DEVICES CONTROLLED BY THE PROCESSING UNIT (RAISED JIB)

This part deals with the working order and the adjustment (teach−in programming) of the safety devices controlled by the processing unit for cranes in **raised jib** configuration.

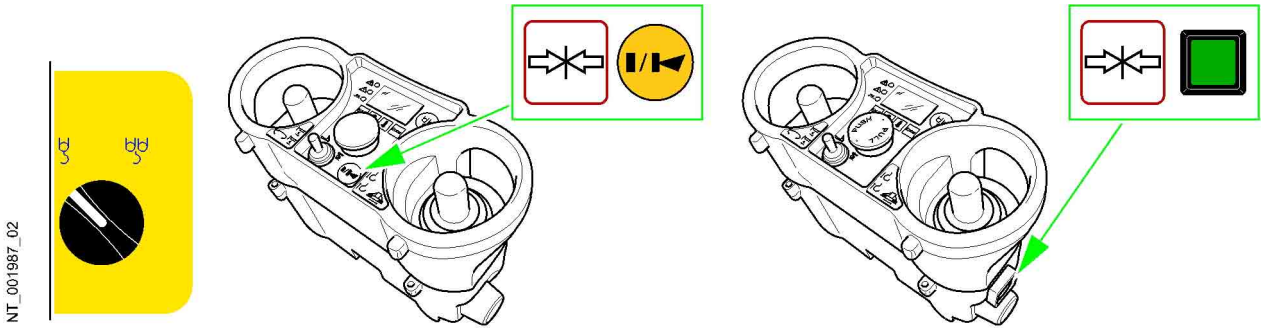
***JIB CONFIGURATION** / Raised jib*

In case of a stop during the teach−in programming procedure (voluntary or not), it is absolutely necessary to restart the procedure from the beginning.

The teach−in programming of a crane in **raised jib** configuration must be compulsorily carried out at **SM**.

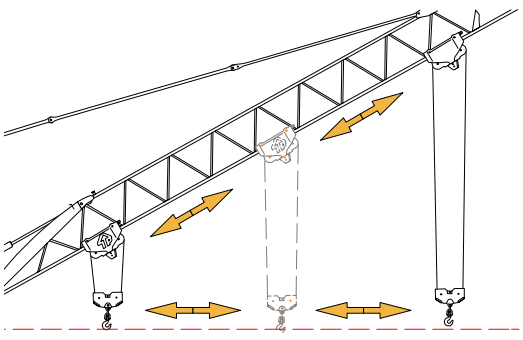
***CHANGING THE ROPE REEVING** / Changing from SM to DM*

Check that the switch (1) is on the "**SM**" position, then validate this configuration on the receiver (2).



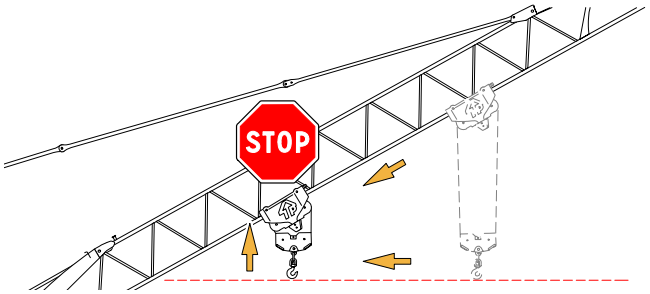
Compensating system

The compensating system allows the pulley block to keep a horizontal trajectory during the trolley motion on a raised jib.



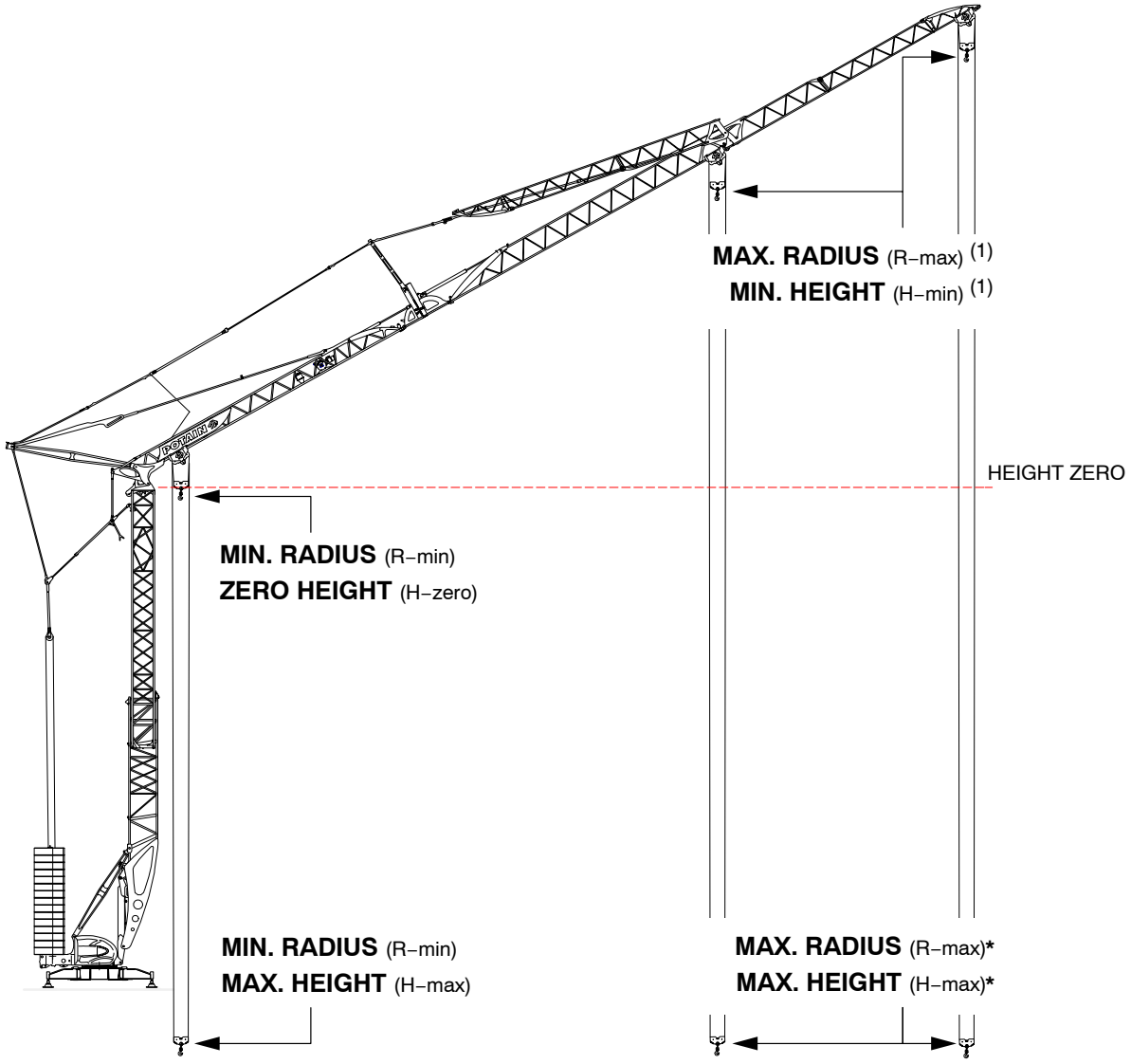
Having carried out the raised jib teach–in programming, the processing unit stops the trolley movements near the jib foot and jib nose stops, but also when the pulley block approaches the trolley during a “Trolley in” movement. As soon as the ”Trolley in” movement is stopped, the ”Hoisting” movement is also stopped.

NT_000905_02



Glossary (trolley and pulley block position)

NT_000905_03



(1) According to the configuration: Jib aligned or folded up

Access to teach–in programming menu

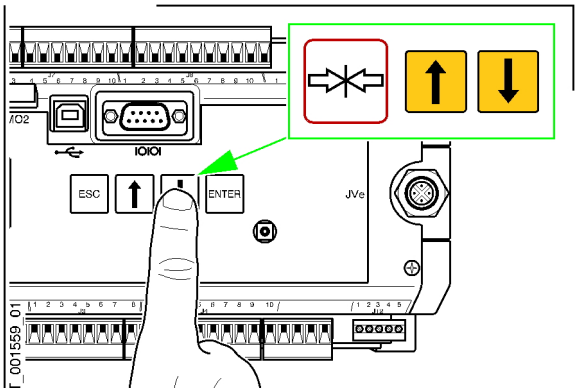
In order to adjust the safety devices controlled by the processing unit, it is necessary to have access to the **TEACH–IN PROGRAMMING** menu. Enter the password: by default (**1234).**

PROCESSING UNIT – GENERAL NOTES / *Teach–in programming menu*

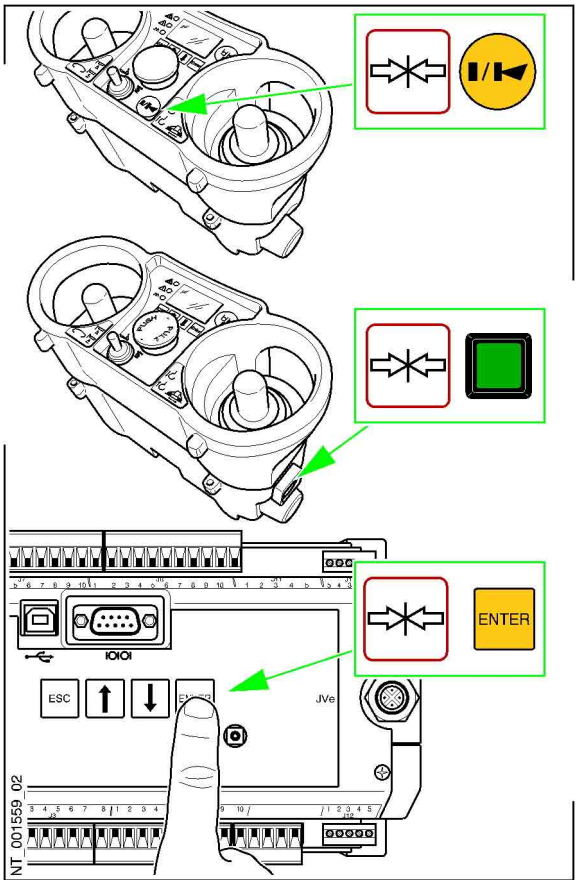
Inside the TEACH–IN PROGRAMMING menu, all the speeds of the crane movements are usable, and only the mechanical limiters ensure the safety.

CHOICE OF THE CRANE TYPE

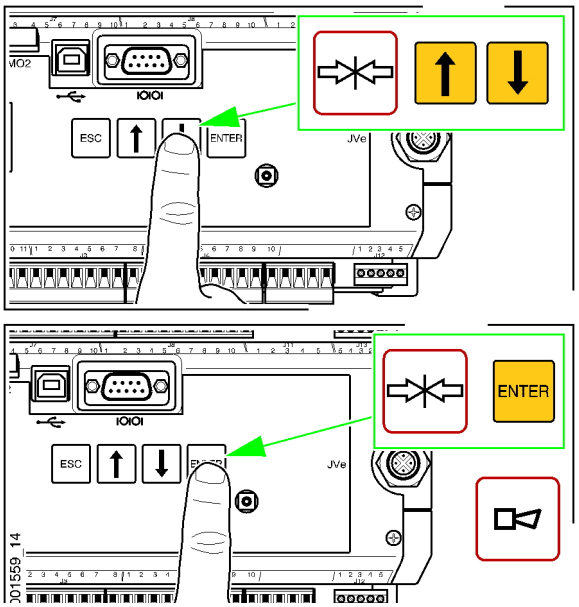
- By means of the 2 scrolling arrows select the line **“CRANE TYPE”**.



- Simultaneously press upon the button **“On – Horn – Resetting”** of the radio control and the **“ENTER”** key of the processing unit in order to reach the crane list.



- By means of the 2 scrolling arrows select the crane type according to model, jib length, permissible load and confirm the choice by pressing upon the **"ENTER"** key (a horn must sound).



TECHNICAL CHARACTERISTICS / *Data sheet*

TROLLEY LIMIT SWITCHES AND HOIST LIMIT SWITCHES

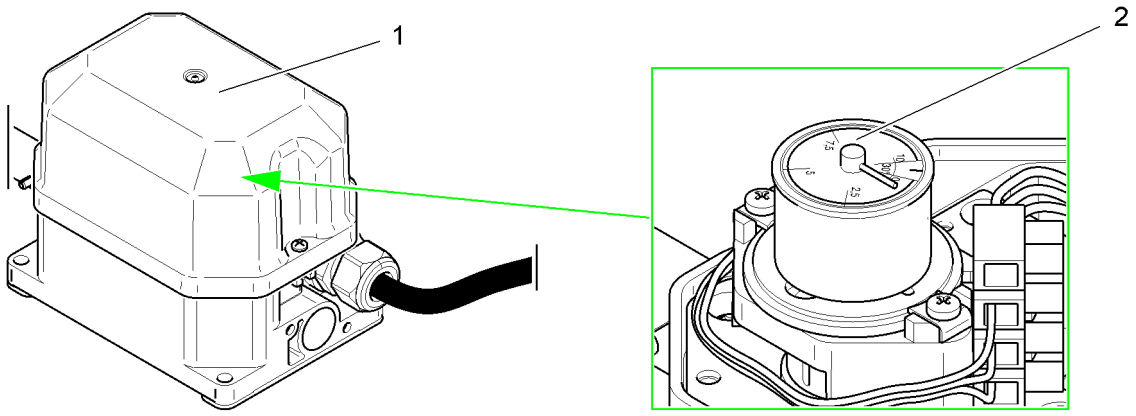
Purpose

The trolley limit and hoist limit switches are intended to compensate for possible driving errors.
The "Trolley in" movement is stopped before the jib foot stops or as soon as the pulley block approaches the trolley (compensation).
The "Trolley out" movement is stopped before the jib nose stops (if the crane works with aligned jib) or before the hinges (if the jib nose or the jib is folded up).
The "Hoisting" movement ist stopped when die pulley block comes near the trolley and the "Lowering" movement is stopped before the rope is completely unwound.

Working principle of the trolley limit switches

A sensor (1) with reduction gear driven by the trolley winch records the number of rotations carried out by the drum of this mechanism.

The reduction gear drives a potentiometer (2) which transmits an information in form of a voltage to the processing unit. This voltage is varying depending on the trolley position on the jib.

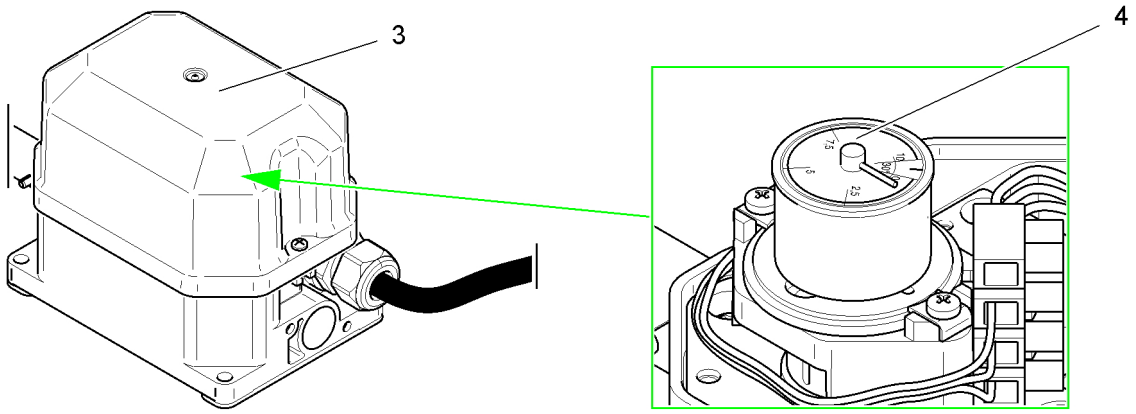


NT_001559_06

Working principle of the hoist limit switches

A sensor (3) with reduction gear, driven by the hoisting winch, records the number of rotations carried out by the hoisting winch drum.

The reduction gear drives a potentiometer (4) which transmits an information in form of a voltage to the processing unit. This voltage varies depending on the pulley block position.

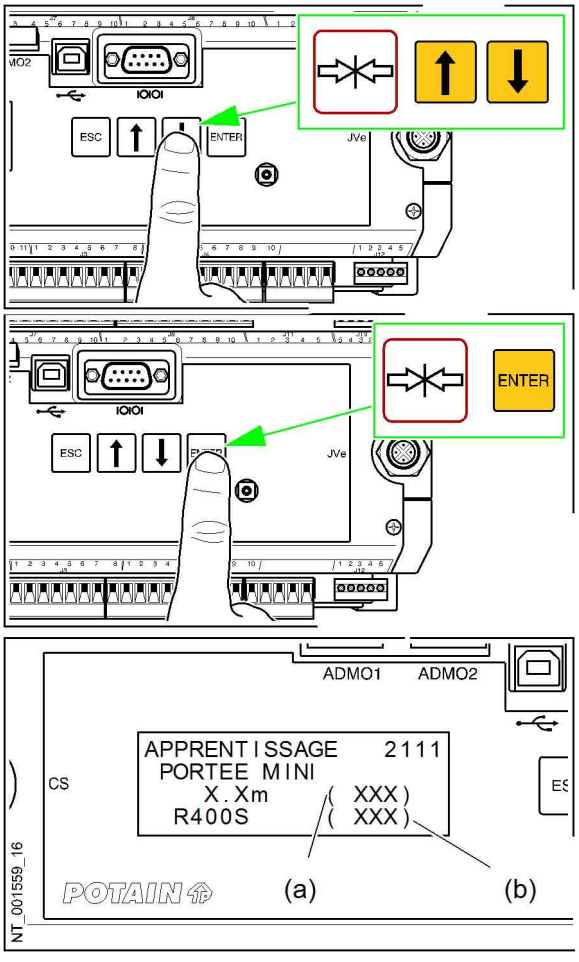


NT_001559_15

Checking the analog values

Having checked the analog values, do not validate by means of the "ENTER" key.

- By means of the two scrolling arrows select the line **"RADIUS"** and validate by pressing upon the **"ENTER"** key. The line **"MIN. RADIUS"** is now displayed, validate again by pressing upon the **"ENTER"** key. The analog values of the trolleying sensor and the hoisting sensor are now displayed in pions.
  - (a) Trolleying analog value
  - (b) Hoisting analog value



NT_001559_16

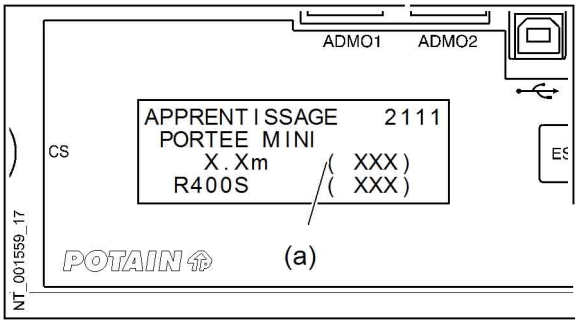
Checking the trolleying analog value

- Check whether the analog value decreases during a “Trolley in” movement and increases during a “Trolley out” movement. If this is not the case, reverse the two wires corresponding to the blue and green wires arriving to the connection bar of the potentiometer

- Position the trolley very close to the jib foot stops and the pulley block approximately 60 cm from the trolley.

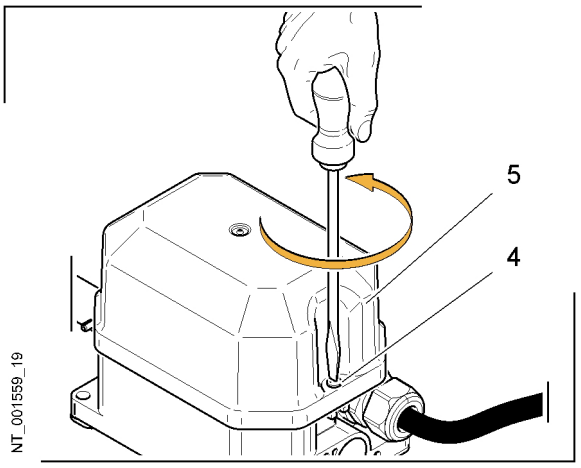
- Check whether the trolleying sensor value displayed on the processing unit is between **650 and 750 pions**. If not, adjust the potentiometer.

  (a) Trolleying analog value

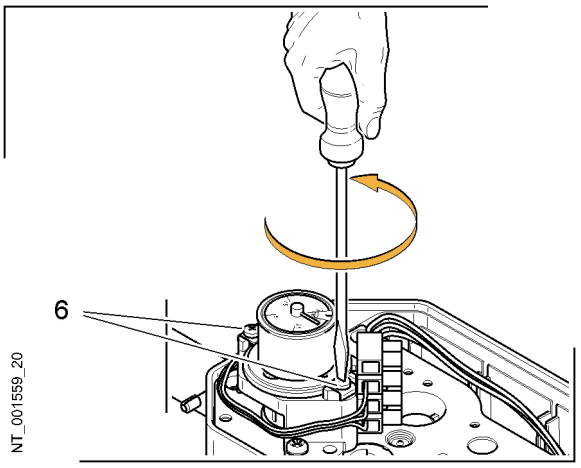


Adjusting the trolley winch potentiometer

- Unscrew the screws (4) and remove the cover (5).

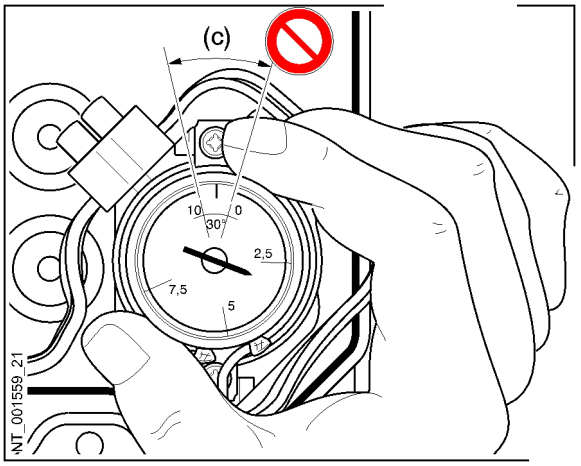


- Unscrew the screws (6).

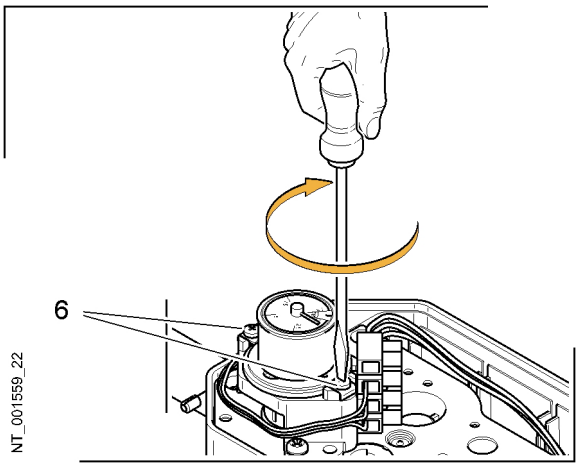


- Turn the potentiometer housing until a trolleying sensor value between **650 and 750 pions** is displayed on the processing unit.

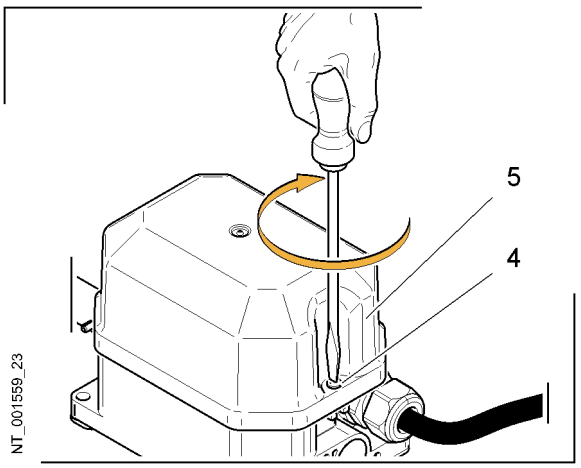
  (c) Not in this area



- Tighten the screws (6).



- Refit the cover (5) and screw in the screws (4).



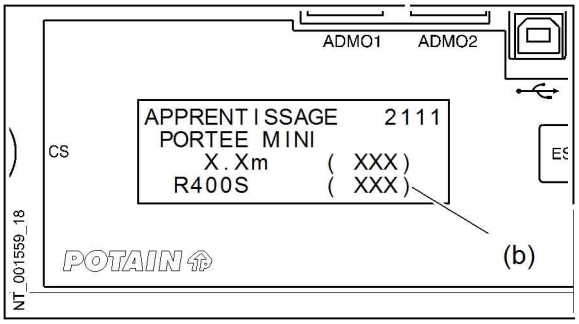
Checking the hoisting analog value

- Check whether the analog value decreases during a “Hoisting” movement and increases during a “Lowering” movement. If this is not the case, reverse the two wires corresponding to the blue and green wires arriving to the connection bar of the potentiometer.

- Move the trolley very close to the jib nose stops and position the pulley block about 60 cm from the trolley.

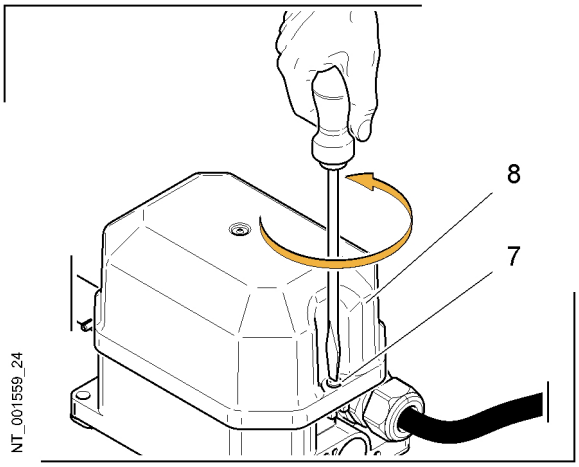
- Check that the hoisting sensor value displayed on the processing unit is between:
  - **750** pions for **Igo T 70** and **Igo T 85**
  - between **800** and **900** pions for **Igo T 130**
- if not, adjust the hoisting potentiometer.

(b) Hoisting analog value

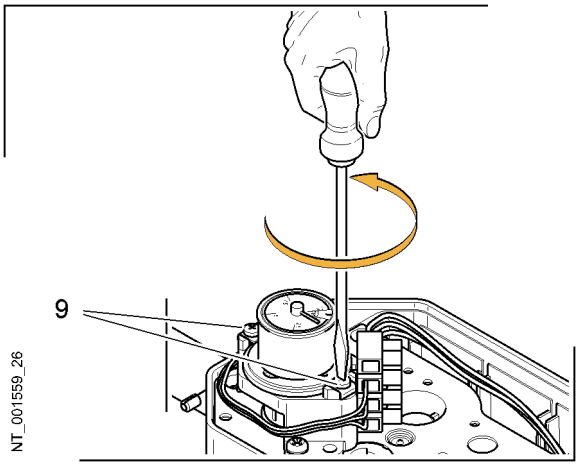


Adjusting the hoisting winch potentiometer

- Unscrew the screws (7) and remove the cover (8).

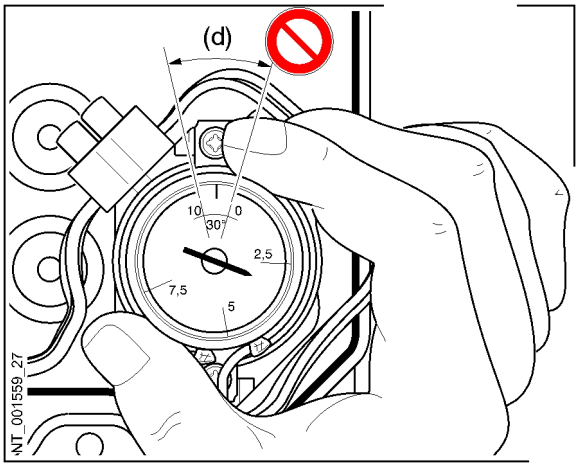


- Unscrew the screws (9).

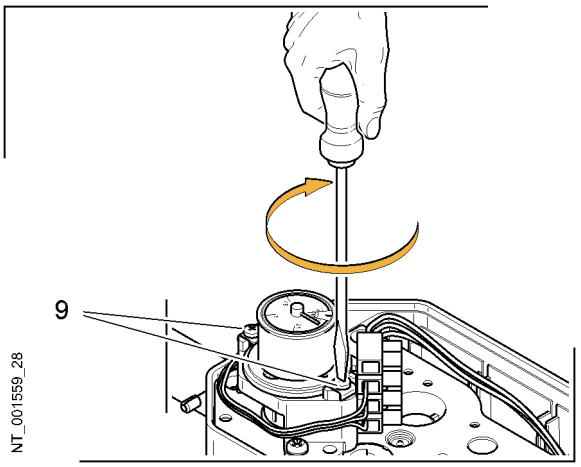


- Turn the potentiometer housing until the following hoisting sensor value is displayed on the processing unit:
  - **750** pions for **Igo T 70** and **Igo T 85**
  - between **800** and **900** pions for **Igo T 130**

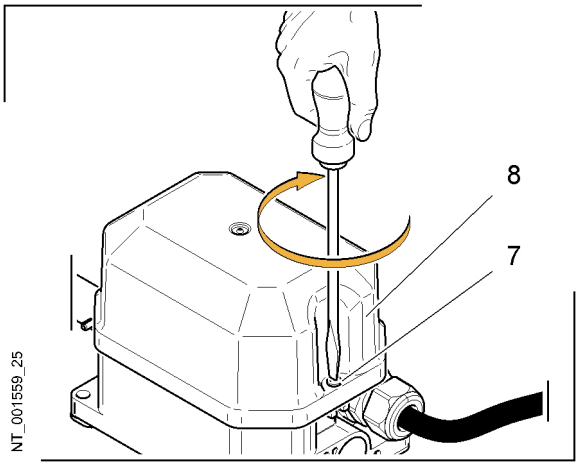
(d) Not in this area



- Tighten the screws (11).



- Refit the cover (8) and screw in the screws (7).



Storage

In order to carry out the storage of the trolley and hoist limit switches, the crane must compulsorily be in the position “**Raised jib aligned**” or “**Raised jib folded up**” (according to the crane configuration).
The adjustments are carried out **WITHOUT LOAD**.

JIB CONFIGURATION

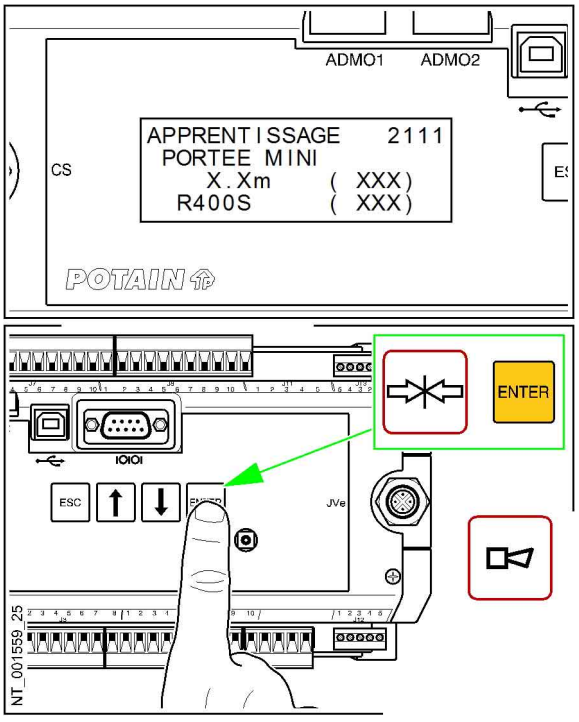
Storage of the point R–min / H–zero

- Position the trolley very close to the jib foot stops and the pulley block approximately 60 cm from the trolley.

For each “Trolley in” movement the pulley block must compulsorily be under the “Height zero”.

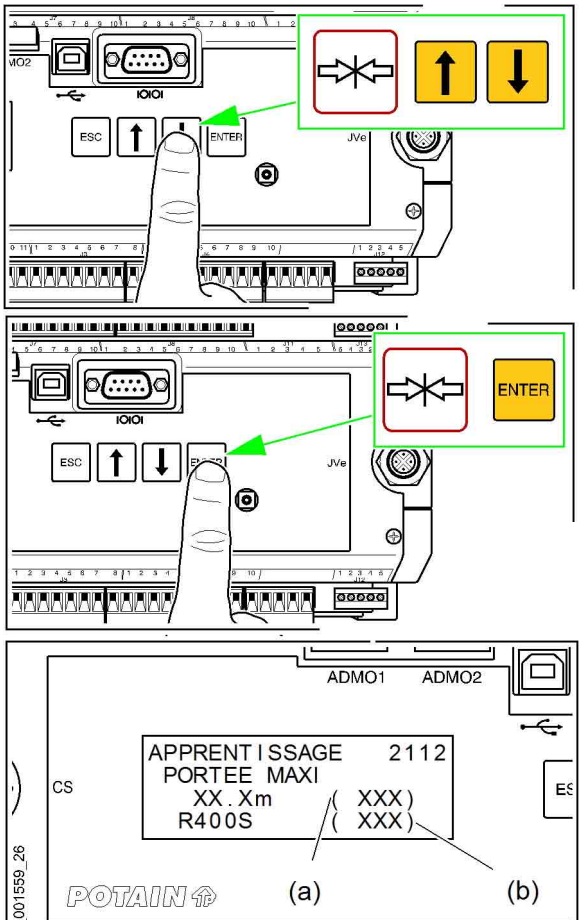
It is compulsory to stop with a “Trolley in” and “Hoisting” movement.

- Store the position by pressing upon the **“ENTER”** key (the horn must sound).



The software will automatically shift the limit switch position in order to keep a reserve.

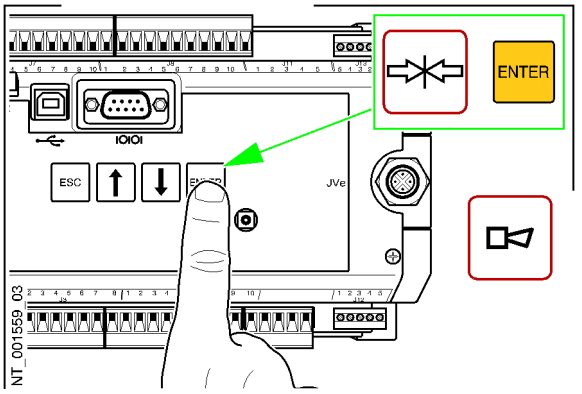
Storage of the point R–max / H–min (Jib aligned, raised to 30° or jib folded up, raised to 30°)



- By means of the two scrolling arrows select the line "**FOL. MAX RADIUS**" and validate by pressing upon the "**ENTER**" key. The analog value of the trolleying sensor is now displayed in pion.
  - (a) Trolleying analog value
  - (b) Hoisting analog value

- Position the trolley very close to the jib nose stops (in case of an aligned jib) or against the stop of the jib nose hinges (in case of a folded jib nose) and position the pulley block about 60 cm from the trolley.

It is compulsory to stop with a "Trolley out" and a "Hoisting" movement.

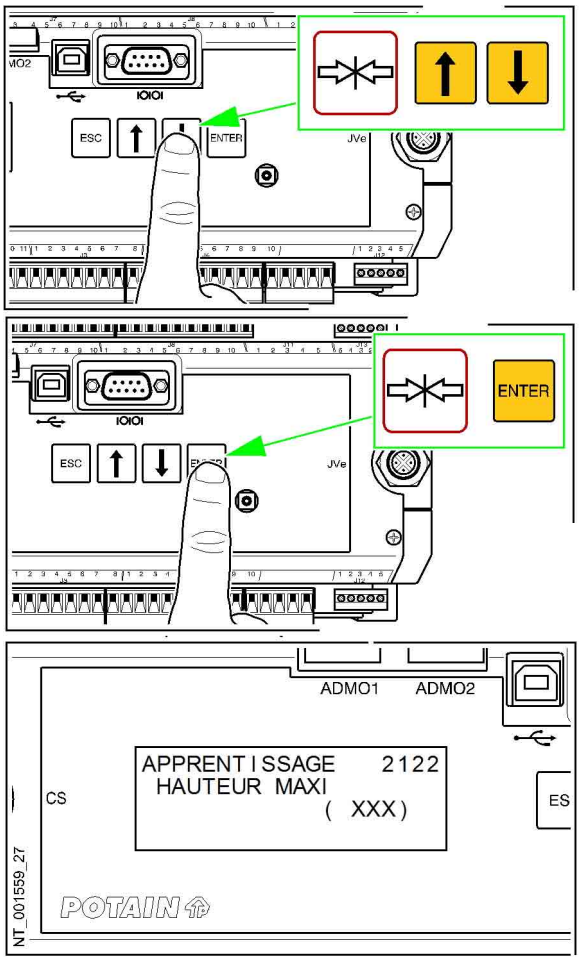


- Store the position by pressing upon the "**ENTER**" key (the horn must sound).

The software will automatically shift the limit switch position in order to keep a reserve.

Storage of the point R–max / H–max

- By means of the 2 scrolling arrows select the **"MAX. HEIGHT"** line and validate by pressing upon the **"ENTER"** key. The analog value of the hoisting sensor is now displayed in pions and must be **< 3500 pions.**



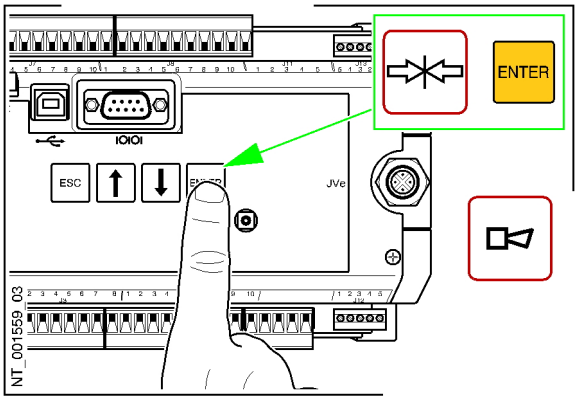
- Lower the pulley block until 3 dead turns remain on the drum. During the lowering movement the analog value must increase and remain lower than **3500 pions.**

In some cases during the above procedure, the rope is partially unwound on the ground. Keep the rope tightened during the winding and unwinding phases.

***SAFETY INSTRUCTIONS** / General safety instructions*

It is compulsory to stop with a "Lowering" movement.

- By pressing upon the **"ENTER"** key, store the position (the horn must sound).



- Wind the hoist rope as far as possible.

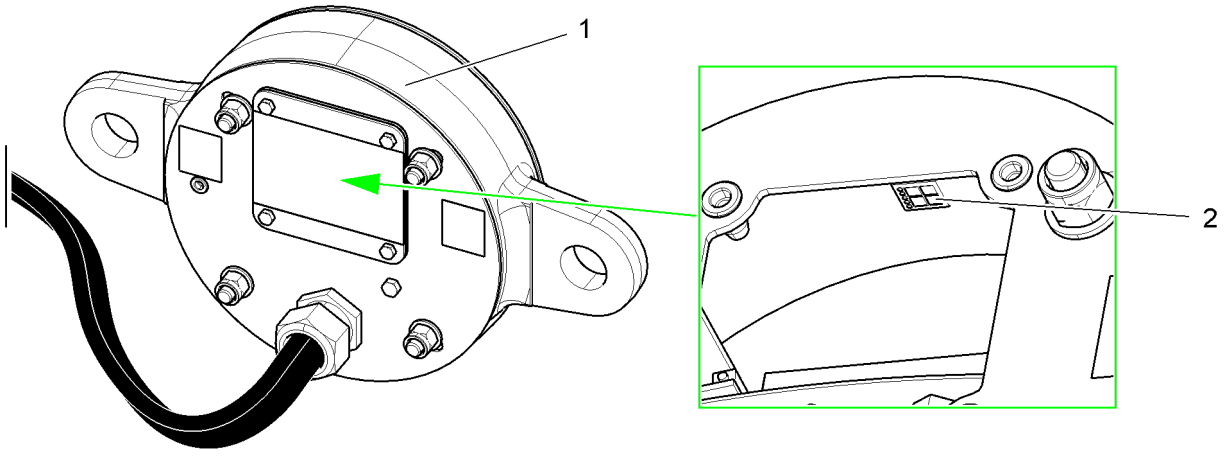
LOAD LIMITERS

Purpose

The load limiters are intended to forbid exceeding the maximum crane load.

Working principle

The dynamometric ring (1) is subject to a deformation which is proportional to the lifted load. A strain gauge bridge (2) fixed on the ring body is subjected to the same deformation as the ring body and transmits an information in form of a voltage to the processing unit. This voltage is varying depending on the lifted load.



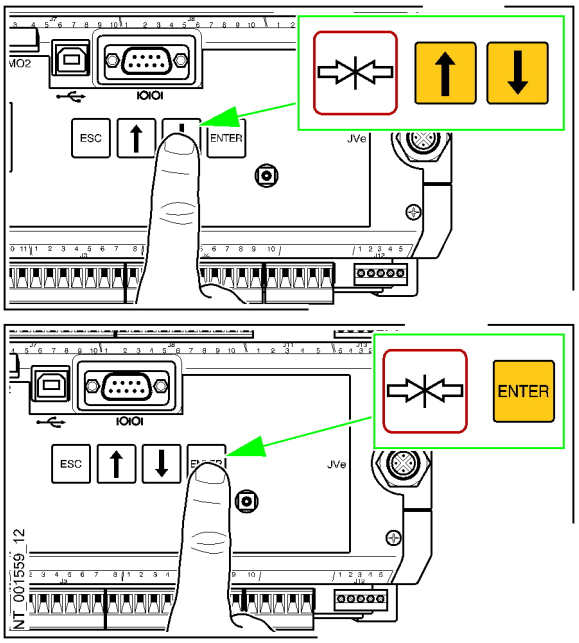
Storage

For carrying out the load limiter adjustment and storage, it is absolutely necessary that the crane is in “**horizontal jib aligned**” or “**horizontal jib folded**” position (according to the crane configuration).

JIB CONFIGURATION

Storage of the “0 LOAD”

- By means of the two scrolling arrows select the line **“0 LOAD“** and validate by pressing upon the **“ENTER”** key. The analog value of the load limiter is now displayed in pion.



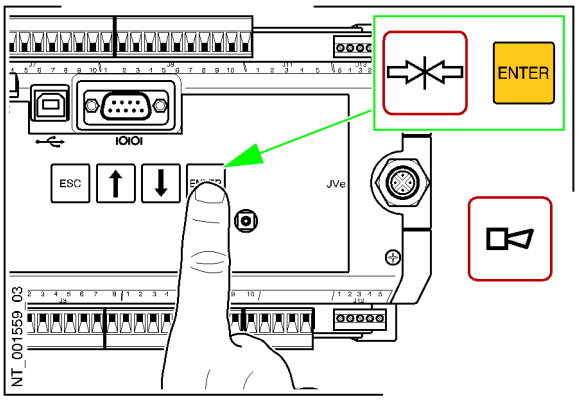
- Position the hook on the ground, then operate ”Hoisting” in order to wind the rope up to the middle of the drum.

It is compulsory to stop with a “Hoisting” movement.

*It is compulsory that the hook is at the same height in order to memorize the “***0 LOAD***” and the “***KNOWN X LOAD***”.*

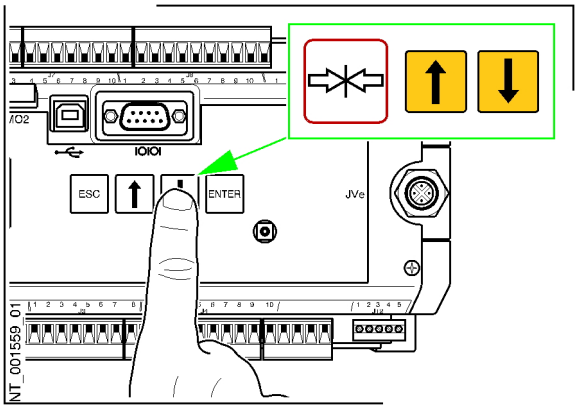
- Wait 30 s to 1 min until the crane is stabilized. The analogue value must be:
  - between **1150** and **1350** pions for **Igo T 70** and **Igo T 85**
  - between **400** and **600** pions for **Igo T 130**

- Store the load by pressing upon the **“ENTER”** key (the horn must sound).



Storage of the “KNOWN X LOAD”

- By means of the two scrolling arrows select the line **“KNOWN X LOAD”** and validate by pressing upon the **“ENTER”** key. The analog value of the load limiter is now displayed in pion.



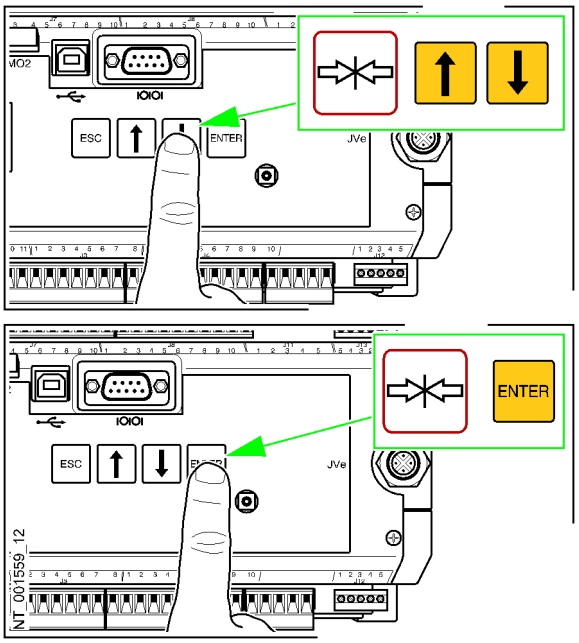
- Suspend a load the weight of which is known and close to the permissible max. load. Then operate ”Hoisting” so that the rope is wound up to the middle of the drum.

TECHNICAL CHARACTERISTICS / *Data sheet*

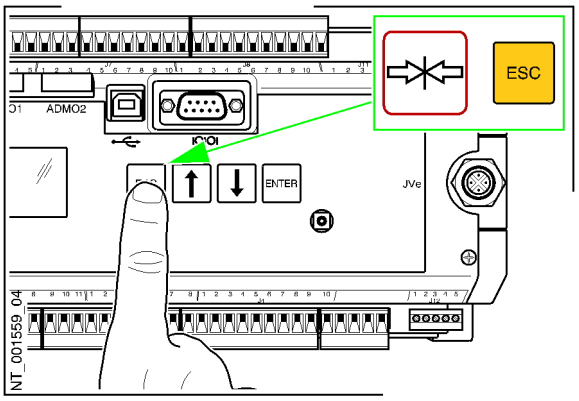
It is compulsory to stop with a “Hoisting” movement.

*It is compulsory that the hook is at the same height in order to memorize the “***0 LOAD***” and the “***KNOWN X LOAD***”.*

- Wait 30 s to 1 min until the crane is stabilized. By means of the two scrolling arrows enter the value of the lifted load (take into account the sling weight if it exceeds 50 kg). Store the load by pressing upon the “**ENTER**” key (the horn must sound).



- When the teach–in programming is carried out, leave the teach–in menu and press upon the “**ESC**” button three times by pulses.



Having carried out the whole teach–in programming, check the good working order of all the safety devices and the correct data display on the processing unit.