

OWNER'S MANUAL

DMC

Calc-U-Dri Moisture Monitor

PNEG-1154

Date: 09-25-2006



PNEG-1154

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CAUTION



SAFETY INFORMATION PLEASE READ



**WATCH FOR THIS SYMBOL!
IT POINTS OUT IMPORTANT SAFETY PRECAUTIONS.
IT MEANS ATTENTION -- "BECOME ALERT! YOUR SAFETY IS INVOLVED!"**

It is recommended that you review the entire contents of this manual, paying particular attention to items preceded by this symbol.

**FAILURE TO HEED THESE INSTRUCTIONS
CAN RESULT IN PERSONAL INJURY!**

Operator Qualifications

Operation of this farmstead equipment shall be limited to competent and experienced persons. In addition, anyone who will operate or work around power equipment must use good common sense. In order to be qualified, he must also know and meet all other requirements, such as:

1. Some regulations specify that no one under the age of 16 may operate power machinery. This includes farmstead equipment. It is your responsibility to know what these regulations are in your own area or situation.
2. Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved."*
3. Unqualified persons are to stay out of the work area. The "Work Area" is defined as any area within the grain drying and storage complex where this equipment is installed.
4. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine.

*Federal Occupational Safety & Health Standards for Agriculture Subpart D, Section 1928.57 (a) (6).



CAUTION



BE A SAFE OPERATOR

1. Read and understand the Owner's Manual.
2. Disconnect all electrical power before servicing or opening control box, adjusting or lubricating the equipment.
3. All electrical hook-ups should be in accordance to the National Electrical Code.
4. Ground all electrical equipment as well as bin itself.
5. Only knowledgeable and trained personnel should operate this equipment.
6. **NEVER WORK WITH BELTS OR AUGERS WITH POWER "ON"...** automatic controls may start without warning! Stay clear of motors, belts and augers.

**FAILURE TO FOLLOW THESE INSTRUCTIONS MAY
RESULT IN PERSONAL INJURY OR PROPERTY DAMAGE.**

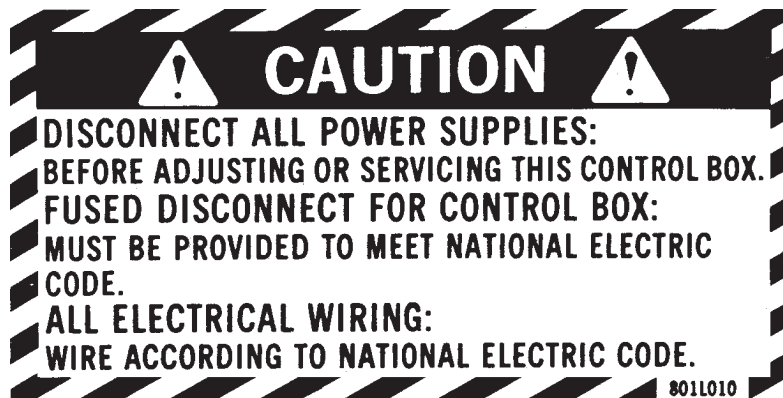
THE DECAL SHOWN ON THIS PAGE MUST BE DISPLAYED AS SHOWN

REPLACEMENTS ARE AVAILABLE UPON REQUEST

Write to: The GSI Group
1004 E. Illinois St.
Assumption, IL 62510

Or call: (217) 226-4401

- Please note:
1. The decal on this page is not actual size.
 2. Keep all decals wiped clean at all times.
 3. All decals must be replaced if they are destroyed, missing, painted over, or can no longer be read.



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Calc-U-Dri Moisture Monitor Introduction and Sensor Installation

Introduction

The Calc-U-Dri Moisture Monitor will monitor and display the moisture content of grain as it is moving past the sensor or in static grain. It is available in 115 Volts A.C. and can fit almost any application to provide a means to control other equipment.

The Chart Recorder option or Printer option will work with this model.

Installation (Sensor)

- A. The installation and mounting of the Sensor for the Moisture Monitor is very critical. It can be installed in augers, flat bottom “U” troughs, and down spouts. For best results, follow these recommendations:
1. For inclined, horizontal, or vertical augers it is recommended that the clearance between the flighting and tube be no more than 1/2 inch.
 2. The flow rate of grain over the sensor is recommended to be at least 225 bu/hr. Lower rates will work but require modifications to insure adequate grain depth on the Sensor.
 3. An auger must have at least one full pitch of flighting on both sides of the Sensor.
 4. Avoid placing the Sensor in a location where condensation or other moisture may accumulate.
 5. Use Sensor Location Drawing I as a guideline for installation.

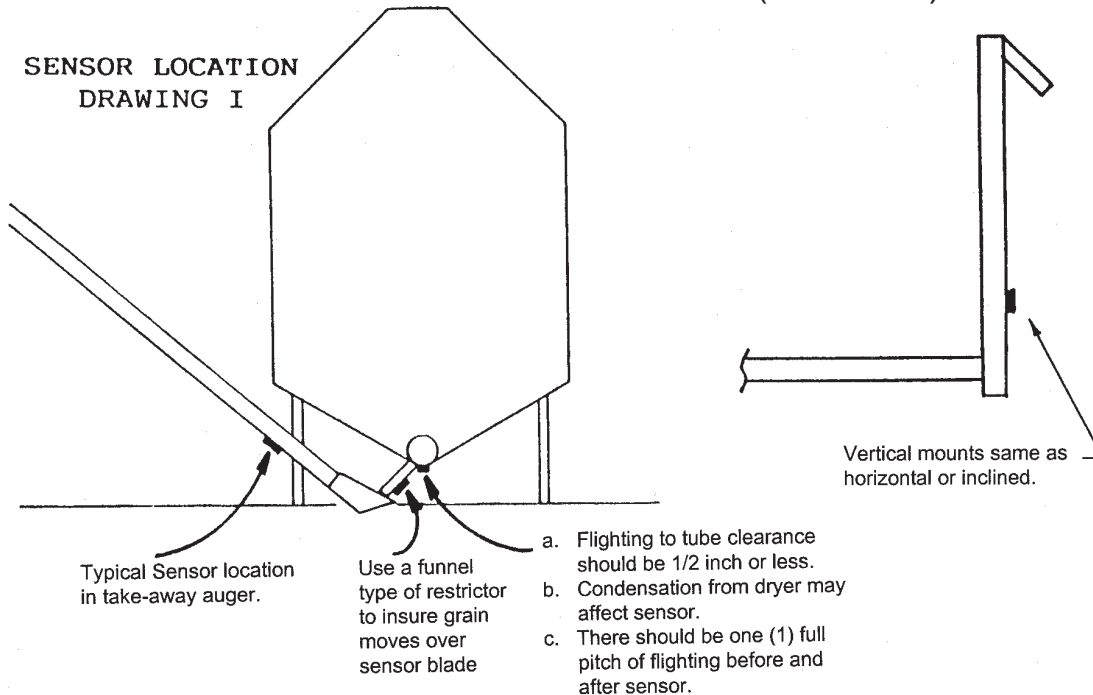


**!CAUTION! DISCONNECT POWER TO THE AUGER MOTOR
BEFORE PROCEEDING ANY FURTHER!**



- B. Sensor installation in augers:
1. Determine the best location for the Sensor in the auger. There must be at least one (1) full pitch of flighting on both sides of the Sensor to move grain over the blade.
 2. Position the optional sensor connecting band [available in six (6) and eight (8) inch diameters] so that the rectangular hole is toward the discharge end. Mark the outline of the rectangular hole and the edges of the band on the auger tube. Cut a hole in the tube eight (8) inches long and up about 1/3 of the way around the tube to remove the rectangular hole outline (stay inside the end marks of the connecting band). This large hole is to make it easier to remove the flighting. See Photo 1.

Sensor Installation Instructions (continued)



3. Replace the connecting band on the tube in the same position as in step one (1), and mark the flighting at each end of the rectangular hole. Slide the connecting band out of the way and weld the flighting to the shaft 3/8 inch beyond each mark. Cut out 6-1/2 inches of flighting between the welds, making sure that the flighting is removed all the way to the shaft. See Drawing II.

4. Smooth all of the rough edges around the cutout area and position the connecting band with the rectangular hole on the bottom centered on the area where the flighting was removed. Insert the Sensor clearance gauge in the hole to check for flighting clearance before tightening the connecting band. See Drawing III.

5. Mount the Sensor in the bottom of the auger tube [six o'clock (6:00) position] in the connecting band such that the grain will flow over the Sensor blade per the decals on the Sensor assembly. Make sure that the Sensor block fits securely in the rectangular hole before fastening the Sensor to the tube with the worm gear type clamp. Fasten the grounding strap from the Sensor to the auger tube in the area that the flighting has been removed with a self-drilling screw. Leave at least two (2) inches between the Sensor block and the grounding screw.

C. Sensor Installation in Flat Bottom U Trough Augers

1. Determine the best location for the Sensor in the auger. There must be at least one (1) full pitch of flighting on both sides of the Sensor and no more than 1/2 inch clearance between the bottom and the edge of the flighting to insure that grain is moved over the Sensor blade. See Drawings II and IV.

!CAUTION!

SLOWLY ROTATE THE AUGER BY HAND ONE COMPLETE REVOLUTION. THE FLIGHTING MUST MISS THE GAUGE COMPLETELY AND NOT RUB ON THE FILLER PIECES. IF THERE ARE AREAS OF BINDING OR HITTING, CORRECT THE SITUATION NOW.

Sensor Installation Instructions (continued)

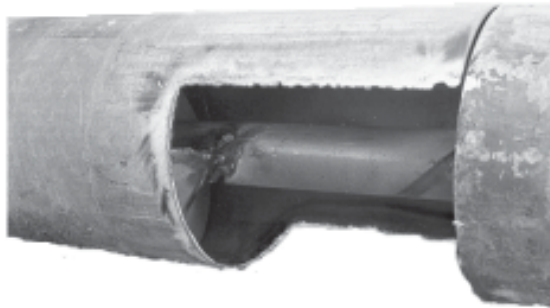
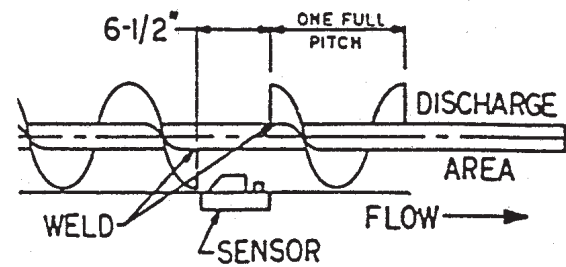
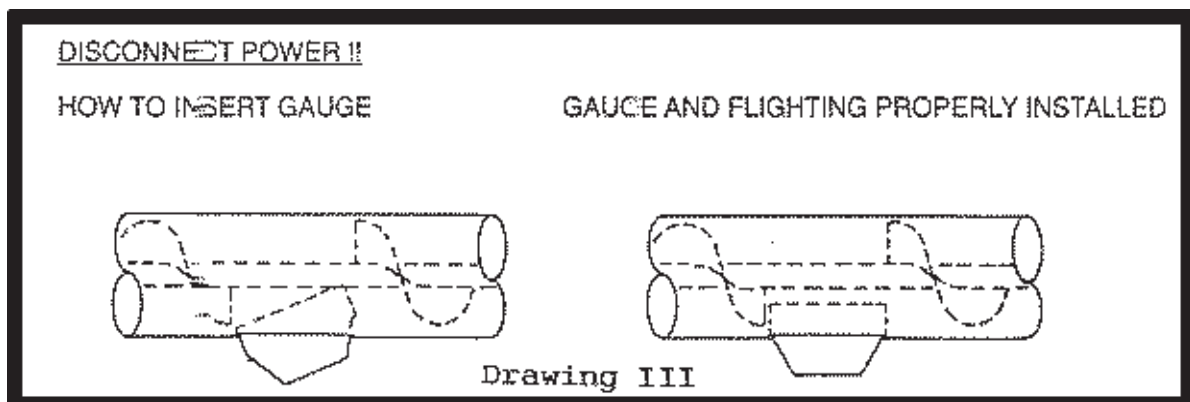


Photo 1



Drawing II

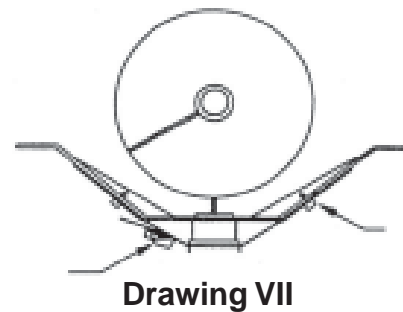
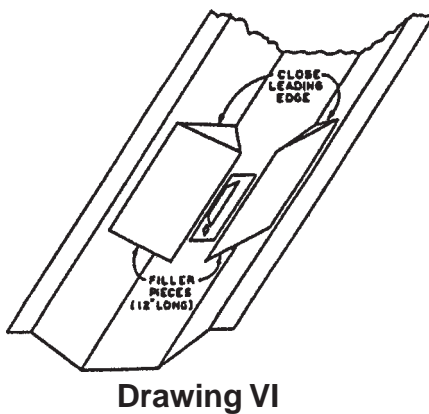
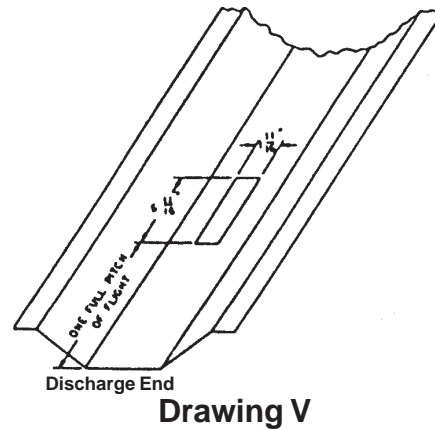
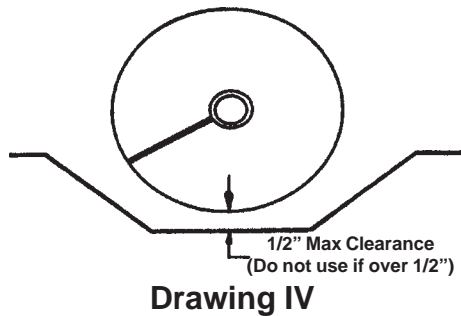


Drawing III

!CAUTION!**DISCONNECT POWER TO THE AUGER MOTOR BEFORE PROCEEDING ANY FURTHER!**

2. Mark the location for the Sensor on the trough, using the template provided to mark a 1-11/16 inch by 5-11/16 rectangular hole. Cut this rectangle out carefully to make sure that the Sensor block fits tight. It is recommended that this hole be cut with a saw, not a torch. See Drawing V.
3. Reposition the bottom of the trough and mark the flighting at each end of the rectangular Sensor hole. Remove the trough and find the marks that you made on the flighting. Make a new mark where you will be cutting the flighting, 1/2" larger on each end. Weld the flighting to the shaft beyond each mark. Cut out 6-1/2 inches of flighting between the welds, making sure that the flighting is removed all the way to the shaft. This will work on all augers eight (8) inches and smaller in diameter. A one (1) inch ribbon of flighting may be left on the shaft for augers larger than eight (8) inches. Smooth out all rough edges on the flighting and Sensor hole. See Drawing II.
4. If the trough has a flat bottom, filler pieces twelve inches long may be required to keep the grain closer to the Sensor blade. Make sure that the leading edges are closed and welded securely. See Drawing VI.
5. Reassemble the auger trough. Check to make sure that the filler pieces clear the flighting. Insert the Sensor clearance gauge in the rectangular hole to check for flighting clearance. See Drawing III.

Sensor Installation Instructions (continued)

**!CAUTION!**

SLOWLY ROTATE THE AUGER BY HAND ONE COMPLETE REVOLUTION. THE FLIGHTING MUST MISS THE GAUGE COMPLETELY AND NOT RUB ON THE FILLER PIECES. IF THERE ARE AREAS OF BINDING OR HITTING, CORRECT THE SITUATION NOW.

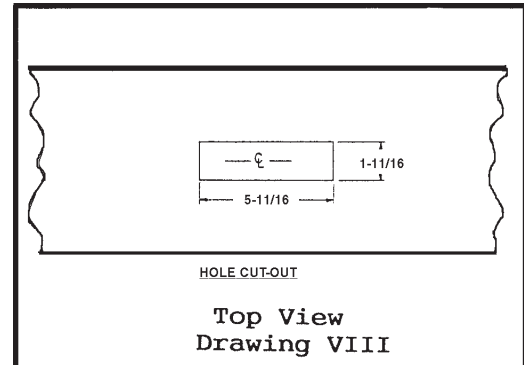
6. Mount the Sensor in the trough such that the grain will flow over the Sensor blade per the decals on the Sensor assembly. Make sure that the Sensor block fits securely in the rectangular hole. Secure the Sensor assembly by modifying the worm gear clamps and screwing the ends to the sides of the trough. See Drawing VII. Fasten the grounding strap from the Sensor to the trough in the area that the flighting has been removed with a self-drilling screw. Leave at least two (2) inches between the Sensor block and the grounding screw.

Sensor Installation Instructions (continued)

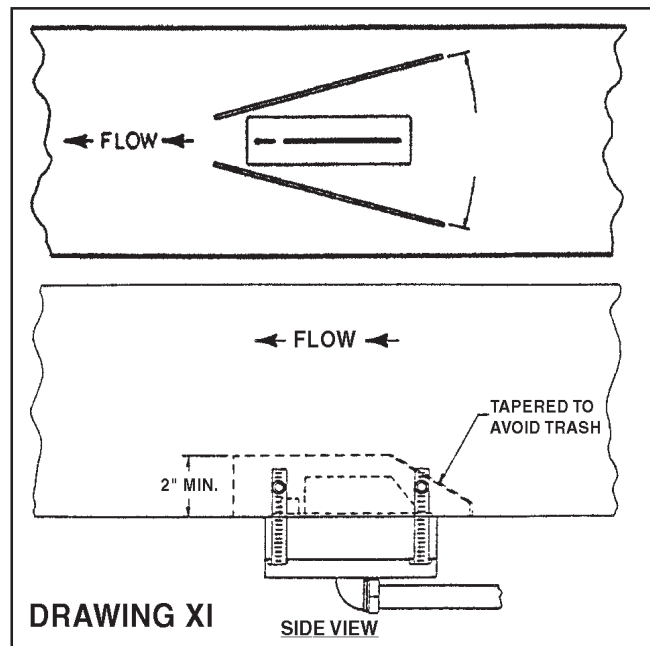
D. Sensor installation in a Flat Bottom Down Spout:

1. When using a down spout, there must be a constant flow of grain over the Sensor and the Sensor blade must be completely covered for accurate readings. This flow must be independent of the total flow or velocity of the stream of grain. To do this, the installation of brackets angled to create a funnel is recommended.

The Sensor should be located in an accessible location, so it can be periodically inspected for trash buildup.



2. Cut a hole in the bottom of the spout (1-11/16" x 5-11/16") as shown in Drawing VIII. Use a sabre saw for the hole, not a torch. Remove burrs and check so the Sensor block fits into the stepped edge.
3. Attach a pair of angled brackets as shown in Drawing XI.
4. Secure the Sensor by cutting the end off of the worm gear strap and mounting it with a self-drilling screw to edge of the flat spout. Attach the screw end of the clamp on the other side of the flat spout with a self-drilling screw.

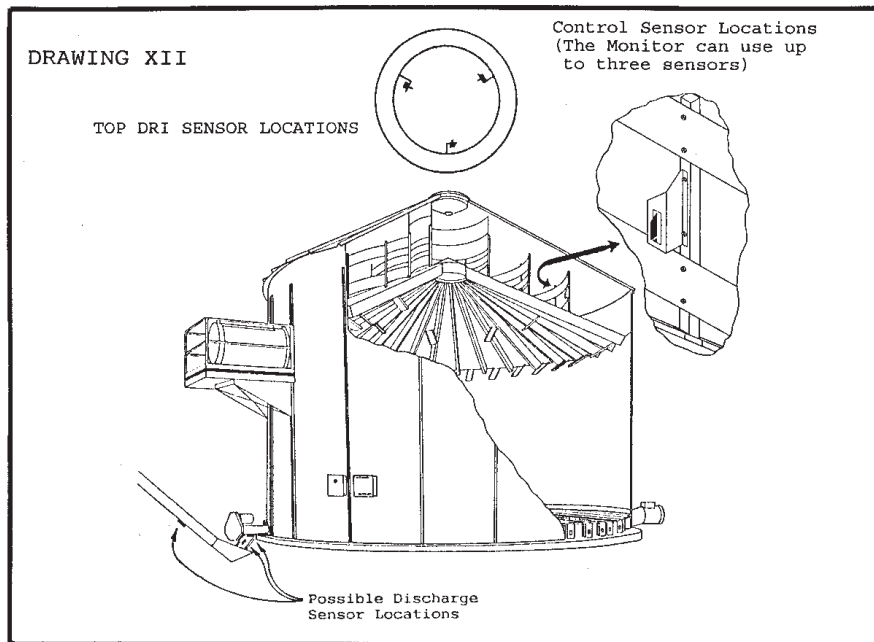


E. Sensor Installation for Top Dri Bins:

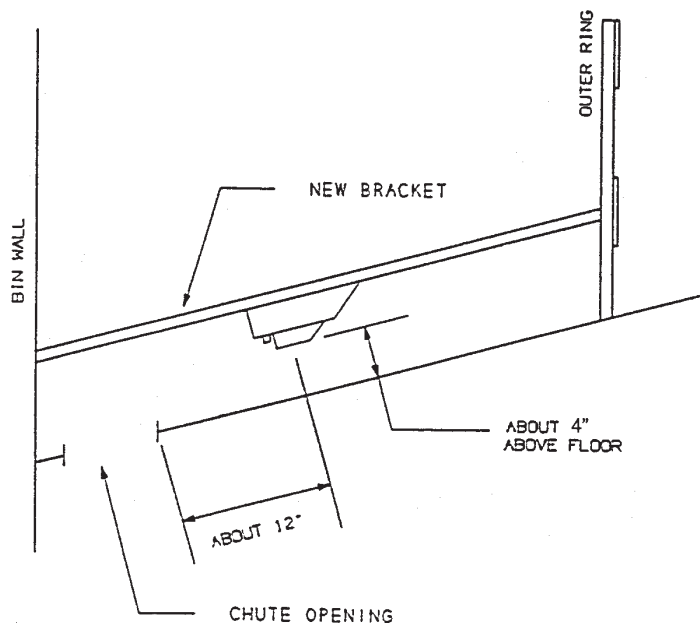
1. Assemble the Sensor to the Top Dri Sensor bracket by inserting the Sensor into the bracket until the bottom of the Sensor is flush with the bracket. Check the decal on the bracket and make sure that the Sensor blade is positioned correctly. Use the four (4) screws that are taped to the bracket to secure the Sensor to the bracket.
2. The Sensor assembly should be placed in a position that will allow it to be exposed to the average drying conditions of the batch as it goes through the drying process. It should be mounted so that grain samples can be taken close to the Sensor blade for calibration purposes. The Sensor should be mounted to the outer ring of baffles with the blade exposed to the center of the bin. Mount the bracket using the slots in the mounting flange so that the center of the Sensor is approximately 12 inches above the drying floor.

Sensor Installation Instructions (continued)

- It is possible to have up to three Sensors connected to the Monitor. When using more than one Sensor, vary the mounting depth. For example: When using three Sensors, they could be mounted 120 degrees apart and at depths of 10", 12" and 14" above the drying floor. See Dip Switch setting on Page 17 when more than one sensor is used. See Drawing XII. See Electrical Installation, item B on page 8 for the required modifications.
- On continuous units, it is important that the Sensor is located in the path of moving grain which is just above the chute opening. See below for Sensor Mounting.



“CONTINUOUS FLOW” TOP DRY

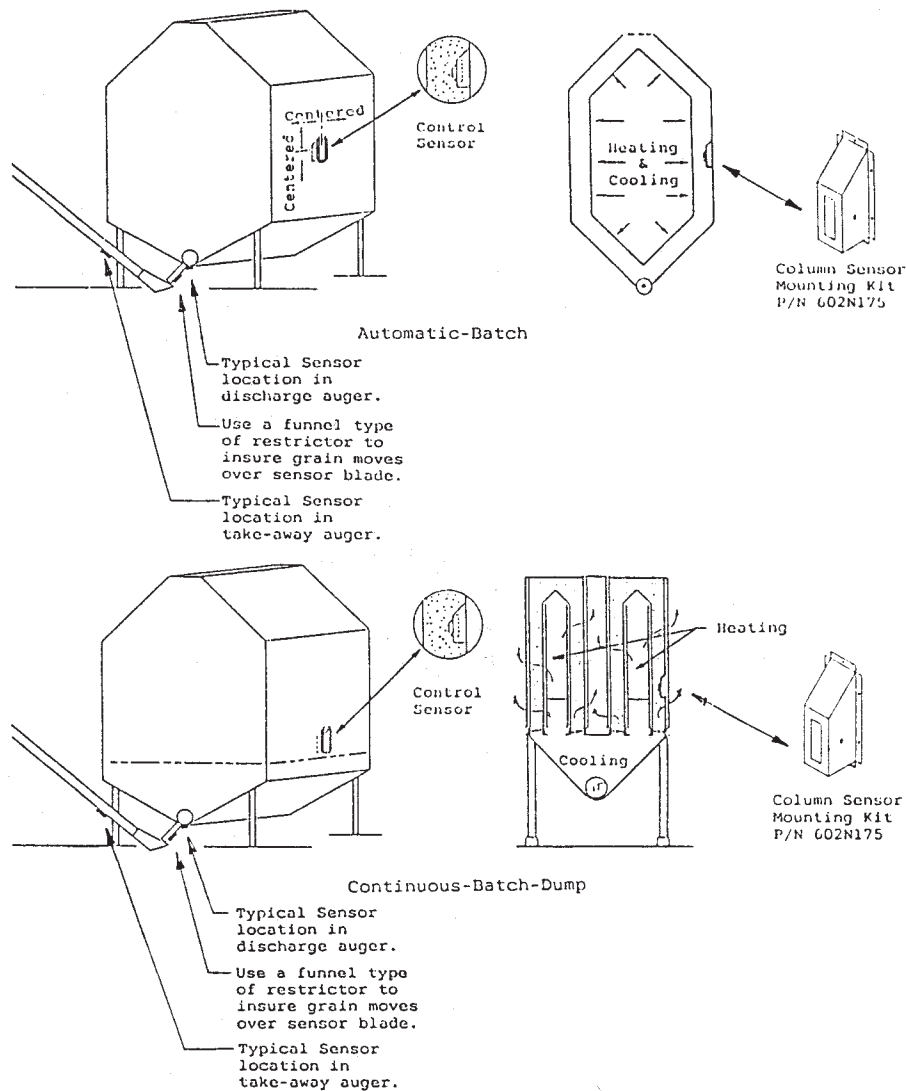


On Continuous Flow Top Dryers, the sensor should be mounted up-stream from a chute opening. Make a new bracket to mount the top dry sensor bracket, #602N173, as shown on the diagram to the left.

Sensor Installation Instructions (continued)

F. Sensor Installation in Grain Columns:

1. Assemble the Sensor to the column Sensor housing by inserting the Sensor into the housing until it is flush with the bottom. Check the decal on the Sensor housing to make sure that the blade is oriented properly. Insert the cross bar with the thumb screw into the slots on each side of the housing. Check to make sure that the Sensor is still flush with the bottom and tighten the screw.
2. The Sensor and column housing is intended to be mounted in a column of drying grain. It should be mounted in the column area just above where cooling begins for continuous-batch-dump dryers and centered in the dryer column for automatic batch dryers. Cut a 4-1/2 x 13-1/4 inch hole in the side of the column and insert the housing and Sensor assembly. Use six (6) self-tapping screws to secure the flanges of the housing the column side sheet. See Drawing XIII.



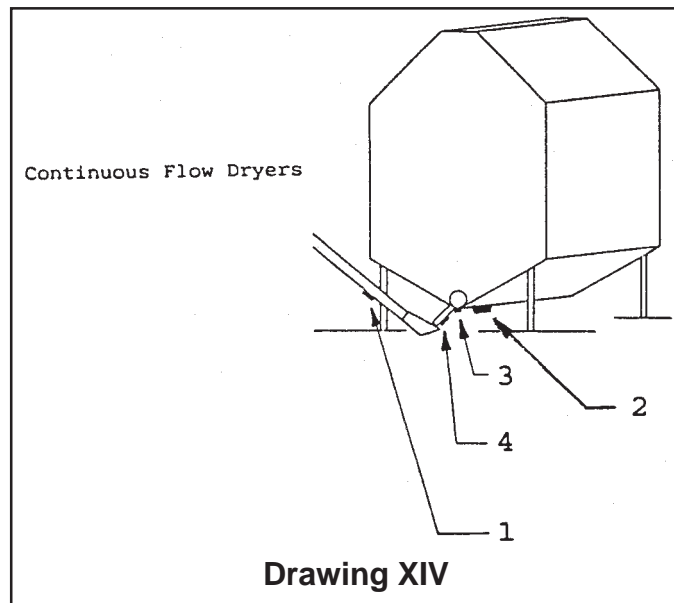
DRAWING XIII

Sensor Installation Instructions (continued)

3. Continuous Flow type dryers that cool the dried grain before it is discharged from the dryer should have a Sensor and column housing installed in the side panel of the dryer. Center the Sensor housing just above the cooling area. See Drawing XIII.
4. Continuous Flow dryers that discharge the dried grain hot should install the Sensor in one of the three (3) locations in the discharge area. See the possible discharge Sensor locations in Drawing XIII.

Preferred Sensor Locations, in order of preference

1. Take-away Auger
(inclined, horizontal or vertical)
2. Discharge auger, at clean out door near outlet.
3. Discharge auger extension
4. Discharge chute, refer to Drawing XI
5. Column, refer to Drawing XIII



Installation (Electrical and Sensor Hook-up)

- A. Mount the Moisture Monitor control box in a location that will be convenient to observe and is free of vibration. **(Note: Locate within 25 feet of the Sensor due to cable lengths)**
- B. Route the five (5) wire Sensor cable through the one-half (1/2) inch liquid-tight conduit to the Moisture Monitor box. Attach the Sensor wires to the five (5) terminals marked "Sensor" in the upper left corner in the back of the box. Connect each wire to match the color marked on the terminal decal. When using more than one Sensor, connect all of the matching colored wires as described above. Refer to the dip Switch chart on page 17. Set switches 9 and 10 to the correct position according to the number of Sensors.

**NOTE: THE TOP TERMINAL STRIP IS LOW VOLTAGE D.C.
NEVER HOOK A.C. POWER TO THIS STRIP**

Sensor Installation Instructions (continued)

- C. The Moisture Monitor requires 115 Volts A.C. to operate. Bring A.C. power in on the right side of the box and wire it to the terminals identified by the decal (L1, N, and GND).
- D. Signal Out 1 and Signal Out 2 are located on the lower right terminal strip and identified by a decal. Each signal consists of “C” (common), “NO” (normally open), and “NC” (normally closed). The relay contacts are rated at 5 amps 115 VAC.

If your application is top dry system, move the yellow wire with the tag attached from terminal 10 to terminal 12. Use the “NO” and “C” output to signal the burner. “NO” and “C” will close when moisture is below set point. If your application is to signal when the moisture increases above the moisture limit, leave the yellow wire on terminal 10. “NO” and “C” will close when moisture is below set point. The auto-off-manual switch must be in automatic for this operation.

- E. If Signal Out 1 or 2 is used to control any other equipment, make sure that all safety switches on your dryer remain functional after the wiring is completed. The relay contacts are rated at 5 amps 115 VAC.

**!CAUTION!**

NEVER APPLY AC VOLTAGE TO THE UPPER SENSOR TERMINAL STRIPS.

!CAUTION!

ALL WIRING MUST BE DONE IN ACCORDANCE WITH THE ELECTRICAL CODE.

!CAUTION!

TO AVOID POSSIBLE BODILY INJURY AND DEATH
ALL WIRING SHOULD BE DONE BY A QUALIFIED ELECTRICIAN
AND SHOULD BE TO ALL CODE STANDARDS

GRAIN BINS AND/OR DRYERS WITH ELECTRICAL EQUIPMENT IN OPERATION
MUST BE GROUNDED.



DO NOT MODIFY OR BYPASS ANY SAFETY SHUTOFFS!



Operation Instructions

Operation

- A. The Moisture Monitor will read the moisture when in either the AUTOMATIC or MONITOR position. Signal Out 1 and 2 will operate only in the AUTOMATIC position. (The digital display should read approximately 6.0% when the Sensor is in open air.)
- B. Push the paddle switch up to the “DISPLAY TEMPERATURE” position and the display will show the temperature of the grain on the Sensor.

Push the paddle switch down to “DISPLAY CALIBRATION” and the display will show the amount added to or subtracted from the displayed moisture (-9.9 to + 9.9).

- C. The moisture Set Point is adjusted by turning the set point knob while holding the display Set Point paddle switch down. Turning the knob clockwise will increase the moisture Set Point and counterclockwise will decrease the moisture Set Point (0 to 25).
- D. The Moisture Monitor may need to be calibrated to compensate for different grains and Sensor configurations. Make sure that the calibration is set at zero before comparing the displayed moisture values with the samples tested with a reliable moisture tester. See Chart 1, Calc-U-Dri Moisture Sampling.
1. If the displayed moisture value is less than from a moisture tester, push the “Display Calibration” and turn the calibration knob to display the actual difference (+ Value).
 2. If the displayed moisture value is more than from the moisture tester value, push the “Display Calibration” and turn the calibration knob to display the actual difference with a minus sign (- Value).

!CAUTION!

USE A SAFE SAMPLING PROCEDURE.

**DO NOT SAMPLE FROM A HOPPER WITH AN UNGUARDED AUGER.
KEEP HANDS, FEET AND CLOTHING AWAY FROM ROTATING PARTS.**



3. The following sampling guidelines are recommended:
 - a. Take samples when the displayed moisture values are not changing rapidly.
 - b. Observe the moisture display when the sample is taken. Record both the displayed values and tested values for at least six (6) samples and take the average of each.
 - c. Take samples close to where the Sensor is located. A special sampling discharge may have to be installed in some cases.

Operation Instructions (continued)

Chart I

Calc-U-Dri Moisture Monitor Sampling

The chart below shows grain moisture readings (from an actual situation) as they should be taken to obtain a realistic moisture value.

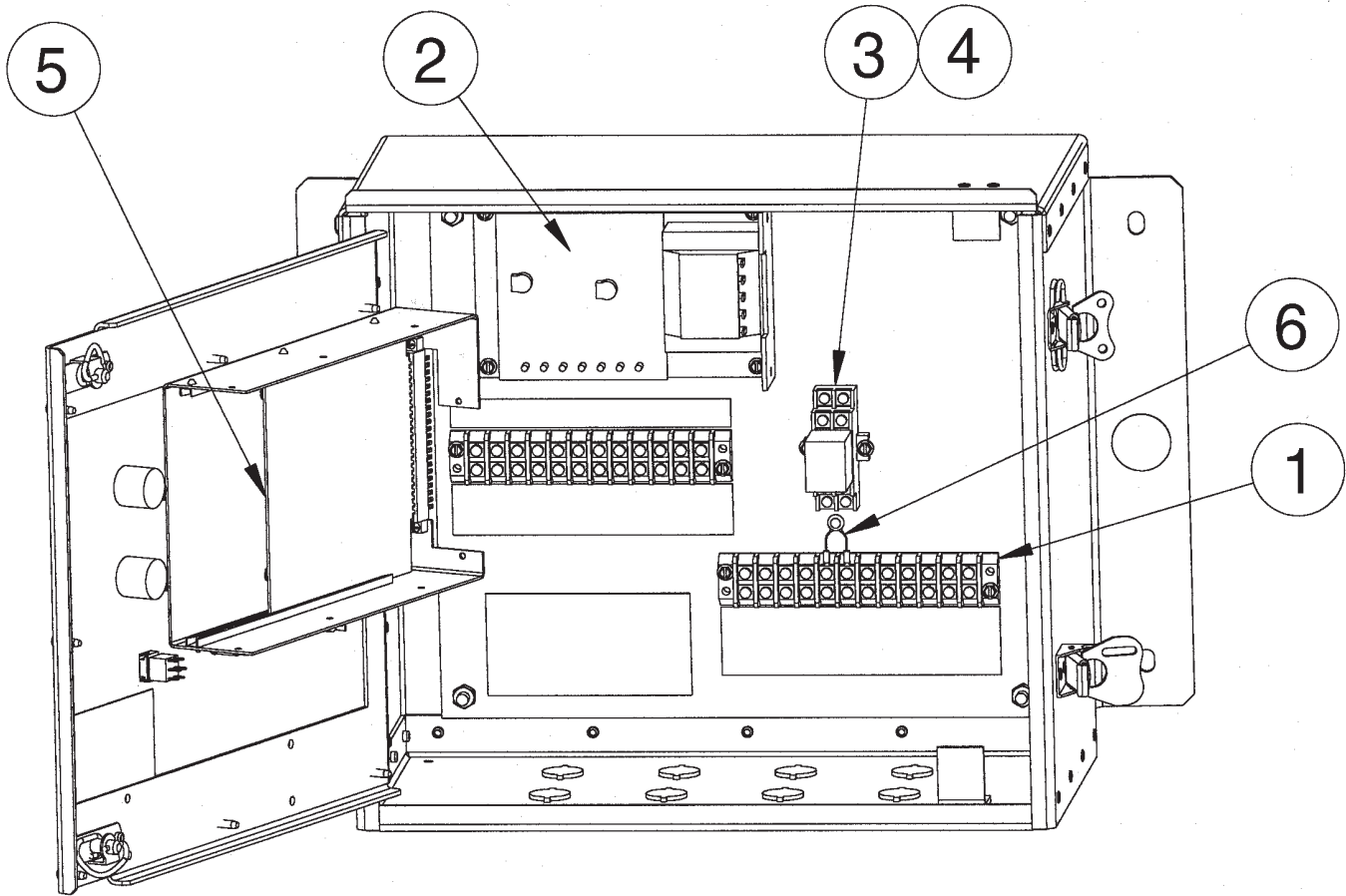
Time	Calc-U-Dri		Dole		Elevator
	Temp.	Moisture	Temp.	Moisture	Moisture
9:33 AM	112	14.4%	109	14.7%	
9:36 AM	112	14.4%	111	14.4%	
9:38 AM	108	16.0%	107	17.5%	
9:40 AM	110	14.6%	109	14.7%	
9:43 AM	108	15.9%	104	17.3%	
9:50 AM	111	14.5%	107	15.0%	
TOTAL		89.8%		93.6%	
AVERAGE		15.0%		15.6%	

Question: Where should you set the moisture offset, +0.3 or 0.6?

Answer: Most would want to set it to +0.3 which would make it match the point of sale's moisture reading.

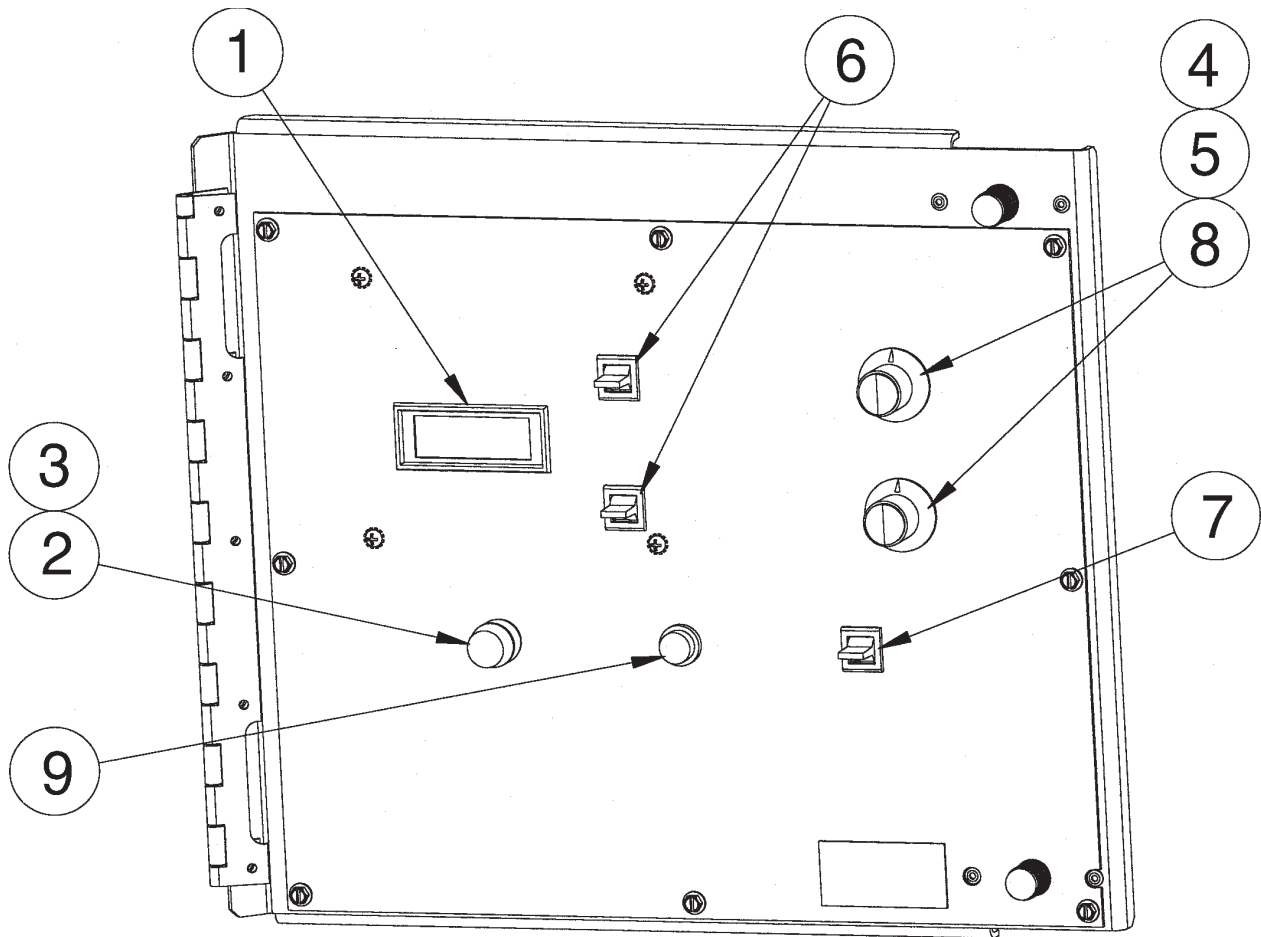
- F. The Chart Recorder option is available for use with Moisture Monitor. It will record moisture information continuously when it is in either the AUTOMATIC or MONITOR position.
- G. The printer option is available. The grain moisture, grain temperature and average moisture is printed at an interval that is between 2 minutes and 30 minutes. The print cycle will repeat as long as power is applied.

MONITOR I - CONTROL BOX



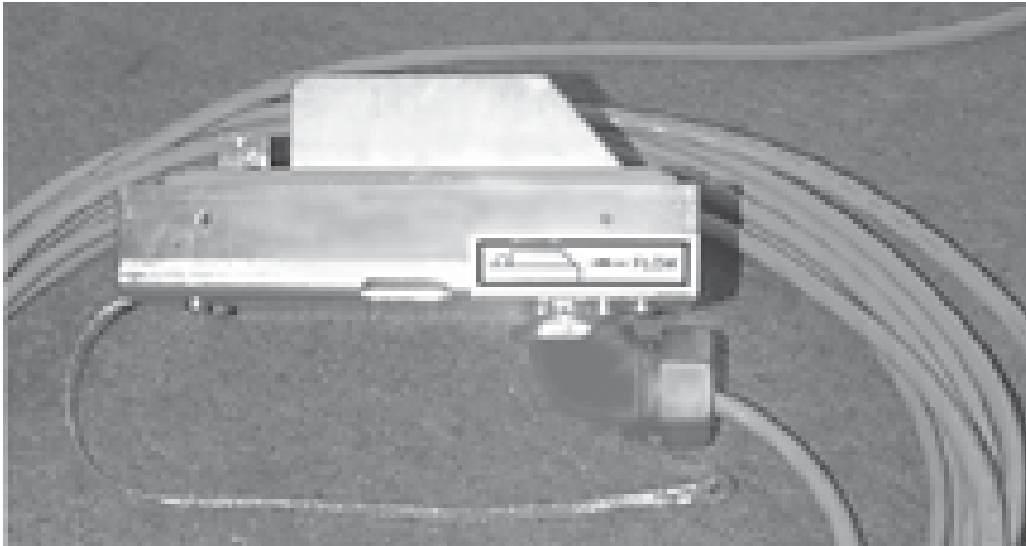
INDEX	PART	DESCRIPTION	QTY
1	1EL0900	TERMINAL BLOCK- DBL(CSA) 12 TERM, 30 AMP, 250 V,	2
2	5041375	POWER SUPPLY- MONITOR I ASSEMBLY (M/F 2EL0213)	1
3	2EL0274	RELAY- GEN. PURPOSE(CSA) MODEL LY, DPDT, 12 VDC	1
4	2EL0275	RELAY- SOCKET, (CSA) (IDEC #SH2B-02 ONLY)	1
5	602E460	CIRCUIT BOARD- DMC 18 (FINAL DMC ASSEMBLY)	1
6	602E430	SURGE ABSORBOR- ASSEMBLY WITH TERMINALS	1

MONITOR I - CONTROL MODULE



INDEX	PART	DESCRIPTION	QTY
1	5041198	DIGITAL PANEL METER- SUBASSEMBLY (2EL0692)	1
2	1EL0719	FUSE- AGC,CARTRIDGE(CSA) 2 AMP, 250 VOLT	1
3	1EL0826	FUSEHOLDER- PAN MNT(CSA) 30 AMP, 250 VOLT, (HKP)	1
4	1EL0921	KNOB- CONTROL, BLACK .72 DIA, FOR 1/4 SHAFT	2
5	1EL2042	GROMMET- RUBBER, .62 OD X .38 ID X .15 T	2
6	2EL0658	SW-LVR,SPDT,(ON)-OFF-(ON) #UL13L5S5ZQEJ4J90-22/CSA	2
7	2EL0669	SW-LVR,DPDT, ON-OFF-ON #UL22L5S5ZQEJ4J90-22/CSA	1
8	2EL0672	POTENTIOMETER- 10K OHM SPECTROL #534-10K	2
9	2EL1161	LIGHT- INDICATOR,RED(CSA) (IDI #1050QCI)	1

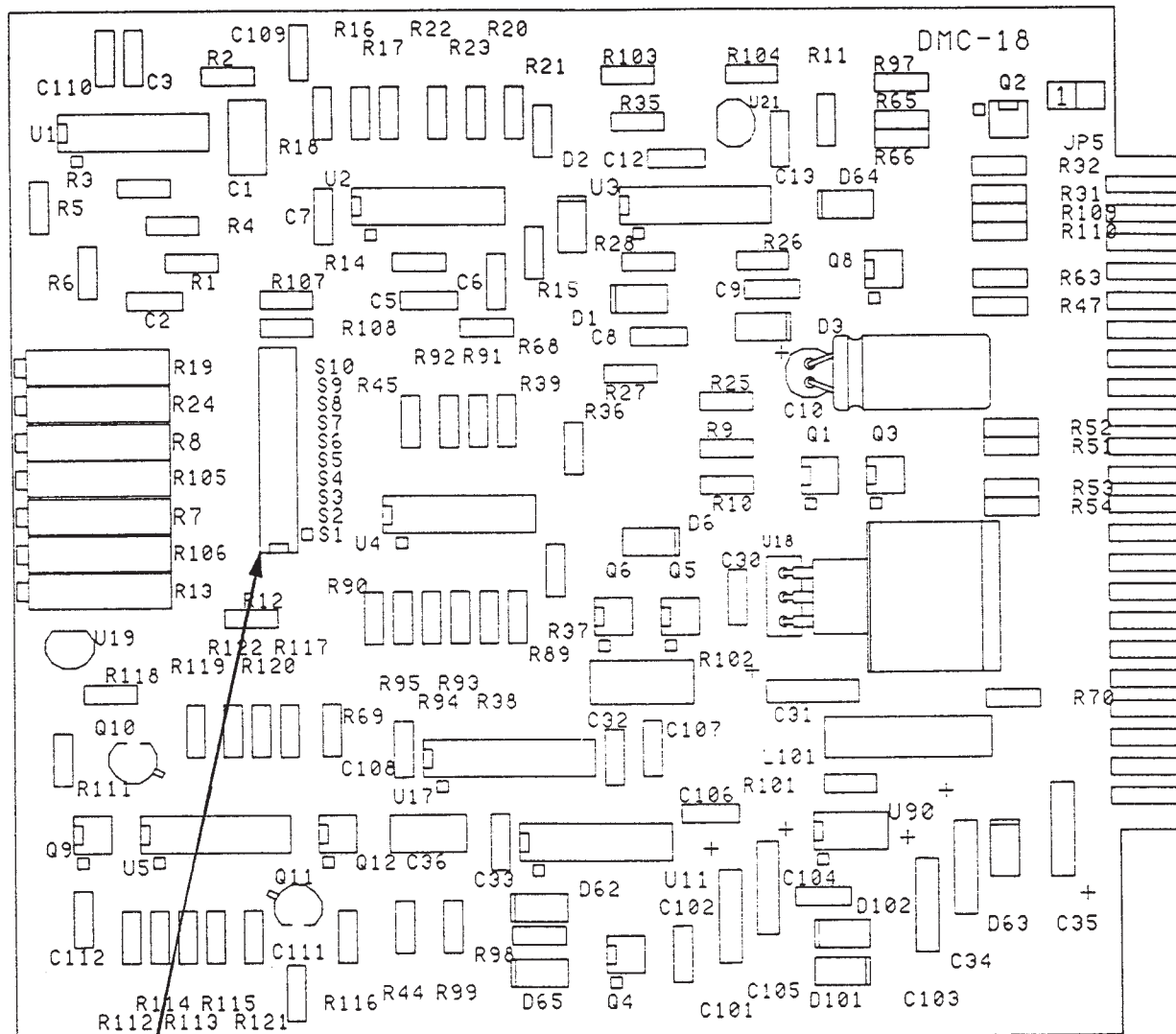
Sensor Assembly: Part # 602E020



**Parts Not Shown on Monitor I Control Box and Control Module Drawings
Pages 12 & 13**

1EL3045	—	1/2" Liquid-Tight
MS0359	—	Worm Gear Clamp
602E217	1	Sensor Hole Template
3FH1213	1	Outer Door Latch
602N117	1	Sensor Cable Extension Kit
602N126	1	6 Inch Connecting Band Kit
602N175	1	Column Sensor Kit
603N020	1	8 Inch Connecting Band Kit
602D140	1	Restrictor Funnel
1EL3039	—	5 Wire Sensor Cable

DMC 18 CIRCUIT BOARD (602E460)



DIP SWITCH
SEE CHART FOR CORRECT SETTING

DIP SWITCH SETTINGS
For 602E460 DMC-18 Board

<p>WITH ONE SENSOR WITH OR WITHOUT CHART RECORDER</p>		<p>1 - OPEN 2 - CLOSED 3 - CLOSED 4 - CLOSED 5 - CLOSED 6 - OPEN 7 - CLOSED 8 - CLOSED 9 - OPEN 10 - OPEN</p>
<p>WITH PRINTER</p>		<p>7 - OPEN 8 - OPEN</p>
<p>WITH TWO SENSORS (WILL AVERAGE MOISTURE AND TEMPERATURE OF BOTH SENSORS)</p>		<p>9 - CLOSED 10 - OPEN</p>
<p>WITH THREE SENSORS (WILL AVERAGE MOISTURE AND TEMPERATURE OF ALL THREE SENSORS)</p>		<p>9 - CLOSED 10 - CLOSED</p>

TROUBLE SHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
Moisture readings do not change, temperature readings are high negative.	<ol style="list-style-type: none"> 1. Sensor leads are broken or not hooked onto the terminal 2. Sensor trouble. 	<ol style="list-style-type: none"> 1. Tighten terminal screws or replace replace the Sensor 2. Replace the Sensor.
Moisture readings are intermittently high then low.	<ol style="list-style-type: none"> 1. Check for the Sensor ground strap not hooked up. 2. Sensor cable leads broken 3. Loose terminal leads where Sensor is hooked. 	<ol style="list-style-type: none"> 1. Hook up strap. 2. Replace the Sensor. 3. Tighten the screws.
Moisture readings are consistently high or low.	<ol style="list-style-type: none"> 1. Correct by calibration adjustment, refer to control box definitions. 	<ol style="list-style-type: none"> 1. Adjust
Blowing control fuses.	<ol style="list-style-type: none"> 1. Check surge absorber for signs of smoke 2. Check for loose or shorted leads 3. Any component that is bad can cause this - check by isolating one component at a time. 	<ol style="list-style-type: none"> 1. Replace if damaged. 2. Isolate and correct. 3. Replace bad component.
Chart recorder does not work	<ol style="list-style-type: none"> 1. Power switch off on chart recorder. 2. Signal leads crossed. 3. Defective recorder. 	<ol style="list-style-type: none"> 1. Turn on switch on back of chart recorder. 2. Replug correctly. 3. Replace
Chart recorder paper jams.	<ol style="list-style-type: none"> 1. Heater strip not working. 2. Paper installed wrong. 	<ol style="list-style-type: none"> 1. Replace heater strip. 2. Reference recorder manual on paper changing.
Chart recorder pegs the needle.	<ol style="list-style-type: none"> 1. Signal to recorder is crossed. 2. Control card not set correctly. 	<ol style="list-style-type: none"> 1. Switch wires on the rear. 2. Refer to page 17 and check DIP switch 7 & 8.

1. Never unplug or plug in the circuit board with power on.
2. Do not make field adjustments on the circuit board. This is a factory adjustment only.
3. Contact your dealer or DMC if you have any questions on the operation or service of your DMC Calc-U-Dri Moisture Monitor.

**TAKE TIME FOR PROPER INSTALLATION
IT SAVES SERVICE CALLS**



Limited Warranty

The GSI Group, LLC. ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions: The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1.75" & 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable & Tower Dryers	2 Years
	Portable & Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
 0 to 3 years – no cost to end-user
 3 to 5 years – end-user pays 25%
 5 to 7 years – end-user pays 50%
 7 to 10 years – end user pays 75%

** Warranty prorated from list price:
 0 to 3 years – no cost to end-user
 3 to 5 years – end-user pays 50%

† Motors, burner components and moving parts not included. Portable Dryer screens included. Tower Dryer screens not included.

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12th) month from the date of purchase and continuing until the sixtieth (60th) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (i) PRODUCT MANUFACTURED OR SOLD BY GSI OR (ii) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This Equipment shall be installed in accordance with the current installation codes and applicable regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installation occurs.

For more information, contact the DMC Distribution Center closest to you.

Illiana Distribution Center

1004 E. Illinois St.
Assumption, Illinois 62510
Phone: 217-226-5100
FAX: 217-226-5070

Clear Lake Distribution Center

5205 4th Ave South
Clear Lake, Iowa 50428
Phone: 641-357-3386
FAX: 641-357-1928

internet: <http://www.dmc-davidmanufacturing.com>