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Post by hitchcock Mon Nov 02, 2009 6:31 pm Soes anyone know who is casting the Doug Herbert brand cylinder heads? They have some decent prices, but are they a decent product? Author Topic: jetting and compression question (Read 4856 times) 0 Members and 1 Guest are viewing this topic. Author Topic: slow jet number vs. hole size (Read 5179 times) 0 Members and 1 Guest are viewing this topic. Author Topic: What is this little jet looking part? (Read 1156 times) 0 Members and 1 Guest are viewing this topic. General engine tech -- Drag Racing to Circle Track Moderator: Team hank82 New Member Posts: 41 Joined: Sat Jul 23, 2016 8:08 pm Location: Post by hank82 Thu Jul 28, 2016 8:27 pm Does anyone know the correct calculation for trying to get the main and secondary jetting as square as possible while adding in the PVR? F-BIRD'88 Guru Posts: 10016 Joined: Tue Mar 27, 2007 6:56 pm Location: Ontario, Canada Post by F-BIRD'88 Thu Jul 28, 2016 9:46 pm Area = pi x radius squared (3.1416 x radius x radius) Calc the area of the jet and the area of the PVR. Add the 2 areas together. Reverse calc from that combined sum area to find combined jet drill size diameter = $\sqrt{\text{area} / 3.1416}$ square root the result (radius) x 2 for diameter Look up in the holley jet size/jet drill hole chart for the closest Holley main jet usually on a holley 750 the secondary jet (no power valve) is 6 to 10 jet # larger than the primary jet, depending on how big the primary PVR is. Last edited by F-BIRD'88 on Thu Jul 28, 2016 9:50 pm, edited 3 times in total. MadBill Guru Posts: 15024 Joined: Thu Nov 15, 2005 10:41 am Location: The Great White North Post by MadBill Thu Jul 28, 2016 9:50 pm Theoretically, it's just a matter of calculating the two areas, adding them together and converting the resulting total to a diameter, per below. Some feel that the shape, length and height from the fuel level of the P.V.C.R. orifice vs. the main jet requires a larger P.V.C.R. than a simple area comparison yields. Also, the nominal orifice size of as many as 3 Holley jets are the same. (e.g. 80, 81 & 82 are all 0.093"). Sample calc: = 70 Mj, 0.060" P.V.C.R.: # 70 = 0.073" = 4.1891/1000" 0.060" = 2.83/1000" so 7.02" total, or 0.0945" = #83 jet. FWIW, a Holley listing I consulted shows anywhere from a 3 to a 12 jet # difference from the PV to non-PV bowl... My preference is to size the primary MJs for desired cruise mode AFR on the road or dyno (anywhere from 14:1 to 16+, depending on application), then with the secondaries disconnected, optimize power via P.V.C.R. changes. Next re-connect the secondaries and tune for max power, changing only the secondary MJs. Tuning this way, I've seen as much as a 15 HP gain with the same overall AFR. Felix, qui potuit rerum cognoscere causas. Happy is he who can discover the cause of things. pamotorman Guru Posts: 2802 Joined: Thu Mar 06, 2014 11:55 pm Location: Post by pamotorman Fri Jul 29, 2016 8:05 am save you doing the math You do not have the required permissions to view the files attached to this post. Holley Standard Main Jets Jet No. Drill SizeJet No. Drill Size40.04071.07641.04172.07942.04273.07943.04374.08144.04475.08245.04576.08447.04777.08648.04878.08949.04879.09150.04980.09351.05081.09352.05282.09353.05283.09454.05384.09955.05485.10056.05586.10157.05687.10358.05788.10459.05889.10460.06090.10461.06091.10562.06192.10563.06293.10564.06494.10865.06595.11866.06696.11867.06897.12568.06998.12569.07099.12570.07310.128

Need Support? Can't find the answer you're looking for? Contact Support PONTIAC POWER RULES !!! Calculate Jet Size Changes for Different Conditions Back to Calculators Index These equations are for recreation only This Jet Size Calculator will give you the size of the jet you need for a different weather condition. You will have to know what the air density is for your current jetting that is correct for your tune. You will also need to know the diameter of the hole of your jet. This is usually the jet size in inches. 75 Holley jet is around .075" diameter 120 pill size is usually about .120" diameter It's up to you to know the correct diameter, though. Here is a link to an Air Density Calculator For sea level, Normal Temperature Pressure at 20C (68 F) and 1 atm (101.325 kN/m², 101.325 kPa) of pressure; use 1.204 kg/m³ as for original air density in calculator) Author Topic: Jet sizes and what they mean? (Read 42931 times) 0 Members and 2 Guests are viewing this topic. The jets on a carburetor meter the amount of fuel that enters the throttle bores of the carburetor where it mixes with incoming air. If the engine shows performance problems such as stalling or sluggish acceleration, you'll need to change the jet sizing. Jets are threaded and have a small orifice through their center that varies based on the size of the jet. For example, a jet may be stamped (on its head) with the number 30. This indicates that the jet's size is 30 mm. Installing a smaller size jet will reduce fuel flow, which is ideal for high-altitude conditions where air is limited, whereas a larger jet size increases fuel flow for oxygen-rich, low altitudes. With this knowledge, you'll be able to understand how to correctly change the jets to regain the engine performance levels that were lost due to improper jetting. Remove the jets and insert a smaller/larger set based on the vehicles operating altitude. When the operating altitude of the engine will be 2000 feet higher than your normal altitude, you'll need to insert a jet one or two sizes smaller than the size currently installed in the carb, which reduces the amount of fuel entering the engine to match the reduced level of oxygen in the air. If the altitude is dropped 2000 feet, you'll need to insert a jet that is one to two sizes larger than the current size, increasing the fuel flow to match the higher oxygen levels. The overall goal is to maintain the correct air/fuel mixture ratio for your specific engine. An incorrect ratio will show in decreased engine performance. Unscrew the fuel bowl bolts with a wrench and pull the fuel bowl off the carburetor. Save the gasket that was pressed between fuel bowl and the carburetor's metering block (what the fuel bowl is bolted to). With the bowl off, the jets) are exposed and can be identified by their brass color and center orifice. Unscrew the jets) with a screwdriver or pair of pliers and note the size stamped on the jet's head. As mentioned in step 1, you'll need to increase the jet size for lower altitudes, while a smaller jet size will be needed for higher altitudes. Make the size change in increments of one to two sizes at a time. Screw the new jet size into the jet mounts within the metering block, with a screwdriver or pair of pliers. Press the fuel bowl gasket and fuel bowl against the metering block and tighten the bowl bolts with a wrench. Turn the engine on and test it by listening for a smooth idle and a crisp throttle response. If the carb continues to under perform, remove the bowl and make another one to two jet sizing adjustment, either up or down based on your circumstances, until the engine runs well. Install a smaller jet size if the ambient temperature dips below 35 degrees Fahrenheit. This creates a lean condition that runs the engine hotter, ideal for cold conditions. If the air temp raises above 105 degrees, larger jets will be needed to increase the amount of fuel entering the combustion chamber, known as a "rich" condition. Rich conditions allow the engine to operate at a cooler temp. Unbolt the fuel bowl bolts from the metering block from the carburetor, preserving the bowl gasket. The jets) are now exposed and can be identified by their center orifice, screwed into the metering block. Unscrew the jets) with a screwdriver or pair of pliers and adjust the jet size up or down one size, depending on your circumstances. Screw the new jets) into the jet mount(s) in the metering block and press the fuel bowl gasket and bowl to the metering block. Tighten the bolts of the fuel bowl to complete the jet sizing change. Test the engine to ensure the jet sizing change has compensated for the temp change, indicated by the engine running smooth during idle and crisp under acceleration. Change the jets whenever you increase the performance characteristics of the engine. The could be anything from a larger intake manifold, long duration cam shaft or milling the cylinders for increased displacement. In essence, when an engine's performance level is increased, more air is required to run the engine. That means more fuel will be needed to maintain a balanced air/fuel mixture ratio. This ratio is different for each engine, requiring you to refer to your engine manual, new component's install manual, or by simply testing. Remove the carburetor bowl, bowl gasket and jets) as explained in the above sections. Replace the jets with a larger jet sizing by two to three sizes. Reinstall the jets), fuel bowl gasket and bowl as explained in above sections. Refer to the air/fuel recommendations of your engine's service manual. If you decide to test the engine by experimenting with different jet sizing, always start with a larger jet size than you deem necessary. This larger jet sizing may foul your spark plugs, but that's better than burning up your pistons. If your plugs do foul, you'll simply need to reduce the jet size and continue testing until the correct jet sizing is reached. Test the engine for smooth idling and crisp acceleration response, verifying that you've correctly adjusted the jet sizing. Post by Alaskaracer Mon Oct 28, 2019 9:18 pm First thing I can think of is tank venting. Is it vented properly? Second, how is the voltage supplied to the pump? Grounds? Is the pump itself failing? Fuel filter plugged? Debris in tank? Several things to look at Mark Goulette/Owner/Driver of the Livin' The Dream rear engine dragster/Speed kills but it's better than going slow! Ansoil Retailer Tuning Holley carburetors isn't difficult, but when its time to get into fine-tuning your street car, adjusting the fuel curve is a great path to travel. Holley engineers have created several tuning avenues through the modular design, to create a proper air-fuel ratio pattern for just about any engine. It all depends on how deeply you want to dive into the carburetor. This months approach will offer even the most basic Holley tuner some ideas on how to make his or her engine make great power while running as efficiently as possible. But before we get into the fun part, lets first run through how the main metering and the power enrichment circuits function. Once we know that, we can then figure out how to make it work better. Putting the Horse Before the Cart The main metering circuit flows fuel where there is a vacuum signal in the venturis. This signal is lower pressure, created by air rushing past the boosters (think back to high school and Bernoullis Principle). This vacuum signal allows atmospheric pressure pushing on the fuel in the float bowl to flow through the jets and then into the main well in the metering block. This is where precisely-drilled holes (called an emulsion circuit) mix air with the fuel. The fuel and air is pushed out of the main well and into the boosters where it enters the incoming air. This entire system is calibrated by the main jets, the high-speed air bleeds, and the emulsion holes in the metering block. To differentiate between low and high load, Holley created what is called the power valve circuit. Once the throttle blades open sufficiently to drop the manifold pressure below a certain manifold vacuum point, the circuit opens and additional fuel is added to the main metering circuit. Weve removed the primary fuel bowl and metering block from this 650 cfm Holley carb so you can see the individual components. The main jets are indicated by the arrows with the power valve located in the center. Holleys power valve is a simple, spring-loaded diaphragm valve that uses mix vacuum to pull the valve closed. Rated in inches of mercury (InHg), as an example, the most common rating is a 6.5. As the throttle opens, manifold vacuum drops from a high of around 16-18 InHg down to around 0.5 InHg at wide-open-throttle (WOT). A 6.5 InHg power valve would open anytime the manifold vacuum is lower than this value. Holley offers multiple power valves rated at points from 1.0 to 10.5 InHg. Underneath the power valve in the main metering block are two precision-drilled holes called the power valve channel restrictors (PVC.R). These restrictors are like a second pair of jets feeding fuel to the main metering well but only when the power valve opens. Most Holley carburetors allow easy changes to the main jets but use specific-drilled orifices for the PVC.R. Later performance Holleys and most billet aluminum main metering blocks are now drilled and tapped for tiny, screw-in replaceable restrictors that make metering changes much easier. Thats what we will get into next. On the opposite side of the metering block is the power valve that screws into place using a large 1-inch box-end wrench. Always make sure the power valve gasket sits flush on the ledge of the power valve so it will seal properly. The reason for the power valve system is to allow the tuner to use smaller primary main jets for part-throttle use to maintain a lean air-fuel ratio, which allows the engine to run more efficiently. Then, with heavier throttle opening (less than 6.5 InHg for example), the power valve opens and additional fuel is added to create the proper air-fuel ratio for max power. The ratio of the amount of fuel added by the power valve will change with each version Holley carburetor, but typically the power valve circuit will add anywhere from five to eight jet sizes-worth of additional fuel. Power valve circuits are primarily used only on the primary side of the carburetor; most Holley four barrels (with some exceptions) do not use a power valve for the secondary side, relying instead on large secondary jets. Newer power valves are laser etched with their rating (right) while older versions are stamped (left). These valves are rated at 3.5 inches of mercury (3.5 InHg). Now Lets Get To Tuning! The first place to start power valve tuning is to choose when this valve should open. Choosing a lower manifold rating (like 4.5 InHg) delays the onset of additional fuel. This might work on a street car with a deep gear and a loose converter for example. Where the power valve opening point might be more critical is in a towing situation where a long climb up a steep grade would demand more fuel to ensure the engine does not run too lean. In this case, an 8.5 InHg power valve might be a better choice. Each situation and engine will require a specific tuning application. If you are unsure as to where you think the power valve should open, the most common power valve opening point is what Holley uses as a starting point; the 6.5 InHg valve. This delays the opening of the power valve as long as possible to improve fuel mileage in an average application. If using this valve creates a mild sag or loss of power as the primary throttle is gradually opened, substituting a 7.5 or 8.5 InHg valve should solve the problem. If you remove the metering block from a Holley carb from a running engine and the cavity behind the metering block is wet with fuel, this is strong evidence of either a leaking power valve or a bad gasket. This demands you check the power valve to see if it will hold vacuum. A classic tuning myth that has managed to survive into the 21st Century is that you should never use a power valve opening point lower than your idle vacuum. The belief is that the power valve will open at idle and dump fuel into the engine, fouling plugs and making the engine run miserably. This is incorrect and illustrates a basic lack of knowledge about how this circuit works, because the power valve enrichment is not directly tied to the idle circuit. The power valve circuit is connected to the main metering circuit. The main metering circuit directs fuel through the boosters and fuel flow only occurs with the throttle blades have opened far past idle. With the engine at idle, the power valve can open, but no additional fuel is delivered to the engine because there is no demand from the boosters. A simple way to check a power valve to ensure that the diaphragm has not been damaged is to use the suction cup supplied with the Mightyvac vacuum pump. Wet the cup, apply vacuum, and see if the valve will hold vacuum. If the tool holds vacuum, the valve is good. If the vacuum drops off quickly, the diaphragm is ruptured and must be replaced. There are other ways to check the power valve, but weve found this to be the simplest. The best approach is to use a power valve that opens as late as possible (the lower the rated number, the later the valve opens) to delay the addition of more fuel until the engine load demands it. Not only will each engine be different, even swapping from a dual-plane to a single-plane intake manifold is a guarantee the engines fuel demands will change. The Domino Effect of Carb Tuning For a street engine, one way to lean the part-throttle air-fuel ratio and improve throttle response would be to reduce the primary jet size slightly (assuming the primary circuit is a bit rich). However, this also reduces the amount of fuel delivered at WOT. So to compensate, if we reduce the primary jet by several steps (assuming the engine, in fact, prefers to run leaner at these smaller throttle openings) we can compensate for the loss of fuel at WOT by increasing the size of the PVC.R. This requires some math, but we promise to keep it really simple. Holley jet sizes are marked with what most enthusiasts assume is their drilled orifice diameter. While the numerical jet size is sometimes close, the number marked on the jet is not always a match for the drill size. Thats because Holley rates its jets by flow and flow is affected by the entry angle. So its possible to have two different jet sizes with the same orifice diameter. This is due to their differing entry angles, which ultimately affects their final flow rate. This metering block has drilled PVC.R holes in this case for the 750 cfm Holley uses 0.062-inch PVC.Rs. This restriction can be enlarged by drilling out the holes or reduced by filling them with epoxy and drilling smaller holes. Both modifications are semi-permanent and time-consuming. For simplicitys sake, we are going to assume flow dimensions for both the main metering jets and the PVC.R will be based on their orifice size. For this example, were going to use a mechanical secondary 650 cfm Holley. The Holley 650 (PN: 0-4777-9) carb is factory jetted on the primary side with 67 main jets and a power valve with a 0.038-inch PVC.R. The secondary side of this carb does not use a power valve to balance the fuel flow between the primary and secondary, so it uses 6-step larger 73 jets. To determine the overall fuel flow capacity of this system, we must first calculate the total flow area for the primary side. The first step is to calculate the jet flow area. Our accompanying chart shows a Holley 67 jet uses a 0.0663-inch diameter orifice which equals a flow area of 0.00353 square inches. This is established by using the formula for the area of a circle (Pi times the radius squared). Primary 67 jet area = 0.00353 square inches Secondary 73 jet area = 0.00418 square inches (17-percent larger than primary side) Primary PVC.R diameter is 0.038-inch = 0.00118 square inches of area When we add the PVC.R area to the primary jet area this equals 0.00466. This is 11-percent richer than the secondary side. For the record, we are only calculating one venturis flow area on the primary and secondary sides. For total flow area, we would double these numbers, but for this example, lets say we still want to improve fuel economy by cutting the primary side by two jet sizes but we still want to maintain the same overall WOT fuel flow. We can do this one of two ways. The easiest way is to merely increase the secondary jetting by two sizes. JET SIZE (NUMBER)ORIFICE SIZE (INCHES)650.065670.0663680.0665700.0735720.0755740.080760.084780.087800.0899This information is taken directly from the Holley catalog. A 76 primary jet offers a diameter of 0.0840-inch. We measured 10 new Holley jets of that size and found diameters ranged from 0.082 to 0.083-inch. But the entry angle affects flow as well as orifice size. Holley says its jets are sized by flow and not by orifice diameter so thats the reason for the disparity. The generally accepted range is a two- to three-percent change in flow per jet size. Most tuners will perform jet changes in increments of two, from 76 to 78 for example. Billet metering blocks, available through Holley and other sources, offer small screw-in bleeds that make changes much easier and quicker. But this does require having a stock of bleeds on hand, should a change be desired. This particular green metering block is from Quick Fuel, intended for use with E85 fuel. From the factory, Holley has designed the carburetor with slightly more fuel delivered on the primary side compared to the secondary, so since the primary side is already slightly richer than the flow from the secondary side, this might help balance the overall fuel delivery front to rear. Its also possible that we might need a little more fuel on the primary side when operating at a load where the primary is more than half open but the secondary is still closed. Its possible the engine could run lean in this situation. We can increase the size of the PVC.R restrictors to compensate for reducing the primary jet size. Heres how we do that. We know we need to increase the diameter of the PVC.R, but even a small diameter change can make a big difference in area. So we tried a 0.003-inch increase in diameter to 0.041-inch. This produced an area of 0.00132-inch. By subtracting the area of the 65 jet from the area of the larger 67 jet, this reduced the jet area by 0.00134-inch so our 0.041 PVC.R is only 2-percent less. But a 0.042-inch PVC.R would excessively overshoot the area increase with a new area of .00139 sq. in., so we opted for the 0.041-inch PVC.R. There is a limit to increasing fuel flow from jetting and increasing the size of the PVC.Rs since the channel leading to the boosters is only so large. This particular carburetor measured 0.155-inch. Once the flow area of the jets and PVC.R approaches the flow area of this main channel, further jet increases will be ineffectual, but this really only occurs when dealing with alcohol fuels like E85. The ideal situation for carb tuning is a billet metering block with screw-in bleeds. Once the proper bleed is selected, its a simple matter to screw in the appropriate size and the task is finished. In the case of a metering block with drilled PVC.R holes, we can increase the diameter of these holes with a 0.041-inch pin vise drill bit. This process is not difficult but as you can see, it does require a little bit of math. By balancing these orifices, you can create a custom-tuned carburetor to the engines specific needs and make it more efficient as well. Big carburetors dont have to necessarily deliver poor fuel mileage if you know how to make use of these simple tuning procedures. Most Holley carbs are fitted with no power valve in the secondary metering block. However, some carburetors may be fitted with a secondary power valve which can be used if additional fuel is demanded on the secondary side. If not, the power valve opening can be blocked with this simple block-off plug from Holley (PN: 26-36). Henera Technologies/Abie/Stock.com/Getty Images The size of the jets within your Holley carburetor will control the flow of fuel from the fuel bowl to the combustion chamber. Holley jets range in size from 40 to 99, with the stock jet size differing based on the carburetor model and engine application. Holley manufactures each carburetor with a set of jets that will allow the carburetor to perform well at sea level and around 70 degree air temperature. To calculate the proper jet size for your vehicle, you'll need to know your elevation and outside temperature. Establish the elevation and temperature the carburetor will be operating within. Establish the current jet size of the jets within the Holley carburetor. Adjust the jets one size for every 2,000 foot change in elevation or for every 35 degree change in temperature. For example, your current elevation is 2,000 feet above sea level with a temperature of 70 degrees. You can calculate that the jets should be increased by exactly one size. If the vehicle will be operated at sea level, but the temperature is 35 degrees, you'll need to reduce the size of the jets by 1 size, as indicated by the stamp on the head of the jet.

Holley jet size calculator. Holley jet size diameter. Holley jet sizes. Holley jet size guide. Holley jet dimensions. Holley primary and secondary jet size.