



MagnumSpike! Tire Deflation System

*Simply the most effective tire deflation spike system —
with a 100% safety record.*



Training Manual

Welcome!

Welcome to the world of MagnumSpike! This tire deflation device is a public safety tool designed to stop high-speed chases and provide perimeter security. When used properly, it can help apprehend perpetrators, reduce property damage, and most importantly—save lives.

In the company's 20-year history, not a single officer, bystander, or perpetrator has ever been injured while using the MagnumSpike tire deflation system. And we want to keep that record intact.

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Introduction

We have made every effort to make this manual a no-nonsense, straightforward, easy-to-use guide for our trainers and end users. It also attempts to arm you with as much knowledge as possible about our systems in order for you to get the most out of them. We take great pride and have complete confidence in our products. Any comments or suggestions are welcome and appreciated.

After 20 years of research and development in the lab and in the field and training based on feedback from hundreds of our end users, we have learned that by following certain protocols you can enhance the safety as well as the “every-hit-is-a-stop” performance of the MagnumSpike! systems. Every user can look at their MagnumSpike! as a parachute with the ability to save them from harm and by doing so allow them to protect innocent people from injury or even death.

First, it is important that trainers review the manual and the accompanying video and follow these instructions very closely. This is critical in your case as you will be training many more officers.

Next, develop a department vehicle pursuit and tire deflation policy. You may already have these policies in place, but it is important to review and revise them to address any legal, public and safety concerns that may arise with these devices.

Third, determine the training process you want your staff to follow. You should schedule time for classroom training, where you will review your policy, then use the video to go through each step of deployment. Then you should hold at least one session of field training so that each officer practices using the device and is familiar with safety issues.

We encourage you to follow up the training with an assessment using the form we have provided on page 11 of this manual. You also can print out the certificates to verify that individuals have received the training, then offer refresher training annually.

Finally, assign monthly maintenance of the device to your duty roster. It doesn't take more than 15 minutes, but making sure the device is in good working condition assures safety and can mean the difference between success and failure. Thanks to the MagnumSpike!'s carefully engineered design followed by training and practice, we have a 100% safety record.

Company History

MagnumSpike! was invented in 1980 BY a law enforcement professional, FOR law enforcement professionals.

Phoenix International Ltd., formed in 1986, is the industry leader for tire deflation systems. Its MagnumSpike! tire deflation device (TDD) is a public-safety tool designed to stop high-speed chases and for perimeter security. Phoenix was one of the first to introduce TDDs to the United States. In 1997, based on feedback from customers, Phoenix invested heavily in R & D, and developed a lighter and more user-friendly tire deflation system that is the envy of the industry.

Engineering

Since day one, we have and continue to look at ways to improve our systems. We take suggestions from our end users in law enforcement and the Department of Defense very seriously. Most of our improvements are based on user feedback. Everything is carefully analyzed and researched in depth resulting in continuous improvement of the MagnumSpike!

When our customers call in for free replacement components, we ask about their spiking experience. This gets us first hand reports, opinions and suggestions. For instance, at the suggestion of several end users to make our systems lighter, we decreased the weight from 36 pounds to 22.5 pounds for our largest model.

Over the many generations of improvements, however, the strength, durability and effectiveness of the MagnumSpike! have never been compromised for the sake of lightness. End users evaluation about the performance of the MagnumSpike! is always appreciated.

Engineered for reliability and strength, the MagnumSpike! is the best system without unnecessary bells and whistles. Everything the user needs is included. An officer can service and repair the system in the field in a matter of minutes, if so needed. The only tool required is the spike itself.

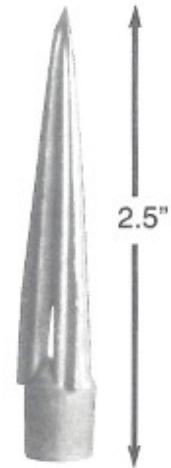
The Spike

The heart of the MagnumSpike! system is its unique, patented, elongated, pyramid-shaped, sharp, three-cornered spike (shown actual size at right). It is made of a rustproof, proprietary metal alloy. The spike has three sharp edges with flutes to channel the escaping air into a circular cavity at the base of the spike. The very sharp tip and the three cutting edges slice through the tire. It is designed to cut through up to five steel belts or more. This gives the spike enough strength to penetrate the tread and casing of a semi truck tire. It has been designed, sized and engineered to release the same volume of air in a controlled flow without getting choked.

The number of tire rotations—not the speed of the vehicle—is key to determining the swiftness of deflations. One MagnumSpike! embedded in a tire is the equivalent of the tire loosing its valve stem. Only one spike is needed to deflate a tire. Drivers report no loss of control after going over the MagnumSpike! system.

The patented hollow design of the spike will never plug and quickly deflates the tire. When the MagnumSpike! is deployed, you will hear a loud rush of air being released from the tire.

A critical feature, proven over the years during our numerous testing trials, is the “predictable stopping distance.” This ability, available only in the MagnumSpike!, allows law enforcement officers to pre-plan where the offending vehicle will stop. This makes the stop much safer and easier for the officers and the community they protect. When law enforcement officers can pre-plan their strategy for different scenarios, they can maintain and keep control over what may otherwise turn into a dangerous situation.



I. Phoenix/MagnumSpike Product Line

Product Development/Upgrades

It is one thing to be an industry leader, quite another to stay on top. Phoenix is constantly looking for ways to improve its design to meet the high expectations of its end users. With the help of a technology grant from NASA Glenn Research Center, Phoenix was able to perform several high-speed tests and a complete evaluation of its units at NASA's Plum Brook Station in Ohio, one of the world's leading space environment simulation facilities. Phoenix is one of the few companies to get such a grant three years in a row to help improve and update materials and technology.

Following a review of field test results based on the forces, tolerances and properties of the materials used, Phoenix incorporated this technology into its fifth generation MagnumSpike! and a new device—the MagnumClaw—to prevent stationery cars from fleeing.

Such extensive testing assures law enforcement and military agencies around the world of the most technologically advanced tire deflation systems possible.

Production Description/Current Product Line

MS Systems (MagnumSpike!)

The MS system comes in two models (hard case and the soft case Wrap & Roll models), each in two lengths. All systems are fitted with the patented spike which is held in place in a silicone collar fitted in cup holders that run the length of the scissor slats. The fit is carefully set to be neither too tight nor too loose in order to get a smooth release of the spikes into the tires when the vehicle goes over them. This basic system has been deflating tires of fleeing vehicles with 100% success and safety since day one.

MagnumSpike! Specs

Model	MS10	MS12	MS16	MS25
Case	Polymer Hard Case	Ballistic Nylon Bag	Ballistic Nylon Bag	Polymer Hard Case
Deployed Length	10 feet	12 feet	16 feet	25 feet
Dimensions	19" x 14" x 4.8"	19" x 6.5" rolled	19" x 7.5" rolled	20" x 30" x 4"
Weight	10 lbs	10.25 lbs	13 lbs	24 lbs
No. of Spikes	100	120	160	250

UMS Systems (Ultimate MagnumSpike!)

The UMS system (also in hard case and the soft case Wrap & Roll models) replaces the silicone sleeves with polymer pins that allow for an almost friction-free release of the spikes into the tire. The pins secure the suspended spikes in place, releasing only those spikes that are run over by shearing the pins while keeping the other spikes securely in place.

Ultimate MagnumSpike! Specs


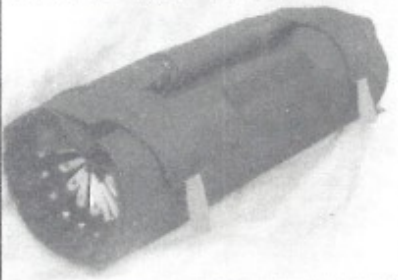

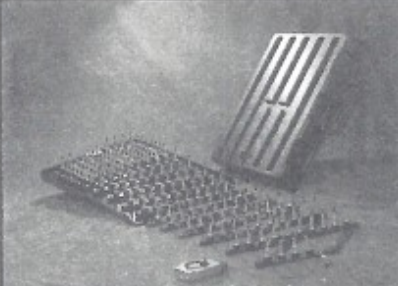
Model	UMS10	UMS12	UMS16	UMS25
Case	Polymer Hard Case	Ballistic Nylon Bag	Ballistic Nylon Bag	Polymer Hard Case
Deployed Length	10 feet	12 feet	16 feet	25 feet
Dimensions	19" x 14" x 4.8"	19" x 6.5" rolled	19" x 7.5" rolled	20" x 30" x 4"
Weight	10 lbs	10.25 lbs	13 lbs	24 lbs
No. of Spikes	80	96	128	200

MagnumClaw! *(One time use only)*

In response to several requests from the law enforcement community, Phoenix International has developed and patented a pocket-size MagnumClaw! It is an effective and inexpensive tool that will prevent stopped vehicles from fleeing. The MagnumClaw! contains three 2.5" spikes, identical to those used in our MagnumSpike! and Ultimate MagnumSpike! systems.



Models and Lengths—From 80 to 250 spikes

 A black hard case is shown open, revealing a row of 100 spikes inside. The spikes are arranged in a neat line, and the case has a latch on the right side.	<p><u>MS10 and UMS10 Hard Case</u></p> <p>The MS 10 hard case model is 10 feet in length, weighs 10 lbs. and has 100 spikes</p> <p>The UMS 10 hard case model is 10 feet in length, weighs 10 lbs. and has 80 spikes</p>
 A cylindrical, dark-colored wrap and roll case is shown lying horizontally. The front end is partially unrolled, showing a fan-like arrangement of spikes inside.	<p><u>MS12 and UMS12 Wrap & Roll</u></p> <p>The MS 12 Wrap & Roll model is 12 feet in length, weighs 10.25 lbs. and has 120 spikes</p> <p>The UMS 12 Wrap & Roll model is 12 feet in length, weighs 10.25 lbs. and has 96 spikes</p>
 A cylindrical, dark-colored wrap and roll case is shown lying horizontally. The front end is partially unrolled, showing a fan-like arrangement of spikes inside.	<p><u>MS16 and UMS16 Wrap & Roll</u></p> <p>The MS 16 Wrap & Roll model is 16 feet in length, weighs 13 lbs. and has 160 spikes</p> <p>The UMS 16 Wrap & Roll model is 16 feet in length, weighs 13 lbs. and has 128 spikes</p>
 A large, rectangular hard case is shown open. The interior is filled with a dense array of spikes, and the case is supported by a stand on the right side.	<p><u>MS25 and UMS25 Hard Case</u></p> <p>The MS 25 hard case model is 25 feet in length, weighs 24 lbs. and has 250 spikes</p> <p>The UMS 25 hard case model is 25 feet in length, weighs 24 lbs. and has 200 spikes</p>
 A small, dark-colored pocket model case is shown standing upright. It has a simple, rectangular design with a latch at the bottom.	<p><u>MagnumClaw!</u></p> <p>NEW! The MagnumClaw! pocket model. Weighs 4 oz. and has 3 spikes.</p>

Designed for Safety & User Friendliness

Not a single officer, bystander, or the perpetrator has been hurt while using the MagnumSpike! tire deflation system. Officers do not have to worry about the dependability or the effectiveness of their equipment.

Our goal for the training, besides proficiency, is to make officers comfortable in the knowledge that the MagnumSpike! will stop the offender. After awhile, deploying the system is an automatic reflex action, and officers are comfortable in the knowledge that every deployment is a successful stop. This allows them to concentrate more on the safety situation existing at the scene at all times. Officers soon come to realize and rely on the fact that if they can deploy, they can stop the chase without any incident.

Safety features

Safety features designed into each unit:

- All units are provided with safety caps for officer safety during training and practice.
- A Kevlar glove is provided with all MS models, to be worn when inserting new spikes into the silicone sleeves.
- In all Wrap & Roll models, an extra length of ballistic nylon runner is used to cover the spike tips, for officer safety when repacking the Wrap & Roll units.
- A cord 45 feet long, with a 150 pound tensile strength, is included with every system. The reel inside the spool has a spindle designed to break off if the pull felt exceeds 70-80 pounds. This safety feature will not allow an officer to get dragged by a tangled cord.
- NEVER wrap the cord around your hand or fingers.
- The cord allows all officers to deploy any system in many different ways.

The MagnumSpike! tire deflation systems are the favorite of the United States military and federal agencies for many reasons:

- Ease of use. It is simple and can easily be deployed at a moment's notice.
- No tools are required to replace spikes.
- Only one of the spikes is needed to completely assemble or disassemble the unit
- Extra spike kits are included for numerous deployments.
- An iron clad 5-year guarantee supplies the end user with free components for five years.
- The Department of Defense has been using the units for many years and has had nothing but great experience with the use and maintenance of the equipment.
- Total confidence in prompt support from Phoenix, manufacturer of the MagnumSpike!

II. Training

The MagnumSpike! tire deflation system is extremely simple to operate. With some practice it will serve you well and help take control of a dangerous situation. Phoenix is proud of the feedback from law enforcement and military personnel about the reliability and effectiveness of the MagnumSpike! to save lives in the field. You should be confident that you are getting a state-of-the-art, quality system that will do the job every time you need to respond to a pursuit or prevent one from starting. You should believe in your equipment, and the equipment must be worthy of your trust. But however good the equipment, you must understand how it operates and develop skill in its use.

Proficiency in the deployment of the MagnumSpike! may be achieved either through self-study with this manual and video or with a certified instructor provided by Phoenix.

Phoenix has instituted a hands on one-on-one "Train-the-Trainer" program for users of the MagnumSpike! Upon completion of this training, graduates can in turn train their officers and others in their state that may need training. It is free and available at our home base in Wisconsin, and at national and regional law enforcement trade shows where Phoenix exhibits. Classes are held on an as-needed basis, and, depending on the volume of the order, can be scheduled at your facility. Many law enforcement officers have also been trained at various departments around the country.

Self Study

- While we cannot stress enough the benefit of instructor-based training, we understand that it is not always possible. In such cases we highly recommend that at a minimum the trainer goes through the self-study program.
- Review the video provided and the manual several times in a classroom setting.
- Check the systems your department uses with the parts list.
- Test yourself with questions based on the information in this manual.
- Follow the step-by-step guide for deploying the particular model(s) the department has purchased.
- Call to talk to our chief trainer or one of our certified trainers if you have any questions.
- Practice deploying the system, also retrieving and packing, so it is ready for the next deployment. Do this until you master the proper deployment procedure flawlessly, and a high level of comfort and confidence is achieved.
- Review and practice deployment and maintenance procedures.
- You will then be ready to train officers in your department and others who can follow the same steps.

Instructor Training

Our head trainer, a law enforcement professional from Milwaukee, Wisconsin, and trained law enforcement officers from around the country are available to conduct training sessions. Classes consist of the following:

- Review of the video tape with the trainer augmenting the finer points of the system/s.
- Classroom review of the manual, firmly establishing the proper procedure, in the mind of the trainee.
- Hands on review of the model/s your department uses.
- Demonstration of deployment procedures and observation of practice sessions, showing the trainees ways of improving their form and their alertness to safety.
- Review and practice of maintenance procedures to ensure the flawless functioning of the MagnumSpike! model/s being used.
- Evaluation of knowledge being retained by the trainee through question and answer sessions, written and oral quizzes. Also testing of the practical skill in use of the system/s.
- Certificates at completion of training establish a feeling of achievement. Certificates can be provided by Phoenix to authorized, certified trainers of the MagnumSpike! system.

Training Class Scheduling

- Classes are held on an as-needed basis and can be held anywhere in the contiguous 48 states. Classes will generally be scheduled 60 days in advance and held on Fridays.
- If your department is buying a large quantity, training classes may be automatically scheduled at your facility.
- There is no tuition charge to officers being trained.
- On average, we attend a trade show once a month, which could be in any part of the country. We would like to schedule a training class for you at that time, when we are closer to your area and where it would be more convenient for you.
- We also like to demonstrate the MagnumSpike! It is very desirable to have the officers learn about the equipment and practice whenever possible. Call the home office for details on trade show scheduling.
- Our home office is located near Milwaukee, Wisconsin. You can contact the head office, (262) 784-2732 or (888) 667-9494

Minimizing Liability Through Training

One of the most important functions of any professional law enforcement administrator is controlling and limiting the department's liability. There are many things we cannot control in performing police services. Fortunately, training is not one of them. Training, rules and regulations and professional standards are some of the means by which we can regulate officer behavior and our ability to better serve our communities.

Vehicle pursuits are becoming more common because offenders often have their freedom at stake, may be wanted for felonies and think they can get away from law enforcement personnel. Offenders often have faster cars than city police agencies.

More law enforcement agencies have limited resources and have to get better mileage from their patrol vehicles. The powerful engines of the squads of yesteryear are long gone. Officers are not always able to overtake offenders.

During a recent training session, some officers present who already had experience using the equipment, said the MagnumSpike! gives them confidence knowing they can effectively handle and have control of a vehicle pursuit incident. This well justified confidence has to be present in both the deploying officer as well as the officer/s driving the chase car. Officers trained in the use of the MagnumSpike! will experience the same confidence.

MagnumSpike! systems are effective tools for law enforcement officers to end vehicle chases and prevent chases before they ever start and definitely before one gets out of control. Every department using spikes should have a well thought out strategy in place.

- Pre-plan and choose deployment sites
- Pre-plan distance and controlled stop locations.
- Pre-plan resources, (number of officers and squads) at such locations.
- When using the MagnumSpike! it will not be necessary to use the dangerous "bump technique" on the offending vehicle.
- A speeding 18-wheel semi truck can be stopped without endangering officers and their squads.
- Law enforcement officials don't have to form barricades using their vehicles avoiding the occurrence of dangerous incidents.

FILE
COPY

Training Record

MagnumSpike! Systems

Once the officer has completed training and shown proficiency in the safe use of the MagnumSpike! the instructor can certify the officer. This form may be duplicated, then completed and filed for each officer who completes training

Training Day Activity Record

Name of Trainee: _____

Department: _____

Training Officer/s: _____

Date(s) of Training and Procedures Covered: _____

Each item and procedure checked below was thoroughly reviewed and discussed by the trainer and participant.

- All questions from participants were answered.
- Each procedure was first demonstrated by the certified trainer and then properly performed by the participant.
- A copy of the department's vehicle pursuit policy was made available to the trainer.
- It was suggested that one hour be allotted for a refresher during the department's annual in-service training.
- This report should be included in the officer's training records.
- Deployment of the MagnumSpike! is dependent on the department's policy and an officer should not deploy if his or her safety is in question.
- Training Video was shown and reviewed. This can also be shown at roll calls and in-service training.
- Various models including the one/s this department uses were shown to participants and discussed.
- A live demonstration was performed.
- Participant practiced deployment.

I have participated in all facets of the above training standard and feel competent to deploy when needed.

Participant Name: _____ Signature _____

Date training completed: _____

Trainer's Name _____ Signature _____

III. When Your System Arrives

Hard Case System Check

The 10-foot MS/UMS 10 models come in an attaché type hard case and the system can be easily lifted out of the case with spikes facing inward. The 25-foot MS/UMS25 models come in a hard case. The spike unit sits on a flat, tray-like base. Remove the top cover completely by unsnapping the four latches (two per side). Grab the two sides and lift the cover *straight up*. Put it aside. Now check the contents.

The units come with extra spikes and silicone sleeves (50 for the MS model) or extra spikes and shear pins (25 for the UMS model), protective caps, a winding reel with 45 ft. of 150 lb. test nylon cord and safety caps for practice deployments. MS models include a Kevlar glove to be used when replacing spikes.

The 25 ft. spike system has been placed in the base/tray, which has three side support walls on it. The spike unit may be slid out or pulled out without lifting it. If for some reason the spike unit is to be moved and you do not have the time to put it back in the hard case, scoop up the collapsed system by getting both hands, palms up, under the system and curl it with all spikes facing inward. Then carry the curled system under either arm.

All the spikes in the MS models are seated in retainer cups. Check to make sure all spikes are in place. If any spikes have fallen out, put on the Kevlar glove and reposition each loose spike in its retainer. The glove protects you from the three sharp edges of the spike; however, you still have to be careful about the pointed tip, and cap all spikes around the one being replaced. After a quick, thorough check you are ready for deployment.

Soft Case System Check

The MS/UMS 12 & 16 models come wrapped in a 10 or 12 ft. nylon ballistic wraps and are stored in a ballistic nylon zippered case. Unzip the case fully and check the contents. The units come with extra spikes and silicone sleeves (50 for the MS model) or extra spikes and shear pins (25 for the UMS model), protective caps, a winding reel with 45 ft. of 150 lb. test nylon cord and safety caps for practice deployments. The MS units include a Kevlar glove to be used when replacing the friction-fitted spikes.

Check to make sure that no spikes have fallen out. If any spikes have fallen out of a MS model, use the Kevlar glove to reposition each spike firmly in its silicone holder. The fit of the spikes is carefully calculated to release into the tires without lifting the whole system and preventing a safety hazard. Our end users have followed these instructions resulting in a safe, swift and effective stop every time. The glove protects you from the three sharp edges of the spike; however, you still have to be careful about the pointed tip. So to play it safe, cap the spike you are replacing. Also, please cap all spikes around the one being replaced. After a thorough check you are ready for deployment.

Maintenance and Routine Inspections

It is imperative that all units are opened and thoroughly inspected at least once a month. It is possible that a unit was quickly picked up and packed away on the previous deployment without being loaded or setup up for the next deployment. Also, if a unit has not been used for a while and is bumping around in the bottom of the squad's trunk, the unit may become buried and not immediately accessible.

If the law enforcement officer makes a daily pre-shift squad inspection, he or she knows the equipment is ready to go. Once a month, officers should inspect and look at the bases of the spikes, put the glove on, and make sure that the spikes are firmly seated. In the MS models, the spikes may loosen up over an extended period of time.

IV. Deployment Strategies

Pursuit Policies of User Departments

Sample policies of other Police and Sheriff's Departments that have been using the MagnumSpike! system for several years are available upon request with written permission of the various departments. We will be happy to help you put together all the facts, data, etc. to help your department formulate a pursuit/spike policy that would be best suited to the requirements of your department.

No Chase Policy

Many departments have a no chase policy. The MagnumSpike! tire deflation device can support that policy. If and when an offender flees from an officer, the MagnumSpike! can be deployed in front of the offender's vehicle to stop it.

For example, an officer pulls over a speeder but the offender then speeds off. If the officer can keep the offender in view and radio ahead to other nearby squads, they could deploy the MagnumSpike! and stop the offender quickly, usually within 300 yards from the deployment site of the spikes without getting into a prolonged chase.

Communications Between Officers

Communications are critical for a successful deployment and vehicle stop. Following are some points to consider when drafting your department's policy for deploying the MagnumSpike!

- Who decides when to deploy? The department's policy may dictate this. What if a supervisor is not available? In the case of an emergency or a very serious incident, does the policy change?
- It is imperative that all officers involved know where the spikes are being deployed. The driver/s of the chase squad/s should maintain some distance from the perpetrator's vehicle and slow down so the deploying officer can quickly pull the spikes out of the way.
- Whatever the circumstances, never deploy if there is slightest doubt about officer safety or if it may be dangerous to an innocent bystander or other motorists.
- Everyone should be aware of the department policy, and it should be reviewed regularly.

Pre-Deployment Planning & Priorities for Maximum Safety & Effectiveness

As far as possible, reconnoiter the area you patrol or are likely to patrol. Select several spots that you feel give the target vehicle no choice other than to go over the extended spikes. Where practical, the selected stop site should provide safe cover for the deploying officer. If possible, stay out of sight. Do not give the offender a target. He may aim his vehicle at you in frustration or desperation. You are not dealing with a rational individual.

Avoid deploying in areas of heavy traffic, near construction zones or where sharp curves or hills may obstruct the officer's view.

Thanks to the ability of the MagnumSpike! to consistently deflate tires in a predictable distance, it is possible for law enforcement officials to plan for likely scenarios ahead of time. All vehicles, except large commercial vehicles and those with run-flat tires, will have their tires totally deflated and off the rim in 300 yards. It will have the same effect on large commercial vehicles, such as 18 wheelers, in about a mile; and vehicles with run-flat tires, that will normally go over 50 miles without air, in under 2 1/4 miles. You can use this information for pre selecting spots where the officer will also get cover. Also, make sure that the deploying officer will have the advantage of being able to see in all directions so as not to be surprised by any pedestrian or vehicle.

Absolutely nothing is as important as your own safety. If you feel that doing what you need to do poses danger, abort immediately. You owe it to yourself, your fellow officers, your family and the public you serve and protect to keep yourself out of harm's way.

Whenever deploying a spike system, remember that it will deflate the tires much faster if deployed diagonally rather than straight across the road. Many more spikes will get into each tire, discharging much more air.

Built in Safety - Precautions

The winding reel, used to safely pull the spikes across the road, is one of the best on the market, specially customized for the MagnumSpike! to function flawlessly. The nylon cord has plenty of tensile strength for the job it performs. It will snap the spindle off the spool to which it is tied if excessive force is exerted, and never drag the user if it ever got snagged.

NEVER WIND THE CORD AROUND YOUR HAND OR FINGER/S.

Best practice is to hold the reel in your hand in a relaxed grip, fully prepared to give it a sharp, backward tug, as soon as the suspect vehicle has gone over the spikes, thereby pulling the spikes out of the way of the chase vehicle(s).

In case of the rare occurrence where the perpetrator locks the brakes just before or upon hitting the spikes, the MagnumSpike! slat joints are assembled with e-clips so that the joints may come apart rather than be dragged under the vehicle or whipped back into the chase vehicles. It is absolutely necessary for the chase cars to slow down to allow a second or two, for the deploying officer to pull the spike strip clear, out of their way.

Pre-selecting Deployment Locations

- Pre-planning saves you time. Every patrol officer should be familiar with pre-selected deployment sites. They can also be listed on a sheet, clearly labeled and attached to the department policy. This will assure officers of positive results.
- Use the element of surprise as far as possible to your best advantage.
- If department policy mandates that overhead or emergency lighting is activated during deployment, it will eliminate the element of surprise.

Other considerations to use to help you hide from the offender:

- Trees or shrubs near the road. They are a good spot to conceal yourself. Shade from a tree may also help hide the deployed spike system.
- Bridges. You and the squad can hide on the opposite side of the abutments/sloped areas of bridges, corners of buildings, heavy concrete posts and pillars.
- Large rocks or signage mounted near the ground.
- Anything that you can hide behind and not spook the offender.
- If there's nothing nearby, try and get your squad off the road a bit, hide behind it and deploy the spikes by placing the unit across the road and pulling the cord when appropriate.

Special Deployment Circumstances

Run-Flat and Self-Sealing Tires: The run-flat tire is designed to run 50 to 70 miles with no air. MagnumSpike! will effect stop within 2.25 miles. The tire will literally separate from the bead off the rim of the tire. The self-sealing tire will deflate just like a regular tire. The self-sealing feature is effective on very small leaks and nails but is no match for the MagnumSpike!

Motorcycles: It is not recommended that MagnumSpike! be deployed to deflate any motorcycle tire as the operator will lose control of the vehicle. Ultimately, it is always the department's decision as to when the MagnumSpike! should or should not be used.

V. Deployment

You are ready to deploy and the MagnumSpike! is ready. If you have the time, place the unit on the opposite side of the road. This also assures you that the entire width of the road is covered as you can always pull the unit using the cord to cover the path of the fleeing vehicles, even if you have a unit that is not long enough to cover the entire width of the road. Unravel as much as you need of the 45-foot cord. It has a tensile strength of 150 pounds, and will give you plenty of distance to get off the road as far as you wish to keep you out of harm's way.

The chase is coming your way and your heart is pumping. Take a deep breath, try to find a spot to conceal yourself as well as your squad, if possible, and deploy the spikes. Try and take advantage of the natural terrain of the area and remember that the element of SURPRISE will always work in your favor. If the offender is not surprised, they may try and go around you, go in a ditch, go cross country, etc. to avoid being apprehended.

Deploying the MS10 and UMS10 "Hard Case" Systems:

Important - Please read these instructions first (Illustrated instruction sheet is also provided with units)

Types of Deployment: (A) Instant Deployment or (B) Cord Deployment

(A) Instant Deployment: (With a controlled motion, throw the system into the path of the fleeing vehicle).

When seconds count, swiftly deploy the system from the side of the road into the path of the fleeing vehicle. Unsnap the latches and open the case. Remember all MS/UMS systems can be curled with the spikes facing inward. Take a hold of the system from the two diagonally opposite corners and lift it out of the case. Place the unit over the forearm of the hand you favor and hold on to the front of the folded scissor slats with two fingers.

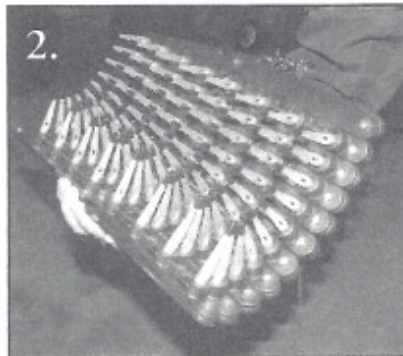
Grab and hang on to the winding reel while pressing down on the center of the winding handle. Hold the reel and, with the thumb, press down on the center (dot) for free release of cord. Bending your knees, swing your forearm with the unit in a low arc. About a foot off the ground, release the unit throwing it across the path of the vehicle you wish to stop. However, before that split-second decision to deploy, do a final, quick survey of your surroundings for pedestrians, other motorists, and the chase car/s. If you have the slightest doubt in your mind, abort. With the tire deflation system in its fully extended deployment, release as much of the 45 ft. cord as you feel is necessary. This can be done with ease by pressing down on the dot on the base of the winding reel crank/handle. This will release the cord and allow you to freely let it out. Hold the reel with the cord taut so you can swiftly pull the system out of the way as soon as the suspect vehicle has gone over it, allowing the chase car/s to continue. **DO NOT EVER WRAP THE CORD AROUND YOUR HAND.**

(B) Cord Deployment: (Placing the system on the far side of the road, deploy the cord back across the road and wait to pull the spikes into the path of the fleeing vehicle).

If you have time and there is a possibility that other vehicles may precede the suspect vehicle, place the unit by the edge of the road in its compacted form. Deploy as much as you like of the 45 ft. of cord across the road. Now vehicles can safely go over the cord without incident. Once the suspect vehicle is spotted, quickly pull the cord thereby deploying the system across the path that the suspect vehicle will traverse. Swiftly pull the system out of the way as soon as the suspect vehicle has gone over it. Be alert—even after the chase cars have gone by. Stay off the road. In fact, stay as far off the road as possible.

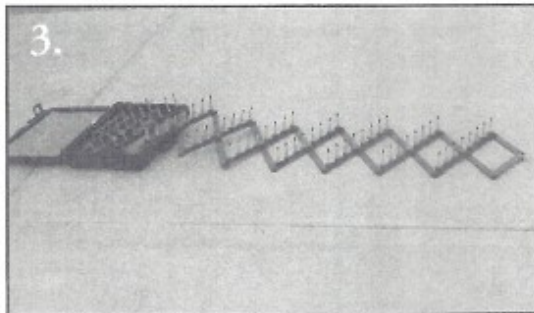
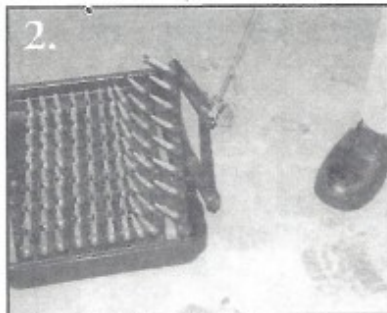
Deploying the MS10 and UMS10

Removal for Deployment - Instant Deployment



1. Fold unit inward and lift out of case 2. Place unit across forearm holding on to the edge with your fingers. 3. Hold on to reel with other hand and press and hold center dot for free release of the cord. Bend knees and swing throwing arm back. Throw unit across with a forward swing simultaneously releasing the finger hold. Hang on the reel ready to pull the spike unit into the path of the suspect vehicle with a swift pull backwards. Pull system swiftly out of way of chase car after the suspect vehicle has run over the system.

Deploying from Case - Cord Deployment



1. Open both snaps and fold back the lid so it lays flat. 2. Pull out system with the reel cord 3. Pull the spike unit across the road way/path 4. Pull system swiftly out of way of chase car after the suspect vehicle has run over the system.

Deploying the Hard Case Systems MS25 and UMS25

The 25 foot models are too big to throw out. However, they may be deployed either directly from the tray at the pre-selected place of deployment or, if the situation suddenly changes and a new place of deployment is required, may be removed from tray and carried to the new location.

Types of Deployment: (A) Deploy Directly from Tray or (B) Carry to Deploy

(A) Deploy Directly from Tray:

The primary method of deployment is to deploy directly from the tray. Place the unit on the far side of the road. Unlatch the four clips from the case and lift the case cover straight up from the base unit and place it on the ground. With the base unit resting on ground, use the reel cord to pull the spike system directly out from the open end of the tray across the roadway (Note that 3 sides of the tray have raised edges; the spikes are pulled from flat side).

If you have time and there is a possibility that other vehicles may precede the suspect vehicle, you may deploy the cord instead of the spikes across the road initially. Take the chrome/red spool; push the center of the winding arm to release the cord. The cord will roll freely. The cord is 45 feet long, with 150 pounds of tensile strength. The spool has a pull break point of 80 pounds.

Deploy as much as you like of the 45 ft. of cord as you walk back across the road. Now vehicles can safely go over the cord and, if necessary, part of the nylon runner without incident. Once the suspect vehicle is spotted, quickly pull the cord thereby deploying the system across the path that the suspect vehicle will traverse. Swiftly pull the system out of the way as soon as the suspect vehicle has gone over it. Be alert—even after the chase cars have gone by. Stay off the road. In fact, stay as far off the road as possible.

Whenever you have to cross the road be extremely careful. Look both ways twice. Also, make sure that where you have positioned yourself keeps you totally out of harm's way. Your vehicle may be good protection, but it is not fool proof. You are much better off behind an abutment, a large tree, a large boulder, a solid concrete wall, a corner of a building, etc.—anything that is just about immovable.

(B) Carry to Deploy:

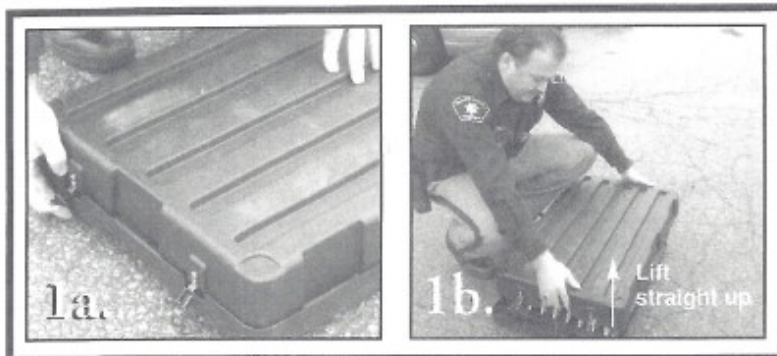
In the event it is necessary to suddenly change the place of deployment—and seconds count—it is recommended that the cover of the unit *not* be replaced before moving the spike unit to the new location, to save time. Instead, you may simply remove the unit from the case, carry it, or place it in your squad to move it quickly.

To carry the unit, hold the two opposite ends of the spike assembly, place both hands under it, and curl it up with the spikes facing inwards. Maintaining the circular roll with a tight grip, carry it under your arm to the selected spot, then prepare it for deployment as described above.

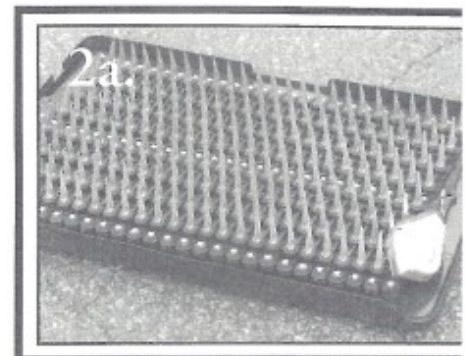
(See pages 18-19 for deployment photos.)

Deploying the Hard Case Systems MS25 and UMS25

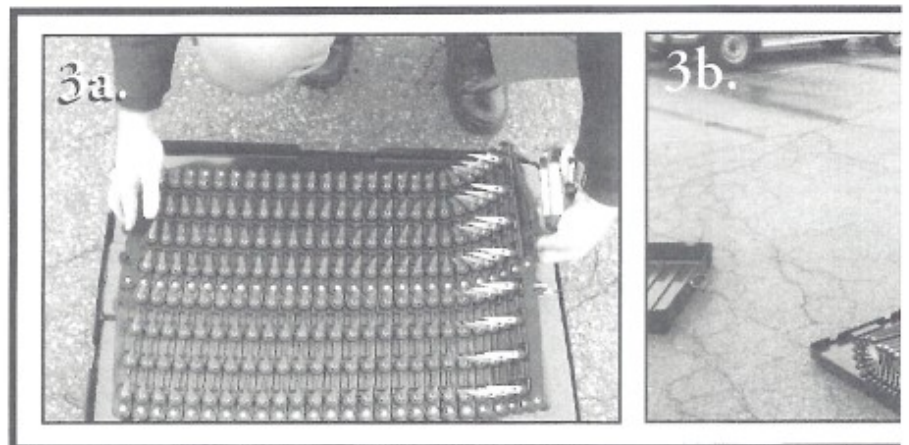
Both systems may be deployed either directly from the tray or removed from tray and carried to pre-selected place of deployment



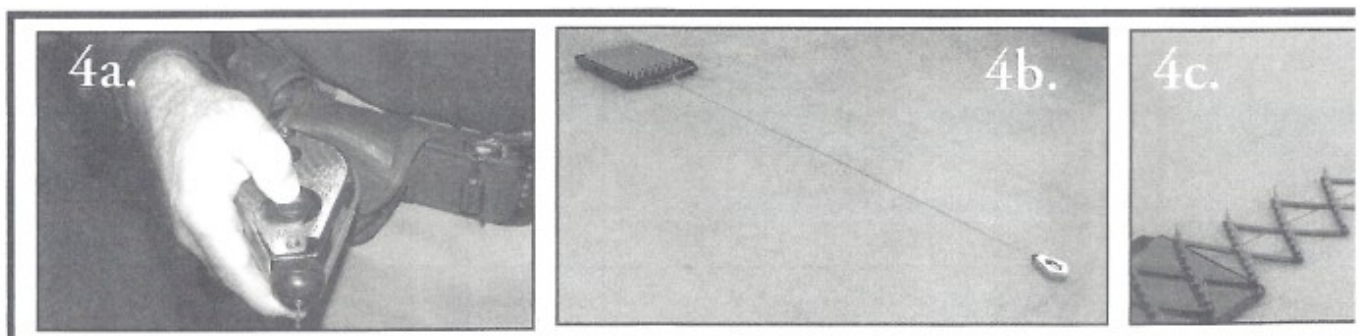
1. Opening the Systems (1a.) Unlatch the 4 clips (2 on each end) and (1b.) lift the cover/lid *straight up* from the base unit.



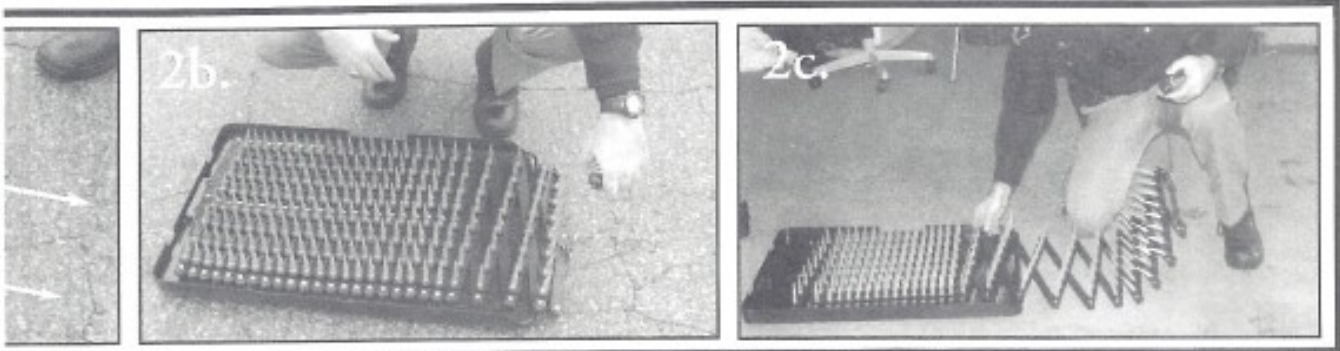
2. Deploying directly from the base tray



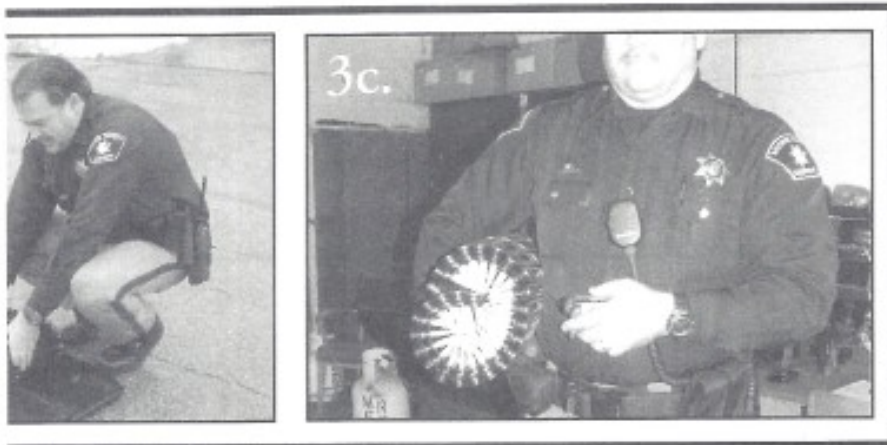
3. Removing spike unit from base tray before deploying



4. Activating Deployment Once the spike assembly is in the spot of your choice, freely release as much cord as required by pushing down on the center of the winding arm of the reel. Then, with the reel locked (no pressure on the center of the winding arm) be ready to pull out the spike assembly across the path of the suspect vehicle. As soon as the suspect vehicle has gone over the spike unit, immediately pull the system out of the way of the chase vehicle/s.



With the cover/lid removed and the base unit resting on ground use the reel cord to pull the spike system directly out from the open end of the tray.



Holding the two opposite ends of the spike assembly, place both hands under and roll it up with the spikes facing inward. Maintaining the circular roll, with a tight grip, carry it under your arm to the selected spot from where you wish to deploy.



5. Positioning Spikes Although the spikes may be deployed straight across the road in front of approaching vehicle (5a), maximum effect is achieved by positioning the spikes diagonally. In the diagonal position (5b), more spikes will make contact with the vehicle's tires.

In summary, deploying the “Hard Case” units is quite simple;

- The MS10 and UMS10 units may be deployed by throwing the unit in front of the fleeing vehicle or placed on the far side of the road and quickly pulled into the fleeing vehicle's path.
- The MS25 and the UMS25 units are too heavy to be thrown. They must be deployed directly from the case or removed from the case and carried to place of deployment.
- Hide yourself behind an object if you can; your squad is the last resort.
- You are ready to pull the cord when you want to. Depending on traffic, it may be a few minutes before the offending vehicle arrives. You may pull the unit to full deployment length immediately before the offending vehicle arrives.
- As soon as the vehicle is spiked, pull the unit off the road and advise all squads involved. It's possible that loose spikes may be in the road; pick them up if you can. Tests prove that spikes lying on the ground will not deflate tires.
- With the MS25 or UMS25, in the event it is necessary to suddenly change the place of deployment—and seconds count—it is recommended that the cover of the unit *not* be replaced before moving the spike unit to the new location to save time. Instead, you may simply remove the unit from the case, carry it with spikes curled inward or place it in your squad to move it quickly.
- If multiple squads are assisting, you may not have to go immediately to the offender vehicle/stop location. If you have time, load up your unit with fresh spikes right away. Multiple deployments during a shift are possible. One officer had three deployments/stops in one night using the same unit.

Multiple Deployments or Deployment for Multiple Vehicles

The MagnumSpike! can be run over several times at the same scene without replacing the spikes, if more than one vehicle is being chased. It would be extremely difficult for even a professional stunt driver to go over the spike strip without hitting a spike. In addition, spikes that remain in the deployed system after a run over can be distributed, including those from the two ends of the unit, if needed in a pinch. Once the chase is concluded, the empty cup holders should be fitted with new replacement spikes.

Deploying the “Wrap & Roll” Units:

Models MS16, UMS16, MS12 and UMS12
(Illustrated instruction sheet is also provided with units)

Rules of Safety

Like any other law enforcement tool, there is a right way to use the MagnumSpike! tire deflation system. Follow these procedures; they will ensure your safety and the safety of others in the vicinity. Deployment done properly will not slow you down. It will, in fact, ensure a swift, smooth and successful stop.

Never worry about the MagnumSpike! system or its retrieval. We will replace whatever you need at no charge. It is covered by warranty. Safety is your first and only concern.

Pick a secure spot and keep yourself out of harm's way. Your best bet is a solid, large, immovable object like a wall, a tree, an abutment, a pillar or post, a rock formation or even the corner of a building.

Your squad or patrol car should be used for a protective shield only as a last resort, as even a small car has the ability to push a full-size squad quite a distance if it rams into it at high speed.

Deployment

Absolutely nothing is as important as your own safety. If you feel that doing what you need to do poses danger, abort immediately. Do not take a chance. Other officers down the line can get the offender or he/she may even get away. You owe it to yourself, your family, fellow officers, your department, and the public you serve and protect to keep yourself out of harm's way.

Pick up the system by placing your hand under and through the handle, palm up. Use two to four fingers to hook and hold the elastic tab in front of the carrying handle. Rip and release the orange Velcro tabs at both ends of the rod handle, and fold them back securing the Velcro.

Holding the unit, swing your arm back and forward just as you would when bowling. Release the elastic tab when the lowest part of the rolled-up unit is one foot from the ground. This will unfurl the 18" wide, 10 or 12 ft. long ballistic nylon runner. At the end of the runner are the collapsed, scissors-jointed slats with the Magnum Spikes. When that end unfurls and the spike unit hits the ground, deploy/extend the full 12 or 16 ft. long system with a swift strong pull. This will automatically shoot out the spiked scissors slats to their full deployable length of 12 or 16 ft.

Types of Deployment:

Instant Deployment: When seconds count, swiftly deploy the system from the side of the road into the path of the fleeing vehicle. However, before that split-second decision to deploy, do a final, quick survey of your surroundings for pedestrians, other motorists, and the chase car/s. If you have the slightest doubt in your mind, abort. With the tire deflation system in its fully extended deployment, release as much of the 45 ft. cord as you feel is necessary. This can be done with ease by pressing down on the dot on the base of the winding reel crank/handle. This will release the cord and allow you to freely let it out. Hold the reel with the cord taut so you can swiftly pull the system out of the way as soon as the suspect vehicle has gone over it, allowing the chase car/s to continue. **DO NOT EVER WRAP THE CORD AROUND YOUR HAND.**

Cord Deployment: If you have time and there is a possibility that other vehicles may precede the suspect vehicle, unfurl the runner and allow the unit to sit by the edge of the road in its compacted form. Deploy as much as you like of the 45 ft. of cord across the road. Now vehicles can safely go over the cord and, if necessary, part of the nylon runner without incident. Once the suspect vehicle is spotted, quickly pull the cord thereby deploying the system across the path that the suspect vehicle will traverse. Swiftly pull the system out of the way as soon as the suspect vehicle has gone over it. Be alert—even after the chase cars have gone by. Stay off the road. In fact, stay as far off the road as possible.

If the officer does not feel comfortable rolling the Wrap & Roll model, have the unit on the opposite side of the road, pull the cord when appropriate, time permitting. A 12-foot runner is provided to help keep officers out of harm's way.

Multiple Deployments or Deployment for Multiple Vehicles

The MagnumSpike! can be run over several times at the same scene without replacing the spikes, if more than one vehicle is being chased. It would be extremely difficult for even a professional stunt driver, to go over the spike strip without hitting a spike. In addition, spikes that remain in the deployed system after a run over can be distributed, including those from the two ends of the unit, if needed in a pinch. Once the chase is concluded, the empty cup holders should be fitted with new replacement spikes.

See following 2 pages for photo demonstration of deploying the Wrap & Roll system.

Deploying the Model #MS12 & #MS16 “Wrap and Roll” System



1. Unzip case completely for easy and quick removal of TDD unit.



4. Now lift “Wrap and Roll” unit out of the carrying case.



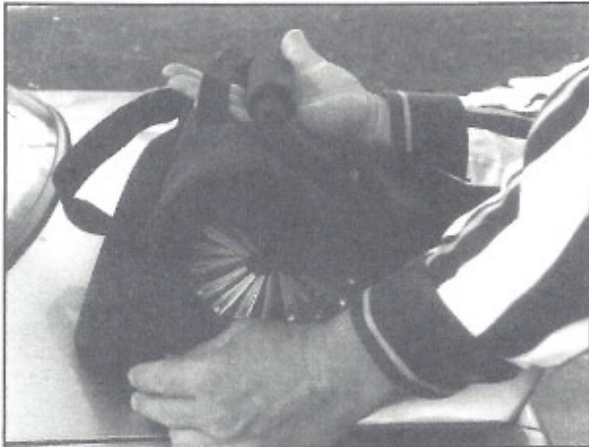
5. Using a bowling action, swing arm backwards, holding unit horizontal to ground.



8. Unit will roll forward and hit the ground, unravelling the 12-foot runner wrap.



9. The instant the spike assembly hits the ground, take one quick step backwards and...



2. Position hand palm up, under handle and through elastic tab up front.



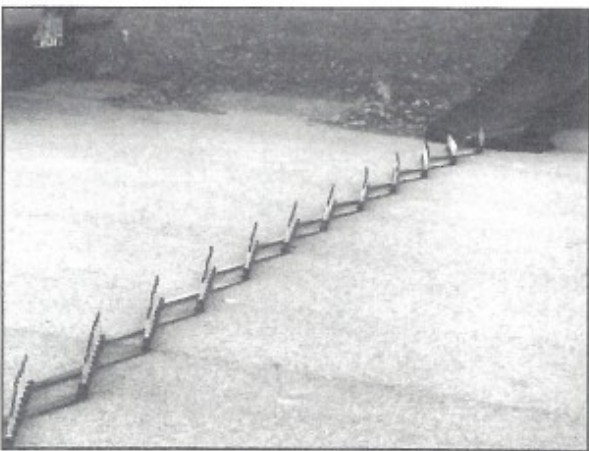
3. Rip open and turn over Velcro flaps to secure them out of the way.



6. Swing arm forward with force, start to crouch and maintain horizontal plane.



7. Maintain firm grip, swing arm forward, about 1 ft. above ground, *release the elastic tab.*



10. ...*snap* arm backwards *forcefully*.



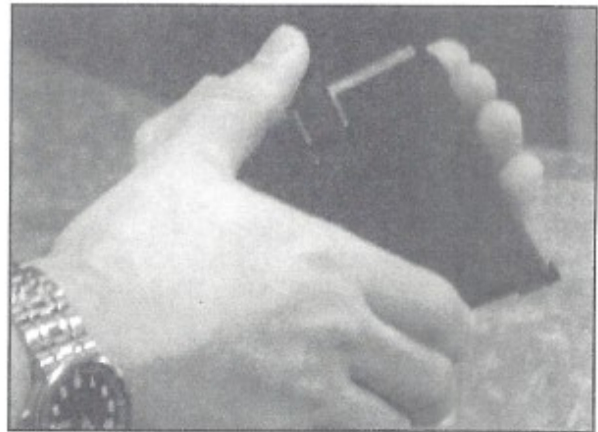
11. This maneuver will shoot the spike assembly to its full 16-foot length.

How to Deploy the MagnumClaw!

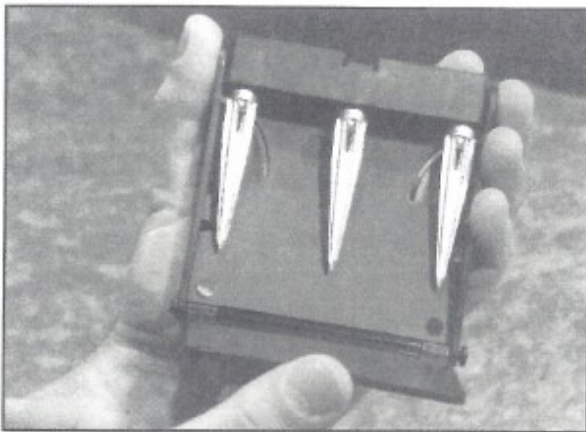
Now you can prevent fleeing vehicles and stop high speed chases before they begin, with the MagnumClaw! stationary vehicle device from Phoenix International. Simply place the pocket-size MagnumClaw! in *front* of the tire and, if possible, also *behind* the tire of the suspect vehicle stopped for questioning. If the driver tries to flee, the spikes deflate the tire, preventing the driver from initiating a high speed chase. Ideal for traffic stops, warrants, tactical, DUI, tagging stolen vehicles, etc.



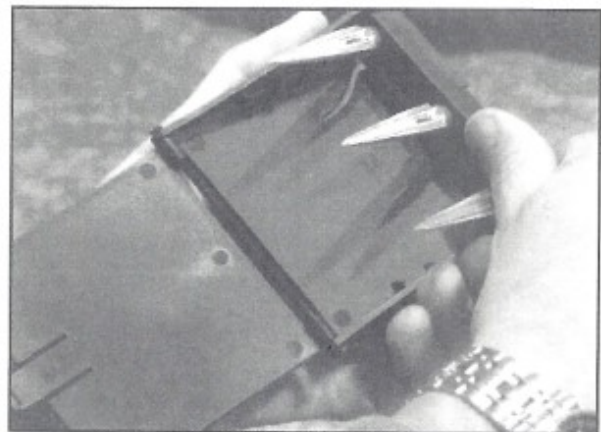
1. Hold the unit in the palm of your hand.



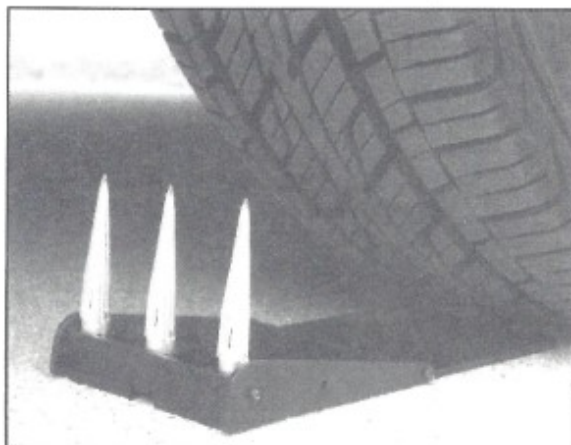
2. Use the thumb of the other hand to snap it open.



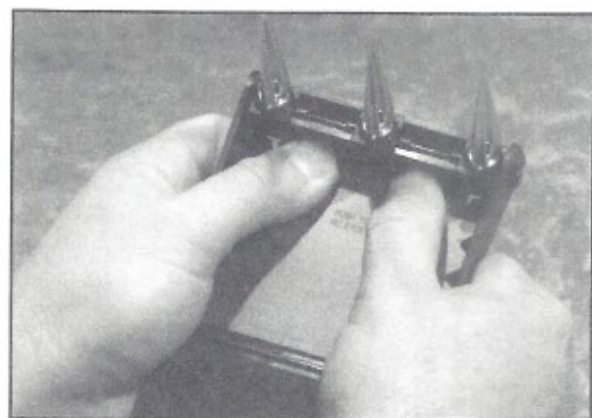
3. Rotate the three-spike assembly up until...



4. ...it locks in place.



5. Place under target tire.



6. To close *unused* assembly, push down oval points to unsnap locked assembly. Fold to close.

VI Post Deployment Procedures

Immediate Priorities

The instant the tire is spiked, you will immediately hear a loud rush of air coming from the spiked tires. This is normal. The MagnumSpike! system will always spike the two front tires. Depending on the angle of approach and the configuration of the suspect vehicle's tires it might spike three or even all four tires.

Swiftly pull the spike system off the road as soon as the offender drives over the spikes to reduce the chances of the chase vehicle or any other vehicle/s getting spiked. Please remember that coordination through communication with the deploying officer and chase squads is critical for safe and effective deflations without incident.

If you have the MS models with the silicone sleeves, you will probably have a few spikes other than those that penetrated the tires laying flat on the ground. During deployment, some might come off in the immediate deployment site. It has been researched, tested and proven that a spike lying on the ground will never penetrate a tire, nor will a single spike standing on its own. Without something to secure it in that vertical position, there is no possibility of such a spike ever penetrating anything. The used spikes can be replaced in the field or later at the station.

Spike Replacement for MS Models

The MS models utilize silicone sleeves to retain the spikes in their cup holders. Put the silicone sleeve into the cup holder. Cap spike being replaced as well as those all around the spike/s being replaced. Then, using the Kevlar glove provided, insert the spike into the sleeve with a continuous clockwise and counterclockwise motion. Apply downward pressure until the base of the spike touches the bottom of the cup holder.

Spike Replacement for UMS Models

The UMS models of the MagnumSpike! are equipped with a patented pin-shear design to facilitate the smooth, almost friction-free release of the spikes. The pins hold the suspended spikes firmly in place, releasing only those spikes that are run over by the tire shearing the pins, thereby preventing loss of additional spikes from the system. Replace the spike in the cup holder and place the pin through the side of the cup. Now start lifting the spike very slowly and push the pin through. Lock the spike by snapping the pin in the groove.

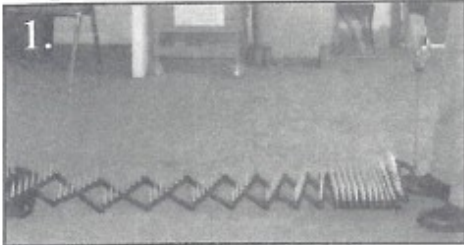
Packing the Systems for Reuse or Storage

Hard Case: (See following page for photos). For the Hard Case models, rewind the cord in the winding reel. With the side of your foot push the extended unit closed. For the MS10 or UMS 10, lift the unit with spikes facing inward, place in the case and latch. For the MS25 or UMS25, lift the back of the system and three or four slats onto the case (tray/base) and then carefully guide the rest of the unit so that all the slats fit on the tray. Place the lid over the unit and fit it into the groove that runs all around the edge of the base tray. Then snap all latches on the lid shut and place the unit back in its designated spot in your squad/patrol car.

Wrap & Roll: (See following page for photos). In the case of the Wrap & Roll models, rewind the cord in the winding reel while maintaining a drag, thereby introducing slight resistance while rewinding the cord. Repackaging the Wrap & Roll is a very simple but essential operation. Push the extended unit compactly closed with the side of your foot. Then place the extended ballistic nylon over the spikes and start firmly rolling up the system. Keep the edges of the wrap on both sides aligned to each other. Wrap up the full nylon runner like a bed roll so it is snug. A good snug wrap is essential for a good deployment. Close the system with the blaze orange Velcro tabs and place the unit in its zippered case. The unit should then be put back in its designated spot in your squad/patrol car.

Repacking the Systems

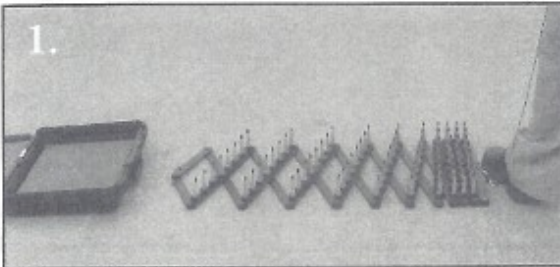
Repacking the Hard Case MS25/UMS25



If deployed directly from tray (1), use foot to push the spike slats together. If system was removed for deployment (2), use foot to push the spike slats together then roll up with spikes facing inward, place back in tray. Replace cover and shut all 4 latches.

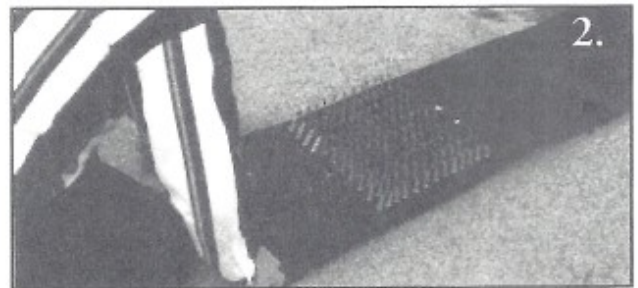
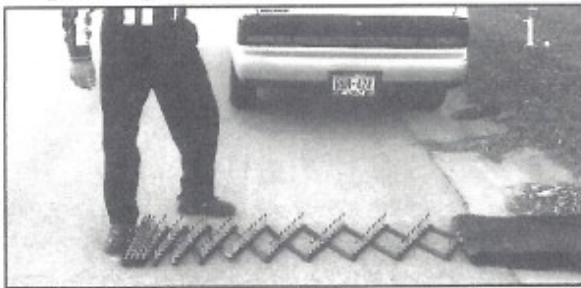
Place in trunk in *vertical position*. This will help avoid other items being placed on top of the system which might delay its removal when seconds count.

Repacking the Hard Case MS10/UMS10

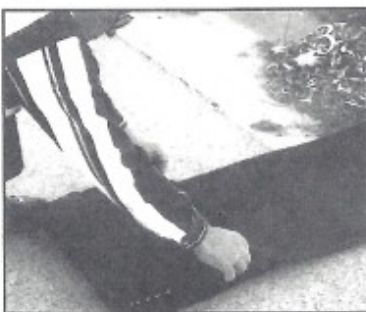


1. Use foot to push the spike slats together 2. Folding spikes inward, lift and replace the spike unit in its carrying case with reel. Secure the lid with the two snaps.

Repacking the Soft Case Wrap & Roll



1. After use, quickly pull spikes out of the way and push system closed with side of foot. 2. If time permits, replace used spikes and position collapsed spike system over tail end of the runner.

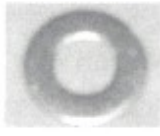


3. Fold the extra length of ballistic nylon over to cover the spike tips. 4. Roll up the covered spikes like a bedroll, keeping sides even. 5. Wrap unit snugly and secure fully closed unit with the Velcro straps and store in bag.

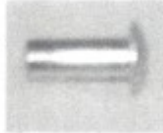
MagnumSpike! Parts List



#M-100
Silicone Sleeve



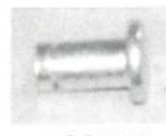
#M-110 Large
Flat Washer



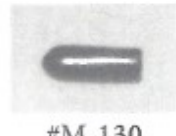
#M-160
Female Screw



#M-170
Male Screw



#M-120
Groove Pin



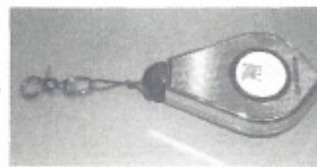
#M-130
Safety Cap



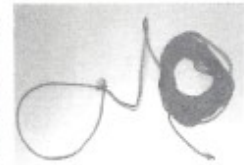
#M-140
Trigger Snap



#M-150
E-clip



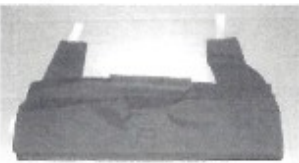
#M-180 Winding Reel



#M-190 45 foot cord



#M-200 MagnumSpike



#M-210 MS 12
and MS 16 Wrap



#M-220 Large Cupped Upper Slat



#M-230 MS 10, and
MS 25 Hard Case



#M-240 MS12 and
MS 16 Soft Case



#M-250 Large Flat Lower Slat

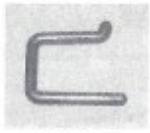


#M-270 Kevlar Glove



#M-260 Small End Slat

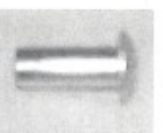
UltimateMagnumSpike! Parts List



#U-100
Shear Pin



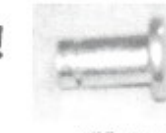
#U-110 Large
Flat Washer



#U-160
Female Screw



#U-170
Male Screw



#U-120
Groove Pin



#U-130
Safety Cap



#U-140
Trigger Snap



#U-150
E-clip



#U-180 Winding Reel



#U-190 45 foot cord



#U-200 UltimateMagnumSpike



#U-210 UMS 12
and UMS 16 Wrap



#U-220 Large Cupped Upper Slat



#U-230 UMS 10 and
UMS 25 Hard Case



#U-240 UMS12 and
UMS 16 Soft Case



#U-250 Large Flat Lower Slat



#U-260 Small End Slat

Waiver of Liability

MagnumSpike! tire deflation systems are used by many official government and law enforcement agencies. The MagnumSpike! is not for sale to any private individuals, security agencies or companies. If a private agency uses the MagnumSpike! it should be a contractor for the United States government.

Any law enforcement agency that borrows, sells, or gives a MagnumSpike! tire deflation system to any private entity, even if it is a security company, assumes full responsibility and liability.

Phoenix International assumes responsibility for the quality of our systems. They will be per specs and free of defects. We do not take responsibility for any problems or mishaps that may arise as a result of their use as there are innumerable factors beyond our control such as weather, road conditions, speed, mechanical, electrical, fuel, surrounding traffic conditions, pedestrians, animals, the human factor and anything unexpected.

Guarantee: 5-Year 100% Warranty

MagnumSpike! carries a "No If Ands or Buts" 5-Year 100% Warranty.

We will immediately supply spikes *and any other components* FREE OF CHARGE when MS or UMS units are used if replacements are necessary.

Contact Information

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Fax: (262)784-7946

Web site: www.magnumspike.com
E-mail: tdd@magnumspike.com

Thank You...

...for taking the time to learn this important operational and safety information. The MagnumSpike family of products exists for one reason: helping you keep the public safe. To be honest, we hope you never have to use our devices. But if you do, we encourage you to use them safely, and we appreciate your efforts every day on the job.

