



ENDURO
PIPELINE SERVICES, INC.

ENDURO
DdL™ Caliper Tool
Quick Guide

Using the ENDURO Tech-Less
DdL™ Caliper Inspection Tool



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ENDURO DdL™ Caliper Procedures

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DISCLAIMER

* The following steps MUST be performed to help increase the odds for a successful survey. *

Failure to follow these steps could result in damage to the survey equipment and / or lead to an unsuccessful survey.

** From this point forward, Enduro Pipeline Services, Inc. will be referred to as ENDURO. **

*** Any company that has rented the DdL™ Caliper Tool will be referred to as CUSTOMER. ***

****It is not necessary to upload the data from the Laptop Computer to Enduro Headquarters after each download****

Data can be stored on the Laptop Computer and uploaded as a batch after all runs are complete, or at any time in-between

WARNING

The Laptop Computer and Support Devices are NOT explosion proof.

Move to a safe area before using any of the provided equipment and devices.

WARNING

DO NOT Erase Data from the DdL™ Caliper Tool unless instructed by ENDURO directly.

NOTE

This is a Quick Guide reference ONLY, please refer to the **ENDURO DdL™ Caliper Tool User Manual** for further details and information regarding questions for any of the procedures regarding the DdL™ Caliper Tool.

1. **Survey Preparation:**

1.1. **Pipeline Cleanliness:**

1.1.1. The CUSTOMER must verify that the pipeline is clear of any dirt and debris, excessive amounts of water, and any other foreign objects that could cause damage or issues to / with the DdL™ Caliper Tool.

1.1.1.1. Contact ENDURO for further information and details regarding how clean the pipeline is needed for the DdL™ Caliper Tool.

1.2. **Loading into / Unloading from Pipeline (Types of Traps):**

1.2.1. Verify with ENDURO what type of Traps will be utilized to Launch and Receive the DdL™ Caliper Tool.

1.2.1.1. These traps can be permanent, rented, or even temporary types of traps.

1.2.1.2. There must be an adequate number of inlets on each type of trap to allow proper Medium flow into and out of the pipeline.

1.3. **Medium to be used to propel the DdL™ Caliper Tool:**

1.3.1. **Running the Tool with AIR**

1.3.1.1. Single Stage Air Compressor(s) is / are recommended.

1.3.1.2. ENDURO will recommend the amount of CFM required to propel the DdL™ Caliper Tool at a sufficient rate per the pipeline specifications provided to ENDURO.

1.3.1.3. ENDURO will recommend the amount of Pressure (PSI) required to be placed on the pipeline in relation to the recommended amount of CFM required to propel the DdL™ Caliper Tool.

1.3.1.4. The discharge outlet(s) should be 3 inches or larger and each Air Compressor should have an individual entry point into the pipeline.

1.3.1.5. If Check Valves are to be used for Launching the DdL™ Caliper Tool, guide bars should be welded onto the inside bottom of the bowl of the Check Valve, so the tool does not drop into the bowl.

1.3.1.6. CUSTOMER must have pressure gauges at the launch and receive locations prior to the DdL™ Caliper Tool being launched.

1.3.1.7. CUSTOMER will have assigned personnel at the launch and receive locations to monitor any changes during the entire time that the survey is in progress.

1.3.1.8. CUSTOMER will regulate / maintain the pressure on the pipeline at the receive location once the DdL™ Caliper Tool has been launched.

1.3.1.9. Contact ENDURO for further information and details regarding this method of propelling the DdL™ Caliper Tool.

1.4. Please refer to the **ENDURO DdL™ Caliper Tool User Manual** for further details and information regarding this section of procedures.



2. **DdL™ Caliper Tool Pre-Run:**

2.1. **Unpacking Shipment:**

- 2.1.1. Standard Support Equipment will be shipped with the DdL™ Caliper Tool and the CUSTOMER will be required to use this provided equipment so that no unnecessary damage may occur to the DdL™ Caliper Tool when loading and unloading from the Pipeline.
- 2.1.2. CUSTOMER must visually inspect the DdL™ Caliper Tool to look for any apparent damage caused by shipment.
- 2.1.3. CUSTOMER will have a packing list of all equipment shipped with the DdL™ Caliper Tool.

2.2. **Laptop Computer**

- 2.2.1. ENDURO provides a Laptop Computer as part of the Standard Support Equipment shipped with the DdL™ Caliper Tool.
- 2.2.2. Keep the Laptop Computer out of the elements as much as possible.

2.3. **AGM2 Box**

- 2.3.1. ENDURO provides an AGM2 Box as part of the Standard Support Equipment shipped with the DdL™ Caliper Tool.
- 2.3.2. The main purpose of the AGM2 Box is to synchronize the DdL™ Caliper Tool with GPS Time.

2.4. **Powering Up the DdL™ Caliper Tool**

- 2.4.1. Locate the Power Plug at the rear of the DdL™ Caliper Tool.
 - 2.4.1.1. Insert the Male and Female ends together, aligning the alignment tabs with their corresponding slots.
 - 2.4.1.2. Twist the Male Plug clockwise until it stops.
 - 2.4.1.2.1. A properly seated connection will cover the Single Red Line on the Female Plug.
- 2.4.2. Once connected, the tool is powered up.
 - 2.4.2.1. When the DdL™ Caliper Tool is not in use, keep the tool powered down by verifying that the Male and Female Plugs are disconnected, and the protective covers are installed on both Plugs.

2.5. **Power Up the AGM2 Box**

- 2.5.1. Position the AGM2 Box so that it will be within cables length to connect to the Laptop Computer.
 - 2.5.1.1. There must not be any obstacles blocking the AGM2 Box from establishing a Satellite connection.
 - 2.5.1.1.1. For best Satellite connection, it is recommended to be outside, away from any large structures.
- 2.5.2. Open the lid on the AGM2 Box and locate the Power Button.
 - 2.5.2.1. Press Power Button to turn on AGM2 Box.
 - 2.5.2.2. A light within the Power Button will illuminate showing that the AGM2 Box has been turned on.
- 2.5.3. After the AGM2 Box has been turned on, the AGM2 Box will begin searching for Satellites.

- 2.5.3.1. There will be a series of lights that will begin to blink on the AGM2 Box.
 - 2.5.3.2. GPS SEARCH light will remain ON during the Satellite search.
 - 2.5.4. Once the AGM2 Box has establish a Satellite connection, the GPS FOUND light will be on solid.
 - 2.5.5. After the AGM2 Box has established a Satellite connection, proceed to the next step.
 - 2.6. **Connecting Laptop Computer to the DdL™ Caliper Tool**
 - 2.6.1. Power the Laptop Computer ON and allow it to fully boot up.
 - 2.6.1.1. A password must be typed in to unlock Laptop Computer
 - 2.6.1.1.1. Press the “ctrl” key on the keyboard and then type the Password: **4461934**
 - 2.6.2. Locate the Communication Cable A and plug the USB TYPE A end into one of the Laptop Computer USB Port labeled **TOOL**.
 - 2.6.3. Locate the Communication Port at the rear of the DdL™ Caliper Tool and unscrew the protective cover counterclockwise.
 - 2.6.3.1. DO NOT disconnect any of the other connectors that are located around the Communication Port.
 - 2.6.4. Plug the USB MICRO B end into the Communication Port of the DdL™ Caliper Tool.
 - 2.6.5. Locate the NewCommTC 64 Icon on the desktop of the Laptop Computer and double click this Icon to open the program.
 - 2.6.5.1. When communication is established, the status will state “**Connected.**”
 - 2.7. **Connecting Laptop Computer to the AGM2 Box**
 - 2.7.1. Locate the Communication Cable B and plug the USB TYPE A end into one of the Laptop Computer USB Port labeled **AGM2**.
 - 2.7.2. Locate the Communication Port on the AGM2 Box and plug the USB TYPE B end into the AGM2 Box.
 - 2.7.3. Verify that the Laptop Computer is Communicating with the AGM2 Box.
 - 2.7.3.1. When communication is established, the status will state “**Connected.**”
 - 2.7.4. When communication is established, the “**Synchronize with AGM**” button will become enabled, click button.
 - 2.7.5. Once completed, a “Success” window will open, stating that the AGM and Logger time was synchronized successfully, click “OK”.
 - 2.8. **Final DdL™ Caliper Tool Check**
 - 2.8.1. Proceed to the next steps after all DdL™ Caliper Tool Checks have been completed
 - 2.8.1.1. Unplug the Communication Cable A from the DdL™ Caliper Tool and from the Laptop Computer.
 - 2.8.1.2. Replace the protective cover on the Communication Port at the rear of the DdL™ Caliper Tool by screwing the cap clockwise until seated fully.
 - 2.8.1.3. Shut down any opened programs that may still be opened on the Laptop Computer.
 - 2.8.1.4. Power down the AGM2 Box to conserve battery life.

2.8.1.5. Unplug the Communication Cable B from the AGM2 Box and from the Laptop Computer.

2.8.1.6. Power down the Laptop Computer to conserve battery life.

2.8.1.6.1. Return Laptop Computer and all its components to the Pelican Case until required again.

2.8.2. DdL™ Caliper Tool is now ready to be loaded into the pipeline.

2.9. Loading DdL™ Caliper Tool into Pipeline

2.9.1. Verify that there is no pressure on the section of pipeline where the DdL™ Caliper Tool will be loaded.

2.9.1.1. Trap Isolation procedures will need to be followed per the type of Trap configuration currently installed on the Pipeline.

2.9.2. The DdL™ Caliper Tool is designed to travel ONLY in a forward direction.

2.9.3. Pushing the DdL™ Caliper Tool into the Pipeline.

2.9.3.1. Assemble the provided Push Poles that were shipped with the DdL™ Caliper Tool as part of the Support Equipment.

2.9.3.2. Position and support DdL™ Caliper Tool and utility tray in front of the opening of the pipeline in such a way that the tray is going in the same direction as the pipeline.

2.9.3.3. Take the assembled Push Poles utilizing the supplied adapter and position onto the Push Plate.

2.9.3.4. Push the DdL™ Caliper Tool into the pipeline using evenly distributed force on the Push Poles.

2.9.3.5. Verify that the DdL™ Caliper Tool's front urethane cup is properly seated into the same diameter pipe that is being surveyed.

2.9.3.6. Remove the Push Poles by using evenly distributed force straight back from where the DdL™ Caliper Tool was positioned.

2.9.3.7. Remove any remaining loading equipment from the area.

2.9.3.8. Secure the pipeline to allow pressure to be brought back.

2.9.3.8.1. Pressure MUST be brought back up slowly so that the DdL™ Caliper Tool doesn't prematurely move.

2.9.3.9. Once the trap is equalized, continue with procedures to properly launch the DdL™ Caliper Tool.

2.9.3.10. Verify the DdL™ Caliper Tool has launched.

2.10. Please refer to the **ENDURO DdL™ Caliper Tool User Manual** for further details and information regarding this section of procedures.



3. **DdL™ Caliper Tool Post-Run:**

3.1. **Remove DdL™ Caliper Tool from Pipeline:**

3.1.1. Verify DdL™ Caliper Tool was received.

3.1.2. Verify that there is no pressure on the pipeline where the DdL™ Caliper Tool will be unloaded.

3.1.2.1. Trap Isolation procedures will need to be followed per the type of Trap configuration currently installed on the Pipeline.

3.1.3. The DdL™ Caliper Tool MUST be pulled from the pipeline in a forward direction.

3.1.4. Remove the DdL™ Caliper Tool from the pipeline using evenly distributed force when pulling on the Push Poles.

3.1.5. Secure the pipeline to allow pressure to be brought back.

3.1.6. Once the trap is equalized, CUSTOMER may continue with normal pipeline operating procedures.

3.1.7. CUSTOMER must visually inspect the DdL™ Caliper Tool looking for any apparent damage sustained during the survey.

3.2. **Connecting Laptop Computer to the DdL™ Caliper Tool**

3.2.1. Power the Laptop Computer ON and allow it to fully boot up.

3.2.1.1. A password must be typed in to unlock Laptop Computer

3.2.1.1.1. Press the “ctrl” key on the keyboard and then type the Password: 4461934

3.2.2. Locate the Communication Cable A and plug the USB TYPE A end into the Laptop Computer USB Port labeled **TOOL**.

3.2.3. Locate the Communication Port at the rear of the DdL™ Caliper Tool and unscrew the protective cover counterclockwise.

3.2.3.1. DO NOT disconnect any of the other connectors that are located around the Communication Port.

3.2.4. Plug the USB MICRO B end into the Communication Port of the DdL™ Caliper Tool.

3.2.5. Locate the NewCommTC 64 Icon on the desktop of the Laptop Computer and double click this Icon to open the program.

3.2.5.1. When communication is established, the status will state “**Connected.**”

3.3. Please refer to the **ENDURO DdL™ Caliper Tool User Manual** for further details and information regarding this section of procedures.


4. **DdL™ Caliper Tool Download:**

4.1. **Main Window**

4.1.1. After double clicking the NewCommTC 64 Icon on the Desktop the Main Communication window will open.

4.1.1.1. Information communicated from the DdL™ Caliper Tool will automatically populate within the various cell boxes within the Configuration tab under “ **Logger**”.

4.1.1.2. If everything is working and communicating properly, the status will state “*Connected.*”

4.1.2. Click the tab “ **Job Data Manager**” located at the top left of the screen and a window will open.

4.2. **Downloading the DdL™ Caliper Tool**

4.2.1. Locate and click the “**Download Run Data from Pig**” button to start the download process.


4.2.2. ENDURO will assign a specific set of numbers and letters for each DdL™ Caliper Tool Survey performed.


4.2.2.1. Ex: B20-000A, B19-000B, B20-000C, etc

4.2.3. Enter the ENDURO Job Number and a brief Description.

4.2.3.1. Manual insertion of the Job Number and Description must be typed into this Text Field by the CUSTOMER.

4.2.3.2. Dynamic guidance, or hints, for entering a correctly formed Job Number and Description are provided immediately below the Text Field.

4.2.3.2.1. The background of the Text Field is  **RED** when the entered text does NOT match ENDURO’s Job Number and Description scheme.

4.2.3.2.2. The background of the Text Field is  **GREEN** when the entered text does match ENDURO’s Job Number scheme.

4.2.3.2.2.1. CUSTOMER can Insert their Line ID within this Text field for Description.

4.2.3.2.2.2. The Description Text field MUST contain a minimum of 8 characters.

4.2.4. Click the Start button.

4.2.4.1. The Download process and subsequent checks can take anywhere from several minutes to approximately an hour, depending on the file size / line lengths.

4.2.5. Verify that the Download has completed.

4.2.5.1. Upon completion of the download, the Result box will display any issues encountered during the download process.

4.2.5.1.1. If a successful download has been obtained, click “Close” to close window.

4.3. **Powering Down the DdL™ Caliper Tool**

4.3.1. Unplug the Communication Cable A from the DdL™ Caliper Tool and from the Laptop Computer.



- 4.3.1.1. Replace the protective cover on the Communication Port at the rear of the DdL™ Caliper Tool by screwing the cap clockwise until seated fully.
 - 4.3.2. Locate the Power Plug at the rear of the DdL™ Caliper Tool.
 - 4.3.2.1. Twist the Male Plug counterclockwise until the Male Plug can separate from the Female Plug.
 - 4.3.3. Once disconnected, the tool is powered down.
 - 4.3.3.1. When the DdL™ Caliper Tool is not in use, keep the tool powered down by verifying that the Male and Female Plugs are disconnected, and the protective covers are installed on both Plugs.
- 4.4. Please refer to the **ENDURO DdL™ Caliper Tool User Manual** for further details and information regarding this section of procedures.

5. ***DdL™ Caliper Tool Upload:***

- 5.1. **Uploading the Data to ENDURO Headquarters will be required:**
 - 5.1.1. CUSTOMER will need to upload the data to ENDURO Headquarters at their earliest convenience, preferably by the end of the day for any run day.
 - 5.1.2. CUSTOMER must connect the Laptop Computer to the internet, either by Wi-Fi or Ethernet Cable.
 - 5.1.3. Select the Job to send to ENDURO Headquarters for further inspection.
 - 5.1.4. Locate and click the “**Upload Job Data to Enduro**” button to start the upload process.
 - 5.1.5. An Upload Dialog window will open.
 - 5.1.5.1. Once the upload to ENDURO Headquarters has successfully completed, the Progress Bar will show “100.0% complete” and the upload status will change to “COMPLETE”.
 - 5.1.6. Once a successful upload has been completed, click the “**Close**” button on the Upload Dialog window.
 - 5.1.7. Proceed to the next steps after all upload processes have been completed.
 - 5.1.7.1. Shut down any opened programs that may still be opened on the Laptop Computer.
 - 5.1.7.2. Power down the Laptop Computer to conserve battery life.
 - 5.1.7.2.1. Return Laptop Computer and all its components to the Pelican Case until required again.
- 5.2. Please refer to the **ENDURO DdL™ Caliper Tool User Manual** for further details and information regarding this section of procedures.



6. Shipping DdL™ Caliper Tool back to ENDURO:

6.1. Packing Shipment / Logistics:

- 6.1.1. CUSTOMER must thoroughly clean the DdL™ Caliper Tool and all Support Equipment before packing equipment back into the shipping container.
 - 6.1.1.1. ENDURO recommends after thorough cleaning of the DdL™ Caliper Tool, wrapping the tool up in a thick plastic.
 - 6.1.1.1.1. This will help reduce the potential of any contaminants leaking during transportation back to ENDURO.
 - 6.1.1.1.2. IF the DdL™ Caliper Tool was ran in a product, ENDURO recommends adding absorbent pads or something equivalent with the tool along with the thick plastic to help soak up any residual product that may still be present after cleaning.
- 6.1.2. Utilizing the original packing list, CUSTOMER must verify that all equipment originally shipped with the DdL™ Caliper Tool is present and accounted for.
 - 6.1.2.1. Included with this will be the Laptop Computer and all its Support Equipment.
- 6.1.3. Pack all Equipment back into the shipping container and secure with supplied equipment.
- 6.1.4. Contact ENDURO to begin the process of returning the equipment.
 - 6.1.4.1. ENDURO will handle the Logistics of getting the equipment picked up and shipped back to ENDURO.
- 6.1.5. Once equipment has been returned, ENDURO will inspect and inventory all equipment.
 - 6.1.5.1. ENDURO may charge / bill the CUSTOMER for any missing and / or damaged equipment after completing the inspection and inventory.

7. Troubleshooting:

7.1. Laptop Computer:

- 7.1.1. If an issue develops with the Laptop Computer, contact ENDURO IT Department for further assistance.

7.2. DdL™ Caliper Tool:

- 7.2.1. If an issue develops with the DdL™ Caliper Tool, contact ENDURO Operations Department for further assistance.