

TECHNICAL NOTE

TN - 43

July 1998

Steel Bolsters with Aluminium Stanchions

Greig Larcombe
Transportation Researcher



Figure 1 - Exte Aluminium Stanchions

Introduction

Increasing pressure on transport operators to improve their transport productivity and efficiency has encouraged the development and use of innovative ideas. An example is reducing tare weight to increase the achievable payload within the legal weights and dimensions.

A new product to New Zealand is a steel and aluminium constructed bolster and stanchion combination. Among the major benefits of the steel/aluminium combination is the saving of weight when compared to the usual steel constructed bolsters and stanchions. The new bolster and stanchions are currently available under the brand name of "Exte System C".

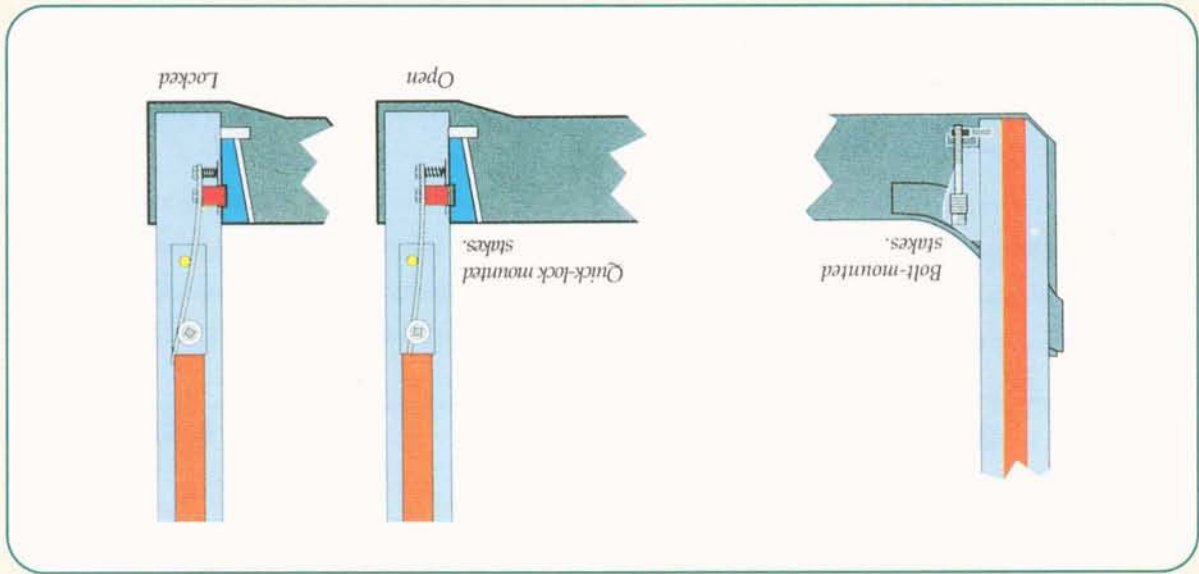
Product Range

Exte offer a wide range of bolster and stanchion designs to suit a variety of applications. These include the transportation of logs, round and sawn timber (such as poles, posts and packet timber) and a variety of other goods (Table 1).

 **Liro**
Forestry Solutions

Private Bag 3020, Rotorua, New Zealand
Telephone: +64 7 348 7168 Facsimile: +64 7 346 2886
Email: greig.larcombe@fri.cri.nz

Figure 2 - Bolted and Quick-Lock stake mountings



General Range of Goods

Round and sawn timber bolster and stanchions have completely straight loading areas, that is there are no radii in the corners next to the stakes. This allows the transportation of sawn or packed timber without damage. C40-S and C60-S designs can be used as part of a platform body construction. The bolsters have completely straight upper sides, whereas the C70-S design has support units necessary for managing the 6.3 tonne maximum load.

These stanchions can be used on platform vehicles in a variety of situations. The quick-lock units (see "Locking Units" below) can be positioned around the deck as needed, and stanchions can be positioned and removed as and when required.

Round and Sawn Timber

Locking Units

The stanchion attaches to the bolster via either a bolted connection or a quick-lock connection (Figure 2).

Bolted Connection: These connections are anodised-locking units that automatically expand when less post-tension is needed. This helps to keep the connection tight during the bolster's first few kilometres. Some manual follow-up tensioning of the connection may also be required.

Quick-lock Connection: This is an alternative option that allows the stanchions to be removed from the bolster quickly and easily. These stanchions have a maximum load height of 2.8 metres. Neither the bolt mounted nor the quick-lock stanchions have any projecting parts that can be damaged when loading or unloading.

Table 1 - Product range and specifications

Product	Design	Load Capacity (With bolted stanchions) (Tonnes)	Load Capacity (With quick-lock stanchions) (Tonnes)	Max. Load Height	Weight (Based on outside measurement of 2.5m) (kg)
Round & Sawn Timber	C40	3.6	-	2.8	125
	C60	5.4	-	3.0	131
	C90	8.2	-	3.2	156
Logs	C40-S	3.6	2.7	2.8	135
	C60-S	5.4	3.6	3.0	145
	C70-S	6.3	-	3.2	141
All Types		-	-	-	-

Bolster Attachments

The bolster/chassis attachment fasteners are manufactured from steel. They can either be bolted directly to the chassis, or a load cell can be mounted between the bolster and chassis.

Stanchions and Extension Pins

The stanchions are designed and manufactured from high strength aluminium and can be equipped with or without telescopic extension pins. Table 2 gives the load heights achievable, and the weights of, each stanchion.

Loading Heights:	2600 mm	2800 mm	3000 mm
Weight	31 kg	33 kg	35 kg

Table 2 - Stanchions without extension pins

Telescopic extension pins can be variably adjusted to the loading height desired. A pressure plate simply holds the extension pin in place, as shown in Figure 3. Table 3 shows the variable loading heights and associated weights.

Loading heights		1950 - 2800 mm		2150 - 3000 mm		2350 - 3200 mm
Design		C40	C60	C60	C90	C90
Weights	Bolt-mounted	28 kg	-	30 kg	35 kg	37 kg
	Quick-lock	27 kg	30 kg	-	-	-

Table 3 - Stanchions with extension pins

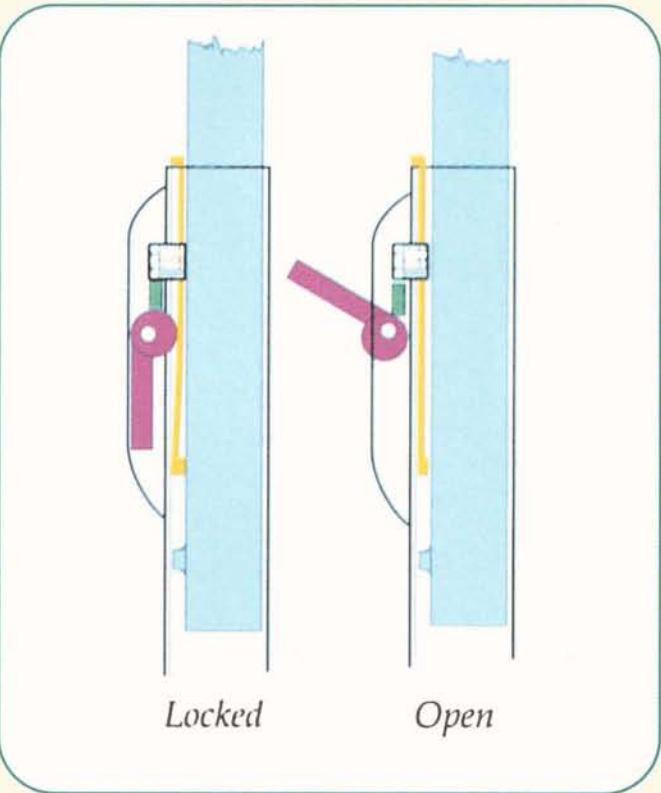


Figure 3 - Telescopic stakes

Maintenance

Aluminium stanchions are anodised, making them hard wearing, dirt repelling and easy to keep clean. This anodisation means the stanchions require specialised welding if maintenance is required. It is recommended that hooks, twitch anchors and other mountings on the stanchion be bolted on by the manufacturer/supplier.

