


TECHNICAL MANUAL

OPEN FRYER[M] (Electric)

MODEL

CFE-410
CFE-420

HENNY PENNY
Engineered to Last

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TABLE OF CONTENTS

Section **Page**

SECTION 1. TROUBLESHOOTING

1-1.INTRODUCTION

This section provides troubleshooting information in the form of an easy to read table.

If a problem occurs during the first operation of a new fryer, recheck the Installation Section of the Operator's Manual.

Before troubleshooting, always recheck the Operation Section of the Operator's Manual.

1-2. SAFETY

Where information is of particular importance or is safety related, the words DANGER, WARNING, CAUTION, or NOTE are used. Their usage is described on the next page:

SAFETY ALERT SYMBOL is used with DANGER, WARNING or CAUTION which indicates a personal injury type hazard.

NOTICE is used to highlight especially important information.

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

CAUTION used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

DANGER INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

1-3. TROUBLESHOOTING

To isolate a malfunction, proceed as follows:

1. Clearly define the problem, or symptom and when it occurs.
2. Locate the problem in the troubleshooting table.
3. Review all possible causes, then one at a time, work through the list of corrections until the problem is solved.

If maintenance procedures are not followed correctly, injuries and/or property damage could result.

Problem	Cause	Correction
With the switch in the POWER position, Fryer is completely inoperative	• Open circuit	• Check to see if unit is plugged in • Check breaker or fuse at supply box • Check POWER switch per Power Switch Section; replace if defective • Check voltage at wall receptacle • Check cord and plug
Shortening will not heat but lights are on	• Faulty contactor (elec. model) • Faulty temperature probe • Faulty high limit • Faulty drain switch	• Check contactor per Heating Contactors Section • Check temperature probe per Temperature Probe Replacement Section; “E-6” • Check high limit per the appropriate High Temperature Limit Control Section; “E-10” • Check drain switch per Drain Microswitch Section; “E-15”

1-3. TROUBLESHOOTING (CONTINUED)

Problem	Cause	Correction
Heating of shorting too slow	• Low or improper voltage (elec. unit) • Weak or Burnt out elements (elect. unit) • Wire(s) loose • Burnt or charred wire connection • Faulty contactor	• Use a meter and check the receptacle voltage against the data plate • Check heating elements per Heating Element Section • Tighten • Replace wire and clean Connectors • Check contactor per Heating Contactors Section
Shorting overheating	• Temperature probe needs calibration • Bad control board	• Calibrate temperature probe if ± 10° off, replace temperature probe • Replace control board if heat indicator stays on past ready temperature
Foaming or boiling over of shortening	• Watch in shortening • Improper or bad shortening • Improper filtering • Improper rinsing after cleaning fryer	• At end of cook cycle, drain shortening and clean • Use recommended shortening • Refer to the Filtering the Shortening Section in Operator's Manual • Clean and rinse the frypot; then dry thoroughly

1-3. TROUBLESHOOTING (CONTINUED)

Problem	Cause	Correction
Shortening will not drain from frypot	• Drain valve clogged with crumbs • Drain valve will not open by pulling handle	• Open valve, force cleaning brush through drain • Replace Drain valve
Filter motor runs but pumps shortening slowly	• Pump clogged • Filter line connection loose • Solidified shortening in lines	• Remove pump cover and clean • Tighten all filter line connections • Clear all filter lines of solidified shortening
Filter switch on but motor does not run	• Defective switch • Defective motor • Motor thermal protector tripped	• Check/replace switch per Filter Switch Section • Check/replace motor • Reset thermal switch on filter motor
Motor hums but will not pump	• Clogged lines or pump	• Remove and clean pump and lines • Replace pump seals, rotor and rollers

1-4. WARNINGS AND ERROR MESSAGES

The controls monitor procedure problems and system failures with warnings and error codes. The display shows the warning or error code, and an alarm sounds.

Pressing 

cancels most warnings and pressing any control button stops most error code alarms. But there are some exceptions (see below). The display shows the error until the situation is corrected.

WARNINGS

Display	Cause	Correction
"W-1" "LOW VOLTAGE"	In coming supply voltage too low	Having voltage at plug and receptacle checked
"W-2" "SLOW HEAT-UP"	Faulty components or connections	Have elements, connections, and contactors checked
"W-3" "WAS NOT READY"	Product loaded into frypot before READY light	Wait unit shortening is at proper temperature before loading product
"W-4" "SLOW COOKING"	Too much product in frypot	Do not overfill frypot
"W-5" "SLOW COOKING"	Product loaded into frypot before READY lights	Wait unit shortening is at proper temperature before loading product
"W-6" "SLOW COOKING"	Faulty components or connections	Have elements, connections, and contactors checked
"W-7" LOW AMPS"	Faulty components or connections	Have elements, connections, and contactors checked
"W-9" "DISCARD PRODUCT"	Product overcooked. (may appear after a "SLOW COOKING" warning)	Discard product immediately
"OIL TOO HOT"	Didn't allow shortening to drop to current product's setpoint temperature	Cancel button stops this warning; once the shortening drops to setpoint temperature, the alarm automatically stops.

1-4. WARNINGS AND ERROR MESSAGES (CONTINUED)

DISPLAY	CAUSE	CORRECTION
"E-1"	Low oil in frypot	Check oil level in JIB (oil reservoir)
"E-4" "CPU TOO HOT"	Control board overheating	Turn switch to OFF position, then turn switch back to ON; if display shows "E-4", the control board is getting too hot; check the louvers on each side of the unit for obstructions
"E-5" "FRYER TOO HOT"	Oil overheating	Turn switch to OFF position, then turn switch back to ON; if display shows "E-5", the heating circuits and temperature probe should be checked
"E-6A" "FRYER TEMP SENSOR"	Temperature probe open	Turn switch to OFF position, then turn switch back to ON;if display shows "E-6A", the temperature probe should be checked
"E-6B" "FRYER TEMP SENSOR"	Temperature probe shorted	Turn switch to OFF position, then turn switch back to ON; if display shows "E-6B", the temperaturechecked
"E-10" "HIGH LIMIT TRIPPED"	High limit	Allow heating elements to cool (15-20 minutes) and reset high limit by pressing down and releasing raised side of the switch for the vat that is not operating; switches are located just to the right of the drain knob; if high limit does not reset, high limit must be replaced 
"E-15" "DRAIN IS OPEN"	Drain switch	Make sure drain knob is completely pushed-in; if E-15 persists, have drain switch checked
"E-18" "LEVEL SENSOR FAILED'	Level sensor open	Turn switch to OFF position and then back to ON; if display still indicates a failed sensor, have the connections checked on the control board; have sensor checked & replaced if necessory
"E-19" "PROTECTION SENSOR FAILED"	Frypot protection sensor open	Turn switch to OFF position and then back to ON; if display still indicates a failed sensor, have the connections checked on the control board; have sensor checked & replaced if necessory

1-4. WARNINGS AND ERROR MESSAGES (CONTINUED)

DISPLAY	CAUSE	CORRECTION
"E-25" "HEAT AMPS TOO HIGH"	Wrong or faulty elements or wiring problem	Have electrical supply, wiring, and elements checked NOTICE Because of the seriousness of this error code, turn the POWER switch off and back on to cancel
"E-26" "HEAT AMPS ARE LOCKED ON"	Faulty contactors or PCB	Have the contactors and PC board checked NOTICE This error code could be displayed even with the POWER switch turned off. Unplug fryer or shut-off the wall circuit breaker to disconnect electrical power to fryer.
"E-27" "AMPS TOO LOW"	• Wrong SP-12 "Nominal Amps Rdg" setting • Defective contactor • Wrong wattage or wrong voltage heating element(s) installed • Fryer voltage excessively low	• The Min and Max amps limits are set as percentages below and above the programmed "Nominal Amps Reading" (Special Program parameter SP-12). The Nominal, Min, and Max amps limits can be viewed in Info Mode. (See the E-25 error above for details.) • Replace contacter • Replace heating element • Call electrician
"E-28" "AMP SENSORS NOT DETECTED"	The AMP sensors are not detected by the control.	1. Check that amp sensors are securely plugged into the rear of the control board. If error still occurs, proceed to step 2. 2. Check to see if the ohm value of each sensor is within +/- 10% of 34 Ohms. If ohm value is not within this range, proceed to step 3. If ohm value is within range, proceed to step 4. 3. Replace amp sensors 4. Replace control board

1-4. WARNINGS AND ERROR MESSAGES (CONTINUED)

DISPLAY	CAUSE	CORRECTION
"E-29" "SHUNT BREAKER HAS TRIPPED"	• Amp draw detected on the amp sensor input when there is no call for heat (heat light off). • Control activates the shunt trip circuit with 24V AC on wires SH1 and SH2 • Breaker trips and will require a manual reset. (disconnect power – Drop control – reset breaker) • E-29 Error on Display	• Check the heat contactor for sticking and replace if defective • See instructions for resetting the breaker • If an E-29 occurs, check amp sensors and replace if out of range • If still E-29, replace control
"E-41" "PROGRAMMED SETTINGS LOST"	• Voltage spikes or dropouts • Failure of backup capacitor on CPU board	1. Turn off fryer, wait 15 seconds, turn on fryer. If error still occurs, proceed to step 2. 2. Replace control
"E-46" "EPROM MEMORY WRITE ERROR"	• Faulty EPROM on CPU board • Other faults or contamination on CPU board	Replace the control board.
"E-47" "A-to-D FAILURE"	• 12-volt supply failed on I/O board • Analog 5v supply bad • A-to-D chip bad	Replace the control board.
"E-48" "INPUT SYSTEM ERROR"	• Defective component on the control board	Replace the control board
"E-60" "AIF COMM FAILED"	• AIF board has failed • The wiring from the control to the AIF board has become disconnected • In a two well unit the left vat power is off	Press power button to turn vat off, wait 15 seconds, and turn back on again. If "E-60" persists: • Have connector between the PCB's checked • Replace AIF PCB or control PCB board if necessary
"E-75" "HEAT RELAY NEAR END OF LIFE"	The secondary contactor has reached the 90% of life mark.	Replace the contactor and reset the counter in Tech Mode step T-23.

SECTION 2. INFORMATION MODE

This historic information can be recorded and used for operational and technical help and allows you to view the following:

- 1. E-LOG
- 2. P-LOG
- 3. HEAT UPS
- 4. LEFT COOK DATA
- 5. RIGHT COOK DATA
- 6. TODAY'S DATA
- 7. PREV DAY - SUN
- 8. 7-DAY TOTALS
- 9. OIL DATA
- 10. PREV OIL DATA
- 11. INPUT INFO
- 12. OUTPUT INFO
- 13. POT TMP
- 14. LVL TMP
- 15. PRO TMP
- 16. SSR TMP
- 17. CPU TMP
- 18. ANALOG INFO
- 19. AC VOLTS
- 20. AMPS INFO

NOTICE

Not all Information Mode functions are discussed in this section. To ensure proper operation of fryer, please consult Henny Penny Corp. before changing any of these settings. For more information on these functions, contact Technical Support at 1-800-417- 8405, or 1-937-456-8405.

2-1. INFORMATION MODE DETAILS

1. E-LOG (error code log)

Press PROG and INFO buttons at the same time and "*INFO MODE*" shows in th

NOTICE

by "1. E-LOG".

Press PROG and INFO to exit Information Mode at any time.

Press ▽ and "A. (date & time) *NOW* show in displays. This is the present date and time.

Press ▽ and if an error was recorded, "B. (date, time, and error code information)" shows in display. This is the latest error code that the controls recorded. Sometimes the characters "L:" and "R:" appear in front of the error code on the display which refers to the left or right vat of a split vat.

Press ▽ and the next latest error code information is seen.

Up to 10 error codes (B to K) can be stored in the E-LOG section.

Press PROG to continue to P-Log.

2-1. INFORMATION MODE DETAILS (Continued)

2. P-LOG (power-up log)
Press ▽ and "2A. (date & time) *NOW* shows in display. This is the present date and time.

Press ▽ and the latest power-up is shown, "2B. (date, time,) PWR-UP".

Press ▽ and the next latest power-up date is shown. Up to 10 power-ups (2B to 2K) can be stored in P-LOG section.

Press Ⓟ PROG to continue onto the heat-up log.

3. HEAT-UP'S
Press ▽ and "3A. (date & time) *NOW* shows in display. This is the present date and time.

Press ▽ and the latest heat-up is shown, along with the heat-up rate, ex: "3B. MAY-22, 8:37A 1.25". The heat rate is the maximum rate (degrees/second) the controller recorded during the shown time frame.

Press ▽ and the next latest heat-up is shown. Up to 10 heat-ups (3B to 3K) can be stored in the Heat-Up Log.

Press Ⓟ PROG to continue onto the COOK DATA.

4. LEFT COOK DATA
Press ▽ to step through the following data:

FUNCTION	DISPLAY EXAMPLE
Time of last Cook Cycle started	4A. STARTED 10.25A
Product (last product cooked)	4B. PRODUCT -1-
Ready? (fryer ready before start?)	4C. READY? YES
Drop detect status	4D. DETECT X NO
Drop adjust (real time seconds)	4E. DROP ADJ T-14
Cook time adj (clock adjust)	4F. CK TM ADJ -13
Actual elapsed cook time (seconds)	4G. ACT TIME 2:23
Stopped: Time remaining, or secs past done	4H. STOP DONE+1
"Slow cook" for this cycle?	4I. SLOW? NO
Overloaded? (Bad batch)	4J. OVRLD? NO
Avg Temp during Cook Cycle	4K. AVG TMP 343°F
Max voltage during Cook Cycle	4L. MAX VOLT 99%
Min voltage during Cook Cycle	4M. MIN VOLT 97%
Max amps during Cook Cycle	4N. MAX AMPS 33
Min amps during Cook Cycle	4O. MIN AMPS 33

Press Ⓟ PROG to continue onto the RIGHT COOK DATA.

2-1. INFORMATION MODE DETAILS (Continued)

5. RIGHT COOK DATA

Press ▽ button to start viewing the cook data.

FUNCTION	DISPLAY EXAMPLE
Time of last Cook Cycle started	5A. STARTED 10.25A
Product (last product cooked)	5B. PRODUCT -1-
Ready? (fryer ready before start?)	5C. READY? YES
Drop detect status	5D. DETECT X NO
Drop adjust (real time seconds)	5E. DROP ADJ T-10
Cook time adj (clock adjust)	5F. CK TM ADJ -13
Actual elapsed cook time (seconds)	5G. ACT TIME 2:23
Stopped: Time remaining, or secs past done	5H. STOP DONE+1
"Slow cook" for this cycle?	5I. SLOW? NO
Overloaded? (Bad batch)	5J. OVRLD? NO
Avg Temp during Cook Cycle	5K. AVG TMP 343°F
Max voltage during Cook Cycle	5L. MAX VOLT 99%
Min voltage during Cook Cycle	5M. MIN VOLT 97%
Max amps during Cook Cycle	5N. MAX AMPS 33
Min amps during Cook Cycle	5O. MIN AMPS 33

Press PROG to continue onto the TODAYS DATA.

6. TODAY'S DATA (automatically resets each day)

Press ▽ to step through the following data:

FUNCTION	DISPLAY EXAMPLE
Today's Date	6A. DATE APR-12
Time of day last heat-up was completed	6B.LAST HEAT 9:45A
Peak heat-up rate(°F/Sec)for last heat-up	6C. LAST RATE 0.82
Was last heat-up acceptable?	6D. LAST OK? YES
Heat Cap. status (based on last 4 ht-ups)	6E.HEAT CAP GOOD
Number of monitored heat-ups today	6F. HEAT-UPS 2
Number of slow heat-ups	6G. SLOW HT'S 0
Max time to heat 270°F to 310°F today	6H. MAX HT TM 1:17
Lowest "peak rate" for today's heat-ups	6I. MIN RATE 0.82
Maximum voltage today (when fryer on)	6J. MAX VOLT 99%
Minimum voltage today (when fryer on)	6K. MIN VOLT 95%
No.of "low voltage" warnings generated	6L. LO VOLT'S 0
Maximum amp draw today	6M. MAX AMPS 35
Minimum amp draw today	6N. MIN AMPS 33
Number of "low amps" warnings today	6O. LO AMP'S 0
Non-cooking time (hh:mm) fryer was on	6P. IDLE HRS 1:23
Oil Wear accumulated so far today	6Q. OIL WEAR 3
Total number of Cook Cycles today	6R. TOT CK'S 11
Number of cycles started before Ready	6S. NOT RDY'S 2
No. cycles quit early, 0:11 or more rem.	6T. QUIT 11+ 0
No. cycles beeped *DONE *21 sec or more	6U. DONE 21+ 1
Individual product cook counts	6V. Px CK CT 2
Individual product "not detected" counts	6W. Px NO DET 0
Individual product "slow cook" counts	6X. Px SLO CT 0
Ind. product "frozen or overloaded"	6Y. Px FRZ/OV 0

(During steps 6V through 6Y, press the product buttons (or Manual Prog) to see data on individual product items)

2-1. INFORMATION MODE DETAILS (Continued)

Press PROG to continue onto PREV-DAY-SUN log.

7. PREV DAY - SUN

Press ▽ to step through the following data. During each step, press P▷ PROG to choose the day of the week, of the past 7 days.

FUNCTION	DISPLAY EXAMPLE
Day this data was recorded for	7A. DATE APR-8
Time of day last heat-up was completed	7B. LAST HEAT 8:15P
Peak heat-up rate (°F/Sec) - last heat-up	7C. LAST RATE 0.88
Was that day's last heat-up acceptable?	7D. LAST OK? YES
Heat cap. status (based on last 4 ht-ups)	7E. HEAT CAP GOOD
Number of monitored heat-ups that day	7F. HEAT-UPS 7
Number of slow heat-ups	7G. SLOW HT'S 0
Max heat time 270°F to 310°F that day	7H. MAX HT TM 1:11
Lowest "peak rate" - that day's heat-ups	7I. MIN RATE 0.67
Max voltage that day (when fryer on)	7J. MAX VOLT 102%
Min voltage that day (when fryer on)	7K. MIN VOLT 98%
No. of "low voltage" warnings generated	7L. LO VOLT'S 0
Maximum amp draw that day	7M. MAX AMPS 35
Minimum amp draw that day	7N. MIN AMPS 34
No. of "low amps" warnings that day	7O. LO AMP'S 0
Non-cooking time (hh:mm) fryer was on	7P. IDLE HRS 7:09
Oil wear accumulated that day	7Q. OIL WEAR 39
Total number of Cook Cycles that day	7R. TOT CK'S 18
Number of cycles started before ready	7S. NOT RDY'S 2
No. cycles quit early, (0:11 or more remaining)	7T. QUIT 11+ 1
No. cycles beeped *DONE* 21 sec or more	7U. DONE 21+ 3
Individual product cook counts	7V. Px CK CT 12
Individual product "not detected" counts	7W. Px NO DET 1
Individual product "slow cook" counts	7X. Px SLO CT 0
Individual product "frozen or overloaded"	7Y. Px FRZ/OV 1

(During steps 7V through 7Y, press the product buttons (or Manual Prog) to see data on individual product items.)

Press PROG to continue onto 7-DAY TOTALS log.

2-1. INFORMATION MODE DETAILS (Continued)

8. 7-DAY TOTALS

Press ▽ to step through the following data:

FUNCTION	DISPLAY EXAMPLE
Oldest day in the "previous days" history	8A. SINCE APR-5
Number of days with data included in totals	8B. DAYS CNT 6
Number of monitored heat-ups	8C. HEAT-UPS 30
Number of slow heat-ups	8D. SLOW HT'S 1
Max time to heat 270°F to 310°F	8E. MAX HT TM 3:25
Lowest "peak rate" of all heat-ups	8F. MIN RATE 0.47
Maximum voltage	8G. MAX VOLT 102%
Minimum voltage	8H. MIN VOLT 91%
No. of "low voltage" warnings generated	8I. LO VOLT'S 0
Maximum amp draw	8J. MAX AMPS 35
Minimum amp draw	8K. MIN AMPS 32
Number of "low amps" warnings	8L. LO AMP'S 0
Non-cooking time (hrs) while fryer was on	8M. IDLE HRS 43
Total oil wear accumulated	8N. TOT WEAR 278
Total number of Cook Cycles	8O. TOT CK'S 125
Number of cycles started before ready	8P. NOT RDY'S 7
No. cycles quit early, (0:11 or more remaining)	8Q. QUIT 11+ 1
No. cycles beeped *DONE* 21 sec or more	8R. DONE 21+ 3
Individual product cook counts	8S. Px CK CT 77
Individual product "not detected" counts	8T. Px NO DET 3
Individual product "slow cook" counts	8U. Px SLO CT 0
Individual product "frozen or overloaded"	8V. Px FRZ/OV 1

(During steps 8S through 8V, press the product buttons (or Manual Prog) to see data on individual product items.)

Press PROG to continue onto OIL DATA log.

2-1. INFORMATION MODE DETAILS (Continued)

9. OIL DATA (current batch; resets by Clean-Out Mode)
Press ▽ to step through the following data:

FUNCTION	DISPLAY EXAMPLE
The day current batch of oil was started	9A. SINCE APR-1
No. of days with data included in totals	9B. DAYS CNT 10
Number of monitored heat-ups	9C. HEAT-UPS 75
Number of slow heat-ups	9D. SLOW HT'S 2
Max time to heat 270°F to 310°F	9E. MAX HT TM 3:25
Lowest "peak rate" of all heat-ups	9F. MIN RATE 0.43
Maximum voltage	9G. MAX VOLT 102%
Minimum voltage	9H. MIN VOLT 91%
No. of "low voltage" warnings generated	9I. LO VOLT'S 0
Maximum amp draw	9J. MAX AMPS 35
Minimum amp draw	9K. MIN AMPS 32
No. of "low amps" warnings	9L. LO AMP'S 0
Non-cooking time (hrs) while fryer was on	9M. IDLE HRS 43
Total oil wear accumulated	9N. TOT WEAR 278
Total number of Cook Cycles	9O. TOT CK'S 125
Number of cycles started before ready	9P. NOT RDY'S 7
No. cycles quit early, (0:11 or more remaining)	9Q. QUIT 11+ 1
No. cycles beeped *DONE* 21 sec or more	9R. DONE 21+ 3
Individual product cook counts	9S. Px CK CT 77
Individual product "not detected" counts	9T. Px NO DET 3
Individual product "slow cook" counts	9U. Px SLO CT 0
Individual product "frozen or overloaded"	9V. Px FRZ/OV 1

(During steps 9S through 9V, press the product buttons (or Manual Prog) to see data on individual product items.)

Press PROG to continue onto PREV OIL DATA log.

2-1. INFORMATION MODE DETAILS (Continued)

10. PREV OIL DATA (moved here from Oil Data log; assumes new shortening)

Press ▽ to step through the following data:

FUNCTION	DISPLAY EXAMPLE
The day previous batch of oil was started	10A. BEGAN MAR-9
No. of days with data included in totals	10B. DAYS CNT 18
Number of monitored heat-ups	10C. HEAT-UPS 98
Number of slow heat-ups	10D. SLOW HT'S 0
Max time to heat 270°F to 310°F	10E. MAX HT TM 1:31
Lowest "peak rate" of all heat-ups	10F. MIN RATE 0.57
Maximum voltage	10G. MAX VOLT 101%
Minimum voltage	10H. MIN VOLT 96%
Number of "low voltage" warnings generated	10I. LO VOLT'S 0
Maximum amp draw	10J. MAX AMPS 35
Minimum amp draw	10K. MIN AMPS 33
Number of "low amps" warnings	10L. LO AMP'S 0
Non-cooking time (hours) while fryer was on	10M. IDLE HRS 62
Total oil wear accumulated	10N. TOT WEAR 1523
Total number of Cook Cycles	10O. TOT CK'S 653
Number of cycles started before Ready	10P. NOT RDY'S 25
Num. cycles quit early, with 0:11 or more rem	10Q. QUIT 11+ 3
Num. cycles beeped *DONE* 21 sec or more	10R. DONE 21+ 13
Individual product cook counts	10S. Px CK CT 466
Individual product "not detected" counts	10T. Px NO DET 31
Individual product "slow cook" counts	10U. Px SLO CT 0
Individual product "frozen or overloaded"	10V. Px FRZ/OV 5

(During steps 10S through 10V, press the product buttons (or Manual Prog) to see data on individual product items.)

Press Ⓟ PROG to continue onto INP A_VHDSF_M check.

2-1. INFORMATION MODE DETAILS (Continued)

11. INP A_VHDSF_M

This mode displays the status of components and inputs. If the input signal is detected, an identifying letter is displayed (see below). If the signal is not detected, "_" is displayed.

With the POWER switch turned to ON, and all inputs detected, "H_ P_ A_VHDSF_M" shows in the diplay. See below for "definition" of codes.

A = POWER Switch turned to ON
V = Volts - 24 VAC detected
H = High Limit - If "H" is present, the high limit is good; if "H" is missing, the high limit is tripped (overheated) or faulty
D = DRAIN SWITCH - If "D" is present, the drain handle is closed; if "D" is missing, the drain is open or faulty
S = POWER switch "on" interlock circuit: if "S" is present, the POWER switch is in the ON position; if the "S" is missing, the POWER switch is either off, failed, or wired incorrectly
F = FAN
M = MV - Detects 24 V jumper to MV terminal

Press ▽ to view the specific status of each input. An underscore ("_") indicates the input is not presently detected. A Checkmark ("√") indicates the signal is detecting a normal input. A blinking ("X") indicates the signal is presently detected, but is detected as a half-wave (partially failed) input.

NOTICE

The V, H, D, S, F, and M signals below are wired in series. The first signal missing out of this sequence will generally cause all signals to the right of it to be missing as well.

Press PROG to continue onto OUTP H* check.4

2-1. INFORMATION MODE DETAILS (Continued)

12. OUTP H*

This mode displays the status of components and outputs. If the output signal is detected, an identifying letter is displayed (see below), followed by an "*". If the output is off, "_" is displayed.

H = Heat output

If heat is on, "H*" shows in display. If heat is off, "H_" shows in display. If controls senses a problem with the heat output, "H*" shows in display, with the "*" flashing.

Press ▽ to view the "amps" status of output.

"H√" in the display means the amps are good. A flashing "X" behind the H means a problem exists.

Press ▽ to view the No Connect/Ground ("NC/GD") status of the output. This monitors a possible problem with the relays on the output PC board.

"H√" in the display means everything on the output PC board is good. A flashing "X" behind the H means a problem exists.

Press ▽ to view the outputs and inputs (see step 10) together.

Press PROG to continue onto the POT TMP reading.

13. POT TMP

This step shows the present shortening temperature. The display shows "13. POT TMP (temp.)".

Press PROG to continue onto the CPU TMP reading.

14. CPU TMP

This step shows the present PC board temperature.

Press PROG to continue onto the ANALOG reading.

2-1. INFORMATION MODE DETAILS (Continued)

15. ANALOG <1> 2344

This step displays the present status of any channel of the controller's a to d converter. This feature may be useful to a technician troubleshooting the fryer or controller.

The displayed value can be toggled between volts and bits by pressing YES 1. If the displayed value has a decimal point, it is voltage (0 to 5 VDC). If no decimal point is shown, the value is a-to-d bits (0 - 4095).

Press PROG to continue onto AC VOLTS reading.

16. AC VOLTS 98%

This item displays the present status of the line voltage supply to the fryer. The displayed value is averaged over a 10-second period, so brief dips or fluctuations in the voltage might not show up in this display.

The voltage is normally displayed as a "percent of nominal" value, where 100% would indicate that voltage is right on the nominal value (i.e. 208 volts for a 208v fryer). The display can be toggled to an actual voltage value by pressing 6.

Press PROG to continue onto AMPS reading.

17. AMPS 33 33 33

For electric fryers, this display shows the present readings from the fryer's amps sensors, which monitor the electrical current supplied to the heaters.

On open fryers, these values indicate the current through each individual heater coil. On 208 or 240 volt units, this value should be close to the value on the data plate. On 480 volt fryers, this value should be the value on the data plate multiplied by 1.76.

The "amps" values should normally cycle on and off with the HEAT ON light, and all three values should be about the same.

NOTICE

Press and hold PROG to exit Information Mode at any time, or after 2 minutes, controls automatically exit back to normal operation.

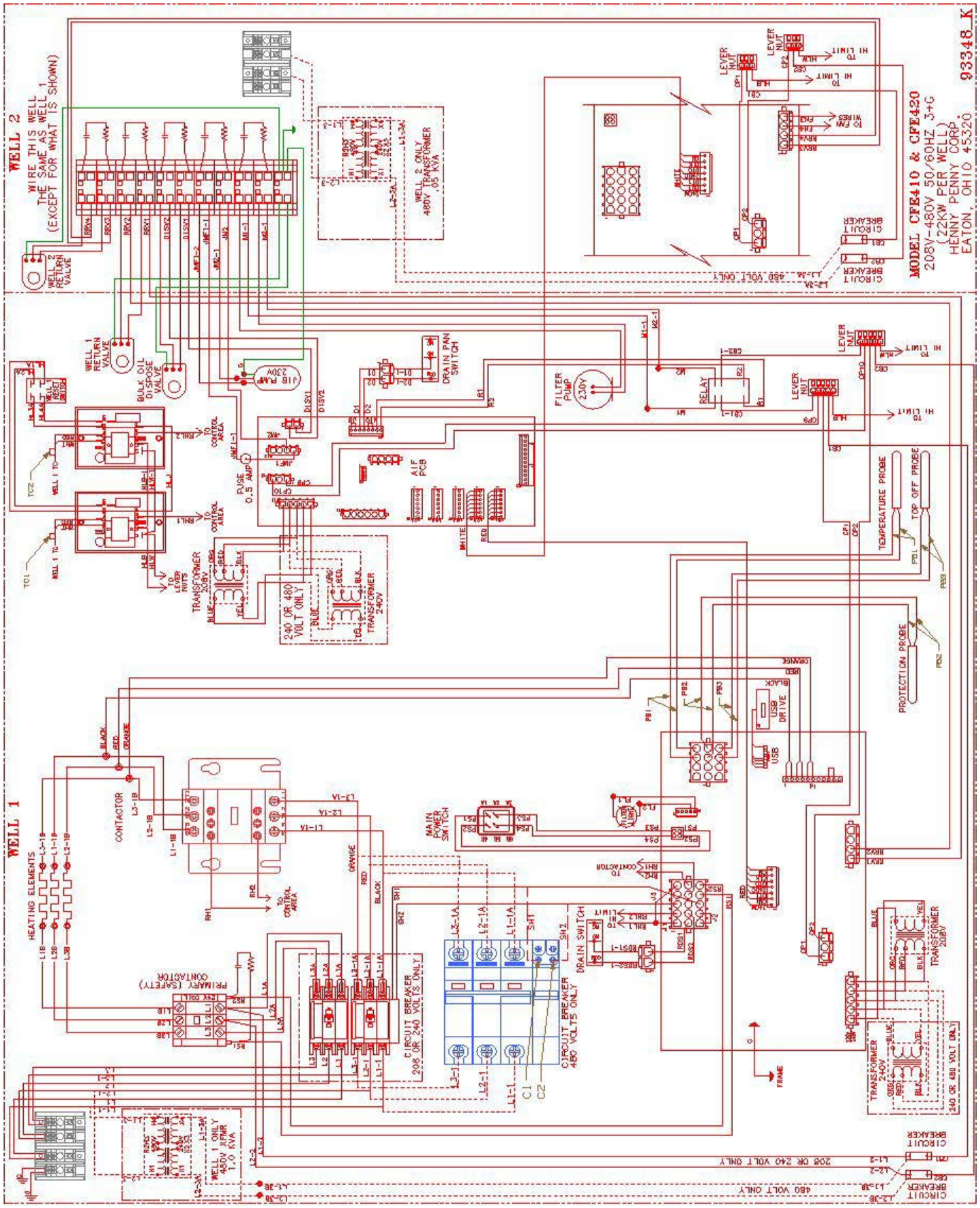
WIRING LEGEND

The legend below helps in identifying the components of the wiring diagrams on the following wiring diagrams.

	LEGEND
ABBREV	DEFINITION
CM	COMMON
CP	CONTROL POWER
D	DRAIN PAN
FB	FILTER BOARD
FL	FILTER LIGHT
FN	FAN
GND	GROUND
GV	GAS VALVE
HL	HIGH LIMIT
J	JUMPER
JL	JIB LOW LIGHT
JM	JIB MOTOR
JV	JIB VALVE

	LEGEND
ABBREV	DEFINITION
L1	LINE VOLTAGE
LDV	LEFT DRAIN VALVE
LDS	LEFT DRAIN SWITCH
LRV	LEFT RETURN VALVE
LW	LONWORKS
M	MOTOR
MLT1	MELTER LINE VOLTAGE
MLTN	MELTER NEUTRAL
MV	MAIN VALVE
N	NEUTRAL
PB	PROBE
PJ	POWER JUMPER
PS	POWER SWITCH

	LEGEND
ABBREV	DEFINITION
PV	PILOT VALVE
R	RELAY
RDV	RIGHT DRAIN VALVE
RDS	RIGHT DRAIN SWITCH
RRV	RIGHT RETURN VALVE
RTIC	RTI CABLE
RTIK	RTI KEY
SEN	SENSOR, FLAME
SFTY	SAFETY VALVE
TH	IGNITION MODULE TH
TR	TRANSFORMER
VS	VACUUM SWITCH
-	EXT. OF SAME SIGNAL


93348 K
MODEL CFE410 & CFE420
208V-480V 50/60HZ 3+G
(22KW PER WELL)
HENNY PENNY CORP.
EATON, OHIO 45320
WELL 2
WIRE THIS WELL THE SAME AS WELL 1 (EXCEPT FOR WHAT IS SHOWN)
WELL 1
WELL 2 ONLY 480V TRANSFORMER .05 KVA
WELL 1 ONLY 480V XFMR 1.0 KVA
WELL 2 RETURN VALVE
WELL 1 RETURN VALVE
BULK OIL DISPOSE VALVE
DRAIN PAN SWITCH
FILTER PUMP 230V
RELAY
LEVER NUT
HI LIMIT
AIF PCB
FUSE 0.5 AMP
TRANSFORMER 208V
240 OR 480 VOLT ONLY
TRANSFORMER 240V
TEMPERATURE PROBE
TOP OFF PROBE
PROTECTION PROBE
USB
USB DRIVE
CONTACTOR
MAIN POWER SWITCH
HEATING ELEMENTS
PRIMARY CONTACTOR (SAFETY)
CIRCUIT BREAKER 208 OR 240 VOLTS ONLY
CIRCUIT BREAKER 480 VOLTS ONLY
DRAIN SWITCH
TO CONTROL AREA
208 OR 240 VOLT ONLY
480 VOLT ONLY
FRAME

SECTION 3. MAINTENANCE

3-1.INTRODUCTION

This section provides procedures for the checkout and replacement of the various parts used within the fryer. Before replacing any parts, refer to the Troubleshooting Section. It will aid you in determining the cause of the malfunction.

3-2. MAINTENANCE HINTS

1. You may need to use a multimeter to check the electric components.
2. When the manual refers to the circuit being closed, the multimeter should read zero unless otherwise noted.
3. When the manual refers to the circuit being open, the multimeter will read infinity.

3-3. COMPLETE CONTROL PANEL REPLACEMENT

Should the control board become inoperative, follow these instructions for replacing the board.

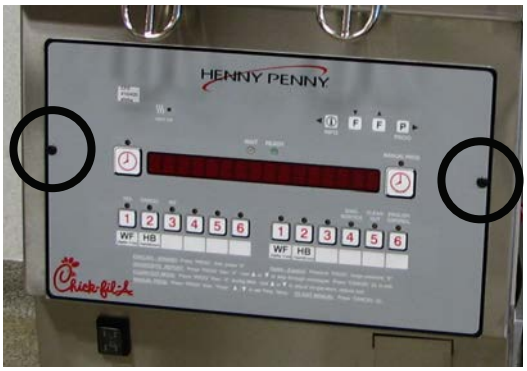


Figure 1

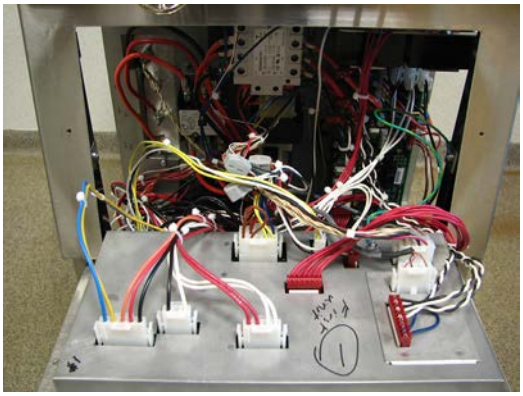


Figure 2

1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the two screws (circled in Figure 1) securing the control panel and lift out.
3. Unplug the wire connectors going to the control board.
4. Install new control panel in reverse order.

CAUTION

When plugging connectors onto new control panel, be sure the connectors are inserted onto all of the pins, and that the connectors are not forced onto the pins backwards. If not connected properly, damage to the board could result.

3-4. QUICK FILTER

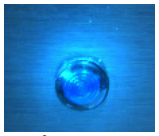


Figure 1

Figure 2

Figure 3

1. During normal operation and after 36 cook cycles, the Filter Light illuminates on the front of the fryer (Figure 1), and "FILTER LOCKOUT"/"YOU *MUST* FILTER NOW", shows in the display. The control refuses further cook cycles until the vat is filtered.

2. **Check Filter Pan:** If the filter drain pan or cover is not in place, the display shows "CHK PAN". Make sure that the filter pipe is tightly connected, and that the filter drain pan is as far back under fryer as it will go and the filter pan cover is in place.

3. Press YES 1 button and display shows *SKIM VAT* followed by "CONFIRM" "YES NO". Skim vat, press YES 1 and display shows "OPEN DRAIN". Pull drain knob (Figure 2) out, display shows "DRAINING" and oil drains from the vat.

   WARNING

   To avoid overfilling the drain pan, drain only 1 vat at a time. The drain pan holds 1 vat of oil. Overfilling the drain pan may cause slippery floors, which may result in personal injury.

   NOTICE

   If filtering is NOT desired, turn off power switch and the display shows "STOPPED" followed by "CONTINUE FILTER" "YES NO". Press NO 3 button, display shows "QUIT FILTER" "YES NO", press YES 1 button; SmartFilter is cancelled, the blue light goes out, and controls return to normal operation. Controls will suggest filtering after several more cook cycles.

   If the drain is clogged, the display shows "VAT EMTY", followed by "YES NO". Use straight white brush to clear drain, press the YES 1 button, and display shows "DRAINING". Controls will proceed with filtering process.

4. At end of drain cycle, "VAT EMTY" followed by "YES NO" is displayed. Visually check vat is empty and press YES 1 button, "WASHING" is displayed. Once filter process is complete, display shows "CLOSE DRAIN". Push-in on drain knob to close drain (Figure 3). Display shows "FILLING" and vat re-fills with oil.

3-4. QUICK FILTER (CONTINUED)

5. Once vat is filled, display shows "IS POT FILLED?" "YES NO". Make sure vat is full and then press YES 1 button and the control returns to normal operation.

6. If the oil has not pumped back to the proper level in the vat during the Quick Filter process, press NO 3 button and pump runs for another 30 seconds.

   Then the display shows "IS POT FILLED?" "YES NO". Make sure vat is full, press YES 1 button and the control returns to normal operation.

   You can try to fill the vat 3 times.

Filter Error

8. After trying to fill the vat 3 times without success, the display shows "*CHANGE* *FILTER* *PAD* CLOGGED?". Press YES 1 button and controls turn OFF.

   Change filter envelope following procedures in Changing the Filter Envelope Section.

   If filter envelope is not changed, the "CHANGE FILTER PAD?" reminder will display every 4 minutes until envelope is changed.

9. During the next Quick Filter with a new filter envelope, if the vat is not filled after 3 tries, the display shows "FILTER SERVICE REQUIRED-SEE TROUBLE-SHOOTING GUIDE"followed by "YES". Press YES 1 button and controls turn unit OFF.

NOTICE

To help ensure vat fills completely, clean the filter pan at least once a day, change the filter envelope at least once a day, and make sure oil reservoir is full and that "O" rings on the filter pan are in good condition. If your store operates 24 hours a day, clean the filter pan and change the filter envelope twice a day.

3-5. DAILY FILTERING

This filtering procedure allows for a more thorough cleaning of the vat and should be done once a day. The vat can be filtered during any non-frying times.

WARNING
BURN RISK

To avoid burns from hot oil, use approved safety equipment including, apron, face shield and gloves before starting filtering procedure.

Also, to avoid overfilling the drain pan, drain only 1 vat at a time. The drain pan holds 1 full vat of oil. Overfilling the drain pan may cause slippery floors, which may result in personal injury.

Figure 1

1. **Check Filter Pan:** A new filter envelope should be used on the first filter of each day, but the same filter envelope can be used the rest of the day.

   Make sure that filter pan cover is in place, filter drain tube is secured, and filter drain pan is pushed into place. If filter drain pan and cover are not latched into place, the display shows "CHK PAN".

2. Press and hold F until display shows "1.EXPRESS FILTER?"

3. Press ▽ button and display shows "2.DAILY FILTER?"

4. Press YES 1 button and display shows "CONFIRM", followed by "YES NO".

5. Press YES 1 button for YES; display shows "OPEN DRAIN". Pull-out on the drain knob (Figure 1), the display shows "DRAINING" and the oil drains from the vat, **or** press NO 3 button and controls return to normal operation.

Figure 2

6. Once oil has drained from vat, remove basket support from vat. Figure 2.

WARNING
BURN RISK

Use protective cloth or gloves when lifting the basket support. Support may be hot and burns could result.

3-5. DAILY FILTERING (CONTINUED)

Figure 3

Figure 4

8. Scrape or brush the sides and the bottom of the vat. Be careful not to damage the sensing probes.

CAUTION

Do not use steel wool, other abrasive cleaners or cleaners/ sanitizers containing chlorine, bromine, iodine or ammonia chemicals, as these will deteriorate the stainless steel material and shorten the life of the unit.

Do not use a water jet (pressure sprayer) to clean the unit, or component damage could result.

9. Once the vat is clean and the display shows "SCRUB VAT COMPLETE?" "YES NO". Press YES 1 button and the display shows "WASH VAT" "YES NO".

10. Press √ button, display shows "WASHING" and oil circulates through vat for several minutes. When wash cycle is complete, display shows "WASH AGAIN?" "YES NO".

11. Press YES 1 button if another wash is needed, otherwise press NO 3 button and the display shows "CLOSE DRAIN". Push-in on drain knob to close drain (Figure 3), the display shows "RINSING" and vat fills with oil.

12. Once the vat is filled, "OPEN DRAIN" shows in display. Pull-out on drain knob to open the drain (Figure 4) and display shows "RINSING". When rinsing is complete, display shows "RINSE AGAIN?" "YES NO".

13. Press YES 1 button if another rinse is needed, otherwise press NO 3 button. Display shows "POLISH?" "YES".

14. Press YES 1 button for YES and oil is "polished" by circulating it through the filtering system. The display shows "5:00 NO=STOP". If desired, press NO 3 button to stop the polishing, otherwise the oil is polished for 5 minutes.

15. Once the oil is polished, the display shows "FILL VAT?" "YES". Press YES 1 button and display shows "CLOSE DRAIN". Push-in on drain knob to close drain (Figure 3), display shows "FILLING" and vat then re-fills with oil.

3-5. DAILY FILTERING (CONTINUED)

16. Once full, display shows “IS POT FILLED?” “YES NO”. Press YES 1 button; fryer returns to normal operation.

    If NO 3 button is pressed, display shows “FILLING”. You can try to fill vat 4 times and then control shows “ADD QUIT”. Press left button and JIB pump runs 60 seconds, filling vat from oil reservoir. When vat is full, press right button and display shows “IS POT FILLED? “YES NO”. Press YES 1 button and fryer returns to normal operation.

3-6. FILTER MENU

Along with Express Filter and Daily Filter, here is a listing of all the Filter Menu items available.

Press and hold F button;

1.EXPRESS FILTER

2.DAILY FILTER

3.DISPOSE

4.DRAIN TO PAN

5.FILL FROM PAN

6.FILL FROM JIB (oil reservoir)

7.EXIT

3-7. CHECK/REPLACE FILTER DRAIN PAN O-RINGS

To prevent oil leaking, and to keep filtering process operating properly, the filter drain pan o-rings should be inspected for nicks and tears at least every 3 months. Figure 1

Figure 1

1. Open the door, push down on the drain pan stop and pull out the drain pan assembly, using the handle on the drain pan. Figures 2 & 3.

Figure 2

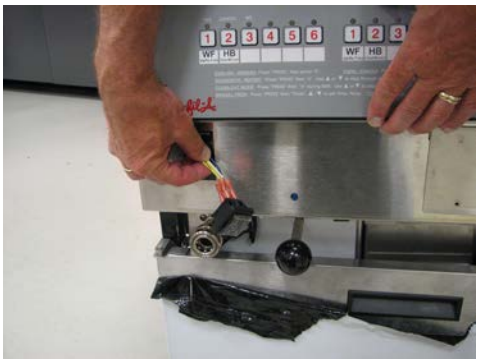
Figure 3

This pan could be hot! Use protective cloth or glove, or severe burns could result.

2. Visually check the 3 o-rings on the tube of the filter drain pan for any cracks or breaks and replace if necessary.

3. To replace o-ring, use a small, flat-bladed screwdriver, pry up on o-ring and pull off of end of tube. Roll new o-ring into notch on tube. Lubricate o-rings on filter tube with fresh, cold oil & push filter drain pan into position. Figure 4

3-8. POWER SWITCH



1. Remove electrical power supplied to fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove control panel.

3. Label and remove the wires from the switch. With test instrument, check across the terminals of the switch with the switch in the ON position, then in the OFF position. With the switch in the ON position, the circuit should be closed. With the switch in the OFF position, the circuit should be open. If the switch checks defective, replace by continuing with this procedure.

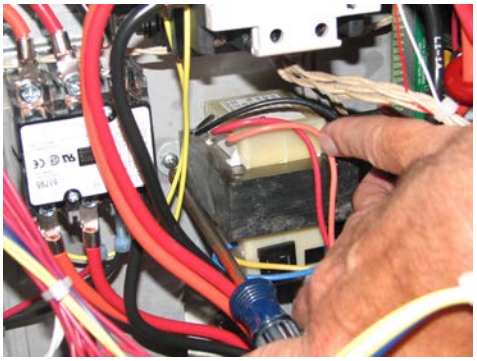
4. With control panel removed, and the wires off the switch, push in on tabs on the switch to remove from panel.

5. Replace with new switch, and reconnect wires to switch.

6. Replace control panel

3-9. AIF TRANSFORMER

The transformer reduces voltage down to accommodate those components with low voltage.



1. Remove electrical power supplied to fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

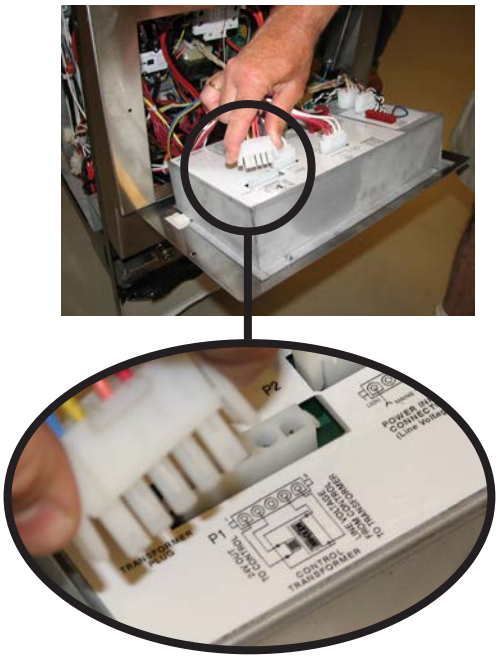
2. Remove the control panel as discussed in Complete Control Panel Replacement Section.

3. Squeeze on the wire connector at the AIF board assembly to disconnect the wires from the transformer.

4. Using a Phillips head screwdriver, remove the two screws securing the transformer.

5. Install the new transformer in reverse order.

3-10. CONTROL BOARD TRANSFORMER



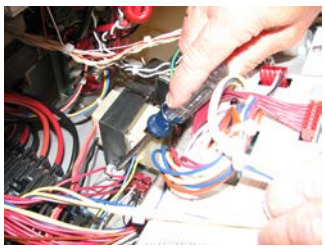
1. Remove electrical power supplied to fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

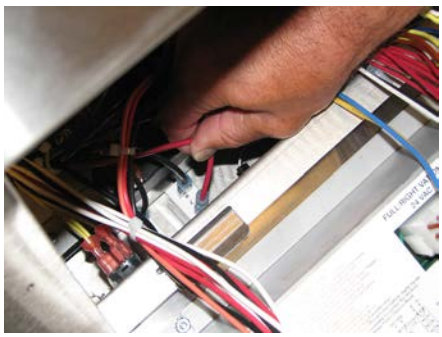
2. Open the control panel and locate the "CONTROL TRANSFORMER" connectors and disconnect from the control board.

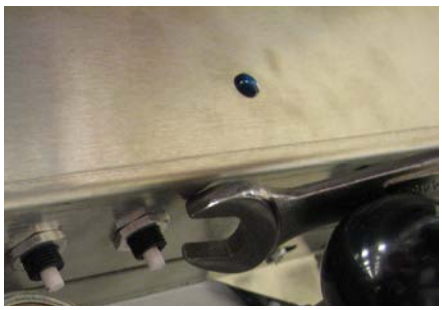
3. Using a phillips head screwdriver, remove the 2 screws securing the transformer.

4. Install the new transformer in reverse order.



3-11. CIRCUIT BREAKERS





1. Remove electrical power supplied to fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

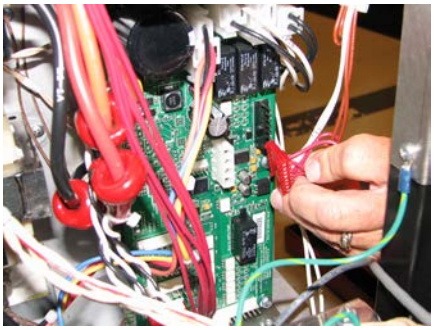
2. Remove the control panel as discussed in Complete Control Panel Replacement Section.

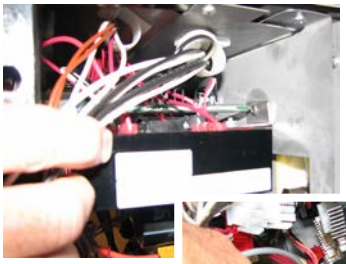
3. Lable and remove wires from the old circuit breaker.

4. Loosen the nut securing the breaker from underneath with a 9/16 in. wrench and then pull the old breaker from the control panel area.

5. Install new circuit breaker in reverse order.

3-12. AIF BOARD (SINGLE WELL)





1. Remove electrical power supplied to fryer.

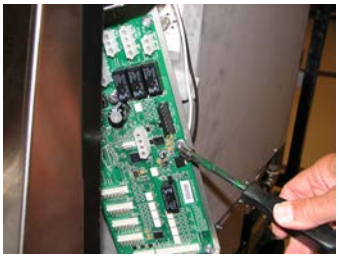
To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the control panel as discussed in Complete Control Panel Replacement Section.
3. Remove the right side panel by removing the 4 self drilling screws circled in top figure.
4. Label and disconnect the connectors leading to the AIF board.
5. Release the wires from the wire clip located on the shroud and move wires aside for clearance when removing the AIF board.
6. Using a phillips head screwdriver, remove the top screw securing the AIF bracket to the shroud.
7. Using a phillips head screwdriver, remove the bottom screw securing the AIF bracket.
8. Slid the AIF bracket with the AIF board still attached out of the side of the unit.
9. Using a nutdriver, remove all the nuts securing the AIF board to the bracket and set aside.

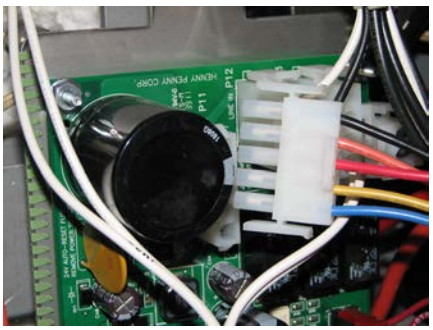
NOTICE

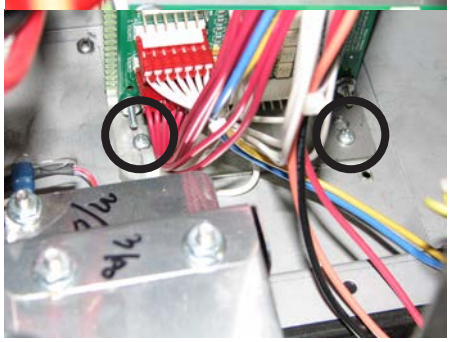
When removing and installing the AIF board, be sure the spacers are placed between the AIF board and bracket.

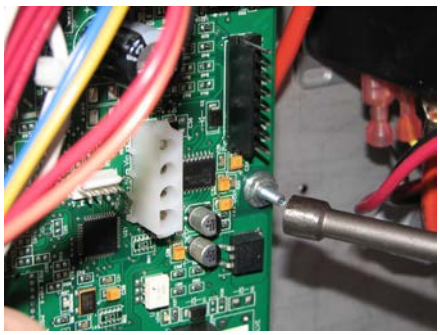
10. Install the new AIF board in reverse order.



3-12. AIF BOARD (DOUBLE WELL)







1. Remove electrical power supplied to fryer.

WARNING
SHOCK HAZARD

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

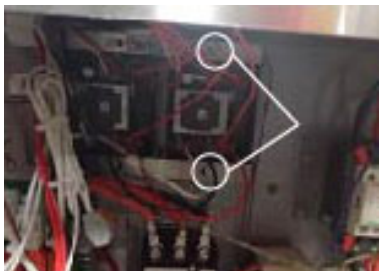
2. Remove the control panel as discussed in Complete Control Panel Replacement Section.
3. Remove the right side panel by removing the 4 self drilling screws circled in top figure.
4. Label and disconnect the connectors leading to the AIF board.
5. Release the wires from the wire clip located on the shroud and move wires aside for clearance when removing the AIF boar
6. Using a phillips head screwdriver, remove the top screw securing the AIF bracket to the shroud.
7. Using a phillips head screwdriver, remove the bottom screw securing the AIF bracket.
8. Slid the AIF bracket with the AIF board still attached out of the side of the unit.
9. Using a nutdriver, remove all the nuts securing the AIF board to the bracket and set aside.

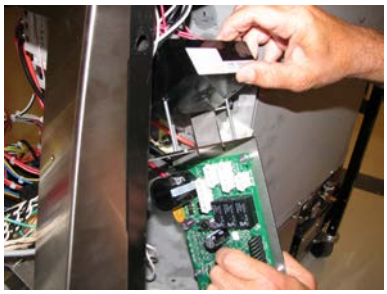
NOTICE

When removing and installing the AIF board, be sure the spacers are placed between the AIF board and bracket.

10. Install the new AIF board in reverse order.

3-13. HIGH LIMIT MODULE





1. Remove electrical power supplied to fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

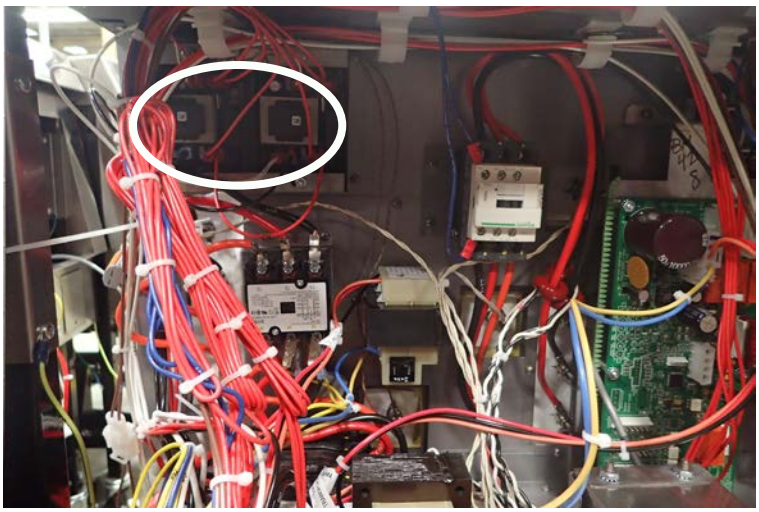
2. Using a phillips screwdriver remove the screws from the control board and lower the the control board.

3. Using a 5/16 in. socket/ wrench, remove the nuts securing the modules to the top of the bracket. Set the nuts and the metal strips off to the side.

4. Locate the faulty module box and label the wires. Disconnect the wires.

Located on the side of the module box are the locations of each wire connector.

5. Slide the old module off of the studs. Install the new module in reverse order.



3-14. HEATING ELEMENT REPALCEMENT

NOTICE

Heating elements are available for 208, 240, and 480 volts. Check data plate to determine correct voltage.

Checkout:

If the shortenings temperature recovery is very slow or at a slower rate than required, this may indicate defective heating element(s). An ohmmeter will quickly indicate if the elements are shorted or open.

1. Remove electrical power supplied to the frypot to be worked on.

Move the POWER switch to OFF and disconnect main circuit breaker or unplug cord at wall receptacle. Failure to do so may result in electrical shock or property damage

2. Remove control panel.

3. Disconnect the wires from the element and perform an ohms check on one element at a time. If the resistance is not within tolerance replace the element (refer to the table below).

Voltage	Wattage	Resistance (cold)
208	7333	5.6 Ohms
240	7333	7.5 Ohms
480	7333	31.4 Ohms

Replacement:

1. Drain the shortening from the vat.

2. Remove the high limit bulb holder from the heating element inside the frypot.

3. Remove the heating element wires from the terminals by removing the nuts and washers. Label each so it can be replaced on the new element in the same position.

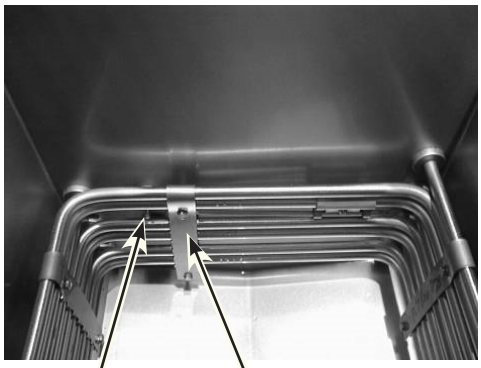
4. Remove the bolts from the five element spreaders. The element spreaders will now pull off the elements.

5. Remove the brass nuts and washers which secure the ends of the elements through the frypot wall.

6. Remove the heating elements from the frypot as a group by lifting the far end and sliding them up and out toward the rear of the frypot.

NOTICE

Install new o-rings when installing new heating elements



7. Install new heating elements with the new O-rings terminal end first at approximately a 45° angle slipping the terminals through the front wall of the frypot.

8. Replace the brass nuts and washers on the element terminals, apply 30 foot lbs. of torque when tightening nuts.

9. Evenly space the element spreaders on the sides of the elements and reinstall bolts. Place the fifth spreader in the front of the elements as to protect the temperature probe.

10. Replace the high limit bulb holder on the top element.

11. Position the bulb between the top and second element midway from side to side.

12. Tighten screw that holds the bulb in place.

13. Reconnect the wires to the appropriate terminal as labeled when they were removed.

14. Replace the front control panel.

15. Connect the power cord to the wall receptacle or close wall circuit breaker.

CAUTION

Heating elements should never be energized without shortening in the vat. Failure to have shortening in the vat when energizing the heating elements may result in damage to the heating elements.

16. Replace the shortening in the frypot.

HENNY PENNY
Engineered to Last

SECTION 4. PARTS INFORMATION

4-1. INTRODUCTION

This section lists the replaceable parts of the Henny Penny Model CFE fryer.

4-2. GENUINE PARTS

Use only genuine Henny Penny parts in your fryer. Using a part of lesser quality or substitute design may result in damage to the unit or personal injury.

4-3. WHEN ORDERING PARTS

Once the parts that you want to order have been found in the parts list, write down the following information:

Item Number 2
Part Number 60241 Example:
Description High Limit

From the data plate, list the following information:

Product Number 01100
Serial Number 0001 Example:
Voltage 208

4-4. PRICES

Your distributor has a price parts list and will be glad to inform you of the cost of your parts order.

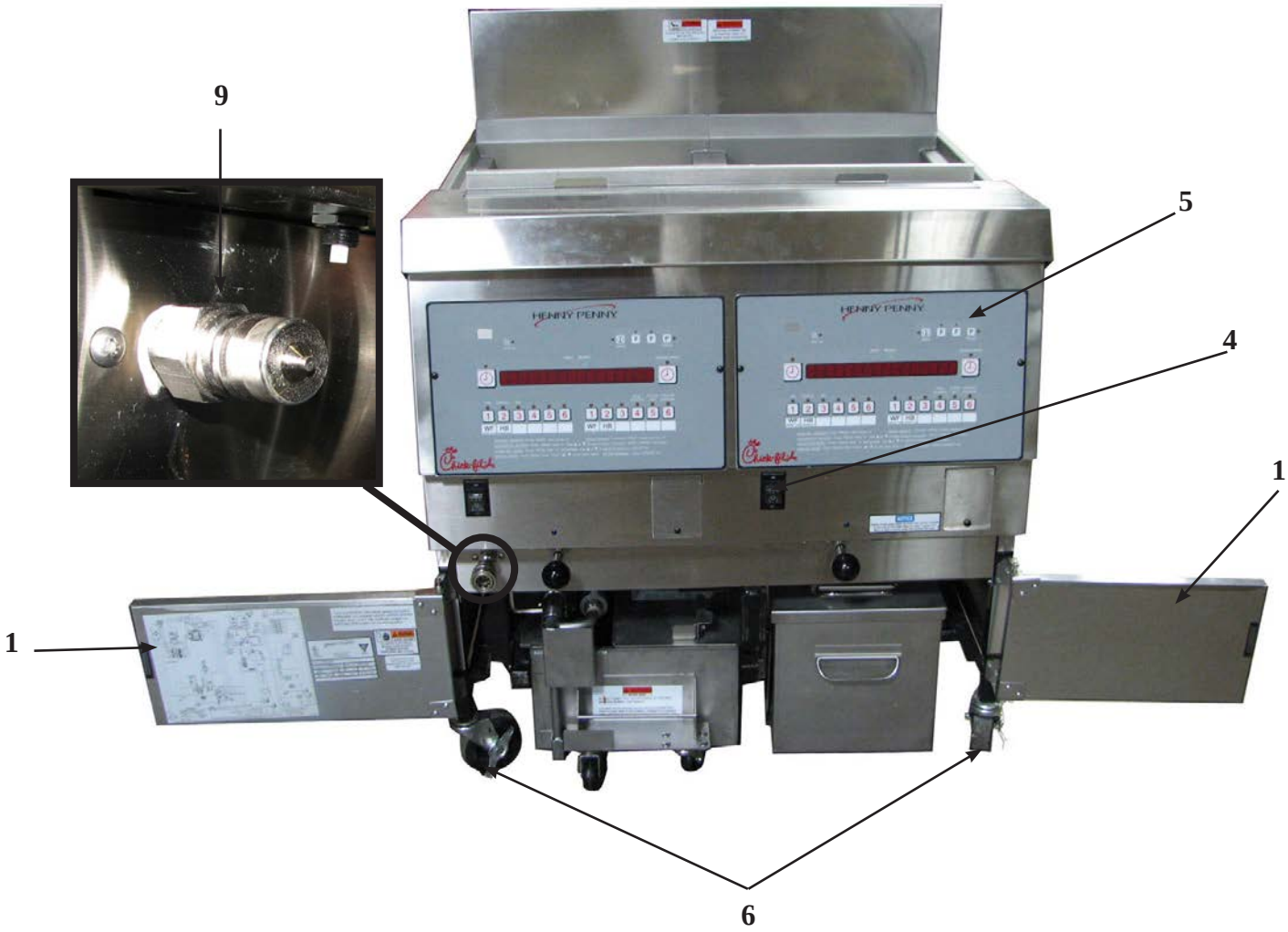
4-5. DELIVERY

Commonly replaced items are stocked by your distributor and will be sent out when your order is received. Other parts will be ordered, by your distributor, from Henny Penny Corp. Normally, these will be sent to your distributor within three working days.

4-6. WARRANTY

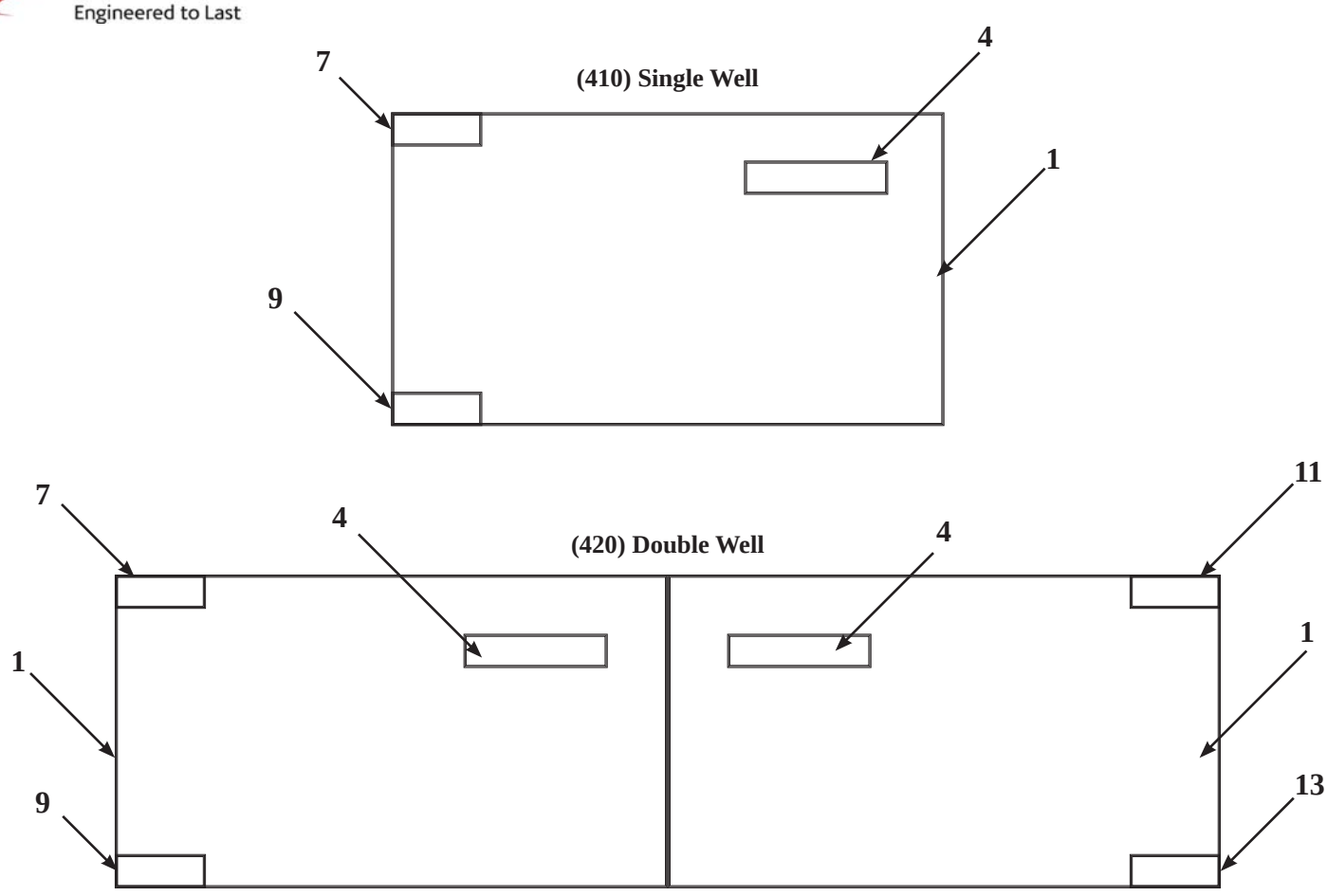
All replacement parts (except lamps and fuses) are warranted for 90 days against manufacturing defects and workmanship. If damage occurs during shipping, notify the carrier at once so that a claim may be properly filed. Refer to warranty in the front of this manual for other rights and limitations.

Recommended replacement parts are indicated with A or B in the parts lists:
A = parts to be stocked on service vans or trucks
B = parts to be stocked at the distributor/KES location.
Inventory on all other parts not identified, should be based upon usage in the territory. Please use care when ordering recommended parts, because all voltages and variations are marked. Distributors should order parts based upon common voltages and equipment sold in their territory.



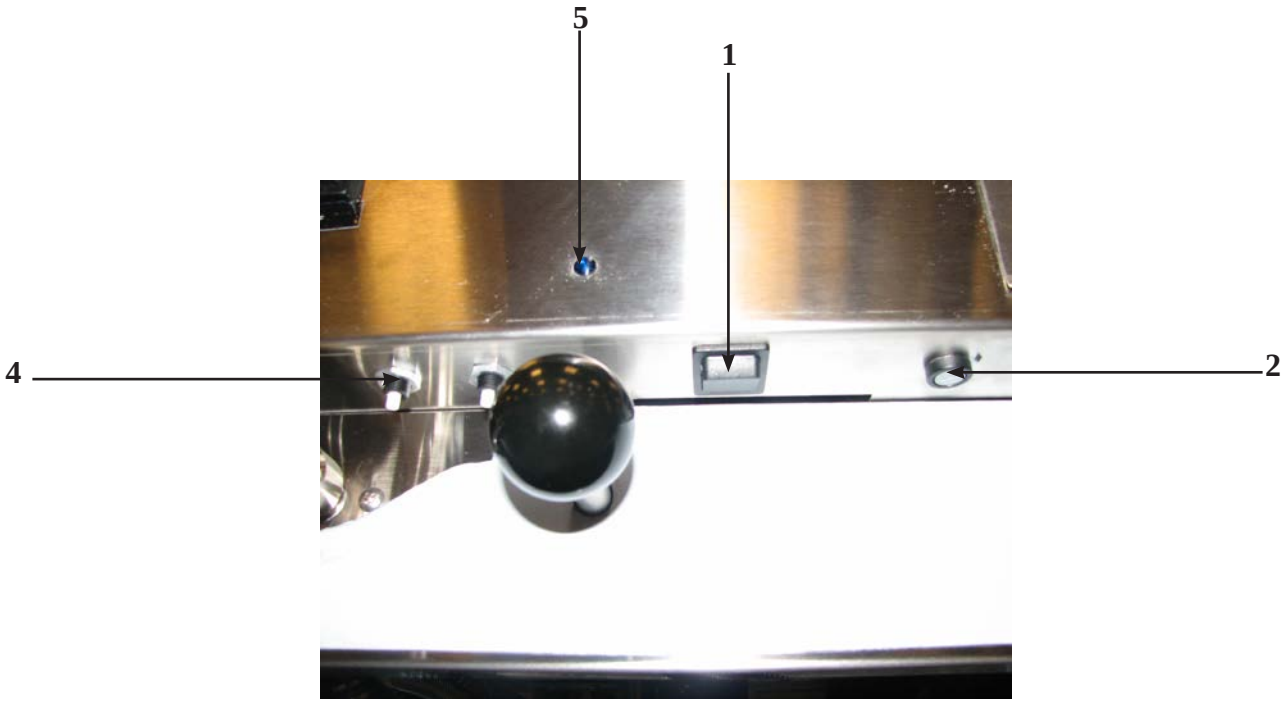
Item No.	Part No.	Description	410	420
1	93097	ASSY-DOOR	1	-
2	94403	ASSY-LH DOOR	-	1
3	94420	ASSY-RH DOOR	-	1
		(Door breakdown next page)		
A 4	52224	COVERED POWER SWITCH	1	2
5	140592	ASSY-PANEL 410/420 EMCON/SHUNT	1	2
	92414	--DECAL-CFE4XX CONTROL	1	2
6	52064	CASTER 4” SWIVEL W/BRAKE	2	2
7	60312	CASTER 4” SWIVEL W/O BRAKE	2	2
		--(back of fryer)		
8*	91924	WELD ASSY-ONBOARD OIL SHELF	-	1
9	17334	RINSE HOSE DISCONNECT MALE	1	1
10*	26873	ASSY-COVER-FRYPOT-CFA	1	2
A 11*	03719	USB DRIVE	1	1

***- Item Not Shown**



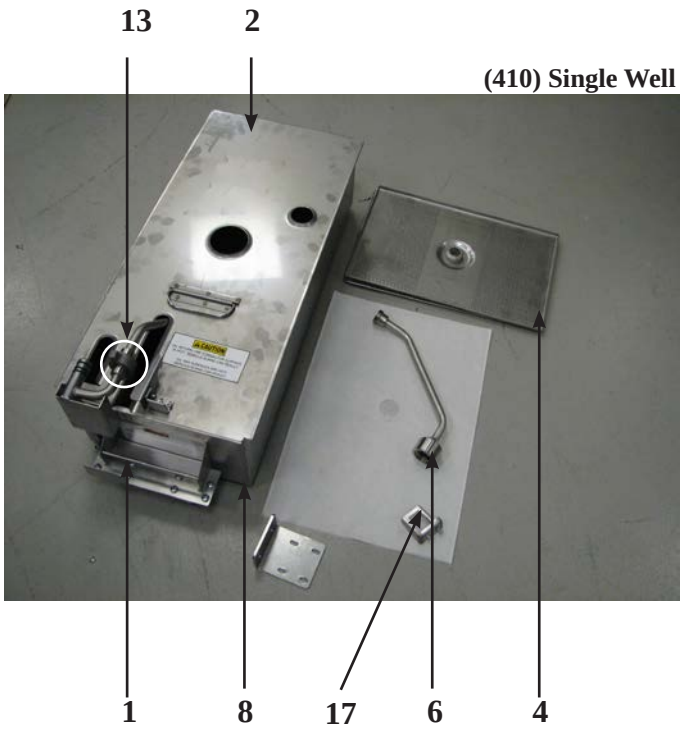
Item No.	Part No.	Description	410	420
1	93097	ASSY-DOOR	1	-
2	94403	ASSY-LH DOOR	-	1
3	94420	ASSY-RH DOOR	-	1
4	41836	--POCKET PULL	1	2
5	17002	--MAGNET	1	2
6**	92080	--HINGE-TOP-LEFT	1	1
7	92342	--STUD ASSY-TOP HINGE-L.H.	1	1
8**	92079	--HINGE-BOTTOM-LEFT	1	1
9	92340	--STUD ASSY-BOTTOM HINGE-L.H.	1	1
10**	92620	--HINGE-TOP-RIGHT	-	1
11	92618	--STUD ASSY-TOP HINGE-RH	-	1
12**	92621	--HINGE-BOTTOM-RIGHT	-	1
13	92619	--STUD ASSY-BOTTOM HINGE-RH	-	1
14*	39752	---DOOR BUSHING	1	2
15*	SC04-003	---SCREW #8-32 X 3/8 PH PHD	4	8

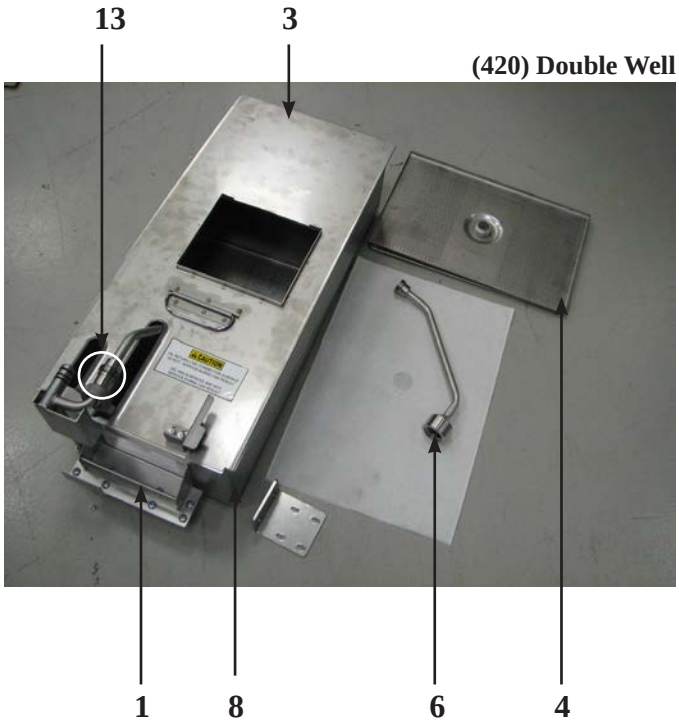
***- Item Not Shown/ **-Hinges are attached to Fryer Frame**

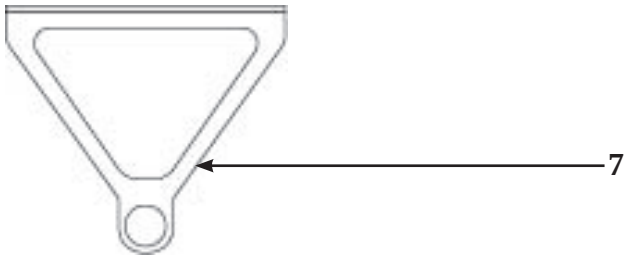


Item No.	Part No.	Description	410	420
A 1	84987	SWITCH-MOMENTARY SPLASH PROOF	1	2
2	EF02-104	FUSE HOLDER - 20A 250V	1	2
3*	FA52-005	FUSE - 0.5 AMP TIME DELAY	1	2
4	EF02-125	BREAKER-PUSH BUTTON RESET	2	4
5	81980	LED - 5 mm BLUE	1	2

***- Item Not Shown**

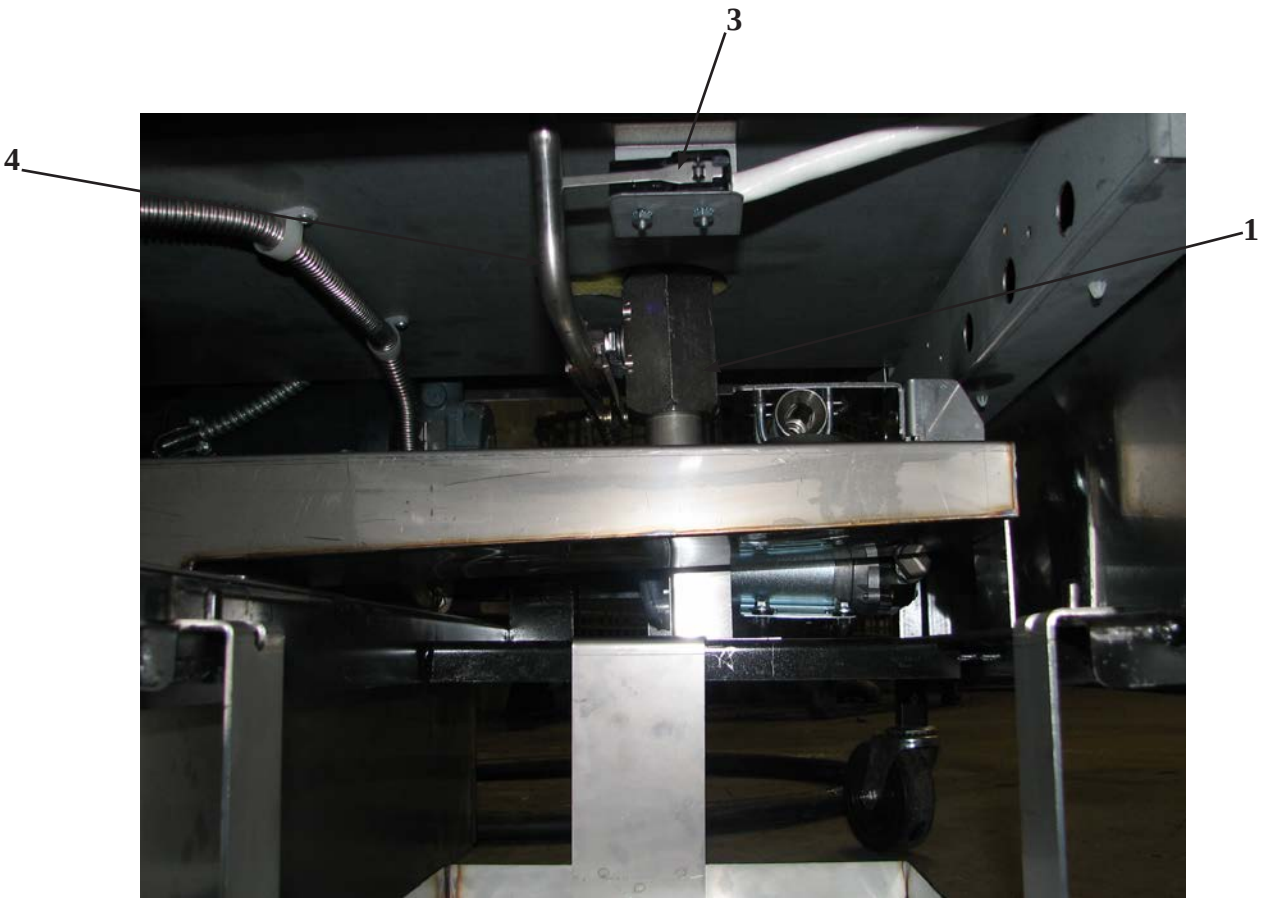






Item No.	Part No.	Description	410	420
1	151489	WELD ASSY-DRAIN PAN CFE4XX	1	1
2	96513	WELD ASSY-DRAIN PAN COVER 410	1	-
3	96514	WELD ASSY-DRAIN PAN COVER 420	-	1
4	65211	CRUMB CATCHER	1	1
5*	65447	WELD ASSY-SS WOVEN FILT SCREEN	1	1
6	65208	NUT-FILTER-FEMALE	1	1
7	62116	BAR- FILTER SEALER	1	1
8	151489	ASSY-DRAIN PAN	1	1
9*	19004	--CASTER-2 IN SWIVEL MTG PLATE	4	4
10*	SC01-009	--SCREW 1/4-20 X 1/2	16	16
11*	NS04-005	--LOCKNUT1/4-20	16	16
12*	69287	--UNION- MALE FITTING	1	1
13	69288	--UNION- HANDLE FITTING	1	1
14*	96871	SVC PACK - O-RINGS	A/R	A/R
15*	86349	--O-RING -PICK UP TUBE	3	3
16*	74189	--O-RING-JIB	A/R	A/R
17	96516	STUD ASSY-DR PAN LCH BRK 410	1	-

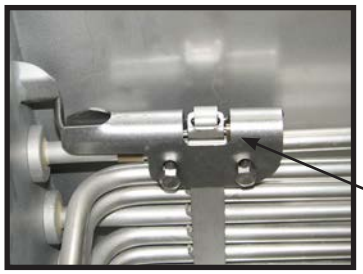
***- Item Not Shown**

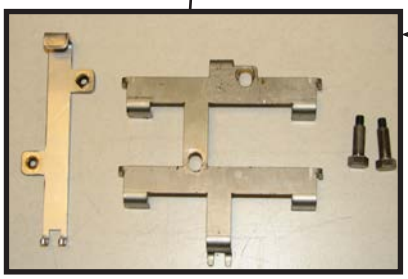


Item No.	Part No.	Description	410	420
1	83732	VALVE-DRAIN 1-1/2 NPT X 1 NPT.....	1	2
2*	84415	-- O-RING -326 DRAIN VALVE	2	4
3	50764	MICROSWITCH-RIGID LEVER.....	1	2
4	90759	WELD ASSY-DRAIN ROD CFE4XX CFA.....	1	2

*SUCTION TUBES			
Part No.	**Length**	**410**	**420**
77523-001	12 in.	-	1
77523-003	24 in.	1	1
77523-005	36 in.	1	1
77523-008	7 in.	1	1
77523-011	10 in.	2	2

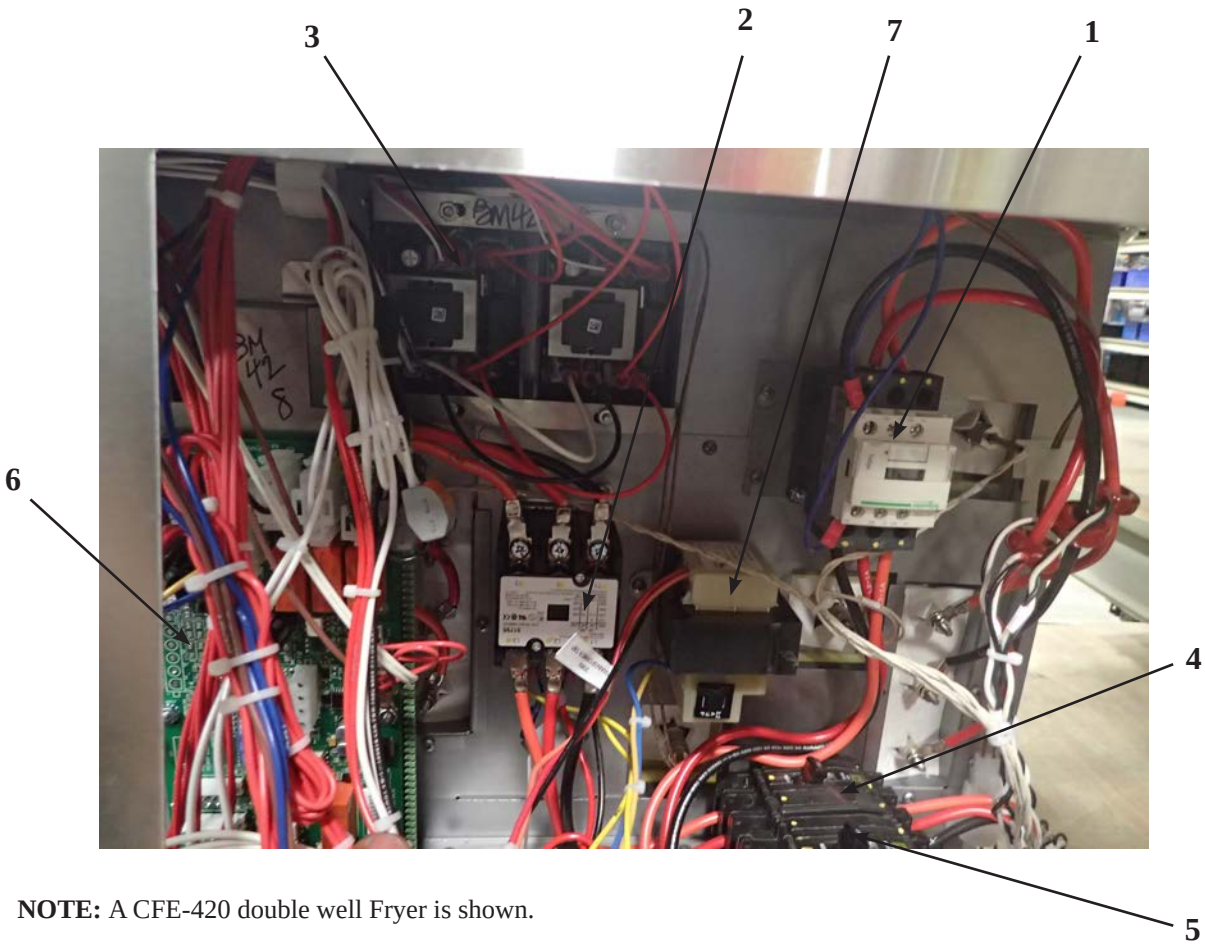
***- Item Not Shown**





Item No.	Part No.	Description	410	420
1	21033	1/2 BASKET-CHIC-FIL-A TALL	2	4
2	26917	SUPPORT-FRY BASKET	1	2
A 3	30292-2	HEATING ELEMENT - 208V 7333W	3	6
C 4*	89909	ASSY-HI LIMIT PROBE	1	2
A 5	96640	ASSY-HI LIMIT BRKT/CLAMP/SCRS	1	2
A 6	140269	KIT-CFE4XX TEMP PROBE/GAUGE	1	2
7	140270	KIT-CFE4XX LEVEL PROBE/GAUGE	1	2
8	140287	KIT-CFE PROTECTION PROBE	1	2
	96405	--SCREW-HEX HD 1/4 X .656 SHDR	2	4
	152029	--CLIP-ELEMENT W/PROBE	2	4
	152035	--CLAMP-ELEMENT W/PROBE	1	2
	152293	----ASSY-RTD PROBE OFFSET	1	2
*	30094	FITTING - COMPRESSION	3	6
	140635	ELEMENT BRACKET KIT	1	2
	159637	RH SPREADER	1	2
	152705	LH SPREADER	1	2

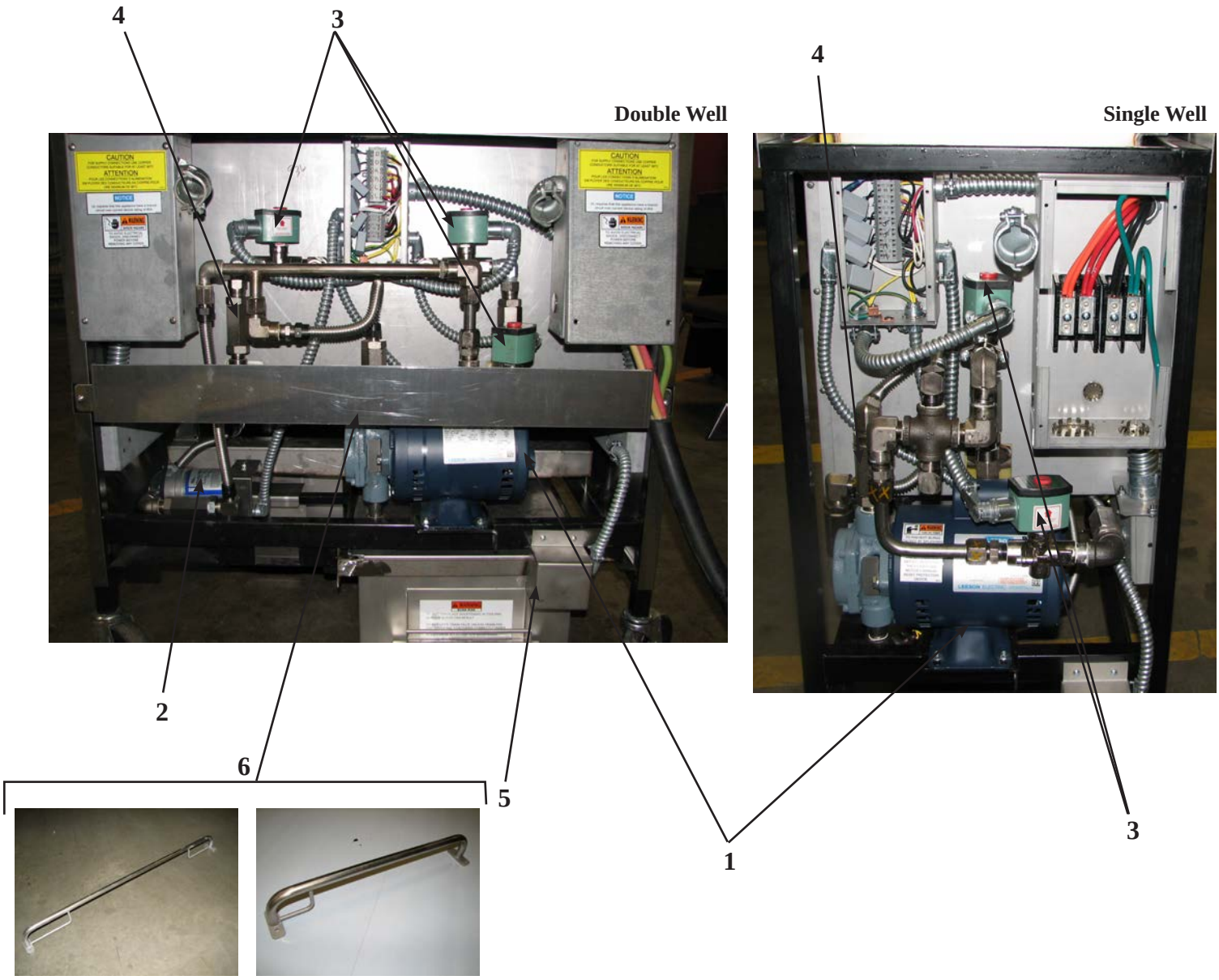
***- Item Not Shown**



NOTE: A CFE-420 double well Fryer is shown.

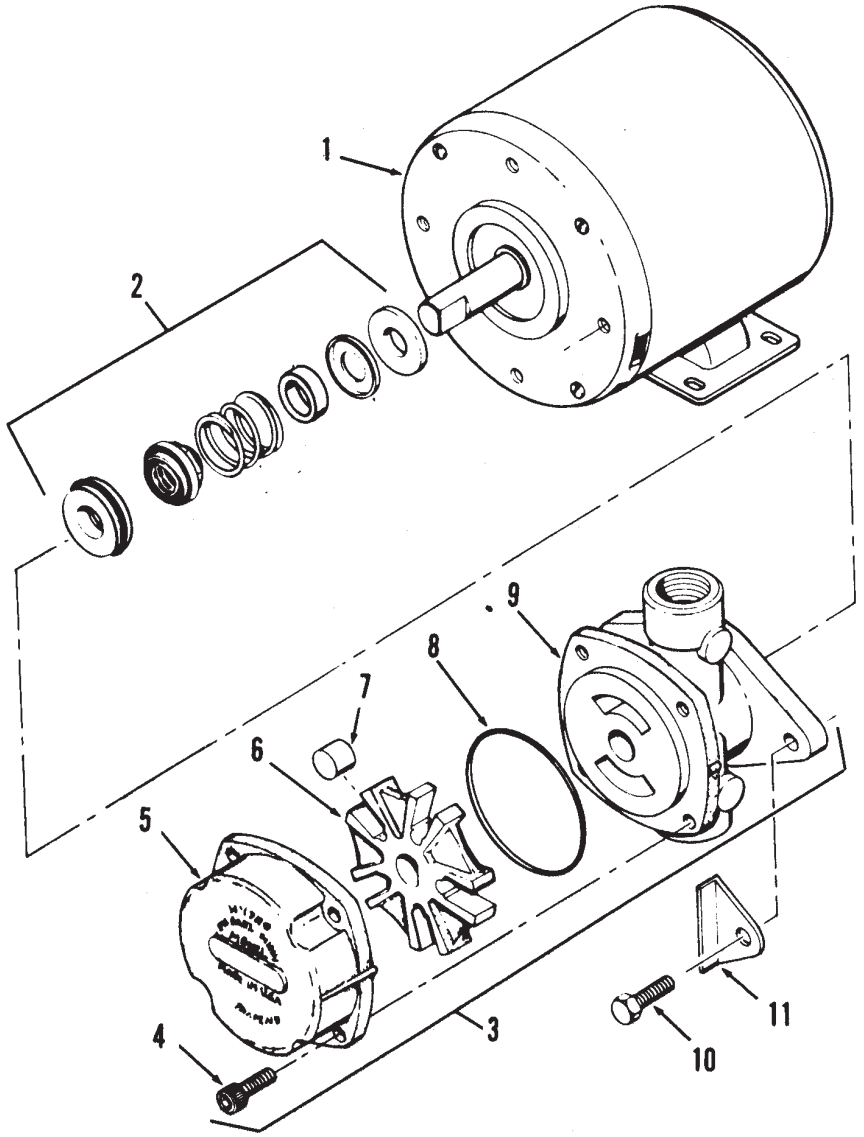
Item No.	Part No.	Description	410	420
A 1	65073	SECONDARY CONTACTOR, 24V (HEAT)		
A 2	29509	PRIMARY CONTACTOR - 24VAC	1	2
A 3	93245-001	CONTROL-WATLOW HIGH LIMIT	2	4
4	91903	BREAKER-CIRCUIT 240V 60A	2	4
4	154772	BREAKER-CIRCUIT 480V 30A	2	4
5	154770	BREAKER-CIRCUIT 240V 60A W/SHUNT	2	4
5	154796	BREAKER-CIRCUIT 480V 30A W/SHUNT	2	4
6	84454	BOARD-AIF	1	1
7	84134	TRANSFORMER-208V/24V 50/60 75VA	2	3
7	84135	TRANSFORMER-240V/24V 50/60 75VA	2	3
8*	24347	ASSY-CURRENT SENSE XFORMERS	1	2
9*	96299	ASSY-AMP SENSE/USB CONTROL PCB	1	2
10*	ME90-008	P&B T92 RELAY 12VDC COIL 30AMP0	1	1
11*	96146-001	ASSY-ELEM/CURRENT SENSE XFMR	1	2

***- Item Not Shown**



Item No.	Part No.	Description	410	420
1	67589	ASSY-FILTER PMP & 1/2 HP MOTOR..... (see next page for breakdown)	1	1
2	97601	SVC PACK-CFE410/420 JIB RETRO.....	1	1
3	154048	VALVE-220-240V SOLENOID 1/2NPT.....	2	3
A 4	90506-001	VALVE-CHECK SAE 12 3 PSI.....	4	5
A 5	80148	DRAINSWITCH W/BOOT.....	1	1
6*	140276	KIT-CFE410 REAR GD	1	-
6*	140277	KIT-CFE420 REAR GD	-	1
7*	93323	GUARD-REAR PLUMBING CFE420	-	1

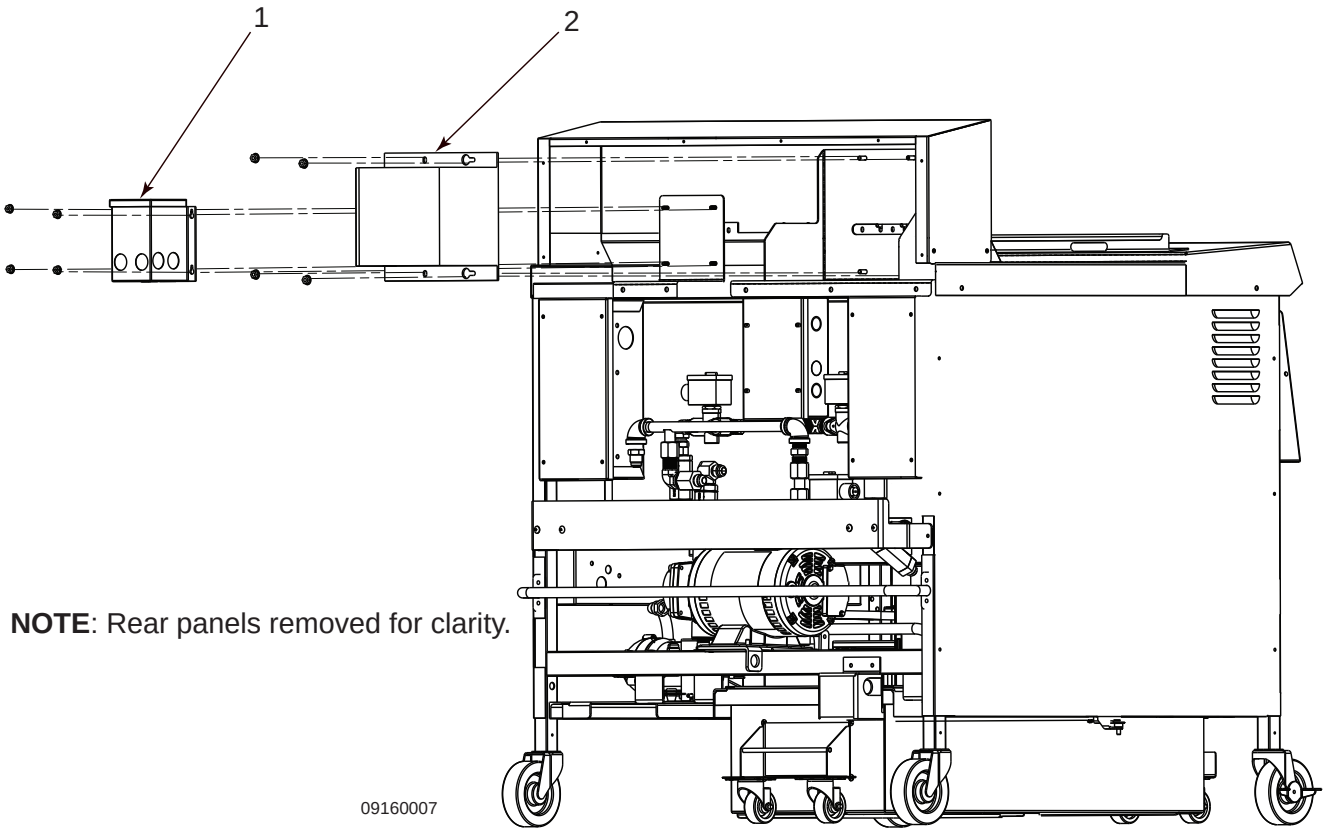
***- Item Not Shown**



Filter Motor and Pump

Item No.	Part No.	Description	Quantity
A 1	67583	MOTOR, 1/2 HP - 50/60 Hz	1
A 2	17476	SEAL KIT	1
B 3	17437	PUMP ASSEMBLY	1
4	SC01-132	SCREW, Pump Cover	1
5	17451	COVER, Pump	1
B 6	17447	ROTOR, Pump	1
A 7	17446	ROLLER, Pump	5
A 8	17453	O-RING	1
9	17454	BODY, Pump	1
10	17456	SHIELD, Pump	2
11	SC01-026	SCREW, Pump Shield	1

***- Item Not Shown**



NOTE: Rear panels removed for clarity.

Item No.	Part No.	Description	410	420
1	60838	TRANSORMER, .05 KVA, 480/240 VAC	0	1
2	19923	TRANSORMER, 1.0 KVA, 480 VAC	1	1

***- Item Not Shown**