

**CAMUS HYDRONICS LIMITED  
DYNAFORCE – COMBUSTION SETUP PROCEDURE**

**Low Fire Combustion Set Up**

It is imperative that the coldest system water temperature possible is used when setting up low fire combustion. These cold system temperatures create large amounts of flue condensate resulting in large amounts of condensate build up on the stainless steel finned heat transfer tubes. These conditions create the highest back pressure through the boiler and makes for the most critical combustion set up point when running 20% input. This set up must be achieved quickly to ensure low system temperatures are maintained throughout the set up of single or multiple boiler installations.

**Procedure:**

Connect gas supply, differential air, and differential gas manometers and insert flue gas analyzer into the vent discharge insuring the probe is in the flue stream.

Light off the boiler at low fire and make the initial adjustment to the low fire bias to obtain the specified CO<sub>2</sub>, CO, at 20% gas input.

While maintaining the lowest possible water temperature, observe the differential gas pressure. The differential gas pressure must not drop below a minimum of 0.25" w.c. If necessary increase the VFD (Hz) setting until this pressure is met. Once the boiler has run for at least 5 minutes with dead cold water, there should be a maximum amount of condensate in the lower heat exchanger. At this point adjust the combustion for CO<sub>2</sub>.

The boiler must continue to run with stable combustion without making any howling noise which usually happens from an overly rich mixture. Once settings are complete at low fire, continue to run the machine for at least 5 more minutes and record the final low fire input and the combustion data.

To ensure the coldest possible water temperatures for set up on multiple boiler systems, the low fire combustion should be established on all boilers before setting any boiler high fire combustion rates.

**High Fire Combustion Set Up**

After the low fire settings are stable, ramp the boiler firing rate to 100% using the boiler control and bring the system temperatures up to 130F or to highest system design temperatures below 130F to minimize or eliminate condensate.

Then adjust the trim valve and VFD (Hz) settings to obtain the specified CO<sub>2</sub> and CO levels, and establish at least 98% of the boilers rated gas input.



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