TA-150AC/300WC

OPERATION MANUAL



Y03OM1204960-01

Thank you for purchasing our Torch TA-150AC/300WC.

This operation manual describes its method of operation and precautions for use. Read this operation manual carefully prior to use. Store appropriately for ready reference.

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1. Precautions for Handling

About Safety

- To ensure safety, installation, maintenance, and repair of this device must be made by qualified personnel or personnel familiar with the device.
- To ensure safety, the personnel who operates this device must understand this operation manual and acquire knowledge and skills of safe handling.
- After reading this operation manual, save it in a proper place where you can easily access and read it again as needed.
- If there is anything unclear, contact us.

Safety Precautions



: Denotes operations and practices that may imminently result in serious injury or loss of life if not correctly followed.

: Denotes operations and practices that may result in serious injury or loss of life if not correctly followed.

: Denotes operations and practices that may result in personal injury or damage to the equipment if not correctly followed

- This device was designed with safety in mind, but be sure to follow the precautions in this operation manual when using it. If not followed, serious accident causing loss of life or serious injury may result.
- Keep any unauthorized people out of the device and welding site.
- A person who uses a pacemaker must not approach the welding machine or walk around the welding site while the welding machine is in operation, without being permitted by his/her doctor. The welding machine generates a magnetic field and has effects on the operation of the pacemaker while it is turned on.

- Touching to the charged portion causes fatal electric shock or burns. With power output from the welder, electrode, collet body, collet, and cap are electrically charged.
- To prevent case and workpiece or jig electrically connected to workpiece, etc. from being electrically charged, perform grounding work.
- For installation and maintenance check, be sure to turn off the input power with switch in switch box.
- Be sure to tighten and isolate the cable connection.
- Maintain and inspect the device periodically, and repair any damage nearby before starting operation.
- Do not use cables of insufficient current capacities, damaged, or exposed conductor.
- Securely connect the EARTH cable as close to a workpiece to be welded as possible.
- Do not use torn or wet gloves. Always use dry insulating gloves.
- When not in use, turn off the power to all equipments.

1. Precautions for Handling

- Arc light source can irritate the eyes or burn the skin.
- Spatter and slag can damage the eyes or burn the skin.
- Noises can damage hearing.
- When monitoring the welding site or welding, wear an eye protector with sufficient scale or protective masks for welding.
- To protect eyes from spatter and slag, wear protective glasses.
- Put up protective curtains around the welding site to protect people's eyes from arc light source.
- When welding, put on protective gear such as leather protective gloves for welding, long-sleeve jacket, leg cover, leather apron, etc.
- For loud noises, use ear protectors.

- Inhalation of gas or fume produced during welding can cause health damage.
- Welding in narrow spaces can cause suffocation from oxygen deficiency.
- In places set by regulations (Ordinance on the Prevention of Oxygen Deficiency, etc.), provide adequate ventilation or use a breathing apparatus, etc. to avoid gas poisoning or suffocation.
- For welding in narrow spaces, be sure to provide adequate ventilation or use a breathing apparatus, etc. in addition to performing a work under the supervision of trained observer.
- Do not perform welding near degreasing, cleaning, and spray works. Performing welding near such works can produce harmful gas.

- Shielded nozzle and electrode are very hot just after welding. Touching them carelessly may result in burns.
- Do not touch shielded nozzle and electrode by hand just after completion of welding.

1. Precautions for Handling



- Note 1: Let the electrode diameter ϕ D mm. The dimension above is reference. Check the proper value.
- Note 2: The clearance between electrode and workpiece changes depending on weldment. The dimension above is reference. Check the proper value.
- Note 3: The nozzle ring is attached to **TA-150AC/300WC**. Install the nozzle ring to the torch nozzle, and connect the cable terminal connected to the nozzle ring to the PE terminal of **MAWA-050A/300B**. This may increase the probability of LOST.
 - * Since LOST is caused by multiple factors, it is not totally eliminated.

3. About Torch

(1) Specifications

This is the torch which is improved in the reproducibility of the position of the electrode tips after replacing the electrode for the touch start model of the pulsed TIG welding power supply **MAWA-050A** and **MAWA-300B**. This can be used for the high-voltage start model.

① Model specification

Item	Item No.	Model No.	Nozzle type	Electrode	Cable	Applicable	Welding
				dia.	length	power	current
					-	supply	(目安)*1
Air-cooled	1205697	TA-150AC-2000-FL	Standard	φ1.0	2 m	MAWA-050A	< 80A
torch	1205698	TA-150AC-3000-FL	nozzle		3 m		
	1205699	TA-150AC-4000-FL	(Model:		4 m		
	1205700	TA-150AC-2010-FL	13N08)	φ1.6	2 m	MAWA-050A	80A to
	1205701	TA-150AC-3010-FL			3 m	MAWA-300B	140A
	1205702	TA-150AC-4010-FL			4 m		
	1205703	TA-150AC-2000-13	Gas lens	φ1.0	2 m	MAWA-050A	< 80A
	1205704	TA-150AC-3000-13	nozzle		3 m		
	1205705	TA-150AC-4000-13	(Model:		4 m		
	1205706	TA-150AC-2010-13	53N60)	φ1.6	2 m	MAWA-050A	80A to
	1205707	TA-150AC-3010-13			3 m	MAWA-300B	140A
	1205708	TA-150AC-4010-13			4 m		
Water-cooled	1205709	TA-300WC-2020-FL	Standard	φ2.4	2 m	MAWA-300B	140A to
torch	1205710	TA-300WC-3020-FL	nozzle		3 m		230A
	1205711	TA-300WC-4020-FL	(Model:		4 m		
	1205712	TA-300WC-2030-FL	13N08)	φ3.2	2 m	MAWA-300B	220A to
	1205713	TA-300WC-3030-FL			3 m		310A
	1205714	TA-300WC-4030-FL			4 m		
	1205715	TA-300WC-2020-13	Gas lens	φ2.4	2 m	MAWA-300B	140A to
	1205716	TA-300WC-3020-13	nozzle		3 m		230A
	1205717	TA-300WC-4020-13	(Model:		4 m		
	1205718	TA-300WC-2030-13	53N60)	φ3.2	2 m	MAWA-300B	220A to
	1205719	TA-300WC-3030-13]		3 m]	310A
	1205720	TA-300WC-4030-13			4 m		

*1 The welding current value of each electrode diameter is reference.

3. About Torch

(2) Outline Drawing

① Air-cooled torch



② Water-cooled torch



(3) Parts List







No.	Item	Q'ty	Remarks
1	Ceramic nozzle	1	The gas lens nozzle (model: 53N60) can also be selectable.
2	Nozzle packing	1	
3	Tip collet body	1	Different in each electrode diameter.
4	Torch body	1	Different in shape between water-cooled torch and air-cooled torch.
5	Insulation cover	1	Different in shape between water-cooled torch and air-cooled torch.
6	Insert unit	1	Structure of ⑦, ⑧, ⑨, and ⑩
\bigcirc	Collet body	1	Different in each electrode diameter.
8	Collet	1	Different in each electrode diameter.
9	Torch head	1	
10	Torch cap	1	
1	Cable cover	1	
(12)	Power cable	1	
(13)	Water hose	2	For the water-cooled torch only
14)	Nozzle ring	1	Mounted in the nozzle ①.

4. Electrode

(1) Replacing the Electrode

The procedures of replacing the electrode are as follow:

① Turn the big knob at the insert unit counterclockwise to release the insert unit.



② Lift the released insert unit to remove the insert unit.



③ Turn the small knob at the torch cap counterclockwise with holding the big knob at the insert unit to remove the torch cap from the insert unit.



④ By removing the torch cap, you can disassemble the collet and the electrode and replace the electrode.

Electrode	Collet	Torch cap	

(5) Prepare an electrode with the polished tip.

Combine the electrode and collet so that the thinner side of the collect comes to the electrode tip side and insert the electrode into the torch cap.



6 Combine the electrode, collet and torch cap to insert them into the torch head.



O Turn the torch cap knob clockwise and press the collet with the torch cap and the collet body to fix the electrode.

When the electrode extension is 23 mm at this time, it becomes approx. 3 mm from the nozzle in the final form.



(8) If the collet body and the torch head are not firmly tightened, the collet body turns when the collet is pressed and a clearance between the collet body and the torch head is generated. It results in that the electrode cannot be fixed firmly. In this case, firmly tighten the collet body and the torch head by hand after turning the torch cap knob counterclockwise not to generate a clearance. After confirming that there is no clearance, fix the electrode as shown in ⑦.



(9) Install the insert unit fixing the electrode in the torch body. The insert unit is fixed by firmly tightening the insert unit knob clockwise. The electrode replacement is now finished.



4. Electrode

CAUTION A

- Firmly tighten the torch cap and the torch had by hand. If a tool is used, the parts of the torch may be damaged. If the torch cap is firmly tighten, LOST may occur often.
- Confirm that the screw at the base of power cable and MAWA's TORCH output is not loose. If it is loose, the welding current does not flow and LOST may occur often.
- Do not try to move the torch body with fixing the torch at the torch holder. The holder is overloaded and may be broken.

(2) Electrodes List

Item	Item No.	Model No.	Manufacturer
Lanthanum 1.5% Tungsten electrode φ1.0	1036044	018320	Tokin Corporation
Lanthanum 1.5% Tungsten electrode φ1.6	1036043	018321	Tokin Corporation
Lanthanum 1.5% Tungsten electrode φ2.4	1040440	018323	Tokin Corporation
Lanthanum 1.5% TIG electrode rod φ1.0	1156510	35710007	Mizuho Sangyo Co.,Ltd
Lanthanum 1.5% TIG electrode rod φ1.6	1156511	35711002	Mizuho Sangyo Co.,Ltd
Lanthanum 1.5% TIG electrode rod φ2.4	1156512	35711004	Mizuho Sangyo Co.,Ltd
Cerium 2% TIG electrode rod φ1.0	1156292	35709001	Mizuho Sangyo Co.,Ltd
Cerium 2% TIG electrode rod φ1.6	1156293	35709003	Mizuho Sangyo Co.,Ltd
Cerium 2% TIG electrode rod φ2.4	1156294	35709005	Mizuho Sangyo Co.,Ltd
Lanthanum 1.5% Tungsten electrode φ1.0	1156239	WL φ1.0	Toho Metal Co.,Ltd
Lanthanum 1.5% Tungsten electrode φ1.6	1156240	WL φ1.6	Toho Metal Co.,Ltd
Lanthanum 1.5% Tungsten electrode φ2.4	1050714	WL φ2.4	Toho Metal Co.,Ltd
Lanthanum 2% Tungsten electrode φ1.0	1156517	Lanthanum φ1.0mm	Toho Metal Co.,Ltd
Lanthanum 2% Tungsten electrode φ1.6	1156518	Lanthanum φ1.6mm	Toho Metal Co.,Ltd
Lanthanum 2% Tungsten electrode φ2.4	1156519	Lanthanum φ2.4mm	Toho Metal Co.,Ltd
TEC lanthanum Tungsten electrode φ1.6	1186072	TEC lanthanum φ1.6×150	Matsumoto Sangyo Co.,Ltd
TEC lanthanum Tungsten electrode φ2.4	1186073	TEC lanthanum φ2.4×150	Matsumoto Sangyo Co.,Ltd
TEC lanthanum Tungsten electrode φ3.2	1186074	TEC lanthanum φ3.2×150	Matsumoto Sangyo Co.,Ltd

(3) Outline Drawing

150 mm

Electrode dia.	Welding current
φ1.0	15 to 80 A
φ1.6	70 to 150 A
φ2.4	150 to 250 A

4. Electrode