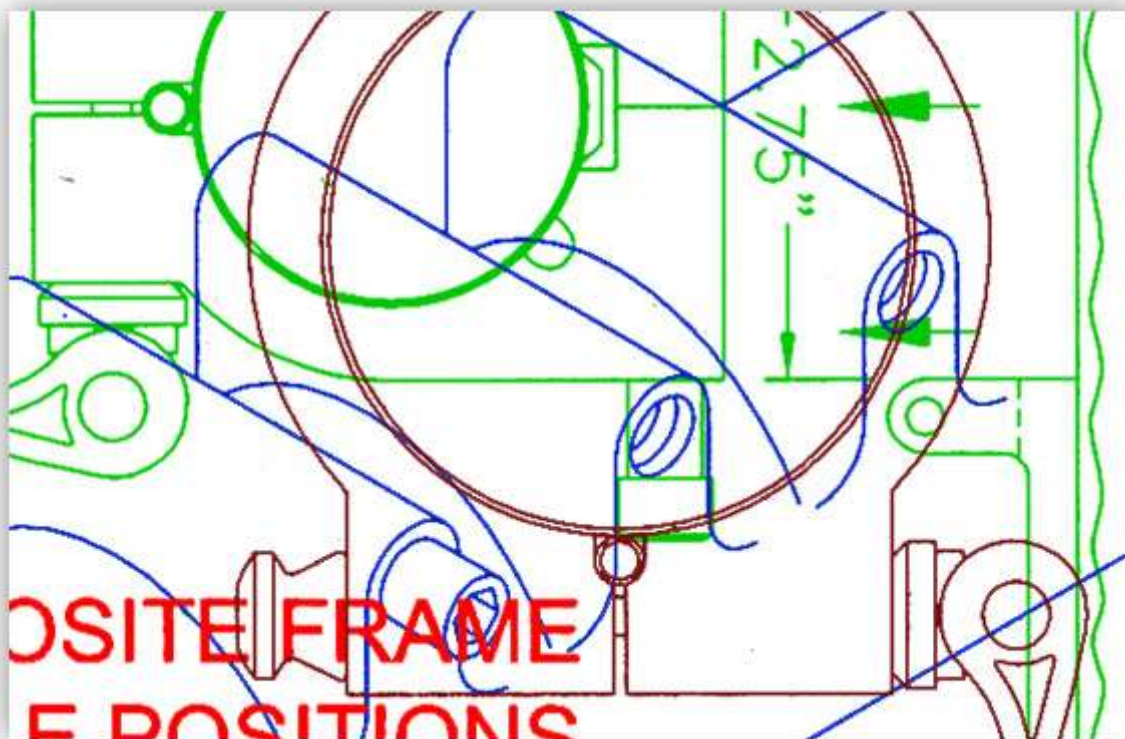


Standardizing Recumbent Seats

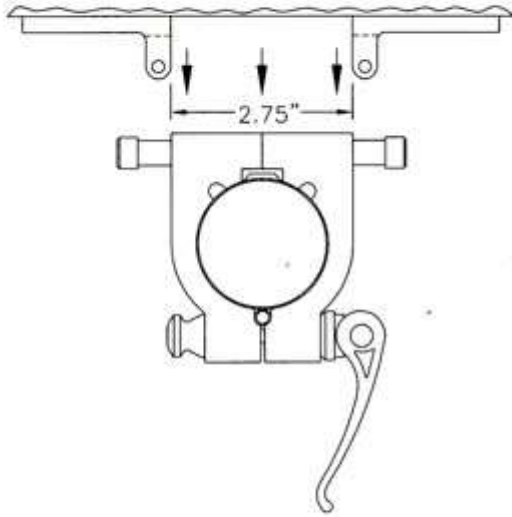
by Randy Schlitter



In the last ITR I discussed briefly the Cross Pin concept that will be featured on our new version of the F5. In the process of designing this system it became immediately apparent how simple it would be to adapt other bikes, if just two numbers became standard: 2.75" (70mm) spacing between pins, and a pin diameter of .375" (10mm).

The system literally pivots around these two dimensions, which would allow most all frame tube adaptations, since few bents use tubes larger than 2.75". That still is not a limiting factor, since a bike with a larger tube only requires the mounting area to accommodate the spacing. Mounting clamp to various tube shapes and sizes are shown below.

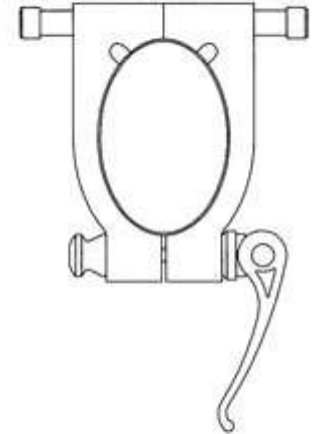
MOVABLE CLAMP PROFILES



ROUND TUBING
 1-1/8"
 1-1/4"
 1-1/2"
 2"
 2-3/4"

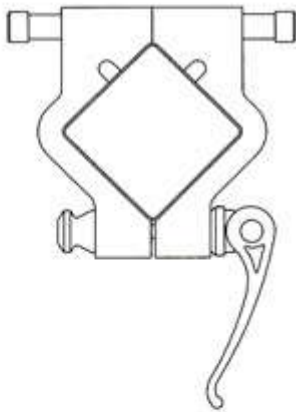


3" ROUND TUBING

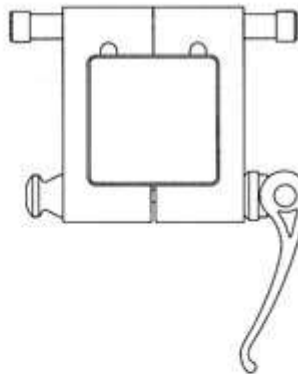


2 X 3" OVAL TUBING

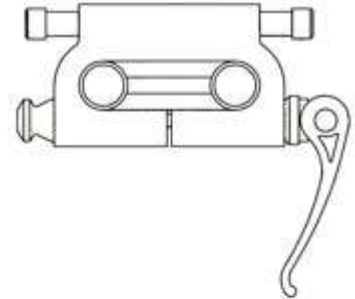
MDB0222



**2 X 2" SQUARE TUBING
 ON 45°**

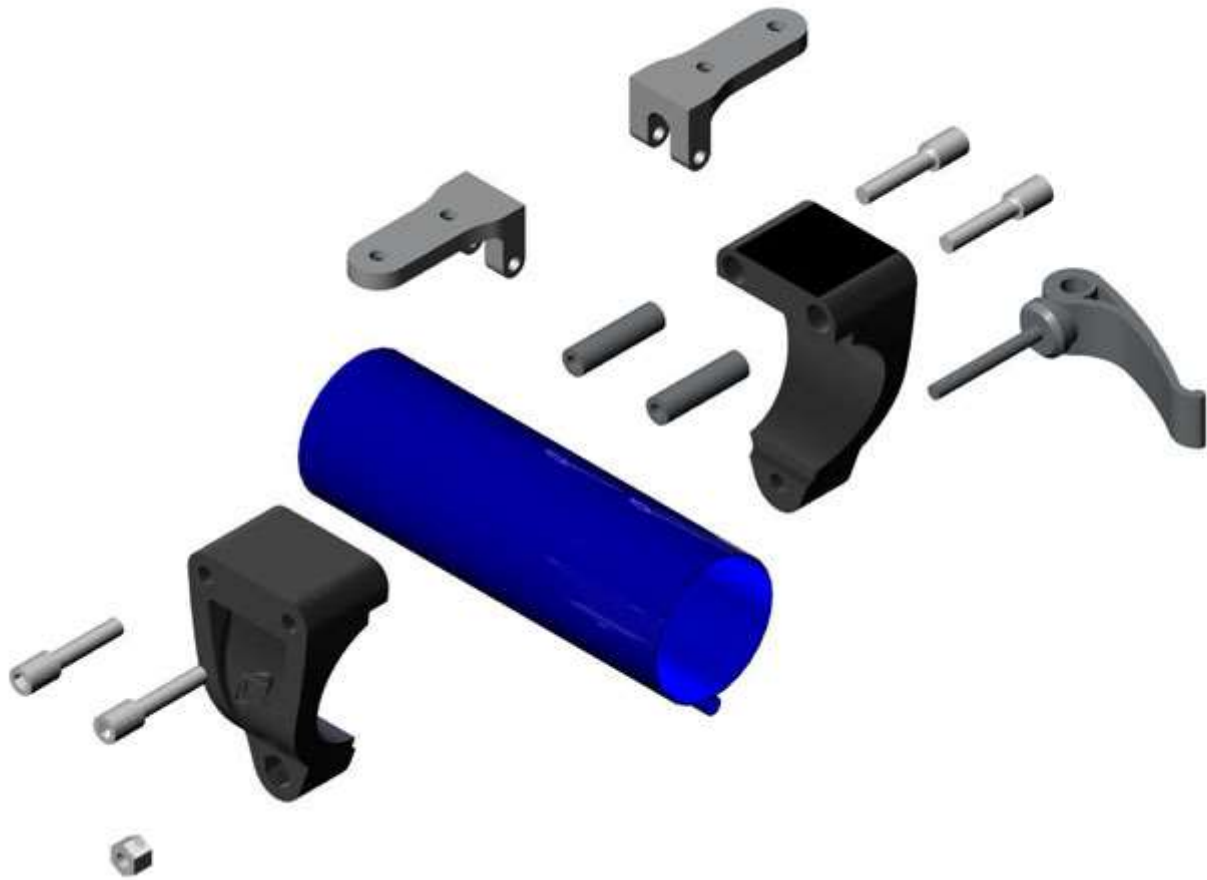


2 X 2" SQUARE TUBING



TWIN 3/4" DIA. TUBES

Going smaller there is little to discourage as well. Example: for our Xstream prototype we used the Cross Pins system and the frame tube was only 1.25". Even down to 1.125" has proven to work great.



We call our particular frame-to-seat clamp the V-Clamp. The shape of the clamping body mimics the shape of a V, and supports a good engineering principle of keeping the forces near the edges, making for a very positive gripping clamp. The V-Clamp sports several advantages over the current Rad-Loc:

lighter, less costly, stays on the bike when seat is removed, and offers more clamping pressure with less force applied. The Rad-Loc is still a good system and will be used through most of 2008. Parts for the Rad-Loc will be stocked indefinitely.

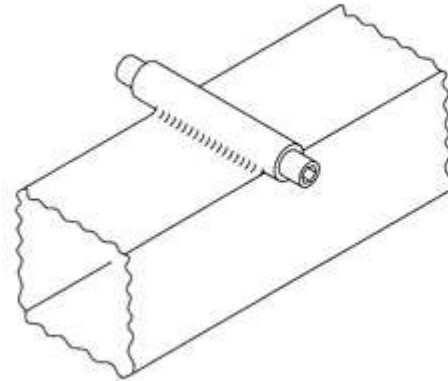
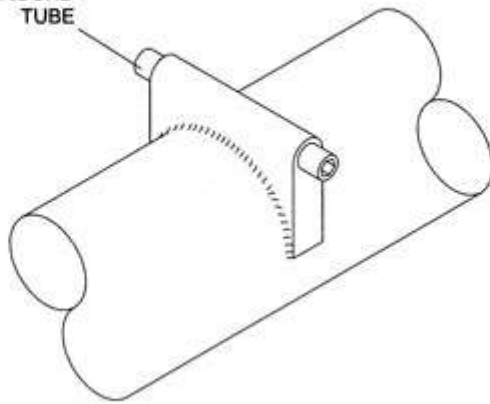
Adapting a Rad-Loc-equipped seat to the V-Clamp will be a simple matter of removing the Rad-Loc and installing the mounting angles in place. The V-Clamp itself assembles around the bike seat tube; there is a slot for the rail. We will initially have 1.5" and 2" clamps. Stateside manufacture of the V-Clamps has begun for use on the new F5's. These will be CNC machine parts, with molded units in a few months.

Getting the system to work on different frames seems to pose few design barriers. From very simple "jungle tech" solutions to sophisticated composite ideas, it should work fine.

FRAME ATTACH IDEAS

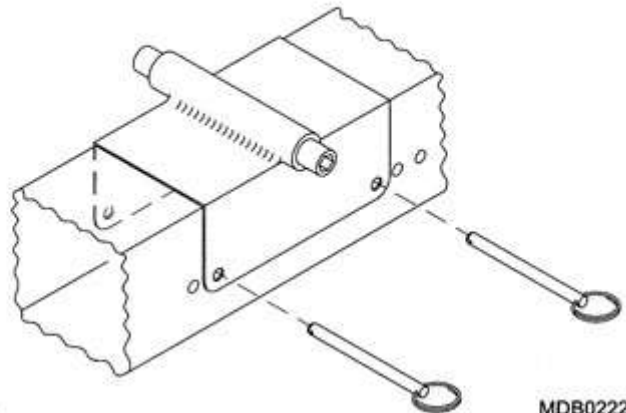
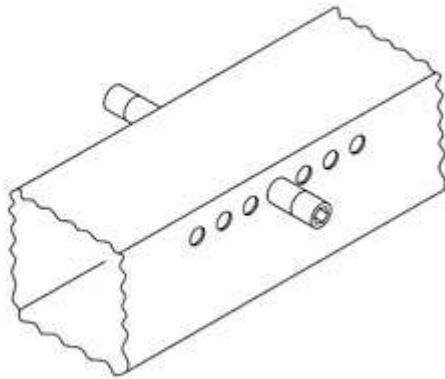
FIXED

2.75" CROSS PIN
WELDED TO ROUND
TUBE



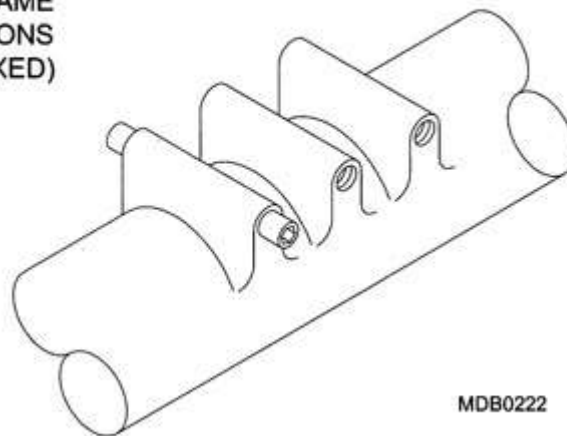
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PINNED OR BOLTED



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**COMPOSITE FRAME
MULTIPLE POSITIONS
(FIXED)**

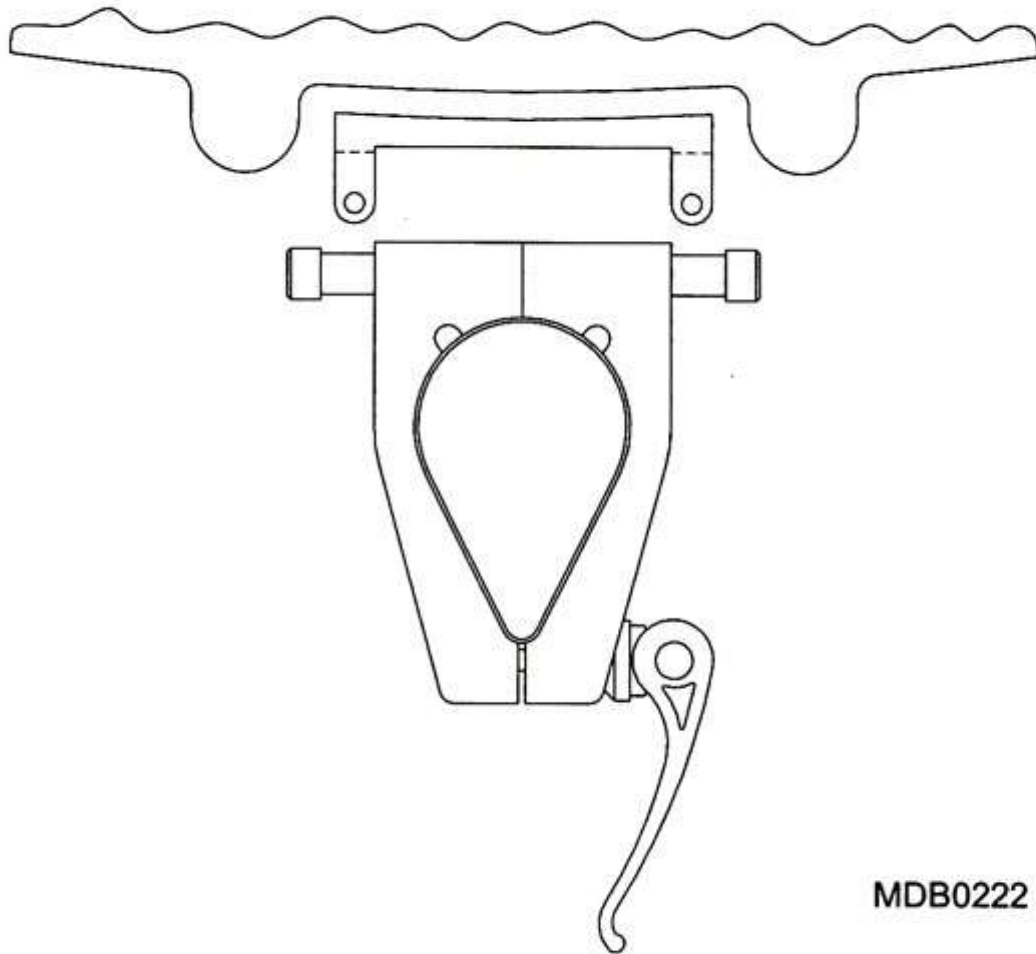


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Mounting to particular frames is already being done. We are offering a kit to convert Bacchetta over to our QR system, and could offer the same for Volae. Other bike brands may present just as simple and

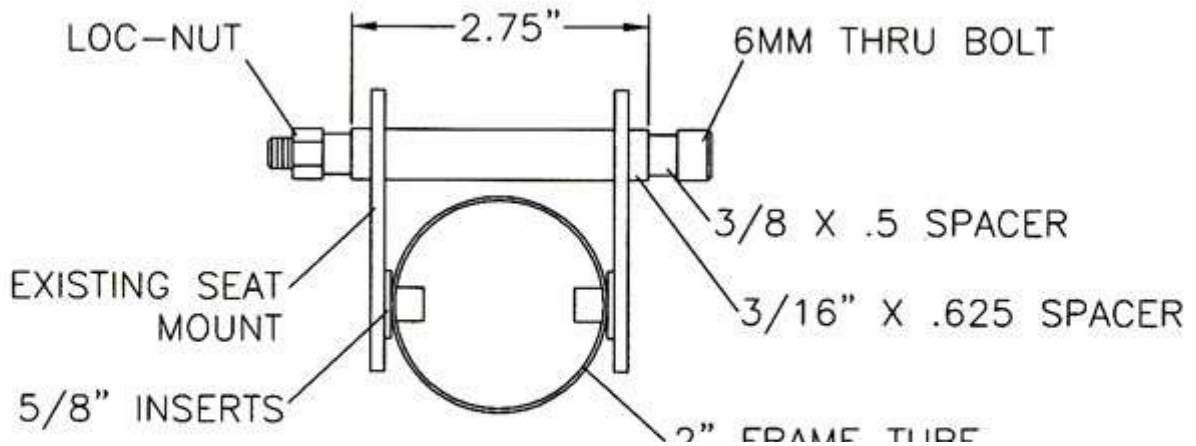
readily available solutions.

M-5 SEAT MOUNT ON BACCHETTA



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VOLAE

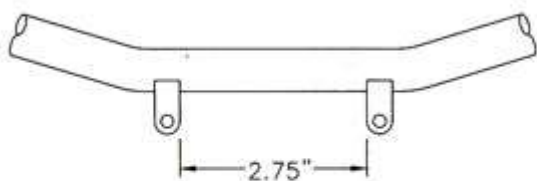


Z FRAME TUBE

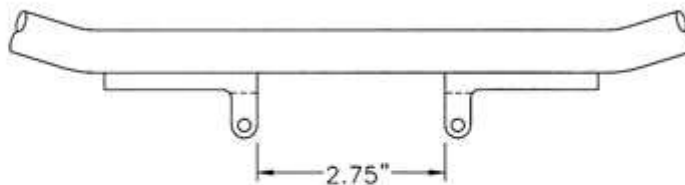
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Seat attach methods seem to be simple and easily incorporated into some current designs. We plan on using CNC or forged angles, and later on some extrusions for making the part to weld direct to the seat frames. Even an el-cheapo garage version could be hacked out with a file and hand saw for the home builder, as in the boxed section idea.

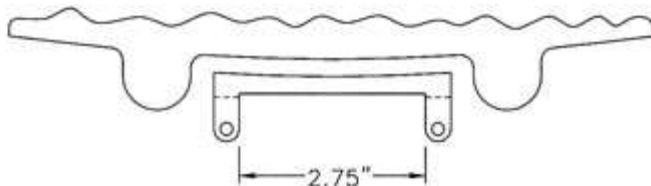
SEAT ATTACH METHODS



WELDED TO FRAME



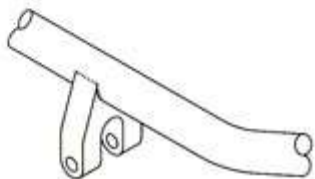
BOLTED TO FRAME



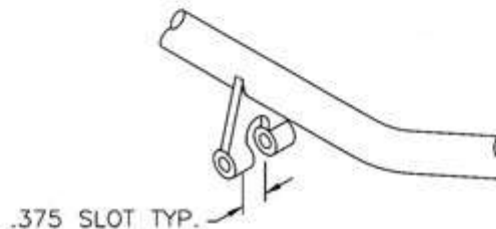
"U" BRACKETS

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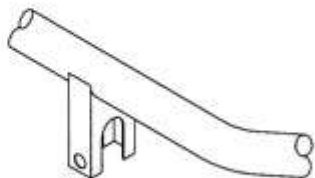
DETAIL ON ATTACH TANG OR FLANGES



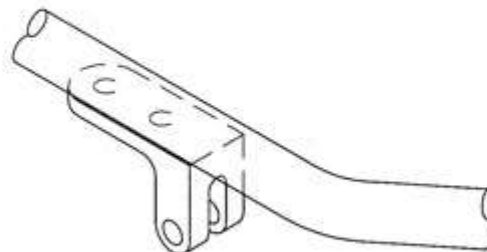
CNC MACHINED OR FORGED ALUMINUM OR STEEL



EXTRUDED OR MACHINED



BOXED SECTION STEEL OR ALUMINUM



CNC/FORGED ATTACH ANGLES

From reading the posts concerning a standardized system, some are worried about pins rattling, or the mount being loose, or the pins not being a secure way to retain a seat. Pin rattle is not present in the test we have conducted, but can be addressed with something as simple as heat shrink, as suggested by one BROL poster. The security is much better than you would expect. To overcome a 3/16" steel pin

would take a force beyond any natural loading seen in any form of riding I can imagine. The precision of the system is nothing out of reach for any manufacturer, the critical area being the slot and pin fit. We found it easy to make within practical tolerance, and still be easy to snap on and off the bike. Since your weight is on the seat, there is no up-and-down play, and side-to-side play is adjustable, depending on how hard you tighten the bolts that retain the clamps to the frame. The spacing of the slotted angles is very forgiving too; we set them with about 1/32" play and notice no side-to-side motion of the seat.

Eventually all of our bents will feature the new V-Clamp Cross Pin system, and we hope many others will try to adopt the 2.75 spacing with .375 pins. If this becomes popular, I know of at least one major bent maker who will be encouraged to offer a greater seat selection in both styles and price, for the open market. Until next month stay safe and stay into the ride!

INTO THE RIDE