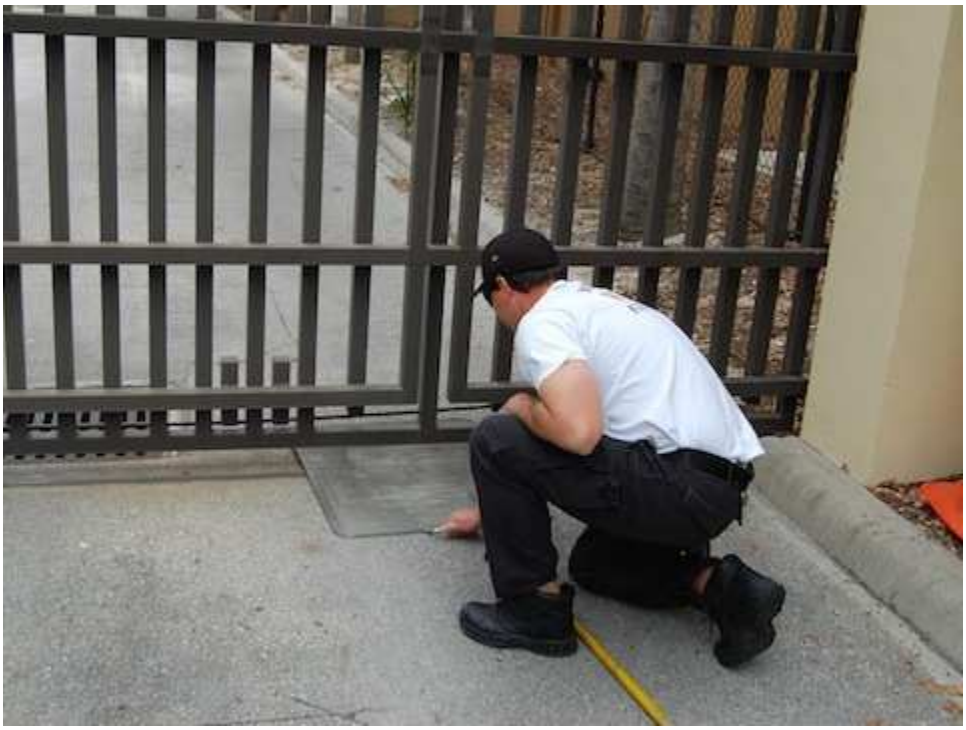
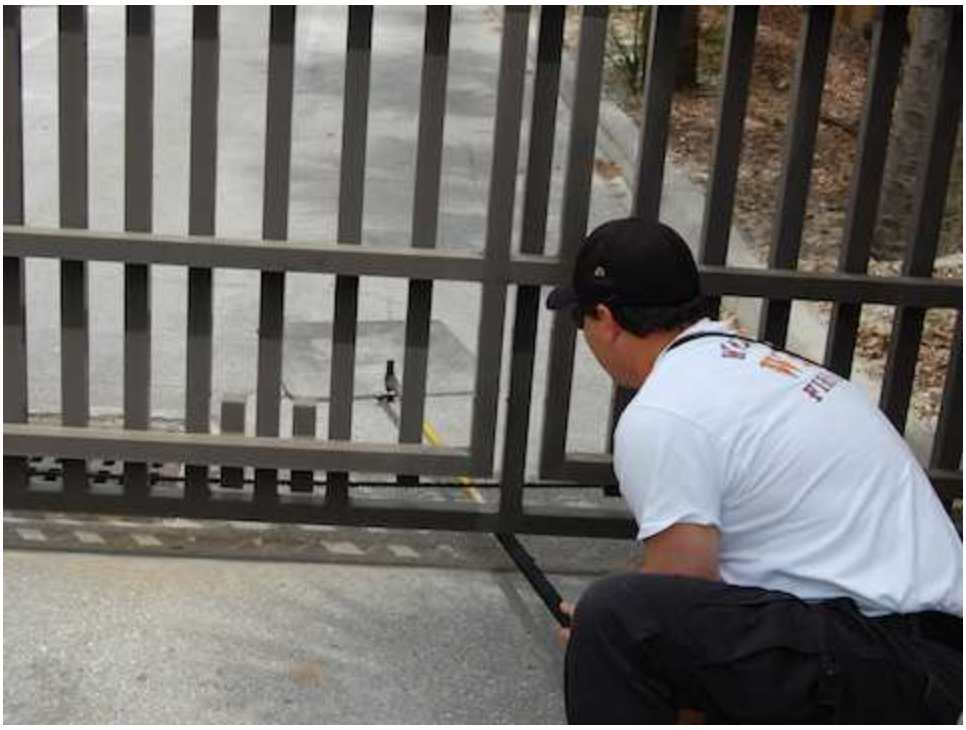
Induction Loop Trick – CLOSED GATE

There are a number of different methods to gain access to a closed gate. There are a few commercial products that property owners may have installed to make sure the fire department can easily access the property without damaging the gate. These products include: siren activation, emergency light activation, and even radio activation. However, each of these have to be installed properly and maintained regularly in order to remain operational. We have to have other options available to us to open the gates quickly when the commercial options are not present, or out of service.

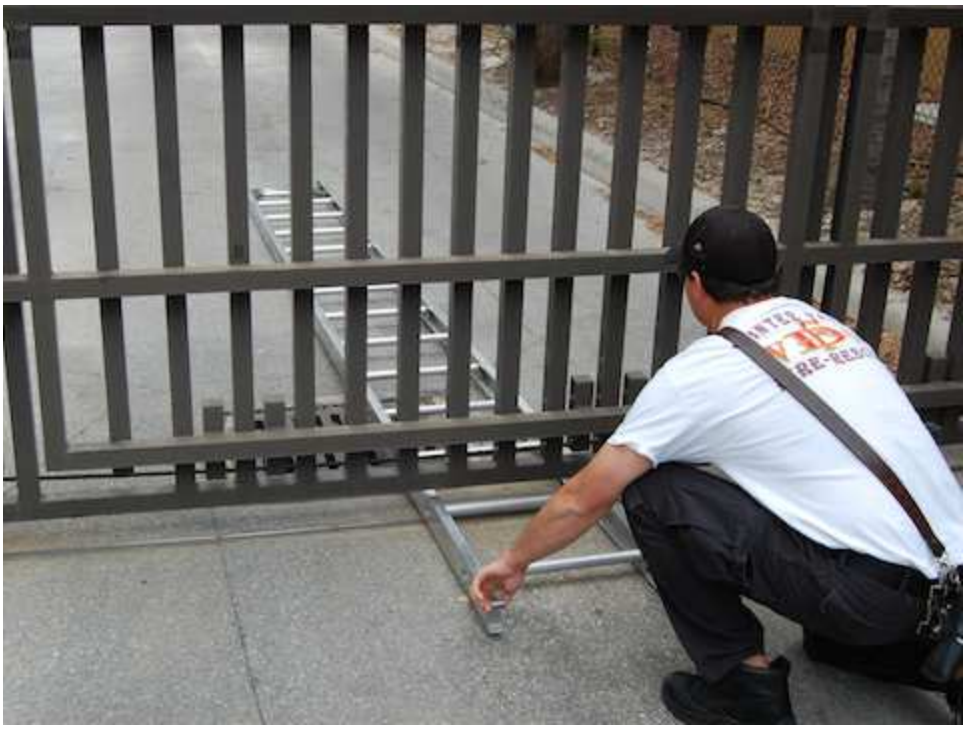
Fortunately for us, there is another option that works on a majority of gates. Have you ever noticed that most gates open to let you out of the gated area simply by driving up to it? Have you ever wondered how that works? It's called an induction loop, it is an insulated electrically conducting loop that is installed in the pavement. It can been seen as the lines cut into the ground in the area of the gate. The automatic gate opener monitors the inductance in the wire, and when it senses a change of the inductance, it opens the gate. We have the ability to easily trick the gate into thinking there is a car present, resulting in the gate opening. Any large metal object that can be placed on the inside and outside the loop at the same time will activate the gate. Typically there will be two induction loops installed near the gate. the first (or furthest from the gate) is to let the gate know that a car needs the gate opened. The second (closer to the gate) is to let the gate know that the car has cleared the gate, and the gate can close.





As seen above, the ground pad from the Truck can be slid under the gate with a hook. Once the ground pad is slid into position, the gate will open. As mentioned earlier, it has to go over the induction loop that is the furthest away from the gate.

Just so we don't make the guys on the engine feel left out, the photo below shows a 14 foot ladder being used to accomplish the same thing.



One tip to keep in mind, is that once the gate is activated the hook or ladder need to be removed from the path of the opening gate. Quickly removing the hook (once the pad is in place) or pushing the ladder all the way under the gate takes care of the issue.

Wouldn't it be helpful to keep the gate open for the remainder of the units responding to the alarm? A slick idea is to keep a piece of metal in place over the induction loop. Since we probably

don't want to leave the ground pad behind, or the ladder where it will get run over, we can simply use another object. A small piece of aluminum (like an old parking sign) can be placed on the rig for this exact purpose. It is much lighter and easier to put in place than the outrigger pad, and no-one will get pissed when its lost or run over.

28 comments

28 Comments so far

1. Jamie April 23rd, 2012 12:30 pm

   We've got a couple of these things at work, and they require a fair amount of maintenance and upkeep — more than the mechanism of the gate itself — so much so that, on the rarely used back gate, we just turned off the induction loop detector entirely. The gate mechanism still works, it just has to actuated manually. This is a great trick (I just tried it with a piece of sheet metal and our front gate) but it's only one tool. Might or might not work come crunch time.

2. Chris April 23rd, 2012 12:31 pm

   We've had success with a metal scoop shovel and an attached rope.

3. Mike April 23rd, 2012 2:38 pm

   I've done it by simply jumping and landing across the wires in the right spot while wearing boots with a steel toe and shank…after vaulting the fence of course. Takes a few hops to get it down but it works (much to my surprise when first told about it).

4. Ted April 23rd, 2012 5:50 pm

   We've done the same thing, but used an attic ladder instead. I think I'm going to try it with a steel new york hook and a pry bar, since (for us) they are much easier to pull off the engine.

5. RSFDNY April 23rd, 2012 6:50 pm

   Well Done. Best break in artists on the planet wear bunker gear.

6. Ken Scofield April 23rd, 2012 11:41 pm

   "RSFDNY – Well Done. Best break in artists on the planet wear bunker gear."

   When I read that, my drink shot out my nose! But, it's true!

7. Chris Adams April 24th, 2012 7:26 pm

Great idea but what if the gate is on a track i heard a scoop shovel and rope, can these ideas work in the same fashion? Tried it here at our station with no luck. Also doesn't these mechanisms require a certain weight limit to work also?

8. PolarFire April 26th, 2012 5:09 am

No, it's not weight, it's proximity of metal. That's why motorcyclists in most (but not all) states can blow red lights if they wait for a light for a number of cycles and don't get it. They don't have enough metal wide enough to set it off. They also use the same induction field for intrusion alarms in some high-priority locations. This works, but the scoop shovel on a rope would work more reliably for multiple gate openers (example, using an invisible beam vs induction loop). Check out the gated communities in your area to see what you need to do. Knoxx also offers a keyed switch unit if you can coerce those communities to shell out the cash.

9. Nate999 April 26th, 2012 7:40 pm

Cool trick, I always wondered how those things worked. Most of the gated communities in our area have a specific code for the FD/PD (usually something with the numbers 911). We keep a list of the codes in the rig, and dispatch has them as well. Some of the newer gates are even rigged to be activated by our sirens "yelp" setting. I'll def pass this on as a solid back-up option and give it a try next shift.

10. AT April 27th, 2012 12:34 am

I've had luck with just a metal clipboard, but it took some practice to hit the right spot. We had to use it when other crews took the gate remote out of our rig.

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12. LAD288 April 27th, 2012 10:46 am

There is a universal code for these gates worldwide… D (as in donkey) K (as in kick)… Gate should open right up!

13. SQD22 April 27th, 2012 3:43 pm

LAD288 thats the perfect example of what not to do, lets cause damage to a property for no reason.

14. LAD288 April 27th, 2012 4:03 pm

Oh contraire mon frere… This is a perfect example of when a DK is warranted. It's a good time for training.

15. Ted April 27th, 2012 5:09 pm

In response to my previous post, I went and tried the new york hook, and it did not work. I found out that an old baking pan works great and takes up very little room on the truck!

16. tooltime April 29th, 2012 10:10 am

Since the gate normally opens outward we just remove the plastic cover held in place with a wing nut over the mechinism and release it with the manual unlock lever the way it was intended to be. Look for it, it will be at the motor and the handle is either red or yellow.

17. Mike April 29th, 2012 11:07 pm

Great trick for opening up a gate. I know in my area some gates like this have a beam sensor that goes across the opening so the gate doesn't close if the beam is broken. If you put a towel or something to break the beam you can keep the gate open the for other incoming units. This way you don't have to leave something on the ground that could get knocked out of the way by them running over it.

18. DCFDLerch May 3rd, 2012 12:45 pm

Ive seen guys at E16 use a baking sheet with a hole drilled into it with about 12 foot of rope and it worked like a charm

19. Bryan May 9th, 2012 2:04 pm

Thanks WPFD for this training. We went out in our first due yesterday and this worked well. 1 worked with a pike pole, 1 with a roof ladder and 1 with an attack ladder but only after we opened it. The roof ladder tended to have enough mass to activate all the gates. Our city has an EVAC system which works like a garage door opener and every truck and EMS unit in our area has them. However, we have ran into dead batteries and non maintained gates. This will be a great alternative.

20. goldie May 10th, 2012 1:25 pm

Yes, a baking pan with hole drilled in it, 15 feet of string and a small weight on the end that you hold onto. This has the advantage of being able to throw the pan, and if you miss you can pull it back and try again. Then you just leave it where it lands and go about your business, it will keep the gate open. If you use a ladder or other tool to activate the gate you may need to remove it in order to drive through the gate, or worse, you might need it for your operations at the fire, which would cause the gate to close behind you, blocking access for other companies.

21. Chris May 21st, 2012 7:48 am

> The Knox Company makes a key switch designed for access gates. Get your Fire Prevention Code amended to require them. If you remove the key with the switch in the open position, it locks the gate open for other companies. You just have to remember to turn the switch back when you leave.

22. still learning after 30 yrs. May 31st, 2012 9:38 pm

> I always wondered if there was an “easy” way to trip these from the “wrong” side. I like most of the tips but would throw in one little thing. Doesn’t the “metal” used have to be ferrous (iron, steel)? An induction circuit like this works via magnetism if I remember science class from long, long ago. If any metal works, then I have validated my “name”.
> Also, why would you need to do this if you have gone out and done preincident stuff like we all should. Did a gated community just “spring up” overnight? Even if it did, I would have a dept. rep. out there the next day meeting with someone. Hopefully they would understand that it might be important for emergency services to have rapid access to their “community”. If not and a TRUE emergency exists, I can guarantee that the front end of my engine/truck/ambulance/squad car will make short work of their gate. Life before property.

23. John Buttrick June 7th, 2012 5:40 pm

> I fully intend on going out and trying this…
>
> but how would it work at, for example, a storage place that requires a code to exit?
>
> As I type this I wonder if even said types of places have induction loops but are there any other variables?

24. Frank July 22nd, 2012 8:23 pm

> We do have a problem with gate codes getting changed with out notification. We have good coop with getting the click to open and /or Knoxx system in place. However as we all know, if made by man it’s subject to fail. So more information the better.

25. Axe16c July 24th, 2012 10:47 am

> Still Learning,
>
> While you are correct in your knowledge that induction loops work by magnetic fields, they do not require ferrous metals. A magnet is used to induce an electrical current that is passed through the wire in the loop. The loop itself produces a magnetic field, and when a conductive metal passes over it, it distorts the field produced by the loop. These distortions, called eddy currents will reduce or increase the inductance of the electrical current in the wire. Changes in

inductance lower the current and trigger a relay to tell the mechanism that a vehicle is present. Hope this helps.

26. FETC August 13th, 2012 10:29 am

FYI: The FAA mandated the removal of all of these gate systems at airports post 9-11.

If there is a metal trash can nearby, the lid will make the gate activate as well.

27. adam November 22nd, 2012 2:01 am

wouldn't using a Knox or universal gate key be a bit easier and quicker to gain access and lock the gate in the open position

28. Polarfire November 25th, 2012 5:10 am

I'm guessing you missed the whole first paragraph of the actual post

IE: "There are a few commercial products that property owners may have installed to make sure the fire department can easily access the property without damaging the gate."

but we all know everything is ok, functioning, and good when we get a call… that's why they called the fire department, since everything's ok and functioning.

tool for the toolbox, private homes and many facilities with automatic gates don't fall under code requirements for a Knoxx box nor can you honestly rely on a universal key for anything (unless you're referring to a rotary saw)