

This Months Pet Peeve: Exhaust Stacks

by Don Mock, edited by Geoffry Grembowski in 2014

As the R/CU Inspector this year (now Kirk Maupin is inspector-ed.), I plan to include in each newsletter a discussion about specific problem areas people have with their boats. Both from a safety and scale standpoint. This month; exhaust stacks. Nothing drives me more nuts than the wacky way many R/CU racers have mounted scale Rolls (and Allison) exhaust stacks on their cowls and even dummy engines. Some stick them straight up, others straight out, and my favorite, the rear facing Merlin stacks!

I'd like to offer some info and the proper mounting of exhaust stacks. First, a bit of Rolls Merlin history. In unlimiteds, basically two types of exhaust systems were used. More common up into the 1960's was the "collector" type which is one large pipe that runs along each side of the engine and is fed by smaller pipes from each cylinder. The large pipes usually exited behind the engine next to the cockpit (back further on many Allison boats ie. Gale V etc.)

The other exhaust type, which proved to produce better results for race boats, was the individual stacks. Several versions of these appeared, many which were custom made. Some were simple short round pipes bent or curved in various ways. Some were doubled pipes welded together for each cylinder.

The preferred Rolls Merlin exhaust stacks were the round "flanged" type. According to Merlin expert Dixon Smith, these stacks were manufactured by Rolls Royce for use in larger twin engine airplanes. The flanges attached to a collector pipe that exited behind the engine. Boat racers found that using the stacks alone, created lots of horsepower. Used by the Merlin powered Atlas's, Budweiser's, Pay 'n Pak and many others, the pipes were often painted flat white to disperse heat.



This photo of the Atlas in 1981 shows the "flanged" stacks on the Merlin with the cowl removed.

Even after a fifteen-year long "turbine era", many of R/CU's boats are still replicas of piston powered unlimiteds. And with the many 7612, 8200 and 8255 hulls, a lot with Rolls Merlin engines. Fortunately, several people like Troy McIntire have produced molds and offer 1/8th scale resin or plastic flanged Merlin stacks. Most of these are very realistic, but are often mounted wrong.

When mounting the exhaust stacks to a cowl, remember that a Rolls Merlin engines cylinder banks are slanted 60 degrees from the horizontal, outward from the center (30 degrees from a vertical centerline). This means that the stacks must be mounted to a plate or other structure inside the cowl at the same angle. They're also mounted straight out, not aimed back. Also consider the distance the stacks extend outside the cowl. I've seen several models with the pipes way too far out. On the real boat, after all, they have to be able to remove the cowl over the engine.

This also applies, in part, to mounting Allison exhaust stacks to a cowl. Several of them do, however aim rearward. Also, R/CU has several models of turbo-charged Allisons. A whole other topic. These complicated exhaust systems are challenging to model and I congratulate the guys who have built (and re-built) them.

Finally, one of the best ways to duplicate your particular exhaust system is to closely inspect photos of the actual boat. Identify the type and angle of the exhaust stacks and their proximity to the cowl. A visit to the Hydro Museum might also be in order. With all the restorations going on this year, you can see Rolls Merlins, Rolls Griffons, and Allisons, all being worked on. And thousands of photos.

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