

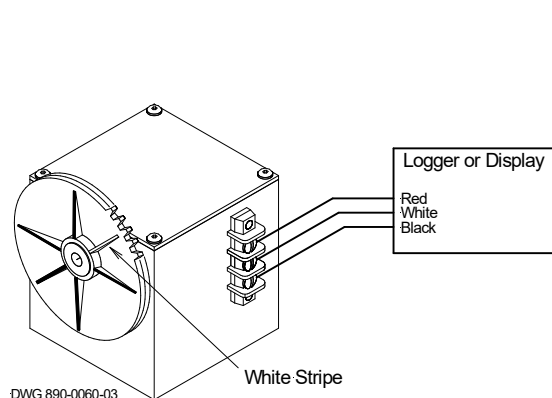
255-100 Analog Evaporation Gauge Calibration Checkup

This procedure is intended to field-check the accuracy of an automated evaporation pan monitoring system. The 255-100 Analog Evaporation Gauge should be connected to a logger or display that is calibrated to read out in inches or millimeters. It may be necessary to connect a laptop computer to display real-time readings.

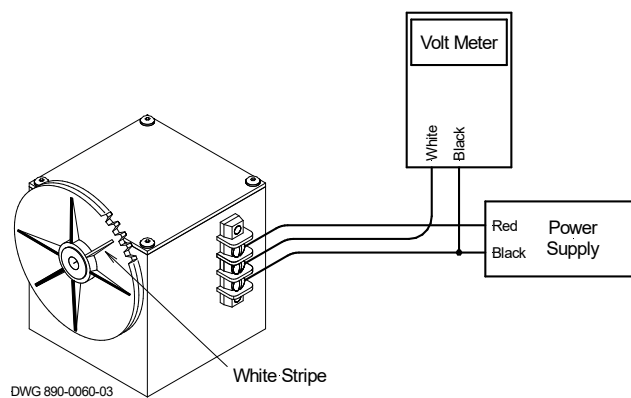
The evaporation gauge accuracy can be checked independently of a monitoring system by means of a quality voltmeter and variable output regulated power supply. We will refer to the logger, display or voltmeter as the DISPLAY for clarity.

Disassembly

1. Remove the four screws holding the Evaporation Gauge cover and lift the cover off.
2. Remove the float chain from the sprocket by lifting the counterweight. Drape the counterweight and chain over the outside of the gauge. Do not attempt to remove the float.
3. Rotate the sprocket by hand to verify that it turns freely 360° without binding. It should spin freely when given a small push.



Testing with Logger or Display



Testing with Voltmeter/Power Supply

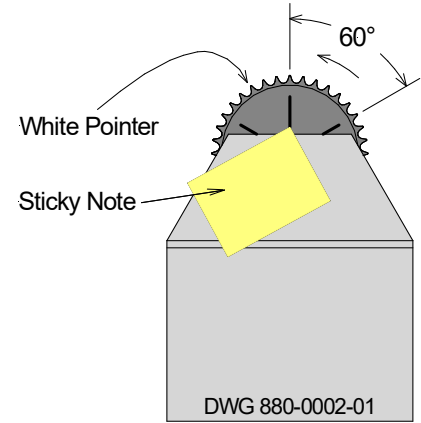
Setup

1. Note that one ridge on the sprocket face has been painted with a white stripe. The other ridges are not painted and are spaced 60° around the face of the sprocket. The back side of the sprocket has similar ridges but none are painted.
2. Connect your DISPLAY to the evaporation gauge and verify that it responds to small movements of the sprocket. If using a power supply and voltmeter, set the power supply voltage correctly before connecting to the potentiometer.

Measurement Units	Power Supply Setting	Multiplier	Max Value
Inches	0.9444 Volts	10	9.444 inch
Millimeters	2.3988 Volts	100	239.88 mm

Procedure

1. Adjust the position of the sprocket until the DISPLAY reads 9.00" or 228.6 mm. The white stripe on the **front** of the sprocket should be at approximately 1 o'clock position as viewed from the front. (If using a voltmeter, multiply the reading by 10 for inches or multiply by 100 for millimeters.)
2. While looking at the **back** of the sprocket, use a sticky-note as a pointer and apply it to the top of the evaporation gauge housing, aligning one corner to point at a rib on the back side of the sprocket.
3. Enter the measured value in the table below as the starting point.
4. Rotate the sprocket 60° counter-clockwise to the next ridge and record the measured value.
5. Continue recording measurements in 60° increments.
6. Compare the actual readings with the expected readings at each measured point, and determine the Pass/Fail status.



View from Back of Sprocket

Sprocket Position	Expected Value		Measured Value	Acceptable Limit		Pass	Fail
	inches	millimeters		inches	millimeters		
9.00" Starting point	9.000	228.6		±0.03	±0.762		
Rotated 60°	7.333	186.2		±0.03	±0.762		
Rotated 120°	5.666	143.9		±0.03	±0.762		
Rotated 180°	4.000	101.6		±0.03	±0.762		

Remedial Steps

- If the white stripe is not close to 1 o'clock at the starting point (9.00" or 228.6 mm), the **offset** parameter on the DISPLAY may need adjustment.
- If the readings on the DISPLAY are progressively worse the farther the sprocket is turned, then the **slope** parameter on the DISPLAY may be incorrect.
- If successive readings are non-linear then the potentiometer may need to be replaced.
- The measured depth of water and the DISPLAY may not agree exactly when reassembled; this is okay as the amount of evaporation is relative (i.e. the difference of two readings). If precise agreement is desired, adjust the **offset** parameter in the DISPLAY.

Reassembly

Measure the depth of water in the evaporation pan using a tape measure or ruler. Rotate the sprocket until the DISPLAY shows the same measurement. Without turning the sprocket, drape the chain over the sprocket. Move the sprocket back and forth to seat the chain, then compare the reading on your DISPLAY with the actual water depth. Adjust the chain as needed. Replace the cover.