

Mad River Canoe

Gunwale (Canoe Rails) Repair Guide

IQ2 IQ2 Gunwale Replacement

When ordering replacement IQ2 gunwale be sure to request the correct length - order rails longer than your canoe.

Canoes are measured straight down the keel line. Gunwales take a bit more circuitous route getting from end to end. IQ2 rails come in two sizes: under 15' and over 15" (fits up to 17 ½'). All Mad River IQ2 gunwales include a "L" shaped aluminum insert to add strength and structure to the rail.

IQ2 gunwales can be used as replacements for conventional IQ2 gunwales on rotomolded and Royalex Mad River Canoes. IQ2 gunwales will not fit Composite canoes.

Place orders for replacement gunwales through your authorized Mad River dealer.

Specify your model of canoe and hull material when ordering gunwales to ensure compatibility.

This will assist your dealer and Mad River Customer Service to make sure you receive the proper gunwale. If you are unsure of model or material, bring your boat to the dealer; they can usually identify the model and material. If this is not practical, the serial number on your canoe will be helpful. Serial numbers are located on the right side of the stern of the hull just below the gunwale. It will either be engraved on a small brass plate or stamped directly into the hull. If difficult to read, make a rubbing by holding a piece of paper against hull and scraping a pencil point across paper. The number should be revealed on reverse side of paper.

A complete re-rail installation will require 2 IQ2 gunwales.

Unlike ash gunwales which utilize an inside rail and an outside rail on each side, IQ2 gunwales are a unibody construction in which the inside and outside gunwales are molded in one piece.

Gunwales are pre-bent to a curved form, which will fit most canoes. If your canoe hull doesn't fit to the gunwales easily you may find it necessary to further bend the gunwale to fit without distorting your hull. Make any needed bends slow and gradual working up and down affected length of gunwale. Avoid creasing gunwale by bending too quickly or sharply or with all effort at one point.

Gunwales are interchangeable, there is no right or left.

IQ2 gunwales do not have entry slots pre-installed as proper location cannot be determined until gunwales are installed. An IQ2 Spreader Tool (available from your Mad River dealer) will be necessary to install the entry slots.

You will need replacement rivets to install your new gunwales. These are available in 80 pack quantities from your Mad River dealer and are sufficient to re-rail all but the longest canoes.

In most cases, the decks on IQ2-railed canoes can be saved and reused with new rails.

The IQ2 gunwale profile fits the vinyl gunwale currently (2005) used on Mad River Royalex boats. It will fit most current decks without trimming or adjustment but there are older decks or decks for some models that will either not fit or will require modification. If you are switching from wood or aluminum to IQ2, you will need to order new decks. Some additional modification may still be required due to the number of models produced over the years and changes in product specifications. Vinyl decks can usually be successfully modified by cutting or trimming where necessary with a sharp knife or small saw.

Due to their length, IQ2 gunwales cannot be shipped via UPS.

One alternative is to ship by common carrier (via truck) but this is expensive (approximately .00 - 0.00). Gunwales shipped via common carrier will be sent freight collect (payment due on receipt). The best alternative is to arrange shipment of gunwales to accompany a shipment of boats to your local dealer. If this can be arranged, there is no freight charge for the gunwales.

HARDWARE REQUIRED

You will need a total of approximately 70 self-tapping screws to replace both gunwales (actual number depends on length of boat). These screws are available in a 70 pack via Mad River Canoe authorized dealers.

You will also need a deck hardware kit containing rivets and washers to reinstall the decks. One deck hardware kit provides enough hardware to install two decks. Deck Hardware Kits are available via Mad River Canoe Authorized dealers.

TOOLS REQUIRED

Rubber Mallet	Electric Drill
Pop Rivet Tool	7/32" and 17/64" Drill Bit
3/8" Wrench	3/8" Drill Bit
7/16" Wrench	13/64" Drill Bit

Hack Saw	6 3" C Clamps
20' Tape Measure	Putty Knife
Duct Tape	Pencil/Non-permanent Marker
#2 or 1/8" Square Drive Bit	

NOTE: Additional hardware may be required to complete replacement or rehabilitation of your canoe depending upon model, material, age. Mad River has been building canoes for over 30 years and many changes and improvements have been made during that time. For example, until 1998-99, Mad Rivers' used 1/4" hardware to mount seats, yokes, etc. Since that time MRC has used 3/16" hardware to save weight and allow improvements such as double bolting yokes for increased integrity. While the instructions may specify specific drill bits, please be aware that other sizes may in fact be necessary as needed.

Procedure:

1. Run tape measure along curvature of hull below gunwale and mark center point on hull. Measure new gunwales to confirm they are of sufficient length to cover length of hull. Check to make sure aluminum inserts are in place inside IQ2 gunwale and ends are flush. If re-rail requires removal of existing gunwales follow steps 2-5:
2. Mark placement of seats, thwarts, and yokes on side of canoe hull with marker. This will provide a reference for replacement of these parts when new gunwales are installed. After marking, remove all carry handles, seats, thwarts, and yokes and set aside with all hardware.
3. Mark rivet or screw locations. When fastening new rails in place these marks will serve to space new rivet locations. It is preferable to use new holes rather than enlarge the existing holes with the new rails. Enlarged holes can result in rails becoming slightly loose over time.
4. For IQ2 or aluminum gunwales: Using 13/64" bit, drill out existing rivets. Drill from outside of hull, positioning end of drill bit in center of rivet head. Drill until flange of rivet head separates from rivet stem. It may be necessary to poke rivet stem through hull to dislodge rivet. For wooden gunwales: Back out screws, starting at one end of hull and proceeding towards other end and continuing down other gunwale to return to end where started.
5. When all fasteners are removed, lift up on point of deck and then slide deck towards end of canoe to remove. This should also free gunwales along hull. On wooden gunwales, outwale will drop free when final fasteners are removed.

6. Place decks onto hull, making sure end of deck fits snugly against the bow and stern (see diagram 1). Tamp with rubber mallet to seat properly. With a pencil, mark outside of the hull at rear edge of the deck on both sides. Also mark point on deck where length of gunwale will be inserted. (see Point "A" of diagram 2). Remove decks after making marks.

7. Run tape measure along top edge of hull following outside surface of hull. Start measure at Point "A" at one end of canoe and measure to Point "A" at other end. Double check measurement as this will be length you will cut new gunwales.

8. Cut new gunwales to measurement made in step 7.

9. Mark center point on each new gunwale.

10. Position new gunwale on hull, matching center point marked on hull to point marked on gunwale. Narrow side of gunwale goes to the outside of the hull and wide side to inside to provide mounting point for hanging seats, thwarts, and yokes. Press the first 24" of the gunwale into place along top edge of the hull. Tapping down on the gunwale with a rubber mallet will help to ensure that the gunwale is fully seated onto hull. If your canoe has significant "sheer" (curvature of top of hull when viewed from the side), you'll need to make doubly sure that the gunwale is fully seated on top of hull as gunwale tends to run straight where hull curves. Secure the gunwale in place with "C" clamp placed over the gunwale and tightened onto the hull. As you continue, you may find that wedging a putty knife between the gunwale and hull while tapping with the mallet will help. As you work your way along the hull you use duct tape to hold the gunwale in place. It is important that the gunwale be seated flush against top edge of hull throughout the length of the canoe.

11. Continue working down side of canoe, working towards end. Leave last 3 feet of each end of gunwale free to allow for insertion of decks.

12. Lift the ends of the gunwales from the hull and insert them into decks, to point "A" in diagram 2. Seat assembly onto hull, making sure it is fully seated against top edge of hull and correctly positioned as far as overhang at end of canoe as shown in Diagram #1. Pull assembly down tight on top of hull and tape in position with duct tape.

13. Step back and "eyeball" the gunwale. Look for any rises or humps that would indicate gunwale is not seated completely on hull. Tamp down and secure any section of rail necessary with additional "C" clamps.

14. Along gunwale sections, refer to the marks locating the original rivet locations. Place evenly spaced marks on the lower external flange of gunwales between old rivet locations. These will be new screw locations. At decks, mark locations as described in following step.

15. Mark point on the outside edge of the deck 1" from point where gunwale is inserted ("B" in diagram 2). Make a second mark 1" from end of deck ("C"). Make a third mark 3" forward of point "B" ("D"). and a fourth mark 2" from tip of deck ("E").

16. At mark where deck overlaps gunwale install a self tapping screw as described in Step 17 below. At marks beyond where gunwale ends, drill a 13/64" hole through deck and hull. Insert rivet in hole until flange on rivet is flush against side of deck. Reach under deck and place flat backing washer over end of rivet. Using rivet gun, seat rivet.

17. You do not need to drill lead or pilot holes to install screws in gunwale. Using a variable speed drill, place screw on square drive bit and place at mark along line centered in flange of gunwale. Insert screw until snug. Be careful not to punch the head of screw through the flange of gunwale.

18. Take a minute and reseal rails on other side of canoe before repeating steps 16 on that side.

19. Using marks on hull as reference, re-hang seats, thwarts, yokes, etc. Drill 7/32" holes to accommodate current Mad River Canoe mounting hardware.

20. After all gunwales and fittings are installed, locate IQ2 entry slots to provide access to the IQ gunwale channels on each gunwale, inside and out.

Factory installation includes:

Exterior gunwale channel: total: 4 (2 per gunwale, one at each end approximately 2" from end of deck)

Interior gunwale channel: total 8 to 12 depending on number of interior fittings (yokes, thwarts, seats, etc). Object is to provide access to all usable sections of interior gunwale. Includes: 2 2" behind bow deck and 2 2" in front of stern deck, 1 on each gunwale 2" in front and behind center yoke. If your canoe has an additional thwart, install slot in each gunwale 2" behind thwart to allow access to area in front of stern seat.

22. To create feeder slots:

1) Heat gunwale section to be opened with hair dryer on high or heat gun on lowest setting. Keep heat moving and heat until gunwale is warm to touch, not hot. To protect hull, you may want to shield the hull from the heat source. Normally gunwale is properly heated well before any threat is posed to the hull material.

2) Align slot in edge of spreader tool with upper edge of channel in IQ rail and slide slot over edge of channel. Slowly and with steady pressure lever the tool

head gradually upward until tool is in horizontal position to open slot. Do not bend gunwale quickly as this can crack the gunwale.

3) Align slot in edge of spreader tool with lower edge of channel and slide slot over edge. Slowly and with steady pressure lever the tool head downward slightly to further open the slot. It is not necessary to fully open the bottom edge of slot. It is sufficient to flare it slightly to make entry and exit of components easier.

If additional information is required or you need a question answered, contact your Authorized Mad River Canoe Dealer or call Mad River Customer Service @ 800/311-7245.

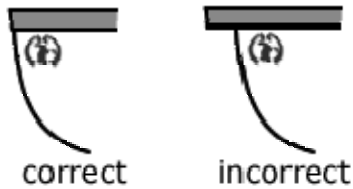


Diagram 1

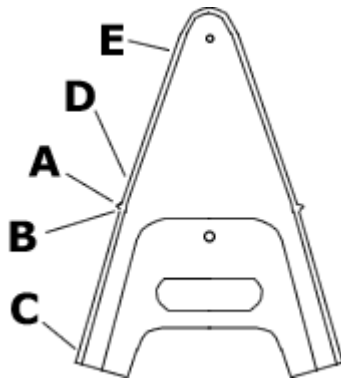


Diagram 2

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