PROCEDURE TO TILT AND MOVE THE F1612

NEEDED TOOLS:

1. Fixture Set Tilt F1612 (part# 500-9225)
2. Wrench # 17mm
3. Screw driver Phillips #1
4. 3mm hex driver
5. Two standard hand palette trucks
6. Pallet stacker (minimum height 120 cm)
7. Phillips screwdriver size 0
8. Wrench #10mm
9. Cable cutter for cutting cable ties.
10. Cut out tool and tangential module for calibration (one of the tools below can be used for this calibration, make sure the tools have new blades) – when only one cut out tool is available to make the calibrations than:
    a. Single Edge cut out tool
    b. Double Edge cut out tool
    c. Heavy Duty cut out tool

For the complete (re)installation check the installation manual of the F1612

INTRODUCTION

The site preparation document describes exactly what the needed sizes of the passage- and doorways are needed for setting up the F1612. It is highly recommended to make sure the installation site complies with the specifications described in there. However if there is really no other solution then it is possible to take the F1612 out of the crate, put it on its side and guide it through a doorway of 110 cm wide and 203 cm high, providing the surface is level before and after the doorway.
It is advised to be with at least 3 persons to move a table like that.
The procedure is written so it can be used when installing a new machine. This means that it juts has been taken out of the crate so that the front and rear cover and the left mid cover have already been removed.
If this is not the case, then remove them first.

GENERAL WARNINGS

Please read these general warning first very carefully

Moving around such heavy equipment is not without any danger. While raising and lowering the table on its end or while transporting it, then the load may shift unexpected. So be very careful while tipping it on its end and then while moving it around on the two palette trucks.

The three people that are needed during the transportation should have knowledge of mechanical machinery. The route from the unloading of the machine to the final installation place must be stable and reasonable flat (no big slopes)

Moving around the F1612 on its end, especially when it experiences shocks during moving, might completely mess up the calibrations of the machine. So a complete check-up is necessary after moving it.

Make sure all tools are in good shape an d that that palette truck and pallet stacker are strong enough (lifting cap. At least 1000kg).

PROCEDCURE

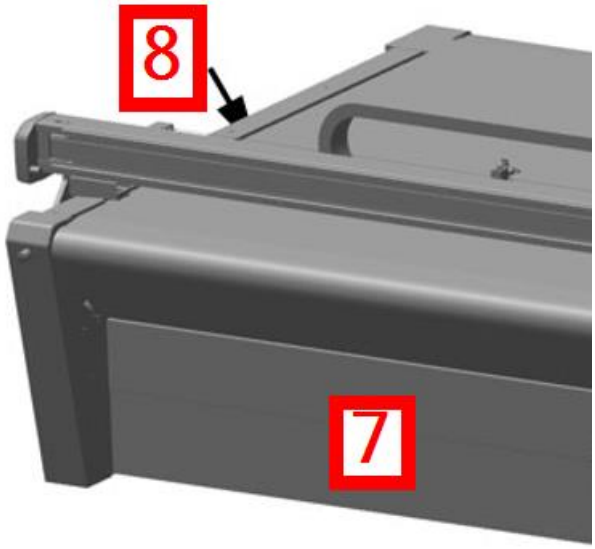
1. Mount the stop on the tilting fixtures with two threaded rods with on each side a flat washer, a lock washer and a nut. There are two positions for mounting the stop. The needed position depends on the width over the forks of the used hand palette trucks to move the tilted machine around. Be sure to measure this before the stops are mounted. The position of the stops cannot be changed one the machine is tilted on its side.

FIGURE 1 PREPARING THE TILTING FIXTURES.

I. PEPRARING THE UNIT:

In case the unit was installed the below parts need to be removed. In case of a new installation this procedure start ones the unit is lifted from the crate and the below topics can be skipped

1. Roll support (can be optional)
2. Router module and gantry (optional)
3. Power and USB cable and air connection
4. Connection with the safety poles
5. All modules
6. Table extension (optional)
7. Remove the front and rear cover (2 screws and take the cover of the hinges)
8. Remove the left mid cover (4 screws – not visible on drawing)

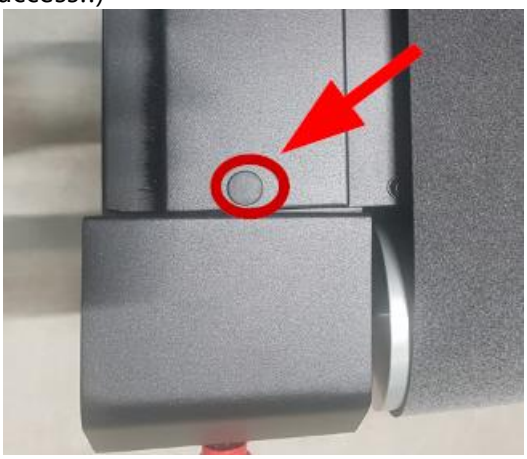


II. REMOVE COVERS WITH ADC INSTALLED

This chapter is only in case 1 or 2 ADC sensors are installed, if not go to the next chapter

1. Remove the 4 screws of the right ADC (and left ADC if installed)

2. Lift the sensor carefully up and remove on both sides the screw underneath. If no sensor is installed on the left side remove the first outside screw at the front of the left top belt cover (remove plastic cap to access!!)


or on left side


3. Remove on both sides the cover front inside: Unscrew the 8 screws M5x10, the 4 screws in front (visible when all covers are mounted) have a plastic washer.


4. Remove the first inner screw at the front from both (right and left) top belt covers

5. Remove front cover right :

   a. Remove 3 flange screws M5x10 located. Hold the cover while removing them.

   b. Then move the cover a bit forwards, locate the connector for the emergency stop and disconnect it.

   c. Remove the screw that secured the ADC cable:

6. Remove the cover front left:

Remove 2 flange screw M5x10 located at the left side (black arrows), securing the cover to the leg.

Remove 4 flange screws M5x10 located inside the cover (white arrows). Hold the cover while removing the screws.

Then move the cover a bit forwards, locate the connector for the emergency stop and disconnect it.

Be careful while removing the cover. The vacuum selector is located very close to the cover.

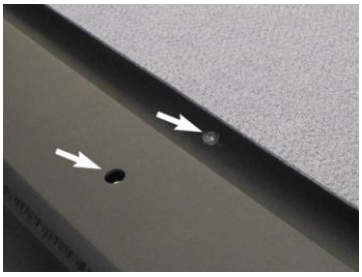
Remove the screw that secured the ADC cable (if an ADC left is installed).

7. Remove the cover of the electric box (caps + 6 screws)
8. Disconnect the green connector(s) J38 and J39 of the ADC located on the mainboard or on the external cable(s).

9. Remove the ADC cable(s) from the electric box by pulling them out from underneath the unit
10. Disconnect the air tube on valve 4 from the pneumatic board at the front

11. Remove the 2x 4 Plastic caps of the belt covers on both sides

12. Unscrew the 4 screws M4x12 under the caps (use magnetic screwdriver)



13. Unscrew the 4 flange screws M5x10 (nylon washer) next to the M4x12.
14. Move the top beam to the rear side of the machine, lift the “cover belt X” slightly at the front of the machine and slide it from underneath the top beam.

15. Be careful with the ADC sensors and the cables, remove the assembly completely from the unit.
16. Do this on the left and right side.

III. REMOVE COVERS WITHOUT ADC INSTALLED

This chapter is only for older units without ADC sensor(s) Remove on both sides the cover front inside.

1) Unscrew the 8 screws M5x10, the 4 screws in front (visible when all covers are mounted) have a plastic washer.
2) To remove the plate rotate the plate a little (push the conveyor belt up when needed) and pull out the plate

FIGURE 2 REMOVING INSIDE COVERS FRONT

3) Remove front cover right.
   a) Remove 3 flange screws M5x10 located. Hold the cover while removing them.
   b) Then move the cover a bit forwards, locate the connector for the emergency stop and disconnect it.

FIGURE 3 POSITION SCREWS FRONT COVER RIGHT

17. Remove the cover front left.

Remove 2 flange screw M5x10 located at the left side (black arrows), fixing the cover to the leg.

Remove 4 flange screws M5x10 located inside the cover (white arrows). Hold the cover while removing the screws.

Then move the cover a bit forwards, locate the connector for the emergency stop and disconnect it.

Be careful while removing the cover. The vacuum selector is located very close to the cover.

FIGURE 4 DETAILS SCREWS FRONT COVER LEFT

IV.TILT THE UNIT

1. Remove left and right the mechanical stop for the top beam and cut the cable tie feet (two each side) of the cables that run to the emergency stop loose (cut as close as possible to the metal beam). Push the cables a bit into the machine and make sure they are not caught later on between the metal beam and the tilting fixture.

CAUTION: While the mechanical stops are removed, leave the top beam in the middle of the machine until the fixtures are mounted in order not to damage the guiding. If the fixtures are removed at the end of the procedure, then immediately set the top beam in the middle again

FIGURE 5 REMOVE STOPS AND CABLE TIE FEET

2. Lift the front of the machine with a pallet truck.

FIGURE 6 LIFT FRONT END TABLE

3. Put the fixtures on the table. The leg fit in the small slot near the rounded edge. The big cutout goes over the metal beam where the stop just has been removed from. Take the speed clamp (F clamp) apart, And put one side already in the fixture. This makes it easier to mount the clamp.

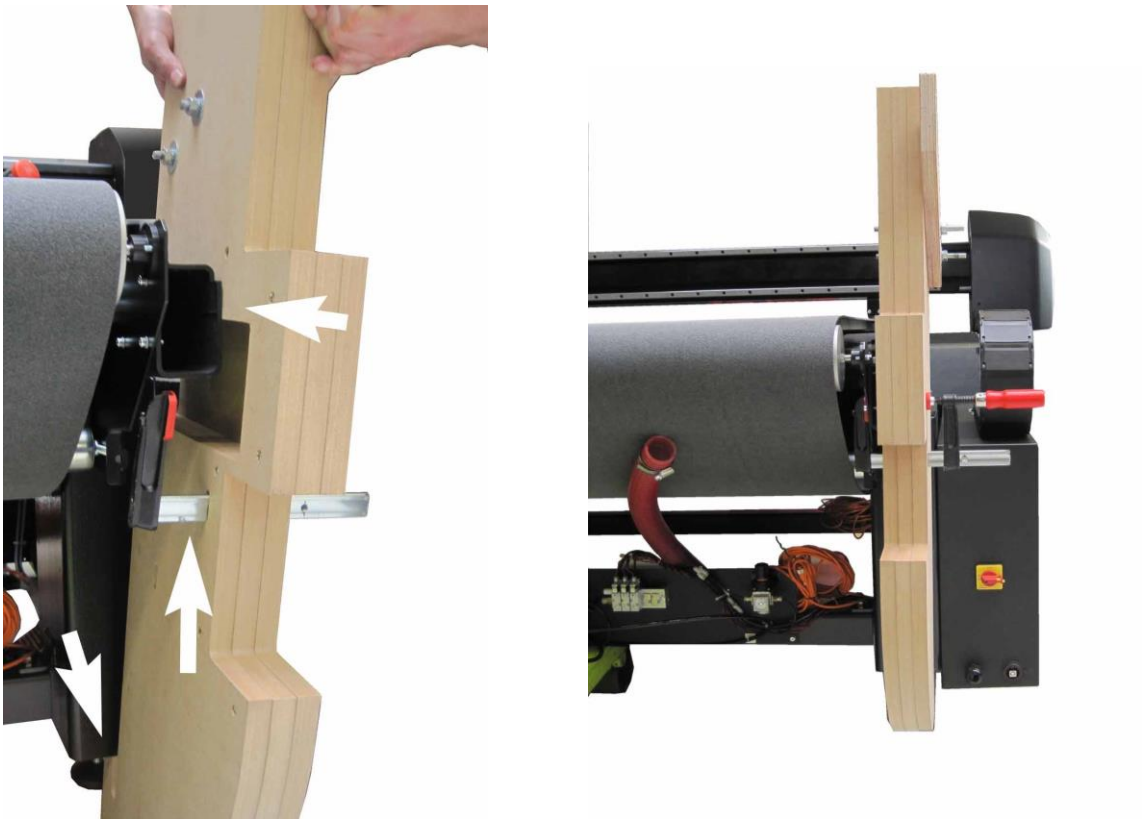


FIGURE 7 MOUNT FIXTURE RIGHT SIDE

4. Mount the other fixture at the left side.

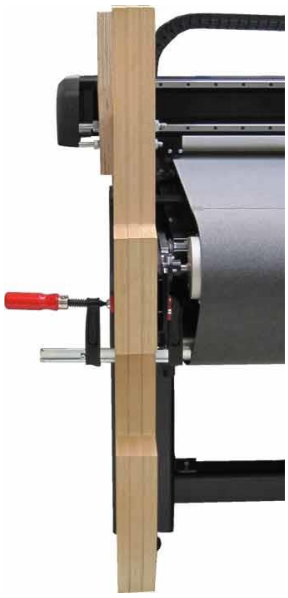


FIGURE 8 MOUNT FIXTURE LEFT SIDE

5. Check some details.

Make sure F clamp is tightened and secured with the bolt and nut.

When there is doubt that the fixtures are not secured enough, then there are slots to mount additional tie down straps.

Make sure the feet of the machine will not touch the ground when the machine will be set on the fixtures.

FIGURE 9 DETAILS MOUNTING FIXTURE

6. Lower the front of the machine onto the fixtures and move the top beam to the front.

NOTE: The rest of the pictures is taken with the rest of the covers also removed from the table. This is not necessary to tilt the table, it is just done so that it is better visible where to support and hold the table.

7. At the back put the pallet stacker under the bottom beam of the base (step 1). Raise it till about 1 meter (step 2). Then take over with two persons (step 3). Finally set the table on it side on the fixture (step 4).

Warning: Make sure the forks of the stacker are not damaging the conveyor belt, use only the top of the forks.

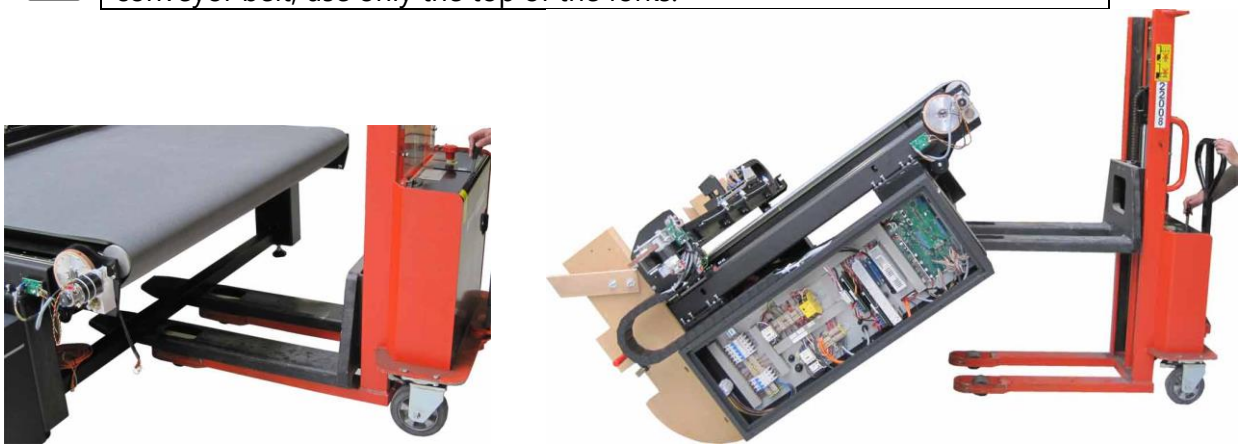


FIGURE 10 RAISING TABLE STEP 1 & 2

FIGURE 11 RAISING TABLE STEP 3 & 4

CAUTION: Do not stand in front of the machine and make also sure the floor is not too slippery.

8. Put a palette truck at each side under the fixture.

CAUTION: Do not push the palette truck too far underneath the fixtures. Use only the top of the palette truck. Also make sure the forks do not touch the conveyor belt. See cut-out detail, make sure there is room between the conveyor belt and the fork, otherwise the conveyor belt may be damaged irreversibly.

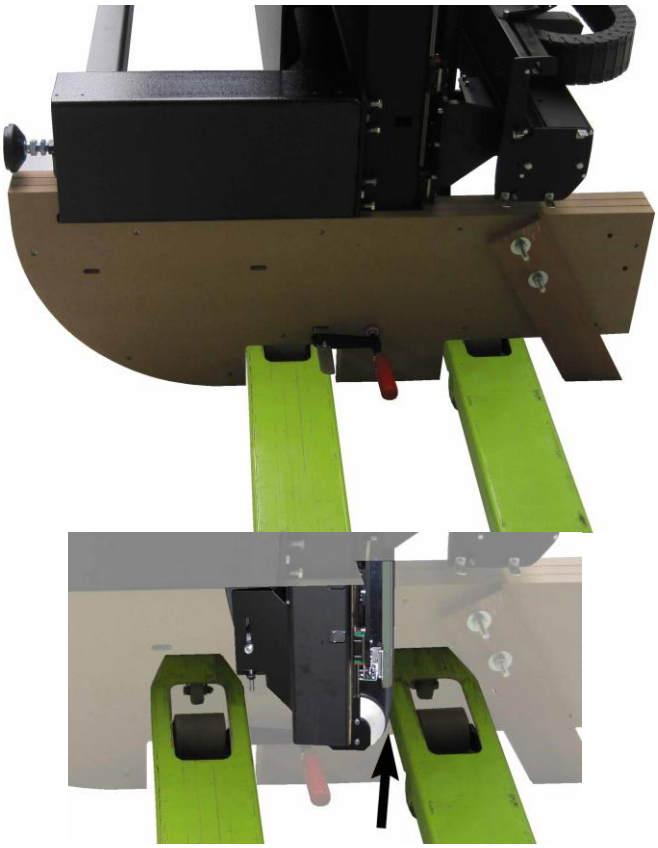


FIGURE 12 PUSHING PALETTE TRUCK AT EACH SIDE UNDER FIXTURES

9. Now carefully move around with the machine until the installation place is reached.

CAUTION: Constantly check if the forks of the palette trucks do not push against and damage the conveyor belt while moving the flatbed. When there are a lot of turns on route to the final installation place, then check if the fixtures do not slide of the forks when making a turn.

10. Once arrived, pull the machine back on the pallet stacker.

FIGURE 13 PULL TABLE BACK ON PALETTE STACKER

WARNING: If a palette stacker is not available on the place where the table has to be put down again, then a mockup needs to be made. This can for instance be done by stacking wooden blocks on a normal palette truck till the height is about 1.2 meter. Then gradually lower by removing block by block.

WARNING: Be very careful when pulling the machine back on the forks. The forks can easily damage the conveyor belt. Put the beam on the tip of the forks

FIGURE 14 USE ONLY TOP OF THE FORKS

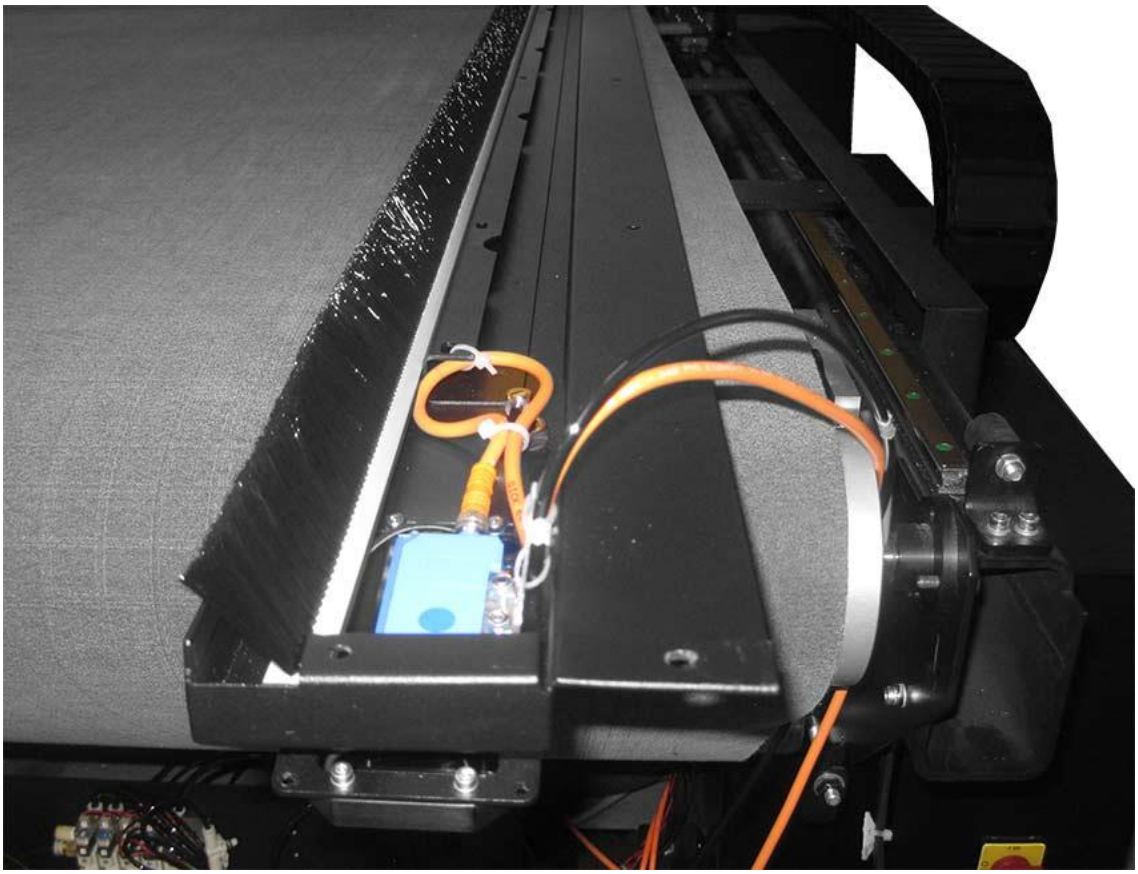
11. Lower machine completely on the floor. Raise the front of the machine again a little bit to remove the two fixtures. Put stops back and guide the cables for the emergency stops again under the metal beams with cable ties and feet for cable ties.

V. REMOUNT THE COVERS WITH ADC

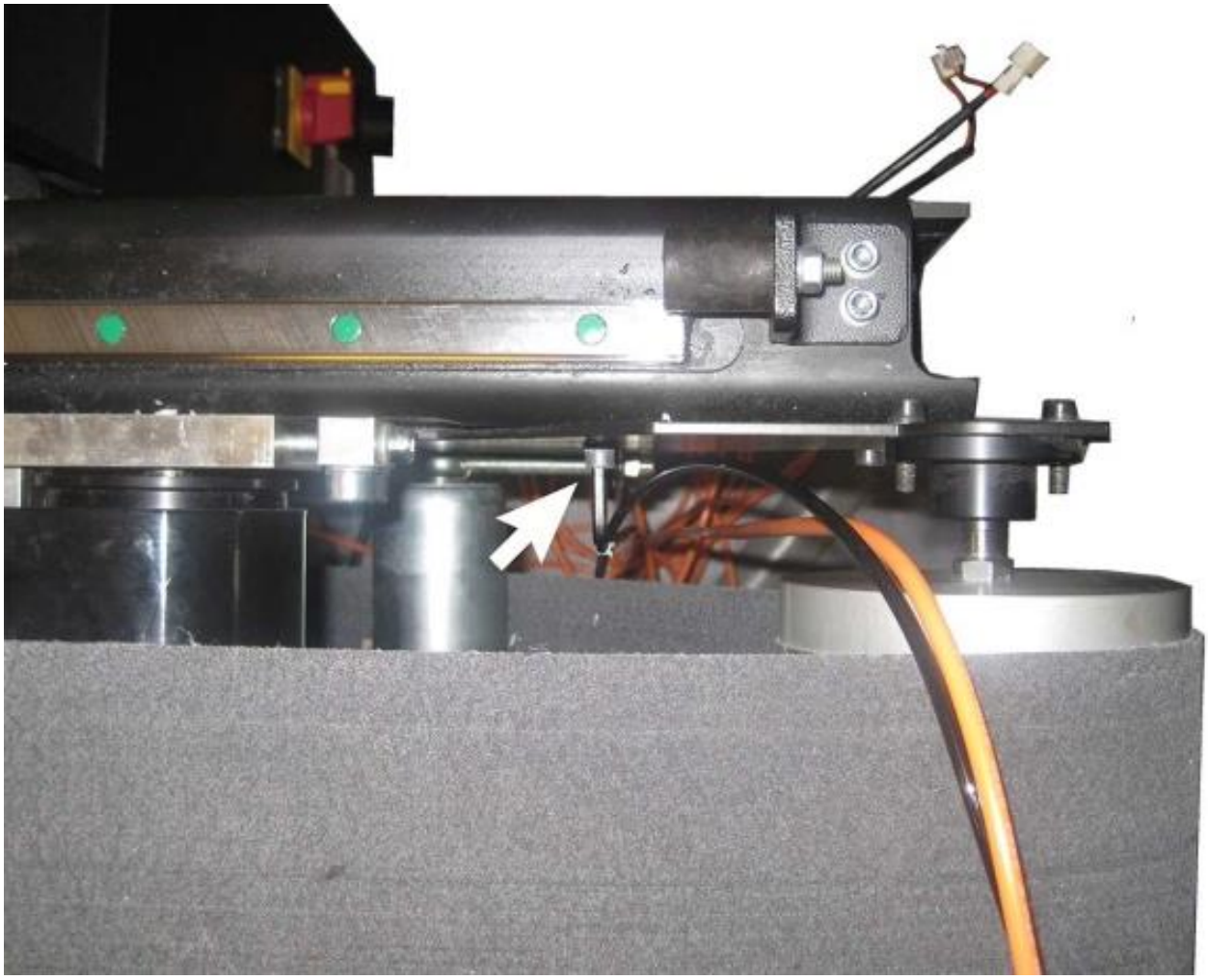
In case no ADC sensors are installed skip this chapter

REMOUNT RIGHT ADC

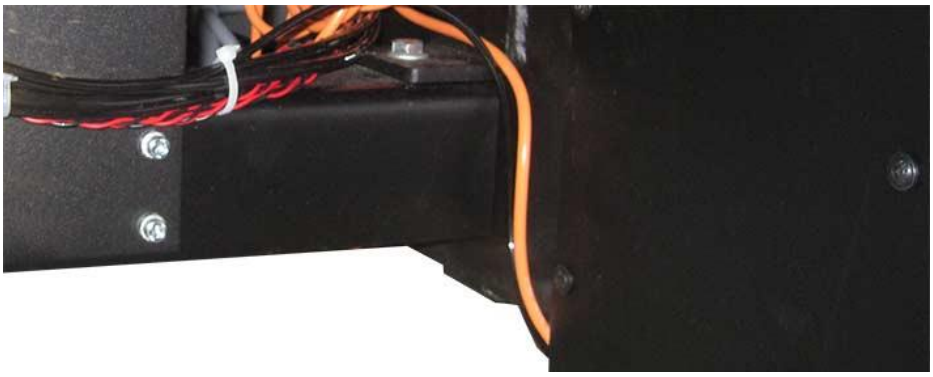
1. Move the carriage all the way to the back and push it a couple of centimetre to the left.
2. Take the new right X belt cover with the ADC already mounted on it and put it on the table as shown in picture. Guide the cable and pneumatic behind the big roll.



3. Guide the cable for the conveyor roll (it will have to pass behind the right front covers – see later) Remove the screw, put a cable tie foot on it and put the screw back (make sure it is secured).
4. Turn the cover over and put it on its place. secure the cover with 2 x 4 screws, do not tighten them yet. The front two screws have to wait until the right front cover is put back.
5. Take the black tube and ADC cable and secure them to the cable tie foot. Lift the ADC just before tightening the cable table so there is a little slack. Just enough to be able to move the ADC out of the way to put in the last two screws to fasten the right belt cover.



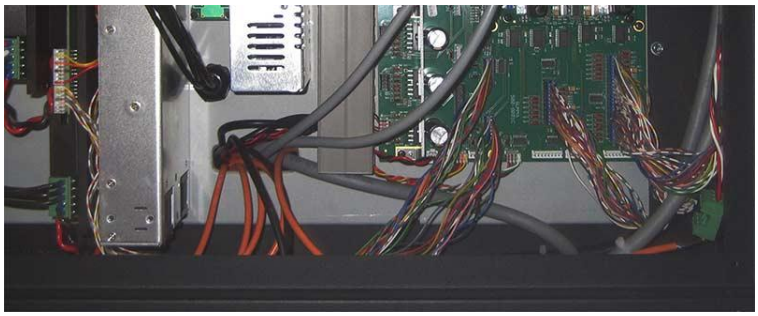
6. Put the" front cover right" (2 x 4 screws) and the "front cover inside right" (3 screws) back (connect the emergency stops. Make sure the tube and ADC cable are not caught between anything and come out at the bottom. Tighten the rest of the screws of the X belt cover (2 x 4 screws)



7. Insert and secure the screw positioned underneath the sensor

8. Secure the ADC to the cover with 4 screws. Guide the cable under the table from the front of the table through the cable duct. Then guide the ADC cable through the large oval hole in the electric box The picture below is taken from an F1612 where the router option was installed (thick grey cable and two small grey cables from the left). The best way to reach this is to crawl under the table from the left side.

9. Make sure to have at least 30 to 35 cm of the ADC cable in the electrical box

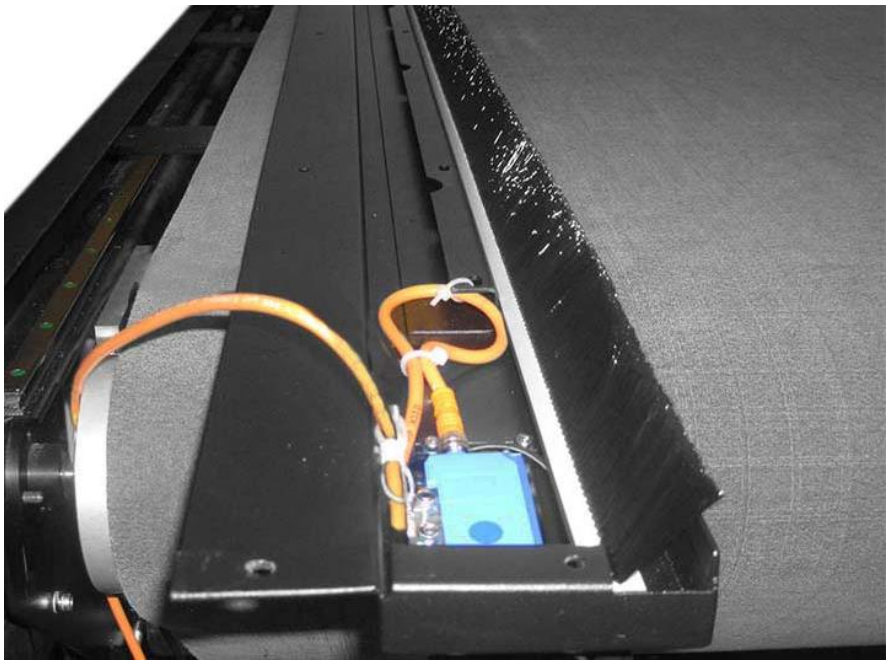


10. Connect the ADC to the mainboard (right ADC right connector) or the external connector

REMOUNT LEFT ADC

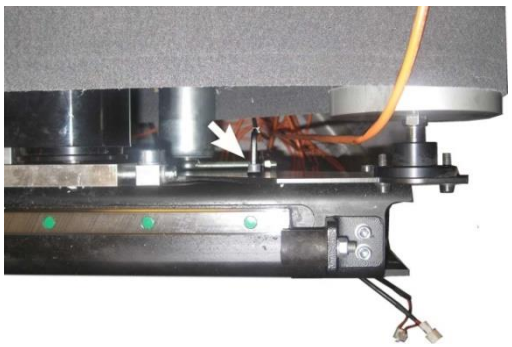
In case no left ADC is installed proceed to chapter 6

1. Move the carriage all the way to the back and push it a couple of centimetre to the left. Take the new left X belt cover with the ADC already mounted on it and put it on the table as in the figure. Guide the cable and pneumatic behind the big roll.

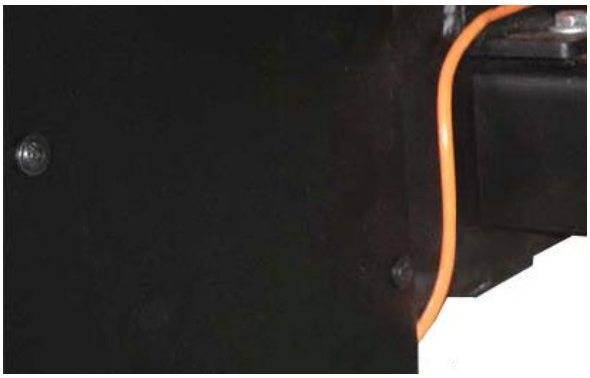


2. Guide the cable for the conveyor roll (it will have to pass behind the right front covers – see later) Remove the screw, put a cable tie foot on it and put the screw back (make sure it is secured).
3. Turn the cover over and put it on its place. Fix the cover with 2 x 4 screws, do not tighten them yet. The front two screws have to wait until the right front cover is put back.

4. Take the ADC cable and fix it to the cable tie foot. Lift the ADC just before tightening the cable table so there is a little slack. Just enough to be able to move the ADC out of the way to put in the last two screws to fasten the right belt cover.



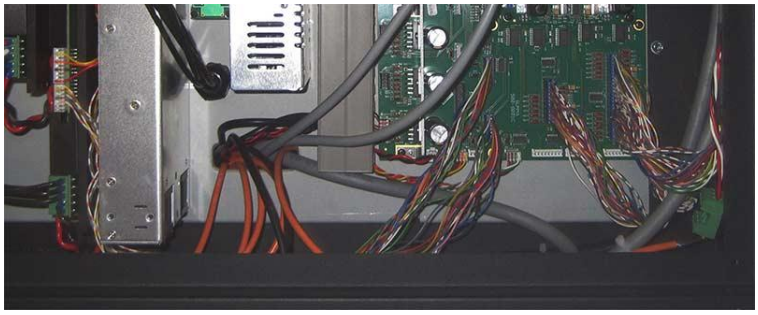
5. Put the" front cover left" (2 x 4 screws) and the "front cover inside left" (3 screws) back. Make sure the ADC cable is not caught between anything and come out at the bottom.



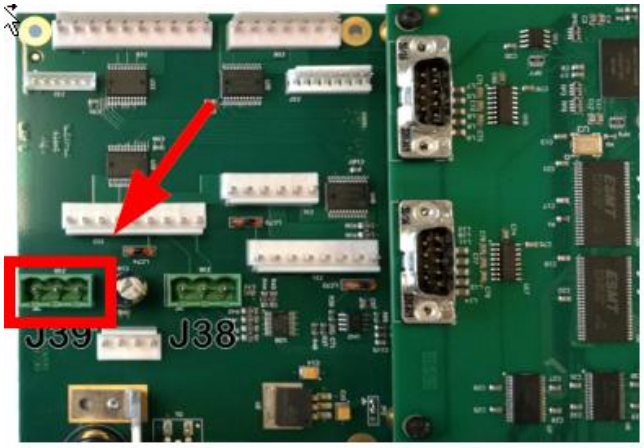
6. Insert and secure the screw positioned underneath the sensor

7. Fix the ADC to the cover with 4 screws. Guide the cable under the table from the front of the table through the cable duct. Then guide the ADC cable through the large oval hole in the electric box The picture below is taken from an F1612 where the router option was installed (thick grey cable and two small grey cables from the left). The best way to reach this is to crawl under the table from the left side.

8. Make sure to have at least 30 to 35 cm of the ADC cable in the electrical box



9. Check the revision of the mainboard, recent mainboards have ADC connectors on the mainboard, in case of a new mainboard connect the green connector coming from the ADC to the LEFT connector on the board in other case connect it to the external cable.



VI. REMOUNT THE COVERS WITHOUT ADC

1. Remount left and right side covers, do not forget to connect the emergency stops. At the left side be careful for the small PCB of the vacuum selector, the cover must be mounted completely at the front of the pcb.

2. Remount the top belt covers, move the Y beam to the front and slide them from the back on the correct place

VII. REASSASEMBLE UNIT

For further installation check the installation manual of the F1612 to level the table, measure the table surface and reinstallation of the below items

1. The front and rear cover (2 screws and take the cover of the hinges)
2. Roll support (can be optional)
3. Router module and gantry (optional)
4. Power and USB cable and air connection
5. Connection with the safety poles
6. All modules
7. Table extension (optional)
8. The left mid cover (4 screws – not visible on drawing)

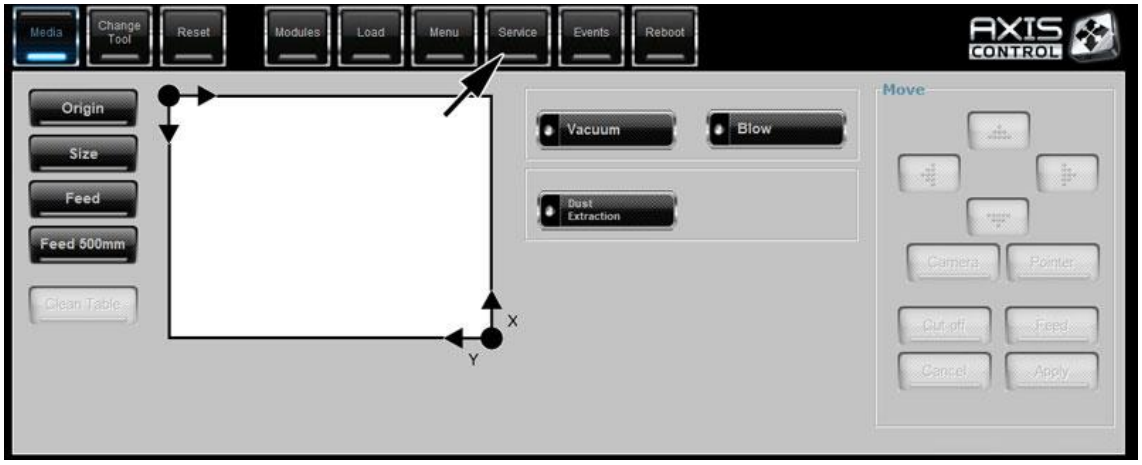
VIII. RECALIBRATION OF THE ADC

ADC OFFSET CALIBRATION

*This procedure measure the distance between the camera center and the ADC so the position of the ADC is known. The calibration sheet "**MI9069 ADC Calibration Sheet**" that is delivered with the ADC is needed for this calibration.*

1. Put the calibration sheet MI 9069 over the ADC, make sure the square marker is visible and is placed on the conveyor (see picture below).

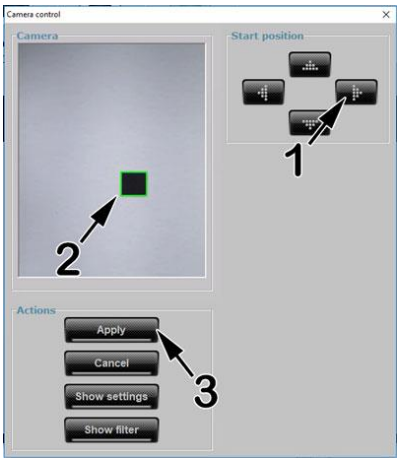
2. Make sure Axis control is running in Service mode (start with SHIFT-key pressed) and the machine is started up



3. Manually set the focus of the camera above the conveyor.

4. Click on the module button (1) and click on the camera module (2). Make sure the focus is of the camera is set correct. Then click on the ADC button (3).

5. Move with the arrows keys to the right (1) until the printed square from the calibration sheet is visible in the camera window (2), than press “Apply” (3)



The table now knows the distance between the centre of the camera and the position of the ADC. This value will be stored in the Service parameters:

a) “**Right/Left ADC calibrated with camera**”: parameter is set to 1 when the above camera calibration is performed (2)
b) “**X/Y-offset Righ/Left ADC**”: offset values of the ADC towards the camera (1)

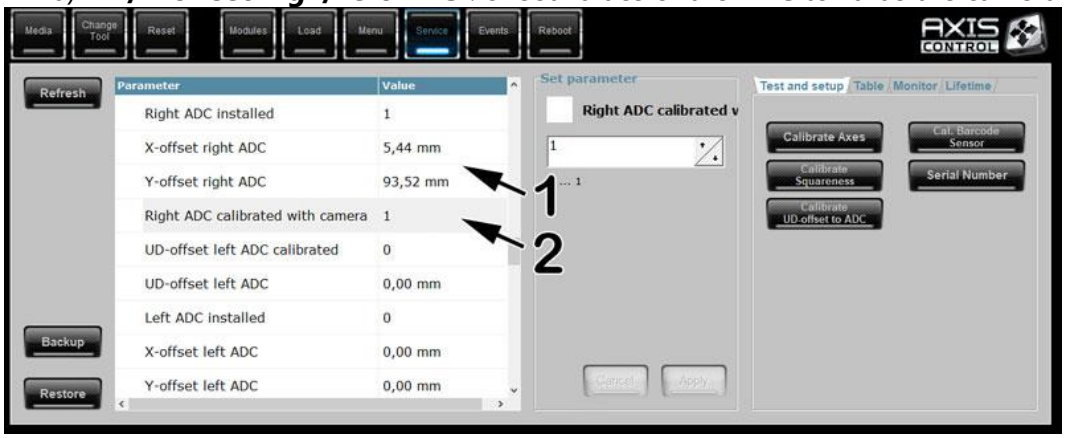


TABLE HEIGHT CALIBRATION (SET ORIGIN ADC TO LEVEL OF TABLE)

1. **Install one of the below cut out tools** on SLOT 2 (middle slot) to setup the "Right ADC" and install a cut out tool on SLOT 1 (left side slot) to setup the "Left ADC". Make sure to install a **new knife** in de cut out tool to do the calibration tests.

   Possible cut out tools to calibrate the ADC:

   Single Edge cut out tool

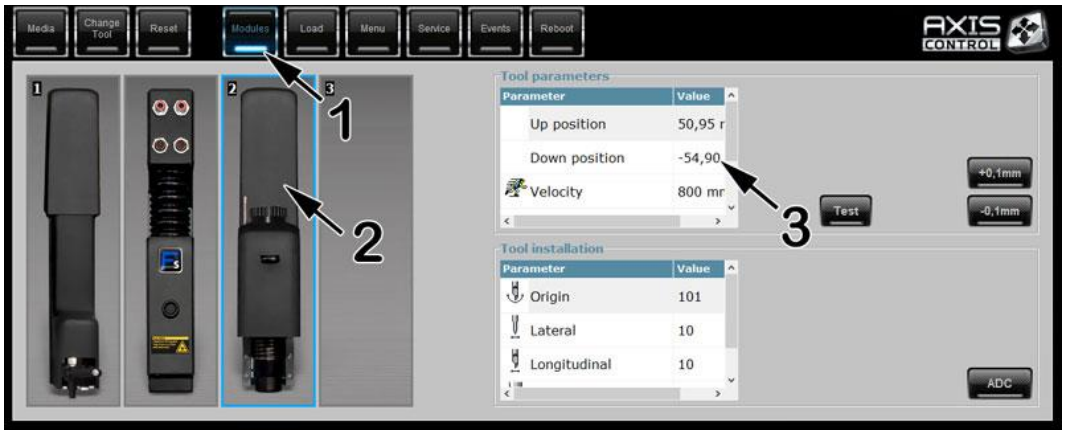
   Double Edge cut out tool

   Heavy Duty cut out tool

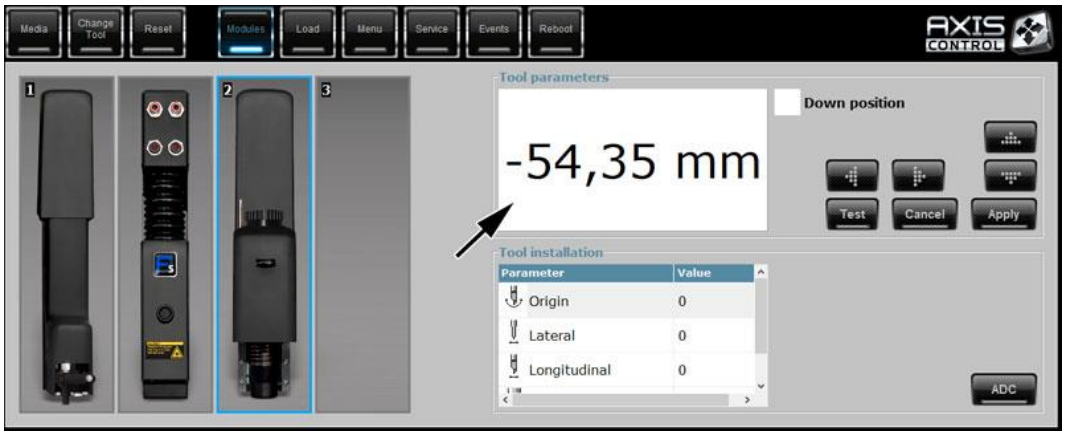
2. Down position calibration (knife tip then is set at table level)

   a. **Load some black or white media** in the machine to be able to perform some calibration tests.

   Click on the Module button (1) and click on the **tangential module in slot 2** (2) (in case you need to setup the Right ADC) or **tangential module in slot 1** (in case you need to setup the Left ADC), select "Down position" (3)



   b. **Very accurately set the down position** of the cut out tool, the tool should just cut through the media. This down position will later in the procedure be used to set the table surface height (the "zero" position of the ADC).



NOTE: After setting knife depth check Raise the depth by 0.10mm. If the media is still cut through, then the setting was to do deep.
If it is not cut through any more lower it again by 0.10mm.
Like this the depth setting is set most accurate