

The impact of the new trampoline standard

The Chair of the Australian Standards Committee, CS-100 Trampolines, DR DAVID EAGER, spells out the importance of the new trampoline standard.

Trampolines are primarily used by consumers in the home environment. They provide an energetic form of childhood exercise thus offering a viable solution to reducing the level of obesity rising within the community. They also offer a form of exercise that is considered by most users to be a lot of fun. Unfortunately the accident data confirm that trampolines are the leading cause of accidents from consumer products used by children in the 0-14 age group.

Trampolines have an irresistible appeal for children because they make it possible for them to perform body movements that cannot be achieved on a ground surface. As a result they are frequently viewed as just another toy. This attitude has produced disturbing consequences. Trampolines are really a type of gymnastic equipment and if not properly maintained and used have the real potential to be extremely hazardous.

On the 3rd of October 2006 Standard Australian published AS 4989 Trampolines – Safety aspects. This is a revised and improved version of original Trampoline Standard that was published in 2003.

After the publication of the original Trampoline Standard, the Australian manufacturers raised concerns about the low level of compliance exhibited by imported products to this safety Standard. Hills Industries approached SAI Global to obtain product certification and were advised that the wording of the 2003 version of the Standard prevented this.

One of the many objectives of the revised Standard was to introduce measurable safety aspects that would allow manufacturers to obtain the SAI Global Certified Product StandardsMark, or what is commonly referred to as the Standards 5 tick box (Figure 1). The StandardsMark is the ultimate symbol of product certification and makes a powerful statement about the quality, performance and safety of the certified product.

The Product StandardsMark tells customers that a manufacturer has the capability to produce a product that



Figure 1. Certified Product StandardsMark

consistently meets a specific Standard. The product certification applies to specific product models and there are strict laws preventing manufacturers and suppliers making fault or misleading statements about their products.

A major improvement to the Standard was the specification of engineered 'soft-edge' impact attenuating frame systems thus removing the design restrictions imbedded within the original document. In lay terms, this now allows non-traditional (non coil-spring-based) trampolines to comply with the Standard.

Minimum consumer information has been mandated

The new Standard mandates a minimum level of consumer safety information, including safety warnings on the trampoline packaging and the inclusion of installation and maintenance instructions with the supply of new trampolines.

Minimum frame-padding and other soft-edge systems mandated

The faster an object comes to a stop the greater are the forces that act on it. Frame-padding and soft-edge systems (see Figure 2) operate by reducing the rate of change of the impact velocity and increasing the distance over which the work is done. If a child falls on a hard surface such as the exposed trampoline frame s/he will come to an almost instantaneous stop. This is not good for the child as the forces that are experienced are extremely high. If a child stops more slowly the maximum forces experienced are reduced considerably and the energy associated with this impact is released, or distributed, over time.

A frame-padding or soft-edge system is required on all trampolines, both existing and new. All recreational trampolines that are offered for sale on the Australian



Figure 2. Soft-edge trampoline with safety net

market must now be supplied with frame padding or a soft-edge system. It is also recommended that existing trampolines that were purchased prior to the release of the Standard be retrofitted with a frame-padding system that complies with AS4989.

Will the new Standard eliminate all trampoline accidents?

No! Safety system performance is based solely around the statistical prevention of fatal and severe injuries that may occur as a result of head impacts. The requirements of the Standard should be considered as an absolute minimum. Complying with the requirements of the Trampoline Standard will reduce the likelihood and severity of injury, but it will never eliminate them.

Safety recommendations

Common sense goes a long way in the reduction of the severity of accidents. Positioning the trampoline on an impact attenuating surface such as bark chips or grass, and ensuring adequate clearance around, above and beneath the trampoline are examples of simple precautions that can be taken.

As falls are the most frequently sighted source of injury, reducing the potential fall height is an effective method of reducing the severity of such injuries. An effective method of reducing the fall height is to

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Improved brushcutter meets emission standards

California is leading the way for cleaner air in the United States and its Air Resources Board's stringent Tier II/Year 2000 emission regulations was instrumental in the development of Tanaka's PureFire engine.

The first two-stroke engine to be certified under these regulations was the Tanaka 40 cc PureFire engine. That was in 1998, two years before the regulations went into effect. Today, a number of Tanaka products are powered by a PureFire engine, which includes the new Tanaka TBC-270S brushcutter.

This powerful 27 cc unit has an improved engine design, which includes new scavenging ports, piston, cylinder and crankcase that provide a more efficient combustion process. All this with no additional components added means less weight and reliability of the engine is maintained.

The PureFire engine provides a more concentrated ignition area which creates improved flame propagation and more complete burning of fuel—making the engine 30% more fuel efficient. The TBC-270S comes with Tanaka's SmartStart, which allows the user to start the engine with up to 50% less effort.

Another benefit of the PureFire engine is the fact that emissions are reduced by up to 70%, which means emissions are far less than a four-stroke. And, not only is there less environmental pollution, but with less noxious gases, there's more protection for the operator.

The TBC-270S packs a more powerful 1.3 hp (0.96 kW) of power. That's more than enough to power optional attachments, viz, pruner, hedgetrimmer and mini-cultivator.



The Tanaka TBC270S brushcutter sports a PureFire engine (inset) that's 30% more fuel efficient and which reduces emissions by up to 70%.

Other features include a heavy duty centrifugal clutch, chrome-plated, stress-relieved cylinder and transistorised electronic ignition system. Anti-vibration in the engine mount and handle provides maximum operator comfort and reduces fatigue.

The TBC-270S was extensively tested in Australia and adjusted to suit our fuel and high temperatures. This also runs much cooler than other brushcutters and fan case temperature has been reduced from 100°C to just 50°C - eliminating burnt arms on hot days.

The TBC-270S comes with an alloy line trimmer head and slasher blade as standard. An optional 'Brain' cutting head is also available. This head senses when more line is needed and feeds out the perfect line length every time - allowing the engine to run at optimal cutting speed. The RRP is \$579, including tax, but not including delivery for some country areas.

For more information, please contact: Jim Taveira Parklands Power Products (Aust) Pty Ltd. Ph: (02) 9584 7700 Fax: (02) 9153 9122, Email: marketing@parklands.net, www.parklands.net

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bury the trampoline in a pit so the trampoline mat is level with the surrounding ground. Pit drainage is essential to prevent corrosion, mosquitoes and other moisture related problems. It is also important to ensure that the surrounding ground is not constructed of concrete or similar materials as a fall onto concrete as a fall onto concrete has the potential to produce a more serious injury than a fall from a greater height onto an impact attenuating surface.

Conclusion

Previously trampolines were supplied without any or minimal safety padding. The new Trampoline Standard sets out the minimum safety requirements for all new trampolines sold on the Australian market. It is strongly recommended that parents ensure their existing trampolines are retrofitted with a frame padding safety system that complies with the new Trampoline Standard AS4989 so as to reduce the likelihood of a fatal or severe injury occurring to their family and friends. When purchasing a trampoline look for the GAI Global Certified Product StandardsMark.

- Dr David Eager is a Senior Lecturer in the Faculty of Engineering at the University of Technology Sydney, the Chair of the Australian Standards Committee CS-100 Trampolines, a Director of the Australian Playground Safety Institute, and a Director of Kidsafe.