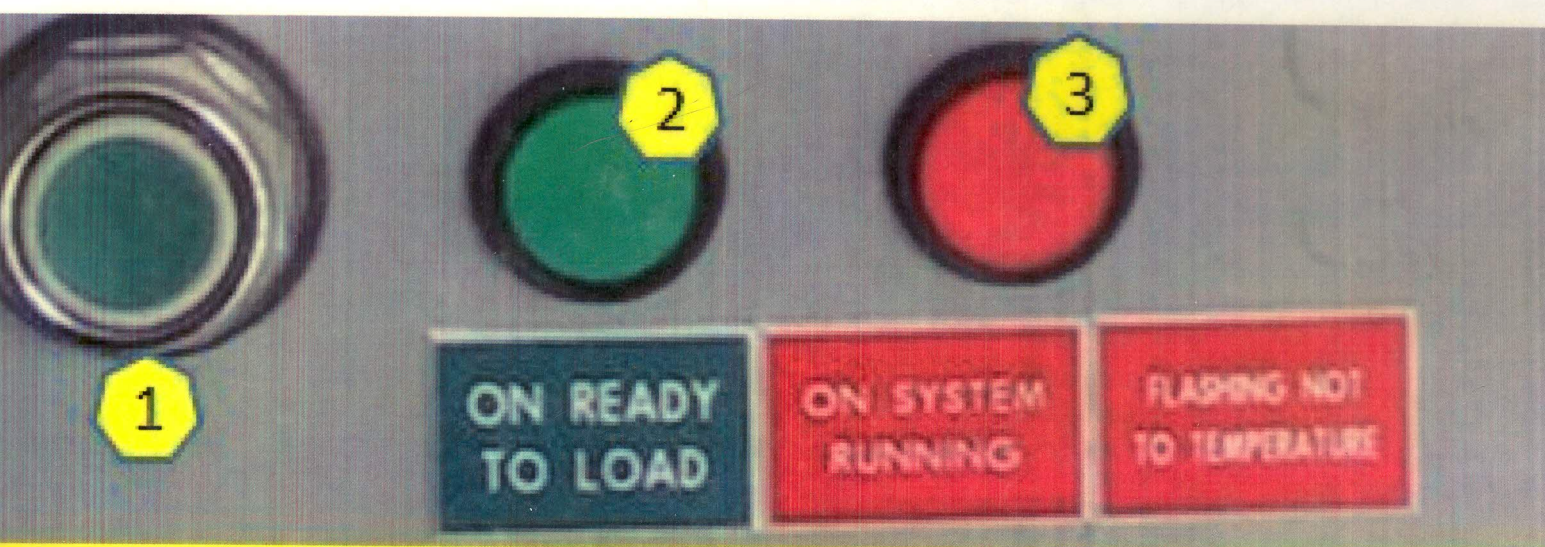


1. Twist **E-STOP** to the right to connect main power (button will pop up).
2. Turn **BLOWER TIMER** and **BURNER TIMER** clockwise for the intended period of operation.
3. Set oxygen probe air flow rotameter to 40 cc/min.
4. Push **START** button for **BLOWERS**.
5. Check all **BLOWER INDICATOR LIGHTS** are on.*
Wait for one minute or more.**
6. Push **START** button of **BURNERS**.
7. Check that all **BURNER INDICATOR LIGHTS** are on.*
8. Check set point of **PRIMARY CHAMBER TEMPERATURE** and adjust to 700 C if necessary.***
9. Check set point of **SECONDARY CHAMBER TEMPERATURE** and adjust to 900 C if necessary.***

START-UP DONE

Notes: * Report Error.
 ** Burner can only be started after blowers are on for at least one minute.
 *** Consult instrument manual in the appendix of this manual.



PRE-CHARGING CHECKS

1. If Light Indicator **3** is flashing, the PLC is NOT ready. WAIT.
2. If Light Indicator **2** is on steady, then check that the temperatures in the Primary Chamber and Secondary Chamber are up to the set points.
 - a) If **2** is not steady, wait until the chamber temperatures are at the set points.

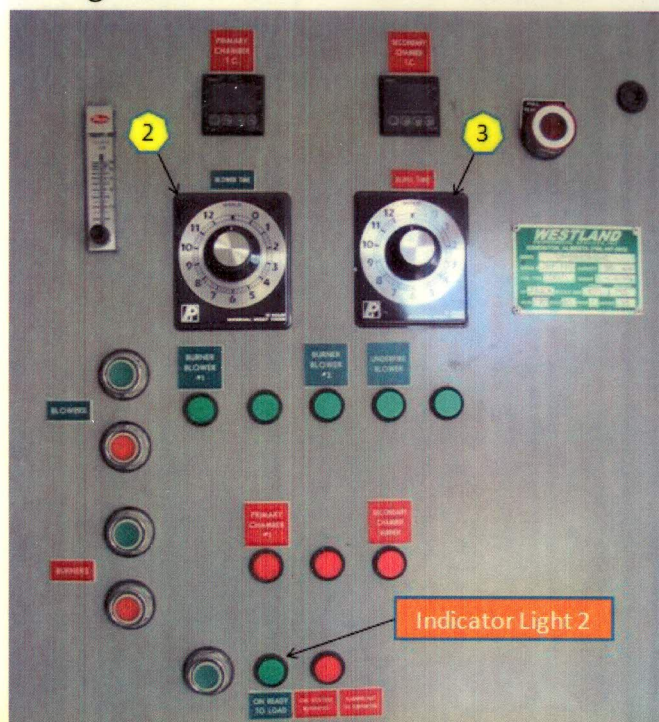
WASTE CHARGING

1. Confirm that Light Indicator **2** is on steady.
2. Open Charging Door, quickly load the batch and close door.**
3. **IMMEDIATELY** push Button **1**. This activates the PLC.
4. Check that Light Indicator **2** is off.*
5. Wait until Light Indicator **2** is on again. This indicates that the system is ready for the next batch.***
6. Repeat STEPS 2 to 5 for three or four loads, then go to STEP 7.
7. Open Ash Door, rake the waste and close the door .
8. **IMMEDIATELY** push Button **1** and wait until Light Indicator 2 is off.***
9. Repeat STEPS 2 to 8 until the last waste batch is charged.

WASTE CHARGING DONE

- Notes:
- * Report Error.
 - ** This is very hazardous; see safety notes.
 - *** The time varies.

4.8 Burn-Down: see Figure 15



When the LAST batch has been charged, and the indicator light 2 is ON (steady) , indicating readiness for the non-existent batch:

1. Rake primary chamber.
2. Turn BLOWER TIMER to ~ 3 hours *
3. Turn BURNER TIMER to 0.5 to 1 hour
4. Wait.
5. When burner time period has elapsed, then shut down fuel valve.

BURN-DOWN DONE

Note: * : The actual time depends on how much and what kind of waste has been charged. The rule-of-thumb is

$$\text{Burn-Down Time (hours)} = 1 + \text{Waste Charging time (hours)} / 3$$

Figure 15 Procedure for Burn Down

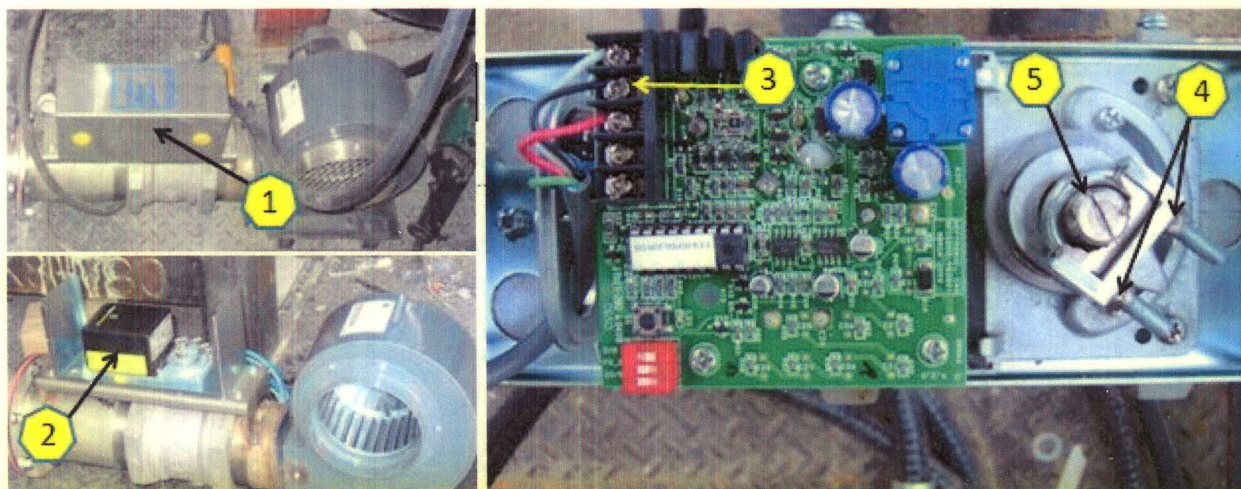
4.9 Cool-down

There is nothing to be done here, except ensuring that the incinerator is sufficiently cooled (approximately 6 – 8 hours) for the scheduled ash removal for the next operation.

4.10 Maintenance and Inspection

In addition to the routine inspection and maintenance previously mentioned, only the burner(s) and the blower(s) require maintenance, which is quite minimal; see manuals in the binder. The following inspection steps are recommended:

When repairs to the incinerator's oxygen control system have been satisfactorily carried out, the flame-port butterfly valve and actuator can be reconnected, that is, the valve shaft can be tuned back to the 10% open position, and the wire reconnected to resume power to the actuator.



Adjustment Steps to Under-Fire (PC7) and Flame-Port (SC4) Butterfly Valves for Manual Mode Operation:

1. Press the Emergency Stop button on the control panel to disconnect power from the incinerator.
2. Remove actuator cover **1**.
3. Remove actuator electronics cover **2**.
4. Disconnect the black wire **3** and tape the exposed wire with a small piece of electrical tape.
5. Loosen the U-clamp nuts **4**.
6. Use a flat-blade screwdriver to turn the shaft **5** to the desired setting: 10% open for PC7 and 100% open for SC4.
7. Tighten the U-clamp nuts **4** to secure the valve shaft in place: **DO NOT RE-CONNECT THE BLACK WIRE.**
8. Replace covers.
9. Place a tag on the valve to indicate that it has been adjusted for manual mode operation.
10. Twist the Emergency Stop button on the control panel to re-connect power to the incinerator.

Adjustments for Manual Mode Done

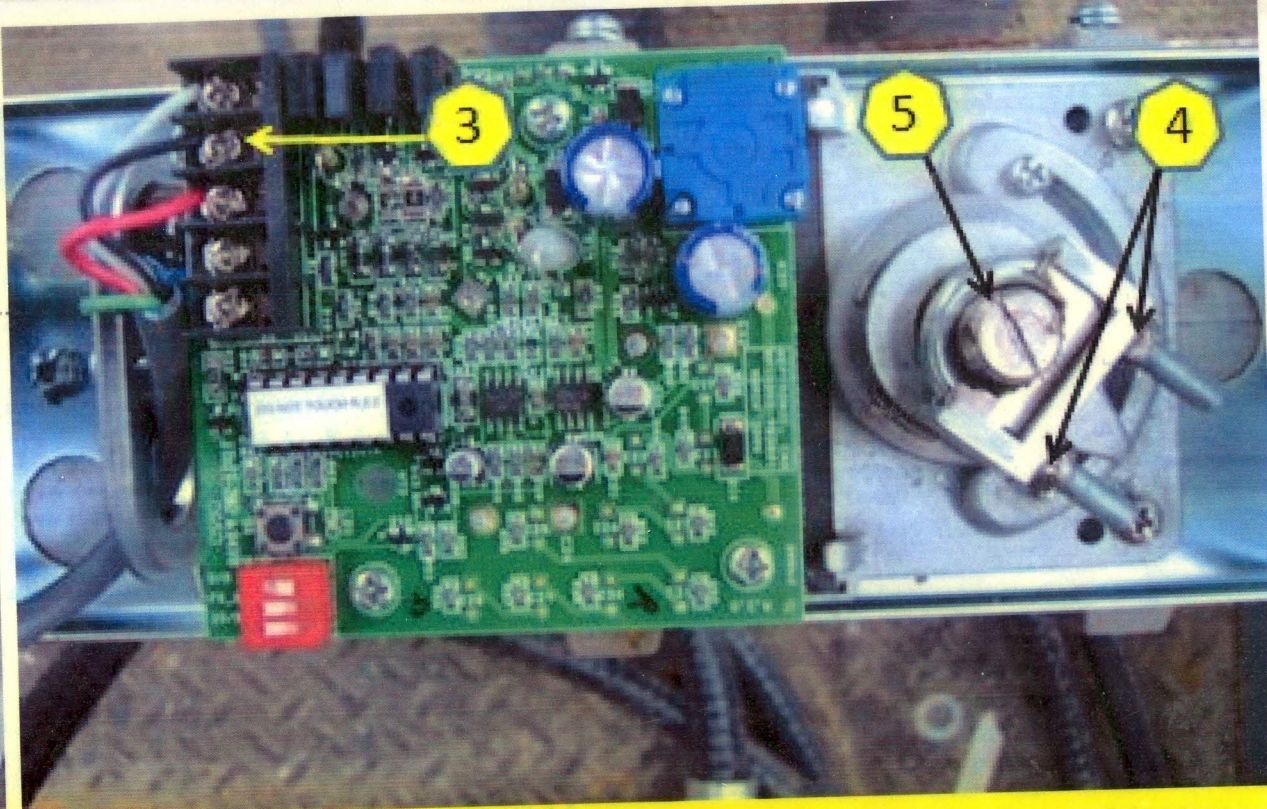
Figure 17 Butterfly Valve Adjustment for Manual Mode Operation

5.2 Modification to Operation during Manual Mode

During manual mode operation of the incineration system, there are some changes to the loading procedure when compared to normal operation with the oxygen control system in good working order. The Procedure for Startup as outlined in Figure 13 remains the same, but **the Procedure for Waste Charging as outlined in Figure 14 must be ignored**. When the Procedure for Startup has been completed, the procedure shown in Table 10 should be followed for waste charging. The Procedure for Burn Down as outlined in Figure 15 must still be followed during manual mode operations, though the reference to "Indicator Light 2" can be ignored.

Table 10 Waste Charging in Manual Mode

PROCEDURE	
STEP	
1	Confirm that the primary and secondary chambers are at their respective set points (see Figure 13).
2	Open the Charging Door, quickly load the batch and close the door.**
3	Wait approximately 10*** minutes and repeat Step 2.
4	Repeat Steps 2 and 3 for three or four loads, and then proceed to Step 5.
5	Open the Ash Door or the Charging Door, rake the waste, and then close the door.
6	Wait approximately 10 minutes for any unburned waste to be consumed.
7	Repeat Steps 2 to 6 until the last waste batch has been charged.
8	Follow the Burn Down Procedure outlined in Figure 15.
WASTE CHARGING DONE	
**	This is very hazardous, see the safety notes following Figure 14.
***	The time varies depending on the waste being incinerated.



Adjustment Steps to Under-Fire (PC7) and Flame-Port (SC4) Butterfly Valves for Manual Mode Operation:

1. Press the Emergency Stop button on the control panel to disconnect power from the incinerator.
2. Remove actuator cover 1.
3. Remove actuator electronics cover 2.
4. Disconnect the black wire 3 and tape the exposed wire with a small piece of electrical tape.
5. Loosen the U-clamp nuts 4.
6. Use a flat-blade screwdriver to turn the shaft 5 to the desired setting: 10% open for PC7 and 100% open for SC4.
7. Tighten the U-clamp nuts 4 to secure the valve shaft in place: DO NOT RE-CONNECT THE BLACK WIRE.
8. Replace covers.
9. Place a tag on the valve to indicate that it has been adjusted for manual mode operation.
10. Twist the Emergency Stop button on the control panel to re-connect power to the incinerator.

Adjustments for Manual Mode Done