HAND-HELD WELDING HEAD

MH-5B

OPERATION MANUAL

AMADA®

M0436E
MH-5B-E05-202307

Thank you for purchasing our product.
Before using this product, read this operation Manual carefully until you have familiarized yourself with it.
After reading, keep the manual in a place where operators can refer to it at any time.
If you have any questions during use, refer to this manual.

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[1] For Correct Use

Safety Precautions

Before using, read “Safety precautions” carefully to understand the correct method of use.

- These precautions are shown for safe use of our products and for prevention of damage or injury to operators or others.
  Be sure to read each of them, since all of them are important for safety.
- The meaning of the words and symbols is as follows:

⚠DANGER

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

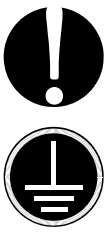
⚠WARNING

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

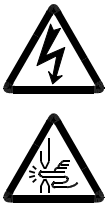
⚠CAUTION

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

These symbols denote "prohibition". They are warnings about actions out of the scope of the warranty of the product.



These symbols denote actions which operators must take.



Each symbol with a triangle denotes that the content gives notice of **DANGER** ,**WARNING** or **CAUTION** to the operator.

⚠DANGER

Do not touch the inside of the Welding Head.
You may receive an electric shock or be burned if you touch the inside of the Welding head unnecessarily.

Never disassemble, repair or modify the Equipment.
These actions can cause electric shock and fire.

⚠WARNING

Do not touch any welded part or electrodes during welding and just after welding finished.

The welded part of a workpiece, electrodes and main shaft are very hot. Do not touch them; otherwise you may be burnt.

Use proper tools(wire strippers, pressure wire connectors, etc.) for termination of the connecting cables.

Do not cut the wire conductor. A flaw on it can cause fire and electric shock.

Do not damage the power cable and connecting cables.

Do not tread on, twist or tense any cable. The power cable and connecting cables may be broken, and that can cause electric shock and fire.

Do not use a damaged power cable, connecting cable or plug.

A damaged cable or a plug can cause electric shock, short circuits and fire. If any part needs to be repaired, consult us or your distributor.

Connect the cables securely.

Insecure connection of a cable can cause fire and electric shock.

Stop the operation if any trouble occurs.

Continuous operation after occurrence of a trouble such as burning smell, abnormal sound, abnormal heat, smoke, etc. can cause electric shock and fire. If such a trouble occurs, immediately consult us or your distributor.

Persons with pacemakers must stay clear of the welding machine.

A person who uses a pacemaker must not approach the welding machine or walk around the welding shop 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.

Protective gear must be worn.

Put on protective gear such as protective gloves, long-sleeve jacket, leather apron, etc. Spatter can burn the skin if they touch the skin.

Wear protective glasses.

If you look at the flash directly during welding, your eyes may be damaged. If any spatter gets in your eye, you may lose your eyesight.

⚠CAUTION

Do not splash water on the Welding Head.

Water splashed over the electric parts, can cause electric shock and short circuits.

Keep combustible matter away from the Equipment.

Spatter can ignite combustible matter. If it is impossible to remove all combustible matter, cover them with non-combustible material.

Do not cover this Equipment with a blanket, cloth, etc.

Do not cover this Equipment with a blanket, cloth, etc. while you are using it. The cover may be overheated and burn.

Keep a fire extinguisher nearby.

Keep a fire extinguisher in the welding shop in case of fire.

Maintain and inspect this Welding Head periodically.

Maintain and inspect the Equipment periodically, and repair any damage nearby before starting operation.

Do not use this Welding Head for any purpose other than welding.

Use of this Equipment in a manner other than specified can cause electric shock and fire.

Precautions for Handling

- Do not drop or tread on this Welding Head.
- Do not use this Welding Head in the following places:
  Damp places (where humidity is 90% or higher), dusty places, places where chemicals are handled, places near a high noise source, hot or cold places (where temperatures are above 40 ℃ or below 5 ℃), and places where water will be condensed.
- Use proper tools (wire strippers, pressure wire connector, etc.) for termination of the connecting cables, and take care not to damage the conductors.
- Clean the outside of this Welding Head with a soft, dry cloth or one wet with a little water. If it is very dirty, use diluted neutral detergent or alcohol. Do not use paint thinner, benzine, etc., since they can discolor or deform the Equipment.
- Do not put a screw, a coin, etc., in this Welding Head, since they can cause a malfunction.
- Operate this Welding Head according to the method described in this operation manual.

[2] Features

This product has the following features.

- Since the electrode force can be adjusted steplessly, it can be set finely.
- Since a stable force is applied to the electrode for each weld , constant weld quality is obtained.
- Since the electrode responds to (follow-up) penetration quickly, an expulsion or an excessive indentation is not made and the welded surface is clean.
- Since this Welding Head has a rugged construction, reliable and stable weld quality is obtained.
- Since this Welding Head is small and light, the operator can use it for a long time without fatigue.

[3] Specifications and Accessories

Specifications

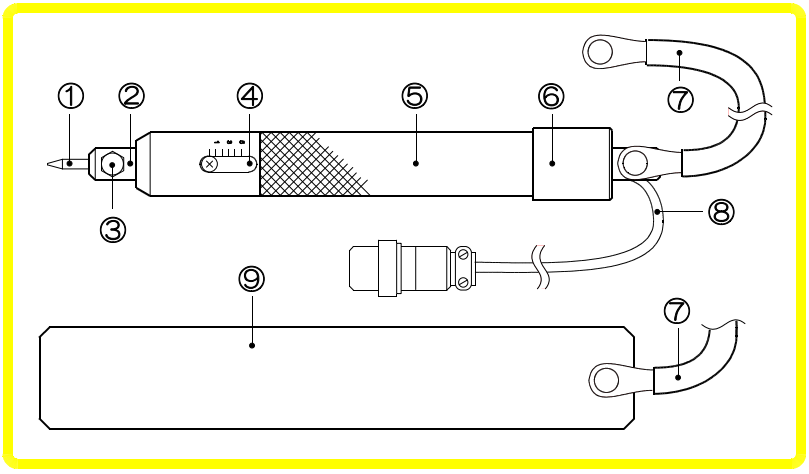
Item	**MH-5B-01**
Electrode force	0.5 ～ 5.5kgf (Steplessly adjustable)
Forcing method	Spring
Electrode dia.	ϕ 3 (Tip: ϕ 0.5)
Allowable weld energy	30 Ws (At 2% duty cycle) (A1C and inverter)
Mass	200g
Outline	See outline drawing

Accessories Check that all accessories are provided.

Electrode rod*	ϕ 3 (Tip: ϕ 0.5) · · · · 2p'cs
Secondary cable	14mm^2,1000mm · · 2 p'cs
Grounding plate	200 by 30mm · · · · 1 piece 2mm thick
Operation manual	1 copy

* One electrode is factory-attached.

[4] Name and Function of Each Part



① Electrode (CrCu)
The electrode for spot welding.

② Main shaft
The conductor to hold the electrode. Retracts when a pressure is applied.

③ Fixing screw
Secures the electrode.

④ **Weld force scale**
Indicates the approximate force exerted.

⑤ **Body**

⑥ **Cover**

⑦ **Secondary cable**
Connects this Head and welding controller. Two cables of 14mm ^{2} and 1000mm long is attached.

⑧ **Start cable**
Connects to the Start Switch connector of the welding controller.
Does not have polarity.

⑨ **Grounding plate**
A conductor to ground.

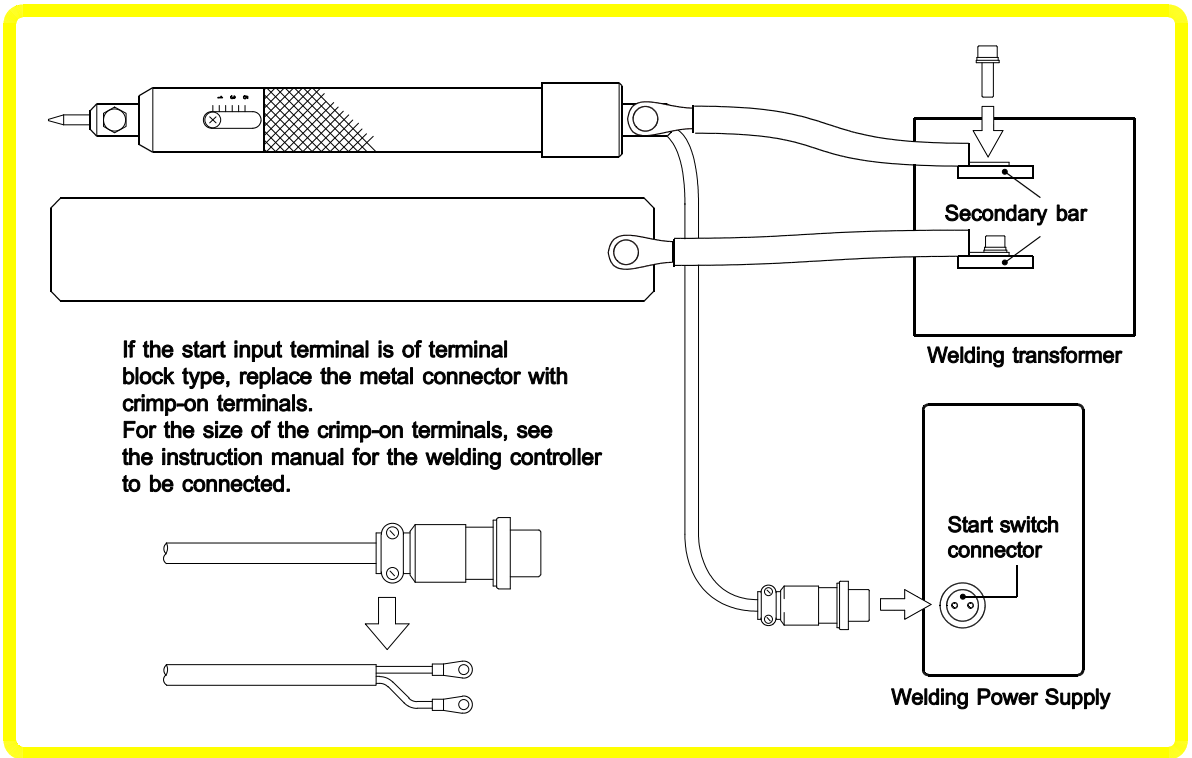
⚠CAUTION

Be sure to hold the **Body** to use this Welding Head. Handle with care the metal parts（①②③） and the secondary cable because they get hot. Do not place anything metallic such as a watch, tool, etc., around this Head during operation, because it may be broken and can injure you.

ATTENTION

If anything metallic, such as a screwdriver, wire, etc., touches metallic portion （①②③） it may be welded to this Welding Head.
Do not place anything metallic around this Welding Head during operation.

[5] Connection to Welding Transformer and Welding Power Supply



[6] User's Maintenance

1. Replacing electrode

When replacing the electrode, observe the following procedures:

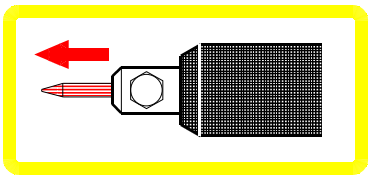
⚠CAUTION

If a welding current flows during electrode replacement, injury or breakage may result. When replacing the electrode, be sure to turn off power supply of the welding controller.

① Loosen the fixing screw and pull out the electrode.

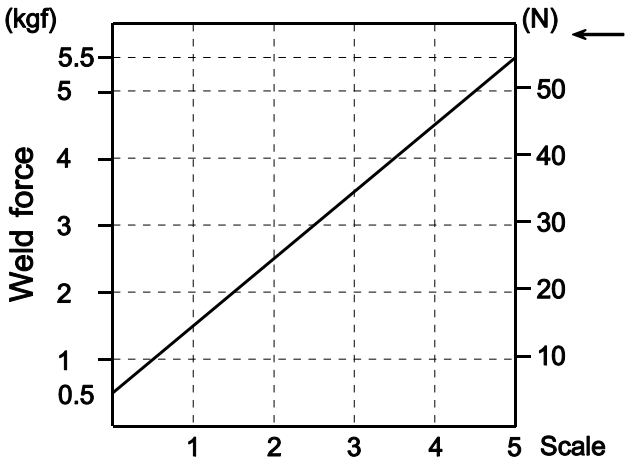
② Insert the replacement electrode into the main shaft.

③ Tighten the fixing screw.



2. Adjusting weld force

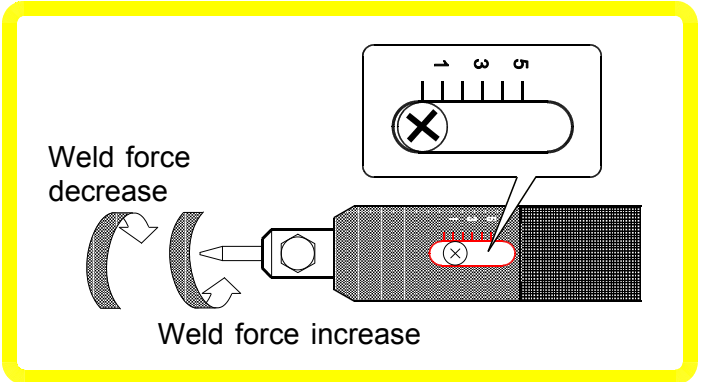
Secure the cover and turn the Body to adjust weld force.
For the relationship between the weld force scale and the actual weld force, see the Weld Force Conversion Graph.



← Weld Force Conversion Graph

NOTE

The Weld Force Conversion Graph indicates the theoretical values. Use a pressure gauge or a spring balance to measure the actual pressure.



Line-up the center of the screw and the weld force scale to adjust the weld force.

⚠CAUTION

When you set the weld force to the minimum or the maximum, the indicator may be damaged if you try to adjust beyond the scale.

[7] Outline Drawing