

History of Rocky Mountain Rafts

By Herm Hoops & Denny Hugo

2016

By 1989 Denny Hugo, founder and owner of Rocky Mountain Rafts (RM Rafts), had bought property in Crested Butte, Colorado and had taken several commercial raft trips. Denny was hooked on rafting, but first he figured that he should learn a little more about running rivers if he was going to take his family and friends on private river trips.(1,4,5)(#b.,#h.)

In 2007, for his 50th birthday, Denny signed up for a ten day raft guiding course ran by Vito Cavelli at Three Rivers Resort in Almont, Colorado. During the course, Hugo met Joe Kallis, an 18-year-old from Missoula, Montana, who planned to be a river guide in the summer and attend Western State University in the fall. During the raft course Joe had been staying with some unsavory characters, so Hugo invited him to stay at his nearby house in Crested Butte. Another member of the guide course, Joe Balkenbush, was also staying with Denny. Joe is a lawyer and judge who was also taking the course to learn how to run rivers. Although they didn't know it at the time, that was the beginning of the core Rocky Mountain Raft (RMR) team.(1)(#k.)

After taking the guide course Denny began looking for a raft. He didn't want to spend a lot of money and he ended up looking at Saturn rafts. Saturn rafts, an off the shelf raft from China, were imported by Boats To Go in Florida.(#l.) When Hugo contacted Boats To Go they seemed interested in having a dealer in Colorado and Denny asked about their dealer program. To be a dealer Hugo had to buy 20 rafts, but if he couldn't sell them during the season they could be returned and his money would be refunded. It sounded like a reasonable deal, but when the raft arrived it was pretty bad and Hugo was not comfortable selling them.(1)

Denny took the raft to Three Rivers Resort and asked Vito Cavelli what could be done to make the rafts marketable. Vito suggested about ten changes to the raft design. Hugo sent the suggestions to Boats To Go who said they would have the modifications made. So Hugo formed a company, RM Rafts, LLC, as the name Rocky Mountain Rafts was already taken at the time. He didn't want to start a real company, but as a W-2 wage earner and airline pilot there were not many ways to reduce taxes and he just wanted a small business to save a little money on income taxes and make a small profit. Denny ordered 20 Saturn rafts made to the revised specifications and started selling them in the Crested Butte area. Joe Kallis became a sales representative and was paid a commission on the boats he sold.(1)

RMR planned to cater to entry level rafters but Hugo soon realized you couldn't do much with just a raft. Entry level rafters also need accessories and he needed to be able to at least sell oars, paddles, PFDs and frames. He tried to get a dealer account with NRS but they refused because he didn't have a store front.(#j.) So Hugo sent NRS a picture of his log house with an RM Rafts sign above the garage and he reminded them that they started out in a garage! But NRS still refused to approve Hugo's dealer account with them.(1)

{Numbers in parenthesis (1) are REFERENCES; letters in parenthesis (#a) are described in SIGNIFICANT NOTES.}

Denny called Vito at Three Rivers Resort to see if they would help by letting Hugo use their NRS account to purchase gear. Vito and the owner of Three Rivers Resort agreed to help Denny and RMR paid them their cost plus a percentage to order NRS frames. Hugo set up accounts with Extra Sport for PFDs and Carlisle oars and paddles. Now he needed to figure out how to market the Saturn raft packages.(1)

Even in 2007 a business needed a website to be successful so Hugo contacted longtime family friend Zack Burch, who was a graphic artist and website designer. He told Zack that RMR needed a website to market three sales packages: A paddle raft package, a fishing package and a booze cruise package. In about six weeks RMR sold all of the rafts and ordered a few more.(16)(#q.)

The following year was a bad year for the economy. Joe Kallis quit school at Western State, guided river trips in the summer and moved to Silverthorne, Colorado to become a car salesman and continued selling rafts for Denny. The sales of Saturn rafts and raft packages grew and Hugo had to rent storage units to store their expanding inventory. Near the end of 2008, Joe said he wanted to work for Hugo full time and he wanted to open a raft store. Denny didn't live in Colorado's Front Range, and he didn't have time to run a store, so he agreed as long as Kallis was willing to run the store. They initially looked for a site in Denver, but because AAA Inflatables was NRS's designated raft dealer for the Front Range, NRS agreed to let Hugo be a dealer in Colorado Springs for all of their products except rafts. In the spring of 2009 Hugo opened the only raft store in Colorado Springs.(1)

Hugo really didn't want a store but they needed a retail store front in order to get accounts with NRS, AIRE, Jack's Plastics, Down River Equipment, and some of the other larger raft manufacturers and distributors. Denny and Joe sold most of the products online and to local customers who would come into the store to pick them up. The store was just an industrial unit they made into a storefront. There was a glass repair shop on one side of it along with a cabinet manufacturer and car repair shop on the other side. It was not a retail shopping area, but, it sufficed. Joe kept the store open a few days a week during rafting season and also by appointment. By the end of the rafting season the store was closed. Kallis was paid on commission and even though they didn't make a lot of money they were very successful selling rafts and river gear.(1)

Joe and Denny were not experts in rafting or raft design, but Joe had met Zach Baird, owner of Raftfix in Denver, and Zach was more than happy to help them out. Because he was an experienced river runner and had experience repairing rafts he knew what manufacturing methods failed most often and he knew what raft designs seemed to work best for everyday rafting. With Zach's design help and Joe's hard work researching raft manufacturers, they came up with some CAD designs of rafts and started sending them out to manufacturers in China, as that seemed to be the go to place for PVC raft manufacturing.(1)(#l.)

The reason RMR's boats are produced in China is the same reason other manufacturers produce their products overseas. There were no original equipment manufacturers with PVC raft production factories in the United States that they knew of, which meant RMR would have had to build its own manufacturing facility and begin from scratch. Many countries in the Orient manufacture their own fabric, so the overhead is low. Although Jack's Plastic, Maravia and AIRE produce their boats in the United States they had to charge over \$4000 for a raft to be profitable. The average river rat didn't have that kind of money to buy a raft and Hugo didn't have a million dollars to build a raft factory.(1)

Denny, Joe and Zach decided to build PVC rafts with overlapping, welded seams instead of glued butt seams. PVC rafts had a bad reputation mainly because of glue failures and they did not want that. They wanted to differentiate their rafts by building a higher quality raft for a lower price. They ordered several rafts from different factories but only one factory seemed to be able to fill all of their needs. The production manager and factory manager of the plant they selected had both previously worked at Hwa Nan, a highly respected factory owned by Mr. Chen of Taiwan.(#a.) Grandsoo was well versed in raft manufacturing and they also built inflatables for several large European and US water park manufacturers. Grandsoo built a sample to RMR's specifications and it met their criteria, but Hugo wasn't going to spend money on a lot of boats until they went there and inspected the factory and met the key people.(1)(#r.)(#m.)

In the fall of 2010, Joe and Denny flew to China to meet the factory management team, tour the facilities, and make sure everything was satisfactory. The factory had top notch, modern equipment, was clean and very professionally run. They had several multi-million dollar clients who purchased inflatables for water parks and various other inflatable products. After the inspection Hugo gave Grandsoo the go ahead and handed them the plans for all of the RMR rafts (9.5', 12', 13', 14', and 16') and Cat Tubes (14' and 16'). The factory design team helped modify the designs a bit to make the manufacturing process more efficient and they built the first set of rafts.(1) The 12 foot boat was their initial product with a design to be an all-around boat with equal performance and gear capacity in mind, enough rocker to not get soaked by every wave, and able to haul gear.(5)

Hugo determined his market to primarily be the first time raft buyer who did not have the financial means to buy a name brand raft but he wanted good quality rafts. They had previously rented out some Saturn rafts that frequently came back with damage from the inexperienced rafters, so they knew they needed a better quality material for the primary market base. With the help of Zach Baird, they decided to produce rafts that had the features of the higher cost boats, namely overlapping welded seams, laced in floors, and a 5-year warranty. The goal was to build rafts that would be suitable for multiple uses. They initially chose to use 1000 denier/33oz. PVC for main tubes but fully wrapped the bottom with a 66oz. material to make it durable. The rafts were heavy but they were very sturdy boats. With the understanding that life is full of compromise they knew that if a person wants a bullet proof boat, it's not going to be lightweight and inexpensive at the same time.(1)

Hugo wanted to run a low cost operation and he remembered what Herb Kelleher, the founder of Southwest Airlines, said many times: “If you are going to be the low cost leader, you have to have low costs!” RMR used the Colorado Springs store as a warehouse the first year to save money. Hugo had not taken a paycheck, Joe Kallis worked straight commission, and they paid Zach Baird and the website designer for the work they did. That was pretty much the RMR team going into 2011- the first manufacturing year.(1)(#n.)

A major decision was whether to be a direct sales company or a wholesale company with a dealer network. Hugo decided to take the lower margins of wholesale distribution in hopes of doing more volume. Getting local paddle shops to carry your rafts when you are the new guy on the block is not easy, so Joe took the prototype raft and set out on a multi-week road trip to visit raft dealers in Colorado, Montana, and Utah. He was able to attract several accounts and RMR received their first preseason raft orders for 2011. It was less than 100, but it was a start.(1)

The first shipment of rafts arrived in the spring of 2011, and they unloaded the container and shipped the preseason orders to the dealers. It wasn't long before some of the dealers complained about some minor issues with the boats. Some of the d-rings, handles, and wear chafers were not adhered as well as they should have been and there were a few other quality control issues. The shipping boxes were not strong enough to hold the heavy rafts and many were not suitable for reshipping without a lot of taping. Joe and another employee at the raft shop received the unenviable task of opening all of the boxes, inspecting the product, repairing any issues, and boxing the product back up for shipment.(1)

In the spring of 2011, Jason Lamunyon came on board as Director of Sales & Marketing and to help set up the initial company procedures with the option to eventually become a partner. Hugo met Jason the year before and he was a wealth of information about the outdoor industry. He had been a sales representative for North Face, was an avid rafter, and was very familiar with the industry. Jason was responsible for setting up the first sales representative, Craig Richter of Downstream Distribution. Craig covers the Pacific Northwest States and has set up many accounts in his area. Jason and Joe basically ran the day-to-day operations and Denny provided the financial backing. Jason has since left the company but Craig still is a sales representative.(1,6)

In August 2011 Kallis, Lamunyon and Hugo had a small booth at the Outdoor Retailer Show in Salt Lake City in to get exposure for their boats. After the show, Joe and Jason proposed RM Rafts should get into the distribution business as well as the raft manufacturing business. Hugo opposed distribution because the margins are small if you are a distributor so you have to sell a lot of product to make it worthwhile. Hugo wanted to concentrate their efforts on fixing the quality control issues with the first round of rafts and was not interested in selling other company's products at low margins.(7)

Joe Kallis was doing well at the raft shop, but he was concerned about the quality of the first round of rafts. Being the financier, Hugo realized that he couldn't be an airline pilot, own a raft store, own a raft manufacturing business and have a family at the same time so something had to go. The raft store wasn't making a lot of profit so Hugo decided to close the it and offered to sell it to Joe at a low price. Joe did not accept the offer and left RMR after helping to sell most of the remaining inventory. Hugo took three weeks off from flying to close down the store and move what was left to a new location in Phoenix, AZ, where he lived most of the year at that time.(7)

The quality control issue still needed to be resolved and using factory employees to inspect the rafts was not acceptable. Hugo returned to the plant in China to explain in detail the quality they needed to meet and the issues he had with the first order. The factory was receptive and they agreed that Hugo would inspect every raft before it was put into a box for shipment from then on.(7)

Hugo spends a great deal of time flying back and forth to the factory in China to monitor production and inspect the products. When a new batch of boats is complete, he inspects them after they have been inflated for a while. This allows him to check seams on every boat, to see if they are losing air, have weld defects, and check for any blemishes before the boats are boxed and put on a cargo container.(#c.) He now has an American friend who lives in China and is paid to help with the inspections when a lot of boats are being built if Denny can't get to China. But he still makes 3-5 trips a year to the factory and inspects over 75% of the rafts that are built and the quality of the rafts has improved immensely.

In 2012 RMR continued to expand its operations. Denny sold a raft to an Ohio customer and because RMR had never sold a raft to anyone in Ohio Denny mentioned that he was interested in selling boats in the Midwest and East Coast. The customer told Denny to get in touch with Bobby Bower in West Virginia. Denny contacted Bower, who was the Executive Director at West Virginia Professional River Outfitters and owner of Pro River Outfitters - a fishing guide business on the New and Gauley Rivers. Hugo flew to West Virginia for two days, and they went rafting and talked about the state of rafting on the East Coast. Denny had not realized the East Coast market was so large. At the end of the visit Bobby agreed to be a dealer for RMR and to be their East Coast sales representative.(17)

In 2014 Bower, an expert raft guide and an outstanding salesman, opened a small shop for his business and to display and sell RMR rafts. He was interested and working closer with Hugo and in 2015 he became General Manager (GM). Since hiring Bobby, RMR's East Coast sales have increased exponentially. In January 2017, RMR will be moving the logistics operations to West Virginia and hiring a full-time employee, Julie Jones, to run their logistics operations and to help Bobby out with the GM administrative tasks. This will give them the capability to expand their product lines in the future. For Denny it will mean more free time to concentrate on strategic planning and new product development instead of the day to day operations of the company.(17)

Grandsoo keeps samples and information on adhesion tear strength, and fabric rolls to research any problems that might recur.(5,7) Individual pieces of the Rocky Mountain boats are sliced out en masse with computer controlled band cutters foregoing much of the usual hand labor that increases the cost to produce each raft.(2) Rocky Mountain's inflatables have radio frequency (RF)(#e.) welded seams, floor I-beams, bulkheads, d-rings & all other attachments. In addition to the main seam overlaps, RMR welds seam tape over both the interior and exterior side of each tube joint, something few other PVC boat manufacturers do. The extra step of adding seam tape to the interior overlaps along the exterior edges, and the outside seam tape makes air retention more reliable.(2)

RMR rafts, made of RockShield™ PVC, have stainless steel D-rings outside and two more on the inside of the bow and stern for attaching items to the boat. Cataraft tubes have four per side, or sixteen total per pair. Extra D-rings can be added as requested. Two removable thwarts and six lift handles are standard on the rafts and all boats have frame chafers. The base fabric inside the 44 ounce PVC is a 2000 denier polyester. The floor fabric wraps up the tube and although the extra layers also make the rafts difficult to roll up they resist abrasion and damage from objects. RMR used low profile Leaffield C-7 valves but in 2016 they changed to Leaffield D-7 valves.(2,5)

Over time RM Raft has made the following small but important improvements from customer feedback and recommendations of Zach Baird of Raftfix:

In 2011 the 14' raft sold for \$2,199 retail and in 2012 they made improvements with a very small increase in cost. They added a silt screen to the Leaffield PRV valves. They went from a 1100 denier/33 oz. tube fabric to a higher denier/heavier duty, PVC tube made from commercial grade 2000 denier/44 oz. fabric. The laced in floor included larger grommets and went from being a 2000 denier/66oz. fabric to a 2000 denier/66oz. bottom and a 2000 denier/44 oz. top. Because of the heavier base fabric they no longer fully wrapped the bottom of the boat but they added a 44 oz. bottom chafer for the tubes. Although the thicker floor added weight, it also added protection to one of the most abused sections of the boat.(5,8)

The other 2012 change was that all handles, d-rings, and thwart attachments are RF (radio frequency) welded, instead of being glued to the boat. The only parts of the 2012 boats that were glued are the top and bottom chafers for the tubes and the V-tape that attaches the floor to the tubes. All critical parts of the boat were either hot air or RF welded to the boat.(5,8)(#e.)

In 2013 there was a very small increase in cost (\$76 on a 14' raft) of rafts and the prices on catacraft tubes remained the same as 2012. They made improvements to the raft floor, raising the V-tape about one inch and increasing the number of I-beams in the floor to alleviate how much water is held in the channels on the sides of the raft and between the I-beams. They used stronger, tubular type webbing to lace in the floors and a different method to lace in the floors for a tighter floor. The inflation and PRV valves were moved further back toward the tubes so they won't be stepped on. The size of the welded area of each d-ring was increased on both the rafts and catacraft tubes for higher pull strength and there is more stitching over a wider area of the webbing that holds the metal d-rings and the lift handles. The combo handle/d-ring patches

have been angled, further increasing their strength. The thwart attachments were slightly redesigned and the length of the thwart was increased to fit tighter against the main tubes to decrease their movement.(5,9)

In 2014 RMR offered a laced in, 6 inch thick drop stitch floor on 12', 13', 14', and 16' rafts. The drop stitch floor was encased in 2000 denier/44oz., PVC that can be inflated to pressures up to 8 psi and it does not require a PRV valve. The drop stitch fabric is expensive to produce and requires a layer of PVC to be glued to it to make it durable enough for river running, thus the drop stitch floor option increased the total price of the raft about 10-12%, depending on the size.(5,10)

They began offering a 10.5 foot self-bailing raft, (the SB-105 Storm) priced at \$1,699 retail for running small rivers or those who want to paddle a small boat.(#q.) It has 18" tubes, a glued in I-beam floor and 2 thwarts. The construction and materials used are the same as on the other rafts. Colors were blue, gray, red and green. Custom colors are available on preseason orders with a minimum quantity and a deposit required. Specifications: length: 10'6"; width: 5'2"; tube size: 18"; chambers: 3+1+2 (tubes, floor, thwarts); d-rings: 6 outside and 2 inside; carrying handles: 2; Weight: 86 lbs.; material: tubes are 2000 denier/44oz.; floor is 66oz. on the bottom and 44oz. on top.(10)

RMR also began producing a single person inflatable kayak (IK) and planned to offer a 2-seat version. The standard colors were blue, gray, red and green, but custom colors could be ordered with a purchase of a minimum of five and a deposit. The two chamber IK is constructed with 1000denier/33oz. PVC. It had a glued in I-beam floor, d-rings in the back to attach gear, and thigh straps for \$799 retail. Specifications: length: 10'3"; width: 38"; tube size: 11"; chambers: 2+1+1 (tubes, floor, thwart); 8 d-rings and 2 carrying handles.(10)

2015 saw additional modifications based on dealer and customer suggestions. The floors on all of the rafts were more rounded on the ends and the I-beam floors were made thicker. The I-beams were tapered on the front and rear of the floor to decrease drag on the rafts. The thwart design was changed to a longer and angular design to alleviate the stress on the PVC hinge that holds the thwart by distributing some of the weight to the tubes. They used a higher quality thwart pin and handles and webbing, and began using the Leafield D7 low profile valves. The upgrades, changes, inflation, rising labor and material costs as well as manufacturing costs required a modest price increase.(5,11)

Hugo resisted establishing a MAP (Minimum Advertised Pricing) policy for four years. However, almost every customer now shops, or at least researches prices, on the internet before they buy a raft. Several dealers had requested RM Rafts institute a MAP policy and it has become the industry standard for manufacturers to have MAP Policies in place. In order to preserve the integrity of the Rocky Mountain Raft (RMR) brand, and dealers, they established a MAP policy for 2015 and beyond. Although Hugo felt it was not wise to sell products in season for less than retail, even though RMR cannot control or dictate the actual sales price of their products.(11)(#o.)

In 2016 RMR planned to ramp up their social media networking to gain more exposure of their products. There were a few small changes in 2016, including raft floors that will be even more rounded on the ends and the I-beam floors attached to the main tubes lower to maximize cargo room. They added bailing holes in between the floor attachment grommets to significantly increase the raft's self-bailing capability. The Storm, 10'.5" raft with the glued-in floor, was made a little wider to increase the flotation. Similar modifications were made to the solo and tandem IKs, and IK handle locations were adjusted to be easier to grab when the IK is fully inflated.(13)

The RMR drop stitch floor boat was promoted as their "Premium Line" of rafts. The drop stitch floor boats have advantages over an I-beam floor boat because the high pressure, 6 inch, drop stitch floor adds surface area to the raft floor, displacing more water so the boat floats approximately 20% higher making it better for shallow rocky rivers. The rigid floor is smooth making it a good platform to stand on and cast while fishing with the potential to eliminate the need for casting platforms. The drop stitch material is lighter, a 14' drop stitch floor raft is approximately 10 pounds less than the mainline 14' raft, and the inside depth on a 14' drop stitch floor is approximately 15" compared to 12" on the I-beam boats so it has more cargo room.(13)

Because of upgrades, changes, inflation, increased labor and material costs the retail prices increased by approximately 3% for 2016.(13) In 2016 they introduced a new thwart attachment system along with a heavier grade PVC to reduce the chance of thwart attachments tearing.(#m., & #p.) They returned to installing three thwarts in all of the 12', 13', and 14' rafts. The 10'.5" Storm had two thwarts and because 16' boats are more of a gear boat, they only had two thwarts installed but they have an attachment point for a third thwart.(2,14)

They introduced a paddle cat called the Phatcat in 2015 and for 2016 added two more chambers to make it a 4 chamber boat because several rivers require a minimum of 3 chambers. They also added six small d-rings (three on each side) on the back of the tubes to attach drop bags or other accessories. RMR is in the process of designing a drop bag customized for the Phatcat but it is still a work in progress. The new Livery Series of rafts was designed primarily for outfitters running float trips on rivers with little to no whitewater. They have standard floors (bucket boats) and an integrated thwart, that RMR calls the Unitube design. The Peak Series, making its debut in 2017, is another raft designed primarily for the outfitter market. The first design is a 16', diminishing tube raft with four thwarts and a significant kick and rocker for handling big water. They are currently in final testing in West Virginia, it will be on display at the American Outdoors Association Trade Show in Daytona in December 2016.(14) (See the Peak video at: <https://youtu.be/JZq6aKt9aQc>)

RMR self bailing rafts have a lace-in floor(#d.) and since 2013 are available with a standard I-beam floor or for a \$300 upgrade a drop stitch floor.(#g.) Warranties on all RMR boats are five years, three years for commercial use. Raft colors for 2013 were blue and red; in 2016: blue, green, grey, red, lime, yellow; The interiors (thwarts and floor top) are gray.(2)

RMR recommends a maximum boat inflation of 3.5 psi. They plan to increase the psi rating on the floor valves and will be overlapping the bottom wrap so the seams all point to the rear.(2,4) (Rafts below are with I-beam inflatable floors unless available with drop stitch.) The Storm was named after Colorado's Storm Peak, the home of Storm Peak Laboratories at 10,500 feet.

<u>2016</u>	<u>STORM</u>	<u>SB-120</u>	<u>SB-130</u>	<u>SB-140</u>	<u>SB-160</u>
Length	10'.5"	12'	13'	14'	16'
Width	5'2"	6'2"	6'3"	7'1"	7'8"
Tube Diameter	18"	19"	20"	20"	22"
Rise	27"	27"	28"	29"	31"
Chambers*	2/2/1	4/2/1	4/2/1	4/2/1	4/2/1
D-Rings	6	12	12	12	18
Material Wt.^	44/66	44/66	44/66	44/66	44/66
Denier	2000	2000	2000	2000	2000
Weight	79#	120#	136#	158#	195#
2016 Retail Price	\$1,750	\$2,265	\$2,498	\$2,679	\$2,999
2016 Drop Stitch FL		\$2,793	\$2,999	\$3,199	\$3,699
2016 Wholesale	\$1,225	\$1,585	\$1,748	\$1,875	\$2,099

* Air Chambers- Tubes/Thwarts/Floor; ^ Material weight in oz./sq. yard

Cataraft colors are blue, gray, red and green. Inflatable kayaks come with glued-in 44/2000 I-beam 2000 denier/44oz. floor, quick release thigh straps, and come in blue, red, gray and green colors.(2)

<u>2016</u>	<u>CT-140</u>	<u>CT-160</u>	<u>PaddleCat</u>	<u>Animas 1IK</u>	<u>Animas 2IK</u>
Length	14'	16'	11'9"	10'10"	12'
Width	X	X	5'8"	38"	38"
Kick	X	X	X	12"	12"
Tube Diameter	22"	24"	23"	11"	11"
Chambers*	3	3	2	2/1/1	2/1/1
D-Rings	16	16		10	10
Weight			53#	35#	35#
2016 Retail Price	\$839	\$1,590	\$1,299	\$823	\$977

* Air Chambers- Tubes/Thwarts/Floor; ^ Material weight in oz./sq. yard; X = N/A

For 2017 RMR made no design specification changes but raised prices about 3% to offset the material cost increase. They added two new series in 2017. The Livery Series is designed to service the float trip market and the Peak Series is designed for the commercial big water outfitter market, with 2000 denier, 44 oz. Welded PVC tubes and 2000 denier 66 oz. floor. The Peak Series will be adding a 13'6" three thwart model to that line later in the year.

<u>2017</u>	<u>Peak -16</u>	<u>Livery 10.5</u>	<u>Livery 13</u>
Length	16'	10'6"	13'
Width	7'	5'2"	6'3"
Rise	33"	27"	28"
Tube Diameter	+	18"	20"
Chambers*	4/4/1	3	3
Floor	>	<	<
Thwarts	4	2	2
Weight	44/66	44/66	44/66
D-rings	10	8	8

* Air Chambers- Tubes/Thwarts/Floor; ^ Material weight in oz./sq. yard, tube/floor;
+ 23" straight tube section diminishing to 19"; > 2000 denier I-beam glued in floor;
< 2000 denier 66 oz. NSB floor

Some of the commercial river outfitters using Rocky Mountain Rafts are: Absaroka River Adventures, Geysir Whitewater Expeditions, Montana River Outfitters, (MT); Adventure Discovery Tours (AZ); Alpine, PRO River Outfitters, (WV); Blue Sky Rafting, H2O High, Rogue Wilderness Adventures, (OR); Colorado River Center, Dvorak Expeditions, Elk Mountain Expeditions, Yampa Valley Anglers, Scenic River Tours, (CO); Epic Adventures, (TX); Clinch River Outfitters (TN); Desert Adventures / Kayak, (NV); Love To Float Outfitters, (AR); Pocono Whitewater, (PA); Raft NH, (NH); River & Trail Outfitters, (MD) River City Adventures, (VA); Colombia Rafting Expediciones (Colombia); Desafio Adventure Company, Dinghy Expeditions(Costa Rica); and Incept Adventure Company, Rocky Mountain Paddling, (Canada).

Perhaps one of the reasons Rocky Mountain Rafts are of higher quality than other inflatables made in Asia is that owner Denny Hugo, being a commercial pilot goes to the factory in China frequently to check on quality control and he has become familiar with Asian customs and production. He obviously cares about his product and its reputation. Since its inception the mission of Rocky Mountain Rafts has been: To produce and distribute the best value rafts and inflatable products in the industry and to deliver consistent, outstanding customer service. To give everyone the opportunity to own their own raft, inflatable kayak, or cataraft at an affordable price, and they continue to be true to that mission.

REFERENCES

* - University of Utah, J. Willard Marriott Library, Special River Archive, Herm Hoops Collection

- (1) History Document of Rocky Mountain Rafts, by Denny Hugo; to Herm Hoops; August 2016;
- (2) Rocky Mountain Rafts 2016 website; www.rockymountainrafts.com;
- (3) Northwest Rafting Company; *Raft Materials and Manufacturers*, Zachary Collier; March 22, 2013;
- (4) Rocky Mountain Rafts - Press Release: Rocky Mountain Rafts appoints new General Manager; January 13, 2015;
- (5) Email from Zach Baird of Raftfix to Herm Hoops (Mountain Buzz response); June 29, 2016;
- (6) Email from Jason LaMunyon to Herm Hoops; August 27, 2016;
- (7) Email from Denny Hugo to Herm Hoops; September 25, 2016;
- (8) 2012 letter from Denny Hugo to RMR Dealers;
- (9) 2013 letter from Denny Hugo to RMR Dealers;
- (10) 2014 letter from Denny Hugo to RMR Dealers;
- (11) 2015 letter from Denny Hugo to RMR Dealers;
- (12) Edited from: "How Minimum Advertised Pricing Impacts Your Retail or Online Store's Marketing Efforts"; U.S. Small Business Administration; Caron Beesley; March 6, 2013;
- (13) 2016 letter from Denny Hugo to RMR Dealers;
- (14) 2017 letter from Denny Hugo to RMR Dealers;
- (15) Email from Bryan Dingle (NRS) re: NRS Battens to Herm Hoops; June 30, 2016;
- (16) Email from Denny Hugo to Herm Hoops; October 17, 2016;
- (17) Email Denny Hugo to Herm Hoops; November 9 2016;
- (18) Email Denny Hugo to Herm Hoops; November 20 2016

MISCELLANEOUS

- U.S. Coast Guard Hull Code: RMR

- Rocky Mountain Rafts, LLC. 13771 N Fountain Hills Blvd Ste-114-126

Fountain Hills, AZ 85268-3733; 888-785-1844; info@rockymountainrafts.com

- Rocky Mountain Rafts, Denny Hugo (owner)

- RMR has several independent sales representatives and service dealers. They are the primary point of contact for outfitters in an area that has a sales representative.

SIGNIFICANT NOTES:

(#a.) Hwa Nan Plastics Manufacturing Industries Ltd.

Hwa Nan was incorporated in 1968 to produce and sell all kinds of PVC inflatable toys, novelties and sporting goods including: boats, kayaks, towables, air mattresses, pools, spas, bouncers, trampolines, toys, novelties and sporting goods. Initially based as an inflatable manufacturer in Taiwan for about 30 years, they expanded and moved it to China in 1995 to extend their production capacity and capability.

(#b.) PVC

PVC, which is also commonly referred to as "vinyl," is made from two basic substances: chlorine, which comes from salt, and ethylene, a compound derived from crude oil. The chlorine and ethylene are combined to produce ethylene dichloride, which undergoes high heat and polymerization to create the powder known as "polyvinyl chloride resin." To make PVC fabric, manufacturers process PVC resin with other materials to obtain the desired color and texture, and then use the PVC to coat one side of a knit fabric, such as polyester or Lycra. The origins of PVC fabric date back to the early 1920s, when a scientist named Waldo Semon discovered a versatile new material. He called this new product "polyvinyl chloride," or "PVC." In the following decades, PVC was used in a variety of products, from piping to raincoats, with PVC-coated fabrics gaining popularity in the 1950s and 1960s. PVC rafts, especially the larger sizes, are difficult to roll up.

(#c.) Factory Boat Inspection

It is impossible for the factory to inflate just one air chamber on each of several hundred rafts and cat tubes, then have the degree of total silence in that factory needed to detect a tiny hiss on a bulkhead. To do this they would have to repeat the process two more times for each raft, and Denny would be waiting a long time just for boats to be blown up. When Hugo inspects the rafts at the factory every power tool, radio, air conditioner, or other noise source in the plant is turned off in order to hear any leaks, seams and placement of d-rings, handles and other manufacturing issues are checked on each raft.(2)

(#d.) Laced-in Floors

Should something happen to a floor it can be unlaced and shipped to RMR by UPS, faster and less expensive than shipping a whole boat on a truck line. Laced floors cost far more to produce, but they have the benefit of draining a raft quicker than glued ones can.

(#e.) RF Weld

Radio frequency welding or (high frequency welding) is the process of bonding together materials through the use of electromagnetic energy. Two electrodes create an oscillating electric field that begins to shift and move polar molecules within the materials in order to orient themselves in accordance with the electromagnetic field. The movement of these molecules releases energy in the form of heat. When enough energy is applied, the molecules begin to melt and bond to one another. No external heat is applied. The weld is completed by applying pressure to the bonded area, ensuring a successful seal.

Many factors affect the strength and seal quality in RF welding. Tooling layout, weld thickness, material thickness, and machine control are some of the most important factors in creating a good seal. The appeal of RF welding is in the completeness of the weld. Using this method can create very robust hermetic seals. Some materials (PET, PVC, Thermoplastic Polyurethanes, and open celled polyurethanes) are more of a challenge to RF weld than others and require a special process.

There are several alternatives to RF welding including sewing, gluing, or using hot air. RF welding provides a consistent air tight seal unlike sewing. When sewn seams are stressed, the thread takes the pressure and could break. RF welds evenly distribute stresses throughout the material providing a much stronger seam while preventing any air, moisture, or debris getting in. Glued bulkheads are easier to seal perfectly than welded ones, but the chances of them blowing out (creating a major leak between chambers) is much higher than with a welded bulkhead.(2) Gluing takes longer than RF welding and uses hazardous solvents that are harmful to the environment. Glued seams are also subject to failure once the adhesive has worn out.(8) RMR does not glue seams, they are all welded overlapping seams.(17)

Hot air is a method that applies heat to the outside of the material to melt it and create a bond. This method is only effective up to certain thicknesses. Materials that are too thick will not bond in the middle as the core will struggle to melt, while the outside layers are over heated or burned. RF welding heats from the inside out and is the best method for forming air tight seams. The machines used to RF and hot air weld PVC are very expensive, in Asia, it is often cheaper to hire labor to glue rather than to invest in the technology and training to weld.

Almost all other PVC raft manufacturers (excluding AIRE, Maravia, and Jack's Plastics) glue their boats together. To quote Lee Arbach, owner of The Boat People and who has sold about every raft available and knows rafts better than most anyone, "The bottom line is that properly welded seams on PVC boats are stronger than cold-glued rubber boat seams, and far more durable than glued seams on PVC models."

(#f.) Leaffield Valves and Inflatable Operating Pressure:

The Leaffield Marine D7 valve is designed to replace the C7 Valve - the favored inflatable boat valve for military and commercial RIBs, river rafts and inflatable boats. The D7 Valve has improved inflation/deflation speed and it has an enhanced clamping method with an 'O' ring seal added to the valve core to clean the seal surface, reducing leakage due to dirt contamination. The D7 valve has a shorter internal profile than other valves making it ideal for smaller diameter tubes on inflatable kayak floors. The D7 is available in grey or black and caps are available in grey, black, and white or yellow.

RMR recommends a maximum boat inflation of 3.5 psi. Leaffield manufactures a gauge to measure the pressure and its use is highly recommended. Depending on the type of performance you want out of a raft, you may want to run your raft at lower pressures. Remember to let some air out of your raft if it is going to be sitting in the sun or you are driving over high altitude passes!

(#g.) Drop-Stitch Floor

Drop stitch fabric was designed in the 1940s as collapsible fuel cells for combat aircraft. The drop stitch material keeps its shape by gluing thousands of threads to the inside of the PVC and then another layer of material is welded to encapsulate the floor. The advantages of drop-stitch are: high pressure floor adds surface area displacing more water so the boat floats approximately 25% higher making it great for shallow rocky rivers, the floor is smooth making a platform to stand up and cast a rod, the drop stitch material is approximately 20 pounds less than the mainline 14' raft.

(#h.) Denny Hugo

Denny Hugo is a career pilot (age 59 in 2016). He graduated with an Aeronautical Engineering degree from the U.S. Air Force Academy in 1979 and later received a Master's degree in Aeronautical Science from Embry Riddle University. He became an Air Force fighter pilot and flew the OA-37B for 3 years and the F-16 for about 10 years. Denny graduated from the U.S.A.F. Fighter Weapons School and had assignments in Texas, Arizona, Germany, Korea, Georgia, and Ohio. He spent 13 years on active duty and 9 years in the reserves. In 2001 Hugo retired as a Lt. Colonel from the Air Force Reserves. After leaving active duty in 1992, he was hired by Southwest Airlines in 1993 and has been an airline captain for over 18 years.(1)(See complete biography in document)

(#I.) Saturn Inflatables

Saturn is an inexpensive raft manufactured in China and were imported by Boats To Go in Florida (1945 NE 149th St. Miami, FL 33181). Boats To Go mostly market Saturn dinghies but they had also gotten into the direct sales raft market. Last year over 3,000 Saturn boats were used on rivers, lakes and oceans throughout the world.

(#j.) NRS

Bill Parks set out in 1972 to prove that the principles he taught in the classroom could work in the real world and he began selling river gear under the name Northwest River Supply. Since then NRS has grown into a massive design, manufacturer, importer and distributor of a wide variety of river related boats and gear. From the beginning NRS had strict guidelines to qualify for discounting their products to outfitters, retailers, rescue organizations and government agencies. Retail stores and businesses that look to stock, maintain and represent the NRS brand with the intent of resale had to have a business license, tax ID and a retail storefront among other requirements, and they also protected their retailers primary sales area by not accepting competing retailers in core areas.

(#k.) RM Raft Significant People

- Joe Balkenbush is an attorney and judge who was taking the guide course to learn how to run rivers. Joe still works with RM Rafts if they have any legal issues that need attention.
- Zach Baird was, and still is, very instrumental in helping RM Rafts design new products. In 2014 he became the technical support expert.(10) His company, Raftfix, is also the RM Raft authorized repair facility.
- Bobby Bower became the RMR General Manager in January 2015. Bower conducts the day-to-day operations and is responsible for the company's growing product line and sales channels. Bower, a West Virginia native, was the Eastern sales representative from 2011-2016. He was instrumental in driving sales growth and product distribution east of the Mississippi. He brings nearly three decades of outdoor industry experience to the RM Raft staff.(4,10) Bobby Bower is an expert river guide, professional angler and arm-chair historian.
- Craig Richter of Downstream Distribution is noted as an independent sales representative in 2014.(10)

(#l.) CAD

CAD stands for Computer Aided Design. Using this process the design of a raft (or any three dimensional object) can be easily modified or changed to meet different criteria. In it's complete application the computer designs each piece of a raft and sends the information to an automatic cutting table that then cuts out the pieces of fabric. It appears that Colorado Headwaters was one of the first whitewater inflatable manufacturers to use the Computer-Aided Design.

The October 1995 story in *Desktop Engineering Magazine* says: Now, 15 years later, both the advertiser and the software featured in the piece are still going strong. MathType is now owned by Design Science, a company specializing in software for mathematical notations. CADKEY is now known as KeyCreator, marketed by Kubotek (acquisition took place in October 2003). John McCullough, product manager for KeyCreator recalled: "Most CADKEY customer base [in 1995] and certainly AutoCAD users were doing 2D." "A lot of large companies had two CAD systems. Their major CAD system, typically ran on Unix or mainframes, and a secondary group using PCs was doing mostly 2D." At the time what Colorado Headwaters was doing with CADKEY, using it on PC to design in 3D was an exception to the rule. (The system specs for CADKEY in the article read, "8 MB of RAM, 16 MB recommended.") One of the milestones after Kubotek's acquisition of CADKEY, noted McCullough, "was the direct feature recognition, a forerunner of what would later become direct modeling. This is the ability to look at a model and, instead of trying to remember how it was created or what the original intent was, just focus on the shape itself, and use geometry tools to extract feature information so that it's editable." "Once, people dreamt of futuristic metropolis with suspended highways and flying cars. This, however, has yet to come true." Sweeney anticipated, "The way we interact with our PCs, laptops, and devices will be dramatically different, it's gonna be an interesting ride."

(#m.) Foreign Quality Control

Dealing with foreign manufacturing requires cultural and historical knowledge. For example the Japanese will quote a correct price for a product, and the Taiwanese are used to bartering with the U.S. from many years of manufacturing items built in Taiwan. Most Asian manufacturers aren't overly concerned about patent infringement. They don't openly discuss that and you don't even know if they looked at the patent. Generally they don't want to be under your insurance umbrella they want you to take responsibility for any errors or problems. The biggest difficulty is learning the country's culture, because in many Oriental cultures they don't accept something unless it was their idea, and often when asked about failing to make a change in process the factory workers report: "Well we didn't do anything because it has to be coming from my bosses."

(#n.) Keeping Costs Low & Warranty

RMR's goal is to process the order and ship within 5 business days if the items are in stock. It is less expensive to ship multiple rafts on a pallet as opposed to one at a time. The average cost of shipping a 14 foot raft is around \$135. Typically, a pallet of 4 boats will cost less than \$300. To keep costs down RM Rafts uses technology to the maximum extent possible: all of invoices and correspondence to arrive via email. At the bottom of each invoice is a web link that will go to an online bill payment system similar to PayPal. The system is owned by Intuit, a large tech company, the system is secure and does not cost the buyer. If there is a warranty problem, RM Rafts has contracted with a raft repair facility in Colorado to service warranty work. To save money and time, RMR may approve dealers to correct, with compensation, simple warranty problems if they have that capability.(See warranty in document)(8)

(#o.) MAP

Minimum advertised pricing (MAP) policies are critical to manufacturers who sell their products for online resale, given the ease at which consumers can now conduct online and mobile price comparisons. MAP policies are established to help small businesses compete and sell on service and value, rather than entering into a price war with cost-cutting big box stores.

Minimum advertised pricing only relates to "advertised" pricing and is perfectly legal under U.S. antitrust statutes. Essentially, you are limited to advertising MAP-protected products at a certain price, but you can sell these products at any price you choose (often guided by the Manufacturer's Suggested Retail Price or MSRP). Under typical MAP agreements, online retailers can't "display" any prices that fall below the MAP price. But which part of an online store actually represents advertising display space has caused quite a bit of controversy. For example, say a product is listed on a site for \$10. Once a coupon code or other incentive is applied, the actual shopping cart price could come down to \$8. Is that still considered "advertising" since a transaction technically hasn't yet occurred, or is it a commitment to buy and outside the scope of a MAP agreement?

The difference between an advertised price and an actual price that you may be charged has come under scrutiny by U.S. Circuit Courts and FTC rulings, which tend to agree that an actual price displayed in a secure/encrypted shopping cart isn't subject to MAP - because it's technically not advertising space, but represents an actual storefront. So in an online world, an actual price may legally end up being a lot lower than the MAP-required advertised price. In fact, manufacturers are often advised to focus their MAP policies on advertised prices in paid search ads, shopping comparison ads, and internet landing pages but not in shopping carts or other point of sale interfaces.(12)

(#p.) NRS Thwart Attachments

NRS designed BAT system, to secure thwarts to the rafts, in March of 1994. NRS is not sure how a system similar to the NRS BAT system made it onto RMR rafts, but they believe that this product was copied from the NRS pattern/product, because NRS thought the RMR batten attachment system looked too much like theirs there was the potential for litigation.(15) Hugo felt the system was an off the shelf system and looks nothing like the NRS system. RM Raft eventually designed a new pin that they feel is easier to use.(14)

(#q.) RMR Logo, Branding

In 2010 Zack Burch designed a logo. In 2011, at the suggestion of Jay LaMunyon, RMR created a new round logo that is still used in marketing material. By 2014, RMR was increasingly in social media circles, being referred to as RMR, presumably because it takes a long time to type out Rocky Mountain Rafts. They also found it difficult to manufacture a long lasting, detail oriented logo on the rafts. In 2014, Zack Burch created a new logo that was easy to manufacture and easily recognized on the river, the black and white RMR logo presently used the rafts.



(#r.) Xiamen Grandsoo

Xiamen Grandsoo Industry & Trade Co., Ltd. was established in 2006, for the design, production, distribution of inflatable boats, large inflatable toys, water entertainment equipment, waders, pool, air mattress, tents, waterproof bags, climbing cloths and other outdoor recreational sports goods. Grandsoo insisted on high starting point by introducing advanced equipment, setting up an industrial chain from raw material to end product. At present Grandsoo is working with Fuzhou University Macromolecule Science and Technology Institute, and has employed Professor Zheng Yuying to be the General Engineer of the Research and Development department.

A unique corporate culture is the source of the rapid development of Grandsoo. They are not only an outdoor recreational sports goods manufacturer, but also, being as an advocate and communicator in leading a new way of life with the philosophy of “enjoy nature.”

Xiamen Grandsoo Industry & Trade Co., Ltd. Fujian,Xiamen, No.63 Huliuyan Tongan Industrial Park Tongan District; XiaMen, Fujian, China;

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FOR INFORMATION REGARDING THIS DOCUMENT CONTACT:

The University of Utah; J. Willard Marriott Library; Special Collections Department; 295 South - 1500 East; Salt Lake City, Utah 84112-0860 (www.lib.utah.edu)

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