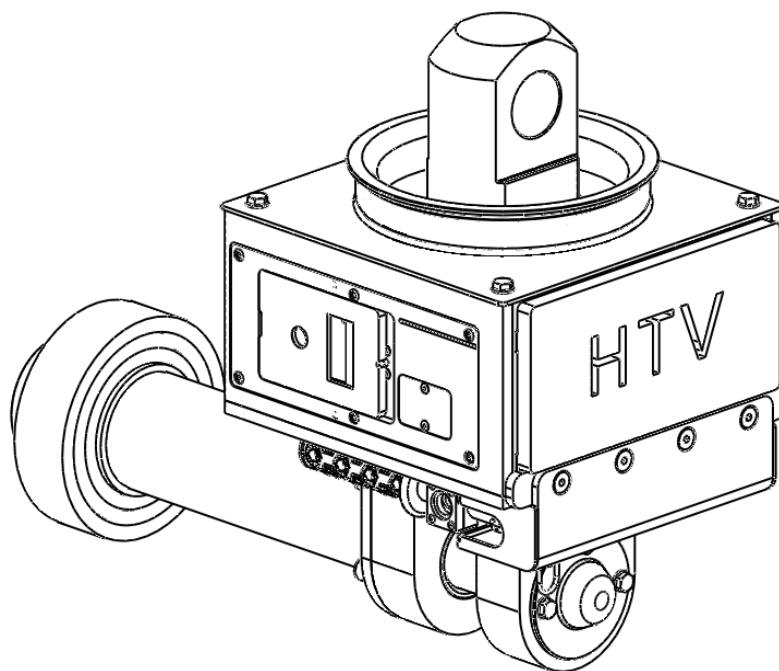


USER'S MANUAL

NOA AUTOMATIC SHACKLE



This User's Manual is given to the user by HOOKS TANIA VERDU, S.L., and is supplied together with the NOA AUTOMATIC SHACKLE, on the undertaking by the user that it will be read and understood by all workers before performing any operations with the NOA AUTOMATIC SHACKLE

MANUFACTURER'S SIGNATURE/STAMP

USER'S SIGNATURE/STAMP

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1. INTRODUCTION

Please note that the primary objective of the advice contained in the following pages is the safety of all those who work with or find themselves in the operational area close to the NOA automatic shackle, as well as providing a detailed explanation of its correct use and handling.

For the above reasons, we strongly urge you to carefully read this manual which will provide useful advice about the proper use and maintenance of the NOA automatic shackle.



WARNING! DO NOT ATTEMPT TO USE OR OPERATE THE NOA AUTOMATIC SHACKLE BEFORE READING THIS MANUAL

This instruction manual should be considered an integral part of the equipment and must be kept close by at all times. Please ensure it is kept in good condition.

This equipment must be handled, serviced and repaired only by those who are familiar with and aware of the specific dangers and risks that may be involved and who have a detailed understanding of the safety standards required.

The manufacturer is not responsible for any consequences that may result from modifications made to the automatic shackle without the express and written authorisation of the manufacturer, or in the case of improper use of the equipment.

2. INTRODUCTION TO THE COMPANY

HOOKS TANIA VERDU, S.L. (HTV) places special emphasis on the quality of its products and, for this reason, bases its commercial strategy on practical demonstrations leading to the establishment of fruitful and rewarding relationships with its clients.

With a view to facilitating as close a connection as possible between market and product, company vehicles are used as technical-commercial mobile units. This ensures the work of HTV technicians is fast and efficient, and allows the creation of client-based routes for equipment maintenance and updating, as well as providing equipment rental services.

MAIN DATA OF THE COMPANY

Name of the company:	HOOKS TANIA VERDU, S.L.
Address:	Pol. Ind. de Raos, Ed. Puerta de Santander s/n 39011 Santander (CANTABRIA)
Tax Identification Number:	B25775248
Telephone:	+34 942 356 394
Email:	info@hookshTV.com
Website	www.hookshTV.com

3. IDENTIFICATION OF THE EQUIPMENT

An identification plate can be found on the back of the casing with the following information:

- MÁQUINA / ACCESORIO: indicates this is an automatic locking/unlocking type shackle.
- MODELO: shows the NOA 20/30t shackle model.
- CARGA MÁX./BULÓN: shows the maximum lifting capacity of the equipment in relation to the sizes of the pin and bushings mounted in the equipment. The capacity is 20 tons when the Ø40 mm pin and bushings are used and 30 tons for the Ø50 mm pin and bushings, all supplied by the manufacturer of the NOA equipment.
- Nº DE SERIE: indicates the serial number of the equipment, with a unique number being assigned by the manufacturer to each separate device to ensure traceability.
- AÑO: shows the year of manufacture.

4. INTENDED USE

The NOA automatic shackle is a load-lifting accessory that has been designed and manufactured for coupling to a lifting device (See section 8.5 *COUPLING THE NOA SHACKLE TO A LOAD-LIFTING DEVICE*)

When the NOA automatic shackle has been coupled to the load-lifting device, its intended use is the manipulation of loads coupled in turn to the NOA automatic shackle (See section 8.6 *COUPLING THE LOAD TO THE NOA SHACKLE*).

The loads coupled to the NOA automatic shackle must not exceed those indicated in section 5.3.2 *LIFTING CAPACITY*. In addition, the NOA automatic shackle must not be used outside the operational working range of -20°C to + 85°C, nor can it be used in explosive atmospheres.

The slings, chains, shackles, eyebolts, cables, hooks, etc., used to raise the lifting accessory must have a working coefficient equal to or higher than 4.

4.1. NON-INTENDED AND INCORRECT USE

The NOA Automatic Shackle must not be used for the following purposes or under the following conditions:

- To lift people or animals.
- By a worker who has not fully read and understood this User's Manual and the manual of the load-lifting device to which it is coupled.
- If the safety systems have been interfered with.
- If the equipment has not been subjected to proper maintenance and servicing.
- If the load exceeds the limits as determined for the load-lifting device and/or the load-lifting accessory.
- If any component has been modified, damaged or is missing.

If this NOA device is used for any purpose other than that for which it was designed, or if the instructions in this User's Manual are not strictly adhered to, the terms of the warranty will be null and void and the user will be solely responsible for any consequences resulting from its improper and/or non-intended use.

5. CHARACTERISTICS OF THE NOA AUTOMATIC SHACKLE

5.1. GENERAL DESCRIPTION OF THE NOA SHACKLE

The NOA automatic shackle is a load-lifting accessory which has been designed to move loads with a lifting device capable of supporting and lifting such loads.

The lifting capacity of the NOA Automatic Shackle depends on the model, configuration and the method employed in its use.

The NOA Automatic Shackle NOA is coupled in the **upper coupling area** to a **load-lifting device** by means of lifting accessories, while the load itself is coupled to the NOA shackle in the **lower coupling area** (see *Figure 1 – Coupling areas*).

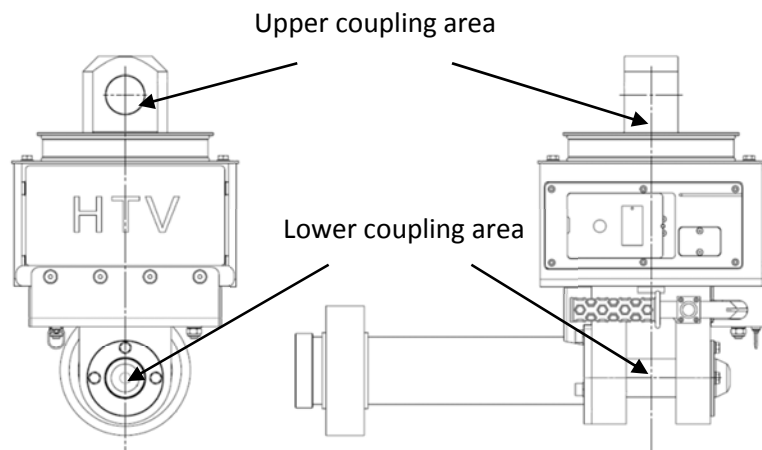
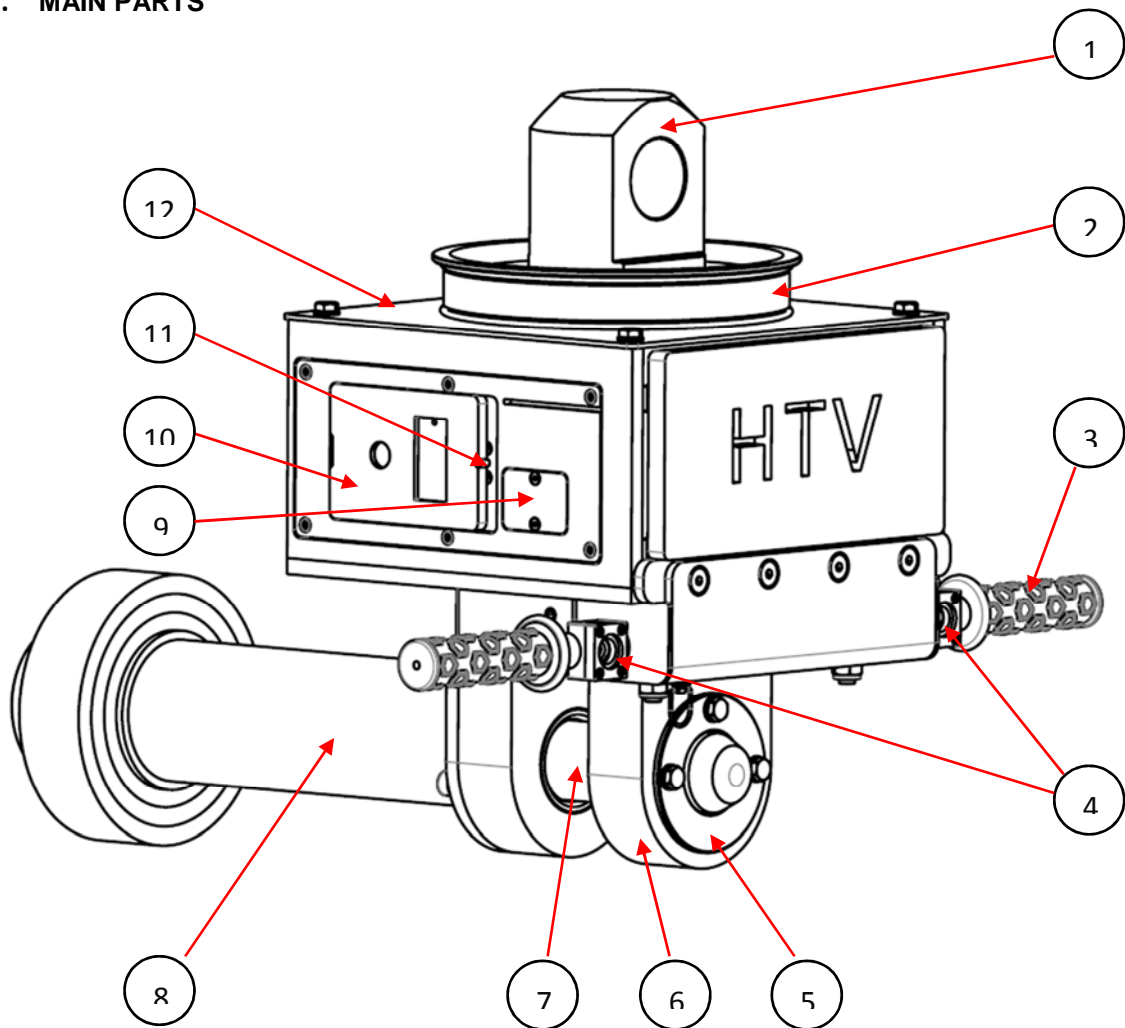


Figure 1 – Coupling areas

The load is coupled using the pneumatically driven pin of the NOA device. The load in question should have some form of eyebolt or lifting tabs to enable load coupling between the clevis arms and the introduction of the pin through the lifting tab or eyebolt. See section 5.3 *TECHNICAL DATA* for further information about pin and bracket sizes.

The NOA shackle has LED signalling lights which inform the operator of the position of the pin (open/intermediate position/closed), preventing the risk of using the equipment when the pin is located in an intermediate position or its position is unknown to the operator.

5.2. MAIN PARTS



1. Suspension shaft
2. LED Illumination
3. Handlebar
4. Manual operation buttons for pin
5. Bushing
6. Clevis arm
7. Pin
8. Pneumatic piston protector
9. *Equip code cover*
10. Battery
11. Battery positioner
- 12.- Casing

5.3. TECHNICAL DATA

5.3.1. GENERAL DIMENSIONS AND WEIGHT

The general dimensions of the NOA Automatic Shackle are shown below and expressed in millimetres:

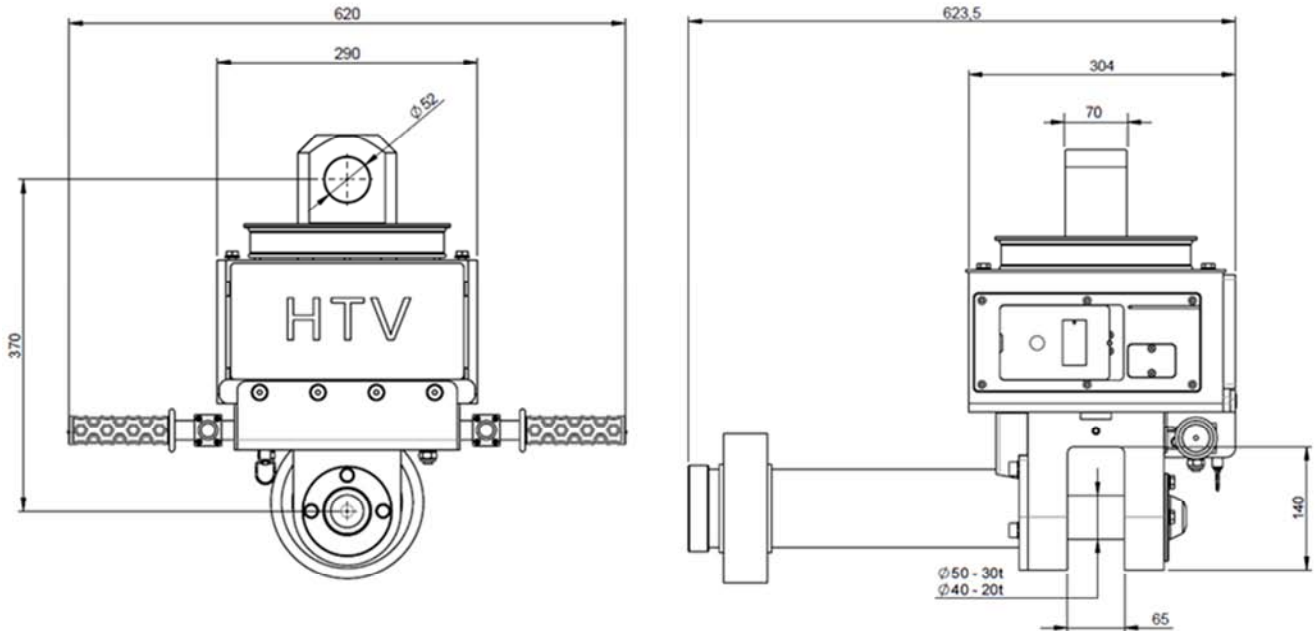


Figure 2 – Unfolded handlebars

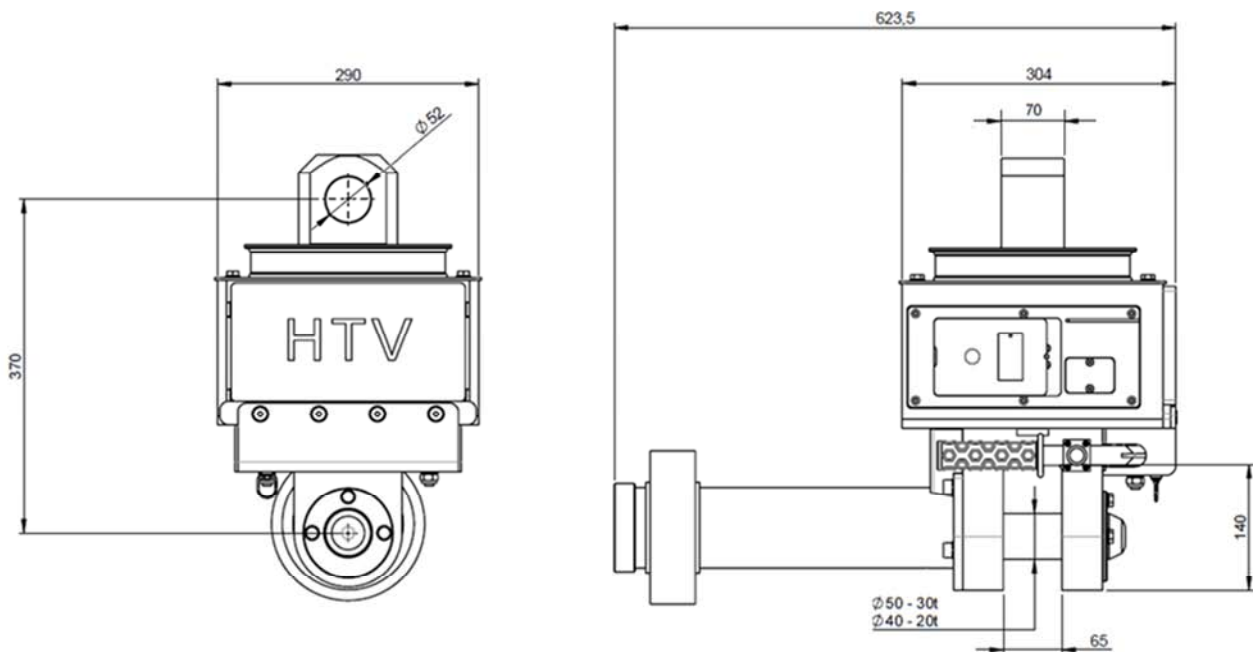


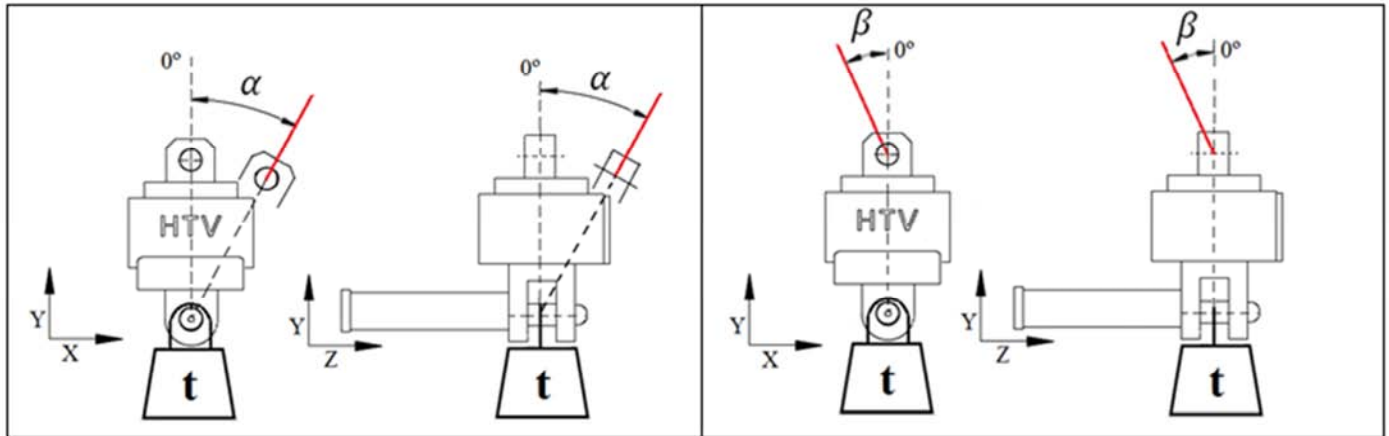
Figure 3 - Folded Handlebars



As this NOA device weighs approximately **80 kg**, appropriate means must be used at all times for its transportation.

5.3.2. LIFTING CAPACITY

The lifting capacity of the equipment varies with the work angle of the equipment with respect to the load-lifting device and of the load to be lifted.



α [°]	0	10	20	30	40	50	60
NOA 20t (Ø40) [t]	20	19.7	18.8	17.3	15.3	12.9	10
NOA 30t (Ø50) [t]	30	29.5	28.2	26	23	19.3	15

β [°]	0	1	2	3	4	5	6
NOA 20t (Ø40) [t]	20	20	20	20	19	17	15
NOA 30t (Ø50) [t]	30	27	25	23	20	18	16

Figure 4 - Lifting capacity

When the **chain/sling** that couples the NOA automatic shackle with the load-lifting device is **in alignment with the upper and lower coupling areas** of the NOA shackle (See Figure 1 – Coupling areas in 5.1 GENERAL DESCRIPTION OF THE NOA SHACKLE), the angle to be considered is α .

When the **chain/sling** that couples the NOA automatic shackle with the load-lifting device is **not in alignment with the upper and lower coupling areas** of the NOA shackle, the angle to be considered is β .

The lifting capacities as shown are defined for an operating temperature range of between -20°C and +85°C. If the NOA Automatic Shackle needs to be used outside this range, please contact HOOKS TANIA VERDU, S.L.



WARNING: The maximum load capacity when using the **Ø40 mm** pin and bushings is **20 tons**. For the maximum load capacity of **30 tons** it is necessary to use the **Ø50 mm** pin and bushings.



To ensure user safety, NOA equipment has been subjected to static tests with a minimum coefficient of 1.5.

6. SAFETY

6.1. GENERAL SAFETY RULES

Always remember that load lifting operations are complex by nature, and that safety guidelines cannot cover all eventualities given the high number of variables involved. All safety measures and rules are designed to avoid personal injury and material damage.

All workers who use this equipment must comply with the following general safety rules:



1. Before using the equipment, make sure you have read and understood this manual and that any other person under your charge has also read it. 
2. Do not omit any sections of this manual and pay special attention to those sections which contain a warning sign. Non-observance of such warnings is a common cause of accidents. 
3. The operator should have a good understanding of the method used for load-lifting and of the risks that its use implies.
4. Before conducting any load-lifting operation, examine the load that is to be lifted and determine its weight and dimensions, whether it contains any type of hazardous or dangerous material and where the load will be placed.
5. DO NOT lift, bear the weight of or transport people and/or animals using NOA equipment.
6. The NOA equipment must be coupled to a load-lifting device by means of a shackle with a load capacity equal to or higher than that of the load to be lifted.
7. Ensure that the NOA shackle, load-lifting device and lifting accessories have sufficient lifting capacity for the load in question, and check that all the equipment is in good working condition.
8. Decide on the access routes to deposit the load and check that they are properly prepared. Make sure that the load is free to move and that no obstacles are in the way.
9. During the lifting operation, maintain good communication with those responsible for signalling.
10. The NOA equipment and the load-lifting device must be handled gently, and in a controlled and safe manner.
11. Exercise your right to refuse to use the equipment if you have concerns about its condition, the weight of the load, the height that the load has to be lifted when considering the capacity of the load-lifting device, etc.
12. Use appropriate individual protective equipment for each task.
13. Wear suitable clothing and avoid loose-fitting clothes; use safety footwear, a safety hat and safety gloves to handle any part of the NOA equipment or load-lifting machinery to which it is coupled.

14. Never perform, for any reason, repair or maintenance operations when the NOA equipment is coupled to a load-lifting device or when electrical components are connected.
15. Please read carefully all plates and pictograms. Make sure they are legible and in good condition.
16. Since the weight of the NOA equipment is over 25 kg, do not attempt to lift or transport it manually. Instead, use appropriate tools and machinery for its transport.

6.2. MEANING OF THE SAFETY WARNINGS

The NOA Automatic Shackle has various labels and plates to inform the user of the obligations and precautions that must be taken into consideration. The Tables below explain the meaning of each label and pictogram. Also shown are the pictograms for worker safety when the equipment is in use. Workers should use the individual protective equipment as described below.

Ensure that the labels and plates are kept in good condition. If they are damaged or become illegible, please contact HOOKS TANIA VERDU, S.L. and they will be replaced immediately.

PICTOGRAM		MEANING
INDIVIDUAL PROTECTIVE EQUIPMENT		Gloves must be worn when working with this equipment
		Safety footwear must be worn when using this equipment.
		A safety hat must be worn if you are in the proximity of the load-lifting device coupled to the NOA Automatic Shackle when it is in use.

PICTOGRAM/PLATE		MEANING
SAFETY IN THE WORK ENVIRONMENT		The User's Manual must be carefully read and understood before beginning to work with the machine to reduce potential risks.
		Ensure that a safe distance is kept between any workers and the equipment when in use, especially during the lifting and uncoupling of loads, due to the risk of a fall or impact with the load or the equipment itself. This pictogram must be clearly visible.
		Plate with information about the lifting capacity of the NOA automatic shackle based on the size of pin used and the method of use.

In addition, the NOA automatic shackle has a three-colour LED system which indicates to the user the position of the pin during load coupling and uncoupling operations.

When the LEDs are green the bolt is closed (extended), when the LEDs are orange it indicates that the pin is in motion (in an intermediate position in the process of being unlocked/closed) and when the LEDs are red the pin is open (withdrawn).

OPEN PIN	MOVING PIN	CLOSED PIN

7. TRANSPORT OF THE EQUIPMENT

In order to transport the NOA equipment it should be placed vertically inside the original case in which it was delivered (*Figure 5*).

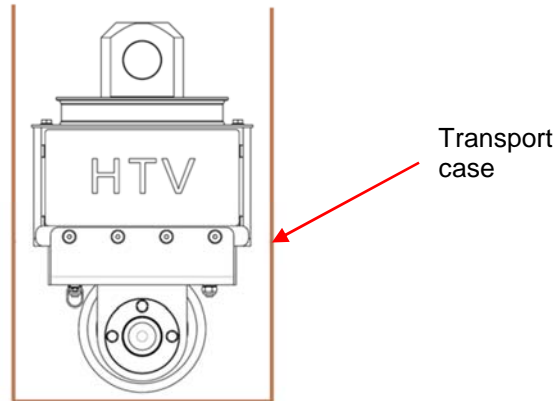


Figure 5

Under exceptional circumstances, when the equipment has to be moved and the original case is not available, it should be placed on a flat, stable surface and positioned on its side to ensure it does not topple over during transportation (*Figure 3* and *Figure 4*):

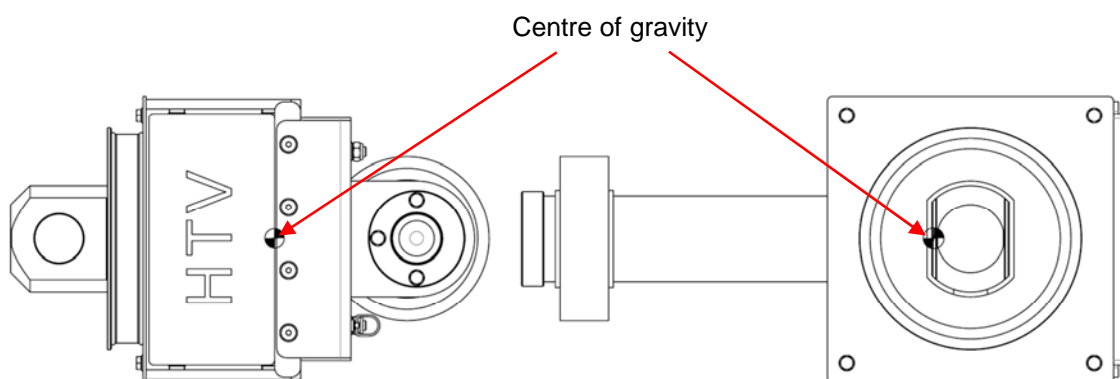


Figure 6

Figure 7



NEVER place NOA equipment on top of other NOA equipment unless they are in their respective protective cases. Only in this way can the stability and integrity of the different equipment be ensured against damage caused by falls or impacts.

8. OPERATION OF THE EQUIPMENT

Before considering how the equipment is operated, please read the following sections carefully to avoid unnecessary risks.

8.1. BEFORE BEGINNING TO WORK

Before beginning to work with the equipment, you must:

1. Read this User's Manual, as well as that of the load-lifting device to which the NOA Automatic Shackle will be coupled and any manual for accessories that are used.
2. Make sure that everybody near the equipment is aware of the operations about to take place and the specific nature of the load-lifting action.
3. Check the general integrity of the structure of the equipment and its correct operation, especially the coupling points.
4. Check that the appropriate pin and bushing size is being used with the NOA equipment for the load to be lifted, as well as the load-lifting capacity of the load-lifting device and the accessories.
5. Given the weight of the NOA equipment, do not attempt manual handling or transport. Use appropriate tools and machinery for its transport.
6. Check that the operator of the load-lifting device has the corresponding permit for its use and is situated in a position that does not entail any risk of crushing by the load.
7. Ensure personal protection by using the individual protective equipment as described in this Manual. Failing to observe this advice increases any risk that results from the use and/or maintenance of the equipment.

8.2. INSTALLING, RECHARGING AND REPLACING THE BATTERY

The battery is activated by connecting and disconnecting the charger supplied with the equipment.

Once the battery has been charged, it is ready to be installed in the NOA automatic shackle, as explained below:

1. Insert the battery in the shackle (*Figure 8 - Insert battery*).
2. Slide the battery into position, until the positioner holds it in place (*Figure 9 - Slide battery*).

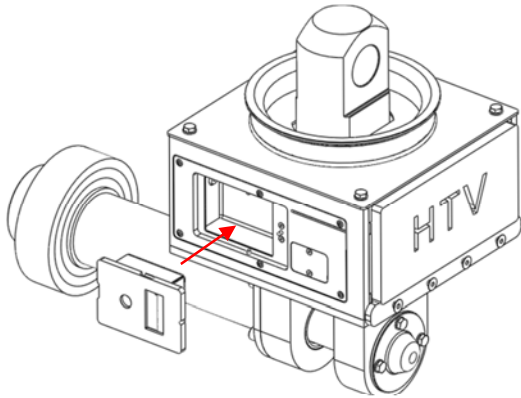


Figure 8 - Insert battery

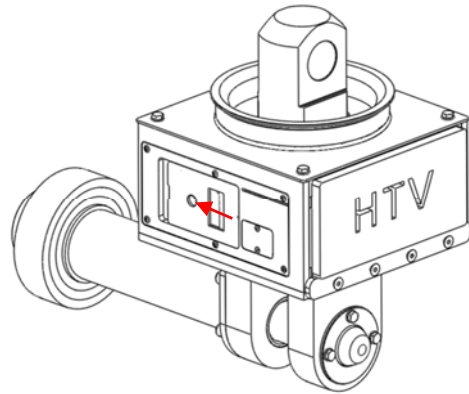


Figure 9 - Slide battery

To remove the battery perform the same operation in reverse after first pressing the battery positioner (Figure 10 – Battery positioner).

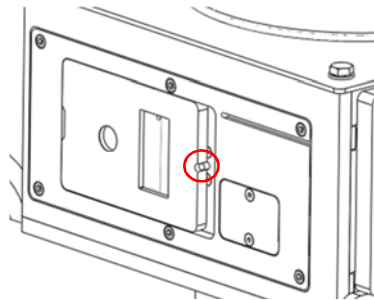


Figure 10 – Battery positioner

The battery has a charge indicator, which can be consulted by pressing a button next to the LED indicators which will then show the present battery charge level (Figure 11 – Battery charge level).



Figure 11 – Battery charge level

8.3. REPLACING THE PIN AND BUSHINGS

As explained in section 5.3 *TECHNICAL DATA* when the equipment is being used with the Ø40 mm pin and bushings the maximum load is 20 tons, and when the equipment is being used with the Ø50 mm pin and bushings the maximum load is 30 tons.

Use of the maintenance support is recommended to ensure stability.

An explanation is provided below of the procedure for pin and bushings replacement:

1. Disconnect the energy supply by removing the two batteries (See section 8.2 *INSTALLING, RECHARGING AND REPLACING THE BATTERY*).
2. To release the front bushing, first remove the three screws which hold it in place (*Figure 9*) and extract the bushing from the orifice of the clevis arm using the special tool supplied with the equipment (**¡Error! No se encuentra el origen de la referencia.**).

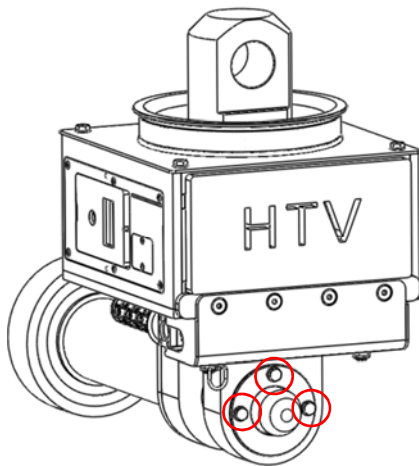


Figure 12 – Front bushing screws

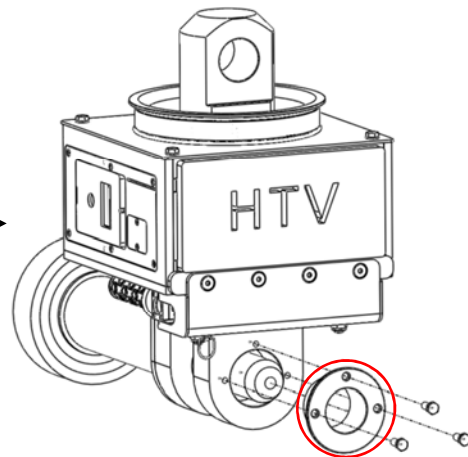
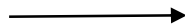


Figure 13 – Front bushing

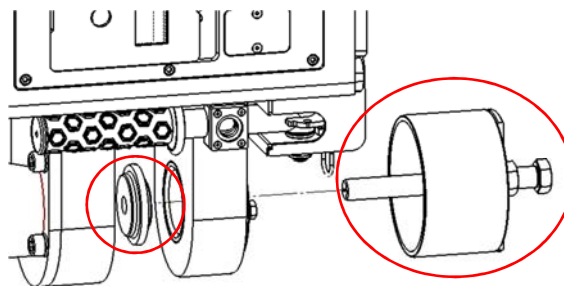


Figure 14 - Bushing extractor

3. To release the rear bushing, first remove the four screws which hold the pneumatic cylinder in place (*Figure 15*) and separate it from the NOA device to enable access to the pin and bushing (*Figure 16*).

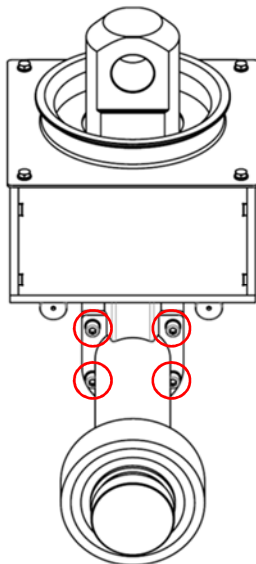


Figure 14 – Cylinder screws

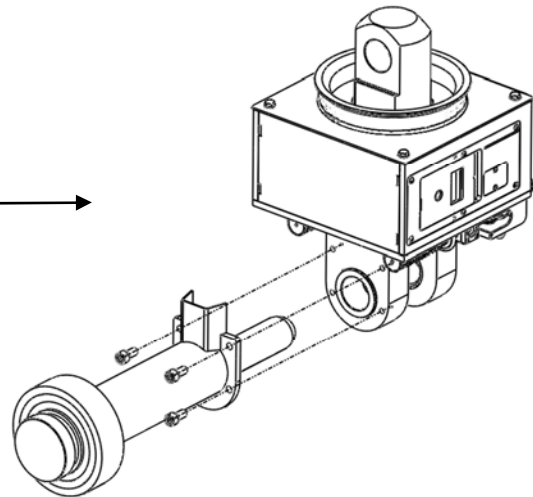


Figure 15 – Cylinder subassembly



If the pneumatic hoses do not allow complete separation from the cylinder assembly, mark one of the hoses before and after the connection to ensure no errors are made during reassembly.

4. The bushing is held in place by the pressure of the cylinder subassembly and should be released using the specially provided tool to ensure it is not damaged.

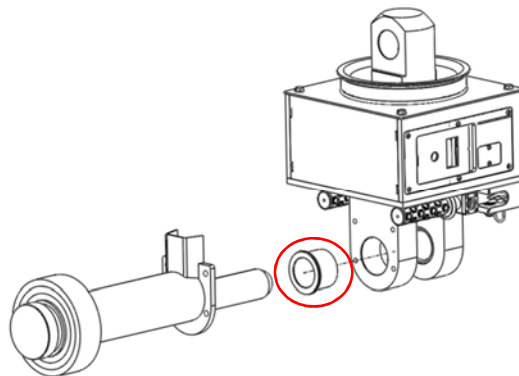


Figure 16 – Rear bushing

5. On removing the cylinder subassembly, the pin threaded into the pneumatic piston will become visible. To release the pin, loosen the lock nut holding it in place.

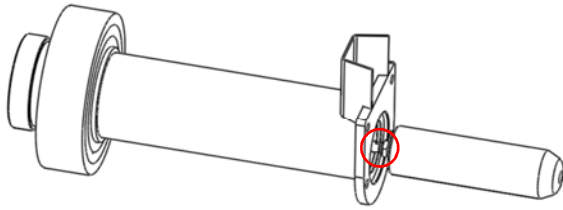


Figure 17 - Lock nut

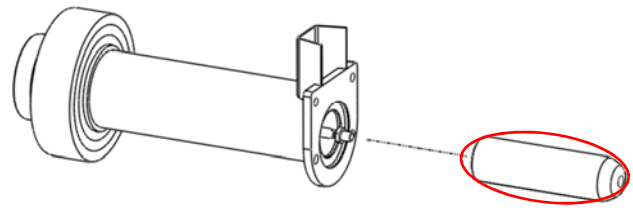


Figure 18 - Pin

Use the reverse procedure for reassembly of bushings and pin, paying special attention to the correct connection of the pneumatic hoses (if they were disconnected during the process).



When using the **Ø40 mm** pin, use of the **Ø40 mm** bushings is obligatory and, similarly, when using the **Ø50 mm** pin, use of the **Ø50 mm** bushings is obligatory.

8.4. REMOTE CONTROL

The equipment can be remote controlled from a maximum distance of 300 m under optimal conditions. The presence of objects between the remote control and the equipment may reduce this maximum distance.

8.4.1. JOINT CONFIGURATION OF REMOTE CONTROL AND NOA AUTOMATIC SHACKLE

It is possible to separately operate **two different groups** of NOA equipment (code *GROUP*) using the same remote control, in such a way that one set of various NOA automatic shackles (Group 1) can be controlled independently from another set of various NOA automatic shackles (Group 2).

EQUIP CODE: Equipment code, which must be the same as that of the transmitter control.

GROUP: Code of the group to which the receiver of the corresponding NOA shackle belongs.

8.4.1.1. CONFIGURATION OF THE NOA SHACKLE

Follow the instructions below to configure the NOA shackle:

1. Unscrew and remove the *Equip Code* cover located next to the battery (Figure 19 and Figure 20).

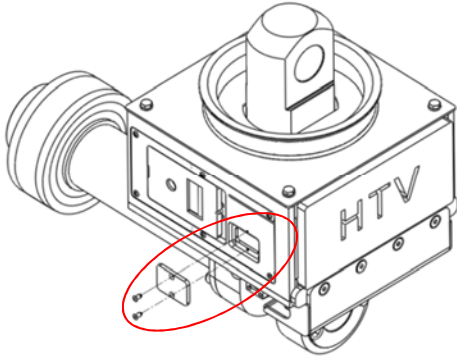


Figure 19



Figure 20

2. Configure the *EQUIP CODE* using a combination of positions that must coincide with the combination used with the remote control (Figure 21 – SHACKLE EQUIP CODE).
3. Configure the *GROUP* code position, which defines the group to which that particular device belongs (Figure 22 - GROUP).

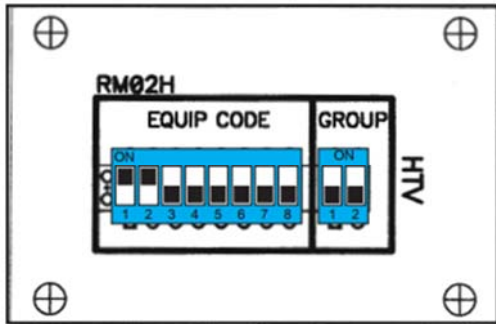


Figure 21 – SHACKLE EQUIP CODE



POSICIÓN GROUP	GRUPO
	GRUPO 1
	GRUPO 2

Figure 22 - GROUP

Note that that if there are several shackles with the same combination, a single command from a remote control with that combination will perform the same action for all the shackles at the same time.

8.4.1.2. CONFIGURATION OF HTV REMOTE CONTROL

Follow the instructions below to configure the NOA shackle HTV remote control device:

1. Unscrew and remove the rear cover of the remote control device (*Figure 24 - Rear Cover*)
2. Configure the *EQUIP CODE* (*Figure 23 - EQUIP CODE CONTROL*) so that the combination of the switches matches that of the corresponding NOA equipment (See previous section *CONFIGURATION OF NOA SHACKLE*).



Figure 24 - Rear Cover

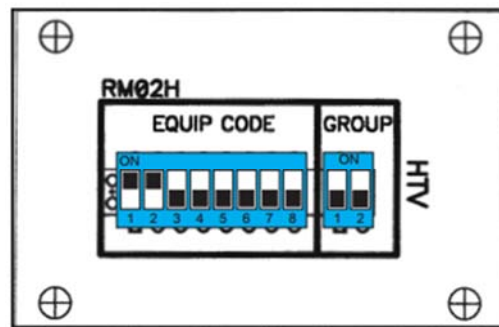


Figure 23 - EQUIP CODE CONTROL

8.4.2. CHANGING THE CONTROL BATTERY

The control uses as power supply a universal 9V PP3 battery.

To change the HTV control battery, simply remove the lower rear cover and replace the battery (*Figure 25 – Control battery*).



Figure 25 – Control battery

8.4.3. OPERATION BY REMOTE CONTROL

The control has eight buttons for separate control of the Group 1 shackles or the Group 2 shackles or joint control of the Group 1 and 2 shackles at the same time (See section **¡Error! No se encuentra el origen de la referencia. JOINT CONFIGURATION OF REMOTE CONTROL AND NOA AUTOMATIC SHACKLE** for more information).

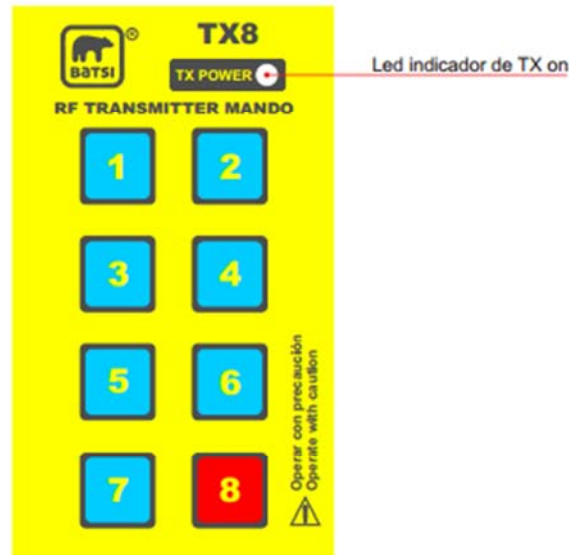


Figure 26 - Remote control transmitter

Description of the function of each button:

- | | |
|-------------------------------------|-----------------------------------|
| 1. Unlock Group 1 hooks | 2. Lock Group 1 hooks |
| 3. Unlock Group 2 hooks | 4. Lock Group 2 hooks |
| 5. General hook Off | 6. General hook Off |
| 7. Unlock Group 1 and 2 (ALL) hooks | 8. Lock Group 1 and 2 (ALL) hooks |

Note that that if there are several shackles with the same combination, a single command from a remote with that combination will perform the same action for all the shackles at the same time.

8.5. COUPLING THE NOA SHACKLE TO A LOAD-LIFTING DEVICE

The NOA Automatic Shackle must be coupled to a load-lifting device using accessories situated in the upper coupling area (See *Figure 1 – Coupling areas* in section 5.1 *GENERAL DESCRIPTION OF THE NOA SHACKLE*).

The accessories must be adapted to the dimensions of the coupling area of the NOA equipment (See section 5.3.1 *GENERAL DIMENSIONS AND WEIGHT*).

Note: Generally, a shackle will be used to couple the NOA equipment with the sling/chain of the load-lifting device (*Figure 27 - NOA with shackle*).

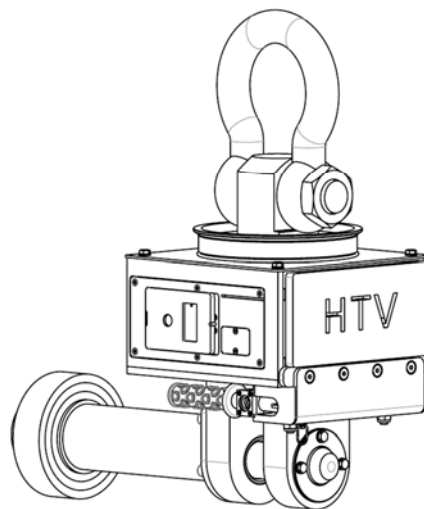


Figure 27 - NOA with shackle



Check that the load-lifting device and accessories have a lifting capacity equal to or higher than the load to be lifted.

8.6. COUPLING THE LOAD TO THE NOA SHACKLE


When the NOA shackle has been coupled to the load-lifting device, the load can be engaged by manual control of the buttons which determine the position of the pin, or by remote control.



Check that the pin and bushings used are appropriate for the load in question (Ø40 for 20 tons or Ø50 for 30 tons).

If several NOA automatic shackles are being used for the same load, pay special attention to the work angles (See 5.3 *TECHNICAL DATA*) and ensure that the load is uniformly distributed among all the equipment in use.

Note: When the pin is in the open position (withdrawn), the LED lights will be red; when the pin is in motion in an intermediate position, the LED lights will be orange and when the bolt is fully closed (extended) the LED lights will be green (see 6.2 *MEANING OF THE safety WARNINGS* for more information).



It is **TOTALLY PROHIBITED** to conduct lifting operations if the LEDs are not green (green = pin fully extended)

8.6.1. MANUAL COUPLING OF THE LOAD

Follow the instructions below for manual engagement of the load to the NOA shackle:

1. Pull the strap of the handlebar positioner (*Figure 28 – Handlebar positioner*) and unfold the handlebars until the positioner engages the handlebars again so that the two handlebars are aligned (*Figure 29 - Unfolded Handlebars*).

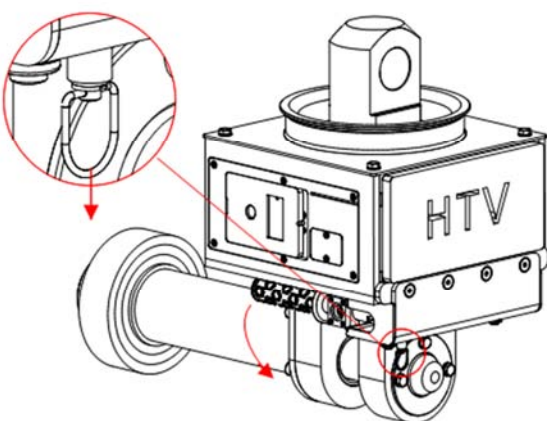


Figure 28 – Handlebar positioner

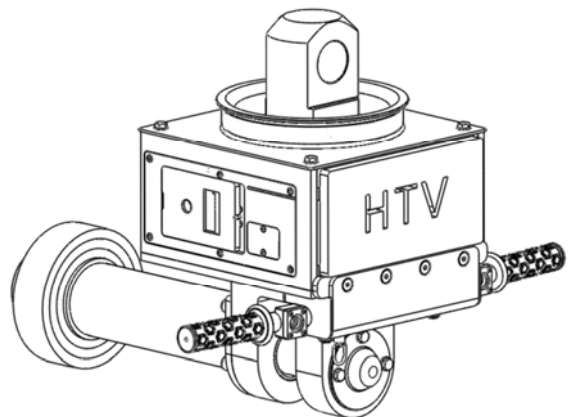


Figure 29 - Unfolded Handlebars

2. If not already in the open position, press the two handlebar buttons to withdraw/open the pin. With the pin open, use the handlebar's ergonomic grips to manoeuvre the equipment so that

the lifting tab/eyebolt of the load to be lifted is situated between the two clevis arms and press the two handlebar buttons (*Figure 31 – Handlebar buttons*) to activate the pneumatic piston and close the pin. When the pin is closed (extracted) the LEDs will turn green (*Figure 30 - Closed*).

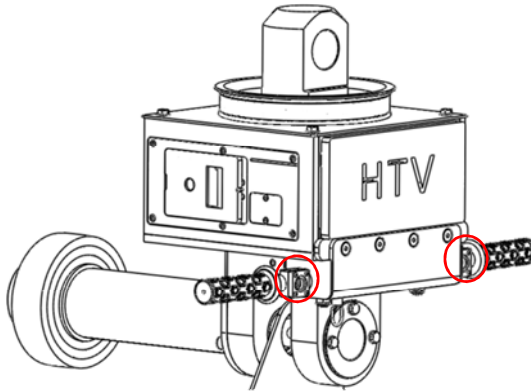


Figure 31 – Handlebar buttons

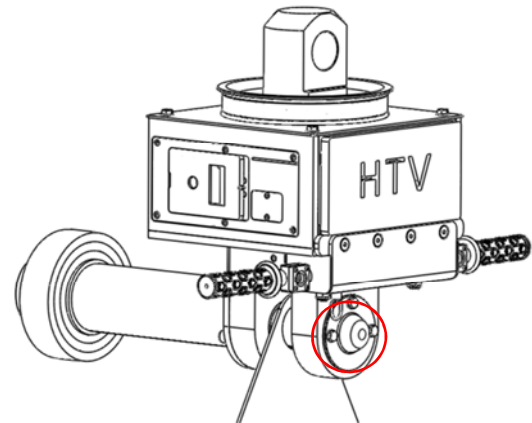
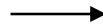


Figure 30 - Closed pin



Take extra care when the piston is being activated that no object or part of the body lies in the piston path.

8.6.2. COUPLING THE LOAD BY REMOTE CONTROL

Follow the instructions below to couple the load to the NOA shackle by remote control:

1. If not already in the open position, open the piston (LEDs will turn red), manoeuvre the lifting machine so that the lifting tab/eyebolt of the loads to be lifted is situated between the two clevis arms and press the corresponding 'Lock' button of the remote control for the shackle group in question (See 8.4.3 *OPERATION BY REMOTE CONTROL*) to extend the pin so that it passes through the hole of the lifting tab/eyebolt of the load until the LEDs turn green.



WARNING: To avoid being hit by the moving parts of the automatic shackle, under no circumstances should anybody approach or interfere with the equipment during a remote control load engagement process.

8.7. MOVING THE LOAD

Once the load has been coupled to the NOA shackle (green LEDs), make sure the load is moved as smoothly and in as controlled a manner as possible, avoiding any swinging motion that could cause the load to strike something or even disengage it. Plan the moves that the set of loads as a whole will take to avoid the possibility of impacts with other objects.



WARNING: Users who are in the proximity of the machine must be warned of the pre-planned path the load will use. Under no circumstances should anybody, including the load-lifting device operator, position themselves below the load.

If several NOA shackles are being used for the same load, pay special attention to the work angles (See section 5.3 *TECHNICAL DATA*) and ensure that the load is uniformly distributed among all the equipment in use.



Take extra care when working close to electricity cables. Maintain a safe distance to avoid any contact with them. Bear in mind the possible risk of unexpected/unforeseen movements of the load.

Note: When the equipment is in operation and to avoid overheating of the compressor motor, a timer is activated which allows a maximum operating time of eight seconds followed by eight seconds of rest.



NEVER carry out movements with the loaded equipment if the LEDs are off or orange.

8.8. RELEASING THE LOAD FROM THE NOA SHACKLE

To disengage the load from the NOA shackle, use the reverse procedure to the coupling process. This can be done manually using the handlebar buttons or by remote control.



VERY IMPORTANT: When the load is being disengaged from the NOA shackle, check that the load is on a firm and horizontal surface to ensure load stability.

Note: When the pin is fully open (withdrawn) the LEDs will be red (See 6.2 *MEANING OF THE safety WARNINGS*).

8.8.1. MANUAL UNCOUPLING OF THE LOAD

Once the load has been placed in the position where it is to be released and is no longer exerting force on the NOA shackle, use the reverse procedure to the manual load engagement

process and press the two handlebar buttons (after unfolding the handlebars if necessary) (See 8.6.1 *MANUAL*) so that the pin retracts allowing the load to be released.

8.8.2. RELEASE OF THE LOAD BY REMOTE CONTROL

Once the load has been placed in the position where it is to be released and is no longer exerting force on the NOA shackle, use the opposite procedure to the remote control load engagement process (See 8.6.2 *COUPLING THE LOAD BY REMOTE CONTROL*), pressing the corresponding 'Unlock' remote control button to retract the pin (See 8.4.3 *OPERATION BY REMOTE CONTROL*), allowing release of the load.

8.9. UNCOUPLING THE NOA SHACKLE FROM THE LOAD-LIFTING DEVICE

To uncouple the NOA shackle from the load-lifting device, position it on a flat and stable surface of sufficient strength to support its weight and disengage the accessory attaching the shackle to the load-lifting device.



VERY IMPORTANT: When uncoupling the NOA automatic shackle from the load-lifting device, the equipment must be free of any load.

9. MAINTENANCE

Proper maintenance can extend the useful life of the NOA automatic shackle. An explanation is given below of how to ensure the equipment is properly and safely maintained.

Maintenance work must be performed on a regular basis by qualified personnel with the appropriate know-how, always ensuring that all precautions are taken to avoid unnecessary risks.

Maintenance work must be carried out as described below. Non-observance of this is sufficient reason for the guarantee to be declared null and void.



Non-observance of the appropriate maintenance procedures could result in the defective operation of the product, damage to the equipment and serious injury to its users.

To facilitate NOA equipment maintenance work, a special support is supplied together with the equipment to keep it in a stable vertical position. The equipment should be placed on the support, which itself should be carefully positioned on a stable and horizontal surface (*Figure 32*).

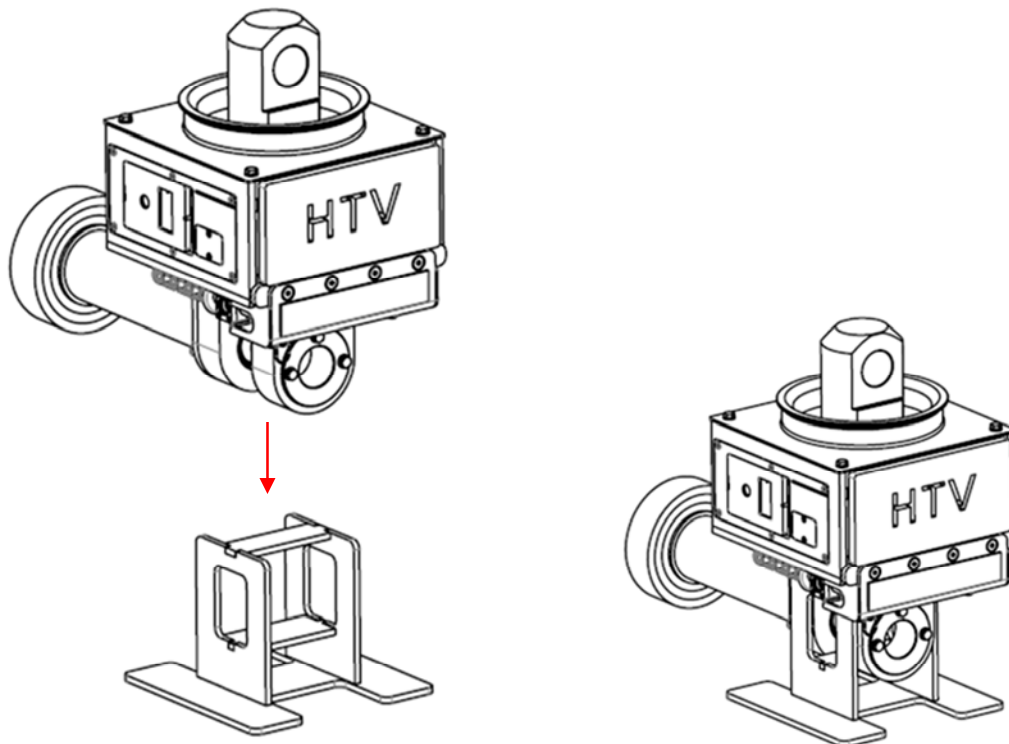


Figure 32

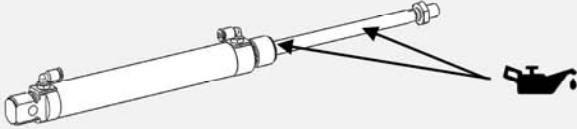
9.1. GENERAL RULES FOR MAINTENANCE

1. Ensure that you fully understand the maintenance procedure before initiating any work.
2. Conduct maintenance operations after cleaning all the parts of the equipment.
3. Always conduct maintenance operations with the equipment uncoupled from any load-lifting device, and remove the battery to disconnect the electricity supply and pneumatic circuit pressure. NEVER perform maintenance work or make adjustments when the equipment is in use.
4. Maintenance work can be dangerous, so closely observe all related safety regulations.
5. The installation, repair or replacement of any part must only be performed by a qualified technician.
6. Only use replacement parts recommended by the manufacturer.
7. Maintain all parts in good condition and ensure they are properly installed. Repair any damage immediately, replacing any worn or broken parts.
8. When replacing any component, whether it be a screw, nut or commercial product, use another of the same characteristics. If in doubt, please contact HOOKS TANIA VERDU, S.L.
9. Place the equipment on a horizontal and stable surface, and use whenever possible the support specifically designed for maintenance work and supplied together with the equipment.

9.2. PREVENTATIVE MAINTENANCE AND SERVICING

Periodical servicing should be performed to verify the integrity of the equipment. These servicing operations should be recorded (See section **¡Error! No se encuentra el origen de la referencia. ¡Error! No se encuentra el origen de la referencia.**).

A description of the maintenance and servicing operations that need to be performed to ensure the correct operation of the equipment is provided below.

MAINTENANCE POINTS		
No.	ACTION	PERIOD OF TIME
1	Check the general condition of the equipment for signs of knocks, cracks or fatigue, paying special attention to the clevis arms, pin, bushings and suspension shaft.	1000 h
2	Check that the surface of the piston rod of the pneumatic piston, the piston rod seal and cylinder lining are in good condition and that there is no significant amount of air leakage. Any damage or corrosion that appears in these components could increase friction and give rise to dangerous conditions. Please contact HOOKS TANIA VERDU, S.L if any such defect is observed to order a suitable replacement part.	500 h
3	Check the condition and connections of the different pneumatic components, compressor, valves, filters, pressure switch, hoses, adapters... (See section 9.7 <i>SCHEMATIC REPRESENTATION OF PNEUMATIC</i>). If any component appears damaged or worn, please contact HOOKS TANIA VERDU, S.L. to order a suitable replacement part.	500 h
4	Apply lubricant regularly to the piston rod and the pneumatic cylinder seals. 	500 h
5	Check that the air seals of the protective casing of the NOA shackle are in good condition, replacing them if necessary.	1000 h
6	Check the condition of all electrical components and connections, ensuring there is no damage, breakage or wearing of any component or wiring. If a bad connection is observed, fix it and connect it correctly. If a cable is not in good condition, replace it.	500 h
7	Check no water droplets are inside the casing which could cause the equipment to malfunction.	500 h
8	Regularly check and, if necessary, tighten the different screws of the equipment, especially the external screws which are more susceptible to loosening as a result of knocks/vibrations because of the use of the equipment.	3 months
9	Check the condition of the paintwork and apply anticorrosive paint when and where necessary.	1 month

The following is a potential breakdown/malfunction checklist supplied by the manufacturer:

No.	BREAKDOWN/MALFUNCTION	POSSIBLE CAUSES	SOLUTION
1	The pin does not move	Dead or incorrectly installed equipment battery	Charge and install the battery following the instructions in this Manual.
		Failure in the electrical circuit or of an electrical component.	Contact the technical team of HOOKS TANIA VERDU, S.L.
		Failure in the pneumatic circuit.	Contact the technical team of HOOKS TANIA VERDU, S.L.
2	LED lights do not work	Dead or incorrectly installed equipment battery.	Charge and install the battery following the instructions in this Manual.
		Failure in the electrical circuit or of an electrical component.	Contact the technical team of HOOKS TANIA VERDU, S.L.
3	Remote control does not work	Dead or incorrectly installed equipment battery.	Charge and install the battery following the instructions in this Manual.
		Dead or incorrectly installed remote control battery.	Charge and install the battery following the instructions in this Manual
		Failure in the electrical circuit or of an electrical component.	Contact the technical team of HOOKS TANIA VERDU, S.L.
		Incorrect joint configuration of the equipment and remote control.	Jointly configure the remote control and the equipment as described in section ¡Error! No se encuentra el origen de la referencia. ¡Error! No se encuentra el origen de la referencia..

9.3. CLEANING

To ensure a long working life of the equipment, remember that clean equipment is safe, clean equipment is ready to be used and clean equipment is long-lasting.

It is recommended to clean the equipment after each workday. Use compressed air and a dry cloth.

Take special care **to eliminate any water droplets** after the cleaning process to minimize the possibility of damage to the electrical circuits of the equipment.



REMEMBER: proper maintenance of the equipment will ensure its correct performance and a long working life.

After each cleaning, lubricate the different mechanical components when the equipment needs to be used again.

9.4. STORAGE

Follow the instructions below to ensure the equipment is correctly stored and remains in good condition if it is not going to be used for a long period:

1. Thoroughly clean the equipment...
 - 1.1. Externally
 - 1.2. The various components.
2. Clean the areas which are difficult to access and which tend not to be regularly cleaned.
3. Use anticorrosive paint on areas where the paint has worn away.
4. Store in a clean and dry warehouse.
5. Use a cover to avoid the accumulation of dust.

Note: It is recommended to store the equipment together with the maintenance support.

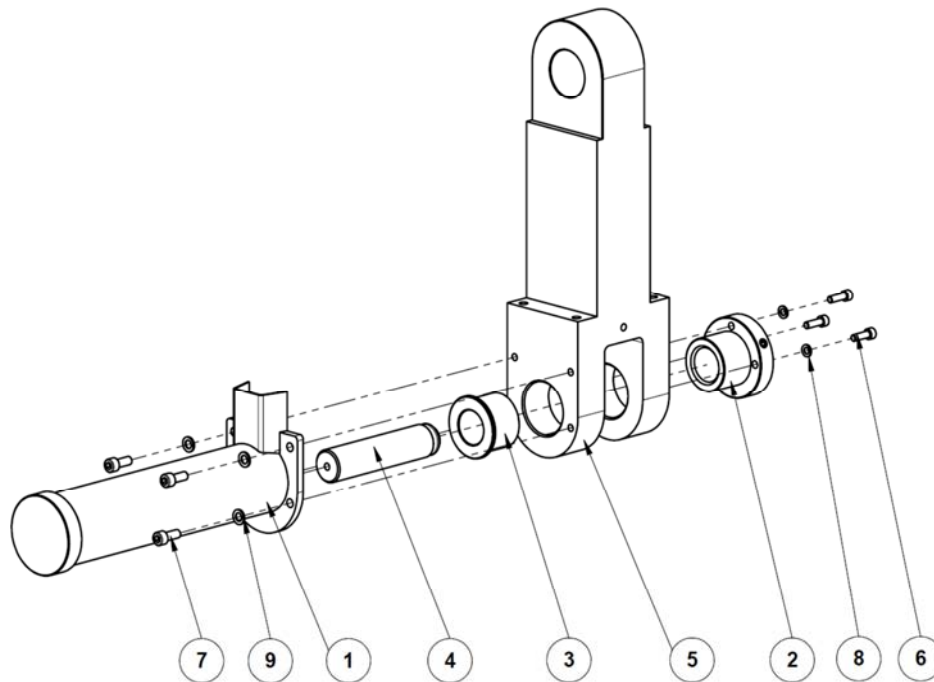
9.4.1. PREPARATION OF THE EQUIPMENT FOR USE AFTER STORAGE

Follow the instructions below to prepare the equipment for use after a long period of storage.

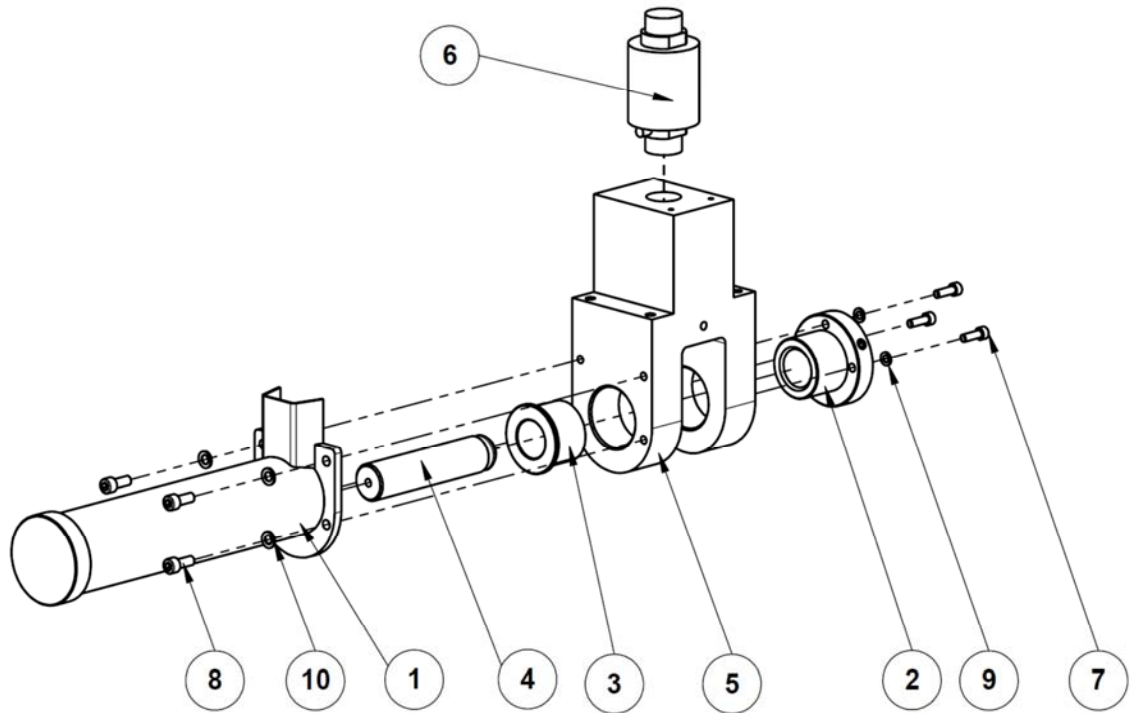
1. Remove the dust protection cover.
2. Perform a visual and general examination of all parts.
3. Clean.
4. Check the correct operation of the different components as described in this Manual.

9.5. PARTS LIST

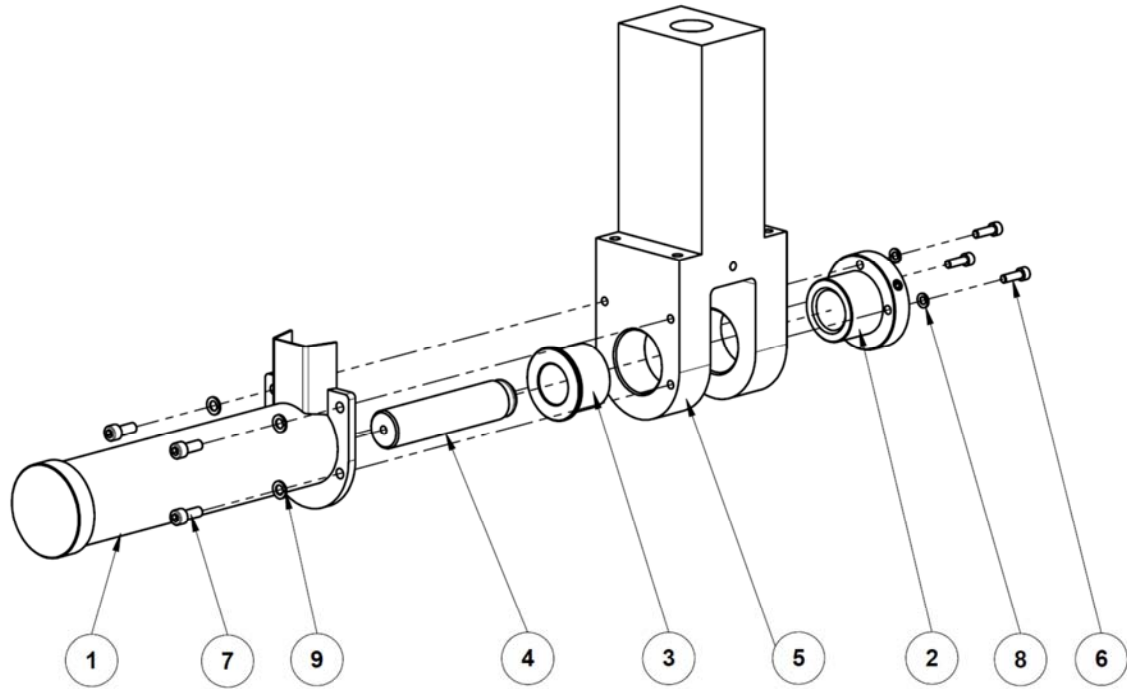
9.5.1. SHACKLE ASSEMBLY



POSITION	CODE	QUANTITY	DESCRIPTION
1	043M00008 N2015/10001/S	1	PISTON TUBE AND COVER
2	043M00020 N2015/10002/S	1	Ø40 mm BUSHING
	043M00021 N2015/10003/S		Ø50 mm BUSHING
3	043P00043 N2015/10004/S	1	BUSHING 20 TN
	043P00042 N2015/10005/S		BUSHING 30 TN
4	043P00116 N2015/10006/S	1	Ø40 mm PIN 20 TN
	043P00144 N2015/10007/S		Ø50 mm PIN 30 TN
5	043P00118 N2015/10008/S	1	CLEVIS
6	DIN 912 M8 x 25 --- 25C N2015/10009/S	3	ALLEN SCREW
7	DIN 912 M10 x 25 --- 25C N2015/10010/S	4	ALLEN SCREW
8	DIN 127 - A8 N2015/10011/S	3	GROWER WASHER
9	DIN 127 - A10 N2015/10012/S	4	GROWER WASHER

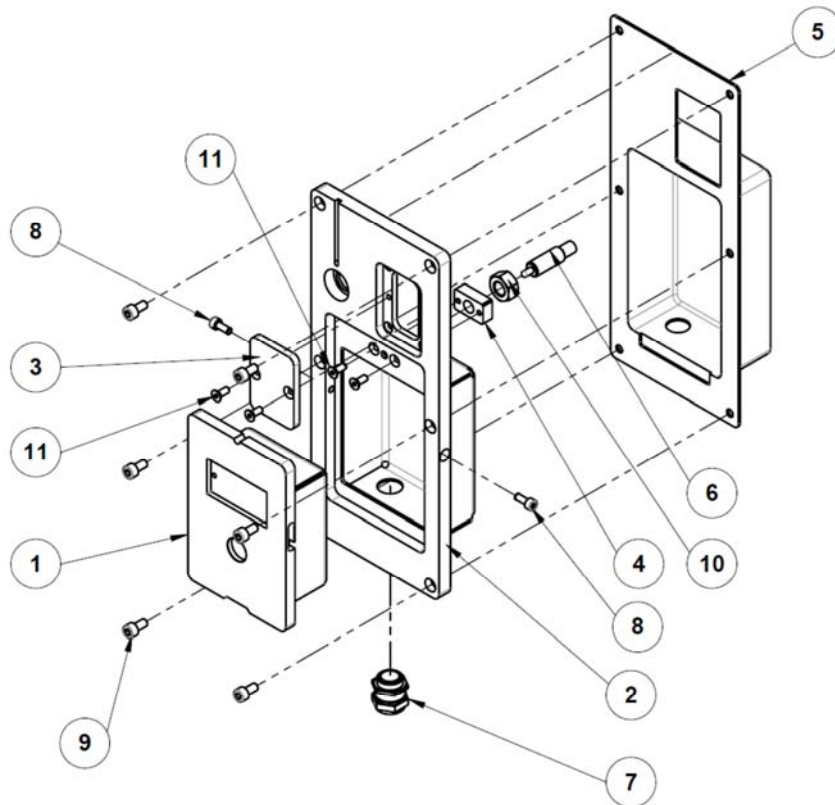


POSITION	CODE	QUANTITY	DESCRIPTION
1	043M00008 N2015/10001/S	1	PISTON TUBE AND COVER
2	043M00020 N2015/10002/S	1	Ø40 mm BUSHING
	043M00021 N2015/10003/S		Ø50 mm BUSHING
3	043P00043 N2015/10004/S	1	BUSHING 20 TN
	043P00042 N2015/10005/S		BUSHING 30 TN
4	043P00116 N2015/10006/S	1	Ø40 mm PIN 20 TN
	043P00144 N2015/10007/S		Ø50 mm PIN 30 TN
5	043P00148 N2015/10013/S	1	CLEVIS Z16A
6	1-Z16A3C3-15t N2015/10014/S	1	LOAD SPINDLE HBM 1-Z16A3C3/5t
7	DIN 912 M8 x 25 --- 25C N2015/10009/S	3	ALLEN SCREW
8	DIN 912 M10 x 25 --- 25C N2015/10010/S	4	ALLEN SCREW
9	DIN 127 - A8 N2015/10011/S	3	GROWER WASHER
10	DIN 127 - A10 N2015/10012/S	4	GROWER WASHER



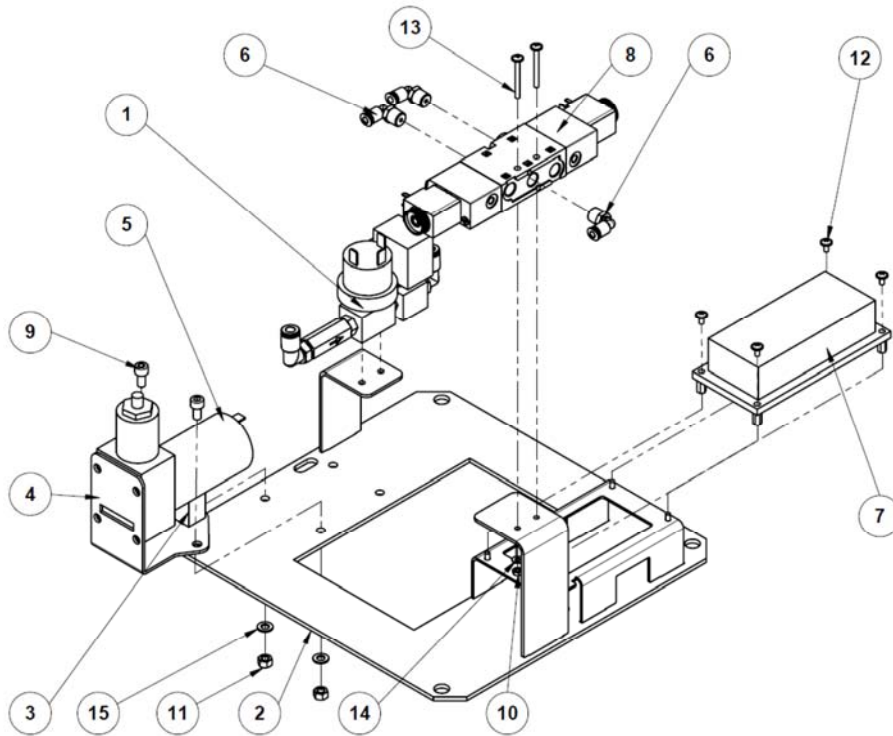
POSITION	CODE	QUANTITY	DESCRIPTION
1	043M00008 N2015/10001/S	1	PISTON TUBE AND COVER
2	043M00020 N2015/10002/S	1	Ø40 mm BUSHING
	043M00021 N2015/10003/S		Ø50 mm BUSHING
3	043P00043 N2015/10004/S	1	BUSHING 20 TN
	043P00042 N2015/10005/S		BUSHING 30 TN
4	043P00116 N2015/10006/S	1	Ø40 mm PIN 20 TN
	043P00144 N2015/10007/S		Ø50 mm PIN 30 TN
5	043P00149 N2015/10015/S	1	CLEVIS
6	DIN 912 M8 x 25 --- 25C N2015/10009/S	3	ALLEN SCREW
7	DIN 912 M10 x 25 --- 25C N2015/10010/S	4	ALLEN SCREW
8	DIN 127 - A8 N2015/10011/S	3	GROWER WASHER
9	DIN 127 - A10 N2015/10012/S	4	GROWER WASHER

9.5.2. BATTERY



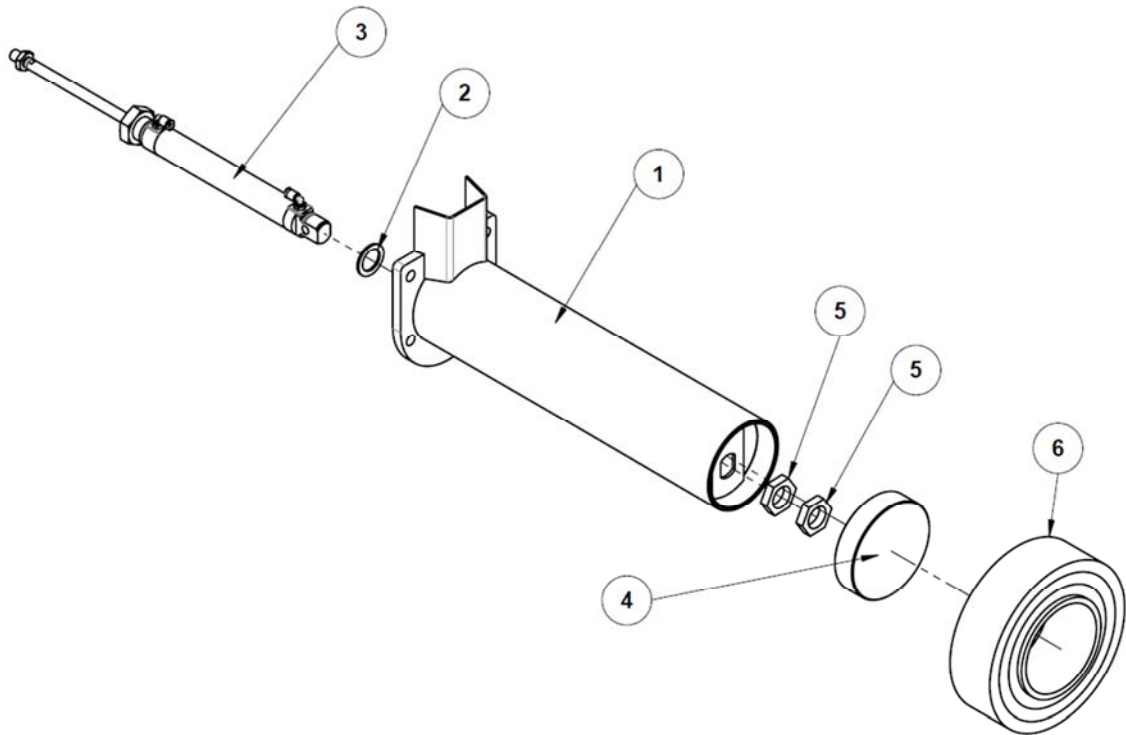
POSITION	CODE	QUANTITY	DESCRIPTION
1	043M00013 N2015/10016/S	1	NOA BATTERY SET
2	043S00012 N2015/10017/S	1	NOA SCREW-IN BATTERY CASING
3	043P00008 N2015/10018/S	1	CIRCUIT BOARD COVER
4	043P00070 N2015/10019/S	1	SPACER
5	043P00147 N2015/10020/S	1	BATTERY RUBBER INSULATOR
6	2207.408 N2015/10021/S	1	HALDER EH 2207 POSITIONER
7	M16 Ø 7 - 11 N2015/10022/S	1	GLAND BUSHING
8	DIN 912 M4 x 10 --- 10C N2015/10023/S	2	ALLEN SCREW
9	DIN 912 M5 x 10 --- 10C N2015/10024/S	6	ALLEN SCREW
10	DIN 934 - M10 - D - C N2015/10025/S	1	HEX NUT
11	DIN 7991 - M4 x 10 -10C N2015/10026/S	4	COUNTERSINK ALLEN SCREW

9.5.3. MAINBOARD



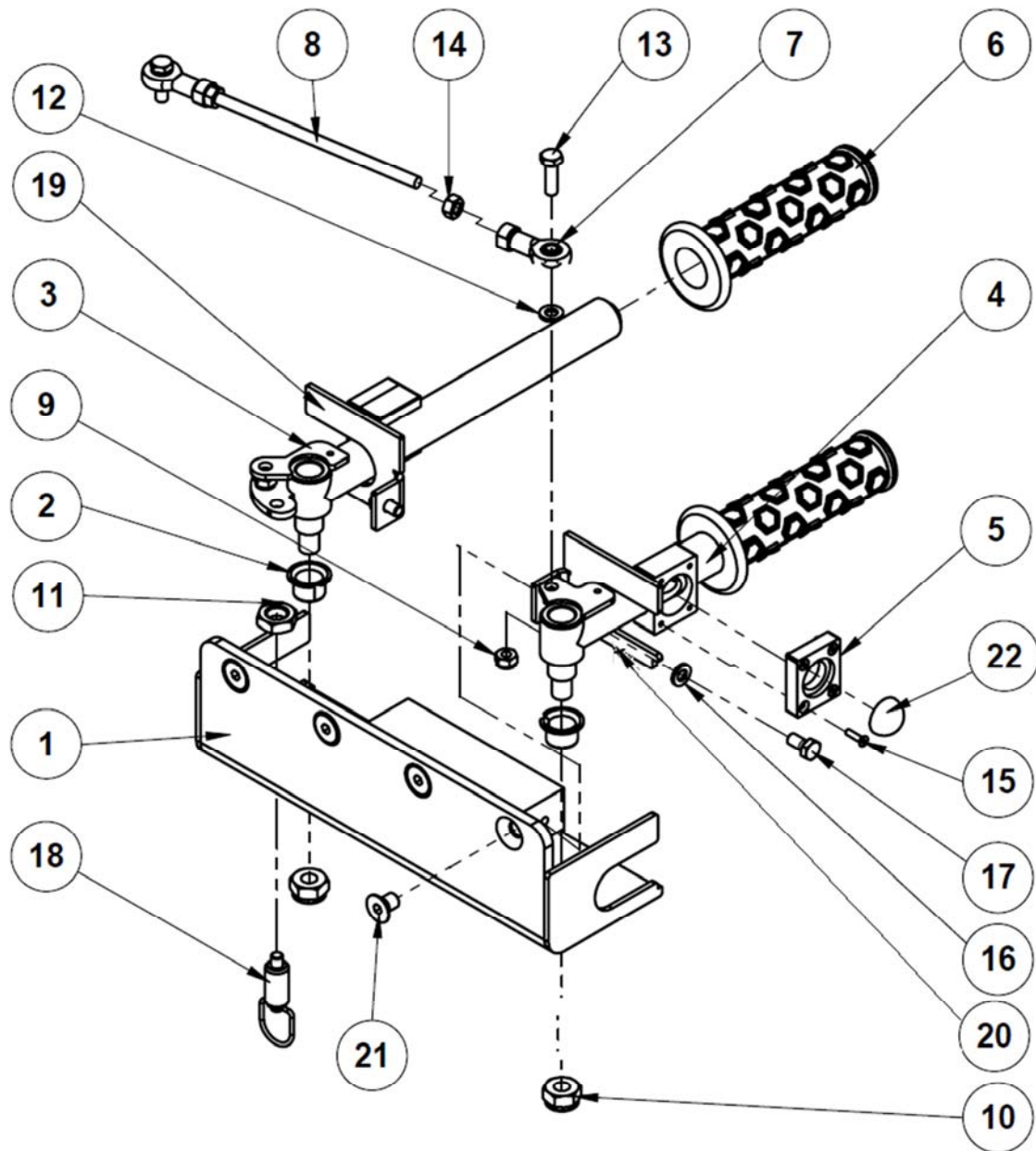
POSITION	CODE	QUANTITY	DESCRIPTION
1	043M00010 N2015/10027/S	1	PNEUMATIC COMPONENTS
2	043S00021 N2015/10028/S	1	BOX BASE PLATE
3	043P00059 N2015/10029/S	1	BLOCK COMPRESSOR
4	043P00146 N2015/10030/S	1	PLATE COMPRESSOR
5	1070346 N2015/10031/S	1	COMPRESSOR JOHNSON
6	L- 4 mm - R1/8 N2015/10032/S	3	FITTING L - CONNECTION
7	N2015/10033/S	1	ELECTRONIC BOARD
8	AIGNEP 01VS150002 N2015/10034/S	1	VALVE ELECTROPNEUMATIC
9	DIN 912 M5 x 10 - 10C N2015/10035/S	2	ALLEN SCREW
10	DIN 934- M3-D-C N2015/10036/S	2	NUT
11	DIN 934- M5-D-C N2015/10037/S	2	NUT
12	DIN 967 - M3 x 6 - Z-5N N2015/10038/S	8	SCREW STAR
13	DIN 967-M3 x30-Z-29N N2015/10039/S	2	SCREW STAR
14	DIN 125 - A 3.2 N2015/10040/S	2	FLAT WASHER
15	DIN 125 - A 5.3 N2015/10041/S	2	FLAT WASHER
16	N2015/10042/S	1	WIFI
17	043P00061 N2015/10043/S	1	CHAPA WIFI PLATE WIFI

9.5.4. PISTON ASSEMBLY



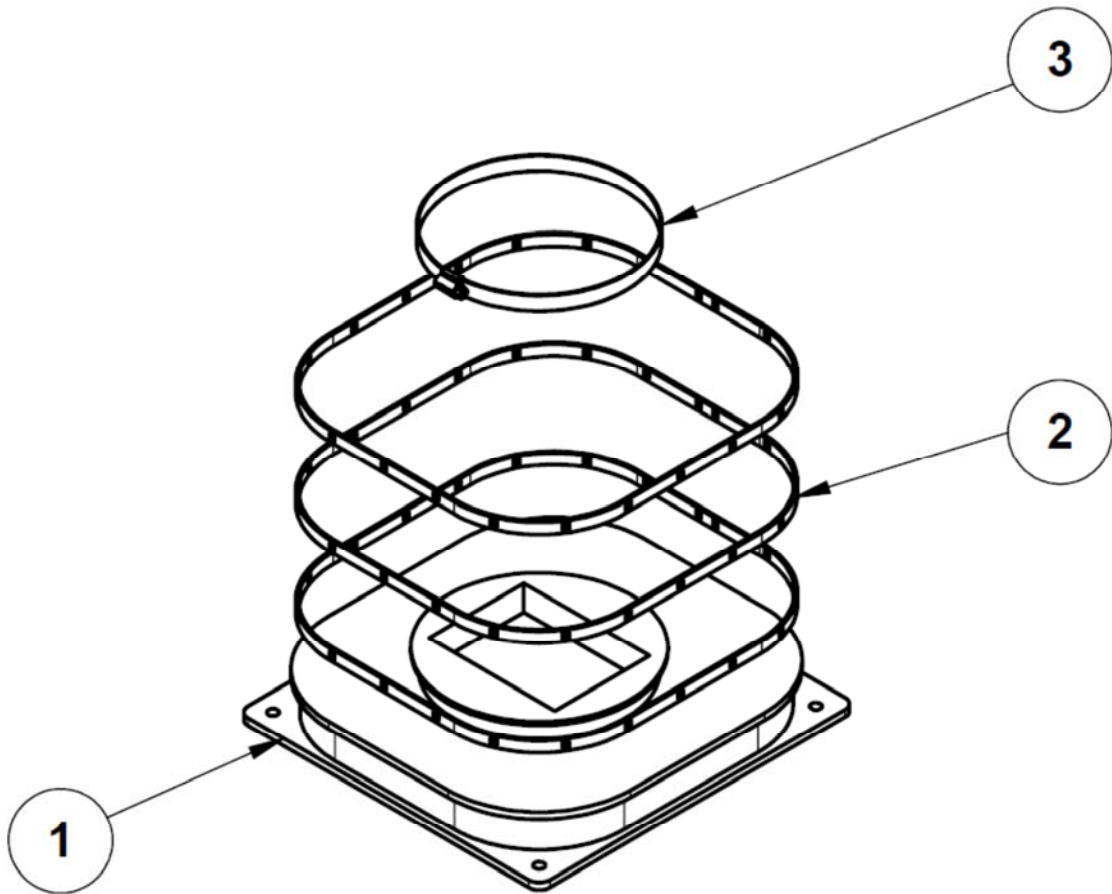
POSITION	CODE	QUANTITY	DESCRIPTION
1	043S00008 N2015/10044/S	1	FULL TUBE
2	DIN 988-22x32x2 N2015/10045/S	1	FLAT WASHER
3	AIGNEP MF0250125 N2015/10046/S	1	PNEUMATIC PISTON
4	043P00047 N2015/10047/S	1	BACK COVER TUBE
5	043P00160 N2015/10048/S	2	HEX LOW
6	N2015/10049/S	1	CYLINDER PROTECTOR

9.5.5. HANDLEBAR ASSEMBLY

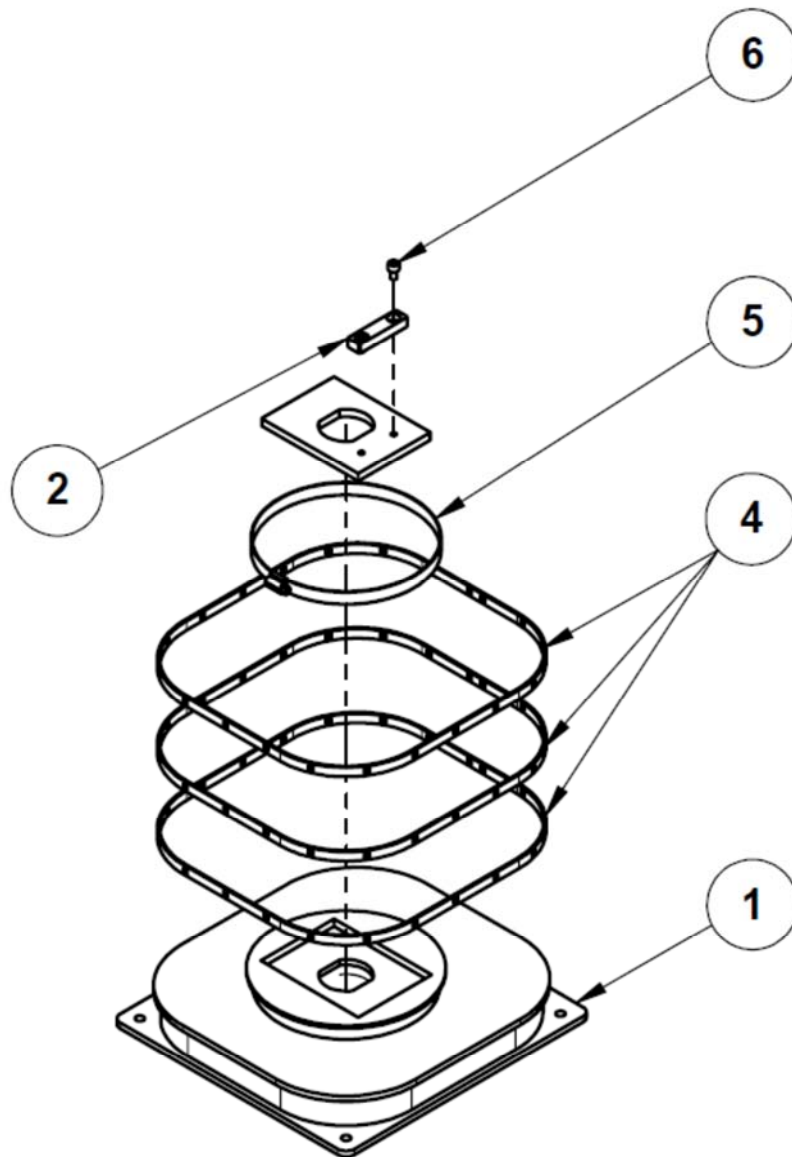


POSITION	CODE	QUANTITY	DESCRIPTION
1	043S00013 N2015/10050/S	1	HANDLEBAR SUPPORT ASSEMBLY
2	EGF14120-E40 N2015/10051/S	2	INA EGF14120-E40
3	043S00014 N2015/10052/S	1	LEFT HANDLEBAR ASSEMBLY
4	043S00015 N2015/10053/S	1	RIGHT HANDLEBAR ASSEMBLY
5	043P00075 N2015/10054/S	2	SUPPORT BUTTON
6	N2015/10055/S	2	MUFF
7	GN 648.1-6-M6-W N2015/10056/S	2	ELESA+GANTER GN 648.1-6-M6-W
8	043P00082 N2015/10057/S	1	THREADED ROD
9	DIN 985 M6 N2015/10058/S	2	LOCKING NUT
10	DIN 985 M10 N2015/10059/S	2	LOCKING NUT
11	DIN 439B - M12 – C N2015/10060/S	1	HEX BOLT LOW
12	DIN 125 - A 6.4 N2015/10061/S	2	FLAT WASHER
13	DIN 933 - M6 x 20-C N2015/10062/S	2	HEX BOLT
14	DIN 934 - M6 - D – C N2015/10063/S	2	HEX BOLT
15	DIN 7991- M3 x 12-12C N2015/10064/S	8	COUNTERSINK ALLEN SCREW
16	DIN 125 - A 6.4 N2015/10065/S	2	FLAT WASHER
17	DIN 933 - M6 x 12-C N2015/10066/S	2	HEX BOLT
18	gn_413-6-m12-a-st N2015/10067/S	1	ELESA+GANTER GN 413-6-M12-AST
19	043P00083 N2015/10068/S	1	HANDLE LEFT BACK COVER
20	043P00161 N2015/10069/S	1	HANDLE RIGHT BACK COVER
21	DIN 7991-M8 x 12-3.8C N2015/10070/S	4	COUNTERSINK ALLEN SCREW
22	N2015/10071/S	2	BUTTON HANDLE

9.5.6. LEDS ASSEMBLY

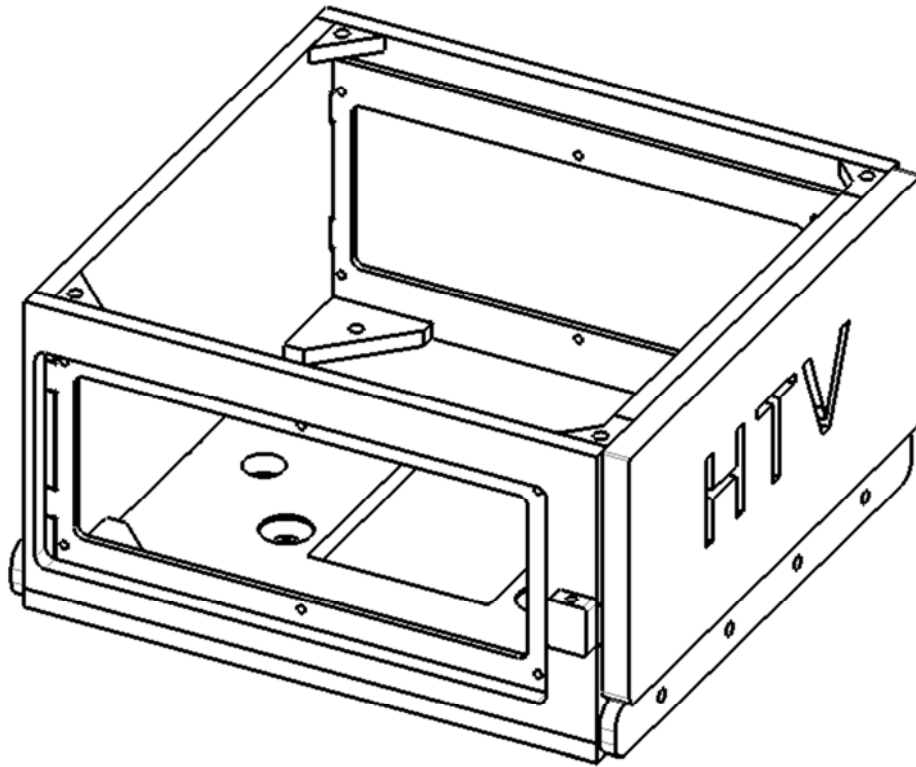


POSITION	CODE	QUANTITY	DESCRIPTION
1	043P00107 N2015/10072/S	1	LEDS SUPPORT
2	N2015/10073/S	3	LEDS SET
3	ABA DIN-Size 165 mm N2015/10074/S	1	TRANSPARENT PLASTIC



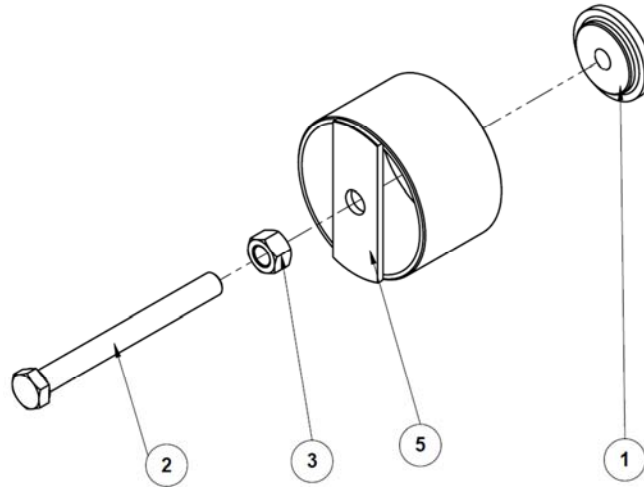
POSITION	CODE	QUANTITY	DESCRIPTION
1	043P00106 N2015/10075/S	1	<i>LEDS SUPPORT</i>
2	043P00130 N2015/10076/S	1	<i>LEDS SUPPORT</i>
3	043P00132 N2015/10077/S	1	<i>LEDS SUPPORT</i>
4	N2015/10078/S	3	<i>LEDS SET</i>
5	ABA DIN-Size 165 mm N2015/10079/S	1	<i>TRANSPARENT PLASTIC</i>
6	DIN 912 M6 x 10 - 10C N2015/10080/S	2	<i>ALLEN SCREW</i>

9.5.7. CASING



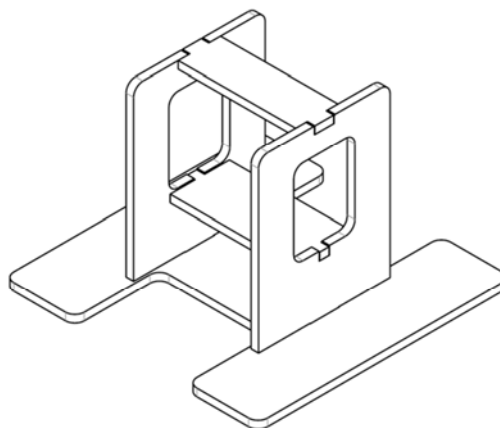
POSITION	CODE	QUANTITY	DESCRIPTION
1	043S00022 N2015/10081/S	1	CAJA BOX

9.5.8. BUSHING EXTRACTOR TOOL



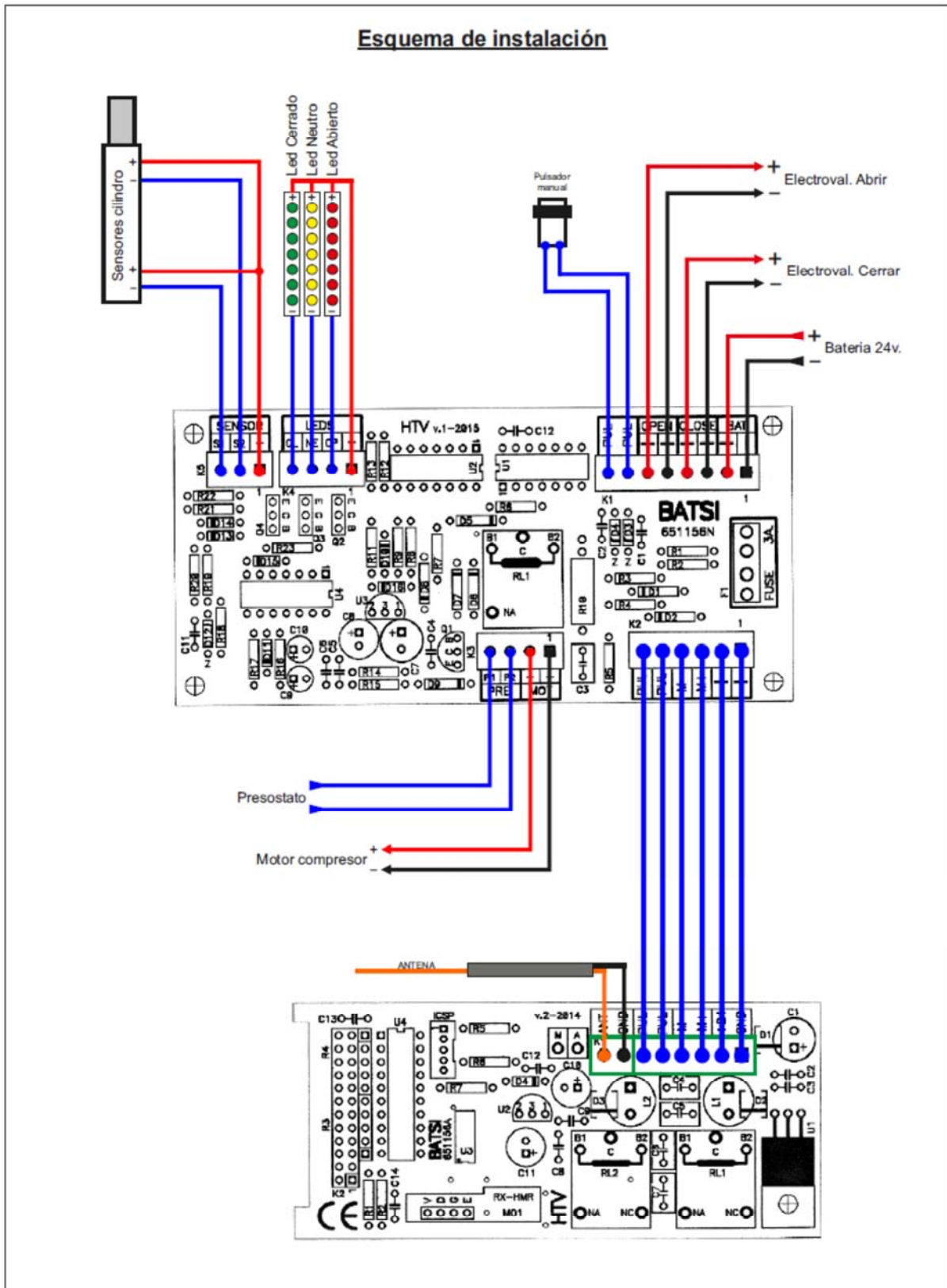
POSITION	REFERENCE	QUANTITY	DESCRIPTION
1	043P00090 N2015/10073/S	1	BUSHING EXTRACTOR
2	N2015/10074/S	1	HEX SCREW
3	043S00009 N2015/10075/S	1	HEX NUT
4	043P00092 N2015/10076/S	1	PROTECTOR
5	043P00093 N2015/10077/S	1	PROTECTOR COVER

9.5.9. MAINTENANCE SUPPORT



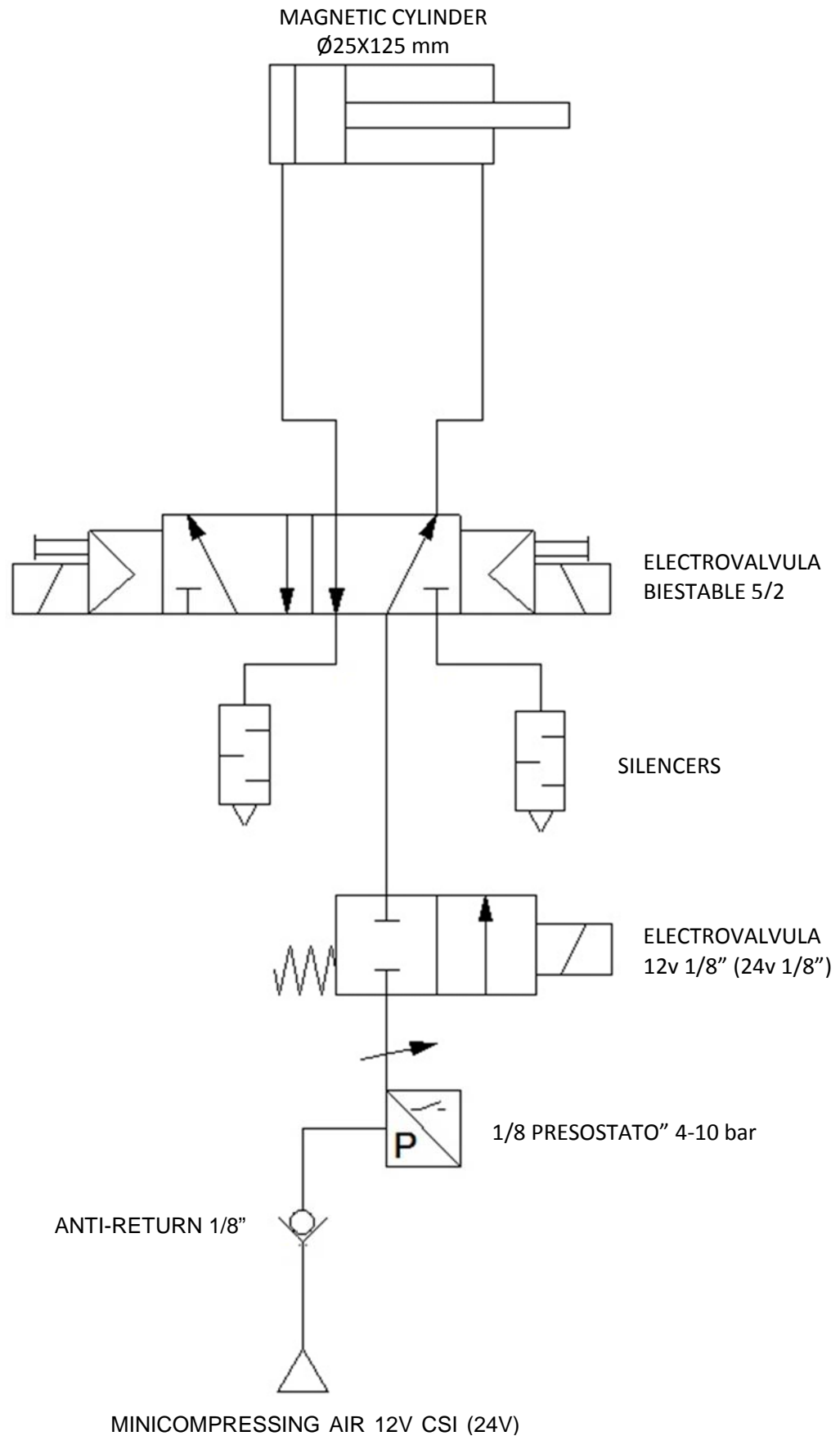
POSITION	REFERENCE	QUANTITY	DESCRIPTION
-	043S00020 N2015/10078/S	1	MAINTENANCE SUPPORT

9.6. ELECTRONIC CIRCUIT DIAGRAM



Notas:	Denominación: RX - Módulo Neumático			
	Fecha: Julio 2015	Plano:	Hoja: 1	PCB: 650156D
	Equipo: RM02NE	Código:	Escala:	Car:
	Cliente: HTV		Página:	Módulo: 651156D

9.7. SCHEMATIC REPRESENTATION OF PNEUMATIC CIRCUIT



12. EU DECLARATION OF CONFORMITY