. Repeat this process on the front side of the other Top Sliding Bar.



26 Fit Top Sliding Bar:

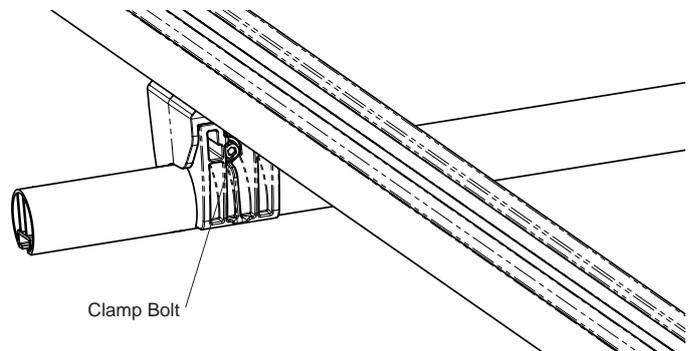
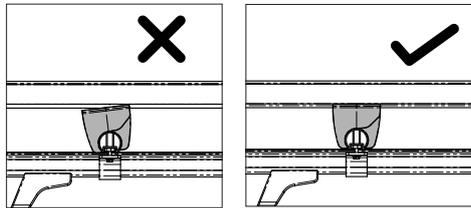
Place the rear Top Sliding Bar on top of the rear Bridge Support Clamps making sure that the Channel Nuts are aligned as detailed.

Standing directly behind the vehicle visually align the pencil mark with the centre of the vehicle and adjust the Top Sliding Bar as necessary.



27 Align Bridge Supports:

Check alignment of the bridge supports, they should sit flush with the top sliding bar as shown below. Rotate the bridge supports as necessary. Tighten clamp bolt with allen key provided.



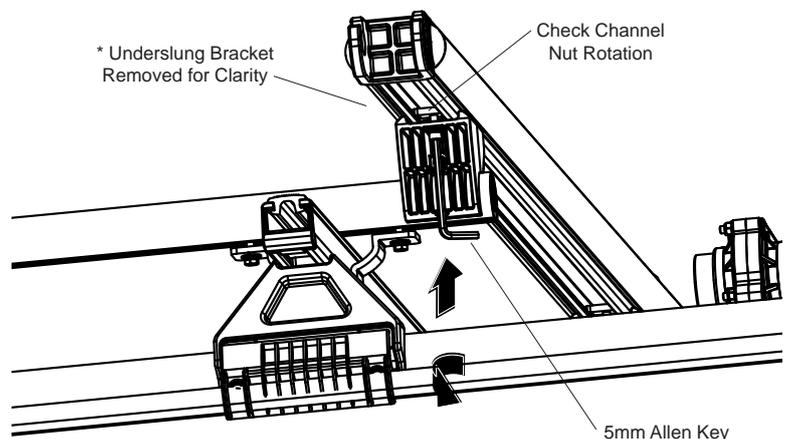
28 Fasten Top Sliding Bar:

Insert the 5mm Allen Key provided into head of the screw. Push up on the key and ensure that the Channel Nut protrudes through into the Top Sliding Bar.

Rotate the Security Key and check that the Channel Nut has rotated 90 degrees within the Top Sliding Bar as indicated. Continue to tighten the screw securely. Ensure that both bolts are fastened at each end of Top Sliding Bar.

Repeat Steps 25 to 28 on the front Top Sliding Bar matching the overhang on each side.

Note: The overhang on some vehicles may vary from front to rear crossbars due to the shape of the roof, if so take this into account.



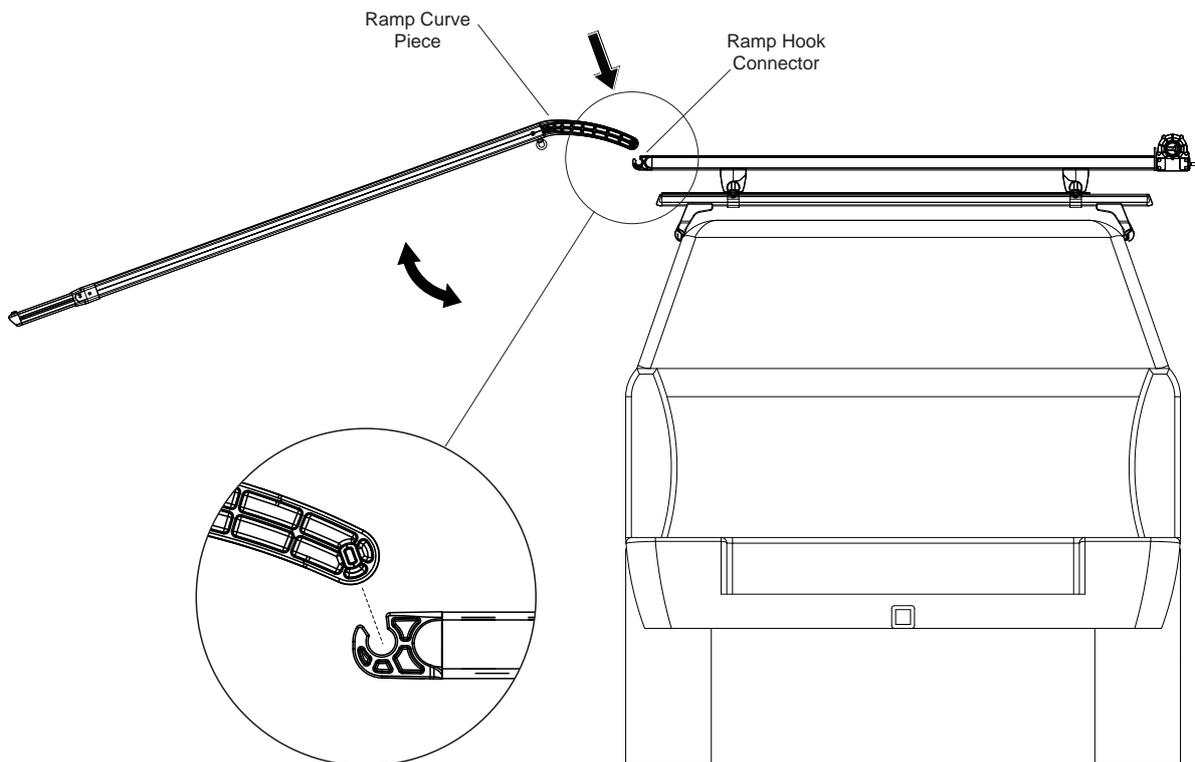
29 Connect Ramps to Side Boat Loader:

Lift the Ramp to an elevated position as indicated and slide the Ramp Curved Piece into the Ramp Hook Connector.

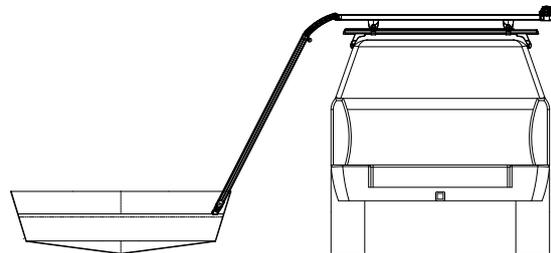
Once in position rotate the Ramp downwards to engage the Ramp securely in place. Repeat operation to connect both Ramps. **Ensure ramp is fully engaged before lowering to avoid damage.**

For safety reasons orient the knobs of each ramp so they are facing each other (ie. set knobs to the inside)

Note: Removal of Ramp is the reverse of this operation. Swing Ramp up and remove from Ramp Hook Connector.



Tip: It may be of assistance to lay the ramps against the inside edge of the boats gunnel (the gunnel closest to the car) with the ramp running into the middle of the boat. This will get the ramps closer to the seats as well as slide easily along the boat gunnel when adjusting the ramp/top bar position.



30 Loosen Bridge Support Clamps:

Loosen the bridge support clamp bolts (*previously tightened in Step 27*). You want to loosen the bolts just enough to allow the top sliding bars to be slid along the round support bars so you can easily adjust their position.

Caution: Be sure not to loosen the clamps so much that they can pop off the round support bars.

31 Position Top Sliding Bars & Ramps:

Inspect the relationship between the ramps and the boat's seat positions as indicated below. A 60mm clearance is required between the edge of the ramp and the side of the seats. This allows for the ramps and top sliding bars to run in between the seats when the boat is hauled up the ramps. If this clearance is not currently present, move the top sliding bars and ramps to the appropriate position. Be sure to keep the ramps straight and in-line with the top sliding bar. Rhino Rack recommends the distance between the top sliding bars to be in the range 1200 - 1400mm, however some exceptions may apply.

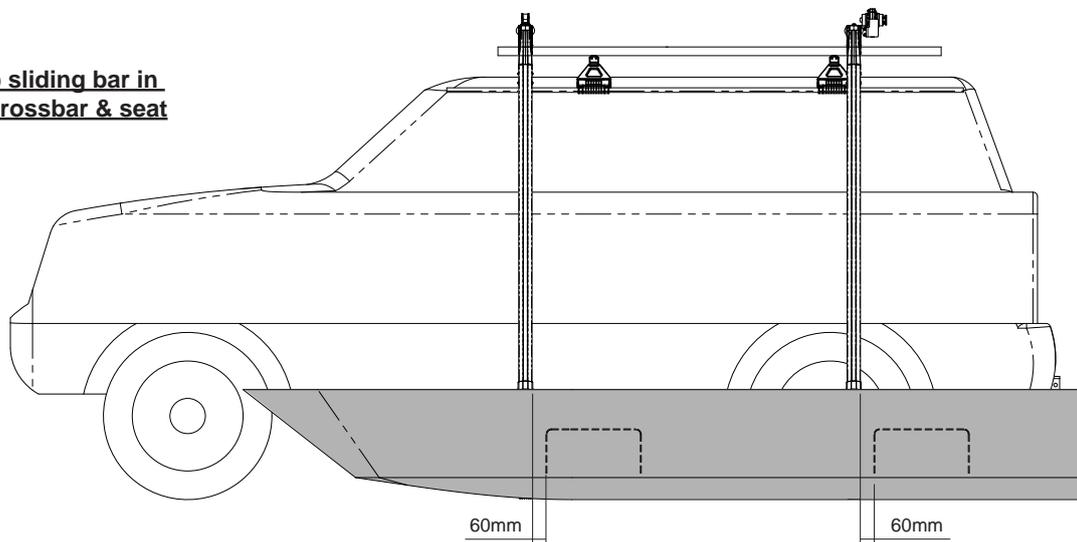
Two different configurations have been displayed below for ease of understanding.

Adjustable Roof Rack Crossbars: If your vehicle is fitted with a track or gutter mount system it is possible to move the crossbar position to assist in clearing the seats (Refer roof rack fitting instructions for adjustment). It is recommended that the crossbars be placed as far apart as possible for maximum support.

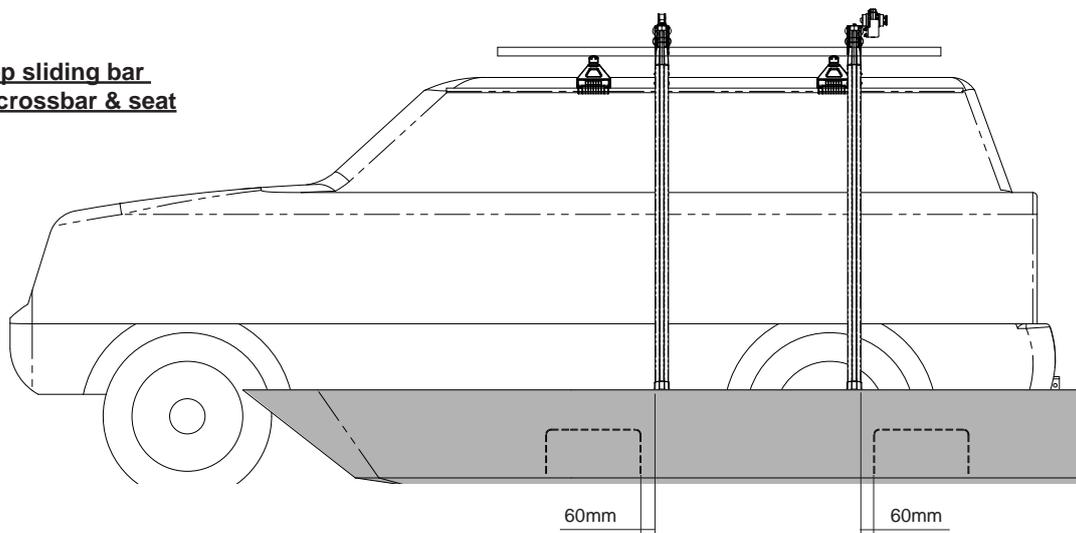
Boat Adjustment: It may also prove beneficial at this stage to move the boat's position slightly to assist the top sliding bar placement. If moving the boat slightly it must still remain in a balanced position, as detailed in Step 23.

Note: Images are a representation only. The images detailed below are a guide only and are not necessarily the recommended fitment for the vehicle shown.

Front top sliding bar in front of crossbar & seat



Front top sliding bar behind crossbar & seat

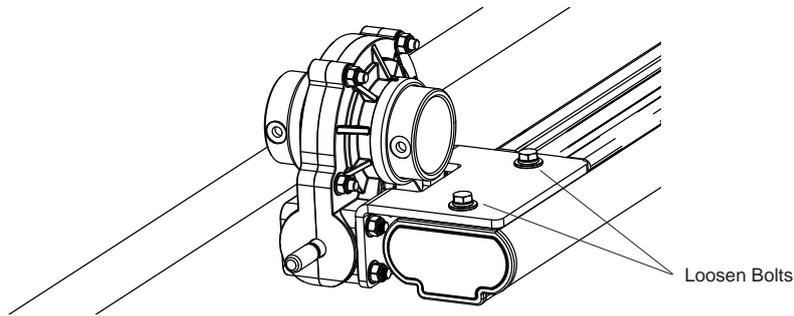


32 Tighten Bridge Support Clamps:

Re-tighten the bridge support clamp bolts (as detailed in Step 27), be sure to tighten all four bridge support clamps.

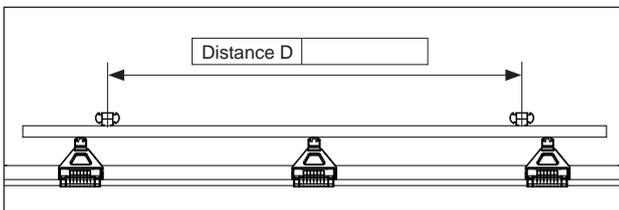
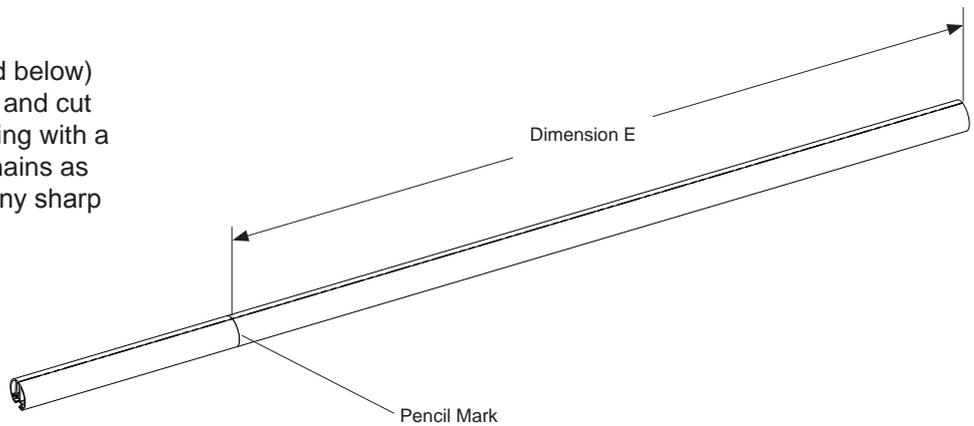
33 Loosen Worm Drive Bolts:

Loosen Worm Drive bolts just enough so you can rotate the Worm Drive from side to side. This allows for a little give/self alignment when inserting the axle into the Worm Drive.



34 Cut Axle to Size:

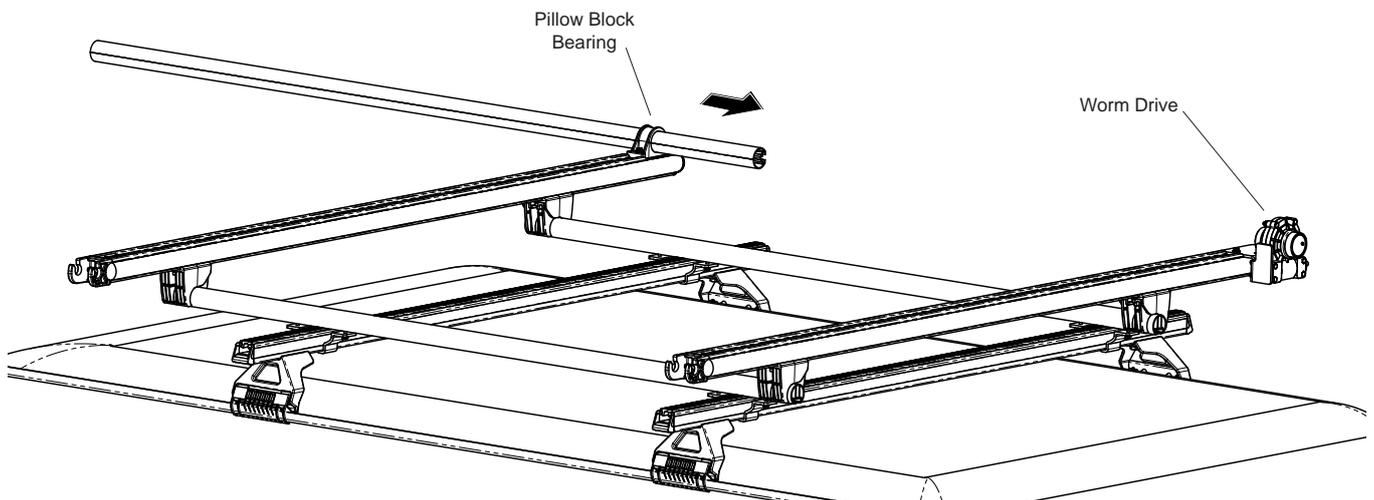
Measure distance D (as detailed below) and calculate the formula. Mark and cut the Round Bar as shown. If cutting with a hack saw ensure that the cut remains as square as possible and file off any sharp edges after cutting.



Distance D	+	300mm	=	Dimension E

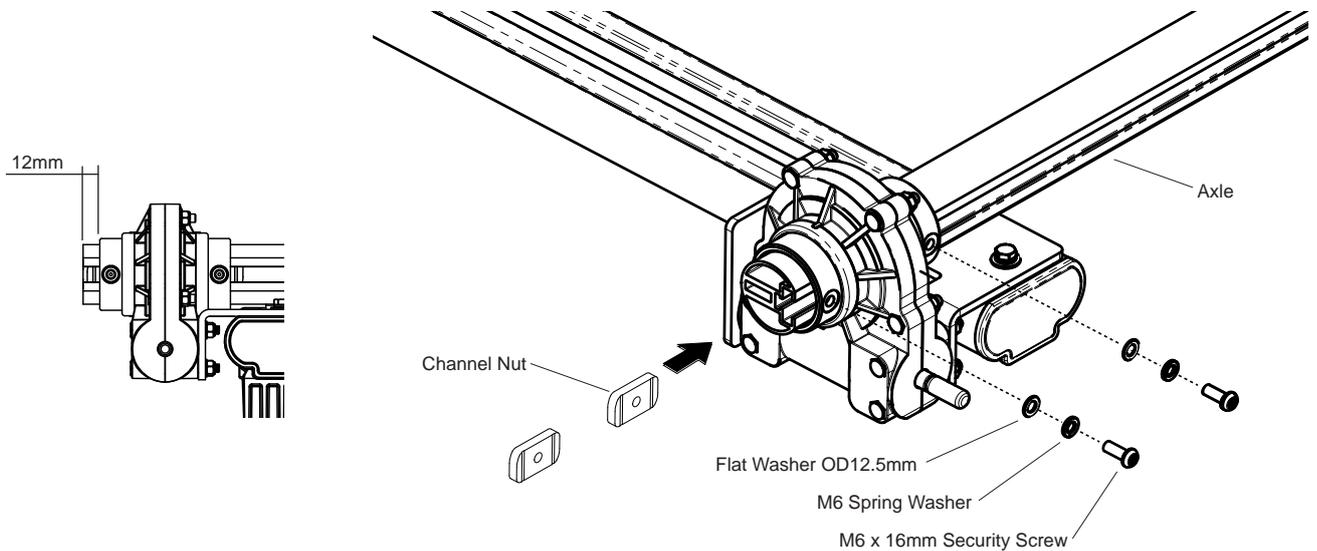
35 Insert Axle:

Take the newly cut axle and insert into Side Boat Loader, be sure to insert through the Pillow Block Bearing first to avoid scratching the axle. Proceed to slide the axle through the Worm Drive until it protrudes the opposite side.



36 Fasten Axle In Place:

Locate the appropriate hardware in kit SBLK2. Slide 2 x Channel Nuts into the axle and fasten in place with hardware as indicated. You may need to rotate the Worm Drive slightly to gain access to the mount holes, if so remove the plastic cap from the Worm Drive and attach a cordless drill to the hex drive, rotate as required. **Re-tighten Worm Drive bolts previously loosened in Step 33.**

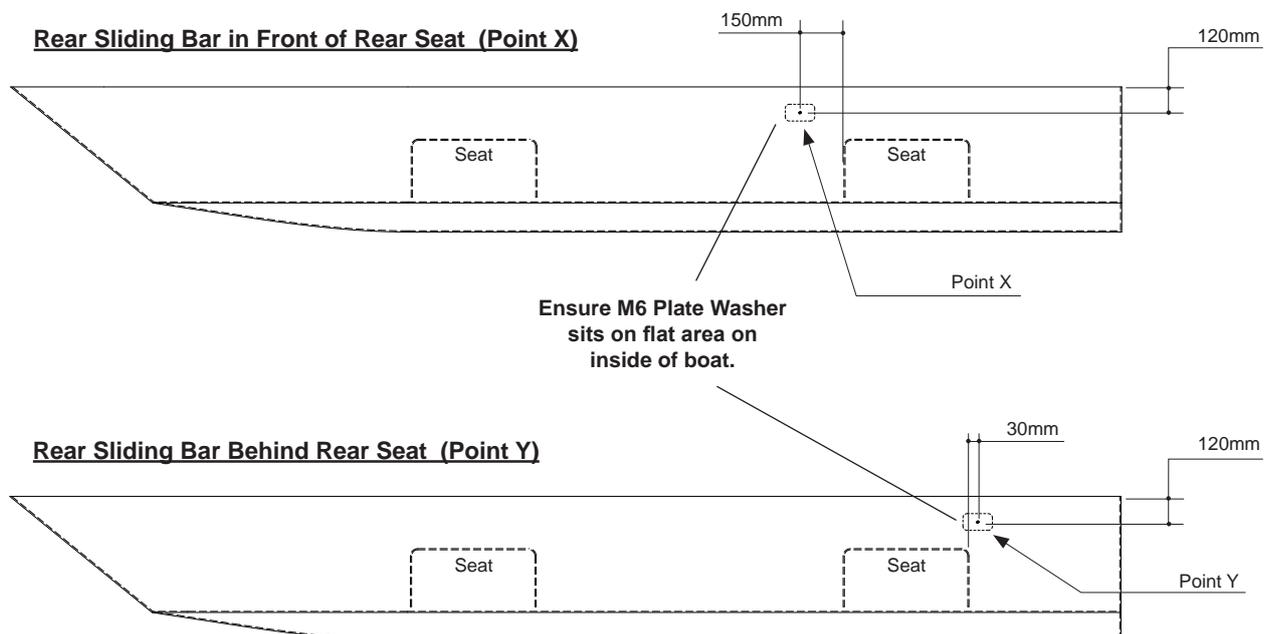


37 Drill Rear Eye Nut Locations:

Select the appropriate image below to suit your fitment. Measure and drill the Rear Eye Nut hole 120mm down from the top edge of the Boat with a 6.5mm drill as indicated. Make sure there is enough room on the inside of the boat for the M6 Plate Washer to sit flat against the boat (adjust hole position as necessary). You will need to choose the correct location based on your setup in Step 31.

- If Rear Top Sliding Bar was in front of Boats Rear Seat, mark and drill Point X **OR**
- If Rear Top Sliding Bar was behind Boats Rear Seat, mark and drill Point Y.

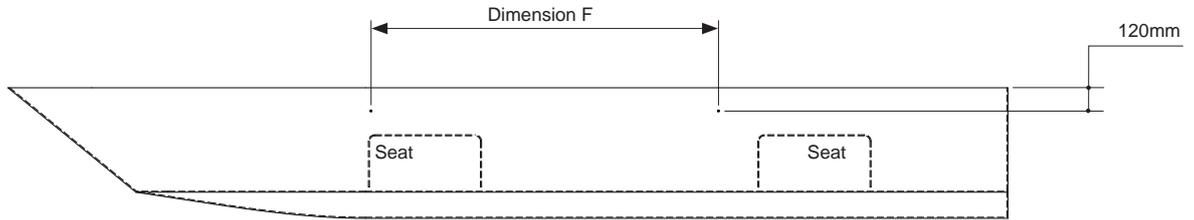
Measure and drill this location on both sides of the boat.



38 Drill Front Eye Nut Locations:

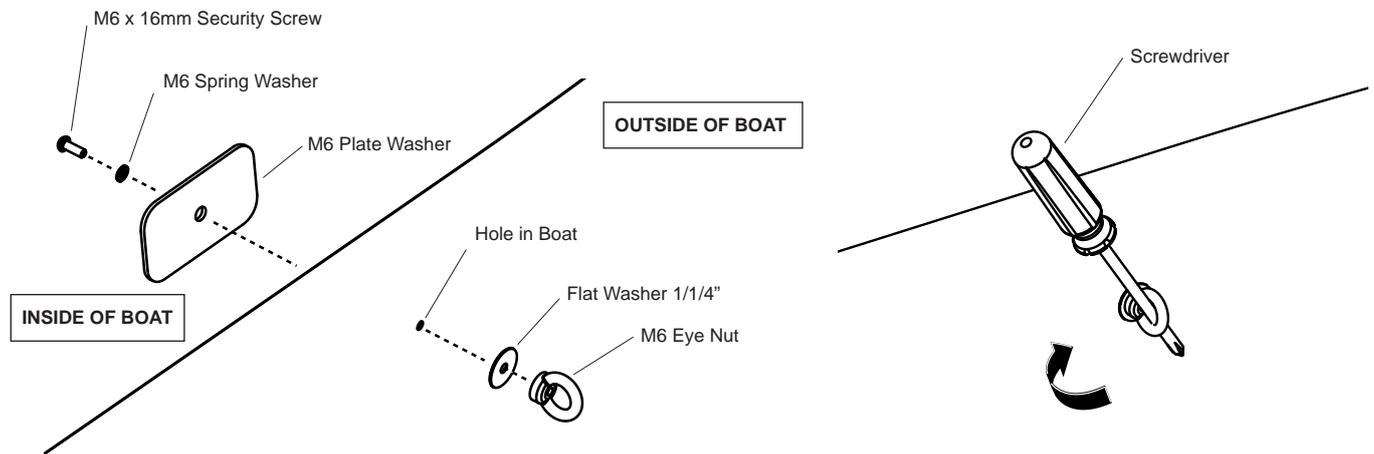
Calculate the formula below using Dimension D from Step 34. Measure, mark and drill the Front Eye Nut hole 120mm down from the top edge of the Boat, with a 6.5mm drill as indicated.

Dimension D	-	120mm	=	Dimension F



39 Fit Eye Nuts to Boat:

Fit the appropriate hardware and Eye Nut as detailed below from hardware kit SBLK8, placing the Eye Nut on the outside of the Boat. Use a screwdriver and the security key provided to tighten in place with the Eye Nut oriented vertically. Repeat process for all four Eye Nuts.



40 Extend Telescopic Ramps:

Lower vehicles may not have to extend the Ramps as the minimum length can often provide the appropriate ramp angle. Extending the Ramps on higher vehicles allows for adjustment of ramp angle, setting a shallow ramp angle can provide the following:

- More clearance of boat to vehicle
- Less strain on cordless drill
- More free-fall of boat after initial flip (steeper ramp angle is more gentle)

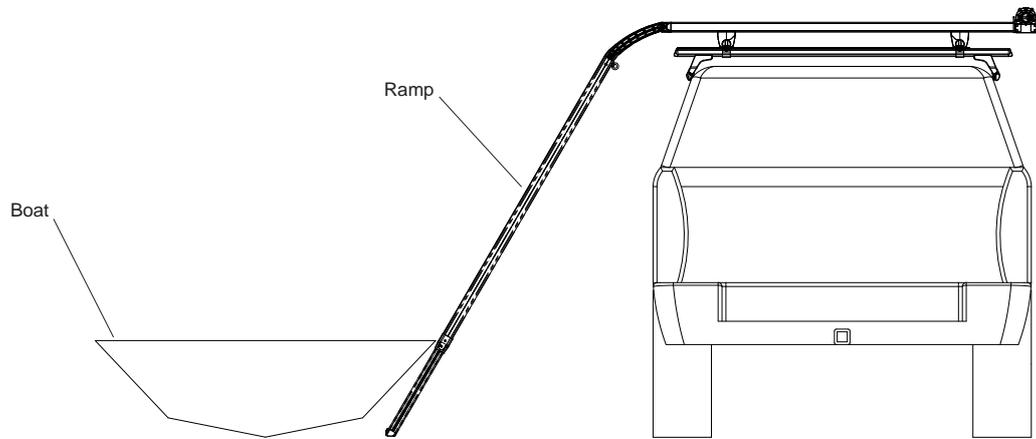
Note: Final Ramp Angle will be set and marked after the first test load of the boat. A good starting point for ramp angle would be around 30 degrees.

To adjust the telescopic Ramps simply loosen the knob on the side of the Ramp and extend the inner leg. Tighten the knob when adjusted to the desired length.



41 Place Boat Along Side Ramps:

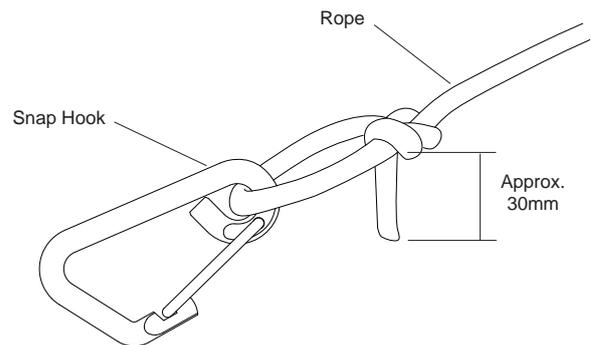
Place the Boat along side the Ramps as indicated below. Position the two Eye Nuts on the side of the Boat in between the two Ramps. Try to keep the Boat sitting parallel with the ground, rest the Boat against the Ramps if necessary.



42 Attach Snap Hook to Short Rope:

Locate one of the small ropes within the Rope Kit (SBLK9) and attach a Snap Hook (SBLK8) at one end using a Bowline Knot. Repeat this process on the second Short Rope.

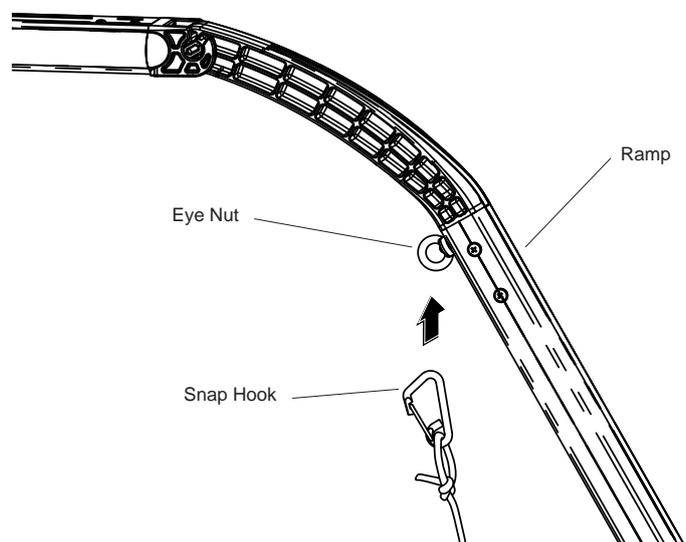
Refer **Appendix A** for instructions on how to tie a Bowline Knot.



43 Attach Snap Hook to Ramp:

Attach the Short Rope with Snap Hook attached to the Eye Bolt located at the top of the Ramp.

Attach both Short Ropes to each of the Ramps as indicated.



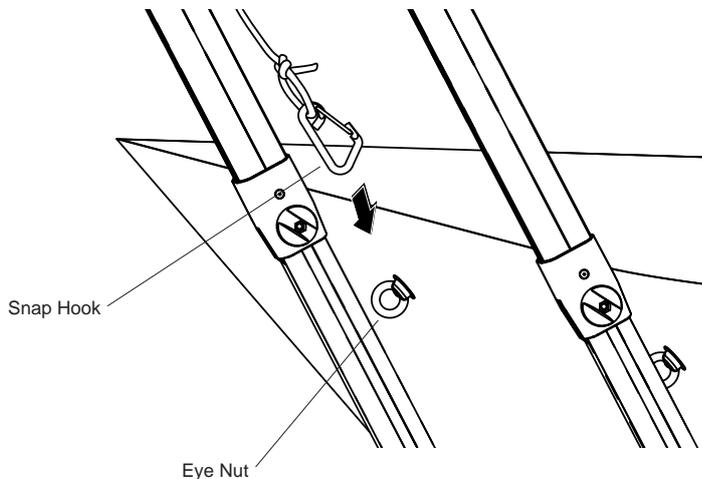
44 Attach Stay Ropes (Short Ropes) to Boat:

Stay Ropes allow the boat to flip over as soon as the main line ropes start to pull on the opposite side of the boat. This causes the boat to flip and lie upside down on the Ramps.

Pull the Rope taught between the top Eye Nut (on Ramp) and the Eye Nut on the Boat (ramp side of boat), allow a little more rope for the knot and proceed to attach a second Snap Hook to the Short Rope with a Bowline Knot (**refer Appendix A**). Do not fully tighten the knot at this stage.

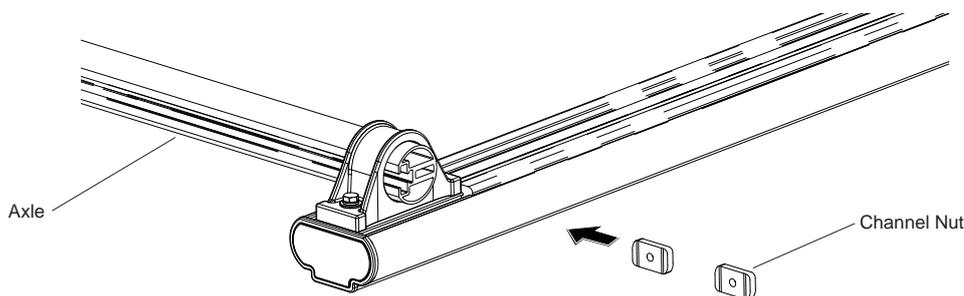
Attach Snap Hook to the Eye Nut on the Boat and adjust the knot/rope so that the line becomes taught between both Eye Nuts. Set the knot in this position.

Note: Do not cut off the excess rope at this stage as you may need to adjust the Ramp Angle which will impact on the Rope length.



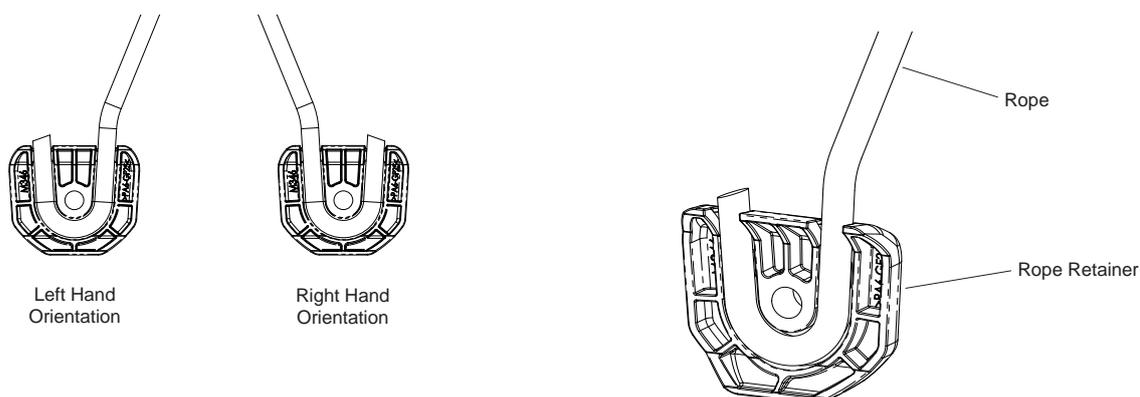
45 Insert Channel Nuts into Axle:

Insert 2 x Channel Nuts (from Kit SBLK2) into the axle as indicated below. Position the nuts roughly 600mm apart, and centred within the axle.



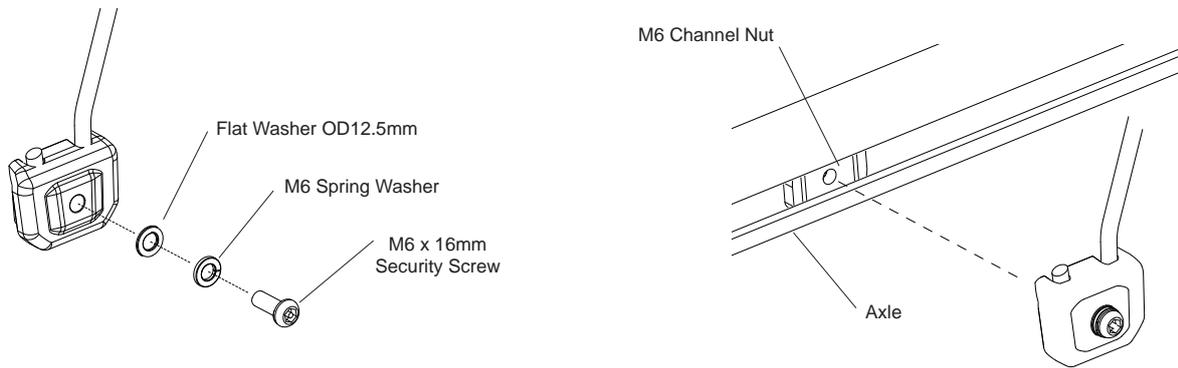
46 Fit Rope to Rope Retainer:

Press one end of the Long Rope into the Rope Retainer as indicated below. Note the orientation for both left and right hand Rope Retainers as the Ropes will coil from the centre of the axle to the outside when fitted.



47 Fit Rope Retainer to Axle:

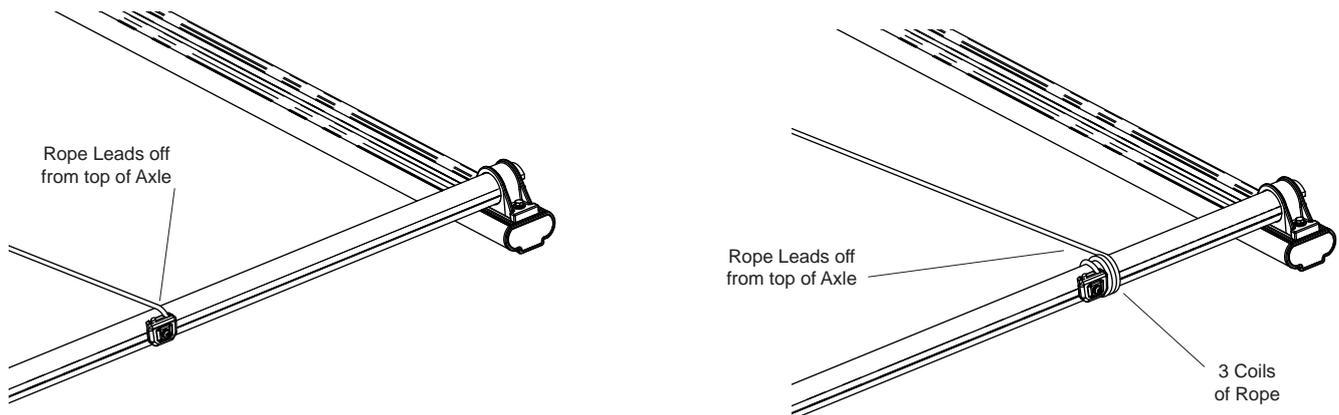
Insert hardware (from kit SBLK2) into the Rope Retainer as indicated and fit to the appropriate Channel Nut within the Axle. Position the Rope Retainer approximately 300mm from either the worm Drive or Pillow Block and fasten in place. Note the end of the rope just protruding the Rope retainer should be facing the centre of the axle.



48 Rotate Axle for initial Coils:

Throw the full length of the Ropes over the vehicle so they are running on top of the Axle as indicated.

Remove the safety cap from the Worm Drive and attach a cordless drill to the hex shaft. Operate the drill so that the axle rotates in a clockwise direction, continue to rotate until the Axle has completed 3 full revolutions. The Ropes should still be leading out from the top of the Axle as indicated.

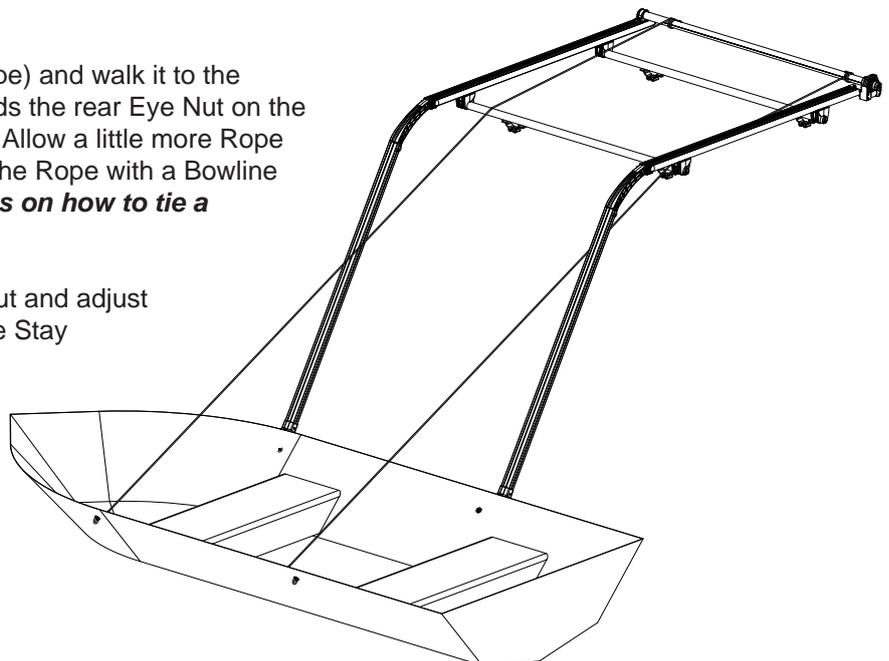


49 Fit Snap Hook to Long Rope:

Take the rear Main Line Rope (Long Rope) and walk it to the outside of the boat. Pull the Rope towards the rear Eye Nut on the outside of the boat and pull rope taught. Allow a little more Rope for the knot and attach a Snap Hook to the Rope with a Bowline Knot (*refer Appendix A for instructions on how to tie a Bowline Knot*).

Attach the Snap Hook to the rear Eye Nut and adjust the knot to get the Rope taught. Both the Stay Rope (Short Rope) and the Main Line Rope (Long Rope) should now both be taught, with the top edge of the Boat remaining parallel with the ground.

Repeat this operation on the front Main Line Rope.



YOU ARE NOW READY TO LIFT YOUR BOAT FOR THE FIRST TIME:

Depending on the boats configuration some fine tuning may be required to obtain clearance of boat to vehicle.

Caution must be taken at this stage to avoid damage to your vehicle.

It is recommended that when lifting the boat for the first time, you lift the boat in short intervals and continue to walk around and inspect the clearances between the boat/vehicle. This should be carried out at the various stages as the boat rises up the ramps and slides onto the top sliding bars.

If the Boat is coming close to the vehicle and risks colliding, you can adjust one or more of the following:

- Increase Ramp length (shallow ramp angle).
- Adjust position of Boat, provided clearance of seats can be maintained.
- Loosen Clamp Brackets and slide the entire boat loader unit forwards or backwards on the vehicle.
- Adjustable Roof Racks have the added flexibility of moving the roof rack position which in turn shifts the entire boat loader unit.

IMPORTANT - To Avoid Damage To The Worm Drive

When pulling the boat onto the boat loader caution must be taken when approaching the end stops. It is recommended that you slow down on approach to the end stops and ensure that only lite pressure is applied to the stops. You must then reverse the drill and slightly release the pressure.

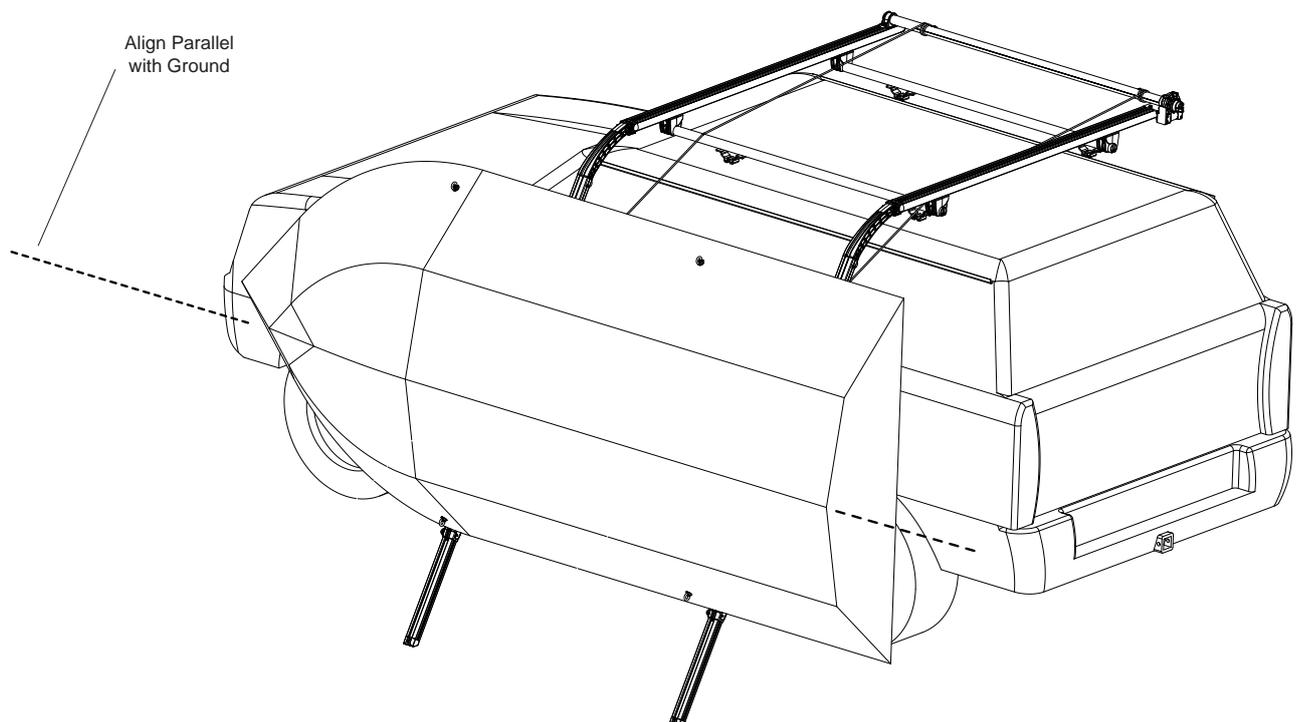
The worm drive is a very powerful unit and any additional force at this point may damage the Worm Drive.

50 Check Stay Rope Length:

Operate the Worm Drive with your cordless drill and lift the boat until it has flipped up and is sitting vertically on its side. Stop at this point and check the alignment of the centre line of the boat. The centre line of the Boat should be sitting parallel with the ground as indicated.

If not, adjust the Stay Ropes (Short Ropes) until this is achieved. It may be easier and quicker if a someone lifts the boat for you giving you some slack in the Rope whilst you adjust the knot.

Proceed to lift your Boat and make any of the above mentioned adjustments as required.



51 Fit Gunnel Stop Post:

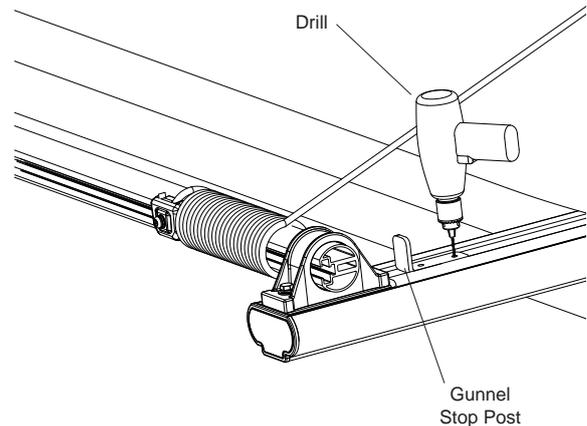
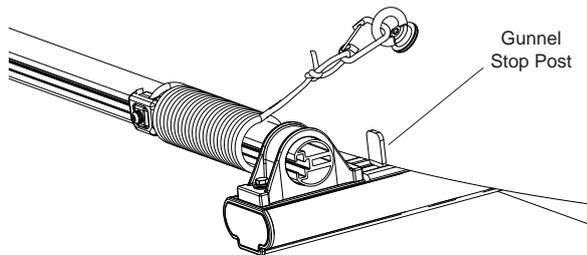
Now that you have checked all of your clearances, set the ramp angle and made any adjustments; the boat should now be sitting on top of the vehicle.

Fitting the Gunnel Stop Post provides a positive stop when the Boat is lifted on top of the Vehicle, this keeps the Boat centrally aligned with the vehicle when in transit. You will fit the Gunnel Stop to the front Top Sliding Bar as there is already a rear stop built into the worm drive mount plate.

Release the ropes slightly and ensure that the Boat is centrally aligned with the Vehicle at both ends. Be sure that the rear of the boat maintains contact with the rear gunnel stop (on the worm drive). Proceed to fit the Gunnel Stop (SBLK2) as indicated and mark its position with a pencil.

Release the ropes further (approx 200mm) and push the Boat back out of the way. Align the Gunnel Stop Post to the pencil mark and hold firmly in position, drill through the holes with a 5mm drill. Once drilled rivet the Gunnel Stop Post in place with the rivets provided (SBLK2).

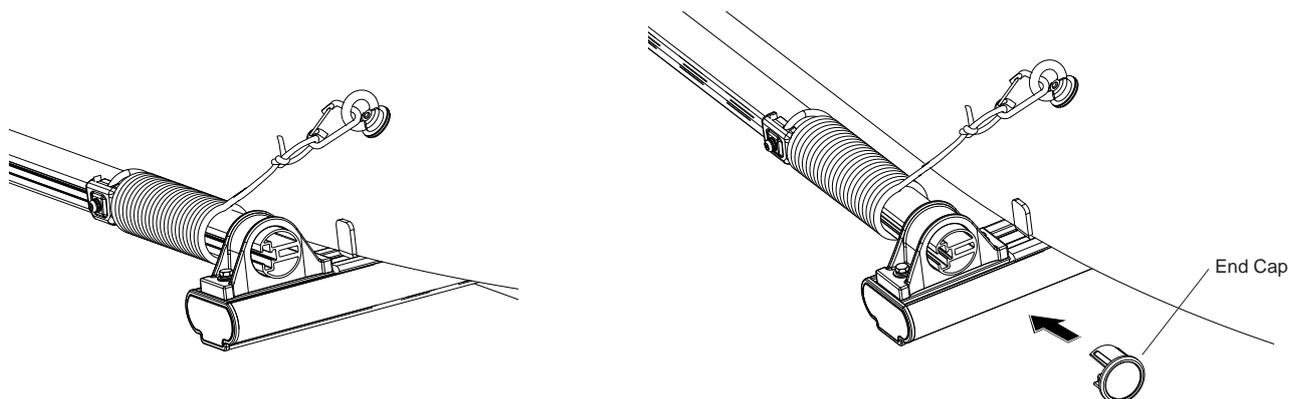
Note: In some instances the boat may be wider at the front than the rear. In this instance, you may have to fit the Gunnel Stop to the rear top sliding bar to keep the boat aligned.



52 Adjust Main Line Ropes & Insert End Caps:

Now that you have the Gunnel Stop Post fitted pull the boat completely up until it touches on both Stops. Adjust the Bowline Knots on the Main Line Ropes as required to eliminate any slack on the Ropes. You can now cut any excess rope from both the Main Line and Stay Ropes. Melt the end of the ropes to avoid fraying, be sure not to burn yourself.

Now insert the End Caps for the Round Support Bars and Axle and tap in place with a Rubber Mallet as shown. There is 6 locations where the end caps need to be fitted.



Optional Step

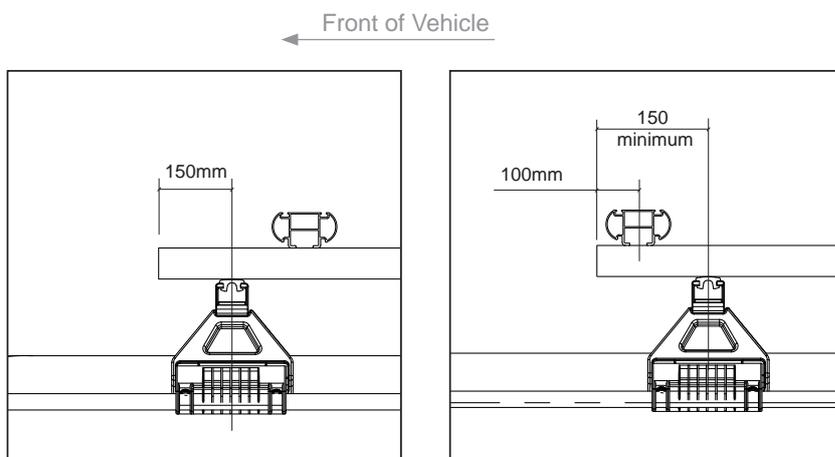
This step is optional and can be seen as improving the visuals of the product only.

If you choose to skip this step it may allow greater flexibility in future when fitting the boat loader to another vehicle or upgrading the loader to suit a new boat.

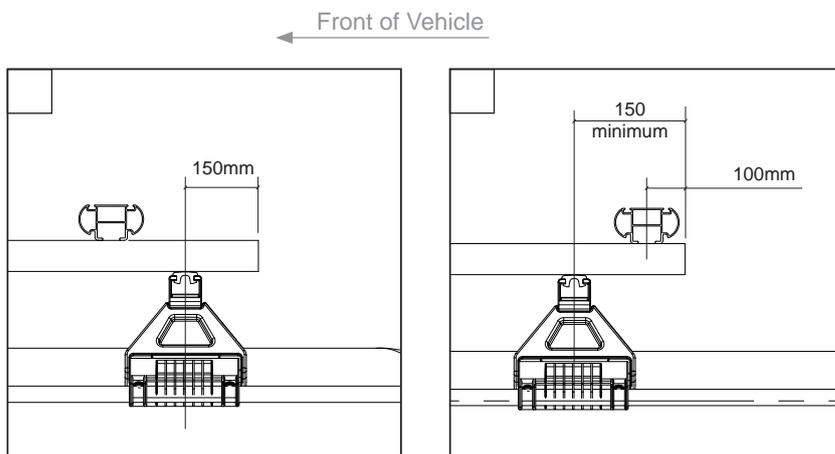
Once you are confident that you have the boat positioned correctly and the top sliding bars are in correct alignment with the seats and Roof Rack Crossbars, you may choose to proceed with the following:

Step 1: Using the image sets below measure and mark the round support bars with a pencil to determine the cut positions for the bar.

Select the image at right that describes your fitment at the front of the round support bars. Measure and mark the bars as indicated.



Select the image at right that describes your fitment at the rear of the round support bars. Measure and mark the bars as indicated.



Step 2:

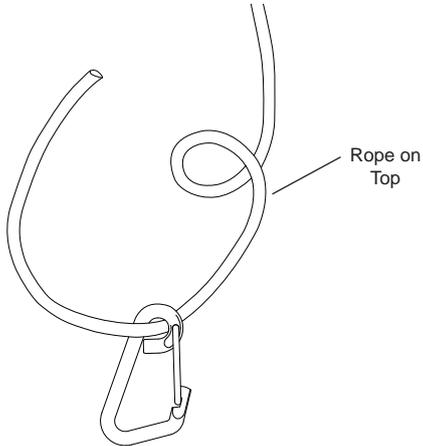
- Mark the positions of the bridge support clamps and saddle clamps on the round support bars with a pencil. This will assist with re-fitment of the side boat loader.
- Release the centre bridge support bolts and remove the top half of the boat loader from the vehicle.
- Remove the saddle clamp brackets and remove the round support bars from the vehicle.
- Cut the round support bars as marked and remove any burrs or sharp edges.
- Re-fit the side boat loader as previously described.

Appendix A

How to Tie a Bowline Knot

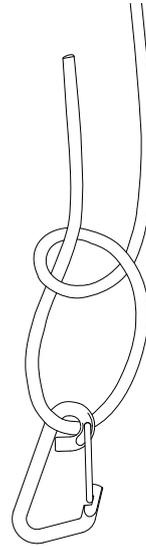
Step 1:

Thread one end of the rope through the eye of the snap hook and pull through approximately 20cm of rope. Create a loop in the long end of the rope as indicated below.



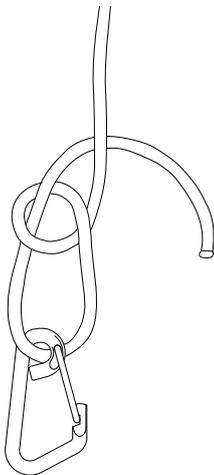
Step 2:

Insert end of rope through the loop from the under side.



Step 3:

Pull the end around and behind the standing part.



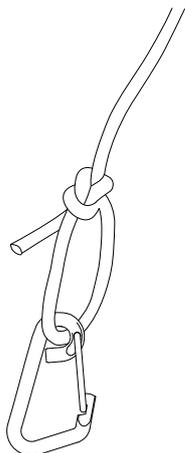
Step 4:

Insert the end back through the loop entering from the top side.



Step 4:

Set the knot in this position.

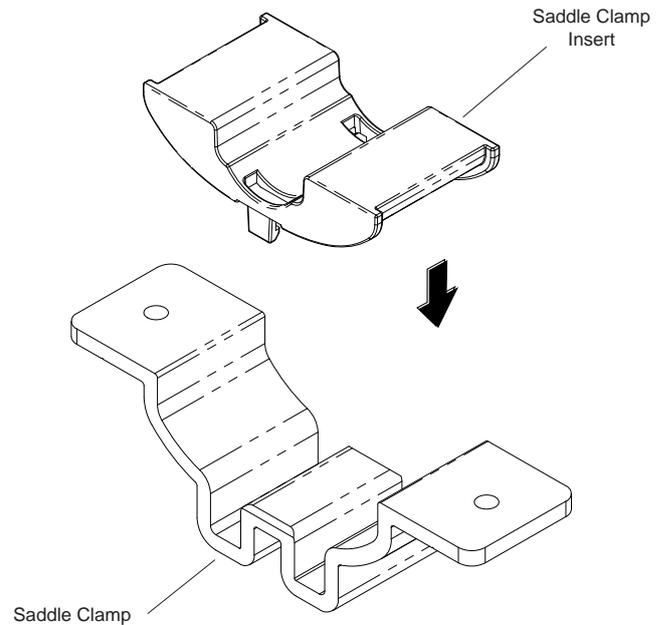
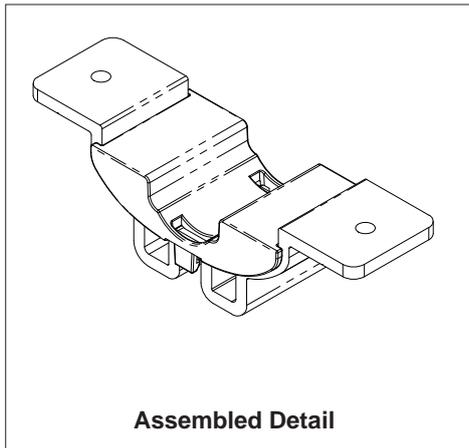


Appendix B

Fitting Saddle Clamp Insert (Yakima / European Crossbars)

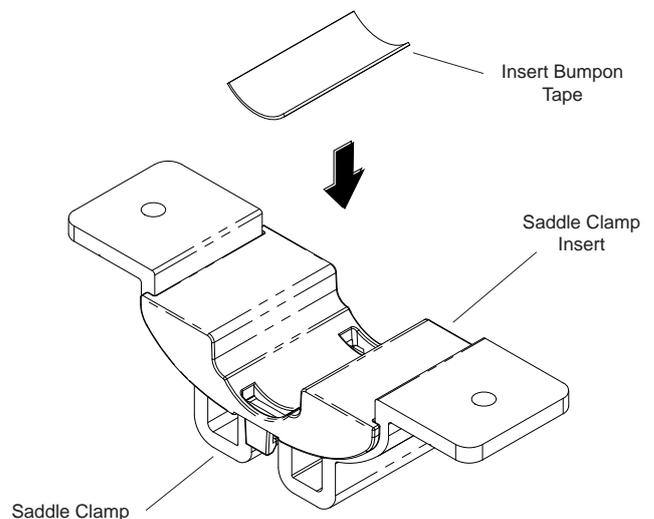
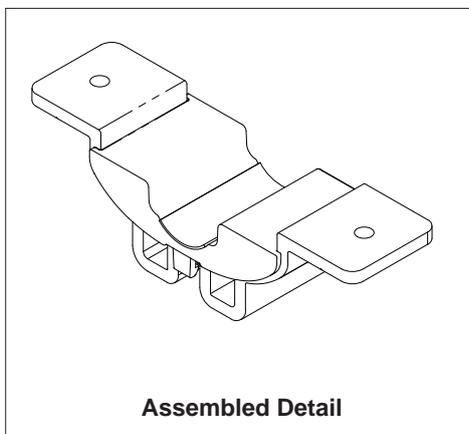
Step 1:

Take a Saddle Clamp from kit SBLK4 and lower the Saddle Clamp Insert in place as shown below. Apply some pressure downwards on the insert until it snaps in place. Repeat this step on all four Saddle Clamps.



Step 2:

When fitting to Round Crossbars (Yakima) you will also need to fit the Insert Bumpon Tape (SBLK4) to the Saddle Clamp Insert as indicated. Remove the paper backing from the tape and press down in correct position.



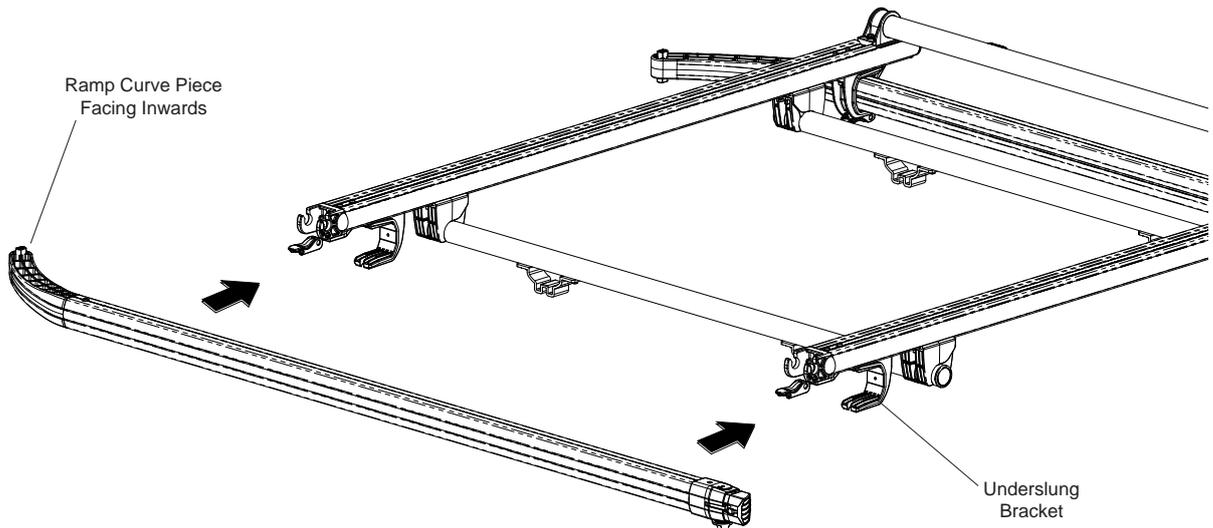
Appendix C

Fitting Ramps to Underslung Brackets for Transit

Step 1:

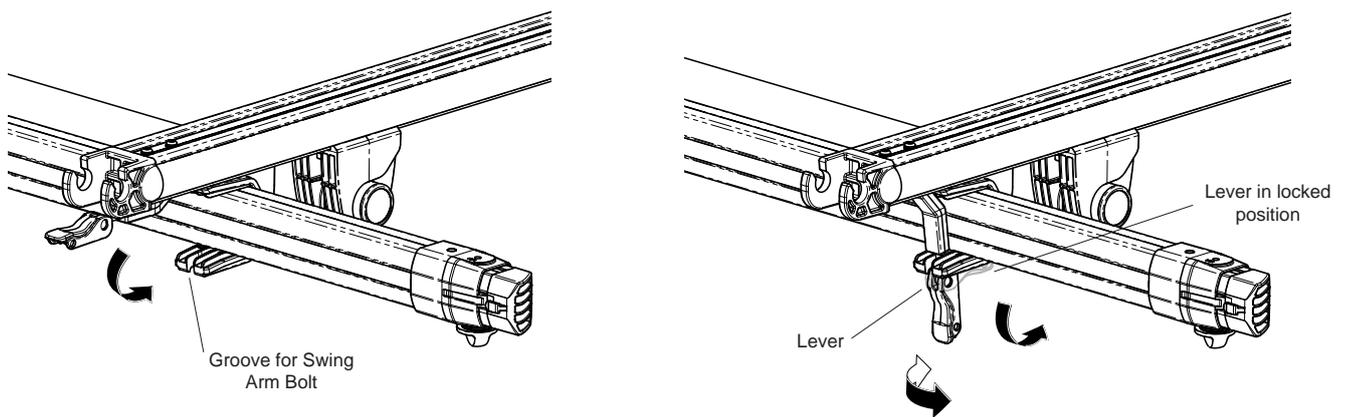
With the Ramp adjusted so its inner leg is retracted as far as possible, fit the Ramp to the Underslung Bracket as indicated below. Ensure that the Swing Arms are lifted to their upper most position before inserting the Ramp.

Note: The Ramp Curve Piece can be positioned at the front or rear of the vehicle, however the curve must always be facing in towards the centre of the vehicle.



Step 2:

With the Ramps Now inserted into the Underslung Brackets, lower the Swing Arms until the bolt sits within the groove of the Underslung Bracket. Rotate the lever (in either direction) to achieve the correct tension when activating the lever to the locked position.



Note:

If your Underslung Brackets are set far apart you may need to extend the inner leg of the Ramps to enable them to span the distance between both Underslung Brackets (Ensure you tighten the knob on the Ramp securely).

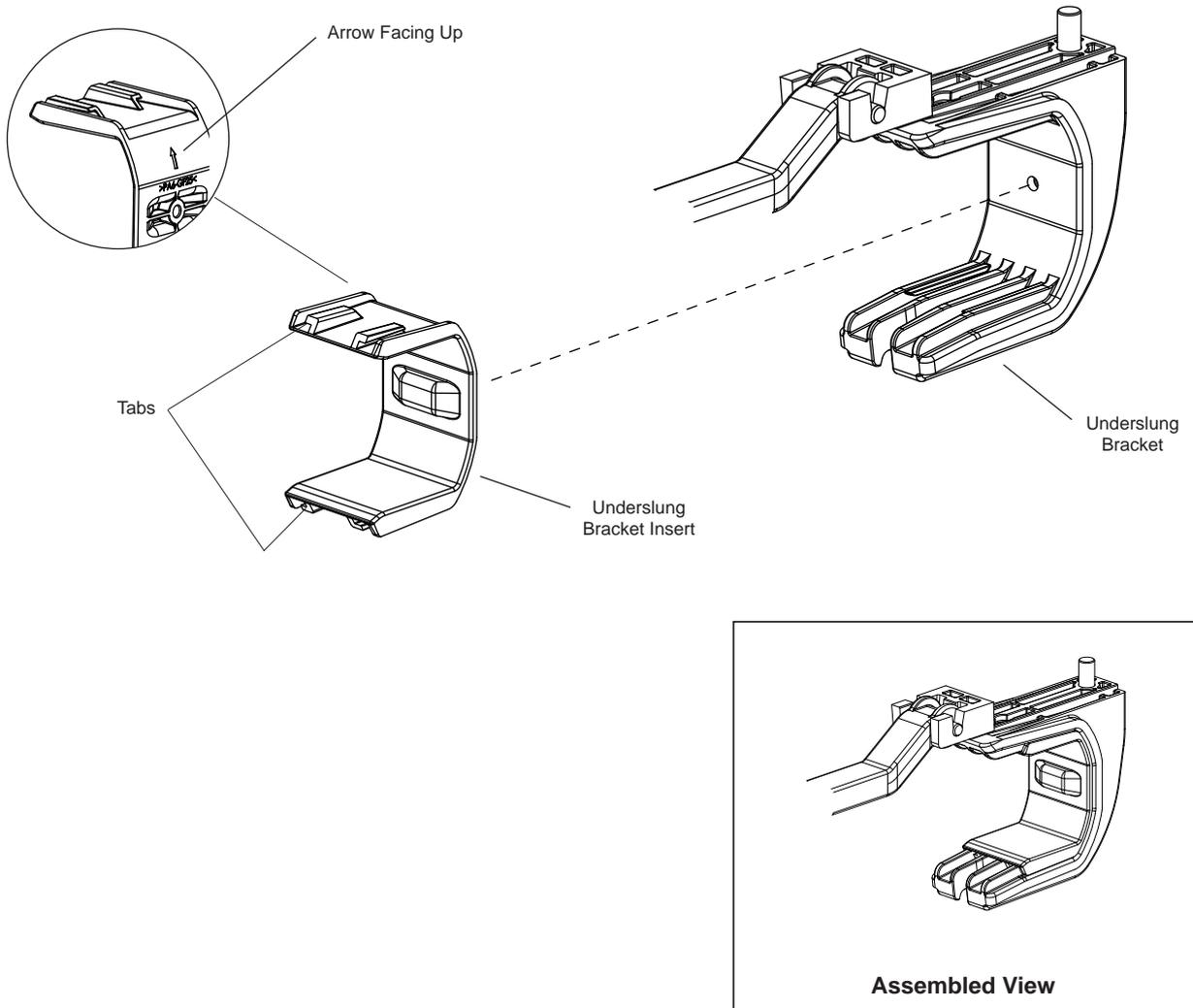
If the Ramp inner leg has to be extend for transit Refer Appendix D.

Appendix D

Fitting Underslung Bracket Insert

Step 1:

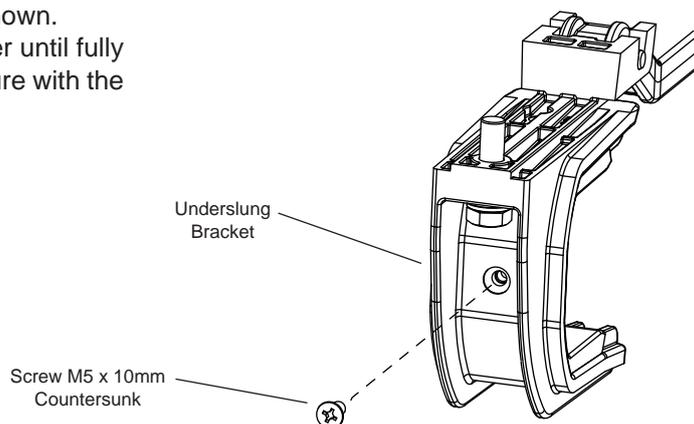
Orient the arrow on rear of the Underslung Bracket Insert so that it is pointing up. Slide the part into the appropriate Underslung Bracket and ensure that the Tabs engage properly into the Underslung Bracket.



Step 2:

Hold the insert firmly in place and insert the screw from the rear of the Underslung Bracket as shown. Proceed to fasten the screw with a screwdriver until fully engaged. You may have to apply some pressure with the screwdriver to get the thread started.

Do not over tighten.

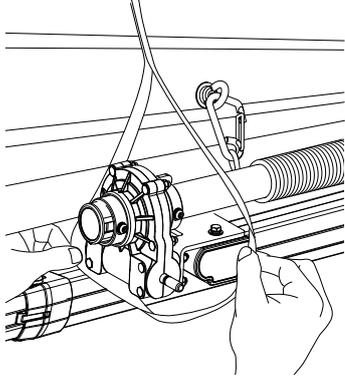


Appendix E

Fitting Ratchet Tie Down Straps

Step 1:

Place the end loop of one long strap around the Worm Drive and Top Sliding Bar as shown below. Holding the loop in position throw the remainder of the strap over the top of the boat to the other side of the vehicle.

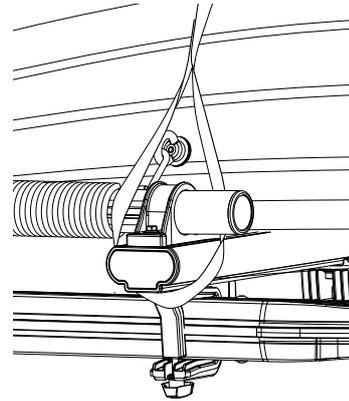


Caution

Make sure that the strap has not caught on the Bolts/Nuts on the other side of the Worm Drive.

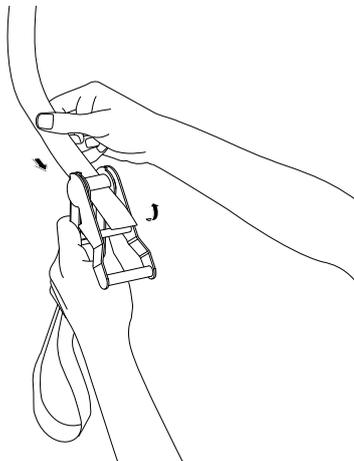
Step 2:

Place end loop of the other long strap around the Pillow Block Bearing and Top Sliding Bar as shown below. Holding the loop in position throw the remainder of the strap over the top of the boat to the other side of the vehicle.



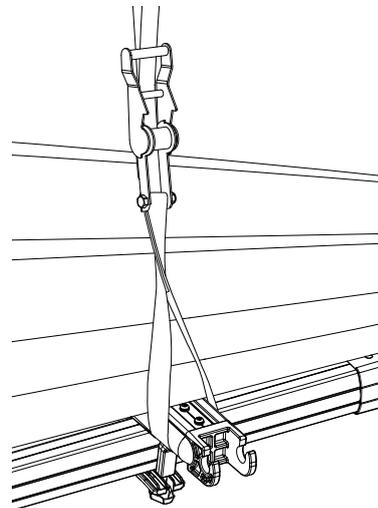
Step 3:

Walk around the vehicle and locate the loose end of the straps. Take the end of the strap and feed it through the centre axle of the Ratchet as shown. Pull the excess strap through the Ratchet.



Step 4:

Place the loop attached to the Ratchet around the end of the Top Sliding Bar as shown below. Pull through any additional slack that has been created.



Step 5:

Lift the catch at the rear of the Ratchet and swing the lever down, now release the catch to engage the ratchet. Raise and lower the Ratchet Lever until the strap is tight and tie off any excess strap out of the way.

To release the Ratchet pull the catch with your finger and swing the Ratchet Lever to the fully open position. You may feel/hear a thud as the pressure is released. Remove the Ratchet and Strap from the vehicle.

Notes:

Ensure there are no sharp edges on the under side of the boat that could cut through the Ratchet Straps.

Travelling at speed can cause the straps to vibrate and make noise. Adding a twist to the straps on either side of the vehicle can sometimes eliminate this issue.

Important Information

Recommendations

It is essential that all bolt connections be checked after driving a short distance when you first install your Rhino Rack accessory. Bolt connections should be checked again at regular intervals (probably once a week is enough, depending on road conditions, usage, loads and distances travelled). You should also check the roof bars and accessories each time they are refitted.

Make sure to fasten your load securely. Please ensure that all loads are evenly distributed and that the centre of gravity is kept as low as possible.

Use only non-stretch fastening ropes or straps.

Sensitivity to Crosswinds, Behaviour in Curves and Braking

The handling characteristics of the vehicle, changes when you transport a load on the roof. For safety reasons, we recommend you exercise extreme care when transporting wind-resisting loads; special consideration must be taken into account when braking.

Please remove boat loader and crossbars when putting vehicle through an automatic car wash.

Load Ratings

Ensure the total weight of both the boat and the side boat loader does not weigh more than the maximum carrying capacity of your roof racks/vehicle (*side boat loader weighs approx. 25kg*).

Refer to vehicle manufactures carrying capacity for roof bars. When roof racks are to be used in off-road conditions, please build a safety factor of 1.5 into this load limit. Although the roof racks are tested and approved to AS1235-2000, Australian road conditions can be much more rigorous. However, increasing the number of crossbars does not increase the vehicles maximum permissible roof loading.

SIDE BOAT LOADER LOAD RATING = 80kg

Care and Maintenance

Lubricate the Ramps and Top Sliding Bars with silicon spray to assist boats travel and minimise damage to the sliding surfaces.

To maintain a good service life of the ropes always store in a dry state to avoid rotting.

The Worm Drive has moving gears within and therefore requires periodic servicing. It is recommended that the unit be re-greased every 2 years of normal weekend use. With more frequent use the Worm Drive will require servicing more frequently, It is recommended that Shell Alvania RL2 or an equivalent Gear Grease be used.

Warranty

Rhino Rack warrants the Side Boat Loader for a period of 3 years excluding ropes and wearing surfaces.

Note for Dealers and Fitters

It is your responsibility to ensure instructions are given to the end user or client