

**DISPOSITIF DE PROTECTION
SECONDAIRE : ACTIV' SHIELD BAR**

**MANUEL D'UTILISATION
ET D'INSTALLATION**

**SECONDARY GUARDING SYSTEM: ACTIV'
SHIELD BAR**

**OPERATOR AND INSTALLATION
MANUAL**

**SEKUNDÄRSCHUTZ-EINRICHTUNG: ACTIV'
SHIELD BAR**

**BEDIENUNGS- UND INSTALLATIONS-
ANLEITUNG**

**DISPOSITIVO DE PROTECCIÓN
SECUNDARIO: ACTIV' SHIELD BAR**

**MANUAL DE USO
Y DE INSTALACIÓN**

Kit 4000083740



Activ' Shield Bar - Dispositif de protection secondaire - Manuel d'utilisation et d'installation

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2 English

2.1. Machines concerned

H1414TX / H16TPX : < 2006 et < TD103745
 HA16/18 (S) PX : < 03/2005 et < A0110000
 H21TX / H23/25 TPX

2.2. Operating instructions

2.2.1.1. Planned use

This manual is applicable to the installation and operation of the Activ' Shield Bar system

Activ' Shield Bar is a secondary guarding system.

The operator must read and understand the contents of this manual before operating the machine.

WARNING:

It should be noted that this system does not remove the operator's responsibility to complete training and apply the principles of safety for operation of the machine which are given in the manufacturer's recommendations, the employer's safety rules and the specific regulations for the place of work.

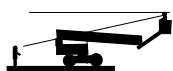
2.2.1.2. Safety precautions

Read and understand the safety precautions described in detail in the machine's Operator Manual.

The following instructions in particular must be complied with:



Check that the work area has sufficient height and that it is clear of any obstacle or potential danger.



When driving, position the platform to give the best possible visibility and avoid any blind spots.



Always ensure that the chassis is less than 1 m from holes, bumps, slopes, obstacles, debris and objects covering the ground, as they may hide hazards.

While the machine is in use, keep all parts of the body inside the platform.

To position the machine close to obstacles, you are advised to use movements of the boom (arm, boom, etc.) rather than driving manoeuvres.

Never drive fast in narrow or cluttered areas.

Keep speed under control in turns and in tight bends.

Do not use the Activ' Shield Bar system as a handle to hold on to. This may cause the system to be unexpectedly activated.

2.2.1.3. Inspection prior to use

NOTE: never use a faulty or malfunctioning lift platform. If an element on the inspection list is marked "No" during the inspection, the machine must be reported, locked and withdrawn from service. DO NOT use the machine until all the elements reported have been corrected; the machine must be declared ready for completely safe use.

Fleet number	Serial number	Model	Hours

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See Functional tests section in the machine's operator manual

Perform all the functional tests specific to the machine

- All the results of the machine's functional tests are positive

Start the machine from the platform control console.

Set all the emergency stop buttons to OFF

- Check there are no warning signals
- Check that the green light on the electric control box is on.

Perform the secondary guarding system tests for each of the movements specified in the table below:

- Push the contact bar whilst performing the movement stated
- Check which movements are authorised and fill in the table
- Check that the visual and audible warning signals are activated
- Check that the reset button on the electric control box is on
- Press the reset button
- Check that normal operation is re-established

YES

NO

--	--

YES

NO

YES

NO

YES

NO

--	--

		Movement performed while the bar is engaged														
		Drive						Orientation				Telescope lifting or extension		Other movement		
		Forwards		Backwards		Left		Right								
			YES	NO		YES	NO		YES	NO		YES	NO		YES	NO
Platform control console	Forward drive															
	Reverse drive															
	Turntable left															
	Turntable right															
	Telescope lifting or extension															
	Boom lowering and telescope retraction															
	Other movement															
Turntable control console	All															

	Authorised
	Prohibited
	Authorised if all the switches / joysticks on the platform control console are in neutral position, or if the "Dead man's switch" is released.

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Engineer - Name:	Signature:	Date:

This inspection document must be kept by the fleet manager

2.2.1.4. Usage

The system is functional from when the machine is no longer in lowered position, i.e. when micro-speed drive is activated.

When the contact bar is engaged, the movement currently in progress is interrupted and only anti-crushing movements are available on the platform control console (lower, retract or reverse movement, according to the movement which caused the incident) until the reset button is pressed or the power is switched off. Visual and audible signals warn the personnel on the ground if a rescue operation is necessary.

To use the anti-crushing movement from the platform control console:

- The joystick and/or the switch must be set to neutral (inactive function).
- The "Dead man's switch" must be activated.
- Engage the anti-crushing movement using the joystick or switch to move the machine away from the danger which triggered the system.
- Press the yellow Reset button to re-establish normal operation of the machine.
- All the movements can be performed from the ground control console even if the secondary guarding system is engaged.

N.B. Increasing the factory settings (ramp and/or movement speeds) via the console may increase the stopping distances after system activation and therefore reduce the safe clearance.

2.3. Installation

2.3.1.1. Preliminary conditions

- Number of people required: 1 person
- Time required for installation: 4 hours

Using this document implies that the user is trained for this type of machine and that the training was given by Haulotte or an authorised representative.

It is essential for the person working on the machine to know all the safety rules listed in this instruction manual.



Only authorised and qualified technicians may work on Haulotte machines.

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2.3.1.2. Safety precautions



- The technician must comply with all the steps to protect themselves and others against any risk of injury with regard to this operation
- The technician must ensure they are wearing the right personal protection equipment (PPE) for this work and the specific environmental conditions in which the equipment is located (see the operating site safety information)
- Place the machine on flat, stable ground in a clear area
- Mark out the work area
- Switch off the ignition and remove the key. Isolate the battery using the battery disconnect switch (depending on the equipment)
- Place a "DO NOT USE" notice near the On/Off switch (key switch) to inform personnel that operations are in progress on the equipment.
- It is essential to take into account the pressure in the hydraulic system, as it may cause accidents. Reduce the pressure before any operations and never use your hands to look for leaks.
- Be aware of the risk of burns. The hydraulic system operates at high temperatures.
- The engine exhaust gases contain harmful combustion products. Only start and run the engine in well-ventilated areas. In an enclosed space, use a suitable system to evacuate the exhaust gases outdoors.

2.3.1.3. Tools / Procedure



- PPE (personal protection equipment: safety shoes, gloves, protective goggles, etc.)
- Standard tool kit
- Crimping tools
- Soldering iron
- Multimeter
- Heat-shrinkable sleeve to wire the joystick
- Laptop computer suitable to download the software (see models below)

2.3.1.4. Modifying the platform control console - with electronic control card

A number of modifications to the platform control console are required to install the secondary guarding system. Depending on the machine, the system may not be designed as a "plug & play" device. An electronic card (4000101500) must be inserted in the platform control console between the joystick wiring and the machine's ECU module:

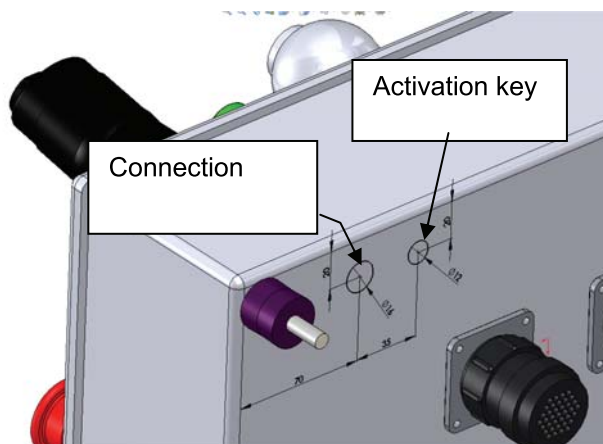
See section 2.1.2 - Software to check if a software update is necessary.

The additional electronic card (4000101500) manages the signals between the operation switch and the machine's ECU module.

For joysticks, this card detects the operation requested and authorises or prohibits application of the movement, depending on the system status.

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2.3.1.5. Mechanical modification



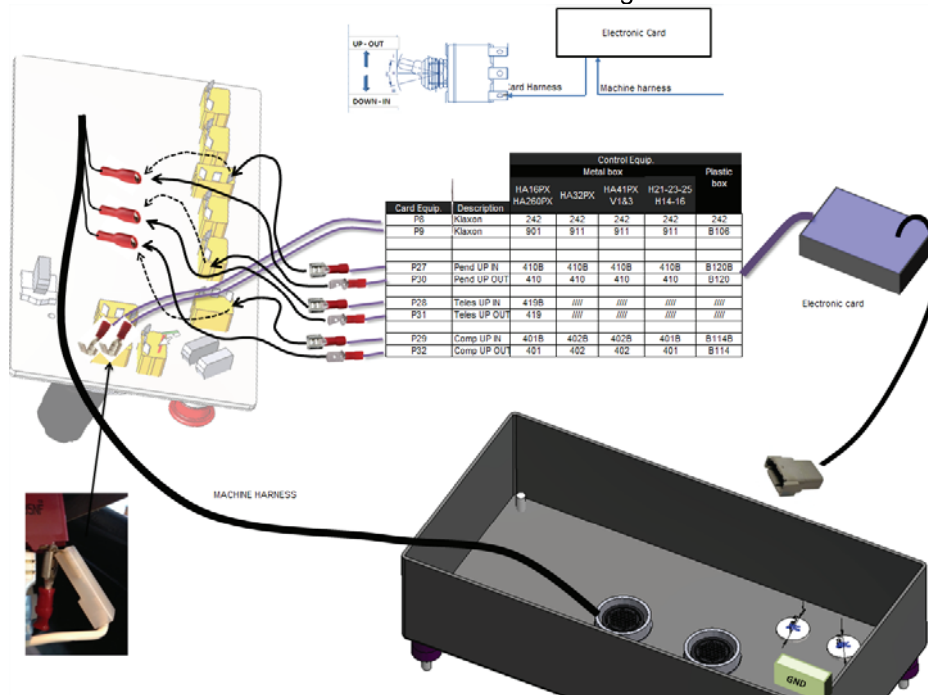
Drill 2 holes under the control console to install the activation key and the connections.

If the system is installed and active, the key must be kept by the owner of the equipment and not left on the machine

2.3.1.6. Electrical installation

Before carrying out the modifications, set the machine to maintenance configuration.

1. Place the machine on firm, level ground.
2. Stow the machine completely.
3. Press the emergency stop button to cut off the electricity supply.
4. Open the platform control console.
5. Disconnect the jib, platform and telescope wiring harnesses (towards the top or the outside, see illustration below)
6. Connect the electronic card to the switches and the machine's wiring harness as shown below

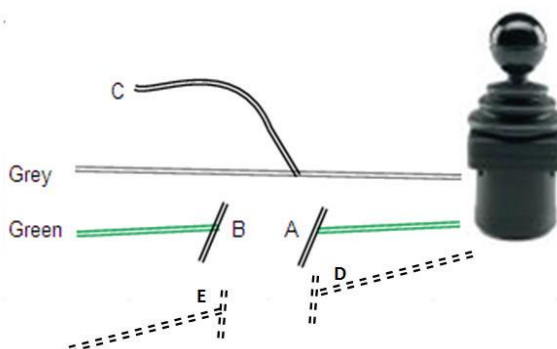


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7. Cut the wires for the neutral position of the drive and boom proportional controls and mark them as follows with pre-mounted wires using the heat-shrinkable sleeve

NOTE:

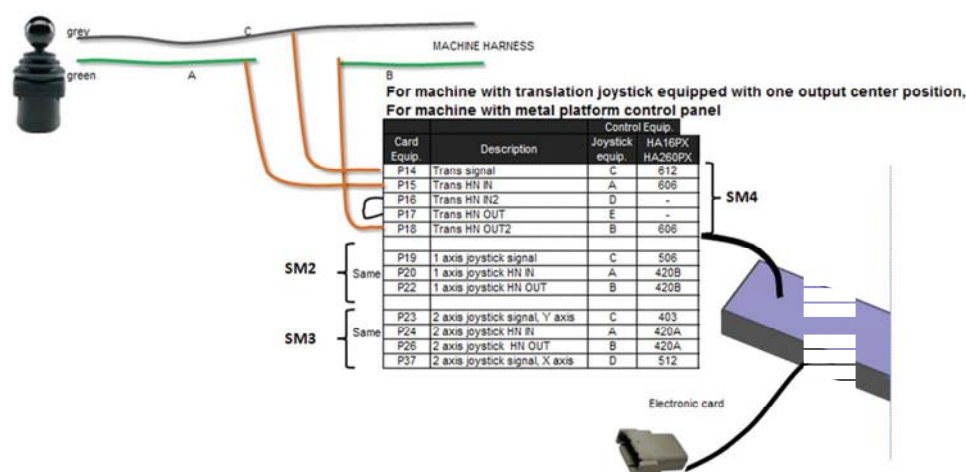
For machines equipped with a joystick fitted with a neutral position output, the electronic card wire (ref. P16 and P17) must be connected.



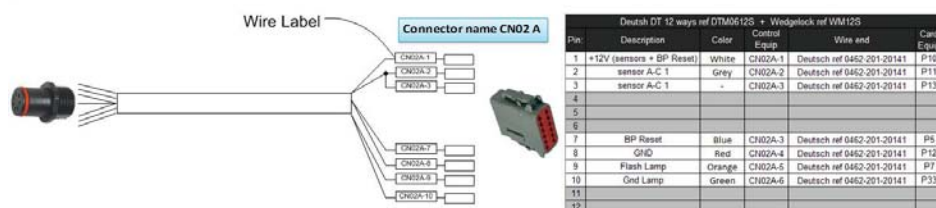
8. Solder the wires of the electronic card to the joystick wire as shown below (remember to install the heat-shrinkable sleeve first)

N.B. all the green wires must be cut and connected in series with the electronic card

The grey wires must be connected in parallel with the electronic card.



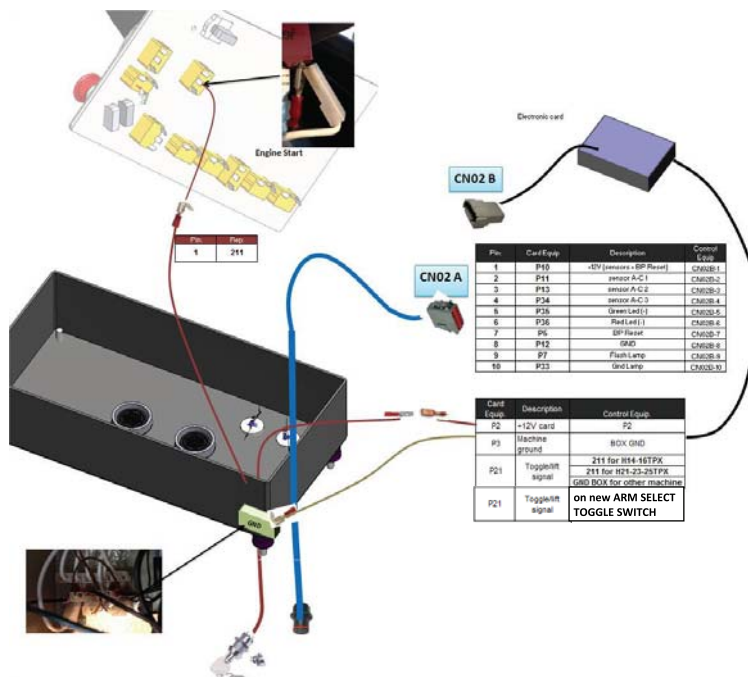
9. Protect all the soldered joints by covering them and sealing them using the heat-shrinkable sleeve to avoid any short circuits
10. Install the wiring harness - route the wiring harness through the hole drilled under the control console, attach the 7-pin connector to the control console, install the pre-pinned wires in the CN02A connector, as shown on the wiring diagram below, and connect the CN02A connector to the card.



11. Install the key-operated selector switch in the second hole under the control console then connect the engine starter switch circuit as described below.

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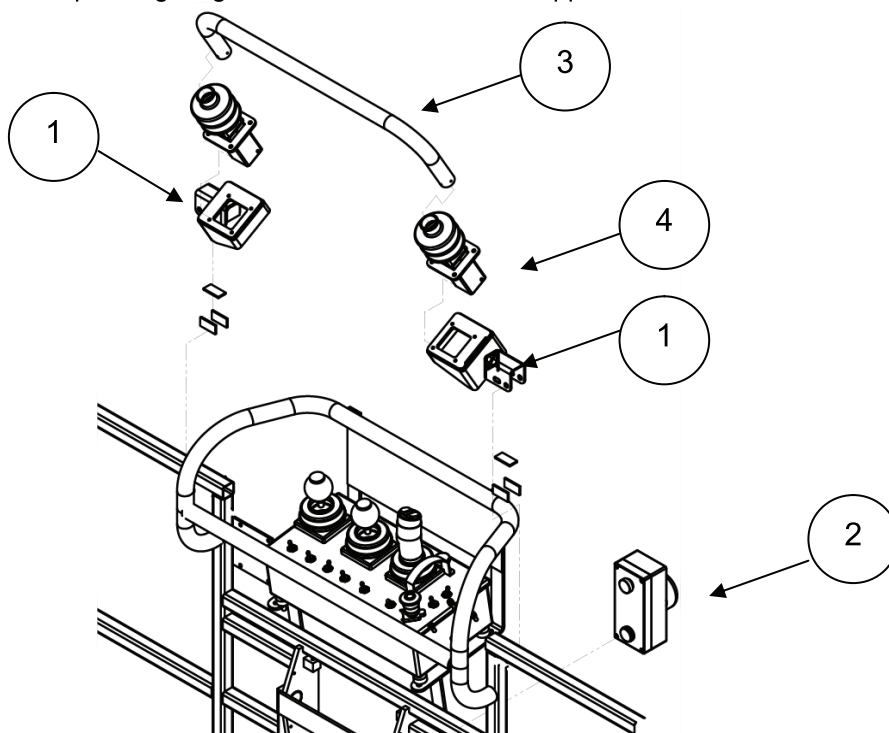
12. Connect the additional electronic card to the key-operated selector switch, the bulkhead connector to the anti-crushing device and power it as follows.



2.3.1.7. Installation of the contact bar and the electric control box

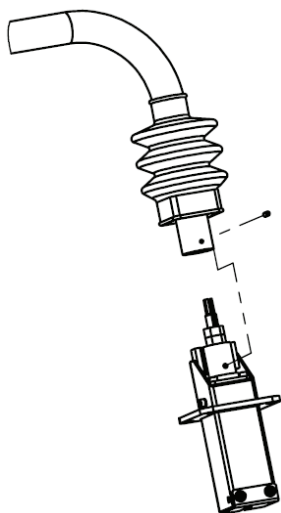
The anti-crushing device can now be installed on pre-fitted machines: (see relevant kit):

- Install the mechanical supports (1) on the platform guard rails (NB - the supports differ according to the machines to be fitted, see illustrated examples below). Do not fully tighten the screws
- Mount the electric control box (2) equipped with a reset button on the right side of the control console using the mechanical support.
- Insert the parts of the detection system (3 and 4) onto the supports (1)
- The corresponding diagram is included in the Kit supplied

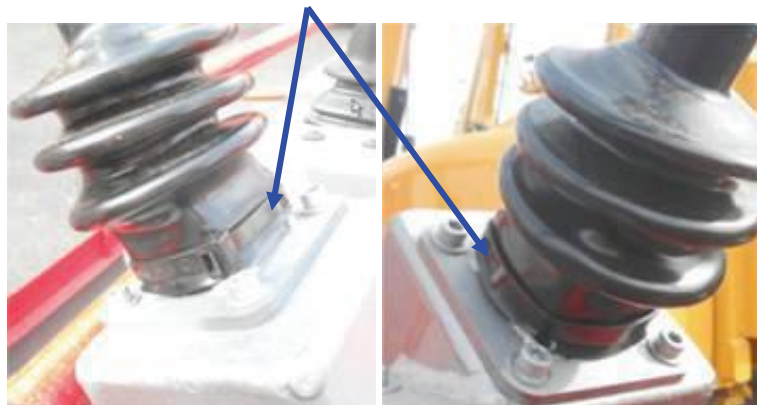


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The bar is fitted onto the 2 detection devices (right and left) and held with a pressure screw



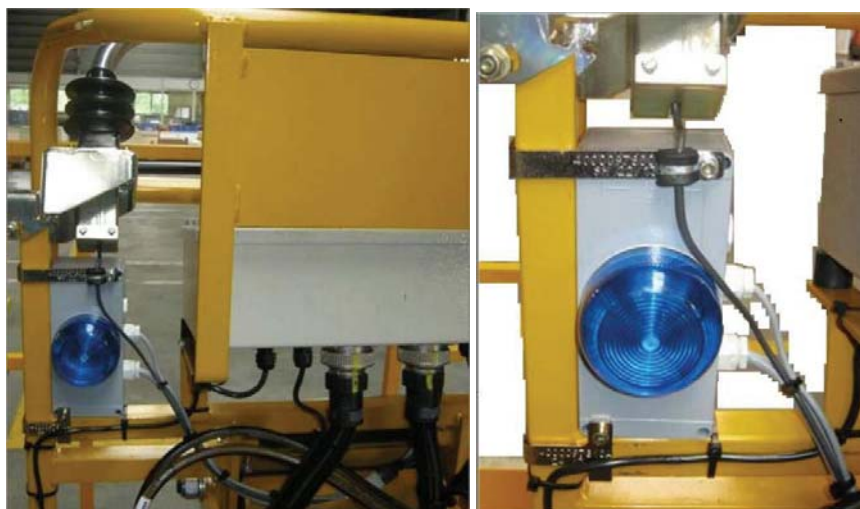
Once mounted and the gaiters fitted, add a wide Colson collar on each gaiter to ensure they stay in place



- Align the mechanical support assembly with the bar
 - Check the tilt (angle) of the bar and put it back in its initial position
 - Tighten the screws of the mechanical support
- Connect each wire between the platform control console and the anti-crushing device
 - Attach the wires together and if necessary attach them safely to the protection bars to give them better protection

Example on model HA16-18PX/SPX or H21PX, H23-25TPX

2



Connector (CN06) placed in the supporting housing (appearance and protection)



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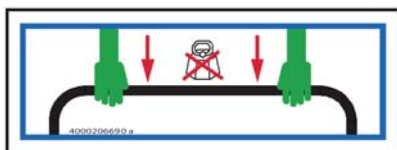
- To activate the system, use the key switch.

Note – Do not leave the activation key on the machine.



- Check that the machine is operating correctly.
- Lift the arm or boom slightly (approximately 10 cm)
- Activate the anti-crushing device according to the procedure described in the previous paragraph.
- Check that the secondary protection device is operating correctly using the procedure described above (section 1.4)
- Reset the system using the yellow push button
- Affix the following labels: 2 warning labels and 1 information label

- equipment hazard label reference 4000206690 "do not lean on the bar" [multilingual]



- hand injury label reference 4000244570
[quantity and location depending on the kit]



- information label, multiple references [according to Country / Languages]

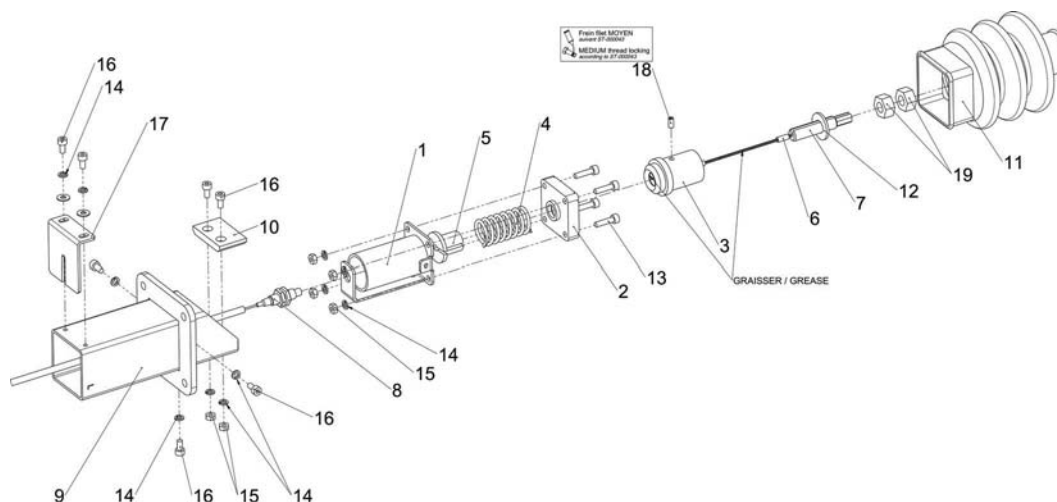


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2.4. Adjustments

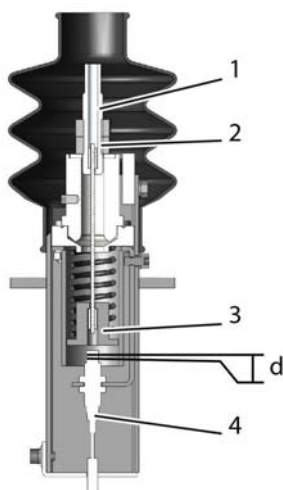
2.4.1.1. Detection system adjustment

The detection system comprises the components listed below. As standard, only one side is fitted with the proximity detector:



Rep	Qté	Haulotte Id.	FR description	EN description	Additional description
1	1	4000083470	TOLE SUPPORT	SHEET METAL SUPPORT	
2	1	4000083500	EMBASE	BASE	
3	1	4000083510	LEVIER	LEVER	
4	1	4000083530	RESSORT DE COMPRESSION	COMPRESSION SPRING	INOX VANEL REF C.225.250
5	1	4000083600	BRIDE	FLANGE	APPUI DU RESSORT ET DU CA
6	1	4000083540	CABLE DE TRACTION	TRACTION WIRE	
7	1	4000086390	DOUILLE	PIN	TENDEUR CABLE
8	1	4000086400	DETECTEUR DE PROXIMITE	PROXIMITY DETECTOR	OMRON REF E2AS08KN04WPB12
9	1	4000083520	CAPOT TOLE	SHEET METAL COVER	
10	1	4000083550	BUTEE	STOP	
11	1	4000083620	SOUFFLET	GAITER	
12	1	2351112090	RONDELLE PLATE	ROUND HOLE WASHER	10.5 - 22 - 2 - CL.8.8
13	4	2308231180	VIS CHC	SOCKET CAP SCREW	M4X16-16 CL.8.8
14	11	2351201030	RONDELLE ÉLASTIQUE		W 4 ZB
15	6	2341221030	ECROU H	HEX NUT	M4 CL. 8
16	7	2700100310	VIS CHC	SOCKET CAP SCREW	M4X8-8 CL.8.8
17	1	4000101380	CAPOT TOLE	SHEET METAL COVER	TOLE FERMETURE
18	1	4000106520	VIS STHC BOUT PLAT	SCREW STHC FLAT POINT	M4X8
19	2	2341221080	ECROU H	HEX NUT	M10 CL. 8
20	2	2351112030	RONDELLE PLATE	ROUND HOLE WASHER	4.3 - 10 - 0.8 - CL.8.8

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The detection system is pre-set by Haulotte, but this setting can be modified as needed.

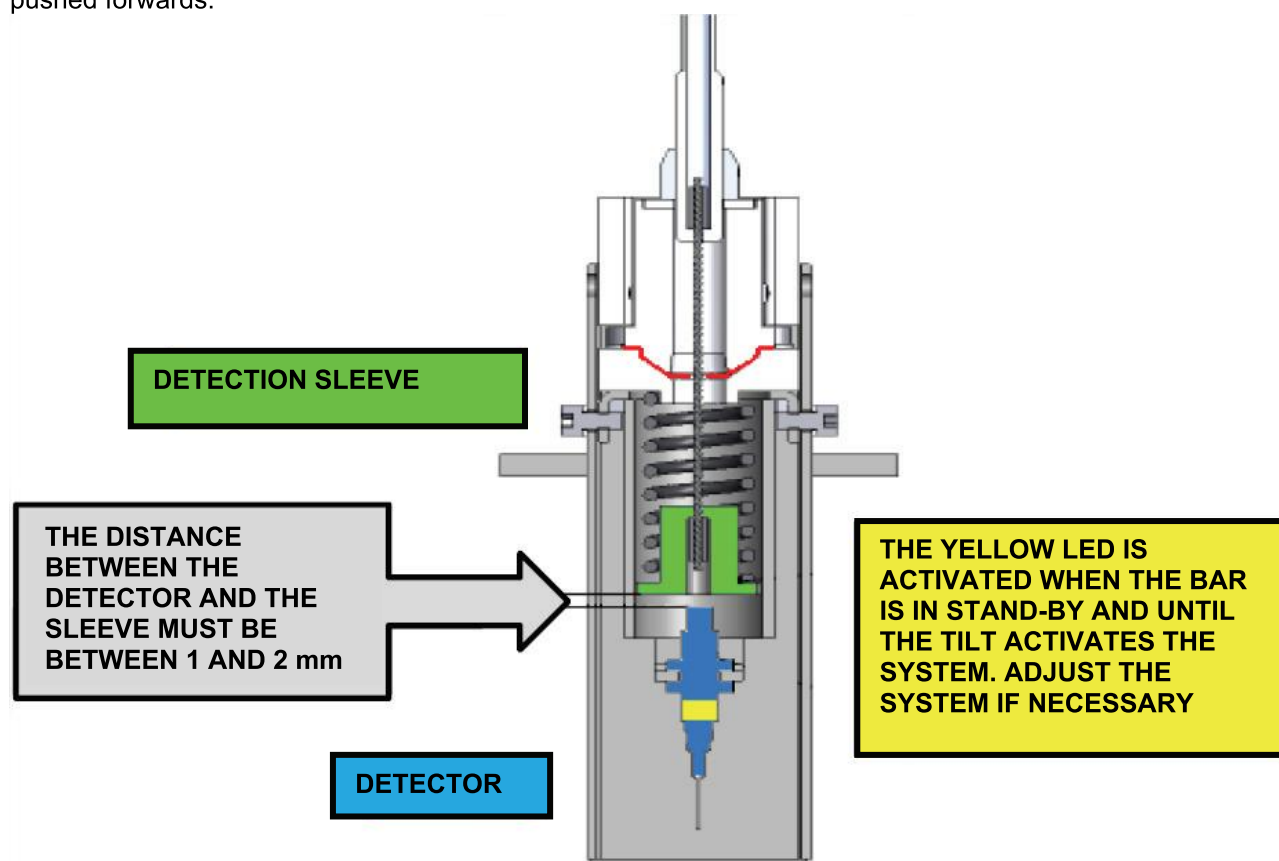
Two mechanisms can be adjusted:

- Bar movement adjustment
 - Use parts 1 (pin) and 2 (screw) to reduce or increase the tightening torque of the bar
- System activation
 - Distance "d" between parts 3 (sleeve) and 4 (detector) must be approximately 1 to 2 mm. This allows the bar to tilt approximately 15 degrees before the stop movement

See the Adjustment control section for further information.

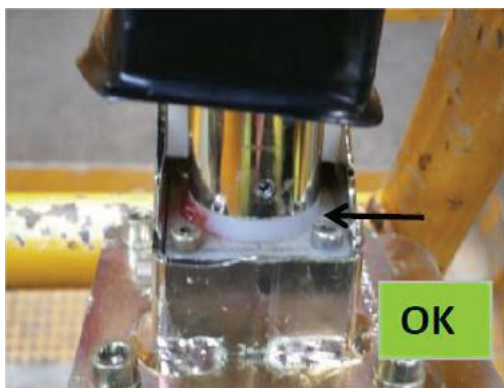
2.4.1.2. Machine position adjustment

The following information ensures that the detector is correctly set and that it engages at 15 degrees when the bar is pushed forwards.



- When mounting the supports on each side of the platform, ensure that both sides of the bar are correctly positioned on each of the uprights (see illustrations below)

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- Failure to check this element may lead to reactivation of the base and the detector (LED on) when the bar is inserted onto its upright again, thus allowing the system to reset when the bar is still tilted.
- Bar tilted/activated, LED off, zero voltage at plug 38.2, wire 222 for activation of the software or plug CN02B-2, wire P11 for activation of the card



- Bar tilted/activated, LED on, voltage + at plug 38.2, wire 222 for activation of the software or plug CN02B-2, wire P11 for activation of the card



- To adjust/check or install a new sensor, remove the inspection cover and the three M4 head screws, then remove the support as shown opposite. This can be carried out when the machine is switched off



- Adjust the detector and install the sub-assembly on the machine again.
- Remove the sheath, install the angle detector and read the angle "at the reference point". The alarm/LED must switch off when the bar is tilted to 15 degrees - OK = correctly adjusted

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- Picture A shows that the bar is not inserted into the support. The bar will spring back to its initial position
- Picture B shows that the bar is inserted into the support. The bar will not spring back to its initial position and must be pulled backwards to be reset to its initial position



N.B. CHECK THAT THE SYSTEM CANNOT BE RESET WHEN THE BAR IS RE-INSERTED INTO THE SUPPORT

- Depending on the machine, the bar may come into contact with the guard rail or console protection bar.
- Check how the bar behaves as it comes close to the protection bars.
- Warning label 4000244570 limits the risk of hands being trapped by indicating the zones either where the bar comes into contact or passes close to the protection bar

Machine with straight console support bar (not curved)



- The secondary guarding system and the functions of the machine must be checked before starting the machine (see Inspection before use section).