



Ski and Snowboard Simulators

Assembling Leader Pro Simulator



tools

This is a minimum set of tools required for assembly and (or) disassembly of any SkyTechSport simulator platform.

1. Wrench 10mm, 13mm, 17mm (2 pcs.), 19mm, 24mm (only for Olymp)
2. Allen key 10mm, 8mm, 6mm, 5mm
3. Cutters (to trim airplane cables 2.5mm steel)
4. Phillips head screwdriver (#2)
5. Flathead screwdriver (4mm, 6mm)
6. Pliers
7. Electric Meter
8. Electrical Tape

First time assembly also requires:

1. Electric drill and drill bits:
 - 4.2 mm – 5 pcs., for installing aluminum brackets onto the rail
 - 3.0 mm – 5 pcs., for installing plywood covers onto the podium
2. Riveter
3. Knife (X-Acto Knife)

space

3.35m / 11'

1.65m
5'5"

power
connector

connect up to 3 screens
via HDMI

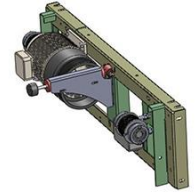
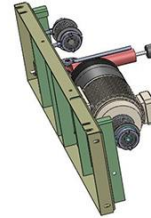
1 step

Marking out the space for the platform

Unbox all equipment. Mark all the pieces with the numbers indicated on the original boxes.

Mark out the space required to place the simulator platform.

Place two drive frames (**package 3**) opposite each other within the marked-out space. Make sure the red +12V pulley cable wheels go in the back of the space (based on the point of view of the skier).

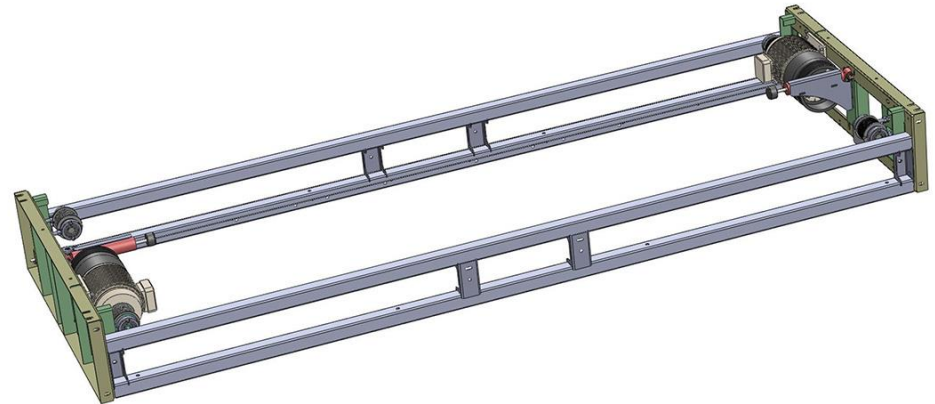


2 step

Attaching horizontal rails

Connect two drive frames with two horizontal rails (**package 2**). Each horizontal rail has its own unique position, check for vertical steel plates to face outwards. Make sure not to tighten any bolts at this point.

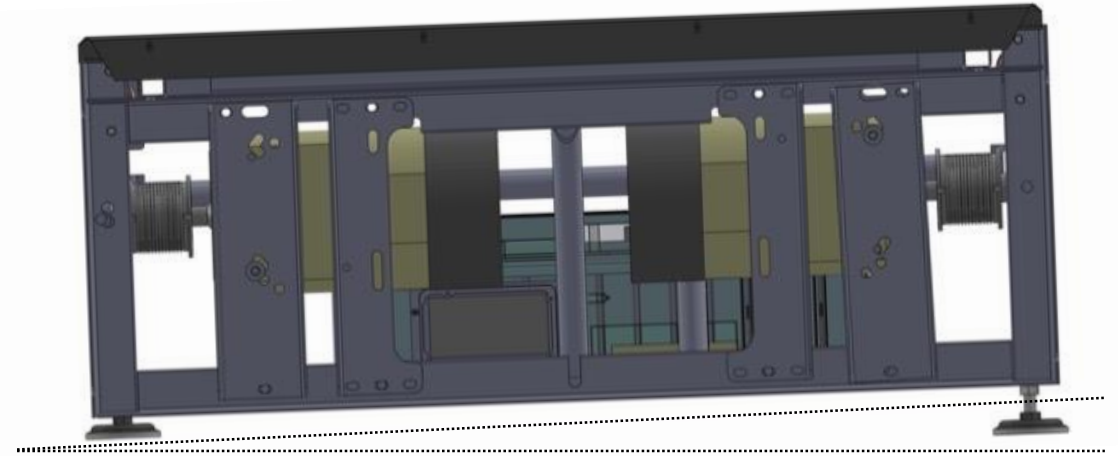
Connect the horizontal rails to the drive frames on each side of the machine (front and back) with green-yellow ground cables.



3 step

Attaching feet to the platform

Attach feet to the bottom of the platform as shown on the picture above. Feet in the front of the platform have to lift the machine off the ground by 4 cm (1 3/5"), and feet in the back of the platform have to lift the machine off the ground by 1 cm (4/5"). Use the feet to level the platform and adjust to the floor.

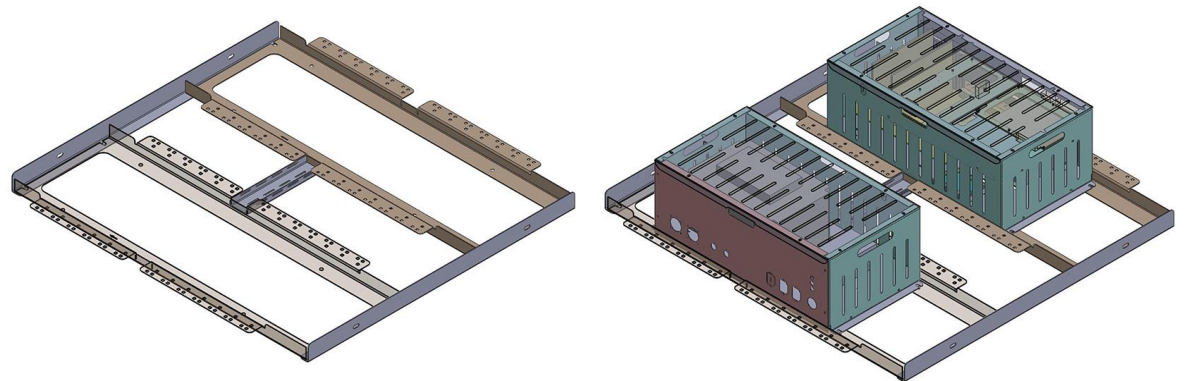


4 step

Installing control units

Take out and identify the control units (**packages 16, 17 and 18**). Leader Pro has two control units – computer unit (**package 17**) and main motor control unit (**package 18**).

Proceed to installation of the corner brackets, as shown on the picture, onto the inner sides of the horizontal rails of the simulator inside the simulator platform. The corner frames should be installed on the right side of the simulator platform (based on the point of view of a skier).



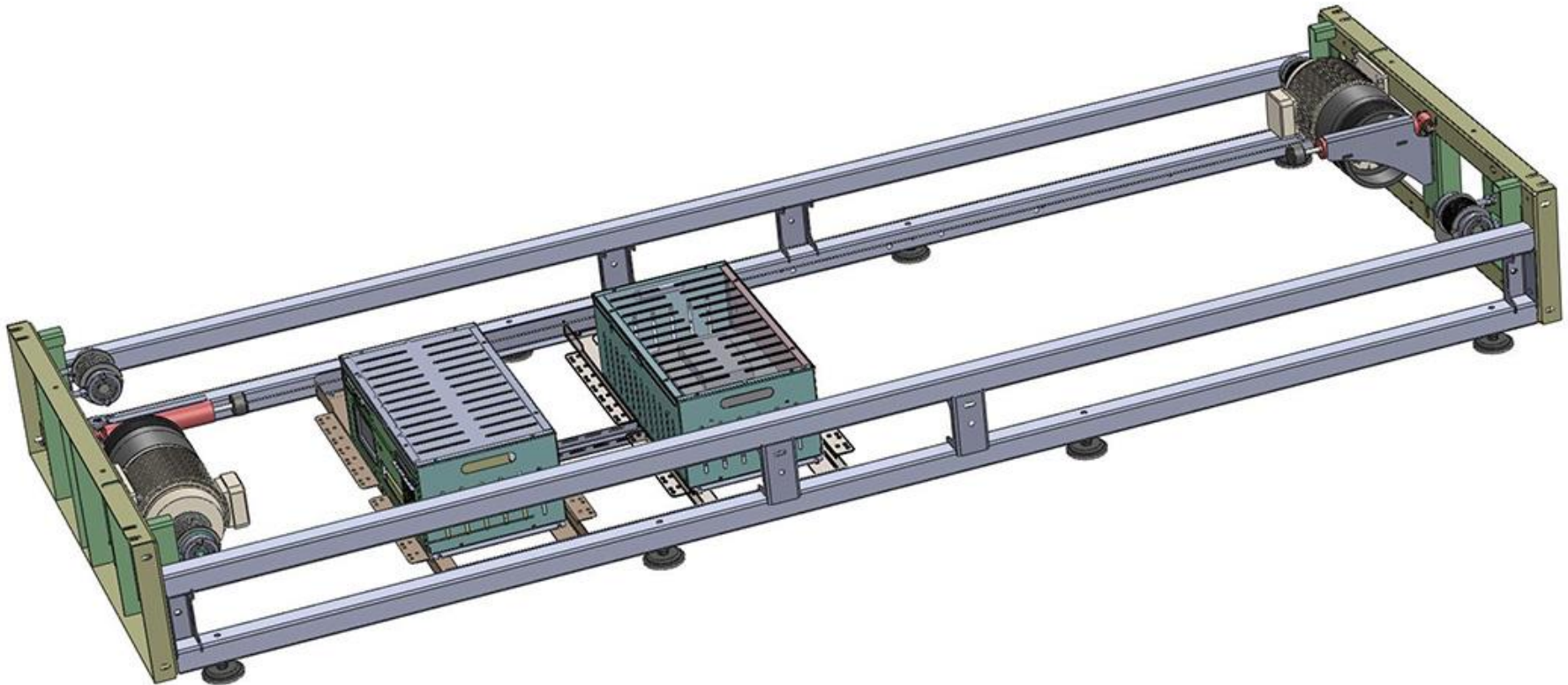
Mount the unit rack (**package 16**) onto the corner brackets as shown on the picture. Use rubber spacers between the holders and the brackets. Once complete, mount cable canals between unit holders .

Mount the control units onto the unit racks as shown on the picture. Make sure the units are closer to the front of the simulator (based on the point of view of the skier), allowing room for the back of the carriage and the +12V cable.

The order of the control units left to right should be as follows (based on the point of view of the skier):

1. Main motor control unit (**package 17**)
2. Computer unit (**package 16**)

Meaning that the computer control unit is to the far right of the simulator platform, close to the motors.

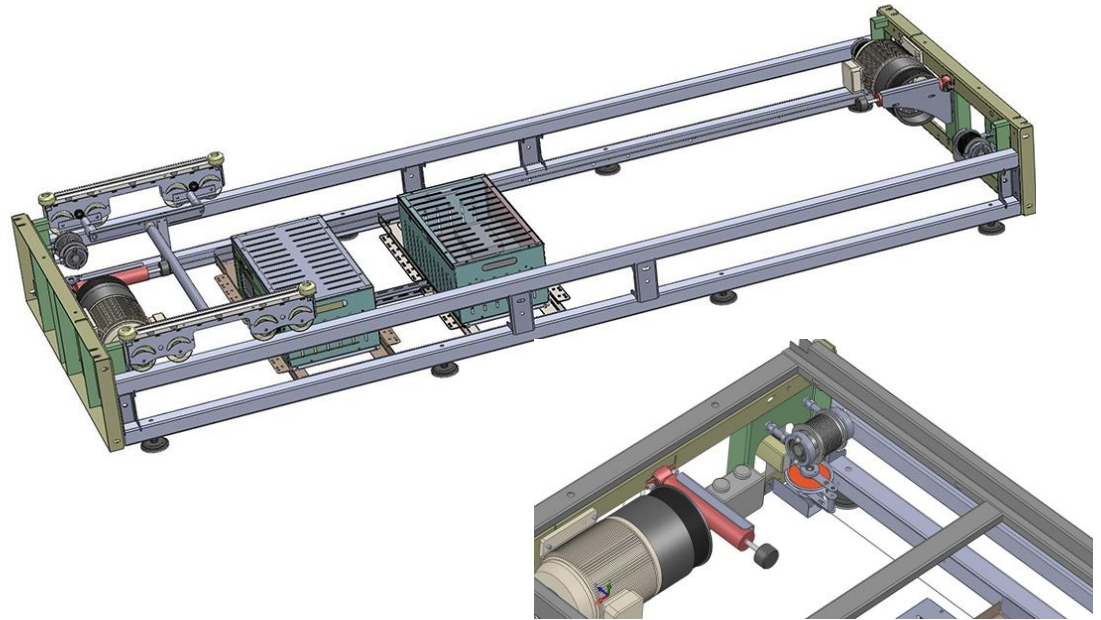


5 step

Installing ski carriage

Take two parts of the ski carriage and connect them with a cross bar.

Place it onto the horizontal rails (**package 15**). The back part of the carriage has an IR-transmitter, which has to face towards the IR-receiver and the +12V red pulley wheel on the right side of the platform (based on the point of view of a skier).

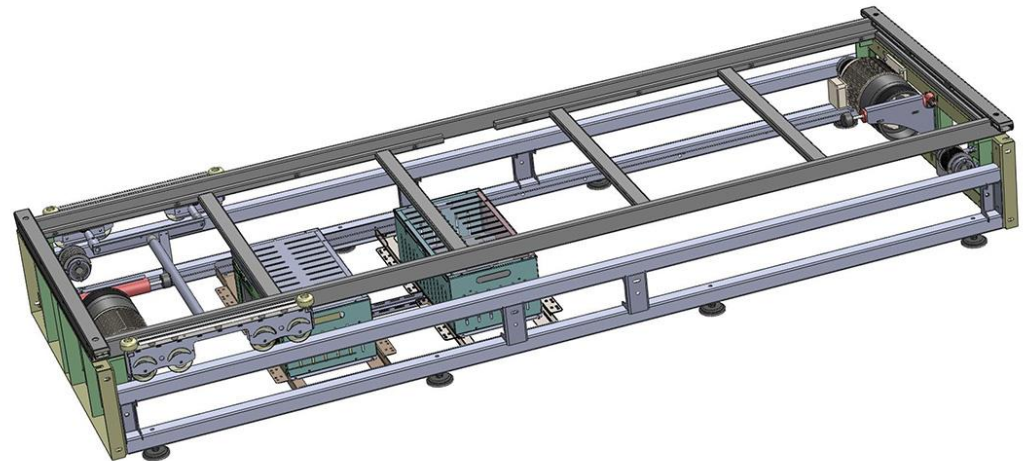


6 step

Assembling podium frames

Assemble the podium frame using 2 podium guide rails (**package 4**) and 2 rectangular podium frames (**package 1**). Place the assembled frame onto the simulator connecting drive frames as shown on the image bellow. Spacer plates have to be used between the podium frames and the machine.

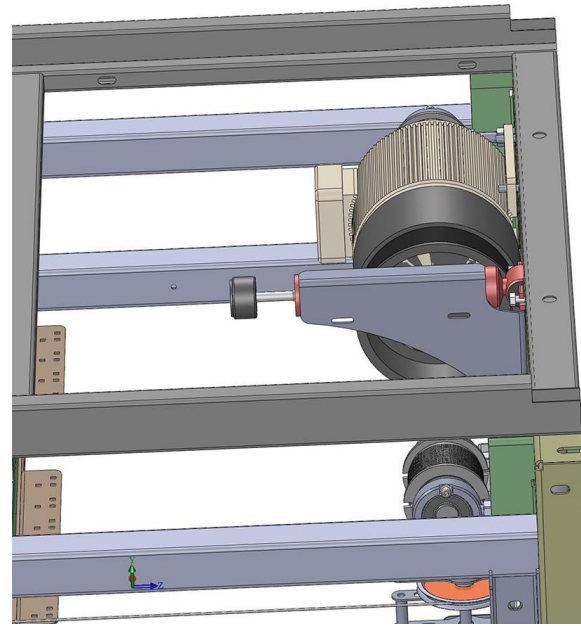
Tighten all the bolts and nuts of the frame.



7
step

Mounting shock absorbers

Mount two orange shock absorbers to each side of the platform as shown on the image above.

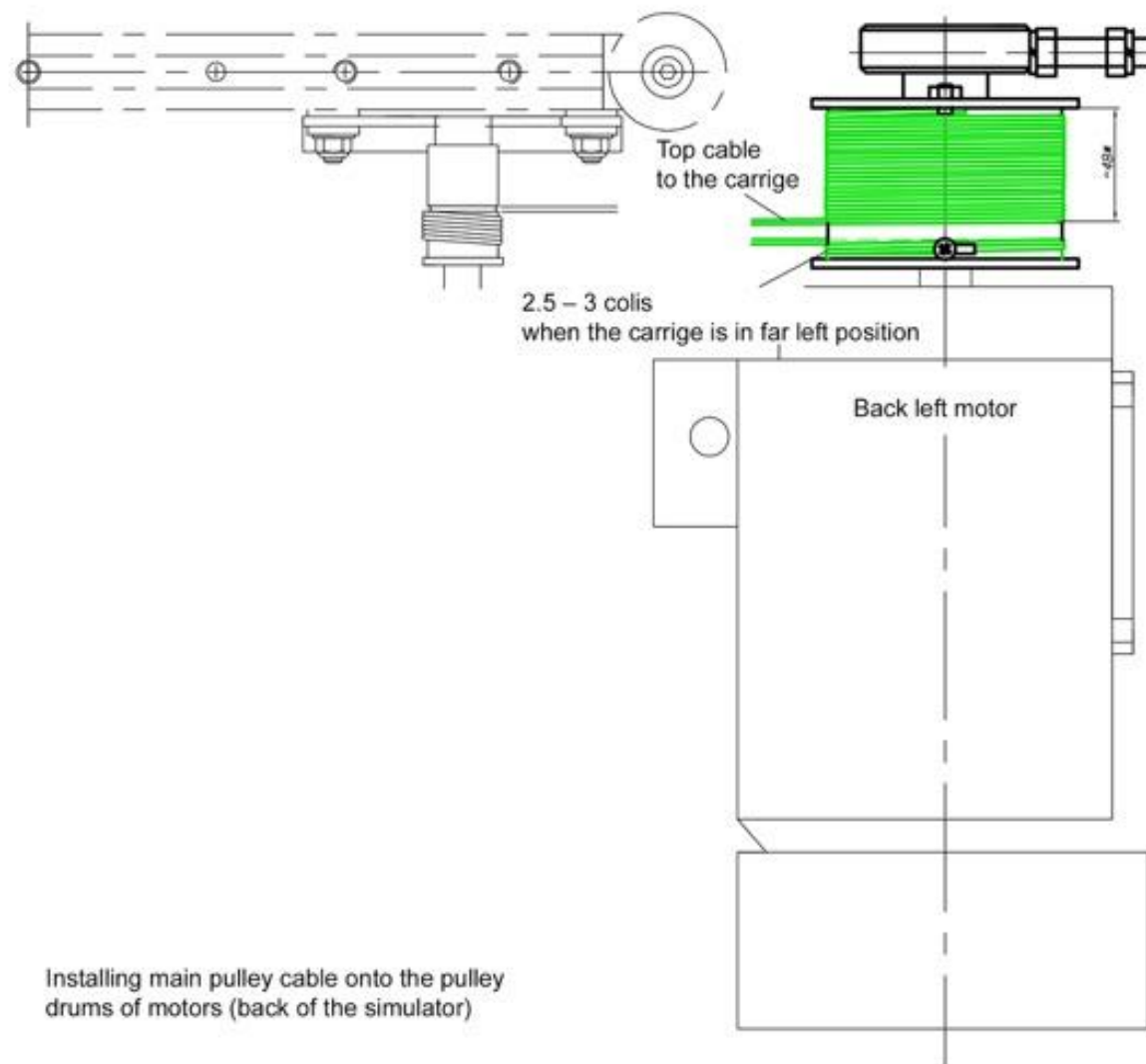
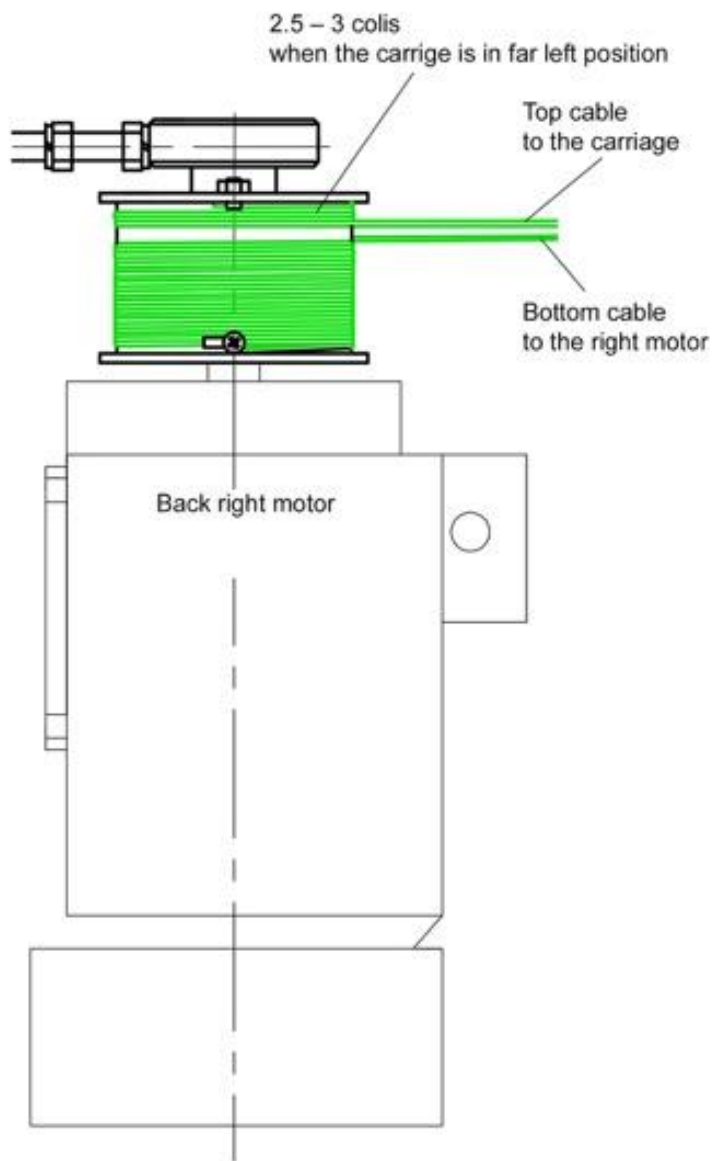


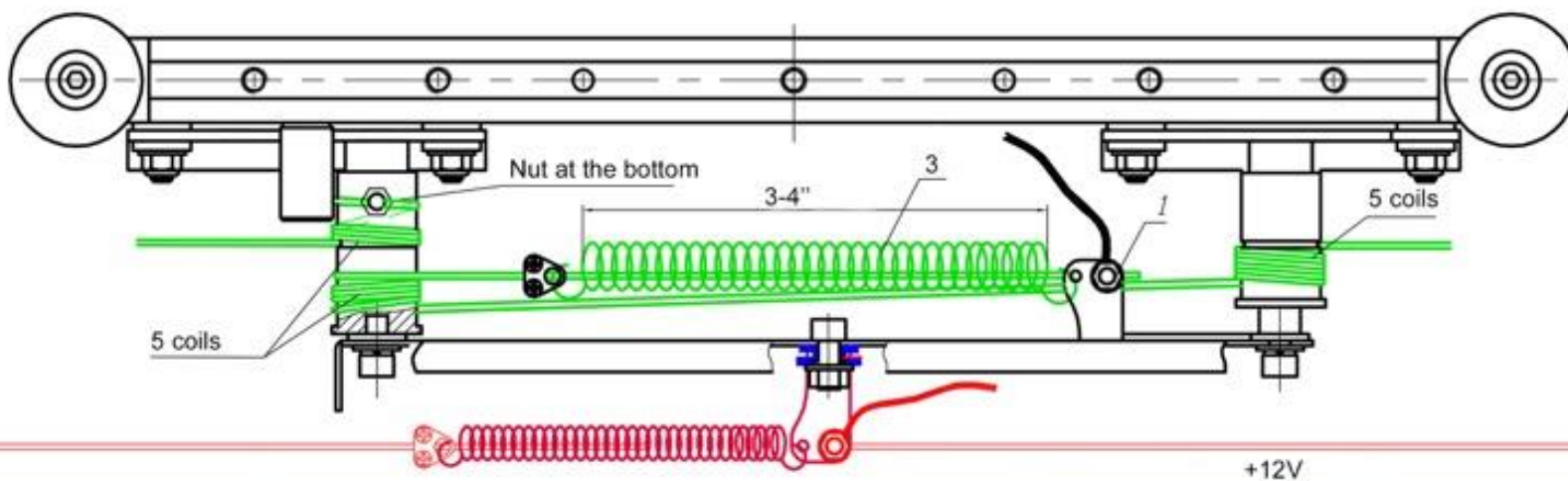
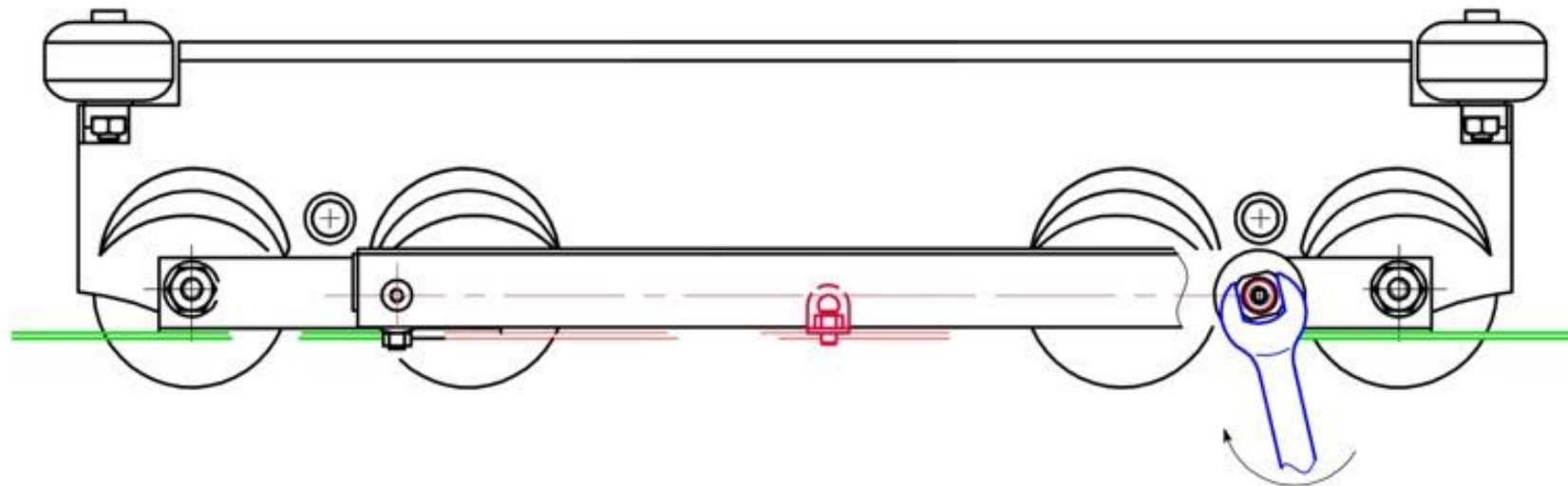
8 step

Installing back loop of pulley cables

To install the back loop of the pulley cables, take out 3 airplane cables – one 11.5m cable and two 7.5m cables. Use the diagrams “Installing main pulley cable onto the pulley drums of motors (back of the simulator)” as a reference.

1. On the right side of the simulator (based on the point of view of a skier) attach and wind up the *bottom* 11.5m cable onto the *inner side* of the reel of the motor (closer side to the motor).
2. On the left side of the simulator (based on the point of view of a skier) attach and wind up the *top* 7.5m cable onto the *outer side* of the reel of the motor (further side to the motor).
3. Roll up the carriage to the shock absorbers of the left side of the platform.
4. Stretch the bottom cable towards the left motor avoiding any obstacles and mount it on the *inner side* of the reel of the motor (closer side to the motor). Make 3 coils with it on the reel.
5. Take the top cable from the left motor and mount it on the left side of the carriage, making 5 coils, as shown on the diagram.
6. Take the second 7.5m top cable and mount it to the *outer side* of the reel of the right motor (further side to the motor). Make 3 coils with it on the drum.
7. Take the top cable from the the right motor and mount it on the right side of the carriage, making 5 coils on the first reel and then another 5 on the second reel, as shown on the diagram. Slightly tension the cable loop.
8. Making sure all 3 cables make a closed loop, carefully slide the carriage along the horizontal rails of the simulator.
9. Check if the cable goes smoothly in the grooves of each reel on both sides.
10. Check that the bottom cable and the top cable have 2.5–3 empty coils between each other on both reels.
11. Check that there are 2.5–3 coils left on the side of each reel when the carriage is in the far left or far right position.
12. Install the main spring into the carriage for the top cable coming from the right motor. Stretch the spring to about 15–20 cm (3–4”). Do not overextend the spring.
13. Tension the cable loop with the carriage in the far left position.
14. Move the carriage over into the far right position and tension the cable loop again.
15. Lube the entire cable loop moving the carriage left to right.
16. After completing the installation of the entire simulator spend 20 minutes skiing or snowboarding. After that, tension the cables again.





9 step

Installing front loop of pulley cables

Install the front loop of the pulley cables, mirroring the instructions from step 8.

10 step

Mounting of +12V cable

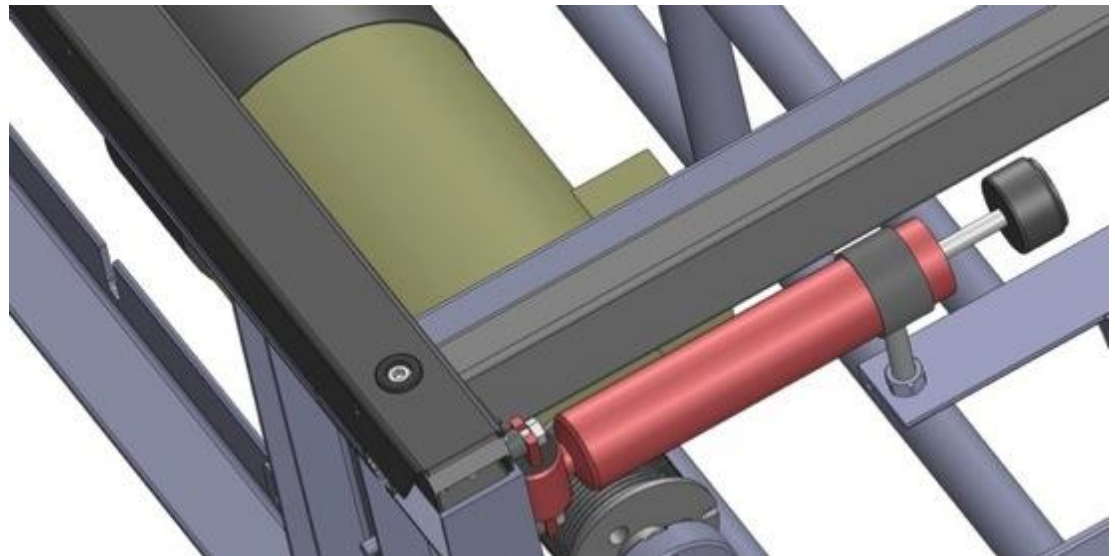
Mount +12V cable onto red pulleys on the sides of the simulator between the two H-frames (pulley with IR-receiver on the right side of the platform, pulley without the wheel on the left). Mount the cable onto the carriage using a spring like shown on the picture, tension it by hand. Connect a red wire from the carriage to the bolt holding the right end of the cable. Make sure the +12V cable is not touching any metal frames of the machine.

11 step

Installing optical safety system

Install black optical safety bars (**package 19**) on the sides of the platform of the machine.

NOTE: Cable inputs of the optical bars have to be alongside the back of the platform (from the point of view of the skier).



12 step

Connecting cables

Take out all the cables of the simulator and lay them out in front of the machine. Make the following connections inside the simulator platform.

IMPORTANT: Pay attention to male and female connectors, there is only one way to connect all the cables correctly.

Computer Unit to:

Optical safety bars – Transmitters	15 pin connector	Top board
Optical safety bars – Receivers	9 pin connector	Top board
IR receiver (on the right H-frame)	9 pin connector – #1	Top board
IR receiver (on the right H-frame)	9 pin connector – #2	Top board
Monitor holder	15 pin connector	Front panel board
USB cable from the top board	USB	Mother board
Monitor holder	USB	Mother board
Monitor holder	DVI	Mother board

Main Motor Control Unit to:

PC power supply (computer unit) body		
Right side of the simulator frame	Yellow-green Ground cables	Ground cable connector
Left side of the simulator frame		
Top board (computer unit)	Ribbon cable	Inverter board
Top board (computer unit)	Round control cable	Connector inside
PC power supply (computer unit)	220V cable	220V outputs
Monitor power supply		
Right pair of motors	High Voltage 8 pin	Female connector
Right pair of motors (overheating sensor)	2 pin control cable	Female connector
Left pair of motors (overheating sensor)	2 pin control cable	Female connector

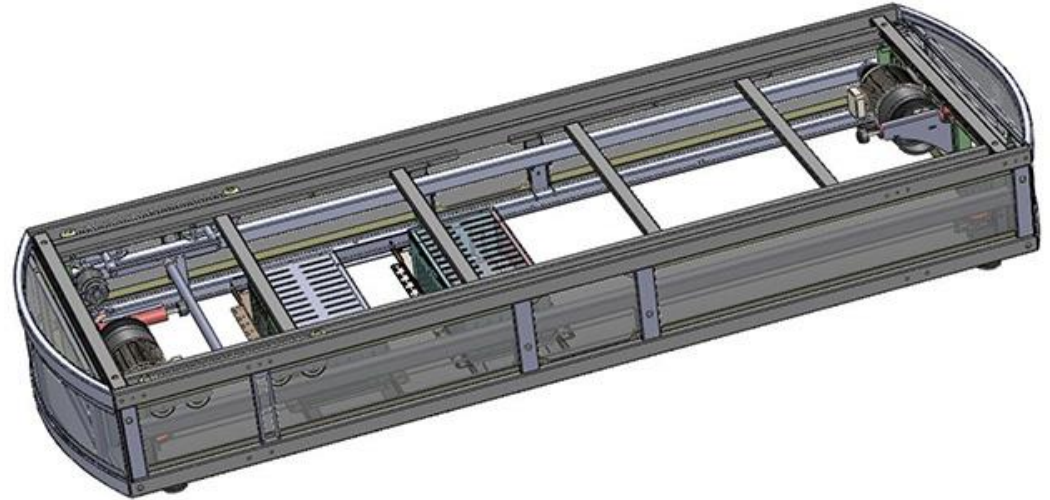
Use zip ties to attach all the cables, use holes in the control unit holders to secure the cables.

13 step

Installing panels

Install main façade (front and back) panels of the simulator (**package 5**) making sure they are leveled with the horizontal rails of the simulator. Once done, check if the carriage can slide left to right easily without any obstructions.

Install two side panels of the simulator (**package 6**).



14 step

Installing net support

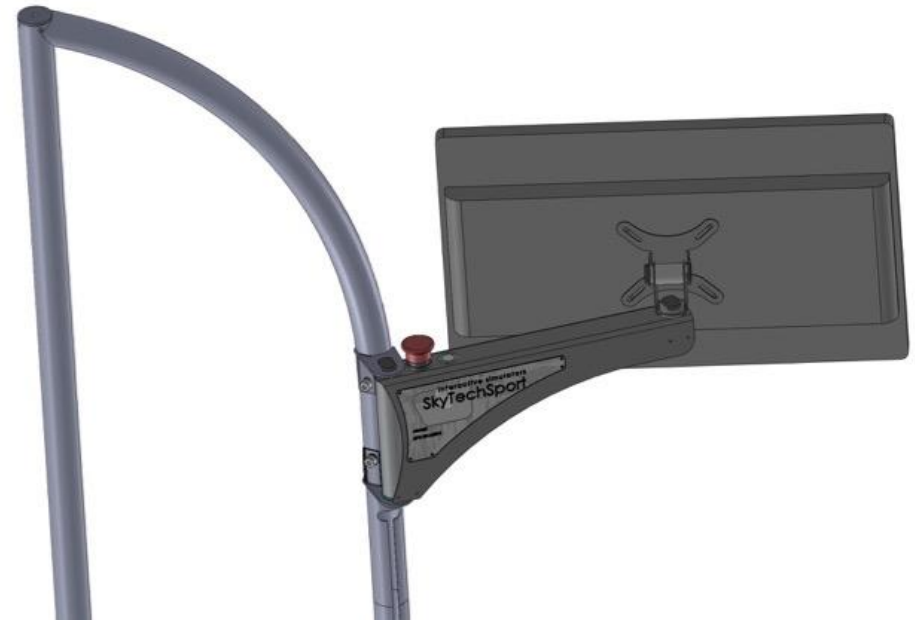
Install four net support pipes of the simulator (**package 7, 8**) and connect corners with top buckles (**package 11**).



15 step

Installing monitor

Mount the monitor holder onto the front right support pipe (based on the point of view of the skier) and attach the monitor screen to it (**package 21**). Thread the cables from the monitor holder inside the support pipe and cover the opening with a rubber insert. Insert the cables into the opening on the facade panel and make connections with Computer Unit and Main Motor Control Unit described in Step 16.



16 step

Installing handrail

Install 4 handrail support pipes connecting net support pipes and the main façade panels of the simulator (**package 5**). Hollow pipes go in the front of the machine to support the main hand bar, and pipes with no opening go in the back (based on the point of view of the skier).

Mount the main handrail bar (**package 10**) into the openings of the hollow base pipes. Adjust the height of the bar by using the twist knobs.

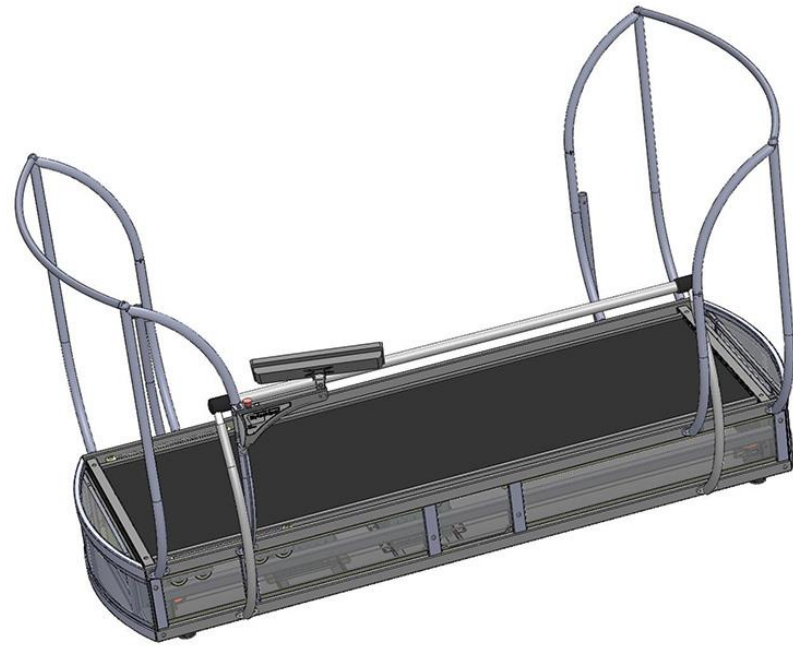


17 step

Covering the platform

Cover the platform of the simulator with padded plywood sheets (**package 13**). Using the drill make holes in corners of each sheet and screw them onto the podium.

Roll out the rubber padding (**package 12**). You may have to trim the rubber padding to size using an X-Acto Knife. Make sure the padding is tucked under the black optical safety bars and is absolutely flat.



18 step

Installing ski/snowboard imitators

Install skis or snowboard onto the carriage (**package 19, 20**).

19 step

Mounting safety nets

Mount red safety nets (**package 14**) onto the support pipes of the simulator. Use the read string to secure the nets tightly.