Oil Quality Sensor (OQS) Installation Instructions

8263193, 3, 4 and 5-vat Gas and Electric LOV

This kit puts an oil quality sensor in series with the flow of oil in the filter system. Follow the instructions below to install the sensor.

1. Remove power from unit.
2. Remove all doors.
3. Remove flex line between pick up and pump. **See figure 1**.
4. Remove the filter pan pick up.
5. Remove filter pan and filter pan lid.
6. Guide sensor assembly, flex line, and wires between base channel and right filter pan rail. **See figure 2**.
7. Seat sensor assembly and install (to bottom of base channel. Note: For three and four-battery fryers, install sensor assembly to bottom of caster-mounting flange. **See figure 3**.
8. Route wires to base channel. They are routed to the controller in a later step.

Provided Tools:
 1 1/16 (27mm) Stubby Wrench
1 1/16 (27mm) Crows Foot

| 8263193		
P/N	DESCRIPTION	QTY
1086112	Sensor assy,oil 3&4 BATTRY LOV	1
8263169	Software kit	1
8238901	Body W/A,pre-filter Ebro	1
8090131	Screw,1/4-20X3/4 HX HD ZP	4
8090189	Washer, 1/4 flat	4
8070263	Butterfly terminal	1
8238990	Wrench, 1-1/16" (27mm)	1
8238991	Wrench, 1-1/16" (27mm) Crows Foot	1
8090071	Nut,1/4-20 HX ZP	2
8101668	Adapter, male 5/8"O.D. X 1/2"	1
8101055	Flexline, 5/8" X 11.50"	1
8238902	Screen W/A Ebro Sensor	1
8197115	Instruction sheet	1
8074158	Zip ties	4
2401126	Bracket, wrench	1
2401086	Wrench, pre-filter	1
8104167	Lanyard, wrench	1

Figure 1: Use a 1 1/16 crow-foot wrench to remove flex line between the pump and the pick up.
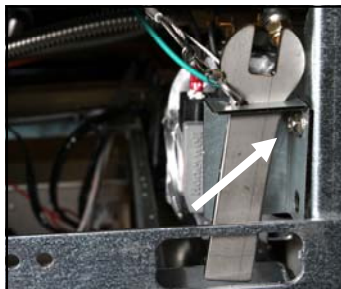

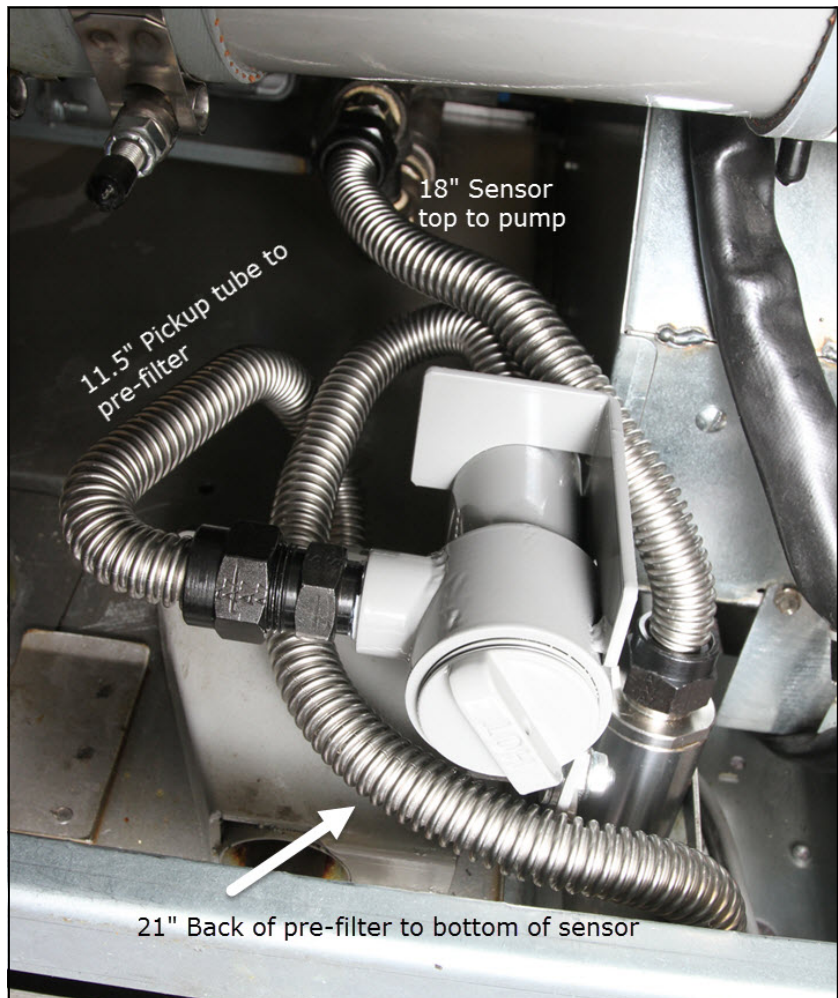**Figure 2:** Slip the sensor assembly between the base channel and the right filter rail.
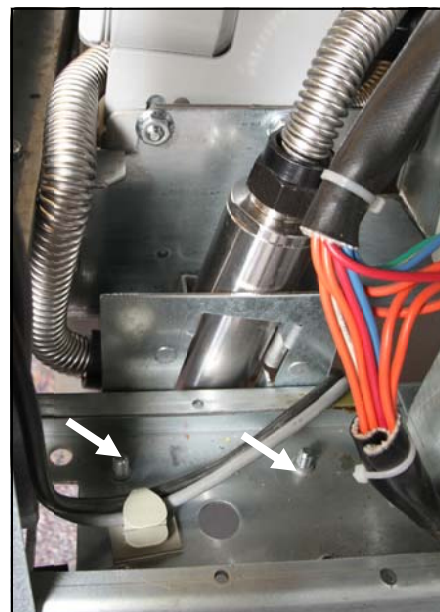
Figure 3: The sensor is mounted using existing threaded holes in the channel. In some configurations, a caster is positioned here and its mounting bolts must be removed and replaced with the provided longer bolts to allow positioning of the sensor assembly on the caster mounting flange.

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9. Align pre-filter body with pick-up tube assembly and attach both, with bolts provided, to the pick-up tube mounting site . Install washers and start nuts. Leave all nuts hand tight.

10. Route 11.5", 18" and 21" flex lines as shown in **figures 5-6**.

11. Replace filter pan lid and filter pan, aligning pick up as filter tube enters pick up.

12. Tighten pick up and pre-filter bolts, ensuring that front of pre-filter is lifted as high as slots allow.

13. Ensure all flex lines are tightened. There should be no kinks in flex lines; ensure all bends are as smooth as possible.
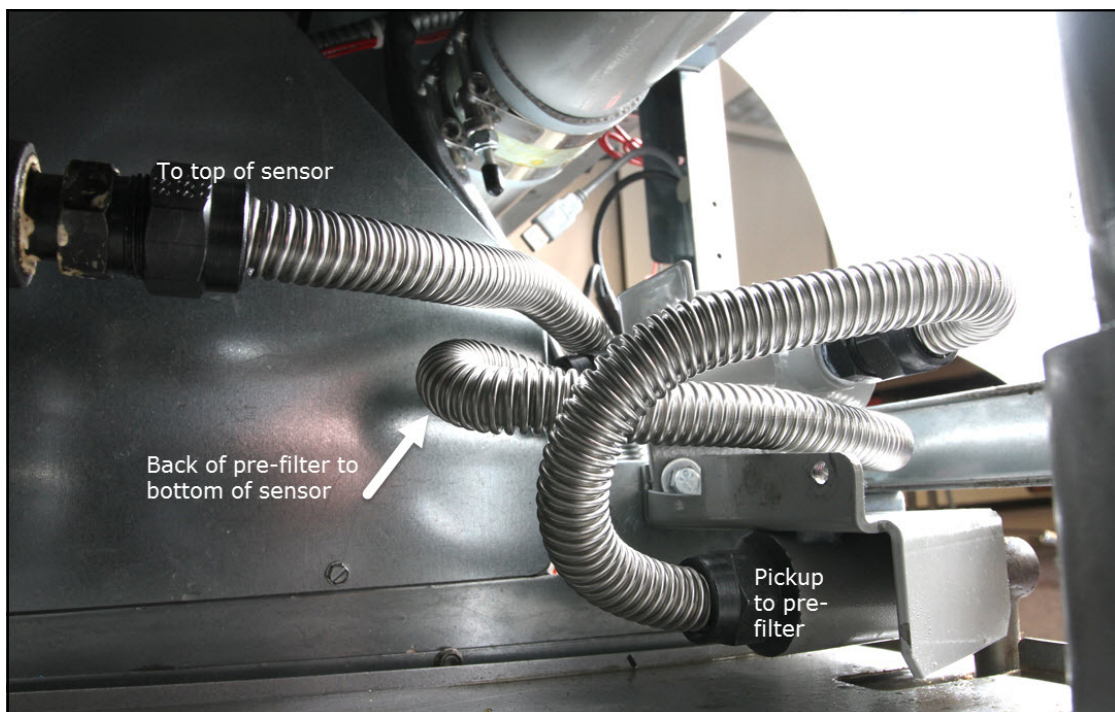
14. Mount pre-filter wrench in the left corner of the center fryer cabinet. Fasten lanyard with top screw on bracket. **See arrow on Figure 4**.

Figure 4

Figures 5-6: Route flex lines as shown.

11.5" Pickup tube to pre-filter

18" Sensor top to pump

21" Back of pre-filter to bottom of sensor

To top of sensor

Back of pre-filter to bottom of sensor

Pickup to pre-filter

2

Routing Wiring Harness

1. Remove control bezel by removing screws on the underside of the bezel. **See figure 7**. Earlier units have a sliding bezel, which is removed by lifting up on the bezel at the top center of the controller.

2. Remove screws in the top corners, securing the second controller from the left and lower it.

3. Remove fascia below removed controller.

4. Route wiring harness from sensor along base channel, securing it with wire ties. Route the harness up the vertical cabinet channel. **See figures 8-9**.

5. Route the harness to the control box. Place a bushing in a control box access hole to route the wire through to the controller.

6. Remove the orange communication (CAN) cable from the controller. Insert the male plug of the sensor harness. Insert the removed male plug in the female terminal on the sensor harness. **See figure 10**. Use the butterfly terminal provided to reattach all ground wires.

7. Lower the leftmost controller and follow instructions for software update on the following page.

Figure 7: Remove screws on underside of bezel.

Figure 8-9: Route the harness from the sensor along the base channel and up the vertical cabinet channel (at left). Secure with wire ties. Route the harness through a bushing and into the control box (above).
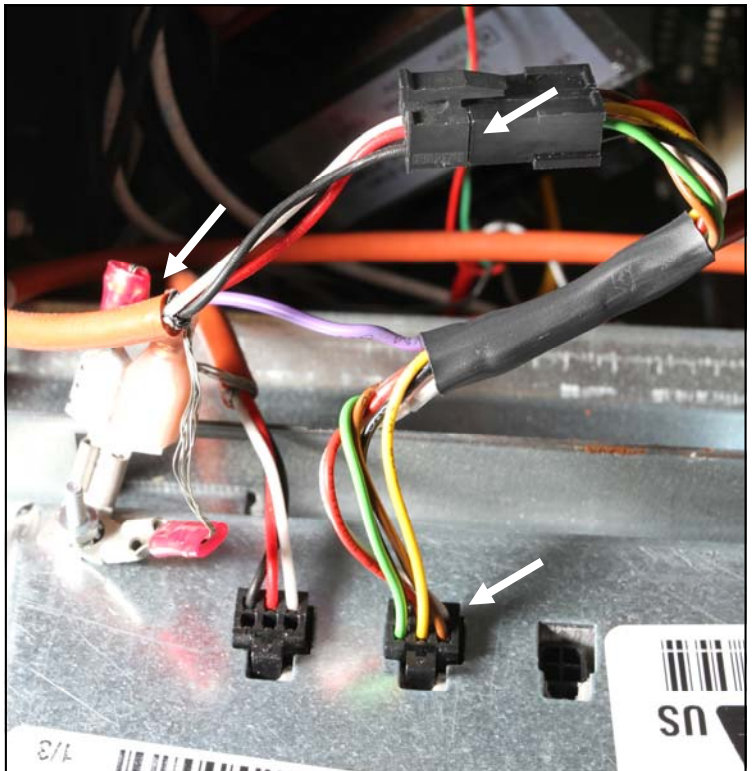
Figure 10: The sensor harness routed to the controller has two heads. The male end (arrow lower right) is plugged into the controller where the CAN cable was unplugged. Plug the CAN cable into the female end (arrow top center) and add the butterfly spade terminal to the controller's ground terminal and attach the sensor's ground terminal (arrow at center left).

Updating Software

1. Lower the leftmost controller.

2. Rotate the cover up as shown. **See Figure 11**.

3. Insert the SD card, with the contacts facing down and the notch on the bottom right into the slot on the left side of the M3000. ENSURE THE CARD IS FULLY INSERTED INTO THE SD CARD SLOT. **See Figure 12**.

Figure 11: Remove screw and rotate cover to access SD card slot.

4. Once inserted, UPGRADE IN PROGRESS is displayed on the left display and WAIT on the right.

5. The display changes to CC UPDATING on the left and the percentage complete on the right. The display counts up to 100 on the right, then a flashing BOOT is displayed. DO NOT REMOVE THE CARD UNTIL THE DISPLAY PROMPTS FOR REMOVAL.

6. UPGRADE IN PROGRESS is displayed on the left display and WAIT on the right again followed by COOK HEX, MIB HEX, AIF HEX, ATO HEX ending with OQS HEX displayed on the left and the percentage complete on the right.

Figure 12: Fully insert the card.

7. The display changes to REMOVE SD CARD on the left and 100 on the right.

8. Remove the SD card using the fingernail slot on the top of the SD card.

9. The display changes to CYCLE POWER.

10. Cycle the unit power using the hidden reset momentary rocker switch under the left control box in gas or behind the far right control box in electric .HOLD THE SWITCH FOR 15 SECONDS, which ensures THE MIB BOARD HAS POWERED FULLY DOWN. **See Figures 13-14**.


Figure 13: The gas reset switch is on the back side of the control box on the left side of the fryer.

10. The left controller displays OFF. The remaining controllers display a flashing BOOT while the program is transferred.

11. The MIB display changes to show the vat numbers as the software loads, changing to A when complete. The M3000 displays OFF.

12. With the controller displaying OFF, VERIFY software update by pressing the TEMP button to check updated M3000/MIB/AIF/ATO/OQS version on EACH controller against the numbers on the SD card.

13. IF ANY OF THE VERSION NUMBERS DO NOT MATCH THE SD CARD, SOME OF THE BOARDS DID NOT UPDATE. REPEAT THE PROCESS STARTING WITH STEP 6. Otherwise continue to the next step. It may be necessary to update the individual controller.

Figure 14: The electric reset switch is under the controller on the right side of the fryer.

14. Once the software has been updated and the versions are correct, replace the cover and screws covering the SD card slot. Reinstall the screws attaching the controllers, bezel and reinstall the doors.

15. Follow the steps on the next page to enable the Oil Quality Sensor software features.

Using Oil Quality Sensor

Field-installed Oil Quality Sensors are defaulted to disabled after the software is loaded. They must be enabled after the install. Follow the instructions below to seup the software and to display oil testing results.
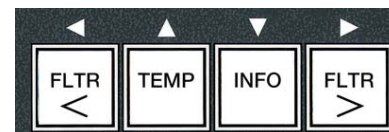
Use these buttons along with the 1✓ and 2X under the display to navigate and choose software settings.

OQS Setup

Display	Action
OFF	Press and hold the Temp and Info buttons.
Level 1 changing to Level 2	Release Temp ▲ and Info ▼ buttons.
Enter Code	Enter 1-2-3-4.
Level 2, changing to Prod Com	Press Temp ▲ button to scroll to OQS Setup on left display.
OQS Setup	Press 1 ✓ key under display on right.
OQS on left; Disabled on right.	Press either FLTR ◄ ► key to scroll to Enabled on right.
OQS Setup	Press 1 ✓ under Enabled display.
Oil Type on the left, Oil type option on right.	Scroll with FLTR ◄ ► key to oil choice: OC01=F212 or OC02=McSol. (Find oil type on oil box.)
Oil Type on the left; chosen oil on right.	Press 1 ✓ key under chosen oil on right.
The controller reboots and updates the adjacent controllers, enabling them for oil quality sensor display. It then goes to OFF.	

OQS Filter

Display	Action
Dashed lines or Menu item; fryer is at operating temperature	Press and hold FLTR ◄ ► button (either for full vat, side-specific for split).
FILTER MENU scrolls, changing to Auto Filter	Press INFO ▼ to scroll to OQS filter. Press the 1✓ .
OQS FILTER scrolls with YES/NO	Press 1✓ under YES.
SKIM VAT is displayed, changing to Confirm with YES/NO.	Skim large debris from the vat and press the 1✓ below YES.
DRAINING	None required.
WASHING	None required
FILLING, changing to TPM with alternating X	None required.
TPM value is displayed	None required.
FILLING	None required.
LOW TEMP	None required. The fryer will return to operating temperature.
DISPOSE YES/NO	Displayed if the TPM reading is over 24.

Check TPM Value

Display	Action
OFF, Dashed lines or menu item	Press and hold INFO ▼ button until INFO MODE scrolls. Release
INFO Mode scrolls on left	Press and release INFO ▼ button until TPM is displayed on the left.
TPM	Press 1✓ under TPM.
DAY/DATE	Press FLTR ► to scroll through past seven days. Press INFO ▼ to see TPM reading and day. Press INFO ▼ to toggle between Left and Right readings on a split vat.
TPM value and date	Press 2X under TPM display to return fryer to operation.

Capturing TPM During Maintenance Filter

Display	Action
Dashed lines or menu item; fryer is at operating temperature.	Press and hold FLTR button ◀ ▶ 3 seconds (either for full vat, side-specific for split).
FILTER MENU scrolls , changing to AUTO Filter.	Press INFO▼ button, scroll to MAINT Filter.
MAINT FILTER scrolls	Press 1✓ button.
MAINT FILTER scrolls with YES/NO	Press 1✓ under YES.
FILTERING	None required.
SCRUB VAT COMPLETE; YES/NO	Wearing appropriate protective gear, scrub the frypot. Press the 1✓ under YES when scrubbing is complete.
WASH VAT, Alternating with YES	Press 1✓ under YES.
WASHING	None Required
WASH AGAIN; YES/NO	Press 1✓ under YES if additional washing is necessary; press 2X under NO if no additional washing is needed.
RINSING	None required.
RINSE AGAIN; YES/NO	Press 1✓ under YES if additional rinsing is necessary; press 2X under NO if no additional rinsing is needed.
POLISH; YES/NO	Press the 1✓ under YES.
OQS; YES/NO	Press the 1✓ under YES to run the oil quality test.
POLISHING	None required
FILL VAT; YES	Press 1✓ under YES.
FILLING	None required.
TPM...X	None required.
TPM value	None required.
FILLING	None required.
IS VAT FULL; YES/NO	Verify vat is full and press 1✓ under YES. Press 2 X under NO if the vat is not full and the pump will run again.
OFF	Leave fryer off or return to service.* DISPOSE YES/NO is displayed when the fryer is turned on and returns to temperature if the TPM value exceeded 24.

The pre-filter **(Figure 15)** installed with the kit requires regular maintenance. Every 90 days, or more frequently if the flow of oil slows, remove the cap and clean the attached screen .

1. Wearing protective gloves, remove the cap from the pre-filter using the supplied wrench **(Figure 16)**.

2. Use a small brush to clear debris. from the attached screen **(Figure 17)**.

3. Clean under a water tap and thoroughly dry.

4. Return the cap to the pre-filter housing and tighten.
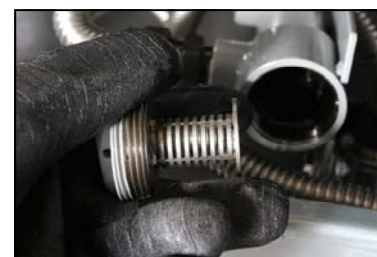

Figure 15

Figure 16

Figure 17

WARNING

DO NOT remove the pre-filter cap when a filter cycle is under way. **DO NOT** operate the filter system with the cap removed. Wear protective gloves when handling the cap. The metal and the oil exposed are hot.