MovieBird 24

Manual Instruction

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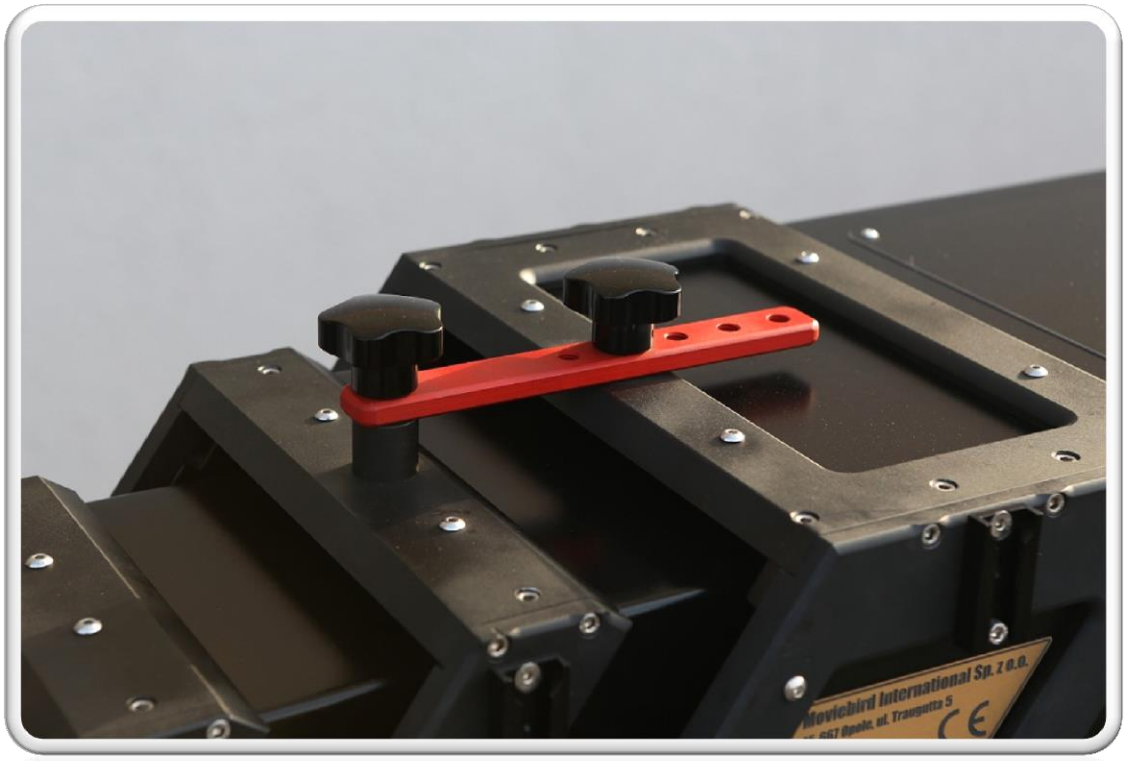
Part 1

Safety Information

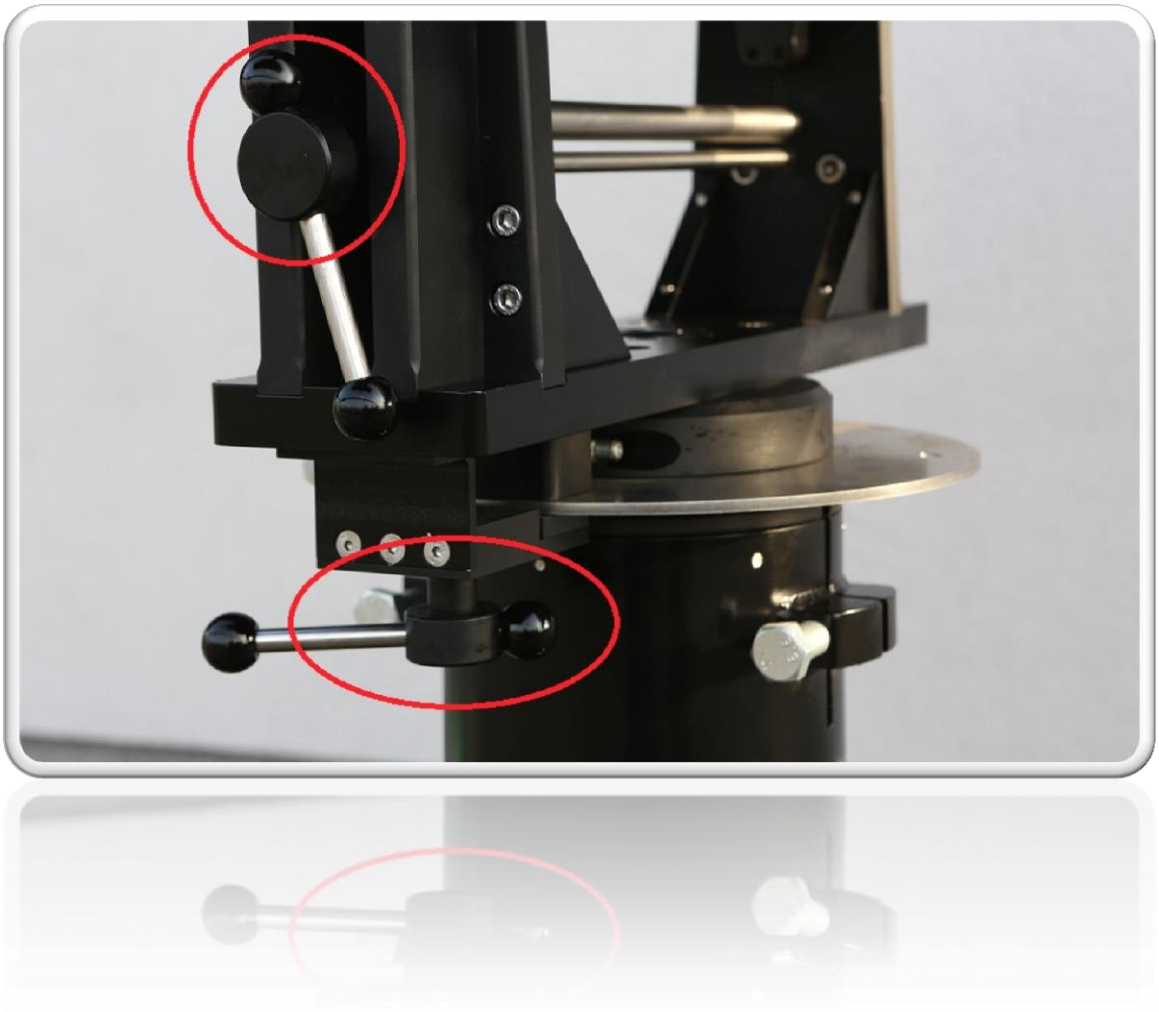
Safety Straps / How to Transport

When not in use, or during transport, the crane should always be secured by two safety straps – one at the front and one at the back. On the dolly, fasten the safety straps with snap hooks at the eyebolts. On the crane, pull the straps through the holes provided. This prevents the straps from slipping off under strain or becoming detached unintentionally.

During transport, the sections need to be secured by attaching the blockade, exactly how it’s shown at the picture below.

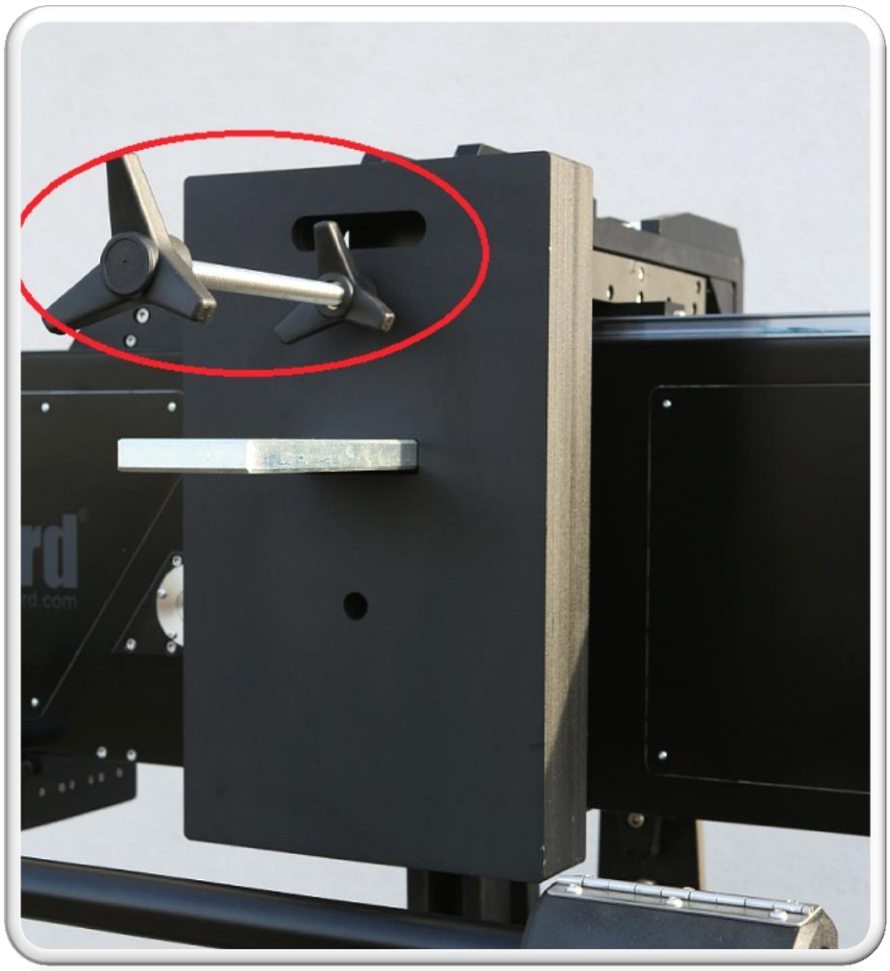


Also both breaks (PAN/TILT) need to be released.



Securing The Counterweights

The counterweights should always be secured by M16 bolts to prevent them from falling off.



Cleaning, Maintenance, Service

The crane should never be cleaned when the electronic is switched on to avoid lethal injuries!

New grease should be applied to linear bearings from time to time depending on the frequency of crane usage and work environment. The rails should be cleaned before above step.

Also it’s highly recommended to check if belts are properly tensioned. If not then they should be tightened up. Nformation about how to do it is described deeper in this instruction.

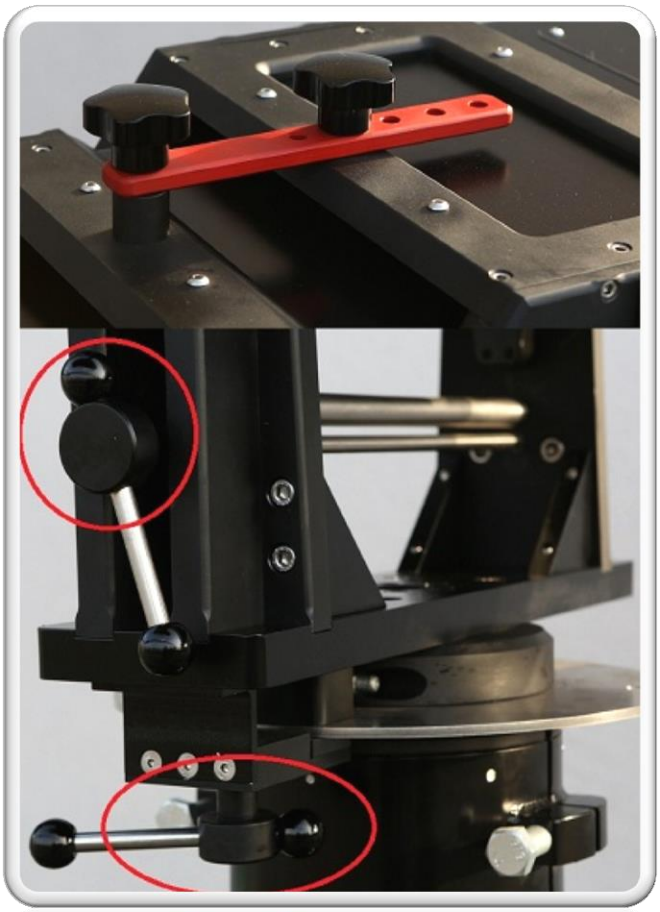
Part 2

Crane Mechanics

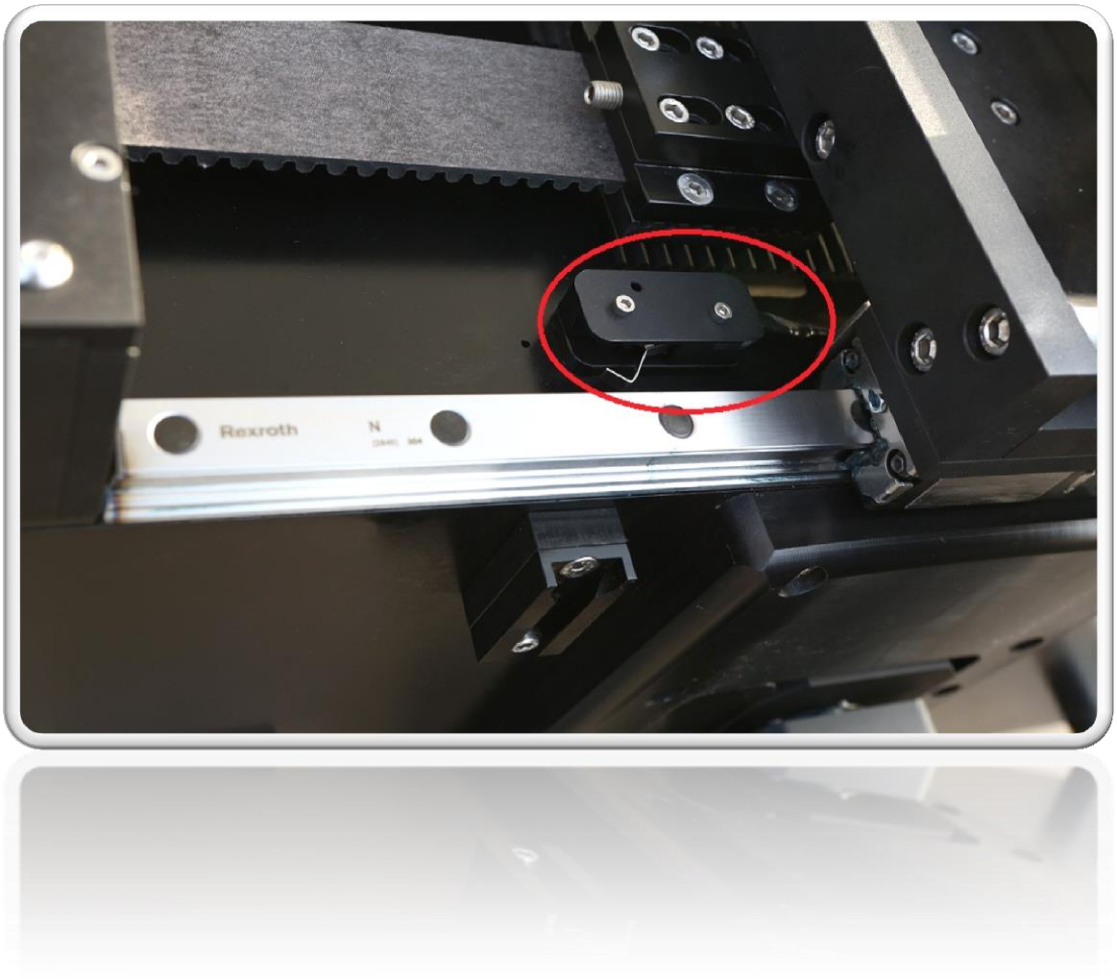
How To Balance The Crane

This step guide is showing an example of how to balance the crane.

1. Put 11 counterweights on each side of the crane (22 total).
2. Remove section blockade and release all breaks (pan/tilt).

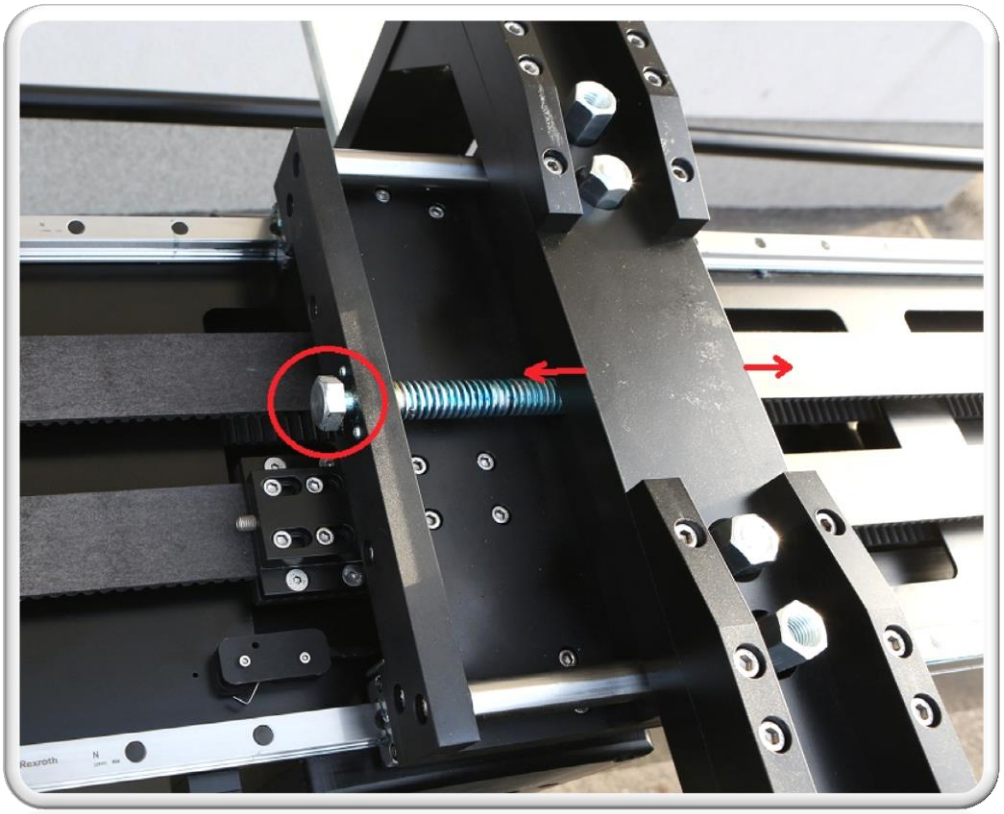


3. Extract the arm a little manually so the platform will go off from the front end stop.

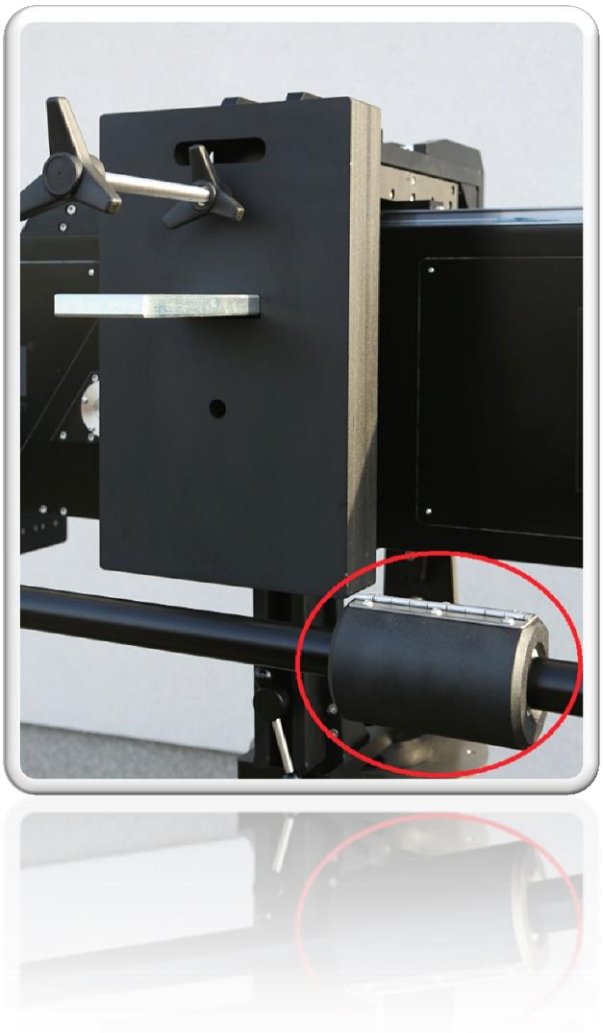


4. Turn on electronics (box, leveling head, AC)
5. Intract the arm. This is the 1st position to balance the crane.
6. Loosen up the rear strap. 2nd person should be securing the crane. If that person is able to hold the crane then remove both straps.

7. Check which side of the crane is heavier. If it’s the front then move the counterweights platform to the rear side until we get the balance (similarly if the rear side is heavier) using the screw shown at the picture below.



8. If the crane is still unbalanced after step 7, then we use donuts to balance it.



9. When we got the balance on the 1st position – extract the arm until the counterweight platform reach the rear end stop. On it’s way if one of the sides will be too heavy to hold then remove or add the counterweights depending on which side is heavier. When the arm will be extracted to the end then it’s the 2nd position to balance the crane.

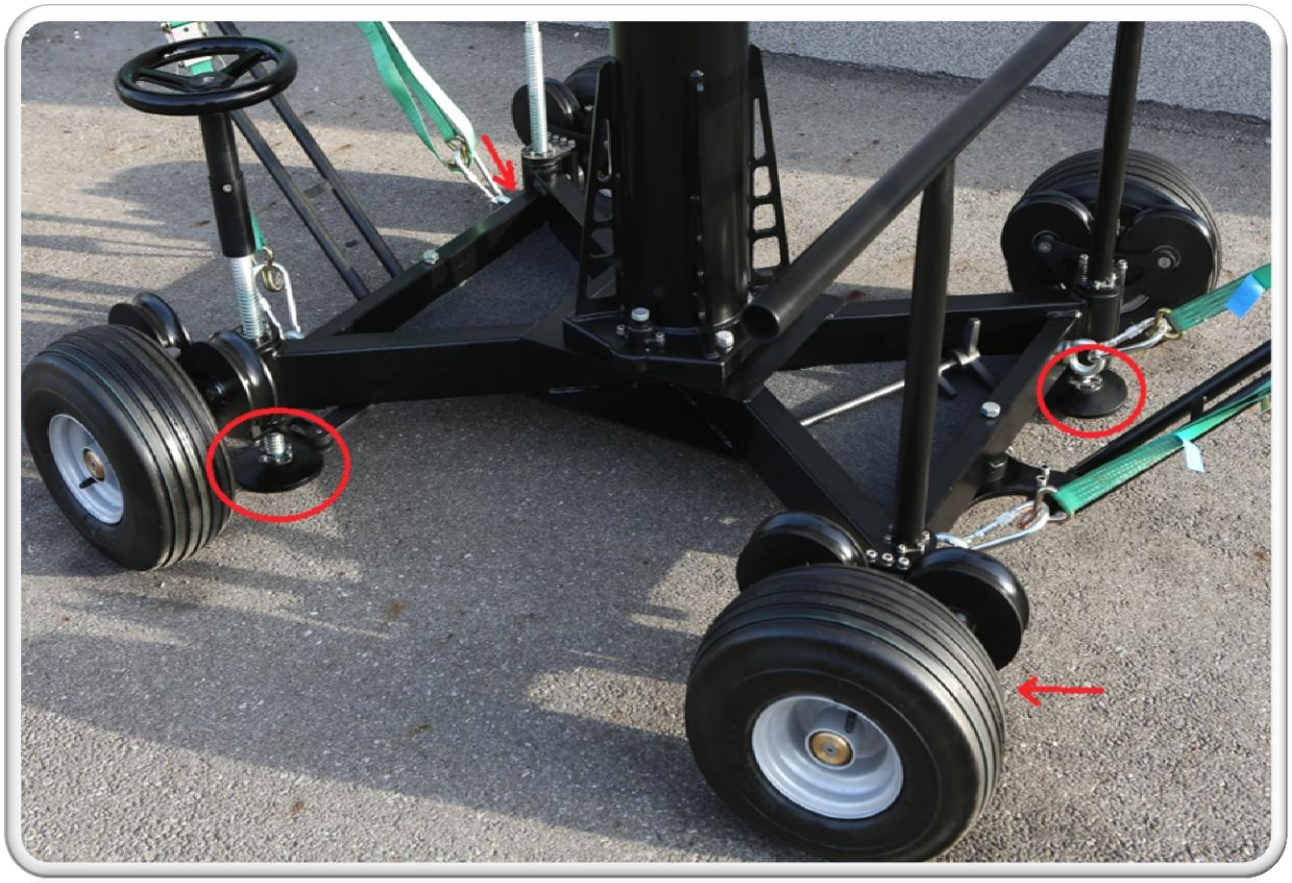
10. If the front overweights – add the counterweights until balance is obtained. If the rear is heavier – remove the counterweights until balance is obtained. We use all kinds of counterweights if I’s necessary to add small values. We need to remember that M16 bolts which secures the counterweights also counts in the balance process.

11. After we got the balance when the ar mis extracted – intract to 1st position to see if the balance isn’t lost. If it is then we go back to step 7.

12. Crane is ready to work.

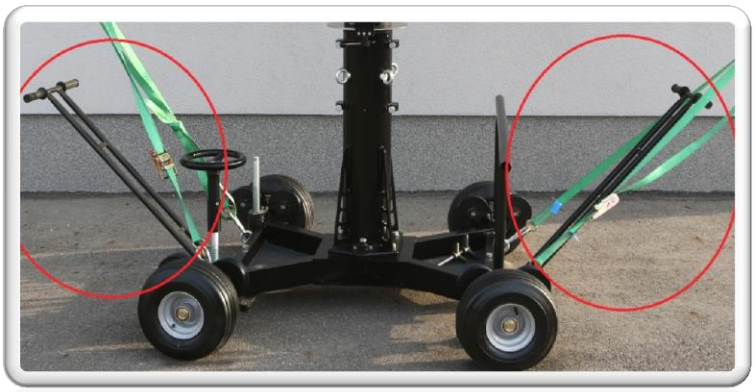
Dolly

D.1. Dolly is permanently equipped with leveling jacks. We do recommend to use all of them while operating the crane for best stability and to maintain perfect level in both axes.



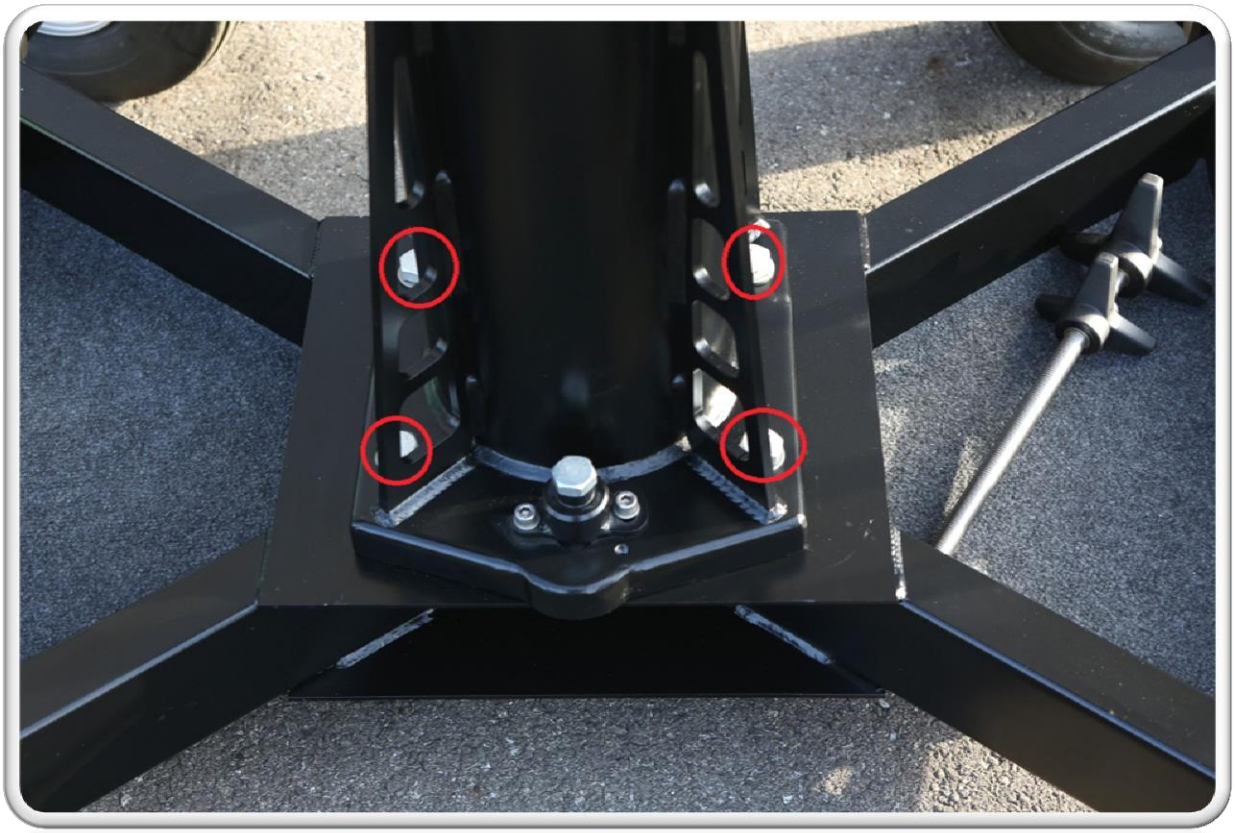
D.2. Track wheels are also permanently attached into the dolly (1m width).

D.3. On the dolly there’s a steering supported by 2 drawbacks connected to each other for best maneuvering of the crane. Optionally it’s possible to block one of the drawback and separate it from the other one by dismounting the connecting strip under the dolly.



Column

C.1. The column is mounted onto the dolly by using four M16 screws.



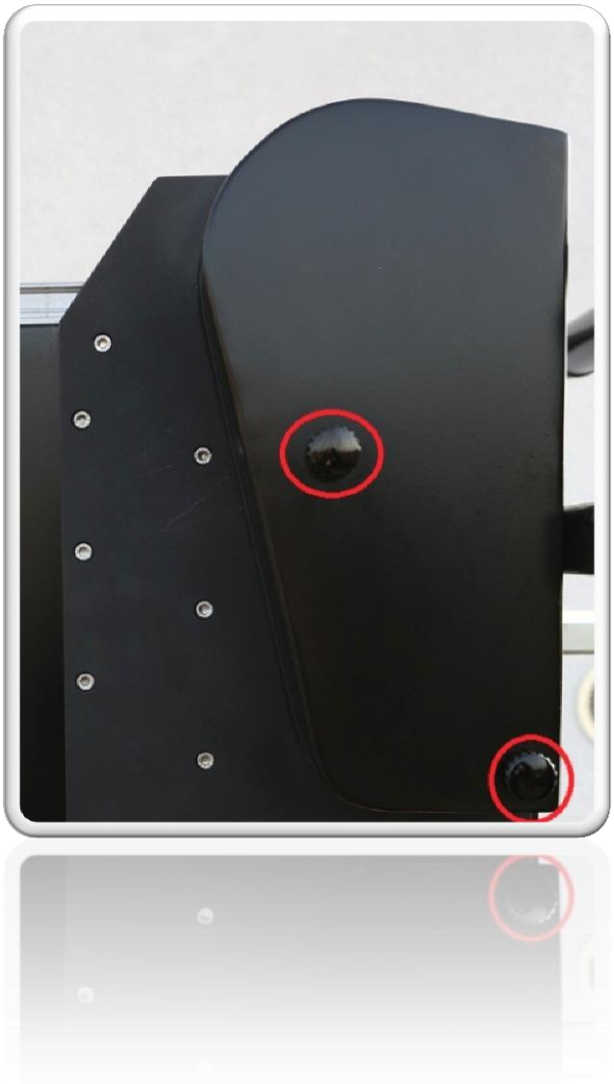
C.2. The column can be raised by 45cm (until visible mark appears). There are 4 screws that needs to be released before extending telescopic column and also horizontal break must be locked. After those steps the column can be raised or lowered with a 24mm ratchet or by using the drill.

Arm

IMPORTANT: Electronics MUST be switched off before working inside of the arm. Also it is forbidden to move the sections during adjustment of crane mechanics. MovieBird does not take any responsibility if someone is maintaining the crane and don’t abide above rules.

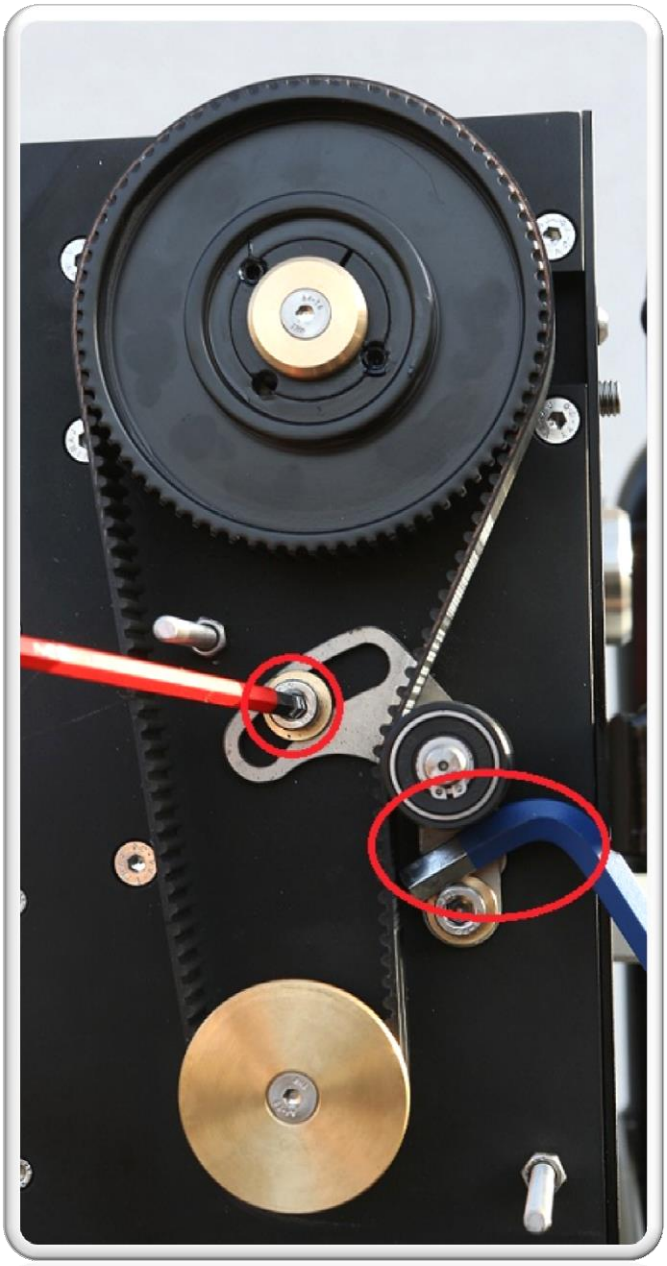
A.1. Below instruction shows how to tighten the belt on the left side of the arm.

1. Remove the cover.



2. Loose both screws.

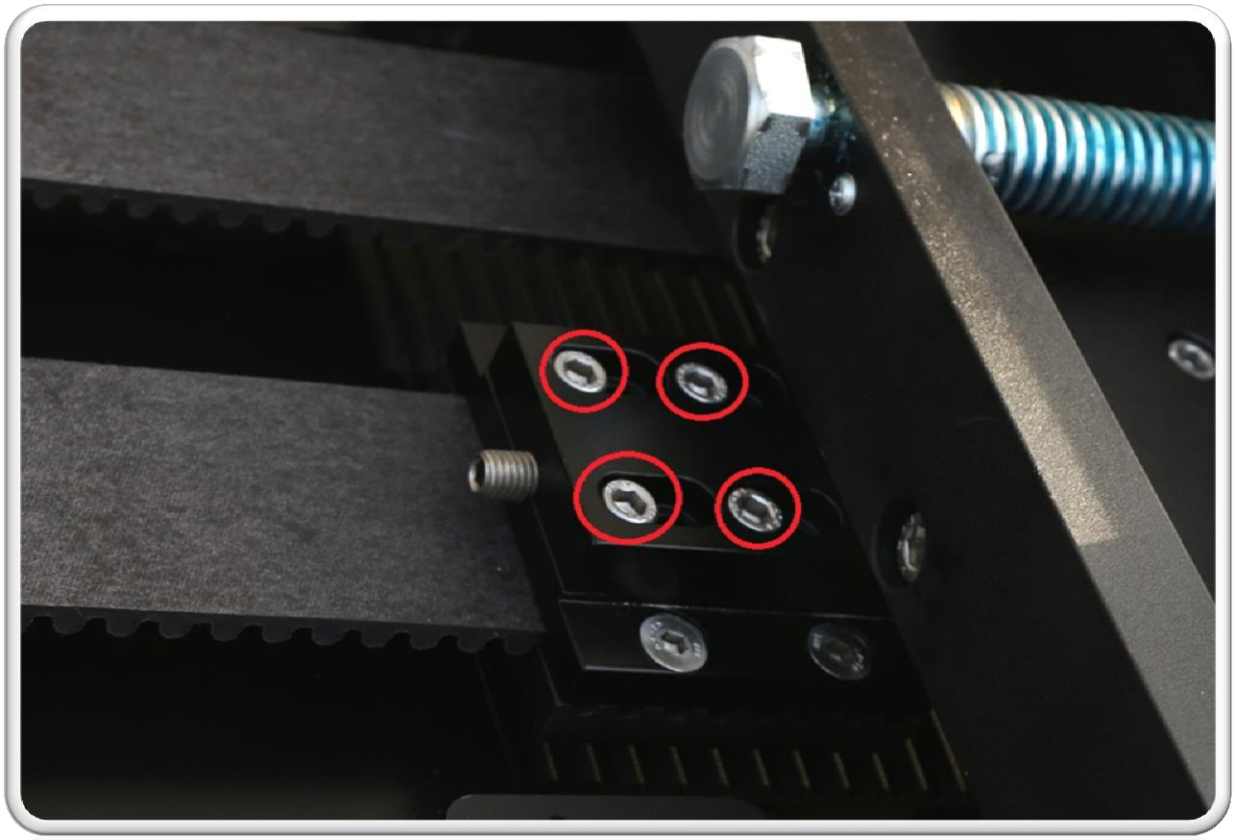
3. Tighten the belt like shown on the picture below (blue key). With the red key we tighten the screw.



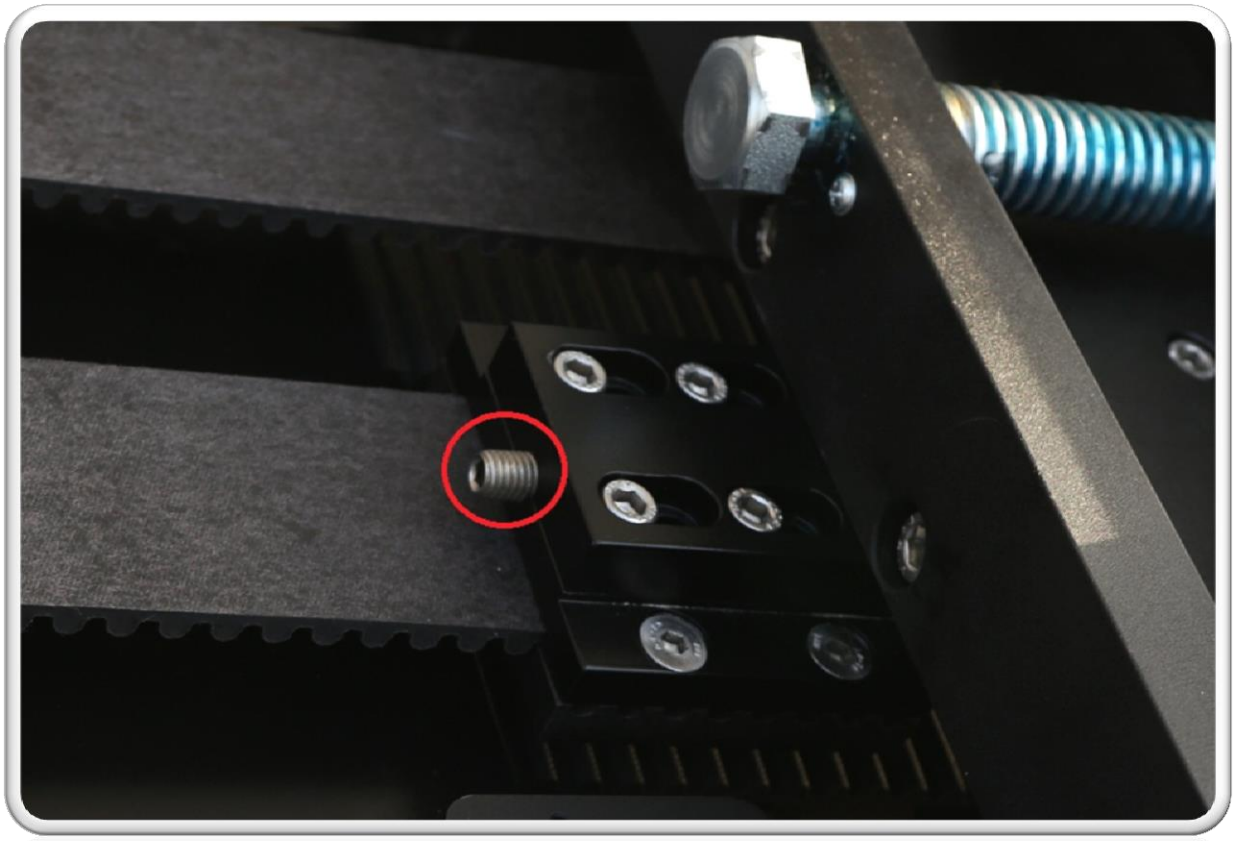
4. Remove the blue key and tighten the screw.

A.2. Below instruction shows how to tighten counterweight belt.

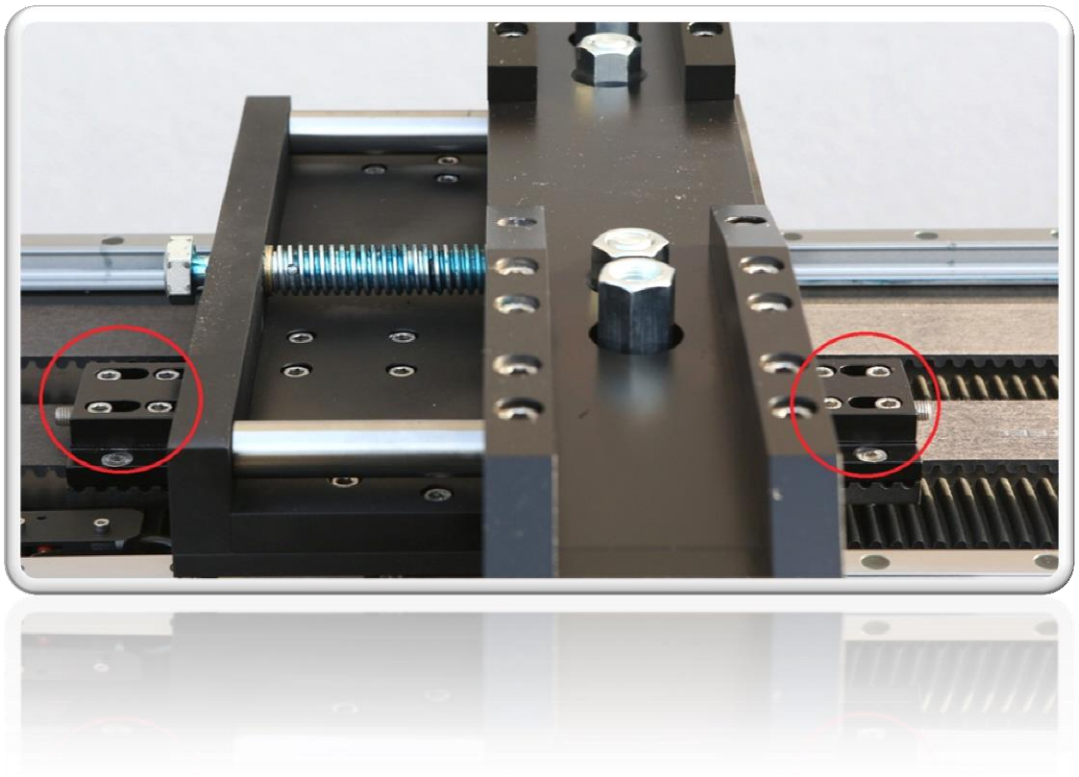
1. To check the tension of the belt – balanced, intracted crane should be lifted up to maximum angle. If the belt is loose or sag – level the crane and put straps on.
2. Loose 4 screws shown at the picture below.



3. Tighten the belt using the screw. After tight the screws you loosened up before.

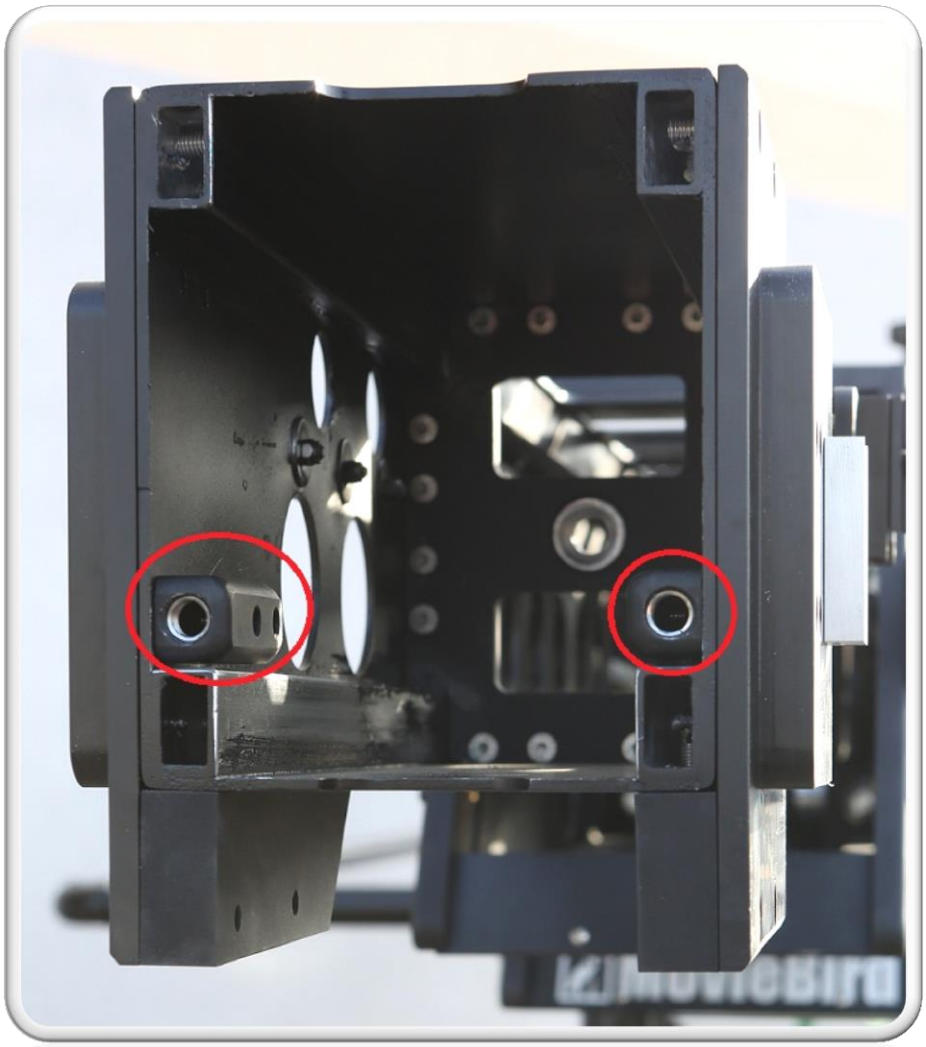


4. Operation should be performer on both sides of the platform to evenly tighten the belt.

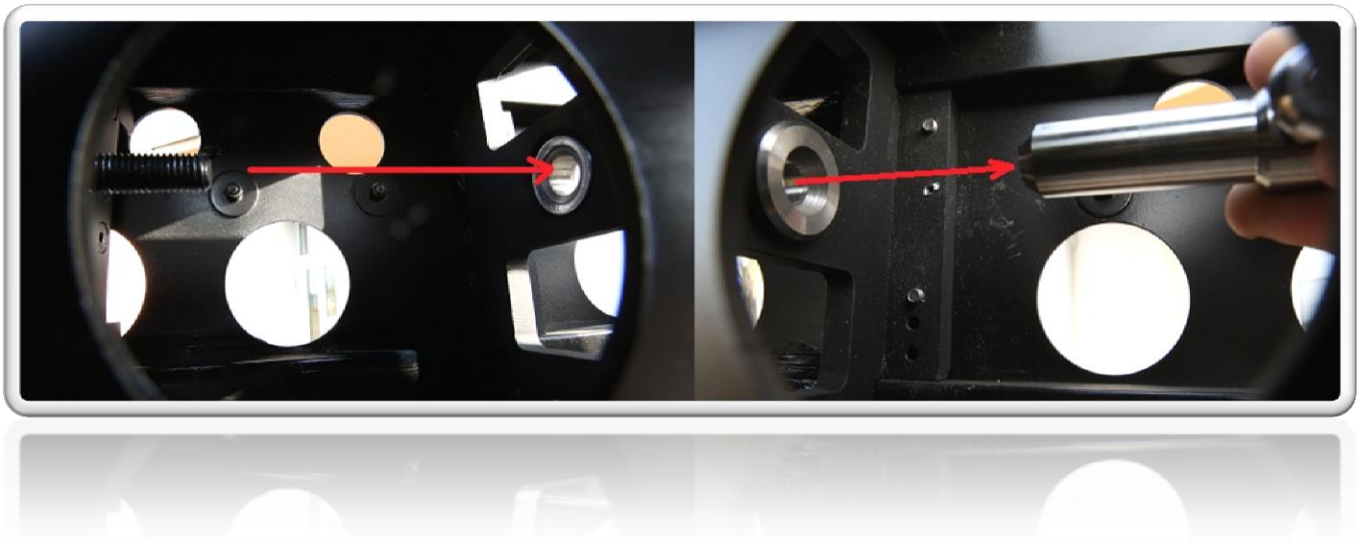


A.3. There is a possibility to add an extension to the last section (60cm/1m). Below instruction shows how to do it.

1. Remove the leveling head and mounting blocks.



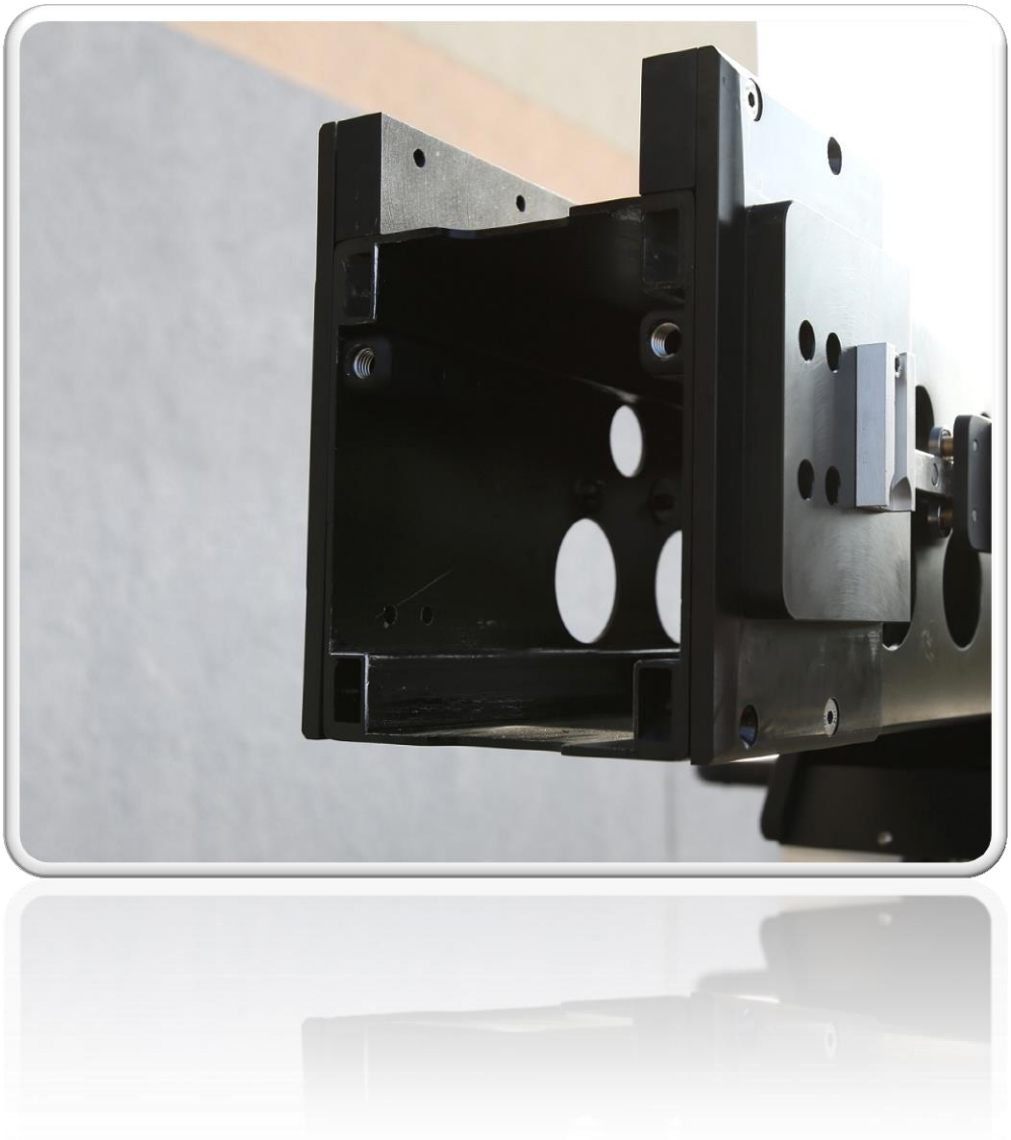
2. Put the extension into section so the screw will fit into the hole. Then we screw the nut tightly so there won’t be any loose on the extension.



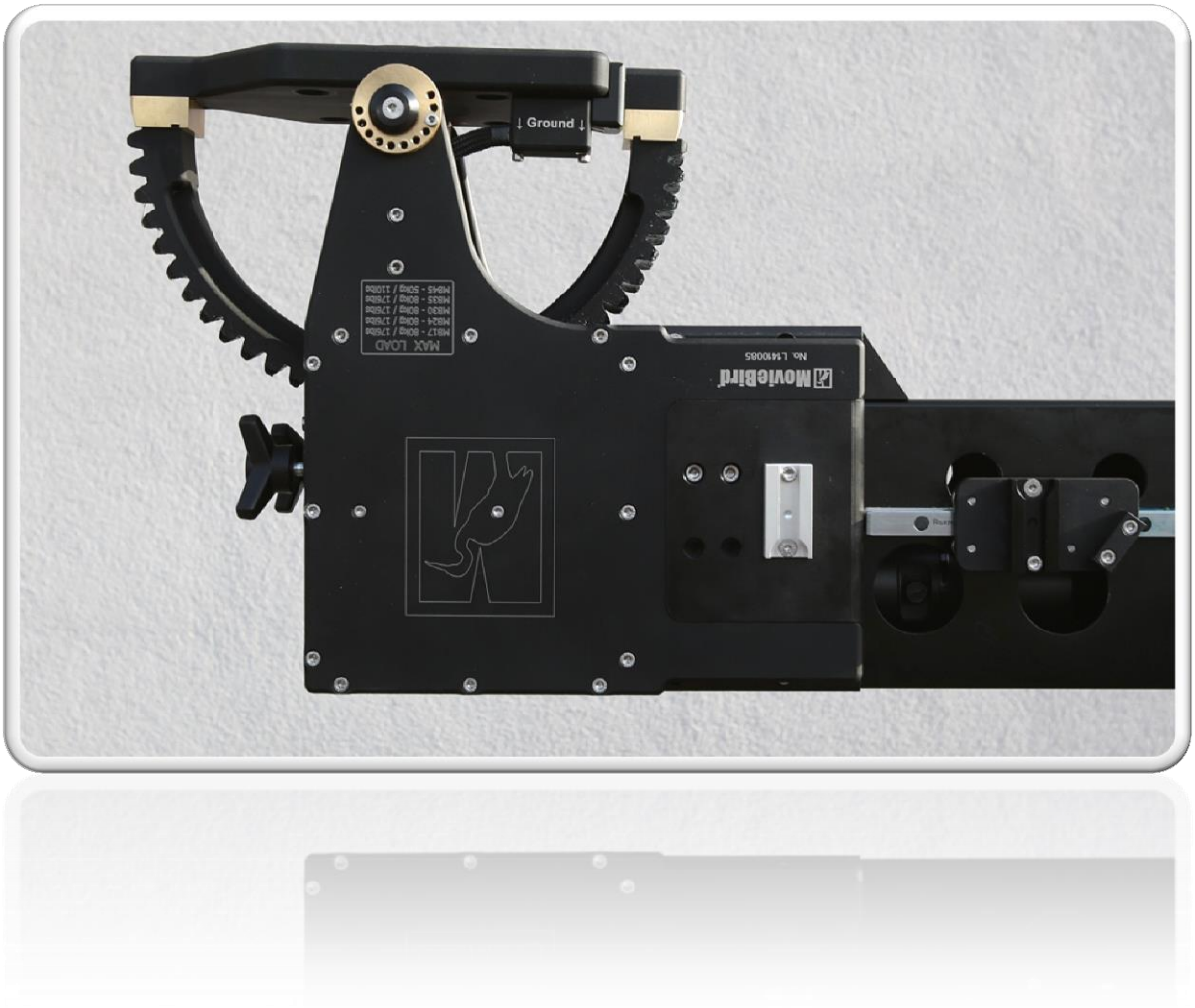
A.4. Below instruction shows how to do an overslung.

1. Remove the cables.
2. Release the inclinometer and screw it back upside-down.

3. Remove the leveling head and turn the elements so it will look like on the picture below.



4. Mount the leveling head and plug the cables.



IMPORTANT: Electronics MUST be switched off before working inside of the arm. Also it is forbidden to move the sections during adjustment of crane mechanics. MovieBird does not take any responsibility if someone is maintaining the crane and don’t abide above rules.

Part 3

Electronics/Troubleshooting

Electronics

Full electronic equipment provided with the crane contains:

- Box

- AC for the leveling head

- Leveling Head

- Joystick

- Cables

- Wireless System (optional)

Troubleshooting

Symptom	Cause	Solution
After turning on the box, power switch neon is off and system not responds	Fuse blow up	Check fuse and power supply switches
LCD display shows "TERMINAL" after 5 sec from turning on the system	Joystick cable fault or interface electronics in joystick or main board is damaged	Check joystick cable, if cable is ok then check internal communication interface in joystick or main board
LCD display shows "READY" but the motor is not stable	Tachogenerator cable is damaged	Check crane cable, motor cable, brushes. If cable is ok then check connection between cannon connector and servo amplifier
LCD display shows "READY" but you can't move the crane with the joystick or manually	1. Motor cable fault, security bridge is open, startup electronics is damaged 2. Proximity switches connection fault	1. Check motor cable if it's ok then check motor connections and security bridge connection and start up electronics 2. Check motor cable, if it's ok then check connections on the crane and internal electronics (both proximity switches are normally closed)
Crane doesn't stop on	Proximity switches	Check motor cable, if it's

proximity switch	connection fault	ok then check both proximity switch, if you push them they’re opened, if pushing doesn’t have any effect then probably cable have short circuit or proximity switch is broken
LCD display shows “ERROR 01”	2.5V joystick cable is damaged	Check connection between speed potentiometer and joystick PCB
LCD display shows “ERROR 02”	GND joystick cable is damaged	Check connection between speed potentiometer and joystick PCB
LCD display shows “ERROR 03”	1.25V joystick cable is damaged	Check connection between speed potentiometer and joystick
LCD display shows “ERROR 04”	Speed joystick cable is damaged	Check connection between speed potentiometer and joystick PCB
LCD display shows “ERROR 05”	DAC range error	Check connection between security voltage check, if it’s ok then you have to check internal DAC module
LCD display shows “ERROR 06”	DAC check wire fault	Check connection between security voltage check, if it’s ok then check internal DAC module
LCD display shows “ERROR 07”	DAC feed error	Check connection between security voltage check, if it’s ok then check internal DAC module

LCD display shows “ERROR 08”	Encoder ADCQAF	Check encoder QAF connection, check motor cable, crane cable and encoder
LCD display shows “ERROR 09”	Encoder ADCQBF	Check encoder QBF connection, check motor cable, crane cable and encoder
LCD display shows “ERROR 10”	Encoder XINT	Check encoder connection, check motor cable, crane cable and encoder
LCD display shows “ERROR 11”	Joystick stop	Turn off and turn on BOX. If this doesn’t help then check joystick cable, if it’s ok then check internal electronics
LCD display shows “EROR 12”	Servo inhibit fault	Check connections between main board and servo, if it’s ok then check internal electronics on main board and check servo
LCD display shows “ERROR 13”	DAC Init error	Check connection between security voltage check, if it’s ok then check internal DAC module
LCD display shows “ERROR 14”	Encoder Init error	Check connections between encoder and mainboard and supply of the encoder
Box give a six or seven beeps	Voltage error	Check all power supplies