



PROJECT : **Line Trimmer**

TITLE : **Littl' Juey**

CLIENT : JafSCO Ltd

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Littl' juey



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Kicks Grass!

Littl' Juey is a rapidly growing new brand in the international outdoor power tool and lawn care market. The brand was established with the development of the Littl' Juey cutting technology and has now grown into a family of simple, easy to use, and efficient line trimming products engineered to take the hassle out of lawn maintenance.

Project Context

Until recently the line trimmer category of the lawn care market has been dominated by large global brands all providing products with very little difference in the cutting method and line trimming device.

The core driver within both the domestic and commercial lawn care power tool market is for high powered, efficient, safe, and easy to use trimming devices. Existing devices all work with continuous nylon line wound onto a spool which is located in the head of the appliance. These heads dispense the nylon line through physical adjustment or through a spring mechanism inside the head which releases the nylon.

While this approach has become the industry standard, and to some may seem quite novel, design research indicates that it is not entirely practical or efficient, causing widespread frustration and misuse of these lawn care products.

The temperature and humidity in the head of a line trimmer fluctuates greatly during use due to heat generated by the motor, friction from the revolving blade, and from moisture drawn from the cut grass.

Nylon is hygroscopic which means its physical properties vary as the relative humidity changes. Enclosing a spool of nylon inside the head of a line trimmer exposes it to these rapid changes in temperature and results in contraction or expansion of the nylon line. This makes it

extremely brittle, causing it to break easily even with light use.

The Brief or Problem

This project set out to create an entirely new cutting system that can increase the durability and performance of a line trimmer, enhance user interaction, and provide a safer product.

The goal was to develop a new powered line trimmer and a fast reloadable nylon cutting system that does not store a spool in the head of the device where it can become brittle.

The Solution

Littl' Juey provides a range of high performance and durable grass cutting products developed specifically for easy and safe use and quick reloading of tangle free cutting line. No springs, no clips and no catches.

The Littl' Juey system generates a technical point of difference through the patented Littl' Juey Cutting Technology, the clip on Line Reload system, and the fully adjustable Littl' Juey Electric line trimmer.

Littl' Juey Cutting Technology

The high performance Littl' Juey cutting head design consists of two parts that assemble together to contain

pre-cut strips of cutting line. Rotation of the trimmer head tightens the strips of nylon line within the assembly.

The two parts fasten together on a large thread which enables the top part of the head to be easily adjusted 90 degrees for insertion of new nylon.

The slots in the head that house the line have been designed to accommodate up to four strips (two strips per slot) which equates to eight 125mm cutting blades as apposed to the existing two. This simple method of line reloading means that other new line types such as Kevlar, carbon fibre or metal wire can be used in the Littl' Juey cutting head for more efficient heavy duty use.

As an added benefit, the cutting head has been developed to attach to ethe majority of line trimmer, from straight and bent shaft, electric, and petrol machines without the use of any tools.

Line Reloads

Unlike other line trimmers, the Littl' Juey system uses short 350mm nylon. These strips are supplied in a range of diameters from 1.5mm to 3.2mm, in small reload canisters which clip onto the shaft of the line trimmer. The clipon system ensures the canisters remain with the machine at all times, and allows users to clearly see what amount of line they have remaining, unlike existing products where the line is concealed in the head.

This feature has been received particularly well with commercial users who often find themselves unexpectedly running out of line a long way from their vehicle.





Littl' Juey Electric

The Littl' Juey Electric line trimmer was developed to carry the new cutting system and elevate the general performance and ergonomic aspects of line trimmers.

The fully certified device is lightweight for optimal usability and features an adjustable handle and a robust injection moulded plastic and extruded metal construction. The Littl' Juey Electric is powered by a 650W belt-driven electric motor mounted in the base of the machine.

Sideways rotation of the top handle makes vertical cutting down edges safer and more comfortable for the user.

The Process

The process began with the initial idea for the new cutting head by the client. Development and testing was undertaken to qualify and validate the performance of the new concept. During this time models were made and metal samples machined by John Braks at Gaminco for testing.

Once the design of the cutting head had been proven and the intellectual property protected, further development was undertaken to move the product from a machined metal component to an injection moulded, glass reinforced product. Tooling was commissioned and samples were produced and tested to ensure that the plastic variety performed as well as the first generation metal part.

Following this, the product was taken to market. Packaging, Point of Sale, and distribution systems were designed to display and carry the product in the market.

Littl' Juey was launched in New Zealand at the National

Field Days and at the Glee Garden Expo in Europe.

The Result

Littl' Juey kicks grass. No more manual loading or tapping the ground every five minutes. No more down time with impractical, inefficient line trimmers. Gone is the frustration of rewinding tangled nylon line onto standard cutting spools.

Closing comments from the client:

"Littl' Juey has developed into a rapidly growing business for us and the design has allowed us to enter and get established in a very globally competitive market. Since going to market we have sold well over half a million units world wide of the cutting head, and we anticipate similar success with the release of the Littl' Juey Electric. Littl' Juey is being used by most Council and Park & Reserve contractors in New Zealand and has recently been picked up by QVC for sales through the Home Shopping Channel and Home Depot in the US. Currently it is sold through Bunnings and Mitre 10 Mega stores throughout Australasia and through a range of retailers in the UK including B&Q. All of this interest in the product has been achieved because the product is simple, is quick and easy to reload, and because it has been designed to use half as much nylon line as other systems."

Frank Walker – Littl' Juey (The Client)

5th June 2008

Contributors:

JafSCO Ltd; Gaminco; Trimax; Cixi Best Power Tools Ltd.





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This is achieved with simple design strategies, through to more advanced analysis using life cycle assessment and systemic analysis. As a team we have an

overarching commitment to sustainable product design (SPD) from research into SPD through to commercial applications of the products that we design.

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Studio Mauao
1st Floor, 4A Grove Avenue
P O Box 4141, Mt Maunganui Sth
Tauranga 3149
Aotearoa - New Zealand

Phone: +64 (07) 571 5007
Mobile: 027 240 5781
Fax: +64 (07) 927 3133
enquiries@locusresearch.com
www.locusresearch.com