

# Travsafe shock-absorbing rings BB or INRS - EN 795 Classe C

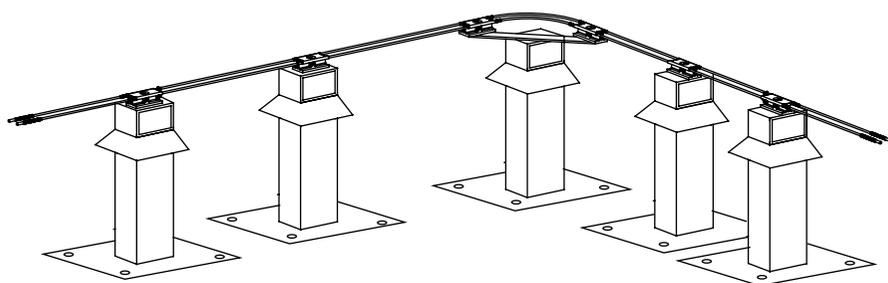
English GB

## TRAVSAFE horizontal lifeline

(Anchoring device equipped with flexible horizontal retaining cable)

### Installation, operating and maintenance manual

Model designed for direct mounting or by post  
ALUMINUM KIT, Metal beam / Concrete  
STAINLESS STEEL KIT, Metal beam / Concrete

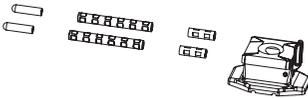


Version for mounting on post with shock-absorbing ring

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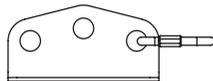
### A - Single stainless steel end anchor kit



### B - Single aluminum stainless steel end



### C - End anchor kit for version with INRS shock-absorber



### D - End plate kit for post used with INRS shock-absorber version



### E - Stainless steel intermediate



### F - Aluminum intermediate anchor kit



### G - Stainless steel turn anchor kit



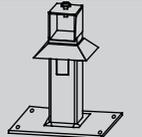
### H - Aluminum turn anchor kit



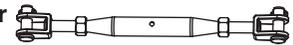
### I - Turn anchor plate kit



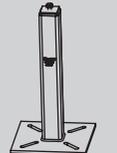
### J - Galvanized post



### K - Tensioner



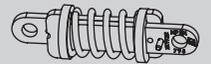
### L - Galvanized post for INRS shock-absorber version



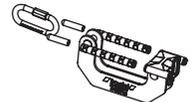
### M - INRS shock-absorber



### N - Tension indicator



### O - Shock-absorber coupling kit



### P - Information panel



### Q - Slider



### Standard Slider

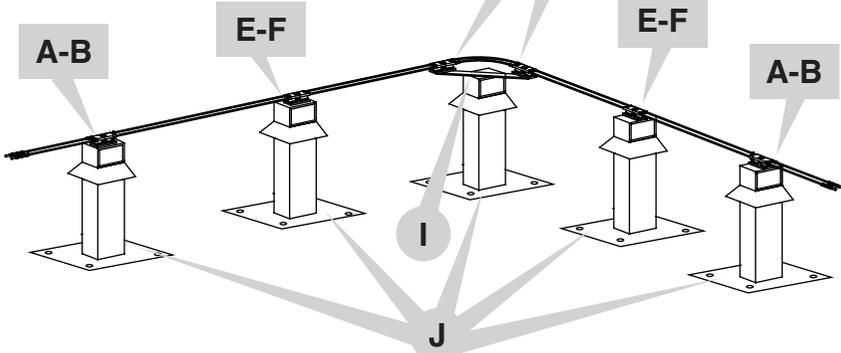
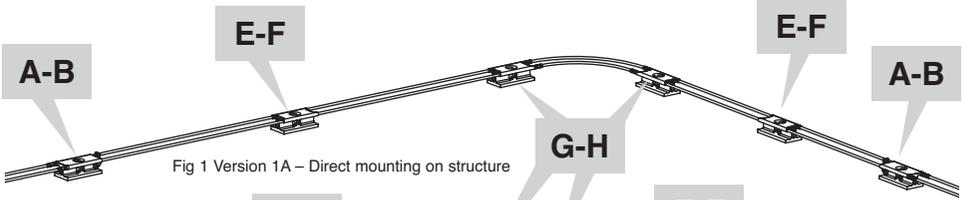


### Opening Slider

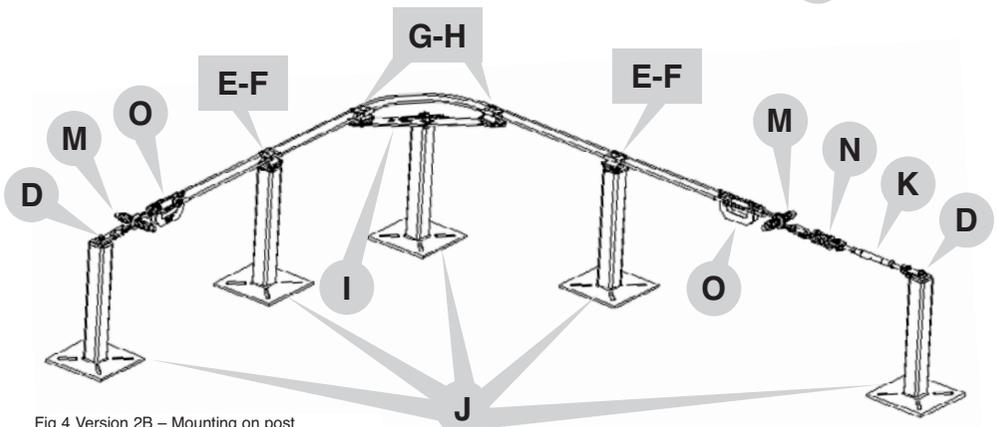
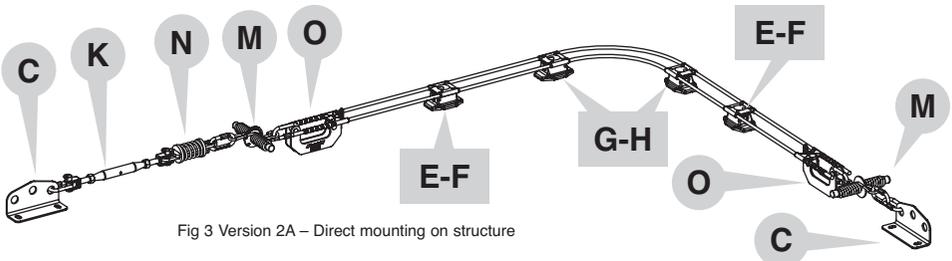
### Rollsafe Slider



Version 1 – Installation with shock-absorbing rings



Version 2 - Installation with INRS shock-absorber



**Foreword:** All of the instructions in this manual refer to a horizontal lifeline equipped with a flexible retaining cable. All of the instructions mentioning PPE (Individual Protection Equipment) refer to an PPE against falls from height.

## 1. Priority recommendations

- 1) The purpose of the **TRAVSAFE** lifeline is to control serious risks of people falling. Consequently it is essential, for safe installation and use of the equipment, that you read this manual closely and comply strictly with the instructions provided both before and during installation and use of the lifeline.
- 2) This manual should be entrusted to the person responsible for the lifeline and be kept available to all users or installers. Extra copies can be obtained from **Tractel SAS**, on request.
- 3) The use of the **TRAVSAFE** lifeline involves the association and connection of personal protection equipment (PPE), fall prevention devices including at the very least a complete fall prevention harness, linking and connection mechanisms for each user. The complete assembly must constitute a system that can prevent or stop any fall from height within conditions that comply with the relevant regulations and safety standards.
- 4) If the lifeline is destined to carry fall prevention systems, these systems must have an energy absorber element in compliance with the EN 363 Standard. If the lifeline is destined exclusively to act as preventive equipment against falls from height (support while working), keeping the user out of areas where there is a risk of falling, then the energy absorber is not required.
- 5) The information plate (see Chapter 7), installation of which is mandatory, must be kept completely visible throughout the use of the lifeline. Extra copies can be obtained from **Tractel SAS**, on request.
- 6) Every person using a **TRAVSAFE** lifeline should meet the conditions of physical and professional aptitude for working at height. In case of doubt, contact your physician or the occupation at health physician. Use of this equipment is prohibited for pregnant women. All persons using this equipment should have received prior training, in safe conditions, covering both theory and practical, and associating PPE in compliance with safety requirements. This training should include comprehensive information on the chapters of this user manual.
- 7) As every operation of the lifeline is specific to the moment, **any installation of a TRAVSAFE lifeline should be preceded by a specific technical study for its location**, to be carried out by an appropriate specialist technician, including the calculations, according to the installation Specifications and this manual. This study must take into account the configuration of the site and more especially check the appropriateness and mechanical resistance of the structure to which the **TRAVSAFE** lifeline will be secured. It must be translated into a technical file that can be used by the installer.
- 8) Installing the lifeline should be carried out using appropriate resources, and in safety conditions that totally control any risk of falling for the installer because of the layout of the site.
- 9) The operation, maintenance and management of the **TRAVSAFE** lifeline should be placed under the responsibility of people who know the safety regulations and the standards that apply to this kind of equipment and the accessories associated with it. Every responsible person must have read and understood this manual. The initial commissioning should be the subject of verification by an appropriate person, for installation conformity with the prior study file and this manual.
- 10) The person responsible for the operation of the lifeline should check and ensure the constant conformity of this lifeline, and that of the associated PPE, with the safety requirements, rules and Standards that apply. They should ensure the compatibility of the associated PPE, both between each item and with the lifeline.
- 11) The lifeline and the equipment associated with it should never be used unless they are in obvious good state. In the event that a visual inspection should reveal a defect, or if there is any doubt as to the condition of the lifeline, it **MUST** be remedied before the lifeline is used. A periodical inspection of the **TRAVSAFE** lifeline and the associated PPE should be organized at least once a year, as indicated in chapter 9, under the supervision of a person that has been trained for this purpose. This training can be provided by **Tractel SAS**. This inspection must be carried out in compliance with Directive 89/656/CEE and the instructions provided in this manual.
- 12) Before each usage sequence, the user should carry out a visual inspection of the lifeline in order to ensure that it is in good condition for use, that the associated PPE are also in good repair and that they are compatible, correctly in place and connected.
- 13) The lifeline should only be used for fall prevention, as specified in this manual. Any other usage is strictly prohibited. More especially, it should never be used as a suspension system. It should never be used by more than five users at a time, and never be subjected to an effort higher than that specified herein.
- 14) It is prohibited to repair or modify parts of the **TRAVSAFE** lifeline or to use parts that are not supplied or recommended by Tractel SAS. The dismantling of the **TRAVSAFE** lifeline can present a high risk of bodily or material harm (lash-back). This dismantling must only be carried out by a technician that knows how to handle the risk of dismantling a tensioned cable.
- 15) **Tractel SAS** declines all responsibility for the assembly of the **TRAVSAFE** lifeline, if this is done without its supervision.
- 16) When any point of the **TRAVSAFE** lifeline has been put under strain by a user falling, the entire lifeline, and more especially the cables, the anchors, seals and securing points located in the fall zone, as well as any PPE involved in the fall must **ALWAYS** be verified before being returned to service. This verification should be carried out in compliance with the instructions given in this manual, and by a person qualified for this act. Disposable components or items should be thrown away and replaced in compliance with the instruction manuals that come with these components and/or items.

## 2. Presentation

« The TRAVSAFE lifeline is a permanent mobile anchoring system for fall protection, patented and specially designed for concrete and metal structures. It comprises a horizontal (or nearly horizontal: maximum slope 15% on horizontal) twin-cable belaying system. The fall arrest system comprises a device to dampen the effect of the shock created on the host structure should one or several persons connected to the lifeline fall.

The TRAFSAFE lifeline comes in several versions depending on the installation methods detailed below. All of the versions are equipped with a shock-absorbing system.

Depending on the version, the TRAFSAFE lifeline can be mounted directly on either a concrete or metal host structure, or on posts.

- Version 1 with shock-absorption by shock-absorbing rings at two ends of each cable:

1) Version 1A mounted directly on host structure.

2) Version 1B mounted by 120x120 mm posts.

- Version 2 with shock-absorption by INRS shock-absorber:

4) Version 2A mounted directly on host structure.

6) Version 2B mounted by 70x70 mm posts.

For all the versions, each end of the cable is locked by a stop ring and terminated by an end-fitting.

The TRAVSAFE is manufactured and tested in compliance with standard EN 795 class C to receive up to five users at the same time.

Each user, equipped with a Personnel Protection Equipment (PPE) complying with Directive 89 / 686 and applicable standards, connects to the twin-cable belaying system through a special mobile anchor.

The mobile anchor is necessarily formed by a TRAVSAFE slider (excluding any other device) designed to move past the intermediate anchors on the TRAVSAFE lifeline with no need for disconnecting.

**Remarque :** The horizontal lifelines are not subject to CE marking, and therefore not subject to the relative certification procedures. Nonetheless, the TRAVSAFE lifeline is certified in compliance with standard EN 795 Class C, Nos 00584575. The compliance certificate has been issued by NORISKO, a control organization. The PPEs associated to the TRAVSAFE lifeline must all carry the CE marking.

### Force generated on structure and rupture load

#### a) Version with shock-absorbing ring (version 1)

For a lifeline installed in compliance with this manual, the maximum force generated when a person falls, on each terminal or intermediate anchor (including five simultaneous falls) is **1500 daN** for a straight lifeline and **1900 daN for a lifeline with turn**. These parts must have a minimum tearing strength of **3000 daN** for a straight lifeline and **3800 daN for a lifeline with turn**, regardless of the number of anchors and the length of the lifeline.

The maximum force generated on each turn anchor under the same circumstances is **1900 daN**. These parts must have a minimum tearing strength of **3800 daN** whatever the number of anchors and length of the lifeline.

**NOTE :** It is the installer's responsibility to check that the host structure satisfies the requirements defined by the technical data package.

#### b) Installation with INRS shock-absorber (version 2)

For a lifeline installed in compliance with this manual, the maximum force generated, when a person falls, on each terminal or intermediate structural anchor (including five simultaneous falls) is **900 daN**. The parts must have a minimum tearing strength of **1800 daN**, whatever the number of anchors and length of the lifeline.

The maximum force generated on each turn anchor under the same circumstances is **1200 daN**. The parts must have a minimum tearing strength of **2400 daN**, whatever the number of anchors and length of the lifeline.

**Note :** It is the installer's responsibility to check that the host structure satisfies the requirements defined by the technical data package.

**To obtain a maximum force generated, when a person falls, on each terminal or intermediate structural anchor as indicated above, the installer must comply with the specifications detailed in the table below**

## 3. Description

The TRAVSAFE lifeline must (in accordance with each version) comprise the elements indicated in the table below and must be laid out as shown in figures 1 -2 - 3 and 4 on page 3 in which a typical installation is given for each version, extendible in accordance with the needs of the site to be equipped.

	1 personne		2 personnes		3 personnes		4 personnes		5 personnes	
	Etrémité 1	Etrémité 2	Etrémité 1	Etrémité 2	Etrémité 1	Etrémité 2	Etrémité 1	Etrémité 2	Etrémité 1	Etrémité 2
Version 2										
Nombre d'amortisseur INRS	1	1	1	1	2	2	2	2	3	3

The end anchors are supplied in kits in accordance with two models for which the composition is given below.

- plain end kits for version 1 (with shock-absorbing rings),
- end kits for version 2 (with shock-absorber).

The turn anchors are supplied with the kits for which the composition is given in the table below.

The table below indicates the quantities of parts required for the lifeline depending on how each version is used.

(1) *The number of INRS shock-absorbers must take account of table 7 or the Tractel force calculation software available on request (five users max.)*

(2) *Supplied with one of two parts to be connected.*

(3) *In accordance with information given in section 6.1.*

(4) *Only used in two versions with INRS shock-absorber.*

(5) *One post per end-piece, turn plate, intermediate piece*

(MR) *supplied with quick link*

specifications of the host structure. The attachment fittings must be defined by a preliminary technical study.

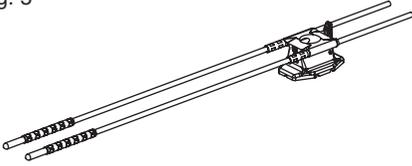
This study comprises, in particular, an analysis of the host structure, the structure's mechanical strength and the corresponding engineering memo. The attachment means defined (dowels, screws, etc.) must be implemented in compliance with the user manuals supplied by the attaching equipment manufacturers.

Note : For mounting on post, the bolts (off-the-shelf parts) used to secure the end anchors on the posts are not supplied with the lifeline.

		CODE	VERSIONS				
			1A	1B	2A	2B	
Plain turn anchor kit	St. Stl.	A	068488	2	2		
	Aluminium	B	068498				
End anchor kit for shock-absorber (MR)		C	066848			2	
End plate kit for post (MR)		D	066858				2
Intermediate anchor kit	St. Stl. Aluminium	E F	126435 020715	Une ancre tous les 15 mètres			
Turn anchor kit	St. Stl.	G	074317	1 by turn	1 by turn	1 by turn	1 by turn
	Aluminium	H	074307	G-H	G-H	G-H	G-H
Turn anchor plate kit		I	114375		1 par virage		1 par virage
Tensioner (4)		K	040742			1	1
Tension indicator (optional) (4) (MR)		N	067508			1 option	1 option
INRS shock-absorber (1) (4) (MR)		M	066688			1 to 6	1 to 6
Shock-absorber coupling (MR) (1) (4)		O	098699			2	2
Quick link (supplied with parts to be connected) (2) (4)			039822			2 to 8	2 to 8
8 mm dia. cable, galvanized steel		R	017311	(3)			
8 mm dia. cable, stainless steel		R	017301	(3)			
Shock-absorbing ring for cable (supplied with end anchor)	A-B-G-H		108787	4	4		
Stop ring for cable (supplied with end anchor and shock-absorber coupling)	A-B-O		020725	4	4	4	4
End-fitting (red) and cable (supplied with end anchor and shock-absorber coupling)	A-B-O		025996	4	4	4	4
Standard slider		Q	076149	1 to 5	1 to 5	1 to 5	1 to 5
Opening slider		Q	076159	1 to 5	1 to 5	1 to 5	1 to 5
Rollsafe slider		Q	075919	1 to 5		1 to 5	
16 mm dia. screws and dowels for concrete			Not supplied				
Information plate	Q	117505	One plate for each access				
Post 70x70x50	L	066888					(5)
Post 120x120x50	J	104565		(5)			

**IMPORTANT** : the TRAVSAFE lifeline does not come with either screws or dowels for mounting on the host structure (concrete or metal). The technical specifications for the lifeline attachment fittings, in accordance with this version, depend on the nature and

Fig. 5

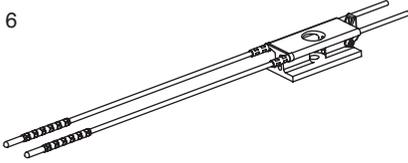


**A-B : Plain end anchor kit (versions 1A and 1B)**

- stainless steel, code 027588
- or aluminum, code 026028,

with manually folding lock, to engage or disengage the slide at the end of the line.

Fig. 6

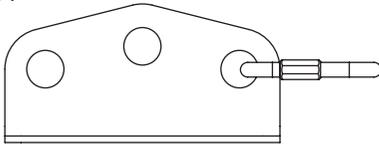


**composition**

<b>01</b> AnEnd anchor	1
<b>02</b> Red end-fitting	2
<b>03</b> Stop ring	2
<b>04</b> Shock-absorbing ring	2

*In the installations implementing INRS shock-absorber, the end-anchor piece can either be a type C end anchor kit (for direct mounting on structure), or a type D end plate kit (for mounting on post).*

Fig. 7



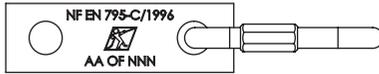
**End anchor for INRS shock-absorber, for version 2A**

Stainless steel anchor with three anchoring holes for optimum cable positioning. Code 066848.

**composition**

<b>01</b> End anchor for INRS shock-absorber	1
<b>02</b> Quick link	1

Fig. 8



**D : End plate, for version 2B**

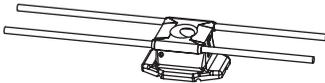
Stainless steel CODE 066858

Specially sized to connect shock-absorber couplings, tensioners, or shock-absorbers to post.

**composition**

<b>01</b> End plate	1
<b>02</b> Quick link	1

Fig. 9

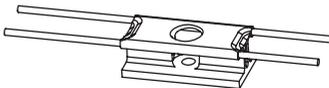


**E-F : Intermediate anchor**

- Stainless steel, code 126435
- or aluminum, code 020715.

By its original design, the TRAVSAFE intermediate anchor allows each user to move past the anchor with the slide secured to the PPE with no need to unfasten the lifeline.

Fig. 10



The intermediate anchor is used to secure the cable every 15 m max.

**composition**

<b>01</b> Intermediate anchor	1
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Fig. 11 Stainless steel turn anchor kit

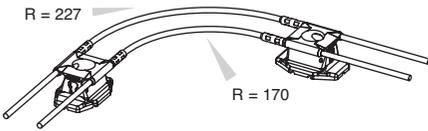
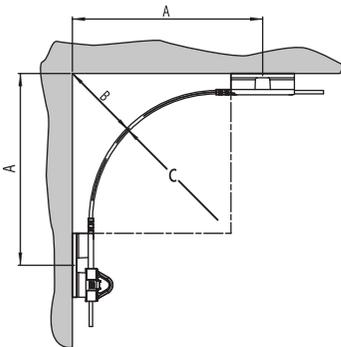
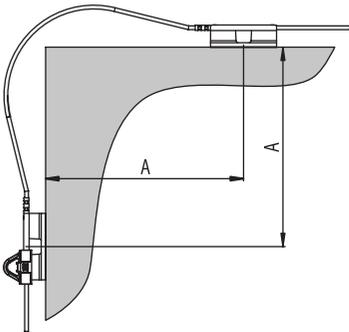
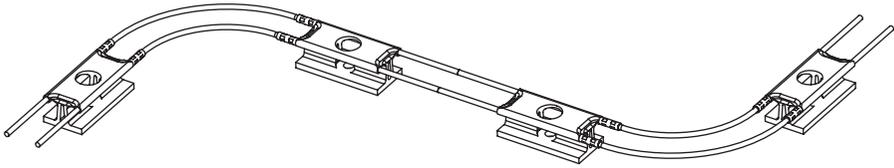
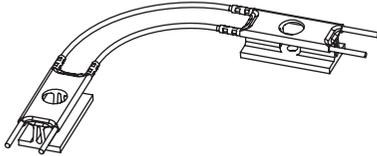


Fig. 12 Aluminum turn anchor kit



**G - H: Turn anchor kit for versions 1A and 2A (Direct mounting)**

- Made of stainless steel, code 074317
- or galvanized steel, code 074307.

Holds the two lifeline cables in position in the turns. Supplied not assembled to allow installer to adapt it according to configuration of turn (left or right) on horizontal structure surface, and according to desired curve radius.

**composition**

<b>01</b> Intermediate anchor	2
<b>02</b> Shock-absorbing ring	4

OUTSIDE ANGLE	MIN	MAX
DIMENSION A	375	475
CABLE LENGTH	700	815

INSIDE ANGLE	MIN	MAX
DIMENSION A	420	920
DIMENSION B	165	395
RADIUS C	300	600
CABLE LENGTH	470	1260

Fig. 13



**I - Turn anchor plate kit**

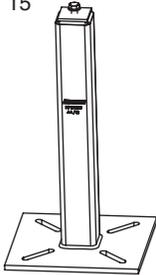
The turn anchor plate kits are required to install the turn anchors for the post-mounted versions. These plate kits are supplied unassembled to allow the installer to adapt the turn anchor to the turn (left or right) and according to the desired curve radius.

- Turn anchor kit : made of stainless steel, code 114375

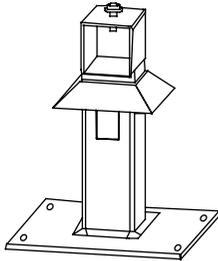
**composition code 068368**

<b>01</b> Turn plate for post	1
<b>02</b> Bolt + washers 12 mm	2
<b>03</b> Self-drilling screws	2

Fig. 15



Code 066888



Code 104565

**J-L : TRAVSAFE post**

- J-post made of galvanized steel, code 104565, dimension 120X120X500 for line 1B.

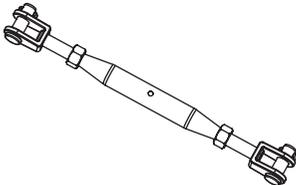
- L-post made of galvanized steel, code 066888, dimension 70X70X500 for line 2B

Designed to receive all anchors and end-plates

**composition**

<b>01</b> Post	1
<b>02</b> Screw + washer	1

Fig. 16

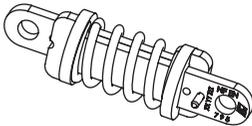


**K : Tensioner**

Code 040742 for lines 2A and 2B.

Clevis – clevis tensioner, made of st. stl. to adjust tension of two cables.

Fig. 17



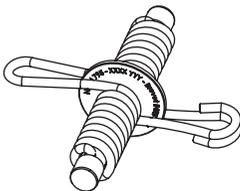
**N : Tension indicator**

Code 067508 for lines 2A and 2B.

The tension indicator is an optional device used to maintain a constant tension of 200 daN on the cables despite the expansion effects on the structure.

**Note : If the structure is subject to expansion, this device is indispensable.**

Fig. 18



**M : INRS shock-absorber**

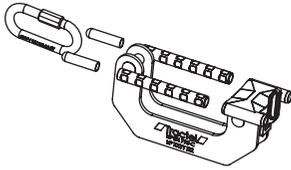
Code 066688 for lines 2A and 2B.

This stainless steel device is used to reduce the efforts on the end anchors transmitted by the cable when a person falls.

**composition**

<b>01</b> Shock-absorber	1
<b>02</b> Quick link	1

Fig. 19



**O: Shock-absorber coupling kit**

Code 098699 for lines 2A and 2B.

Shock-absorber coupling with manually folding lock used to engage and disengage the TRAVSAFE slider at the end of the line.

**composition**

<b>01</b> Stop ring	2
<b>02</b> Shock-absorber coupling	1
<b>03</b> Quick link	1
<b>04</b> Cable end-fitting	2

Fig. 23



**P: Information plate**

Code 117505

Information plate in 6 languages.

Fig. 20



Fig. 21



Fig. 22



**Q : TRAVSAFE slider**

Made of stainless steel. Used to move past intermediate anchors, automatically, with no need to unfasten from lifeline.

- 1 : TRAVSAFE standard slider, code 076149
- 2 : TRAVSAFE opening slider, code 076159
- 3 : ROLLSAFE slider, code 075919

**NB : THE ROLLSAFE SLIDER ONLY OPERATES UNDER CEILING WITH STRAIGHT LINE USING STAINLESS STEEL ANCHORS.**

**R : Cable**

- Galvanized cable : Code 017311
- Stainless steel cable : Code 017301

The cable forms the belaying system. It is supplied braced and ground at the two ends for insertion in the anchor tubes. The cable is available in stainless steel or galvanized steel. It must be crimped at its ends on the worksite using a TRACTEL crimping machine.

## 4. Associated equipment

The TRAVSAFE lifeline can only ensure its fall prevention safety role if it is used in association with Personal Protection Equipment (PPE) connected to it.

It can take up to five PPE at the same time. The PPE used with the lifeline must be CE certified, manufactured in compliance with the Directive 89/686/CEE, and used in compliance with Directive 89/656/CEE.

Tractel SAS distributes a range of PPE that complies with the application of these directives and that is compatible with the TRAVSAFE lifeline.

## 5. Prior study

A prior study by a specialist technician, especially in the resistance of materials, is essential prior to any use of the lifeline. This study should be based on a calculation report and take into account the appropriate regulations, standards and good practices as well as this manual, both for the lifelines and the PPE used with them. This manual should therefore be handed over to the technician or design office responsible for carrying out the prior study.

The technician or design office should study the risks to be covered by the installation, in accordance with the site configuration and the activity to be protected by the TRAVSAFE lifeline against the risk of falls from height.

In view of these risks, it should define the operation limits in such a way as to exclude any permanent deformation of the structure in the event of a simultaneous fall by all the users scheduled, as well as all the risk of user injuries due to surrounding elements in the event of a fall (in particular, vertical clearance).

- defines the attachment method (type, dimensions, material) when mounting on concrete support, or other supports not described in this manual,
- check the mechanical resistance of the structure to which the lifeline should be affixed, for all of the securing points, and the compatibility of the structure with the TRAVSAFE lifeline and its function,
- as a consequence define the location of the securing points in the structure, necessary in relation to the calculated reaction (intensity and direction),
- define the PPE to be used in such a way as to ensure compliance with the regulations and their compatibility with the TRAVSAFE lifeline, taking into account the configuration of the site, and the draught required at all points of the usage area.

For the calculation of clearance, you should take into account the vertical deflection of the retaining cable at the points that could be affected by the fall of the user(s), in all possible scenarios.

- draw up a description of the area of the site to be covered by the installation, and a description of the TRAVSAFE lifeline installation to be set up with all of its components, as well as a layout drawing, in relation to the site layout and the path to be used by users, if necessary taking into account the intermediary interface elements between the lifeline and the structure.

The layout drawing will include the access and connection zones to the lifeline, that are exempt from any risk of falls from height.

The prior study should take into account, if necessary, the presence of electrical equipment near to the lifeline installation, to protect the user from this equipment.

This prior study should be recorded in a technical file including a copy of this manual; a file which will be submitted to the installer with all of the instructions required for its implementation. This file should be created, even if the prior study is carried out by the installer.

Any change in the layout of the area covered by the TRAVSAFE lifeline, that might have an influence on safety or operation should lead to a revision of the prior study before operation of the lifeline continues. Any modification to the installation should be made by a technician that is qualified to a level enabling installation of a new lifeline.

Tractel SAS is at your disposal to draw up the prior study required for the installation of your TRAVSAFE lifeline, and to study any special installation of the TRAVSAFE lifeline.

Tractel SAS can also provide you with the PPE required against falls from height, and assist you on the subject of installations in-situ or installation projects.

## 6. Installation

### 6.1 General information

The installer, and the site manager, if this is not the installer, should procure a copy of this manual and the prior study, and check that these deal with all of the aforementioned points.

More specifically, they should ensure that this study has taken into account the regulations and standards applicable to both PPE and lifelines.

The TRAVSAFE lifeline should be installed in compliance with the prior study submitted to the installer.

Furthermore it should be preceded by a visual examination of the site by the installer, who will check that the site layout complies with that taken into account by the study, if the installer is not itself the author. The installer should have the required skills to implement a prior study in compliance with standard good practices.

Before carrying out the work, the installer should organize their site in such a way that the installation work can be fulfilled under the required safety conditions, especially in relation to the Labor Laws. It will set up the collective and / or individual protective equipment required for this purpose.

Begin by taking inventory of the parts received and by checking that the supply comprises all of the parts required for the lifeline to be installed in accordance with the table above and the data package covering the preliminary study. Set aside the two end anchors so that you do not confuse these with the other anchors. Check that all the necessary tools are available as indicated in this manual.

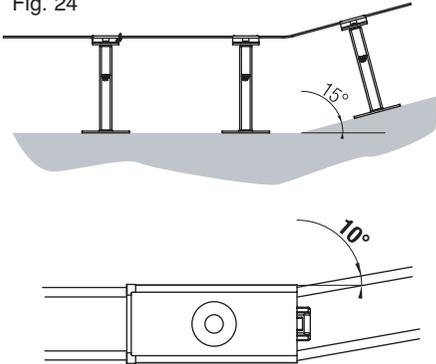
Check that each of the two cables is sufficiently long for the installation, i.e.:

- Distance between end anchors,
- plus 1m for end crimps and tensioning operations,
- plus 60 cm for each turn post,
- plus 2% of the overall length for cable deflection between each post.

**Note : Do not cut the cable before you have engaged it in all the anchors.**

The TRAVSAFE lifeline can be mounted on a horizontal surface, on the ground on posts, or on a wall under ceiling (Fig. 25), with a maximum slope inclination of 15°. It should not form any angles of more than 10° at each intermediate post in the plane perpendicular to the host surface (see Fig. 24 giving authorized angles and slopes). It should never be secured at a level below the user's working surface (Fig. 26). The lifeline must have at least one access point allowing the user to safely connect his lanyard to the lifeline.

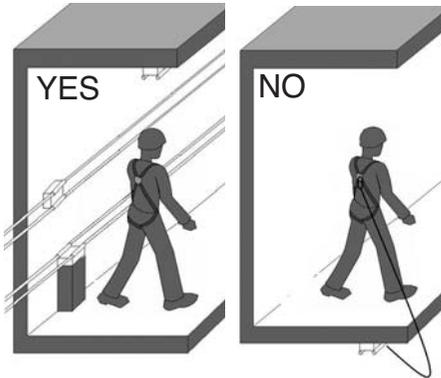
Fig. 24



**Note :** The anchors should never be secured directly to the ground without posts as the lifeline cable may rub against the ground.

Fig. 25

Fig. 26



## 6.2 : Tools required

To be used in accordance with documentation given with each tool.

The tools required for installation of the TRAVSAFE lifeline are as follows: (in addition to the equipment required for attachment of the anchors with a "concrete" version, to be defined in accordance with the manufacturers manual supplied with the attaching equipment: dowels, bolts, etc.).

### a) Off-the-shelf tools

- Set of open-end wrenches, 10 to 24 mm, cable cutter, 6 mm diameter control rod, drilling machine and screwdriver.

### b) Special tools

- Special tensioning tool, Tractel code 027988 (see Figure 27) equipped with TRAVSAFE adapter code 067598 and supplied with two pairs of TIRVIT T2 grips (see Fig 29).

**Note :** Manual crimping is performed by a different method with respect to electrical crimping, indicated separately in section entitled "Preparation of two cables".

**Note :** The Tractel tensioning tool is supplied with two adapters for Travsafe and Travflex lifelines. Figures 27 and 28 identify the two adapter models and their attaching equipment.

Fig. 27. Travsafe adapter

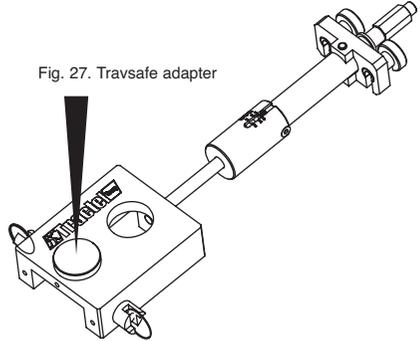


Fig. 28. Travflex adapter

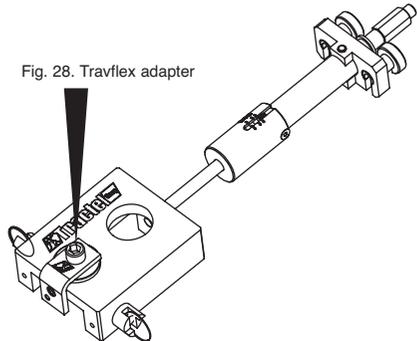
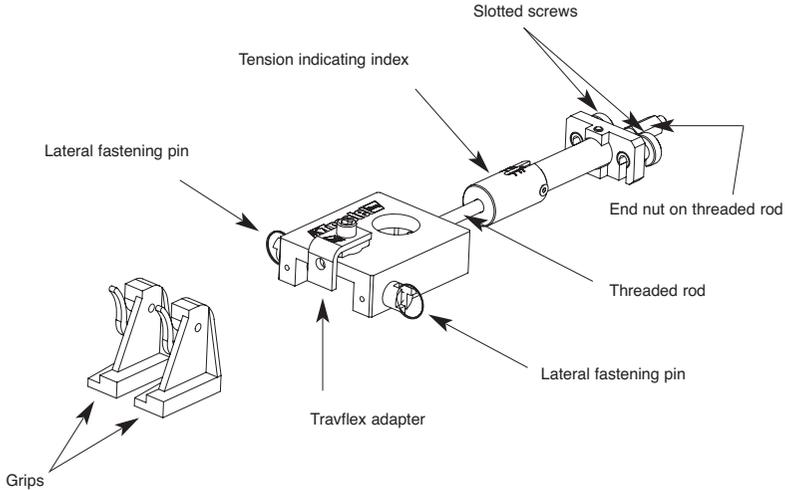


Fig. 29



### 6.3 Installing posts and anchors

Plot the lifeline path on the host surface and mark the location of the anchors. The maximum distance between centers is 15 meters. The anchors must be aligned on a same straight line, between the turn anchors, if used. See Figs. 24 and 30 (offset of 10° authorized).

Fig.30



Start by securing the two end anchors or the two end posts, then the intermediate anchors or posts, observing the maximum allowed interval of 15 meters.

**IMPORTANT** : Be careful not to confuse the intermediate posts-anchors with the plain end posts-anchors.

When the lifeline is installed on posts, the anchors are secured to the posts. See section 6.3.2.3.

If the anchors are secured directly to the host structure, refer to sections 6.3.2.1 and 6.3.2.2 below.

**IMPORTANT** : Whenever drilling into a concrete structure, begin by checking the thickness of the structure to avoid perforating the structure. Special cases must be handled by a preliminary study.

#### 6.3.1. Installing posts

There is only one model of fixed post for the end anchors, the intermediate anchors and the turn anchors per type of line.

Post 120X120X50 for version 1B line.

Post 70X70X50 for version 2B line.

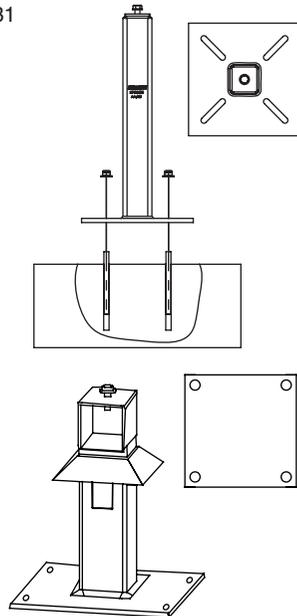
**IMPORTANT** : Installing a post may require perforating the sealing materials of the host structure. The sealing material should be removed beforehand before installing the post, with tightness restored after the post is installed. These operations must be performed by a waterproofing professional.

##### 6.3.1.1. Installing posts on concrete

Each post is supplied with a 12 mm or 16 mm screw and washer to secure the anchor at its upper end. Its base has 4 holes by which it is secured to the concrete support with four 12 or 16 mm diameter chemical dowels (not supplied with lifeline).

Mark the position of the holes to be drilled in the concrete through the oblong holes in the post base. Drill the concrete and secure the anchor as instructed by the preliminary study and the dowel supplier.

Fig. 31



**Note** : Each anchor must have a tensile strength greater than 1150 daN for the 70x70 posts for each dia. 12 mm mounting point, and greater than 1200daN for the 120x120 posts for each dia. 16 mm mounting point.

### 6.3.1.2. Installing posts on metal structure

Position the post bases in accordance with the direction of the beam. Figures 32-33-34 show the three installation configurations.

The bases are secured by four dia. 12 mm or dia. 16 mm bolts, either by clamping on the beam, or by drilling, or by anchoring.

Fig. 32

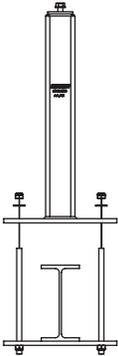


Fig. 33

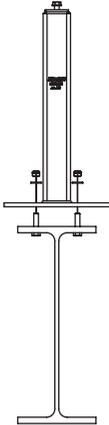
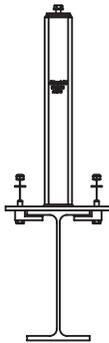


Fig. 34



### 6.3.2. Installing anchors

**IMPORTANT** : The TRAVSAFE lifeline is supplied without screws, dowels or clamps for mounting on a concrete or metal structure.

Before securing, check that the anchors are correctly positioned to allow passage of the cables. See Figs. 1-2-3-4 on page 3. Screw in without tightening to allow for final adjustment when tensioning the lifeline.

Set aside the two end anchors. Start by the first end anchor.

All the anchors are secured in the same way. Special information is given further below for the end anchors (sections 6.3.2.1 and 6.3.2.4) and the turn anchors (section 6.3.2.5).

#### 6.3.2.1. Installing anchors on concrete

The anchors are secured by 16 mm diameter screws in the chemical dowels.

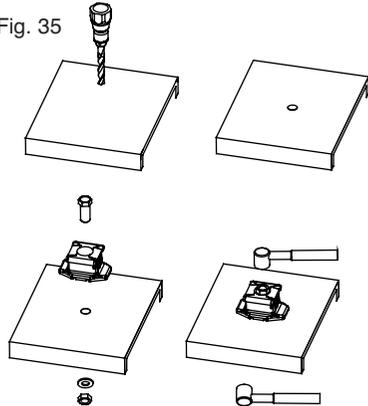
The technical specifications relative to the attaching equipment used to secure the lifeline to the host structure depend on the nature and the specifications of the host structure. The attaching equipment must be defined by a preliminary technical study which is indispensable, comprising an analysis of the host structure and its mechanical strength and the corresponding engineering memo. The attaching equipment chosen (dowels, screws, etc.) must be implemented in compliance with the user manuals supplied by the attaching equipment manufacturers.

**IMPORTANT** : The method for installing the anchors on a concrete structure must take account, if necessary, of any insulating material which may be present either on or under the concrete slab. The anchors must be installed on a concrete support which has been cleared (by a specialized professional) of any insulating covering or material. The thickness of the concrete slab must be checked before performing the installation and the drilling machine must be equipped with a depth gauge to prevent through-penetration of the slab.

Place the first end anchor at the location defined, directly on the concrete, positioning it so that the two head tubes (plain end anchor) are aligned with the lifeline (see Fig. 1, version 1A, page 3).

Through the 18mm hole of the anchor base, mark the hole to be drilled in the concrete. Drill the concrete and secure the anchor as instructed by the preliminary study and the dowel supplier.

Fig. 35



**Note** : Each attachment (16 mm dia. bolts) must have a tensile strength greater than 1200 daN per attachment point.

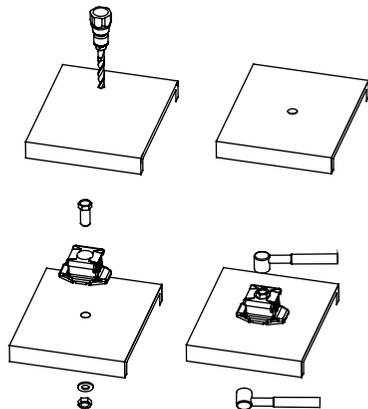
Place and secure the other end anchor in the same way, then secure and adjust the turn anchors as may be required.

Proceed in the same way with the intermediate anchors, ensuring they are properly aligned (between the turn anchors if used).

#### 6.3.2.2. Installing anchors on metal structure

The procedure is the same as for installing anchors on concrete, simply replacing the dowels by bolts. Drill a 17 mm diameter hole in the structure and use a 16 mm diameter bolt to secure the anchors.

Fig. 36



### 6.3.2.3. Installing anchors on posts

#### Version 1B

The anchor is installed as for a direct installation on metal structure.

Fig 37,

#### Version 2B.

To install the end plates on the post, see section 6.3.2.4., Fig 39.

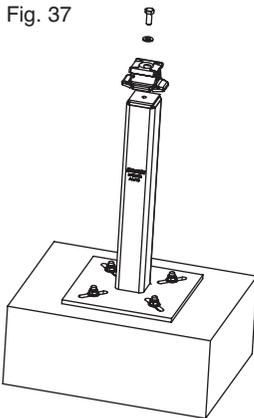


Fig. 37

Secure the anchors on the posts using the 12 mm screws for the 70x70 posts and the 16 mm screws for the 120x120 mm posts. See Fig. 37.

Place the plain end anchor on the first end posts.

Before tightening the anchors, check that the anchor cable guides are properly aligned with the lifeline.

Position and secure the other end anchor in the same way.

Proceed in the same way for the intermediate anchors, ensuring they are properly aligned.

Secure and adjust the turn anchors, if used. (See Section 6.3.2.5.2).

The TRAVSAFE lifeline can be placed on posts. The anchors are secured to the top of the post by a screw and washer supplied with the post.

#### 6.3.2.4. Special information for the end anchors

The end anchors for the lifeline implementing an INRS shock-absorber are formed by the following parts:

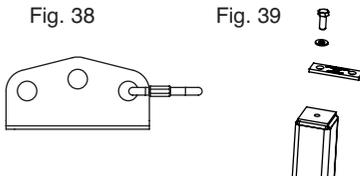


Fig. 38

Fig. 39

- Version 2A. For installation and direct mounting, **end anchor for INRS shock-absorber** (see Fig.38), equipped with quick link connector.

- Version 2B. For installation and mounting on posts, **end plate for INRS shock-absorber**, (see Fig.39) equipped with quick link connector.

These parts are secured in the same way as for the standard anchors. They come with holes for two types of mounting:

**On concrete** : two 12 mm chemical dowels are required to install these parts.

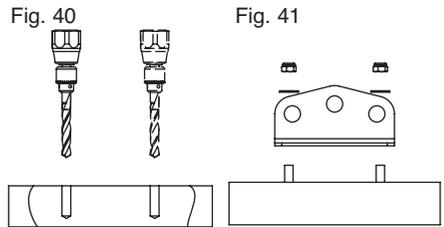


Fig. 40

Fig. 41

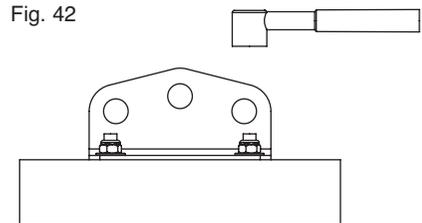


Fig. 42

Through the holes, mark the points to be drilled in the structure, aligning the parts with the lifeline. Drill the concrete or metal structure and secure the anchor as instructed in the preliminary study.

**Note : Each chemically sealed screw (12 mm dia. bolts) must have a tensile strength of 1150 daN per mounting point.**

#### 6.3.2.5. Additional information for turn anchors

The turns must be set up to have a minimum curve radius of 170 mm for the inner cable and 227 mm for the outer cable.

##### 6.3.2.5.1. Direct mounting of turn anchors on host structure

The desired curvature is defined by two intermediate anchors set up as shown in Figures 11 and 12 on page 10 and forming, with two pairs of shock-absorbing rings, the turn anchor. The curve is held by the two pairs of shock-absorbing rings installed between the two anchors and against them, as shown in the figure. These rings are only crimped on their cable during final adjustment of the lifeline tension (see sections 6.6.1.1 and 6.6.2). The two intermediate anchors are then definitively screwed on completion of the adjustment.

##### 6.3.2.5.2. Turn anchors for mounting on post

Figure 13 on page 11 shows a view of the anchor kit in the configuration in which it is delivered for assembly.

The two intermediate anchors are secured by 16 mm bolts on the plate, itself screwed to the post by a screw supplied with the post. The screws are installed without tightening, with tightening completed after the lifeline is tensioned during final adjustment of the lifeline. The two pairs of rings are installed and crimped as indicated in section 6.6.2. The bolts are supplied with the turn post plate. To prevent the plate from rotating when tensioning, two self-drilling screws must be installed in the upper part of the post.

## 6.4. Installing the two cables at the first end

### 6.4.1. Lifeline with shock-absorbing rings (1A and 1B)

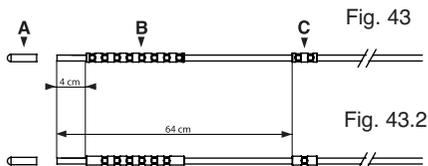
Run each cable through one of the head tubes of the end anchor. Proceed as follows to crimp the first cable end, referring to the manual supplied with the crimping machine.

- 1) Fit the shock-absorbing ring at 64 cm from the cable end.
- 2) Crimp the shock-absorbing ring with the special electrical crimping machine, Tractel code 075739, equipped with a crimping jaw, Tractel code 114345. Perform ONE crimping operation with one imprint per shock-absorbing ring (see Fig. 43.2).
- 3) Fit the stop ring at 50 cm from the shock-absorbing ring crimped beforehand ; this will leave sufficient space at the end of the cable to place the end-fitting (4 cm).
- 4) Crimp the stop ring using the special electrical crimping machine, Tractel code 075739 equipped with a crimping jaw, Tractel code 114345. Perform SIX crimping operations with one imprint per shock-absorbing ring (See Fig. 43.2).
- 5) Fit the cable end-fitting.

**Note :** If you use the special manual crimping machine, Tractel code 024998 equipped with a crimping jaw, Tractel code 020885, perform ONE crimping operation with two imprints per shock-absorbing ring and FOUR crimping operations with two imprints per stop ring (See Fig. 43).

**Note :** The crimping pressure should be 500 b +/- 10b

Pull the cable end to bring the shock-absorbing ring into contact with the post head.



### 6.4.2. Lifeline with INRS shock-absorber

The cables are installed after completion of the installations described below in section 6.5.2. The cables are installed on the shock-absorber coupling connected as indicated in section 6.5.2.4.

Run each cable through one of the tubes of the shock-absorber coupling, then proceed as indicated above in section 6.4.1., without shock-absorbing ring.



Pull the cable end to bring the stop ring into contact with the tube of the shock-absorber coupling.

## 6.5. Installing lifeline at first end, versions 1 A and 2A

### 6.5.1. Lifeline with shock-absorbing rings

With the first anchor already secured directly as instructed in 6.4.1., insert the free end of each cable through the intermediate anchors, then through the second plain end anchor and, if necessary, through the turn anchors installed along the lifeline path.

For extra-long installations, you can use a «TIRVIT T2 » cable tensioner to pre-tension the cable. See section 6.6.1. for subsequent information.

### 6.5.2. Lifeline with INRS shock-absorber, version 1B and 2B

**IMPORTANT.** Each time, after connecting two parts by a quick link connector, be careful to lock the link by fully screwing on the nut and checking the operation.

#### 6.5.2.1. Tensioner connection

With all the anchors in place, secure, to the head of end anchor C (direct mounting on structure) or to the end plate D (post mounting), the quick link connector supplied with each of these parts. Then, connect the tensioner to the quick link.

Fig. 45

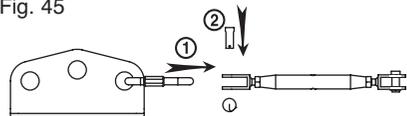
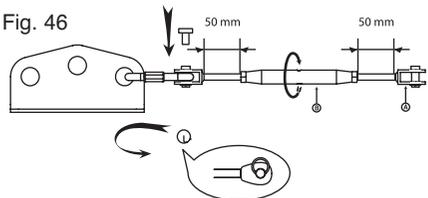


Fig. 46



For this purpose, remove the locking pin from the fastening pin and remove the pin located at one of the ends of the tensioner. Position the tensioner yoke so that its holes line up crosswise with the inside of the quick link. Run the fastening pin through the holes of the yoke and through the quick link.

Fit the locking pin in the hole located at the end by pushing it in fully and taking care to lock the pin by swiveling its spring ring through the fastening pin (Fig. 46 detail 1).

Ensure that the pin itself is correctly locked and cannot escape from the assembly. The ring on the fastening pin must be closed on the locking pin.

Adjust the length of the tensioner by proceeding as shown in Figure 46. For this purpose, hold the tensioner by the yoke (A) and turn the body (B) of the tensioner to bring out the two interior rods of the tensioner so that they come out by 50mm (maximum length).

#### 6.5.2.2. Connecting the tension indicator

Secure the tension indicator to the free end of the tensioner.

Proceeding as you did to secure the tensioner to the end anchor connector (Fig. 47).

6.5.2.3. Connecting the shock-absorber(s)

For those configurations requiring several shock-absorbers, see table below :

Connect the first shock-absorber to the tension indicator using a quick link supplied with each shock-absorber as shown in Fig. 47. The shock-absorber should be able to freely line up on the tension indicator.

If several shock-absorbers are installed, these must be connected together by the "quick links » supplied with each shock-absorber (see Fig. 48).

6.5.2.4. Connecting shock-absorber coupling and cables

With the two cables previously run through the shock-absorber coupling with crimped stop ring, connect the shock-absorber coupling to the shock-absorber (or to the last shock-absorber if several are used) with the quick link supplied with the shock-absorber coupling, as shown in Fig. 49.

With the shock-absorber coupling connected, install the cables as detailed in section 6.5.1.

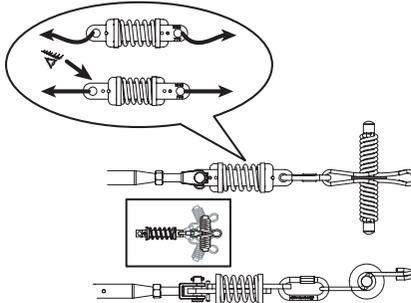
6.6. Installing lifeline at second end, versions 1A and 2A

6.6.1. Lifeline with shock-absorbing rings

6.6.1.1. Tensioning the cables

The cables are tensioned by screwing in the nut on the special Tractel tool. This tension can then be fine-adjusted before and after crimping the cable ends, by the slotted screws on the tool (tensioning load 200 kg +/-20).

Fig. 47



**Minimum installation indispensable for maximum force generated by a fall less than 900 daN on each terminal anchor.**

	1 person		2 persons		3 persons		4 persons		5 persons	
	End 1	End 2	End 1	End 2	End 1	End 2	End 1	End 2	End 1	End 2
Version 2	1	1	1	1	2	2	2	2	3	3

Fig. 48

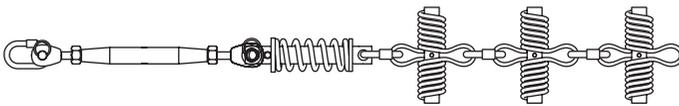


Fig. 49

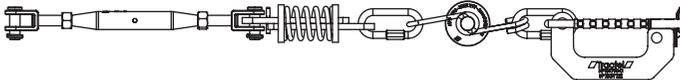


Fig. 50

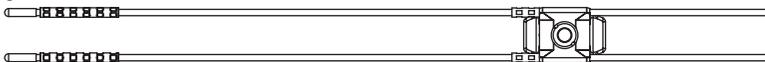
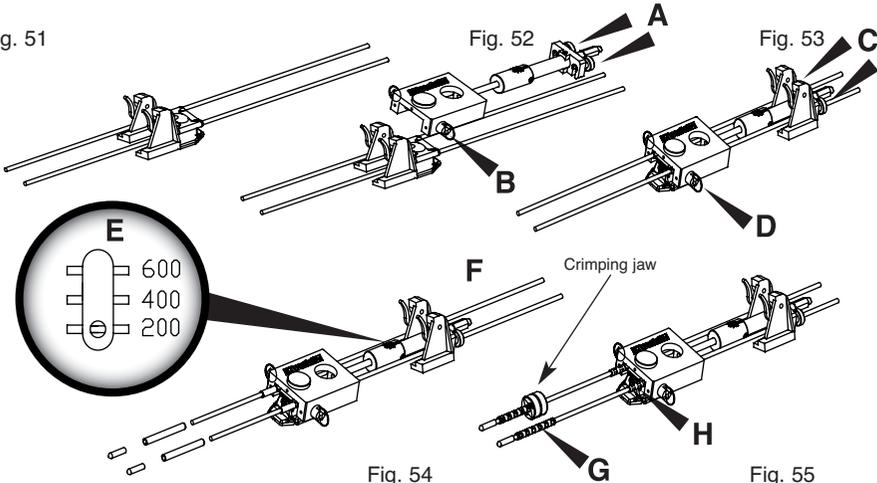


Fig. 51



- 1) Run the end of the two cables in the second end anchor (Fig. 51). If necessary, cut the cables around 1 meter beyond the second end anchor.
- 2) Fit a grip on each cable against the head of the end post as shown in Fig. 51 (be careful with mounting direction: grip flat must bear against post head. If not, cable will not be secured).
- 3) Apply a medium pre-tension. Check the turn radius at each turn anchor then adjust the tension, if necessary. Check that the two cables have a similar tension. Realign the two grips bearing against the anchor head.

**Note :** If the lifeline is equipped with a turn anchor, two crimping operations must be performed for each turn anchor during final crimping of the second end ; this must be performed in the order of installation of the parts, one after the other.

**Note :** Before installing the tensioning tool, Fig 52.

- fully unscrew the nut on the threaded rod,
- bring the washer of the nut ring into contact with the thrust plate of the tool, and the nut into contact with the ring,
- position the two slotted screws (A Fig 52) of the thrust plate so that their end is flush with the inside face of the thrust head without going past, and their slots line up with those on the thrust head (downward).

- 4) Install the Tractel tensioning tool code 027988 on the head of the end post after installing the TRAVSAFE adapter.
- 5) Position the tool on the cables as shown in Fig. 53; the slots of the slotted screws (detail C Fig. 53 ) should be placed on the cables.
- 6) To lock the cables in the tool, turn the slotted screws by  $\frac{1}{2}$  turn (detail C Fig. 53).
- 7) Lock the two lateral pins (detail D Fig. 53) securing the tool to the end anchor by applying a quarter-turn to the pins which should clearly move in. Check they are properly in place.
- 8) Position the other two grips on the cables, in contact with the inside face of the thrust plate of the tool as shown in Fig. 53 (be careful with mounting direction: grip flat must bear against thrust plate).

- 9) Tension the cable by screwing the end nut (detail F Fig. 54 ) on the threaded rod to obtain an indication of 200 kg (maximum), indicated by the position of the tensioning index (detail E Fig. 54 ).
- 10) Fine-adjust the tension of each cable if necessary by screwing or unscrewing the slotted screws.
- 11) Once you have completed tensioning the cables, cut the two cables at a distance of 640 mm from the post head.
- 12) Remove the two grips bearing against the head of the end anchor.

#### 6.6.1.2. Crimping the cables

Before crimping the second end, check that the line is not equipped with a turn anchor. If the line is equipped with a turn anchor, tension the cable and crimp the anchor shock-absorbing rings. Repeat the operation for each turn anchor on the line.

- 1) Engage and crimp the shock-absorbing rings (detail H Fig. 55 ), then the stop rings (detail G Fig. 55) as indicated for each end of the same case, in section 6.4.1.
- 2) Cut the cable at 40 mm from the stop ring.
- 3) Install the end-fitting on the end of the cable.

#### 6.6.2. Lifeline with INRS shock-absorber, versions 1B and 2B

##### 6.6.2.1. Installing the shock-absorber coupling

Connect the quick link supplied with each shock-absorber to the end piece (end anchor for shock-absorber or end plate), then connect the INRS shock-absorber to the quick link. Connect the shock-absorber coupling, by its quick link, to the quick link of the shock-absorber coupling.

Note: For esthetic purposes, it may sometimes be necessary to connect a second quick link between the end anchor and the INRS shock-absorber. Never connect the tensioner directly to an end anchor without a link.

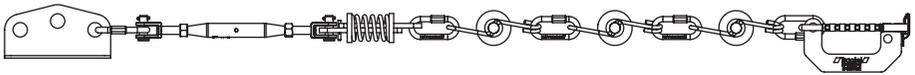


Fig. 56

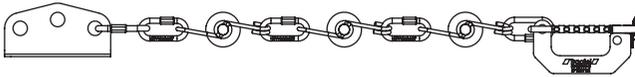
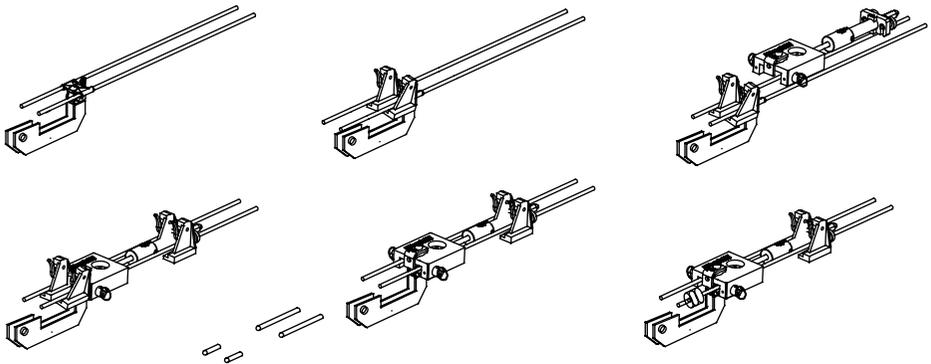


Fig. 58/59/60/61



#### 6.6.2.2. Tensioning the cables

The cables are tensioned by screwing in the nut on the special Tractel tool. The tension can then be fine-adjusted before and after crimping the other cable ends, using the tensioner located at the first end, and by the slotted screws of the tool.

- 1) Engage the end of the two cables in the tubes of the shock-absorber coupling as shown in Fig.57.
- 2) Install a grip on each cable against the head of the shock-absorber coupling, as shown in Fig.58 (be careful with mounting direction). Grip flat must bear against post head. If not, cable will not be secured.
- 3) Apply a medium pre-tension and check the turn radius of the turn posts, then adjust the tension, if necessary. Check that the two cables have a similar tension. Then, realign the two grips bearing against the post head.

#### Note: Before placing the tensioning tool:

- fully unscrew the nut on the threaded rod,
  - bring the washer of the nut ring into contact with the thrust plate of the tool, and the nut into contact with the ring,
  - position the two slotted screws of the thrust plate so that their end is flush with the inside face of the thrust head, without going past, and their slots line up with those on the thrust head (downward).
- 4) Install the Tractel tensioning tool code 027988 (see Figure 29, p. 17 on the end coupling head after installing the TRAVFLEX

adapter (see Figure 28, p. 16).

**Note : The special travflex adapter must be used when tensioning the cables on shock-absorber coupling kits. For all other cable tensioning operations on end anchors or turn anchors, use the travsafe adapter (see Fig. 27, page 16).**

- 5) Proceed as detailed in step 5) up to step 10) of section 6.6.1.1.
- 6) Remove the two grips bearing against the head of the shock-absorber coupling.

#### 6.6.2.3. Crimping the cables

In this version, crimping is performed on the shock-absorber coupling after the above procedure.

Proceed as detailed in corresponding section.

- 1) On each cable, engage the stop ring and bring it into contact with the head of the shock-absorber coupling.
- 2) If the line is equipped with a tension indicator (O), check the tension at the other end of the lifeline using the tension indicator, as detailed in Fig. 47, detail C. To fine-adjust the tension, turn the body of the tensioner to shorten or extend it, by retracting or extending the two rods in the tensioner body. Proceed using a rod inserted in the central hole of the tensioner. Tension the cable until the two reference holes line up (see Fig. 47). Once the holes are aligned, stop the operation

as overtensioning the cable can result in operation of the shock-absorber, which will then need to be replaced. In all cases, before crimping, check that the Tractel tensioning tool indicates 200 kg.

- 3) Crimp the stop ring using the special electrical crimping machine, Tractel code 075739, equipped with a crimping jaw, Tractel code 114345. Perform 6 crimps with one imprint per stop ring, see Fig. 44.2.
- 4) Cut the cable 4 cm from the stop ring and install the cable end fitting.

**Note :** If you are using the special manual crimping tool, Tractel code 024998 equipped with a crimping jaw, Tractel code 020885, perform 4 crimps with two imprints per stop ring at a pressure of 200b +/- 20b. See figure 44.

### 6.7. Removing the tensioning tool

- 1) Remove the two grips bearing against the end head of the tool.
- 2) Unscrew the end nut of the tool by a few turns.
- 3) Check that the slotted screws are aligned with the cables.
- 4) Unlock the lateral fastening pins (pull and turn by \_ turn).
- 5) Remove the tool.

**IMPORTANT :** For a lifeline equipped with a shock-absorber, before removing the tensioning tool, check that the shock-absorber has not been subjected to any deformation subsequent to overtightening, in which case you must replace the shock-absorber before commissioning the lifeline.

### 6.8 Installing the information panel

The installation is only completed after you have prepared, if necessary, an access allowing the user to connect himself to the lifeline under the required safety conditions. The access must be marked by an information panel (see below, section 7).

### 6.9. Installing TRAVSAFE slider(s)

Install the slider as indicated in the manual supplied with the TRAVSAFE slider.

## 7. Information plate

A **Tractel** information panel, code :117505, is available. In compliance with standard EN 795 Class C, the panel must be secured at each point of access to the lifeline. If additional accesses are planned, **Tractel** can supply the necessary number of information panels.

As the **Tractel** plate is drawn up in six languages, three languages on each side, care must be taken to place the information plate in such a way that the side containing the language of the country where the site is located is on display.

Any information to be placed on this panel by the installer should be written in indelible pen or stamped on it, and be clearly readable for the user. Any illegible plate should be replaced before use.

## 8. Use

### 8.1 General information

The person in charge of using the TRAVSAFE lifeline should, prior to commissioning, obtain a copy of the mandatory compiled prior study file from the user. They should also be aware of the contents of this manual.

They should ensure that the personal protection equipment (PPE) to be used with the TRAVSAFE lifeline comply with the current regulations and Standards, are compatible with the installation and are in good working order.

Any person called on to use the TRAVSAFE lifeline should be physically capable of working at height and have received prior training in its use, in compliance with this manual, with a demonstration of its use in safe conditions and using the appropriate PPE. The method of connection and disconnection to the lifeline, and passing through the intermediary supports (including angled turns) should be carefully explained and a check made that the user fully understands the method.

The TRAVSAFE lifeline should only be used for protection against falls from height, and in no event as a means of suspension.

It should only be used in association with CE certified PPE, and in compliance with the appropriate regulations and Standards. A full fall prevention harness is the only user body handling device acceptable for use in association with the lifeline.

The TRAVSAFE lifeline should never be used beyond the limits indicated in this manual and the prior study.

A visual check of all of the lifeline installation and the associated PPE should be carried out prior to each usage. In the event that an anomaly or deterioration is noted concerning the installation, it should be immediately withdrawn from use until it has been returned to correct working order by a qualified technician. The route protected by the lifeline should be kept free of any obstacle.

The person in charge, owner or manager of the building on which the TRAVSAFE lifeline is being used, should set up a rescue procedure for the user in the event that they suffer a fall at any point along the lifeline, and for any other emergency, in such away as to evacuate the victim in circumstances compatible with safeguarding their health. It is recommended that each user is equipped with a mobile phone containing the number to call in an emergency.

The Labor Laws of some countries prescribe that "when personal protection equipment is used (against falls from height) a worker must never be left alone in order that they can be rescued in a timescale compatible with safeguarding their health". Tractel recommends that all users comply with this prescription.

**IMPORTANT:** The user must not at any time find themselves disconnected from the TRAVSAFE lifeline when they are in an area containing a risk of a fall. As a result:

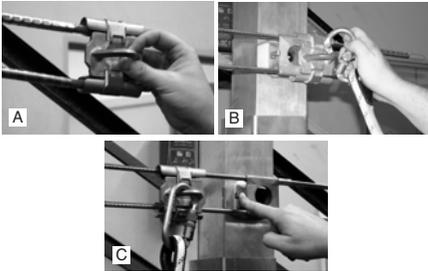
- They should only access or disconnect from a life line at points provided for this purpose and which have been laid out in order to enable initial connection to be made in perfect safety.
- On the lifeline, the user must only move past the intermediate anchors using a TRAVSAFE slider without disconnecting himself from the lifeline.
- The user moves past the turn anchors in the same way as he moves past the intermediate anchors.
- Outside of this operation, the user should only disconnect from the lifeline at the pre-ordained access points when they wish to exit the danger area.

## 8.2 Using the slider

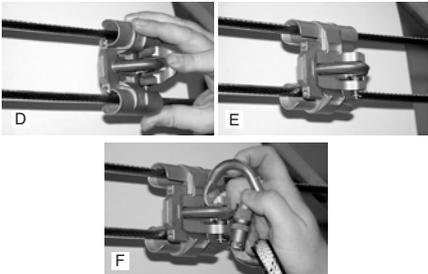
The TRAVSAFE slider comes in two versions, a standard non-opening model and an opening model.

The method for connecting the TRAVSAFE slider to the TRAVSAFE lifeline, and the operating and maintenance instructions are detailed in the manual supplied with each slider. The user must carefully read this manual before installing and using the slider. On request, Tractel will supply additional copies of this manual.

A description of the TRAVSAFE standard slider is given in Figs. a – b - c showing the standard slider at the end of the line for installation and use on the lifeline.



A description of the TRAVSAFE opening slider is given in Figs. d – e - f showing the opening sliders for installation and use on the lifeline.



## 9. Checks, inspections and maintenance

All lifeline installations should, prior to commissioning or re-commissioning after being disassembled or repaired have each component part inspected in order to ensure that they comply with the legal safety provisions and Standards, and especially the EN 795 Standard. Tractel SAS recommends that this examination is entrusted to an approved inspection organization. This examination is carried out on the user's initiative and at their expense.

As the horizontal lifeline is not a PPE, it is not legally subject to periodic inspection. Nonetheless, Tractel SAS recommends that at least a yearly check is made to confirm that the TRAVSAFE lifeline is still in good condition.

This check involves confirming the overall general condition and cleanliness of the components (end plates, cable, intermediary parts, tensioner, tension indicator, energy shock absorber, cable clamps, connectors).

In addition, the PPE used in association with the TRAVSAFE lifeline should also be checked prior to commissioning and be subject to periodic checks by a qualified person in compliance with the relevant regulations and Standards. This check should be carried out at least once a year.

The lifeline and its components should always be kept clean and free from encumbrances (paint, worksite waste, debris etc).

It is recommended that a record book is established containing the prior study reference No., the lifeline's composition, inspections performed, any fall that has occurred in which the lifeline came into operation, returning to good order or repairs carried out, as well as any modifications that have been made to the lifeline. Incidentally, each PPE should be allocated its own identification sheet in compliance with the EN 365 Standard.

When any point on a TRAVSAFE lifeline has been put under strain by a user falling, the entire lifeline, and more especially the anchors, seals and securing points located in the fall zone, as well as any PPE involved in the fall, MUST always be checked by an appropriately qualified person before being put back into service.

Any lifeline cable showing signs of damage, in particular : bends, deformation or broken wires, must be replaced before continuing to use the lifeline. This check must be performed each time after using the lifeline.

## 10. Reception tests

The commissioning and safety tests are carried out at the user's initiative and expense.

As all dynamic tests are potentially partially or totally destructive, possibly in a manner that is undetectable, with out any lack of deterioration being necessarily conclusive, we strongly advise against carrying out dynamic tests for TRAVSAFE lifeline reception.

### Concrete static tests

To comply with the requirements of appendix A (informative) of standard EN 795 (pr NF EN 795) chapter A5, each structural anchor in the concrete (terminal or intermediate) must be subjected to a tensile strength test to check the strength of the attachment.

For this purpose, each anchor point (on each anchor) must be subjected to a force of 5 kN for at least 15 seconds after which it should not show any signs of deformation; this operation can be performed using a DYNAPLUG dynamometric puller. Check, before carrying out the test that all the nuts and bolts are correctly tightened.

These tests will be carried out prior to any sealing material being installed, should such material be scheduled for the surface of the structure on which the securing points are to be attached.

### Static tests on metal beam

Contact us.

## 11. Prohibited incorrect usages

The use of the TRAVSAFE lifeline in compliance with the instructions contained in this manual offers a guarantee of total safety. Nonetheless, it seems appropriate to advise the user against the following incorrect methods of handling and usage.

### IT IS PROHIBITED

- to install any item on the lifeline cable other than those laid down in the prior study, and most especially, any item other than those parts provided by Tractel as being one of the lifeline's components,
- to modify the installation without being overseen by an appropriately qualified person in order to implement the prior study,
- to use the lifeline cable as a means of suspension other than as the result of an involuntary fall,
- to test the lifeline by a deliberate fall,
- to pull on the moving anchor slider to try to clear it from a possible obstacle, or to move it over an intermediate anchor,
- to connect or disconnect the lifeline cable to a point other than that provided for the purpose,
- to pass the cable or the PPE lanyards over sharp edges or allow them to rub against hard surfaces,
- to remove the lifeline cable without having the necessary qualification and the equipment required to remove a tensioned cable.
- to use the lifeline by more than 5 persons at a time.

## 12. Regulations and Standards

Horizontal lifelines are not PPE and are not the subject of any specific Directive. They are governed by the European EN 795 Standard.

However, these must be completed by individual personal protection equipment for protection against falls at heights, consisting, for each operator, of at least a complete fall protection harness, link-up and connection devices, and possibly, an energy absorber, manufactured in compliance with European Directive 89/686/CEE, and used in compliance with Directive 89/656/CEE and any additional regulations which may apply in the country of use. All PPE components must be CE-certified.

## 13. Official terminology

- 1) Lifeline = There is no reference to the term "lifeline" either in the regulations or the Standards. The "TRAVSAFE horizontal lifeline" comes under the category of an "Anchoring device equipped with flexible horizontal retaining supports".
- 2) anchoring device = "Item or series of items or components comprising a securing point or points".
- 3) retaining cable = "flexible support located between structural anchors". On the TRAVSAFE lifeline, the retaining cable is a tensioned cable between an end anchor and the energy shock absorber".
- 4) securing point = "Item to which personal protection equipment (against falls from height) can be attached after an anchoring device has been installed". On the TRAVSAFE lifeline, the securing points are mobile: these are the sliders on each PPE, which slide along the lifeline cable.

- 5) structural securing point = "Item attached permanently to a structure (host or supporting structure), to which can be attached an anchoring device or personal protection equipment (against falls from height)". On the TRAVSAFE lifeline, the structural anchors are the end anchors and the intermediary securing point, as well as, if required, angular securing points.

## Inspection sheet

### DESCRIPTION

#### End ANCHORS

- Check tightness of nuts and bolts
- Check that part has not been altered
- Check for rust
- Check for deformation

#### SLIDER

- Check that trolley locks correctly on cable
- Check that part has not been altered
- Check for rust
- Check for deformation

#### INRS SHOCK-ABSORBERS

- Check that quick link locks correctly
- Check that part has not been altered
- Check that the number of shock absorbers correspond to the number of users +1
- Check for rust
- Check for deformation

#### 8MM Ø CABLE

- Check that the cable is correctly tensioned
- Check 8 mm diameter of TRACTEL single-strand cable
- Check that the cable is not damaged
- Check for rust
- Check for deformation (cable cinching, fraying, wear)

#### INTERMEDIARY SECURING POINT

- Check tightness of nuts and bolts
- Check that part has not been altered
- Check that the part is not broken or damaged
- Check for rust
- Check for deformation

#### TENSION INDICATOR

- Check that part has not been altered
- Check for rust
- Check cable tension (that the two holes in the indicator body are in line)

#### ANGULAR SECURING POINT

- Check tightness of nuts and bolts
- Check that part has not been altered
- Check for rust
- Check for deformation

#### INFORMATION PANEL

- Check for the presence of one or more information panels, depending on the number of line access points.
- Check on the date this check was made

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