



SPV[®]

PIPELINE INSPECTION
COMPANY LTD.

OPERATING INSTRUCTIONS

**Wet Sponge Holiday Detectors
670,673, and MSRB**



Wet Sponge Holiday Detectors

*Portable and
"In-Plant" Detectors*



SPV®

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General Information

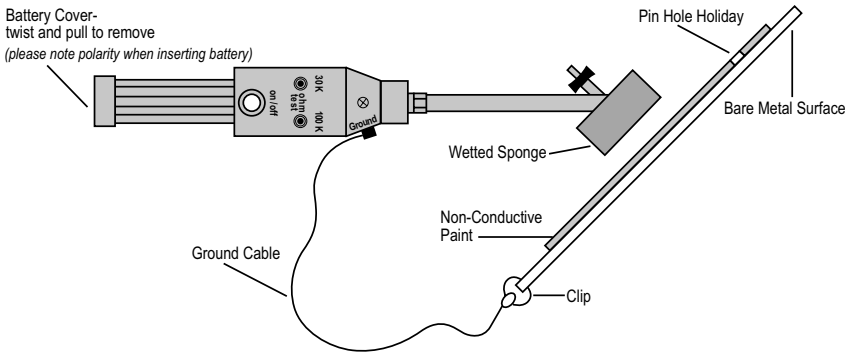
Wet Sponge Holiday Detectors are used for the detection of discontinuities (holidays) in thin film coatings (0-20mils) of paint, epoxy, or any non-conductive material applied to a conductive material. This type of detector uses 67½ volts DC for a test voltage, which is applied to the test surface via a wet sponge. The fluid media (usually water) in the wet sponge fills the voids in the surface to be tested and allows low current (micro-amps) to flow into any holidays in the test area. The current moves through the holiday and into the conductive substrate which activates a horn, light or output to indicate the presence of the holiday.



Completing A Circuit

1st METHOD:

The first method of completing a circuit is by connecting the ground of the holiday detector to the conductive substrate of the test piece. Which thereby allows the circuit to complete directly from detector through the holiday into the substrate back into the detector. This method is most often used when testing with a portable unit.



2nd METHOD:

The second method of completing a circuit is by grounding the conductive substrate of the test piece by means of a water pipe, conduit, water quenching tank, or other electrically grounded device. This method is usually used when testing with an in-plant unit. Care should also be taken to ensure that the AC power supplied to the in-plant units is properly wired and grounded as these units use the ground in the AC circuit to make ground contact. This method completes a circuit from the detector through the holiday into the conductive substrate into the earth ground and back into the detector.



NOTE!

Wet sponges used by Pipeline Inspection Company, Ltd. are cellulose sponges. Rubber or urethane sponges will not work. While the sponge must be damp to the touch or moist, it should not be so saturated that water runs from the sponge. This can result in the water migrating and causing the current to flow away from the sponge down the test piece to holidays further down the test piece or even to a support piece causing false holiday indications. When the coating thickness is between 11 mils and 20 mils, a low sudsing wetting agent such as those made by KODAK, EDWAL, or PEBEO should be applied to the water (test media). This will allow for a lower surface tension, which will help the test media to penetrate the thicker coatings. (NOTE: PALMOLIVE brand liquid dish soap can be substituted)

In general when using a Model 670 or 673 sponge wand electrode, several passes should be made over a given area to ensure that moisture has penetrated any possible holiday. In order to pinpoint a given area, the edge or end of a sponge wand electrode can be used to decrease the area in contact with a test surface.



CAUTION!

DO NOT
use Rubber or
Urethane Sponges.

Use only
Cellulose Sponges.

Different Types of Electrodes

Different types of electrodes can be used with different units. The most common electrode is a flat sponge electrode wand. This type of wand utilizes a 2" x 4" x 8" (51mm x 102mm x 203mm) size flat sponge. Roller sponges are also available to increase the surface area in contact and the speed also which the test piece can be tested. Roller sponge assemblies are also utilized when using the Rebar Roller System (RBRS) that is used when testing multiple pieces of coated rebar in a rebar coating plant.

NOTE!

Care should be made to ensure that the sponge stays as clean as possible. Dirt or other contamination of the test surface adds resistance, which impedes the current flow capability of the sponge. This can result in missing holidays in the test piece.



Roller Sponge Assembly



Flat and Roller Sponge

Testing

No signal adjustment is necessary with the Wet Sponge Holiday Detector. The unit can easily be tested by means of test buttons located on the front of the portable (Model 670) unit and on the rear of the in plant (Model 673) unit.

The test is performed by turning the appropriate detector on and then pressing the 80Kohm button. The signal should actuate. Release the 80Kohm button. Then press the 100Kohm button. The signal should NOT actuate. Release the 100Kohm button. This test indicates the unit is in calibration.

The Model MSRB multi station in plant unit is not configured for individual line verification due to the multiple lines involved. To verify its output, it must be returned to the factory for re-certification. While the Model 673 can easily be moved from application to application, the model MSRB cannot, thereby minimizing the need to retest in between factory re-certifications.

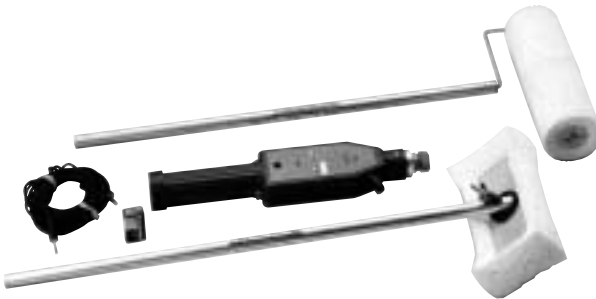
Model 670 Specifications

Model 670

Dimensions:	13" X 2.5" X 2" (maximums) 330 mm X 64 mm X 51mm
Weight:	2lbs (0.9 kg)
Power Supply:	(1) 9VDC Alkaline Battery
Output:	Audible Tone and Red light on detection of Holiday and positive indication of test result. Continuous tone for low battery indication.
Wand Dimensions: (Flat Sponge)	25" (635mm) from base to forward tip of Sponge
Wand Weight: (Flat Sponge)	1 lb. (0.45kg)
Wand Dimensions: (Roller)	25" (635mm) from base to top of Roller Sponge
Wand Weight: (Roller)	1 lb. (0.45kg)
Enclosure:	Plastic Non Conductive
Ground:	via side mount connection with wire and alligator clip

Model 670 Operations

1. Remove the Battery Cover at the base of the 670 handle.
2. Install a fresh 9 volt Alkaline Battery (noting to ensure the proper connection to the snap fitting) and secure the cover to the handle.
3. Test the unit for proper operation. Turn the unit on. Press the 80K test button. The horn should sound. Release the 80K test button and press the 100K test button. The horn should not sound. Upon passing this test the unit is verified as being in calibration and ready for use.
4. Attach the ground cable to the black Banana Jack coming out of the side of the unit. Attach the clip end to the exposed conductive substrate or ground (if the test surface is properly grounded).
5. After the sponge is properly wetted, move it slowly and repeatedly over the surface area to be tested to ensure the moisture penetrates any holiday.
6. If a holiday is detected the horn will sound and the light will glow.
7. If the battery discharges to a low level, the detector will begin to tone continuously.



Model 673 Specifications

Model 673

Dimensions:	7.7" X 3.25" X 7.5" 196 mm X 83 mm X 190 mm
Weight:	2lbs (0.9 kg)
Power Supply:	110 VAC 50/60Hz
Outputs:	Red Light on the front Panel and Horn on detection of holidays are positive test indication. Rear Panel output switched 110 VAC supplies (2) for remote counter, horn, auto-marker, bell, or control system. Power switch light to indicate power on/off condition.
Wand Dimensions: (Flat Sponge)	25" (635mm)
Wand Weight: (Flat Sponge)	2 lbs. (0.9kg)
Enclosure:	Plastic Top and Bottom with metal front and back panels.

Model 673 Operations

1. Ensure that the pipe or surface to be tested is properly grounded via water bath, water pipe, conduit, or other electrically grounded device.
2. Attach the appropriate wet sponge wand with roller or flat sponge to the unit via the Banana Jack in the rear of the unit.
3. Turn the unit on. The light on the ON/OFF switch will glow if power is present and ON. Push the 80K test switch and verify the front panel horn sounds and the front panel red light glows. Push the 100K test switch and verify that neither the horn or light indicates.
4. Ensure that the Wet Sponge stays appropriately wet and in contact with the test surface. Make sure that the sponge passes over the test surface slowly enough to allow the moisture to penetrate any holidays on the surface.
5. If a holiday is detected, the light on the front panel will glow and the horn on the front panel will sound.
6. The 110 VAC "Signal Outlets" on the back can be attached to remote horns, bells, relays or counters. They will provide power in concert with the front panel red light and horn.



Model MSRB Specifications

Model MSRB

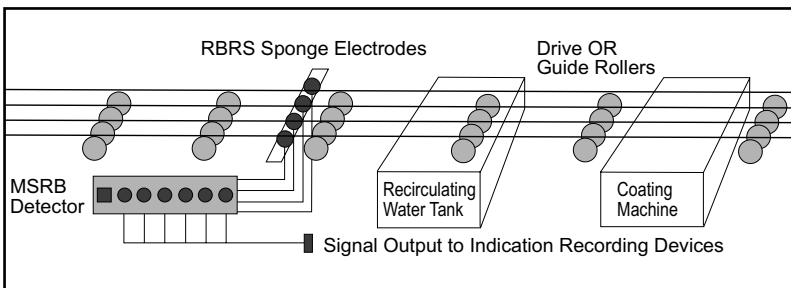
Dimensions:	15.5" X 6" X 9" 394 mm X 152 mm X 229mm
Weight:	13 lbs (6 kgs)
Power Supply:	110 VAC 50/60Hz
Number of Channels:	3 standard positions, optional add on 4th, 5th, and 6th station.
Outputs:	Front Panel Lights and Rear Panel output switched 110 VAC supplies (2) for remote counter, horn, auto-marker, bell, or control system which activate on detection of a holiday on each individual circuit. Power switch light to indicate power on/off condition. One overall system output is available if you wish to know if any holiday is detected without concern for which individual line the holiday was on.
Sensing System:	RBRS rebar roller system - dimensions vary depending on application. Flat Sponge wands are also available.

NOTE!

The RBRS Rebar Roller System is custom designed for each Rebar coating plant. The mounting and spacing requirements for each system will be different due to your unique application needs.

Model MSRB Operations

1. The MSRB operates the same way as the Model 673 except that it includes multiple outlets. The Red power switch indicates a glow when the unit is turned on and in the presence of power. No test calibration switches are provided for the MSRB due to the fact that this unit is installed and not moved. Recalibration verification can only be provided at the factory.
2. Ensure that you are careful to note the number of each wand as you attach it to the appropriate Banana Jack on the back of the unit.
3. The "Signal Outlet" underneath each Banana Jack provides power to activate any remote horn, bell, counter or relay relating specifically to the presence of a holiday on that test line only.
4. The "Signal Outlet" located above the power supply input provides a positive indication when any line in the MSRB indicates the presence of a holiday.
5. The MSRB provides no internal horn to audibly indicate the presence of a holiday.
6. The Red Lights on the front panel will indicate the presence of a detection of holiday on the individual indicated line.

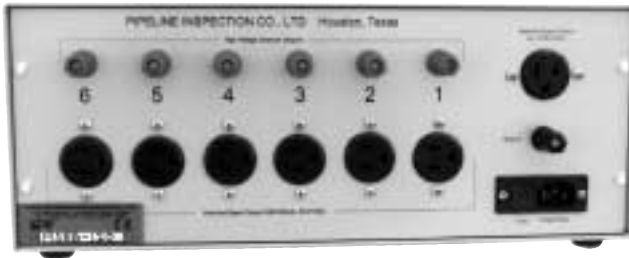


MSRB / RBRS

Station #	Location Description
1	
2	
3	
4	
5	
6	



Front View



Back View

SPV[®]

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