Technical & Financial Proposal

Spring Box Ski-Tow

Green Mountain Valley School

Leitner – Poma

08/14/2018

VERMONT

ACT 250 District Commission # 5, 6, 9

Application #: 5W1045-44

Exhibit #: 015

Date Received: 9/5/2019

LEITNER POMA

Contents

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Introduction

Key points

Before getting started

This document describes POMA Spring Box Ski-Tow and provides an overview of standard and optional components. Component manufacture and development, as well as all safety and infrastructure aspects are in line with the ANSI B-77 2011 documents.

Specifications of the range

The entire range of ski-tows operates at a maximum speed of 3.50 m/s.

Simple adjustments

The width of the line is the same as the drive bull wheel diameter, i.e. 2.5 m for all lifts. There is therefore no track reduction, which simplifies any adjustments.

The Spring Boxes are equipped with T-Bar.

Drive & Return Terminals

We offer a range of 2 return terminals and 3 drive terminals that can be distinguished through their different tension and power specifications.

The terminals accept sheave trains and are equipped with walkways that are compliant with work safety regulations.

The terminals are driven by an asynchronous electrical motor that is controlled by a variable-speed drive.

LPOA supplies the electric cabinets provided with the lift.

Technical Characteristics

GMVS T-Bar

The ski lift main characteristics are the following ones:

Characteristics	**Figures**
Horizontal length	2,895 ft. – 882 m
Vertical	784 ft. - 239 m
Slope length (Track)	3,000 ft. – 914 m
Average Grade	26%
Number of line towers	16
Direction of operation	CCW
Operating speed	700 fpm - 3.56 m/s
Hourly rated capacity	1,000 pph
Haul rope Dia.	22.0 mm
Line Gauge	2.4 m
Drive tension terminal	Bottom
Return terminal	Top
Type of carrier	Single Spring Box
Number of Carriers	80

Overview of POMA lift components

- **All Components complies with ANSI B-77 2011**
- **Max Speed 3.5m/s**
- **AC motor with variable speed drive**
- **Line Gauge 2.4m**
- **Very Silent operation**
- **Hydraulic tensioning design**
- **Cost-effective design**
- **Easy maintenance**
- **Workers Safety**

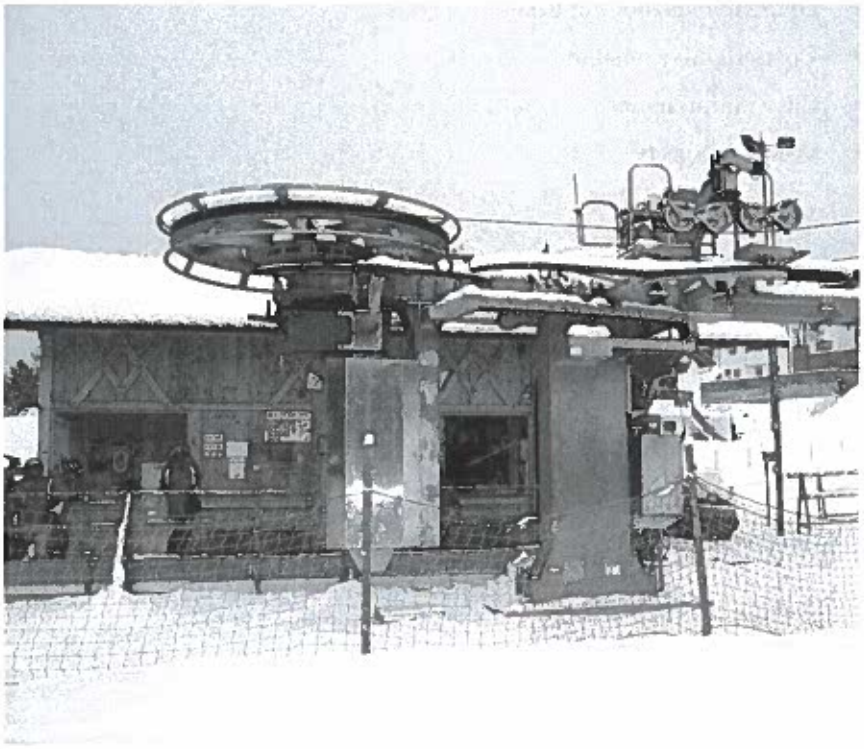
The drive terminal

Presentation

Since the bull wheel is sized according to the track, there is no track reduction meaning that adjustments are simple (no horizontal sheaves or track-retainers). The bull wheel attitude monitoring device stops the lift if the bull wheel axle breaks.

Anti rollback pawls positioned on the bull wheel prevent any backward movement.

This terminal falls within the intermediary range in terms of mechanical specifications. It accepts three types of drive systems from 20 to 90 kW.



The T45 drive terminal

Mechanical specifications

The mechanical specifications for the T201 drive terminal are as follows:

- Maximum cable tensioning during operation
- Maximum operating speed 3.5m/s
- Ram stroke 1m
- Maximum hydraulic pressure 134 bars
- Reduction ratio of gearbox 73.1 or 58.4
- Maximum static braking torque 180 N.m

Drive system

The terminal is driven by a Usocome asynchronous gearbox. It is a planetary gearbox with parallel axles that does not contains any bevel gears.

Simple and compact, the integrated electric motor-driven braking system is reliable and highly efficient.

	Maximum torque	**Rated power**
T20I	16 kN.m	22 kW
T55I	18 kN.m	55 kW
T75I	24 kN.m	75 kW
T90I	32 kN.m	90 kW

Sheave trains

The terminal accepts sheave trains with 2, 4, 6, or 8 sheaves (support or compression).

The RAZ 55 return terminal

Presentation

This is the smallest return terminal in the range.

The cable height is between 3.5 m and 5 m.

The RAZ55 return terminal

Mechanical specifications

The mechanical specifications for the RAZ 55 return terminal are as follows:

	Cable tension during operation	Cable tension outside operation
RAZ55	55 kN	55 kN

Sheave trains

The terminal accepts sheave trains with 2 or 4 sheaves (support or compression).

Line elements

Line towers

User safety and comfort

The use of inclined towers increases the clearance on the side in use. This device provides a comfortable and safe track width for users.

Easy access for maintenance personnel

For easy access, the ladder has the same inclination angle as the tower.

Sheave train combinations

The towers accept the following sheave trains:

- **support** **2S; 4S; 6S; 8S**
- **support/compression** **2S/2C**
- **compression** **2C; 4C; 6C; 8C**

Walkways

The support/compression towers are equipped with regulatory cross arm walkways.

Sheave trains

Introduction

Simple maintenance

Line and terminal sheave trains are identical.

They are fitted on saddles and integrate a cable-retaining device and a derailment detector.

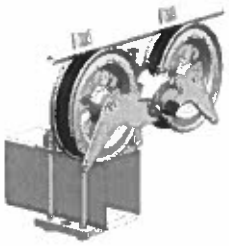
Sheave trains are equipped with 280 mm-sheaves.

They have sealed-lubrication bearings.

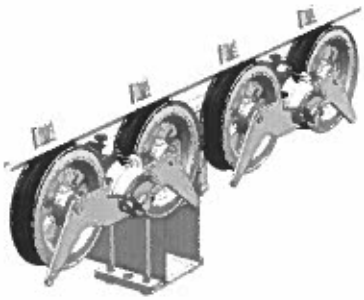
Lubrication is only applicable to the main axle.

Sheave trains support

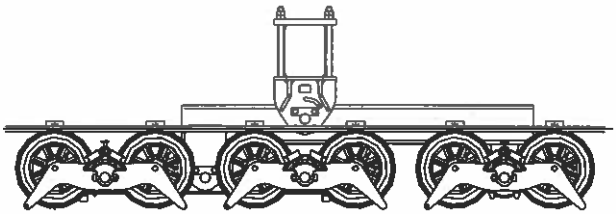
The support sheave trains can be equipped with 2, 4, 6, or 8 sheaves.



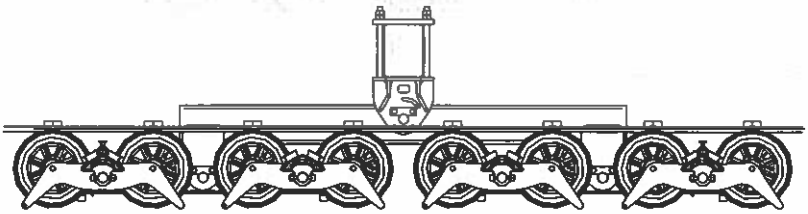
The 2S sheave train



The 4S sheave train



The 6S sheave train

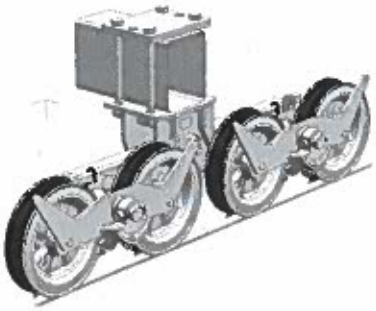


The 8S sheave train

Compression sheave trains

The compression sheave trains can be equipped with 2, 4, 6, or 8 sheaves.

The 2C sheave train



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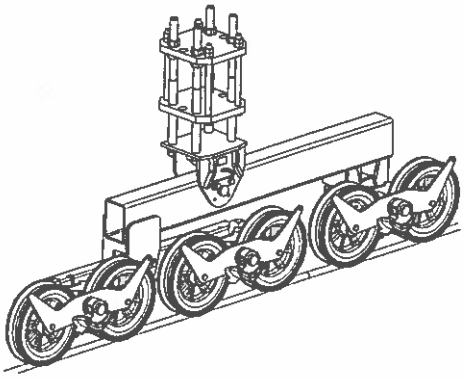

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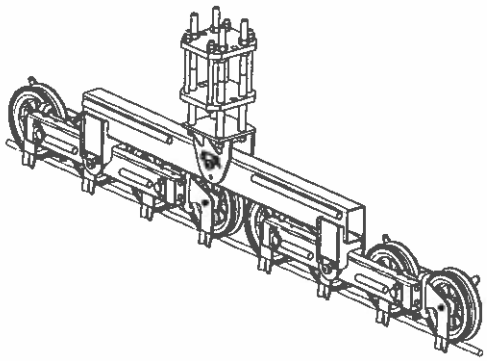

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Sheave trains support / compression

The **support/compression** sheave trains are made up of 2 support sheaves and 2 compression sheaves.

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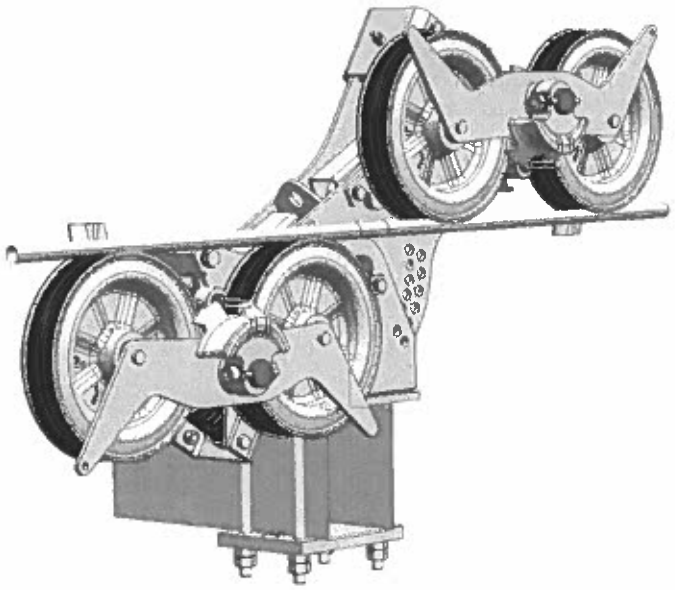


The 2S/2C support/compression sheave train

The grip/tow hanger assembly

Grips

Simple to control

The clamping force is achieved using a calibrated spring.

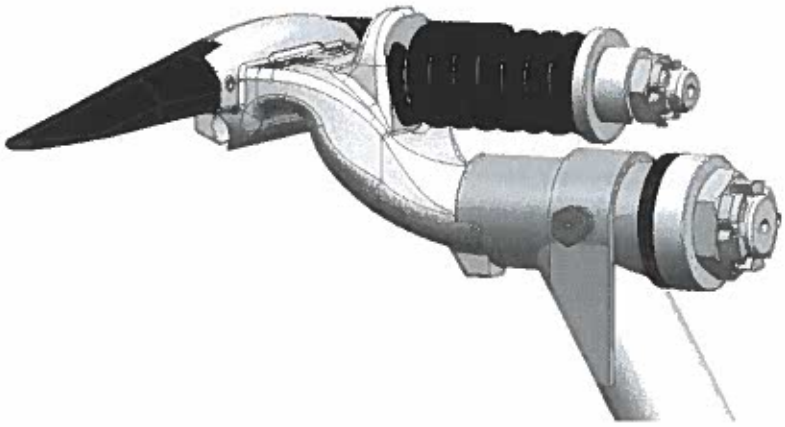
This system makes it possible to detect failures through a simple visual inspection.

The ski-tow's grip can assembly be used on cable diameters ranging from D=12 mm and D=22 mm.

Simple maintenance

Using a calibrated spring system means that the grip can be moved simply by compressing it.

The operation is made easier by using the grip assembly uncoupling device (delivered with the lift).



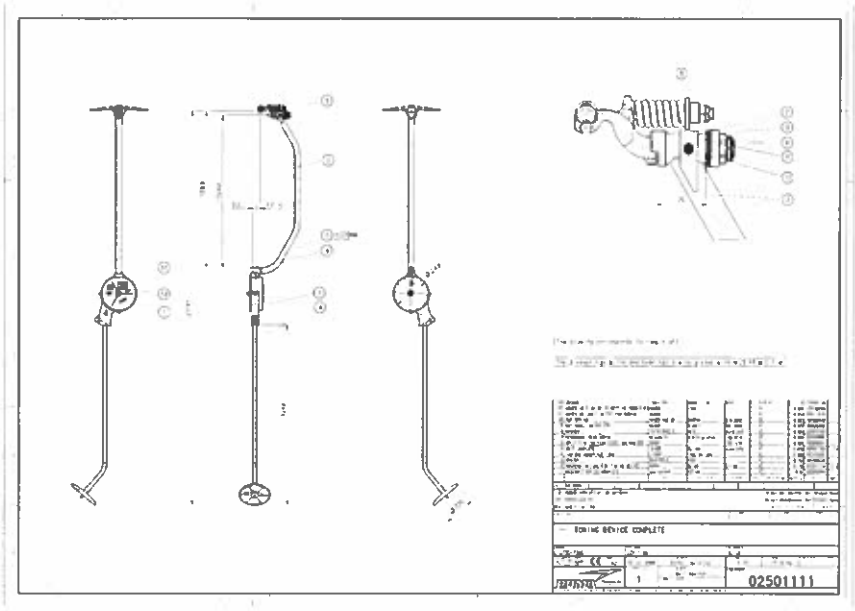
The grip assembly

The grip/tow hanger assembly (cont.)

The simple plate spring box seats

Enhanced skier comfort

The approved simple plate spring box seat model is shown below: (the lift described here will include T-Bar seats, platter seat shown)



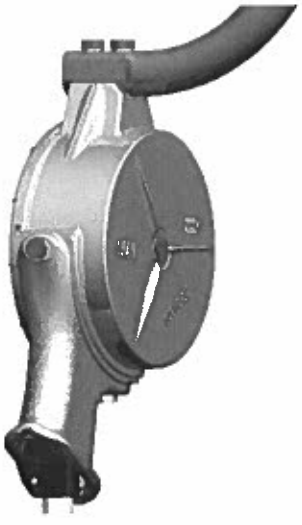
The simple plate spring box seat tow hanger assembly

The spring box

The tow hanger is made up of a Spring Box.

Simple mechanism

The pole's spring action is slowed down by a spring system and weighted components.
The rope is 6.5 m long



The spring box

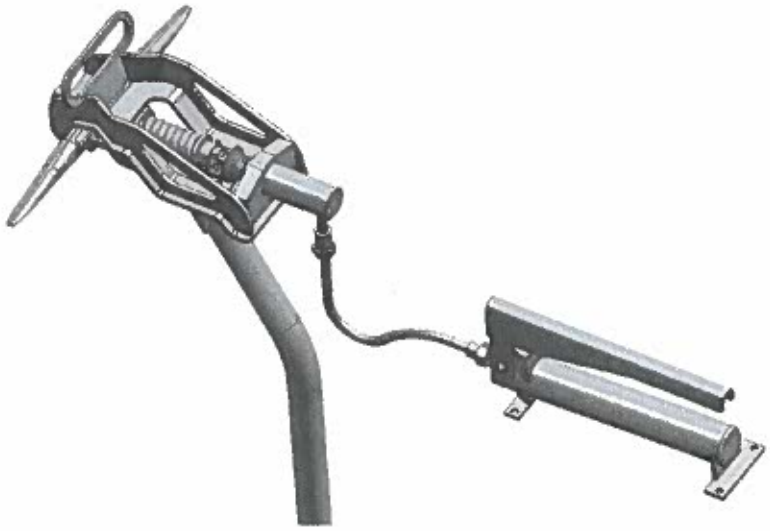
The grip/tow hanger assembly (cont.)

Tool for moving grips

Simple maintenance

Moving the grip assembly is made easier thanks to an adapted hydraulic tool.

The grip assembly design means the grips can slide without being opened.



Tool for moving grips

Performance Specifications Exhibit A

Characteristics	Figures
Horizontal length	3,855 ft. – 1,175 m
Vertical	1,086 ft. - 331 m
Slope length (Track)	4,016 ft. – 1,224 m
Average Grade	28%
Number of line towers	16
Direction of operation	CCW
Operating speed	700 fpm - 3.5 m/s
Hourly rated capacity	1,000 pph
Haul rope Dia.	22.0 mm
Line Gauge	2.5 m
Drive tension terminal	Bottom – T130i Model
Return terminal	Top – RAZ-55 Model
Type of carrier	Spring Box T-bar (2 place)
Number of Carriers	98

Equipment Supplied Exhibit B

The drive terminal

Presentation

Since the bull wheel is sized according to the track, there is no track reduction meaning that adjustments are simple (no horizontal sheaves or track-retainers). The bull wheel attitude monitoring device stops the lift if the bull wheel axle breaks.

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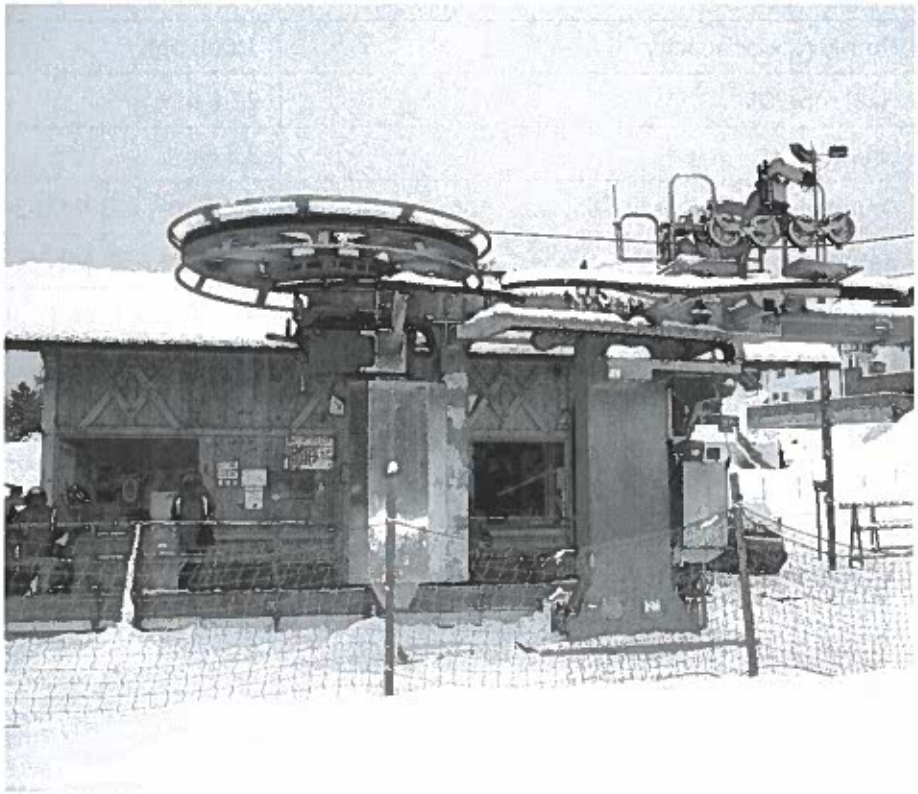

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Simple and compact, the integrated electric motor-driven braking system is reliable and highly efficient.

	Maximum torque	Rated power
T130I	61 kN.m	130 kW

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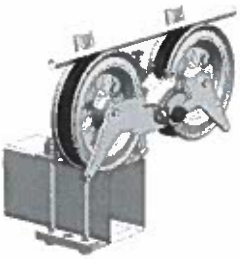

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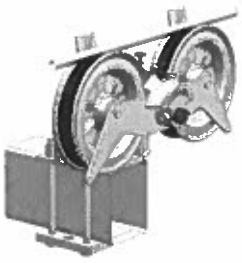

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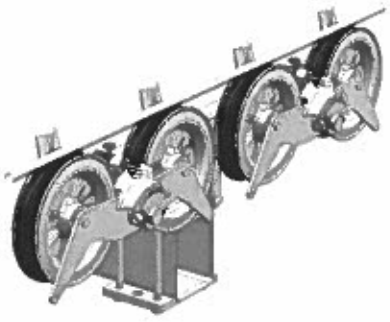

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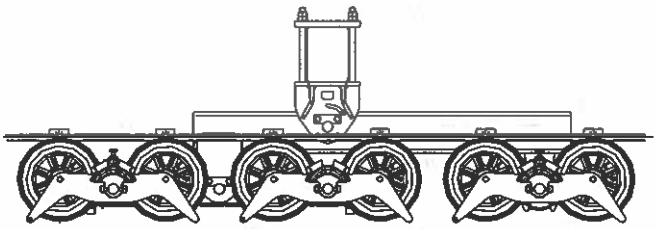

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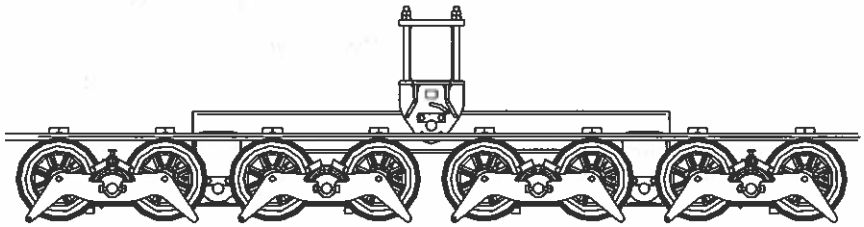

The 8S sheave train

Compression sheave trains

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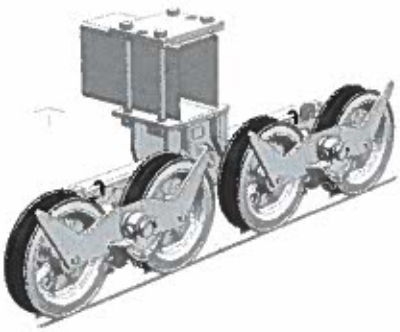
The 2C sheave train



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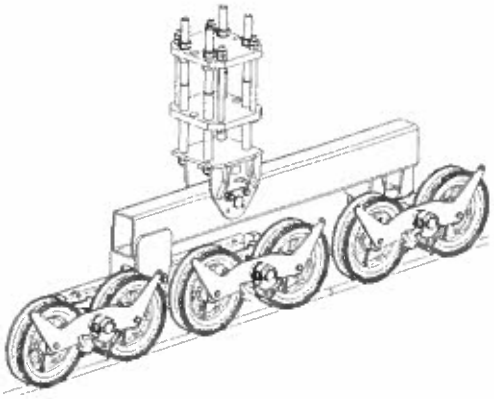

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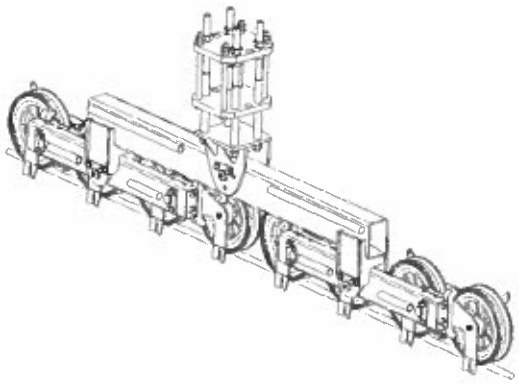

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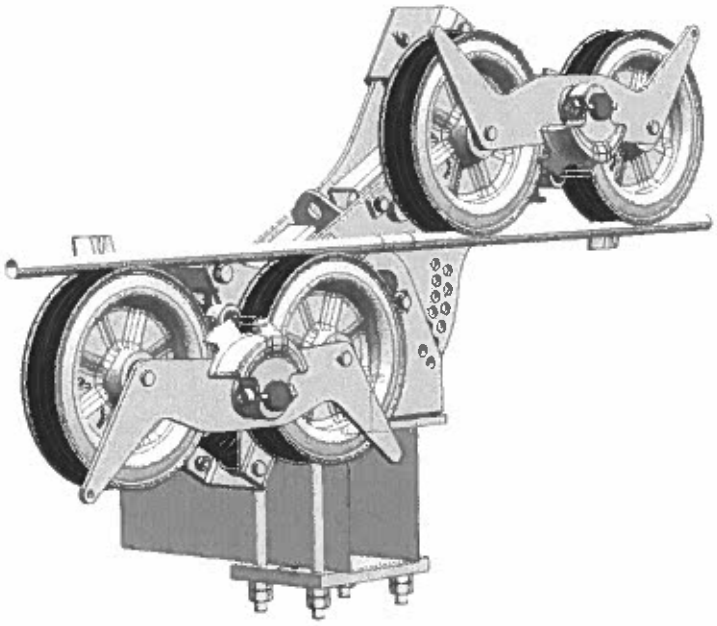

The 2S/2C support/compression sheave train

The grip/tow hanger assembly

Grips

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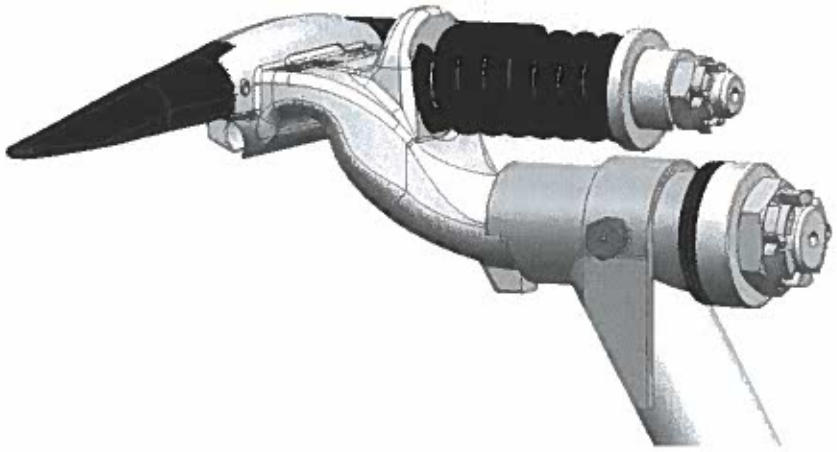

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Enhanced skier comfort

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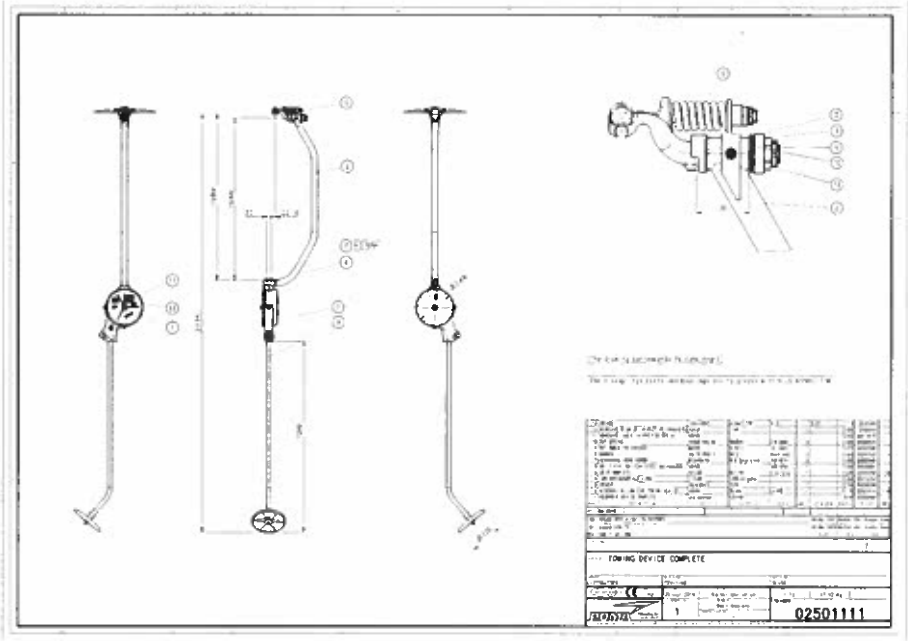

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