



1

High-Efficiency Gas FRYMASTER

Mark Maust
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1. Hours 8-5
2. Lunch 12-1
3. Breaks
4. Smoking area
5. Restrooms
6. **Questionnaire**
7. Phones

2

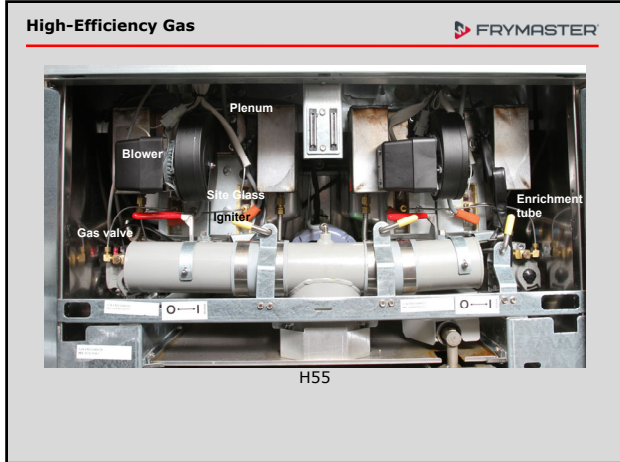
High-Efficiency Gas FRYMASTER

H55

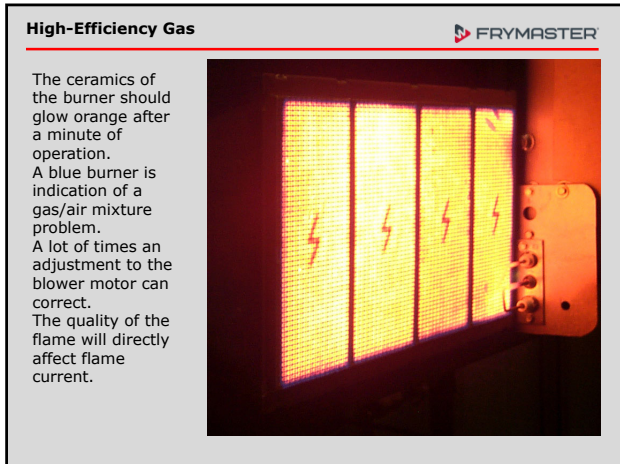
S/N 2211ID0001
22-year 11-month

TRM 1 2-5

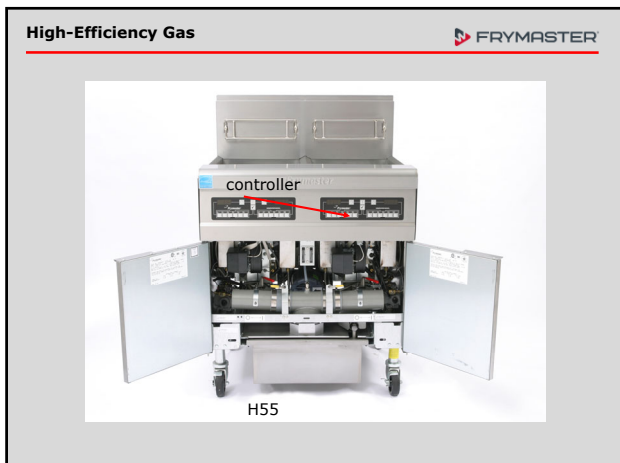
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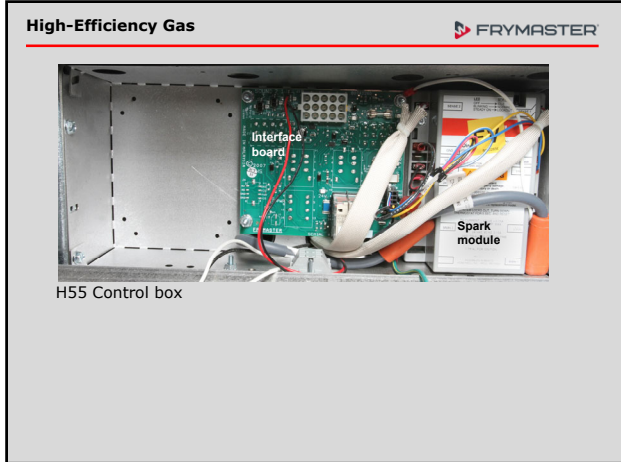
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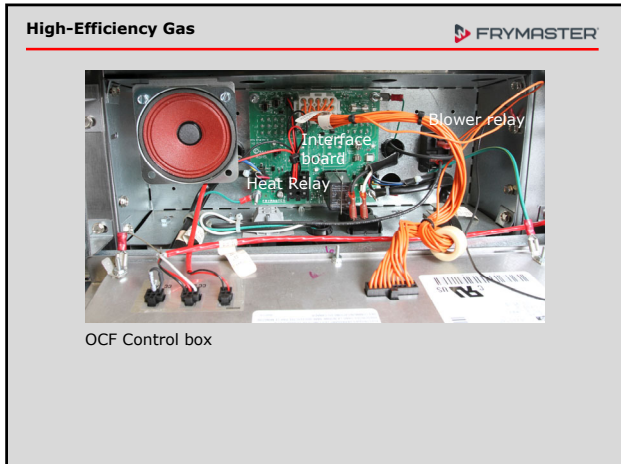
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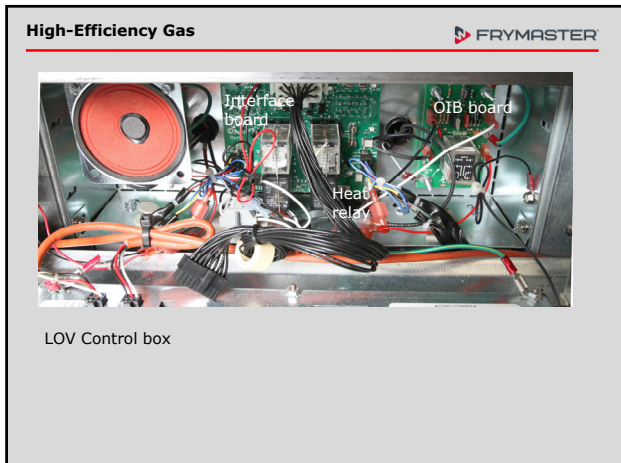
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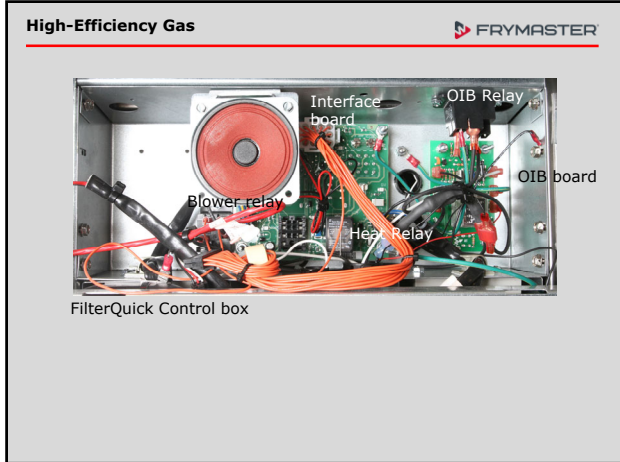
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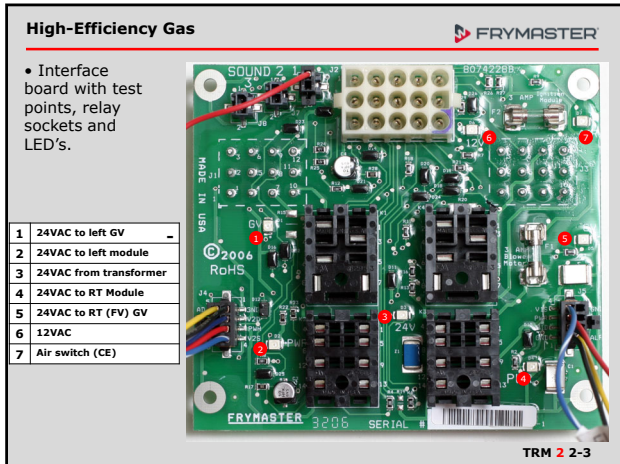
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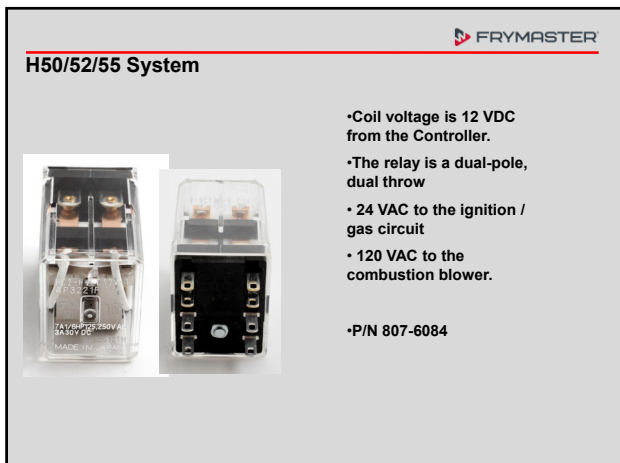
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H50/52/55 System

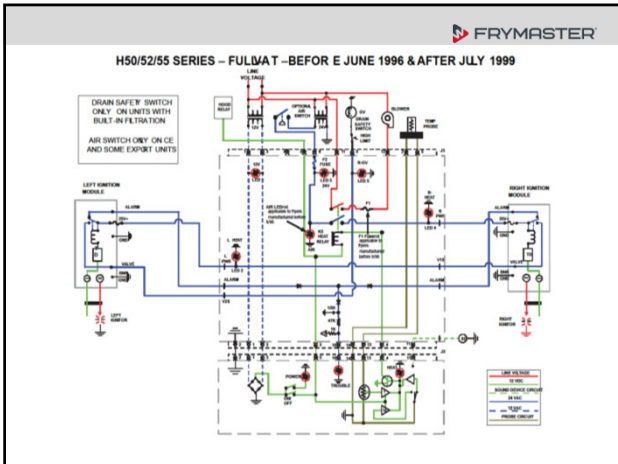
High-Limit



- Normally closed switch
- Opens at 425° +/- 12° F
- Automatic reset at 350°


High limit Kit #826-1177

19




20


Legacy Controllers




CMIII.5



M2000



M3000



FQ3000

21

Legacy Controllers FRYMASTER

Sensitivity

Oil temperature drops farther with heavy loads. Additional cook time is added transparently to cover for the reduced temperature.

22

Legacy Controllers FRYMASTER

Rate of Rise

- If the Computer sees a temperature increase of over 5°F in 2 seconds, the controller stops calling for heat for a 20-30 seconds.

23

Legacy Controllers FRYMASTER

Recovery

- The time required for the oil to rise from 250°F to 300°F.
- The measurement is taken any time the oil drops below 250°F.

Gas 2:25
 Electric 1:40

24

Legacy Controllers FRYMASTER

CMIII.5 Displays

Hot	-----	435°F/223°C <small>Split Vat</small>
	-----	425°F/218°C <small>Full Vat</small>
Hot Hi	-----	410°F/210°C
French Fry Setpoint	-----	370°F/188°C
	-----	350°F/176°C
	-----	330°F/165°C
Lo	-----	180°F/82°C

NOTE: Hi or Lo display is +/- 20°F from the established setpoint for the product.

Cycle

25

High-Efficiency Gas FRYMASTER



A McDonald's fryer is shown in a universal hood introduced ~1995.


26

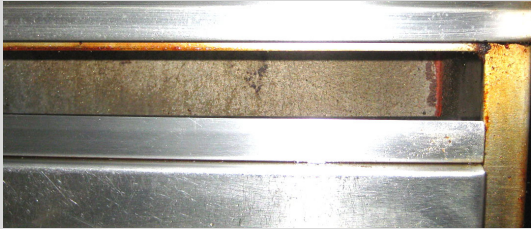
High-Efficiency Gas FRYMASTER



Cap-N-Splash framework is shown lifted. Cap-N-Splash hoods must have a Cap-N-Splash style fryer.


27


High-Efficiency Gas 



A fryer without the Cap-N-Splash locking mechanism leaves a gap in the hood, which disrupts air flow and gathers grease.

28





Introduced June 2015

29

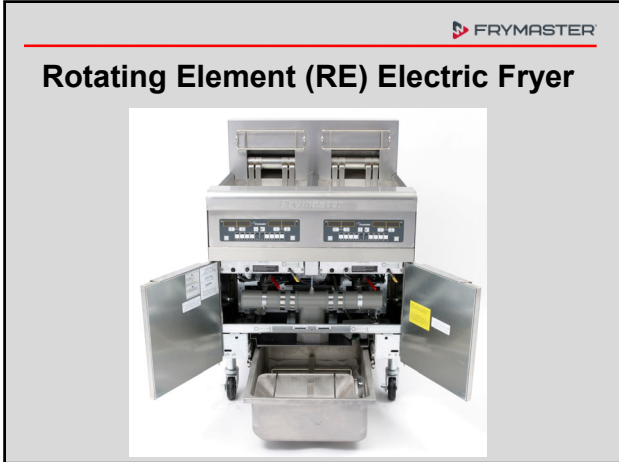


 **WELBILT**
Bringing innovation to the table

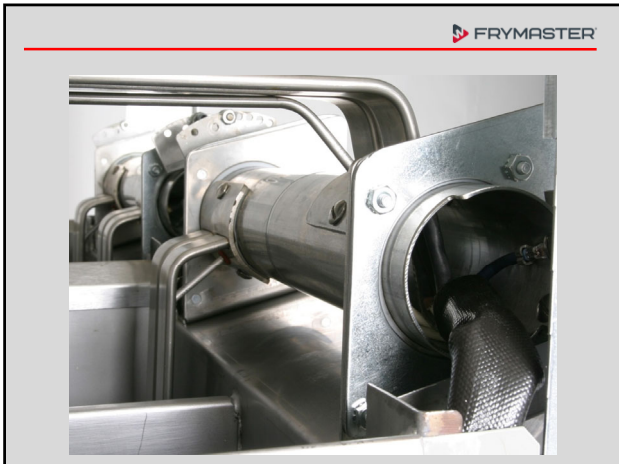
 **FRYMASTER**
Electric Fryers

30

30




31

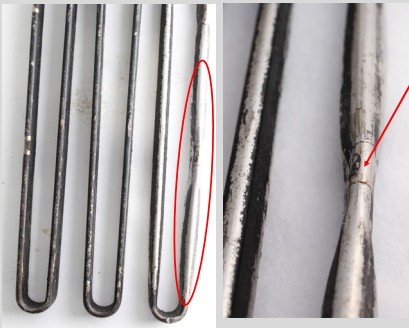


32



33


Heating Element 




Element brackets restrained the swelling at the contact point.

A pinhole puncture in an element can lead to swelling and the release of oil-ruining bubbles into the oil.


34

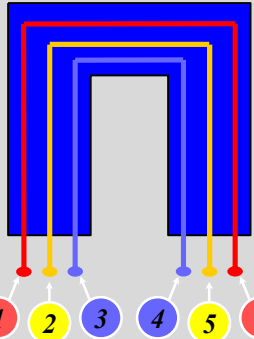


Element shorted to frypot.




35

Heating Element 

<p>Values -10% / + 5%</p> <p>208 Volts</p> <p>7,000 watts 16.8 - 19.5 ohms</p> <p>8,500 watts 13.9 - 16.0 ohms</p> <p>11,000- watts 10.7 - 12.4 ohms</p>		<p>Values -10% / + 5%</p> <p>240 Volts</p> <p>7,000 watts 22.4 - 25.9 ohms</p> <p>8,500 watts 18.4 - 21.3 ohms</p> <p>11,000 watts 14.3 - 15.8 ohms</p>
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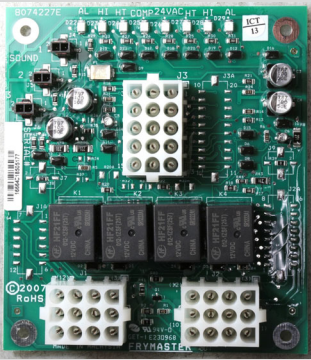
TRM 3 2

36



Interface Board

- LED's indicate power on circuits.
- Relays operate latching and heat circuit.



TRM 3 1


37

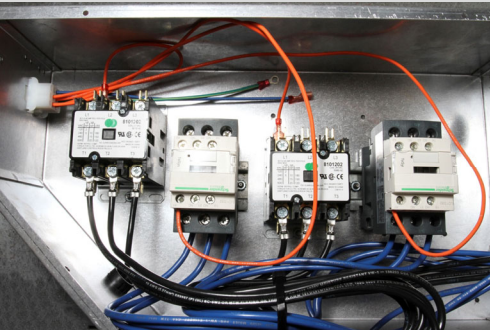




contactor box

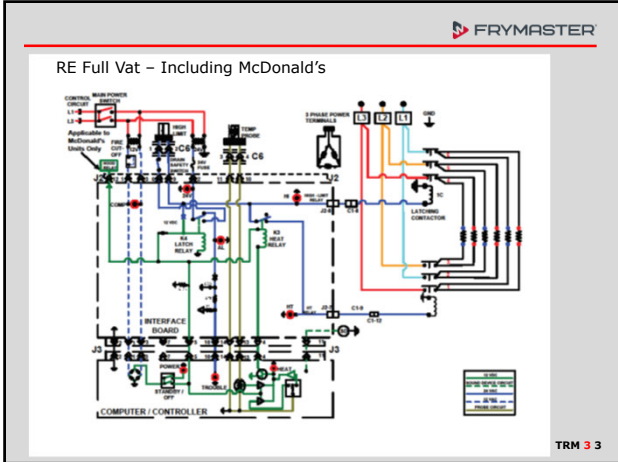
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Contactor box with new mechanical contactors.

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41

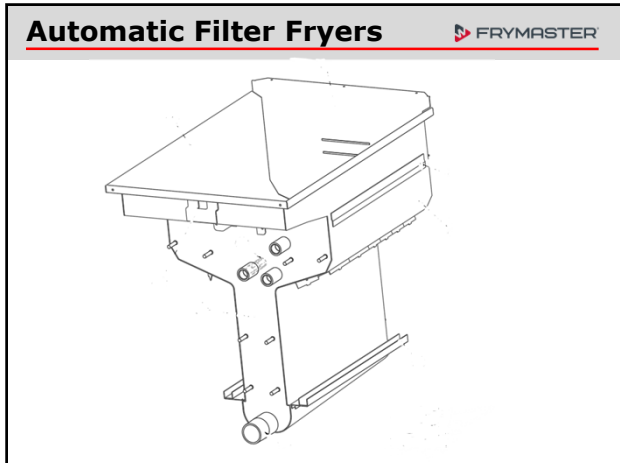
Automatic Filter Fryers

McDonald's LOV FilterQuick

Fryer Features:

- Launch filter cycles automatically.
- Have low volume frypots
- 30# VS 50#
- Have automatic top off


42



43




44

Automatic Filter Fryers 

Acronyms used with the fryers:

- LOV** -- Low Oil Volume
- ATO** -- Auto Top Off
- AIF** -- Automatic Intermittent Filtration
- CAN**-- Controller Area Network
- JIB** -- Jug In Box
- MIB** -- Manual Interface Board



JIB

45

Automatic Filter Fryers



Diagnostics with Controllers

- With the computer displaying OFF, press the TEMP button to see the 3000/MIB/AIF/ATO software versions on each computer.

Missing or mismatched software versions indicate issues.



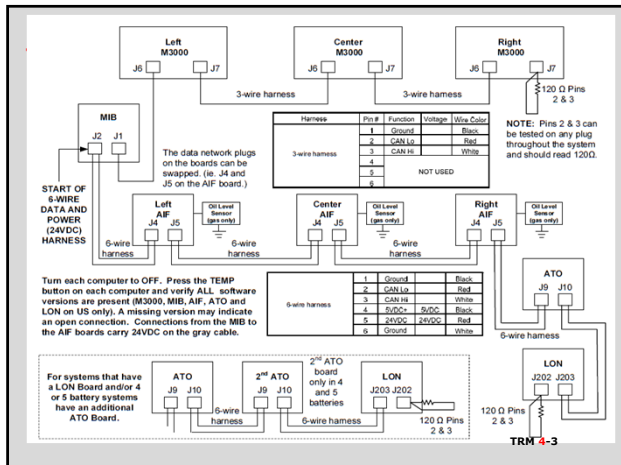
46

Automatic Filter Fryers



DIVERTER KITS/PARTS	QTY	DESCRIPTION
8263591	1	FRYPOT OIL DIVERTER 2 BATT FV 30#
823565	2	SHIELD, TOPOFF FV FRYPOT 30#
8197704	1	OIL DIVERTER INSTALL INSTRUCTION
8263592	1	FRYPOT OIL DIVERTER 2 BATT DV 30#
8239564	2	SHIELD, TOPOFF DV FRYPOT 30#
8197704	1	OIL DIVERTER INSTALL INSTRUCTION
8263593	1	FRYPOT OIL DIVERTER 3 BATT FV 30#
8239565	3	SHIELD, TOPOFF FV FRYPOT 30#
8197704	1	OIL DIVERTER INSTALL INSTRUCTION
8263594	1	FRYPOT OIL DIVERTER 3 BATT DV 30#
8239564	3	SHIELD, TOPOFF DV FRYPOT 30#
8197704	1	OIL DIVERTER INSTALL INSTRUCTION
8263595	1	FRYPOT OIL DIVERTER 4 BATT FV 30#
8239565	4	SHIELD, TOPOFF FV FRYPOT 30#
8197704	1	OIL DIVERTER INSTALL INSTRUCTION

47



48

Automatic Filter Fryers



Automatic Top Off

- Frypot levels are monitored by RTD's.
- A 60° F drop in temperature at the RTD triggers a top off. when oil surrounds the ATO probe and increases the temp



5° top off stops. If the probe does not sense a 5° after several attempts the JIB light will come on prompting, you to check it.

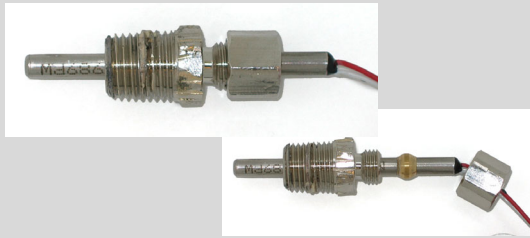
ATO is not activated if the oil is not to set temp, while cooking, during filtration or disposal.

49

Automatic Filter Fryers



The ATO RTD (bottom) is similar in design to the Temperature RTD in the H55 gas fryer (& has the same resistance scale)



50


Automatic Filter Fryers

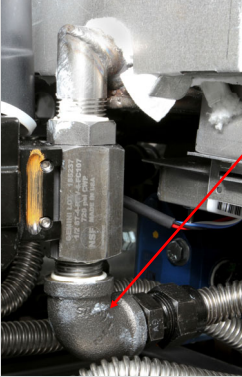


The 24 volts ATO Pump (rated at 11 GPH & for 45 PSI)
Pump has a built-in pressure switch.




51






The elbow on the frypot's return can become a problem in stores that allow large sediment loads to gather in the vat.

52


Automatic Filter Fryers 

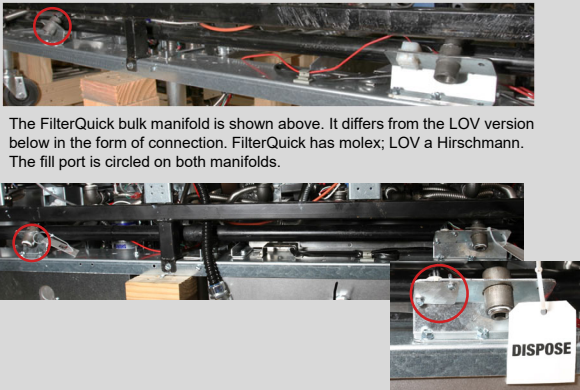
Rotary Actuators



Rotary actuators, which don't require brackets or linkage, replaced linear actuators in LOV electric fryers 1/12 and gas 5/12. All FilterQuicks are equipped with rotary actuators.

53

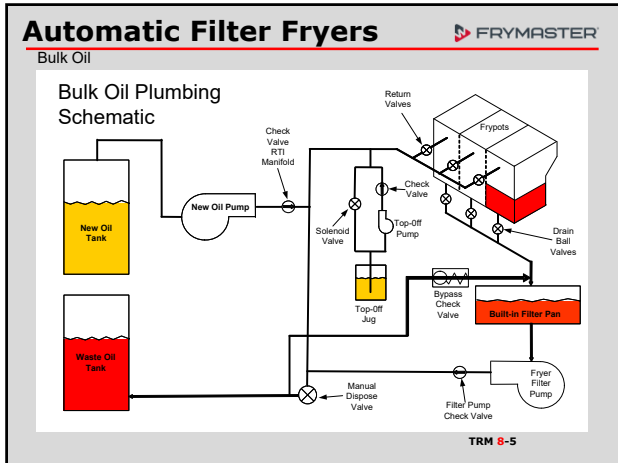
Automatic Filter Fryers 



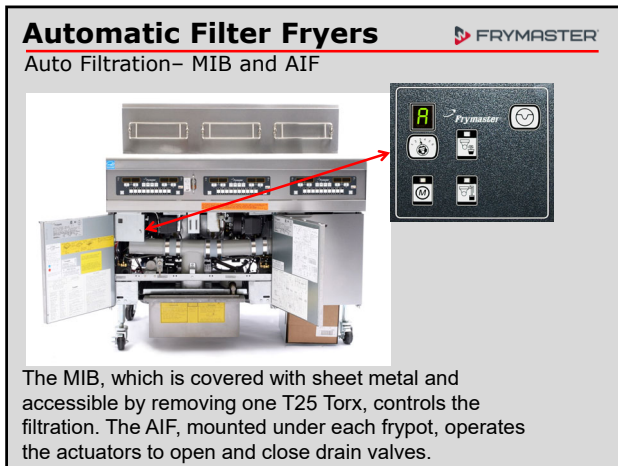
The FilterQuick bulk manifold is shown above. It differs from the LOV version in the form of connection. FilterQuick has molex; LOV a Hirschmann. The fill port is circled on both manifolds.

DISPOSE

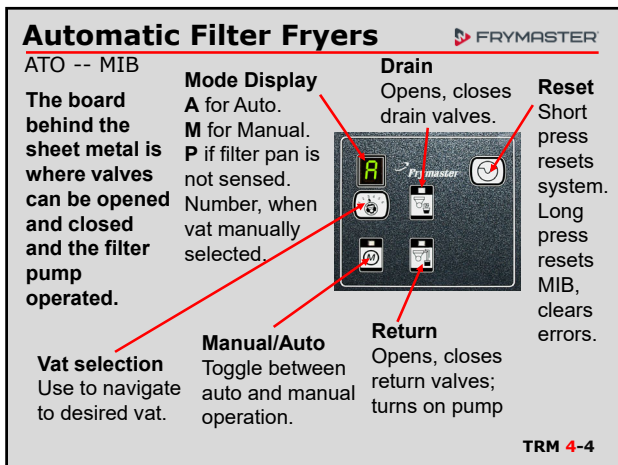
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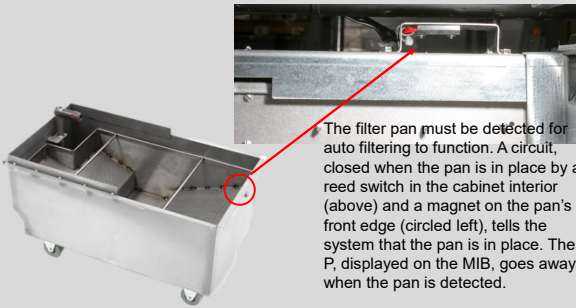


56




57

Automatic Filter Fryers 




The filter pan must be detected for auto filtering to function. A circuit, closed when the pan is in place by a reed switch in the cabinet interior (above) and a magnet on the pan's front edge (circled left), tells the system that the pan is in place. The P, displayed on the MIB, goes away when the pan is detected.

58


Automatic Filter Fryers 

Oil-Is-Back-Sensor




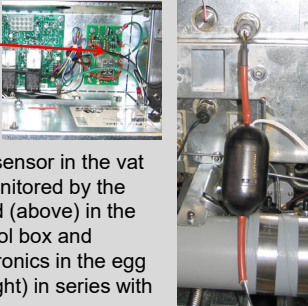
- The oil-is-back sensor serves as a safety to prevent the fryer from heating before oil returns to the vat in a gas fryer.
- The heat of the constantly powered oil sensor rises when the oil leaves the pot. When the temperature of the probe reaches 550°F, the line voltage supplied to the time-delay board begins to switch on and off every four seconds.

59

Automatic Filter Fryers 

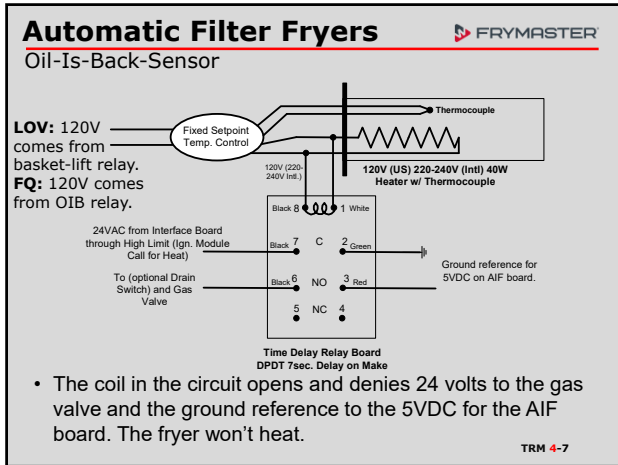
Oil-Is-Back-Sensor

OIB board 



The sensor in the vat is monitored by the board (above) in the control box and electronics in the egg (at right) in series with the sensor.

60



61



62


Brief overview FRYMASTER

Benefits

1. Common controller among multiple brands.
2. Very intuitive.
3. Displays are customizable.
4. Most chains have these approved in their system.

Touch screens were introduced at McDonalds in Japan 2014, and we had a full roll out with Taco Bell in 2016. It is a proven concept.


63



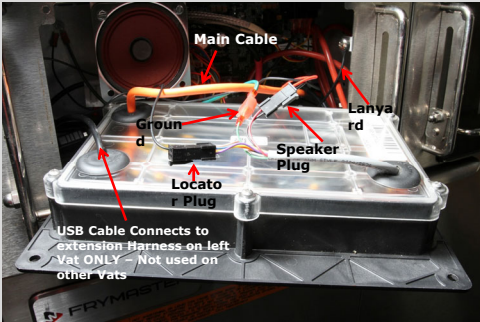
Fryer Acronyms

- **UIB** – User Interface Board (Touchscreen controller)
- **SIB** – Smart Interface Board
- **VIB** – Valve Interface Board
- **FIB** – Filter Interface Board
- **ATO** – Automatic Top-Off
- **OQS** – Oil Quality Sensor
- **OIB** – Oil is Back
- **KCCM** – Kitchen Connect Control Module. Manages communication between fryer and store's monitoring network.
- **USB** – Universal Serial Bus, used to upgrade software

64




Component Identification




The controller module is sealed in a case. There are no serviceable components on the controller.

65



Component Identification

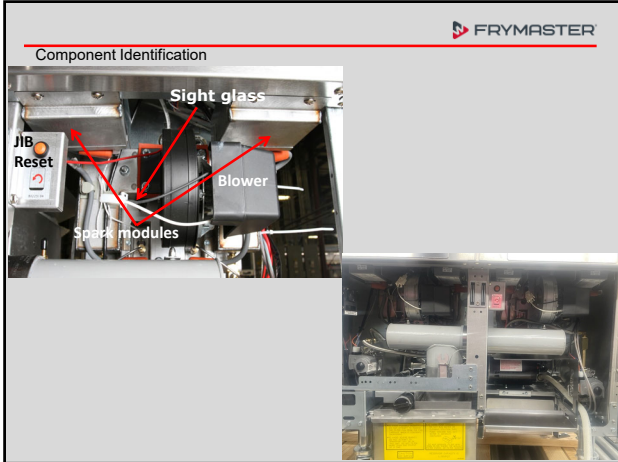


Component port behind left door.

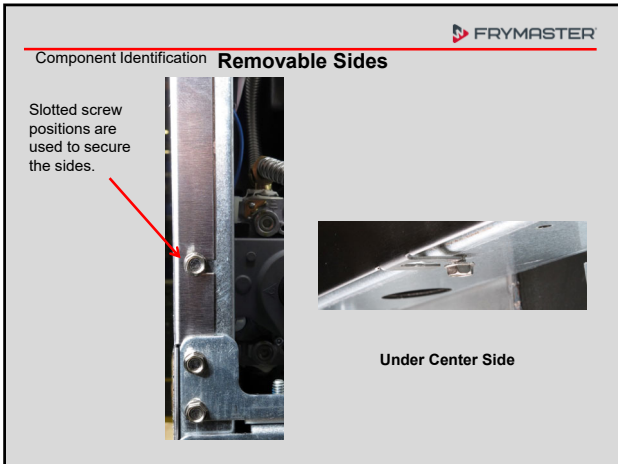
USB port; used for software updates.

Reset switch; used to reset system after board changes, software updates. MUST be held a minimum of 30 seconds to reset the fryer.

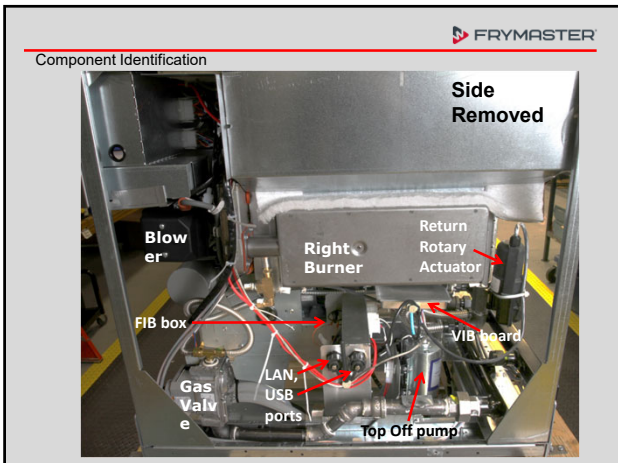
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67

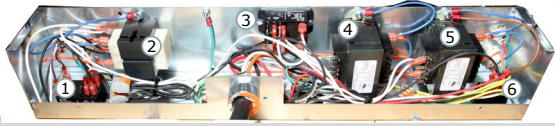


68



69

FRYMASTER



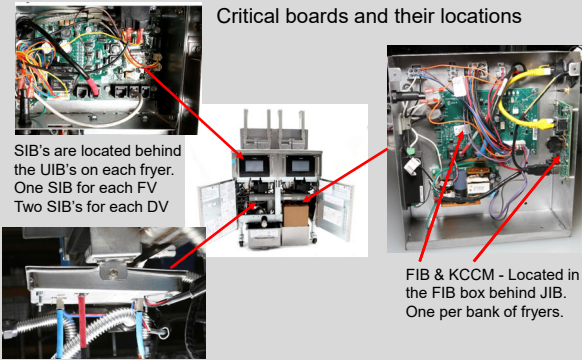
The transformer box, located in the back of the fryer.

1	Filter pump relay
2	Filter pump transformer
3	Control reset relay
4	24VAC transformer each fryer has its own.
5	24VAC transformer
6	Hood relay (McDonald's only)

70

FRYMASTER

Critical boards and their locations



SIB's are located behind the UIB's on each fryer.
One SIB for each FV
Two SIB's for each DV

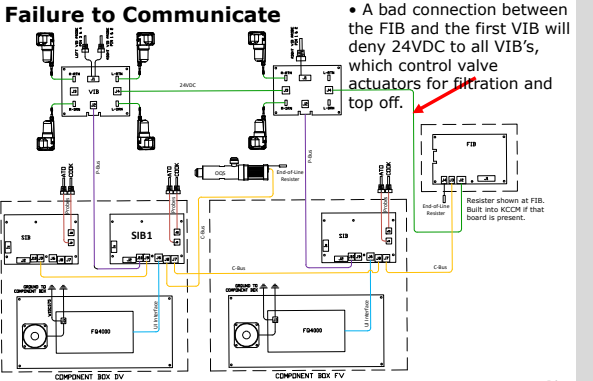
One VIB located under each vat

FIB & KCCM - Located in the FIB box behind JIB.
One per bank of fryers.

71

FRYMASTER

Failure to Communicate

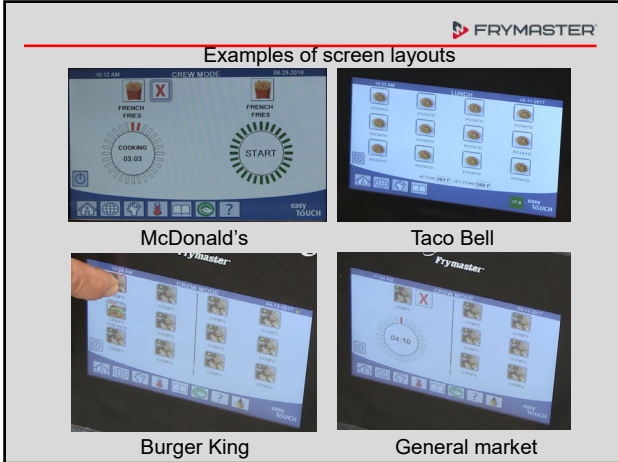


- A bad connection between the FIB and the first VIB will deny 24VDC to all VIB's, which control valve actuators for filtration and top off.

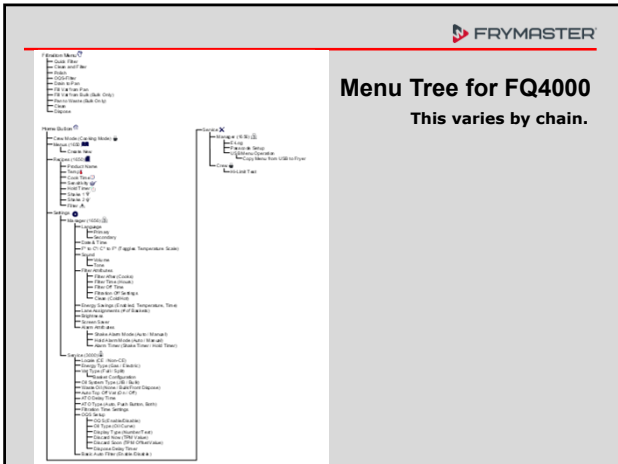
Resistor shown at FIB. Built into KCCM if that board is present.

5-9

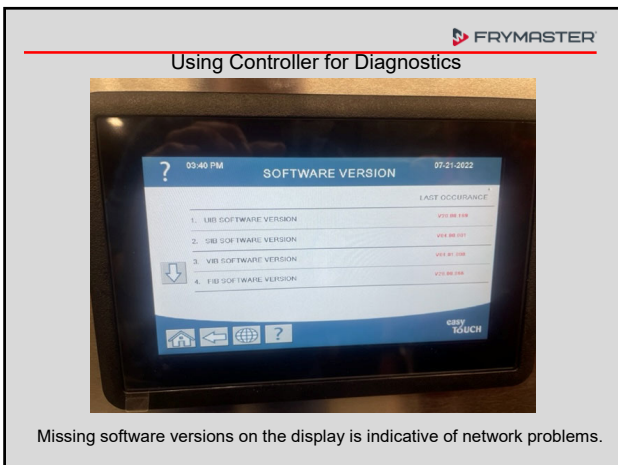
72



79



80



81

FRYMASTER

Using Controller for Diagnostics

		LAST OCCURANCE
5.	ACTUAL VAT TEMP	29 C
6.	AIR HTD TEMP	29 C
7.	ATO HTD TEMP	29 C
8.	BOARD ID	1

Wide variation in ATO and temperature probe readings suggests oil level or probe issues.

82

FRYMASTER

Using Controller for Diagnostics

Components, such as relays and valves, can be tested with the Component Check feature.

83

FRYMASTER

Using Controller for Diagnostics

Components, such as valves, and pumps can be tested in the manual filtration mode.

84
