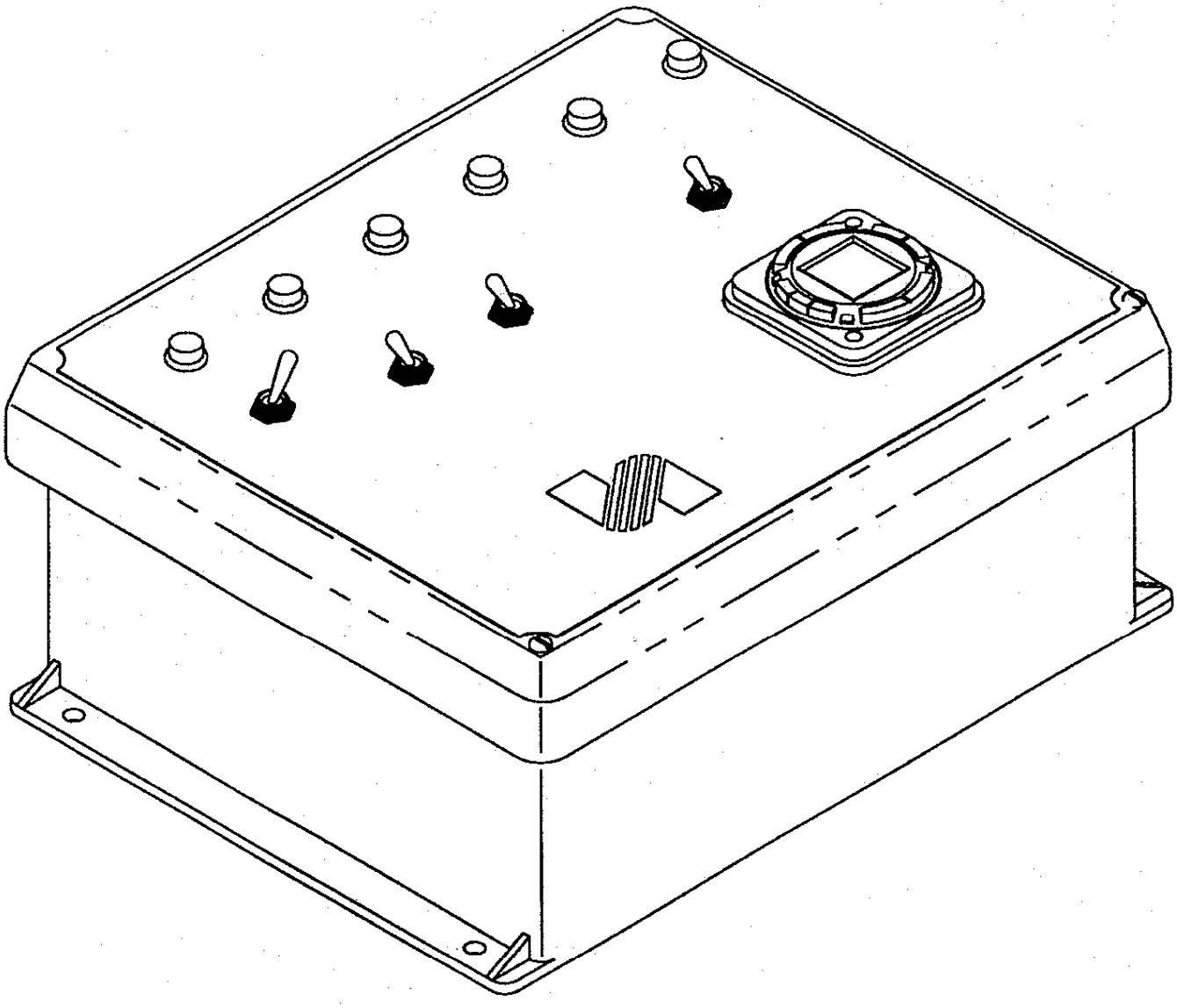
SPINKS SCALES

INSTRUCTIONS/OPERATIONS MANUAL

For

BIN SCALE CONTROL BOXES



DECEMBER, 1999

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PROGRAMMING DIGI 42/2 GRASSLIN TIME CLOCK

THIS IS A 24 HOUR CLOCK ON MILITARY TIME

SETTING THE CURRENT TIME

STEP 1. Press and hold down the clock symbol, while setting the hour, minute and day. Press the hour button, labeled "h", as many times as needed to enter the current hour. See Fig. 1. If the desired hour gets passed over, keep pressing the hour button, it will cycle around but there is no reverse.

STEP 2. Continue holding the clock symbol down. Press the minute button, labeled "m", as many times as needed (or hold button down for rapid advancement) to enter the current minute(s). See Fig. 1.

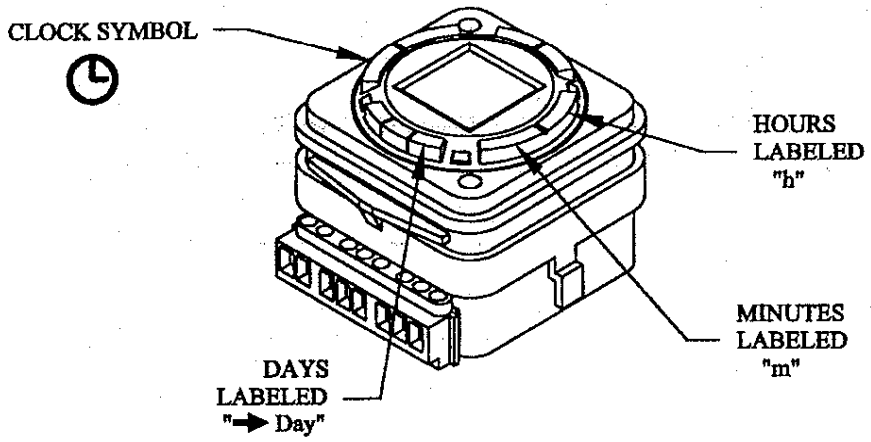

FIG. 1

STEP 3. Continue holding the clock symbol down. Press the day button, labeled "day" with an arrow to the left of it. See Fig. 1. A number will be displayed beneath one of the days such as a "1" under "Mo" for Monday or "5" under "Fr" for Friday. See Fig. 2. Press the day button as many times as needed to enter the current day of the week. Days will cycle back through if desired day gets passed over.

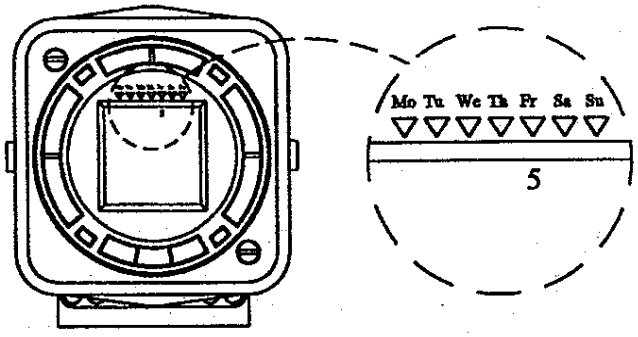

FIG. 2

STEP 4. Lift your finger off the clock button. The colon (:) between the hour and minute should be flashing.

NOW THE TIME AND DAY ARE SET

SETTING THE PROGRAM FOR CHANNEL 1 OR 2

STEP 1. Press the program button, labeled "Prog." **DO NOT HOLD DOWN!** See Fig. 3. After releasing the program button, the following should be displayed on the screen as seen in Fig. 4.

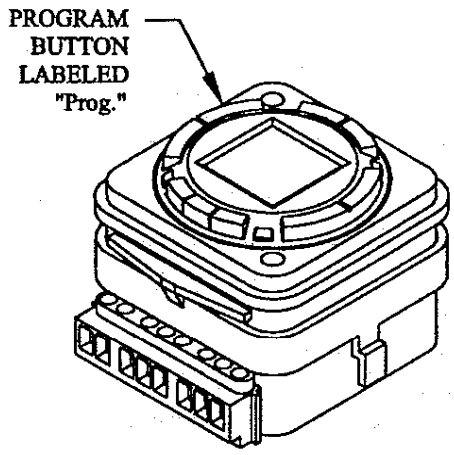

FIG. 3

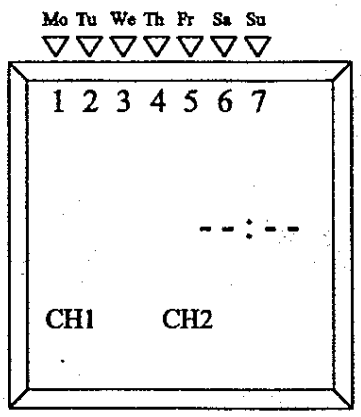

FIG. 4

STEP 2. To choose channel 1, press the button at the top of the clock with a hand and a number one (1) on it. See Fig. 5. The following symbol as seen in Fig 6 should appear at the bottom left hand of the screen. This means it is ready for a start time to be programmed.

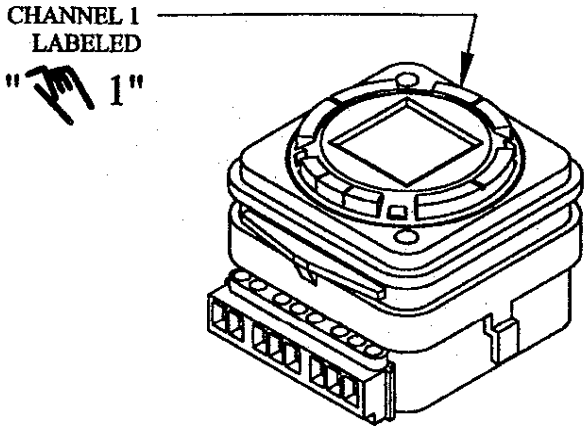

FIG. 5

FIG. 6

STEP 3. Instead of pressing the clock symbol again, simply press the hour button to set the hour, and minute button to set the minute(s). Press the program button. The start time will be replaced by "--:--".The start time has been set.

STEP 4. To set the off time, press the channel 1 button **twice**. The following should appear at the bottom of the screen (see Fig. 7):

FIG. 7

STEP 5. Press the hour button to set the hour, and minute button to set the minute(s). The shut-off time has been set.

STEP 6. Press program button and repeat previous steps to enter additional programs of on and off times, or press the clock symbol to return to normal clock mode. See Fig. 8.

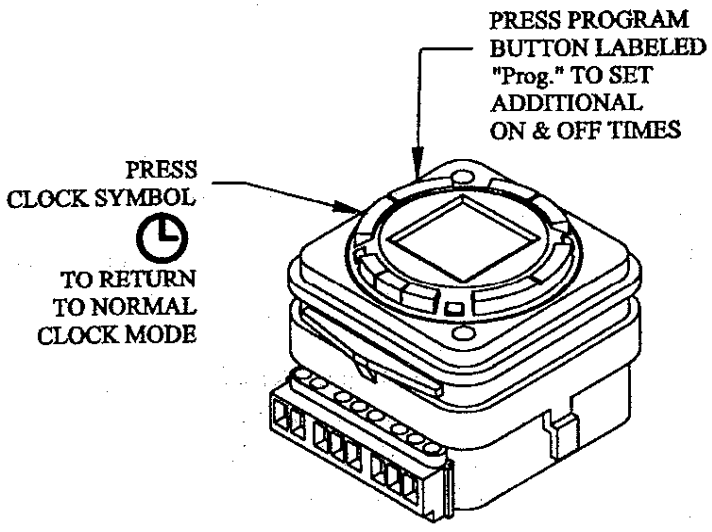

FIG. 8

The clock can be programmed to turn the equipment on and off up to 42 times.
Channel 1 controls the feed lines. Channel 2 is not used at all, used to control lights, the rooster feed line, or the alternating skip-a-day (depending on the type of control box).

TO REVIEW PROGRAMS

To review a program at any time, press the "Prog." key. The programs will be displayed in the sequence they were entered with repeated presses of the "Prog." key. The times of the programs can be changed as they are being reviewed by pressing the hour or minute buttons.

TROUBLESHOOTING the CLOCK

The proper day and time should be set (as shown in previous sections). At the bottom of the glass display, "CH1" & "CH2" are shown. Directly beneath each, a clock symbol inside a circle with an almost closed arc should be displayed. See Fig. 9. The clock signifies automatic. The arc without a dot inside means "program waiting". With a dot inside the arc signifies "program running". All of these are correct positions for the clock to work.

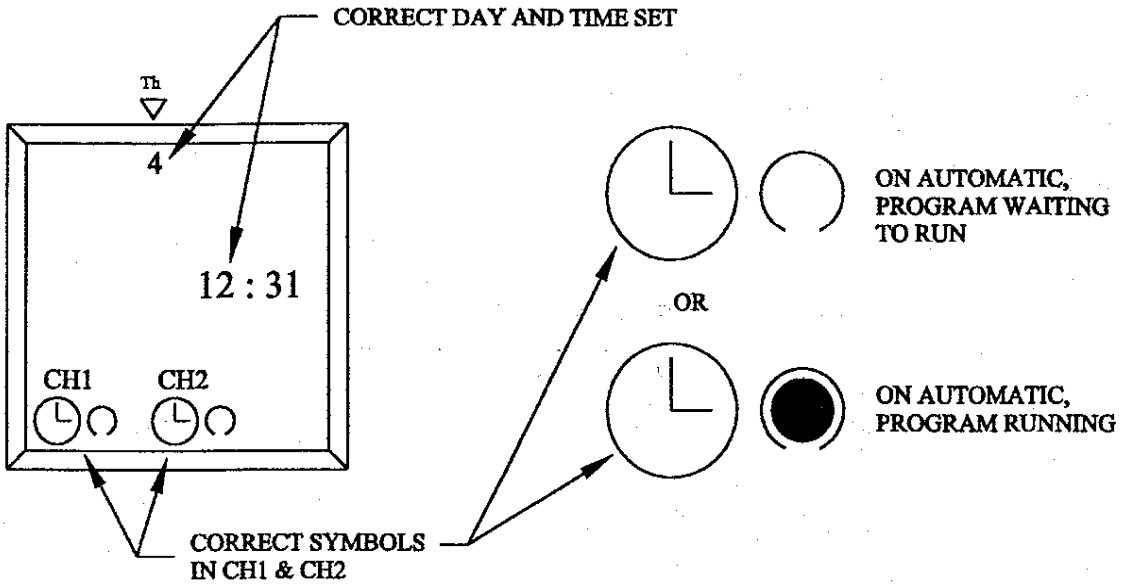

FIG. 9

If other symbols appear under "CH1" or "CH2", the clock will not work. See Fig. 10. To change back to automatic clock symbol (symbol is shown in fig. 9), press either channel 1 or channel 2 button until proper symbol comes back. See Fig. 11. Clock will now function properly.

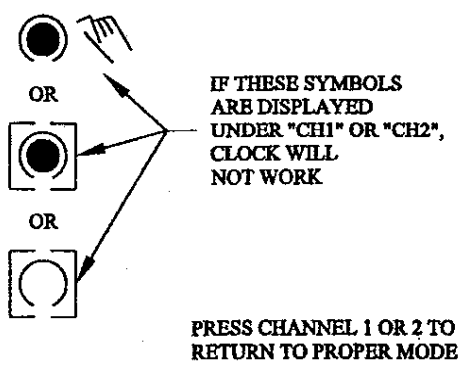

FIG. 10

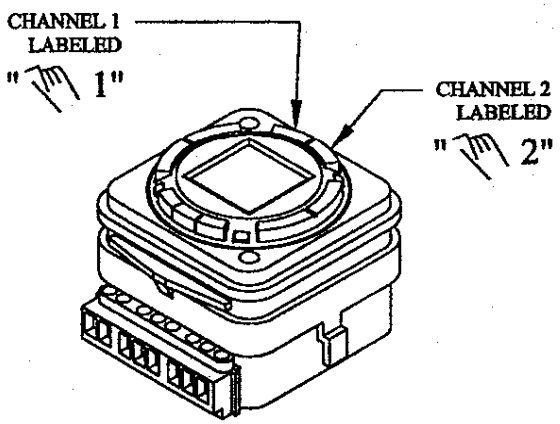

FIG. 11

IDENTIFYING CONTROL BOXES

SECTION 1. Most control boxes will look the same from the outside. See Fig. 12.

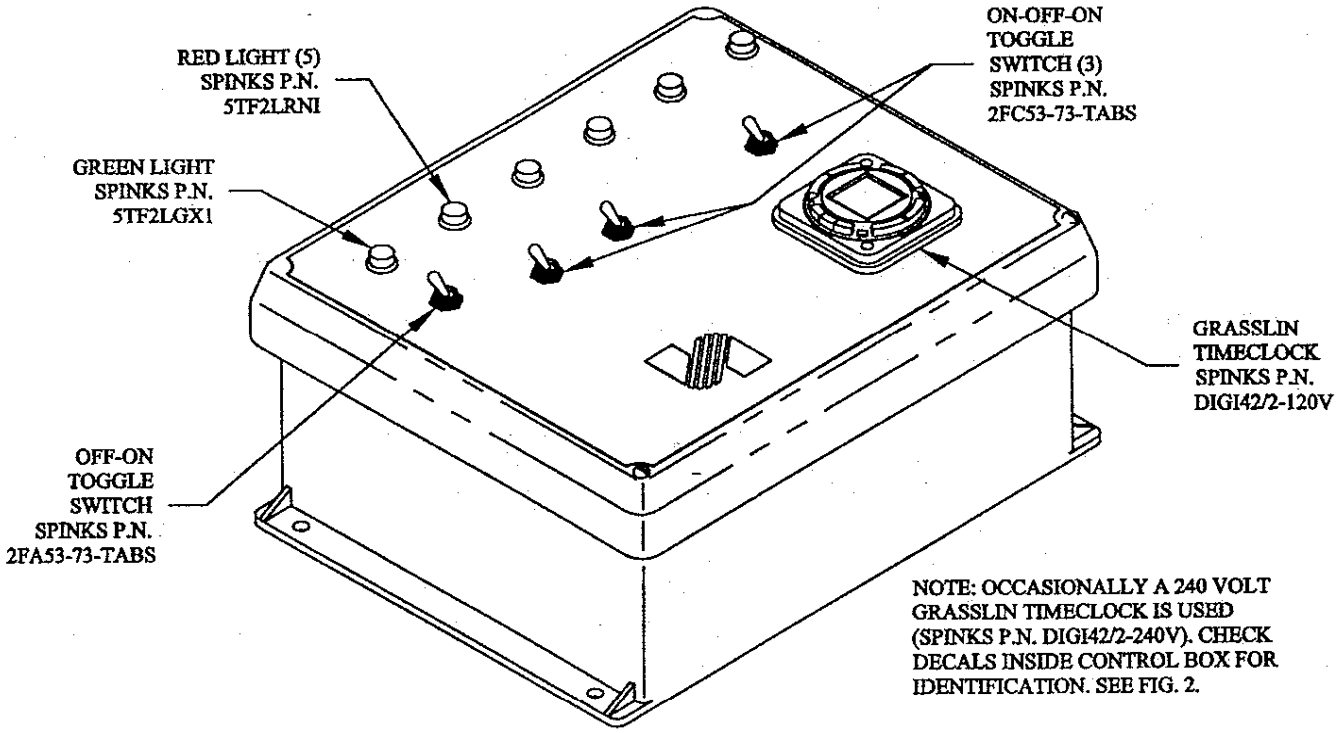

FIG. 12

SECTION 2. The most common type control box is Spinks part number 000100. It controls the fill system from the bulk tank as well as the cross fill system from the scale to the feed line. The timeclock turns on and off the feed line. This type has a 3-pole relay, 2-pole relays (two) and a terminal strip. Open the control box to locate each of them. See Fig. 13.

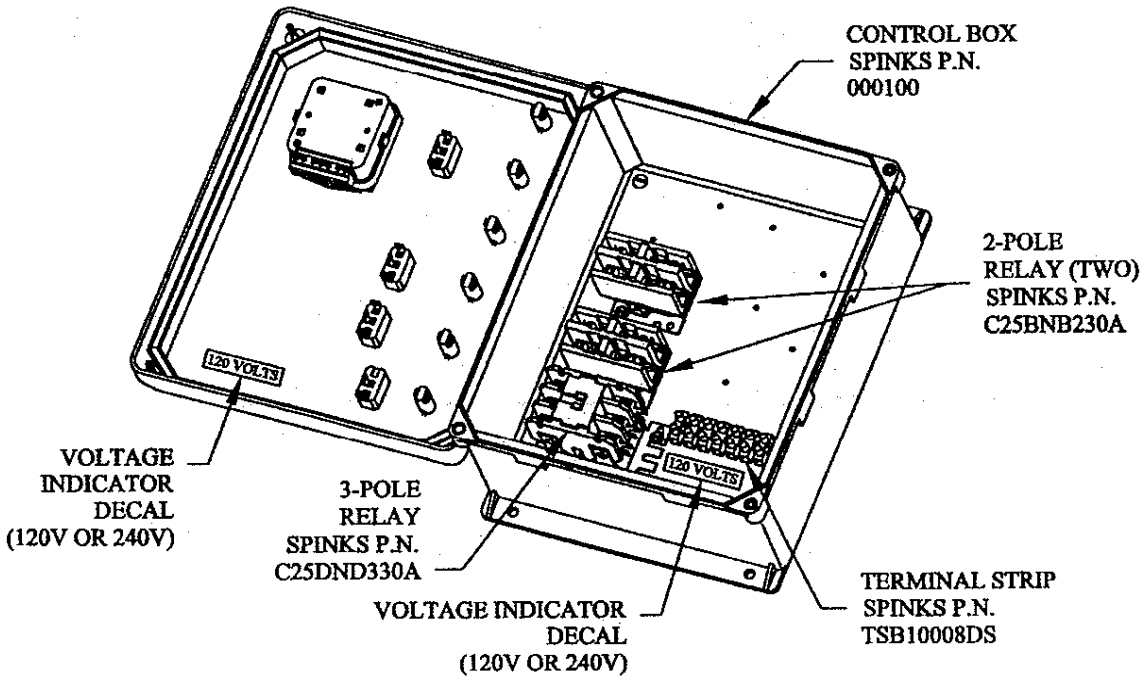

FIG. 13

SECTION 3. Another type control box is Spinks part number 000102. It controls everything the 000100 does. It also has a third 2-pole relay that controls one of the following: the rooster feed line, water or lights. See Fig. 14.

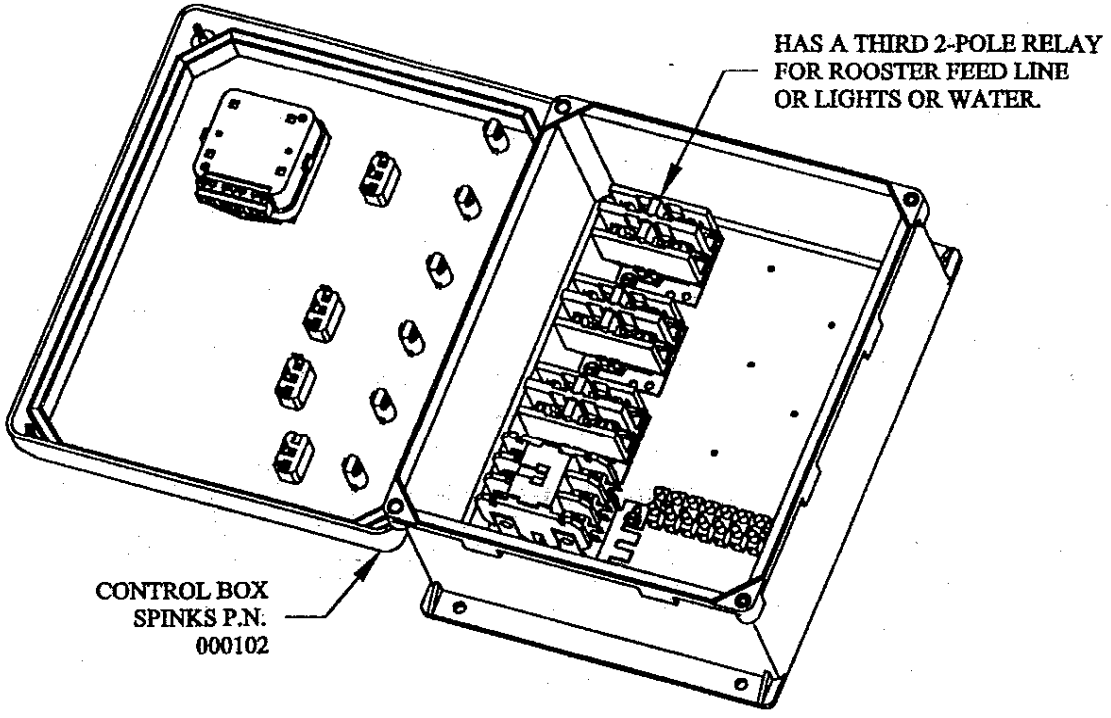

FIG. 14

SECTION 4. The next type control box is Spinks part number 000103. It controls everything the 000100 does It also has a third & fourth 2-pole relay that work together to control the lights in the house in cases where more than 30 amps are needed (each relay supplies 30 amps). See Fig. 15.

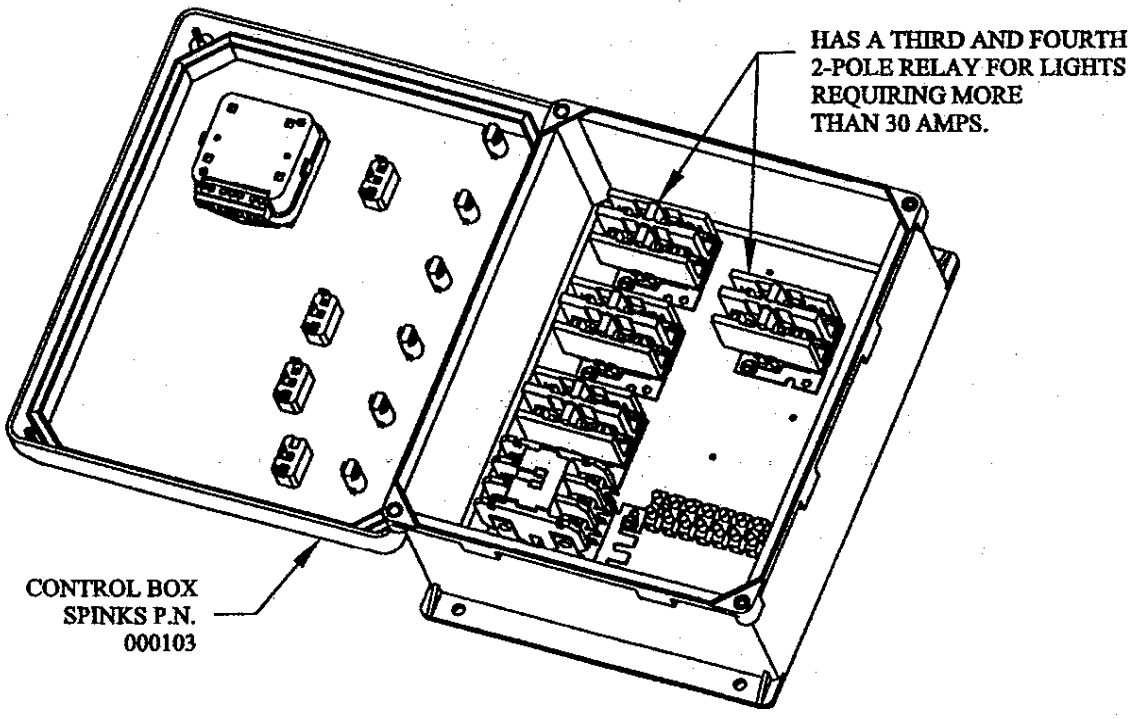

FIG. 15

SECTION 5. The next type control box is Spinks part number 000104 (also called a Skip-a-Day). It controls everything the 000100 does. It also has an alternating relay to control rotating feeding days. See Fig. 16.

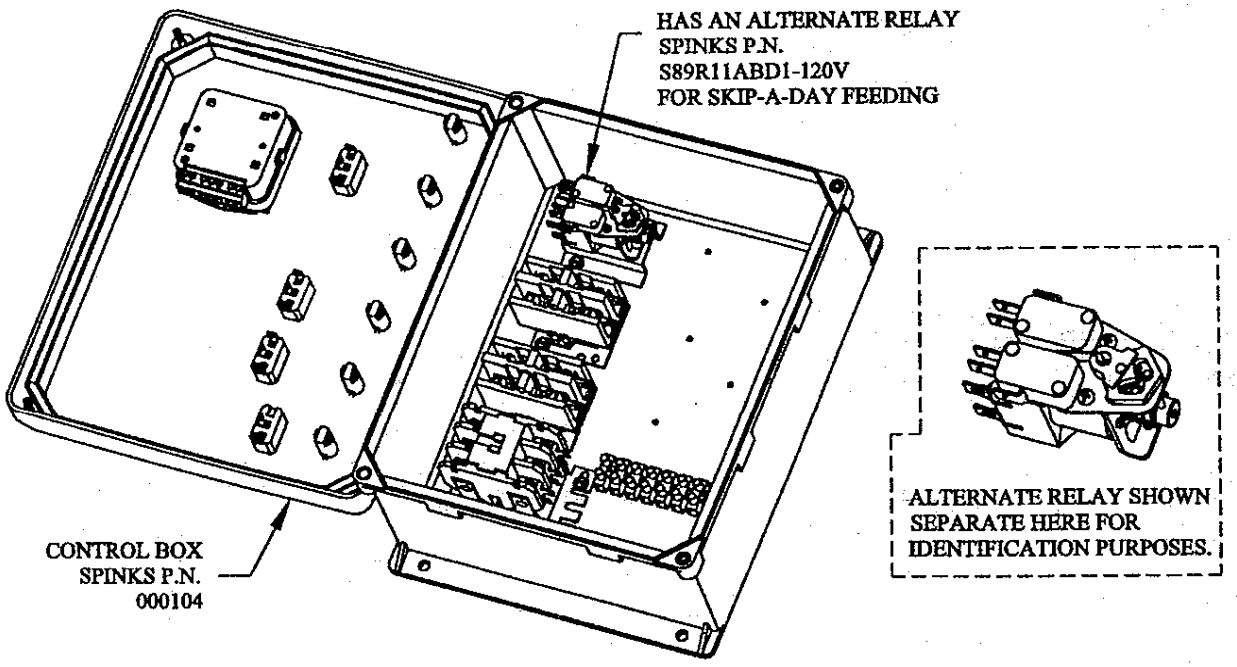

FIG. 16

SECTION 6. The next type control box is Spinks part number 000105 (two clock system). It controls everything the 000102 does (has a third 2-pole relay for controlling the rooster feed line or water or lights). The difference is that it has a second clock, which makes it easily identifiable without having to open the box. See Fig. 17. Inside the box , there is a fourth and fifth 2-pole relay to operate the second clock. The second clock can be used to control any two of the following three things: lights, water and/or the rooster feed line. Simply stated, the second clock offers control over two more things.

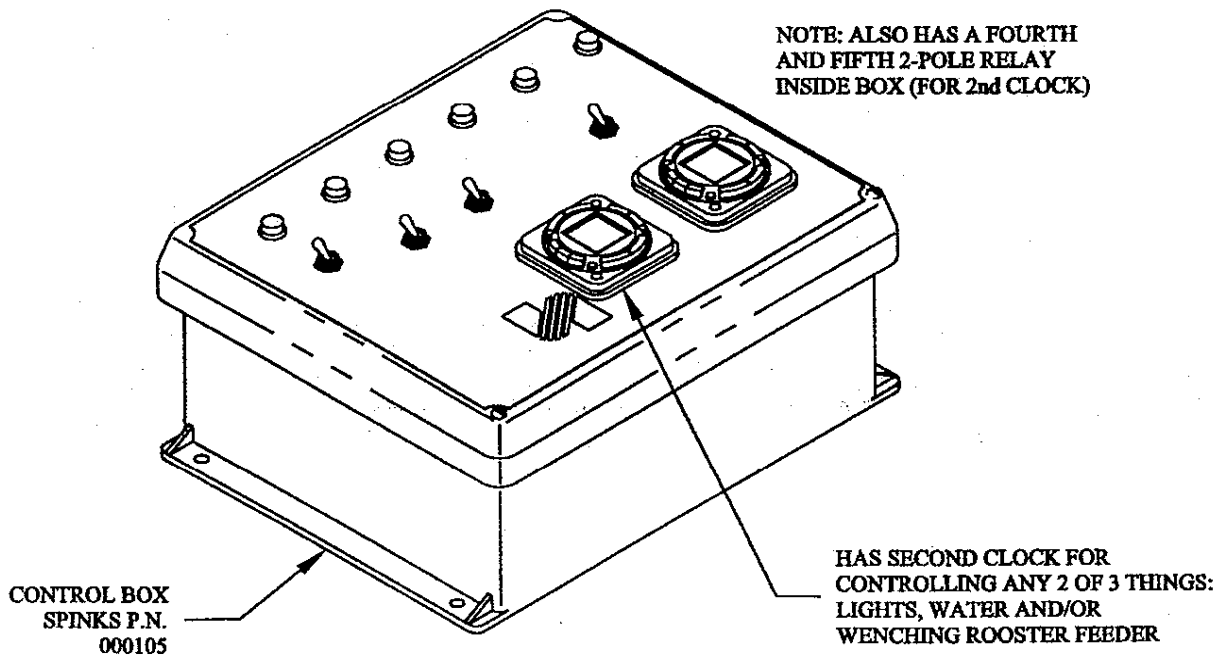

FIG. 17

SECTION 7. The next type control box is Spinks part number 000101 (no clock or manual system). It works like a 000100, except everything is controlled manually. It is easily recognized because it has no clock, which can be seen without opening the box. Inside the box, there is a second terminal strip which can be used to wire a clock to. See Fig. 18.

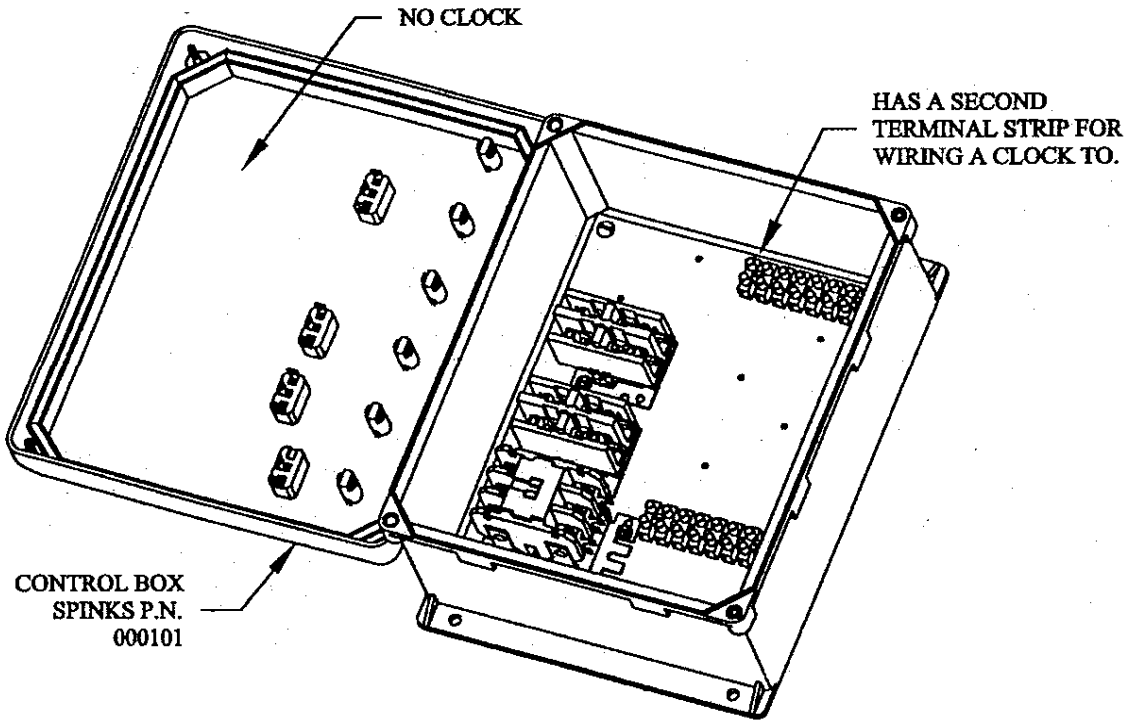

FIG. 18

SECTION 8. The last type is a drag auger control box. A second clock is added for controlling the time in seconds for use with a drag auger. See Fig. 19.

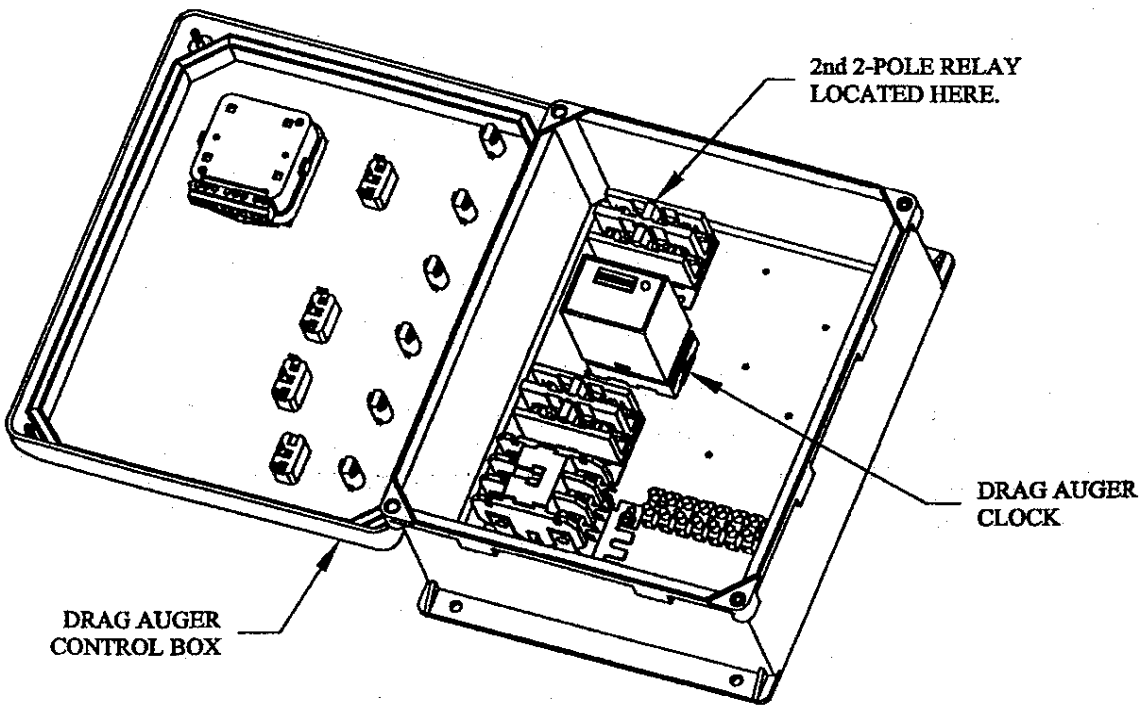

FIG. 19

CONTROL BOX FUNCTIONS
SPINK'S P.N. 000100 (controls bin scale & feed line)
CHAIN FEED WITH GRASSLIN ELECTRONIC TIME CLOCK

There are 4 toggle switches on the control box. The bottom switch is the main power switch for the relay circuits. Flipping the power switch to "ON", causes the green "POWER" light to come on. See Fig. 20. IMPORTANT NOTE: This switch does not turn the power to the time clock off. The time clock is powered directly off of terminal strip connections #7 & #8.

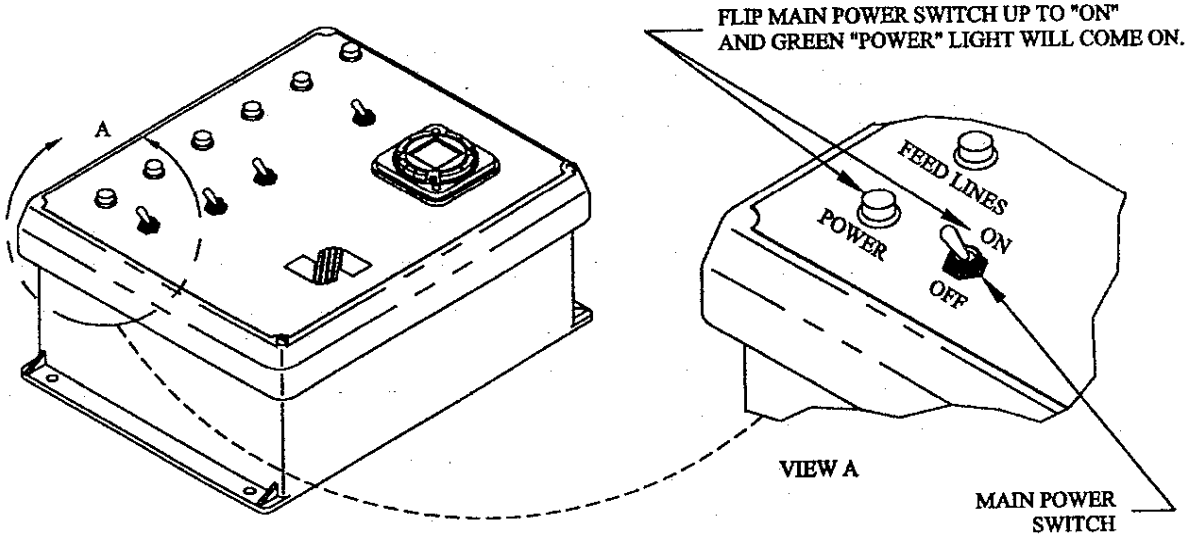

FIG. 20

There is nothing more to do. The power switch is flipped up to the "ON" position and the clock has been programmed (only channel 1 – channel 2 works with additional relays). The other 3 switches have three positions: "MANUAL", "OFF" (not labeled) and "AUTOMATIC". Make certain that the top 3 switches are set on "AUTOMATIC". See Fig. 21. The control box will now function as programmed.

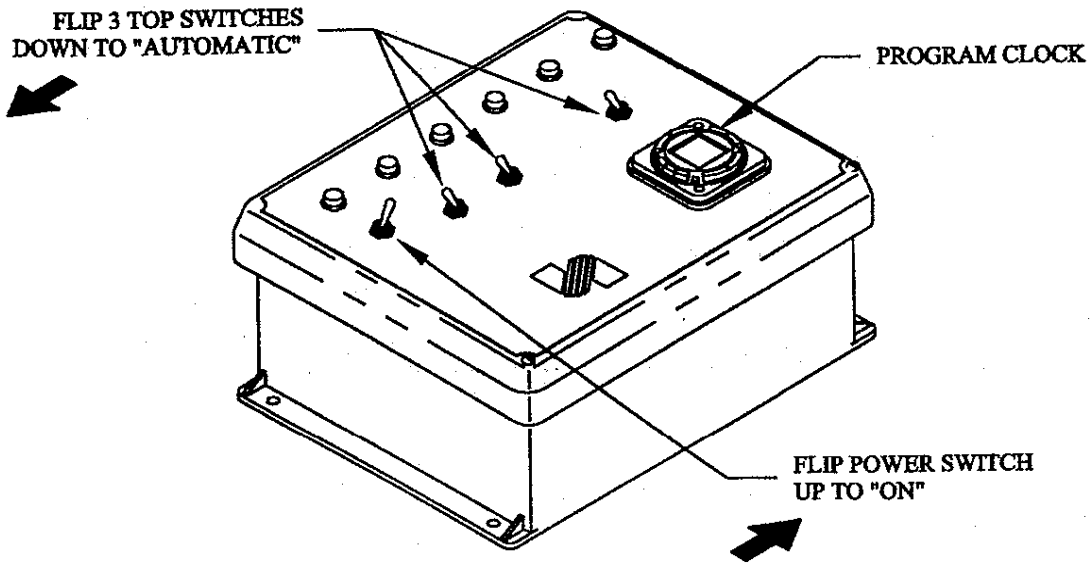

FIG. 21

CONTROL BOX TROUBLESHOOTING
SPINK'S P.N. 000100 (controls bin scale & feed line)
CHAIN FEED WITH GRASSLIN ELECTRONIC TIME CLOCK

SECTION 1. Switch #4 controls the feed going from the fill bin to the weigh bin. Switch #3 controls the feed going from the weigh bin to the hopper fill system inside the house. See Fig. 22 (switches shown in Fig 23).

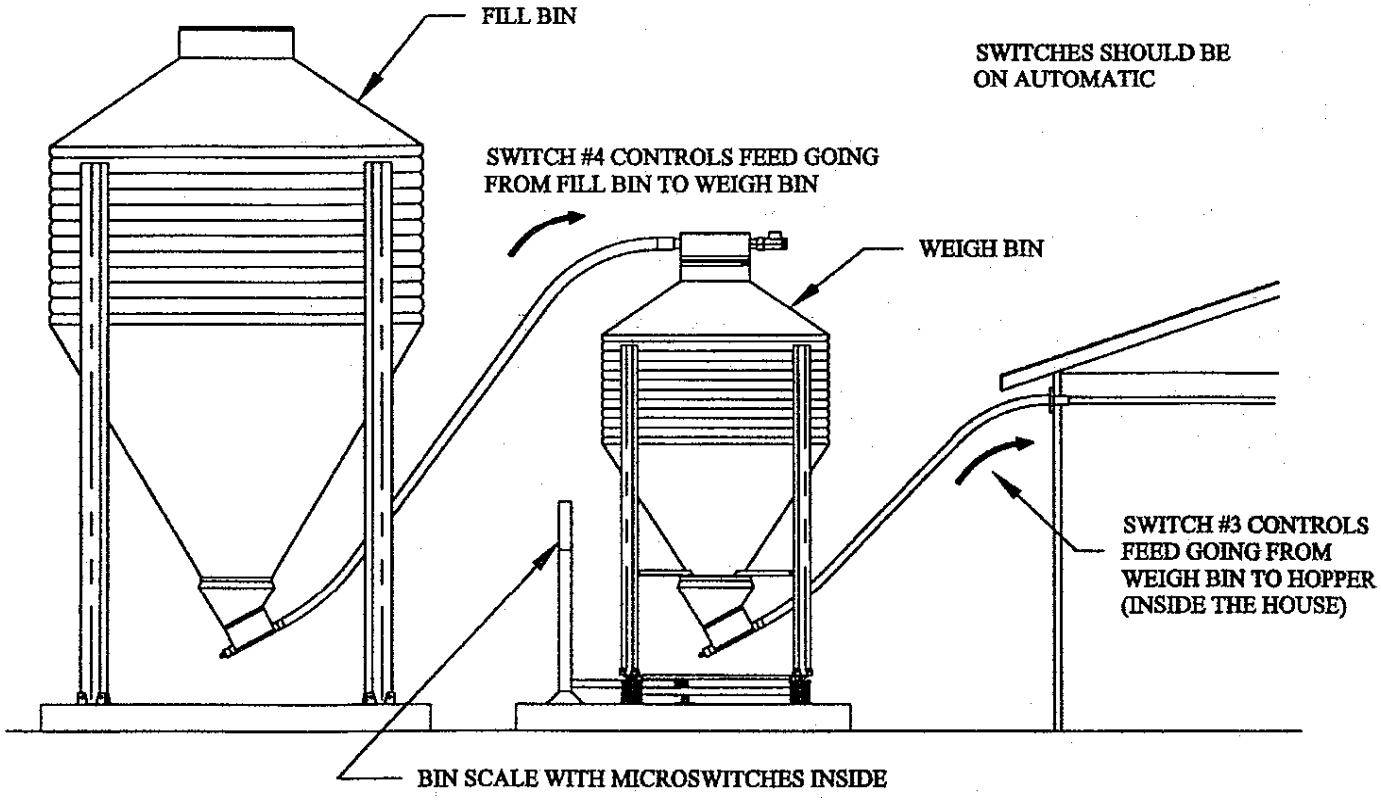

FIG. 22

These switches should normally be left in the "automatic" position. If one of the microswitches inside the bin scale fails to work, either of the switches can be flipped all the way up to "manual". See Fig. 23. Switch must then be turned off to stop feed. Once microswitch is replaced, reset switches back to "automatic". If relay fails, switches will not operate until relay is replaced. Clock does not affect operation of switches #3 or #4.

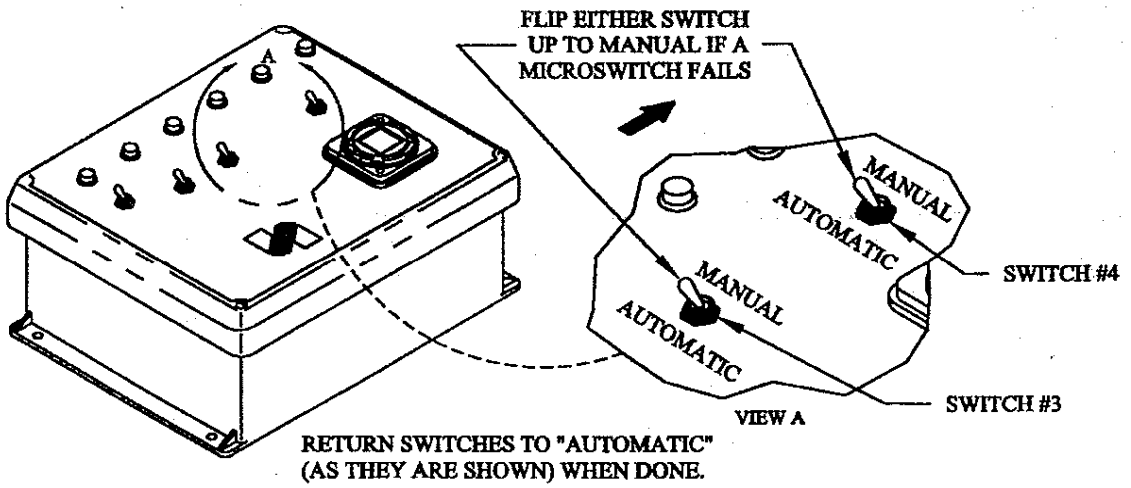

FIG. 23

SECTION 2. Switch #2 controls the feed lines and should normally be left in the "automatic" position. The microswitches do not affect this switch, it is controlled by the clock. The clock has a two week battery back up. So the clock will stay on in case of a power outage. However, if the power stays off during a feeding time, the feed lines which run on electricity will not work, so a feeding may get missed. It may be desirable to run the feed lines manually after power is back on. Also, if the clock should fail, manual operation of the feed lines is necessary until the clock is replaced. Flip switch #2 all the way up to "manual". See Fig. 24. Return to "automatic" when done. If relay fails, switches will not operate until relay is replaced. Wiring diagram is on next page.

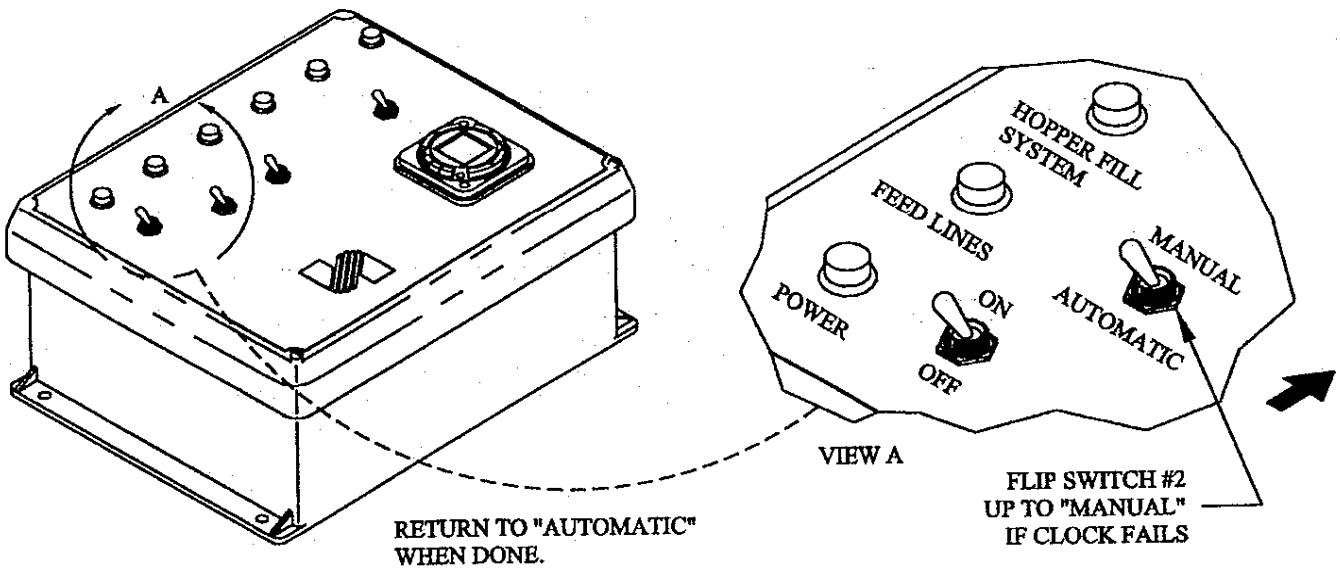

FIG. 24

WIRING DIAGRAM for SPINK'S P.N. 000100
(Controls Bin Scale & Feed Line)

RELAY WIRING

L1 - FROM BREAKER BOX
L2 - FROM BREAKER BOX
T1 - TO MOTOR/ACCESSORIES
T2 - TO MOTOR/ACCESSORIES
L3-T3 DO NOT USE

TERMINAL STRIP WIRING

#1. LOWER LIMIT SWITCH - RED N/O
#2. LOWER LIMIT SWITCH - YELLOW N/C
#3. UPPER LIMIT SWITCH - ORANGE N/O
#4. START BUTTON - BLUE N/O
#5. COMMON ALL SWITCHES - BLACK

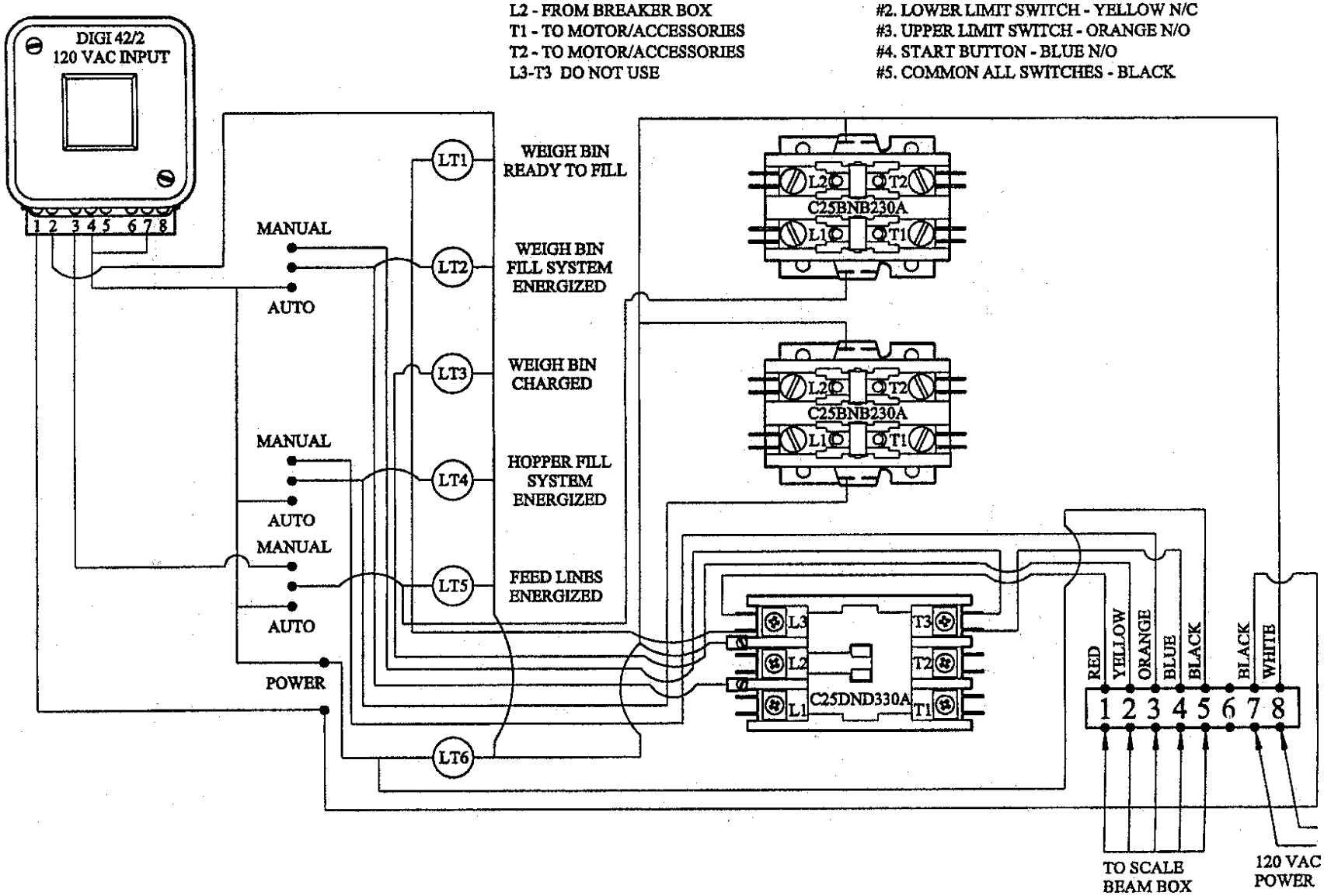

FIG. 25

CONTROL BOX FUNCTIONS

SPINK'S P.N. 000102 (third 2-pole relay)

(controls bin scale, feed line, and either rooster feed line or lights or water)

Follow control box functions and troubleshooting for Spink's P.N. 000100. In addition, the one extra 2-pole relay for controlling either the rooster feed line or lights or water is to be programmed by channel 2 on the grasslin time clock. Instructions for this are found at the beginning of this manual under "Setting the Program for Channel 1 or 2". If the clock or extra relay fail to operate, they must be replaced. There is no manual override. Follow the wiring diagram for Spink's P.N. 000100. Also, on the following page, there is a wiring diagram for additional 2-pole relays.

SPINK'S P.N. 000103 (third & fourth 2-pole relay)

(controls bin scale, feed line, and lights requiring more than 30 amps)

Follow control box functions and troubleshooting for Spink's P.N. 000100. In addition, the two extra 2-pole relays for controlling lights requiring more than 30 amps are to be programmed by channel 2 on the grasslin time clock. Instructions for this are found at the beginning of this manual under "Setting the Program for Channel 1 or 2". If the clock or relays fail to operate, they must be replaced. There is no manual override. Follow the wiring diagram for Spink's P.N. 000100. Also, on the following page, there is a wiring diagram for additional 2-pole relays.

WIRING DIAGRAM for ADDITIONAL 2-POLE RELAYS CONTROL BOX SPINK'S P.N. 000102 & 000103

(Used in conjunction with 000100 WIRING DIAGRAM)

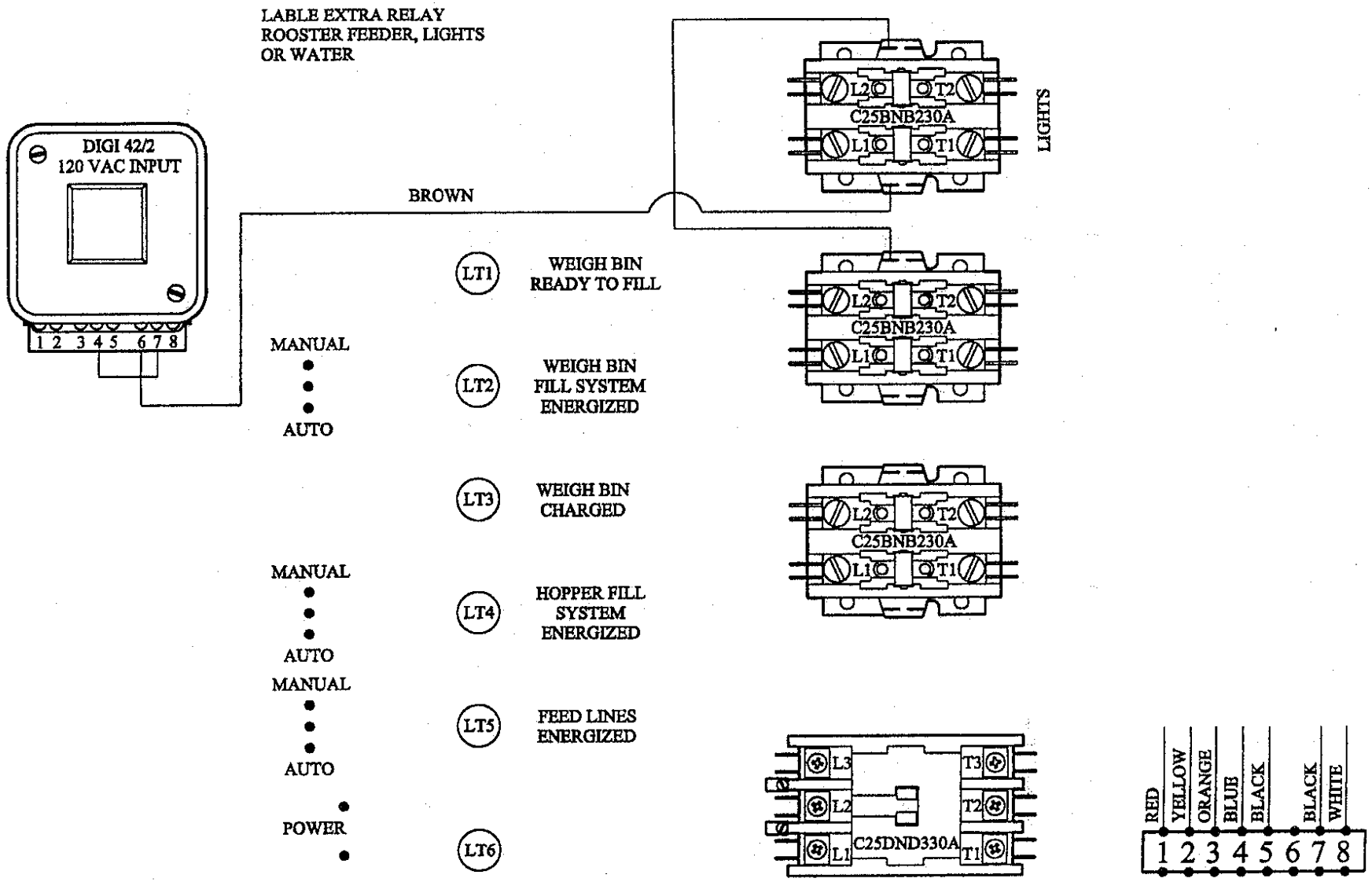

FIG. 26

CONTROL BOX FUNCTIONS
SPINK'S P.N. 000104 (skip-a-day relay)
(controls bin scale, feed line – alternating days)

Follow control box functions and troubleshooting for Spink's P.N. 000100. In addition, the extra skip-a-day relay for controlling alternating days is to be programmed by channel 2 on the grasslin time clock. Program channel 2 to come on before the first scheduled feeding period of the day. The clock will only need to be on for a period of one minute and then can be programmed to turn off. This will activate the switching relay and will turn the circuit for the feed lines on one day and off the next day continuously. For example, set channel 2 to come on every day of the week at 4:00 AM and to go off each day at 4:01 AM (assuming this is before the first feeding of the day). Instructions for programming channel 2 are found at the beginning of this manual under "Setting the Program for Channel 1 or 2".

Note: If you are programming the clock the day before the feed line is supposed to run, make sure the circuit is off.

If the clock or skip-a-day relay fails to operate, they must be replaced. In the meantime, the feed lines may be run manually. Set the second switch on the control box to off (not labeled). Flip up to "MANUAL" when feed lines are supposed to run; flip back to off when done. See Fig. 27. Do not leave the switch in "AUTOMATIC" position. If the skip-a-day relay failed, feed lines may run at programmed times except they may run everyday. After the clock or skip-a-day relay has been replaced, remember to set the switch back to "AUTOMATIC".

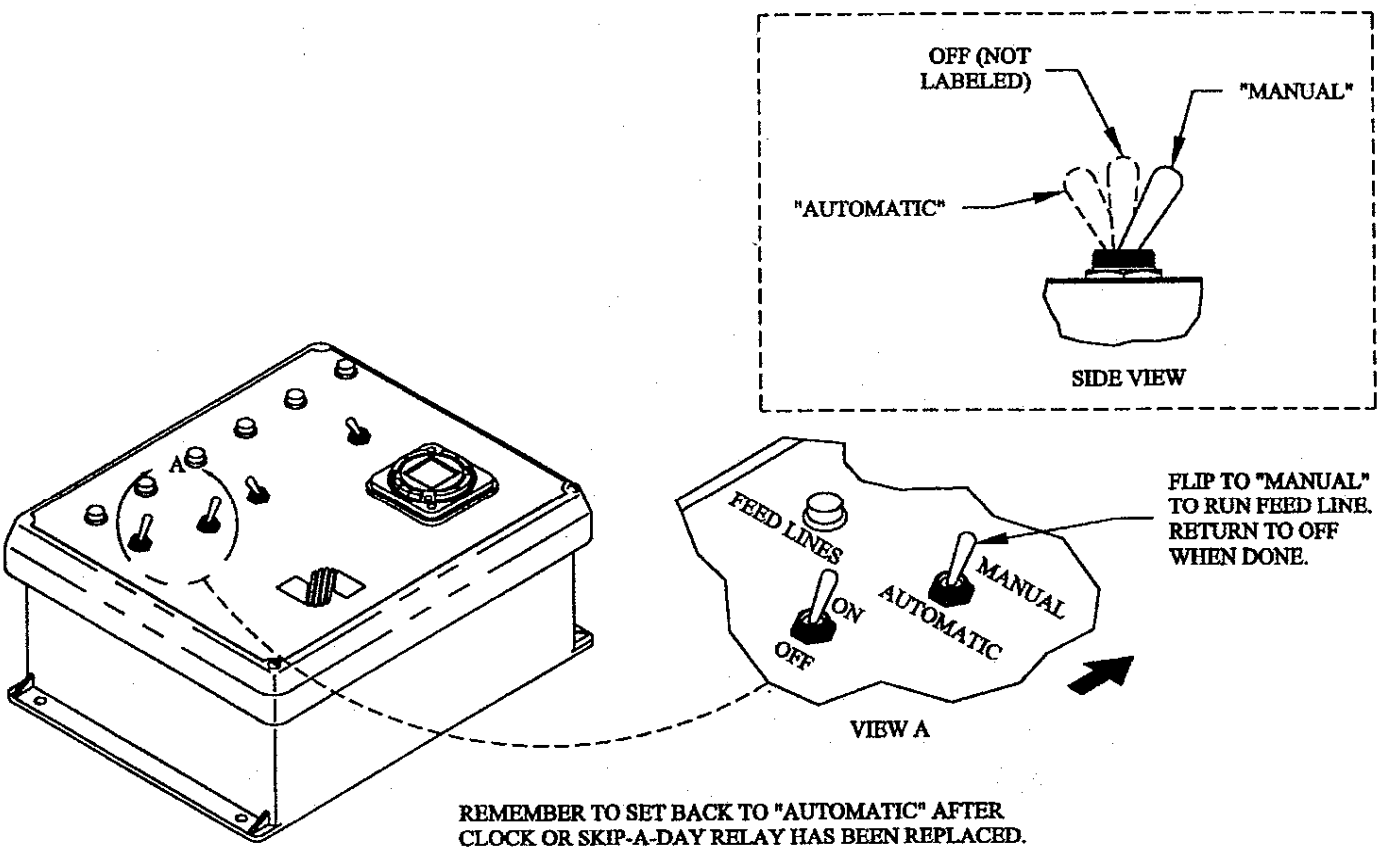

FIG. 27

Follow the wiring diagram for Spink's P.N. 000100. Also, on the following page, there is a wiring diagram for adding the skip-a-day relay.

WIRING DIAGRAM for 000104 (Skip-a-Day)

(Used in conjunction with 000100 WIRING DIAGRAM)

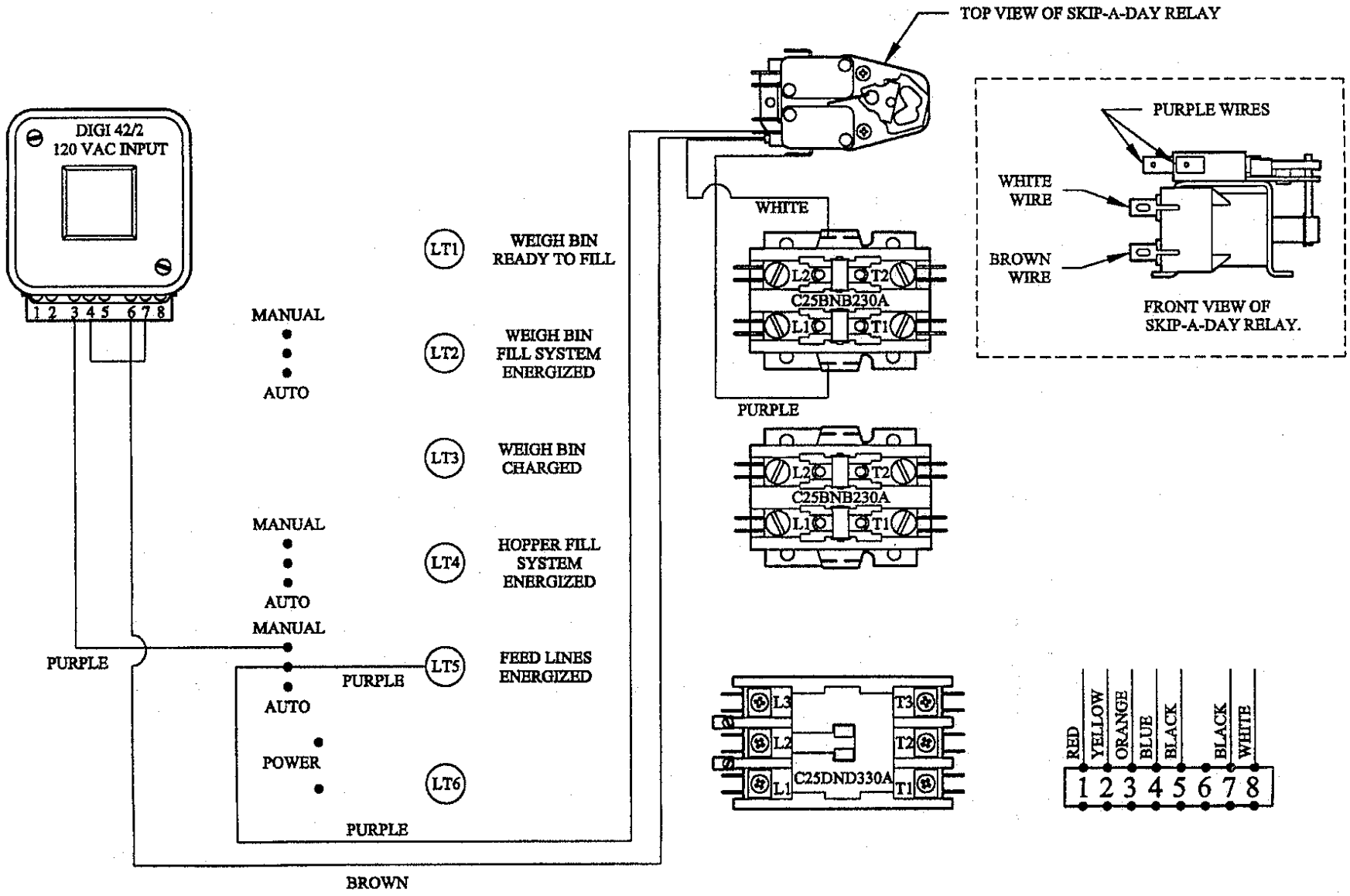

FIG. 28

CONTROL BOX FUNCTIONS
SPINK'S P.N. 000105 (2 Clocks)
(controls bin scale, feed line, rooster feed line, lights and water)

Follow control box functions and troubleshooting for Spink's P.N. 000100. In addition, the first extra 2-pole relay for controlling either the rooster feed line or lights or water is to be programmed on channel 2 on the grasslin time clock. Instructions for this are found at the beginning of this manual under "Setting the Program for Channel 1 or 2". The second extra 2-pole relay for controlling either the rooster feed line or lights or water is to be programmed on channel 3 of the second clock.
Note: Use channel 1 and 2 on the second clock as channels 3 and 4 respectively.
The third extra 2-pole relay is to be programmed on channel 4 of the second clock.
If the second clock or extra relays fail to operate, they must be replaced. There is no manual override. Follow the wiring diagram for Spink's P.N. 000100. Also, on the following page, there is a wiring diagram for additional 2-pole relays and a second clock (referred to as "WIRING DIAGRAM for 2 CLOCKS"). Below is a picture of the control box for easy identification. See Fig. 29

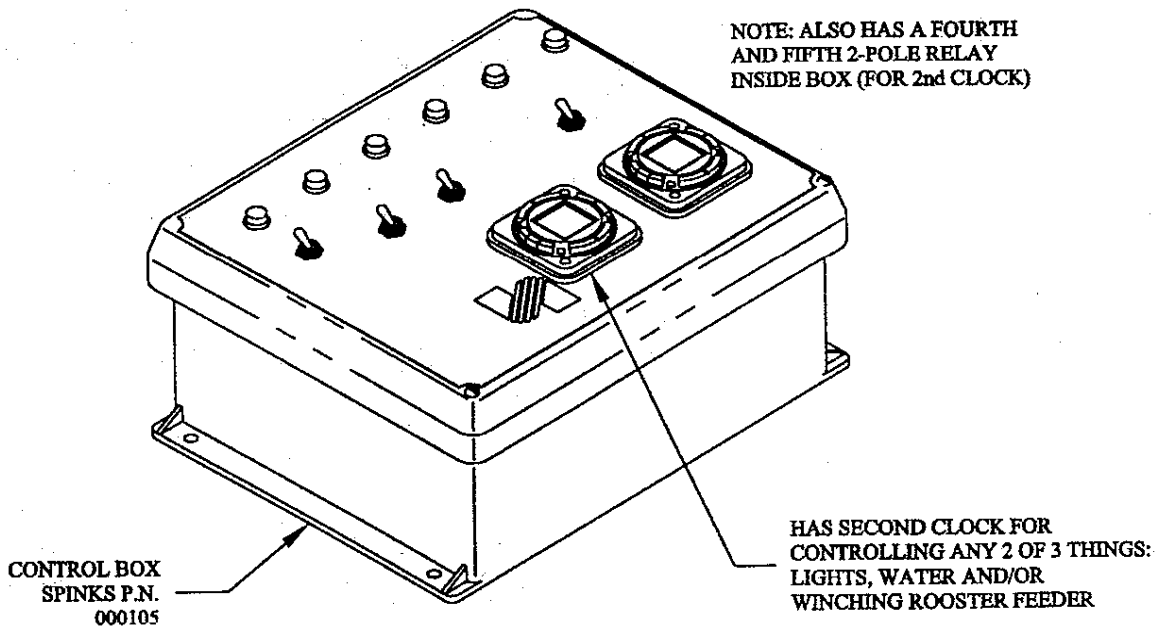

FIG. 29

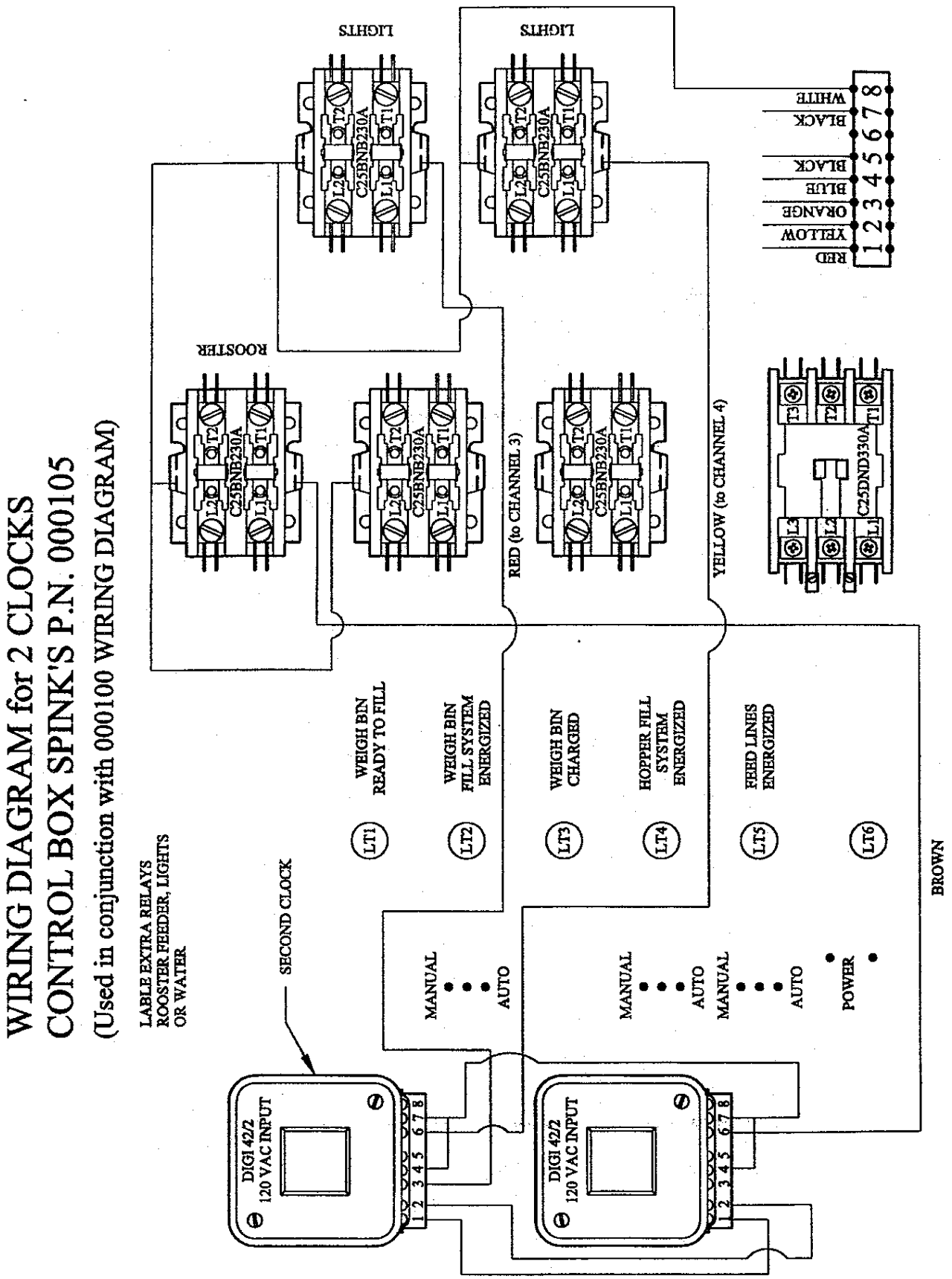
WIRING DIAGRAM for 2 CLOCKS
CONTROL BOX SPINK'S P.N. 000105
(Used in conjunction with 000100 WIRING DIAGRAM)
LABLE EXTRA RELAYS
ROOSTER FEEDER, LIGHTS
OR WATER
SECOND CLOCK
DIGI 42/2
120 VAC INPUT
1 2 3 4 5 6 7 8
LT1
WEIGH BIN
READY TO FILL
LT2
WEIGH BIN
FILL SYSTEM
ENERGIZED
LT3
WEIGH BIN
CHARGED
LT4
HOPPER FILL
SYSTEM
ENERGIZED
LT5
FEED LINES
ENERGIZED
LT6
MANUAL
AUTO
POWER
ROOSTER
LIGHTS
C25BNB230A
C25DND330A
T1
T2
T3
L1
L2
L3
RED (to CHANNEL 3)
YELLOW (to CHANNEL 4)
BROWN
RED
YELLOW
ORANGE
BLUE
BLACK
BLACK
WHITE

FIG. 30

CONTROL BOX FUNCTIONS
SPINK'S P.N. 000101 (Manual – No Clock)
(manual operation of bin scale & feed line)

This type control box allows manual operation of the scale, unless a mechanical clock is added and the box is rewired (detailed in the next section). The first switch is for power and should be left in the "ON" position. Switches #2-4 each control something different. Switch #4 controls the feed going from the fill bin to the weigh bin. Switch #3 controls the feed going from the weigh bin to the hopper fill system inside the house. Switch #2 controls the feed lines. These (top) three switches have 3 positions, "AUTOMATIC", Off (not labeled) and "MANUAL". Switch #'s 4 & 3 should be left in the "AUTOMATIC" position. Switch #'s 4 & 3 work in conjunction with the bin scale beam and microswitches. Switch #2 should be left in the off position (unless wired to a mechanical clock). Move switch #2 up to the "MANUAL" position to make the feed line run as needed. Return to off when done. See Fig. 31.

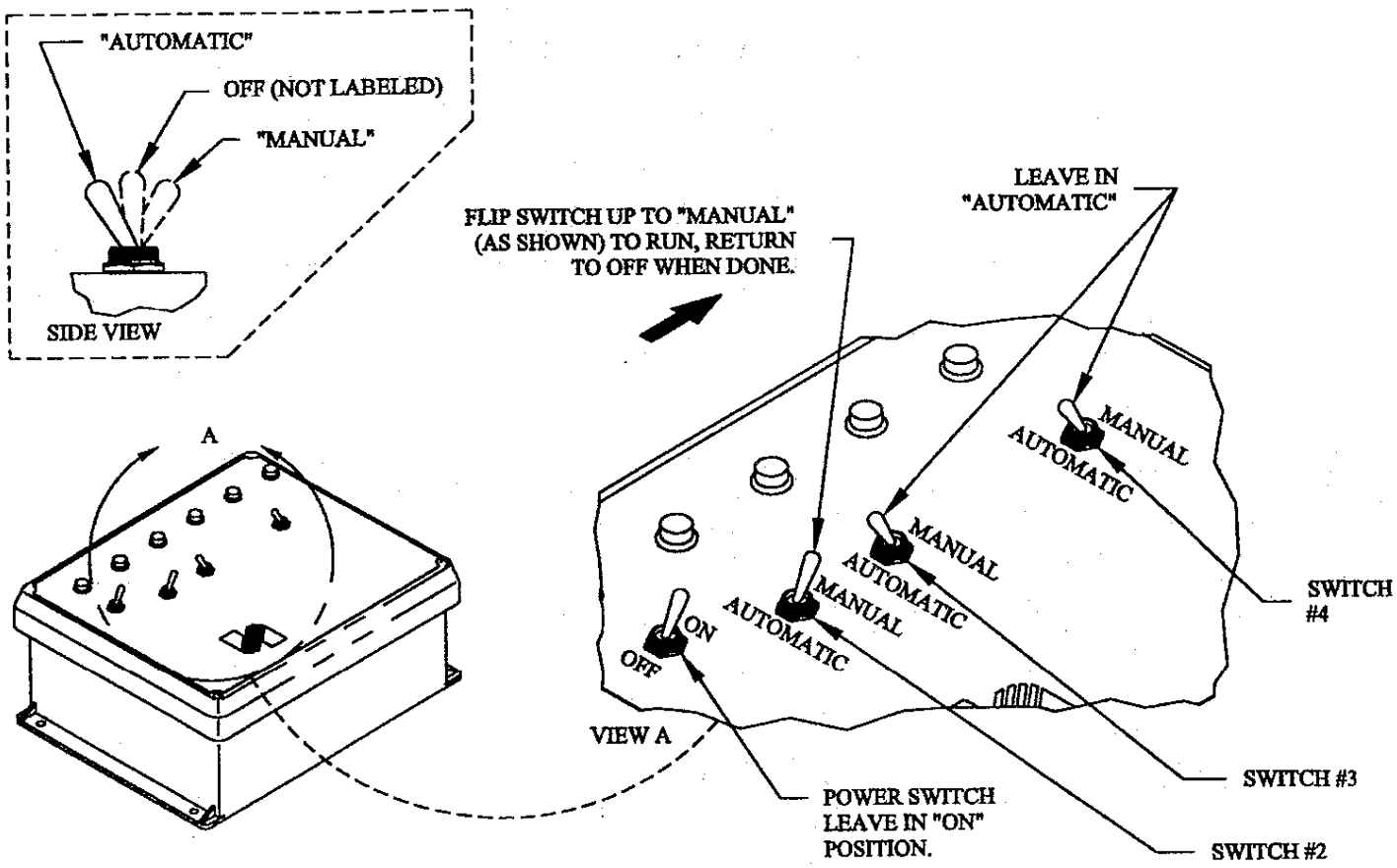

FIG. 31

A wiring diagram for a control box without a clock is detailed on the following page.

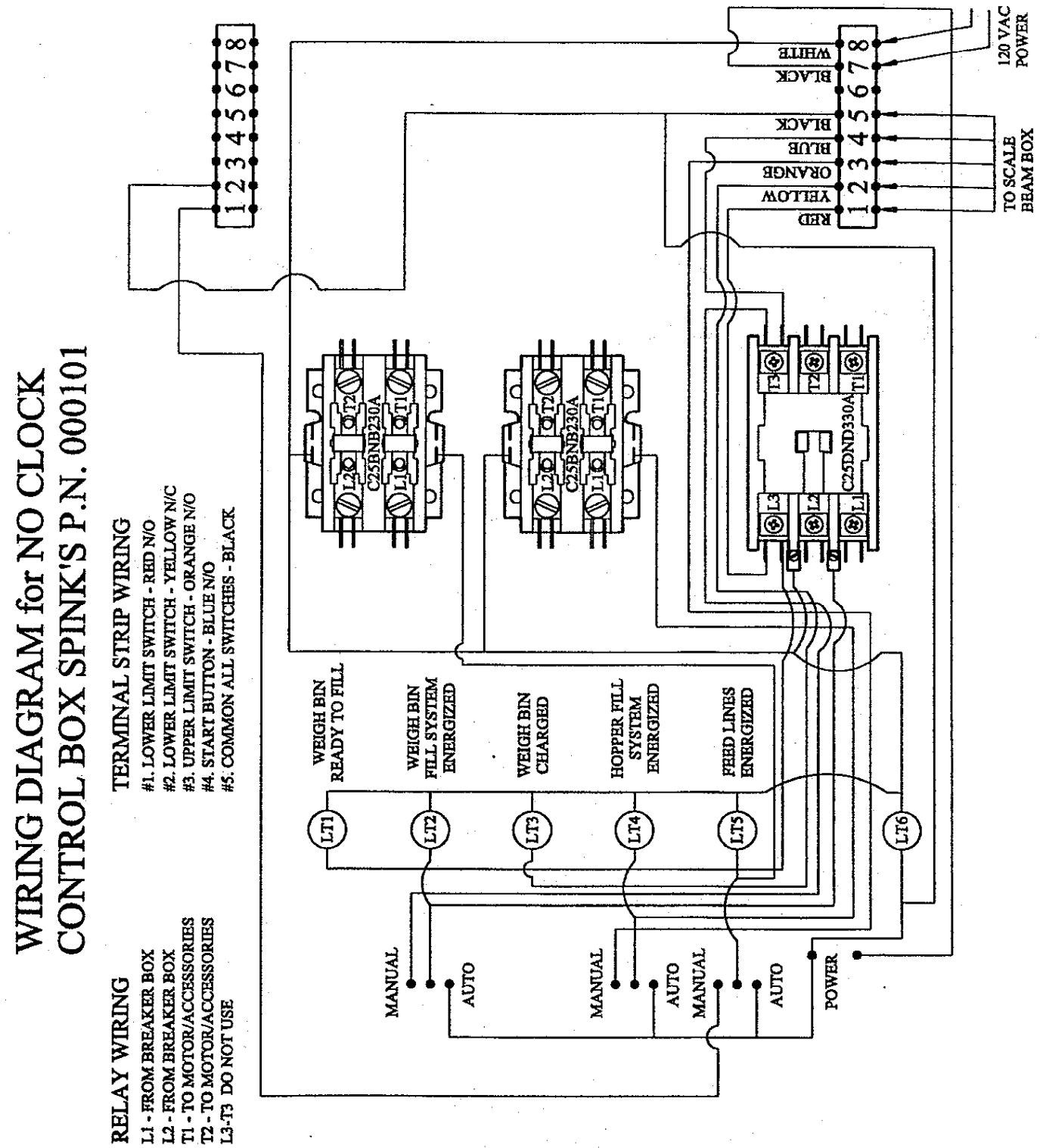
WIRING DIAGRAM for NO CLOCK
CONTROL BOX SPINK'S P.N. 000101
RELAY WIRING
L1 - FROM BREAKER BOX
L2 - FROM BREAKER BOX
T1 - TO MOTOR/ACCESSORIES
T2 - TO MOTOR/ACCESSORIES
L3-T3 DO NOT USE
TERMINAL STRIP WIRING
#1. LOWER LIMIT SWITCH - RED N/O
#2. LOWER LIMIT SWITCH - YELLOW N/C
#3. UPPER LIMIT SWITCH - ORANGE N/O
#4. START BUTTON - BLUE N/O
#5. COMMON ALL SWITCHES - BLACK
1 2 3 4 5 6 7 8
WHITE
BLACK
120 VAC POWER
BLACK
BLUE
ORANGE
YELLOW
RED
1 2 3 4 5 6 7 8
TO SCALE BEAM BOX
C25BNB230A
C25BNB230A
C25DND330A
WEIGH BIN READY TO FILL
WEIGH BIN FILL SYSTEM ENERGIZED
WEIGH BIN CHARGED
HOPPER FILL SYSTEM ENERGIZED
FEED LINES ENERGIZED
LT1
LT2
LT3
LT4
LT5
LT6
MANUAL
AUTO
MANUAL
AUTO
MANUAL
AUTO
POWER

FIG. 32

DRAG AUGER CONTROL BOX OPERATION

There is only **1** change to the control box operation for **Drag Auger Operation**. A second timer has been added on the inside of the box (on the plate) for controlling the time in (seconds) that the feed lines will be in operation.

1) Decide how long the feed lines need to run, what time the feed cycle is to start and how much time is needed between feed cycles.

   EXAMPLE: 5 minutes and 12 seconds.
   Feeding to start at 6:00 AM.
   Delay between feedings is 15 minutes.

2) Program the clock to come **ON** at 6:00 AM.
   Program the clock to go **OFF** at 6:01 AM.

3) Set the dip switches on the timer inside the cover of the box for a total of 312 seconds.
   ie: 5 min. x 60 seconds/min = 300 seconds + 12 seconds.

   A. Add the number of seconds on each dip switch to reach the desired amount of time.

   ie: Push the switches at (256) + (32) + (16) + (8) to the ON position

   Or Pick 1 switch if it is available.

4) The clock has now been programmed to operate the feed lines for 5 minutes and 12 seconds.
   The first feeding will be at 6:00 AM.

5) To operate the feed lines for the second cycle simply program the clock to come on 15 minutes after the feed line would have stopped; ie: 6:05:12. Program the clock to come **ON** at 6:20 and go **OFF** at 6:21. The timer inside the box will automatically operate for 5 minutes and 12 seconds. **IT DOES NOT NEED TO BE CHANGED.**

6) Follow step 5 to add as many feedings as needed to your schedule.
   (The clock can be programmed to turn the equipment on and off up to 42 times.)

   A programming record has been included with the clock instructions for you to keep track of your program times.

SPINKS SCALES

INSTRUCTIONS/OPERATIONS MANUAL

For

BIN SCALE CONTROL BOXES