

# Trainer Manual



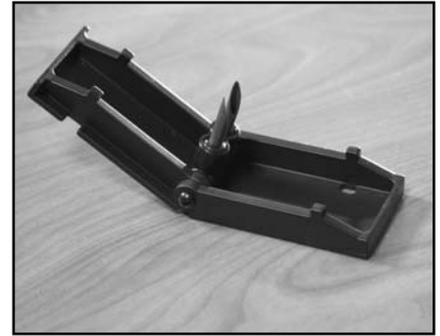
**STINGER**  
Spike System®  
by Federal Signal

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Federal Signal is committed to producing quality, cost-effective tire deflation devices to assist law enforcement personnel in bringing pursuits to safe and quick conclusions. Federal Signal feels so strongly in the safety of law enforcement personnel and the public that we offer free Stinger Spike System® training. Prior to being involved with a pursuit with Stinger Spike System, it is essential that you complete this free Stinger Spike Systems training program and understand your agency's pursuit policies and procedures.

Federal Signal offers two tire deflation devices. The Stinger Spike System is a tire deflation device used when a pursuit is already in progress. The Rat-Trap® II is a compact tire deflation device used on stationary vehicles to prevent a pursuit from occurring.



Persons or agencies deploying this device must carefully consider the circumstances, alternatives, and consequences for each individual situation. This device is designed to stop or slow fleeing vehicles by deflating the tires. Depending on the particular situation, deflation of vehicle tires may contribute to accidents, resulting in injury or death. Because the manufacturer cannot guarantee the physical or mental condition of the driver, the condition of the road, the condition of the vehicle and tires, traffic congestion, and other variables, the USER AGENCY must accept ALL liability and consequences resulting from the use of this product.

## OUTLINE

**Review these objectives and state that learning will occur at three levels. “First, you will watch a video. Second, you will review the information provided in the video and summarized in this training guide. Third, every participant will practice the skills necessary to safely deploy and retrieve the Stinger Spike System as well as perform basic maintenance on the unit.”**

Upon completion of the Stinger Spike System® training program and careful review of your agency’s pursuit policies and procedures, you will be properly trained to perform the following:

- Understand your department’s pursuit policies and procedures regarding tire deflation.
- Identify proper concealment areas in your jurisdiction.
- Identify when it is appropriate to use the Stinger Spike System® and Rat-Trap® II.
- Effectively communicate between the Deploying Officer, Lead Pursuit Officer and other units involved.
- Deploy the Stinger Spike System using the two recommended methods.
- Restore the Stinger Spike System to operating condition after it has been used in a pursuit situation.
- Demonstrate the skills required to be the Lead Pursuit Officer in a pursuit scenario.
- Demonstrate the skills required to be the Deploying Officer in a pursuit scenario.



## RAT-TRAP® II

*The Rat-Trap II is to be used on stationary vehicles only. Use caution when positioning the unit under the non-drive tire.*

In addition to the Stinger Spike System, Federal Signal also offers the Rat-Trap II. The Rat Trap II is a pursuit prevention device. The Rat-Trap II is a compact, pocket-sized tire deflator that can be quickly placed under a non-drive tire to prevent a pursuit from occurring. This unit is to be used on stationary vehicles at a routine traffic stop, at check points, or when servicing warrants.

Simply open the unit and place it snugly under a non-drive tire. If the vehicle moves, the tire will deflate and the vehicle will become disabled.



# STINGER SPIKE SYSTEM®

The Stinger Spike System is a tire deflation device used in stopping high-speed pursuits. The Stinger Spike System units are equipped with power point hollow spikes held in a durable nylon base. The units are designed with the patented Rock and Tilt method of tire deflation for bidirectional use. When the vehicle runs over the Stinger Spike System, sharp, hollow spikes penetrate and remain in one or more tires. Air passes through the spikes for a controlled tire deflation.



Typically, a tire picks up between four to six spikes and deflates in 12-20 seconds.

Stinger Spike Systems are designed to work on all types of vehicles, including cars, tractor trailer rigs, and city buses. **However, the deployment of the system on two-wheel vehicles is not recommended unless the use of deadly force can be legally justified.**



The Stinger Spike System is designed for use on flat surfaces such as asphalt and concrete. It can also be used on flat gravel and sandy surfaces.

# STINGER SPIKE SYSTEM® CONTENTS

Stinger Spike System models are packed in a durable, compact carrying case with replacement spikes, spike safety tip guards, and a spike replacement tool. Stinger Spike System units are designed to be lightweight, officer serviceable, transferable from car-to-car, and deployable in seconds.

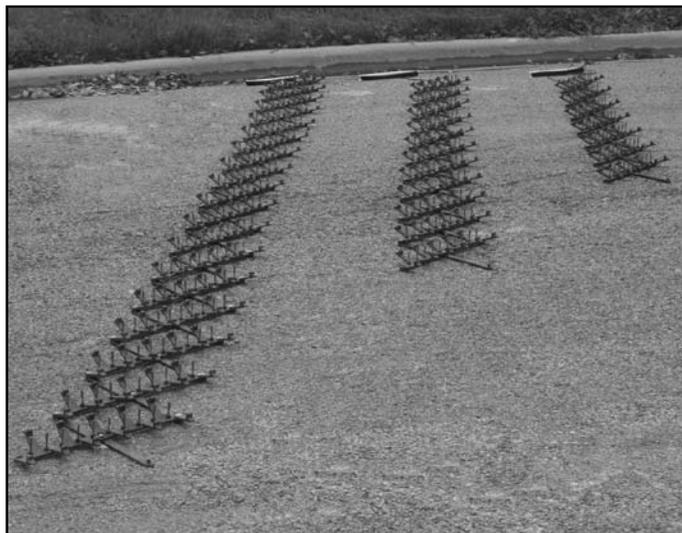
Each system consists of hollow, stainless steel spikes mounted on a sturdy reuseable base. Safety tip guards on each spike make the unit safe to handle. The tip guards remain on the spikes during deployment. The handle is attached to the unit by 40 feet of rope, allowing the officer to reach a safe distance for concealment and to retrieve the unit quickly and safely.



**While all three systems are available you should describe and show the unit that your department uses.**

The Stinger Spike System is offered in three lengths to increase the effectiveness and reduce the risk on roadways of various widths.

- 10-foot Metro system is designed for narrow city and country roads.
- 15.5-foot Trooper is designed for city and suburban streets.
- 25-foot Defender is designed for use on large interstates, turnpikes, ports of entry, and toll booths.



## DEPARTMENT'S PURSUIT POLICY

**Review your department's policy and procedures regarding high speed pursuits and the use of the Stinger Spike System.**

*It is essential that field practice take place every six months. It is also recommended to include it in your department's in-field service training.*

It is essential that trainers, supervisors, and officers review and understand their department's deployment policy, and then identify the approved deployment sites, traffic, population density, communication procedures, and other factors for safe deployment in your jurisdiction.



In addition to your department's deployment policy, which you should always refer to, Federal Signal offers some additional requirements in using the system:

- Only those who have successfully completed this training course and have participated in in-field service training are to use the Stinger Spike System.
- Patrol units are to be aware of which vehicles are equipped with a Stinger Spike System. A "Stinger On Board" decal will help to identify these units.



**Ask participants to identify possible deployment areas for their communities using the criteria listed to the right.**

**List the areas on a flip chart and then lead a discussion to the pros and cons of each location.**

**Emphasis should be placed on selecting safe potential deployment sites before they are needed in pursuit situations.**

**Discuss the possibility of a pursuit occurring through multiple jurisdictions.**

**Ask: “What types of measures should be taken before a pursuit occurs?” (The discussion should include communication and deployment coordination.)**

**Ask: “What could happen if you rush to set up a deployment?”**

**Lead a discussion as to potential problems that could occur: damage to other vehicles, risk of injures to officers and civilians, etc.**

**Ask: “Why is it important for the deploying officer to have this information?”**

**Lead discussion on the importance of proper location of deployment, and safety concerns that must be considered and addressed.**

## **CAUTION**

**For proper deployment and use of the Stinger Spike System always:**

- Identify proper concealment areas in your jurisdiction prior to an actual pursuit. Examples include bridge abutments, overpasses, guard rails, and trees.



- Never use your patrol vehicle as a form of concealment. Also avoid areas such as shrubs, curbs, hills, or steep embankments.
- Communication between the deployment officer and pursuing units is necessary.
- Information such as the designated deployment location, the suspect vehicle’s speed, lane position, car description, passengers, the presence of weapons, or the use of drugs or alcohol will help result in a safe conclusion.
- Since traffic situations are affected by time of day, avoid highly populated areas, school dismissals, construction areas, and rush hours.
- Time of day may have an impact on visibility. Darkness provides a form of concealment, but can also make it difficult to judge distances and lane position.
- Using emergency lighting can defeat the element of surprise unless the patrol vehicle is placed in a strategic position. It is recommended that the deploying officer’s vehicle have its lights turned off, but always follow your department’s procedure.
- As the lead pursuit officer, decrease vehicle speed and proceed cautiously through the deployment area.
- If the Stinger Spike System has not been removed from the roadway, pursuing officers are to continue driving over the system. Do not attempt to swerve or come to an abrupt stop.

## TRAINING IS ESSENTIAL

Proper planning, training, and communication are essential to maximize the effective use of the Stinger Spike System and ensure the safety of those involved.

- To complete proper deployment training, it is essential to practice the proper stance recommended for the deployment techniques.
- Field practice using an unspiked unit is required under various conditions to maximize the safe deployment of the system.
- The Deploying and Lead Pursuit officers are to practice communicating with each other, simulating a real pursuit.



# PULL DEPLOYMENT METHOD

*There are two methods to deploy the Stinger Spike System safely and effectively. There is the recommended pull deployment method and the curbside deployment method.*

**Demonstrate both methods on a smooth, hard surface. Have participants practice deploying the unit using both methods.**

**Pay special attention to participants when practicing. Remind participants not to hold the rope around their hand or wrist.**

**Pay particular attention that the rope does not get tangled around the feet or legs.**

**Correct any improper methods used by the participants.**

*If time does not allow you to retrieve the Stinger Spike System, the pursuing officers are to continue driving over the unit. Do not attempt to swerve or come to an abrupt stop.*

The recommended pull deployment method is used when longer setup time is available and traffic is minimal. In this method of deployment, the officer will have time to set the unit across the roadway and walk back 40 feet, the length of the rope, to protective concealment.

## Step 1

Retrieve the unit from the carrying case by its rocker arms.

## Step 2

Waiting for clear traffic, the officer places the unit across the street with the rope stretched across the roadway. Allow all 40 feet of rope to unwind from the handle by sliding it through your hand.

## Step 3

The rope is to be loose and lay flat against the road to allow traffic to pass over it. Position yourself in the correct stance behind protective concealment. Always have a 180-degree view of traffic.

## Step 4

Once traffic is clear and before the suspect vehicle arrives, pull the unit into position across the road by using the handle. Never wrap the rope around your hand or body.

## Step 5

Once the suspect travels over the unit, spikes penetrate one or more tires. After impact, retrieve the unit by grasping the handle and giving a sharp pull to the unit.



Step 1



Step 2



Step 3



Step 4



Step 5



*Note: This is an example during a training session. In an actual pursuit, an officer would take concealment behind protective coverage.*

# CURBSIDE DEPLOYMENT METHOD

*If time does not allow you to retrieve the Stinger Spike System, the pursuing officers are to continue driving over the unit. Do not attempt to swerve or come to an abrupt stop.*

The curbside deployment method is used for quick deployment situations. This method is fast paced. Use extreme caution when using this method of deployment.

## Step 1

Retrieve the unit from the carrying case by its rocker arms.

## Step 2

With knees bent and legs spread slightly, toss the unit just below knee height by rocking the system backward to forward, and then release. The unit will slide across the roadway. Feed all 40 feet of rope through your hand. Do not wrap the rope around your hand or body.

## Step 3

Grasping the handle, take concealment behind proper coverage. After the suspect has traveled over the unit, pull the handle to retrieve the unit.



Step 1



Step 2



Step 2



Step 3

*Note: This is an example during a training session. In an actual pursuit, an officer would take concealment behind protective coverage.*



# STINGER SPIKE SYSTEM® REPLACEMENT

*Systems that have been used and not repaired cannot be assured of effective deployment again.*

**Emphasize the importance of inspecting the unit immediately after recovery.**

**Practice inspecting the unit, replacing damaged spikes and returning the unit to its carrying case during outside practice.**

Federal Signal provides a lifetime spike replacement guarantee at no charge after a successful deployment. Once the unit has been deployed and recovered, it must be inspected and necessary repairs made prior to its next use. The deploying officer is responsible for the Stinger Spike System after its use. Each unit comes equipped with a spike replacement tool, ten spikes with tip guards, and compression sleeves.

The Stinger Spike System is completely field-serviceable. All spikes can be replaced on-site in less than five minutes:

## Step 1

To replace the missing spike, first remove the compression sleeve from the socket.



## Step 2

Using the replacement tool, insert the spike in the hole face down. Place a compression sleeve over the base of the spike and slide it down to the tool.



## Step 3

Remove the spike from the tool and place it in the hole of the spike base. The spike must be seated flush in the spike hole.



*In addition to spike replacement, check the unit for loose screws. Extend the unit fully and tighten any loose screws just enough to prevent the washer from turning. Check the rope for any knots and fraying. Also check and tighten the Quicklink of the handle to ensure it is secured properly to the base.*



#### Step 4

Place the stem of the tool over the spike and push the compression sleeve down.



#### Step 5

Use a side-to-side or circular motion of the tool to push and seat the compression sleeve flush with the top of the spike boss.



#### Step 6

Cap each spike with a tip guard.



# STINGER SPIKE SYSTEM® MAINTENANCE

The Stinger Spike System was designed to withstand multiple high-speed impacts. In the event that the nylon base breaks or is damaged in the course of its use, Federal Signal will replace the damaged section at no cost or obligation to the owner during the warranty period. If the unit is damaged to the extent that it cannot be folded, straighten the pieces out the best possible way and try to place it back into the case. The unit can later be stretched out to assess the damage.

Damage to the spike base sections does not mean the unit is beyond repair. Damaged sections can be removed and the remaining sections can be screwed back together so that the unit, although shorter, can be utilized until damaged sections are replaced. Notify the Stinger Spike Systems Customer Support Department of the damaged section. If it is under warranty, it will be replaced at no charge.

In the proper care and maintenance of the Stinger Spike System, follow these additional instructions:

- Do not use any petroleum-based lubricant on the system or case, as it will cause the plastic materials to deteriorate.
- When folding the unit, shake it to dislodge any grass, rocks, or other debris that would prevent it from folding properly.
- Place the unit in the case with the rope to the hinge side and place the rope in the slot under the rocker arm. If the rope is not put in this recess, the case lid may not be closed securely or may be sprung.
- Store all accessories in an area of the patrol vehicle that is readily accessible.
- Check the system biannually to ensure that it is in proper working order.



## REVIEW

- During a pursuit, always defer to your department's pursuit policy.
- Federal Signal recommends that law enforcement personnel review all procedures every six months and add it as part of the department's regularly scheduled in-field service training.
- Remember to follow all maintenance and service instructions.
- Be familiar with safe concealment areas, such as bridge and overpass abutments, guard rails and trees.
- Have a 180-degree view of traffic and remain aware of oncoming vehicles at all times.
- Communication between pursuing vehicles, the deploying officer, and other involved personnel is essential in a safe, successful end to a pursuit.
- Never wrap the rope around your hand or body when deploying or retrieving the unit.
- Use the Rat-Trap® II on stationary vehicles only. Use caution when positioning the unit under the non-drive tire.

Federal Signal offers free hands-on training, which is conducted with moving vehicles and unspiked Stinger Spike System training units. Call 1-800-STINGER or visit our website [stinger-spikes.com](http://stinger-spikes.com) for more information about the Stinger Spike System or to schedule a certified training course.

Stinger Spike Systems are used around the world to bring high-speed pursuits to safe and quick conclusions. Proper deployment of the Stinger Spike System used in accordance with your departmental pursuit policies and procedures can effectively bring pursuits to safe conclusions in your jurisdiction.



# TEST

*Please print clearly.*

Date: \_\_\_\_\_ Trainer: \_\_\_\_\_

Officer: \_\_\_\_\_ Score: \_\_\_\_\_

Circle the correct answer. When you have completed this assessment, turn it into your trainer for scoring.

1. The Stinger Spike System can be deployed:
  - A. Any time the officer sees a need to quickly end a high-speed pursuit
  - B. Only if the officer is trained in the proper deployment of the use of the unit
  - C. When the deploying officer can identify a safe deployment area
  - D. All of the above
  
2. The Stinger Spike System is a unit that penetrates tires causing a gradual decrease in the speed of the suspect vehicle.
  - A. True
  - B. False
  
3. The Stinger Spike System is a unit so versatile that it may be used over and over again without the need for inspection or repair.
  - A. True
  - B. False
  
4. The Stinger Spike System may be used to **safely** stop **any type** of vehicle involved in a high-speed pursuit.
  - A. True
  - B. False
  
5. Which of the following offer protection to the deploying officer?
  - A. Bridge abutments, guardrails
  - B. Trees
  - C. The Deploying Officer's patrol unit
  - D. A and B only
  - E. All of the above
  
6. Certain roadway conditions, such as steep embankments, curves, hills, and highly populated areas should be avoided as deployment sites.
  - A. True
  - B. False



7. Which of the following is important information to the Deploying Officer?
- A. Other law enforcement agencies involved in the pursuit
  - B. Suspect vehicle's description, weapon involvement, and other risks
  - C. Location, direction and speed of the pursuit
  - D. All of the above.
8. Curbside deployment:
- A. Requires that the deploying officer pull the unit across the lane of traffic using an attached rope
  - B. Is used when time is limited or traffic is heavy
  - C. Is the least effective way to deploy the unit
  - D. Is used when the deploying officer has no time to identify an escape route
9. Once the Stinger Spike System has been hit:
- A. It becomes inoperable and must be disposed of
  - B. It may be left in the roadway, as all the spikes are destroyed
  - C. It must be immediately removed from the roadway to avoid damaging other vehicles
  - D. None of the above
10. Pull deployment:
- A. Requires that the deploying officer pull the unit across the lane of traffic using an attached rope
  - B. Is used when time is limited or traffic is heavy
  - C. Is the least effective way to deploy the unit
  - D. Is used when the deploying officer does not have time to identify an escape route
11. How far off the roadway should the deploying officer be:
- A. As far as he/she has time to get
  - B. 40 feet, the maximum length of the rope
  - C. 20 feet, halfway is good enough
  - D. None of the above
12. If the deploying officer does not have time to retrieve the unit from the roadway then the lead pursuit vehicle should:
- A. Swerve to avoid hitting the unit
  - B. Continue driving over the unit
  - C. Come to an abrupt stop





**FEDERAL SIGNAL**  
Safety and Security Systems

*Advancing security and well-being.*

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