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MAN350

## **Hip Pack with Chainer (Wire Measure Unit) & Audible (Footage) Display**

**Cat # HIP040 – U.S.A. Version**  
**Cat # HIP045 – Metric Version**



## **User's Manual**



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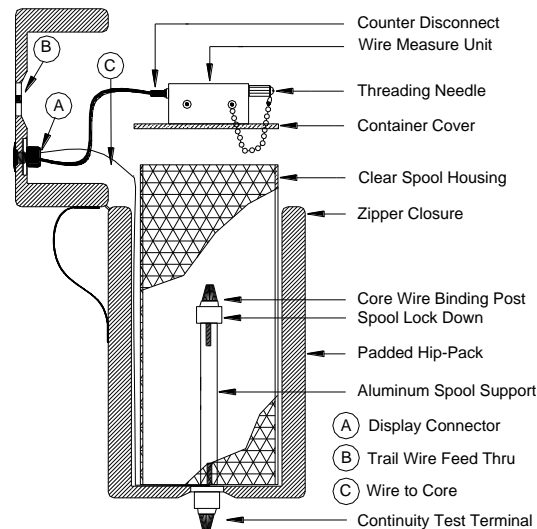
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**Hip Pack/Chainer (Wire Measure Unit) Set Up Procedure:**

The following steps describe how to install a M. C. Miller trail wire spool (catalog # TRI021 or catalog # TRI022 (purchased separately)) into the Hip Pack and how to feed the trail wire through the chainer (wire measure unit), with respect to the labeled items shown in the diagram below.



**Step 1:**

Unzip the Hip Pack and fold back the top portion.

**Step 2:**

Remove the chainer (wire measure unit), attached to the housing lid (container cover), from the clear spool housing and lay the chainer on its back in the top portion of the Hip Pack.

**Step 3:**

Unscrew the spool lock down fitting, with the core wire binding post attached, from the aluminum spool support.

**Step 4:**

Carefully unwind a few turns of trail wire from the spool and install the wire spool onto the aluminum spool support, making sure that the core wire tail is facing upwards, and re-install the spool lock down fitting onto the spool support. *Make sure that the unwound trail wire is accessible to you with the spool installed on its support.*



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Step 5:

Gently unwind about 1 inch of the coiled core wire tail. **Be careful not to break off the coiled core wire tail, as doing so will render the trail wire spool inoperable.** Next, strip off the insulation from the 1 inch section of uncoiled trail wire using a piece of emery paper until a shiny copper wire finish is revealed.

Step 6:

Unscrew the core wire binding post terminal to reveal the through hole, insert the stripped portion of the core wire tail into the through hole and tighten the terminal down onto the wire. Tape the remaining coiled core wire tail back down onto the wire spool in order to prevent the core wire tail from unraveling and potentially tangling with the trail wire as it feeds out.

Step 7:

Lift the chainer unit (attached to the housing lid) back up and unscrew the threading needle from the side of the chainer. Next, insert the needle into the hole located on top of the chainer and gently push the needle down through the hole until the eye of the needle is visible on the opposite side of the chainer.

Step 8:

Thread about 2 inches of trail wire through the eye of the needle and then pull the needle (plus wire) back out of the hole. Next, remove the wire from the needle and replace the needle back into its holder on the side of the chainer.

Step 9:

Pull any slack trail wire up through the chainer and place the housing lid back onto the top of the clear spool housing. Next, feed the trail wire up through the wire feed-through hole located on the top portion of the Hip Pack. At the appropriate time, you will connect the trail wire to the pipe terminal on a test station to make electrical contact to the pipe. Prior to doing so, approximately 2 inches of the trail wire insulation should be stripped off using emery paper in order to provide good electrical contact between the trail wire and the pipe terminal on the test station.

Step 10:

Install the black coiled cable between the Hip Pack and the Audible Display unit (please see the section below for information on the Audible Display). Test the performance of the chainer/display unit combination by pulling the trail wire through the chainer. The reading on the LCD (the footage (or meters) count) should change accordingly as trail wire is pulled. Finally, break off the excess trail wire and reset the display count to zero (blank screen) by pressing the push button in the side of the display unit. You are now ready to connect the trail wire to a test station.



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## **Audible Display Unit**

Based on factory settings, the Audible Display unit will beep (a short beep) each time 2.5 feet of trail wire, in the case of the U.S.A. version, is drawn through the chainer (wire measuring unit) and will also beep (a longer beep) each time 100 feet of trail wire is drawn through the chainer. In the case of the Metric version, the short and long beeps will be heard when 1 meter and 100 meters of trail wire have been drawn through the chainer, respectively.

The volume of the beeping sound can be amplified by attaching the external speaker unit supplied with the Hip Pack to the terminals on the underside of the display unit.

### Manual Switch Operation

The Audible Display unit has a manual switch on one side which allows the operator to temporarily disable the Trigger (see below) and External Beeper outputs.

*The switch has a locking level which must be pulled out prior to flipping to the ON or OFF positions.*

With the switch in the UP or ON position, the unit functions normally, and, with the switch in the DOWN or OFF position, the trigger and external beeper signal is interrupted to prevent unwanted readings being logged by a data-logger during road crossing events or other similar situations.

**Note:** With the Trigger/External Beeper turned off, the internal beeper still functions and the display still updates the measured distance, but, the external trigger and beeper are disabled.

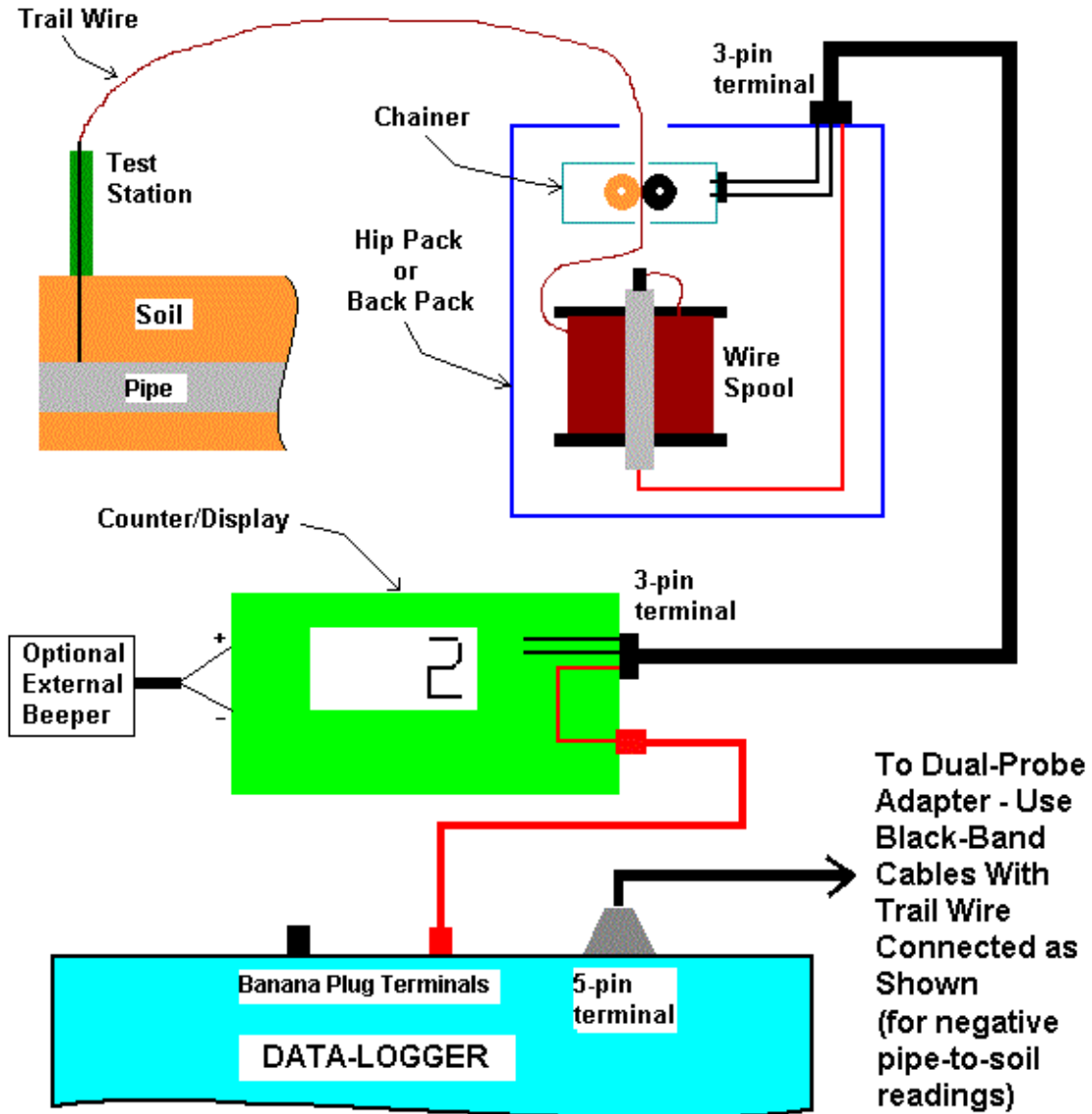
### Battery Replacement Procedure

If the LCD does not display a footage reading when pulling trail wire through the chainer, disconnect the black coiled cable from the unit and remove all six screws from the bottom of the unit. Next, remove and replace the 9V battery. Re-use the paper battery wrapper to prevent the battery's case from contacting the printed circuit board. Finally, replace the cover plate and secure all six screws. *If the LCD still does not display a footage reading when pulling trail wire through the chainer, please contact the M. C. Miller Company.*

## **How to Connect the Audible Display Unit to a M. C. Miller 5-Pin Data-logger for CIS Applications**

### Option 1: Manual Triggering of Readings via Data-Probe Push Buttons

The figure shown below illustrates the cabling configuration for this option.



As can be seen from the above figure, the 3-wire cable (coiled black cable with 3-pin plugs on either end) connects the Hip Pack to the display unit. Two of the wires carry the chainer (wire measure) signal and the third wire connects to the structure (pipe) via the trail wire.

The structure (pipe) can be connected to either the positive or the negative side of the data-logger's voltmeter by connecting the supplied banana plug cable from the display unit to either the red or the black banana plug terminal on the data-logger. *In the case of the Gx data-logger, the shielded (right-angled) banana plug should be used to connect the display unit to the safety jack on the Gx.* By connecting the cable to the red banana



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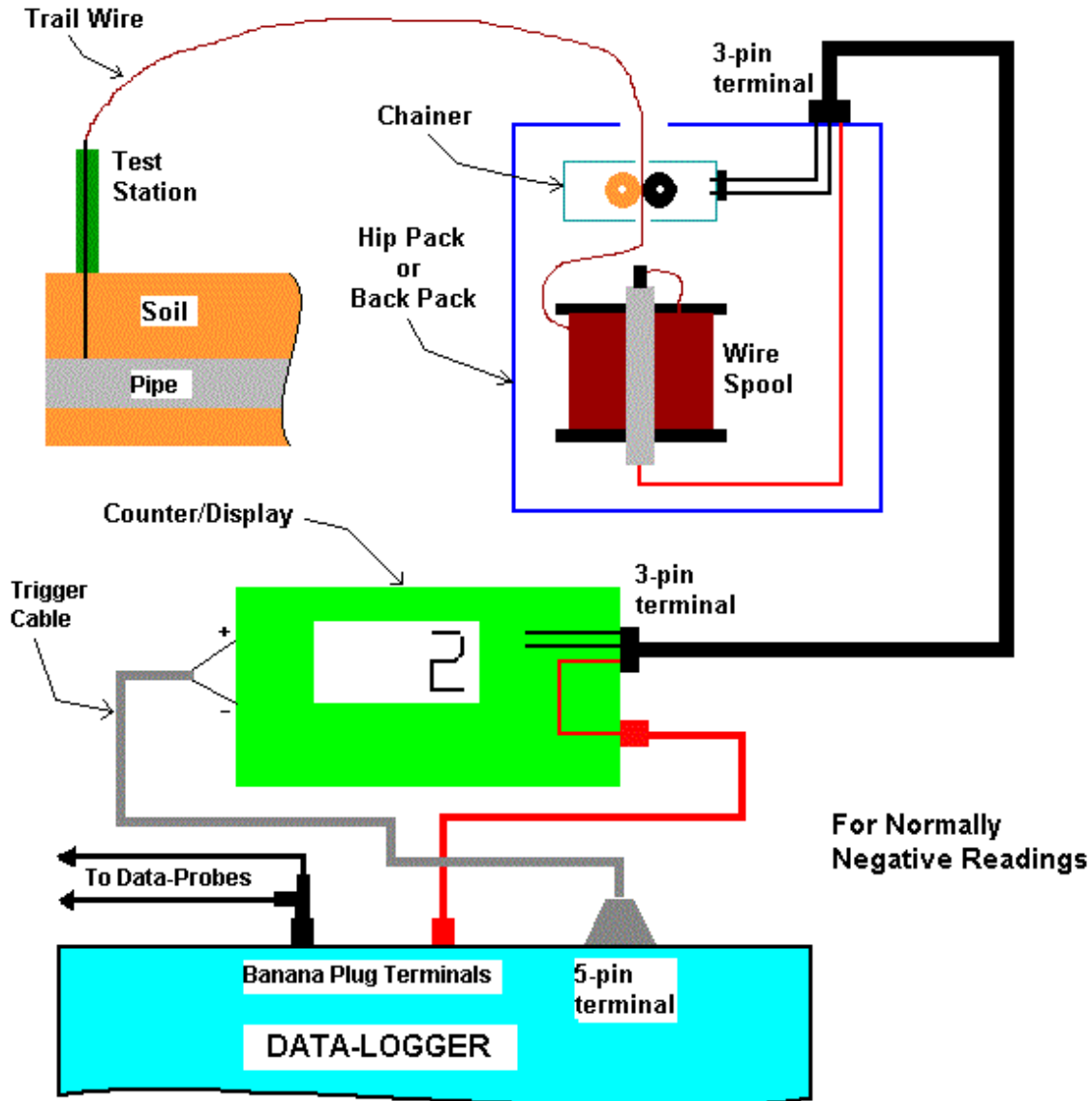
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plug terminal (positive side of the voltmeter) and using two black-band cables to connect the data-probes to the data-logger via the dual-probe adapter (effectively connecting the data-probes to the negative side of the voltmeter), you would read **negative** pipe-to-soil voltages. This situation is illustrated in Figure 1. If you wanted to read **positive** pipe-to-soil voltages, you would connect the banana plug cable from the display unit to the black banana plug terminal on the data-logger and you would use two red-band data-probe cables. The “standard” approach is to read negative pipe-to-soil voltages.

Option 2: Automatic Triggering of Readings using the Automatic Trigger Cable

The figure shown below illustrates the cabling configuration for this option.



The supplied “trigger cable” is connected from the display unit to the 5-pin terminal on the data-logger as shown in the above figure. The red and the black wires of the trigger cable are connected to the “External Beeper” connection terminals on the underside of the display unit. The red and the black wires connect to the terminals labeled, positive and negative, respectively.

Again, as in Option 1, the structure (pipe) can be connected to either the positive or the negative side of the voltmeter by connecting the supplied banana plug cable from the display unit to either the red or the black banana plug terminal on the data-logger. By connecting this cable to the red banana plug terminal of the data-logger (positive side of the voltmeter), as shown in the figure, the data-probes would be connected to the negative





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side of the voltmeter, via the black banana plug terminal on the data-logger. In this case, you would read **negative** pipe-to-soil voltages. If you wanted to read **positive** pipe-to-soil voltages, you would connect the banana plug cable from the display unit to the black banana plug terminal on the data-logger and you would connect the data-probes to the red banana plug terminal on the data-logger. *In the case of the Gx data-logger, the shielded (right-angled) banana plug should be used to connect the display unit to the safety jack on the Gx.*

**Note:** With this option (Option 2), you do not use the MCM data-probe cables. Instead, you would connect banana plug cables (not supplied with the package) to the banana plug terminals on the data-probes and, via a common connection (stackable banana plug), you would connect both banana plug cables to either the black or the red banana plug terminal on the data-logger, depending on whether you wanted to read negative or positive pipe-to-soil voltages (see above).

#### **WARNINGS:**

- 1) Always pull the trail wire back out through the hole in the chainer (wire measure) unit after use each day and when storing the Hip Pack, as keeping the trail wire in place will result in future slippage due to groove formation on the wheels.
- 2) Always pick up the trail wire that's been fed out from the Hip Pack before leaving the job site as the wire is a potential danger to animals.