



LOOP APPLICATION NOTES VEHICLE DETECTOR LOOP INSTALLATION GUIDE

INTRODUCTION:

This loop application note is intended to illustrate the steps involved in installing a "saw cut type" vehicle detector loop. The loop sizes and configurations vary according to the detector requirement being accommodated. Long-length or multiple loops may be required in conjunction with traffic signals where the important factor is to know if there is at least one vehicle in a large zone of detection such as a left-turn lane. The smaller loop size (such as 18 inch by 54 inch) is used where it is important to have a separate detection output for each vehicle in a slow-moving stream of heavy traffic, such as a parking gate.

General Notes:

- We recommend using a 12 to 16 gauge THHN or better stranded wire.
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- Backer rod is not commonly used anymore, but may be used if available.
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- Wire loop and twisted lead-in wire should be one (1) piece. It is best to **not** splice the loop and lead wires.
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- Solder all wire connections at the connector (harness) of the loop detector. Do **not** use wire nuts to make connection.
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- Asphalt patching compound can be substituted for epoxy, and is typically supplied in caulking gun tubes.

INSTALLATION INSTRUCTIONS:

- 1) Mark the loop outline on the pavement surface using either a string or rigid frame and aerosol spray paint as shown in Figures 1 & 2. Note that corners are to be either diagonally cut (Method "A") or core drilled (Method "B") to prevent damage to wire insulation during placement of wire in the slot. (See Photo 1 and Illustration 1).
- 2) Place a mark on the concrete saw blade to insure the saw cut depth is 2 inches [50 mm] deep (see Figure 4). The saw blade should be ¼ inch [6 mm] wide.
- 3) Saw loop outline in pavement as shown in Photo 2.



Photo 1

Mark the loop outline on the pavement surface using a snap line chalk or other marking techniques.

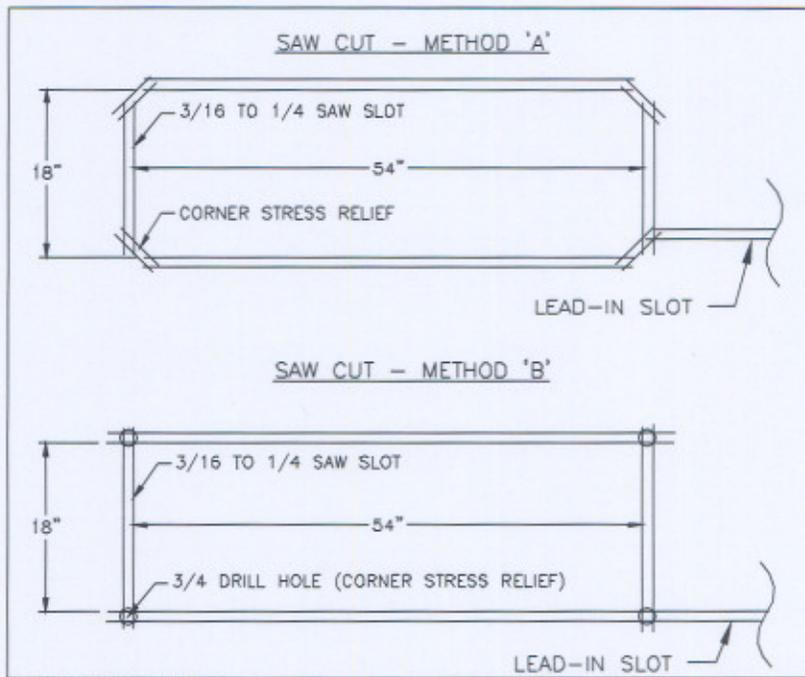


ILLUSTRATION 1



Photo 2

Sawing the Loop with concrete saw

- 4) Clean debris from slot with water or compressed air and allow surface to completely dry (See Photo 3).



Photo 3

Loop is sawn, debris removed from the saw slot and ready to dry

- 5) After the loop size has been determined, refer to Illustration 2 to determine the number of turns of loop wire to be placed in the loop slot. It is important that the proper number of turns is used. Wire should be minimum 16 gauge in size and should be stranded type.

NOTE: NO WIRE SPLICES ARE PERMITTED IN THE SAW SLOT!!!

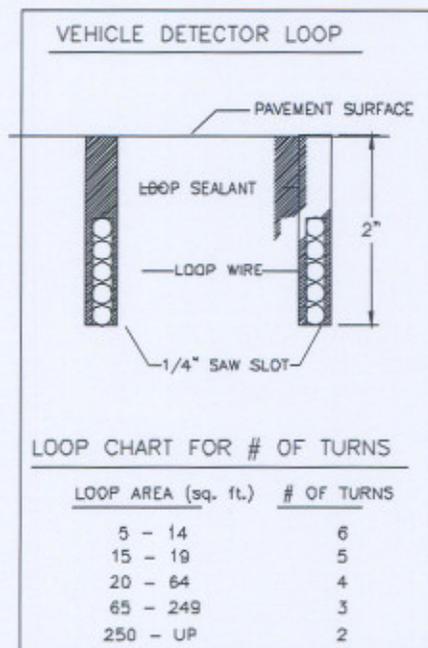


ILLUSTRATION 2

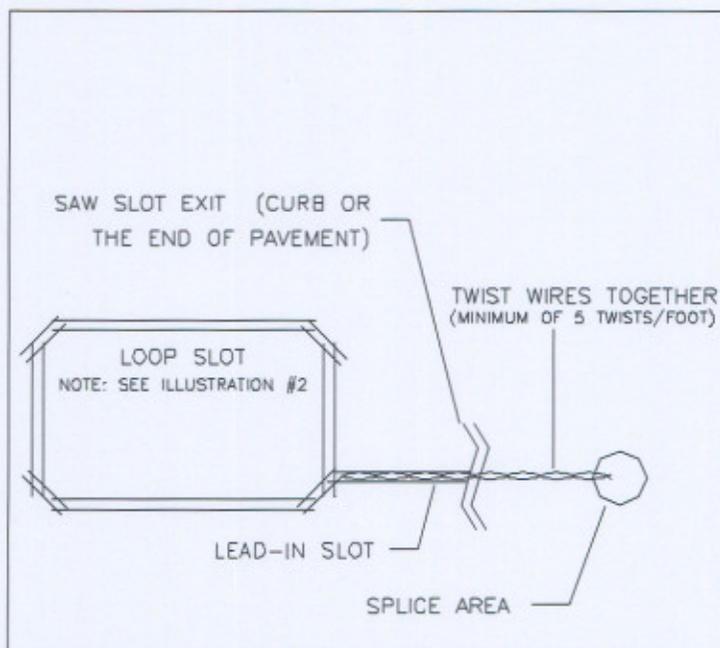
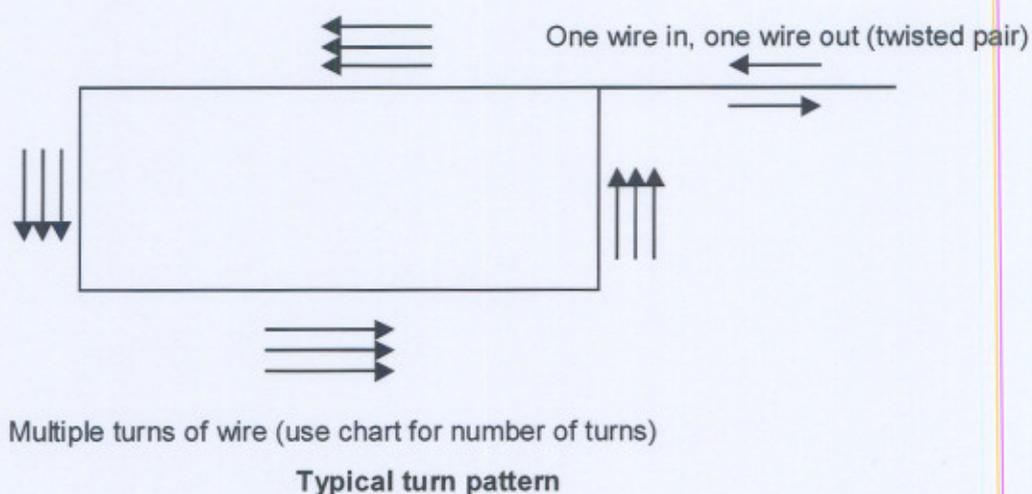


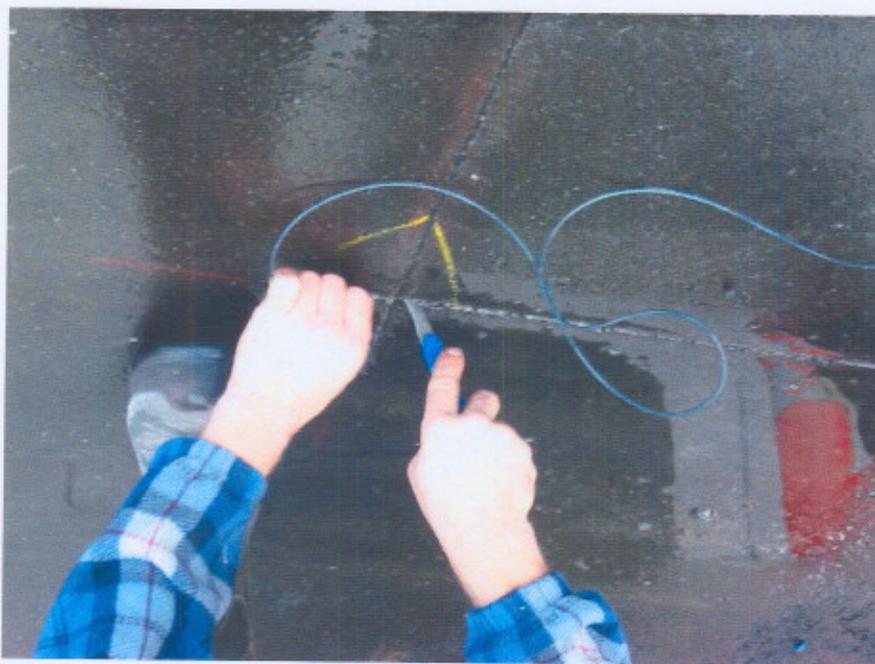
ILLUSTRATION 3

- 6) Calculate the total footage of wire needed to accommodate both the proper number of turns around the loop **PLUS SUFFICIENT FOOTAGE TO PROVIDE BOTH LEADS INTO THE LOOP FROM THE LOOP DETECTOR HARNESS**. Leaving enough wire at the proposed location of the Detector Harness, carefully start to install the wire in the loop slot (see Photo 4) and then make the proper number of turns around the loop. When the loop is complete begin twisting the loop leads together a minimum of 5 turns per foot (a drill motor is handy for doing this). Continue twisting these wires together all the way to the connection point with the Detector harness. All caution must be used when installing wire not to cut or nick the wire insulation while placing it in the ground.



Installing loop wire in saw slot with blunt nosed tool

Photo 4



- 7) Once loop wire is laid then it should be sealed. Select a sealer proper for your application: concrete crack sealer for concrete, or asphalt crack sealer for asphalt. The more liquid the sealer the easier it flows and contains the wire. What you want to achieve is for the wire to not be able to move or rattle in the slot, and be watertight. Follow all directions of the sealer you are using (see Photo 5).



Photo 5

Sealing loop wire into the saw slot with silicone chalk

- 8) Clean and finish loop sealant for neat and clean appearance (see Photo 6).



Photo 6

Loop is chalked and finished out neat and clean

- 9) Finish loop installation by soldering the loop wire connections to harness. Use a good grade heat shrink to waterproof your solder joint. (Most loop failures are caused by crimped loop to harness joints.)