

# ARCBRO®

## Voyager SERIES

### CNC Plate Cutting Machine install Manual



## Operator Manual

ARCBRO | Revision 2 | English

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## Technical Support

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Wish you enjoy a wonderful CNC cutting travel.

ARCBRO CNC Technical Support & Solutions

7x24 Hours

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by arcbro / August 7, 2015

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E-mail: [Please leave message to us by live chat](#) —

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Contact ARCBRO Portable CNC Cutting Machine

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## Technical Parameters

Type	Voyager 1220	Voyager 1530	
Effective cutting range	1200x2000mm	1500x3000mm	
Actual machine size	2000x2500mm	2300x3500mm	
Input power supply	1 phase, 110V, 220V, 50Hz/60Hz		
Input capacity	350W		
Cutting model	Both plasma and flame cutting		
Max travel speed	8000mm/min		
Drive motor	Step motor		
<b>CNC SYSTEM</b>			
Display	7" color LCD screen		
CPU	Industrial ARM9 chip		
Internal library	24 kinds of shapes		
External format	TXT or NC format		
Language	English, Chinese, Spanish, Russian, French, Japanese, Czech and Slovenia		
<b>PLASMA CUTTING MODE</b>			
Max cutting speed	6000mm/min		
Max cutting thickness	Depends on plasma power source		
Plasma power source	Support up to 125A ( not include in standard package )		
THC	Arc voltage Auto Torch Height Controller		
Accuracy	±0.3mm		
<b>FLAME CUTTING MODE</b>			
Max cutting speed	1000mm/min		

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Max cutting thickness	150mm
Oxyfuel cutting torch	80mm neck ( can update to 180mm neck if necessary )
THC	Manual/ Capacitance auto height controller (optional)
Optional cutting nozzle	4 nozzles ( #1, #2, #3, #4 ) for Acetylene or Propane ( standard package only include propane nozzle)
Accuracy	$\pm 0.5\text{mm}$

## Notes

**Note 1:** Propane cutting nozzles are included in standard package. Acetylene nuzzles can be ordered.

**Note 2:** Specific torch assembly must be ordered for Gasoline project.

**Note 3:** Nesting software standard Wizard is included in standard package.

**Note 4:** The machine must be grounded reliably when it is working. (Connect the plate and the earth)

**Note 5:** Clean dust regularly to keep the rail and rack clean for smooth movement.

**Note 6:** Avoid damage for the LED display screen of CNC system.

**Note 7:** Equipment use environment:

Ambient temperature:  $-10^{\circ}\text{C}$ — $+50^{\circ}\text{C}$

Environment humidity: 90 % RH below

Storage temperature:  $-20^{\circ}\text{C}$ — $+65^{\circ}\text{C}$

Sea level elevation: An altitude of 1000 m below

## Safety

### 1. Information for your safety

The operator must read and understand the contents of this user's manual before any operation on **Voyager**.

Never hesitate to contact us for assistance when you have any questions or you need help, and you can reduce the amount of time your troubles take and solve your problem efficiently.

**Note:** Each of the following descriptions must be verified before any operation on **Voyager**.

1. The preparing operations have to be performed by technicians that have plentiful experience.
2. All safety precautions must be obeyed in both flame and plasma cutting mode.
3. Keep **Voyager** away from any explosive and flammable material.
4. Never try to cool, ventilate, flush **Voyager** with oxygen.
5. Grease and oily materials, even clothes, must be kept away from the oxygen.
6. The connectors of gas pipes and torch must be sealed without any leaks in safety.
7. The torch's nozzle has to be selected according to the cutting to be performed.
8. Only Oxygen gas is available as combustion-supporting gas.
9. The Acetylene or Propane or Methane or Gasoline can be used as fuel gas.
10. Adjust the gas pressure to the following values:

Pre-heating Oxygen: Max 1.5 Mpa

Cutting Oxygen: Max 1.5 Mpa

Fuel: Max 0.1 Mpa

11. Torch ignition and flame adjustment have to be performed according to this user's manual.

## Service Support Spirit

12. The gas supply has to be turn off in accordance with the following order in case of backfire or blockage of the nozzle.

- A. Turn off fuel valve
- B. Turn off pre-heating oxygen valve
- C. Turn off cutting oxygen valve

13. All valves must be turn off when **Voyager** is not in use.

14. Maintenance must be carried out according to this user's manual, and any maintenance or repair operations must be performed in the situation that the power supply is cut off.

15. Replacement of any parts must be performed by technicians that have plentiful experience and only original parts are available.

16. Before operation, the operators must wear protective gloves, glasses, clothes, cross shoes, etc.

17. Handling means: because of equipment base guide at both ends long enough, with a handheld parts, meanwhile, weight at about 75kg equipment two young people can raise, note carefully handled and must ensure that equipment in a horizontal position( show as next picture ).



### Notice:

- 1. handle with care.
- 2. Put down, prevent hands and feet were clipped by machine.
- 3. Be careful equipment dumping or tip over.

18. The machine should be each half a month for rack-and pinion with lubricating oil.

19. The machine put in place before the ground level, ensure.



## 1. Voyager Description

### 1.1. What is Voyager?

Voyager is a CNC portable Cutting Machine. It can cut any complex plane figures such as the large-sized gantry, and Voyager can match both flame torch and plasma cutter.

Its design is compact and its structure is rational, which makes it lightweight, small size and easy to move. Voyager is applicable both indoors and outdoors.

It is simple and efficient in drawing, nesting and cutting because of the installation of Fast CAM cutting software.

### 1.2. Application

**Voyager** is an ideal CNC Cutting Machine for small, medium scale enterprises.

**Voyager** is used in industry field widely. It can cut and blanking metal plates such as carbon steel (flame cutting), stainless steel, copper and aluminum (plasma cutting).

### 1.3. Starting, Programming and Nesting

The Computer Aided Design or manual drawing of parts can be prepared, nested and directly transformed into required G-code if you set proper programming parameters. The G-code can be stored in a USB key if you plug a USB key in the USB port of **Voyager** CNC cutting Machine. The G-code is automatically transmitted and the cutting operation may start. The G-code can be transmitted easily to the memory space of **Voyager** as well.

### 1.4. Composition

**Voyager** consists of a support structure and a central control unit. The support structure composed of two longitudinal rails (Y Axis).

The stability and rigidity of the rails are guaranteed by two transversal beams.

The Central Control Unit, containing the electronics commands. The control panel, the display and keyboard, moves on these rails and hold the cross beam (X-Axis) supporting the cutting torch.

## 2. Packing List

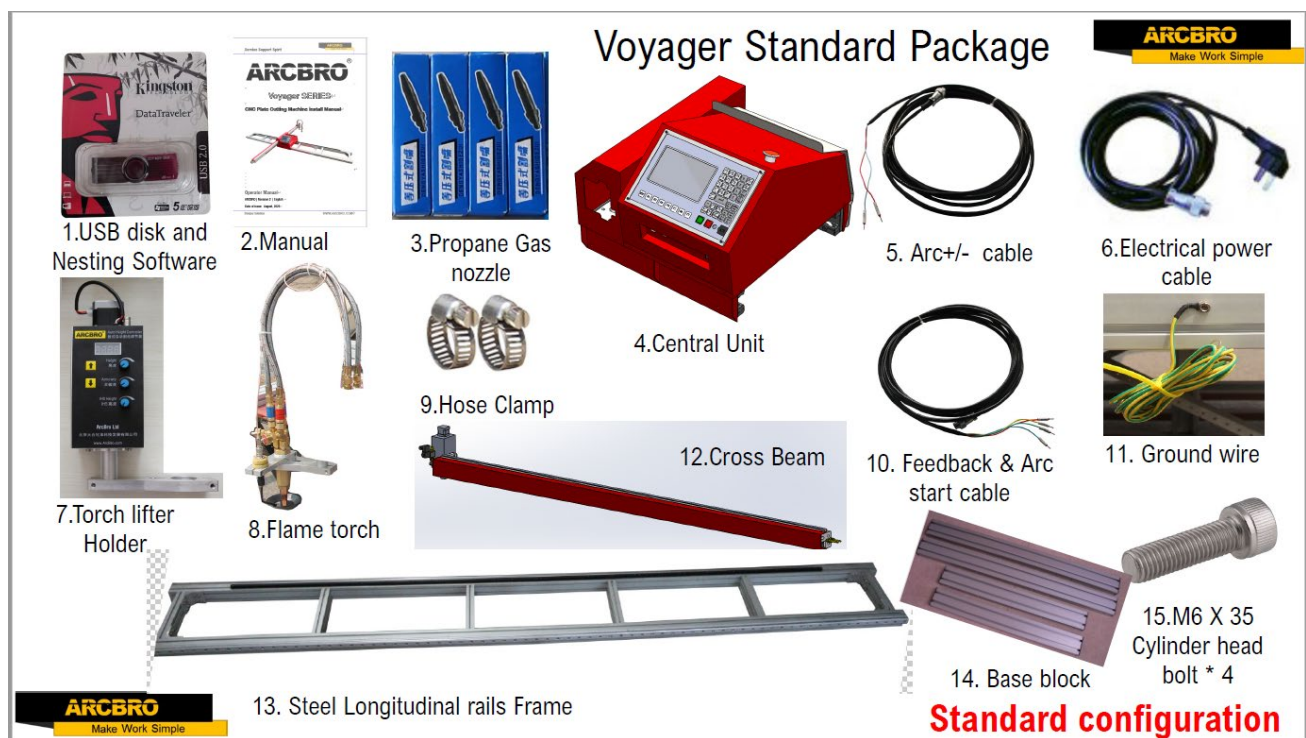
### 2.1. Introduction

**Voyager** is packed carefully in two wooden boxes. All equipment in the boxes are protected fully to avoid any damages during transportation.

The boxes have to be carried with care always and with the top cover up during handling and transportation.

### 2.2. Packing List

Open the top cover of the boxes. And remove all the screws fixing the cover to the box body. The **Voyager** transportation boxes contain:



No.	Name	No.	Name
1	USB disk and Nesting Software	2	Manual
3	Propane cutting nozzles	4	Central Unit
5	Arc+/- cable	6	Electrical power cable
7	Torch Lifter Holder	8	Flame Torch

## Service Support Spirit

9	Hose Clamp	10	Feedback& Arc start cable
11	Ground wire	12	Cross beam
13	Steel Longitudinal rails Frame	14	Base block
15	M6 X 35 Cylinder head bolt * 4		

## 3. Installation

### 3.1 Mechanical Assemble Steps

This part describe how to install Cruiser-mini 1.5x3m portable CNC cutting machine step by step. The whole machine weight is 120Kg, that needs 2 Part to finish assembling process.

Please assemble according to below steps carefully. Any questions or help needed, please do not hesitate to contact ARCBRO after sale service engineer, we will provide help as soon as possible.



## Service Support Spirit

### 3.2 Basic assemble steps:

- ◆ Step 1: Unpack the equipment box and remove all items.
  
- ◆ Step 2: Install longitudinal rail.
  
- ◆ Step 3: Install control unit and crossbeam.
  
- ◆ Step 4: Connect the control cable.
  
- ◆ Step 5: Assemble the lifting body.
  
- ◆ Step 6: Plasma cutting part installation
  
- ◆ Step 7: Flame cutting part installation.



# Service Support Spirit

## Step 1: Unpack the equipment box and remove all items

Remove all the screws which are fixed the box, check and confirm all the spare parts be inside and well, and then move all the parts out safely.



### Voyager Standard Package

Make Work Simple

1. USB disk and Nesting Software

2. Manual

3. Propane Gas nozzle

4. Central Unit

5. Arc+/- cable

6. Electrical power cable

7. Torch lifter Holder

8. Flame torch

9. Hose Clamp

10. Feedback & Arc start cable

11. Ground wire

12. Cross Beam

13. Steel Longitudinal rails Frame

14. Base block

15. M6 X 35 Cylinder head bolt \* 4

Standard configuration

Make Work Simple

Install the machine carefully step by step as the following instructions:

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### Step 2: Install longitudinal rail and control unit

**Note:** The machine can be placed on the cutting table; It can also be placed directly on the steel plate, and the steel plate must be stable when placed on the steel plate;

#### The machine is not cut off.

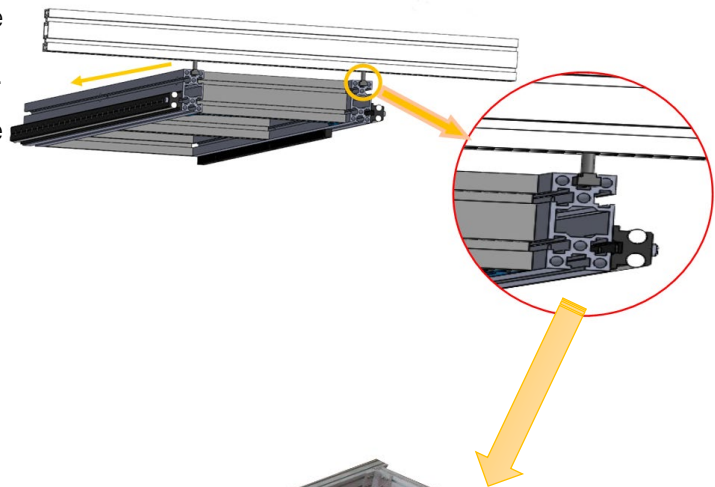
Longitudinal rails assembly (Y- axis):

#### Assemble Step:

1. Put the entire track on ground carefully. Aluminum-profile-40\*80\*900mm.
2. Each cushion block has 2 screws and T-slot nuts.
3. Loosen the T-slot nuts on cushion blocks.

#### Assemble Step:

4. Insert the screws on cushion block into the slot on track, lead it to the desirable position.
5. Tighten the screws with Allen wrench on the cushion blocks.



Not Cut-off base



#### Assemble Step:

6. Assemble the other cushion blocks according to above steps
7. Cover the seal capping on the profile

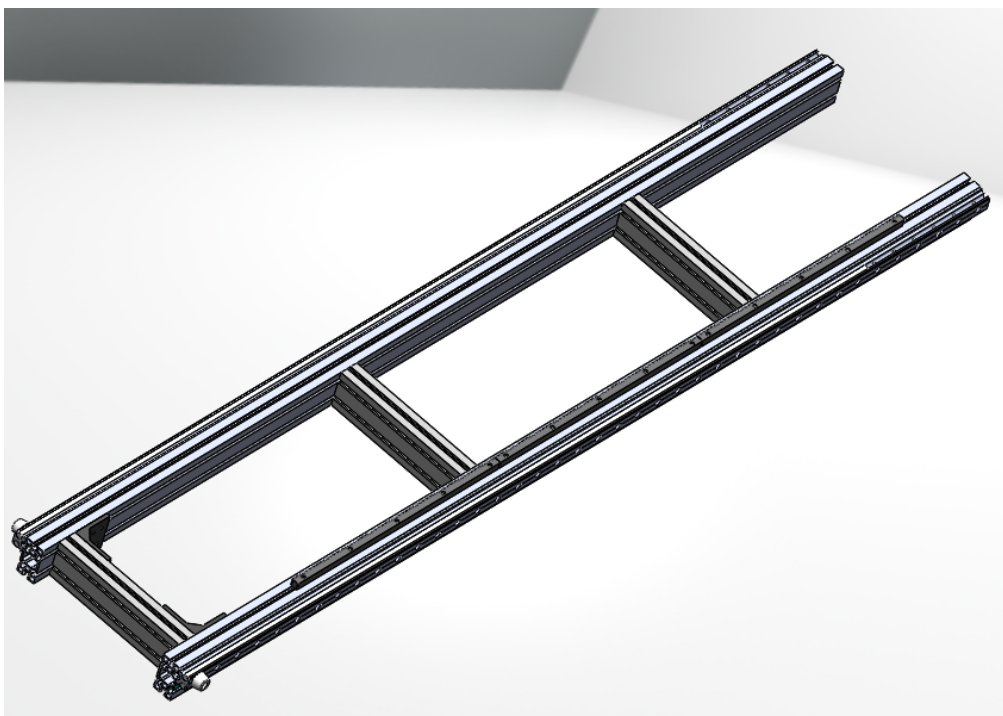
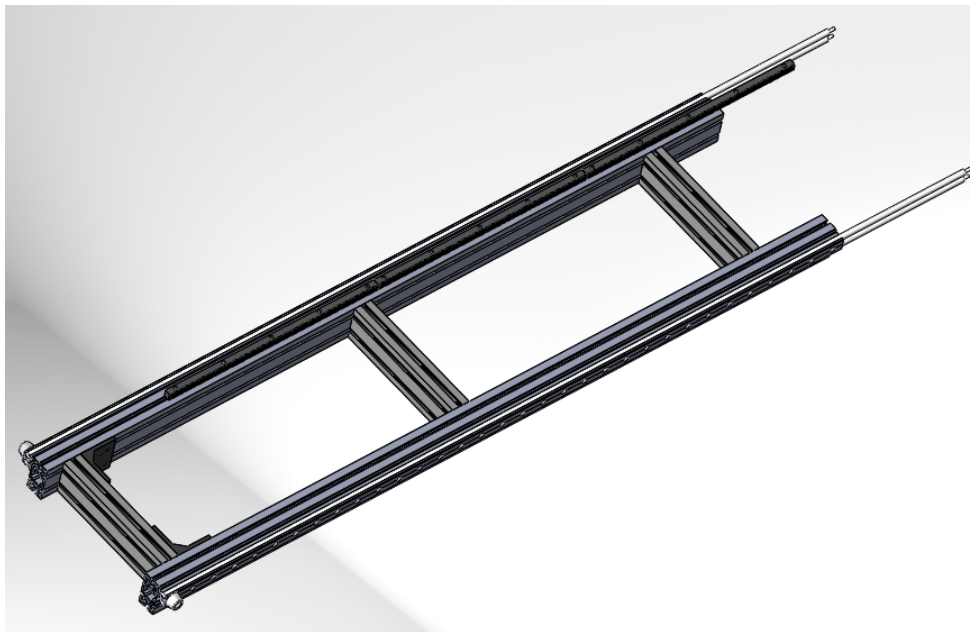
## Service Support Spirit

The machine is cut off.

1. Take out two sections of the longitudinal rails structure.

**Note:** If the machine is 6 meters or there is a cut-off requirement, First the two bases need to be connect;

2. Connect the two longitudinal rails together;



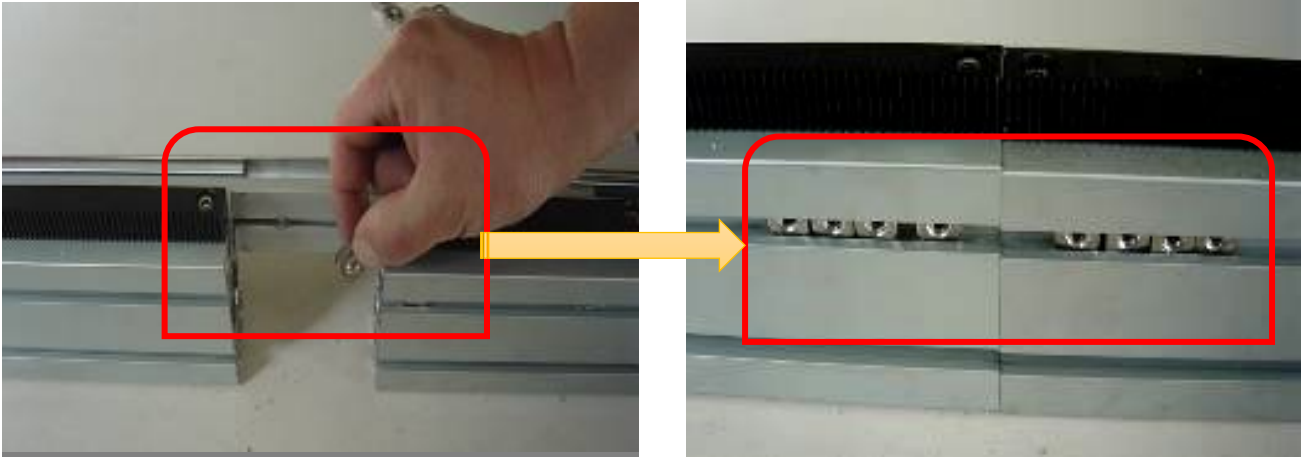


## Service Support Spirit

### 3. Use bolts fix the guiding rail and rack to the rail base.

Take out two sections of the longitudinal rails structure.

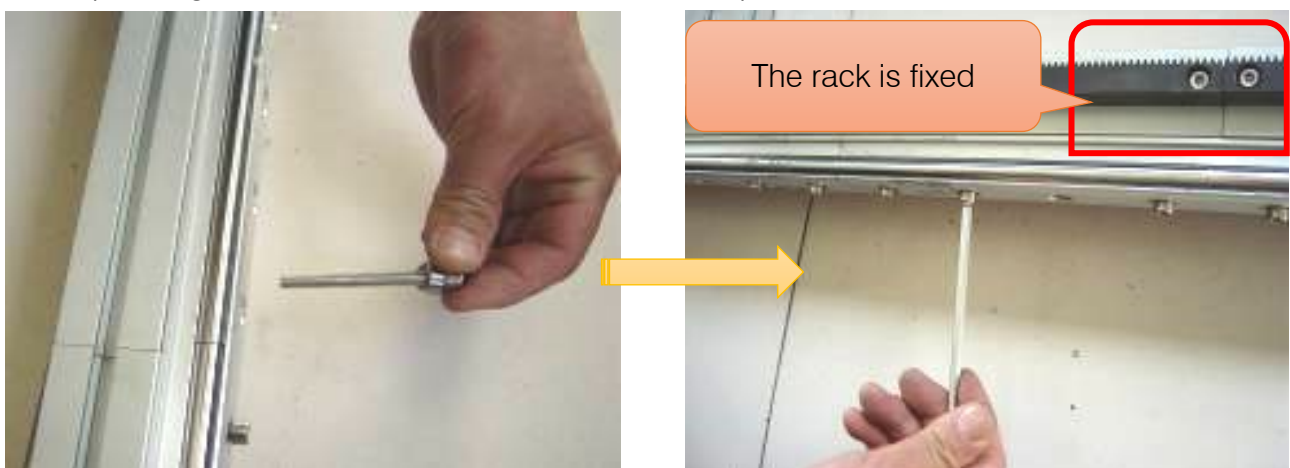
Take some pieces M5 bolts and square pad out, put 8 pieces nuts into the channel on each inner side of the aluminium frame, with 4 pieces in each end of the two sections. Show as.



Align the two sections and make them connected well.



Take out the 16 bolts, plug in 8 pieces for each side, and tighten them with the corresponding nut. The rack is fixed to the aluminum-profile.



## Service Support Spirit

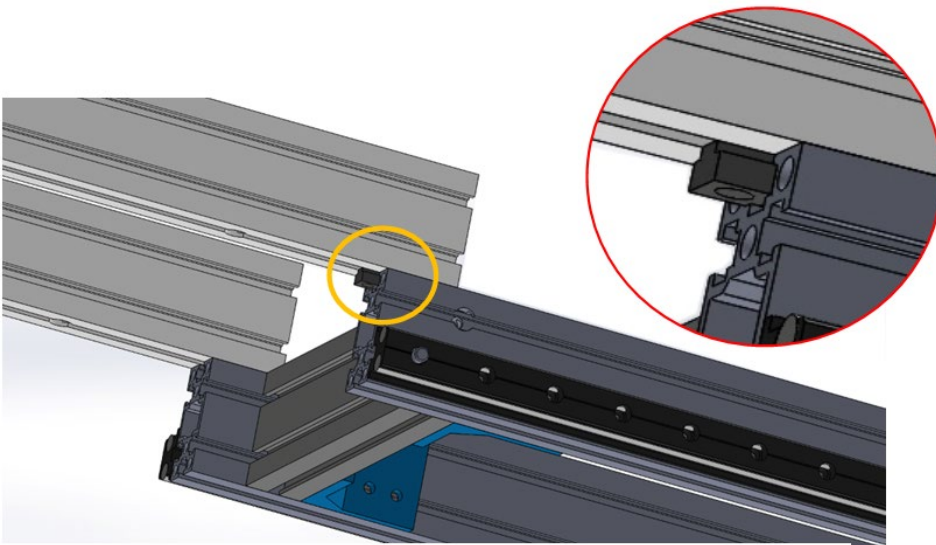
The finished X- axis rail:



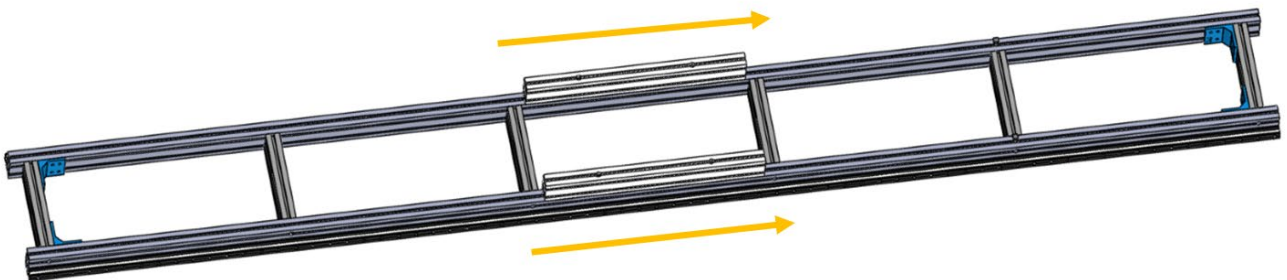
### 4. Connect the two bases with bolts.

Turn over the track 180 degree to make it facing downward.

Take two pieces of **40\*40\*600mm** long Longitudinal Cushion Block (with 4 bolts on it) out, plug the 4 quadrate nuts of cushion block into the channel from the end of the rail.



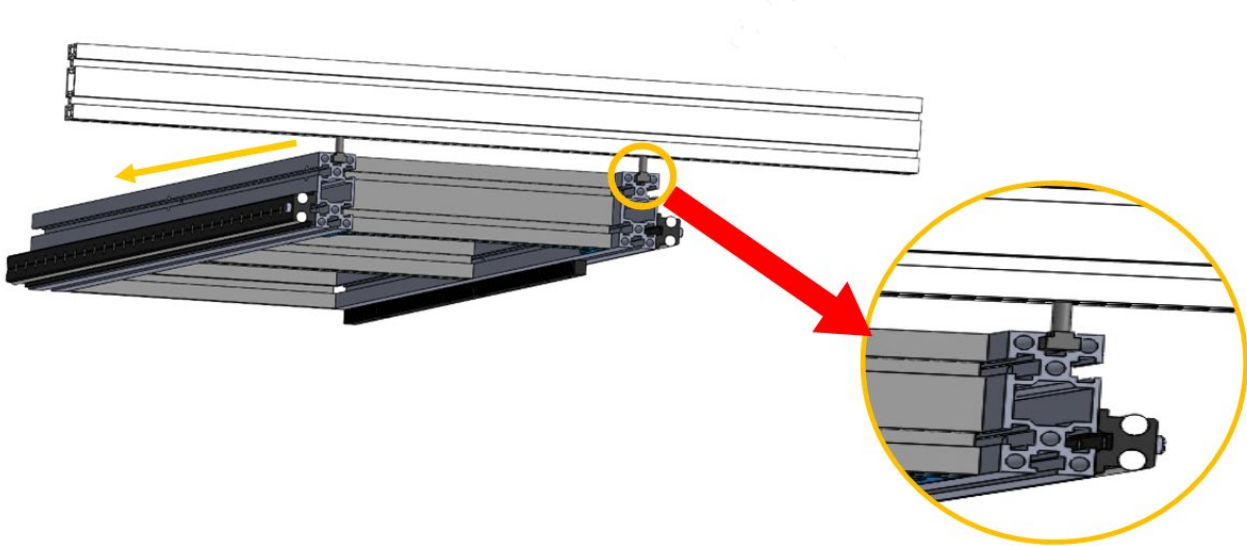
Fasten the blocks to the track with wrench.



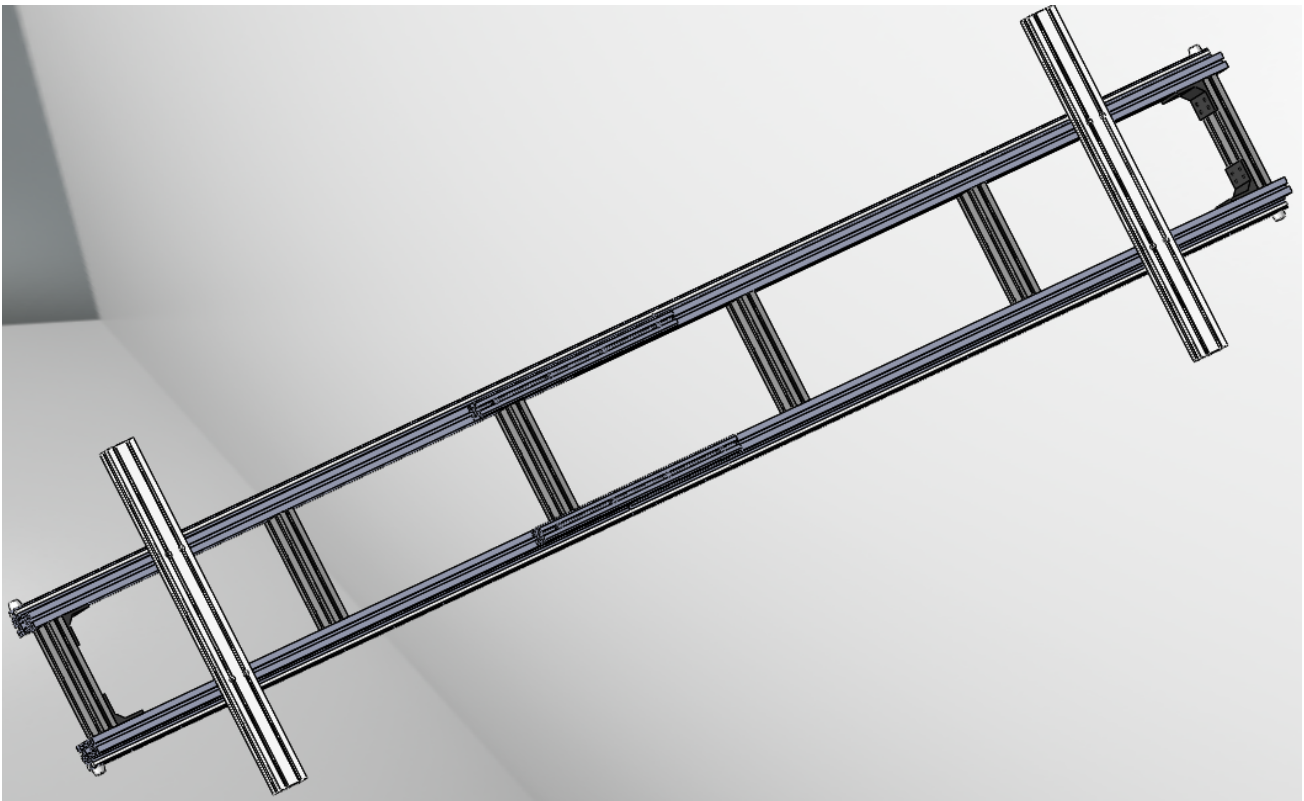
## Service Support Spirit

### 5. Install longitudinal rail block, use 2 bolts fix the rail block to rail base

Take two pieces of 900 mm long Transversal cushion block (with two bolts on it), Plug the nuts of cushion block into the 2 channels from the end of the frame.



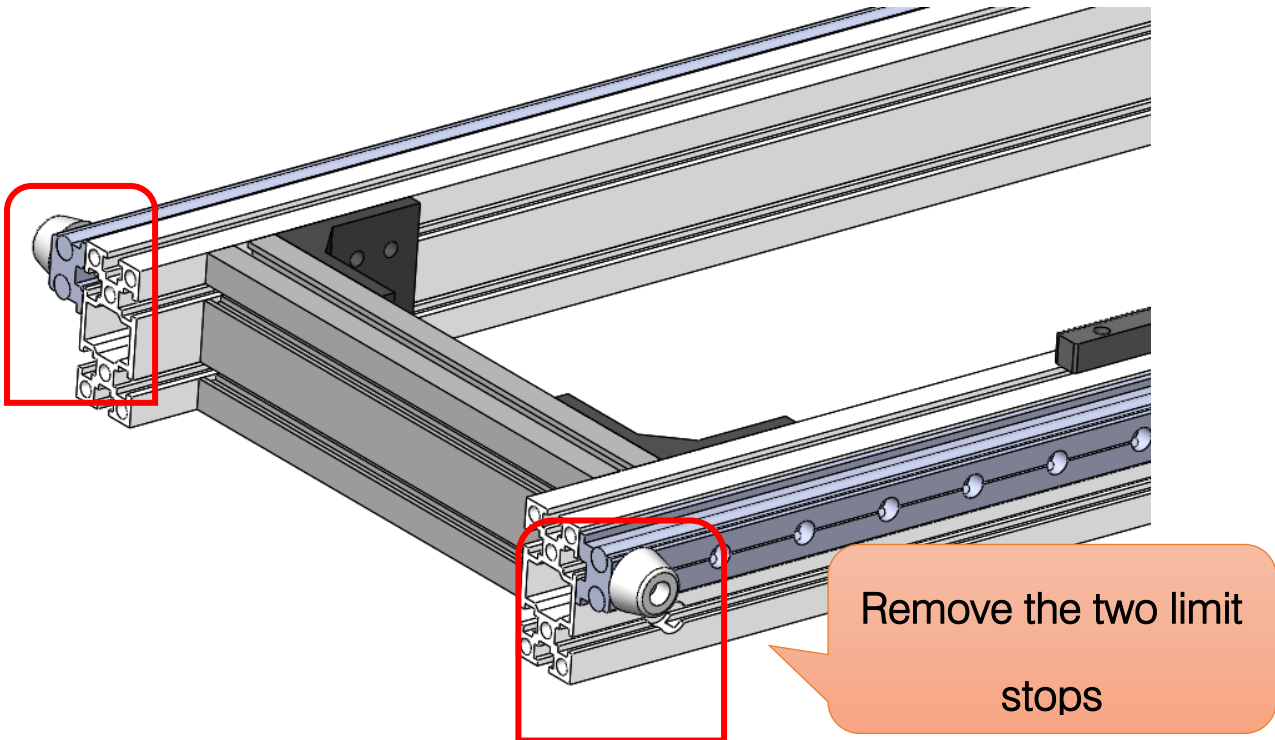
### 6. The rail base installation is complete:



## Service Support Spirit

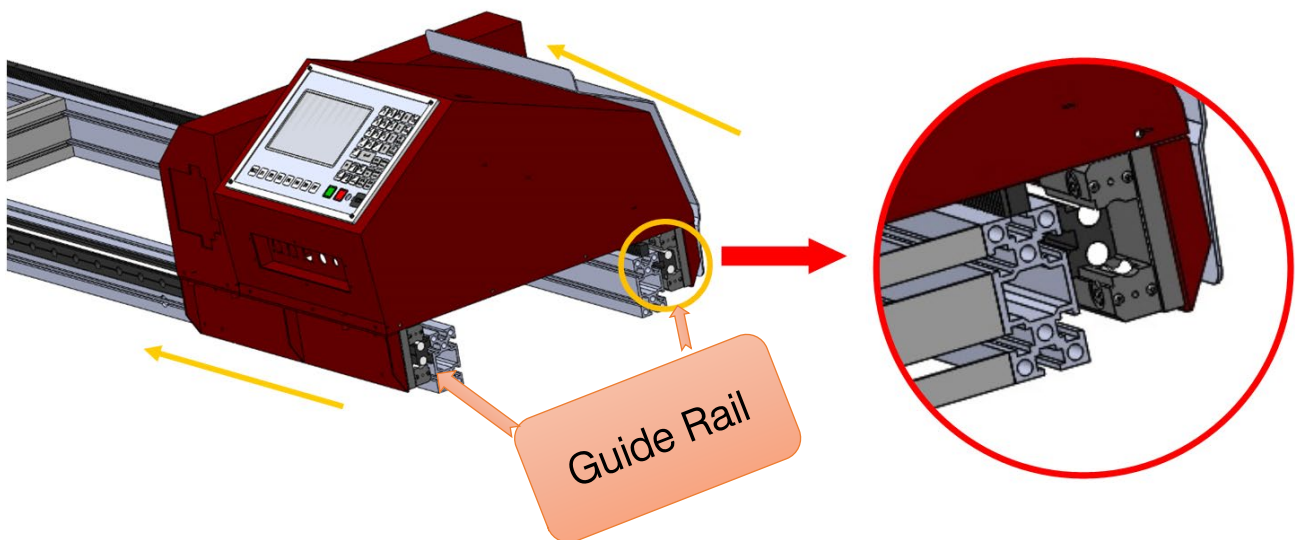
### Step3: Install control unit and crossbeam.

1. Remove the two limit stops.



2. Align the wheels of the Controller unit and the guiding rail, Push the Controller unit to slide in along the Guide Rail.

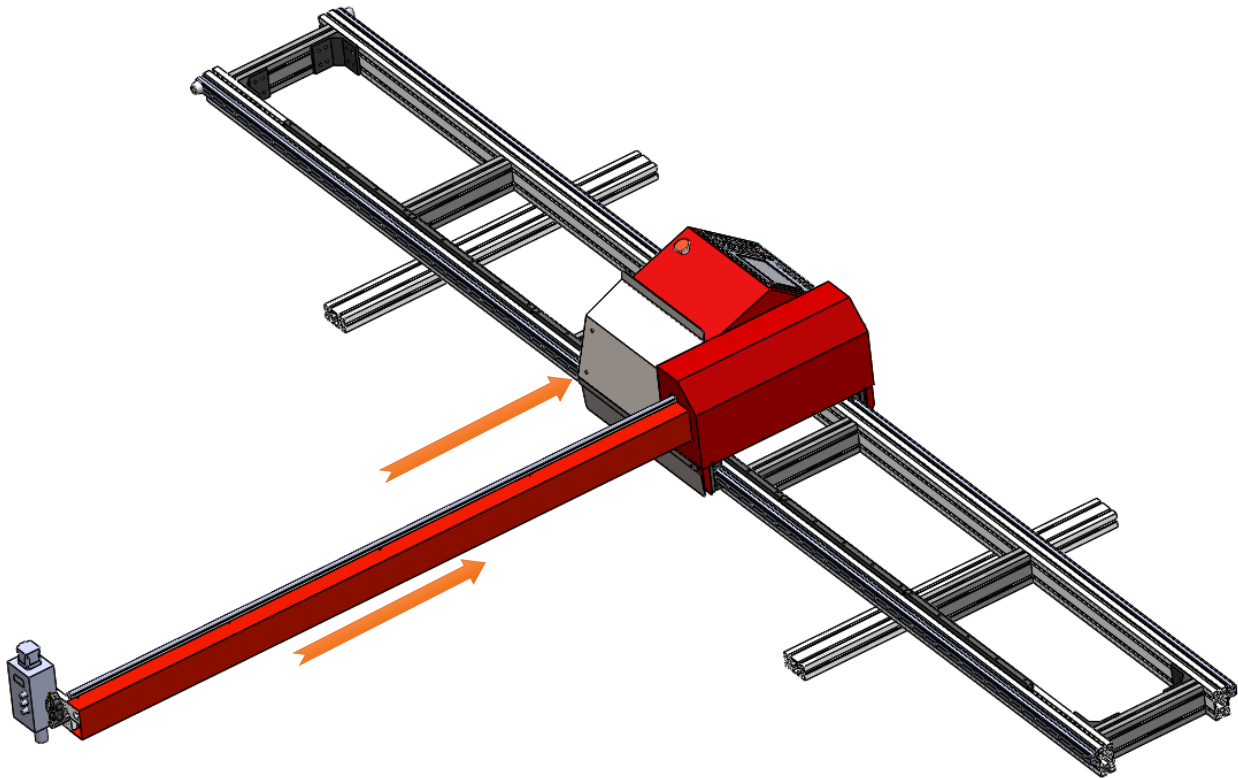
Reinstall the two limit stops;





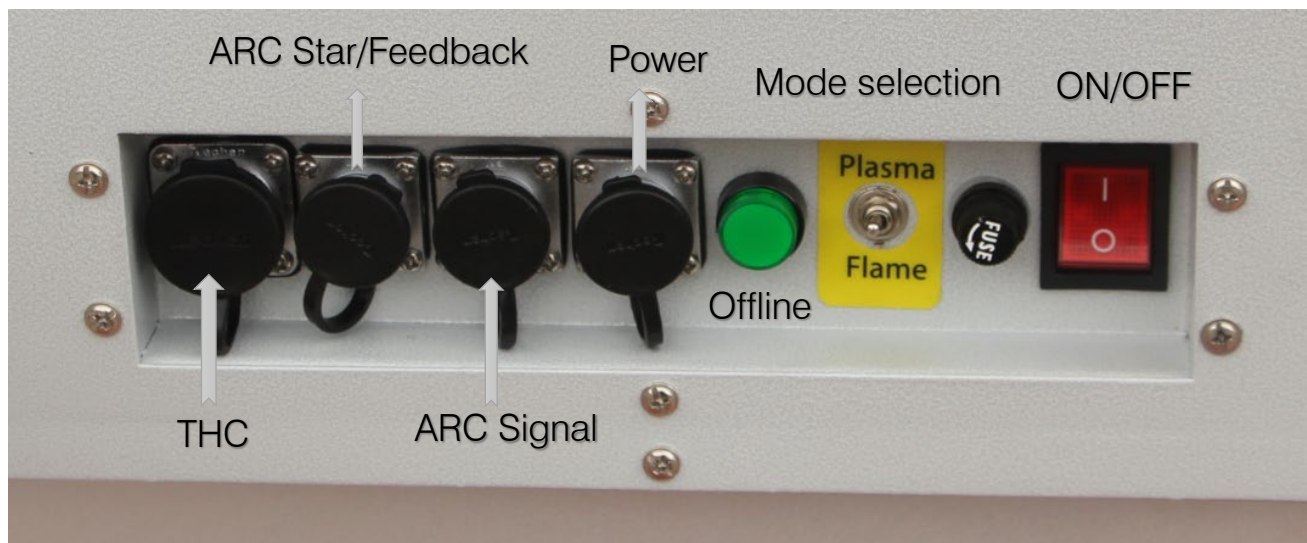
## Service Support Spirit

- Align the wheels of the Controller unit and the guiding rail, Push the Controller unit to slide in along the Guide Rail.



### Step 4: Connect the control cable.

Definition of plug:



Mode selection: Plasma and flame cutting mode selection;

# Service Support Spirit

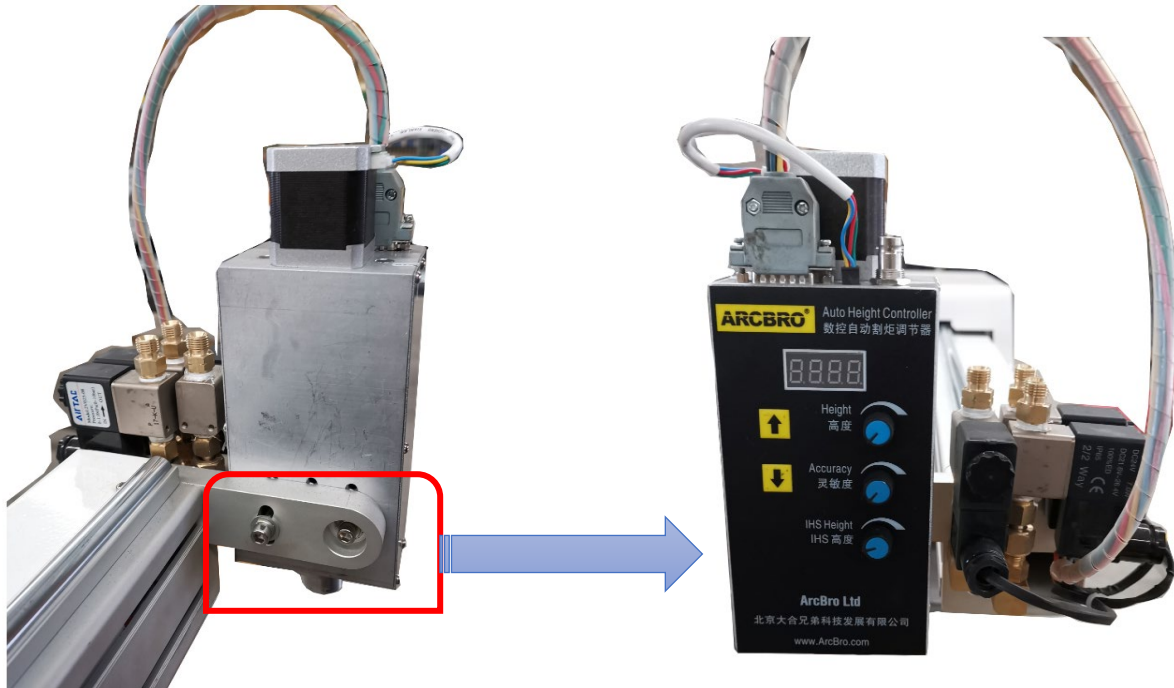
Offline: Offline switch. The switch is on, the indicator light is on, the drive is disconnected from control, and the machine can be pushed at will.

Machine	Aviation plug	Terminal No.	Description
Cruiser-mini connect terminal	4-core	START	The CNC plasma arc initiation signal
		START	
		TRANS/FEEDBACK	Notifies the CNC that an arc transfer has occurred
		TRANS/FEEDBACK	
	2-core	ARC+	The CNC arc voltage signal
		ARC-	

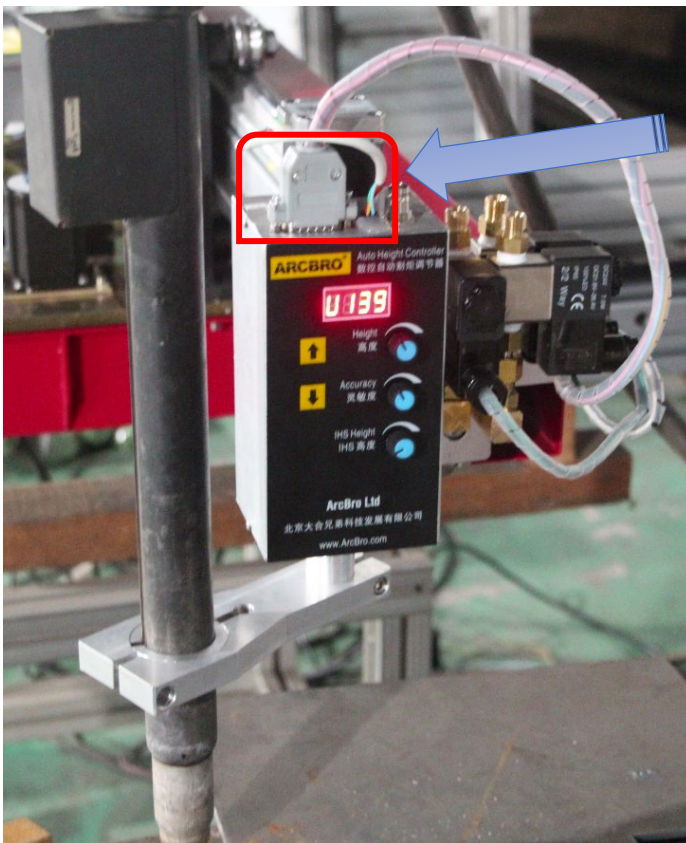
# Service Support Spirit

## Step 5: Assemble the lifting body.

1. Fix the lifting body with bolts.
2. Note: Level the lifting body during installation.



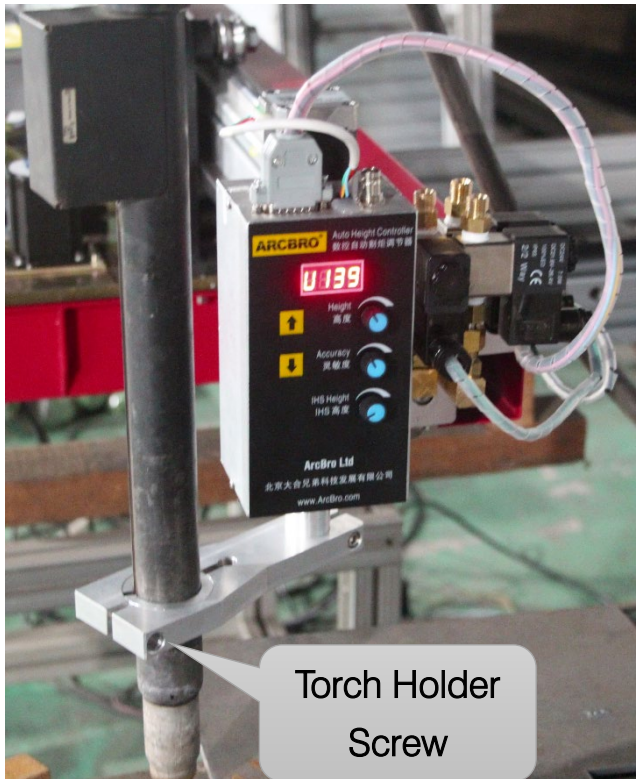
3. Connect the 15-pin plug of THC-then fix.



## Service Support Spirit

### Step 6: Plasma cutting part installation

1. Adjust the screw of the torch holder to insert the Torch; Fix the torch vertically in right position;



Usually: The distance between the torch nozzle of and the holder is about 150mm.

This torch is relatively stable

### Step 7: Flame cutting part installation.

**NOTE:** Avoid collision between nozzle and steel plate, extend service life of the torch/nozzle.

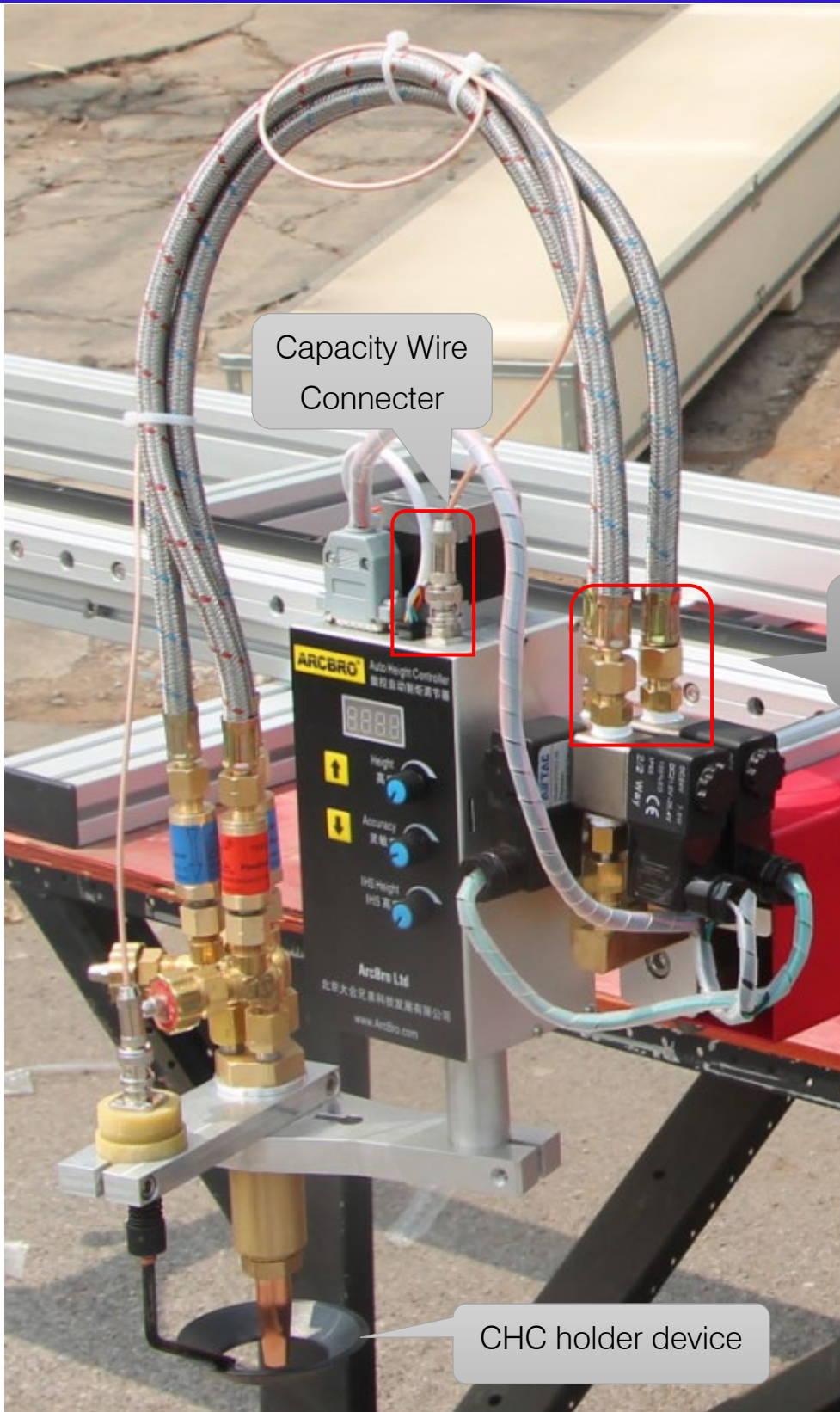
**Assemble steps:**

1. Attach the flame torch onto the standard torch holder, fix its screw.
2. Clamp the CHC holder device onto the flame torch, above the standard torch holder.
3. Fix the screw of the CHC holder well.
4. Connect the flame air pipe; bolt tightly.

**Note:** If the CHC holder device is not in purchase list, overlook step



# Service Support Spirit



Capacity Wire Connector

Connect the flame air pipe; bolt tightly.

CHC holder device

The above are the installation steps of the machine;  
 Congratulations on completing the installation of the machine.