

TMS 08

Standard Test Method for Treestand Fall Protection Devices

1. Scope

- 1.1 This test method covers the determination of load capacities of treestand fall protection devices relative to the manufacturer's rated capacities. Potential effects on the human body during use of fall protection devices is not addressed as part of this standard.
- 1.2 The values stated are in English units.
- 1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

- 2.1 *Manufacturing Standards*: Treestand Manufacturing Standard TMS 01
- 2.2 Individual manufacturer's Quality Assurance documentation.

3. Terminology

- 3.1 The terminology and definitions in the referenced documents are applicable to this practice.
- 3.2 *Definitions*:
 - 3.2.1 *Non-climbing, fixed position or hang-on treestand*--a treestand which is secured to the tree at the elevation where it is used. (The user ascends the tree by means other than propelling the treestand and then lifts the treestand to the desired position and secures it for use).
 - 3.2.2 *Climbing treestand*--a treestand which provides both the means to ascend the tree, and allow the user to remain at a desired elevation.
 - 3.2.3 *Handclimber or climbing aid*--a device to assist climbing with a climbing treestand. A structure that allows the user to support his weight when lifting the foot platform of a climbing treestand with his legs.
 - 3.2.4 *Backbar or V-bar*--the adjustable component of a climbing treestand or handclimber which engages the tree to provide support.
 - 3.2.5 *Ladder treestand*--a treestand which is secured to the tree at the elevation where the platform is located. (The ladder treestand may be secured to the tree at other locations and has steps that are used to reach the platform or hunting position).
 - 3.2.6 *Tripod or Tower Treestand*--a tripod or tower treestand is constructed to be self supporting and is not required to be secured to a tree.
 - 3.2.7 *A Climbing Stick* --a device used to assist climbing a tree primarily to a fixed position treestand, having a structure that is secured to the tree and that allows the user to support his weight and climb to the desired height on the tree.
 - 3.2.8 *Platform*--the horizontal structural area of a treestand on which the user stands, sits and/or places the user's feet.
 - 3.2.9 *Fall Protection Device*: any type of harness or strap system intended to secure the treestand user to the tree in the event that he/she falls from the platform. A *Fall Protection Device* may include a system for fall restraint or fall arrest, and either shall be tested as a Fall Arrest System.

- 3.2.10 *Fall Restraint System:* any type of harness or strap system that prevent the user from falling from a treestand platform.
- 3.2.11 *Fall Arrest System:* any type of harness or strap system that arrests the free-fall of a user after the user has fallen from a treestand platform, but prior to striking the ground.
- 3.2.12 *Tether Length:* the free length of the connection strap between its effective connection point on the harness, belt, or body; and its connection point on the tree or test pole.

4. Summary of Test Method

- 4.1 One system test shall consist of the testing of three individual Fall Protection Device units in accordance with the procedures in Section 7 of this Standard.
- 4.2 For each test, a human-form mannequin having the physical properties described in Section 6.3, shall be dropped from an adequate elevation to simulate a free-fall motion from a treestand platform.

5. Significance and Use

- 5.1 This test method is intended for program quality assurance and production quality control purposes.

6. Apparatus

- 6.1 A vertical, rigid round wood or metal pole, shall be used to mount the test mannequin and Fall Protection Device such that pole deflection is minimized during testing
- 6.2 The mounting pole diameter shall be ten (10 ± 1) inches and shall have a height of approximately 20 feet above ground level, or the minimum height necessary to meet the provisions of Section 7.1.1, whichever is greater
- 6.3 The test mannequin shall weigh not less than 25 percent more than the manufacturer's rated capacity for the Fall Protection Device. The mannequin shall also be designed such that it closely resembles the human shape.
- 6.4 The test mannequin and test operator shall be raised to the required elevation by means of a manlift, forklift, or other device capable of providing means to ascend to the proper elevation and provide a stable and safe working environment.
- 6.5 The free-fall may be induced by manual or automatic means, and shall accomplish an unobstructed, continuous free fall of the test mannequin.

7. Test Procedure

- 7.1 The following procedures shall apply to three individual units of a given test subject.
 - 7.1.1 Read instructions accompanying the test subject to ascertain the proper procedure for use and mounting. Secure the Fall Protection Device to the mounting pole and the test mannequin in accordance with the device manufacturer's instructions. The test mannequin shall be mounted at an elevation such that it exceeds the maximum length of the fall protection device by at least two times the tether length of the Fall Protection Device.
 - 7.1.2 The mannequin shall be raised to an elevation such that its free-fall begins at the same elevation as the tether anchor point on the test pole. The mannequin shall be located as close to the pole as practicable with no tension in the tether prior to release. In such a manner, the free-fall distance will equal the maximum available tether length.

- 7.1.3 The mannequin shall be dropped or otherwise released as if to simulate a free-fall from a treestand platform. The fall should be essentially vertical with minimal "swinging" of the test subject. The fall shall be closely observed for any unusual or unsafe action.
- 7.1.4 After the fall protection device has been engaged, the mannequin shall be lowered to the ground and the fall protection device inspected for damage.

8. Recording of Test Results

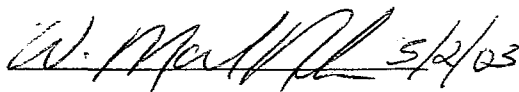
- 8.1 Recording of results shall include the following:
 - 8.1.1 Identification of Fall Protection Device model, manufacturer, and rated capacity.
 - 8.1.2 Photographs of Fall Protection Device before and after testing.
 - 8.1.3 Description and photos of any damage incurred as a result of testing.
 - 8.1.4 Date of testing.

9. Pass-Fail Criterion

- 9.1 All three tests must result in passing conditions prior to approval of the test subject.
- 9.2 A fall protection device is considered failed if it allows the user (mannequin) to come in contact with the ground or loses components, significantly tears, or otherwise causes unusual damage to the device itself or the user (mannequin). Some fall protection devices use arresting or shock absorbing systems that are designed to tear or separate during their engagement. This type of apparent "damage" shall be considered normal for these systems and does not necessarily constitute failure.
- 9.3 If a fall protection device fails this test, the tested devices and a copy of the test results shall be returned to the manufacturer.
- 9.4 Following testing, the fall protection devices used in the test shall not be considered safe to use and shall be properly disposed.

SUMMARY OF CHANGES

This section identifies the location of principal changes to this standard that have been incorporated since its last issue. Changes or additions are underlined on the section reference number.

 5/2/03

(Sign and Date)

President
Treestand Manufacturers Association

 5-7-03

(Sign and Date)

Secretary
Treestand Manufacturers Association

TMS 08

Standard Test Method for Treestand Fall Protection Devices

1. Scope

- 1.1 This test method covers the determination of load capacities of treestand fall protection devices relative to the manufacturer's rated capacities. Potential effects on the human body during use of fall protection devices is not addressed as part of this standard.
- 1.2 The values stated are in English units.
- 1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

- 2.1 *Manufacturing Standards*: Treestand Manufacturing Standard TMS 01
- 2.2 Individual manufacturer's Quality Assurance documentation.

3. Terminology

- 3.1 The terminology and definitions in the referenced documents are applicable to this practice.
- 3.2 *Definitions:*
 - 3.2.1 *Non-climbing, fixed position or hang-on treestand*--a treestand which is secured to the tree at the elevation where it is used. (The user ascends the tree by means other than propelling the treestand and then lifts the treestand to the desired position and secures it for use).
 - 3.2.2 *Climbing treestand*--a treestand which provides both the means to ascend the tree, and allow the user to remain at a desired elevation.
 - 3.2.3 *Handclimber or climbing aid*--a device to assist climbing with a climbing treestand. A structure that allows the user to support his weight when lifting the foot platform of a climbing treestand with his legs.
 - 3.2.4 *Backbar or V-bar*--the adjustable component of a climbing treestand or handclimber which engages the tree to provide support.
 - 3.2.5 *Ladder treestand*--a treestand which is secured to the tree at the elevation where the platform is located. (The ladder treestand may be secured to the tree at other locations and has steps that are used to reach the platform or hunting position).
 - 3.2.6 *Tripod or Tower Treestand*--a tripod or tower treestand is constructed to be self supporting and is not required to be secured to a tree.
 - 3.2.7 *A Climbing Stick* --a device used to assist climbing a tree primarily to a fixed position treestand, having a structure that is secured to the tree and that allows the user to support his weight and climb to the desired height on the tree.
 - 3.2.8 *Platform*--the horizontal structural area of a treestand on which the user stands, sits and/or places the user's feet.
 - 3.2.9 *Fall Protection Device*: any type of harness or strap system intended to secure the treestand user to the tree in the event that he/she falls from the platform. A *Fall Protection Device* may include a system for fall restraint or fall arrest, and either shall be tested as a Fall Arrest System.

- 3.2.10 *Fall Restraint System:* any type of harness or strap system that prevent the user from falling from a treestand platform.
- 3.2.11 *Fall Arrest System:* any type of harness or strap system that arrests the free-fall of a user after the user has fallen from a treestand platform, but prior to striking the ground.
- 3.2.12 *Tether Length:* the free length of the connection strap between its effective connection point on the harness, belt, or body; and its connection point on the tree or test pole.

4. Summary of Test Method

- 4.1 One system test shall consist of the testing of three individual Fall Protection Device units in accordance with the procedures in Section 7 of this Standard.
- 4.2 For each test, a human-form mannequin having the physical properties described in Section 6.3, shall be dropped from an adequate elevation to simulate a free-fall motion from a treestand platform.

5. Significance and Use

- 5.1 This test method is intended for program quality assurance and production quality control purposes.

6. Apparatus

- 6.1 A vertical, rigid round wood or metal pole, shall be used to mount the test mannequin and Fall Protection Device such that pole deflection is minimized during testing
- 6.2 The mounting pole diameter shall be ten (10 ± 1) inches and shall have a height of approximately 20 feet above ground level, or the minimum height necessary to meet the provisions of Section 7.1.1, whichever is greater
- 6.3 The test mannequin shall weigh not less than 25 percent more than the manufacturer's rated capacity for the Fall Protection Device. The mannequin shall also be designed such that it closely resembles the human shape.
- 6.4 The test mannequin and test operator shall be raised to the required elevation by means of a manlift, forklift, or other device capable of providing means to ascend to the proper elevation and provide a stable and safe working environment.
- 6.5 The free-fall may be induced by manual or automatic means, and shall accomplish an unobstructed, continuous free fall of the test mannequin.

7. Test Procedure

- 7.1 The following procedures shall apply to three individual units of a given test subject.
 - 7.1.1 Read instructions accompanying the test subject to ascertain the proper procedure for use and mounting. Secure the Fall Protection Device to the mounting pole and the test mannequin in accordance with the device manufacturer's instructions. The test mannequin shall be mounted at an elevation such that it exceeds the maximum length of the fall protection device by at least two times the tether length of the Fall Protection Device.
 - 7.1.2 The mannequin shall be raised to an elevation such that its free-fall begins at the same elevation as the tether anchor point on the test pole. The mannequin shall be located as close to the pole as practicable with no tension in the tether prior to release. In such a manner, the free-fall distance will equal the maximum available tether length.

- 7.1.3 The mannequin shall be dropped or otherwise released as if to simulate a free-fall from a treestand platform. The fall should be essentially vertical with minimal "swinging" of the test subject. The fall shall be closely observed for any unusual or unsafe action.
- 7.1.4 After the fall protection device has been engaged, the mannequin shall be lowered to the ground and the fall protection device inspected for damage.

8. Recording of Test Results

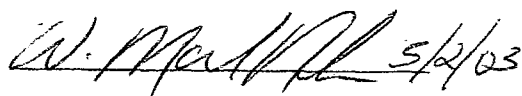
- 8.1 Recording of results shall include the following:
 - 8.1.1 Identification of Fall Protection Device model, manufacturer, and rated capacity.
 - 8.1.2 Photographs of Fall Protection Device before and after testing.
 - 8.1.3 Description and photos of any damage incurred as a result of testing.
 - 8.1.4 Date of testing.

9. Pass-Fail Criterion

- 9.1 All three tests must result in passing conditions prior to approval of the test subject.
- 9.2 A fall protection device is considered failed if it allows the user (mannequin) to come in contact with the ground or loses components, significantly tears, or otherwise causes unusual damage to the device itself or the user (mannequin). Some fall protection devices use arresting or shock absorbing systems that are designed to tear or separate during their engagement. This type of apparent "damage" shall be considered normal for these systems and does not necessarily constitute failure.
- 9.3 If a fall protection device fails this test, the tested devices and a copy of the test results shall be returned to the manufacturer.
- 9.4 Following testing, the fall protection devices used in the test shall not be considered safe to use and shall be properly disposed.

SUMMARY OF CHANGES

This section identifies the location of principal changes to this standard that have been incorporated since its last issue. Changes or additions are underlined on the section reference number.

 5/2/03

(Sign and Date)

President
Treestand Manufacturers Association

 5-7-03

(Sign and Date)

Secretary
Treestand Manufacturers Association