

INSTALLATION MANUAL

Product: Overlap sectional garage door

Model: OVERLAP 2.0

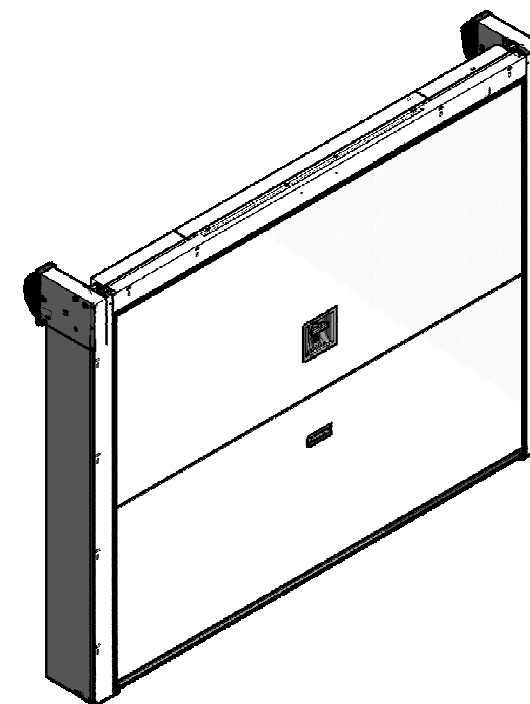
Operation: Manual and automatic

For Residential Use Only

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SILVELOX

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OVERLAP 2.0


TABLE OF CONTENTS

| | | | | |
|----------|---|----|--|-----------|
| 1 | PREFACE | | | |
| 2 | PRELIMINARY CHECKS | | | |
| 2.1 | Documentation and label inventory | | | |
| 2.2 | Box inventory | | | |
| 2.3 | Tools needed | | | |
| 3 | INSTALLATION | | | |
| | WALL OPENING | | | |
| 3.1 | RIGHT UPRIGHT | 12 | | |
| 3.2 | RIGHT UPRIGHT SECURING | 13 | | |
| 3.3 | LOWER PANEL | 14 | | |
| 3.4 | UPPER PANEL | 15 | | |
| 3.5 | STRIKERS ON UPPER PANEL | 16 | | |
| 3.6 | OPERATOR/HEADBAR | 17 | | |
| 3.7 | PHOTOEYE CONNECTION | 18 | | |
| 3.8 | LEFT UPRIGHT | 19 | | |
| 3.9 | PANEL AND OPERATOR/HEADBAR ATTACHMENT | 20 | | |
| 3.10 | SPACER REMOVAL | 21 | | |
| 3.11 | LEVEL THE OPERATOR/HEADBAR | 22 | | |
| 3.12 | SECURING THE OPERATOR/HEADBAR | 23 | | |
| 3.13 | UPRIGHT LEVEL AND ATTACHMENT | 24 | | |
| 3.15 | NARROW COUNTERBALANCE BOXES | 25 | | |
| 3.16 | WEIGHT LOADING – NARROW BOXES | 26 | | |
| 3.17 | LARGE COUNTERBALANCE BOXES AND CABLES | 27 | | |
| 3.18 | WEIGHT LOADING – LARGE BOXES | 28 | | |
| 3.19 | OPERATOR DRIVE SHAFTS | 29 | | |
| 3.20 | PANEL ADDITIONAL SECURING | 30 | | |
| 3.21 | STILE CAPS | 31 | | |
| 3.22 | COVERS | 32 | | |
| 3.23 | COVER SECURING AND PHOTO-EYE HANGING | 33 | | |
| | | 34 | | |
| 4 | | | | |
| 3.24 | LABEL POSITIONING | | | 35 |
| 3.25 | DOOR TEST | | | 36 |
| 3.26 | DECORATIVE HARDWARE (for US & CANADA) | | | 37 |
| 4 | REQUIREMENTS FOR THE CORRECT DOOR OPERATION | | | 38 |
| 4.1 | Strikers and pipe plate | | | 38 |
| 4.2 | Closing limit switch | | | 39 |
| 4.3 | Counterweights | | | 40 |
| 4.4 | Lifting arm | | | 41 |
| 4.5 | Lubrication | | | 42 |
| 4.6 | Operator | | | |
| | Errore. Il segnalibro non è definito. | | | |
| 4.7 | Current control | | | 43 |
| 4.8 | Photo-eyes | | | 43 |
| 4.9 | Closing tape regulation | | | 43 |
| 5 | ELECTRIC CONNECTIONS AND ELECTRONIC COMPONENTS | | | 45 |
| 5.1 | Optional devices | | | 45 |
| 5.2 | Preparation for connection of an anti-intrusion alarm system (optional) | | | 45 |
| 5.3 | Remote control | | | 47 |
| 5.4 | Transmitters | | | 47 |
| 5.5 | Self-learning 2-channels receiver (inserted on the printed circuit board) | | | 48 |
| 5.6 | Self-learning 4-channels receiver for outside | | | 49 |
| 5.7 | Operation of the receiver (2- and 4-channels) | | | 51 |
| 5.8 | De-activation of transmitters | | | 51 |
| 5.9 | Activation of transmitters | | | 52 |
| 5.10 | Wiring Diagram | | | 54 |
| 6 | MAINTENANCE | | | 55 |
| 7 | DISMANTLING | | | 55 |
| 8 | ASSISTANCE AND ACCESSORIES | | | 55 |

1 PREFACE

Dear customer, we want to inform you about the installation and safety procedures for a correct set-up of the Overlap garage door designed by Silvelox. If you correctly follow all the instructions, the product will work as expected. The garage door is typically the largest moving object in the house. Improper installation, operation or maintenance of a garage door can create a hazardous condition that can cause serious injury or even death.

| |
|--|
|  WARNING |
| In the interest of safety this symbol means WARNING or CAUTION. Injury to people and/or property damage may occur unless instructions are followed correctly. |

| |
|--|
|  WARNING |
| In the interest of safety this symbol means WARNING. Injury to people and/or property damage may occur from electrocution or fire unless instructions are followed correctly. |

2 PRELIMINARY CHECKS


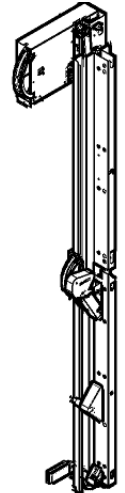
Your garage door is packaged in a single crate which contains the documentation and all parts listed below. If anything is missing, carefully check the packing material as parts may be stuck in the foam. Tools needed are also listed below.

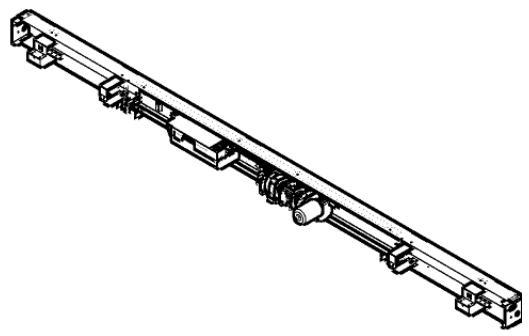
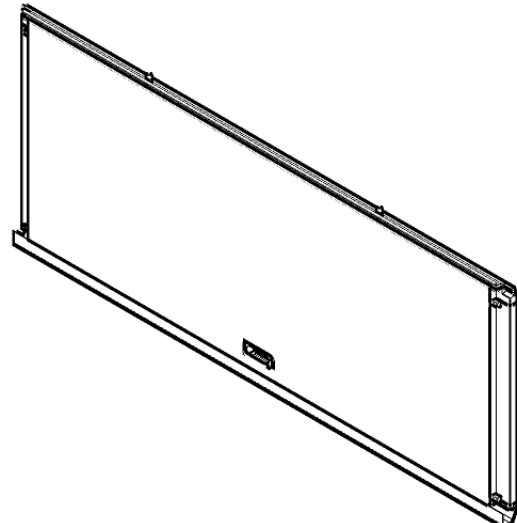
2.1 Documentation and label inventory

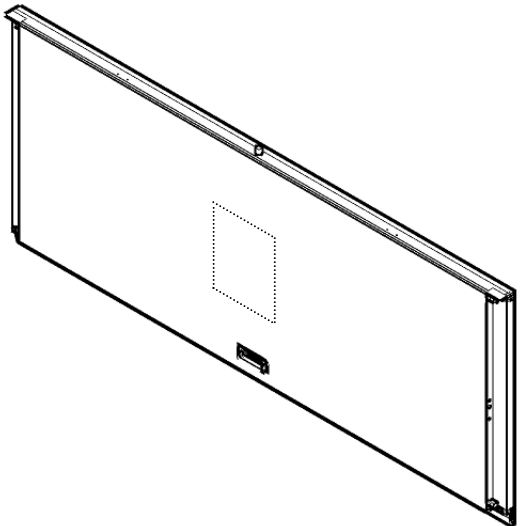
- Warnings labels for handling the packaging: follow the handling instructions listed on the packaging label.
- Acceptance report attached to the packaging lists the contents.
- Owner's manual includes operations and maintenance instructions. Please give Owner's Manual to the homeowner.
- Installation manual instructs technicians how to install a door.
- ID label describes the technical characteristics of the door and is placed on the interior side of the upper panel.
- General warning label includes safety instructions for the garage door operation and is placed on the interior side of the upper panel.
- Release handle warning label is placed on right counterbalance cover, just behind the release handle.
- Wall control button warning label must be placed close to wall control, at least 5 feet above floor.
- Electric hazard warning label indicates the danger from accidental electrocution and is placed in the proximity of the cover containing the electric motor.

2.2 Box inventory

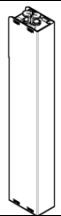

2.2.1 Main parts

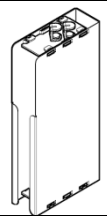
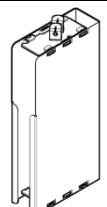
| Preview | Item | Item QTY | Description |
|--|------|----------|---------------|
|  | U1 | 1 | RIGHT UPRIGHT |
|  | U2 | 1 | LEFT UPRIGHT |

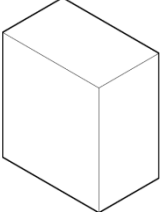


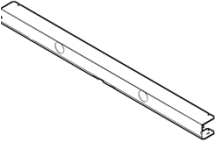
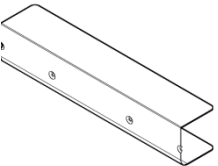
| Preview | Item | Item QTY | Description |
|--|------|----------|-------------------|
|  | C1 | 1 | OPERATOR/ HEADBAR |
|  | P1 | 1 | LOWER PANEL |



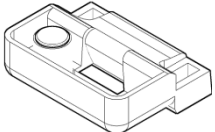
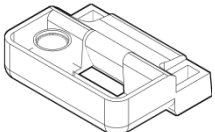
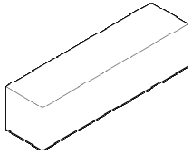
| Preview | Item | Item QTY | Description |
|---|------|----------|--|
|  | P2 | 1 | UPPER PANEL (may have cavity on interior, if door includes optional decorative hardware) |

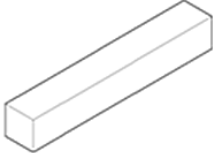
2.2.2 Secondary parts

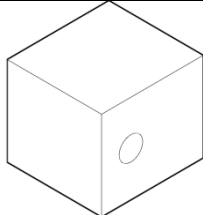
| Preview | Item | Item QTY | Description |
|---|------|----------|---------------------------------|
|  | B1 | 1 | RIGHT NARROW COUNTERBALANCE BOX |
|  | B2 | 1 | LEFT NARROW COUNTERBALANCE BOX |

| Preview | Item | Item QTY | Description |
|---|------|----------|--------------------------------|
|  | B3 | 1 | RIGHT LARGE COUNTERBALANCE BOX |
|  | B4 | 1 | LEFT NARROW COUNTERBALANCE BOX |


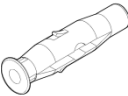
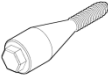

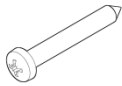
| Preview | Item | Item QTY | Description |
|---|-----------|--------------------|--------------------------------|
|  | W1 | Based on door size | COUNTERBALANCE WEIGHT UNIT |
|  | C2 | 1 | RIGHT COUNTERBALANCE COVER |
|  | C3 | 1 | LEFT COUNTERBALANCE COVER |
|  | C4 | 1 | OPERATOR/HEADBAR CENTRAL COVER |
|  | C5 | 2 | HEADBAR SIDE COVER |





| Preview | Item | Item QTY | Description |
|---|-----------|----------|----------------------------|
|  | C6 | 1 | RIGHT PULLY COVER |
|  | C7 | 1 | LEFT PULLY COVER |
|  | P3 | 1 | LEFT STRIKER (WITH MAGNET) |
|  | P4 | 1 | RIGHT STRIKER |
|  | D1 | 2 | 50mm SPACER |

| Preview | Item | Item QTY | Description |
|---|-----------|----------|-------------|
|  | D2 | 2 | 25mm SPACER |

| Preview | Item | Item QTY | Description |
|---|-----------|----------|------------------------------------|
|  | D2 | 2 | 30mm SPACER (ALREADY INSTALLED) |

2.2.3 Screws

| Preview | Item | Item QTY | Description |
|---|------------|-----------|--|
|  | S1 | 19 | TEB AB 6,3x60 ZNG SCREW, HEX CAP 10mm |
|  | S10 | 17 | FISCHER WALL ANCHOR, 10mm x 60mm |
|  | S2 | 8 | CONE SCREW, HEX CAP 10mm |
|  | S3 | 4 | TEB AB 6,3x16 ZNG SCREW, HEX CAP 10mm |
|  | S4 | 34 | TB 5x30 C15 ZNG WOOD SCREW, CROSS SLOTTED |

| | | | |
|--|-----------|----|---|
|  | S5 | 32 | STILE CAP |
|  | S6 | 8 | TBEI AB 6.3x16 ZN N SCREW, SOCKET HEAD 4mm |
|  | S7 | 4 | TB ST5,5x58-C-H ZNSCREW, CROSS SLOTTED |
|  | S8 | 2 | TEB AB 6,3x50 ZNG SCREW, HEX CAP 10mm |

2.3 Tools needed

Before starting the door installation, be sure to have at hand all the tools listed below:

1. Knife/Box-cutter
2. 4 mm Allen wrench
3. 8mm Allen wrench (for Double Car doors only)
4. 13 mm wrench
5. 10 mm spark plug wrench, 200 mm long
6. Phillips head screwdrivers
7. Drill, with a 3/8"x10" drill bit
8. Tape measure
9. Rubber hammer
10. 6' ladder
11. Level- 24" or 48"

3 INSTALLATION

IMPORTANT INSTALLATION INSTRUCTIONS



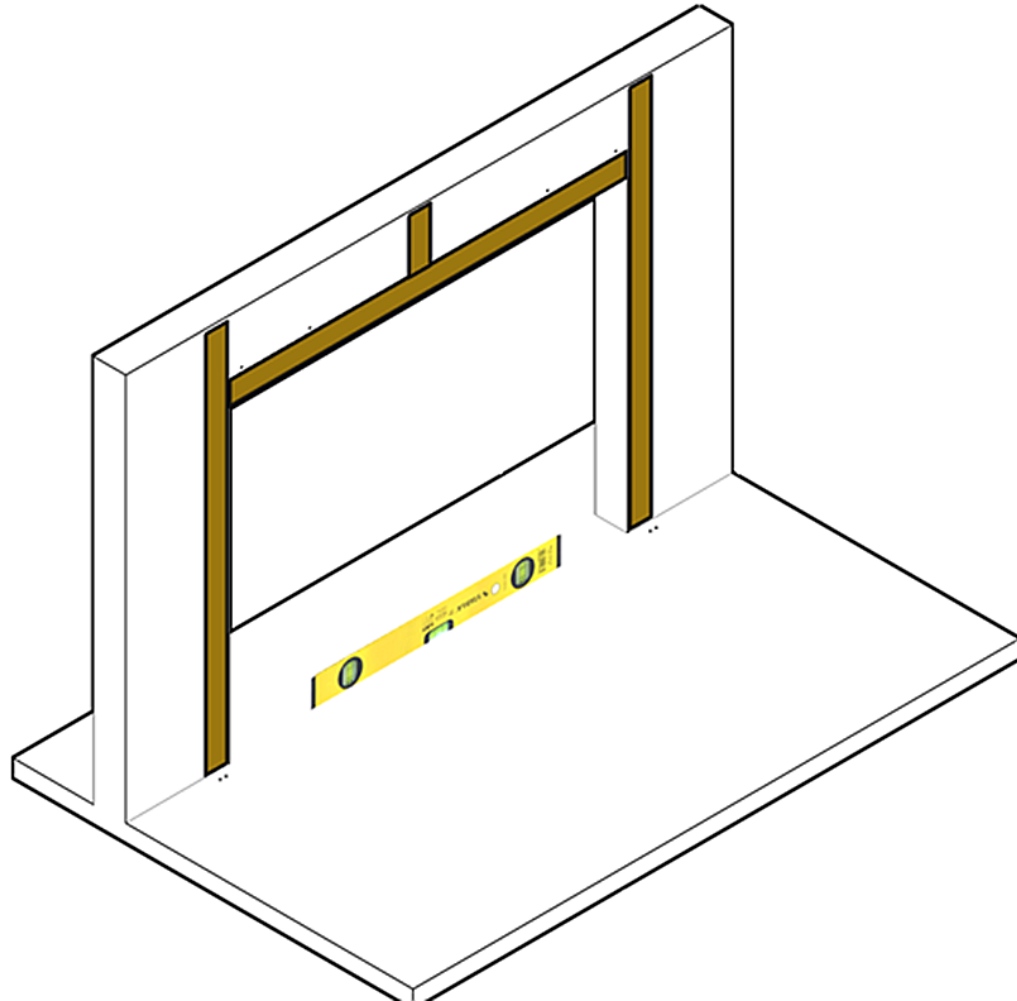
WARNING: To reduce the risk of severe injury or death

- | | |
|---|--|
| <ol style="list-style-type: none">1. READ AND FOLLOW ALL INSTALLATION WARNINGS AND INSTRUCTIONS before to install, operate, perform maintenance or repair the garage door.2. Install garage door opener ONLY on properly balanced and lubricated garage door. An improperly balanced door may not reverse when required and could result in SEVERE INJURY or DEATH.3. Disable ALL locks and remove ALL ropes connected to garage door BEFORE installing opener to avoid entanglement.4. Mount emergency release handle 6 feet (1.8 m) above floor.5. NEVER connect garage door opener to power source until instructed to do so.6. NEVER wear watches, rings or loose clothing while installing or servicing garage door. They could be caught in garage door opener mechanisms. | <ol style="list-style-type: none">7. Install wall-mounted garage door control:<ul style="list-style-type: none">• within sight of the garage door.• out of reach of children at minimum height of 5 feet (1.5 m).• away from ALL moving parts of the door.8. Place entrapment warning label on wall next to garage door control.9. Place manual release/safety reverse test label in plain view on inside of garage door.10. Upon completion of installation, test safety reversal system. Door MUST reverse on contact with a 1-1/2" (3.8 cm) high object (or a 2x4 laid flat) on the floor.11. To avoid SERIOUS PERSONAL INJURY or DEATH from electrocution, disconnect ALL electric and battery power BEFORE performing ANY service or maintenance. |
|---|--|

WALL OPENING

- Wood door jambs and 2X6 center pad must frame the door opening (#2 grade or better).
- Check that floor is level.

NOTE: Wood door jambs are ONLY shown in this installation step. Assume jambs are present in all successive steps.



3.1 RIGHT UPRIGHT

- Place the headbar on the floor as shown.
- Center it and mark the distance X.
- Determine the width Z of the external frame adding Y to each ends of X:

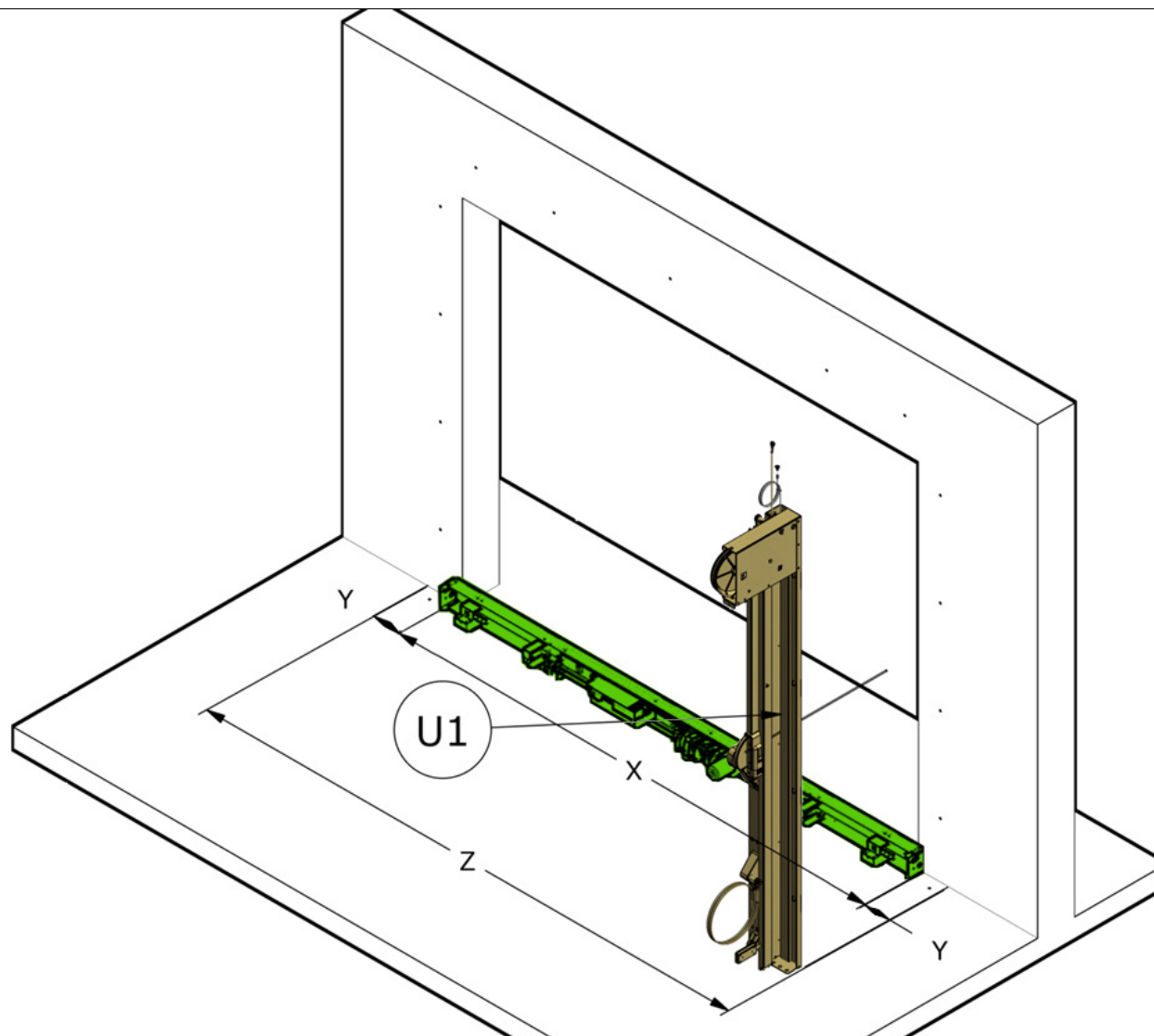
$$Y = 4 \frac{1}{2} \text{ inches}$$

$$Z = X + 2*Y$$

$$Z = X + 9''$$

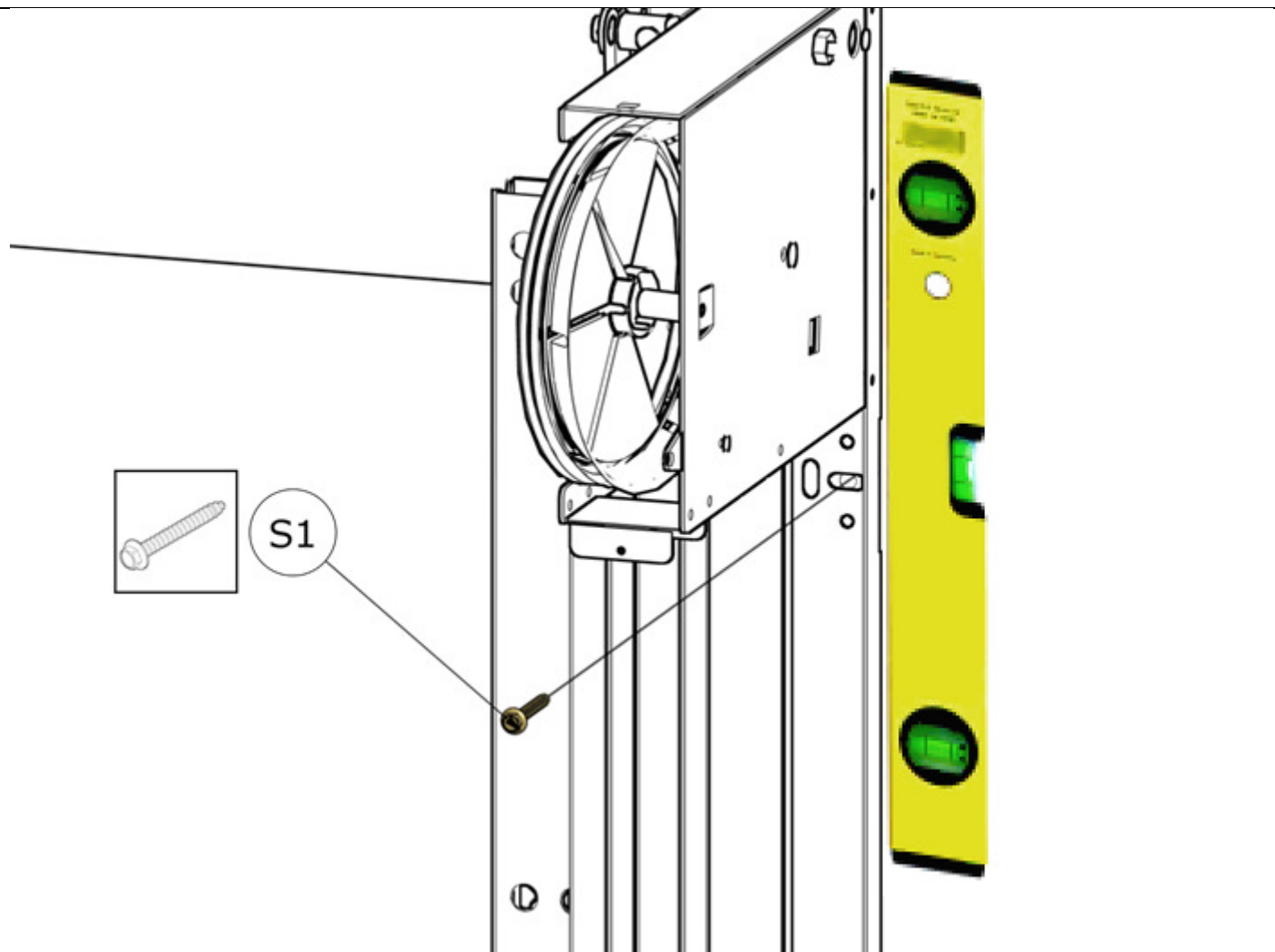
where X is the headbar width.

Using the external reference, place the first upright, starting from the highest side of the floor.



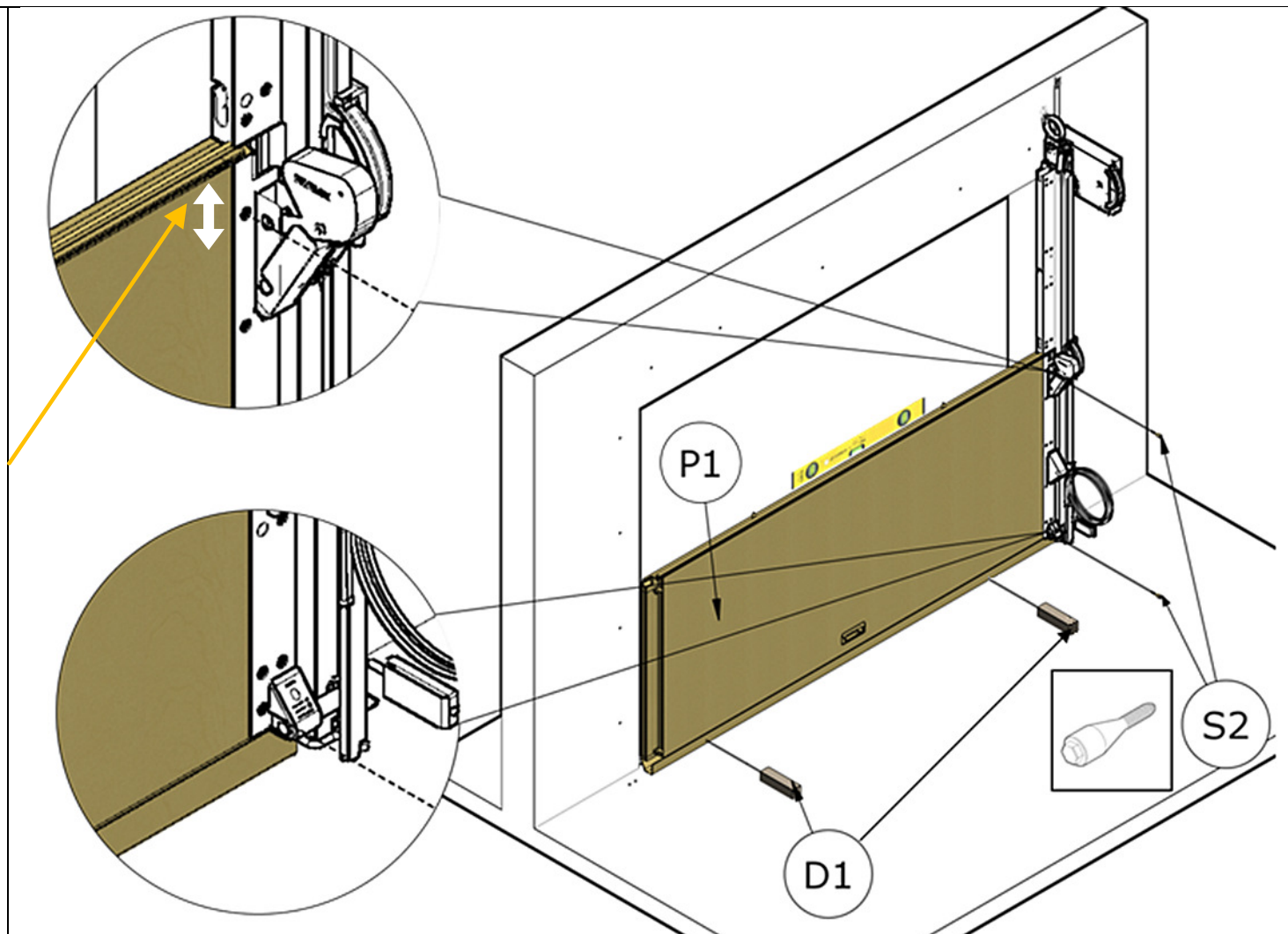
3.2 RIGHT UPRIGHT SECURING

- Secure the upright using the **horizontal** shaped hole as in the picture.
- Attach upright to wall using screw S1.
- **In case of a concrete or brick wall installation, insert a Fisher anchor in the wall hole.**
- Final attachment + adjustment will come later.



3.3 LOWER PANEL

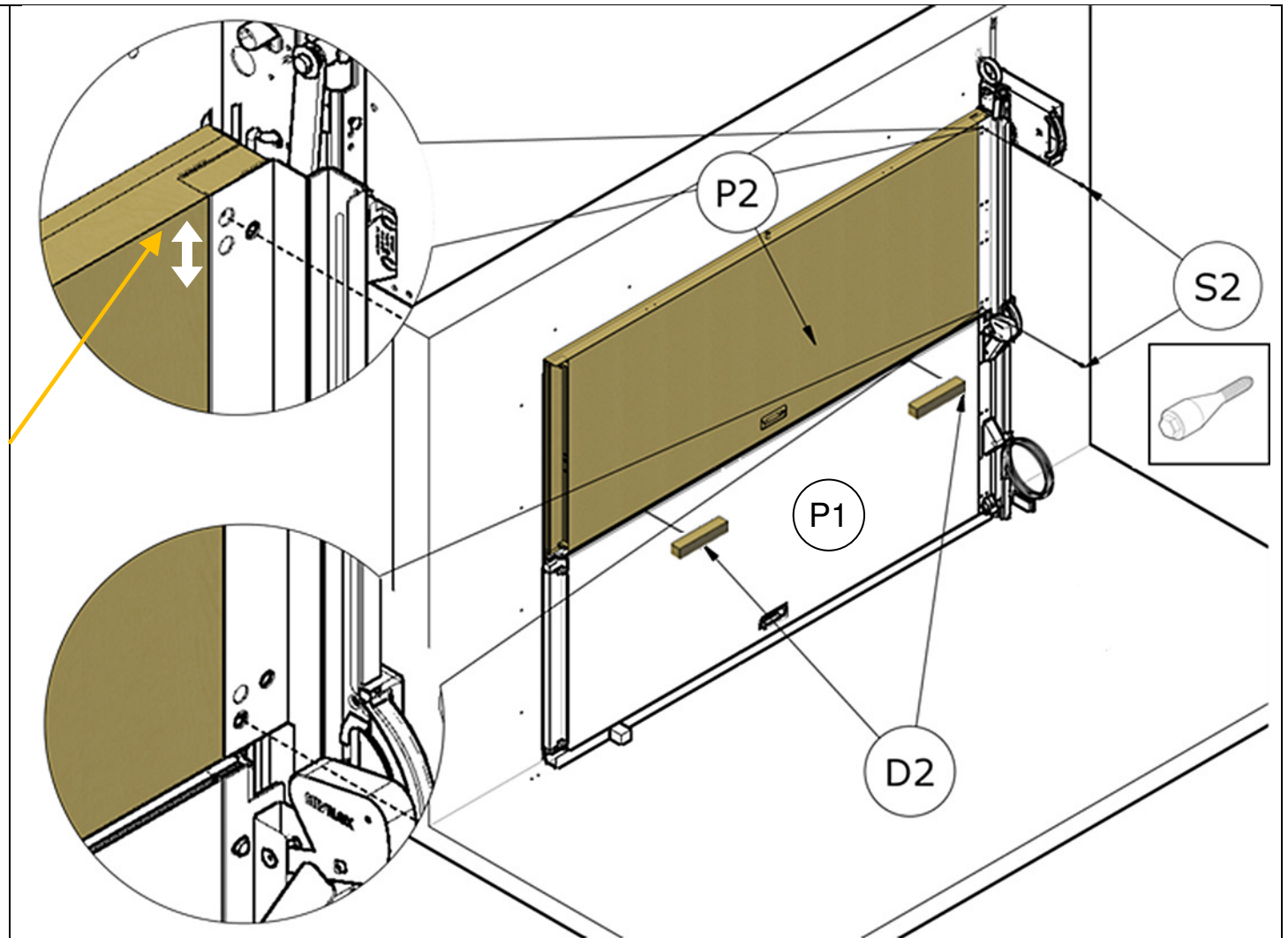
- Place panel P1 in the opening. Use spacers D1 to level the panel.
- **Check the alignment between the top of the panel P1 and the upright rail.**
- Attach P1 to upright using two S2 fasteners, starting with the top hole.



3.4 UPPER PANEL

- Before placing the panel, P2, put the spacers D2 above the lower panel 12" from each end.
- Place panel P2 on top of P1 and the spacers.
- **Check the alignment between the top of the panel P2 and the upright rail.**
- Fasten P2 to the upright with two S2 fasteners.

NOTE: If your door will use outside decorative handles, then the upper panel will have a box on the interior (not shown).

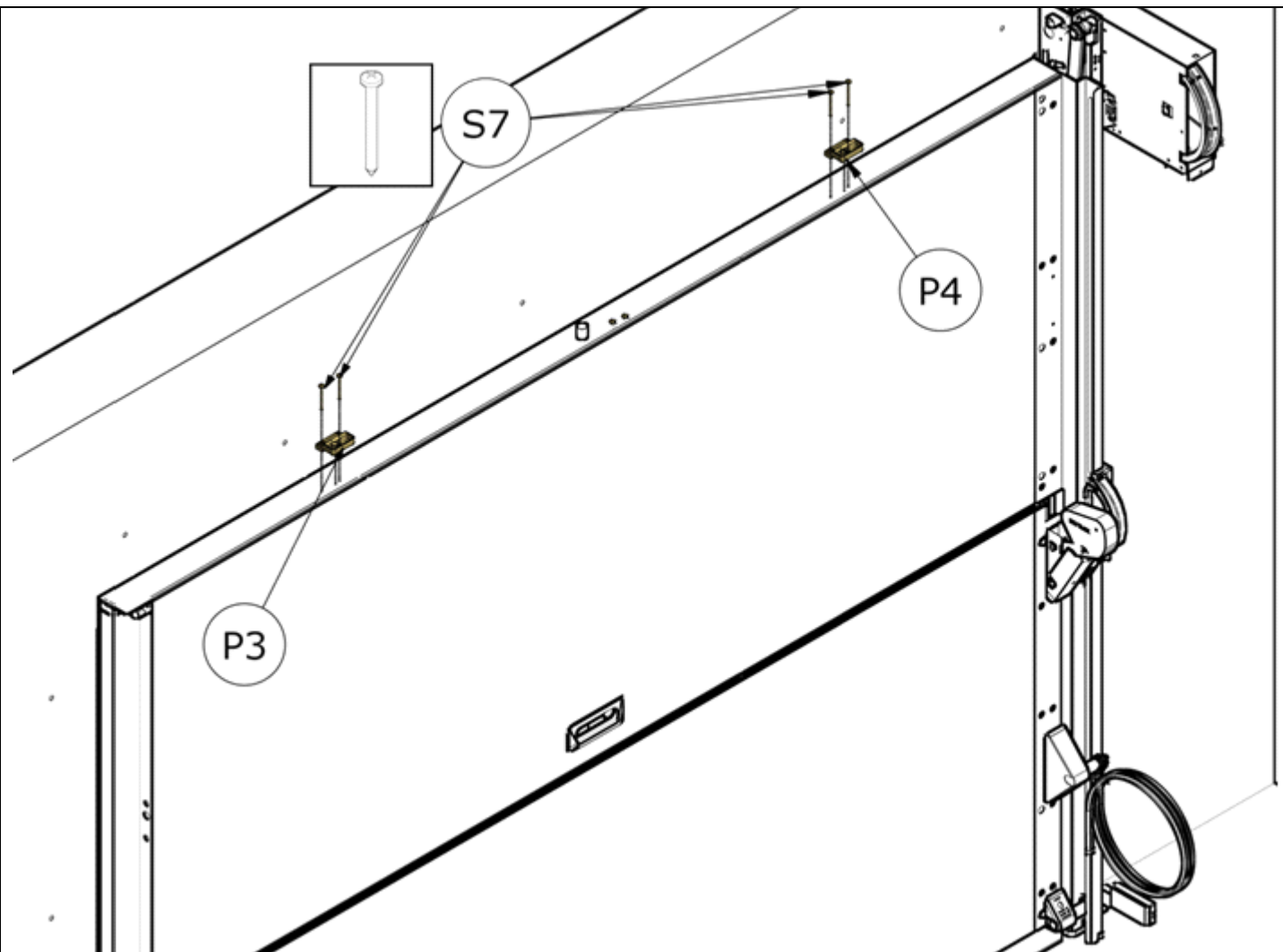


3.5 STRIKERS ON UPPER PANEL

- Place the strikers, P3 and P4, in the positions indicated by the pre-drilled holes located on top of the upper panel.
- Fasten the strikers with S7 screws

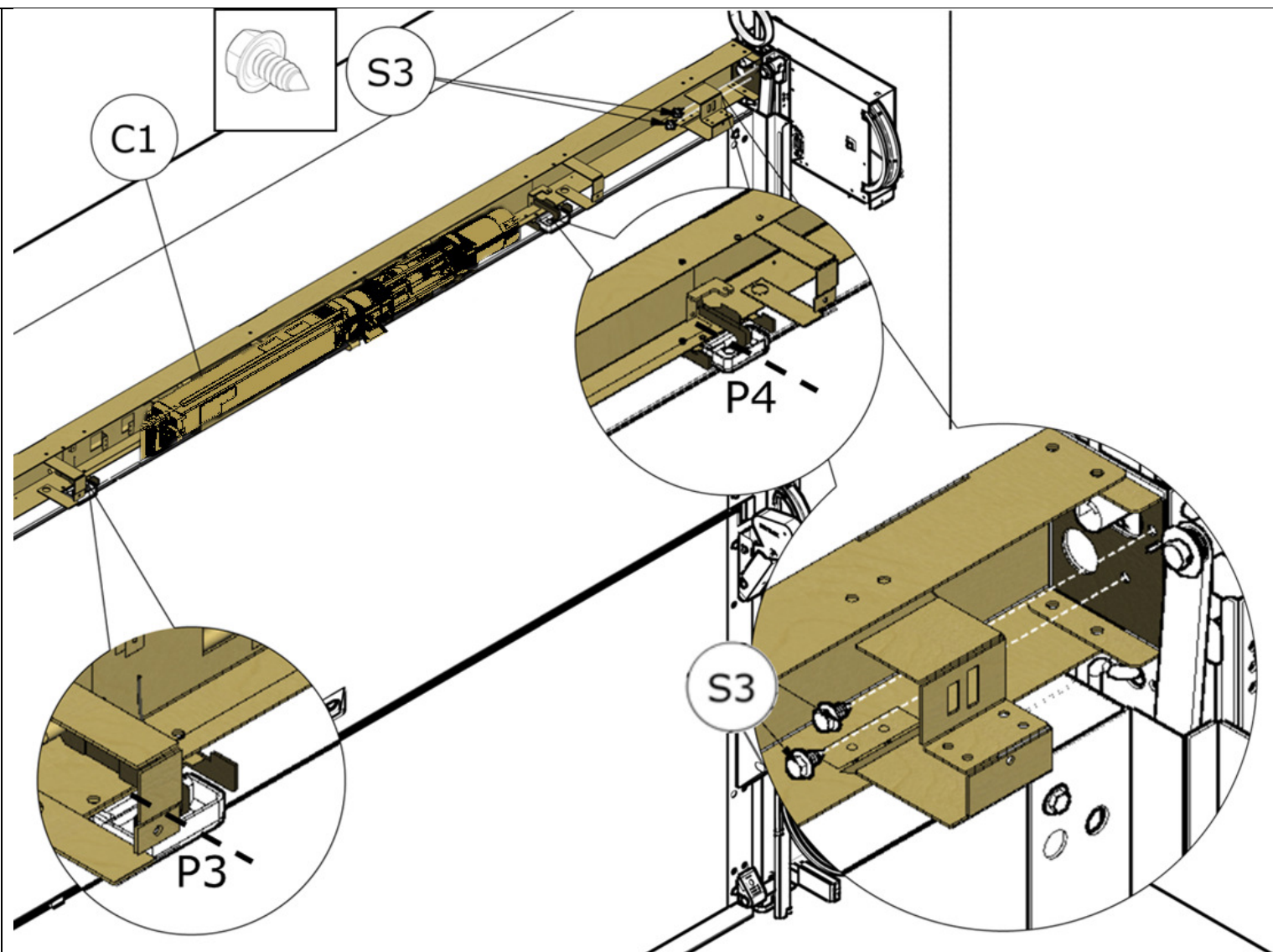
NOTE: P3 on the left side has a magnet.

NOTE: Screws S7 are 58 mm long. Do not confuse with screws S4, which are 30 mm long.



3.6 OPERATOR/HEADBAR

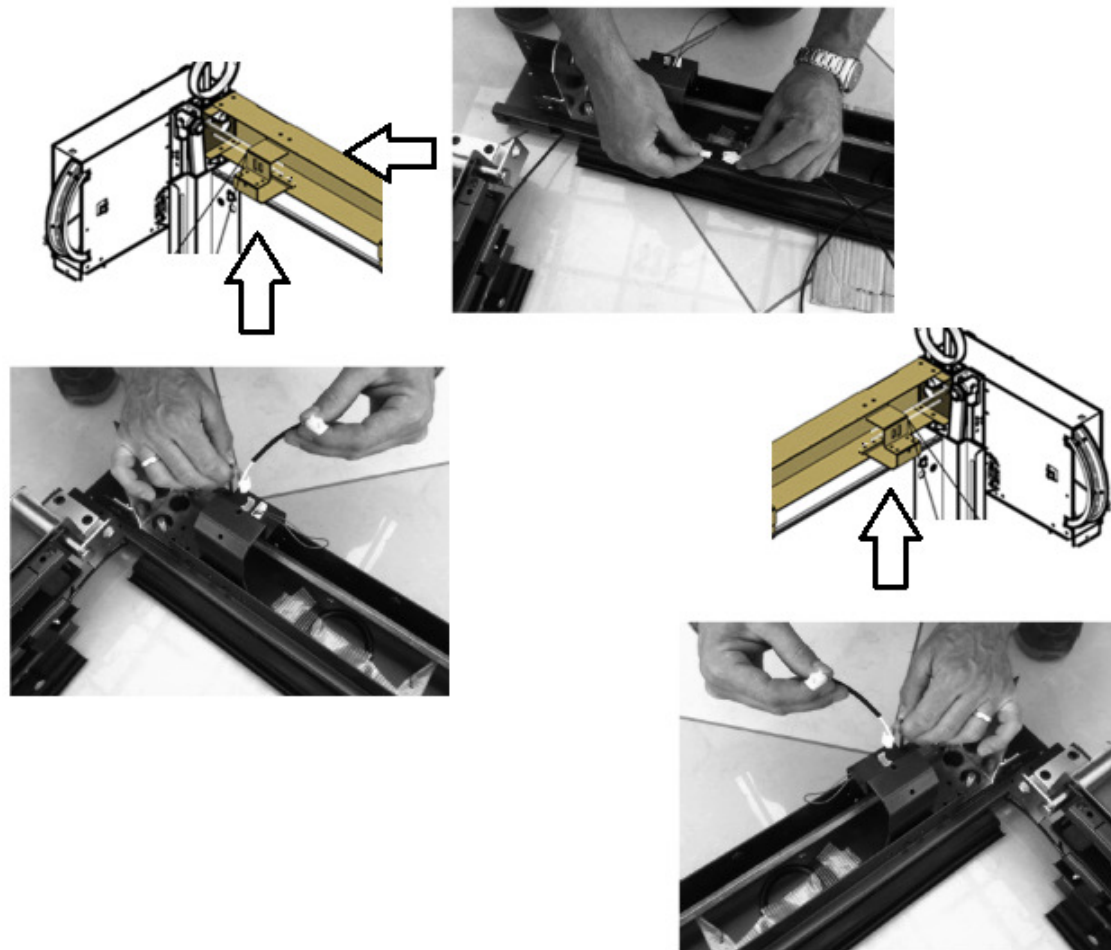
- Place the operator/headbar C1 on top of the upper panel. Attach C1 to one of the uprights with two screws S3.



3.7 PHOTOEYE CONNECTION

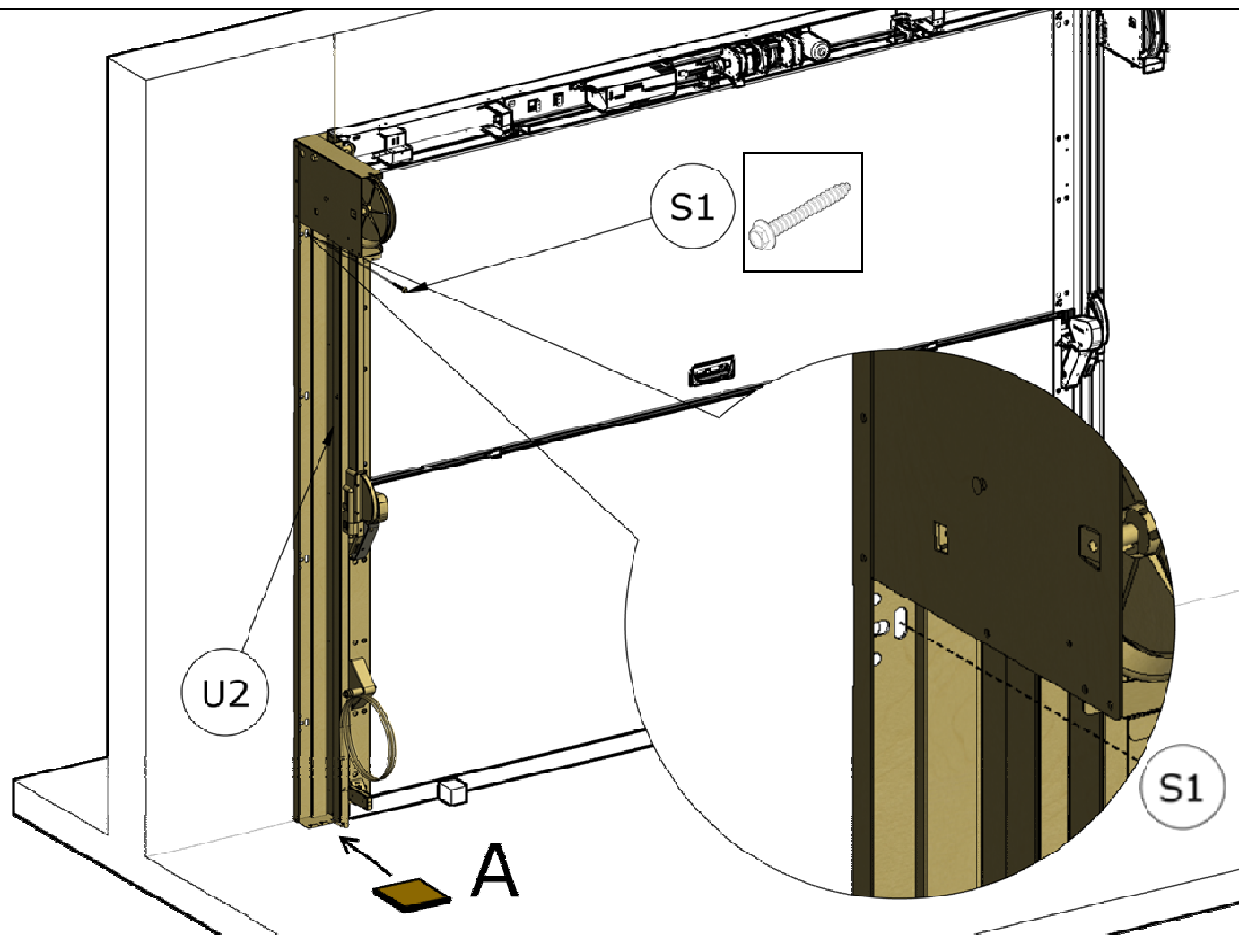
- On the left side, plugin the two photo-eye cables to the corresponding sockets.
- On the right side, plugin the photo-eye cables to the socket.

NOTE: See Section 5.2 for connection details.

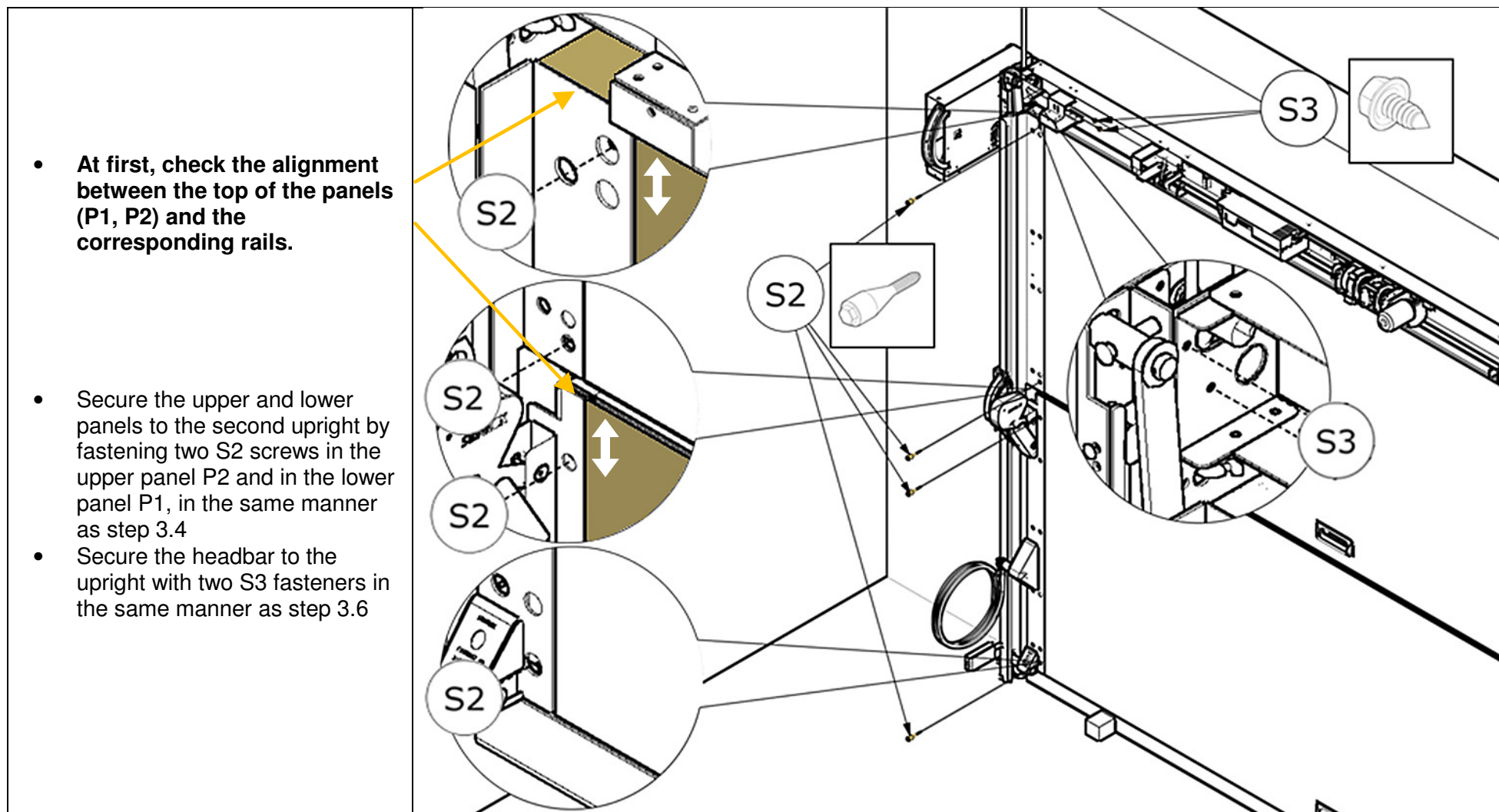


3.8 LEFT UPRIGHT

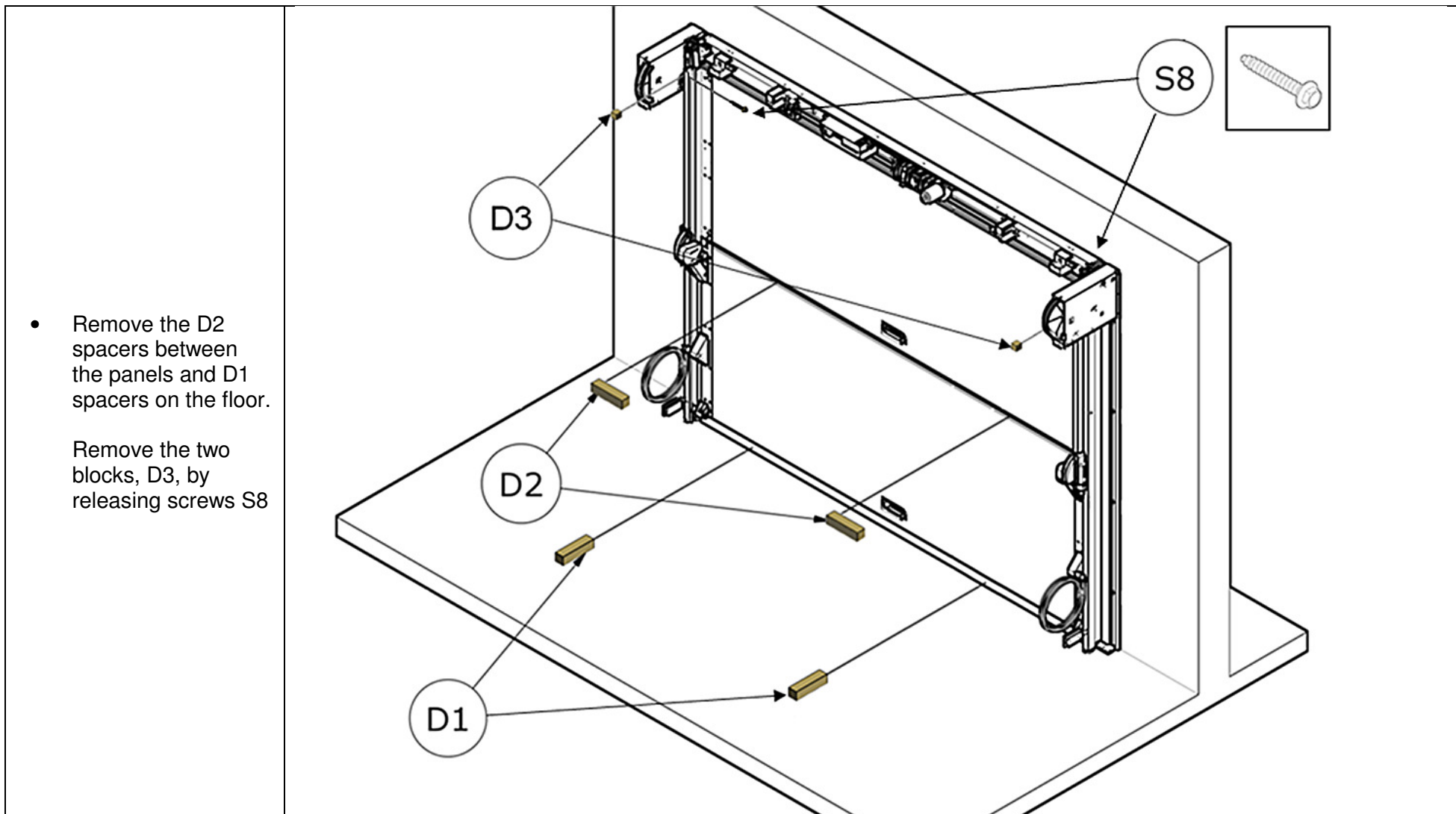
- Put the remaining upright U2 in place.
- **In the case of an uneven floor, add spacers below the upright base (A), to level this upright with respect to the other upright.**
- Attach the upright using the **vertical** shaped hole with screw S1.
- **In case of a concrete or brick wall installation, use a Fisher anchor.**



3.9 PANEL AND OPERATOR/HEADBAR ATTACHMENT

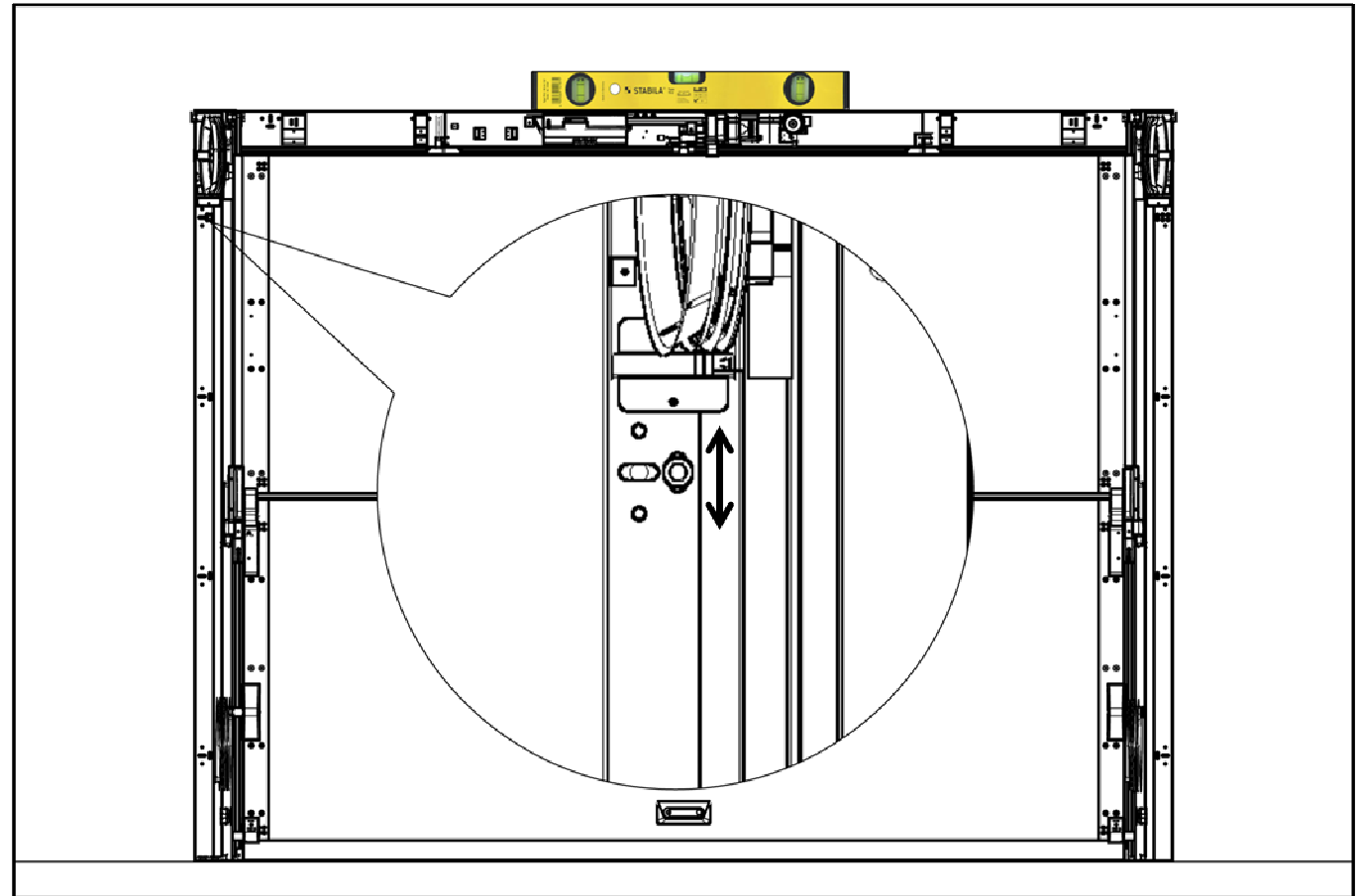


3.10 SPACER REMOVAL



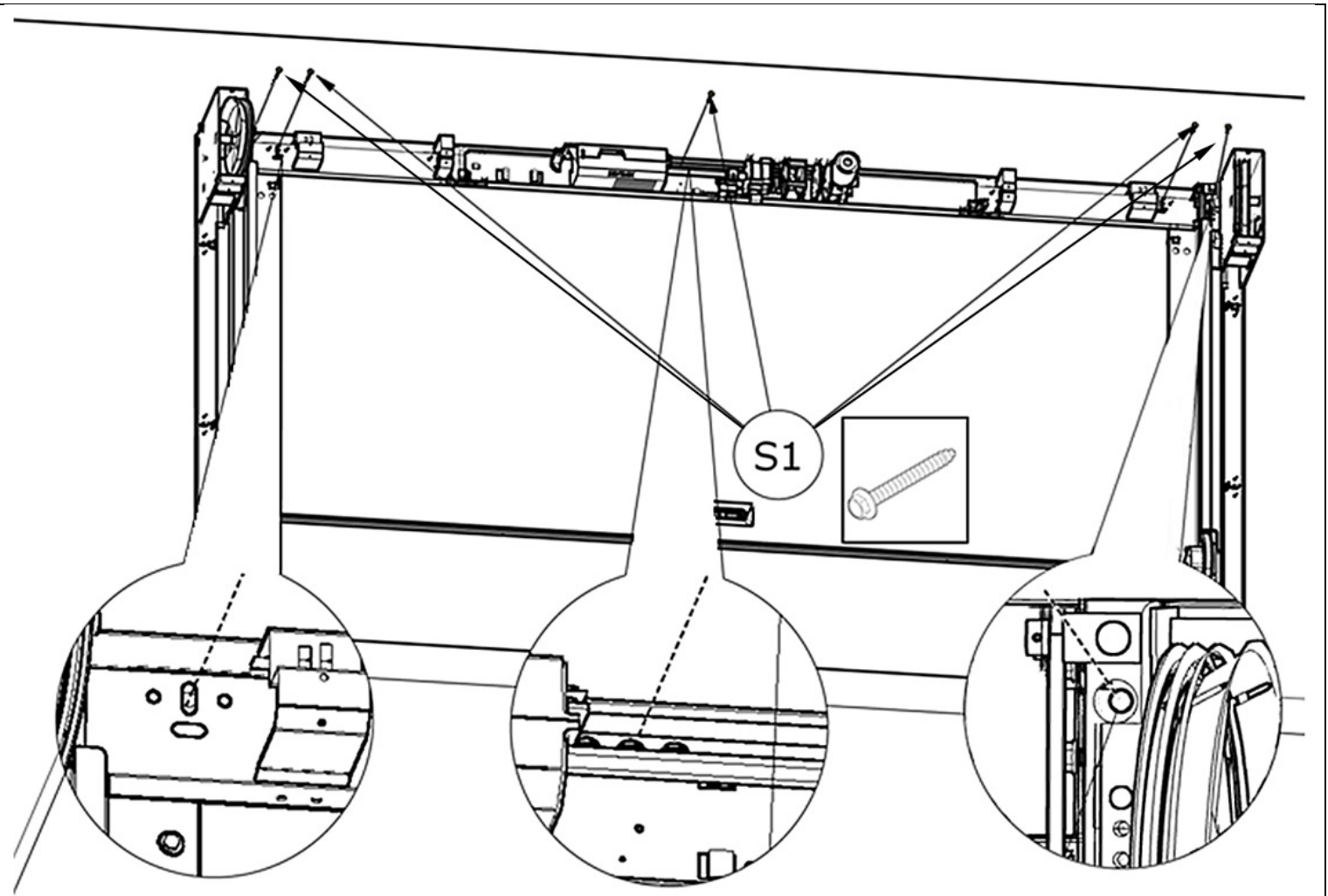
3.11 LEVEL THE OPERATOR/HEADBAR

- Check operator/headbar level.
- To level, adjust the second installed upright fixed through the vertical shaped hole.



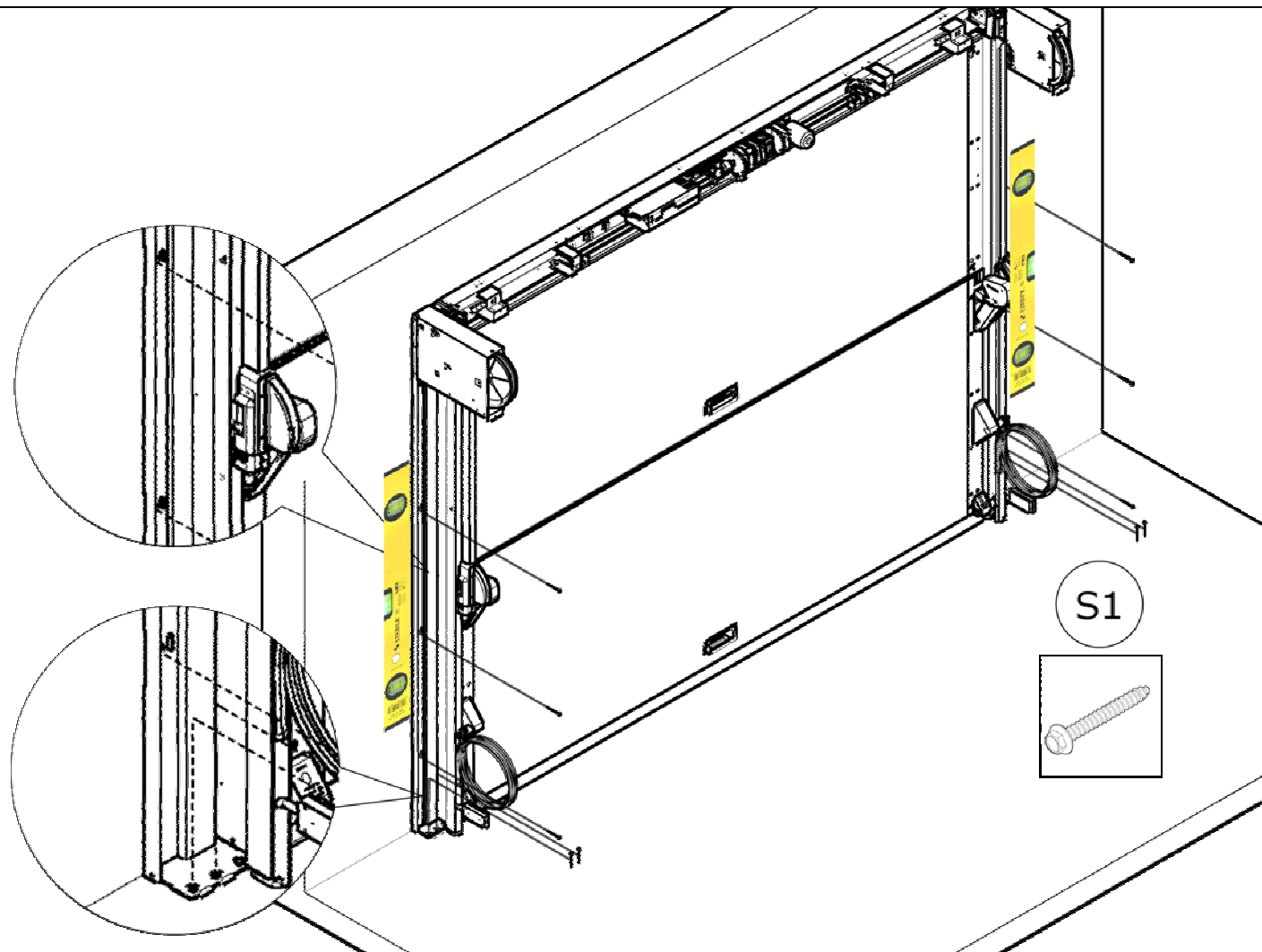
3.12 SECURING THE OPERATOR/HEADBAR

- Once level, attach the operator/headbar to the wall with five S1 screws.
- In case of a concrete or brick wall installation, use a Fisher anchor.



3.13 UPRIGHT LEVEL AND ATTACHMENT

- Check the level of the upright and secure to the wall with five S1 screws each.
- Repeat for other upright.
- **In case of a concrete or brick wall installation, use a Fisher anchor.**

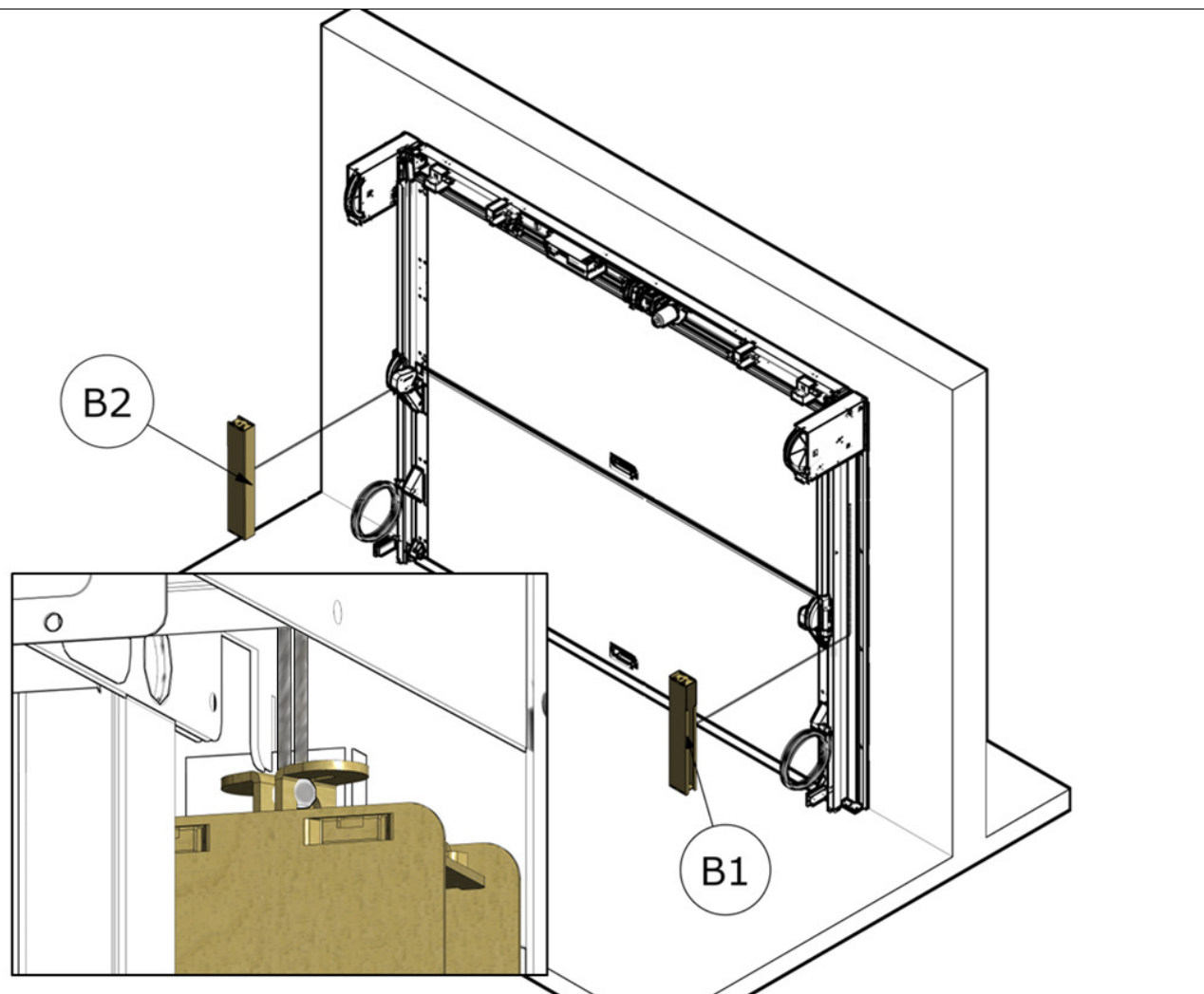


3.15 NARROW COUNTERBALANCE BOXES

- Place the narrow counterbalance boxes (without the weights in them): B1 on the right and B2 on the left.
- Hang the counterbalance boxes on to the two cables ending with a sphere (solid black in the zoomed detail).

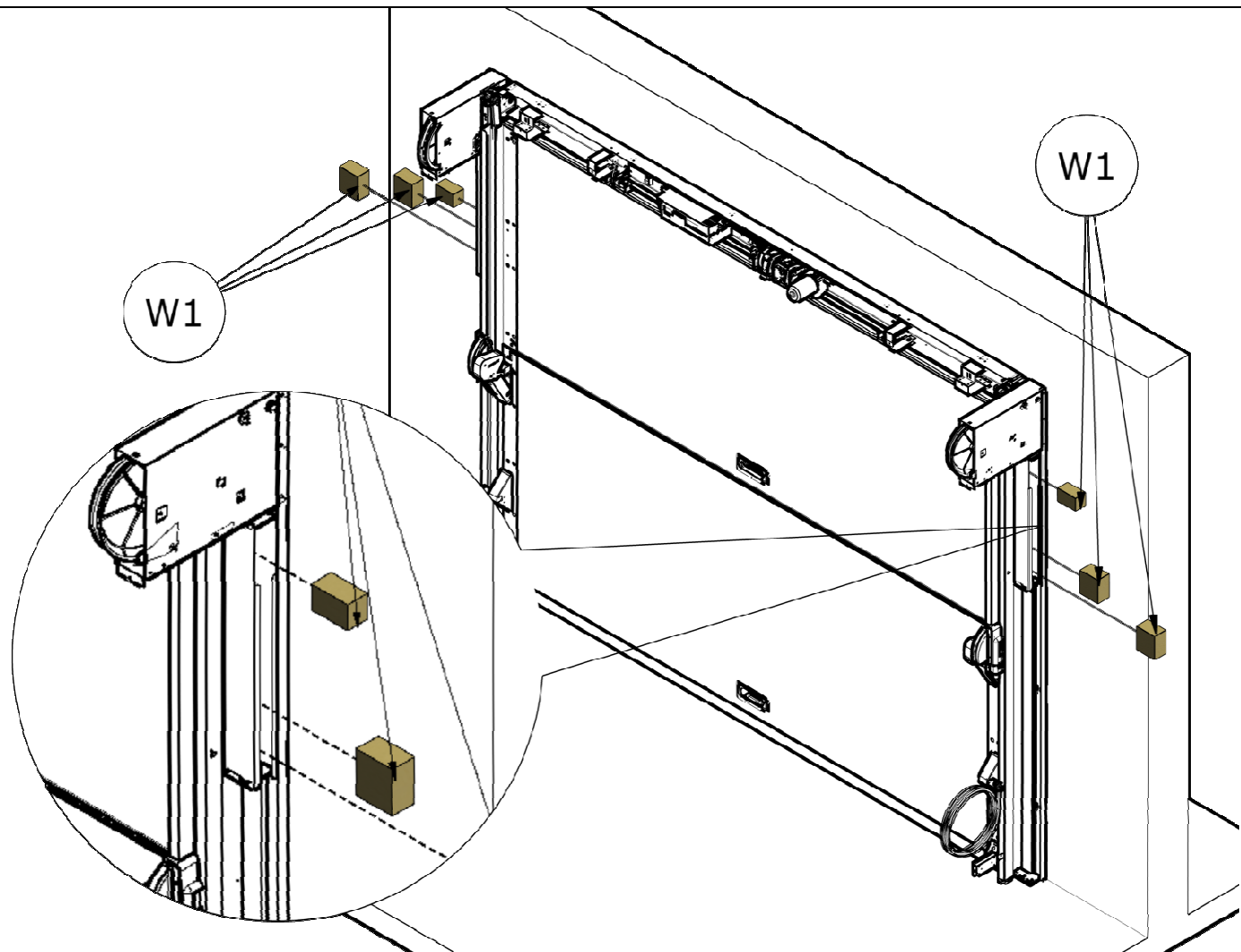
NOTE: There are no screws to fasten. The cable spheres simply go in their housing placed in the upper part of the counterweight boxes.

- The open side of the box will face the side of the garage, as shown in the picture (see also installation step 3.17).



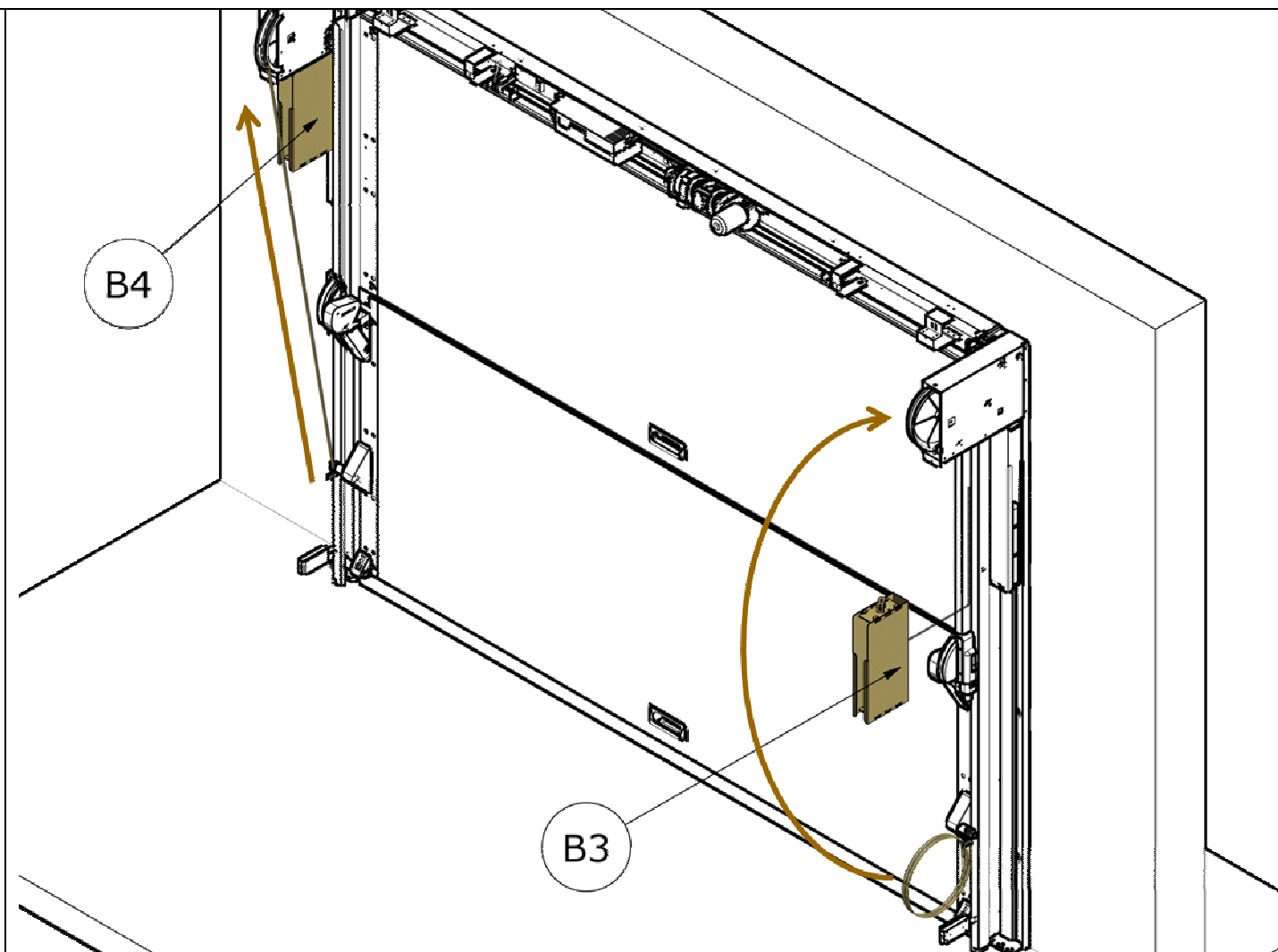
3.16 WEIGHT LOADING – NARROW BOXES

- Load the narrow counterbalance boxes with the weight units W1.

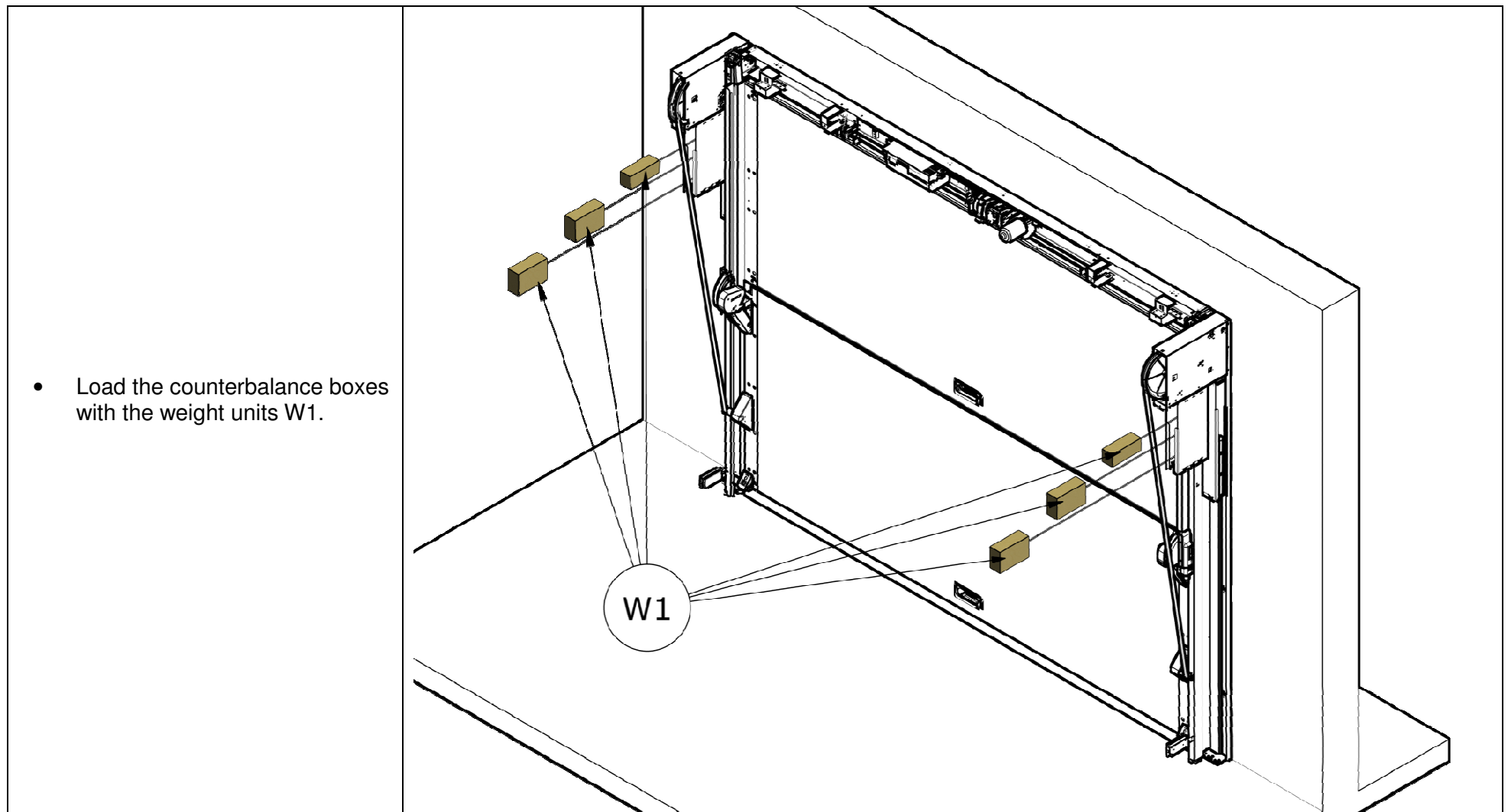


3.17 LARGE COUNTERBALANCE BOXES AND CABLES

- Place the two cables attached to the lower panel around the pulleys (as indicated by the arrows: in the right side, the cable is shown still wrapped; in the left side, the cable is shown in the installed configuration).
- Hang the large counterbalance boxes, B3 and B4 without the weights, to the sphere extremities of the cables, in the same way done for boxes B1 and B2.



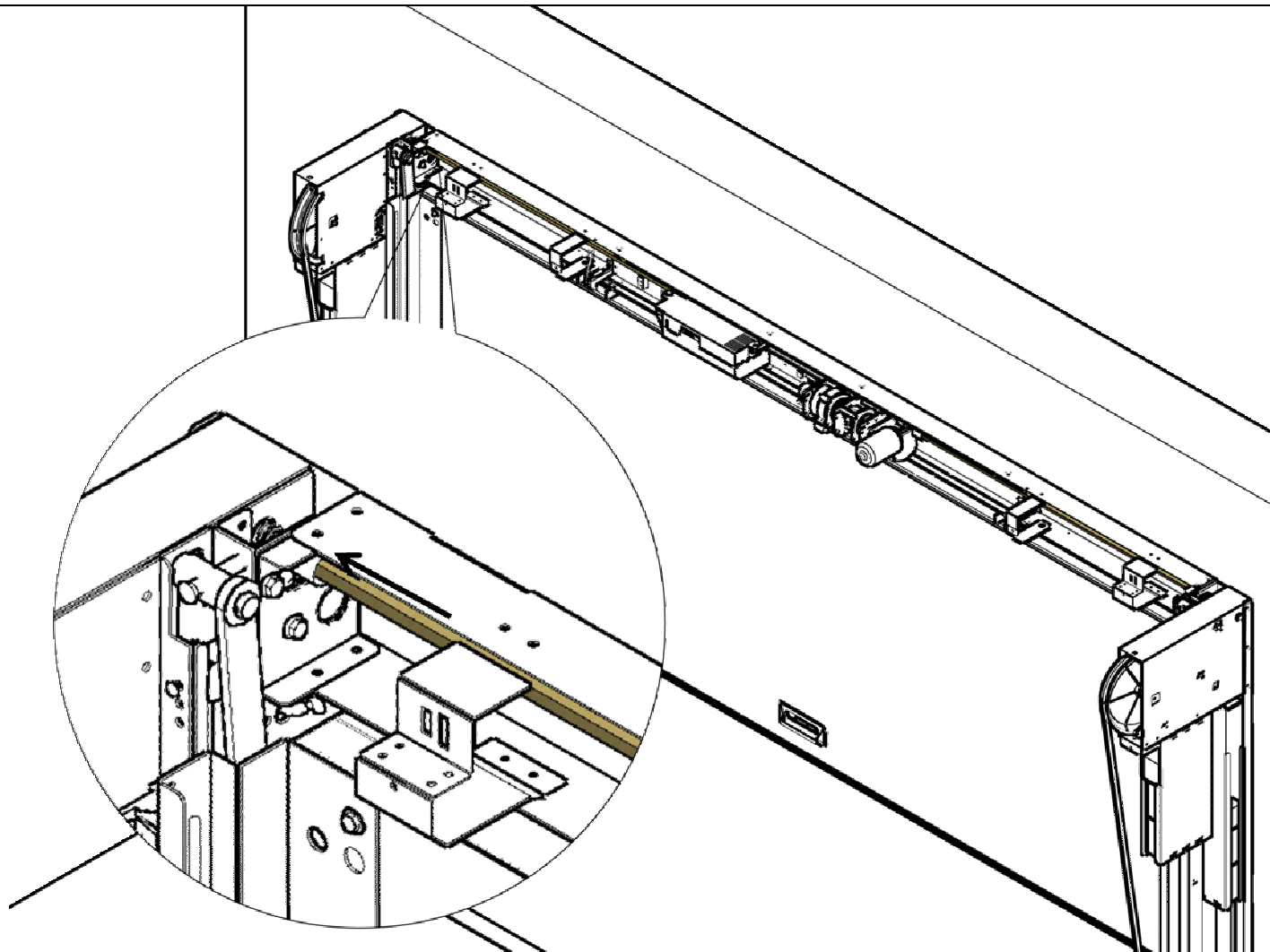
3.18 WEIGHT LOADING – LARGE BOXES



3.19 OPERATOR DRIVE SHAFTS

- The drive shafts are already present in the headbar assembly.
- Plug them in the appropriate upright joint (**both sides**).

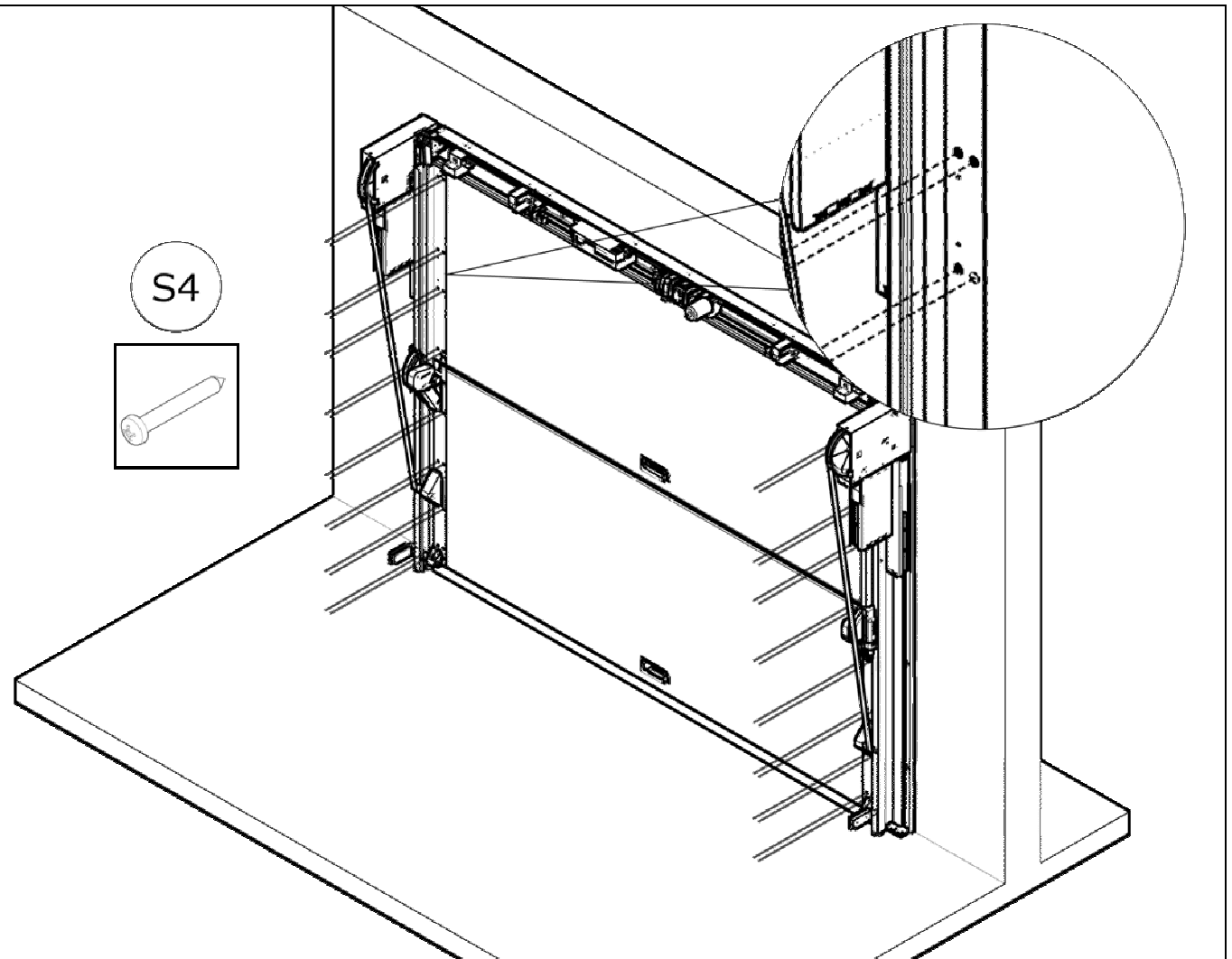
NOTE: In the zoomed detail, the left side is depicted. The arrow shows where to insert the driveshaft. The upright joint has to be pushed back to allow the insertion of the drive shaft; the spring of the joint will restore its position after the engagement.



3.20 PANEL ADDITIONAL SECURING

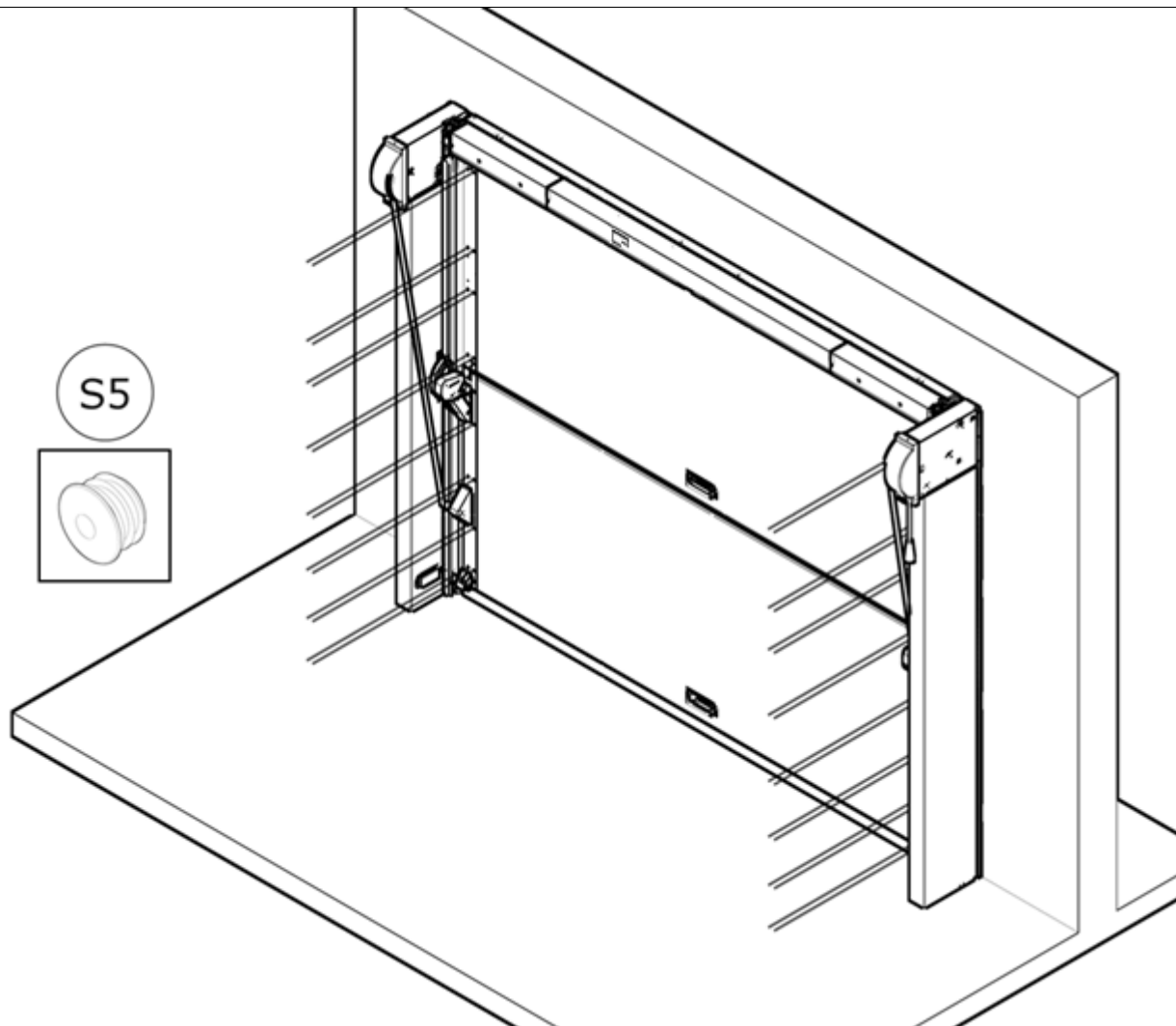
- Using screws S4, attach the panels to the frame.
- There are 16 screws for each side.

NOTE: Remember to fasten both sides.



3.21 STILE CAPS

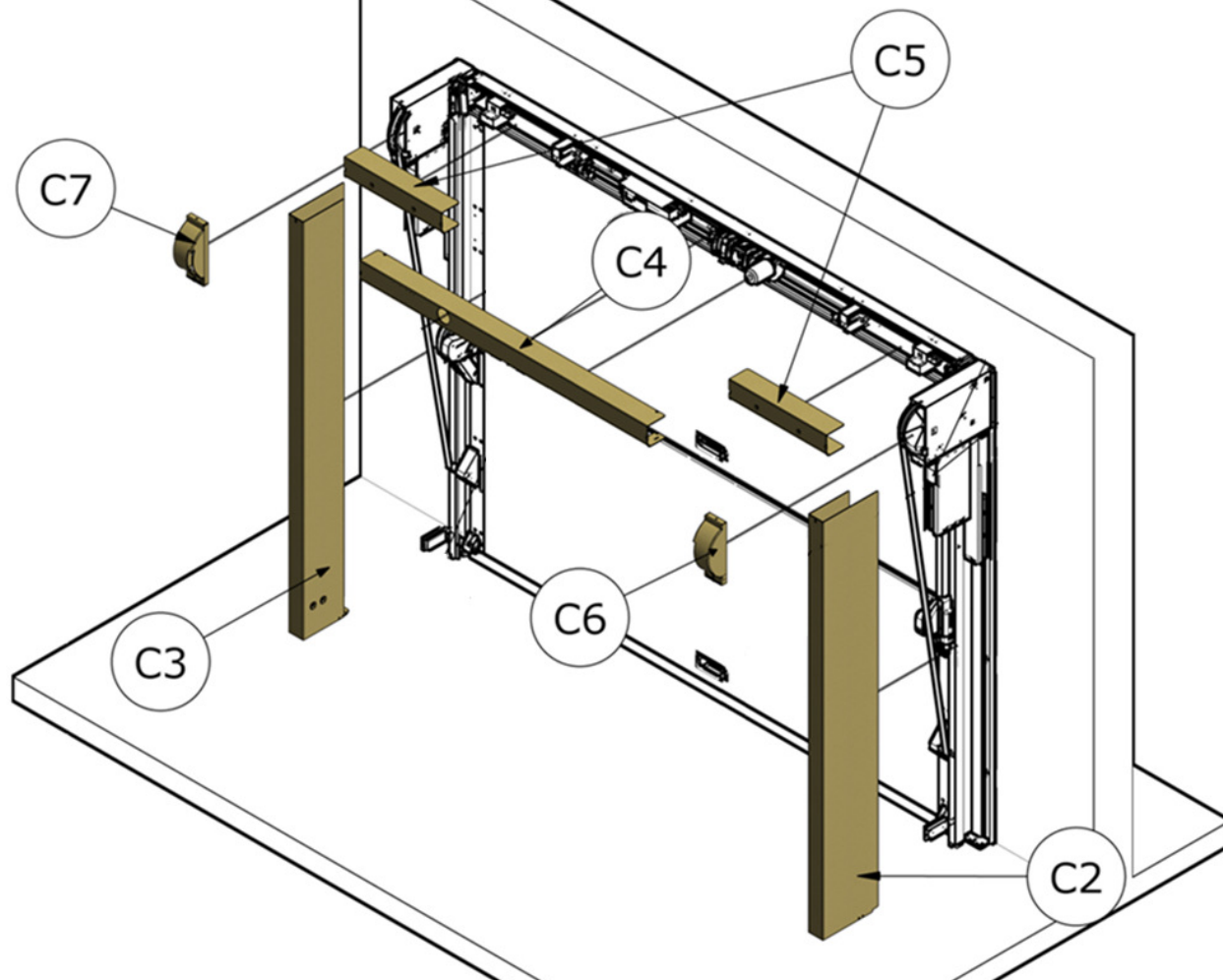
- Cover the screws placed in step 3.20 with 16 stile caps, S5, on each side.



3.22 COVERS

- Put the covers in place following this order:

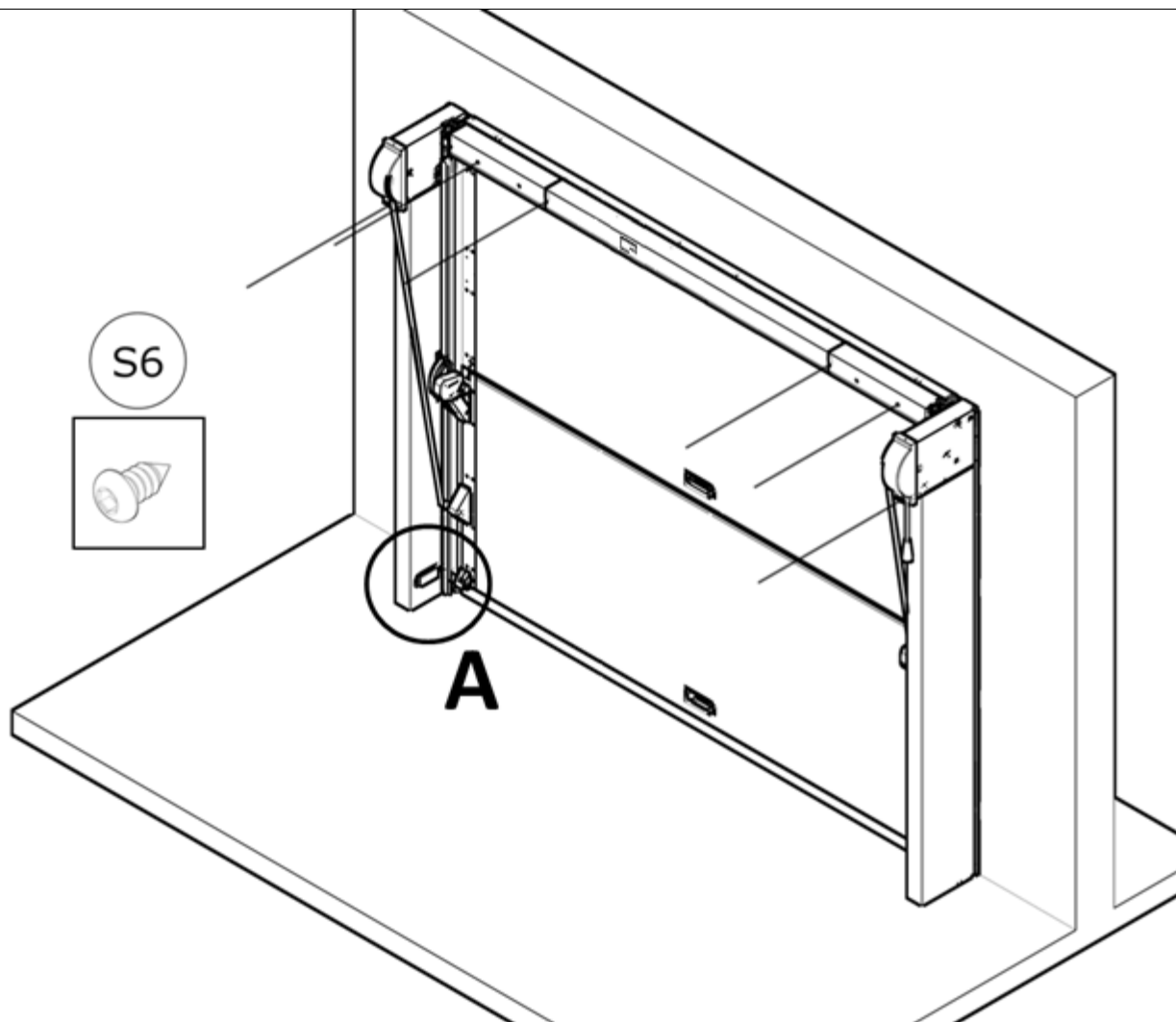
| | |
|----|--------------------------------|
| C3 | LEFT COUNTERBALANCE COVER |
| C7 | LEFT PULLY COVER |
| C2 | RIGHT COUNTERBALANCE COVER |
| C6 | RIGHT PULLY COVER |
| C5 | HEADBAR SIDE COVER |
| C4 | OPERATOR/HEADBAR CENTRAL COVER |



3.23 COVER SECURING AND PHOTO-EYE HANGING

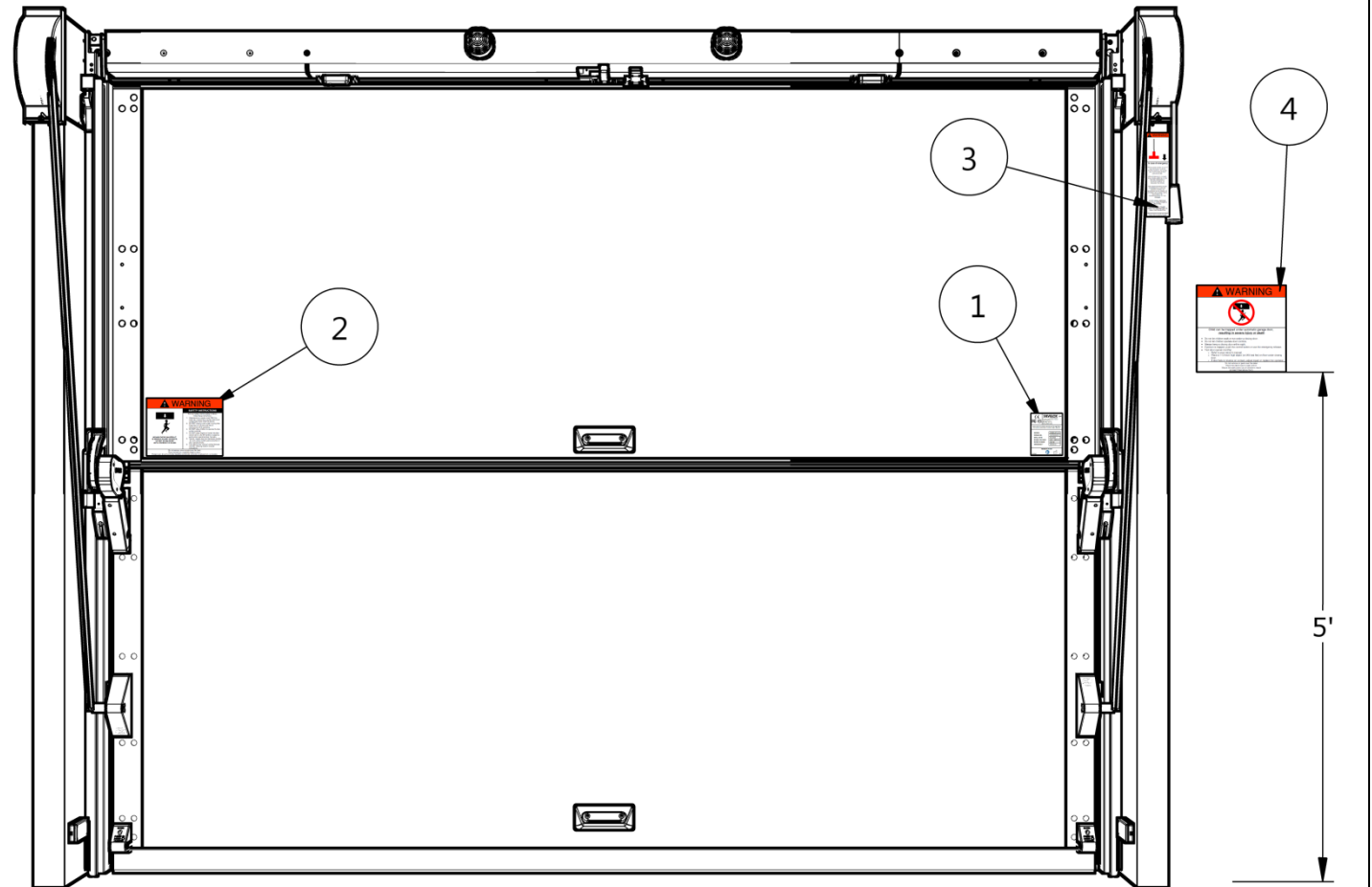
- Using six screws S6, fix the operator/headbarcovers to the frame.
- Hang the photo-eyes on the counterbalance boxes; details (A) shows the left side. Do the same for right side too.

NOTE: Photo-eyes are included in the upright assemblies, U1 and U2. Hang them on to the circular slots of counterbalance boxes, C2 and C3.



3.24 LABEL POSITIONING

- Check that ID label is in place on right bottom corner of upper panel (1).
- Attach general warning label on left bottom corner of upper panel (2).
- Attach emergency release handle label on right counterbalance box, behind the release handle (3).
- Attach the wall station control button label close to wall control, at least 5 feet above floor (4).



3.25 DOOR TEST

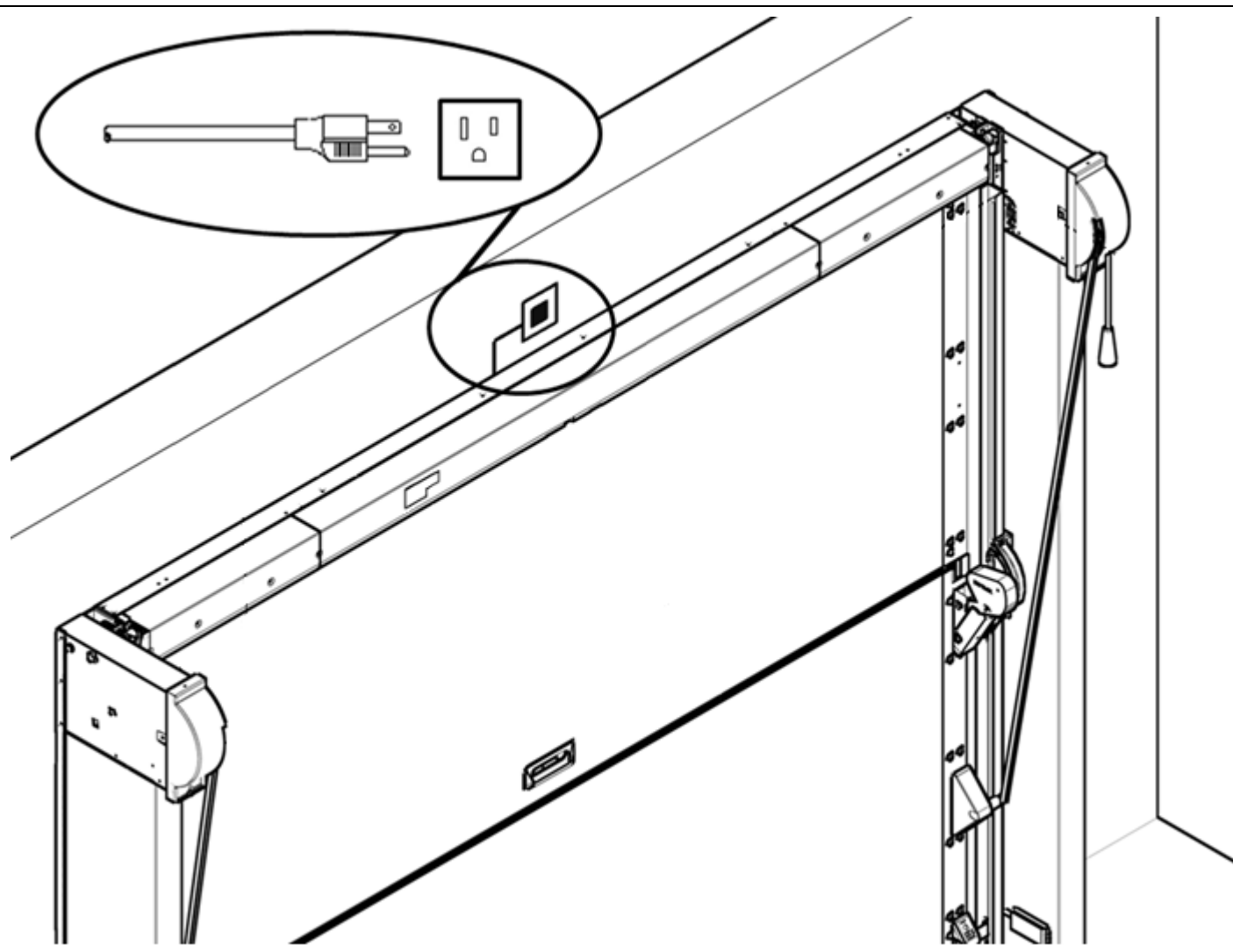
- Plug the power cable in a properly grounded outlet.
To reduce the risk of electric shock, your garage door opener has a grounding type plug with a third grounding pin. This plug will only fit into a grounding type outlet. If the plug doesn't fit into the outlet you have, contact a qualified electrician to install the proper outlet.
- Test door manually (see owner's manual, Section 3.1).
- Test door with the transmitter(see owner's manual, Section 3.2).



WARNING

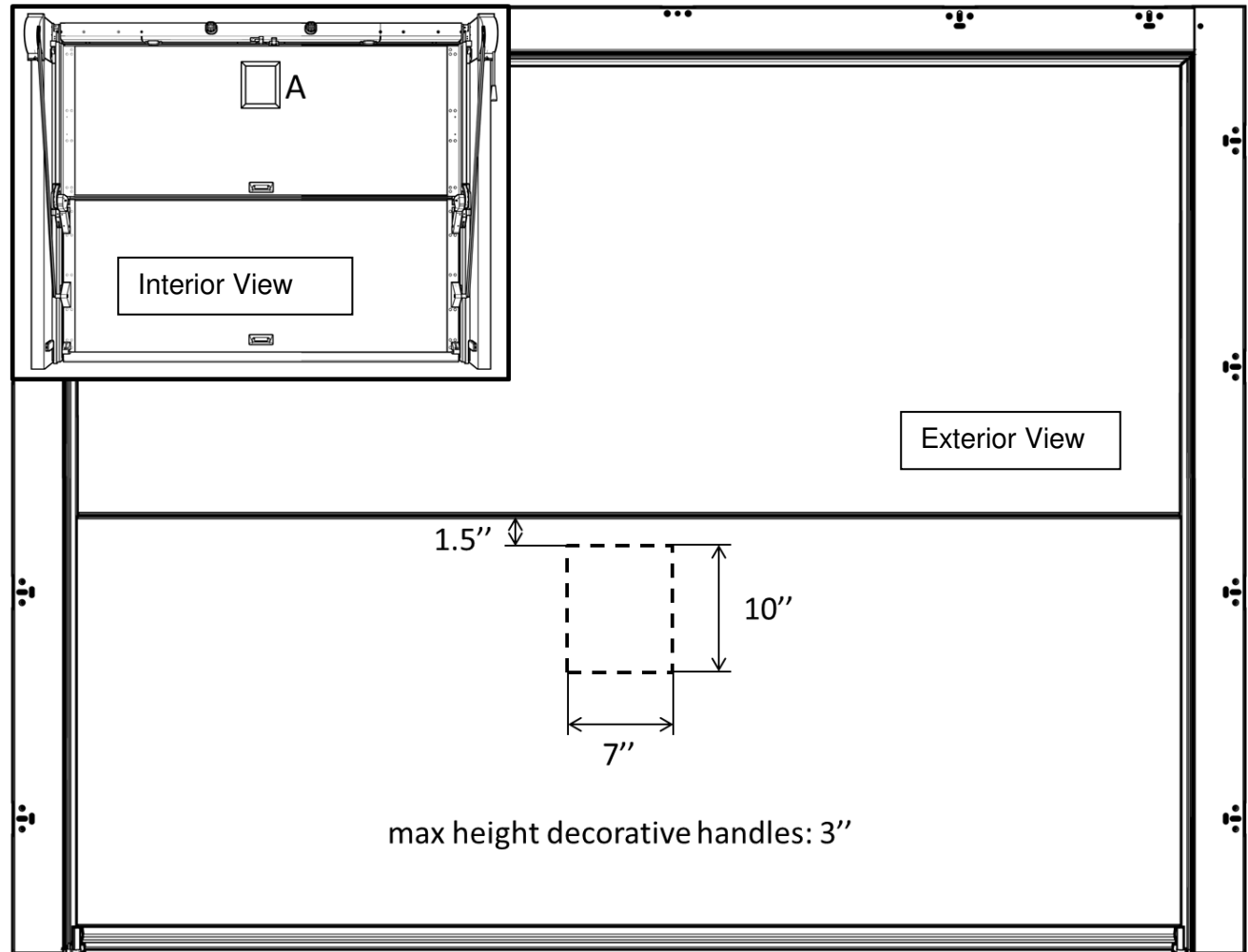
To prevent possible **SERIOUS INJURY** or **DEATH** from electrocution or fire:

- Disconnect **ALL** electric and battery power **BEFORE** performing **ANY** service or maintenance.
- Garage door installation and wiring **MUST** be in compliance with **ALL** local electrical and building codes.
- **NEVER** use an extension cord, 2-wire adapter, or change plug in **ANY** way to make it fit the outlet. Be sure the opener is grounded.



3.26 DECORATIVE HARDWARE (for US & CANADA)

- If on the back side of the upper panel, a cavity is present (A), decorative hardware may be installed on the front side of the door.
- Decorative handles can be attached on the outside of the lower panel inside the dashed area shown in the picture. Maximum height of decorative handles is 3".
- Decorative hinges can be attached on the panel sides, BUT the height of the decorative hinges must be less than 7 mm (0.25").



4 REQUIREMENTS FOR THE CORRECT DOOR OPERATION

During the door testing after installation, all the following operation requirements must be verified. In the case that a requirement is not fulfilled, follow the related instruction until the issue is solved.

4.1 Strikers and pipe plate

The strikers, P3 and P4, placed on the top of the upper section in installation step 3.5, ensure the correct door closure, without any backlash (door re-opens). **IF DOOR DOES NOT CLOSE**, follow the instructions below:

1. First locate the pipe plate and check if the position is correct; if not, loose the screws to make the adjustment as shown in Figure 4-1
2. Locate the strikers placed on the top side of the upper section with door slightly open;
3. Release the striker screws and adjust the position of the striker along the direction shown in Figure 4-1 until the door closes without any backlash (door re-opens). Do the same for all the strikers present on the section.
4. In closed position, the strikers must engage with the closing hooks (Figure 4-2); remove headbar covers to better see the engagement.

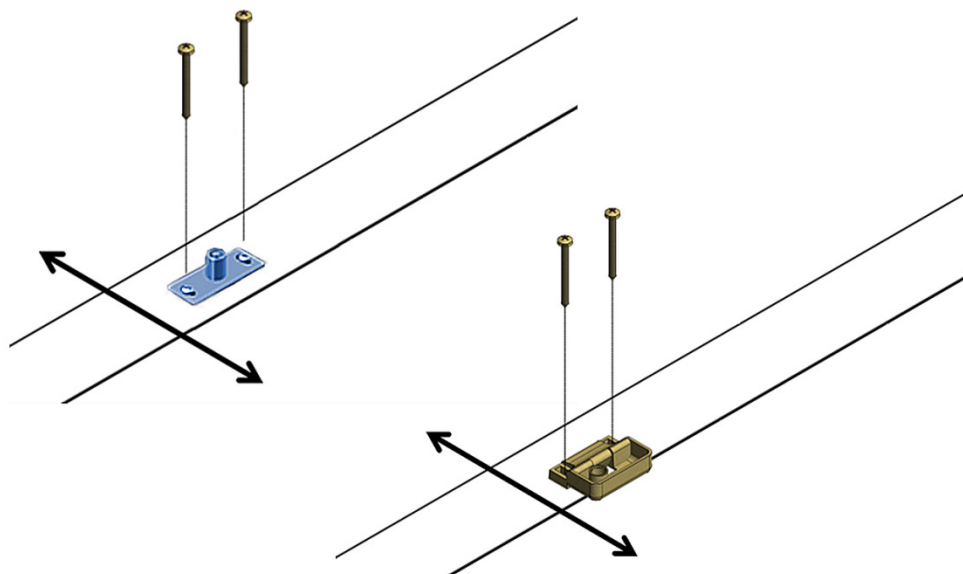


Figure 4-1

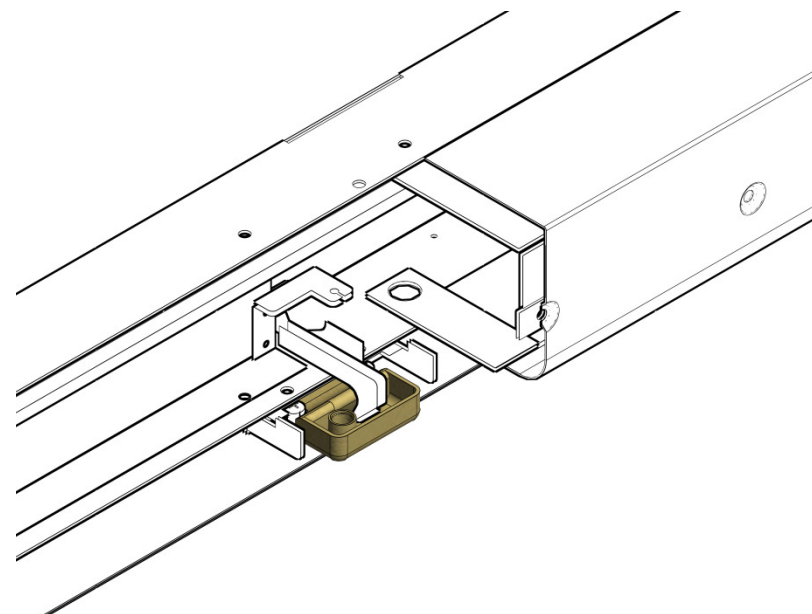


Figure 4-2

4.2 Closing limit switch

Make sure the closing limit switch, composed by the pair of magnets mounted on striker, P3, and on left closing latch of headbar/operator, C1, is properly placed (see P3 detail of installation step 3.7 on page 22). In case of closing limit switch misplacement, the door does not start the automatic opening. The magnets must be aligned and the distance between them smaller than 6 mm.

IF NOT, follow the instructions below:

Adjust the magnets positions until a good alignment is reached and the distances between the magnets faces is less than 6 mm.

1. Close the door and remove left headbar cover C5.
2. Locate the closing limit switch placed on the latch near the electronic board.
3. Release the screw (A) and adjust the position of the closing limit switch magnet along the indicated direction (Figure 4-3) and align magnet along dashed line. Check magnet distance too.

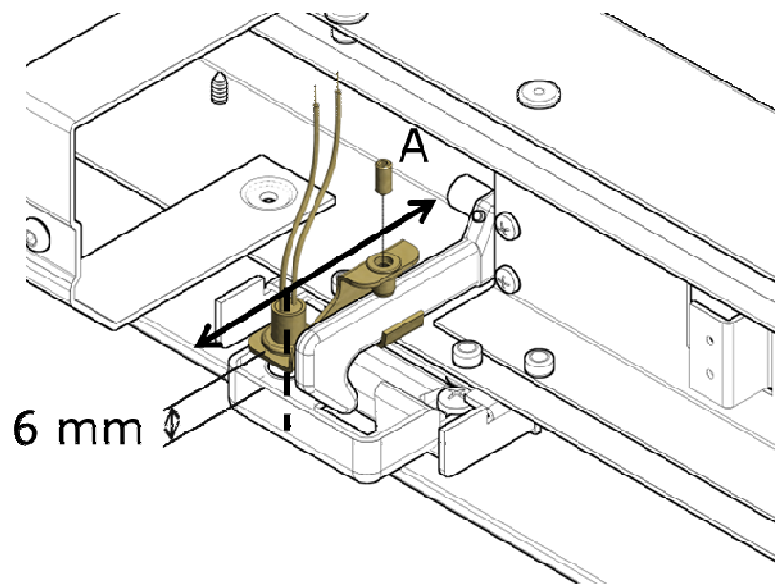


Figure 4-3

4.3 Counterweights

The counterweights are properly balanced from the factory. This results in a smooth door operation, nor too slow nor too fast.

IF NOT, follow the instructions below:

To balance the counterweights, remove the counterbalance covers, C2 and C3, and follow the instructions below:

1. If the upper section in open position tends to drop: with door closed, add weight units symmetrically to left and right narrow counterbalance boxes (Figure 4-4)
2. If the upper section opens too fast: with door closed, remove weight units symmetrically to left and right narrow counterbalance boxes (Figure 4-4)
3. If the lower section in open position tends to drop: with door closed, add weight units symmetrically to left and right large counterbalance boxes (Figure 4-5)
4. If the lower section opens too fast: with door closed, remove weight units symmetrically to left and right large counterbalance boxes (Figure 4-5)

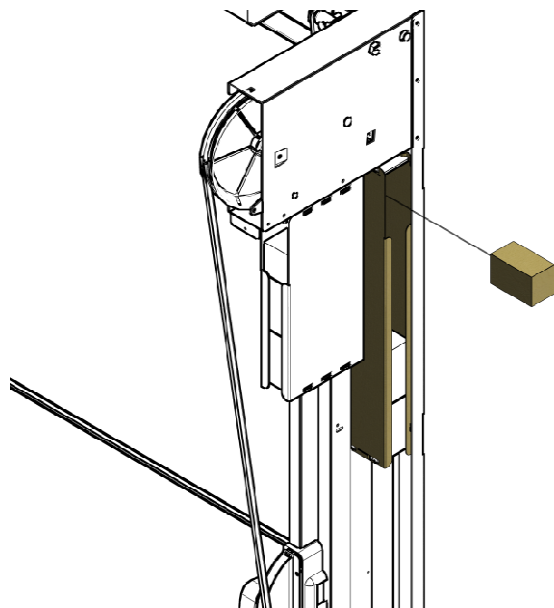


Figure 4-4 Right side only shown

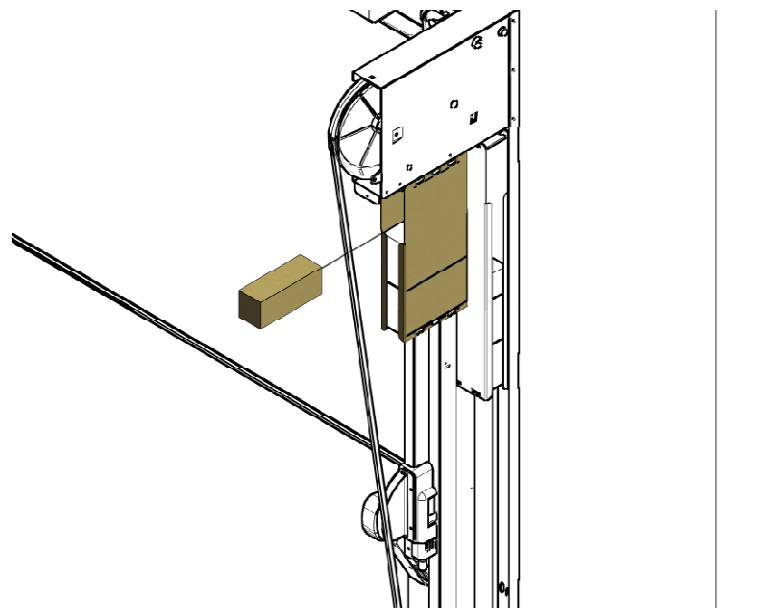


Figure 4-5 Right side only shown

4.4 Lifting arm

The lifting-arm upper joint is properly located from the factory. When the door is in open position, the upper section is slightly tilted as showed in Figure 4-6..

IF NOT, follow the instructions below:

In open position, the upper section must be slightly tilted as showed in Figure 4-6. To adjust the upper section incline, the position of the pin highlighted in Figure 4-7 with a dashed line must be adjusted. Adjust the pin on both sides with door closed.

1. Close the door and unplug opener;
2. Locate the lifting arm pin on the headbar corner;
3. Release the pin nut, A (Figure 4-7);
4. Tighten the adjustment screw, B, to create more incline (Figure 4-7);
5. Secure the pin nut, A;
6. Repeat steps 3 to 5 for the pin placed on the other side;
7. Open the door and check the inclination of the upper section; repeat these steps until a slightly tilted configuration is reached.

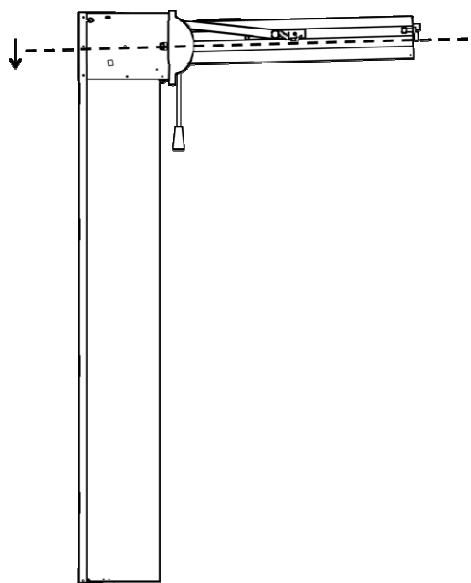


Figure 4-6

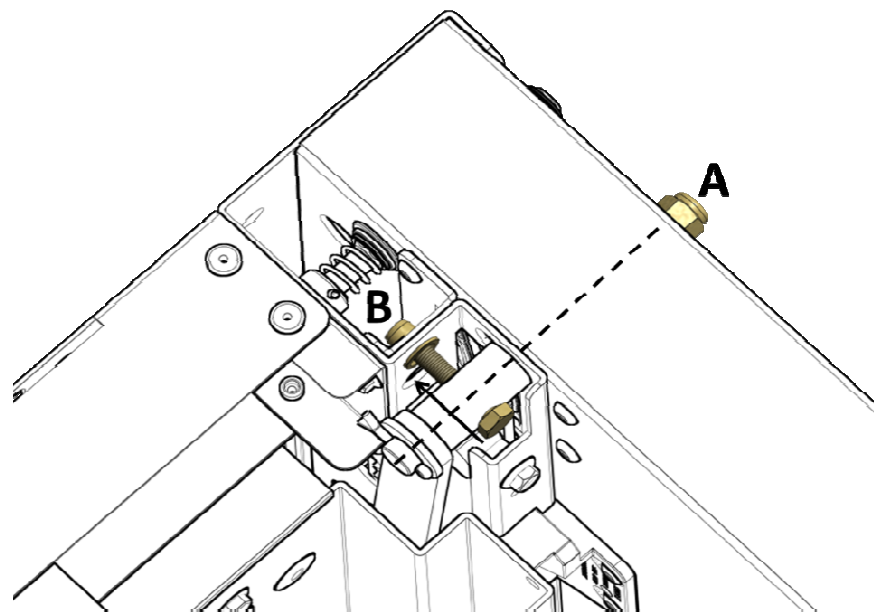


Figure 4-7

4.5 Lubrication

The sliding/rotation parts come pre-lubricated. However, if lubrication should not be satisfactory, consider lubricating the following parts with Lithium Base Grease EP2 as shown in Figure 4-8:

- A. Strikers;
- B. L and R cable hangers;
- C. L and R rollers;
- D. L and R, upper and lower lifting arm joint;
- E. L and R, upper and lower connecting arm joint.

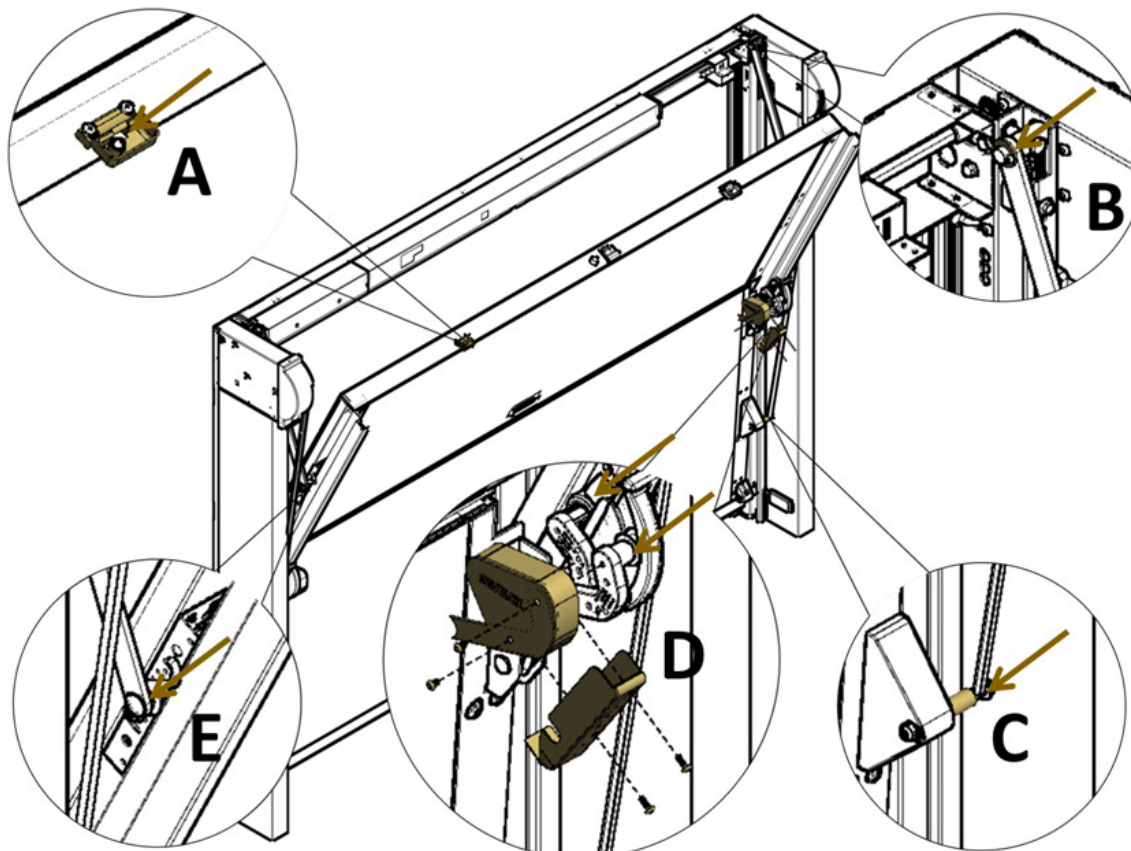


Figure 4-8

4.6 Current control

The "Amperostop" current control system works by blocking and reversing the door in presence of obstacles. To test this device, with the door fully open, place a 1-1/2" thick piece of wood (a 2" X 4" laid flat) on the floor in the center of the door. Push the transmitter or wall button to close the door. The door must reverse when it strikes the obstruction.

IF NOT, contact SilveloxCustomer Care.

4.7 Photo-eyes

The photo-eyes work by blocking and reversing the door in presence of obstacles between them. To test this system, standing inside the garage, but safely away from the path of the door, use the remote control or wall button to close the door. As the door is closing, wave an object in the path of the photoelectric eye beam. If door stops and reverses, the system works correctly.

IF NOT, contact SilveloxCustomer Care.

4.8 Closing tape regulation

The tape is set to start the pulling of the door from approximately 400-500 mm from the closure of the upper part of the leaf. In case you must change the adjustment, proceed as described below:

- 1) Remove the central carter of the crossbar and locate the Combimatic actuator (fig. 4-9);
- 2) Hold the pin (B) and loosen the screw (A) with a 10 mm wrench (fig. 4-10);
- 3) **To delay the leaf pulling:**
Slightly move downward pin (B), keeping pressed bearings (C) against the tape (fig. 4-11).
- 4) **To anticipate the leaf pulling:**
Slightly move upward pin (B), keeping pressed bearings (C) against the tape (fig. 4-11).
- 5) The optimal position should be when the cavity below the fastening screw measures approximately 3 mm (fig. 4-12).
- 6) Once the adjustment is completed, hold pin (B) and fasten screw (A) with a 10 mm wrench.
- 7) Restore the central carter in its original position.

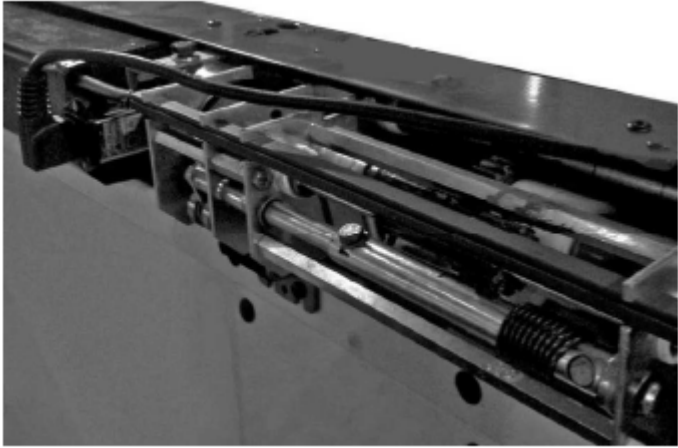


Figure 4-9

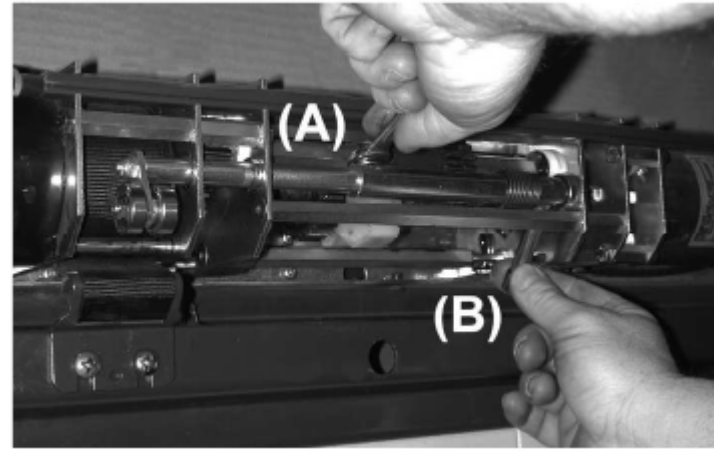


Figure 4-10

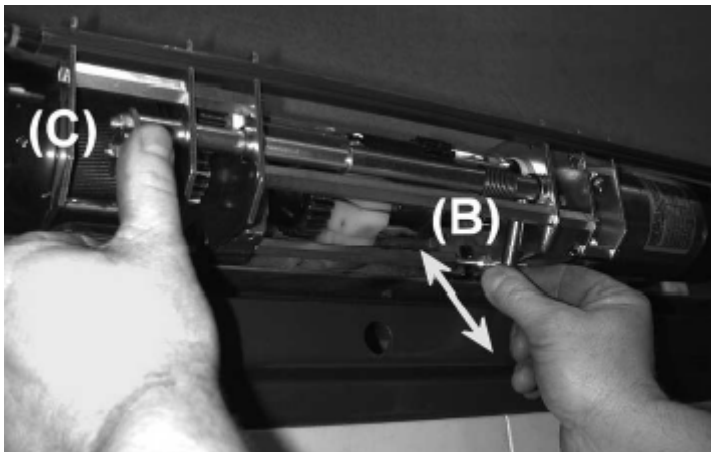


Figure 4-11

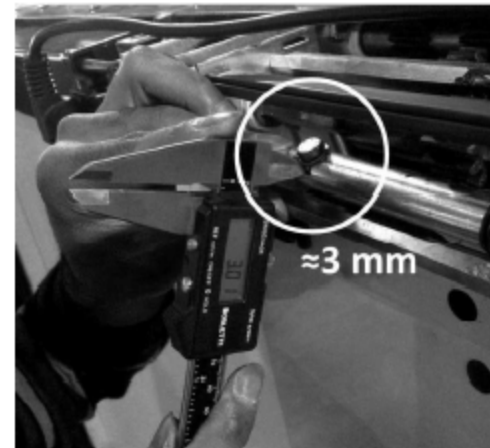


Figure 4-12

5 ELECTRIC CONNECTIONS AND ELECTRONIC COMPONENTS

5.1 Optional devices

On request supplementary devices can be connected by qualified operators by executing the following actions:

- Cut the power by means of the isolator switch.
- Disconnect the power plug from the upper traverse.
- Remove the left cover of the upper traverse using a 4 mm Allen key (fig. 5-1).
- Access the electrical terminals and use the available contacts (Table 5-1 and fig. 5-2).

5.2 Preparation for connection of an anti-intrusion alarm system (optional)

WARNING! The operation of the pushbutton connected to terminals 1-2 is of the impulse type, which means that with a single switch the functions OPEN – STOP – CLOSE are performed.

This option provides the use of sensors and cabling dedicated specifically to this purpose and thereby provide clean signals manageable by a anti-intrusion alarm system (excluded from the supply). The connection to the alarm system is accomplished by connecting the signals to the electrical terminals mounted in the upper traverse.

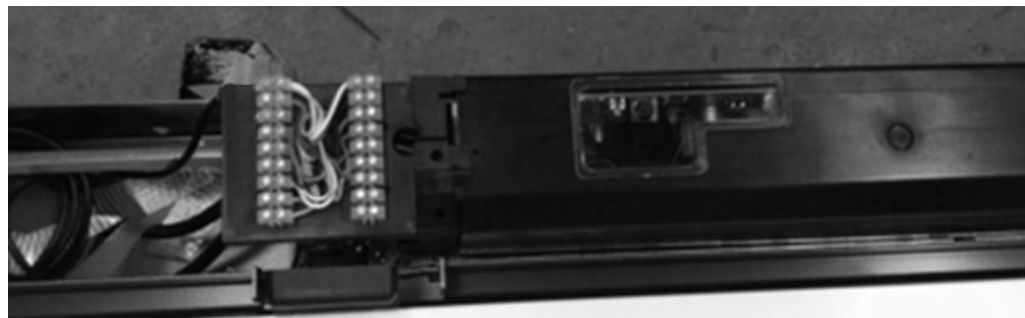


Figure 5-1

Table 5-1

| CONTACTS FOR ACCESSORIES INSTALLATION(CUSTOMER DUTY) | |
|--|---|
| Reference | Description |
| 1 - 2 | START pushbutton – (NO) – pulse mode OPENING / STOP /CLOSING |
| 4 - 5 | Power 24 V~ 0.5 A - (NO) - Relay 1 (Additional lighting) |
| 6 - 7 | Second channel contact of the remote controller receiver max. 20-40 W - (NO) |
| 8 - 9 | Power 24V-max. 20W (Additional flashing light) |
| 13 | Antenna coaxialcable (shield) |
| 14 | Antenna coaxialcable (core) |
| 17 - 18 | Contact for garage door alarm system – 24 Vdc 0.05 A (signal management with an external electronic control unit – not provided) - (NO) |
| 16 - 18 | Contact for garage and pedestrian door alarm system – 24 Vdc 0.05 A (signal management with an external electronic control unit – not provided) -(NO) |

NOTE: The wiring must be done using cable of 2x1 mm² / max 40 W (relay 1-2-3) or 100 W (relay 4)
WARNING! Customer duty installations must be carried by an accredited technician.

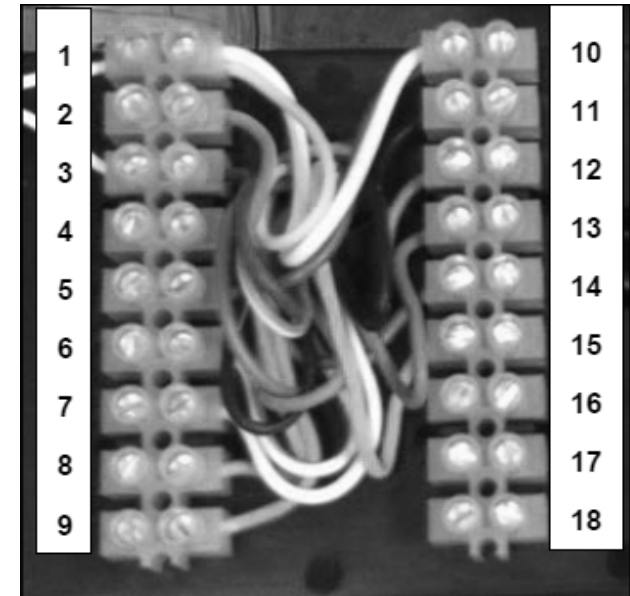


Figure 5-2

5.3 Remote control

The devices for the remote operation of the automated door involve the use of portable transmitters (fig. 5-1) with variable code and encrypted transmission (maximum security against the cloning). These transmitters can be two-channel or four-channel and send the signal to the respective receivers (built-in dual channel receiver or four-channel receiver for outdoor use) of the auto-learning type. Since each channel (i.e. each key) corresponds to a precise function, it follows that the transmitter controls a number of operations (open/stop/close of the garage door, opening/closing of a gate, lighting of the garage, integration of an anti-intrusion device, etc.) equal to the number of keys present on it. The built-in 2-channel receiver is mounted onto the printed circuit board of the motorization and its first channel is used for the open/stop/close function, while the second channel is useable when connected to the terminals of the relay. The external four channel receiver is supplied in a plastic housing and can be installed inside or outside the garage. The transmitters leave the factory “ready for use”, meaning that the cryptographic code (personal and secret) of the transmitter is already programmed into the receiver.

The operation is of the impulse type. This means that the open/stop/close function of the garage door is made with a single key (P1) of the transmitter: with the first “click” the garage door opens while the next click determines the stopping (while the garage door is still moving) or closing (if the door is entirely opened). The other keys (P2 - P3 - P4) can be used to remotely control other functions. For example when the second channel is used for activating a light it is required to activate the ON-OFF operation rather than the pulse operation.

5.4 Transmitters

The principal technical characteristics of the transmitters, whether two or four channels, are as follows:

- Operating voltage: 3 V = with a button type battery CR2032 LiMn
- Signal frequency: 433.92 MHz
- Operating temperature: -10 / +55 °C

The 3V LiMn battery (type CR2032) can be replaced following the instruction indicated in the user's and maintenance manual paragraph 4.1. Replacement of the transmitter battery, when the red led on the transmitter lights up during use of the transmitter.

It is recommended to not submit the transmitter to violent shocks, sources of heat and to direct sunlight.



Figure 5-3

5.5 Self-learning 2-channels receiver (inserted on the printed circuit board)

The 2-channels receiver is mounted on the printed circuit board of the motorization next to the green led and offers the possibility to control two actions:

- first channel: open/close/stop of the garage door
- second channel: open/close/stop of a gate, lighting, open/close of a second garage door, etc.

Connect the device to terminals 6-7 of the terminal block in the upper traverse. The self-learning system is based on the transmission technology of encrypted codes in order to guarantee a high level of security. The receiver recognizes only the self-learned code of its own transmitter, ignoring any other signal. The receiver can support 150 transmitters maximum.

Figure 5-4 shows the different elements:

- Self-learning switch to assign the functions
- Antenna terminal. The antenna cable is inserted inside the upper seal of the door
- Red LED to indicate the correct entry of the executed operation
- Jumper (1) to assign, by temporarily bridging the jumper, the first key of the transmitter to the relay on the printed circuit board of the receiver (operation already performed at the factory)
- Jumper (2) to assign, by temporarily bridging the jumper, the second key of the transmitter to the relay on the printed circuit board of the receiver (operation already performed at the factory)
- Jumper (A) to entirely cancel all and functions of the receiver (Reset)
- Jumper (B) to block all functions
- Jumper (C) to indicate how many transmitters are memorized
- Mobile jumper to choose the functions present on a pin
- Output terminal of a relay for alternate use.

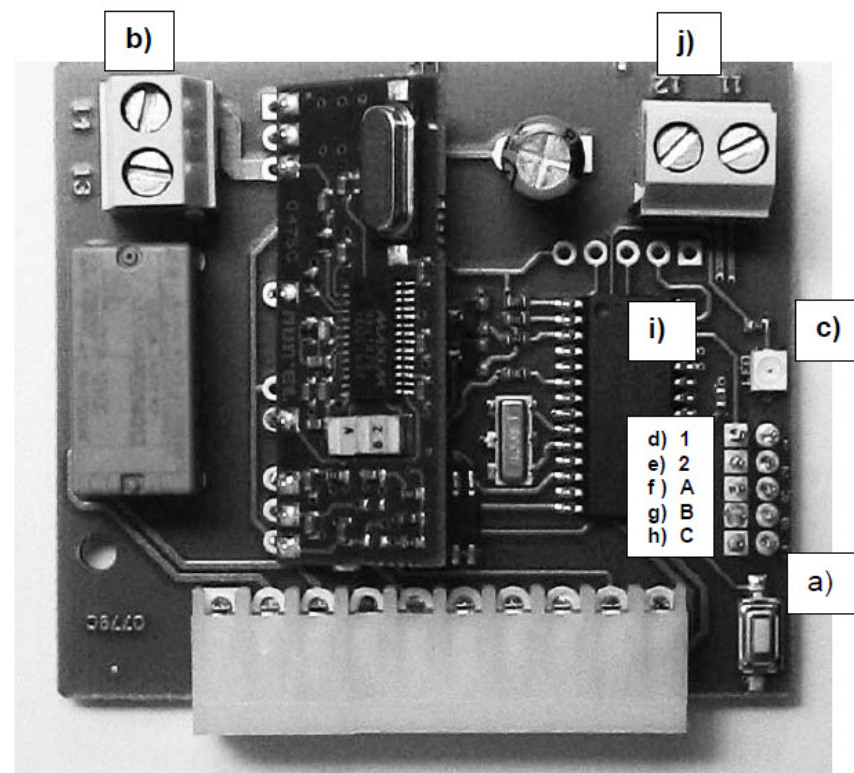


Figure 5-4

5.6 Self-learning 4-channels receiver for outside

The external 4-channels receiver is mounted in a ABS plastic housing for an optimal protection against atmospheric agents. It can work together with the 2-channels receiver present on the door, to offer the maximum possible uses for remote control. In order to better understand the system of self-learning, through which the receiver recognizes only the code of its own transmitters, it is useful to refer to figure 5-5, in which can be identified:

- a) Self-learning switch to assign the functions
- b) Red LED to indicate the correct entry of the executed operation
- c) Jumper (1) to assign, by temporarily bridging the jumper, a key of the transmitter to relay 1
- d) Jumper (2) to assign, by temporarily bridging the jumper, a key of the transmitter to relay 2
- e) Jumper (3) to assign, by temporarily bridging the jumper, a key of the transmitter to relay 3
- f) Jumper (4) to assign, by temporarily bridging the jumper, a key of the transmitter to relay 4
- g) Jumper (A) to entirely cancel all and functions of the receiver (Reset)
- h) Jumper (B) to block all functions
- i) Jumper (C) to indicate how many transmitters are memorized
- j) Mobile jumper to choose the functions
- k) Output terminal to connect the antenna.
- l) Series of terminals (3-12) which assign the type of contact for every relay (see electrical connections below)
- m) Output terminals (13-14) for the connection of the antenna cable

NOTE: the switches P1 and P2 of the transmitter are assigned respectively to the first and second channel of the 2-channel receiver foreseen on the printed circuit board of the motorization.

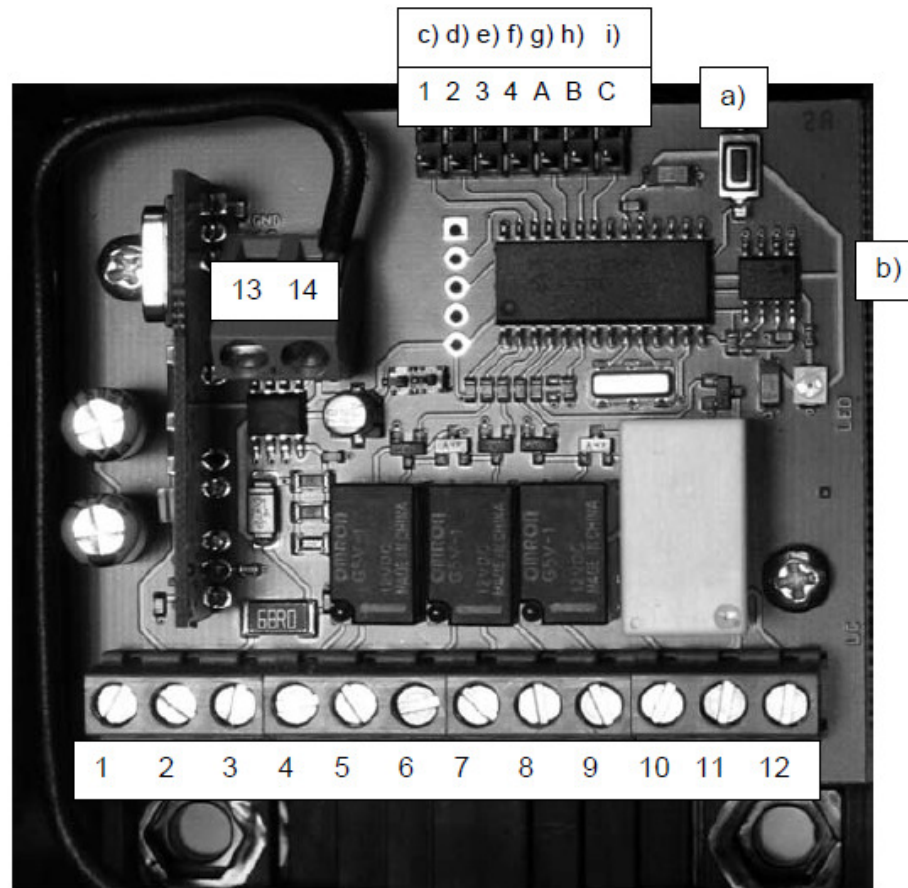


Figure 5-5

The external receiver is supplied in an ABS plastic housing; it is possible to fasten it to a wall or on a pole (or a suitable bracket); ensure that the supply voltage is either 12 or 24 Vdc/Vac. If problems are encountered with receiving signals, it is necessary to install an external antenna which is available on request. The antenna must be installed at the highest point possible and in an area which is free of obstacles. The optimal efficiency is obtained when it is installed on a metal pole or armed concrete, and avoiding mounting it on materials such as wood or plastic. When the length of the included cable is insufficient, it is recommended to replace it entirely with a coaxial cable with an impedance of 52 Ohm (type RG58/U) with low loss and to not exceed a length of 10 meters.

The external receiver have a numbered terminal block as shown in table 5-2. The wiring must be done using cable of 2 x 1 mm² / max 40 W (relay 1-2-3) or 100 W (relay 4).

Table 5-2

| CONTACTS FOR INSTALLATION OF THE 4-CHANNELS EXTERNAL RECEIVER (OPTIONAL) | |
|---|--|
| CONTACTS | DESCRIPTION |
| 1 -2 | Power input 12 / 24 Vdc/Vac; terminal 1= (-) ; terminal 2= (+) When 12V power is used, it is necessary to insert the jumper close to the terminal |
| 3 -4 | NO relay 1 |
| 4 -5 | NC relay 1 |
| 6 -7 | NO relay2 |
| 7 -8 | NC relay 2 |
| 9 -10 | NO relay 3 |
| 11 -12 | NO relay 4 |
| 13 | Coaxial antenna – shield |
| 14 | Coaxial antenna – core |
| WARNING! Devices connections must be carried by an accredited technician | |

5.7 Operation of the receiver (2- and 4-channels)

5.7.1 ON/OFF Mode

The standard operating mode of the transmitter-receiver system is of the impulse type. In other words, when one of the keys of the transmitter is pressed, the corresponding relay on the receiver is closed and when the key is released, the relay is opened again.

In some situations, however, it may be preferable to activate the relay when the key is pressed for the first time, and that it stays activated until the key is pressed again, especially when it is used to activate lighting.

This mode of operation is called "ON-OFF". To activate this mode it is required to install a permanent bridge on the jumper of the corresponding relay (see figure 5-4 and 5-5).

WARNING! Never leave a permanent bridge on jumper 1 of the 2-channel receiver.

5.7.2 Blocking mode

This mode is activated when a permanent bridge is inserted in jumper B of the receiver (see figure 5-4 and 5-5). In this mode it is no longer possible to insert a code from a distance, activate the ON-OFF mode, or cancel a code.

5.8 De-activation of transmitters

5.8.1 De-activation of a pushbutton of a transmitter

If necessary it is possible to de-activate the function attributed to a key of a transmitter.

To de-activate the function, proceed as follows:

- Remove the bridges that may be present on the jumpers of the receiver.
- Press the self-learning button of the receiver and keep it pressed.
- Press the pushbutton of the transmitter that must be cancelled.
- Keep the pushbutton pressed until the red LED on the receiver illuminates.
- Release the pushbutton of the transmitter and then the self-learning button.

5.8.2 De-activation of all transmitters (Reset)

In case of theft or disappearance of a transmitter, it is recommended to de-activate the functions of all transmitters in order to avoid unpleasant consequences, by following the steps below:

WARNING! GIVE MAXIMUM ATTENTION WHILE EXECUTING THE INSTRUCTIONS

- Insert the bridge on jumper A of the receiver.
- Press the self-learning button of the receiver for at least 7 seconds.
- Release the self-learning button.
- Wait until the red LED on the receiver is illuminated.
- Remove the bridge of jumper A and place it on the adjacent free pin of the jumper.

NOTE: this operation must be performed separate for the internal 2-channel receiver and for the external 4-channel receiver.

5.9 Activation of transmitters

5.9.1 Restoring the functions of the transmitter keys and restoring another code (2-channel Tx)

- Verify that the garage door is connected to the mains.
- Insert the bridge on jumper “1” of the 2-channels receiver (see figure 5-4).
- Press the self-learning key of the 2-channels receiver and keep it pressed.
- Press key P1 of the transmitter and keep it pressed.
- Wait until the red LED on the 2-channels receiver illuminates, then first release the key of the transmitter followed by releasing the self-learning button of the 2-channels receiver.
- Remove the bridge of jumper “1” of the 2-channels receiver.
- When the second channel of the 2-channel receiver is used, repeat the operations from point 2 to 6 for jumper “2” and key P2.
- Put the bridge on the adjacent free pin of the jumper.

5.9.2 Restoring the functions of the transmitter keys and to restore another code (4-channel Tx)

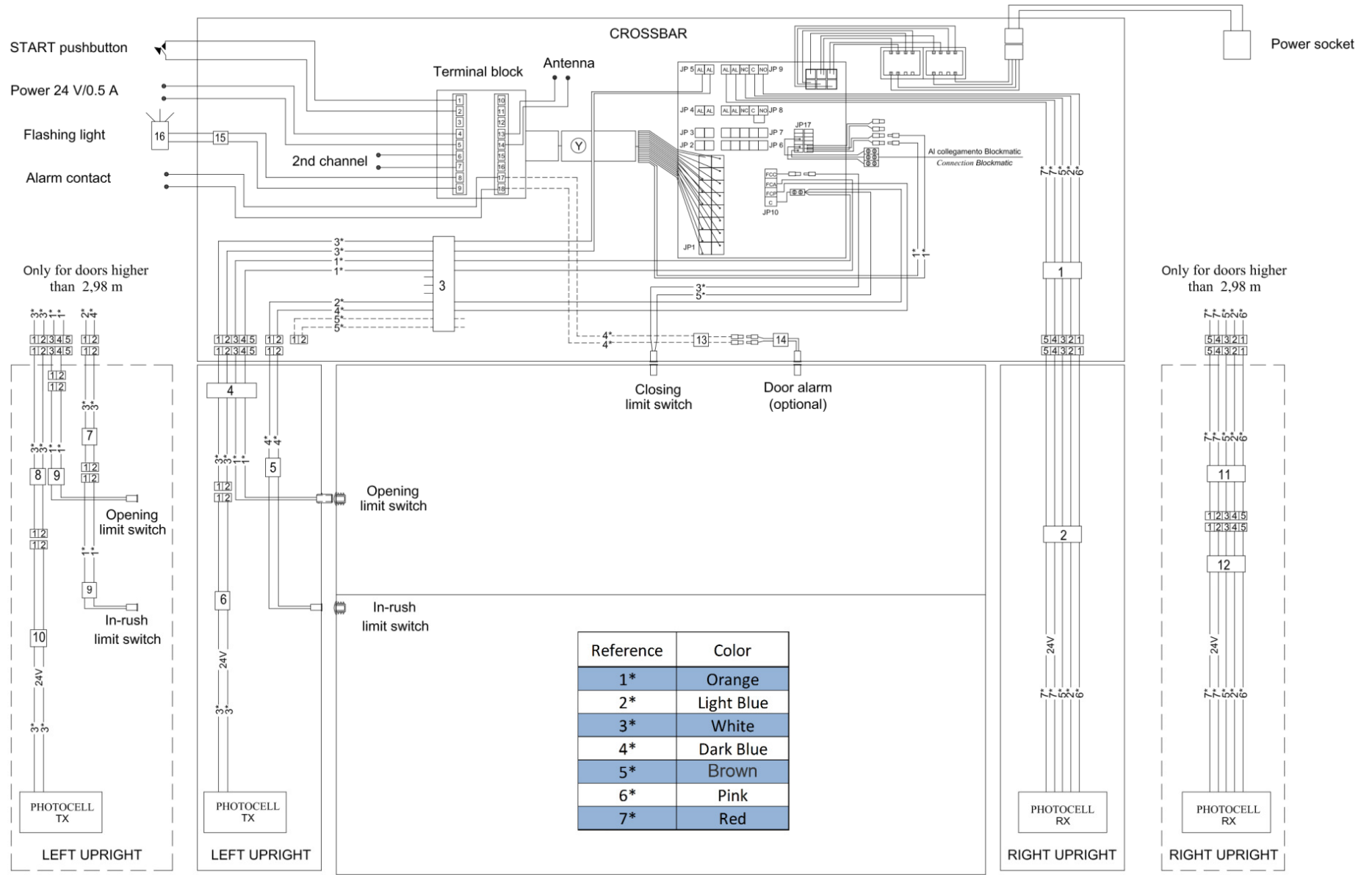
- Verify that the 4-channels receiver has power on the terminals 1-2 (12-24 Vdc/Vac).
- Insert the bridge on jumper “1” of the 4-channels receiver (see figure 5-5).
- Press the self-learning key of the 4-channels receiver and keep it pressed.
- Press the free key on the transmitter which will control relay 1 or the 4-channel receiver and keep it pressed.
- Wait until the red LED on the 4-channels receiver illuminates, then first release the key of the transmitter followed by releasing the self-learning button of the 4-channels receiver.
- Remove the bridge of jumper “1” of the 4-channels receiver.
- Repeat, if necessary, operations from point 2 to 6 for the next jumpers and free keys on the transmitter.
- When the assignment of all functions and keys is accomplished, put the bridge on the adjacent free pin of the jumper.
- To re-program other transmitters, refer to the instructions in the next paragraph 5.9.3 “Instructions to activate a new transmitter”.

5.9.3 Activating a new transmitter

It is necessary to have a transmitter that is already functioning and programmed (named “original transmitter”).

- De-activate eventual other receivers installed in the vicinity, by temporarily cutting power.
- Stand within 5 meters from the garage door.
- Press P1 and P2 together of the original transmitter.
- Within 5 seconds, press a key of the transmitter to be activated.
- For eventual other transmitters, repeat the steps described above

5.10 Wiring Diagram



6 MAINTENANCE

For any further detail on the maintenance procedures, read the user manual.

7 DISMANTLING

In case of dismantling, it is necessary to lock the door and disconnect some components to make the door unusable, as: counterweights boxes, pulleys and power plug. To discard, please contact an accredited company following local laws and regulations.

8 ASSISTANCE AND ACCESSORIES

Dear Customer, Silvelox is available for any further explanation. We remind you that in case you will need the assistance of a qualified technician or you will consider to install new accessories for your garage door, you can contact the Silvelox Customer Care. With the purpose to speed up the handling of your inquiry, please provide the serial number of your door (placed in the label above the inner door handle) and fill the suitable form available at www.silvelox.com, in the Customer Service page.

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INSTALLATION MANUAL – MD.75.1.XX
ISSUED BY SILVELOX TECHNICAL OFFICE
APPROVED BY

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