



## **Investigation Guideline**

**Product: Tree Stands**

**Appendix #: 133**

**Date amended: March 2005**

### **I. Introduction**

#### **A. Background Information**

Hunting tree stands, or simply tree stands, are devices used while hunting to give a hunter an elevated position above his/her prey. Hunters perceive that there are several benefits of hunting from a tree stand, including (a) the elevated sight improves seeing game; (b) game on the ground are less likely to see hunters who are elevated; (c) the hunter's scent is dispersed higher, thus improving the chances of not being detected; and (d) shots are typically safer due to the angle towards the ground.

The CPSC staff estimates that several thousand injuries associated with tree stand use are treated in U.S. hospital emergency rooms annually, based on a review of NEISS data. A majority of these injuries were due to falls from tree stands where the cause of the fall was not reported. In only a few cases was staff able to determine that a failure occurred to the stand and contributed to the fall. It is unknown how many of these injuries are from commercial stands versus homemade stands. In-depth investigations potentially could help determine the extent and specific causes of tree stand failures in addition to providing information about how many tree stands are commercial versus homemade.

Tree stand manufacturers/sellers are required, according to the voluntary standard, to provide a full body harness with the purchase of a tree stand. Full body harnesses and other types of fall arrest systems (FAS) can also be purchased separately. Staff also has information pertaining to several incidents involving hanging or traumatic asphyxiation by a safety belt, chest harness or full body harness that resulted in death.

#### **B. Product Descriptions**

Tree stands are grouped into four broad classes: (1) climbing stands, (2) ladder stands, (3) fixed stands, and (4) homemade stands. A climbing stand is constructed of two pieces, a base platform and a seat platform. There is often a strap that attaches the base platform to the seat platform. To ascend a tree, the stand is "walked" or "inched" up a tree by alternately raising the seating platform and the standing platform in a stand up, sit down pattern. This pattern is reversed to descend the tree. The climbing function is integral to the design of the tree stand, making additional climbing

equipment (ladders, tree steps, climbing sticks, etc.) unnecessary. Figure 1 is an example of a typical climbing stand.



**Figure 1 Typical Climbing Tree Stand**

Ladder tree stands are comprised of a ladder that has a seat at the top. The ladder is propped up against the tree where it is secured by means of a chain or strap. The height of ladder stands ranges from 12-17 feet. Most models are for a single user. However, there are models that are marketed for two or more persons. Figure 2 is an example of a typical ladder stand.



**Figure 2 Typical Ladder Tree Stand**

A fixed tree stand consists of a base and a seat. These tree stands are fastened to the tree by means of webbing or chains. These tree stands require a separate means to reach the desired elevation. This can be accomplished by a ladder, climbing sticks, or tree steps. Climbing sticks are portable devices that have steps that can be used to climb the tree. Tree steps are portable steps that are attached to the tree by straps or screwed into the tree. Multiple tree steps are used to climb the tree. Figure 3 is an example of a typical fixed tree stand.



**Figure 3 Typical Fixed Tree Stand**

Homemade tree stands can vary in construction from copies of the three previously mentioned stand types to tree fort style houses constructed of wood. Many homemade stands are constructed on private property as most state and federal lands restrict the use of permanently constructed hunting stands on these properties.

### **C. Fall Arrest Systems (FAS)**

A FAS is any type of fall protection devices marketed for tree stand use. A FAS can be classified as one of three different types: safety belts, chest harnesses, and full body harnesses. All of these devices use a lanyard to secure the device to an anchor point on the tree. The lanyard usually attaches to the harness at the user's back. A safety belt has a single loop that can be worn around the waist or chest area. These belts are generally the simplest and least expensive of the three types. Before the current voluntary standards became effective, tree stands used to come with a safety belt. The hazard associated with these FAS is that they save the hunter from falling, but then the hunter will quickly asphyxiate from hanging from the tree. Figure 4 is an example of a safety belt.



**Figure 4 Safety Belt**

A chest harness incorporates shoulder straps into the basic safety belt design. Even with the addition of the shoulder straps, the same asphyxiation hazard exists as with the safety belt. Figure 5 is an example of a typical chest harness.



**Figure 5 Chest Harness**

A full body harness consists of a waist belt, shoulder straps, and straps for the pelvic and thigh area, that help distribute the forces incurred from a fall evenly across the body. It also gives the suspended hunter more time to get down from the tree before being asphyxiated. A full body harnesses is the most expensive of the three fall protection devices and is the type of FAS required by the current ASTM standards to be sold with all tree stands. Figure 6 is an example of a typical full body harness.



**Figure 6 Full Body Harness**

## **D. Headquarters Contacts**

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## **II. Instructions for Collecting Incident Information**

### **A. Synopsis of Incident**

It is important to describe clearly the sequence of events. Describe what happened immediately before, during, and after the incident. Include the position of the victim relative to the tree stand, and a detailed description of how the tree stand was being used at the time. Try to establish whether the victim was ascending, descending or in the process of hunting at the time of the incident. If the tree stand was homemade, obtain basic accident scenario and information about the FAS, and the use of the FAS.

If the incident resulted in a death, obtain the medical records, accident reports and any other information that might help determine the sequence of events leading to the incident.

## **B. Description of Incident Environment**

Describe all relevant information on environmental factors such as lighting (what time of day did the incident occur), the weather conditions, the type of tree the stand was attached to, the height at which the stand was attached, the diameter of the tree, and the ground condition under the tree stand.

## **C. Description/Background of Injured Person**

Obtain information pertaining to the victim – age, height, weight, physical and mental condition at time of incident (taking any medications, drinking alcohol, level of alertness), the length of time in the stand at the time of the incident, years of hunting experience (had they taken any hunter safety courses), years of tree stand experience, and personal use of the FAS (did they always use one, sometimes use one, never use one)?

If the injured party was not using the FAS at the time of the incident, interview the subject to determine the following:

- Was a fall arrest system supplied with the tree stand? If so, what kind was it?
- If not, did the victim purchase one separately? If so, what kind was it?
- Was a training video or manual supplied with the tree stand? If so, did the victim review it prior to using the tree stand?
- Why did the victim not wear the fall arrest system?

## **D. Description of Product**

Document the type of tree stand and FAS involved in the incident. Visually examine the tree stand for signs for abuse, missing or broken parts, modified safety devices, or other problems. Document the manufacturer, model number, and any other identifying information on the stand. Obtain purchase and use history of the stand and FAS. Where and when was it purchased, how much did it cost, how often had it been used, were there any prior problems, were any modifications made to the stand or FAS.

If the FAS was being used at the time of the incident, document its condition. Are any of the straps broken, frayed, or stretched? Are there any signs of unusual wear or tear?

### **III. Obtaining samples and documents related to the investigation**

If the cause of the incident appears to be related to the mechanical failure of the tree stand or one of its components (including the FAS), obtain the tree stand and FAS as a sample. If the instruction manual, any instructional video or DVD, or box for the tree stand are still available, collect them as part of the sample or obtain copies/photographs. If the tree stand is a homemade unit, photo-documentation of the stand and FAS, if applicable, will be sufficient. If the cause appears to be related to user error or misjudgment, photograph the stand and fall arrest system only.

Local jurisdictions that provide hunting licenses may also require all accidents be documented, using a hunter accident report form. Contact the licensing body to obtain a copy of any reports. If the incident resulted in injury or death, obtain a copy of the medical records.



## **DATA RECORD SHEET**

### **Tree Stand Investigation Guideline**

TASK NUMBER \_\_\_\_\_ INCIDENT DATE \_\_\_\_\_

1. Brand name (manufacturer), model name and number of the tree stand? (If the stand was homemade, report who made the stand – victim or relative of victim?)
  
2. What type of tree stand was being used: climbing, ladder, fixed, or homemade? If homemade, is it a permanent installation?
  
3. Age of tree stand (when was it purchased)? When was the stand first used? Prior to the incident, how often was the tree stand used? On average, how long was the tree stand in use each time?
  
4. Did anyone besides the victim use the tree stand? If so, how often?
  
5. Had the tree stand been changed, modified, or repaired in anyway since purchase? If so, how was the stand changed or modified? Who did it?
  
6. How long had the victim been using the tree stand the day the incident occurred?
  
7. What exactly was the victim doing at the time of the incident? Was he/she ascending/ descending or stationary? Provide a description of the incident from the victim's point of view.
  
8. Describe the physical location and interaction between the victim and the product at the time of the incident.
  
9. What time of day did the incident occur? Was lighting an issue?

10. What was the weather like? Temperature? Precipitation? Wind conditions?

11. What kind of tree was being used at the time of the incident? Had this tree ever been used before by the victim? Estimate the height of the tree stand at the time of the incident. If a climbing stand was used, estimate the diameter of the tree at the base and where the tree stand was on the tree at the time of the incident.

12. If the injury was due to a fall to the ground, ask about the presence of branches and the ground condition under the stand.

13. Victim Information (at the time of the incident):

- Age:
- Height:
- Weight:
- General Physical Condition:
- Mental Condition (use of drugs, alcohol, sleep deprived, etc.):
- Years of hunting experience:
- Years of tree stand experience:

14. Use of a FAS – did the victim use the FAS when using the tree stand? (Always, sometimes, never, during the incident)?

- If use was sometimes, ask what determined whether or not it was used?
- If the FAS system was not being used at the time of the incident, inquire as to why?
- What type of FAS was used and describe how the FAS system was worn (e.g., if a safety belt, was it worn around the waist or chest)
- Subsequent to the fall, describe whether it moved upwards and/or constricted around the body in such a way as to make it difficult to breathe.

15. If FAS stopped the victim's fall, explain how the victim got down from the tree. How long was he/she hanging? How far did the victim fall before the fall was stopped by the FAS? How far was the victim from the ground when suspended by the FAS?

16. Was a FAS supplied with the tree stand? Was it the one used in the incident? If it wasn't the one used in the incident or no FAS was used, what type of FAS came with the tree stand?



17. If no FAS was supplied with the tree stand, did the victim purchase one separately? If so, what kind?

18. Was a safety video or instructional book supplied with the tree stand that discussed the use of a FAS? If so, did the victim review it prior to using the tree stand?

19. What is the condition of the FAS? Look for broken, stretched, frayed or worn straps/buckles.

20. In the victim's opinion, what caused the accident?

21. Was an accident report filled out to document the incident? If so, by whom?