McDonald Manu Furnace on pellets

Posted by STINEY - 25 Nov 2012 15:17

Happy Heating Season to all you guys!

I'm a long time corn burner (CornFlame 2100) and posted a bunch of tuning adventures on the old forum.

(Which ironically is the only site that a search engine will pull up for some reason, both at home and work. Might be something for the site owner to look into?)

Anyways, this year is the first year for burning pellets. I have a McDonald Manufacturing Cozy Cornburner Furnace, and have blocked the lower ring of holes with screws, added a reostat to the combustion fan, and made a quick/easy way of changing the room blower fan speed. Otherwise stock. It is easy to light and runs effortlessly.

However - with the timer 1.5 on and 1.5 off, it will take the house up to 90 degrees if the wind is not blowing and the temps are in the 40's. Have to shut it down and let the 2100 do the work. Not a major problem, okay?

Here is the part I can't get. Outside temps in the 20's-30's, and the furnace can only make 62 in the house. Thermostat set at 90, no improvement. Set the timer to 1.5 off and 6 on, and I have 68 in the house, plus I have relit the 2100 so I'm not really crediting the Furnace with that increase.

What gives? Room blower is on high (though I've tried medium and low with no real difference in house temp)

I'll try to put up pictures of my setup. Can't quite get the forum software to cooperate.

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Re: McDonald Manu Furnace on pellets

Posted by STINEY - 18 Dec 2012 16:24

I bypassed the reostat on the combustion blower last night.

No noticable difference in 5 hours.

So before going to bed I opened the air door a bunch.

Fire burnt the pot empty in the night. Fire out, pot mostly cool this morning.

Completely cleaned the pot, removed all screws, relit and went to work.

We will see that effect this evening. Crossing fingers!

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Re: McDonald Manu Furnace on pellets
Posted by Nogas - 19 Dec 2012 02:58

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So how did your efforts work out?

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Re: McDonald Manu Furnace on pellets
Posted by STINEY - 19 Dec 2012 15:37

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Not great.

Its nearly impossible to keep the firepot from burning empty with all the lower holes unblocked.

So I reinstalled 1/2 of them.

However, with them uninstalled and a fresh load of pellets in the pot to start a fire with, the initial burn goes right to 450-500 degrees and works great.

Until the unit settles in and evens out, then the fuel can't keep up.

With 1/2 of them reinstalled, the initial burn goes to 450-500 as well (it always did this) When it settles in and evens out, the fuel keeps up, but temps go back to leveling out at 250 max, which is not enough to keep house warm.

Grr....

I was using a stopwatch on the timer settings. With the on at 3.5 and the off at 4 - actual times are 1:40 on and 2:00 off.

My timer is set at 10M on both on and off, and the display face is set for the normal numerals.

Maybe I have a goofed up timer?

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Re: McDonald Manu Furnace on pellets

Posted by STINEY - 19 Dec 2012 19:25

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I have been doing research on the OMRON timer.....I'm starting to wonder if it is set on 1.2 instead of 12 time units?

It sits low on the unit and I have to use a flashlight to see it, perhaps its set wrong.

I'll investigate tonight.

Here are a couple of scans of the OMRON setting information.

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Re: McDonald Manu Furnace on pellets

Posted by Nogas - 20 Dec 2012 13:30

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It should be set for minutes. When you are in high fire, the furnace burns itself out? With pellets, you don't need too much air, but in high fire, that baby should get real hot if burning a long time?????? Is there an obstruction in the flighting, like a bunch of pellet dust or something? Just doesn't sound right.

You should have temps just like when you fire it up and it gets burning good.

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Re: McDonald Manu Furnace on pellets
Posted by STINEY - 20 Dec 2012 14:20

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I reversed the timer settings last night and watched it for a couple of hours.

Moved the ON to 5 and the OFF to 2, and added some more air.

Temps came up to 500 and house went from 66 to 74 in about 30 minutes. Great!

Went to bed at 11:30, was still running 500 degrees and warming house.

Woke up this morning, back to 68 degrees and the door temp was back to 250.

Didn't burn the pot empty at least....

I'll pull the augers and check for obstructions, though when I take the 90 connection loose at the end of the bin auger while its running there are pellets constantly falling out. Smoke comes out too so I try to work fast. The hopper will smoke up if it gets low, so I just keep it full.

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Re: McDonald Manu Furnace on pellets
Posted by STINEY - 26 Dec 2012 18:40

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Anyone want to buy a furnace and 3 tons of pellets?

Had to replace the hopper auger tube and sweep elbow, they melted. Elbow melted a hole into it, flex connection ruined, auger tube warm enough to droop and cause auger to stop.

Something wedged the pot auger and it stopped, letting the fire burn way low and let the smoke/heat into the elbow. House smelled like melted PVC.

Its back up and running, I used a sweep "T" instead of a elbow, with a cap I can pop it off to inspect what is going on at any given time. Replaced most of the PVC auger tube with a union and new 2" PVC.

I am becoming convinced that the BTU rating of this design is a elaboration. Yeah, they can put out 100,000 BTU, but only for a brief period of time, like 30 minutes or a couple of hours.

I'm having a hard time believing they are capable of heating a house with a 100,000 btu requirement. Been running for 4 days with timer set at 3 on and 4 off, keep bumping the air up, and for 3 of those days door temp was barely 225, today it managed a whopping high of 275.

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Re: McDonald Manu Furnace on pellets
Posted by STINEY - 10 Jan 2013 16:44

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Melted elbow and connector.

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Re: McDonald Manu Furnace on pellets
Posted by STINEY - 10 Jan 2013 16:44

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Melted elbow and connector.

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LDJ CLONE on pellets - no heat!
Posted by STINEY - 17 Jan 2013 15:35

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While continuing to fool with it, I HAVE noticed the formation of "clinker-like" stuff around the perimeter of the interior of the burn pot. Its just a 1/4" or less layer of semi-hard ash that stays on the pot, near the air holes. It removes quite easily with the poker, and falls apart easily, yet it is rigid enough to not be dislodged by the air or pellet motion.

Anyone else see this with their setups?

I removed ALL the screws again yesterday. The fire is burning a little below the upper air holes, and seems to be staying there. Door temps were 350* last night and this morning.

I have also been removing that weird clinker-stuff that obstructs the air holes. Seems I need to do that 2-3 times daily to keep temps up.

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