FRYER

Frymaster

Model numbers BIEL14 & BIGL30
MANUAL LOV – Low Oil Volume

Daily maintenance tasks
FR 4 D1 Cleaning fryer
FR 4 D2 Maintenance Filter

Weekly maintenance tasks
FR 4 W1 Clean Behind Fryer

Bi-weekly maintenance task
FR 4 B1 Calibrate fryer

Monthly maintenance task
FR 4 M1 Calibrate fryer recovery time

Quarterly maintenance tasks
FR 4 Q1 Deep Clean
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FR 4 Q3 O-Ring inspection
FR 4 Q4 Clean Blower

Annual maintenance tasks
FR 4 Al-T Servicer inspection (Electric fryers only)
FR4 A2-T Service inspection (Gas fryers only)

Computer model Manual LOV M3000
A. Cook cycle buttons, B. Filter, Temp, Info, Programming and Navigation buttons, C. Product Buttons, D. ON/OFF

Model BIgL30
A. Manual LOV M3000 computer, B. Filter pan

Hazard
These icons alert you to a possible risk of personal injury.

Equipment alerts
Look for this icon to find information about how to avoid damaging the equipment while doing a procedure.

Tips
Look for this icon to find helpful tips about how to do a procedure.
Daily Cleaning of Fryers

Why
Removed caramelized oil from fryer and clean element hub.

Time required
5 minutes to prepare
15 minutes to complete (5 minutes per pot)

Time of day
Low-volume periods
For 24-hour restaurants: overnight or during low-volume periods

Hazard icons
⚠️ Hot Oil ⚠️ Hot Surfaces ⚠️ Sharp Objects/Surfaces ⚠️ Electricity ⚠️ Chemicals

Tools and supplies
- Ecolab Hi-Temp Pad Holder and Pad
- Paper towel
- Neoprene Filtering Gloves
- Apron, heat-resistant
- KAY® QSR Fryer Cleanser
- Face shield
- Fryer’s Friend
- KAY® QSR Heavy Duty Degreaser
- KAY® SolidSense All Purpose Super Concentrate (APSC)
- Bucket with Sanitizer Soaked Towels

Procedure

1 Turn fryers off.
Turn all fryer power switches to the off position.

2 Put on protective gear.
Use all McDonald’s approved safety equipment, including heat-resistance apron, face shield and neoprene gloves.

This procedure should be done for only one vat at a time.

⚠️ Hot Oil
Hot oil can cause severe burns

3 Clean front and topside area of heating element hub (electric only).
Wearing heat resistant gloves, place covers on frypots ensuring they are square with the frypot.

⚠️ Hot Oil ⚠️ Hot Surfaces

Use a small amount of QSR Fryer Cleanser on a Hi-Temp pad (electric only).
Use Hi-Temp pad to clean around the element hub and surrounding housing area.

Once area has been cleaned, wipe off excess with a sanitizer soaked towel. Ensure the towel is not dripping with solution around hot oil.
Remove frypot cover and remove basket rack using a fryer’s friend, set aside. Lift elements using fryer’s friend.

Replace frypot covers and wipe excess oil from the elements with paper towel.

4 Clean underside area of heating element hub (electric only).

Use a small amount of QSR Fryer Cleanser on a Hi-Temp pad.
Use Hi-Temp pad to clean the underside of the element hub and surrounding housing area.

Once area has been cleaned wipe off excess with a sanitizer soaked towel. Ensure the towel is not dripping with solution around hot oil.

Remove frypot cover. Using a fryer’s friend, lower the elements and replace the basket rack.

5 Wipe down surfaces.

Spray a clean, sanitizer-soaked towel with Heavy Duty Degreaser solution to thoroughly wipe down all surfaces of the fryer to remove grease and soil build-up. Ensure the towel is not dripping with solution around hot oil. Allow surface to air dry.

- Hot Surfaces
  Oil in fryer may be very hot.

- Equipment Alert
  When wiping down equipment, always be careful not to drip water into electrical components.

6 Repeat for remaining frypots.
Maintenance Filter

Why: Cleans the vat of crumbs and filters the oil thoroughly to prolong the life of the oil.

Time required: 5 minutes to prepare, 10 minutes per vat to complete.

Time of day: During low volume hours.

Hazard icons: Chemicals, Electricity, Hot Liquids/Steam, Hot Oil, Hot Surfaces, Manual Handling, Moving Parts, Sharp Objects/Surfaces, Slippery Floors.

Tools and supplies:
- Gloves, filtering
- Face shield
- Apron, heat-resistant
- Ecolab Hi-Temp Pad Holder & Pad
- McFiltering Kit for built-in filtering system
- Ecolab Hi-Temp Detail Brush
- KAY® QSR Fryer Cleanser
- KAY® SolidSense All Purpose Super Concentrate (APSC)

Procedure:

1. **Put on protective gear**
   - Use all McDonald’s approved safety equipment, including heat-resistance apron, face shield and neoprene gloves.
   - This procedure should be done for only one vat at a time.

2. **Check filter pan**
   - Make sure filter drain pan and pan cover are properly in place.

3. **Press and hold FILTER button**
   - Make sure fryer is on and oil is hot to get the best results from filtering. Press and hold the filter button for three seconds until controller displays FILTER MENU changing to QUICK FILTER.

4. **Press INFO button**
   - Press the INFO button and the controller displays MAINT FILTER.

5. **Press √ button**
   - Press the √ button and the controller displays MAINT FILTER? alternating with YES NO.
   - Press the √ button for YES to drain oil. The controller displays OPEN DRAIN VALVE.
   - Press the X button for NO and the controls return to normal operation.
6 Open the drain valve
Computer displays OPEN DRAIN VALVE.
Carefully open the drain valve and let the oil drain into the filter pan. Push any pieces of fried food or other sediment into the drain valve, so they drain out.
The controller displays DRAINING.

7 Lift elements (electric only)
Once oil has drained, raise the hinged elements.
⚠️ Hot Surfaces
Use protective gloves when lifting elements or burns could result.

 предосторожности
Be careful not to damage the probe in center of elements.

8 Scrub inside vat
Use the Hi-Temp Pad Holder, pad, and a small amount of KAY QSR Fryer Cleanser to scrub the walls, corners and bottom of the inside of the vat. Use the Hi-Temp Detail Brush to remove debris build up from elements (electric only), corners of vats and other hard-to-reach areas.

 предосторожности
Be careful not to damage the probes.

9 Scrub complete
Once the vat is clean and the controller displays SCRUB VAT COMPLETE? alternating with CONFIRM. Press the √ button.

10 Washing
The controller displays WASH VAT? alternating with CONFIRM. Lower the elements and press the √ button.

11 Open the return valve
The controller displays OPEN RETURN VALVE alternating with CONFIRM.
Open the return valve and press the √ button to begin the filter process.

The controller displays WASHING while oil is circulated through the vat.

12 Close drain valve
The controller displays CLOSE DRAIN VALVE. alternating with CONFIRM.
Close the drain valve and press the √ button.

13 Rinsing
The controller displays RINSING while oil is flushed through the vat.

continued ➤
Close the return valve
The controller displays CLOSE RETURN VALVE WHEN VAT FULL alternating with CONFIRM.

Once the vat is full and bubbles appear in the oil, close the return valve and press the √ button.

Open the drain valve
Computer displays OPEN DRAIN VALVE. Carefully open the drain valve and let the oil drain into the filter pan. The controller displays DRAINING.

Rinse again
Once the rinse is completed and drain is open, the controller displays RINSE AGAIN?, alternating with YES NO. If the vat is clean press the X button. If the vat is not clean, press the √ button and step 13 is repeated.

Polish
The controller displays POLISH? alternating with CONFIRM. Press the √ button. The controller displays POLISHING alternating with the countdown timer while the oil is circulated through the filter system for 5 minutes.

Open the return valve
The controller displays OPEN RETURN VALVE alternating with CONFIRM.

Open the return valve to begin the polish process and press the √ button.

Polishing
The controller displays POLISHING alternating with the countdown timer while the oil is circulated through the filter system for 5 minutes.

Fill vat
Once the polish cycle is complete, the controller displays FILL VAT? alternating with CONFIRM. Press the √ button.

continued ➤
21 Close drain valve
   The controller displays
   CLOSE DRAIN VALVE.

   Close the drain valve.

22 Filling
   The controller displays
   FILLING changing to
   CLOSE RETURN VALVE
   WHEN VAT FULL
   alternating with CONFIRM

   Once the vat is full and
   bubbles appear in the oil,
   close the return valve and
   press the button.

   Close the drain valve and
   press the button.

23 Change the filter pad
   The controller displays
   OFF changing to
   CHANGE FILTER PAD?
   alternating with YES NO. Press the button.

24 Pull-out filter pan
   Open the door and pull the
   filter pan assembly out.

   Hot Surfaces
   The filter pan may be hot!
   Use protective gloves, or
   severe burns may result.

25 Remove crumb basket
   Lift the crumb basket from
   the filter pan. Wipe the oil
   and crumbs from the crumb
   basket. Clean the crumb
   basket with soap and water,
   and thoroughly rinse with hot
   water.

26 Remove filter pad hold down
   ring
   Remove the filter pad hold
down ring and clean with hot
SolidSense All Purpose Super
Concentrate (APSC) solution
at the compartment sink.
Rinse thoroughly with hot
water.

27 Remove filter pad from pan
   Pull the filter pad from the
   pan and discard pad

28 Remove bottom inner screen
   Pull the bottom inner screen
   from pan and clean
   thoroughly with hot
SolidSense All Purpose Super
Concentrate (APSC) solution
at the compartment sink.
Rinse thoroughly with hot
water.

29 Clean filter drain pan
   Wipe the oil and crumbs from
   the filter pan.

continued ▶
30  **Reassemble**
Reassemble in reverse order, placing the bottom screen into the filter pan first, followed by the filter pad with rough side facing up, hold down ring and the crumb basket.

**Tip**
Ensure the filter pan, bottom screen, crumb basket, and the hold down ring are thoroughly dry before placing filter pad into pan as water will dissolve the filter pad.

31  **Turn on fryer**
Press the power button to turn the controller on and return the fryer to normal operation.

32  **Is vat full?**
The controller displays IS VAT FULL? Press the √ button when vat is full. Add additional oil if necessary.
Clean area behind fryers

Why To ensure high-quality fried products and reduce the possibility of a fire near the fryer

Time required 5 minutes to prepare 45 minutes to complete

Time of day After close For 24-hour restaurants: overnight or during low-volume periods

Hazard icons Electricity Hot Oil Hot Surfaces Manual Handling Sharp Objects/Surfaces Slippery Floors

Tools and supplies
- Brush, hi-lo deck
- Brush, pot, nylon
- Bucket with KAY® SolidSense™ All Purpose Super Concentrate (APSC)
- Bucket, clean and sanitized towels
- Bucket, soiled towels
- Caution Wet Floor Sign
- Mop
- Mop bucket
- Mop wringer
- Paper towels
- Putty knife
- Neoprene Gloves

Procedure

1 **Turn fryers off.**
   Turn all fryer power switches to the off position.

2 **Remove and empty grease trough and cup.**
   Remove the grease trough from the exhaust hood. Remove the grease cup from the hood. The trough and cup are located beneath the hood filters. Pour any oil in the trough and cup into the oil removal cart.

   ! Hot Oil
   Oil in trough and cup may be hot. Use gloves.

3 **Shut off and disconnect gas.**
   If the fryer is not a gas fryer, skip this step.
   
   If the fryer is a gas fryer, use the manual gas shut-off valve to shut off the gas supply. The manual gas shut-off valve is located on the supply line before the quick disconnects. Then disconnect the gas line from the fryer via the quick disconnect.

   ! Equipment Alert
   Use only the manual shut-off valve to shut off the gas. Do not use the quick disconnects.
4 Prepare fryer for cleaning.
Release the locks on the fryer wheels.

If the fryer has a capping piece, lift the front of the capping piece far enough to let the backsplash clear the filter shelf. Roll the fryer carefully away from the firewall, just until the capping piece clears the filter shelf.

Secure the capping piece, if there is one. Place vat covers on all vats.

Roll the fryer farther away from the firewall, far enough to clean behind the fryer.

⚠️ Hot Oil
Oil in fryer may be very hot. Roll the fryer slowly to avoid splashing the oil. Use gloves.

5 Disconnect fryer from electricity.
Unplug the fryer’s electrical cord from the outlet by pulling on the electrical plug’s body. You may need to twist the plug to remove from the outlet.

⚠️ Electricity

6 Clean fryer filters.
Remove the fryer filters from the exhaust hood. Take the filters to the three-compartment-sink and soak them in KAY® SolidSense™ All Purpose Super Concentrate (APSC).

⚠️ Chemicals
KAY® SolidSense™ All Purpose Super Concentrate (APSC)

7 Scrape area behind fryer.
Use a putty knife to scrape off all soft grease and hard carbon from the area behind the fryer. Clean the following areas in this order: the parts of the stack you can reach, the back of the exhaust hood, the sides of the exhaust hood, and the fryer filter recess area.

On an electric fryer, next use the putty knife to scrape all soft grease and hard carbon from all sheet metal around the fryer, the standoff piece, and the fryer stand. Skip to step 8 after these areas are cleaned.

On a gas fryer, next use the putty knife to scrape all soft grease and hard carbon from these areas in this order: the flue restrictor, all sheet metal around fryer, the removable gravity blade, the seal angle, the stand-off piece, and the fryer stand.

On a gas fryer, be careful not to drop any soft grease or hard carbon into the fryer flue passage while cleaning.

⚠️ Equipment Alert
Do not break the fire protection fusible link in the lower area of the stack. Breaking the link will activate the fire extinguishing system.
8 Clean area behind fryer.
Use a nylon pot brush, a hi-lo deck brush, and a bucket of hot KAY® SolidSense™ All Purpose Super Concentrate (APSC) solution to scrub all of the areas you scraped in step 7. Clean the areas in the same order that you scraped them in step 7. Then use the hi-lo deck brush to scrub the floor around the fryer.

Wipe all areas with paper towels until they are clean and dry.

9 Ask manager to inspect.
Ask a manager to inspect your work and approve the cleaning. Repeat any cleaning as your manager directs.

10 Wash fryer legs and casters.
Use a nylon pot brush and a bucket of hot KAY® SolidSense™ All Purpose Super Concentrate (APSC) solution to wash the legs and casters of the fryer. Wipe dry with paper towels.

11 Mop floor around fryer.
Use a mop and a bucket of hot KAY® SolidSense™ All Purpose Super Concentrate (APSC) solution to mop the entire floor around the fryer.

12 Allow surfaces to dry.
Allow all fryer, wall, and floor surfaces to air dry.

13 Reconnect fryer to electricity.
Roll the fryer slowly toward the electrical outlet until it is close enough to connect the plug. Plug the fryer into the outlet.

14 Prepare fryer for use.
Roll the fryer forward carefully until it is close to the filter shelf. Remove the vat covers from all vats. Lift the front of the capping piece until the backsplash clears the filter shelf, and roll the fryer carefully into its normal position.

15 Reconnect fryer to gas supply.
If the fryer is an electric fryer, skip this step.

Check both ends of the quick disconnect for grease. Wipe the quick disconnect clean if necessary. Reconnect the gas line coupling.

Be sure the gas quick disconnect is fully engaged and interlocked before turning on the gas supply.
16  **Reinstall fryer filters and grease trough.**
Lock wheels into place. Reinstall the fryer filters and the grease trough in the exhaust hood.

17  **Turn on gas supply.**
If the fryer is an electric fryer, skip this step.

   Turn the manual gas shut-off valve to the on position. Turn the computer on to verify burners will re-light. Once the burners have been re-lit you can turn the computer off.

18  **Clean area behind other fryers.**
Repeat steps 1 through 17 for all remaining fryers.
Calibrate fryer

**Why**
To maintain food safety standards

**Time required**
1 minute to prepare

**Time of day**
At open

**Hazard icons**

![Hot Oil](https://example.com/hot-oil-icon)

![Hot Surfaces](https://example.com/hot-surfaces-icon)

**Tools and supplies**
- Pyrometer with fry vat probe
- Neoprene Gloves

**Procedure**

1. **Calibrate pyrometer.**
   Fill a hot beverage cup with ice and then add cold water from the drink tower up to the top of the ice. You should have 50 percent ice and 50 percent water.

2. **Place probe in water**
   Place the probe in the ice water and stir continuously until the temperature readout stabilizes.

3. **Read temperature**
   The readout should be 32°F (0°C), plus or minus 2°F (1°C). If not, you need to calibrate, repair, or replace the pyrometer. For calibration, follow the calibration, checking, and adjusting procedures supplied by the manufacturer of your pyrometer.

4. **Check oil level.**
   Check the oil level when the oil has reached cooking temperature. If the oil is above the “Oil Level” line, remove oil until the oil is at the line by draining oil into pan or disposal unit. If the oil is below the “Oil Level” line, add oil until the oil reaches the line.

![Hot Oil](https://example.com/hot-oil-icon)

Oil in the fryer is very hot. Use gloves.

5. **Cycle vat.**
   Allow the vat to cycle on and off three times. The heat light will come on when the fryer is heating.

![Hot Surfaces](https://example.com/hot-surfaces-icon)

continued →
5 Read oil temperature.  Insert the fry vat probe of the pyrometer into the hot oil to within 1 inch (2.5 cm) of the probe’s tip. The tip should be approximately 3 inches (7.6 cm) below the surface of the oil. Allow the temperature reading to stabilize.

6 Display temperature on fryer.  Press the temperature display switch for the vat where you took the pyrometer reading. The display will show the temperature for the vat.

7 Compare temperature readings.  Compare the temperature reading on the pyrometer with the corresponding temperature on the display.

   If the two temperatures are less than 5°F (3°C) apart (either plus or minus), you do not need to adjust the temperature setting.

   If the two temperatures are more than 5°F (3°C) apart (either plus or minus), call a service technician to report the problem.

8 Repeat for other side of split-vat.  If the vat you tested was a full vat, skip this step and go to step 9.

     If the vat you tested was one side of a split-vat, repeat steps 5 through 7 on the other side of the split-vat.

9 End calibration check.  When you have finished steps 5 through 7 for the vat (including both sides of a split-vat), press the on/off button to end the calibration check for the vat.

10 Calibrate remaining fryers.  Repeat steps 1 through 9 for all remaining fryers.
Calibrate fryer recovery time

Why
To maintain food safety standards for fried products

Time required
1 minute to prepare
5 minutes to complete,

Time of day
At open
For 24-hour restaurants: in the morning

Hazard icons
△ Hot Oil △ Hot Surfaces

Tools and supplies
Paper and pencil

Procedure

1 Turn fryer on.
Press the on/off button to turn the fryer on. The display will show “----”, product name or “LOW TEMP”

2 Check most recent recovery time.
The fryer automatically records the fryer’s recovery time each time the vat temperature rises from 250°F (121°C) to 300°F (149°C).

Press the INFO button. The display will show the most recent recovery time in both displays. Write down the recovery time.

3 Compare most recent recovery time to acceptable recovery time.
The acceptable recovery time for electric fryers is less than 1:40 (one minute, forty seconds). The acceptable recovery time for gas fryers is less than 2:25 (two minutes, twenty-five seconds).

If the recovery time you wrote down is less than the fryer’s acceptable recovery time, the fryer’s performance is acceptable. Skip to step 5.

If the time you wrote down is more than the fryer’s acceptable recovery time, the fryer’s performance is not acceptable. Go to the next step.
4 Adjust fryer, if necessary.
If the fryer’s recovery time is not acceptable, check the following items on the fryer. If you find any problems, correct them as described.

For electric fryers only, confirm that the large power plug is properly plugged in. Adjust as necessary.

For gas fryers only, check the seal angle, gravity blade, and standoff. Adjust their placement if necessary.

For gas fryers only, check the air flow and combustion air blower. Adjust as necessary.

For gas fryers only, check the condition of the radiant burners.

Refer to troubleshooting guide in Operators manual.

5 Check recovery time again.
If Recovery Time is not achieved in the proper time, call the Frymaster Service Hotline for assistance at 1-800-551-8633.

6 Recalibrate all remaining fryers.
Repeat steps 1 through 5 for all remaining fryers.
Why
Removes caramelized oil from elements (if electric) and frypot.

Time required
5 minutes to prepare
15 minutes to prepare; 60 per pot to complete

Time of day
This task can be performed one pot at a time. You will be able to serve customers with remaining pots.
For 24-hour restaurants: This task can be performed one pot at a time. You will be able to serve customers with remaining pots.

Hazard icons
- Chemicals
- Electricity
- Hot Liquids/Steam
- Hot Oil
- Hot Surfaces
- Manual Handling
- Moving Parts
- Sharp Objects/Surfaces
- Slippery Floors

Tools and supplies
- Apron, heat-resistant
- Ecolab Hi-Temp
- Detail Brush
- Bucket, plastic
- Bucket, clean and sanitized towels
- Bucket, soiled towels
- Face shield
- Fryer skimmer
- Gloves, neoprene
- Goofer stick
- KAY® QSR Fryer Cleanser
- KAY® QSR Heavy Duty Degreaser
- Oil removal cart
- Paper towels
- Ecolab Hi-Temp Pad Holder and Pad

Procedure
The Deep Cleaning follows procedures developed by Kay Chemical. Their instructions are needed in addition to this PM.

1 Prepare for Deep Clean and turn fryer off.
   Put on neoprene gloves, a heat-resistant apron, and a face shield. You must wear this equipment throughout this procedure.
   This procedure should be done for only one vat at a time.
   Confirm that the fryer filters are in place. Turn at least one exhaust fan on. The fan must stay on for the entire procedure.
   Make sure the basket support rack is in place in the vat.
   Press the on/off button to turn the fryer off. The display will show “OFF.”

2 Remove filter pan.
   Remove the filter pan and remove crumb basket, hold-down ring, filter pad and screen.

3 Position MSDU.
   Ensure the MSDU (McDonald's Shortening Disposal Unit or oil removal cart) is in place under the drain.

4 Enter Deep Clean mode.
   Press and hold the Temp and Info buttons simultaneously until LEVEL 1 is displayed on the computer changing to ENTER CODE.
**Deep Clean Mode (continued)**

5 **Enter Code.**
Enter 1-2-3-4 with the numbered keys.

6 **Scroll to Deep Clean.**
Press the "Info" button to scroll to DEEP CLEAN MODE.

7 **Press checkmark key.**
Press the 1 key under the vat to be cleaned.

8 **Confirm Deep Clean.**
The computer display alternates between DEEP CLEAN? and YES NO. Press the 1 key.

9 **Confirm Oil is Removed.**
**Split Pots:** Computer displays Deep Clean, alternating with L R. Press the 1 or 2 button under the split vat to be cleaned.
Computer displays IS OIL REMOVED? alternating with YES NO.

**Full Pots:** Computer displays IS OIL REMOVED? alternating with YES NO.

10 **Confirm Pot Status.**
**Empty Vat:** Press the 1 key. Computer displays SOLUTION ADDED? alternating with CONFIRM.

**Oil-Filled Vat:** Press the 2 key. Computer displays IS DISPOSAL UNIT IN PLACE? alternating with CONFIRM.

11 **Drain oil from vat.**
**Empty Vat:** Skip to Step 13.

**Full Vat:** Computer displays OPEN DRAIN VALVE.
Carefully open the drain valve and let the oil drain into the oil removal cart. Push any pieces of fried food or other sediment into the drain valve, so they drain out.

![Warning: Hot Oil]
The oil may be very hot. Avoid splashing oil.

Computer displays DISPOSING changing to VAT EMPTY? Alternating with CONFIRM.

Press the 1 key.

12 **Close Drain Valve.**
Computer displays CLOSE DRAIN VALVE.

Close the drain valve.
13 Replace filter pan.
Place filter pan with all internal components removed in the fryer cabinet.

14 Add degreaser and hot water to vat.
Pour KAY® QSR Heavy Duty Degreaser carefully into the vat. Use 2/3 gallon (2.52 liters) of degreaser if you are cleaning a full vat. Use 1/3 gallon (1.26 liters) of degreaser if you are cleaning one side of a split vat. Finish filling the vat with hot water. Solution should be 1 inch above fill line.

Refer to Kay Chemical instructions Fryer Deep Clean Procedure for additional instructions.

15 After adding Cleaning Solution
Computer displays SOLUTION ADDED alternating with CONFIRM. Press the 1 key.

16 Start Deep Clean
Computer displays DEEP CLEAN alternating with a countdown timer for one hour. The solution will reach a temperature of 195°F (91°C). The solution should be at a soft, rolling simmer. Complete steps 17 through 19 while the timer is running.

17 Clean fry baskets.
Place the fry baskets into the cleaning solution. Have another crew person remove them when clean and take them to the three-compartment-sink. Rinse and dry them thoroughly.

18 Clean basket support rack.
Use the goofer stick to remove the basket support rack from the vat. Have another crew person take the rack to the three-compartment-sink, and rinse it thoroughly in hot water. Dry thoroughly.

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19 Scrub inside of vat.
Scrub the side, front, and back walls of the vat with the Hi-Temp Pad Holder, pad and Kay QSR Fryer Cleanser.

20 Clean Done
After one hour, the computer displays CLEAN DONE alternating with CONFIRM and sounding an alarm. Press 1✔ to silence alarm.

21 Drain solution from vat.
Follow Kay Chemical Deep Cleaning Procedure to remove solution.

The computer displays IS SOLUTION REMOVED? alternating with YES. Once the solution is removed press 1✔ button.

⚠️ Hot Liquids/Steam
The solution will be very hot. Avoid splashing.

22 Scrub inside of vat.
The computer displays SCRUB VAT COMPLETE? alternating with CONFIRM.

Use the Hi-Temp Pad Holder, pad and fryer cleanser to scrub the side, front, back and top of vat. Remove any remaining deposits. Use the Hi-Temp Detail Brush to scrub in between and underneath coils, corners of vats and any other hard-to-reach areas.

Once the vat is scrubbed press the 1✔ button.

23 Open drain valve
Computer displays OPEN DRAIN VALVE. Carefully open the drain valve.

24 Draining
The computer displays DRAINING to drain the small amount of solution from the vat.

⚠️ Hot Liquids/Steam
The solution will be very hot. Avoid splashing.

25 Rinse vat with water.
Rinse the vat thoroughly with warm water (100°F or 38°C). Be sure to have the filter pan inserted to catch rinse water. Repeat with more clean, warm water.
26 Rinse Complete
The computer displays RINSE COMPLETE? alternating with CONFIRM.
Press the 1 button when the rinse is complete.

27 Close drain valve
Computer displays CLOSE DRAIN VALVE.
Close the drain valve.

28 Remove filter pan.
The computer displays REMOVE PAN alternating with CONFIRM.
Remove the filter pan and press 1.

29 Dry Vat, Clean and Dry Pan
The computer displays VAT AND PAN DRY? alternating with CONFIRM. Remove and drain the filter pan in accordance with Kay Chemical Deep Cleaning procedure. Wipe the vat down with a clean, sanitized towel. Thoroughly dry the inside of the vat with paper towels. Clean and dry the filter pan. Reassemble it with its components and install a clean filter pad.

30 Vat, Pan Dry
Press 1 when the vat and pan are dry and ready to return to service.

31 Insert Pan
The computer displays INSERT PAN alternating with CONFIRM.
Insert the filter pan into the fryer and press 1.

32 Fill the vat with oil.
The computer displays MANUAL FILL VAT alternating with CONFIRM.
Fill the vat with the appropriate amount of oil.
Press 1 when the vat is filled to the bottom oil level line.

33 Return to OFF.
The computer displays OFF.
Verify high-limit controls

<table>
<thead>
<tr>
<th>Why</th>
<th>If the high-limit is not working properly it could lead to a serious equipment failure and unsafe conditions. Never operate a fryer that has a malfunctioning high-limit. Conduct this test when the fryer will not be needed for one hour and the oil is due to be changed. Discard the oil after completing this test.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time required</td>
<td>45 minute fryer warm up time 25 minutes per pot 1 hour for oil to cool down before disposal.</td>
</tr>
<tr>
<td>Time of day</td>
<td>After closing. Conduct this test when the cooking oil is due to be changed. For 24-hour restaurants: during low-volume periods when oil is scheduled to be changed</td>
</tr>
<tr>
<td>Hazard icons</td>
<td>🚭 Hot Liquids/Steam 🔥 Hot Oil 🔥 Hot Surfaces</td>
</tr>
</tbody>
</table>

**Tools and supplies**
- Oil removal cart
- Neoprene Gloves

**Procedure**

1. **Prepare for tests.**
   - Confirm that the oil in the fryer is scheduled to be changed. The oil must be discarded at the end of the procedure.
   - Check the oil level in the fryer. It should be at the upper “Oil Level” line.
   - Check the temperature of the oil by pressing the TEMP button. The oil temperature should be above 180°F (82°C).
   - Confirm that the hood grease filters are in place, and turn the exhaust fans on. The fans must stay on for the entire procedure. During this procedure, the oil in the fryer is heated to very high temperatures. The oil may smoke slightly, and it will be extremely hot.

2. **Turn Computer Off**
   - Press off buttons.
   - 🚭 Hot Surfaces

3. **Enter Programming Mode**
   - Press and hold the Temp and Info buttons simultaneously until LEVEL 1 is displayed on the computer changing to ENTER CODE.

4. **Enter Code**
   - Enter 1-2-3-4 with the numbered keys.

5. **Computer display changes**
   - Computer displays Level 1 Program.

6. **Scroll through choices**
   - Press the ▼ “Info” button to scroll to High Limit Test.

7. **Confirm choice**
   - Press the 1 ▼ key.
8 Confirm test choice
The computer displays HI LIMIT? alternating with YES NO.

9 Press key
Press the key.

10 Press and hold check key.
The computer displays PRESS AND HOLD CHECK.

11 Press and hold key
Press and hold key of the vat being tested. The computer displays the vat temperature during the test.

12 Vat heats
The computer displays HOT HI-1, when the vat reaches 410°F±10°F (210°C±12°C). In computers used in the European Union (those with the CE mark), the temperature is 395°F (202°C).

13 High limit opens
The computer displays HELP alternating with HI-2, when the high limit opens between 423°F to 447°F (217°C to 231°C).

14 High limit fails
If the high limit fails to open, the computer will display HIGH LIMIT FAILURE alternating with DISCONNECT POWER. If this occurs, disconnect power immediately and call for service.

15 Release key
Release the button.

16 Once oil cools exit to off.
When the vat cools below 400°F (204°C), press the 2x twice to exit and return to OFF.

17 Dispose of oil.
Dispose of the oil after a high limit test. Use the MSDU (oil removal cart) for non-RTI stores. If using a bulk oil system follow the proper procedures to dispose of oil.

18 Verify high-limit controls for all remaining fryers.
Repeat steps 3-18 for all remaining fryers.
Replace filter O-rings

Why
To keep the fryer’s filter pump in working order

Time required
2 minutes to prepare 5 minutes to complete

Time of day
At open; the fryer must be cool For 24-hour restaurants: During a low-volume period when the fryer can be turned off

Hazard icons
△ Hot Oil △ Hot Surfaces

Tools and supplies
- O-rings for the filter pump
- Flat tip screwdriver
- Ecolab Hi-Temp Pad Holder and Pad

Procedure

1 Prepare fryer for procedure.
Check to make sure the fryer is cool. This procedure should be done only when the fryer is cool and the filter pan is empty.

2 Remove filter pan.
Pull the filter pan out of the cabinet.

3 Clean pickup tubes.
Clean the male and female pickup tubes with a Hi-Temp No-scratch pad.

4 Replace O-ring.
Remove the O-ring from the pan nozzle. Replace the O-ring with a new O-ring. O-rings can be purchased from your local authorized servicer.

[Equipment Alert]
Use only the manufacturer’s replacement O-ring. These rings are manufactured specifically for use with hot cooking oils. Generic O-rings cannot be used for this purpose.

5 Reinstall filter pan.
Reinstall the pan into the fryer cabinet.
Why
To keep the fryer in working order.

Time required
45 minutes per blower to complete.

Time of day
After hours. For 24-hour restaurants: During a low-volume period when the fryer can be turned off.

Hazard icons
⚠️ Hot Surfaces ⚠️ Electricity ⚠️ Chemicals ⚠️ Sharp Objects/Surfaces

Tools and supplies

Tools supplied by technician
KAY® QSR Heavy Duty Degreaser
Paper towels

Procedure

1 Clean combustion air blower.
Clean the combustion air blowers. Follow the cleaning procedure in the operator’s manual.
Annual Inspection (electric fryers only)

Why
Frymaster recommends that a Factory Authorized Service Technician inspect this appliance at least annually. This will help ensure the equipment is in safe working order and operating at peak performance.

Time required
N/A 1 hour per fryer to complete inspection

Time of day
The inspection should be scheduled by the store to ensure business is not interrupted and to give the servicer adequate access to the equipment.

Hazard icons
- Chemicals
- Electricity
- Hot Oil
- Hot Surfaces
- Manual Handling
- Moving Parts
- Sharp Objects/Surfaces
- Slippery Floors

Tools and supplies
Tools supplied by technician

Procedure

QUALIFIED TECHNICIANS ONLY

1 Cabinet inspection
Inspect the cabinet, inside and out, front and rear, for excessive oil buildup.

2 Element inspection
Verify that heating elements are in good condition with no carbon/caramelized oil build up. Inspect the elements for signs of extensive dry firing.

3 Tilt inspection
Verify that the tilt mechanism is working properly when lifting and lowering elements and that the element wires are not binding and/or chafing.

4 Check fryer recovery time.
Choose a vat on the fryer. Check the fryer’s most recent recovery time for that vat, using the procedure in FR4 M1. The most recent recovery time should be less than 1:40 (one minute, forty seconds).

If the fryer’s recovery time is less than 1:40 (one minute, forty seconds). The procedure is complete for this vat. Go to step 6

5 Adjust fryer, if necessary.
If the fryer’s recovery time is not acceptable, check the following items on the fryer. If you find any problems, correct them as described.

For electric fryers only, confirm that the large power plug is properly plugged in. Adjust as necessary. Continue to step 6.

6 Amp-draw check
Verify the heating element amp-draw is within the allowed range as indicated on the appliance’s rating plate.
7 Probe check
Verify that the temperature and high-limit probes are properly connected, tightened and functioning properly, and that mounting hardware and probe guards are present and properly installed.

8 Electrical component inspection
Verify that component box and contactor box components (i.e. computer/controller, relays, interface boards, transformers, contactors, etc.) are in good condition and free from oil build up or other debris.

9 Wiring connection inspection
Verify that component box and contactor box wiring connections are tight and that wiring is in good condition.

10 Safety device check
Verify that all safety features (i.e. contactor shields, drain safety switches, reset switches, etc.) are present and functioning properly.

11 Frypot examination
Verify that the frypot is in good condition and free of leaks and that the frypot insulation is in serviceable condition.

12 Wiring harness inspection
Verify that all wiring harnesses and connections are tight and in good condition.

13 Oil line inspection
Inspect all oil-return and drain lines for leaks and verify that all connections are tight.
**Annual Inspection (gas fryers only)**

<table>
<thead>
<tr>
<th>Why</th>
<th>Frymaster recommends that a Factory Authorized Service Technician inspect this appliance at least annually. This will help ensure the equipment is in safe working order and operating at peak performance.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time required</td>
<td>1.5 hours to complete</td>
</tr>
<tr>
<td>Time of day</td>
<td>The inspection should be scheduled by the store to ensure business is not interrupted and to give the servicer adequate access to the equipment.</td>
</tr>
</tbody>
</table>

**Hazard icons**

- Chemicals
- Electricity
- Hot Oil
- Hot Surfaces
- Manual Handling
- Moving Parts
- Sharp Objects/Surfaces
- Slippery Floors

**Tools and supplies**

- Tools supplied by technician

**Procedure**

**QUALIFIED TECHNICIANS ONLY**

1. **Cabinet inspection**
   Inspect the cabinet, inside and out, front and rear, for excessive oil buildup.
   - Hot Surfaces

2. **Check regulated gas pressure.**
   Contact the local gas company or a service agency to check the gas pressure out of the fryer’s gas regulator.
   
   For natural gas, the pressure must be 3.0 in. W.C. (76 mm W.C.) For propane gas, the pressure must be 8.25 in. W.C. (210 mm W.C.)
   
   If the pressure does not meet these standards, ask the service agency or gas company to adjust the pressure to meet the standard.

3. **Probe check**
   Verify that the temperature and high-limit probes are properly connected, tightened and functioning properly, and that mounting hardware and probe guards are present and properly installed.

4. **Clean and Replace gas valve vent tube.**
   Clean and replace the gas valve vent tube. Follow the cleaning procedure in the service manual.

5. **Clean combustion air blower.**
   Clean the combustion air blowers. Follow the cleaning procedure in the service manual.

6. **Check fryer recovery time.**
   Choose a vat on the fryer. Check the fryer’s most recent recovery time for that vat, using the procedure in FR4 M1. The most recent recovery time should be less than 2:25 (two minutes, twenty-five seconds).
   
   If the fryer’s recovery time is less than 2:25 (two minutes, twenty-five seconds) the procedure is complete for this vat. Go to step 9.

7. **Check combustion.**
   If the fryer’s recovery time is less than 2:25 (two minutes, twenty-five seconds) skip this step.
   
   Connect the multimeter in series with the white flame sensor wire on the igniter. Allow the burner to operate for at least one minute after the melt cycle is completed. After 1 minute, the reading on the multimeter should be between 2.5 and 3.5 microamps. Any other reading is not acceptable.
   
   After 90 seconds of continuous operation, check the color of the burner. The burner should glow bright orange-red. Use the Burner Color Comparison Chart inside the door of the fryer to identify the correct color. A blue flame or dark spots on the burner face are not acceptable.
8 Adjust combustion air blower, if necessary.
If the fryer’s recovery time is less than 2:25 (two minutes, twenty-five seconds) skip this step.

If either the multimeter reading or the burner color is not acceptable, adjust the combustion air blower intake plate.

Loosen the locking nuts on the intake plate with a small adjustable wrench. Open or close the plate to adjust the airflow while watching the multimeter reading and the color of the burner. A blue flame usually means the burner isn’t receiving enough air. Dark spots on the burner usually mean the burner is receiving too much air.

When the microamp reading is in the acceptable range and the burner color is bright orange-red, hold the blower intake plate in place. Then tighten the blower intake plate locking nuts.

9 Safety device check
Verify that all safety features (i.e. drain safety switches, reset switches, etc.) are present and functioning properly.

10 Frypot examination
Verify that the frypot is in good condition and free of leaks and that the frypot insulation is in serviceable condition.

11 Wiring harness inspection
Verify that all wiring harnesses and connections are tight and in good condition.

12 Oil line inspection
Inspect all oil-return and drain lines for leaks and verify that all connections are tight.

13 Calibrate remaining fryers.
Repeat steps 2 through 12 for each remaining vat and fryer.