LINE ALERT® Field Manual

This manual provides instructions on the proper use of LINE ALERT including Hydrovac requirements, installation method and excavation method.

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LINE ALERT® Field Manual

This manual provides instructions on the proper use of LINE ALERT including Hydrovac requirements, installation method and excavation method.

It is important to understand the basic use parameters of LINE ALERT to ensure that it functions properly.

Only persons either certified or properly oriented in the use of LINE ALERT panels should install and use them.

The LINE ALERT Panel is NOT A REPLACEMENT FOR SAFE WORK PRACTICES.

NOTE: Always follow all local ground disturbance rules and regulations as well as requirements provided by the facility owner of the utility that you are crossing or otherwise excavating.

Call KeiBerg Inc. at 1-204-319-8111 if you have any questions about this product or process.

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INTRODUCTION TO LINE ALERT

LINE ALERT is a real-time guidance system that provides a constant visual depth of an underground utility that is being

crossed or otherwise excavated. It provides clear, one-inch increments of the distance from the line starting at 36 inches away. The intent of LINE ALERT is to provide a more effective and efficient method of line crossing or other excavation while maintaining or improving safety.

LINE ALERT is used in crossing or otherwise excavating existing underground facilities that have been located, exposed and visually confirmed by a Hydrovac slot. It is appropriate for any type of underground utility exposure including electrical, telecommunications, potable water, reclaimed water, sewer and gas/oil/steam.

- Installed down locate confirmation Hydrovac hole
- Hydrovac hole backfilled with caution tape running from panel to surface
- Excavator digs centered directly above panel sloping as required until no dig zone distance reached *(approx. 5 to 15 minutes depending upon line depth, soil condition, no dig zone and slope)*
- Remaining non-mechanized dig zone area exposed by other means such as shoveling or by Hydrovac (LINE ALERT provides a guide for shovel or pressure wand down to the utility).

LINE ALERT has the following characteristics:

- Coated paper design lasts up to one (1) year in ground
- Bio-degradable paper & vegetable based inks
- Saddle provides solid anchor in ground with replicable results
- Consistent shearing due to design of carton and panel sections
- Use of embossing on panel sections creates a crush zone to absorb up to 1.5 inches of blunt downward force providing strike protection for utility
- High visibility colours representing each one (1) foot section
- Numbers and words printed on each inch of panel section

Using the LINE ALERT real-time measured guidance system, a new process can be used for excavation that improves both safety and efficiency.

- Backfill Hydrovac holes immediately
- Constant visual guide throughout excavation process
- Removes the need for probing & relocating
- Less time in the ditch
- Visual record of the dig progress

Hydrovac Requirements

Facility owners and contractors have different rules and methods of Hydrovac slotting used to visually confirm a utility. Depending upon the technique you use, you may or may not need to adjust your approach to accommodate LINE ALERT. If you do have to modify your method, it will be a minimal change to your current technique.

When using LINE ALERT, it is important to take into consideration the requirement that the slot must be widened to a width of fourteen inches (14") along the direction of the underground utility. **LINE ALERT is installed on top and in the same direction as the utility**. LINE ALERT panels are twelve inches (12") wide so the slot must be a minimum width of fourteen inches (14") to accommodate the installation of LINE ALERT. The following diagram illustrates the type of Hydrovac slot required to allow for the proper installation of LINE ALERT.

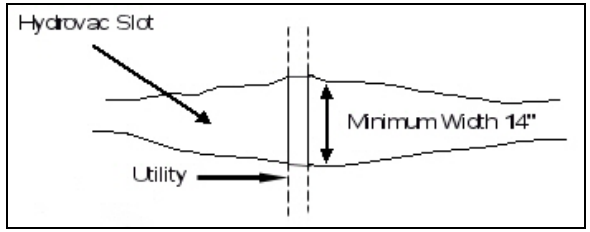

Diagram #1 – Required Hydrovac Slot - Top View

LINE ALERT PANEL INSTALLATION

The proper **installation of the panel is critical** to ensure its proper functioning and to provide the excavation crew with the

guidance they are expecting. **An improper installation will misinform the excavation crew and could result in a line strike.** As the installer, your role is critical to the excavation team and the overall safety of the excavation when using Line Alert as a guide. The following examples demonstrate the consequences of an improperly installed panel.

Improper Installation Examples

Panel Slips off or Installed Beside a Line

Panels must be installed directly on top of the line. If the panel was to slip off the line during installation or be placed beside a line on the slot floor, the measurement that the excavation crew will see will be wrong. Using a six inch line as an example, **this would mean that when they read 20" as a depth, they would actually be excavating at 14" which is extremely close to a line and could contribute to a line strike. Even worse, if the Hydrovac slot extended to one foot below the line, the actual reading would be off by 18"** (12" below the line plus the 6" width of the line). If the excavation crew were excavating to 18" as a mechanized excavation stop point, **they would strike the line due to the improper installation.**

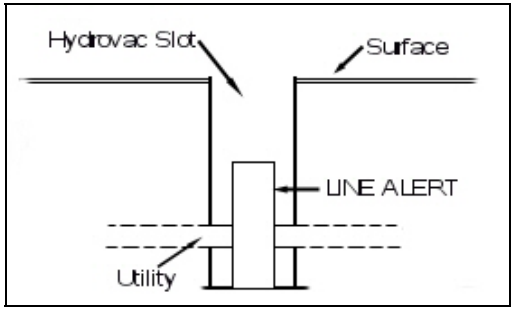

Diagram #2 – Improper Installation Beside Line - Side View

Narrow Slot, Panel installed in different direction than line

Panels must be installed in the direction of the line being excavated. Excavation crews must know the direction of the line they are crossing. If a line is crossing your excavation area

at a very sharp angle, the excavation crew needs to know this to be able to identify where the line is across the entire excavation area**. If a Hydrovac slot is too narrow to place the panel in the direction of the line and you choose to install the panel anyway, you will be misinforming the excavation crew as to the direction of the line. This can be as important as knowing the depth of the line. Not installing the panel in the direction of the line can contribute to a line strike.**

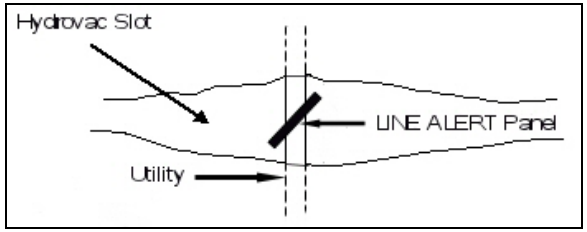

Diagram #3 – Improper Installation Across a Line - Top View

PANEL INSTALLATION STEPS

Prior to installation, inspect the Hydrovac slot to ensure that it is wide enough to install the panel. **If the slot is not wide enough, do not attempt to try to make the panel fit**. As with any crossing activity, all markers and stakes above ground should be maintained as usual to ensure all workers are fully aware of the information provided by the stakes regarding the underground facilities.

1) Inspect LINE ALERT Panel. **If it is damaged in any way, do not use it.**

2) Remove paper covering adhesive strip located at top of pane (green section). Attach the supplied yellow LINE ALERT tape.

3) Open saddle at base of panel (red section) by gently pulling on circular opening at top of saddle flap along perforated lines on both sides of the panel **(DO NOT USE EXCESSIVE FORCE).**

4) Size and align compression clips on the insertion tool to fit snugly over top of panel. Call KeiBerg Inc. if you do not have an insertion tool.

5) Hold panel in an upright position on a level surface, center insertion tool over panel and push tool downward to engage compression clips onto panel **(DO NOT USE CRUSHING FORCE).**
6) Lower panel onto the exposed line in the same direction as the line. (**NOTE** – Remove any debris between panel and utility). Saddle should be open and centered on the line.
7) Spiral LINE ALERT tape around tool handle to keep out of the way during backfilling.
8) Hold tool and panel in an upright position. Backfill to top of tool head.
9) Un-spiral the LINE ALERT tape from the tool handle.
10) Use strong upward motion to remove tool from panel.
11) Centre the LINE ALERT tape on the panel. Backfill to surface with the LINE ALERT tape exposed at the surface.

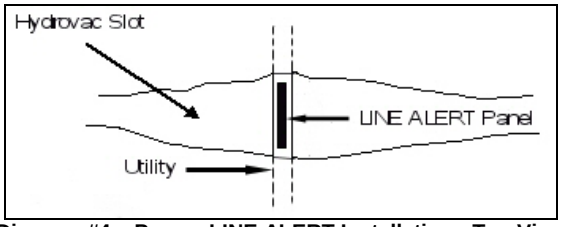

Diagram #4 – <u>Proper</u> LINE ALERT Installation - Top View

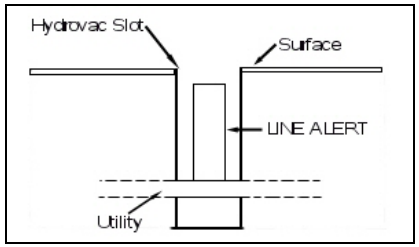

Diagram #5 – <u>Proper</u> LINE ALERT Installation - Side View

<u>LINE ALERT EXCAVATION TECHNIQUE</u>

There are many excavation techniques employed for exposing underground lines. The following method is only a recommendation of a common approach to excavating line crossings using LINE ALERT. Select your excavation method based upon your situation, equipment, regulations and safe work practices.

1. Identify from the stakes the depth of the utility you will be excavating. Subtract from this thirty six inches (36"), the height of a LINE ALERT panel. This will provide you with the approximate depth that you should encounter the panel. For example, if the line crossing depth measurement is sixty inches (60"), when you subtract the height of the panel (36"), you will know that you should start to encounter the panel after removing approximately twenty four inches (24").

2. Confirm what your mechanized digging stop point is. This should be provided by the job foreman, consultant, facility owner or local ground disturbance regulations. If you are not aware of this stop zone, determine it before proceeding.

3. With the bucket centered over the LINE ALERT caution tape, begin removing dirt in small decks. Usually a four inch (4") deck is taken. Using our example above, after approximately six decks are taken (6 x 4" = 24") you should start to encounter the panel. When you do so, you will see the first green sections of the panel in the ditch and spill pile.

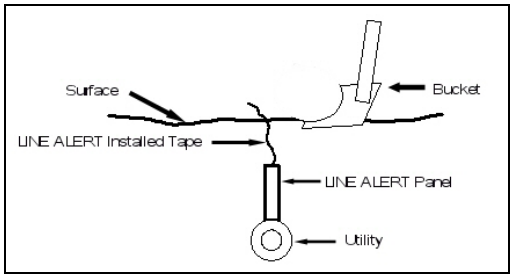

Diagram #6 – Starting LINEALERT Excavation - Side View

4. In the unlikely event you do not encounter the panel at the expected depth, stop excavation and manually confirm the location of the line. Only then should you proceed.

5. Once the panel is encountered, continue taking small decks (ie. 4"), monitoring the remaining distance to the line by using

the distance indicators visible on the remaining panel sections in the ground. If dirt sluffs into the trench, the spotter should clear the dirt away to obtain a clear reading for the excavator operator.

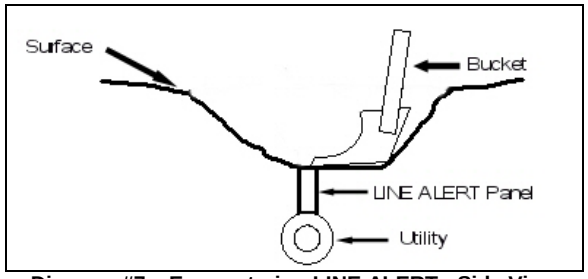

Diagram #7 – Encountering LINE ALERT - Side View

6. Continue to monitor the remaining distance to the line until you reach your mechanized digging stop point as outlined in step 2 above. Cease mechanized digging at this point and proceed to slope the trench based upon soil type and local regulations to ensure worker safety when hand exposure begins.

   SLOPING TIP – depending upon the depth of the stop point, some operators will simply dig a straight walled ditch until they reach a few inches above their stop point. They then slope the walls and scoop the muck out of the bottom of the trench. As they have a few inches left to their stop zone, while they are clearing the muck from the sloping, they know they are still above the stop zone. Once sloping is done they simply take the remaining deck off to reach the stop point and leave a clean, well sloped trench for hand exposure.

7. As the remaining LINE ALERT panel section is left in the ditch showing a clear visual of the remaining distance to and angle of the line, the excavator can dig a trough in front of the line at the required distance away from the line that mechanized digging must stop (identified in step 2). The trough, below the normal grade of the trench, allows the labourers to sluff off the

remaining soil above the line into it. As the trough fills up, the excavator can clear it using the remaining LINE ALERT panel as a guide to stay away from the line. By repeating this process, labourers will be able to expose the line from the front.

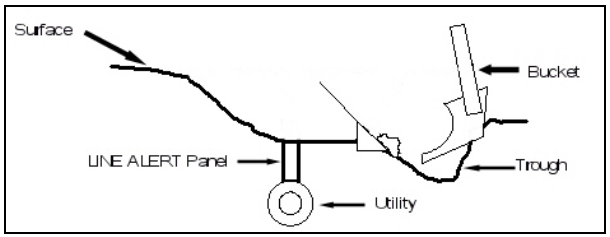

Diagram #8 – Manual Excavation of the Line - Side View

8. Repeat this process behind the line, again at the required distance away from the line by mechanized digging. The labourers can then sluff off the remaining dirt into the rear trough and fully expose the line.

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Confirmation Page

If required, confirm that you have read this manual by completing this form and returning it to your supervisor.

Name: _____

Date: _____

Company: _____

I have read and understand the LINE ALERT Field Manual including all instructions for installing and using the LINE ALERT panel.

_____

Signature