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EVERSOURCE	WORK METHOD STANDARD ELECTRIC OPERATIONS ORGANIZATION

Wood Pole Inspection Using the IML Inspection Drill

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WMS 08.14	05-Oct-23	---	0	ALL

Scope:

This document details the usage of the IML wood inspection drills to penetrate utility poles and accurately measure resistance to detect any soft wood, rot or cavities present in the wood. These tools use a minimally invasive technique to identify internal defects and help us maintain a safe and reliable system. This inspection is essentially a health assessment of the pole.

Safety:

Providing a work environment, free of recognized hazards is a value at Eversource. Therefore, prior to the start of any work, ensure that you are familiar and knowledgeable with all Eversource Safety Rules, Policies and Procedures that are applicable to the work and tasks at hand and perform a job brief at the job site, prior to commencing work. PPE requirements to protect the worker shall be followed as required in the Eversource Employee Safety Manual.

Approved by: *Signature on File* [redacted] Date: 05-Oct-23

Director, T&D Standards Engineering

Rev No.	Description	Date
0	Document was reviewed as part of WMS Consolidation project. The content in the EMA (-1) version was identical to the CT/WMA/NH (-234) version. Content did not change, published signature date remains applicable.	October 17, 2025
0	Original Document	October 5, 2023

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Table of Contents

Section		Page
1.0	Introduction	3
2.0	Drill Setup, Operation & Testing	4
3.0	Maintenance	7
4.0	Export Data/Graphs	8

1.0 Introduction

1.1 The IML inspection drill is used as a tool to help discover cavities and decay inside the wood. The “remaining strength software” specifically targets the shell of the pole, looking at both the beginning of the drilling (entry shell) and the exiting region (exit shell) of the bit penetrating the wood.

1.2 The inspection drill uses an internal drilling and feed push motor. The standard operation of the drill includes one diameter drilling a few feet above grade and three drillings set at the base of the pole.

1.3 Figures 1 & 2 provide an overview of the tool and the terminology of its components that will be referenced throughout this document.

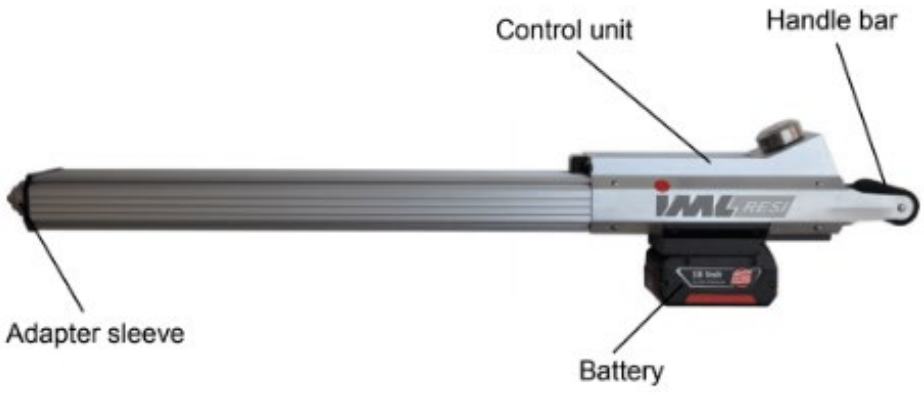

Figure 1 – Side View

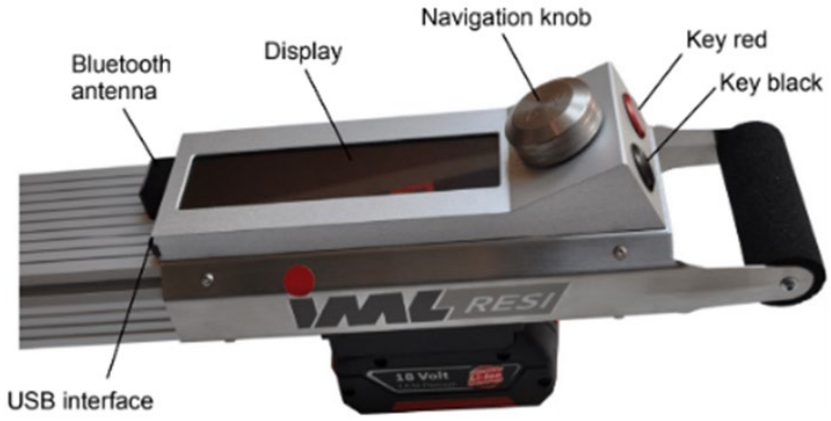

Figure 2 – Display and Controls

2.0 Drill Setup, Operation & Testing

2.1 Visual Inspection

2.1.1 Prior to using the IML device, complete a thorough walk around the pole and visually inspect for any defects, prior chemical treatments, trusses or other reasons the pole may fail on a visual defect.

2.1.2 If the pole passes the visual inspection, examine the regions where the drill bit will penetrate. Specifically, look for any risers, previous treatment bores or plugs and metal fragments. Operation of the drill should never be pointed in the direction of any riser or drop on the pole for operator safety.

2.2 Drill Setup

2.2.1 Insert the battery and press and hold the silver knob located at the top of the unit to turn it On. Input the pole ID at the beginning of each inspection by scrolling through the display with the silver knob and pressing it once when the ID option is selected.

2.2.2 Next, press the red button to choose your pole scenario. This setting is found on the left center of the screen and is depicted as a cross (Ref. Figure 3).

.2.1. Pole scenario explanation: The thicker vertical line represents the utility pole, and the thin horizontal line represents the groundline. The numbers indicate how many drills are required both above and below grade to complete the test. As each drill sample is done, the numbers on the right side of the cross will incrementally increase, indicating that drill sample was completed.

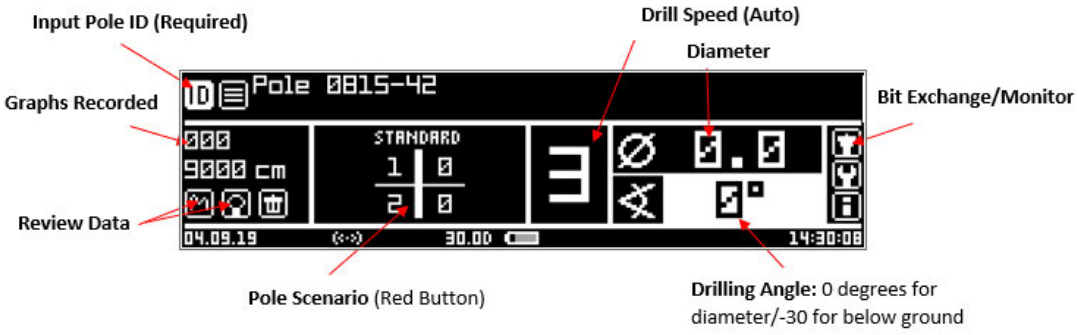

Figure 3 – Meter Display

2.2.3 Each drill sample throughout a testing sequence requires the tool to be held at a specific angle. The drill must be within 3 degrees of the required angle for the unit to operate. The drilling angle can be found on the right side of the screen (Ref. Figure 3).

2.2.4 The default Pole Scenario is the 3BGL (three below grade level) test. If you change the pole scenario to a different testing sequence, once that test is completed, the drill will default back to the 3BGL test.

2.2.5 The drilling speed is automatic and defaults on the fastest speed (indicated as a 3 in the center of the screen).

2.3 Drill Operation (3BGL Test)

2.3.1 The 3BGL (three below grade level) test sequence is comprised of one horizontal and three below grade drillings. The horizontal drill sample is done above grade, typically at waist height, and must be done at a 0 degree angle. The three below grade samples are done at -30 degree angle.

2.3.2 Once the ID number and pole scenario are set, hold the tool about waist height and press the drill bit against the pole at 0 degree. Apply pressure to the back and press the red button (See Image 1) to begin the test.



Image 1 – Horizontal Drilling Test

2.3.3 A graph will begin to display on the screen as it drills through the pole. The drill test will complete when the drill bit exits the backside of the pole (about an inch). This will indicate on the graph as a flatline. When the drill bit stops, tap the red button to begin retracting it back into the tool. The screen will display the measured diameter in the top right of the screen (Ref. Figure 3).

NOTE: Keep continued pressure against the back of the drill by leaning against the unit and keeping the safety pin in place. If the safety pin is released, the drill will retract, and the drilling will need to be repeated.

2.3.4 Once your diameter drilling is complete, (confirmed by the 0 in the top right changing to 1 in the Pole Scenario chart), begin setting up the tool to drill the first of three below grade tests by holding it at -30 degree angle with the drill bit pressed against the pole. Apply pressure to the back and press the red button to begin the test.

.4.1. Same as the horizontal test, allow the bit to exit the back of the pole before retracting it back into the tool. Confirm in the lower right of Pole Scenario chart the 0 changed to a 1.



Image 2 – Below Grade Drilling Test

2.3.5 Rotate 60 degree at the base of the pole from where the first below grade test was conducted and repeat the steps in 2.3.4. Rotate 60 degree again to complete final test. Confirm in the lower right of Pole Scenario chart that the test indicator is incrementing by 1. The display will read 3 of 3 tests when the testing sequence is complete.

2.3.6 Upon completion of the entire testing sequence, the display will indicate a Pass, Reject or Priority Reject result. A prompt will appear asking if any additional drillings want to be conducted and added to this pole location's test data. Select NO if the testing results are sufficient.

NOTE: At a minimum you are required to complete the number of drillings selected in the Pole Scenario setting to complete the inspection per that location.

2.4 Drill Operation (4BGL Test)

2.4.1 4GBH (four below grade, half drills) test sequence is comprised of one horizontal and four, below grade half drillings. This is an alternate testing sequence to be used when obstructions are present to eliminate the possibility of drilling into hazards. This testing sequence can be accessed through the Pole Testing Scenario menu.

2.4.2 The drill orientation and physical set up will be the same as described in Section 2.3. When the testing sequence is complete, the display will be the same as described in Section 2.3.6.

2.5 Troubleshooting and Additional Information

2.5.1 If the wood is too dense, the drill will prompt a "Feed Motor Overload" message, and the speed will reduce from the default 3 speed to either a 1 or 2, based on the resistance the tool is reading. If this continues to happen, call IML as the telescope within the tool may need to be reset on the guides.

2.5.2 Routinely check the condition of your bit. The bit must keep an edge to it to remain true when drilling. Replace the drill bit (Ref. Section 3) if the edges begin to round and dull. A bit replacement prompt will appear on the display if the meter detects abnormalities in the data due to the bit. On average, you can expect 100+ drillings per bit.

2.5.3 The drill has several preset pole inspection scenarios. Each are designed to inspect different pole scenarios in a safe and efficient method depending on placement, risers, concrete, and trussing options. To toggle through scenario presets, press the red button without the safety switch engaged (no pressure applied to the drill tip). The Pole Scenario will change each time the red button is pressed.

2.5.4 The memory remaining within the unit can be found in the lower right of the display screen (Ref. Figure 3, shown as 9,000 cm in figure). This number will reduce as more drilling samples are taken. It is good practice to export the data on to a computer (Ref. Section 4) and clear the memory within the unit to start each day of testing with max storage space.

3.0 Maintenance

3.1 To Inspect the Drill Bit

3.1.1 Select the bit icon on the top right from the home screen (Figure 3). Then from the Drilling Needle menu (Ref. Figure 4), select the double arrow icon to open another menu that enables manual control of the drill bit telescope.



Figure 4 – Drilling Needle Screen

3.1.2 To extend the drill bit, press in on the silver knob and turn. Press in on the silver knob again to stop the bit from extending.

3.1.3 Examine the condition of the bit. Once checked, turn the silver knob in the reverse direction until the number reads 0.0 rearend position reached & press ok.

3.2 To Replace the Drill Bit

3.2.1 Select the Auto or A icon (depending on software version) from the Drilling Needle Menu (Ref. Figure 4). This will begin the automatic needle exchange process. Follow the prompters on the screen.

3.2.2 When locking in a new bit, firmly secure the tool while holding the flat tip of the bit with a set of pliers. Apply enough pressure to prevent the bit from spinning until the drill telescope begins to retract. Ensure a firm grip during this process as the pliers could potentially damage the drill bit if it slips during reseating. The tool will beep three times indicating the bit has been properly seated.

4.0 Export Data/Graphs

4.1 Install PD Tools Pro into your device. The serial number for the software is located on the back of the silver case that holds the thumb drive. IT will be required in the setup process on Eversource issued laptop. Once installed, press the Options tab at the top and change the first four settings to configure the program for your drilling machine/date/unit/decimal.

4.2 Use the cord to plug in the drill and connect the USB end to the computer. The plug-in portion on the drill is inputted into the smaller black box to the left of the screen and is accessed by sliding it open.

4.3 Turn the drill **ON** by holding down the silver knob. Make sure the drill doesn't "fall asleep" and display an IML logo during the export process. Scroll the knob to wake the unit.

4.4 In PD Tools, press the IML RESI button seen at the top left. Choose Transmit Measurements. Once this dialogue box opens, delete the blue highlighted box that says, "Measurements" and rename it to ".id" and then choose a new folder and name the new folder the date of your inspection. Lastly, press save. You will see a progress bar as the graphs are transmitted to the new folder.

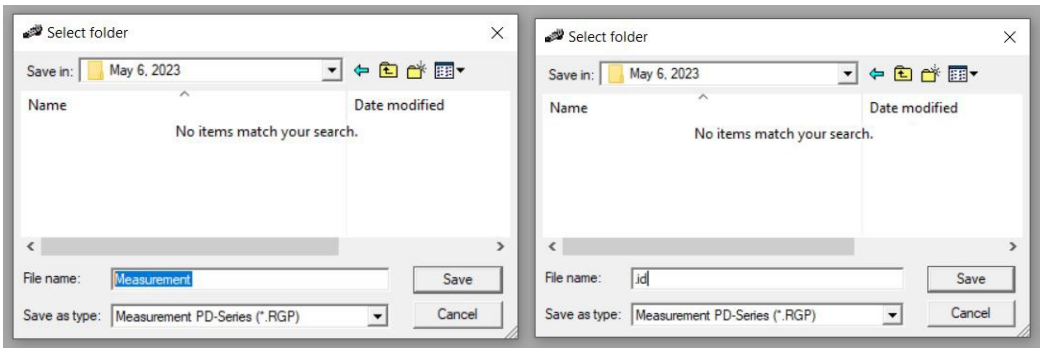

Figure 5 – PD Tools Pro, Folder Selection

4.5 Once complete, double check all graphs are imported by looking at your drill screen and noting the three-digit number seen underneath the ID line. Then, open the folder where you saved your graphs and confirm they match-up. This count is seen at the bottom left.

4.6 Once you confirm all measurements are exported, you may delete the graphs on your unit by scrolling to the trash can icon and choosing "Delete all measurements".

4.7 To save as a PDF, open PD Tools, then choose File, Open, and select the graphs you would like to export to PDF. Do this by pressing the first graph and holding the shift key down until you've selected the last graph. Then, once they are open in PD Tools, choose File, Print All, OK, then choose the PDF writer from your printer drop down and press Print, then name the PDF in the next dialogue box.