

MovieBird 24

Instruction Manual



Technical Support:

Piotr Czernecki: pcz@moviebird.com, Phone - +48 782479077

Maciej Hełm: mhelm@moviebird.com, Phone +48 513141258

Table of Contents

1. Safety Guideline/Points 3

 Safety Guideline 3

 Safety Points 5

Part 2. Crane Mechanics 10

Part 3. Electronics/Troubleshooting 29

1. Safety Guideline/Points

Safety Guideline

1. The assembly instructions **must** be read and understood before setup or operation. The crane may only be assembled in accordance with the manufacturer's instruction manual. The manufacturer's technical specifications and limits must be adhered to at all times and in no way exceeded.
2. The MovieBird Telescopic Crane may only be setup or operated by trained and experienced personnel.
3. The crane may not be assembled or operated under the influence of alcohol, drugs or any other intoxicating substances.
4. The manufacturer accepts no liability for damages, injuries, or accidents occurring due to negligence by the crane operator, misuse of the crane or disregarding the instruction manual.
5. The camera crane must be used on the even terrain.
6. Make sure there are no electronic cables and electronic appliances within the movement range of the crane arm when it is left unattended in assembled state. If the pan and tilt remote head is higher than the central pivot section the crane system should not be left unsupervised.
7. After setup of the crane the pan and tilt remote head should be positioned under the central pivot section. If the pan and tilt remote head is higher than the central pivot section the crane system should not be left unsupervised.
8. Make sure that there are no wires with electric power which has a higher voltage than the safety level within the movement range of the whole crane system. The power supply cable should not be pulled when swivelling the crane arm.
9. Avoid abruptly swivelling or stopping the crane as it may cause the crane to fall.
10. The crane must not be used in environments with wind speed faster than 5.5–7.9 m/s.
11. When the camera crane is used during wet weather the pan and tilt remote head, control box and control bar must be protected against the rain as the control box is strictly prohibited from making contact with water.
12. When the crane is in operation no one must enter the enclosure of the crane arm. You must avoid anyone standing directly under the crane.
13. No loose objects may be stored or placed in or on the crane.
14. Ensure the location where the crane is installed can support the double overall weight of the crane, (including the counterweight) and operators.

15. When the control system is working the gear of the remote head is not allowed to be turned, if it needs to be adjusted the power supply should be switched off before the adjustment is made.
16. In the interest of safety when operating the crane, abrupt or sudden movement of the crane should be avoided.
17. Only original accessories manufactured by MovieBird Technologies may be used with the crane.
18. Check that there are no objects placed around or on the rail of the moving counterweight trolley.
19. The crane arm must not be extended without another person holding the enclosure of the crane arm tightly.
20. The first three sections (All moving sections) of the crane arm must not be held.

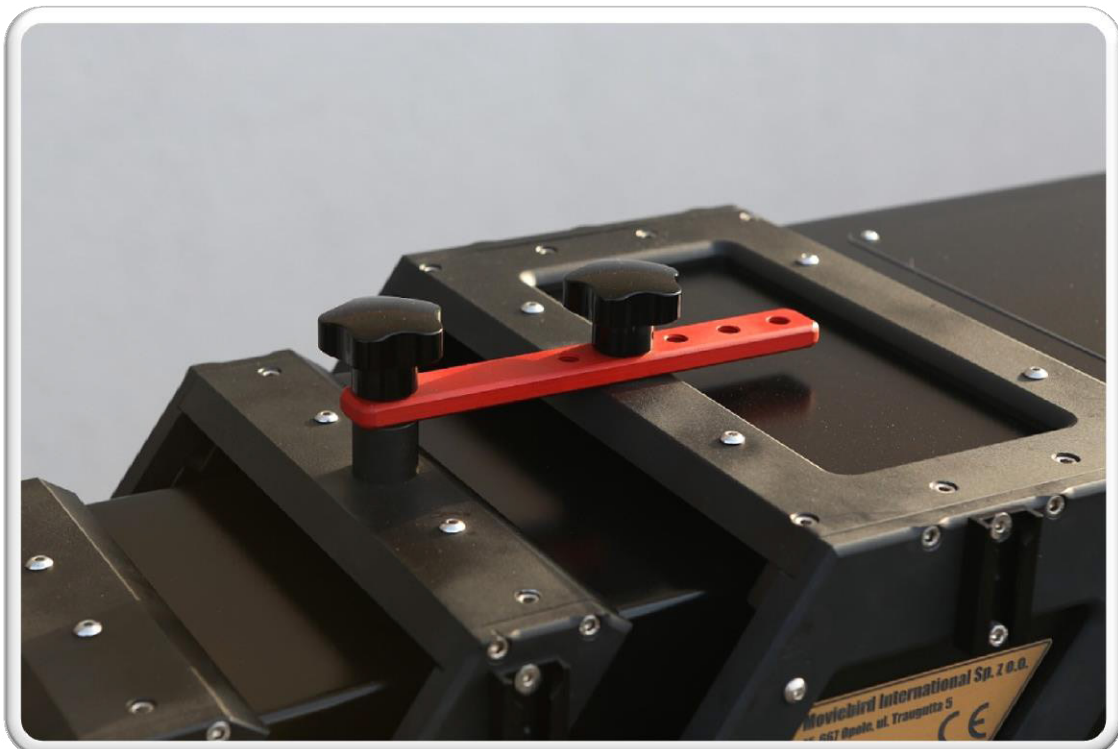
Safety Points

1. MovieBird telescopic crane to be operated and assembled by a trained MovieBird Operator.
2. MovieBird telescopic crane not to be left unattended without first securing arm to base with straps provided.
3. MovieBird telescopic crane only to be lifted by its own lifting straps using handles provided on cranes.
4. Care must be taken when lifting counterweights onto saddle.
5. All guards to be left in place on MovieBird during operation (unless removed by MovieBird operator for adjustment only and then to be re-fitted before re-use of MovieBird)
6. Electronic & mechanical “stops” to be in full safe working order (to be verified by MovieBird Operator)
7. Brake to be operated by MovieBird operator only.
8. Base must be maintained horizontally in a level position when in use.
9. All personnel in the vicinity of the MovieBird are to be made aware of its scope and speed of movement.
10. It is forbidden to operate the crane without all of the safety covers installed.
11. To reduce the possibility of injuries, the crane must be operated by at least two persons.
12. It is forbidden to remove or add any weight to the crane without permission of the crane operator. Any added/removed weight will cause unbalancing of the crane which may lead to serious accident.
13. Any time during operating of the crane, the crane operator must have at least one hand holding the crane. Any hand-free movement of the crane arm is forbidden.
14. All of the service points, safety covers, adjustment screws – if not stated otherwise in this manual – are to be handled only by certified MovieBird technician.
15. Any people in the vicinity of the crane must be informed about the intended movement of the crane, it’s work characteristics and safety guidelines included in this manual.

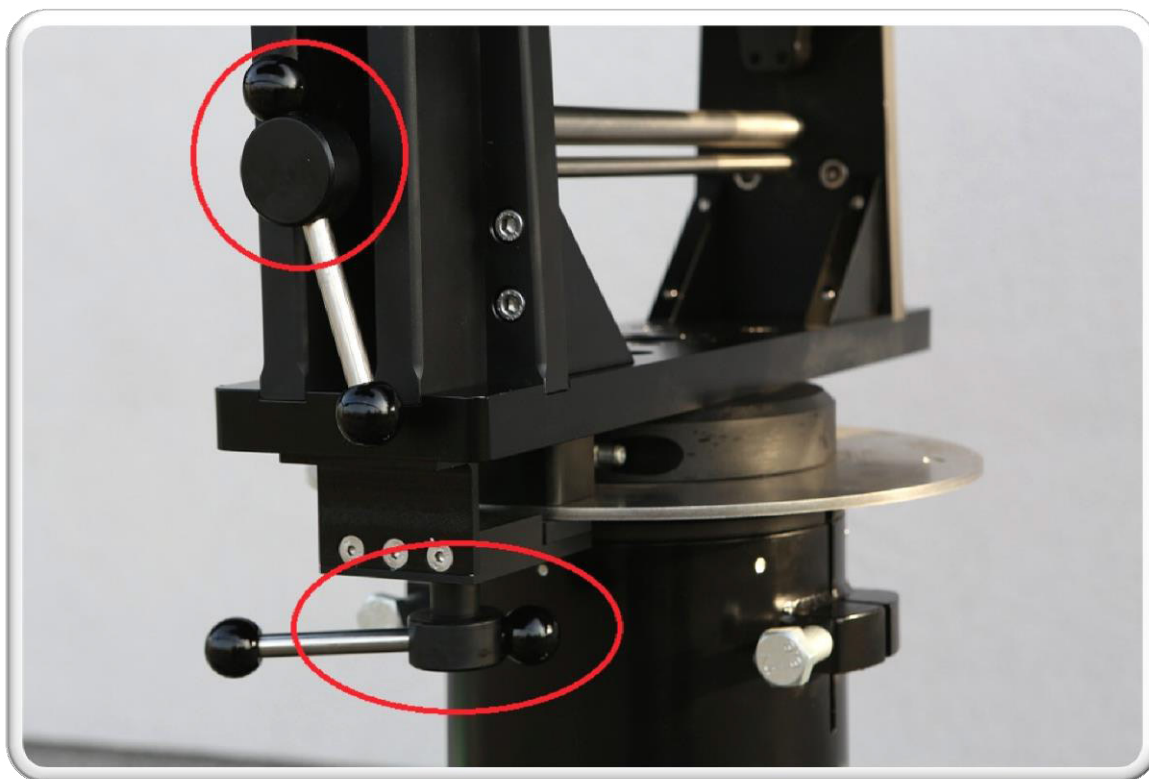
Safety Straps / How to Transport

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.

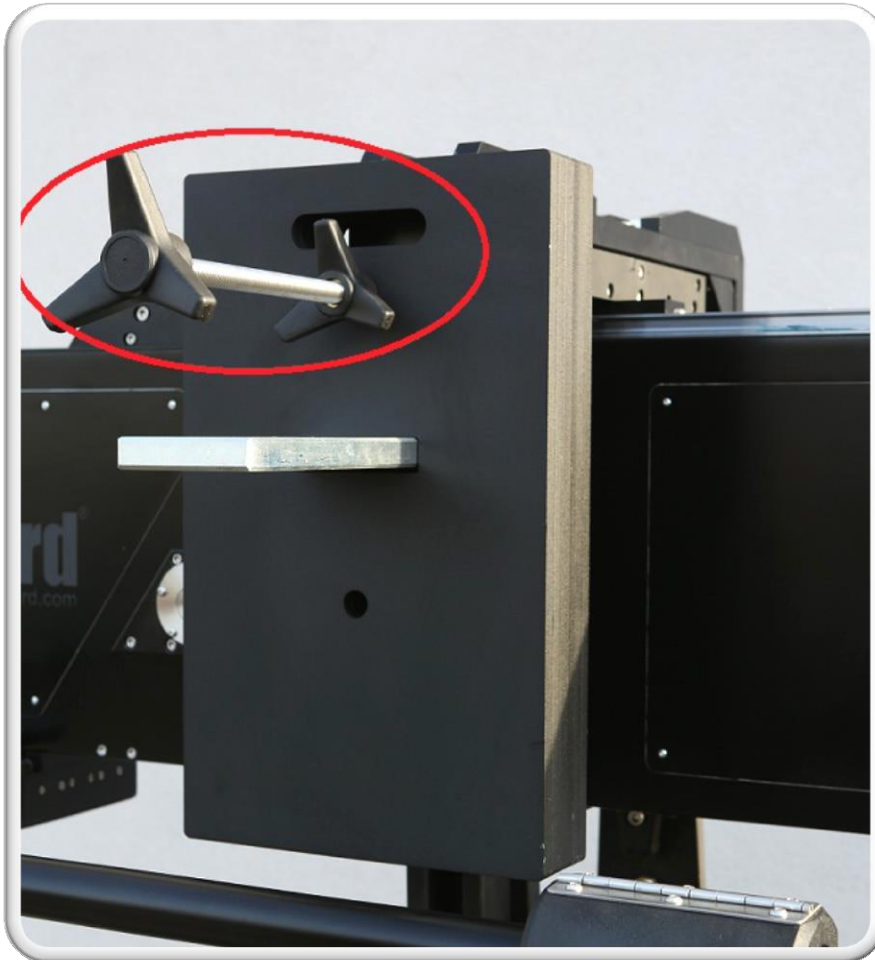


Also both breaks (PAN/TILT) need to be released.



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. Information about how to do it is described deeper in this instruction.

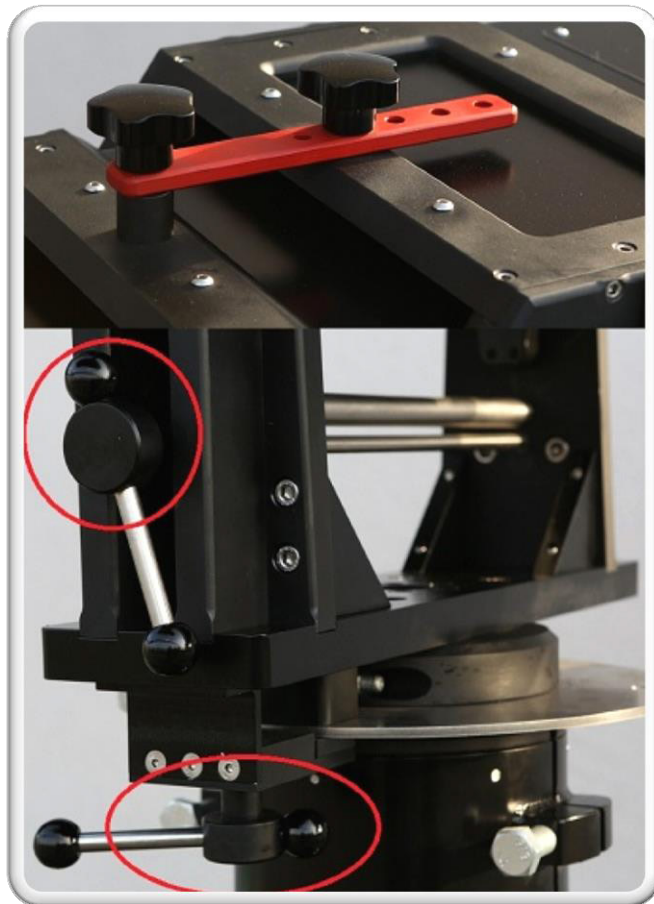
Part 2

Crane Mechanics

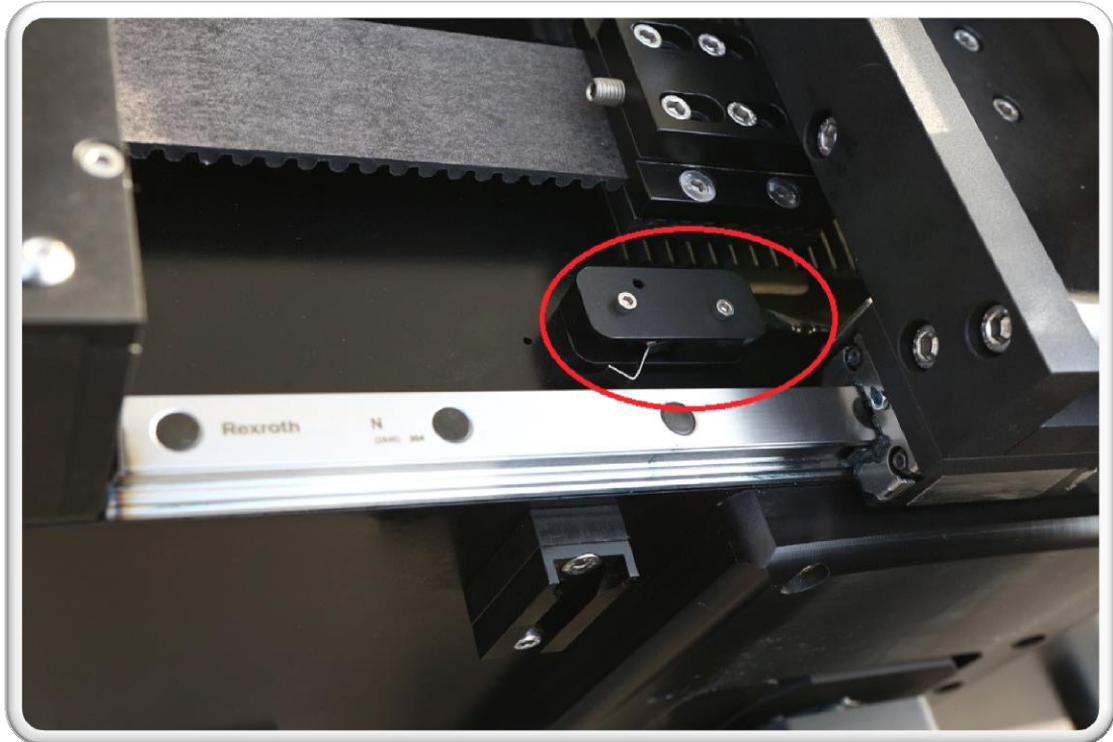
How To Balance The Crane

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).

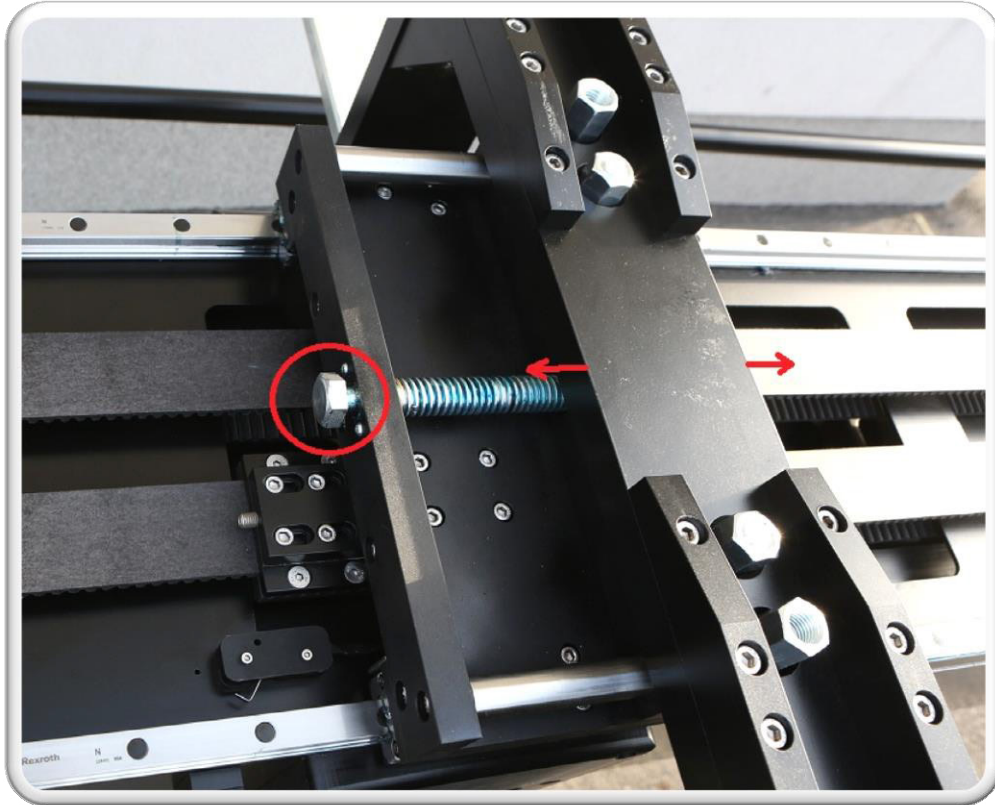


3. Extract the arm a little manually so the platform will go off from the front end stop.

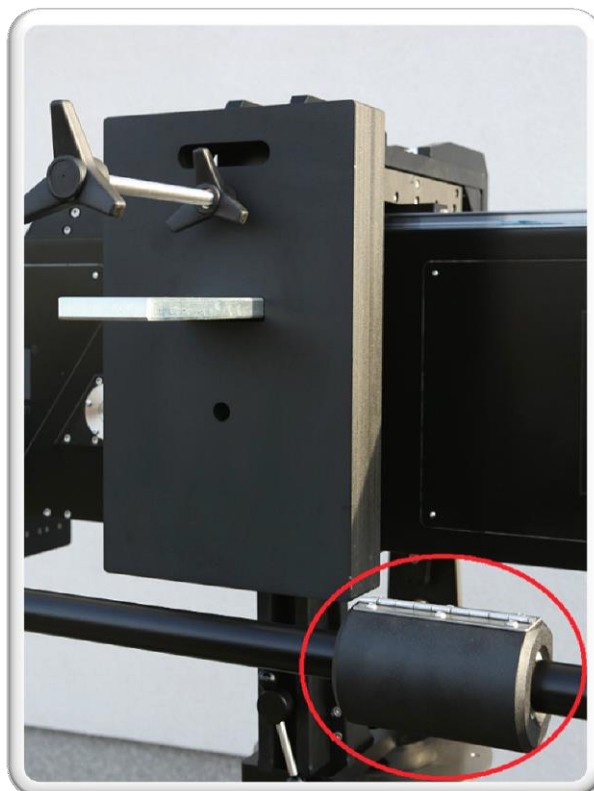


4. Turn on electronics (box, leveling head, AC)
5. Intract the arm. This is the 1st position to balance the crane.
6. Loosen up the rear strap. 2nd person should be securing the crane. If that person is able to hold the crane then remove both straps.

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.

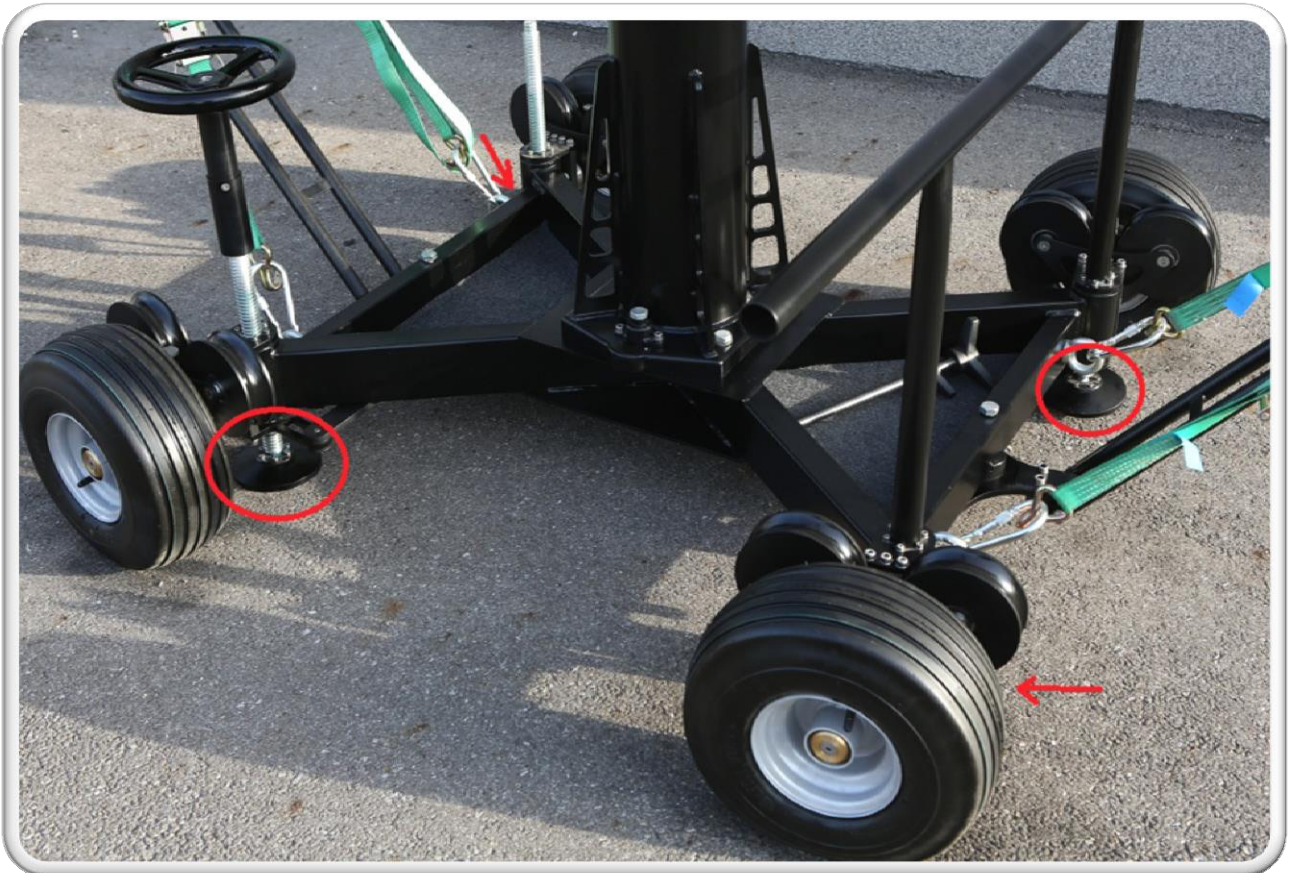
10. If the front overweights – add the counterweights until balance is obtained. If the rear is heavier – remove the counterweights until balance is obtained. We use all kinds of counterweights if l's necessary to add small values. We need to remember that M16 bolts which secures the counterweights also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

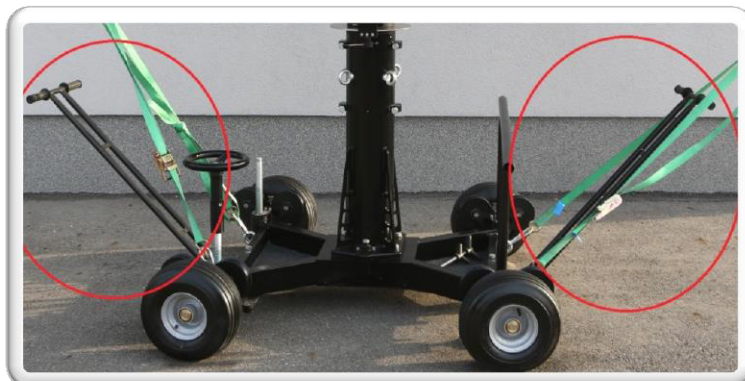
D.1. Dolly is permanently equipped with leveling jacks. We do recommend to use all of them while operating the crane for best stability and to maintain perfect level in both axes.



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

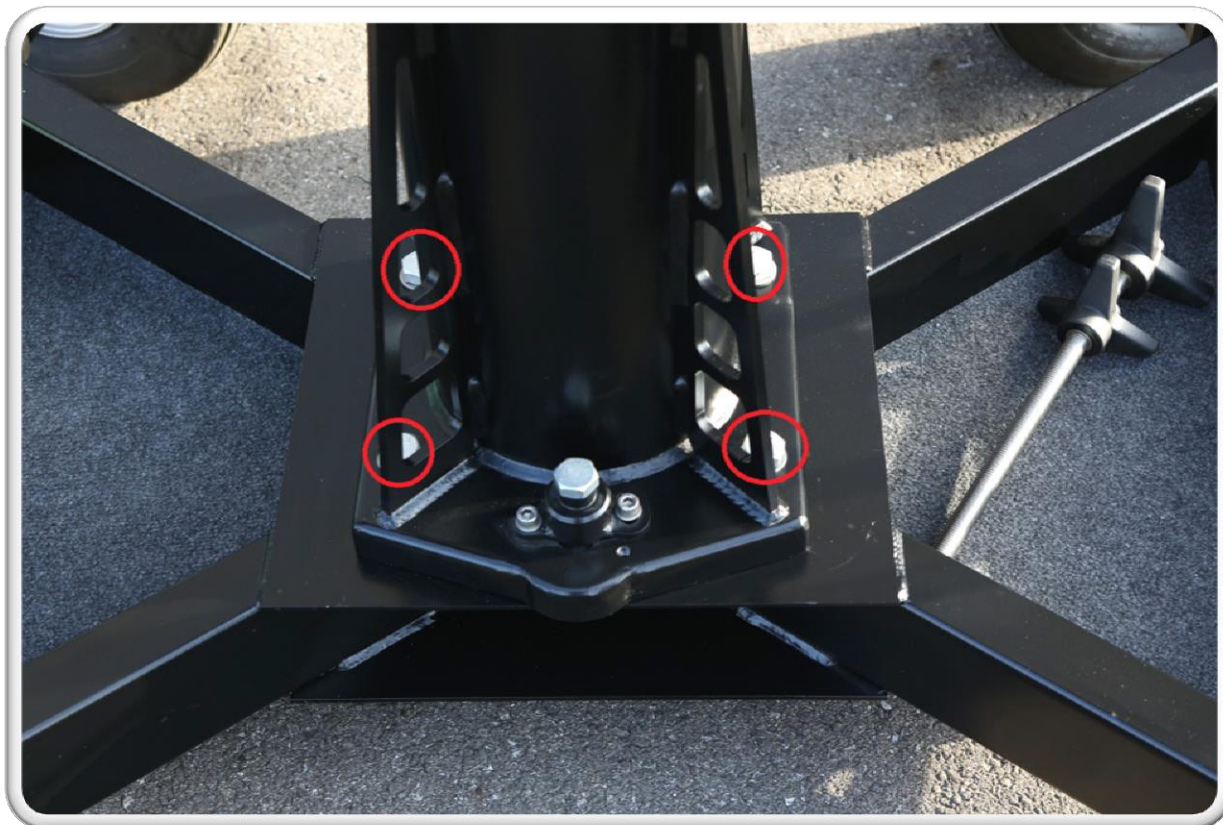


D.3. On the dolly there's a steering supported by 2 drawbacks connected to each other for best maneuvering of the crane. Optionally it's possible to block one of the drawback and separate it from the other one by dismounting the connecting strip under the dolly.

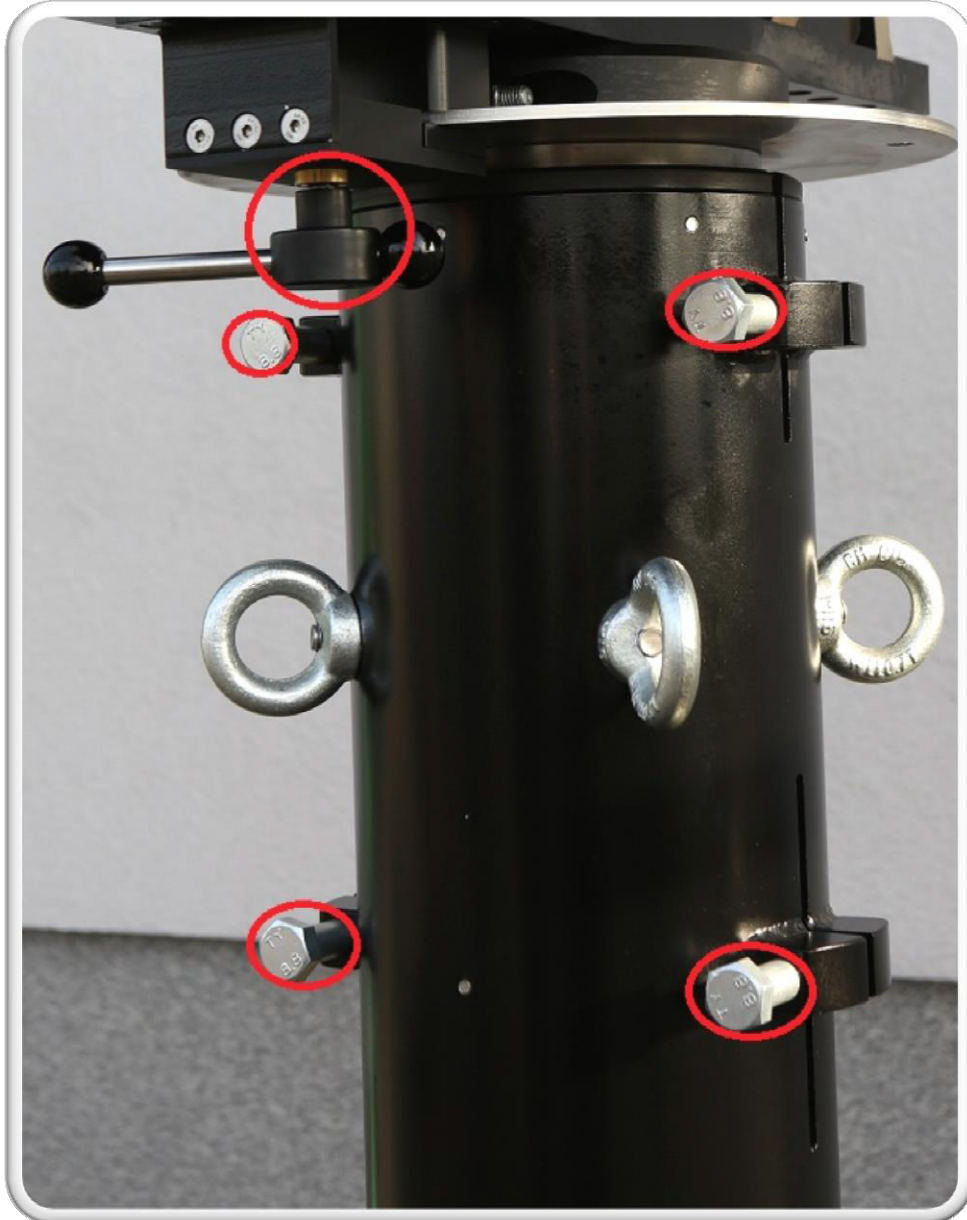


Column

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

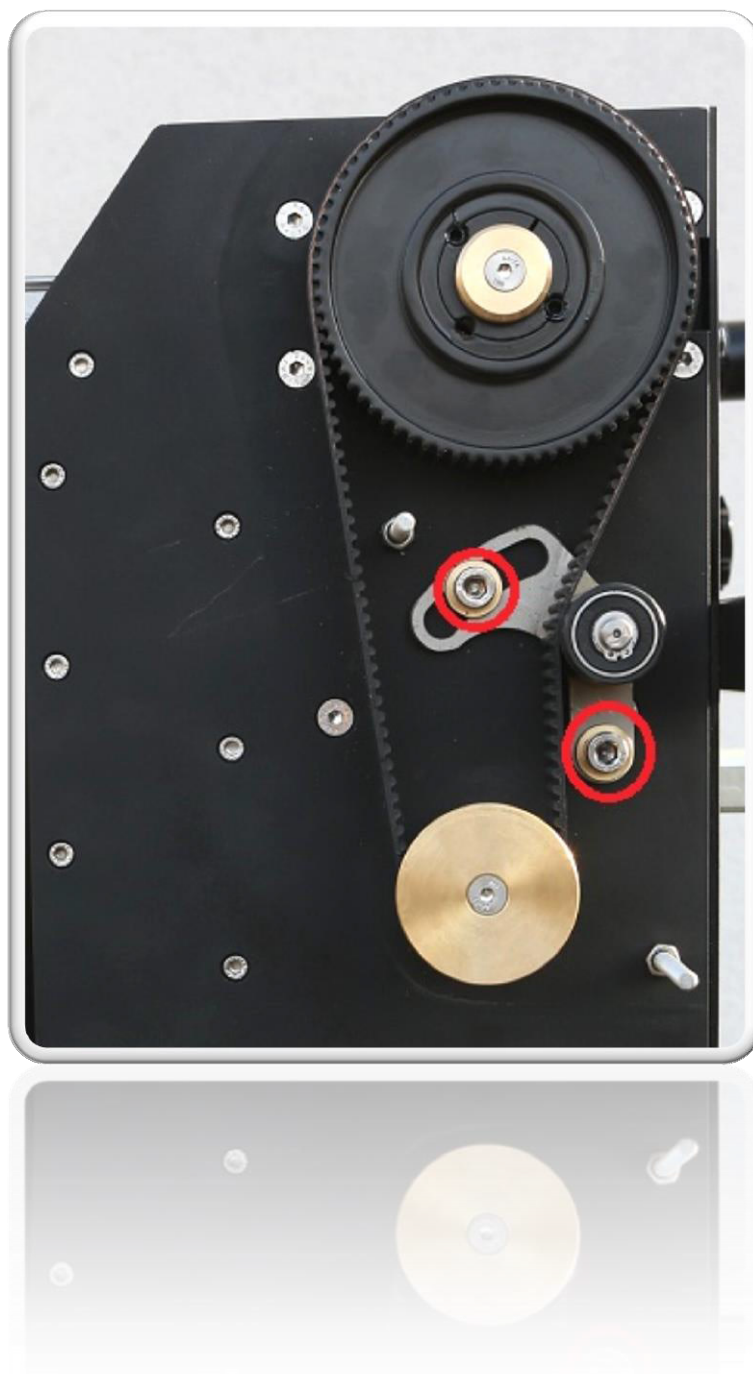
IMPORTANT: Electronics **MUST** be switched off before working inside of the arm. Also it is forbidden to move the sections during adjustment of crane mechanics. MovieBird does not take any responsibility if someone is maintaining the crane and don't abide above rules.

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

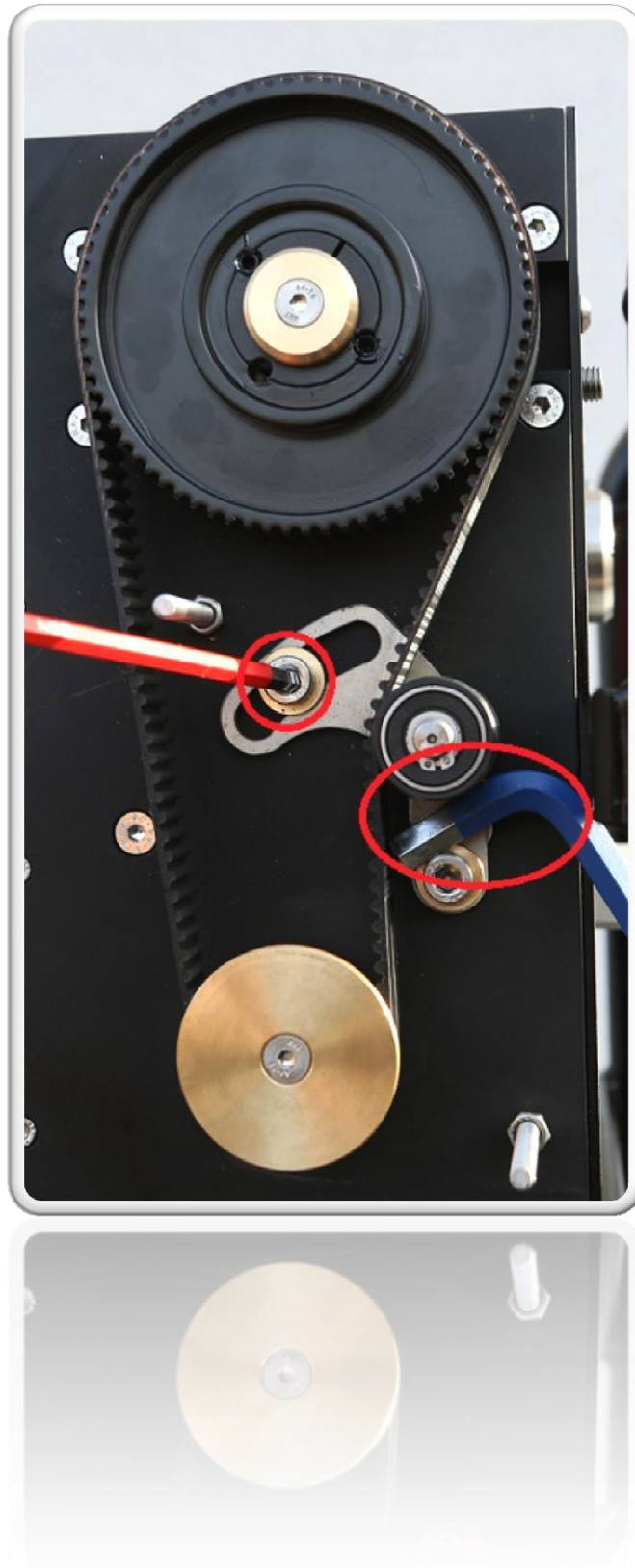
1. Remove the cover.



2. Loose both screws.



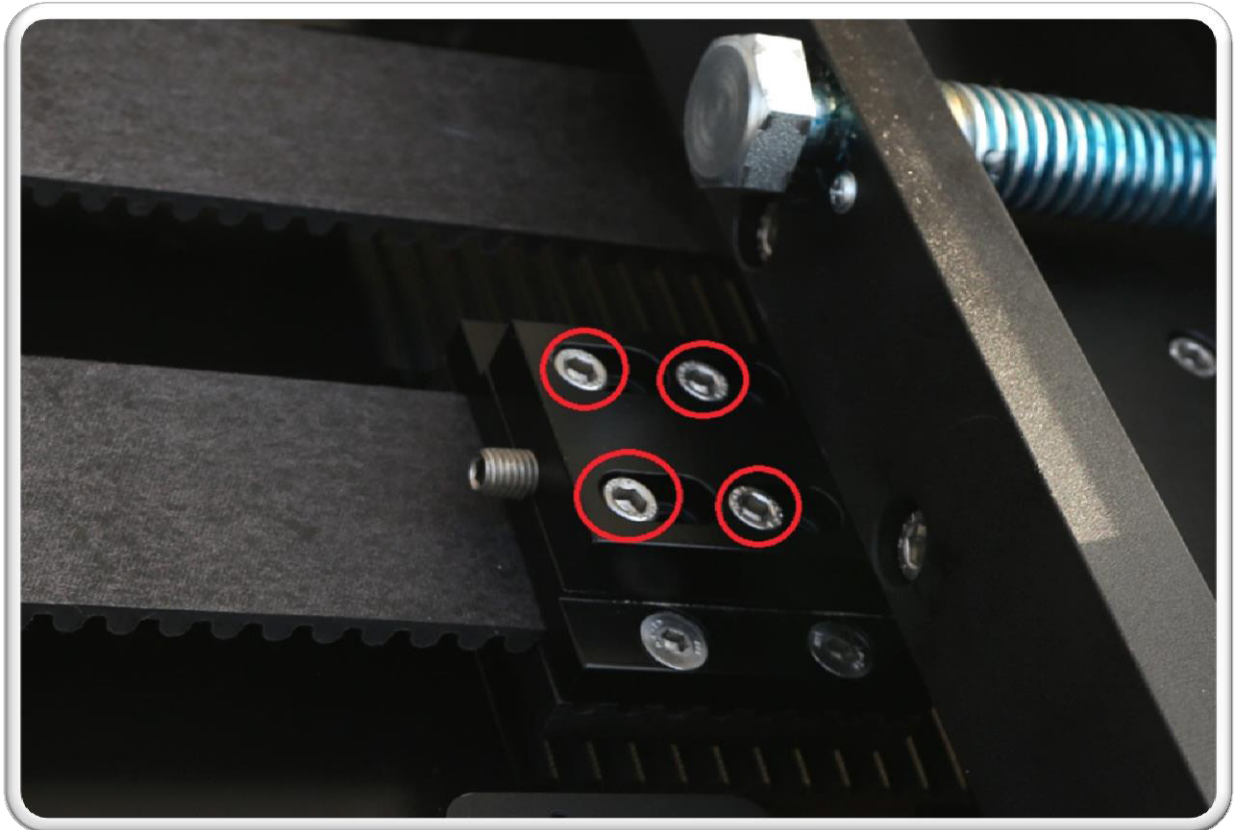
3. Tighten the belt like shown on the picture below (blue key). With the red key we tighten the screw.



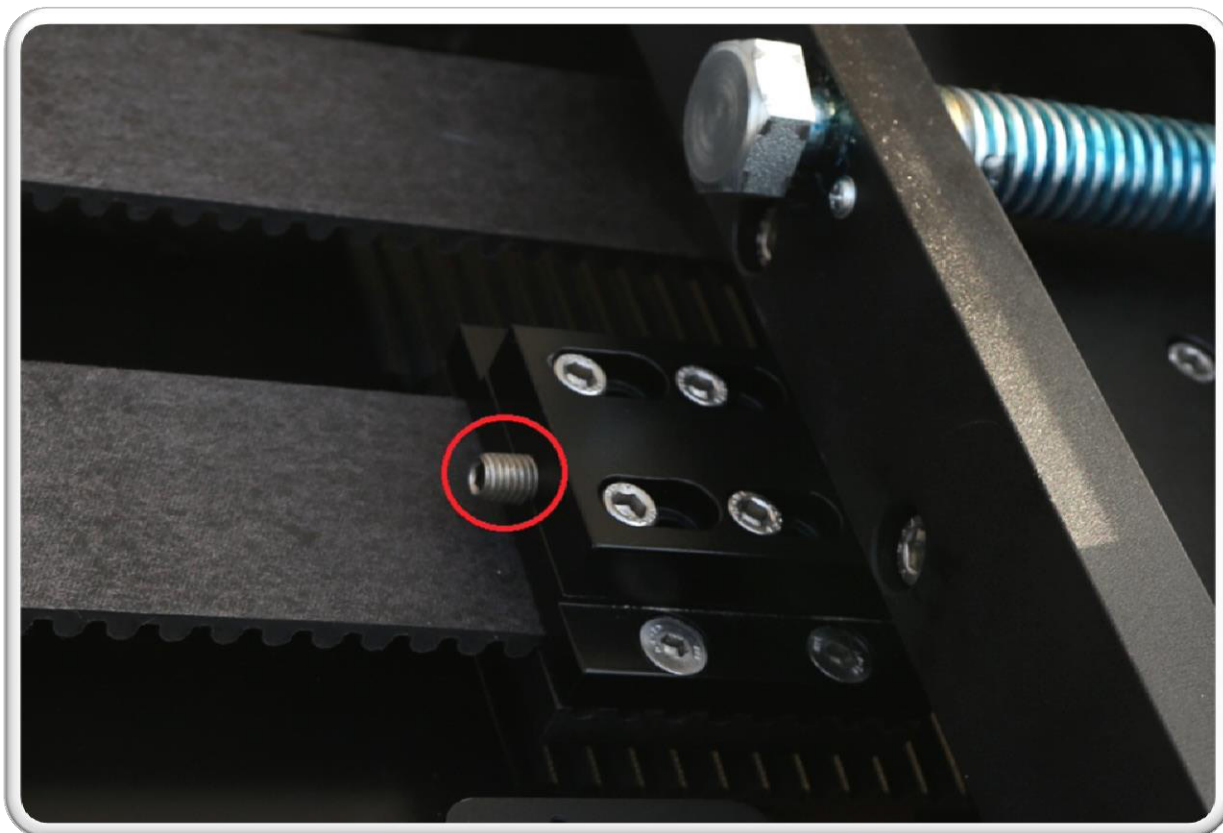
4. Remove the blue key and tighten the screw.

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

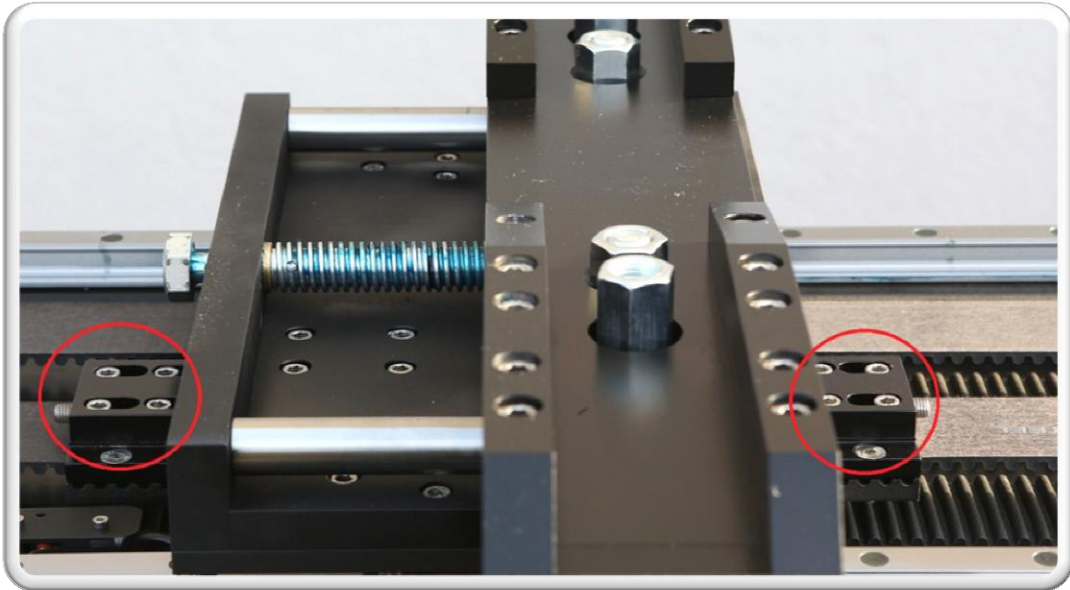
1. To check the tension of the belt – balanced, intracted crane should be lifted up to maximum angle. If the belt is loose or sag – level the crane and put straps on.
2. Loose 4 screws shown at the picture below.



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

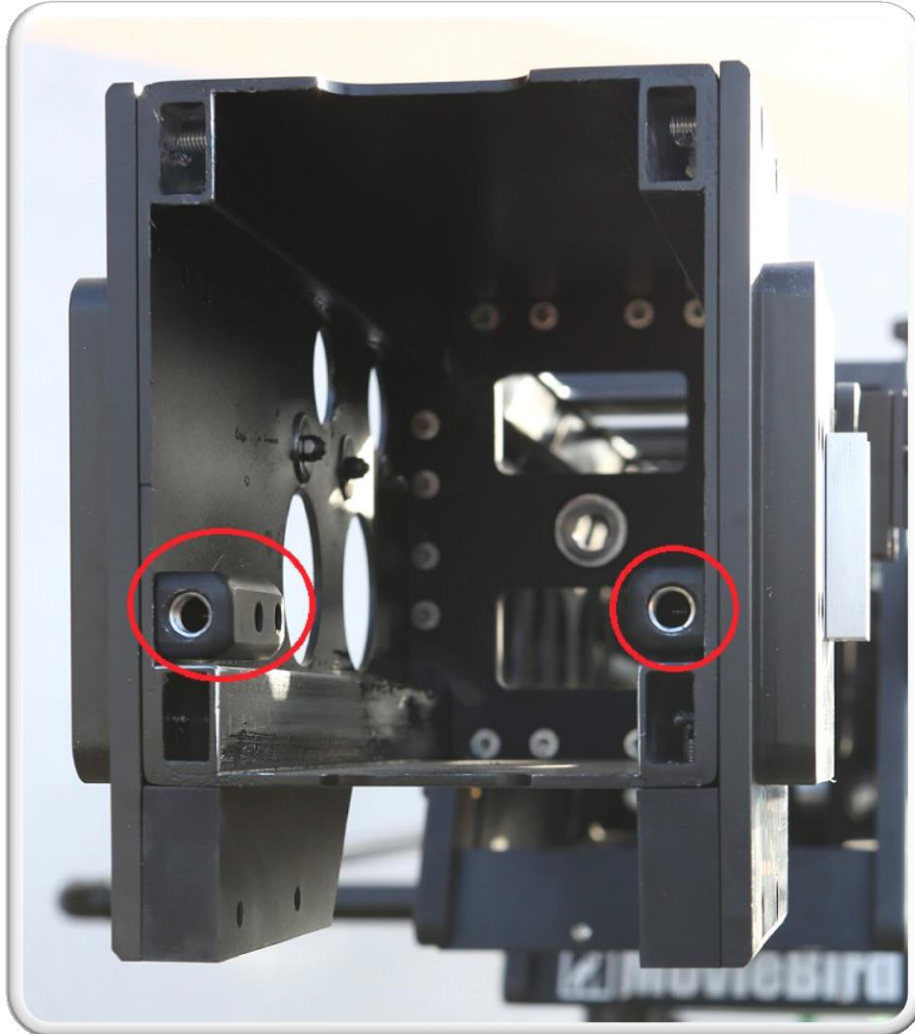


4. Operation should be performed on both sides of the platform to evenly tighten the belt.

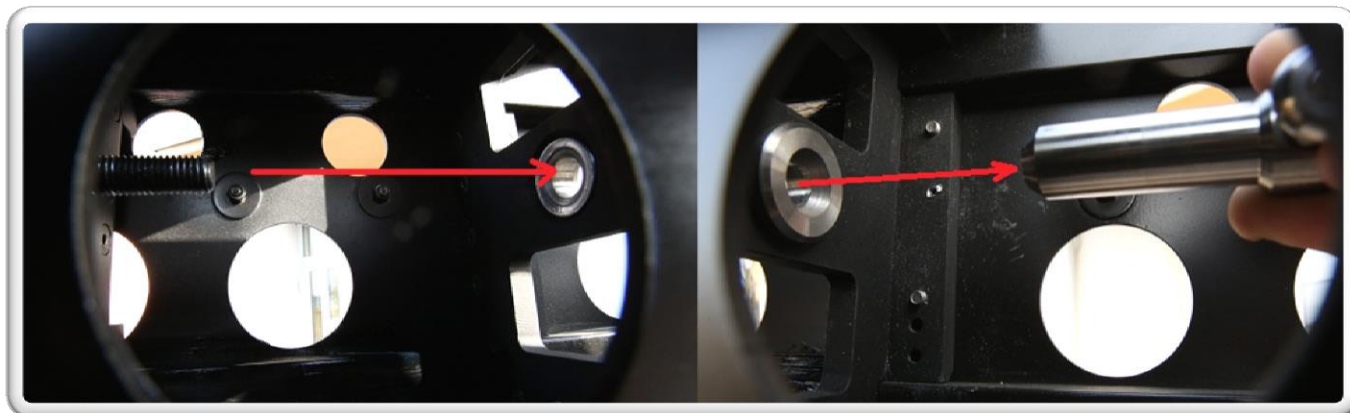


A.3. There is a possibility to add an extension to the last section (60cm/1m). Below instruction shows how to do it.

1. Remove the leveling head and mounting blocks.

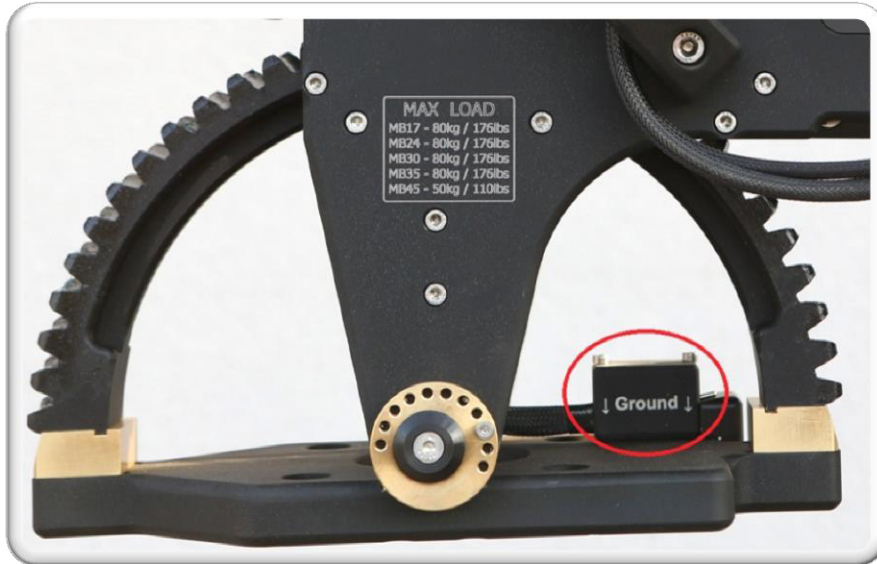


2. Put the extension into section so the screw will fit into the hole. Then we screw the nut tightly so there won't be any loose on the extension.

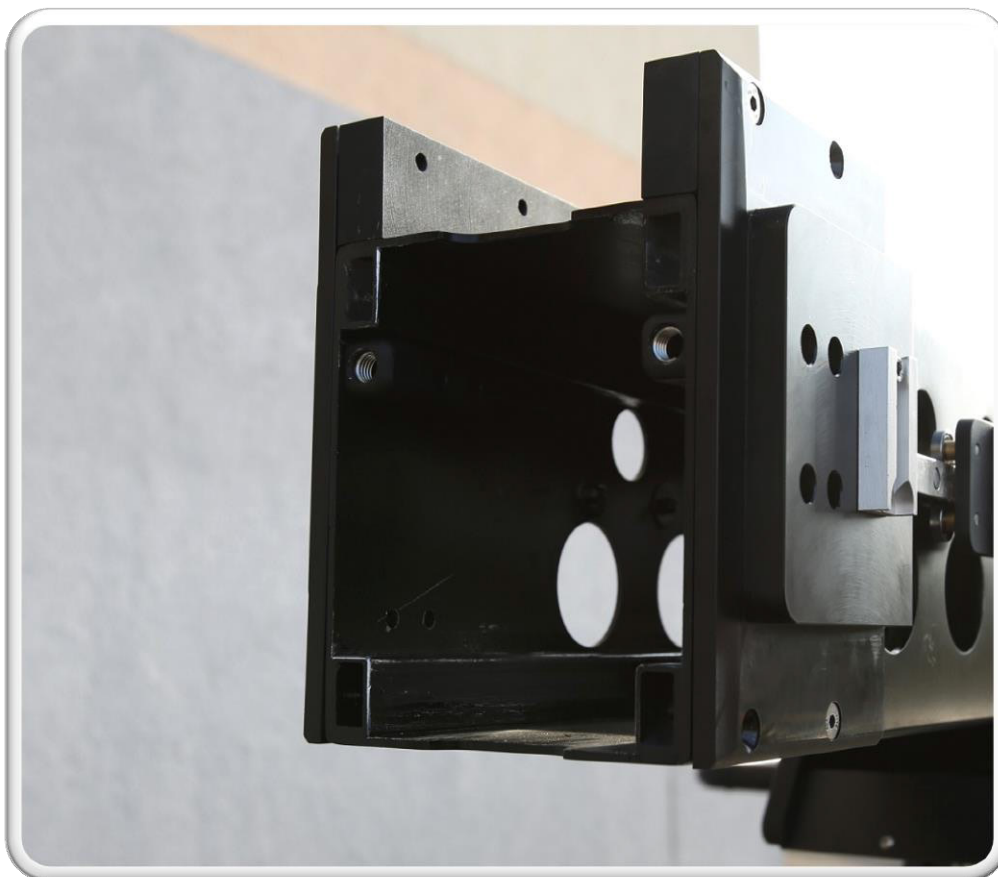


A.4. Below instruction shows how to do an overslung.

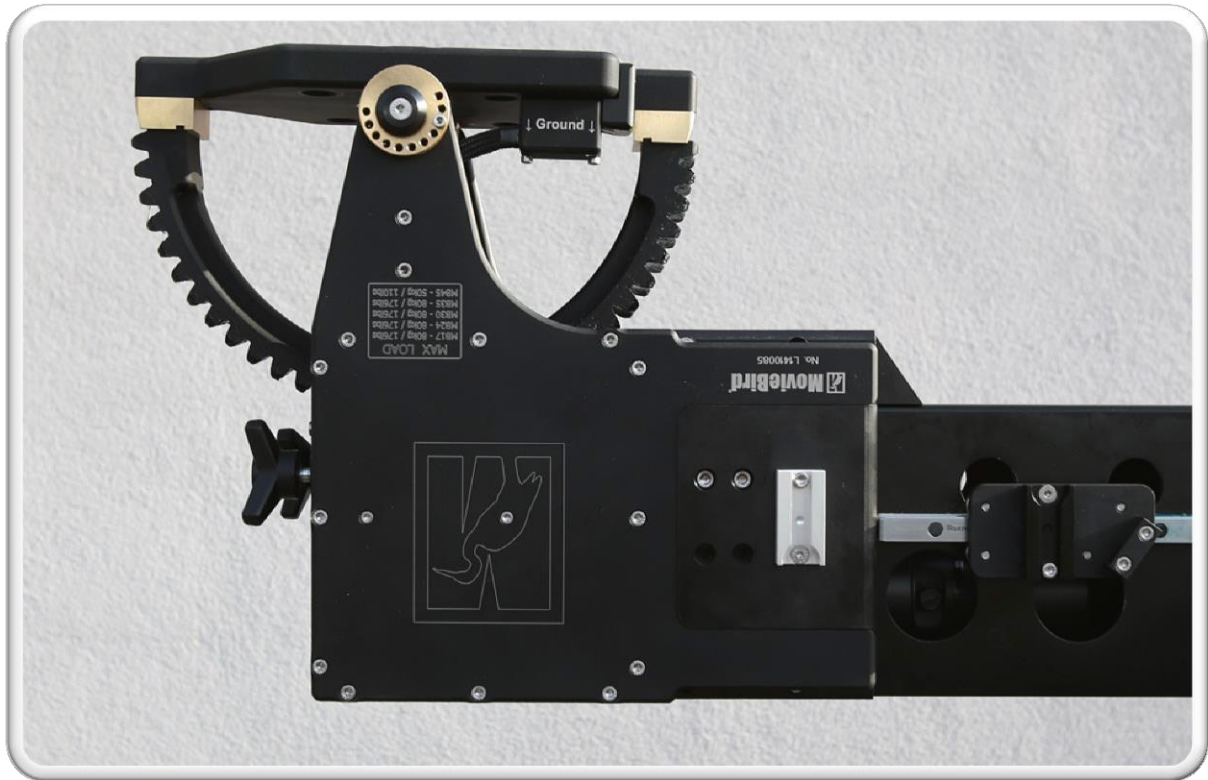
1. Remove the cables.
2. Release the inclinometer and screw it back upside-down.



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:

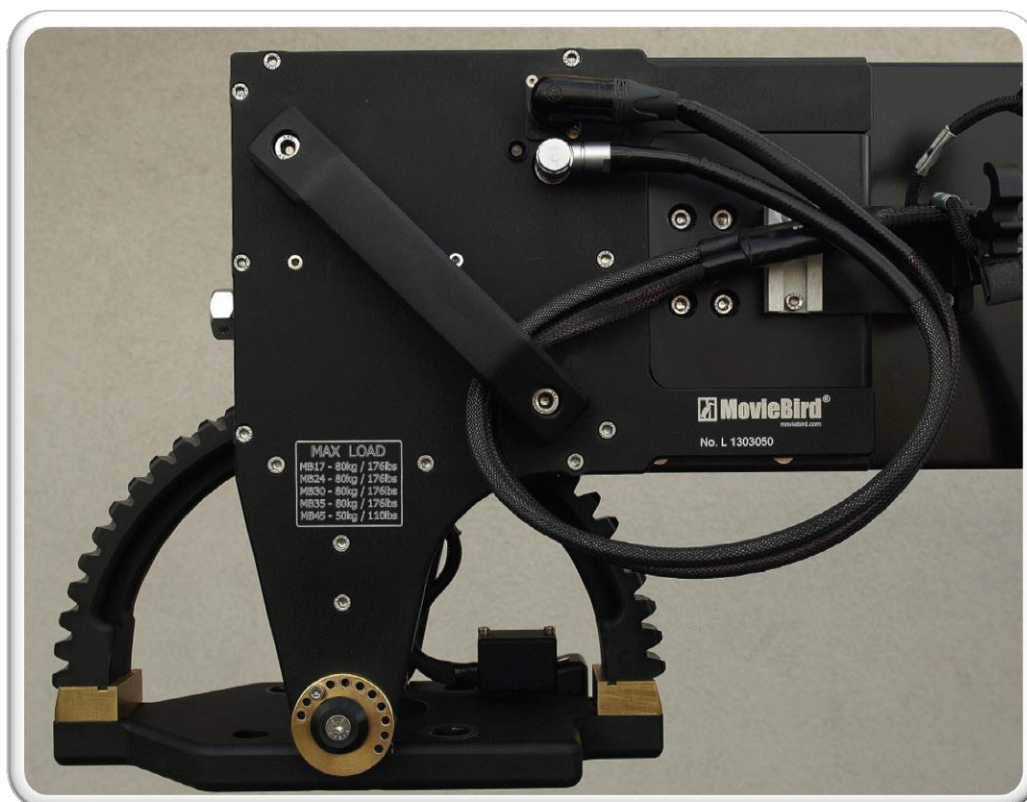
- Box



- 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	<ol style="list-style-type: none"> 1. Motor cable fault, security bridge is open, startup electronics is damaged 2. Proximity switches connection fault 	<ol style="list-style-type: none"> 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 "ERROR 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