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## Installation and Maintenance Instructions for Guardian In-Ground and Surface Mount Traffic Controllers

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Thank you for your purchase of Guardian Traffic System Controllers the finest and best engineered traffic controllers made. These units are built to last, employing the finest engineering, using the highest quality materials and precision fabricated. To insure your units provide long lasting service and safety please follow these installation and maintenance instructions.

If you have any questions do not hesitate to contact our customer service or engineering staff at 1.800.866.9115 (8:00 AM to 5:00 PM - MST) or e-mail to [sales@guardiantraffic.com](mailto:sales@guardiantraffic.com). Thank you for choosing Guardian Traffic Systems.

### **SAFETY NOTICE**

*Traffic Spike Systems are an intrinsically damaging product and are intended to puncture tires. There are risks and liabilities involved in the use of these products. To minimize your exposure, it is extremely important that adequate safety measures are taken in the installation, location, site conditions, use and maintenance of traffic spike systems. Warning signs should be installed at all sites where spikes are installed. Illumination of the spike units especially in areas of adjacent pedestrian traffic is recommended.*

### **IMPORTANT NOTE FOR INSTALLATION OF ALL TRAFFIC SPIKE UNITS:**

***Ninety Degree Rule*** - Traffic Spike Systems must be installed in such a manner that traffic flows over the teeth at a strict 90-degree angle (tire parallel to the teeth). Complete vehicle alignment and perpendicular passage over the units must be assured for front and rear axles. Allow a minimum of 15' to 20' in either direction of the traffic spike units between any turns required of vehicles. Under no circumstances should traffic controllers be installed on a curve, or in an area where vehicles will not be assured of complete perpendicular passage over the traffic controller for front and rear axles.

***Five MPH Rule*** - It is absolutely essential that traffic over the spike units be slowed to a maximum speed of 5 miles per hour as traffic cannot exceed 5 MPH when traveling over the traffic spike system. It is recommended to employ speed bumps as necessary to slow traffic.



# 1430.160\*



# 1430.200\*

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**Direction** - All traffic spike units need to be positioned with the sharp edge of the teeth pointing away from traffic going the correct way and TOWARD offending or wrong-way traffic.

**Signage** - Warning signs are imperative to provide sufficient notice of the danger to drivers and to pedestrians and may be required by local ordinance. Illumination of the teeth, especially in areas adjacent to pedestrian traffic, is also important if the area will be accessible after daylight. Be sure your customer is aware of these inherent dangers



# 1410.100 Lighted



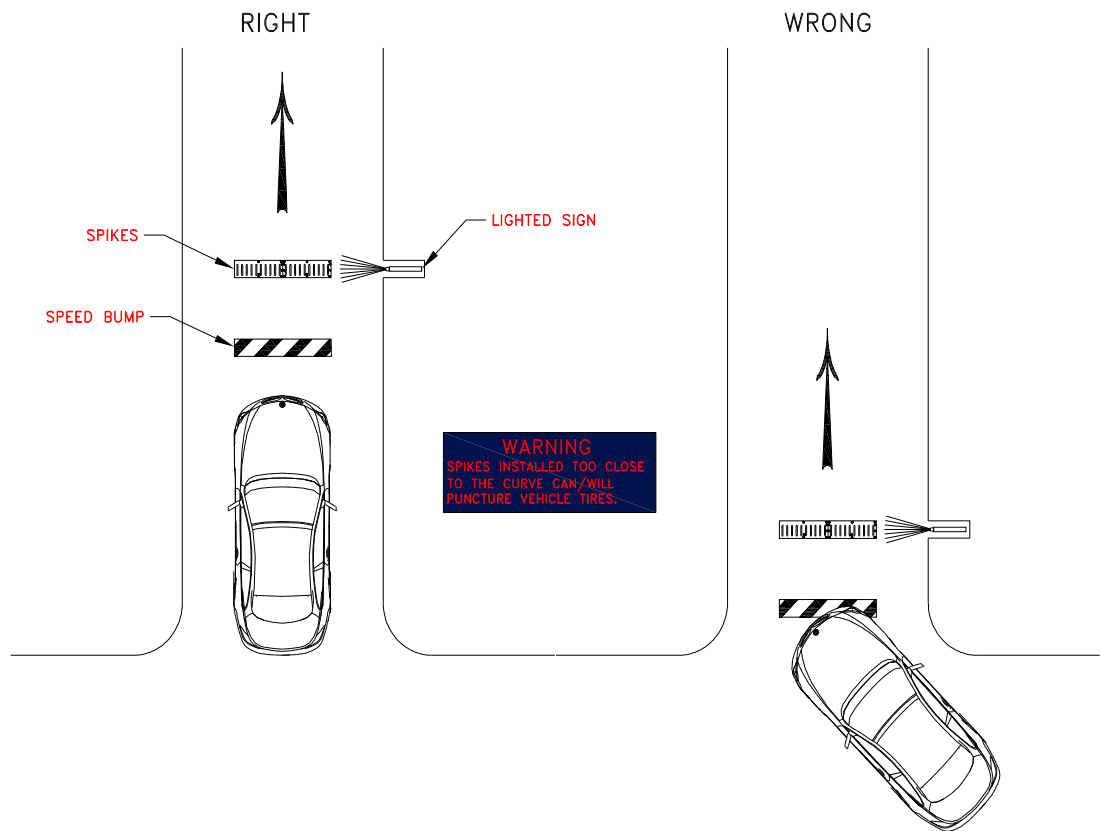
# 1414.100 Reflective

It is recommended to use Guardian Warning Sign Model 1410.100 (lighted) or 1414.100 (reflective) that warns drivers of the inherent danger of the device including a notice for pedestrian traffic to stay clear of the area. If there will be traffic after dark be sure to provide adequate lighting in the area and use the warning sign Guardian Model 1410.100.

**Site Conditions** – Carefully select your site so that the units are installed in a solid surface asphalt or concrete. Traffic spikes systems should not be installed in dirt, on any curve, inclines or where the road surface is uneven or where the road surface is in poor condition. Also, do not install in areas where there is significant water runoff that could potentially do damage to the components of the units. Use caution and install precautions when installing near high pedestrian traffic.

**General Instructions** - These instructions are provided in order for you to receive the maximum performance from your traffic control system. Failure to strictly follow these installation instructions will affect the performance of your traffic controllers. The positioning of the traffic spike units and the angle of the teeth are critical to the proper function along with the controlling the speed to 5MPH along with the other above mentioned guidelines.

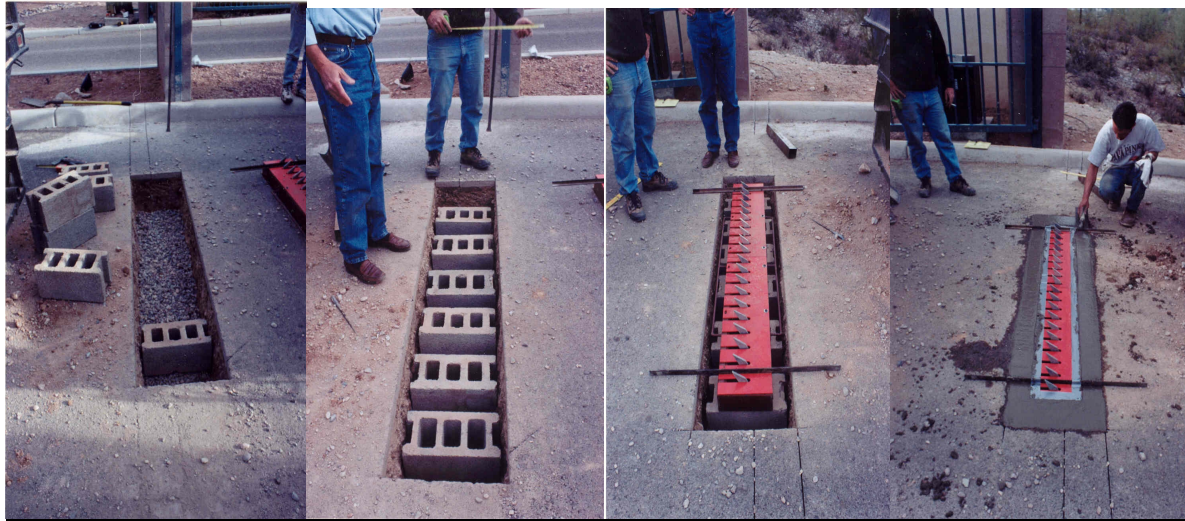
**Failure to strictly follow these installation instructions could result in broken teeth, broken springs, correct direction tire damage, inability to puncture tires of wrong-way traffic, and a multitude of other malfunctions. Guardian Traffic System will not be responsible for property, vehicles, tires, or personal damage resulting from improper installation. Guardian Traffic System will not be responsible for repairing malfunctions or replacing parts resulting from improper installation. Replacement parts needed in order to repair damage or malfunction caused by improper installation or abuse are not covered under your warranty.**



**WARNING**  
SPIKES INSTALLED TOO  
CLOSE TO THE CURVE  
CAN/WILL PUNCTURE  
VEHICLE TIRES AND/OR  
CAUSE DAMAGE TO  
SPIKE SECTIONS

## INSTALLATION – Guardian In-Ground Models

For installation of GUARDIAN in-ground (or flush-mount) units, you may need saw-cutting and excavating equipment and you will need crushed rock, open web hollow blocks (CMU), 3000 PSI concrete and warning barricades and signs to properly block any traffic flow.



1. Excavate the placement area 24 to 48 inches deep (depending on drainage needs in your area) by at least 12" longer and 8" wider than the units you are installing.

If you are installing a heater element in your system then you will need to excavate to one site of the roadway where your thermo device and power will be located. See instructions with your heater cable.

2. Fill the excavated area with crushed rock for drainage, compact and level to approximately 12" below the road surface.

3. Position the cement blocks in the rock bed as shown in the drawing below as a base to support the traffic spike units and allow drainage.
4. Install the spike units making sure the **top** of the top plate of the units are flush with the pavement surface. If installing several units together and you want them placed end to end, then bolt (not provided - order separately) the units together using the bolt holes in each end of the unit.

A handy technique to keep the units unit level with the surface during installation is to bolt two flat or angle steel bars, approximately 24 - 30 inches long, perpendicular to the unit to the top plate at either end, creating hold-bars. To do this, prepare the steel bars by drilling holes to match a pair of bolt-holes in the top plate. Next, remove two of the existing bolts and bolt the bars to the top plate using the existing pairs of bolts approximately 18 inches from each end of the unit. This creates temporary bars that will keep the controller unit level with the existing pavement while the cement is placed.

5. Make sure the teeth are orientated the correct way for the traffic flow. Un-latch the latch down device for this procedure.
6. When satisfied with the placement, orientation and positioning place 3000 psi concrete around the perimeter of the units and in between the open masonry blocks flush to the road surface. Finish the concrete as instructed by the architect. NOTE: Do not pour or allow concrete into the inside of the body of the spike units as that will restrict the teeth movement and will affect the drainage.



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- TRAFFIC CONTROLLER TOOTH SECTION
- TRAFFIC CONTROLLER TOOTH SECTION
- CONCRETE
- CRUSHED ROCK
- CMU
- 36" MAX  
26" MIN
- PLAN VIEW
- ELEVATION VIEW

DIAGRAM 1  
EXCAVATION DETAILS  
מחצית 1127 תל-א-ח-ח

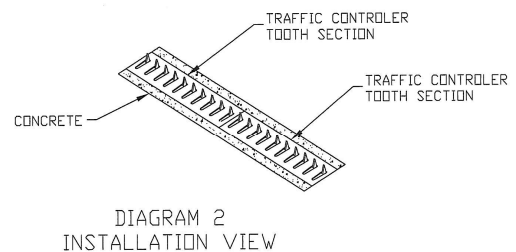


DIAGRAM 2  
INSTALLATION VIEW

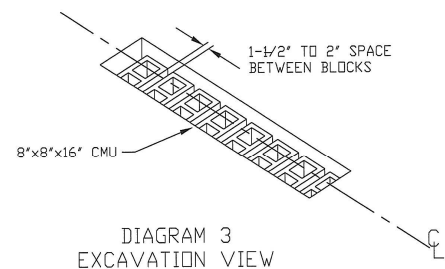
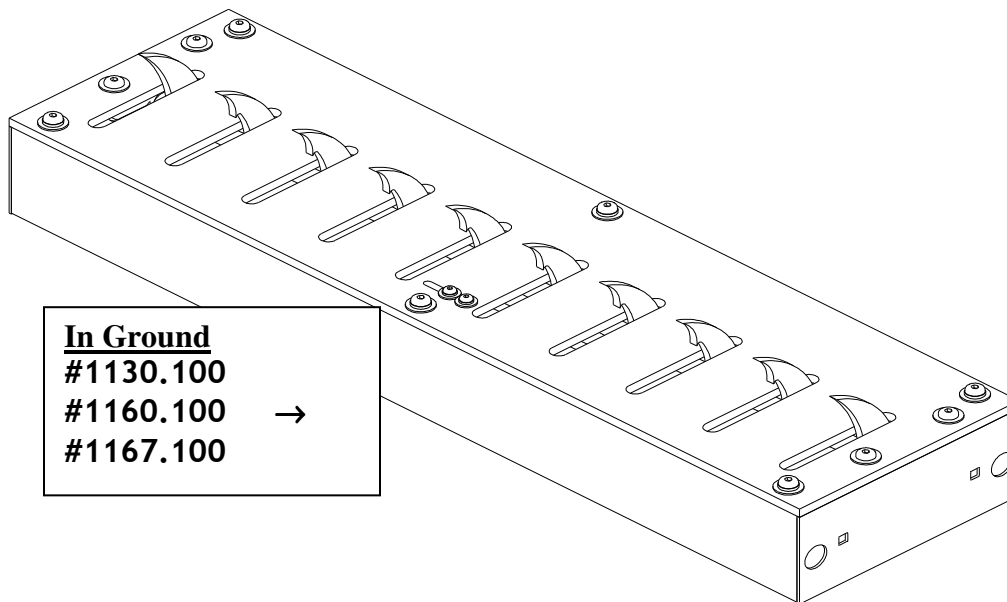
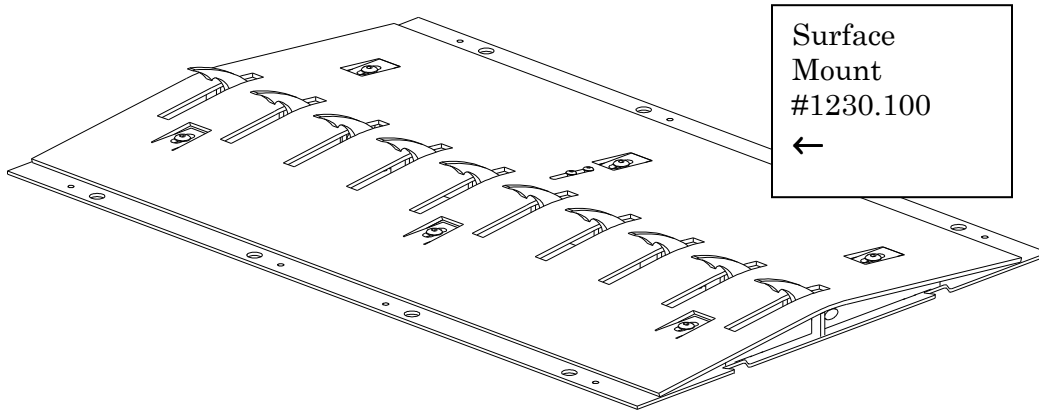


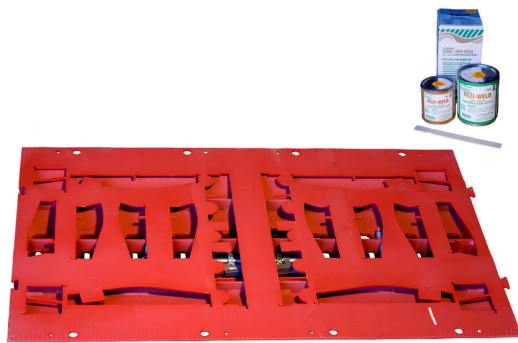
DIAGRAM 3  
EXCAVATION VIEW



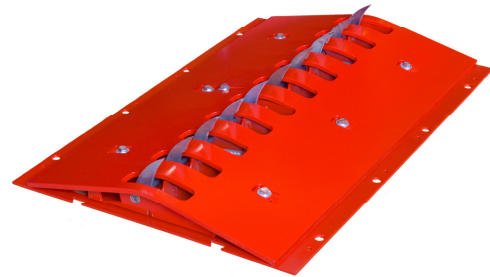
## **INSTALLATION - Surface Mount Models**

Guardian Traffic Systems Controllers can be installed using one of two methods of application or a combination of the two. The first is by bolting the units down to a concrete surface (not recommended for asphalt). The second is by affixing them to the road surface using epoxy in the case of asphalt (tarmac) road surfaces. The surface should be clean, dry, level and as smooth as possible. The units should not be installed on gravel, a highly irregular surface, an incline or curve.

**Apply Epoxy with Putty Knife or Stiff Brush**



**Turn Spikes over and Place into Position**



## **Location & positioning**

1. Carefully determine the location for your Traffic Control Units. Locate so that when the tires of the vehicle pass over the teeth they are parallel to the teeth. Position the units so that the tires (both front and rear) when passing over do not strike the teeth at an angle as this could cause damage to the teeth and to the tire. Normally you would want the units placed at least 15' – 20' into the lane.

If you are installing a heater element in your system then you will need to plan for the location of the where your thermo device and power will be located. See instructions with your heater cable.

2. Clean the area with a weed blower or broom or other method to insure a clean and dry surface.
3. Mark the location with a chalk line or other suitable mark to assist in aligning and locating the units in the desired position. You may also place the individual segments in the location you wish to install them and then mark the location. Make sure the teeth are orientated the correct way.



### **Concrete Surface Installation**

4. When bolting into concrete (not recommended for asphalt) drill holes in the road surface in the corresponding larger hole on each segment.
5. Place your anchors per manufacturer's instructions. Do not use an anchor that will stick up above the traffic control unit that could cause damage to the passing tires. The recommended product is a ½" Large Diameter Tapcon Concrete Anchor or "LDT" by SIMPSON STRONG TIE, REDHEAD or similar.

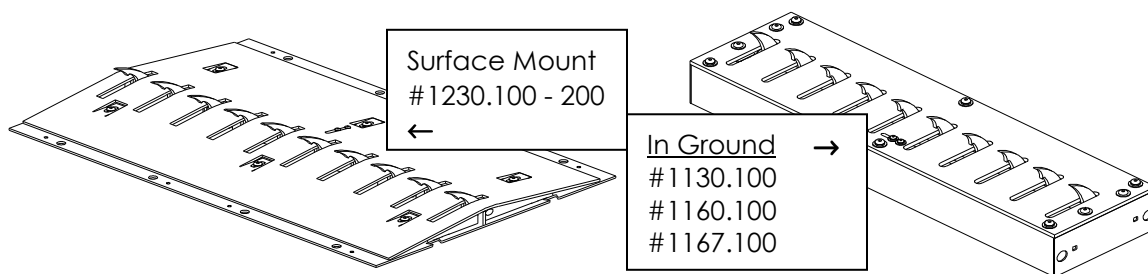
### **Asphalt Surface Installation**

6. If your surface is asphalt the best method of application is using Construction Grade Epoxy supplied by Guardian Traffic Systems or your local hardware vendor.
7. Turn each spike and end unit over and place close but not in the exact installation location on a cardboard or other protective material to catch any epoxy spills. The epoxy has a relatively short setting time and proper positioning of the segments can be facilitated by having them aligned and positioned close to the installation location.
8. Check all the interlocking tabs to make sure that all units are aligned correctly. Check the orientation again to insure they are correct to the traffic. Unlatch the latch down mechanism for this procedure.
9. Check again to make sure the area is dry and clean of any debris to insure the best bonding of the epoxy.
10. Follow the epoxy manufacturer's instructions for mixing and preparing the epoxy that will be used to affix the segments to the drive surface. It is advised that several items including rags, cardboard or the like be available for clean up of any epoxy overrun that may be encountered during installation.
11. Start with an outside-toothed segment (the epoxy should be applied to the toothed segments first and then end sections last if you are using them).
12. Apply a coating of epoxy along the front edge and back edge and along each cross member coating all of the bottom plate that will contact the road surface.
13. After application of the epoxy turn the segment over and place in the previously marked position. Check the teeth position to make sure they are in the correct direction for the traffic flow.
14. Proceed with the next segment inline, following the same procedure and installing them with the interlocks securely in place.

15. After all the toothed segments are installed, the end sections can then be installed in a like manner.
16. Be sure to apply the epoxy as recommended to insure the proper distribution of the epoxy for the maximum adhesion of each segment.
17. After all the segments and end section are in place you may then nail the units to the road surface using hardened nails. This is desired to insure the units stay fixed and do not move while the epoxy sets.
18. It is recommended that a sufficient time be allowed for the Epoxy to set before traffic is allowed to pass over the traffic controllers. The time allowable time will depend on the environment where the units are being installed and the epoxy being used (you may wish to use a minimum of four hours). Check the epoxy manufacturer's recommendations.
19. Maintain adequate warning barricades in place throughout the construction and curing process and until ready to activate.
20. When ready to activate make sure all warning signs and any other precautions you may have taken are in place. Then activate the teeth by loosening the latch down device and be sure to retighten the latch down mechanism after activating the teeth. Please see instructions below.

### **Latch Down Instructions**

Although, your traffic system comes with a latch down assembly, Guardian Traffic Systems are not designed to be left in a latch down position for long periods. The teeth and shafts are zinc plated but may still be susceptible to rust which can cause the units to freeze in a lock down position when left immobile for long periods.



**LATCH DOWN INSTRUCTIONS: If equipped Hex Head Bolts - Standard**

Locate the two hex socket screws in the 1½" slot midway on the top plate. (See drawing below) In some cases there will be only one hex bolt in the slot.

Loosen the bolts and push both sections of teeth down with your hand, taking care not to allow teeth to spring up and cause injury.

Hold the teeth down below the top plate and slide the mechanism to the other end of the 1½" slot.

Tighten the bolts securely. The teeth should now be in a lock-down position.

To unlock the teeth, loosen the hex socket bolt, taking care to keep hands and feet away from teeth. The teeth will pop up automatically very quickly.

Guardian Traffic Systems are not designed to be left in a latch-down position for long periods. The teeth and shafts are zinc plated, but may still be susceptible to rust, which can cause the units to freeze in a lock-down position when left immobile for long periods. Engineered for a high degree of tamper-resistance, it offers positive engaging, high torque transmission while resisting cam-out and tool wear.

Matching socket required for installation and removal: 9/16" required (not supplied by GUARDIAN Traffic Systems)

**LATCH DOWN INSTRUCTIONS: If equipped with Tamper Resistant Hex Socket Pin Head Screws - Optional**

Locate the two hex socket pin head screws in the 1½" slot midway on the top plate. (See drawing below) In some cases there will be only one hex socket pin head screw in the slot.

Loosen the screws and push both sections of teeth down with your hand, taking care not to allow teeth to spring up and cause injury.

Hold the teeth down below the top plate and slide the hex socket pin screw mechanism to the other end of the 1½" slot.

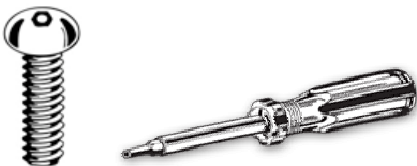
Tighten the screws securely. The teeth should now be in a lock-down position.

To unlock the teeth, loosen the hex socket pin head screws, taking care to keep hands and feet away from teeth. The teeth will pop up automatically very quickly.

Guardian Traffic Systems are not designed to be left in a latch-down position for long periods. The teeth and shafts are zinc plated, but may still be susceptible to rust, which can cause the units to freeze in a lock-down position when left immobile for long periods. Engineered for a high degree of tamper-resistance, it offers positive engaging, high torque transmission while resisting cam-out and tool wear.

Matching driver bit required for installation and removal:

5/32 (7/32 required for Surface Mount model spike sections) Socket Pin-Head bit is required to lock and unlock the latch-down assembly. You may order this tool from Guardian Traffic Systems or purchase it from your local hardware store.



### **MAINTENANCE of GUARDIAN Traffic Controllers:**

It is necessary to maintain your Guardian Traffic System Controllers consisting of periodic inspection insuring proper tooth and shaft movement and cleaning of any debris that may have settled or lodged inside the controller (dependent upon the site and elements in your area).

Accumulated debris can be vacuumed, blown or manually cleaned out by unbolting the top-plate, which gives free access to the inner cavity of the unit. If debris is allowed to build up the unit will malfunction which could cause damage to the unit or to vehicle tires traveling in the correct direction. The accumulation of organic matter and debris may cause premature rusting and deterioration of steel components.

With proper installation and maintenance of Guardian Traffic System Controllers systems you will benefit from many years of cost-effective and reliable directional access control.

If you have any questions please visit our web site [www.guardiantraffic.com](http://www.guardiantraffic.com) or call our customer service or engineering department for more information at 1.800.866.9115 or E-mail us at [sales@guardiantraffic.com](mailto:sales@guardiantraffic.com).

## **LIMITED WARRANTY for GUARDIAN TRAFFIC SYSTEMS Products**

GUARDIAN TRAFFIC SYSTEMS warrants that the Traffic Control Spikes System shall be free from all defects in material and workmanship for a period of one year (12 Months) from the date of the original invoice under normal use and service and specifically excludes any work, products or wiring done by others. GUARDIAN'S obligation under this warranty is specifically limited to repairing or replacing, at its option, any defective part, which upon examination by GUARDIAN proves to be defective during the warranty period. This warranty excludes any and all labor in regards to repair or replacement. This warranty shall not apply to any part which has been improperly installed, improperly maintained, rust or deterioration due to water retention, improper drainage or weather, accident, improper use, speed exceeding five miles per hour, traffic going the wrong way causing damage or any part which has been altered or repaired by any person not expressly authorized, by GUARDIAN, in writing to do so.

There is no warranty of merchantability or fitness for any particular purpose nor is there any other warranty, express or implied, except as specifically stated in the above paragraph. GUARDIAN does not represent that the products purchased may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained spike system may only reduce the risk of a burglary, robbery, fire or other event occurring without providing an alarm, but it is no guarantee that such will not occur or that there will be no personal injury or property loss as a result.

GUARDIAN shall in no event be liable neither for personal injury, tires, property damage or other incidental or consequential damages nor for any special damages or any further loss, which may arise in connection with any claim. However, if GUARDIAN is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of the cause or origin, GUARDIAN'S maximum liability shall not in any case exceed the purchase price of the individual product or products which shall be the complete and exclusive remedy against GUARDIAN.

Any legal action or proceeding relating to your use of GUARDIAN Products shall be instituted in a state or federal court in Pima County in the State of Arizona. You by purchasing these products and GUARDIAN agree to submit to the jurisdiction of, and agree that venue is proper in, these courts in any such legal action or proceeding.

This warranty may vary from State to State and certain restrictions may apply.