

## **For those New GT40 Builds Intakes, Stacks and Air Filter Resistance**

***By Robert Sackett, GT40 p2285  
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There are many joys and many unnecessarily frustrating aspects connected with overseeing the build and selecting the components for these rare but awesome GT40 vehicles. Other than the huge problems I experienced with the initial engine build fiasco, the intake styles, design, performance, and fitment problems relating to intakes has strangely continued unabated. There's little doubt the buck stops with me, since I'm in charge. Making my poor performance even less excusable I did read numerous articles by other Forum members on various topics concerning intakes way before I made decisions, and still, I made mistakes.

For the sake of others that may some day do as we have done, I would say that most of the problems, difficulties and delays that I experienced were brought about because I attempted to balance my choices by using too many goals and criteria that were often conflicting in nature: tradition of the car, style, appearance, and performance. I never would have guessed that once I reached ole age, and for the first time in my life budgetary considerations were a lower priority; such circumstances could create greater challenges and more problems.

As for air intake filtering, that is a big complex subject that I also attempted to learn about. For the sake of others, here are some strange aspects of intakes I learned about. First, there are standard carbs (That always flow for any hp rating, but are perhaps less interesting to gaze upon), Weber carbs (very restrictive over 500 hp, but more traditional and interesting to view), Weber EFI (SOME flow more but still limited beyond 600 hp or so - no matter what the makers claim), and non Weber EFI (Available in four body diameters with virtually no hp limits, but not as pretty as the Weber stacks).

If high performance above 500 hp is not an issue, then any of the above will suffice. Once you reach 500 to 550 things change since some of the above can create intake flow restrictions that limit the engine's performance.

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If you utilize stacks systems that are Weber-like, not only might they limit flow, but with the addition of screens, filtered screens, and filtered air boxes, those can easily reduce as much as 130 hp. One very credible engine builder performed numerous experiments with stack intakes and said that once he replaced the small flared top of the velocity stacks, it dropped 30 hp.

One aspect I learned that completely went against my not too common sense, was that stacks that are too large for any given hp can actually reduce torque, especially in the street driving range. This fact, I've been assured by experts, comes about because larger than required stacks create a condition where the volume of sucked air is greater, but the velocity of the moving air is slower, and that reduces torque. I attempted to reconcile that circumstance, and had to force myself to think of it like this; and this may not be the correct way: Moving air, like moving solid objects, gather momentum proportional to speed, and it is the sucked air velocity that tends to raise torque on side-draft and stack systems. But, to be most effective the diameter of the stacks/bodies/butterflies and intake runners of these types of intakes (stacks and side-draft) must be optimum, not too small, and not too large. Who knew; only a few.

I guess I'm still considering my options, but the engine is too nice to ruin, and I suspect I will drive it with decent filtering, and depending on the type and style, will likely remove them at the car shows. Note too that EFI stack systems will automatically adjust the fuel/air ratios according to the ECU programming when one installs and then removes intake filters, whereas the Weber-stack carb systems will require the daunting, time consuming manual adjustments.