

## Honda NT650 Hawk GT carb tuning

When I first took the bike apart I measured things and this is what I got:

Initial	Rear	Front	Comments
float height	.356"	.401	I didn't really have any big problems I was trying to fix, I just wanted to smooth out the power a bit, and maybe get a bit more of it. I didn't notice anything that was really <b>wrong</b> .
Main jet	132	138	
Idle/pilot/slow jet	42		
Spring length	6-1/2" (stock)		
needle	stock, unshimmed		
Idle screws	Stock, 1 to 1-1/2 turns out. I didn't take the caps off.		
Filter/airbox	stock		
exhaust	stock		

After I got a Factory brand stage 1 jet kit these were the settings:



After stage 1 kit	Rear	Front	Comments
float height	.356"	.360	I don't think this gave me much more top speed, but it smoothed out the powerband, gave me more low and mid range and generally made the bike more rideable and sporty. In retrospect I should have been less chicken and actually taken the idle screw caps off and adjusted them. I also probably should have stretched the springs to 8" like the Factory jet kit instructions says is a " <b>must do</b> ". I was unwilling to change things I couldn't change back. I expect that I should have just trusted the instructions, they have a lot of experience. Unfortunately I went ahead and changed lots of other things before testing those things, so I'll never know.
Main jet	135	140	
Idle/pilot/slow jet	45		
Spring length	6-1/2" (stock)		
Needle	#0968e5-80i-40qr_ss from Factory stage 1 jet kit		
Needle position	2nd from top		One of the things I may have fixed was to clean everything out, the stock needles were kinda of crusty, and there was more rust-powder in there than I'd like to admit.
Idle screws	Stock, 1 to 1-1/2 turns out. I didn't take the caps off.		
Filter/airbox	stock		
exhaust	stock		I don't think these are the optimum settings, as I didn't play with the idle screws or the springs, but they're an improvement over stock.

I got a TBR "race" version exhaust (straight headers instead of the stepped headers found on the "street" version) and a Factory brand stage 3 jet kit. I have some 4" UNI pods (part number UP4229), that I haven't installed yet.

Here's the settings:

First try	Rear	Front	comments
float height	.356"	.360"	It starts easily when cold in my garage, without choke, and blows some black smoke out the back. Too rich. Pods might fix that, if not, mixture screws.
Main jet	162	168	
Idle/pilot/slow jet	45		
Spring length	<a href="#">stretched</a> to 7-7/8"		The plugs look sooty, also indicating rich. I looked at one plug from each cylinder, and the front one looked worse than the rear.
needle	#0968e5-76i-40qr_ss from Factory stage 3 jet kit		The filter has 15k miles on it, so it could be dirty, messing up the test a bit, contributing to the rich mixture. I'm going to put Uni Pods on, which will lean the mixture a lot.
Needle position	3rd from top		
Idle screws	3 turns out.		That's not the big problem. The big problem is that there's a disturbing stutter/ stumble/ burble/ bogging down/ gap in power at about 5k rpm at partial throttle, which is disturbing because that's where I roll on the throttle coming out of corners. I really want the power to be smooth there. I believe that it's the needle height, so I'll lower the needle one notch for the next test.
Filter/airbox	stock airbox bottom and filter, with airbox top removed.		
exhaust	TBR "race" exhaust with non-stepped headers		

changes from the last test are in *italic*.

Second try	Rear	Front	comments	
float height	.356"	.360"	Well, this combination seems to have worked! The 5k stumble is gone as far as I can tell, it pulls well all the way to redline (came up fast) and I think it will lift the front wheel in first gear if I didn't checken out. I don't know what the top speed is, the highway was too crowded. It was about 32 degrees out, so the air was pretty thick. The plugs look pretty good after about 50 miles, but these plugs are probably original to the bike, so some of that crud is old.	
Main jet	162	168		
Idle/pilot/slow jet	45			
Spring length	<a href="#">stretched</a> to 7-7/8"			
needle	#0968e5-76i-40qr_ss from Factory stage 3 jet kit			
Needle position	2nd from top			
Idle screws	2-1/2 turns out			
Filter/airbox	4" UNI Pods no airbox			
exhaust	TBR "race" exhaust with non-stepped headers			

one of the rear plugs

one of the front plugs

changes from the last test are in *italic*.

Second try	Rear	Front	comments
float height	.356"	.360"	I'm not sure what I was trying to fix here, as much as anything just playing around. I've heard a couple people say, "45 slows with 162 and 168 mains? That's really rich!" so I figured I'd try something to see if it changed anything.
Main jet	160 (smaller)	162 (smaller)	
Idle/pilot/slow jet	42 (back to stock)		
Spring length	<a href="#">stretched</a> to 7-7/8"		Well, it starts easier, that's good. I couldn't really tell the difference in the mid range or high end, or even on the low end. It was wet and dark and kinda foggy/rainy, and about 40 degrees out, and my glasses and visor wouldn't un-fog, (time for more <a href="#">Cat Crap</a> ) so it was really hard to see and I didn't feel comfortable doing anything exciting.
needle	#0968e5-76i-40qr_ss from Factory stage 3 jet kit		
Needle position	2nd from top		
Idle screws	2-1/2 turns out.		I got gas instead.
Filter/airbox	4" UNI Pods no airbox		Ok, it appears that it starts more easily, but not much more easily. I think it feels better, but it's hard to tell. I experimented with screwing the idle jets out 1/2 turn to 3 full turns, and I'll see if that changes how easily it starts. I'm thinking that wasn't a good idea, based on nothing other than a hunch. We'll see.  After a test ride under different conditions, it appears to have a lower top speed. I'm going to put in smaller mains and see what happens.
exhaust	TBR "race" exhaust with non-stepped headers		

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Second try	Rear	Front	comments
float height	.356"	.360"	<p>huh.. Ok, so that seems to run a little faster (almost 8k in 5th gear). The last setup stopped getting faster at about 7.2k or so. I think I'm going to stop mucking around with this bike for a while, the only problem now is that it doesn't start easily. Once it's started it runs quite well.</p> <p>'Course, I won't be able to leave well-enough alone, I'll call Factory and see what they have to say.</p> <p>Well, after a lot of riding (like months) It's become clear that starting without the choke is the right answer. I takes a little throttle to get it started, but no choke, and settles into a nice idle after about 20 seconds.</p>
Main jet	<i>158</i> (smaller)	<i>160</i> (smaller)	
Idle/pilot/slow jet	42 (stock)		
Spring length	<a href="#">stretched</a> to 7-7/8"		
needle	#0968e5- <b>76i</b> -40qr_ss from Factory stage 3 jet kit		
Needle position	2nd from top		
Idle screws	2-1/2 turns out.		
Filter/airbox	4" UNI Pods no airbox		
exhaust	TBR "race" exhaust with non-stepped headers		

changes from the last test are in *italic*.

Second try	Rear	Front	comments
float height	.356"	.360"	I started to get some lean surging at part throttle cruise, which indicates clogged pilot jets. So I pulled the carbs and ran carb cleaner through the pilot jets (and lots of other stuff while I was in there) and put it all back together. I won't know if it worked until it stops raining and I take it for a ride.
Main jet	158	160	
Idle/pilot/slow jet	42 (stock)		
Spring length	<a href="#">stretched</a> to 7-7/8"		After putting it back together I tried to start it and it wouldn't start and I ran the battery down trying. Oops.
needle	#0968e5-76i-40qr_ss from Factory stage 3 jet kit		I put it on a trickle charger and then noticed that I had the choke full on, which usually prevents me from starting the bike (see above) so that could explain a lot.
Needle position	2nd from top		
Idle screws	2-1/4 turns out.		
Filter/airbox	4" UNI Pods no airbox		While the charger was doing it's thing I pulled the plugs to see if maybe it was worn or fouled plugs, or maybe if they needed replaced (they're like 21k miles old I think, probably original) The shape of the electrodes and the gap was fine, but they looked like it was running rich.
exhaust	TBR "race" exhaust with non-stepped headers		I turned in the fuel screws 1/4 turn, we'll see if that makes a difference.  It could also be an over-oiled air filter, but that seems a little unlikely, I was pretty careful about squeezing out as much oil as I possibly could.

## big changes happen here

The bike got burned in a fire in my basement, and a lot of things changed at once, so for all intents and purposes this is a different bike, even though it's got the same VIN.

changes from the last test are in *italic*.

reference setup	Rear	Front	comments
float height	10.76mm/.424"	10.19mm/.401"	I got an M4 full system from a lister, along with the carbs he was using.  this is the setup they came with, one I'm not going to use, but it's a useful reference.
Main jet	162	165	
Idle/pilot/slow jet	45		
Spring length	<a href="#">stretched</a> to 7-1/2"		
needle	#0968e5- <b>76i</b> -40qr_ss from Factory stage 3 jet kit (I think)		
Needle position	4th from top		
Idle screws	2-7/8 turns out.		
Filter/airbox	4" UNI Pods no airbox		
exhaust	M4 full system		

changes from the last test are in *italic*.

first try w/ M4	Rear	Front	comments
float height	9.1mm/.358"		These are the settings I got from Hord, (professional racer/tuner who races/builds Hawks)  This seems to run quite well. Which is to say it starts without choke except on the coldest days, idles smoothly, has good throttle response, no flat spots, stutters, or surges, and feels like it gets good power. It's good enough that I haven't bothered to tinker with it for several thousand miles.
Main jet	162	165	
Idle/pilot/slow jet	42 (stock)		
Spring length	<a href="#"><u>stretched</u></a> to 8"		
needle	#0968e5- <b>76i</b> -40qr_ss from Factory stage 3 jet kit (I think)		
Needle position	3rd from top		
Idle screws	2-1/2 turns out.		
Filter/airbox	4" UNI Pods no airbox		
exhaust	M4 full system		