

Modifying a Harbor Freight Dust Collector

By

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My modifications to the Harbor Freight Dust Collector.



Figure 1

Photo 1 shows the DC end with the Wynn filter mounted on top and the plastic bag below. This is not the filter in the Wynn kit today. When I did mine, there was no kit available, so I just chose a filter with $>.5$ micron filtration and made a plate that fit it to the DC. I chose a filter with a hole on top so I could at a later date add additional filtration capacity.



Figure 2

Photo 2 shows the separator can mounted above the blower motor on a platform to reduce the required floor space. Here you can see the piping from the can to the DC blower. If I were doing it again, this pipe would be the size of the blower inlet. It does restrict the air flow a bit. No measurements as of now.



Figure 3

Photo 3 is of the duct I used to replace the flexible hose HF supplies with the DC. Mine came in mashed and badly restricted the air flow.



Photo 4 is the end view of photo 3.

Figure 4

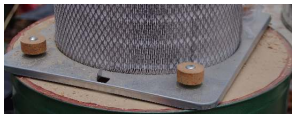


Figure 5

Photo5 is the adapter plate and its installation between the filter and DC housing. The knobs screw into T nuts inserted into the bottom of the adapter plate. The knobs are simply cut with a hole saw of a size that fit my hand with a 1/4 X 20 carriage bolt and nut through the center where the drill passed.



Photo 6 is detail of knob.

Figure 6



Figure 7

Photo 7 shows the outlet of the can lid that goes to the blower inlet. Look back to Photo 2 and, if you look carefully, you will see a piece of 2X4 supporting the down pipe. Without this, the pipe tends to pull loose from the lid. The pipe must be able to disassemble at the lid to dump the chips.



Figure 8

Photo 8 show the inlet to the separator can. I used a piece of 4 inch pipe cut to fit at a tangent to the can and then cut to leave pieces about 1 1/2 inch long to fold along the can wall and pop rivet them to the can.



Figure 9

Photo 9 This area was then taped with metal duct tape to reduce resistance. As an after thought, I should have left a bit, 6 inches or so, of the inlet pipe intact on top of the pipe to help direct the flow around and down the can.



Figure 10

Photo 10 . The outlet in is the center of the lid. It is taped in place with more metal duct tape and it **DOES NOT STICK THROUGH THE LID**. The penetration is just that. There is none of the 90 on the inside of the lid to restrict the air flow.



Figure 11

Photo 11 is on the inside of the lid. This is not my idea, I just flat out stole it from somebody and I am very sorry that I can not remember who. It may have come from Bill Pintz's site. When the flow comes into the can, it starts just past the sharp cut out and goes clockwise on this photo. In real life in the can, it runs CCW. The shape gives the heavies time to settle before the air is allowed to get past the baffle



Figure 12

Photo 12 The position of the step in the baffle is critical in the ability to reduce scavenging of the larger particles of dust into the dust collector filter system. Note the black marker lines on the lid. That is where the inlet should go into the can. The lid **MUST** be an air tight fit otherwise suction loss will cut down on the dust collection. **BE SURE TO MAKE THE LID/CAN FIT AIR TIGHT.**

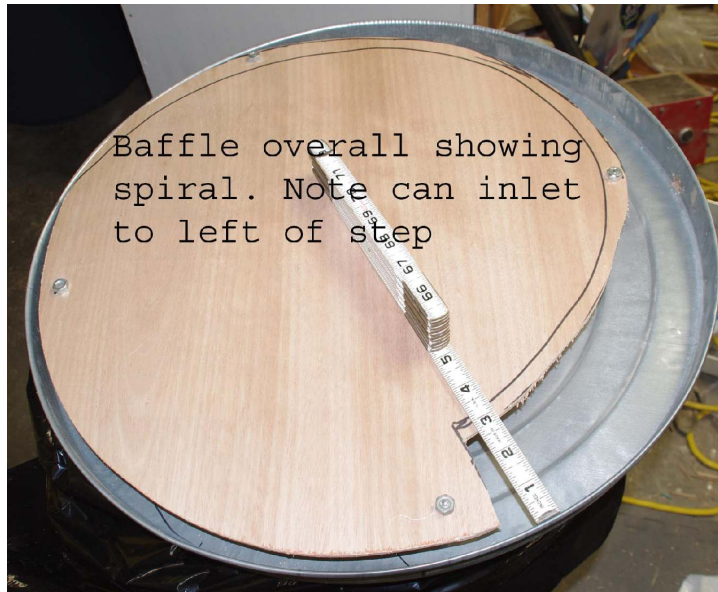


Figure 13

Photo 13 Here showing the size of the step and the shape of the spiral of the baffle. This was rough cut expecting to have to move more of the baffle. It started off with much less of a gap but the air flow was too restricted. There has to be a balance between trash retention and air flow. Note the four 1/4 X 20 bolts that hold the baffle.



Figure 14

Photo 14 This shows the size of the step I ended with. On Phil Thinn's site (I am pretty sure I spelled his name wrong) he shows the math to get it right the first time. I had none of the correct instruments to get the data so I just started cutting. Your millage will vary.



Figure 15

Photo 15 This shows the 1/4 X 20 bolt detail between the lid and the baffle. If I had placed the inlet a bit lower in the side of the can, then the baffle could have fit lower in the can also allowing more room for the outlet and air flow. Another lesson learned too late.



Figure 16

Photo 16 This is the final overall dimension of the lid. You can get the idea of the spiral shape and size. I found it to be much easier to take off small bits of wood than add them. Also, when the bolts are in place before the final size is determined, they will sometimes get in the way of where you want to cut. DAMHINT



Figure 17

Photo 17 A pitiful attempt to show the way the outlet elbow is fastened in the lid. To reduce restriction, the elbow is just through the lid and metal duct tape is used to fasten it in place.



Figure 18

Photo 18 The outside of the lid. Anytime I use an adjustable elbow, I try to tape all the joints. They leak otherwise. Any questions, pm me. If I can I will tell what I know. Thanks for looking and I hope this may help.



Figure 19

Photo 19 shows the manual starter moved from the motor itself to one of the can platform support 2X4s for easier reach.

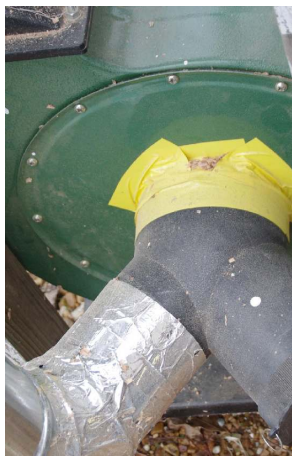


Figure 20

Photo 20 is of the original blower inlet. The yellow tape is not Christmas decorations. The adapter is fragile and the screws broke out way back. As above stated, this pipe should be the size of the blower inlet for better air flow.



Figure 21



Figure 22

Photos 21 and 22 show some trash picked up. The debris in the can is general shop junk. I try to keep the can at less than 2/3 full because of savaging above that level. The lid baffle helps that a whole bunch. I have plans to cut a slit in the can and cover it with plex to watch what is happening inside. The other photo is all the fines I have captured in the bag and filter after about

three cans full of larger material.

I hope this helps a bit. If anyone has further questions, I'll try to answer any posted or pm-ed. Any one with more ideas that will improve this, please feel welcome to make them available to us all.



Figure 23

Photo 23 I bought the 9L300NANO filter from Wynn because of its better filtration at the time. It is an open - open filter so I had to seal the other end with a plug. This is just stuck on with some silicone sealer.

I hope this is of some help to you. It will not replace a true cyclone DC, but it is better than a shop vac.

Respectfully submitted by Charles
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