NS1209M01_0

TOKINARC

Tungsten Changer

for Robotic TIG Torches

(TA-200CDA, TA-301CDW, TA-500CDW)

Instruction Manual

Table of Contents

TOKIN CORPORATION.

NS1209M01_0

1. Confirmation of Included Items

(1): Tungsten changer unit 1 set
(2): Tungsten projection length adjusting tool 1 set
(3): Tungsten collection box 1
(4): Confirmation switch 1
Please confirm whether all the above mentioned items are included.

2. Applicable Robotic TIG Torch for Tungsten Changer

Applicable robotic TIG torch for tungsten changer has a special built in double lift air cylinder that clips on and clamps the tungsten by air compression through the cylinder operation.

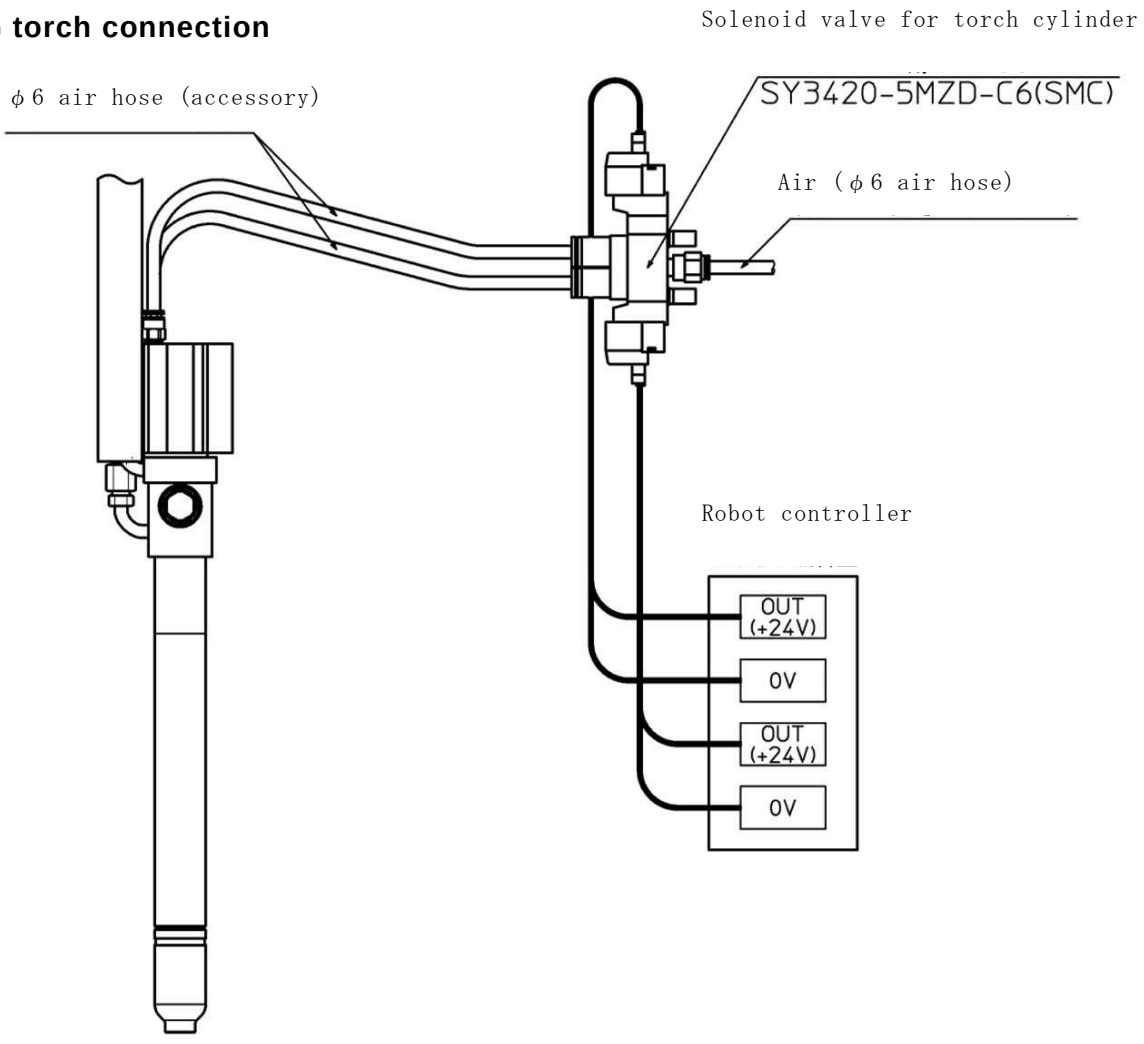
When the air is supplied from the pushing side, the internal shaft moves forward and the collet is pressed into the collet body to clamp the tungsten with the collet.

When the tungsten is exchanged and the projection length is adjusted, air is supplied to the retracting side and the shaft is moved back to unclamp the tungsten.

Even when no air is supplied (in neutral state), the shaft is pushed forward by the built-in spring and so, the tungsten cannot fall, and cannot be welded.

While welding, always supply air and confirm whether the tungsten is clamped properly before starting.

TIG torch connection



* Ask the customer to arrange for a solenoid valve.

Use the above mentioned solenoid valve or another make of the same quality.

Signal wire connection position for short circuit detection

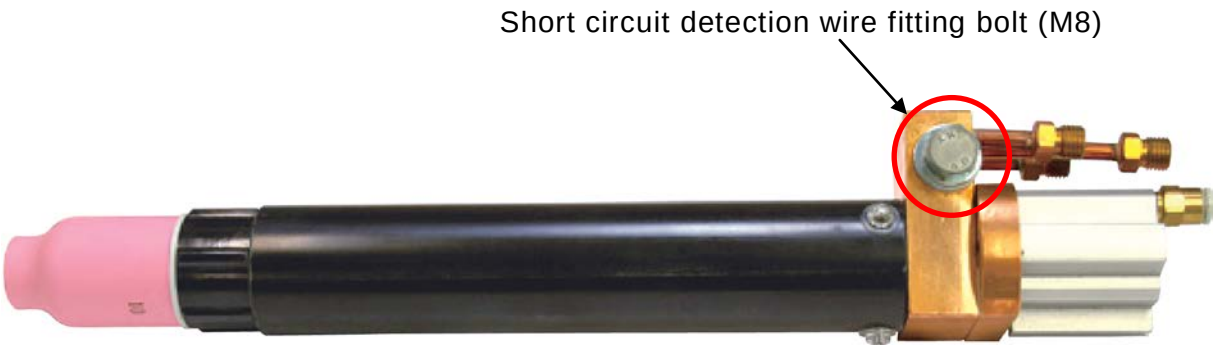
TA-200CDA

Short circuit detection wire fitting bolt (M4)

TA-301CDW

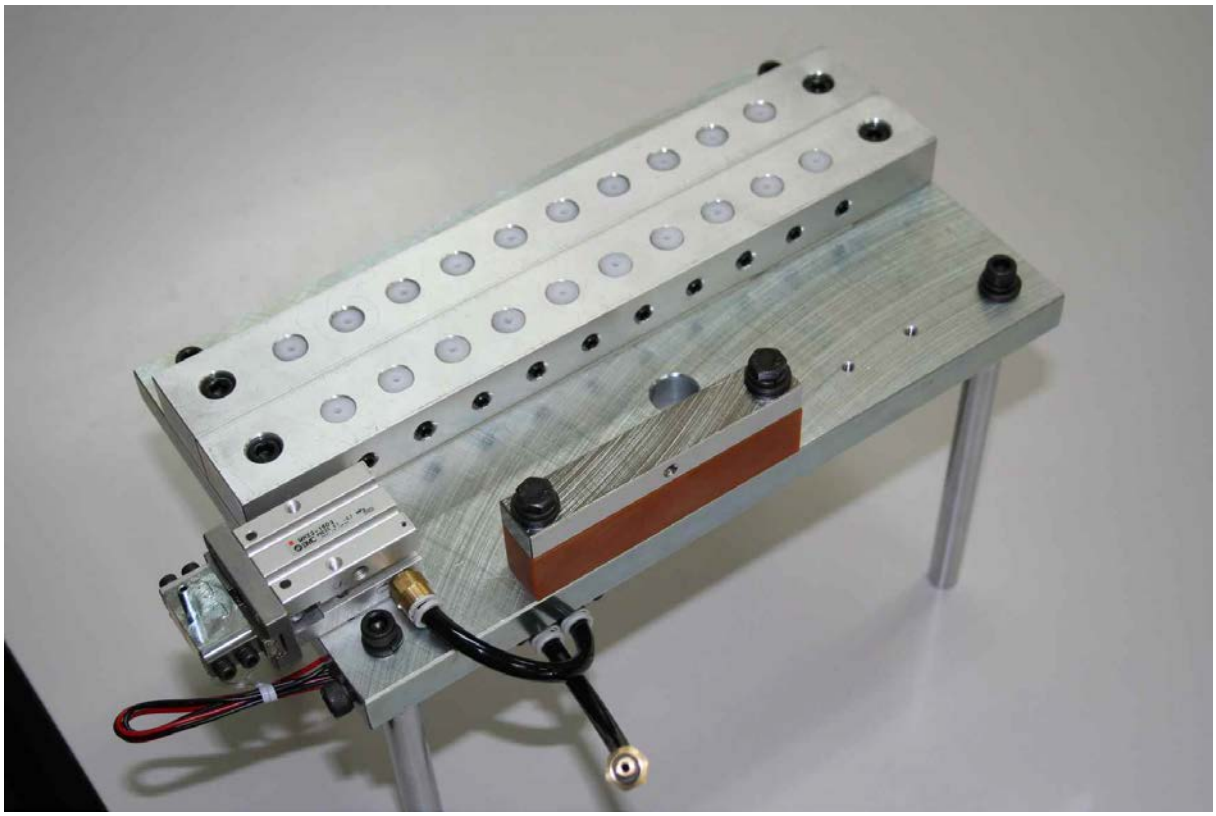
Short circuit detection wire fitting bolt (M8)

TA-500CDW

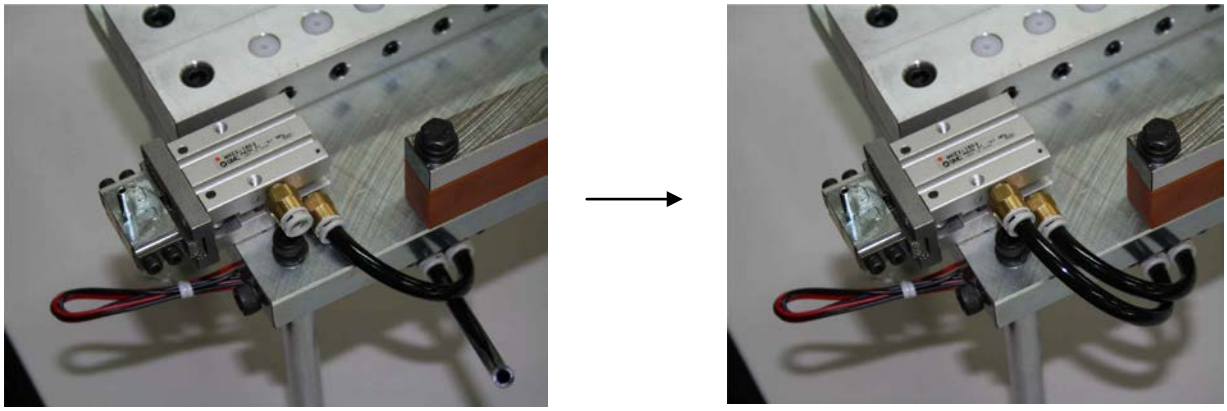


3. Tungsten Changer Setup

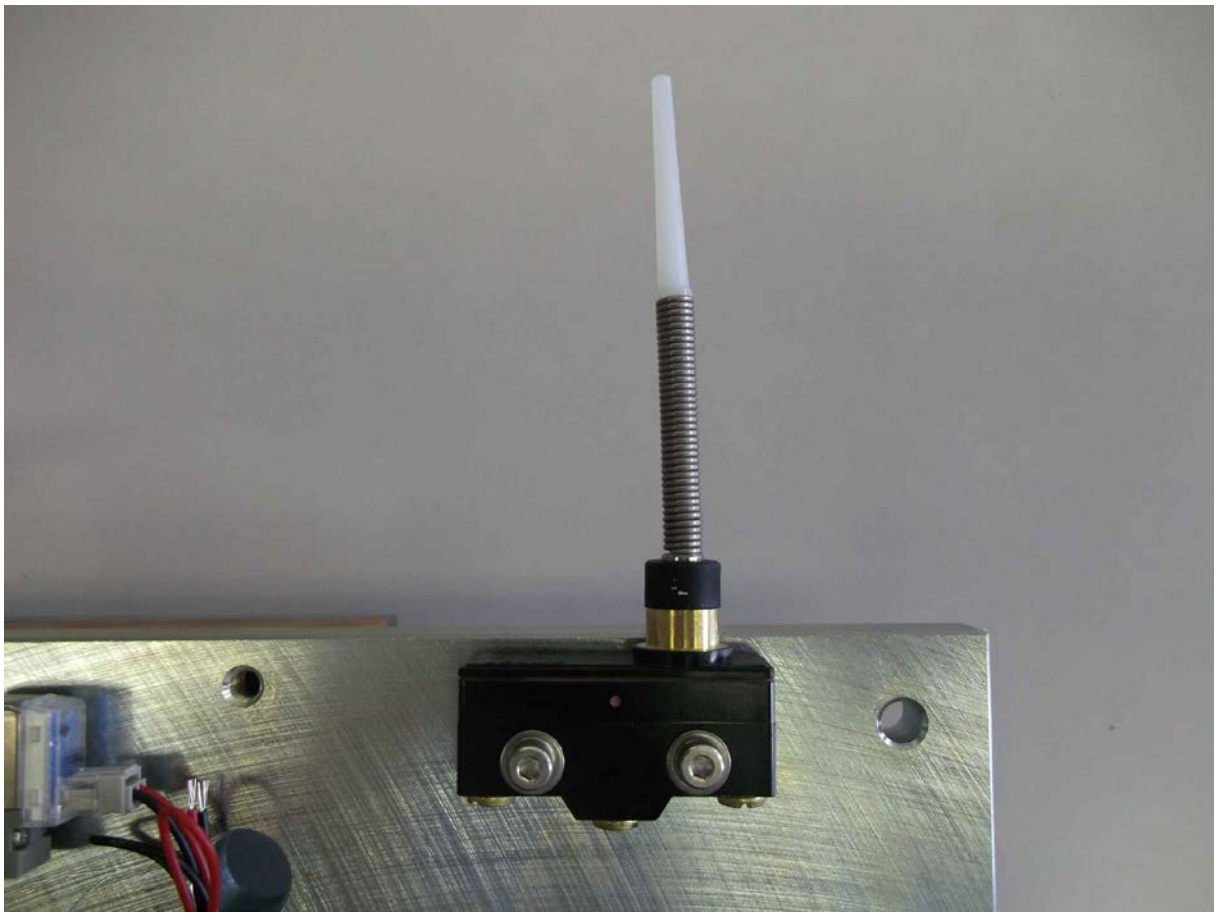
1. Install the tungsten changer.



2. Fit a push in fitting and air hose to the parallel opening-closing type air chuck
.

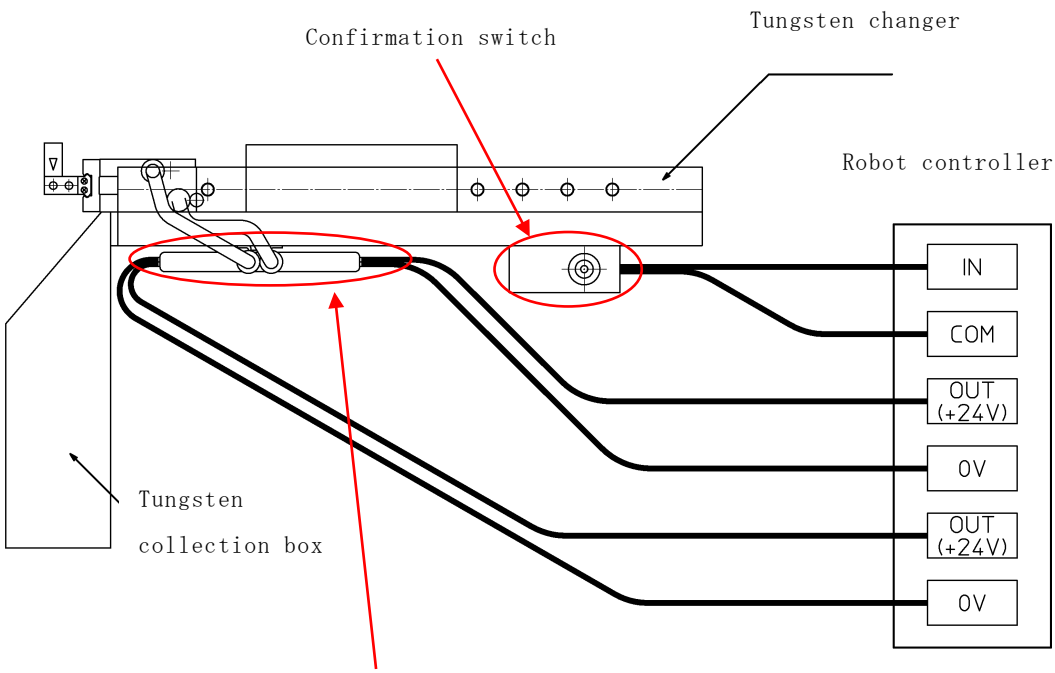


3. Install the confirmation switch.



Use the hexagon socket bold (M4) attached on the back of the tungsten changer to fix the confirmation switch.

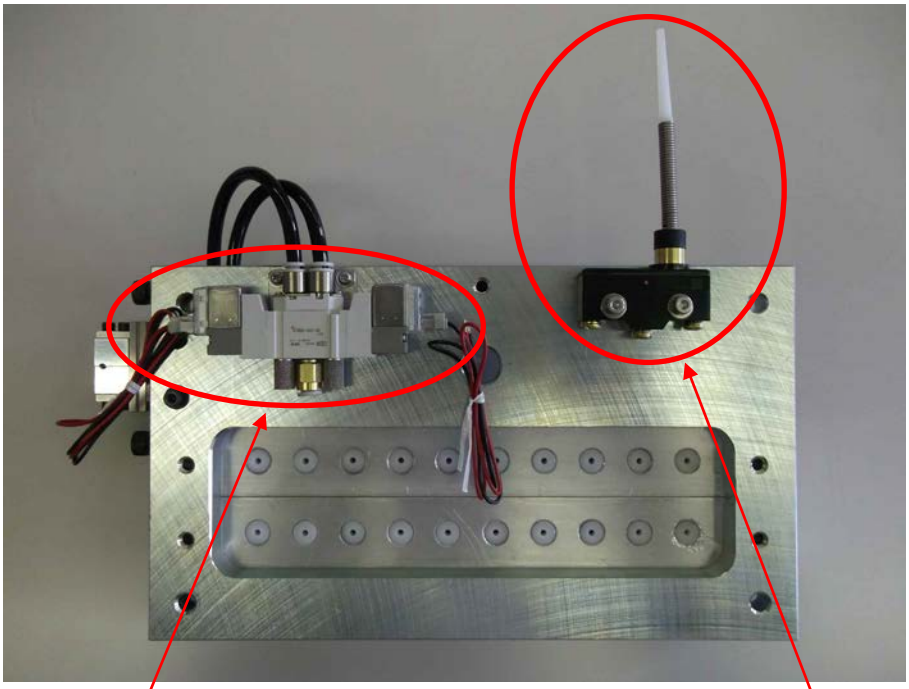
4. Connect the wire of the solenoid valve for the tungsten removing chuck and of the switch for confirmation.



Solenoid valve for opening-closing the tungsten removing chuck

OUT(+24V,0V) For air chuck opening-closing

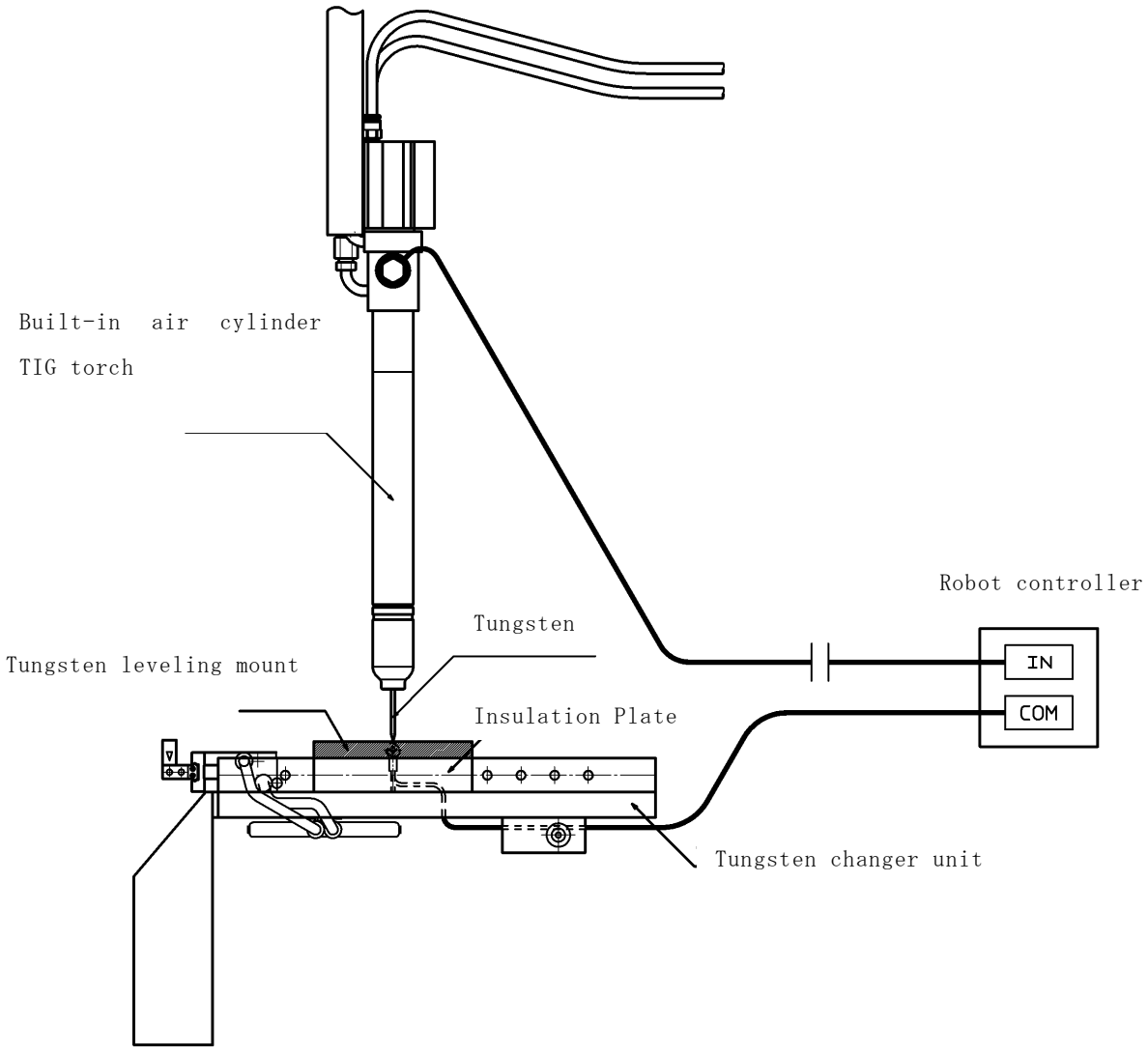
IN：' Confirmation switch



Solenoid valve for opening-closing the tungsten removing chuck

Confirmation switch

5. Connect the short circuit detection wire.
   The neutral state occurs when air is not supplied for both clamping and unclamping and the collet is pushed by the force of the spring to clamp the tungsten.
   In this state, if the tungsten projection length is adjusted, the collet will rub against the tungsten and may get damaged.
   Unclamp the tungsten before adjusting the projection length.
   Short circuit detection wire cable size: 2SQ/M4



*Tungsten projection length leveling mount is insulated by insulation plate. Always maintain the insulation status by cleaning etc.
See that conduction in the detection line on the TIG torch side takes place only for short circuit detection and it is shutoff while welding.

4. How to Use

1. Tungsten exchange method

*Numbers noted in circles, please refer to page 10.

*Numbers noted in parentheses, please refer to page 12, 14.

① Open the "Tungsten removing chuck (11)".

② Move the torch to the tungsten removing position and Close the "Tungsten removing chuck (11)".

Confirm that the claws of the "Tungsten removing chuck (11)" are clamping the tungsten tightly, and "unclamp" the torch side chuck.

③ Pull up the torch till the tungsten can be removed completely.

④ Open the "Tungsten removing chuck (11)" and drop the used tungsten in the "Tungsten collecting box (7)".

⑤ Use the "Confirmation switch (9)" to confirm that the torch does not retain the tungsten.

⑥ While the torch side chuck is unclamped, move the torch to clamp new tungsten which is on "Electrode plate (2)"till it can be grasped, and clamp the torch side chuck to clamp the tungsten.

⑦ Move up the torch to where the tungsten can be completely removed from the "Electrode plate (2)".

⑧ Use the "Confirmation switch (9)" to confirm that the torch retains the tungsten.

⑨ Move the torch on top of the "Tungsten leveling mount (4)", unclamp the torch side chuck and bring it down towards the "Tungsten leveling mount (4)". At this time, the tungsten will get detached from the torch if the chuck is too high to unclamp and the tungsten is short. See that the position for unclamping the torch side chuck is suitable when the tungsten is short.

* Before the torch side chuck reaches the unclamping position, set the chuck to the neutral state without fail.

When using a short circuit signal in flow chart **A**, set the chuck on the torch side to neutral and move the torch near the "Tungsten leveling mount (4)". When there is a short circuit between the tungsten end and the "Tungsten leveling mount (4)", "unclamp" the torch side chuck.

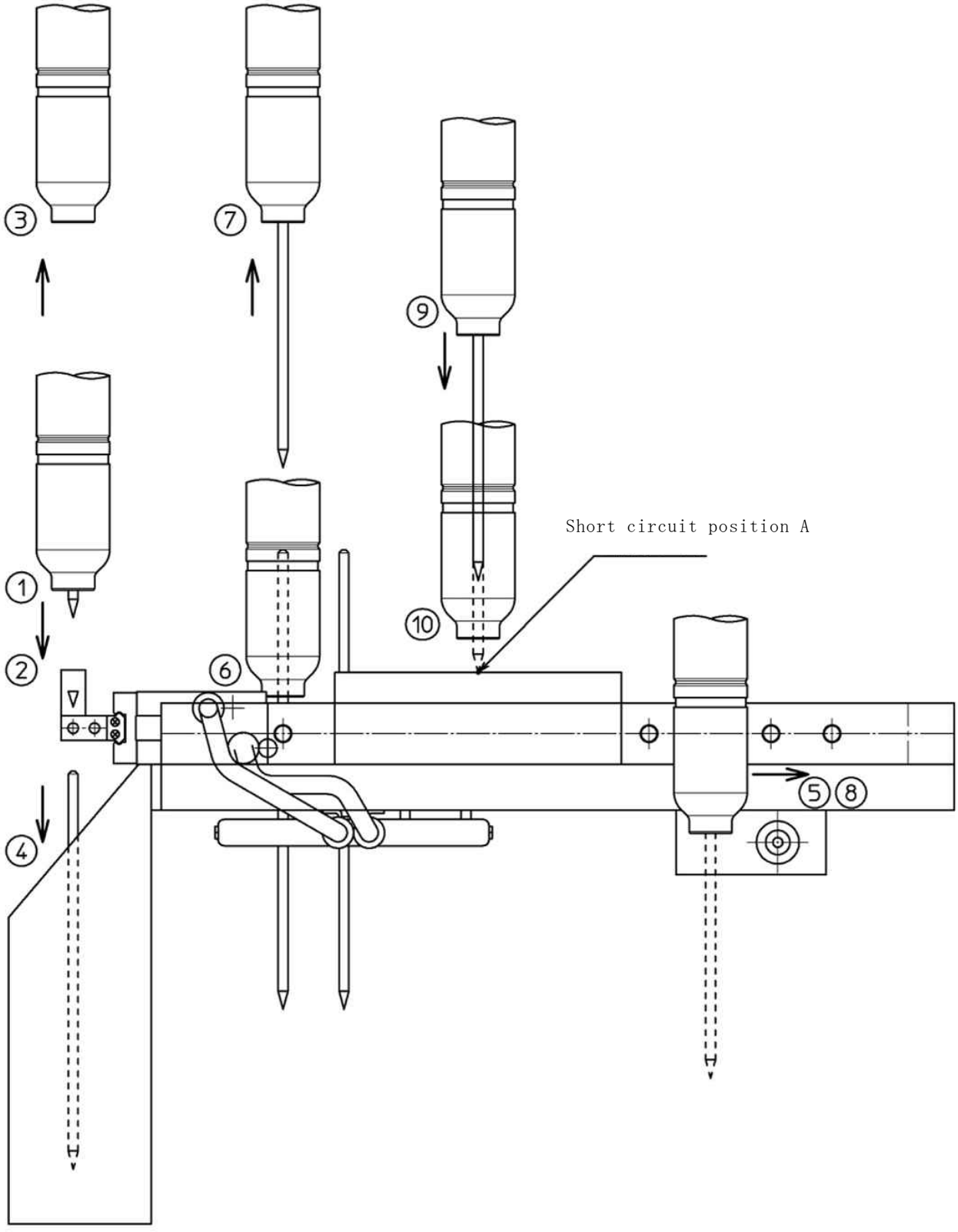
⑩ Clamp the torch side chuck in the most suitable area of the tungsten projection length.

<Treatment of the rear end part of tungsten>

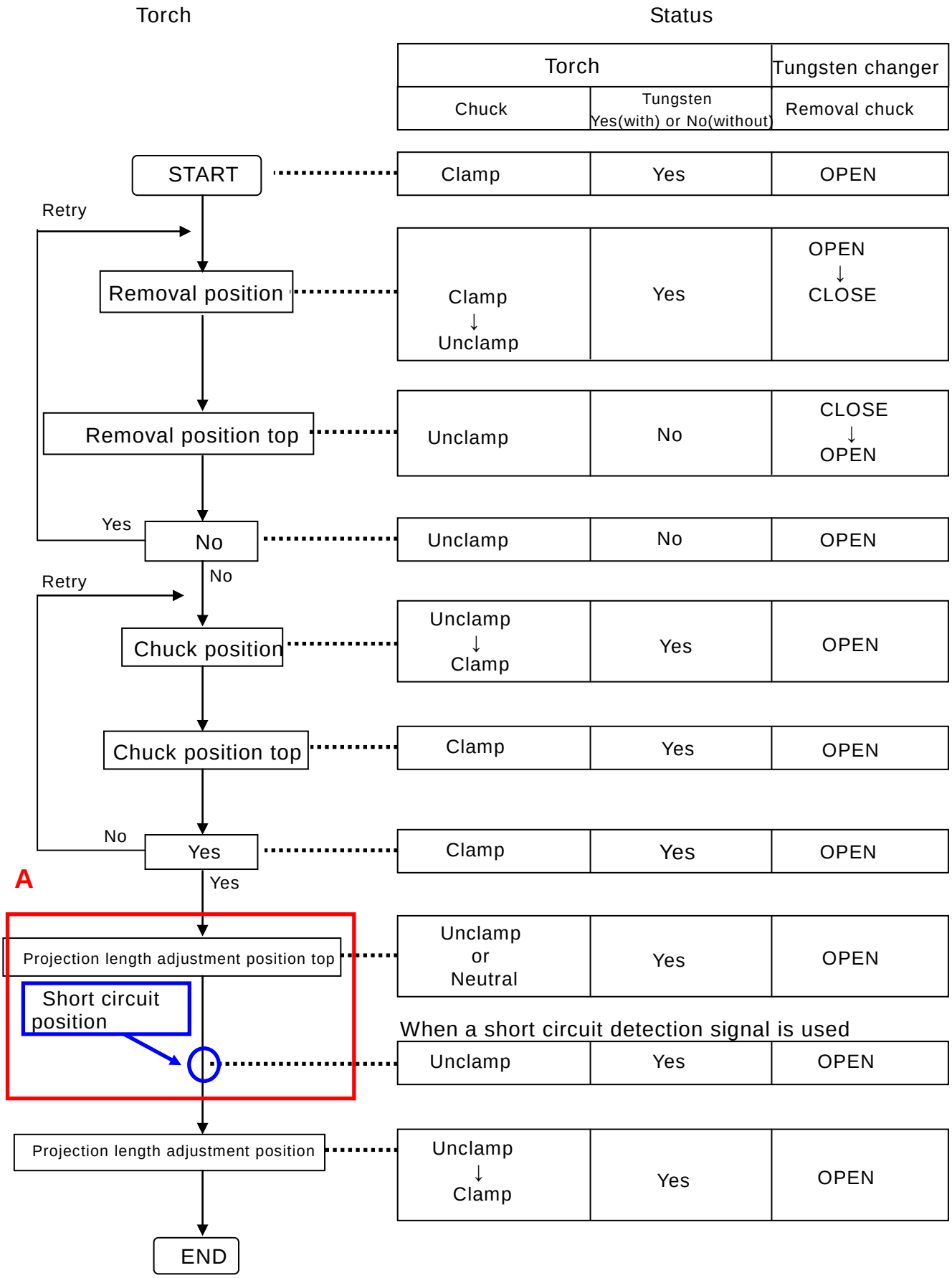
"Remove the tungsten identification paint" and "chamfer the rear end part of the tungsten" to ensure that the electrode is exchanged smoothly.

New tungsten

After treatment


Short circuit position A
1
2
3
4
5
6
7
8
9
10

2. Tungsten exchange flow chart (example)



5. Tungsten Changer Parts List (TA-200CDA, TA-301CDW)

Tungsten changer

	Name	Material	Count	Article
(1)	Tungsten changer base plate	SS400	1	
(2)	Electrode plate	AL	2	For TA-200CDA TA-301CDW
(3)	Resin color	Polyacetal	20	For used tungsten diameter
(4)	Tungsten leveling mount	SS400	1	
(5)	Insulation plate	Phenolic resin	1	
(6)	Claw	S50C	1	For used tungsten diameter
(7)	Tungsten collection box	SPC 1.2t	1	

* If you want to purchase parts (3) and (6), let us know the diameter of the tungsten you are using.

Purchased parts

	Name	Manufacturer	Count	Model Number
(8)	Ball plunger	MISUMI	20	SPJH6
(9)	Confirmation switch	OMRON	1	Z-15GNJ55-B
(10)	Solenoid valve	SMC	1	SY3220-5LZ-C6-F2
(11)	Chuck	SMC	1	MHZ2-16D2-M9PVSL

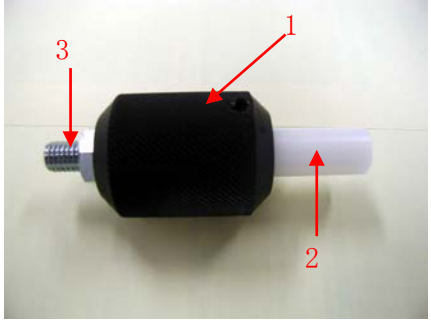
Tungsten insertion jig

	Name	Material	Count	Remarks
1	Holder	SS40D	1	

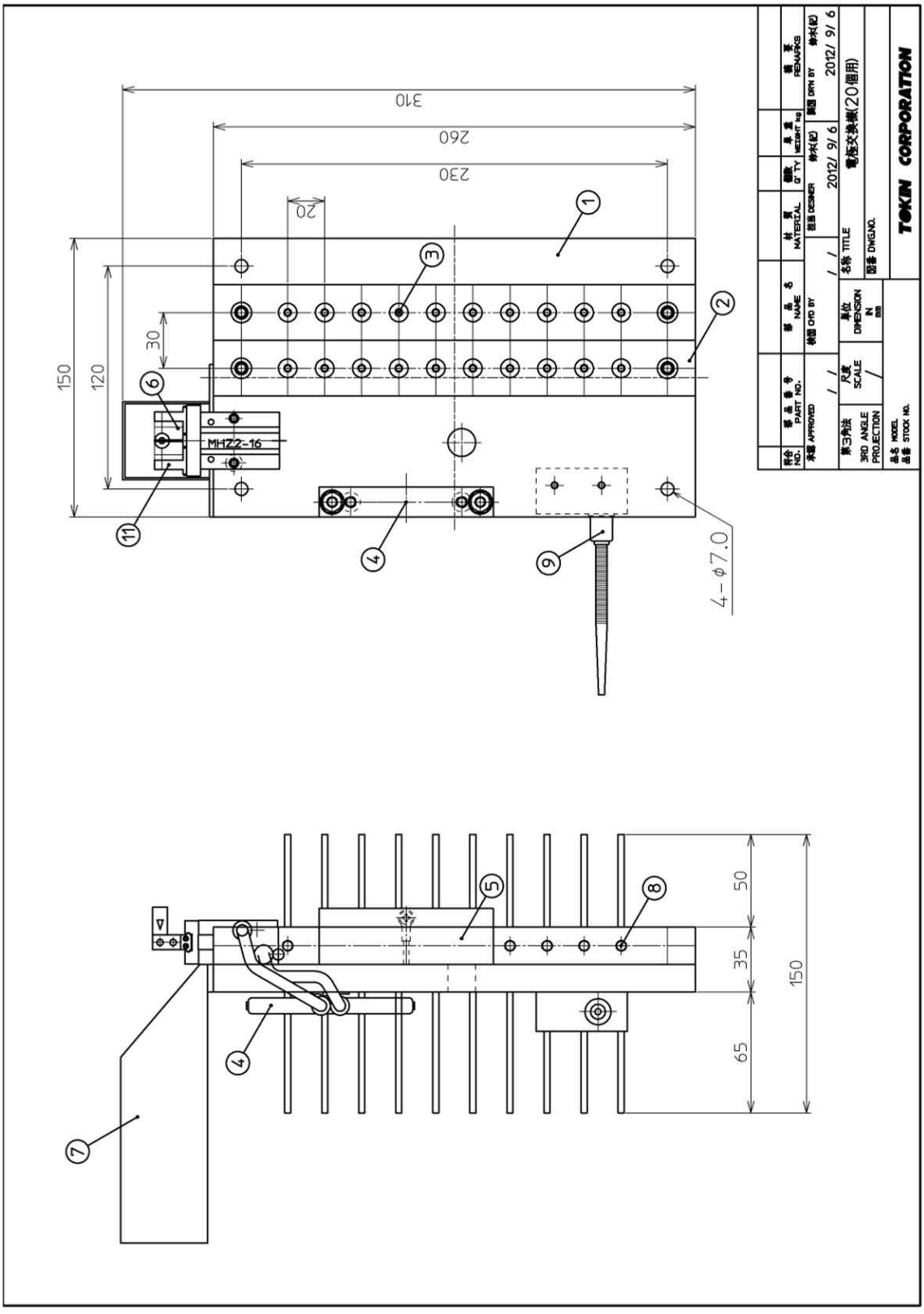
Purchased parts

	Name	Manufacturer	Count	Model Number
2	Resin color	MISUMI	1	CLJJ4-12-40
3	Adjusting bolt	MISUMI	1	USS8-25

Tungsten insertion jig parts structure



6. Tungsten Changer Dimensions (TA-200CDA, TA-301CDW)



7. Tungsten Changer Parts List (TA-500CDW)

Tungsten changer

	Name	Material	Count	Article
(1)	Tungsten changer base plate	SS400	1	
(2)	Electrode plate	AL	2	For TA-500CDW
(3)	Resin color	Polyacetal	16	For used tungsten diameter
(4)	Tungsten leveling mount	SS400	1	
(5)	Insulation plate	Phenolic resin	1	
(6)	Claw	S50C	1	For used tungsten diameter
(7)	Tungsten collection box	SPC 1.2t	1	

* If you want to purchase parts (3) and (6), let us know the diameter of the tungsten you are using.

Purchased parts

	Name	Manufacturer	Count	Model Number
(8)	Ball plunger	MISUMI	16	SPJH6
(9)	Confirmation switch	OMRON	1	Z-15GNJ55-B
(10)	Solenoid valve	SMC	1	SY3220-5LZ-C6-F2
(11)	Chuck	SMC	1	MHZ2-16D2-M9PVSL

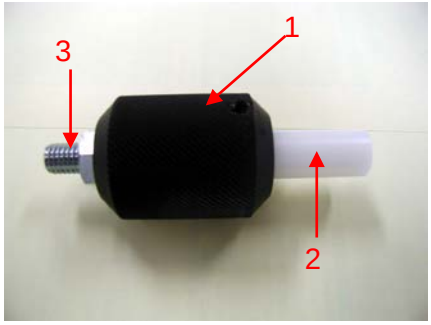
Tungsten insertion jig

	Name	Material	Count	Remarks
1	Holder	SS40D	1	

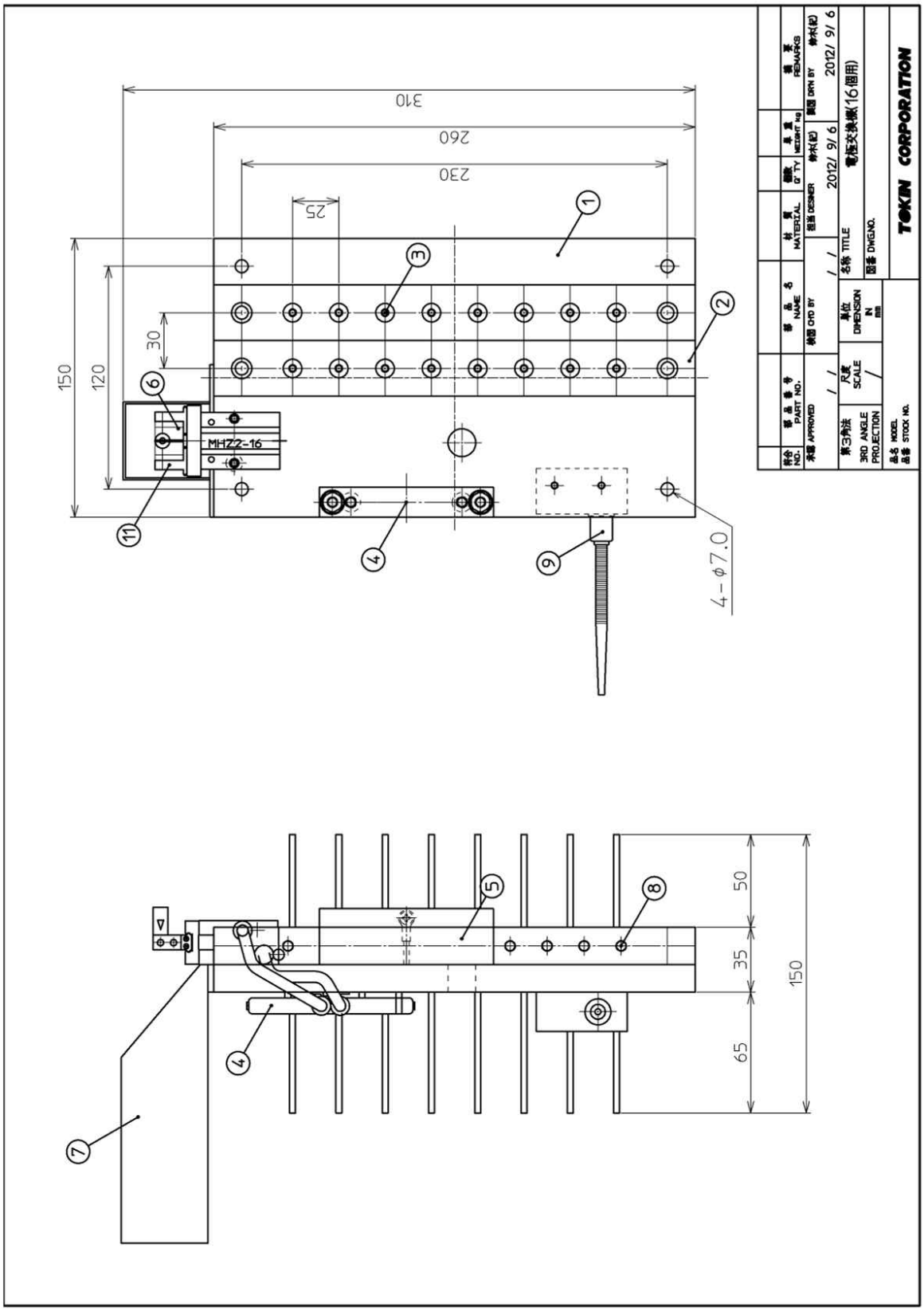
Purchased parts

	Name	Manufacturer	Count	Model Number
2	Resin color	MISUMI	1	CLJJ4-12-40
3	Adjusting bolt	MISUMI	1	USS8-25

Tungsten insertion jig parts structure



8. Electrode Exchange Device Dimension (TA-500CDW)



Tungsten Changer

September 6, 2012	Ver 1.0	Version 1 issued
January 17, 2014	Ver 2.0	Version 2 issued

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