Ford GT40_Cobra_Explorer Intake Design Observations

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Ford's GT40/Cobra lowers that have a part number that ends in "-BD" or "-AA" have a runner outlet that is wider and significantly taller than the other castings. The other casting like the "-BA" and "-BB" lowers have \( \sim 0.95''\times1.65'' \) outlet \( 1/8'' \) \( r = \sim 1.57 \) square inches of area while the AA and BD have \( \sim 0.98''\times1.95'' = 1.91 \) square inches of area. This is a significant increase in area when racing in classes that do not allow porting.

Below top is a “BA” lower, center is a BA lower ported and below bottom is an un-ported “BD”/“AA” casting (all markings are for a 1250 size port).

For those of you who may be interested in running Factory Stock 100% within the rules, the AA or BD lower is the way to go.

Another variance worth note is the difference in the plenum sizes of the GT40 intake family. In general, rpm and cubes want more plenum area. The upper intake that may have the least amount of plenum size is the 93 Cobra upper. It has a non-stepped design for all of the tubes it feeds at the plenum connection. See the picture below. To know for sure what the plenum sizes are would require do a cc measurement with liquid filling the plenum. The GT40 would need filling to the entrance of the upper step runners, and the area of the lower tubes filled with water would need to be deducted.

93 Cobra Intakes
Ford also made a shorter TB runner Australia version of the Cobra upper seen below next to the American version. Also note the difference in paint color.
The 93 Cobra lower intake has its part number cast into the driver's side of the intake toward the rear next to the #8 designation and has F3 in the part number with the Windsor firing order on the front water cross over. Note that the one in the picture is a BD lower.
Ford Motor Company stopped producing the popular Cobra intake but it licensed the right to cast them again to FRPP who sourced a Chinese company to cast and machine them. The castings are not up to a Ford production standard in my opinion, but it’s still a decent piece. You can identify them by the “Made in China” cast into the bottom of the water cross over and by the FRPP boss behind the TB flange plate where the FRPP sticker is attached. Original Ford castings do not have that pad cast into them. See below

GT40 Tube Intakes

The upper intake that is probably the next step up in size is the SVO tubular GT40 upper. It has a stepped design for each row of tubes where they access the plenum. See the pictures below. Also note the TB runner as a bend in it to clear the bolt tube. This causes some intrusion into the TB runner. Also note the TB runner as a bend in it to clear the bolt tube. This causes some intrusion into the TB runner creating a short “turn” to negotiate.
The intake also seems to have at least two different configurations for tapping into the intake for vacuum logs – see the two pictures below.

These lower intakes tend to get interchanged a lot. One GT40 intake we received did have the original lower with it – it had a lower like the one in the below picture that shows a part number with F2 (RF-F2ZE-9K461-AA) in it and can be found on the front water cross over - (RF-F3TE-9K461-EA) is also a valid GT40 lower casting number.
The GT40 upper was also used in conjunction with a 351W lower on the Lightning truck engines. This lower is of course, wider and flows MUCH better than its 5.0 brother. I have not seen a Saleen 351W lower used on their S351 engine first hand, but in photos I have seen, it looks a lot like the lower used on the Lightning.

**94-95 Cobra Intakes**

The intake with the most plenum area and the largest TB runner area is the 94-95 Cobra intakes. Look at the below pictures of both a 93 on the left and 94-95 cut open on the right. The 94-95 TB runners are taller in the plenum than the 93 version. The both show the “squished tube” cross section of the runners.
The 94-95 plenums are also noticeably deeper/larger than the 93 Cobra as can be seen from the side shots below. This would play into a higher rpm or larger engine cube application. As a matter of fact, Saleen took 93 Cobra intakes and added plenum to them for use on their S351 engines. Some people prefer the 93 Cobra due to the straight TB runner to the plenum. What we have found flow testing that there is no difference in flow but that is not a running engine situation with all runners pulling air. We have not seen significant differences in dyno or track data either but they are limited to the 302-306 based engine data we have.

The part number for the 94-95 Cobra lower intakes is found on the driver side rear just like the 93 Cobra, but its part number has F4 in the number – see below. Note this part ends with a BC code.
Ford also used the 94-95 Cobra upper on its Cobra-R model that featured a 351 Windsor motor. I suspect the engineers knew its plenum was more suited to the cubic inches and probably knew of Saleen’s modification.

**96+ Explorer/Mountaineer Intakes**

The final intake to look at is Ford’s Explorer intake that is modeled after the 93 Cobra design. The model year 1996 introduced this intake on 5.0L Explorers/Mountaineers and variations could be found on these cars until the 4.6L Mod motor was introduced. Versions were made, one that was EGR compatible with passages in the lower and upper and another with no EGR provisions. The picture below is one with the EGR provision, you can see a round hole dead center in both the lower and upper where exhaust gasses pass to the EGR valve.
These lower intakes have their part number cast into the front runner and have F8 in their part number (RF-F87E-9K461-BA or BB). Plenum size looks to be the same or close to the 93 Cobra, but one significant difference in the castings can be seen above. The Cobra TB runner was straight, top to bottom, into the plenum but the Explorer TB runner has a “V” shape that widens the runner into the plenum. They also have a lot more vacuum taps into the TB runner. The tubes are press-fit and can be twisted out without a lot of effort.

Below are pictures of the non-EGR model that show the lower has no EGR hole provision and the upper has an opening through the center of the runners where the EGR passage used to be. The throttle body flange face and side of the runner also have a notch at the bottom that EGR versions do not have.
These intakes make great street or street/strip intakes for heads that have a 1250 size port entry and have made some great power and shown some high 11 ETs from our experience which can be found in my other write ups on their capability.