# Western Instruments Inc.

Established 1965

# Systems Alarms

Depending on Options, the following is a typical outline of Western Instruments Operator Alarm Devices installed on Ultrasonic Weld Test Testing Systems (Mill & Conveyer-Line).

## Alarm Tower

Alarm/Status Lights with Audible Alarm are typically mounted on top of they Main Systems instrumentation Cabinet. Over the last 10 years, with Western's introduction of the Pendant Cabinet, these lights are in clear view of the operator and protected the pendant's mounding/swivel tube. Typical Status Lights are;

Red - Flaw Reject
Yellow - Flaw Warning
Green – Status
Blue – Coupling Alarm
White – Lamination Reject

Audible Alarm (Located in the Alarm Tower)

The Alarm Lights are also Systems *Status Indicators* as well, with the following assignments;

Flashing Red *E-Stop*
Flashing Blue *Calibration*

## Aerosol Defect Paint Sprayers

The Aerosol Defect Paint Marker(s) on systems are normally delayed so further processing (Cooling Trough, Sizing, Cut-Off, Handling, etc.) does not remove the painted indications. When either a defect is detected or the operator presses the Manual Spray feature on the Control Panel, the signal is stored and shifted down stream where the Delayed Sprayer is activated.

Aerosol Paint Sprayers can be used for;

- Weld Defect Sprayer(s)
  - Defect Reject Threshold
  - Defect Warning Threshold
- Lamination Defect Sprayer

Western's Ultrasonic Testing Systems are typically equipped with our unique *Manual Spray* Feature, as outline in the Controls Section of the manuals. The operator uses the Manual Spray, if he deems the pipe in the testing zone to be defective. Manual Spray can only be used while the system is in "Run", with the appropriate probes down.

This Manual Alarm is also automatically fed through the delayed marking controller, in the main system's controls, and will spray this area of the pipe, downstream of the Test

Head. Manual Spray activates one or all Paint Spray Markers. However, most UT Systems are just equipped with a single Aerosol Defect Sprayer, for all testing channels.

Above we have referred to the Delay of Aerosol Defect Markers, however, these sprayers can also be mounted immediately downstream of the Test Head. In this instance we call these sprayers as Station Markers or Instantaneous Sprayers. These type of markers show operators that a defect has been identified. Auditors like these markers as they can confirm the accuracy of the delayed markers.

When the System is in Calibration Mode, the Aerosol Paint Sprayers are deactivated, thus Sprayers are not marking pipe by mistake. The Alarm Lights and the Audible Alarm are also deactivated in Calibration Mode.

## Aerosol *Paint*

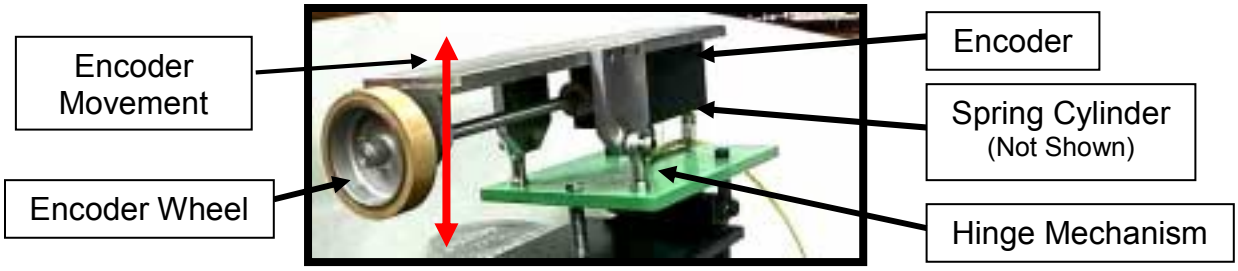
Red Paint/Dye is recommended for the Weld Reject Sprayer, with White or Yellow Paint/Dye for the Lamination Reject Sprayer, however Industry Specifications may have other *Recommended Practices*.

Many of our customers use Dye instead of paint. Dye is easily removed with many standard industrial petroleum based cleaners. Our Defect Sprayers obviously use standard Aerosol Cans (12 or 16 ounce) for connivance, however operators must be mindful to shake the cans periodically and to test them. If the spray nozzles become plugged (most evident with paint), they will need to be cleaned. Excess Dye is much easier to remove.

The Dye we are most familiar with is manufactured by ITW-Dykem (www.dykem.com), in their Product Classification – *Staining Fluids*

## Encoders

Encoders are used for tracking the position of the pipe being tested. The encoder(s) are mounted so the wheel contacts the Centerline of the Tube/Pipe, however the actual encoder is offset, so it is not constantly drenched in Couplant. The Encoders are held up against the bottom of the pipe, via a spring enclosed is a small Spring Retraction Pneumatic Cylinder, however there is no need for a compressed Air Connected to this cylinder.




The Encoder and the mounting mechanism should be cleaned on a regular basis, simply because they are Electronic Components, and to ensure the Encoder wheel is allowed to move freely. The Encoders, at rest, should never be much more than 13mm (0.500”) above the Pass Line of the Mill/Conveyer, as the

systems controls require them to disengage when the Pipe is not present. The encoder, wheel, and associated mechanisms need special attention, as any inaccuracy will affect the accuracy of a sprayed indication, as well as the accuracy of the Event Envelop (Digital Chart Recorder).

## Other

A small junction box, at the Delayed Paint Sprayer, could be installed, with a Latching Relay circuit. This would permit an Alarm Light (and/or Horn) to be installed at the same Delayed Location. These Alarms would be installed near, and serve to alert operators, at the Cut-off area of the mill. This also provides an extra level of insurance, as the Alarm Light would be activated and held on for a few seconds after a delayed spray (automatic or manual) is made. This signal could be used for logic in the conveyer Kick-Out controls, as to whether the pipe goes to Prove-Up or to continue in the Production Flow.