

# Instruction Sheet

## Required tools:

- Wrench, 1-1/16" (27mm) Stubby
- Wrench, 1-1/16" (27mm) Crows Foot

Follow these instructions to add an Oil Quality Sensor (OQS) to a LOV Touch Electric or Gas fryer.

1. Remove the fryer from the hood to gain access to the rear of the fryer.
2. Disconnect power from the fryer.
3. Remove the left and right doors.
4. Remove the filter pan (see Figure 1).
5. Use a 1-1/16" (27mm) crows foot wrench to remove the flex line between the pump and female pick up bracket (see Figure 2).
6. Locate the OQS sensor assembly mounting holes. The gas attaches to pre-drilled holes towards the front (see Figure 3). The electric attaches to the rear holes (see Figure 4). The electric attachment will require loosening the FIB box.

**Subject: Oil Quality Sensor (OQS) Kit Installation 8263566 and 8263588**

**Models affected: LOV-T 2 Vat Gas and Electric Fryers**

In These Kits		
Part #	Description	Qty
1087778	Sensor Assy, Oil LOV 2 Vat (gas only)	1
1087919	Sensor Assy, Oil LOV 2 Vat (elec only)	1
8263502	Software kit	1
8090131	Screw, 1/4-20X3/4 HX HD ZP	1
8197678	Instruction sheet	1
8074158	Zip ties	4
8091046	Clamp	3
8074552	Harness, End Communication	1

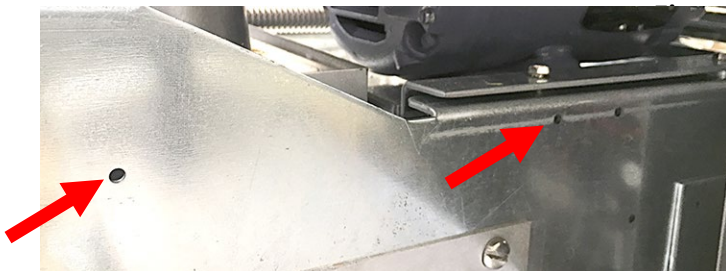
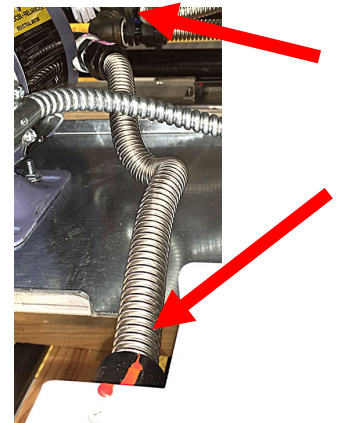
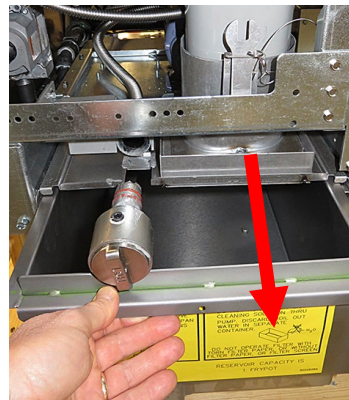


Figure 3

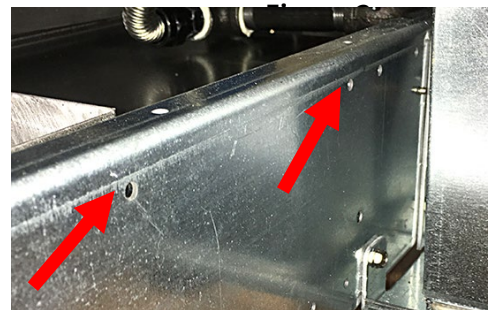


Figure 4

7. Remove the "L" bracket from the left side of the assembly and attach to the top of the rail (see Figure 5).
8. Attach the sensor assembly on the to the right filter pan rail, behind the door to the right of the filter pan using the supplied screws (see Figure 6).
9. Route the flexline from the top of the sensor to the filter pump.

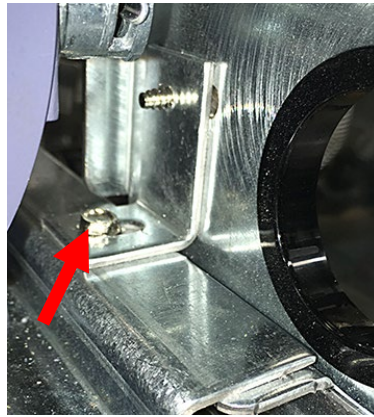


Figure 5

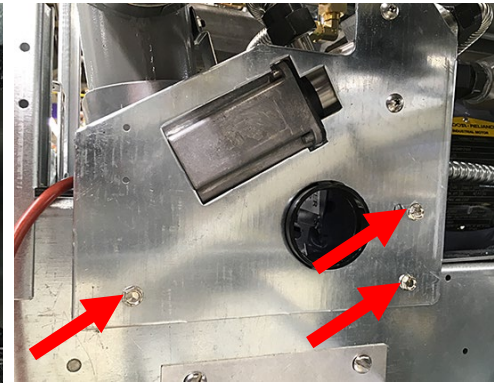


Figure 6

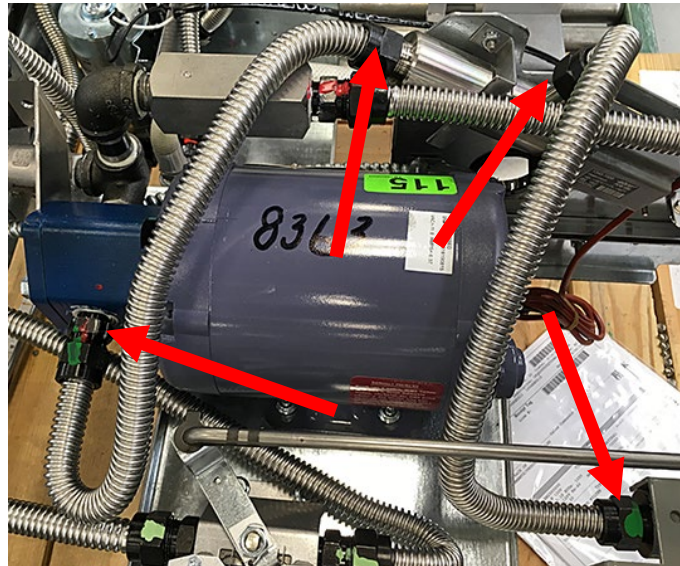


Figure 7

Route the flexline from the bottom of the sensor to the rear of the female pickup bracket (see Figure 7).

10. Ensure all flex lines are tightened. There should be no kinks in flex lines; ensure all bends are as smooth as possible.

11. If a guard rail is installed, remove the acorn nuts, washer and plates on both ends of the guard from the **far-left controller** (see Figure 8).

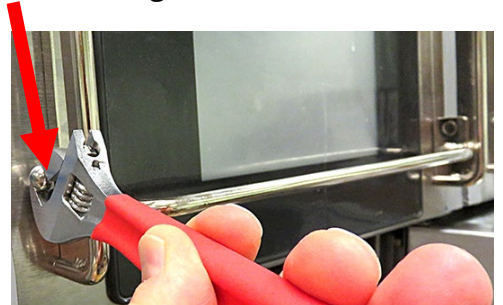


Figure 8

12. Slide one end of the guard up the rail at an angle until it can be removed (see Figure 9).



Figure 9

13. Remove the two Phillips head screws from the upper left and right corners of the far-left controller (see Figure 10).
14. Slide the controller up to disengage it from the bezel (see Figure 11).

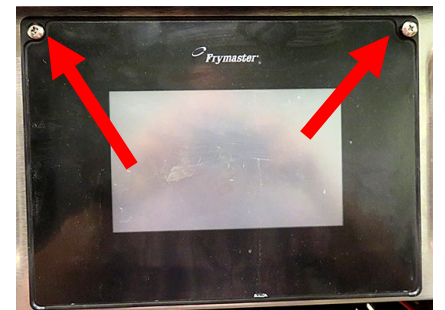


Figure 10

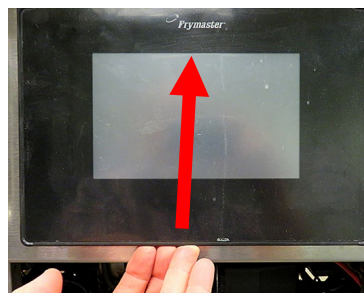


Figure 11



15. Lift the controller out from the bezel (see Figure 12).
16. Lower the controller and rest it on the bottom of the control box (see Figure 13). The black tether on the right will support the controller.

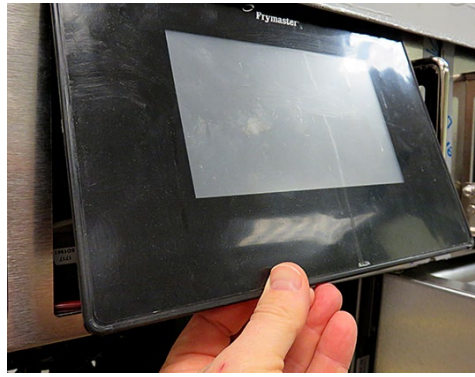


Figure 12

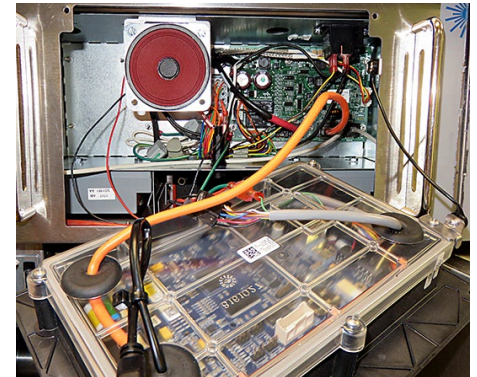


Figure 13

17. Follow the orange cable from the touch screen controller to the bottom right of the SIB circuit board. Directly right of the orange cable connection, is a RJ11 terminator (see Figure 14).



Figure 14

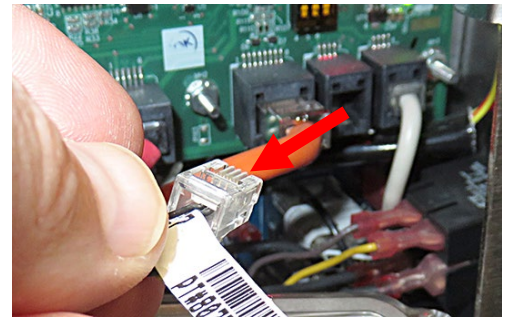


Figure 15

18. Press up on the release tab, on the bottom of the connector, to disconnect and remove the terminator (see Figure 15).

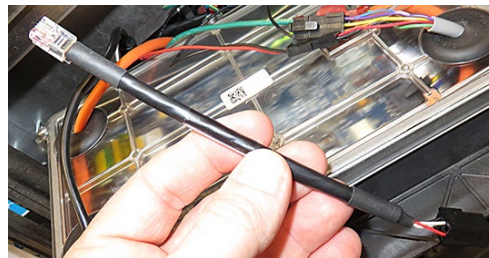


Figure 16

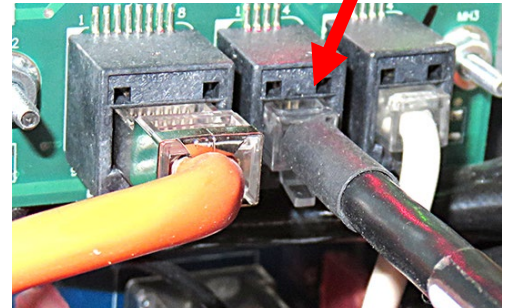


Figure 17

19. Locate the included adaptor (see Figure 16).
20. Attach the the RJ11 connector end of the adaptor, to the SIB board, where the terminator was removed in step 15 (see Figure 17).
21. Route the harness from the OQS sensor, up the vertical channel to the right of the left control box. Insert the harness through the bushing in the lower right corner of the control box (see Figure 18). Use supplied 8061046 clamps to secure harness.
22. The OQS harness has two (2) connectors; a female and male. Connect the 6-pin 8074552 terminator to the female connector (see Figure 19).



Figure 18

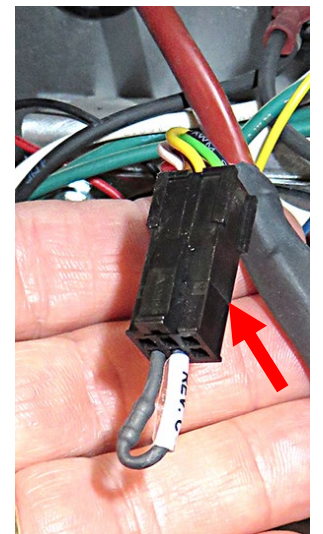


Figure 19

23. Connect the male end of the OQS harness to the adaptor in step 20 (see Figure 20).
24. Use zip ties to secure OQS harness in fryer.
25. Reverse steps 11-16 to reattach the far-left controller.
26. Reverse steps 1-4.
27. **Follow the directions included to update the software using the supplied USB drive. There are three (3) steps that MUST be completed to update the software (see instructions included with USB). Failure to follow all three (3) steps may render the fryer inoperable. When software and menu update are complete return to step 28 below.**
28. Follow the next steps to Setup and enable the OQS sensor.

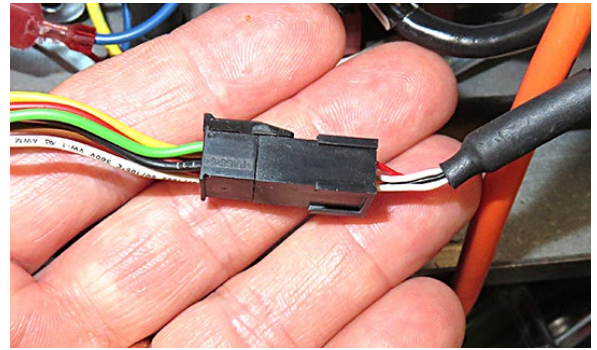












Figure 20

### OQS Setup

1. Press the power button on each screen to turn the controllers off. Ensure the screens display POWER OFF. 
2. Press the **HOME** button. 
3. Press the **SETTINGS** button. 
4. Press the **SERVICE** button. 
5. Enter **1650**.
6. Press the **CHECK** button. 
7. Press the down arrow button four (4) times. 
8. Press the **OQS SETUP** button.
9. Press the **OQS ENABLE/DISABLE** button.
10. Press **ENABLE** button.
11. The screen displays **SETUP COMPLETE**.
12. Press the check button. 
13. Press the **OIL TYPE** button.
14. Select the correct oil type curve. OC01v01=F212, OC02v02=MCSOL, OC12v02=F600 Ensure the oil type matches what the store is using.
15. The screen displays **SETUP COMPLETE**.
16. Press the **CHECK** button. 
17. Press the **DISPLAY TYPE** button.
18. Press the **NUMBER** button.
19. The screen displays **SETUP COMPLETE**.
20. Press the **CHECK** button. 
21. Press the **DISCARD NOW** button.
22. Press the value and enter **24** into the box.
23. Press the **CHECK** button. 


24. Press the **CHECK** button.
25. The screen displays **SETUP COMPLETE**.
26. Press the **CHECK** button.
27. Press the **DOWN ARROW** button.
28. Press the **DISCARD SOON** button.
29. Press the value and enter **22** into the box.
30. Press the **CHECK** button.
31. Press the **CHECK** button.
32. The screen displays **SETUP COMPLETE**.
33. Press the **CHECK** button.
34. Press the **DISPOSE DELAY TIMER** button.
35. Press the value and enter **0:00**.
36. Press the **CHECK** button.
37. Press the **CHECK** button.
38. The screen displays **SETUP COMPLETE**.
39. Press the **CHECK** button.
40. Press the **HOME** button.
41. In the far-left cabinet near the USB port, press and hold the power switch for **60** seconds.
42. Wait 5 minutes and check the software version.
43. Press the **?** key.
44. Press the down arrow button.
45. Press the **SOFTWARE VERSION** button.
46. The screen displays **INITIALIZING**.
47. Press the down arrow button.
48. **OQS SOFTWARE VERSION** should be **V80.01.012**. If the version is all zeros (V00.00.000) the sensor is not communicating with the fryer.
49. Press the home button.
50. The OQS sensor is ready for use.
51. Test the OQS sensor by performing an OQS filter. See steps on page 9.





# Using the Oil Quality Sensor (OQS)

## 1. Check TPM Value

DISPLAY	ACTION
	<p>The TPM button, in the upper right corner, displays the last TPM measurement. Pressing the TPM button displays the last 30 days of TPM measurements. Press the back-arrow button to return to main screen.</p>

## 2. Maintenance Filter with OQS or End of Day Filter

Ensure that the filter pad or paper is replaced daily to keep the system operating correctly. For proper operation in high volume or 24-hour stores, the filter pad or paper must be changed twice a day.


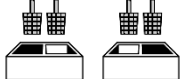
If CLOSE DISPOSE VALVE is displayed, close the dispose valve. Press the X button to exit.

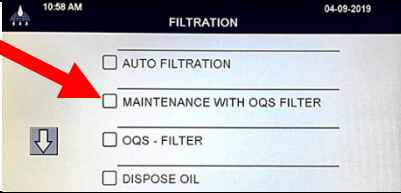
**NOTICE**







**The filter pad or paper must be replaced daily.**

**⚠ WARNING**

**Do not drain more than one frypot at a time into the built-in filtration unit to avoid overflow and spillage of hot oil that may cause severe burns, slipping and falling.**

DISPLAY	ACTION
	<ol style="list-style-type: none"> <li>1. The fryer <b>MUST</b> be at setpoint temperature. Press the filtration menu button.</li> </ol>
	<ol style="list-style-type: none"> <li>2. Select LEFT VAT or RIGHT VAT for split vats.</li> </ol>

DISPLAY	ACTION
	3. Select MAINTENANCE WITH OQS FILTER.
MAINTENANCE FILTRATION?	4. Press the √ (check) button to start filtration. If the X button is selected, filtering is cancelled, and the fryer resumes normal operation.
WEAR PROTECTIVE GLOVES – PRESS CONFIRM WHEN COMPLETE	5. Press the √ (check) button once all personal protection equipment including heat resistant gloves are in place.
ENSURE OIL PAN AND COVER ARE IN PLACE DRAINING IN PROGRESS	6. Press the √ (check) button if the oil pan and cover are in place.
SCRUB VAT COMPLETE?	7. No action required as oil drains into filter pan. 8. Scrub the vat. If electric clean in between the elements. Press the √ (check) button when complete. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;"><b>⚠ DANGER</b></p> <p><b>Keep all items out of drains. Closing actuators may cause damage or injury.</b></p> </div>
CLEAN SENSORS?	9. (Gas Only) Clean the oil level sensor with a no scratch pad (see section 6.6.2 in the IO manual). (All Fryers) Clean around AIF and ATO sensors with a screwdriver or similar object to remove any sediment from around the sensors (see section 6.2.4 in the IO manual) and press the √ (check) button when complete.
WASH VAT?	10. Press the √ (check) button.
WASHING IN PROGRESS	11. No action required while the return valve opens, and the vat is flushed with oil from the filter pan.
WASH AGAIN?	12. The filter pump shuts off. If the vat is clean of debris, press the X button to continue. If crumbs are still present, press the √ (check) button and the filter pump runs again. This cycle repeats until the X button is pressed.
RINSING IN PROGRESS	13. No action required while the drain valve closes, and the filter pump refills the vat. The drain valve opens and rinses the vat.
RINSE AGAIN?	14. If the vat is clean of debris, press the X button to continue. If an additional rinse is desired, press the √ (check) button and the rinse repeats until the X button is pressed.
POLISH IN PROGRESS	15. No action required while the drain and return valves are open and oil is pumped through the frypot for three minutes.
FILLING IN PROGRESS	16. No action required while the OQS sensor is filled.
MEASURING OIL QUALITY	17. No action required while the OQS sensor calculates the oil quality value of the oil.
POLISH IN PROGRESS	18. No action required while the drain and return valves are open and oil is pumped through the frypot for an additional two minutes.
FILLING IN PROGRESS	19. No action required while the vat is refilled.
IS VAT FULL?	20. Press the X button to run the pump again if the oil level is below the top oil level full line. * Press the √ (check) button once the oil level is at the top oil level full line. If the vat oil level is not completely filled, check the filter pan to see if most of the oil has returned. The pan may have a small amount of oil. Press the √ (check) button once no oil remains in the filter pan.
TPM VALUE – ##.#	21. Press the √ (check - YES) button to continue. If the TPM is below the OQS SETUP-DISCARD SOON and OQS SETUP – DISCARD limits proceed to step 24. If the TPM is above OQS SETUP DISCARD SOON limits

DISPLAY	ACTION
	proceed to step 22. If the TPM reading is above OQS SETUP – DISCARD limits, proceed to step 23.
DISCARD SOON 	22. Press the ✓ (check -YES) button to continue. Skip to step 24.
DISCARD NOW 	23. Press the ✓ (check -YES) button to continue. Proceed to DISPOSE in section 5.3.4/5. Press X (NO) to delay the DISPOSE.
	24. The controller switches off.
  	25. If OQS = Text and if TPM reading is below OQS SETUP – DISCARD NOW and DISCARD SOON limits, the TPM value is shown in the green TPM box in upper right corner. If OQS = Text and if TPM reading is below OQS SETUP – DISCARD NOW but above DISCARD SOON limits, the TPM value is shown in the yellow TPM box in upper right corner. If OQS = Text and if TPM reading is above OQS SETUP – DISCARD NOW limits; the TPM value is shown in the orange TPM box in upper right corner. The oil needs to be discarded.

**\*NOTE:** After a maintenance filtration it is normal to leave some oil in the pan and the level of oil may not return to the level prior to starting maintenance filtration. Answering YES after two attempts at refilling the vat enables auto top off to compensate for any loss of oil during filtration.




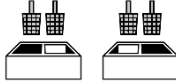
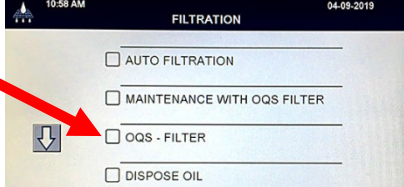
### D.3 OQS (Oil Quality Sensor) Filter





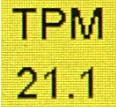

The OQS filter is a function that filters the vat that takes an oil reading to test the TPM (Total Polar Materials) in the oil using the built in OQS sensor. This function is used to determine when the oil has reached the end of its life and when to dispose. Ensure that the filter pad or paper is replaced daily to keep the system operating correctly. For proper operation in high volume or 24-hour stores, the filter pad or paper must be changed twice a day.

If CLOSE DISPOSE VALVE is displayed, close the dispose valve. Press the X (NO) button to exit.

**NOTICE**  
The filter pad or paper must be replaced daily.

**WARNING**  
Do not drain more than one frypot at a time into the built-in filtration unit to avoid overflow and spillage of hot oil that may cause severe burns, slipping and falling.

DISPLAY	ACTION
	<p>1. The fryer <b>MUST</b> be at setpoint temperature. Press the filtration menu button.</p>
	<p>2. Select LEFT VAT or RIGHT VAT for split vats.</p>
	<p>3. Select OQS (Oil Quality Sensor) - FILTER.</p>
<p>OQS - FILTER NOW?</p>	<p>4. Press the √ (check - YES) button to start filtration. If the X (NO) button is selected, filtering is cancelled, and the fryer resumes normal operation.</p>
<p>OIL LEVEL TOO LOW</p>	<p>5. Displayed if the oil level in the frypot is too low. Press the √ (check - YES) button to acknowledge issue and return to idle cook mode. Ensure the frypot oil level is between the two-level lines at the rear of the frypot. Check to see if the JIB is low on oil. If JIB is not low and this continues to occur, contact your FAS.</p>
<p>SKIM DEBRIS FROM VAT PRESS CONFIRM WHEN COMPLETE</p>	<p>6. Skim the crumbs from the oil with the skimmer using a front to back motion, removing as many crumbs as possible from each vat. This is critical to optimizing usable oil life and quality of the oil. Press the √ (check- YES) button when complete. Press the X button to cancel the filter.</p>
<p>DRAINING IN PROGRESS</p>	<p>7. No action required as oil drains into filter pan.</p>
<p>WASHING IN PROGRESS</p>	<p>8. No action required while the return valve opens, and the vat is flushed with oil from the filter pan.</p>
<p>FILLING IN PROGRESS</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><b>⚠ DANGER</b> Keep all items out of drains. Closing actuators may cause damage or injury.</p> </div> <p>9. No action required while the OQS sensor is filled.</p>

DISPLAY	ACTION
MEASURING OIL QUALITY	10. No action required while the OQS sensor calculates the oil quality value of the oil.
FILLING IN PROGRESS	11. No action required while the vat is refilled.
TPM VALUE- ##.#	12. Press the ✓ (check - YES) button to continue. If the TPM is below the OQS SETUP-DISCARD SOON and OQS SETUP – DISCARD limits proceed to step 15. If the TPM is above OQS SETUP DISCARD SOON limits proceed to step 13. If the TPM reading is above OQS SETUP – DISCARD limits, proceed to step 14.
DISCARD SOON 	13. Press the ✓ (check -YES) button to continue. Skip to step 15.
DISCARD NOW 	14. Press the ✓ (check -YES) button to continue. Proceed to DISPOSE in section 5.3.4/5. Press X (NO) to delay the DISPOSE.
PREHEAT	15. No action required as the fryer heats to setpoint.
	16. Fryer is ready for use. Displayed once fryer reaches setpoint.
  	17. If OQS = Text and if TPM reading is below OQS SETUP – DISCARD NOW and DISCARD SOON limits, the TPM value is shown in the green TPM box in upper right corner. If OQS = Text and if TPM reading is below OQS SETUP – DISCARD NOW but above DISCARD SOON limits, the TPM value is shown in the yellow TPM box in upper right corner. If OQS = Text and if TPM reading is above OQS SETUP – DISCARD NOW limits; the TPM value is shown in the orange TPM box in upper right corner. The oil needs to be discarded.

**NOTE:** If the oil isn't completely returned during filtration, the system may proceed to an incomplete filtration function.