CIRCU-TROL
INSTALLATION INSTRUCTIONS

FOR MODELS:

295A-001A
295B-001A
295C-001A
295D-001A
295E-001A
295K-001A
297A-001A
297B-001A
297C-001A
297D-001A

WIRING OF CIRCU-TROL SHOULD BE DONE ONLY BY A
COMPETENT LICENSED ELECTRICIAN

P-7111
NOV, 1992
THIS EQUIPMENT IS MANUFACTURED UNDER 1 OR MORE OF THE
FOLLOWING U.S. & CANADIAN PATENTS: D246388; 3,563,399;
3,765,547; 3,765,548: 905108

SHIVVERS INCORPORATED
CORYDON, IOWA USA
515/872–1005
TWX: 910–520–1970
Shivvers cryd

January, 1983
Field Installed Decals

DECAL P-10125 5-1/2" x 8-11/16"
DANGER
YOU CAN SUFLOCATE......
Install 1 at or on top of Manhole Lid
Install 1 on inside of Outer Bin Door

Control Box
Fuse or Circuit Breaker
Master Switch Disconnect

Horiz. Unload Belt Shield

Fan/Burner
Factory Installed Decals

DECALS: P-10224 5-1/16" x 4-1/8"
P-10225 4" x 3-1/4"

DANGER
THE ROTATING AUGER......
Install 1 on front of Machine Control Box

DCAL P-10223
5-3/4" x 8-9/16"
WARNING
ROTATING EQUIPMENT......
Install 1 on front of Horz. Belt Shield

DECAI P-10126 4-11/16" x 5"
WARNING
DO NOT OPERATE WITHOUT READING......
Install 1 decal where appropriate:
a) on front cover
b) on inside of front cover of Machine Control Box

Horz. Unload Belt Shield

Fan/Burner
WARNING
DANGEROUS VOLTAGE......

Install 1 decal where appropriate:

- a) on front cover
- b) on inside cover of Machine Control Box.

Install 1 on top of Heater Control Box.

---

WARNING
DANGEROUS VOLTAGE

Do not open this door with all electrical power to the system. Failure to disconnect and lock out can result in fatal electrical shock.

Failure to heed can result in fatal electrical shock.

---

Horiz. Unload Belt Shield

---

Factory Installed Decals

Roof Cap

Manhole
Factory Installed Decals

DECAL P-10221 5-3/4" x 5-3/8"

WARNING
ROTATING BLADES AND SUCTION......

1 decal on Fan near guard

WARNING

ROTATING BLADES AND SUCTION
DO NOT OPERATE WITHOUT GUARD IN PLACE

FAILURE TO PROPERLY INSTALL GUARD CAN RESULT IN DEATH OR SEVERE INJURY

CENTRIFUGAL FAN

BIG BLUE FAN

BLUE FLAME DRYER
# PREFACE

## CIRCU-TROL POWER RATINGS BY MODEL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CIRCULATOR MOTOR</th>
<th>CONTINUOUS FLOW MOTOR</th>
<th>SPREADER MOTOR DRYING BIN</th>
<th>CONT. FLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>295A-001A</td>
<td>5 HP max.</td>
<td>5 HP max.</td>
<td>115 Volt 1Ø</td>
<td>115 Volt 1Ø</td>
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<tr>
<td>230 Volt 1Ø</td>
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<td></td>
<td>1-1/2 HP max.</td>
<td>1 HP max.</td>
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<tr>
<td>295B-001A</td>
<td>10 HP max.</td>
<td>10 HP max.</td>
<td>115 Volt 1Ø</td>
<td>115 Volt 1Ø</td>
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<tr>
<td>230 Volt 3Ø</td>
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<td></td>
<td>1-1/2 HP max.</td>
<td>1 HP max.</td>
</tr>
<tr>
<td>295C-001A</td>
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<td>115 Volt 1Ø</td>
<td>115 Volt 1Ø</td>
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<tr>
<td>230 Volt 1Ø</td>
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<td></td>
<td>1-1/2 HP max.</td>
<td>1 HP max.</td>
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<tr>
<td>295D-001A</td>
<td>10 HP max.</td>
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<td>115 Volt 1Ø</td>
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<tr>
<td>460 Volt 3Ø</td>
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<td>1-1/2 HP max.</td>
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<td>295E-001A</td>
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<tr>
<td>575 Volt 3Ø</td>
<td></td>
<td></td>
<td>1-1/2 HP max.</td>
<td>1 HP max.</td>
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</table>
### CIRCUT-TROL POWER RATINGS BY MODEL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CIRCULATOR MOTOR</th>
<th>CONTINUOUS FLOW MOTOR</th>
<th>SPREADER MOTOR</th>
<th>CONT. FLOW</th>
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<tbody>
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<td>10 HP max.</td>
<td>10 HP max.</td>
<td>115 Volt 1Ø</td>
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<tr>
<td>230 Volt 1Ø</td>
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<td>1-1/2 HP max.</td>
<td>1 HP max.</td>
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### ADD-ON CONTROL CIRCUIT POWER RATINGS BY MODEL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CONTINUOUS FLOW MOTOR</th>
<th>CONT. FLOW SPREADER MOTOR</th>
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<td>230 Volt 1Ø</td>
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<tr>
<td>297B-001A</td>
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<td>230 Volt 3Ø</td>
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<tr>
<td>460 or 575 Volt 3Ø</td>
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<td>1 HP max.</td>
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</tbody>
</table>
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WIRING DATA TABLE

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WIRING SCHEMATICS MOTOR AND CONTROL CIRCUITS
# Wiring Data Table

For motors and equipment supplied by Shivvers Incorporated

<table>
<thead>
<tr>
<th>HP</th>
<th>Phase</th>
<th>Volts</th>
<th>Full Load Amps</th>
<th>Overload Heater Element</th>
<th>Recommended Time Delay Dual Element Fuse Size</th>
<th>Wire Size (AWG)</th>
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<tr>
<td>C ~ Control Circuits</td>
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</tbody>
</table>

*Note: Due to engineering changes, above heater elements and fuses may not be as previously recommended. Please call the factory if you have any questions.*
FIGURE 1

Drying Bin Spreader Motor

Continuous Flow Motor

Continuous Flow Spreader Motor

Auxiliary Auger Motor

Auxiliary Spreader Motor

Burner

Circu-Lator (Dri-Flo) Motor

Circu-Trol — Supplies electricity to and automatically controls all motors shown.
1) Set Grain Thermostat at 175° (clockwise to farthest point to "Dryer" scale).

2) Position Tapered Sweep Auger approximately 1 foot past the Grain Thermostat Probe:

3) Set Plenum Temperature Thermostat at the desired temperature (160° is recommended for corn).

4) Turn the Circulator (Dri-Flo, Industrial Dri-Flo) switch and the Continuous Flow Auger switch (if present) located inside the Circutrol Box to the "off" position. Turn the Grain Level Indicator switch to the "on" position.

5) Put approximately 6" to 8" of grain in the bin or just enough to completely cover the Tapered Sweep. Turn the Circulator switch "on" for about 10 seconds, just long enough for the Tapered Auger to roll over a few times to get the corn under and totally around the sweep.

6) Now finish putting approximately 2 ft. of wet grain into drying bin.

7) Start drying fan and heater. Adjust pressure regulator of the heater so the burner cycles on and off (if single stage) or high and low (if dual stage). It is critical that the burner cycles at all times, day and night. This insures a constant average plenum temperature which is critical to the moisture control sensing device. (NOTE: It might be necessary to increase the gas pressure at night and decrease it in the morning to maintain the cycling of the burner.)

When operating an on-off style burner, adjust the pressure so the burner is "on" approximately 4/5 the time and "off" 1/5 the time.
When operating a high-low style burner, adjust the pressure so the burner is on "high" flame approximately 1/2 the time and "low" flame 1/2 the time.

8) Estimate the time required to dry the grain and reach the moisture content desired. (NOTE: When cooled in another bin, the grain may lose another 1.0 to 1.5 moisture points.) Turn switches to "on" position and run unit for 5 minutes. Take a sample of the grain being removed.
9) Turn unit to "off". Check the moisture content of the grain to see if the approximate desired moisture level has been reached. If approximate desired moisture level hasn't been reached, restart the unit and run for another 5 minutes. Again check the grain for moisture content. Repeat this procedure until the approximate desired moisture content is reached.

10) Turn Circulator (Dri-Flo, Industrial Dri-Flo) switch and Continuous Flow Auger switch (if present) to "Automatic" position.

11) Very slowly rotate the Grain Thermostat Dial counter-clockwise to a lower temperature setting until the unit starts.

12) Allow unit to run. It should run until the Tapered Sweep Auger passes underneath the Grain Thermostat Probe and travels about 3 feet to 4 feet farther. The unit should then shut off.

13) Wait for the unit to start again.

14) As the unit makes the second cycle around the bin, take 5 to 6 moisture samples of the grain being removed. Average these samples. This is the actual moisture content of the grain. (NOTE: The grain may lose another 1.0 to 1.5 moisture points after cooling.)

15) Wait for the unit to shut off. (It should do this shortly after the Tapered Sweep Auger passes underneath the Grain Thermostat Probe.)

16) If the grain is too dry, set the Grain Thermostat to a slightly cooler (wetter) position. If the grain is too wet, set the Grain Thermostat to a slightly hotter (drier) position.

17) Allow the unit to automatically start. Check the moisture content by taking samples and averaging as before. This is the actual moisture content of the grain. (REMEMBER: The grain may lose another 1.0 to 1.5 moisture points after cooling.)

18) Repeat steps 15, 16, and 17 until the desired moisture control is reached. Turn the Grain Level Indicator switch to "auto" position for automatic shut-off on night operation.

19) IMPORTANT: It is very important to average 5 to 6 moisture samples of grain as the moisture content may vary in different sections of the bin floor, i.e.

![Diagram showing moisture distribution with percentages at 14%, 15%, and 16%]

The above is a typical situation in a drying bin. These differences will equalize when the grain is cooled.

NOTE: See Start Up Manual for more complete instructions.
GRAIN LEVEL INDICATOR
OPERATING INSTRUCTIONS

TO OPERATE:

1. Turn switch "ON".

2. Fill bin ABOVE this box and dry as normal.

3. Turn switch to "AUTO" AFTER tapered sweep has passed under this box. Restart burner if it dropped out when switching from "ON" to "AUTO".

4. The Grain Level Indicator will now shut off the Circulator (or Dri-Flo) and burner when grain level falls below this box.

EXPLANATION OF SWITCH FUNCTIONS:

ON Circulator (or Dri-Flo) and burner operate as if Grain Level Indicator is not present.

OFF Circulator (or Dri-Flo) and burner are turned off.

AUTO Grain Level Indicator will turn Circulator (or Dri-Flo) and burner off when grain level falls below this box.

TERMINAL REFERENCE

WIRING SCHEMATIC

PICTAIL (IF USED)

NEUTRAL

TO 110 V SUPPLY

CIRCUTROL

BURNER #1

BURNER #2 (OPTIONAL)
IMPORTANT TEST: Check that the Plenum Temperature Control cycles the crop drying burner by:

a) Set Circutrol Grain Thermostat at 175°.
b) Set Plenum Temperature Control Thermostat at 110°.
c) Remove the Plenum Temperature Control Sensing Probe from its housing and submerge in a bucket of lukewarm (98°) water.
d) Fire crop drying fan and burner.
e) Set the Plenum Temperature Control Thermostat at 85°.
   This should shut off the burner (not the fan). Raise the Plenum Temperature Control Thermostat to 110°. This should start the burner again. If the burner stops and starts as indicated, the Plenum Temperature Control has been correctly wired. The Probe must be returned to its housing.
Mounting Circutrol and Probes

Mount Circu-Trol on bin wall at least 12 feet away from drying fan.

Capillary tubes of thermostat are only 5'0" long. Be sure the probes can reach the probe mounts.

Switch plate at bottom of Circu-Trol may be removed if necessary. Switches should be temporarily removed to do so.

CAUTION:

DO NOT uncoil sensing probe of Grain Thermostat.

Remove angle bracket, insert coiled sensing probe, replace angle bracket.

IMPORTANT

DO NOT caulk or in any way obstruct the free passage of air out through the probe housings.

Mounting Optional Dial Thermometers

Use self drilling sheet metal screws.

NOTE: Use electric screwdriver (drill); NOT impact wrench!
1) Read instructions thoroughly. Then proceed as directed.

2) The Grain Level Indicator is designed to turn the crop drying burner(s) and the Dryer Circu-Trol off automatically when the drying bin is almost empty of grain. Mount the Grain Level Indicator on Bin Sidewall (near the Circutrol Box) as shown.

- 18" Minimum, 36" Maximum, or 1" for every 1' of bin diameter.
INSTALLATION OF GRAIN HIGH LIMIT CONTROL BOX
(REQUIRED FOR TWO BLUE FLAME DRYERS)

When two Shivvers BLUE FLAME dryers are used, a unit called a "High Limit Control Box" must be used. This device is designed to shut the burner and fan motor off on both dryers if either grain high limit senses dangerous temperatures that may be a fire hazard.

1) Mount the Hi-Limit Control Box on the bin near the Circutrol panel.

2) Install the Grain Hi-Limits above the Entrance Collar as shown below in Figure 20.
WIRING OF SINGLE PHASE CIRCUTROL

1) Read instructions thoroughly. Then proceed as directed.

2) See Equipment Terminology for explanation of technical terms.

3) ALL WIRING MUST MEET STATE AND LOCAL CODES. For CIRCUTROL power ratings, see Preface.

4) From single phase power supply, connect 230 volts to terminal L1 and L2 (located in top left hand corner of Circutrol). Connect the neutral from the single phase power supply to terminal marked neutral. See figure 9. These wires must be heavy enough to handle the expected load. At times, all motors will be running concurrently.

5) Temporarily remove the switch plate at bottom of Circutrol. (Must temporarily remove switches to do so.)

6) Connect a physical ground (metal stake driven into earth) to ground lug (located in lower left hand corner of Circutrol.) See Figure 9.

7) Connect Circulator (or Dri-Flo) Motor to the Red wires (labeled Circulator Motor) at bottom of Circutrol. See figure 9. Wire for counter-clockwise rotation facing shaft.

8) Connect Continuous Flow Motor to the wires (labeled Continuous Flow Motor) at bottom of Circutrol. See Figure 9. Wire for clockwise rotation facing shaft. If your installation does not have a Continuous Flow Motor, insulate the ends of the wires securely.

9) Connect Continuous Flow Spreader Motor to the Blue #12 AWG wire (labeled Continuous Flow Spreader) to the White #10 AWG wire (labeled Common, Drying Bin Spreader and Continuous Flow Spreader) at bottom of Circutrol. If your installation does not have a Continuous Flow Spreader, insulate the end of the Blue #12 AWG wire securely.

10) Connect Drying Bin Spreader Motor to the yellow #10 AWG wire (labeled Drying Bin Spreader) and to the White #10 AWG wire (labeled Common, Drying Bin Spreader and Continuous Flow Spreader) at bottom of Circutrol. If your installation does not have a Drying Bin Spreader, insulate the end of the yellow #10 AWG wire securely and also of the White #10 AWG wire not used in Step 9.

11) Reinstall switch plate and switches. Be sure there is 1/4" clearance between the door and the thermostat knobs. The switch plate can be adjusted to obtain this clearance if necessary.

NOTE: If the door touches the thermostat knobs when it is closed the thermostats may not operate correctly.
Temporarily remove the switch plate at bottom of control. Switches must be temporarily removed to do so.

These wires must be large enough to handle expected load. At times, all motors may be running concurrently.

Install overload relay heater elements in overload relays. Size as shown in Wiring Data Table.
WIRING OF THREE PHASE CIRCUITROL

1) Read instructions thoroughly. Then proceed as directed.

2) See Equipment Terminology for explanation of technical terms.

3) ALL WIRING MUST MEET STATE AND LOCAL CODES. For CIRCUITROL power ratings, see Preface.

4) From three phase power supply, connect 230 volts to terminals L1, L2, and L3 (located in top left hand corner of Circuitrol). BE SURE THE WILD LEG IS CONNECTED TO L3. Connect the neutral from the three phase power supply to terminal marked neutral. See figure 13. These wires must be heavy enough to handle the expected load. At times, all motors will be running concurrently.

5) Temporarily remove the switch plate at bottom of Circuitrol. (Must temporarily remove switches to do so.)

6) Connect a physical ground (metal stake driven into earth) to the ground lug (located in lower left hand corner of Circuitrol). See Figure 13.

7) Connect Circulator (or Dri-Flo) Motor to the Red wires (labeled Circulator Motor) at bottom of Circuitrol. See Figure 13. Wire for counter-clockwise rotation facing shaft.

8) Connect Continuous Flow Motor to the wires (labeled Continuous Flow Motor) at bottom of Circuitrol. See Figure 13. Wire for clockwise rotation facing shaft. If your installation does not have a Continuous Flow Motor, insulate the ends of the wires securely.

9) Connect Continuous Flow Spreader Motor to the Blue #12 AWG wires (labeled Continuous Flow Spreader) and to the White #10 AWG wire (labeled Common, Drying Bin Spreader and Continuous Flow Spreader) at bottom of Circuitrol. If your installation does not have a Continuous Flow Spreader, insulate the end of the Blue #12 wire securely.

10) Connect Drying Bin Spreader Motor to the Yellow #10 AWG wire (labeled Drying Bin Spreader) and to the White #10 AWG wire (labeled Common, Drying Bin Spreader and Continuous Flow Spreader) at bottom of Circuitrol. If your installation does not have a Drying Bin Spreader, insulate the end of the Yellow #10 AWG wire securely and also of the White #10 AWG wire if not used in Step 9.

11) Reinstall switch plate and switches. Be sure there is 1/4" clearance between the door and the thermostat knobs. The switch plate can be adjusted to obtain this clearance if necessary.

NOTE: If the door touches the thermostat knobs when it is closed the thermostats may not operate correctly.
FIGURE 13  MOTOR WIRING-THREE PHASE CIRCU-TROL

Temporarily remove the switch plate at bottom of control. Switches must be temporarily removed to do so.

230 VOLTS

These Wires must be large enough to handle expected load. At times, all motors may be running concurrently.

Install overload relay heater elements in overload relays. Size as shown in Wiring Data Table.
HOOKUP OF TWO STAGE THERMOSTAT FOR SHIVVERS HI-LO BURNERS

The Circutrol is designed to maintain a constant plenum temperature by automatically cycling the Shivvers burner between High and Low flames (under certain conditions the burner will also cycle to "off"). To complete the "plenum control thermostat-burner circuit" run three #16 AWG wires from the terminal strip of the main Circtrol panel to the terminal strip of the burner control box. Connect as follows:

Terminal Strip of Circtrol  Terminal Strip of Shivvers Burner

J --------------------- to --------------------- A
K --------------------- to --------------------- B
L --------------------- to --------------------- C

NOTE: IF YOUR INSTALLATION HAS TWO BLUE FLAME CROP DRYERS, OMIT STEP AND SEE INSTALLATION OF "HI-LO TWO BURNER CONTROL KIT."
HOOKUP OF TWO STAGE THERMOSTAT FOR ON/OFF BURNER

Dryer installations using crop dryer burners which cycle on/off instead of BLUE FLAME which cycle from high flame to low flame, should be connected as follows:

Connect two #16 AWG wires to terminals J and K (located in the lower right portion of the Circutrol panel). The wires are then run to the crop dryer burner circuit. Most crop dryers have a provision for thermostat hookup via terminal strip, phone jack or plug in.

FIGURE 7

NOTE: MODULATING VALVE

When using a crop dryer equipped with a modulating valve temperature control, the Circu-trol plenum temperature control may be used as an "adjustable Hi-Limit". To utilize this additional safety feature, wire the crop dryer into the Circu-trol as shown above and adjust the plenum thermostat 20° above the plenum temperature at which the modulating valve shuts down the crop dryer. Then if the modulating valve should fail to shut down the crop dryer at the desired maximum plenum temperature, the Circu-trol plenum temperature control will shut down the fuel supply to the crop dryer. If crop dryer doesn't have a provision for a thermostat hook-up connect the two wires from J & K in series with the fuel solenoid on the burner. The modulating valve should limit the plenum temperature to a maximum of 160°F.
HOOKUP OF PLENUM PROBE HI LIMIT SWITCH

1) Located on the plenum temperature probe is a high limit switch designed to shut off the burner circuit if the temperature exceeds 220°F. This probe is prewired with a short section of flexible conduit. To complete this circuit connect the leads from the high limit switch marked H and I to terminals H and I on terminal board in the Circutrol.

2) If your installation requires an Add-On Control Panel, (i.e., has an Auxiliary Auger as per Figure 1) turn to that page proceed with instructions for installing it. If not, continue.

3) Replace switch plate and reinstall the switches.

4) Install correct size fuses and overload heater elements. Consult Wiring Data Table. (Heater elements for the overload relays are available from SHIVVERS.)
HOOKUP OF GRAIN LEVEL INDICATOR

1) Read instructions thoroughly. Then proceed as directed.

2) The Grain Level Indicator is designed to turn the crop drying burner(s) and the Circuitrol off automatically when the drying bin is almost empty of grain.

3) Find terminal block lettered A-L on left side of basic Control Panel. Remove and discard bar jumper between terminals A & B and bar jumper between terminals G & H.

4) Connect lettered wire leads from Grain Level Indicator to the corresponding letters on the terminal strip on the main Circuitrol Panel.

   A   to   A
   B   to   B
   C   to   C
   G   to   G
   H   to   H

FIGURE 24

CONTROL PANEL

GRAIN LEVEL INDICATOR
INSTALLATION OF SINGLE PHASE ADD-ON CONTROL PANEL

1) Read instructions thoroughly. Then proceed as directed.

2) Temporarily remove the switch plate at bottom of Circutrol box. (Must temporarily remove switches to do so.)

   NOTE: If installing two or more Add-On Control Panels, do steps below in multiples.

3) Mount the Add-On Control Panel to the studs provided.

4) Refer to Figure 14. Connect the fuse block to terminals L1 and L2 which are mounted in the upper left corner of the main Circutrol panel. These wires must be heavy enough to handle the expected load. See Wiring Data Table.

5) Refer to Figure 14. Connect the six (6) wires from the terminal strip of the Add-On Control Panel to the terminal strip located on the lower left side of the main Circutrol Panel. Wire lead marked "A" goes to terminal marked "A", etc.

6) Disconnect the Auxiliary Auger Automatic Operation Indicator Light from its leads. Install in the door (5 holes are punched on the left side of the door for this) and reconnect the light to its leads.

7) Connect Auxiliary Auger Motor to the wires labeled Auxiliary Auger Motor at bottom of panel. See Figure 14. Wire for clockwise rotation facing shaft.

8) Connect Auxiliary Spreader Motor to terminals G and H of Add-On Control Panel.

9) Replace switch plate and reinstall switches.

10) Install correct size fuses and heater elements. Consult Wiring Data Table. Heater elements for the overload relays are available from SHIVVERS.
1) Mount component in a suitable location. As of December 1982, the Deluxe Circutrol (295 series) switch plate includes openings for both units.

2) Connect one lead of component to left coil terminal of Circulator (Dri-Flo) contactor. Connect the other lead to right coil terminal of Circulator (Dri-Flo) contactor. You may have to lengthen factory leads on component to reach contactor coil terminals.

3) The effect of these connections is that the component is energized whenever the Circulator (Dri-Flo) contactor coil is energized, and therefore registers actual running time, or number of times unit is started.
INSTALLATION OF THREE PHASE ADD-ON CONTROL PANEL

1) Read instructions thoroughly. Then proceed as directed.

2) Temporarily remove the switch plate at bottom of Circutrol box. (Must temporarily remove switches to do so.)

   NOTE: If installing two or more Add-On Control Panels, do steps below in multiples.

3) Mount the Add-On Control Panel to the studs provided.

4) Refer to Figure 16. Connect the fuse block to terminals L1, L2 and L3 AS SHOWN (L3 IS THE WILD LEG) which are mounted in the upper left corner of the main Circutrol panel. These wires must be heavy enough to handle the expected load. See Wiring Data Table.

5) Refer to Figure 16. Connect the six (6) wires from the terminal strip of the Add-On Control Panel to the terminal strip located on the lower left side of the main Circutrol Panel. Wire lead marked "A" goes to terminal marked "A", etc.

6) Disconnect the Auxiliary Auger Automatic Operation Indicator Light from its leads. Install in the door (5 holes are punched on the left side of the door for this) and reconnect the light to its leads.

7) Connect Auxiliary Auger Motor to the wires labeled Auxiliary Auger Motor at bottom of panel. See Figure 16. Wire for clockwise rotation facing shaft.


9) Replace switch plate and reinstall the switches.

10) Install correct fuses and heater elements. Consult Wiring Data Table. Heater elements for the overload relays are available from SHIVVERS.
ADD ON CIRCUIT-THREE PHASE

FIGURE 16

MAIN CIRCU-TROL PANEL

TO AUXILIARY SPREADER MOTOR
INDICATOR LIGHT

AUXILIARY AUGER MOTOR
CLOCKWISE ROTATION WHEN FACING SHAFT
INSTALLING THE THREE BURNER CONTROL KIT
FOR CROP DRYERS OTHER THAN BLUE FLAME

1) Mount the Three Burner relay to the control panel using the 10/32 screw.

2) Connect the jumper wire provided between terminals C and K on the terminal strip located on the main control panel. (See Figure 26)

3) Connect one of the white leads from the relay to terminal B and the other black lead to terminal J.

4) Connect pair of red wires to control circuit of Dryer No. 1.

5) Connect pair of yellow wires to control circuit of Dryer No. 2.

6) Connect pair of blue wires to control circuit of Dryer No. 3.

FIGURE 26

NOTE:
EXISTING PLENUM THERMOSTAT WIRES DO NOT CHANGE
GRAIN HI-LIMIT CONTROL BOX

This control box is required when two Blue Flame Dryers are used on a bin. It must be "on" for the Blue Flame Dryers to operate.

It will automatically turn both drying fans off when:

A. Grain temperature exceeds 200° - hazardous condition.
B. Electrical power to this box is interrupted.

Check your drying bin carefully before resetting this device.

Wire the Grain Hi-Limit Control Box as follows:

<table>
<thead>
<tr>
<th>GRAIN HI-LIMIT CONTROL BOX</th>
<th>CONNECT TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal 1</td>
<td>Terminal A, Circu-Trol Panel</td>
</tr>
<tr>
<td>Terminal 2</td>
<td>Terminal C, Circu-Trol Panel</td>
</tr>
<tr>
<td>Terminal 2</td>
<td>Gearbox Hi-Limit in Basket</td>
</tr>
<tr>
<td>Terminal 3</td>
<td>Grain Hi-Limit, Fan Number One</td>
</tr>
<tr>
<td>Terminal 3</td>
<td>Gearbox Hi-Limit in Basket</td>
</tr>
<tr>
<td>Terminal 4</td>
<td>Grain Hi-Limit, Fan Number One</td>
</tr>
<tr>
<td>Terminal 5</td>
<td>Grain Hi-Limit, Fan Number Two</td>
</tr>
<tr>
<td>Terminal 6</td>
<td>Grain Hi-Limit, Fan Number Two</td>
</tr>
<tr>
<td>Terminal 7</td>
<td>Terminal F, Fan Number One</td>
</tr>
<tr>
<td>Terminal 8</td>
<td>Terminal G, Fan Number One</td>
</tr>
<tr>
<td>Terminal 9</td>
<td>Terminal F, Fan Number Two</td>
</tr>
<tr>
<td>Terminal 10</td>
<td>Terminal G, Fan Number Two</td>
</tr>
<tr>
<td>Terminal 11</td>
<td>Not Used</td>
</tr>
<tr>
<td>Terminal 12</td>
<td>Not Used</td>
</tr>
</tbody>
</table>
If your installation has two Blue Flame Dryers, a Hi-Lo Two Burner Control Kit (HL-TBCK) is required. This is a relay circuit which permits the two crop dryer burners to cycle simultaneously.

1. Mount the Hi-Lo Two Burner Control Kit with two 10-32 screws. There are two tapped holes located to the left of the terminal strip of the main Circu-Trol panel.

2. Connect black jumper wire between terminals C and J on terminal strip of Circu-Trol.

3. Connect wires from the HL-TBCK to the terminal strip of Circu-Trol as follows:

<table>
<thead>
<tr>
<th>Terminal of HL-TBCK</th>
<th>Terminal Strip</th>
</tr>
</thead>
<tbody>
<tr>
<td>#10</td>
<td>L</td>
</tr>
<tr>
<td>#11</td>
<td>K</td>
</tr>
<tr>
<td>#12</td>
<td>B</td>
</tr>
</tbody>
</table>

Mount HL-TBCK left of terminal strip with (2) 10-32 screws.
4. Connect three #16 AWG wires from each fan control box to the Hi-Lo Two Burner Control Kit. Attach to terminal strips as follows:

**TERMINAL OF HL-TBCK**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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<th>5</th>
<th>6</th>
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<th>11</th>
<th>12</th>
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</table>

**Fan #1 Terminal Strip**

**Fan #2 Terminal Strip**

**Main Circuitrol Terminal Strip**

**MAIN CIRCU-TROL PANEL**

**FIGURE 19**
3 Φ 295B-001A
MAIN PANEL CONTROL CIRCUIT

NOTE: THE POSITION OF TERMINALS R&W MAY BE REVERSED ON EARLIER UNITS.

NOTE: Grain Thermostat must be connected as follows:
Wire No. 14 to Terminal R
Wire No. 15 to Terminal S
Wire No. 16 to Terminal W

P-7321
10-26-82
NOTE: Grain Thermostat must be connected as follows:
Wire No. 14 to Terminal R
Wire No. 15 to Terminal B
Wire No. 16 to Terminal W

NOTE: THE POSITION OF TERMINALS
R & W MAY BE REVERSED ON EARLIER UNIT!
NOTE:
Grain Thermostat must be connected as follows:
Wire No. 14 to Terminal R
Wire No. 15 to Terminal B
Wire No. 16 to Terminal W

NOTE: THE POSITION OF TERMINALS R&W MAY BE REVERSED ON EARLIER UNITS.
**3φ 295E-001A**

**MAIN PANEL CONTROL CIRCUIT**

NOTE:
Grain Thermostat must be connected as follows:
- Wire No. 14 to Terminal R
- Wire No. 15 to Terminal B
- Wire No. 16 to Terminal W

ALL WIRES BLACK UNLESS NOTED

NOTE: THE POSITION OF TERMINALS R&W MAY BE REVERSED ON EARLIER UNITS.
NOTE: Grain Thermostat must be connected as follows:
Wire No. 14 to Terminal R
Wire No. 15 to Terminal B
Wire No. 16 to Terminal W

NOTE: THE POSITION OF TERMINALS R&W MAY BE REVERSED ON EARLIER UNITS.
1 φ 297A-001A
ADD ON PANEL
CONTROL CIRCUIT      MOTOR CIRCUIT

ALL WIRES BLACK UNLESS NOTED

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